FACT SHEET

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES
(GENERAL PERMIT)

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I. BACKGROUND

I.A. History

The Federal Water Pollution Control Act (also referred to as the Clean Water Act (CWA)) was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge complies with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the Clean Water Act added § 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES Program. The United States Environmental Protection Agency (U.S. EPA) published final regulations on November 16, 1990, establishing stormwater permit application requirements for specified categories of industries. The regulations provide that discharges of stormwater to waters of the United States from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge complies with a NPDES permit. Regulations (Phase II Rule) that became final on December 8, 1999, lowered the permitting threshold from five acres to one acre.

The State Water Resources Control Board (State Water Board) has elected to adopt only one statewide general permit at this time that will apply to most stormwater discharges associated with construction and land disturbance activity, although federal regulations allow two permitting options for stormwater discharges (individual permits and general permits).

The State Water Board reissued the Construction General Permit for Stormwater Discharges on September 2, 2009 (Water Quality Order 2009-0009-DWQ). The State Water Board adopted Order 2010-0014-DWQ on November 16, 2010, to clarify the signatory requirements. The State Water Board adopted Order 2012-0006-DWQ on July 17, 2012, to remove numeric effluent limitations outside of the use of active treatment systems. Water Quality Order 2009-0009-DWQ and the subsequent amendments are collectively referred to as the previous permit.

The General Permit accompanying this Fact Sheet regulates stormwater runoff from construction sites. Regulating many stormwater discharges under one general permit greatly reduces the administrative burden associated with permitting individual stormwater discharges. To obtain coverage under this General Permit, dischargers shall electronically certify and submit the Permit Registration Documents, which includes a Notice of Intent, Stormwater Pollution Prevention Plan (SWPPP), and other compliance related documents required by this General Permit and submit the appropriate permit fee to the State Water Board. The Regional Water Quality Control Boards (Regional Water Boards) may issue general permits or individual permits containing more specific provisions as the stormwater program develops and if this occurs, this General Permit will no longer regulate those dischargers.

I.B. Legal Challenges and Court Decisions

I.B.1. Early Court Decisions

The U.S. EPA promulgated regulations exempting most stormwater discharges from the NPDES permit requirements shortly after the passage of the Clean Water Act. (See 40 Code of Federal Regulations § 125.4 (1975); *see also Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369, 1372 (Costle); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1163 (Defenders of Wildlife).) The District of Columbia Court of Appeals invalidated the regulation, holding that the U.S. EPA "does not have authority to exempt categories of point sources from the permit requirements of [CWA] § 402." (*Costle*, 568 F.2d at 1377) when environmental groups challenged this exemption in federal court. The *Costle* court rejected the U.S. EPA argument that effluent-based storm sewer regulation was administratively infeasible because of the variable nature of stormwater pollution and the number of affected storm sewers throughout the country. (*Id*. at 1377-82.) Although the court acknowledged the practical problems relating to storm sewer regulation, the court found the U.S. EPA had the flexibility under the Clean Water Act to design regulations that would overcome these problems. *(Id*. at 1379-83.) In particular, the court pointed to general permits and permits based on requiring best management practices (BMPs).

During the next 15 years, the U.S. EPA made numerous attempts to reconcile the statutory requirement of point source regulation with the practical problem of regulating possibly millions of diverse point source discharges of stormwater. (See *Defenders of Wildlife*, 191 F.3d at 1163; see also Gallagher, Clean Water Act in Environmental Law Handbook (Sullivan, edit., 2003) p. 300 (Environmental Law Handbook); Eisen, Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Stormwater Runoff (1995) 48 Wash. U.J. Urb. & Contemp. L.1, 40-41 [Regulation of Urban Stormwater Runoff].)

Congress amended the Clean Water Act in 1987 to require NPDES permits for stormwater discharges. (See Clean Water Act § 402(p), 33 USC § 1342(p); *Defenders of Wildlife*, 191 F.3d at 1163; *Natural Resources Defense Council v. U.S. EPA* (9th Cir. 1992) 966 F.2d 1292, 1296.) Congress distinguished between industrial and municipal stormwater discharges in these amendments enacted as part of the Water Quality Act of 1987. Congress provided that NPDES permits regarding industrial stormwater discharges "shall meet all applicable provisions of this section and section 1311 [requiring the U.S. EPA to establish effluent limitations under specific timetables]." (CWA § 402(p)(3)(A), 33 USC § 1342(p)(3)(A); see also Defenders of Wildlife, 191 F.3d at 1163-64.)

U.S. EPA adopted regulations in 1990 specifying the activities that were considered to be "industrial" and thus required discharges of stormwater associated with those activities to obtain coverage under NPDES permits. (55 Fed. Reg. 47,990 (1990); 40 Code of Federal Regulations § 122.26(b)(14).)

Construction activities were originally deemed a subset of the industrial category. (40 Code of Federal Regulations § 122.26(b)(14)(x).) In 1999, U.S. EPA issued regulations for "Phase II" of stormwater regulation, which required most small construction sites (1-5 acres) to be regulated under the NPDES program. (64 Fed. Reg. 68,722; 40 Code of Federal Regulations § 122.26(b)(15)(i).)

I.B.2. Court Decisions on Public Participation

Two federal court opinions have vacated U.S. EPA's rules that denied meaningful public review of NPDES permit conditions. The Ninth Circuit Court of Appeals on January 14, 2003, held that certain aspects of U.S. EPA's Phase II regulations governing MS4s were invalid primarily because the general permit did not contain express requirements for public participation. (Environmental Defense Center v. U.S. EPA (9th Cir. 2003) 344 F.3d 832.) Specifically, the court determined that applications for general permit coverage (including the Notice of Intent and Stormwater Management Program) must be made available to the public, the applications must be reviewed and determined to meet the applicable standard by the permitting authority before coverage commences, and there must be a process to accommodate public hearings. (Id. at 852-54.) Similarly, the Second Circuit Court of Appeals on February 28, 2005, held that the U.S. EPA's confined animal feeding operation rule violated the Clean Water Act because it allowed dischargers to write their own nutrient management plans without public review. (Waterkeeper Alliance v. U.S. EPA (2d Cir. 2005) 399 F.3d 486.) Although neither decision involved the issuance of construction stormwater permits, this General Permit addresses the courts' rulings where feasible.[1]

The Clean Water Act and the U.S. EPA regulations provide states with the discretion to formulate permit terms, including specifying best management practices (BMPs), to achieve strict compliance with federal technology-based and water quality-based standards. (*Natural Resources Defense Council v. U.S. EPA* (9th Cir. 1992) 966 F.2d 1292, 1308.) Accordingly, this General Permit has developed specific BMPs, numeric action levels, and Total Maximum Daily Load (TMDL)-derived numeric action level and numeric effluent limitations in order to

1 In *Texas Independent Producers and Royalty Owners Assn. v. U.S. EPA* (7th Cir. 2005) 410 F.3d 964, the Seventh Circuit Court of Appeals held that the U.S. EPA's Construction General Permit was not required to provide the public with the opportunity for a public hearing on the Notice of Intent or Stormwater Pollution Prevention Plan. The Seventh Circuit briefly discussed why it agreed with the Ninth Circuit's dissent in Environmental Defense Center, but generally did not discuss the substantive holdings in Environmental Defense Center and Waterkeeper Alliance, because neither court addressed the initial question of whether the plaintiffs had standing to challenge the permits at issue. However, notwithstanding the Seventh Circuit's decision, it is not binding or controlling on the State Water Board because California is located within the Ninth Circuit.

achieve these minimum federal standards. In addition, the General Permit requires a SWPPP to be developed following specified standards and measures in this General Permit for implementation. This General Permit ensures that the dischargers do not "write their own permits" through discharger-requirements to implement specific BMPs, numeric action levels, and numeric effluent limitations, and SWPPP performance standards and information. As a result, this General Permit does not require each discharger's SWPPP to be reviewed and approved by the Regional Water Boards.

I.B.3. U.S. EPA Construction and Development Effluent Limitations Guidelines and New Source Performance Standards[2]

The U.S. EPA promulgated Effluent Limitation Guidelines and New Source Performance Standards on December 1, 2009, to control the discharge of pollutants from construction sites (See 74 Fed. Reg. 62996, and 40 Code of Federal Regulations § 450.21.). These requirements, known as the "Construction and Development Rule" became effective on February 1, 2010. Following the promulgation of the Construction and Development Rule in 2009, several parties filed petitions for review of the final rule, identifying potential deficiencies with the dataset that the U.S. EPA used to support its decision to adopt a numeric turbidity limitation as well as other issues. The U.S. EPA finalized amendments to the Construction and Development Rule on March 6, 2014, resulting in the removal of the numeric turbidity limitation and monitoring requirements and clarifying changes in the U.S. EPA's 2017 and 2022 NPDES General Permit for Discharges from Construction Activity (Construction General Permit) (See 79 Fed. Reg. 12661 and 80 Fed. Reg. 25235) pursuant to a settlement agreement to resolve the litigation. The U.S. EPA 2022 Construction General Permit was adopted and went into effect on February 17, 2022.

a. Summary of Construction and Development Rule Requirements

The Construction and Development Rule requirements include effluent limitations that apply to all permitted discharges from construction sites (40 Code of Federal Regulations § 450.21) for six general categories: i.) Erosion and Sediment Controls, ii.) Soil Stabilization Requirements, iii.) Dewatering, iv.) Pollution Prevention Measures, v.) Prohibited Discharges, and vi.) Surface Outlets. The effluent limitations are structured to require construction operators to first, prevent the discharge of sediment and other pollutants using effective planning and erosion control measures; and second, control discharges that do occur using effective sediment control measures. Dischargers are required to implement a range of pollution control and prevention measures to limit or

2 U.S. EPA, Protection of Downstream Waters in Water Quality Standards: Frequently Asked Questions (June 2014), <https://www.epa.gov/sites/production/files/2018-10/documents/protection-downstream-wqs-faqs.pdf> [as of May 20, 2021]

prevent discharges of pollutants, including those from stormwater and non-stormwater discharges. The narrative effluent limitations are designed to prevent or minimize exposure and mobilization of pollutants in stormwater discharge from: (1) sediment and sediment-bound pollutants such as metals and nutrients, (2) construction materials, debris, and other sources of pollutants on construction sites, dissolved construction pollutants, such as nutrients, organics, pesticides, herbicides, and metals, (4) natural pollutants present in construction site soil, such as arsenic or selenium, and (5) previous activities on the site such as agriculture or industrial activity. Source control through minimization of soil erosion is the most effective way of controlling the discharge of these pollutants because, once mobilized by rainfall and stormwater, pollutants can detach from the soil particles and become dissolved pollutants which are not removed by down-slope sediment controls.

b. Incorporation of Construction and Development Rule into this General Permit

This General Permit incorporates the necessary requirements to implement the 2014 Construction and Development Rule amendments. Information on how this General Permit incorporates the Construction and Development Rule is included below.

i. Erosion and Sediment Controls

This General Permit requires dischargers to design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants through the development and implementation of a site-specific SWPPP and BMPs. The discharger's SWPPP is required to include the site-specific measures implemented to control all construction activity-related pollutants through temporary and permanent erosion and sediment control BMPs (Order, Section IV.O and Attachments D and E). Dischargers are required to implement channel protection and post construction controls to match the pre-construction hydrograph to ensure the minimization of project impacts to downstream channels and streambanks due to erosion and scour, temperature, and loss of ecological services (Attachments D and E). Dischargers are required to set back their construction activities from streams and wetlands unless infeasible to reduce the risk of impacting water quality (e.g., natural stream stability and habitat function). Although this General Permit does not mandate specific setbacks, these distances may be required as part of California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA), the Regional Water Board, municipal requirements, and/or other agencies such as the Department of Fish and Wildlife. The risk calculation and runoff reduction mechanisms in this General Permit are expected to facilitate compliance with any Regional Water Board, local resource agency, and/or California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA). The

U.S. EPA has provided requirements for determining buffer size.[3] These requirements may provide helpful guidance for sizing construction sites buffers to limit the disturbance of creeks and natural drainage features. Attachments D and E require the discharger to minimize soil compaction when feasible in site areas where final vegetation will occur, or infiltration features will be installed. Dischargers are required to preserve native topsoil on-site when feasible, unless the intended function of a specific area of the site dictates that the topsoil be disturbed or removed. This General Permit encourages dischargers to keep the clearing and grading of native vegetation at the site at a minimum where areas are needed to build the project and to allow fire protection access. An example of an alternative practice to grading is mowing vegetation and leaving the subgrade root structure and soil intact. A guidance document[4] was developed in 2016 providing techniques to address the challenges with site stabilization and climate change. Dischargers are encouraged to:

1) Plan upfront for site stabilization to occur in months with more moisture to lower the need of imported water to stabilize vegetation;

2) Minimize the disturbance of soil to decrease the length of time and cost of final site stabilization;

3) Maintain the soil health to control stormwater pollution and erosion through open pore soil structures which support long-term sustainable vegetative cover;[5] and,

4) Apply proper stockpiling practices to preserve soil biota and the native seed bank which reduces the need for fertilizer, seed, and water.[6]

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3 U.S. EPA, 2022. Construction General Permit, Appendix F – Buffer Requirements (2022). <https://www.epa.gov/system/files/documents/2022-01/2022-cgp-final-appendix-f-buffer-reqs.pdf> [as of July 19, 2022]

4 Construction General Permit (CGP) Training Team, CGP Review Issue #3 for QSD and QSP Registration and Renewal, Insights for Better Stabilization (2016), <https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/training/cgp_review_issue3.pdf> [as of May 20, 2021]

5 Caltrans, Erosion Control Toolbox <https://dot.ca.gov/programs/design/lap-erosion-control-design/tool-1-lap-erosion-control-toolbox> [as of May 20, 2021]

6 The American Association of State Highway Officials, Construction Practices for Environmental Stewardship Website, 2019. The American Association of State Highways Officials (AASHTO) includes best practices on stockpiling, including Section 4.11.1 on specific guidelines for preserving stockpiles in its online Environmental Stewardship Practices in Construction and Maintenance Compendium. AASHTO recommends stockpiling for up to 6 months, but no longer than a year, and a maximum stockpile height of 4 feet.

ii. Soil Stabilization Requirements

This General Permit requires dischargers to implement soil stabilization BMPs whenever disturbance activities occur (e.g., clearing, grading, excavating, or other earth disturbing activities). Alternative stabilization measures must be employed as specified by Section III.H of this Order and Attachments D and E of this General Permit in arid, semiarid, and drought-stricken areas where initiating immediate vegetative stabilization measures is infeasible. Stabilization must be completed within a time period determined by the Regional Water Boards. Stabilization may not be required if the intended function of a specific area of the site necessitates that it remains disturbed in limited circumstances.

iii. Dewatering

This General Permit requires dischargers to implement BMPs to control the volume and velocity of dewatering discharges in Section IV.M of the Order. Dischargers are required to minimize the discharge of pollutants from dewatering trenches and excavations through the implementation of BMPs. Dischargers with dewatering activities subject to a separate NPDES, de minimis, or low threat discharger permit for dewatering activities are to obtain coverage through those permits issued by the State or Regional Water Board.

iv. Pollution Prevention Measures

Section IV.O of this Order requires that dischargers design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. The SWPPP requirements include the minimization of exposure of pollutants and discharge of pollutants from certain activities included in the Effluent Limitation Guidelines. This General Permit also incorporates specific TMDL requirements for construction stormwater sources to limit loading to impaired waterbodies.

v. Prohibited Discharges

This General Permit authorizes only stormwater and authorized non-stormwater discharges associated with construction activity when in compliance with all General Permit requirements, provisions, limitations, and prohibitions. Section IV.B of this Order prohibits discharges from the following categories:

<https://environment.transportation.org/wp-content/uploads/2021/04/25-254_FR.pdf> [as of April 28, 2022]

1) Dischargers out of compliance with any applicable discharge prohibitions contained in applicable Basin Plans or statewide water quality control plans;
2) Discharges to Areas of Special Biological Significance (ASBS), unless granted an exception issued by the State Water Board;
3) All discharges to waters of the United States except for the stormwater and non-stormwater discharges specifically authorized by this General Permit or in a separate NPDES permit;
4) Debris and trash resulting from construction activities;
5) Wastewater from washout or clean out of areas, structures or equipment with concrete, grout, stucco, paint or other construction materials;
6) Form-release oils and curing compounds;
7) Fuels, oils, fluids, or other materials used in vehicle and equipment operation and maintenance;
8) Soaps, solvents, or detergents used in vehicle and equipment washing or external building wash-down; and,
9) Toxic or hazardous substances from a spill or other release (e.g., asbestos, lead, mercury, or polychlorinated biphenyls (PCBs).

vi. Surface Outlets

Attachment J of the General Permit authorizes specific construction dewatering discharges and requires the dewatering activity to utilize outlet structures that withdraw water from the surface of the sediment basin or similar impoundment, unless infeasible.

I.C. Healthy Soils and Recycled Water

I.C.1. Healthy Soils Initiative

The State of California launched the Healthy Soils Initiative in 2015, which is a collaboration of state agencies and departments to promote the stewardship of healthy soils. The California Environmental Protection Agency is a Healthy Soils Initiative partner. The initiative recognizes that healthy soils can increase water retention and infiltration, improve plant health, prevent erosion, reduce sediment and dust, sequester carbon to reduce greenhouse gas emissions, improve water quality, and improve biological diversity and wildlife habitat.[7]

7 California Department of Food and Agriculture, California's Healthy Soils Initiative, <https://www.cdfa.ca.gov/healthysoils/> [as of May 20, 2021]

This General Permit encourages healthy soils practices through requirements in Attachments D and E of this General Permit, which require dischargers to preserve native topsoil and reduce compaction of soils. Using healthy soils practices will encourage vegetative growth, increase soil stabilization, and conserve water on construction sites.

I.C.2. Recycled Water Use

The State Water Board adopted the Water Quality Control Policy for Recycled Water (Recycled Water Policy) and the Staff Report with Substitute Environmental Documentation on December 11, 2018 and became effective on April 8, 2019. The Recycled Water Policy states, "When used in compliance with this Policy, California Code of Regulations, title 22 and all applicable state and federal water quality laws, the State Water Board finds that recycled water is safe for approved uses, and strongly supports recycled water as a safe alternative to fresh water or potable water for such approved uses."[8]

This General Permit encourages the use of recycled water for appropriate application on construction sites, including irrigation of vegetation and dust control when used in compliance with the Recycled Water Policy, California Code of Regulations, title 22 and all applicable state and federal water quality laws.

I.D. Blue Ribbon Panel of Experts (Panel)

I.D.1. Introduction

The State Water Board convened an expert panel (panel) in 2005 and 2006 to address the feasibility of numeric effluent limitations in California's stormwater permits. Specifically, the panel was asked to address the following:

Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in stormwater permits? How would such limitations or criteria be established, and what information and data would be required?[9]

8 State Water Resources Control Board, Water Quality Control Policy for Recycled Water (December 11, 2018), <https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf> [as of April 28, 2022]

9 Storm Water Panel, The Feasibility of Numeric Effluent Limits to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities (June 19, 2006), <https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf> [as of May 20, 2021]

I.D.2. The Panel observations:

- "Limited field studies indicate that traditional erosion and sediment controls are highly variable in performance, resulting in highly variable turbidity levels in the site discharge."
- "Site-to-site variability in runoff turbidity from undeveloped sites can also be quite large in many areas of California, particularly in more arid regions with less natural vegetative cover and steep slopes."
- "Active treatment technologies involving the use of polymers with relatively large storage systems now exist that can provide much more consistent and very low discharge turbidity. However, these technologies have to date only been applied to larger construction sites, generally five acres or greater. Furthermore, toxicity has been observed at some locations, although at the vast majority of sites, toxicity has not occurred. There is also the potential for an accidental large release of such chemicals with their use."
- "To date most of the construction permits have focused on TSS and turbidity, but have not addressed other, potentially significant pollutants such as phosphorus and an assortment of chemicals used at construction sites."
- "Currently, there is no required training or certification program for contractors, preparers of soil erosion and sediment control Stormwater Pollution Prevention Plans, or field inspectors."
- "The quality of stormwater discharges from construction sites that effectively employ BMPs likely varies due to site conditions such as climate, soil, and topography."
- "The States of Oregon and Washington have recently adopted similar concepts to the Action Levels described earlier."

I.D.3. Panel Conclusions:

- "It is the consensus of the panel that active treatment technologies make Numeric Limits technically feasible for pollutants commonly associated with stormwater discharges from construction sites (e.g., TSS and turbidity) for larger construction sites. Technical practicalities and cost-effectiveness may make these technologies less feasible for smaller sites, including small drainages within a larger site, as these technologies have seen limited use at small construction sites. If chemical addition is not permitted, then Numeric Limits are not likely feasible."
- "The Board should consider Numeric Limits or Action Levels for other pollutants of relevance to construction sites, but in particular pH. It is of particular concern where fresh concrete or wash water from cement mixers/equipment is exposed to stormwater."

- "The Board should consider the phased implementation of Numeric Limits and Action Levels, commensurate with the capacity of the dischargers and support industry to respond."

I.D.4. The State Water Board Considerations:

The State Water Board carefully considered the findings of the Panel and related public comments in the development and adoption of the previous permit. The State Water Board also reviewed and considered the comments regarding statewide stormwater policy during the adoption of the Industrial General Permit. From the input received, the State Water Board identified some General Permit and program performance gaps that were addressed in the previous permit and were also adopted in this General Permit. The Summary of Significant Changes (below) in this General Permit align with the Panel's process and findings, and build onto the previous permit.

I.E. Summary of Significant Changes in This General Permit

I.E.1. Significant Changes:

a. Implementation of Total Maximum Daily Loads (TMDL)

TMDLs are regulatory tools providing the maximum amount of a pollutant from potential sources in the watershed that a water body can receive while attaining water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 Code of Federal Regulations § 130.2, subd. (i).)

Discharges covered by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by U.S. EPA pursuant to 40 Code of Federal Regulations section 130.7." (40 Code of Federal Regulations § 122.44, subd. (d)(1)(vii).) In addition, Water Code § 13263, subdivision (a), requires that waste discharge requirements implement relevant water quality control plans. Many TMDLs in existing water quality control plans include both waste load allocation and implementation requirements.

Attachment H of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include TMDL requirements for discharges covered by this General Permit.

i. Where waste load allocations are expressed at a value that is too low for laboratory methods listed in 40 Code of Federal Regulations Part 136 to detect and for pollutants that are sediment-bound, the Water Board has developed a soil screening investigation and total suspended solids numeric

effluent limitation for sediment-bound pollutants, presented in Attachment H Section I.G.5, to determine compliance.

b. Implementation of Statewide Trash Policy Requirements

The State Water Board adopted an amendment to the Water Quality Control Plan for Ocean Waters of California to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Resolution 2015-0019) in 2015. This Resolution establishes the statewide water quality objective and implementation plan to control trash.

This General Permit implements this Resolution by prohibiting the discharge of any debris and/or trash from construction sites.

c. Removal of Bioassessment Monitoring

The Bioassessment requirements in the previous permit were initially developed to align with a proposed State Water Board biological integrity policy, which is still under development.

The Bioassessment requirements in the previous permit were reviewed by State Water Board staff and it was determined the requirements were not consistently implemented and data was not generated. These requirements did not generate sufficient data regarding corresponding improvements to water quality or watershed heath that would justify the cost of compliance.

The Bioassessment requirements were removed from this General Permit and replaced with acknowledgement to use the Risk Level 3 and linear underground and overhead project Type 3 sites annual fee surcharge to perform monitoring, sampling, and/or bioassessment monitoring through the Surface Water Ambient Monitoring Program (SWAMP) to determine the impacts of large, high-risk construction projects on water quality and watershed health. Future reissuances of this General Permit may include bioassessment or biological integrity requirements to implement specific water quality control plans or state policy for water quality control.

d. Passive Treatment Technologies

State Water Board staff collaborated with stakeholders and other Water Board staff to discuss the use of passive treatment chemicals and technologies throughout the life of the previous permit, and it was determined that many passive treatment chemical types are potentially toxic to fish and other aquatic organisms. Staff also considered and reviewed regulations regarding these

technologies from U.S. EPA and several other jurisdictions.[10,11,12] Cationic polyacrylamide-based flocculant products are acutely toxic to aquatic species in small quantities and are neurotoxins. Other flocculant products such as anionic polyacrylamide-based flocculants are chronically toxic to aquatic species in large quantities.

Staff additionally identified low-turbidity discharges from passive treatment chemical application sites do not always correspond to low levels of solids in the discharge and/or an improvement in water quality downstream because:

i. Turbidity monitoring solely measures small size solids suspended in the water; turbidity monitoring does not measure particle size, weight, or bed load of sediment from flocculated solids leaving a site; and,

ii. Passive treatment chemicals discharged either by aerial deposition or via stormwater runoff contributes similar level of threat to aquatic life from toxicity.

This General Permit contains passive treatment provisions in Attachment G designed to provide the first set of regulations for construction activities use of passive treatment technologies and to align with the U.S. EPA's Construction General Permit requirements for treatment chemicals.

e. Water Quality Control Plan for Ocean Waters of California (California Ocean Plan)

On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (amended by Resolution 2012-0031) which contained a general exception to the California Ocean Plan for discharges of stormwater and non-point sources. This General Permit requires dischargers who discharge to Areas of Special Biological Significance (ASBS) who have been granted an exception to the California Ocean Plan to comply with requirements in Attachment I.

10 Toronto and Region Conservation, Anionic Polyacrylamide Application Guide for Urban Construction in Ontario (June 2013), <https://sustainabletechnologies.ca/app/uploads/2013/02/Polymer-Guide-Final_NewFormat.pdf> [as of May 20, 2021]

11 State of Washington Department of Ecology, Emerging Stormwater Treatment Technologies (TAPE) (2018), <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies> [as of May 20, 2021]

12 U.S. EPA, Support Document for the Third Six-Year Review of Drinking Water Regulations for Acrylamide and Epichlorohydrin (December 2016), <https://www.epa.gov/sites/production/files/2016-12/documents/810r16019.pdf> [as of May 20, 2021]

f. Sufficiently Sensitive Test Methods

U.S. EPA has finalized minor amendments to its Clean Water Act regulations to codify that under the NPDES program, where U.S. EPA has promulgated or otherwise approved analytical methods under 40 Code of Federal Regulations Part 136, or 40 Code of Federal Regulations Chapter I, subchapters N and O, dischargers must use “sufficiently sensitive” analytical test methods. The purpose of the rulemaking was to clarify that NPDES permittees must use U.S. EPA approved analytical methods that are capable of detecting and measuring the pollutants at, or below, the applicable water quality criteria or permit limits.

This General Permit requires the use of sufficiently sensitive methods to meet the requirements of the amended Clean Water Act regulations described above and requires the discharger to ensure all laboratory analyses are sufficiently sensitive and conducted according to test procedures under 40 Code of Federal Regulations Part 136, including the observation of holding times, detection limits, and other measures designed to ensure quality assurance and quality control.

For any calculations required by this General Permit, a value of zero (0) will be assigned for all analytical results less than the minimum level as reported by the laboratory, so long as a sufficiently sensitive method was used (as evidenced by the reported method detection limit and minimum level which is also referred to as the reporting limit).

g. Notice of Non-Applicability

California Water Code § 13399.30 sets forth the authority for the Water Board to provide entities (referring to the person) a process for determining this General Permit does not apply to the entity’s activities through a Notice of Non-Applicability. The addition of the Notice of Non-Applicability provisions in this General Permit addresses the determination process and required information for construction sites situated in areas where stormwater discharges to waters that are not hydrologically connected to waters of the United States.

h. Sampling and Monitoring Requirements

Sampling and Monitoring requirements have changed in this General Permit as follows:

i. The Qualified SWPPP Developer (QSD) and Qualified SWPPP Practitioner (QSP) have additional requirements to visit the site, conduct visual inspections, and assess site conditions;

ii. The QSDs and QSPs are required to do on-site visual inspections at intervals that reflect potential changes to the construction site (e.g., start of construction, replacement of a QSD, twice yearly); and,

iii. Samples must be collected during precipitation events with 0.5"[13] or more predicted within a 24-hour period. This is defined as a Qualifying Precipitation Event for sampling and inspection requirements. The stormwater can be water from rain, snow, or any other precipitation. Qualifying Precipitation Events continue on subsequent 24-hour periods that have precipitation of 0.25" or more forecast, and end with two consecutive 24-hour periods with less than 0.25" forecast.

i. Removal of Rain Event Action Plan

The previous permit designed the Rain Event Action Plan (REAP) to provide an on-site inspection checklist for dischargers to implement requirements prior to a precipitation event. This tool has been discussed over the last ten years internally and externally with stakeholders. This General Permit implements more action-based requirements in lieu of the reporting-based strategy embodied by the REAP. This General Permit replaces REAPS with 1) QSD involvement over the life of the project, 2) additional inspections and visual observations, and 3) an increased requirement to document and implement these site corrective actions.

j. Notice of Termination Process

The Notice of Termination requirements have been updated to include additional project-specific termination information to streamline the Regional Water Board review process. Given that the Notice of Terminations should now be submitted with the complete details to determine approval, this General Permit includes an automatic approval provision after 30 days if not otherwise under review or addressed by the Regional Water Board. This change is to expedite Notice of Termination approval and to reduce the risk of prolonged financial burdens on dischargers for continued on-site monitoring and annual fee payments.

k. Appendices 2 and 2.1 Post Construction Water Balance Calculator

The previous permit included post-construction performance standards requirements and information in Appendices 2 and 2.1. These specific appendices have been removed from this General Permit because these requirements and information are now in Stormwater Applications and Reports Tracking System (SMARTS) and are available for review through the public SMARTS portal. Additionally, Appendix 2 had requirements for post-construction maps contours. This requirement has been removed in this General Permit because this General Permit includes additional SWPPP map requirements and Notice of Termination map requirements. After adoption of this General Permit, the State Water Board may hold public or focused

13 Xie, W., et. al. (2016). Models for Estimating Daily Rainfall Erosivity in China. Journal of Hydrology v. 535, p. 527-558.

stakeholder meetings to discuss any necessary updates or changes to the post-construction water balance calculator in SMARTS. Some of this information will also be incorporated into online web-based maps, calculators, and/or visualizations as implementation guidance to the regulated community.

I.F. Cost Considerations

I.F.1. Passive Treatment Technology Provisions

The passive treatment technologies (passive treatment) requirements in this General Permit provide a regulatory pathway for dischargers to treat runoff for excess sediment without the use of an active treatment system while protecting water quality. The new passive treatment provisions were added due to requests from the regulated community, regulatory staff, and other stakeholders. The major components of the new Passive Treatment provisions that have expected cost components are: 1) consultant or discharger hours to develop and implement the Passive Treatment Plan, and 2) hours for Qualified SWPPP Developer (QSD) to implement the Passive Treatment Plan and monitor passive treatment application and use.

a. Hours for consultants and/or dischargers to develop and implement the Passive Treatment Plan.

   The passive treatment technologies in Attachment G requires the development of the Passive Treatment Plan. The costs associated with development and execution of the Passive Treatment Plan are in labor hours, training, collection of manufacturer information and potential hazards to the environment, and research on site-specific implementation of the Attachment G requirements. These costs, based on an hourly QSD billing rate of $80 to $120, are estimated at $3,000 to $5,000.

b. QSD hours to implement Passive Treatment Plan and monitor site-specific passive treatment application and use, including post-event sampling.

   A QSD is needed to develop and implement the Passive Treatment Plan and will require office and field hours for that individual. This is often a contracting cost to a consultant from the discharger or payment of QSD-staff hours for the discharger's organization. This cost will be highly variable, depending on the amount and duration of exposed soil conditions and the number of precipitation events that produce discharge from a site. The range is therefore estimated at $2,500 to $6,500 per year for the QSD and $500 to $1,250 in laboratory analysis costs.

I.F.2. Training

The reissuance of this General Permit requires updates to the QSD and QSP training program first introduced in the previous permit. Additional and revised training for all parties implementing this General Permit have been identified since

2009 and incorporated into this reissuance. Specific training needs to include: 1) Qualified SWPPP Developers (QSDs) and Qualified SWPPP Practitioners (QSPs) revised roles on the site, 2) training for passive treatment and TMDL implementation, and 3) statewide re-test and/or re-certification of Qualified SWPPP Developers, Qualified SWPPP Practitioners, and Trainers of Record.

a. QSD and QSP revised site roles

The Order and Attachments D and E require more involvement by the QSD and QSP, which is a potential increase in cost to the discharger as these are often contracted positions. Additional duties for the QSD under this permit include required field inspections and post-storm monitoring of passive treatment systems. On average, these duties should require 5 to 7 additional field days per year, at an estimated cost of $4,000 to $6,000, and up to two additional office days per year, at an estimated cost of $1,600. The revised roles for the QSP are expected to result in discharger savings, particularly since the increased QSD inspections may reduce QSP field time.

b. Additional training needed for passive treatment and TMDL implementation.

QSD and QSP personnel will need additional training to come up to speed on the new provisions of this General Permit. New requirements such as passive treatment and TMDL implementation will extend training content and create a learning curve for QSDs and QSPs trained under the previous permit. A four-hour refresher-level course would provide adequate additional training on these subjects, at an estimated cost of $200 to $250 for the training and $150 to $225 for the employee's time.

c. Potential statewide re-test and re-certification

If the Construction General Permit Training Team determines that all QSD/QSPs need to be re-tested or somehow re-certify their knowledge, this could incur costs to the state as well as to the dischargers for time spent. Assuming that any such re-testing and re-certification would be an online process, the additional cost would amount to two or three hours of employee time, or up to $125.

I.F.3. Cost Variability

The State Water Board recognizes that there is high variability in cost across all construction projects. Cost variability relates to many factors including: 1) short term vs. long term projects, 2) risk level of the project and, 3) construction season/schedule. Below is a discussion of these variables and their impact on overall cost for implementation of the General Permit.

a. Short-term vs. long-term projects

Costs associated with the Construction General Permit are already variable due to the ephemeral nature of construction projects and the variation in size and

site conditions. Short-term projects that can be completed during dry periods will incur minimal or no additional costs between permits, with expenditures still proportional to size. Projects that span one or more wet periods with more difficult erosion and sediment control issues, or sites that are in a TMDL watershed, will likely have more costs. This can be mostly attributed to increased QSD oversight and additional sampling and analysis requirements.

b. Risk dependent

The project risk calculation creates great variability in BMP cost, ranging from as little as 0.5 percent of the project total for Risk Level 1 site to four percent of the project total for Risk Level 3 sites. Higher risk sites will have more costs associated with BMPs, potential use of passive treatment, active treatment, increased monitoring requirements, and costs associated with discharging to high-risk receiving waters.

c. Construction activity season and schedule

The General Permit implementation costs are minimized for construction projects that use scheduling as a primary BMP and that schedule construction outside of time periods with likely precipitation events. The requirement for advanced BMPs is reduced, including cost associated with treatment (passive or active) if there is no water on-site. Sampling and analysis costs will be non-existent if no discharge occurs.

I.F.4. Savings

This General Permit includes several cost saving areas. After the previous permit, the State Water Board analyzed the provisions that were clear and enforceable, resulted in valuable data collection, and improved water quality. Changes were made to the previous permit to address areas that were not providing valuable data or improving water quality, including: 1) removal of the Rain Event Action Plan (REAP), 2) revised monitoring and sampling frequency, 3) clarifying the allowance of an inactive project status, 4) improved efficiency for reporting and data collection in SMARTS, 5) programmatic permitting for linear underground and overhead projects, and 6) including a 30-day automatic Notice of Termination approval unless notified by the Regional Water Board that the Notice of Termination is denied, returned, or accepted for review.

a. Rain Event Action Plan removal

The development and implementation of the Rain Event Action Plan in the previous permit resulted in minimal data and un-documented improvements in water quality. The removal of this requirement will save the discharger time and money, estimated at $2,500 to $3,500 per year in report preparation and $350 to $500 for labor.

b. Revised monitoring frequency

This General Permit includes a revised monitoring frequency that aligns with real-time site conditions and focuses on the implementation of BMPs and inspections. These requirements still ensure representative sampling and monitoring are conducted and includes BMP evaluations after numeric action level exceedances. For a one-year project duration, the savings are estimated at $1,750 to $2,000.

c. Inactive project status

Cost savings for sites to reduce monitoring and inspections during periods of inactivity. The savings come from fewer SWPPP implementation and monitoring hours for consultants and site personnel.

d. Annual Report, SMARTS, and implementation tools

The Annual Report is being redesigned to reduce the number of additional uploads and completion time for the discharger. When feasible, screens will be enhanced to streamline system use and staff is working on implementation tools outside of SMARTS (e.g., web-based maps).

e. Programmatic permitting for linear underground and overhead projects

Allowing linear underground and overhead projects to certify and submit one Notice of Intent for projects that have similar construction activity scopes and are located within one Regional Water Board office boundary will save time and money in application processes, changes of information, and initial inspections.

I.G. Incorporation of Total Maximum Daily Load (TMDL) Requirements and Cost

I.G.1. Introduction

This General Permit's TMDL requirements provide a consistent implementation approach for TMDLs with similar pollutants and waste load allocations, streamlining the process for construction projects to achieve compliance. Responsible Dischargers are required to implement applicable TMDL waste load allocations through the following TMDL-specific requirements developed for this General Permit: compliance with this General Permit, Revised Universal Soil Loss Equation, Version 2, (RUSLE2) modeling, numeric action levels, and/or numeric effluent limitations. This consistency between TMDLs provides cost-efficient implementation for Responsible Dischargers in achieving compliance with applicable TMDL requirements. The discussion below is to provide:

a. An overview of TMDL implementation where the State Water Board has provided cost-efficiencies;

b. General information on TMDL pollutant categories and estimated compliance costs associated with TMDL requirements for Responsible Dischargers;

c. Examples of appropriate existing BMPs; and,

d. General costs (high, medium, low) for potential TMDL-pollutant BMP categories.

I.G.2. Using this General Permit's Implementation Framework

Costs are site-specific and vary depending on multiple factors described categorically in Section I.F.3 above. This general information is provided to frame the cost considerations for Responsible Dischargers implementing applicable TMDL waste load allocation requirements. The incorporation of TMDL requirements into this General Permit allows for the use of its monitoring and reporting framework to avoid, where possible to meet the TMDL requirements, incurring additional costs associated with TMDL implementation (e.g., additional and separate reports for numeric action level and numeric effluent limitation exceedances, unique monitoring and sampling requirements specific to TMDLs).

a. The TMDL implementation requirements in this General Permit rely on Responsible Dischargers to complete a thorough pollutant source assessment for the entire duration of their construction project, which shall be included within their SWPPP. Only Responsible Dischargers that identify on-site sources of pollutants associated with an applicable TMDL, as listed in Attachment H, are required to comply with additional TMDL requirements. This provision takes into consideration construction site pollutant source variability and reduces the implementation burden to implement TMDL requirements for pollutants that are not present on their site from construction activities. The additional cost for a TMDL-level pollutant source assessment is estimated at $1,000 to $1,250, including additional field time and SWPPP preparation. Dischargers complying with the alternative approach described in Section I.W.6.g.vi of this Fact Sheet may incur additional costs related to the soil screening required as part of the pollutant source assessment. The soil screening cost is estimated at $200 per sample.

b. Twenty-nine (29) of the TMDL waste load allocations have been translated to require compliance with this General Permit, without imposing additional RUSLE2 modeling, numeric action levels, or numeric effluent limitations.

c. Ninety-three (93) TMDL waste load allocations were translated to require using RUSLE2 modeling to demonstrate a construction site's annual soil loss will not deliver more sediment to a water body than pre-construction conditions. This translation was derived in consideration of costs for TMDLs with mass-based waste load allocations, rather than imposing TMDL-specific monitoring requirements for pollutants that are associated with sediment discharges.

d. Sixty-two (62) of the TMDL waste load allocations have been translated to require numeric action levels, to consistently implement the General Permit's framework using numeric action levels compliance and reporting. Responsible

Dischargers are required to follow the same stormwater management requirements for both TMDL-related and non-TMDL-related numeric action level exceedances in this General Permit. TMDLs with concentration-based waste load allocations to be met in receiving waters, are translated into numeric action levels to be met at the construction site discharge location(s), to avoid costly and often infeasible receiving water monitoring.

e. Twenty-one (21) TMDL waste load allocations have been translated to impose numeric effluent limitations for pollutants, with required assessments and monitoring consistent with the regulatory framework of this General Permit. However, Responsible Dischargers will follow the water quality based corrective action process in this General Permit and perform the required actions for TMDL-related numeric effluent limitation exceedances instead of a numeric effluent limitation violation report required for non-TMDL numeric effluent limitations. A Responsible Discharger that exceeds a TMDL-related numeric effluent limitation is in violation of this General Permit and may be subject to mandatory minimum penalties, whereas numeric action level exceedances are not violations of this General Permit. Only applicable TMDLs with concentration-based waste load allocations, to be met at the construction site discharge location(s), were translated into numeric effluent limitations.

I.G.3. TMDL-related Numeric Action Level and Numeric Effluent Limitation Exceedances

The incorporation of TMDL implementation requirements may represent an increase in the cost of compliance for certain Responsible Dischargers. The following conditions must occur for a Responsible Discharger to exceed an applicable TMDL-related numeric action level or numeric effluent limitation:

Condition 1: The discharger discharges stormwater and authorized non-stormwater, either directly or through a municipal separate sewer system or other conveyance, to impaired water bodies or watersheds identified in a U.S. EPA-approved TMDL that assigns a concentration-based waste load allocation to construction stormwater discharges. Concentration-based waste load allocations are translated into numeric effluent limitations or numeric action levels and are listed in Attachment H, Table H-2.

Condition 2: The discharger identifies through the site-specific pollutant source assessment that one or more TMDL-specific pollutants are present at the site with the potential to enter discharge.

If the above conditions occur, the discharger is considered a Responsible Discharger for a TMDL, and subject to TMDL-related numeric action levels or numeric effluent limitations.

Condition 3: The Responsible Discharger triggers the non-visible sampling requirements for the TMDL-specific pollutant when the pollutants may be

discharged due to failure to implement BMPs, a container spill or leak, or a BMP breach, failure, or malfunction.

If the spill or leak, or BMP breach, failure or malfunction are immediately cleaned up and BMPs to control the pollutant were implemented, maintained, or replaced prior to the discharge, the Responsible Discharger is not required to sample its discharge.

Condition 4: The discharger conducts non-visible sampling in accordance with Attachment D, Section III.D.3, and Attachment E, and the analytical results report a concentration for the TMDL-specific pollutant above the applicable TMDL-related numeric action level or numeric effluent limitation listed in Attachment H, Table H-2.

Condition 5: Conditions 3 and 4 occur at least twice for any and all discharge locations within the same drainage area, during a given reporting year (July 1 through June 30). Each of the discharger's subsequent analytical results reporting a concentration above the TMDL-related numeric action level or numeric effluent limitation, after the second occurrence, is considered a distinct exceedance.

A Responsible Discharger violates a TMDL-related numeric effluent limitation only after all the above conditions occur. Responsible Dischargers that exceeded a TMDL-related numeric effluent limitation or numeric action level will continue to implement iterative corrective actions and BMP implementation to prevent further exceedances. Dischargers that do not take corrective actions following an exceedance are in violation of this General Permit.

I.G.4. Availability of Implementation Tools

The State Water Board recognizes the need to provide Responsible Dischargers tools and information to navigate the applicability of TMDL requirements, determine the spatial location of the requirements, and provide support for compliance analyses. To reduce the Responsible Discharger's cost of complying with the TMDL requirements, state-developed tools to assist in the implementation of and compliance with the TMDL requirements will be made free and publicly available. These include a TMDL applicability flowchart, a GIS-based TMDL applicability map, and additional implementation guidance and training for potential compliance methods.

I.G.5. TMDL Pollutant Categories

This General Permit implements a number of TMDLs separated into the following seven TMDL pollutant categories:

a. Bacteria

b. Chloride and salts

c. Diazinon

d. Nutrients

e. Sediment

f. Temperature

g. Metals and Toxics

Attachment H, Table H-2 of this General Permit lists all TMDLs applicable to Responsible Dischargers. For each TMDL, Table 2 cross-references one or more of the pollutant categories above.

a. Bacteria[14,15]

Sources of bacteria and other pathogens in watersheds include, but are not limited to, animal excrement (from stormwater infrastructure and animals) and sanitary sewer overflows of human excrement. Major contributors from construction sites may include wild or tamed animals on the premises, waste handling, portable toilets, and contaminants in erodible materials. This Fact Sheet contains supportive information referenced from the bacteria TMDLs that construction stormwater dischargers are not a significant source of bacteria and therefore would meet the waste load allocations.

The bacteria TMDLs in Attachment H require the implementation of existing minimum BMPs to control stormwater exposure to bacteria sources, thus compliance with these TMDLs is not expected to result in significant additional costs.

b. Chloride and Salts[16]

Salts such as boron, calcium chloride (CaCl), magnesium chloride (MgCl), sodium chloride (NaCl), and sulphate can accumulate in soils within the watershed. Three TMDLs in Attachment H identify construction stormwater dischargers as potential sources of chloride and salts. For two of the three TMDLs, compliance with this General Permit was sufficient to meet the assigned waste load allocations, thus not imposing any TMDL-specific costs on

14 Los Angeles Regional Water Board, Ballona Creek, Estuary, and Tributary Bacteria TMDL (June 7, 2012), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R12-008_RB_BPA.pdf> [as of May 20, 2021]

15 CASQA, Construction BMP Handbook (January 2015), <https://www.casqa.org/sites/default/files/casqa-handbook-construction/master_hanbook_file_2015_sec.pdf> [as of May 20, 2021] (CASQA Construction BMP Handbook)

16 Los Angeles Regional Water Board, Calleguas Creek Watershed Salts TMDL (October 4, 2007), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2007-016_RB_BPA.pdf> [as of May 20, 2021]

the Responsible Dischargers. However, the Upper Santa Clara River TMDL for chloride assigned a concentration-based waste load allocation, which was translated into a numeric action level. As a result, Responsible Dischargers for the Upper Santa Clara River Chloride TMDL can expect a medium to low-cost impact.

Responsible Dischargers in the Upper Santa Clara River watershed (Region 4) may be required to conduct non-visible pollutant monitoring to analyze for boron, chloride, sulfate, and total dissolved solids as part of the TMDL implementation requirements. The estimated additional cost of the non-visible pollutant monitoring for the Upper Santa Clara River TMDL would be approximately $200-$400 for sampling and $150-$250 for analysis and SMARTS data entry, per sampled discharge location per event.

c. Diazinon[17]

Diazinon is an organophosphate pesticide that does not sorb to sediment but is instead mobilized through soils by dissolving in water. Stormwater runoff can come into contact with areas where diazinon was applied and transport the pollutant into the watershed. Although diazinon was once used in both agricultural and urban settings, it has since been banned for non-agricultural uses by the California Department of Pesticide Regulations. Because this General Permit requires all dischargers to perform a pollutant source assessment, and diazinon is banned for non-agricultural uses, compliance with the diazinon TMDL requirements is not expected to incur additional costs.

d. Nutrients[18,19]

Nutrients (e.g., ammonia, nitrogen compounds, and phosphorous) can be found in stormwater runoff from construction sites, industrial areas, and urban areas. Sources of nutrients from construction sites may include background concentrations, storage and application of fertilizers, and discharges of nutrient-rich sediments. Most of the nutrient TMDLs in Attachment H require that dischargers comply with waste load allocations by meeting the translated numeric action levels or numeric effluent limitations, while one TMDL relies on RUSLE2 modeling. The compliance cost impact for implementation of the

17 San Diego Regional Water Quality Control Board, Chollas Creek Diazinon Total Maximum Daily Load (August 14, 2002) <https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/chollascreekdiazinon.html> [as of May 20, 2021]

18 United States EPA Region IX, Los Angeles Area Lakes Total Maximum Daily Loads for Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs (March 26, 2012), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Lakes/LALakesTMDLsEntireDocument.pdf> [as of May 20, 2021]

19 CASQA Construction BMP Handbook, p. 1-7.

nutrient TMDLs is expected to be medium to high since additional BMPs (filter media BMPs for phosphorus and advanced BMPs for nitrogen) and monitoring may be required for controlling the specific nutrient concentrations from construction sites.

The RUSLE2 modeling used to demonstrate compliance with the San Diego Creek and Newport Bay Nutrients TMDL in Region 8 is estimated to add $750 to $1,500 in costs, per project.

If non-visible pollutant monitoring is required, Responsible Dischargers in some watersheds located in Regions 3, 4 and 8 (Central Coast, Los Angeles Basin and Santa Ana), as specified in Attachment H, shall conduct analyses for the TMDL-specific pollutant(s) such as total nitrogen, ammonia, nitrates, nitrites, phosphorous, and orthophosphates. The estimated additional cost of the TMDL monitoring would be approximately $200-$400 for sampling and $200-$400 for analysis and SMARTS data entry, per sampled discharge location per event.

The May 2021 draft of the Construction Stormwater General Permit, issued for public comments, proposed translations of nitrogen-based nutrient waste load allocations into numeric effluent limitations. The translation of the nitrogen-based nutrient waste load allocations was revised to numeric action levels in this General Permit per the following explanation that numeric action levels are consistent with the assumptions and requirements of the waste load allocations.

All applicable TMDLs with nitrogen-based nutrient waste load allocations discuss low flow as the critical condition for the receiving water impairment. Unlike general urban runoff that occurs year-round, construction stormwater discharges only occur as a result of precipitation events; discharges from construction sites do not typically occur during low flow receiving water conditions. A numeric action level is a more appropriate limitation to implement a TMDL primarily concerned with dry weather discharges. Further, each TMDL discusses municipal wastewater treatment plants as a principal source of nutrient loading. Although stormwater is identified as a potential source, the TMDL did not calculate a source-specific waste load allocation and instead used the water quality objective as the waste load allocation for nutrients. Although the TMDLs sets the compliance location at the point of discharge, because of how the waste load allocation was calculated, the waste load allocations are similar to TMDLs where the compliance point is set at the receiving water. As set forth in Section I.G.2, this General Permit translated concentration-based waste load allocations to be met in receiving waters into numeric action levels.

The State Water Board has very few nitrogen-based nutrient sampling results from construction stormwater because the previous permit did not require sampling for nutrients. However, nutrient data is available from required

monitoring in the Industrial Stormwater General Permit. An analysis of all stormwater data from implementation of the Industrial Stormwater General Permit from 2015 – 2021 shows that of collected nutrients samples, approximately 95 percent of nitrate-plus-nitrite samples (as nitrogen), and 92 percent of ammonia samples had concentration results were lower than numeric action levels listed in this General Permit. The average sampling results, 0.68 mg/L for nitrate-plus-nitrite and 2.16 mg/L for ammonia, were below the numeric action levels in the Industrial Stormwater General Permit. Both observed average sampling results are a fraction of the action levels in this General Permit. The sampling results available through the implementation of the statewide Industrial Stormwater General Permit include stormwater discharge data from industrial facilities, such as fertilizer manufacturers, with significant potential sources of nutrients. In contrast, sources of nutrients from construction sites are generally limited to existing legacy concentrations in the sediment from past land uses that involved application of fertilizers, pesticides, and herbicides, and storage facilities that store the chemicals. Accordingly, it is generally expected that construction stormwater discharges will not exceed the waste load allocations and numeric action levels are appropriate.

Numeric action levels are consistent with the TMDLs and protective of water quality. All dischargers are required to implement sediment control BMPs and eliminate or minimize site erosion. If the Discharger exceeds the numeric action level, as set forth in Attachment H, Section I.D.3.e, the discharger must report and respond to a numeric action level exceedances. As described in Attachment D and E, Section III.G, when there is an exceedance of a numeric action level, dischargers must determine the source of the pollutant, implement corrective actions to reduce or prevent further exceedances and implement iterative corrective actions until the discharge is in compliance with the action level. Within 14 calendar days of an exceedance, a QSD and QSP must perform on-site visual inspections and the QSP must document any areas of concern (Order, Section V.C.3 & V.D.4). For example, if the construction activities include the application or storage of fertilizers, pesticides, and herbicides, exposure of those products to stormwater must be prevented or minimized. Corrective actions may also include implementing BMPs that eliminate stormwater discharges, BMPs with filter media, or other sediment control BMPs. The Regional Water Boards may require additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about an exceedance to a numeric action level (Attachment H, Section I.D.3.f). The State Water Board expects that dischargers can feasibly comply with the nitrogen numeric action levels in this General Permit without the need to implement more advanced BMPs, which as discussed below are not typically possible to install at construction sites.

The most effective BMPs for removal of nitrogen-based nutrients through denitrification, biofiltration, or bioretention are advanced structural treatment BMPs that are used at permanent sites, not temporary construction sites. Denitrification, the process by which nitrates are reduced to gaseous nitrogen by facultative microbes under anaerobic conditions, is often employed at wastewater treatment plants with numeric effluent limitations for ammonia and/or nitrates. Biofiltration BMPs capture and treat stormwater runoff using conditioned soil beds for planting vegetation and establishing microbial communities to filter out pollutants. Denitrifying treatment and bioretention BMPs requires the retention of all the construction site's stormwater. Sites would need adequate space to accommodate the proper sizing and design of such treatment BMPs to effectively remove nutrients. Construction sites often have limited available area, and the larger the site, the more area is needed for treatment BMPs. Construction of permanent BMPs is not typically compatible with construction stormwater management, as site conditions are inherently transient during the term of the construction, and the nutrient removal BMPs would only be needed during land disturbance activities.

Biofiltration basins require established vegetation to efficiently remove nutrients. The vegetation in a biofiltration basin typically needs, at minimum, several growing seasons, (at minimum several months under ideal weather and soil conditions, up through several years under non-supportive growing conditions), for the vegetation to establish itself and provide effective treatment for nutrient removal. Most construction projects are active for a short duration with insufficient time to establish a vegetative biofiltration process that effectively removes nutrients. Although biofiltration is a commonly used post-construction BMP, its utility during construction is limited due to the inability to move biofiltration BMPs; additionally, biofiltration BMPs are designed specifically to treat a defined stormwater discharge quality under specific site conditions. Biofiltration BMPs are expensive, generally costing tens-of-thousands of dollars in addition to the cost of retention of the site's stormwater. Due to the time period needed to design and establish effective treatment, the long-term nature of treatment implementation, and the relative cost, biofiltration BMPs are not well-suited for construction sites that are temporary in nature.

e. Sediment [20]

Excess sediment delivery to stream channels can be a pollutant and is associated with several natural processes as well as anthropogenic sources. Sediment can transport other pollutants that attach to it, including nutrients, trace metals, and organic compounds. Sediment is the primary component of

20 California Stormwater Quality Association (CASQA) Construction BMP Handbook, p. 1-7.

turbidity, the most common sediment water quality analytical parameter used in this General Permit. Anthropogenic construction sources include, but are not limited to, track in and out from earth moving equipment, unpaved access road-related erosion (e.g., construction and maintenance of paved and unpaved roadways), dust, and soil/earth disturbing activities. All Responsible Dischargers are required to comply with the existing requirements of this General Permit, including the turbidity numeric action levels, associated exceedance actions, and the sediment TMDLs incorporated into this General Permit. However, many of the sediment TMDLs will also require additional RUSLE2 modeling to demonstrate compliance with the assigned waste load allocations. Responsible Dischargers for the Los Peñasquitos Lagoon Sediment TMDL are required to submit an estimate of the representative flow rate from their construction site for one precipitation event, each reporting period. Although imposing these additional requirements is expected to result in a low to medium cost impact for Dischargers, they were considered a more cost-effective approach than other means of complying with the TMDL such as TMDL-specific monitoring.

The cost of a runoff flow rate assessment varies by methodology and the method is often determined by the availability of input data. A relatively simple equation such as the Rational Method would require an hour or less for a QSD to calculate. The more complex and accurate National Resources Conservation Service method may require a site visit or extensive internet research and take two to six hours to complete. This translates to a cost range of $100 to $600, based on an average billable rate of $100 per hour for QSDs.

In addition to the regular numeric action level sediment monitoring required by the permit, Responsible Dischargers in some watersheds located in Region 1, as specified in Attachment H, shall conduct RUSLE2 to demonstrate compliance with the waste load allocations. The estimated additional cost of the RUSLE2 calculation requirement will add $750 to $1,500 to each project in these Regions.

f. Temperature[21]

This General Permit includes seven temperature TMDLs, all of which are located in the North Coast Regional Water Quality Control Board's jurisdiction. The removal of riparian vegetation from road building and urbanization construction are amongst the sources observed to increase Northern California stream temperatures, which can negatively impact juvenile salmonids.

21 United States Environmental Protection Agency Region IX, Final Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury) Total Maximum Daily Loads for Temperature and Sediment (December 29, 2004) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_upper_main/pdf/uer-tmdl-final-12-28.pdf> [as of May 20, 2021]

Excessive sediment input also raises stream temperature by widening stream channels, filling pools, and eliminating riparian vegetation during flood events. Responsible Dischargers are required to comply with the requirements of this General Permit in order to achieve the applicable waste load allocations in the North Coast Temperature Implementation Policy. Compliance with these TMDLs is not expected to result in additional costs.

g. Metals and Toxics[22]

Metals (e.g., aluminum, cadmium, chromium, copper, lead, mercury, nickel, and zinc) and selenium can be found in construction stormwater discharges and are potentially toxic to aquatic life. Many of the equipment and materials used in the built environment (e.g., pipes, rebar, conductors, galvanized metal, paint, vehicles, preserved wood, tires, and vehicle brakes) contain metals, which enter stormwater as the surfaces corrode, decay, dissolve, flake, leach, or rust.

Toxic, synthetic organic compounds (e.g., adhesives, cleaners, herbicides, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, sealants, solvents) may be found in low concentrations but can still be toxic to aquatic life. Sources of synthetic organic compounds at construction sites include, but are not limited to, exposure of the compounds to stormwater during use and/or storage, improper disposal, and accidental release into storm drains or off-site.

The primary transport mechanism for metals and toxics is the mobilization and discharge of fine sediment through stormwater. Metals and organic compounds have an affinity for other organic substances and will partition from water and sorb to sediment. For this reason, it was appropriate to translate mass-based waste load allocations into requiring additional RUSLE2 modeling to estimate sediment delivery from a construction site into a watershed. Using RUSLE2 to demonstrate compliance with the waste load allocations avoids cost impacts associated with monitoring for toxic and metal pollutants.

However, a number of the metal and toxics TMDLs are assigned concentration-based waste load allocations, which were translated into numeric action levels or numeric effluent limitations. Many dischargers are not currently implementing BMPs designed to minimize concentrations for metals and toxics, but many Responsible Dischargers will need to implement BMPs designed to comply with the TMDL requirements. The compliance cost impact for the metal and toxics TMDL implementation is expected to be similar to that for normal sediment removal unless site-specific advanced BMPs and additional monitoring are required to comply with the requirements of these TMDLs. In the latter case, more advanced systems such as bioretention ponds, active treatment systems,

22 CASQA Construction BMP Handbook, p. 1-7.

or membrane filtration structures will likely have costs in the tens of thousands of dollars.

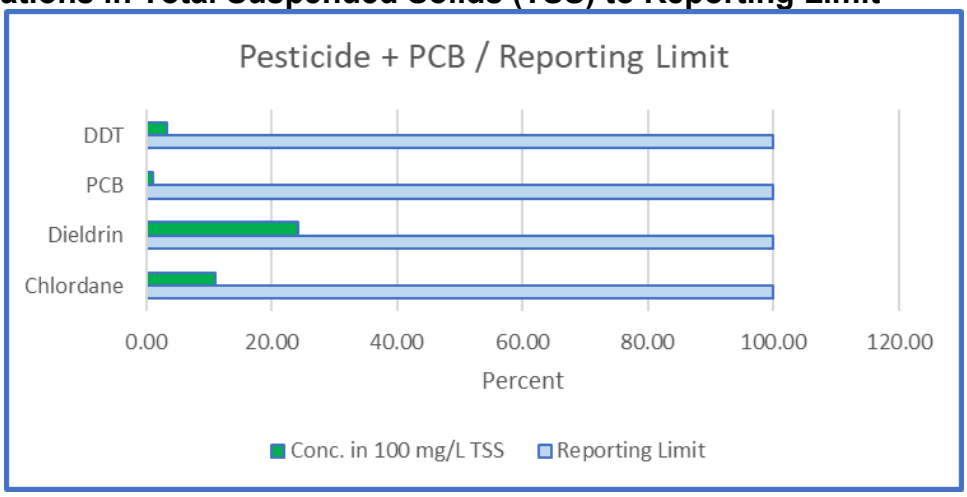
If non-visible pollutant monitoring is required, Responsible Dischargers in some watersheds located in Regions 4, 8 and 9 (Los Angeles Basin, Santa Ana, San Diego), as specified in Attachment H, would have to conduct TMDL analyses for metals and toxics listed for the individual watersheds. These pollutants may include copper, lead, zinc, mercury, nickel, cadmium, chromium and selenium, and toxics in the form of organochlorine pesticides, polychlorinated biphenyls (PCB), and polycyclic aromatic hydrocarbons (PAH). The estimated additional cost of this TMDL monitoring would be approximately $200-$400 for sampling and $525-$750 for analysis and SMARTS data entry, per sampling location per event. For the Los Angeles Area Lakes TMDL, the waste load allocations for organochlorine pesticides and PCBs are below the analytical laboratory reporting limits. Additionally, the Los Angeles and Long Beach Harbor Waters TMDL waste load allocations for total copper, lead, and zinc are analytically detectible, but limited data from construction site stormwater sampling indicates that compliance with these waste load allocations would be extremely difficult. As further detailed below, because organochlorine pesticides, PCBs, copper, lead, and zinc all bind to sediment and sediment is a common pollutant in stormwater from construction sites that can be managed effectively with BMPs, compliance with these two TMDLs is implemented through a soil screening investigation and, if applicable, a total suspended solids (TSS) numeric effluent limitation detailed in Attachment H, Section I.G.5.

The threshold values for the organochlorine pesticides and the PCBs are the analytical laboratory reporting limit for each substance. This value is the lowest concentration at which an analyte can be measured in a sample and its concentration can be reported with a reasonable degree of accuracy and precision. For the metals, the threshold values are listed in Attachment H, Table H-5. The metals measured in the soil below these concentrations will have significantly lower concentrations in stormwater runoff and should be lower than the waste load allocations.

If the threshold values are exceeded in any soil sample obtained for the soil screening investigation, the Responsible Discharger will be required to sample for TSS as a proxy for the TMDL-pollutants if the non-visible sampling requirements are triggered. The numeric effluent limitation for TSS is 100 mg/L, and any exceedances require corrective actions detailed in Attachment D, Section G. Based on reasonably accessible research, 100 mg/L of TSS represents a concentration adequate to detect the target pollutants at levels

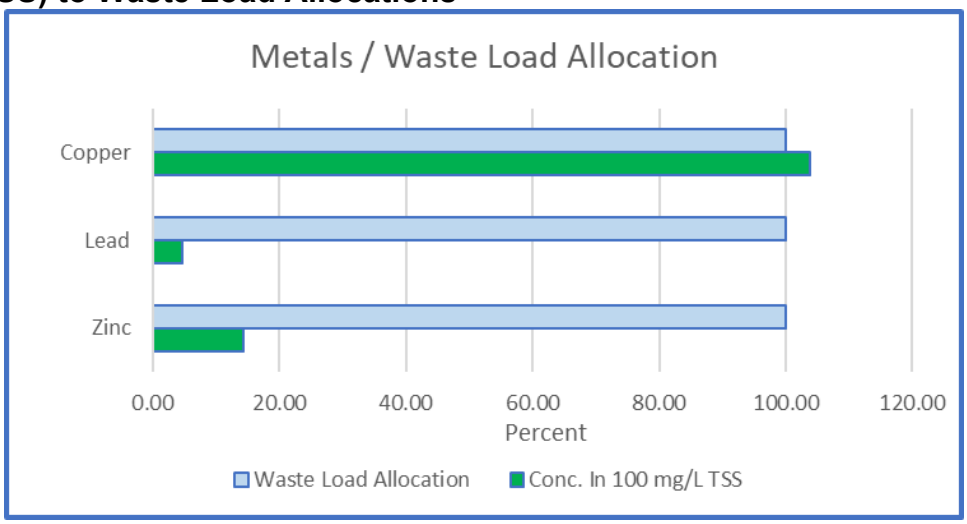
comparable to the respective waste load allocations.[23] As shown in Figures 1 and 2 below, where TSS is 100 mg/L or lower, concentrations of organochlorine pesticides and PCBs are reported significantly lower than the reporting limits, and concentrations of copper, lead, and zinc are reported lower than the waste load allocations set forth in the TMDLs.

Figure 1 – Comparison of Reported Pesticide/Polychlorinated Biphenyls (PCB) Concentrations in Total Suspended Solids (TSS) to Reporting Limit



23 Nasrabadi T, Ruegner H, Schwientek M, Bennett J, Fazel Valipour S, Grathwohl P (2018) "Bulk metal concentrations versus total suspended solids in rivers: Time-invariant & catchment-specific relationships."
Washington Department of Ecology (2004) "A Total Maximum Daily Load Evaluation for Chlorinated Pesticides and PCBs in the Walla Walla River."
Angela Gorgogline, Fabián A. Bomberdelli, Bruno J. L. Pitton, Lorence R. Oki, Darren L. Haver and Thomas M. Young (2018), "Role of Sediments in Insecticide Runoff from Urban Surfaces: Analysis and Modeling."

Figure 2 – Comparison of Reported Metals Concentrations in Total Suspended Solids (TSS) to Waste Load Allocations



I.G.6. Stormwater BMP Selection

a. This General Permit provides dischargers flexibility in selecting the site-specific BMPs necessary to achieve compliance. This flexibility is also provided to Responsible Dischargers in selecting, installing, and maintaining the appropriate BMPs for site-specific situations to meet applicable TMDL requirements, including BMP combinations of:

   i. Non-structural BMPs (such as good housekeeping and staff training);

   ii. Structural source control BMPs (physical, structural, or mechanical devices or BMPs intended to prevent pollutants from entering stormwater) such as erosion control practices, maintenance of stormwater facilities (e.g., cleaning out sediment traps), construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or other end-use systems; and/or,

   iii. Structural treatment BMPs which include flow or volume-based treatment BMPs. Structural source control and treatment BMPs usually include a capital investment but are cost-effective compared to removing pollutants after they have entered stormwater and been discharged into a receiving water body.

b. Stormwater BMP categories for the TMDL pollutant types above are, in general, physical, chemical, hydraulic, and, biological. Selection of appropriate site BMPs must be determined based on site-specific factors. No single BMP can achieve the required pollutant reductions for every given situation or pollutant, and each BMP approach has pros and cons. The Responsible Discharger

should consider the cost-benefit[24] when selecting stormwater BMPs. Some factors include, but are not limited to, upfront-cost, maintenance-cost, pollutant removal efficiency per area/treatment unit, local permitting, site hydrology and geology, safety, space, staffing, and monitoring needs for implementing the BMP(s). There are many ways to calculate the upfront and maintenance cost of BMPs that consider, for example, BMP sizing, the annual cost for maintenance and/or the annual maintenance hours required.[25]

Table 1 – University of New Hampshire Stormwater Center[26] Select BMP Maintenance Costs and Hours

BMP	Maintenance Cost (per year)	Annual Maintenance Hours
Bioretention	$1,890.00	20.7
Chamber System	Not Assessed	Not Assessed
Detention Pond	$2,380.00	24.0
Gravel Wetland	$2,138.00	21.7
Porous Asphalt	$1,080.00	6.0
Pervious Concrete	$1,080.00	6.0
Retention Pond	$3,060.00	28.0
Sand Filter	$2,807.00	28.5

I.G.7. Stormwater BMP Categories

The following categories generally describe currently available types of stormwater BMPs, their expected effectiveness for the TMDL pollutant categories, and some general cost comparisons. The cost comparisons for 6.a-b are based on:

- Staff experience in administering this General Permit for the non-structural and structural source control BMPs;
- The CASQA Industrial and Commercial BMP Handbook for appropriateness of minimum BMPs to control pollutants;

24 State of Hawaii Department of Transportation Highways Division. Stormwater Permanent Best Management Practices Manual, page 7-2 Table 1. (February 2007). <http://hidot.hawaii.gov/wp-content/uploads/2015/05/Appx-E.1-Permanent-BMP-Manual-Feb-2007.pdf>. [as of May 20, 2021]. (State of Hawaii BMP Manual)

25 U.S. EPA. Methodology for developing cost estimates for Opti-Tool Memorandum (February 20, 2016), page 8. <https://www3.epa.gov/region1/npdes/stormwater/tools/green-infrastructure-stormwater-bmp-cost-estimation.pdf>. [as of April 28, 2022]. (U.S. EPA BMP Cost Estimation Memorandum)

26 U.S. EPA BMP Cost Estimation Memorandum, University of New Hampshire Stormwater Center (UNHSC) Select BMP Maintenance Costs and Hours, page 8.

- The CASQA Construction Handbook for appropriateness of minimum BMPs to control pollutants;[27] and,
- The California Department of Transportation (Caltrans) Construction Site BMP Manual.[28]

The cost for non-structural controls, which includes good housekeeping, preventative maintenance, spill and leak prevention and response, erosion and sediment controls, employee training programs, and quality assurance and record keeping, is lower than the costs for other BMPs. For example, these costs consist of staff time for training or conducting routine minimum BMP activities and minimal costs for certain materials such as spill kits or for materials for retaining records. Costs for source control BMPs were estimated generally as being low, medium, or high, dependent on a variety of factors.

The cost comparisons and information in Table 2 for 6.a-i are based on general conclusions from research conducted by the California Stormwater Quality Association, U.S. EPA, U.S. Department of Transportation, State of Hawaii Department of Transportation Highways Division, State of Minnesota Pollution Control Agency, and the Water Environment and Reuse Foundation. State Water Board staff reviewed these sources on:

- The selection of BMPs for general categories of pollutants and performance of pollutant removal;
- The provided upfront costs for a BMP category from a range of low, medium, and high; and,
- The provided maintenance costs for a BMP category from a range of low, medium, and high.

More specific information on methodology and estimates is available from these sources, which are cited below.

a. **Non-Structural BMPs**, which include, but are not limited to, site sweeping, staff training and education, dumpster and waste management, routine portable toilet maintenance and cleaning, and proper handling and spill response for construction materials.[29] These BMPs can significantly reduce pollutant

27 CASQA Construction BMP Handbook, 2015.
28 California Department of Transportation (Caltrans), Construction Site BMP Manual (May 2017). <https://dot.ca.gov/-/media/dot-media/programs/construction/documents/environmental-compliance/csbmp-may-2017-final.pdf> [as of May 20, 2021]
29 U.S. Department of Transportation (DOT), Federal Highway Administration. Stormwater Best Management Practices in an Ultra-Urban Setting: Selection and Monitoring. Section 6.5 Table 57. Relative Rankings of Cost Elements and Effective

concentrations in all categories (4.a-g) and can range from low to medium upfront costs depending on the staffing and size of size. In general, operation and maintenance costs are low.

b. **Source control BMPs**, which include minimizing or eliminating exposure of a pollutant source, can significantly reduce pollutant concentrations in all categories (4.a-g). Upfront costs can range from low (e.g., moving materials or activities indoors or under cover) to high (if, for example, the site must move or build extra covered areas/structures). In general, the operation and maintenance costs are low for exposure minimization and elimination BMPs.

c. **Bioretention BMPs**[30] are soil and plant-based filtration structures that reduce runoff velocity and remove pollutants over time through a variety of processes. Bioretention can significantly reduce pollutant concentrations for categories (4.a), (4.d), (4.e), (4.f), and (4.g) (varies for dissolved metals).[31] Usually, costs are medium to high[32] per area treated and are tied to proper sizing and design, with low to medium maintenance requirements and cost.[33]

d. **Media or Treatment Filtration BMPs**[34] include either active or passive processes. In passive processes, water flows through treatment media or surface by gravity. In active processes, stormwater flows through media via a pump or similar mechanized system. The media are usually a custom or proprietary blend from the manufacturer and/or vendor (e.g., flocculants, coagulants, carbon, sand, organics). Active systems are chambered and may include pretreatment features to enhance the treatment process. Media filtration can significantly reduce pollutant concentrations categories (4.a), (4.e), and (4.g)[35] depending on the specific treatment media. The costs vary significantly depending on the pollutant(s) intended for treatment, the size of the system,

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Life of BMP Options. <https://www.environment.fhwa.dot.gov/Env_topics/water/ultraurban_bmp_rpt/uubmp6p4.aspx> [as of April 28, 2022]. (U.S. DOT BMP Selection and Monitoring)

30 California Stormwater Association (CASQA), Industrial and Commercial Best Management Practice Online Handbook September 2014, TC-32. <https://www.casqa.org/sites/default/files/casqa-handbook-industrial/full_handbook_2014.pdf> [as of May 20, 2021] (CASQA Industrial and Commercial BMP Handbook)

31 Water Environment and Reuse Foundation (WERF). International Stormwater BMP Database 2020 Summary Statistics Final Report, <https://www.waterrf.org/system/files/resource/2020-11/DRPT-4968_0.pdf> [as of April 28, 2022]. (International Stormwater BMP Database).

32 State of Hawaii BMP Manual, page 7-2 Table 1.

33 U.S. DOT BMP Selection and Monitoring, section 6.5 Table 57; State of Hawaii BMP Manual, page 7-2 Table 1; U.S. EPA BMP Cost Estimation Memorandum, page 8.

34 CASQA Industrial and Commercial BMP Handbook, TC-40 Media Filter.

35 CASQA Industrial and Commercial BMP Handbook, TC-40 Media Filter.

and the system design. Upfront costs are generally medium to high per area treated with medium to high maintenance requirements and cost.[36]

e. **Retention BMPs** (sediment basin, retention wet pond or extended detention wet pond)[37] are constructed basins that have a permanent pool of water most of the year which settle out pollutants and can use plant life to biologically remove pollutants. Retention can significantly reduce pollutant concentrations for all categories but (4.c) and effectiveness for category (4.g) varies depending on the metal and whether the metal is dissolved.[38] The upfront and maintenance requirements and costs are tied to proper sizing and design of the system and vary from medium to low.[39]

f. **Detention BMPs** (Dry extended detention ponds, dry ponds, extended detention basins, detention ponds, extended detention ponds)[40] are basins with designed outlets to achieve a required stormwater draw down time (e.g., 24, 48, or 72 hours). The basins are designed to detain stormwater runoff for some minimum time (e.g., 48 hours) allowing particles and associated pollutants to settle. These basins have a temporary wet pool dependent on the infiltration rate of the subsoil. Detention can significantly reduce pollutant concentrations for all categories except for (4.c) and (4.g), though detention's effectiveness for metals is variable depending on the metal and whether the metal is dissolved.[41] The upfront and maintenance requirements and costs are tied to proper sizing and design of the system and vary from medium to low.[42]

g. **Wetland BMPs** (constructed wetlands)[43] are constructed basins with a permanent pool of water for most of the year and are shallower with more vegetation than wet ponds. Stormwater is stored in the shallow pools of vegetation. Pollutant removal is achieved through microbial transformation, plant uptake, settling, and adsorption. Pretreatment is suggested to reduce the needed annual maintenance by reducing the amount of sediment and other

36 State of Hawaii BMP Manual, page 7-2 Table 1; U.S. DOT BMP Selection and Monitoring, section 6.5 Table 57; U.S. EPA BMP Cost Estimation Memorandum, page 8.
37 CASQA Industrial and Commercial BMP Handbook, TC-20 Wet Pond.
38 WERF International Stormwater BMP Database 2016 Summary Report.
39 State of Hawaii BMP Manual, page 7-2 Table 1; U.S. DOT BMP Selection and Monitoring, section 6.5 Table 57; U.S. EPA BMP Cost Estimation Memorandum, page 8.
40 CASQA Industrial and Commercial BMP Handbook, TC-22 Extended Detention Basins.
41 WERF International Stormwater BMP Database 2016 Summary Report.
42 State of Hawaii BMP Manual, page 7-2 Table 1; U.S. DOT BMP Selection and Monitoring, section 6.5 Table 57; U.S. EPA BMP Cost Estimation Memorandum, page 8.
43 CASQA Industrial and Commercial BMP Handbook, TC-21 Constructed Wetlands.

solids entering the BMP. Wetlands can significantly reduce pollutant concentrations for all categories except for (4.b) and (4.c).[44] The upfront costs are medium to high, and the operation and maintenance costs and requirements are medium.[45]

h. **Infiltration BMPs** (volume reduction)[46] are trenches or basins which store stormwater in the void space between the media (e.g., rock, stones, soil media) and infiltrates/exfiltrates through the bottom and sides into the ground. Infiltration reduces stormwater discharge volume and pollutant loadings to surface waters and can recharge groundwater aquifers or be used for other appropriate purposes and provide cost-savings by offsetting the use of potable water (e.g., cooling towers and equipment cleaning water). Pretreatment is necessary to limit the amount of gross pollutants, oil & grease, and sediment to the system to ensure the system functions properly. Infiltration can significantly reduce pollutant concentrations for all categories, however, in all cases fate and transport of pollutants to groundwater should be evaluated for impacts to drinking water beneficial uses (e.g., salts, solvents). The upfront and maintenance costs and requirements are tied to proper sizing and design of the system and are medium.[47]

44 WERF International Stormwater BMP Database 2016 Summary Report.
45 State of Hawaii BMP Manual, page 7-2 Table 1; U.S. DOT BMP Selection and Monitoring, section 6.5 Table 57; U.S. EPA BMP Cost Estimation Memorandum, page 8.
46 CASQA Industrial and Commercial BMP Handbook, TC-10 Infiltration Trench and TC-11 Infiltration Basin.
47 State of Hawaii BMP Manual, page 7-2 Table 1; U.S. DOT BMP Selection and Monitoring, section 6.5 Table 57; U.S. EPA BMP Cost Estimation Memorandum, page 8.

Table 2 – Effective BMP Examples for TMDL Pollutant Categories[48]

Best Management Practice	Bacteria (4.a)	Chloride and Salts (4.b)[49]	Diazinon (4.c)	Nutrients (4.d)	Sediment (4.e)	Temperature (4.f)	Toxics and Metals (4.g)[50]
Non-Structural and Exposure Minimization	X	X	X	X	X	X	X
Bioretention Devices	X			X	X	X	X
Media or Treatment Filtration	X				X		X
Retention Basins/ Ponds	X	X		X	X	X	X
Detention Basins/ Ponds	X	X		X	X	X	
Constructed Wetlands	X			X	X	X	X
Infiltration or Volume Reduction	X	X		X	X	X	X

I.H. Rationale

I.H.1. General Permit Approach

A General Permit for construction activities over one acre is an appropriate permitting approach for the following reasons:

a. A General Permit is an efficient method to establish the essential regulatory requirements for a broad range of construction activities under differing site conditions;

48 WERF International Stormwater BMP Database 2016 Summary Report. Also see Table 2 footnotes 47 and 48.

49 Not evaluated in the WERF International Stormwater BMP Database 2017 Summary and is based upon guidance from the Minnesota 2015 Industrial Stormwater BMP Handbook.

50 From CASQA TC-10 and TC-11 not evaluated in the WERF International Stormwater BMP Database 2017 Summary.

b. A General Permit is the most efficient method to handle the large number of construction stormwater permit applications;

c. A General Permit application process for coverage is far less onerous than that for individual permit and hence more cost effective;

d. A General Permit is consistent with U.S. EPA's four-tier permitting strategy, the purpose of which is to use the flexibility provided by the Clean Water Act in designing a workable and efficient permitting system; and,

e. A General Permit is designed to provide coverage for a group of related facilities or operations of a specific industry type or group of industries. It is appropriate when the discharge characteristics are sufficiently similar, and a standard set of permit requirements can effectively provide environmental protection and comply with water quality standards for discharges. In most cases, the general permit will provide sufficient and appropriate management requirements to protect the quality of receiving waters from discharges of stormwater from construction sites.

There may be instances where a General Permit is not appropriate for a specific construction project. A Regional Water Board may require any discharger otherwise covered under this General Permit to apply for and obtain an individual permit or apply for coverage under a more specific General Permit. The Regional Water Board must determine that this General Permit does not provide adequate assurance that water quality will be protected, or that there is a site-specific reason why an individual permit should be required.

There may be other permits or requirements in addition to this General Permit. For example, the discharger may also need a streambed alteration agreement from the California Department of Fish and Wildlife, a Water Quality Certification (CWA § 401) as administered by the State and Regional Water Boards, CWA § 404 permit administered by the U.S. Army Corp. of Engineers, and/or a permit for low threat or de minimis discharges. Contact the appropriate Regional Water Board(s) to determine if other permits are required for the construction activity.

I.H.2. Antidegradation Findings

Federal regulations at 40 Code of Federal Regulations § 131.12 require that state water quality standards include an antidegradation policy consistent with federal requirements. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California"). Where the federal antidegradation policy is applicable, the State Water Board has interpreted Resolution No. 68-16 to incorporate the federal antidegradation policy.[51] The permitted discharge must be consistent with the antidegradation provision of 40

51 State Water Board Order WQ 86-17 (Fay), pages 16-19.

Code of Federal Regulations § 131.12 and State Water Board Resolution No. 68-16. The State Water Board finds that the permitted discharges authorized by this general NPDES permit are consistent with the antidegradation provisions of 40 Code of Federal Regulations § 131.12 and State Water Board Resolution No. 68-16, as set forth herein.

In the context of this general NPDES permit, compliance with the federal antidegradation policy requires consideration of the following. First, the State Water Board must ensure that "existing instream uses and the level of water quality necessary to protect the existing uses" are maintained and protected.[52] Second, if the baseline quality of a waterbody for a given constituent "exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water,[53] that quality shall be maintained and protected" through the requirements of this general NPDES permit unless the State Water Board makes findings that: (1) any lowering of the water quality is "necessary to accommodate important economic or social development in the area in which the waters are located"; (2) "water quality adequate to protect existing uses fully" is assured; and (3) "the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control" are achieved.[54] Before allowing any lowering of high quality water, the Board must conduct an analysis of alternatives that evaluates practicable alternatives that would prevent or lessen the degradation associated with the discharges permitted. In the context of 40 Code of Federal Regulations § 131.12(a)(2)(ii), practicable means "technologically possible, able to be put into practice, and economically viable."[55]

The permit must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy.[56] Resolution No. 68-16 requires that high quality waters be maintained unless degradation is justified based on findings that any lowering of water quality is "consistent with the maximum benefit to the people of the State" and "will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies" and further that the discharge is subject to "waste discharge requirements which

52 State Water Board, Administrative Procedures Update, Antidegradation Policy Implementation for NPDES Permitting, 90-004 (APU 90-004), page 4. 40 Code of Federal Regulation § 131.12(a)(1). This provision has been interpreted to mean that, "[i]f baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives."

53 This discussion refers to such waters as "high quality waters."

54 40 Code of Federal Regulation § 131.12(a)(2).

55 40 Code of Federal Regulation § 131.3(n).

56 State Water Board Order No WQ 86-17 (Fay), page 23, Finding No. 11

will result in the best practicable treatment or control of the discharge."[57] The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting or other regulatory action, such as establishing a water quality objective, that was consistent with the federal and state antidegradation policies.[58] The following analysis assumes, without deciding, that the baseline for antidegradation analysis is 1968.[59]

57 State Water Board Orders WQ 81-5 (*City of Lompoc*), WQ 82-5 (*Chino Basin Municipal Water District)*, WQ 90-6 (*Environmental Resources Protection Council*). State Water Board Resolution 68-16, Resolve 2. Best practicable treatment or control is not defined in Resolution 68-16; however, the State Water Board has evaluated what level of treatment or control is technically achievable using "best efforts." *Questions and Answers,* State Water Board Resolution 68-16, (Feb. 16, 1995), pp. 5-6. The State Water Board states: "To evaluate the best practicable treatment or control method, the discharger should compare the proposed method to existing proven technology; evaluate performance data, e.g., through treatability studies; compare alternative methods of treatment or control; and/or consider the method currently used by the discharger or similarly situated dischargers...The costs of the treatment or control should also be considered...."

58 State Water Board APU 90-004, page.4. The baseline for application of the federal antidegradation policy is 1975, which is the date used in 40 Code of Federal Regulation § 131.3(e) to define existing uses of a waterbody. For state antidegradation requirements, see also *Asociacion de Gente Unida por el Agua (AGUA) v. Central Valley Water Board* (2012) 210 Cal.App.4th 1255,1270. The baseline for the application of the state antidegradation policy is generally the highest water quality achieved since 1968, the year the policy was adopted.

59 State Water Board Resolution 68-16, Resolve 1. The baseline may be later than 1968 for two reasons. First, the appropriate baseline is determined by the date on which a policy establishing the level of water quality to protect was effective. State Water Board APU 90-004, page 2. The various water quality control plans and State Policies for Water Quality Control have been adopted and amended many times since the 1970's to include new or revised water quality objectives. Second, a permitting action with appropriate antidegradation findings allowing degradation may establish a new baseline consistent with the level of water quality achieved under that permit. The State Water Board has regulated construction stormwater discharges in the past through general permits issued in 1999 and 2009. APU 90-004 acknowledges that no antidegradation analysis is required where the water board has no expectation that water quality will be reduced by the permitting action; here, if the water quality achieved under the prior general permits had been used as the baseline, arguably, no antidegradation analysis would have been required. Nevertheless, for ease of analysis, 1968 is used herein as the baseline.

a. The Board Is Not Required to Make Waterbody by Waterbody and Pollutant by Pollutant Antidegradation Findings

The State Water Board finds that it is not required to conduct a waterbody by waterbody and pollutant by pollutant antidegradation analysis for this permit. The State Water Board makes this finding for two reasons. First, the Administrative Procedures Update, Antidegradation Policy Implementation for NPDES Permitting, 90-004 (APU 90-004), which specifies a waterbody by waterbody and pollutant by pollutant analysis for some permitting actions, does not address permitting for diffuse stormwater discharges. Second, APU 90-004 itself indicates that a waterbody by waterbody and pollutant by pollutant analysis is only required when conducting a "complete" antidegradation analysis; a complete analysis, in turn, is not required where any "reduction in water quality is temporally limited and would not result in any long-term deleterious effects on water quality."[60] As detailed below in the section regarding waters that do not meet water quality objectives and in Alternative 1, a complete analysis is not required. The discussion below elaborates on these two reasons.

APU 90-004 is a State Water Board internal guidance document establishing methods for implementing the federal and state antidegradation policies in NPDES permits. APU 90-004 suggests that an antidegradation analysis requires a pollutant by pollutant and waterbody by waterbody analysis in certain contexts, specifically where the discharge at issue is a discrete discharge from a singular facility, such as discharges from publicly owned treatment works. However, APU 90-004 has limited value when considering antidegradation in the context of diffuse stormwater discharges from tens of thousands of future construction projects of a wide variety distributed throughout the entire state over the life of the permit, each with the potential for discharging multiple pollutants, to a wide variety of waterbodies statewide.[61] This interpretation is sensible, if not necessary, for this general NPDES permit, given the short-term nature of construction projects and the fact that, as of the date of adoption of this permit, the type and location of the construction projects that will be regulated by this General Permit is unknown. Therefore, only a generalized antidegradation analysis can, and must, be conducted for the discharges authorized by this general NPDES permit.

60 State Water Board APU 90-004, page 2.

61 State Water Board Order WQ 2018-0002, page 77. Reaches a similar conclusion for agricultural discharges. This is even more so for the discharges authorized by this Order, because, unlike discharges from agricultural lands, there is much more uncertainty as to the location of the future construction projects and the temporal nature of discharges of stormwater from construction sites.

In addition, reliable data on the baseline water quality since 1968 is not available for all pollutants for all surface waters of the state that might receive discharges authorized by this General Permit. The State Water Board did not begin conducting statewide assessments of water quality until 1973. That first assessment was based only on very limited sampling for only five water quality parameters on portions of 23 water bodies. Over the course of the next five decades, those assessments have gradually become more comprehensive and thorough, culminating with the State Water Board's most recent 2020-2022 Integrated Report, which assessed the waterbodies for three of the nine Regional Water Quality Control Boards. However, even though a large amount of ambient water quality data is now collected and evaluated for these biennial assessments, the integrated reports are focused on assessing whether the waterbodies are supporting beneficial uses. The assessments are not intended to provide information about whether the waterbodies are of a higher quality than necessary to support their beneficial uses.[62] As a result, this analysis assumes that some of the waterbodies that will receive stormwater discharges from some of the construction sites are high quality waters with respect to at least some pollutants that might be in the authorized discharges. Due to the wide variety and unknown identity of the large number of potential waterbodies that might receive authorized discharges from construction projects under this permit and the lack of specific, reliable data regarding each potential receiving waterbody, the analysis of waterbodies that might be affected by this general NPDES permit must also be done at a generalized level.

The State Water Board additionally finds that, even if APU 90-004 applies to the issuance of this permit, it requires at most a "simple" antidegradation analysis. APU 90-004 contemplates that a "simple" antidegradation analysis is appropriate under specified circumstances. In particular, as stated above, APU 90-004 states that a simple antidegradation analysis is allowed when the "[Water] Board determines the reduction in water quality is temporally limited and will not result in any long-term deleterious effects on water quality; e.g., will cease after a storm event is over."[63]

APU 90-004 does not provide guidance on the scope and content of a simple antidegradation analysis. Nor does it define the terms "temporally limited" or "long term." Those terms must therefore be interpreted in the context of the types of discharges being permitted and with deference to the best professional judgment of the State Water Board. Construction stormwater discharges fit within the example provided by the APU and are temporal and inherently short-

62 Regional Water Quality Control Boards Biennial Assessments. <https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment> [as of July 19, 2022]

63 State Water Board APU 90-004, p. 2

term. Therefore, any degradation would be temporally limited and would not result in long-term deleterious effects on water quality. In addition, the permit continues the requirements of the previous permits or imposes equivalent or more protective requirements such that, in at least at a generalized level, the water quality established under the prior permits is expected to be maintained and improved.

The State Water Board determines that the findings made below meet the requirements of a simple antidegradation analysis and are also consistent with an antidegradation analysis done at a generalized level, as appropriate for this permit. With these findings, based on the information available to it and using its best professional judgment, the State Water Board concludes that the discharge will not be adverse to the intent and purpose of the State and federal antidegradation policies. Regardless of APU 90-004's application, however, the below analysis is consistent with the generalized antidegradation analysis appropriate for this general NPDES permit and complies with both the federal antidegradation regulations, and with the State antidegradation policy.

b. The State Water Board Makes the Following Antidegradation Findings

The discharges permitted in the permit are consistent with the antidegradation provisions of 40 Code of Federal Regulations § 131.12 and Resolution No. 68-16. The State Water Board's conclusion that the terms and conditions of the permit are consistent with the antidegradation policies is based on the following analysis.

First, for waterbodies that meet, but do not exceed, the water quality objective for a particular pollutant, no antidegradation findings are required. For these waterbody and pollutant combinations, compliance with the General Permit's requirements ensures that all construction stormwater discharges authorized by this permit do not interfere with the maintenance and protection of existing beneficial uses and water quality objectives.

i. Waterbodies that do not meet water quality objectives (waterbodies that are not high quality)

Because coverage under this General Permit is available statewide, this General Permit authorizes discharges to at least some surface waters that are not meeting water quality objectives. Some of these waterbodies are listed on the State Water Board's section 303(d) list of impaired waters, some of which have applicable TMDLs developed by the Regional Water Boards or U.S. EPA.[64] Some receiving waters are not meeting water quality

64 Impaired waters, or waters that are not high quality, are not confined to those listed only on the 303(d) List. There are several reasons for this, including but not limited to that some of the 303(d) Lists do not reflect current data. In addition, sometimes the

objectives for multiple pollutants. Under both federal and state antidegradation policies, these receiving waters are not considered "high quality" waters for these pollutants. For receiving waters that are not high quality waters, the federal antidegradation policy requires that regulatory actions ensure that existing instream uses and the level of water quality necessary to protect the existing uses are maintained and protected. (40 Code of Federal Regulations § 131.12(a)(1).)[65] The General Permit ensures that existing instream (beneficial) uses and the level of water quality necessary to protect the existing uses are maintained and protected through requirements that discharges authorized by this General Permit do not cause or contribute to exceedances of water quality objectives in the receiving water and to restore impaired waterbodies by requiring compliance with TMDL-specific requirements as set forth in Attachment H and compliance with receiving water limitations set forth in the General Permit, Section IV.D. These provisions are collectively designed to ensure that discharges authorized by this General Permit do not cause any further degradation of impaired waterbodies and do not interfere with the improvement of the quality of such waters to a level protective of existing uses over a time schedule that is as short as possible.

The antidegradation policies do not explicitly or implicitly override the authority and discretion the Clean Water Act and the Water Code grant to the State Water Board as to how it structures a permit to ensure water quality necessary to protect beneficial uses. The law does not require immediate restoration of impaired waterbodies nor does it require an immediate prohibition of discharges that contribute to an exceedance in the waterbody. Rather, federal regulations at 40 Code of Federal Regulations § 122.47 allow NPDES permits to have compliance schedules. Similarly, Water Code § 13263, subdivision (c), authorizes the Regional Water Boards to include a time schedule for achieving water quality objectives in waste discharge requirements. Consistent with Water Code § 13242, TMDL implementation plans, as incorporated into the water quality control plans, include a time schedule for actions to be taken. When issuing waste discharge requirements, Water Code § 13263 requires Regional Boards to implement any relevant water quality control plans that have been adopted. Certainly, water quality objectives must be achieved; but the law, as cited above, recognizes and allows for the fact that it can take time to restore or achieve the objectives. In this regard, some impaired waterbodies may fail

State lacks sufficient data to add a waterbody to the 303(d) List. Accordingly, the 303(d) List itself does not reflect all waterbodies that are impaired.

65 By its terms, State Water Board Resolution No. 68-16 does not separately apply to waters that are not high quality, except by incorporating the federal antidegradation policy as discussed above.

to improve or, rarely, continue to degrade, for a period of time before showing improvement. This period of time may be as long as multiple years. This is not contrary to the authorities for compliance schedules stated above and is not contrary to the antidegradation policies.

ii. High quality waterbodies

Some of the waterbodies within the area covered by this General Permit may be high quality waters for certain pollutants. Some of these waterbodies may be currently high quality as compared to currently applicable objectives. Others of these waterbodies may be currently impaired but may be classified as high quality waters because they were historically high quality for certain pollutants.

Although compliance with the General Permit will generally not result in degradation in high quality waters, compliance with the General Permit does not guarantee that there could never be any degradation in any high quality waters from a specific construction project. Therefore, the State Water Board makes the following findings to comply with antidegradation requirements for any discharges authorized by this General Permit to high quality waters.

For high quality waterbodies, the State Water Board finds as follows:

First, to determine whether the discharge is necessary, the State Water Board must determine whether there are any cost-effective alternatives available that eliminate or reduce the reduction in water quality. For a general, statewide permit, the appropriate inquiry is whether there are cost-effective alternatives to the regulatory framework in the General Permit, not whether there is a cost-effective alternative to an individual project eligible for enrollment under the General Permit. The State Water Board has determined that construction stormwater discharges are appropriately regulated under a general permit rather than individual NPDES permits. There are typically approximately 10,000 ongoing construction projects with stormwater discharges authorized under this General Permit (or its predecessor general permits) at any given time, according to the State Water Board's SMARTS database. These projects typically last from one to three years, at which point coverage under this General Permit is terminated and discharges are no longer authorized. Employing the large number of additional staff necessary to review and issue such a high volume of individual stormwater permits would not be efficient use of resources, would necessitate very large increases in permit fees under Water Code § 13260, subdivision (d)(1)(B) to pay for the additional staff, and would likely result in economic disruption due to delays in permitting construction projects. As further explained in Fact Sheet, Section I.H.1, a General Permit is the

appropriate mechanism to regulate a large number of similar discharges while still protecting water quality.

Practicable Alternatives: The State Water Board has evaluated a range of practicable alternatives that would prevent or lessen any degradation associated with permitted construction stormwater discharges to high quality waters. These alternatives are discussed below.

Alternative 1 – The first alternative is the approach that the General Permit takes. The General Permit requires dischargers, with the assistance of qualified stormwater professionals, to:

1) Determine the risk the construction project poses on the receiving water, based on how much sediment is anticipated to be discharged offsite and whether the receiving water is impaired for sediment or supports COLD, SPAWN, and MIGRATORY beneficial uses. Higher risk projects must comply with additional permit requirements, including sampling and monitoring, and additional BMPs.
2) Assess conditions at the construction site that could impact stormwater quality such as sources of pollutants that could be transported offsite by stormwater runoff.
3) Develop a site-specific Stormwater Pollution Prevention Plan to include information needed to demonstrate compliance with all requirements of the permit and to ensure water quality is protected (Fact Sheet, Section I.V.). This includes identification and implementation of a suite of best management practices tailored to the construction project and the conditions at the site to minimize or eliminate the stormwater discharges, or the pollutants in the stormwater discharges, or both, in compliance with BCT/BAT/BPT standards.
4) Visually inspect the construction site to verify implementation of best management practices is in accordance with the Stormwater Pollution Prevention Plan.
5) Monitor stormwater discharges for pH and turbidity during each day of a qualifying precipitation event and compare sample results to numeric action levels to verify that implementation of the best management practices is protective of water quality.
6) Monitor stormwater discharges for TMDL-specific pollutants, if applicable, and compare to a TMDL-related numeric action level or numeric effluent limitation to verify that the discharge complies with the TMDL-based waste load allocations. TMDL monitoring requirements apply if the site is in a TMDL watershed with waste load allocations translated into numeric action levels or numeric effluent limitations; has sources of the TMDL-specific pollutant(s) onsite; and there is a failure to

implement best management practices, a container spill or leak, or a best management practices breach, failure, or malfunction.

7) Take corrective actions such as repairing or implementing additional best management practices, if visual inspections and discharge monitoring indicate a deficiency.

8) Submit sampling and annual reports regarding implementation of this General Permit.

All discharges authorized by this General Permit must comply with receiving water limitations that require that discharges 1) do not adversely affect human health or the environment, 2) do not contain pollutants in quantities that threaten to cause pollution or public nuisance, 3) do not contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or standards contained within an applicable water quality control plan, and 4) comply with the applicable TMDL implementation requirements of this General Permit (Order, Section IV.D). Furthermore, the Regional Water Boards retain the authority to impose any additional site-specific requirements where necessary to prevent degradation and to protect water quality standards.

Under this General Permit, there are disincentives to discharging such that dischargers already seek to minimize or eliminate their stormwater discharges where possible. The General Permit promotes efforts to maximize the capture of stormwater from construction sites through retention basins, infiltration galleries, and other controls that reduce the amount of stormwater that is discharged from the site. If there are no discharges, the General Permit's sampling requirements and any otherwise applicable numeric action levels or numeric effluent limitations are not applicable to that discharger and the discharger would not risk an enforcement action for any potential discharge-related General Permit violations. Accordingly, dischargers have an incentive to schedule their work during dry weather or to retain stormwater whenever possible. Collectively, these requirements generally prevent degradation, and where that is not possible, minimize degradation and the duration of any degradation. This alternative does not, however, guarantee that no construction site will ever have authorized stormwater discharges that may result in temporary, limited degradation.

Alternative 2 – The second alternative would be more stringent permit requirements in watersheds with high quality waters. Different approaches for more stringent requirements could include a construction prohibition, a prohibition of discharges, a requirement that active treatment be used for all pollutants in all stormwater discharges, or numeric effluent limitations for all pollutants in all stormwater discharges.

The State Water Board finds that more stringent requirements are not currently possible for any of these approaches for the following reasons:

- **Construction prohibition**: Such a prohibition would exceed the State Water Board's authority to regulate discharges of waste to waters of the state from discharges. The State Water Board does not have the authority to directly regulate land use. (Wat. Code, §§ 13260, 13263.) Such a prohibition is also not possible because many construction projects are essential and cannot be relocated (e.g., repair of existing roads and utilities).
- **Prohibition on discharges**: By eliminating all stormwater discharges, pollutants from stormwater would not reach high quality receiving waters during wet weather and therefore could not cause any degradation. As wet weather will always occur, this approach would require all construction sites to retain all stormwater through retention basins, infiltration galleries, and other controls that would prevent stormwater from reaching surface waters through infiltration, evaporation, or storage and reuse. The complete retention to eliminate any possibility of discharge is not typically technologically or economically feasible in many locations. Although retention, detention, and run-on BMPs are frequently implemented as part of the SWPPP, these BMPs are typically designed only to reduce stormwater discharges or the likelihood thereof, not to completely eliminate discharges. Retention that eliminates the possibility of discharges to any surface waters would require much larger sizing than a retention or detention BMP used to reduce discharges because it would need to be sized to capture even extreme weather events.[66] U.S. EPA estimated that the base cost, which does not include costs of acquiring the land,[67] annual maintenance costs, design, geotechnical testing, legal fees, land costs, and other unexpected or additional costs such as fees for disposing of contaminated excavated

66 For example, in October 2021, there were historic Category 5 atmospheric rivers throughout California.

67 The cost of acquiring land can be substantial.
E.g. Working Paper 19-01: The Price of Residential Land for Counties, ZIP codes, and Census Tracts in the United States.,
<https://www.fhfa.gov/PolicyProgramsResearch/Research/Pages/wp1901.aspx> [as of July 19, 2022]. For example, in Los Angeles County, residential land costs were estimated at $1-3 million per acre. *Id.*
See also, Southern California Coastal Water Research Project. *Concept Development: Design Storm for Water Quality in the Los Angeles Region, Technical Report 520*. October 1, 2007, page 7.
<https://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/520_designStorm.pdf> [as of July 19, 2022].

soils, for a retention and detention basins is $0.50-$1.00 per cubic foot.[68] The estimate of typical costs reflects 15,000 – 150,000 cubic feet of storage. Thus, a retention basin for a 50-acre residential site would have the base cost of $100,000. But this base cost only represents the typical implementation of stormwater BMPs, which only provide for detention or partial retention. A retention basin for a 50-acre residential site that eliminated the possibility of discharge would need to be much larger and therefore is more costly. Most California counties require stormwater basins to be designed to a 2-year, 24-hour storm intensity at minimum. Assuming a typical bare soil runoff coefficient of 0.35 (Type C soil), a 2-year, 24-hour storm (2.27 inches of rainfall) at a 50-acre site in Orange County, for example, would produce a total of approximately 3.31 acre-feet of runoff per day. Adding a normal Factor of Safety for detention structures of 2.0, 5,770 cubic feet of water would need to be retained per acre, or 288,400 cubic feet for the entire parcel. An 'atmospheric river' type storm that lasted three days at this intensity would require at least six times this amount of storage, as the runoff coefficient would increase each day. The costs would vary significantly depending on land costs (e.g., urban versus rural area) and slope. Complete retention of all stormwater would not be technologically feasible at all construction sites. Certain sediment types are poorly suited for infiltration (e.g., clay soils infiltrate poorly). Construction sites are inherently dynamic, but retention basins cannot move. Stormwater may have different discharge points during different phases of construction, and a retention basin could not be moved to accommodate the changing points. In urban areas with infill development, there is not sufficient space for such large retention basins. In some cases, such large basins could also implicate vector control or public safety issues.[69] In other areas where the groundwater table is high, it may not be possible to design an effective retention basin

68 U.S. EPA Urban Storm Water BMP Preliminary Data Summary - 1999, page 6-3. <https://www.epa.gov/sites/default/files/2015-11/documents/urban-stormwater-bmps_preliminary-study_1999.pdf> [as of July 19, 2022]. Other costs could include, for example, filling, regrading, and vegetating the retention pond after the construction project has concluded.

69 Southern California Coastal Water Research Project. *Concept Development: Design Storm for Water Quality in the Los Angeles Region, Technical Report 520*. October 1, 2007, page 7. <https://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/520_designStorm.pdf> [as of July 19, 2022]. Notes the potential trade-offs between water quality and ensuring public safety, including protecting property from flood damage and maintaining passable roadways.

without hitting the groundwater table and potentially causing groundwater quality problems.

Even if complete retention were technologically possible, the costs associated with constructing effective complete retention structures are not generally economically feasible for most construction projects.[70] Expensive, structural BMPs are generally not economically feasible to implement on construction sites, which are temporary in nature, in part because the useful life of the investment is short-term and difficult to recoup. Requiring implementation of substantially more expensive controls may render projects that are beneficial to the people of the state economically infeasible. For example, government-funded road projects often operate on fixed budgets where increased costs on one construction project leaves less money to complete other projects.[71] Similarly, restoration projects are frequently funded by grants. Increased construction costs would render less money available for additional restoration projects. Increased construction costs might also deter affordable housing projects, which operate on thin margins and frequently depend on government subsidies.[72]

Determining a range of costs for complete retention of stormwater is complex due to the wide variety of conditions. Costs vary widely across construction projects throughout California due to precipitation, size, soil types, topography, and other location-specific factors such as labor costs. Two examples of costs to complete full retention of stormwater on a site with 16 acres of disturbed soil area (mean CGP size), based solely on the difference in precipitation, are as follows:

On a 16-acre project in the rainy North Coast region, a 2 year, 24-hour storm (2.93 inches of rainfall) would require a 148,900 cubic foot capacity detention basin, equivalent to a 29,780 square foot excavation at five feet in depth, including the required one foot of freeboard. A typical cost of

70 Southern California Coastal Water Research Project. *Concept Development: Design Storm for Water Quality in the Los Angeles Region, Technical Report 520*. October 1, 2007, p. 14. <https://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/520_designStorm.pdf> [as of July 19, 2022]. Provides an example. Discusses the feasibility of BMP implementation costs in the Ballona Creek watershed and highlighting the difference between new or redevelopment versus retrofit.

71 Overview of Transportation Funding (2015). <https://lao.ca.gov/handouts/transportation/2015/Transportation-Funding-022315.pdf> [as of July 19, 2022]. For example, general obligation bonds can help pay for transportation projects and are for a set amount.

72 Affordable Housing and Sustainable Communities Program. <https://www.hcd.ca.gov/affordable-housing-and-sustainable-communities> [as of July 19, 2022]. Provides an example.

$10/cubic yard for excavation[73] is approximately $55,150, not including off-haul of spoils, if required. In addition, the basin would require engineered backfill if any roadways or buildings were subsequently constructed at the site, increasing the costs by $415,000 for import backfill and compaction (at $75/cubic yard).[74] This scenario would therefore have a total cost of at least $470,150, since there would be additional costs for engineering design and final grading.

On a 16-acre project in an arid southern California region, the 2-year, 24-hour storm (1.72 inches of rainfall) for a similar level of retention would require an 87,400 cubic foot capacity detention basin at an excavation-only cost of $32,375. Using the same assumptions as above, engineered backfill would increase the total costs to at least $275,150.

The above examples show excavation and backfill costs only for a one-day design storm, and would add $3,000–$5,000 to the cost of each house in a typical residential development, depending on location (based on six houses/acre). However, an 'atmospheric river' storm lasting three days at the same intensity would require far more retention capacity, as the runoff coefficient would increase each day. In the northern part of the state, such a storm would necessitate an 893,400 cubic foot (33,100 cubic yard) basin, covering four acres at a four-foot depth and one foot of freeboard. The costs for excavation and engineered backfill would amount to $2.8 million. Complete retention of stormwater for all construction sites regulated by this General Permit would be cost prohibitive.

- **Active treatment**: This approach would be to require the use of active treatment of all construction stormwater prior to discharge in areas with high quality waters. This approach may not be feasible because generally speaking, this permit may not specify the design location, type of construction, or particular manner in which compliance may be achieved with a requirement. (Wat. Code, § 13360.) In addition, active treatment is highly effective at treating water for TSS and turbidity, but generally does not remove pollutants that do not sorb to sediment, such as dissolved phase metals and hydrocarbon compounds. In order for this approach to be successful in guaranteeing no degradation of high quality waters, it would be necessary for active treatment to reliably treat all pollutants to levels that are equal to, or better than, the actual levels of each pollutant in each waterbody. Such limitations could only be established if the high quality waterbody and existing levels of each

73 Caltrans project 01-476604, Mendocino County, Item 044. <http://website.dot.ca.gov/hq/construc/estdet/01-476604-025.txt> [as of July 19, 2022]
74 Caltrans project 01-262004, Mendocino County, Item 072. <http://website.dot.ca.gov/hq/construc/estdet/01-262004-064.txt> [as of July 19, 2022]

pollutant for which that water was high quality were known. As explained above, this data does not exist on a statewide basis. In addition, active treatment of all stormwater would likely be cost-prohibitive for some construction sites, because the cost of active treatment is directly related to the volume of stormwater that must be treated. For example, costs for a one-time use of active treatment systems ranges from $10,029 for 1.9 acres to $96,674 for 145 acres.[75] However, current information obtained from staff conversations with an active treatment system vendor in the Sacramento area indicates that installed systems typically range from $70,000-$80,000 for a 200 gallon per minute seasonal system to $700,000 for a 2,000 gallon per minute seasonal system such as may be required to accommodate 3-inch storm events on a 16-acre site. Finally, based on staff conversations with the same active treatment system vendor and staff's limited market search for additional active treatment vendors, active treatment systems are not evenly distributed throughout the state and there are currently an insufficient number of systems available to deploy to all construction sites during regional precipitation events.

- **Establishment of numeric effluent limitations for discharges to high quality waters**: In order to prevent any degradation of any high quality water under this approach, the General Permit would have to implement water quality-based numeric effluent limitations that are equal to, or lower than, the actual ambient levels of each pollutant in each waterbody. Such limitations could only be established if the high quality waterbody and existing levels of each pollutant for which that water was high quality were known. As explained above, this data does not exist on a statewide basis. Even if the data did exist, it would not be possible to determine whether the methods to achieve compliance with the numeric effluent limitations would be technically or economically feasible at most or all construction sites. Further, because such numeric effluent limitations would necessarily be waterbody and pollutant specific, administration of such limitations would not be feasible under the General Permit structure.

Alternative 3 – Given the uncertainties about the locations of, and data limitations about, high quality waters, a third alternative would be to mandate specific requirements that would apply to all construction projects

75 U.S. EPA, Development Document for Final Effluent Guidelines and Standards for the Construction & Development Category (Nov. 2009) page. 9-35. <https://www.epa.gov/sites/default/files/2015-06/documents/construction_development_dd_2009_chapters_1-11.pdf> [as of July 19, 2022]

statewide. These statewide requirements could include more numeric effluent limitations, more stringent numeric action levels, or requiring the installation of specific BMPs, like active treatment.

- **Require on-site stormwater retention for a compliance storm**: Because a prohibition on all discharges is not feasible as discussed above, one approach would be to require controls that eliminated discharges in most storms. For example, dischargers could be required to retain all runoff from the 95th percentile, 24-hour storm volume or the 85th percentile, 24-hour storm volume.[76] Requiring all construction sites to install retention basins designed to retain all stormwater from large "compliance storms," rather than complete retention from storms of all sizes, would encounter similar technological and economic difficulties as those identified above, just at a somewhat lesser scale. Considerations would have to include engineering design cost, available space for both the basin and excavation spoils stockpiles, avoidance of underground utility installations, schedule delays caused by constructing, using, backfilling and regrading the basin, off-haul of spoils and import of engineered fill, if required, disposition of accumulated stormwater or allowance for evaporation, vector control, and safety barriers. Further, there is no guarantee that the discharges from storms larger than the selected compliance storm would not cause degradation of high quality waters.
- **Establishment of numeric technology based effluent limitations statewide**: Even assuming that there might be a treatment technology that, if utilized, could guarantee no degradation of high quality waters, the State Water Board does not have the data that would be necessary to impose effluent limitation that would be derived from the use of that technology. In previous litigation, the superior court determined that the State Water Board did not have sufficient BMP performance data to impose technology based numeric effluent limitations for pH and turbidity for Risk Level 3 sites. Absent the development of this needed additional data, the Board would not be able to support the implementation of

76 Southern California Coastal Water Research Project. *Concept Development: Design Storm for Water Quality in the Los Angeles Region, Technical Report 520*, October 1, 2007, page 12. <https://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/520_designStorm.pdf> [as of July 19, 2022]. For example, a BMP sized to capture 90% instead of 80% of decadal runoff volume would require a BMP nearly triple the size.

numeric technology based effluent limitations to prevent any possibility of degradation.[77]

- **Active treatment**: This option would suffer from the same problems identified for active treatment described under alternative 2, above. Consistent with the Blue Ribbon Panel's findings, active treatment is not feasible for all sites: "The active treatment systems have generally been employed on sites five acres or larger. While the systems are technically feasible for sites of any size, including sites or drainages as small as an acre or less, the cost may be prohibitive."[78]
- **Use of other, specific BMPs**: Alternative 1 already requires the use of minimum BMPs such as non-structural BMPs (e.g., maintenance, good housekeeping, staff training/education, proper handling, spill response, project planning/scheduling) and source control BMPs (e.g., site design and planning, irrigation). This alternative approach would be to specify that certain additional BMPs would need to be used at all sites. This approach may not be feasible because generally speaking, as discussed above, this General Permit may not specify the design location, type of construction, or particular manner in which compliance may be had with a requirement. (Wat. Code, § 13360.) In addition, the efficacy of any structural BMPs are both site specific and pollutant specific, such that there are not universally beneficial BMPs that should be mandatory on all sites.

77 *California Building Industry Association v. State Water Resources Control Board*, Sacramento Superior Court Case No. 34-20009-80000338-CU-WM-GDS. Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category, 79 Federal Register 12661-01 (March 06,2014). The U.S. EPA provides an explanation for not including a previous numeric effluent limitation for turbidity in its Effluent Limitation Guidelines for construction stormwater: "At this time, EPA is concerned that a numeric limitation may create a disincentive to green infrastructure techniques for managing stormwater. For example, meeting a numeric standard may require installation of a sediment basin or other impoundment on certain sites, which may be a disincentive to installing distributed stormwater controls. Also, EPA recognizes that additional data collection would likely be necessary in order to inform any establishment of numeric discharge standards and monitoring requirements in the future. At such time that EPA decides on a path forward with respect to numeric discharge standards and monitoring requirements, EPA will take appropriate actions to notify interested stakeholders. EPA encourages interested parties to continue submitting data and information to EPA with respect to numeric discharge standards at construction sites."

78 The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities, page 16.

One of the first basic steps in creating a stormwater management plan is to assess site and watershed conditions. Site and watershed conditions include information such as geographic features or landmarks, drainage patterns, and general topography. Next, a plan should evaluate pollutants of concern and other additional benefits that BMPs can provide. Accordingly, the selection of appropriate BMPs is a highly site-specific inquiry. Because of the complexity of appropriate BMP selection, the permit requires a qualified stormwater professional to identify the appropriate site-specific BMPs and prepare the SWPPP. The General Permit imposes substantial education and training requirements for qualified stormwater professionals to ensure that the selection of site-specific BMPs is appropriate. (See General Permit, Sections V.C. – V.I.)

For example, bioretention basins are very effective for multiple pollutants, but are not feasible at many construction sites, as discussed in further detail in Fact Sheet, Section I.G.5.d. Media filters are another BMP that may be effective at removing multiple pollutants, but are already typically recommended by qualified stormwater professionals under Alternative 1. Accordingly, requiring the universal use of specific structural BMPs for antidegradation purposes is not a feasible alternative because requiring specific BMPs may not be effective at reducing pollution and may not be technically feasible or cost effective depending on site characteristics.

iii. Economic and Social Development Considerations and Consistency with Maximum Benefit to the People of the State

The State Water Board adopts the approach set forth in Alternative 1 for the General Permit. This alternative may allow limited and temporal degradation of high quality waters by construction stormwater discharges, but this alternative does require all construction stormwater discharges to not cause or contribute to exceedances of water quality objectives or interfere with the maintenance and protection of beneficial uses for high quality waters in all cases. Two of the approaches described under Alternative 2 would guarantee no degradation of high quality waters (i.e., construction prohibition and prohibition on discharges), but all of the approaches described under Alternative 2 are infeasible for the reasons described above and would hamper important social and economic development. The approaches described under Alternative 3 would not guarantee no degradation of high quality waters from authorized discharges, and are either technically or economically infeasible, or contrary to the framework of a general permit in which the methods for reducing or eliminating pollutants in stormwater discharges are developed by a stormwater professional and tailored to each individual construction site, or both.

The limited and temporal degradation of high quality waters that could occur under this General Permit is necessary to accommodate important economic or social development in the area and is consistent with the maximum benefit to the people of the state. Construction activities support important economic and social development. Construction is a large, vital industry in California, adding an estimated $240 billion in value in 2017 and a major source of employment.[79] The U.S. Bureau of Labor Statistics estimates that there are 968,760 construction laborers in California.[80] Construction projects include critical infrastructure (e.g., broadband internet,[81] roads,[82] utility lines), public safety (e.g., flood control,[83] system hardening[84]), restoration,[85] housing,[86] and commercial development. As

79 U. S. Census Bureau. Construction (NAICS Sector 23), (2017). <https://www.census.gov/data/tables/2017/econ/economic-census/naics-sector-23.html> [as of July 19, 2022].
Legislative Analyst's Office. CalFacts 2018. Construction is one of the major sectors for California's 17 million jobs. <https://lao.ca.gov/reports/2018/3905/calfacts-2018.pdf> [as of July 19, 2022].

80 U. S. Bureau of Labor Statistics. Occupation Employment and Wage Statistics, 47-2061 Construction Laborers (May 2021). <https://www.bls.gov/oes/current/oes472061.htm> [as of July 19, 2022].

81 State of California Executive Department. Executive Order N-73-20 (August 14, 2020). <https://www.gov.ca.gov/wp-content/uploads/2020/08/8.14.20-EO-N-73-20.pdf> [as of July 19, 2022].

82 State Highway Operation and Protection Program. Ten-Year Project Book, Fiscal Years 2021/22-2030/31. <https://dot.ca.gov/-/media/dot-media/programs/asset-management/documents/2022-q2-book-combined-a11y.pdf> [as of July 19, 2022].

83 California Department of Water Resources. Small Communities Flood Risk Reduction. <https://water.ca.gov/Work-With-Us/Grants-And-Loans/Small-Communities-Flood-Risk-Reduction> [July 19, 2022].

84 E.g., Governor Newsom Signs Historic Legislation to Boost California's Housing Supply and Fight the Housing Crisis (September 16, 2021). <https://www.nytimes.com/2021/07/21/business/energy-environment/pge-underground-powerlines-wildfires.html> [as of July 19, 2022]. In response to wildfires, utility companies aim to put power lines underground.

85 Southern California Wetlands Recovery Project. Work Plan 2020. <https://scwrp.org/wp-content/uploads/2020/04/Work-Plan-Report-2020.pdf> [as of July 19, 2022].

86 Office of the Governor. Governor Newsom Signs Historic Legislation to Boost California's Housing Supply and Fight the Housing Crisis (September 16, 2021). <https://www.gov.ca.gov/2021/09/16/governor-newsom-signs-historic-legislation-to-boost-californias-housing-supply-and-fight-the-housing-crisis/> [as of July 19, 2022]. In 2021, Governor Newsom signed bipartisan legislation to expand housing production in California.

noted by many commenters on the draft versions of this General Permit, California is facing a housing shortage.

Where there is a public utility, increased construction costs could be passed on by increased fees to utility users or road users. Higher construction costs could affect whether a housing project remains affordable.

Importantly, under Alternative 1, notwithstanding the possibility of limited and temporal degradation from some authorized stormwater discharges, the State Water Board finds that authorized stormwater discharges will not cause or contribute to exceedances of water quality objectives in high quality waters, and therefore will not cause pollution or conditions of nuisance or otherwise adversely affect beneficial uses of the receiving waterbodies. Because all beneficial uses will be maintained and protected, there will be only very minor impacts to water quality resulting from any degradation that does occur, so any resulting harm to the public interest associated with any degradation will also be very minor and speculative because all high quality waters will still fully support all beneficial uses. Therefore, it is not necessary to analyze the harm to the public interest associated with the authorized stormwater discharges, especially in a generalized and simple antidegradation analysis.

iv. Requirement for Highest Statutory and Regulatory Requirements and Best Practicable Treatment and Control

The permit requires the highest statutory and regulatory requirements and requires that the dischargers meet best practicable treatment or control and, as described more fully above, requires the following:

- Implementation of BAT/BCT/BPT, including compliance with U.S. EPA's effluent limitation guidelines for the construction and development category as the level of pollutant abatement that is the best available technology economically achievable;
- Compliance with receiving water limitations;
- Enhanced requirements on non-stormwater discharges;
- TMDL-specific requirements that are consistent with the waste load allocations established by TMDLs that identify construction stormwater as a source; and,
- Reservation of authority for the Regional Water Boards to retain the ability to impose additional sampling and monitoring requirements or coverage under an individual NPDES permit if necessary.

v. Public Participation

Numerous public participation opportunities have been provided during the development of this permit. In addition to the minimum public participation requirements required by the federal regulations governing NPDES permits and Water Code § 13167, State Water Board staff has met informally with stakeholders, held staff workshops, and accepted comments on an administrative draft of the permit.

I.I. Regional Water Board Authorities

Because this General Permit will be issued to thousands of construction sites across the State, the Regional Water Boards retain discretionary authority over certain issues that may arise from the discharges in their respective regions. This General Permit does not grant the Regional Water Boards any authority they do not otherwise have; rather, it merely emphasizes that the Regional Water Boards can take specific actions related to this General Permit. For example, the Regional Water Boards will be enforcing this General Permit and may need to adjust some requirements for a discharger based on the discharger's compliance history.

I.J. Construction Activities Covered

I.J.1. General Activities Covered

Construction activity phases (demolition and pre-development site preparation, grading and land development, streets and utilities, vertical construction, and final landscaping and site stabilization) can impact a construction site's runoff sediment supply, pollutant loading, and transport characteristics. These modifications can occur both during and after the construction phase and, without proper controls, such as the requirements set forth in this General Permit, could result in significant degradation of the established water body beneficial uses in California. The primary stormwater pollutant at construction sites is excess sediment. Excess sediment can cloud the water and reduce the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in our waterways. Sediment also transports other pollutants such as nutrients, metals, oils, and greases, and pesticides. In addition to sediment, other pollutants that are commonly associated with construction activities include, but are not limited to, pollutants from cement, stucco, paints, cleaning materials, general debris, chemicals associated with historical structures mobilized through demolition, historical contamination chemicals in soil mobilized by construction disturbance, and other construction related products easily transported by stormwater runoff. Dischargers can reduce and avoid the effects of these pollutants on water quality through better construction site design and use of best management practices (BMPs).

a. In accordance with the Ninth Circuit Court of Appeals' decision in *Natural Resource Defense Council v. U.S. EPA* (9th Cir. 2008) 526 F.3d 591, and subsequent denial of the U.S. EPA's petition for reconsideration in November 2008, oil and gas construction activities discharging stormwater contaminated only with sediment are no longer exempt from the NPDES program;

b. Site geotechnical investigation work requires special precaution when backfilling bore holes so that aquifers are adequately protected from surface contamination;

c. Disturbances related to geotechnical or other site investigation work is a construction activity requiring permit coverage;

d. Construction activities that disturb 1 or more acres of soil associated with the construction of new fire prevention methods (e.g., fire barriers, fire breaks, and fire prevention areas) require permit coverage;

e. Stormwater discharges from dredge spoil placement that occur outside of U.S. Army Corps of Engineers jurisdiction (upland sites) and that disturb one or more acres of land surface from construction activity are covered by this General Permit. Construction projects that include in-water work that require a Clean Water Act 404 permit should contact the Regional Board to determine whether a Clean Water Act 401 Certification is necessary; and,

f. Concrete mixing for the purpose of construction, in which all mixing activities occur solely within a specific project site, may do so under this General Permit. The project site boundary are those as defined in the project's site-specific SWPPP.

I.J.2. Linear Underground and Overhead Projects subject to this General Permit

a. Underground and overhead facilities typically constructed as linear underground and overhead projects include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water, wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio, or television messages); and associated ancillary facilities. Construction activities associated with linear underground and overhead projects include, but are not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower

installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

b. Water Quality Order 2003-0007-DWQ regulated construction activities associated with small linear underground and overhead projects that resulted in land disturbances greater than one acre, but less than five acres. These projects were considered non-traditional construction projects. Attachment E of this Order now regulates all construction activities from linear underground and overhead projects resulting in land disturbances greater than one acre.

c. All disturbances to the ground must be accounted for and considered additive. The following formula attempts to account for all disturbances from the construction activity, not just the trenching activity itself:

$$\text{Total Disturbed Area} = W_t * L_t + A_p + D_b * N_b + W_r * L_r$$

Where:

- W_t is the width of the disturbance, including trench width, plus the immediate access width;
- L_t is the length of the trench or project pipe;
- A_p is the area where project-related activity occurs (i.e., equipment and material storage, staging, and preparation areas not on paved surfaces, ancillary facility areas);
- D_b is the bore hole diameter multiplied by the immediate access width;
- N_b is the number of bore holes;
- W_r is the new road construction width; and,
- L_r is the length of the new road.

This formula illustrates how to account for all disturbances to the ground resulting from the construction activity. Although dischargers are not required to use this exact formula, they must include all disturbances to the ground in their total calculation.

d. The visual inspection requirements set forth in Monitoring and Reporting Requirements in Attachment E are applicable to all linear underground and overhead projects regardless of type.

e. This General Permit's visual inspection requirements apply to linear underground and overhead project Type 1 projects in both populated (developed or paved) and rural (undeveloped or unpaved) settings. In a populated environment, daily closure requirements for an open excavation may be an important element of a SWPPP for stormwater protection and safety plans because open excavations present a safety hazard to both pedestrians and traffic. However, uncovered excavations in rural settings do not pose as

significant a threat to safety. Likewise, it makes sense for linear underground and overhead project Type 1 projects in developed settings to return disturbed land back to pre-construction conditions daily, because of incidental non-stormwater discharges in an urban environment and the associated potential for runoff from paved, impermeable surfaces. However, projects in rural settings, are less likely to have impervious surfaces and non-stormwater discharges and may not present the same threat to water quality.

I.J.3. Demolition

a. When a construction project involves demolition or renovation, construction and demolition debris is created. Construction and demolition debris can consist of three types of wastes:

   i. Inert or non-hazardous waste;

   ii. Hazardous waste as regulated by the United States Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA); and,

   iii. Items that contain hazardous components that might be regulated by the state.

b. This General Permit requires best management practices (BMPs) to reduce the exposure of hazardous materials found in older structures from mobilizing in stormwater. Common hazardous materials related to demolition can be found on the U.S. EPA's website[87] and include but are not limited to:

   i. Asbestos-Containing Materials

      State of California Department of Industrial Relations Cal/OSHA has adopted regulations regarding asbestos exposure California Code of Regulations, Title 8, § 1529.

   ii. Mercury Containing Devices

      Many structures utilize devices that contain mercury. Mercury is persistent and toxic to human health and the environment. Mercury containing devices such as thermostats fluorescent lamps shall be isolated, removed and taken to an appropriate disposal facility.

   iii. Lead-Based Paint

      Older structures have a high likelihood of containing lead-based interior and exterior lead-based paint. During the demolition process the lead-based paint can be mobilized and behave like dust. The lead-based paint can be

87 U.S. EPA, Harmful Materials and Residential Demolition, <https://www.epa.gov/large-scale-residential-demolition/harmful-materials-and-residential-demolition> [as of May 20, 2021]

inhaled by workers on the demolition site and tracked off-site causing hazardous exposure to lead to the community. Therefore, it is important to minimize exposure by implementing lead-safe practices during demolition activities.

iv. Polychlorinated Biphenyls (PCBs) in Caulk

PCBs have been identified in caulk in many older structures. Protective BMPs and OSHA approved Personal Protective Equipment shall be utilized to prevent the exposure of PCBs to workers and the surrounding environment during and after demolition.

In order to be in compliant with all PCB TMDLs, Mercury TMDLs and statewide policies, dischargers are required to schedule demolition at times of the year with a low probability of a precipitation event, cover demolished material when activity stops for the day or prior to precipitation, or have a certified individual examine the structure for hazardous materials and mitigate the hazard with a method that prevents the material from discharging off-site.

Because of the production ban of PCBs in 1979, this General Permit has requirements for demolition of buildings built prior to January 1, 1980.[88]

I.J.4. Common Plan of Development or Sale

U.S. EPA regulations include the term “common plan of development or sale” to ensure that acreage within a common project does not artificially escape this General Permit’s requirements because construction activities are phased, split among smaller parcels, or completed by different owners or developers. The State Water Board is required to exercise its regulatory discretion in providing a common-sense interpretation of the term as it applies to construction projects and permit coverage. An overbroad interpretation of the term would render meaningless the clear “one acre” federal permitting threshold and would potentially trigger permitting of almost any construction activity that occurs within an area that had previously received area-wide utility or road improvements.

The 2008 U.S. EPA NPDES General Permit for Discharges from Construction Activity (2008 Construction General Permit) provided further clarification on the common plan of development or sale regarding non-contiguous construction activities. Where discrete construction projects within a larger common plan of development or sale are located at least 1/4 mile apart and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline, or utility

88 Geosyntec Consultants for the Bay Area Stormwater Management Association. Integrated Monitoring Report Part B: PCB and Mercury Loads Avoided and Reduced via Stormwater (IMR). 2013.

project that is part of the same “common plan” is not concurrently being disturbed. For example, oil and gas well pads separated by 1/4 mile could be treated as separate projects. However, if the same two well pads and an interconnecting access road were all under construction at the same time, they would generally be considered as part of a single “common plan” for permitting purposes. If a utility company was constructing new trunk lines off an existing transmission line to serve separate residential subdivisions located more than 1/4 mile apart, the two trunk line projects could be considered separate projects.

Construction projects generally receive grading and/or building permits (Local Permits) from local authorities prior to initiating construction activity. These Local Permits spell out the scope of the project, the parcels involved, the type of construction approved, etc. Referring to the Local Permit helps define “common plan of development or sale.” In cases such as tract home development, a Local Permit will include all phases of the construction project including rough grading, utility and road installation, and vertical construction. All construction activities approved in the Local Permit are part of the common plan and must remain under the General Permit until construction is completed. For custom home construction, Local Permits typically only approve vertical construction as the rough grading, utilities, and road improvements were already independently completed under the previous Local Permit. In the case of a custom home site, the homeowner must submit plans and obtain a distinct and separate Local Permit from the local authority in order to proceed. General Permit coverage for an individual homeowner building a custom home on a private lot of less than one acre is not required. Similarly, the installation of a swimming pool, deck, or landscaping that disturbs less than one acre that was not part of any previous Local Permit are not required to obtain General Permit coverage.

The following are several examples of construction activity of less than one acre that would require permit coverage:

a. A landowner receives a building permit(s) to build tract homes on a 100-acre site split into 200 one-third acre parcels, (the remaining acreage consists of streets and parkways) which are sold to individual homeowners as they are completed. The landowner completes and sells all the parcels except for two. Although the remaining two parcels combined are less than one acre, the landowner must continue permit coverage for the two parcels.

b. One of the parcels discussed above is sold to another owner who intends to complete the construction as already approved in the local permit. The new landowner must electronically certify and submit Permit Registration Documents to complete the construction even if the new landowner is required to obtain a separate Local Permit.

c. The landowner in (1) above purchases 50 additional one half-acre parcels adjacent to the original 200-acre project. The landowner seeks a Local Permit

(or amendment to existing local permit) to build on 20 parcels while leaving the remaining 30 parcels for future development. The landowner must amend Permit Registration Documents to include the 20 parcels 14 days prior to commencement of construction activity on those parcels.

I.K. Construction Activities Not Covered

I.K.1. Traditional and Linear Construction Activities Not Covered

Construction activities not covered by this General Permit are listed in the Order Section II.B and Section II.D.

I.K.2. Notice of Non-Applicability

Reliance on approved jurisdictional determinations is not allowed in the General Permit for a number of reasons. First, approved jurisdictional determinations delineate the scope of waters of the United States. They do not determine whether an activity results in a discharge to a water of the United States. Second, the scope of waters of the United States is subject to changes based on change of regulations or judicial decisions. Approved jurisdictional determinations are valid for a discrete number of years, and they may not be up-to-date with respect to implementing the current regulations if there is an intervening change during the duration of the validity of the approved jurisdictional determination. Finally, it is likely that the approved jurisdictional determination was requested by another party and in another context, such as the discharge of dredged or fill material. As such, the findings may not be easily extrapolated.

In 1998, the California Water Code was amended to require entities who are requested by the State Water Board to obtain General Permit coverage, but that have a valid reason to not obtain General Permit coverage, to submit a Notice of Non-Applicability (NONA). (Cal Wat. Code, § 13399.30, subd. (a)(2)).

The State Water Board considered allowing Entities to review United States Army Corp of Engineer approved jurisdictional determinations to evaluate, without a California licensed professional geologist, whether their facility location is within a basin and/or other physical location that is not hydrologically connected to waters of the United States. The State Water Board believes that this process can be difficult in some cases. In addition, there may be areas of the state that are not hydrologically connected to waters of the United States for which there is not a corresponding United States Army Corps of Engineer approved Jurisdictional Determination. Therefore, all “No Discharge” Technical Reports must be signed (wet signature and license number) by a California licensed professional engineer or geologist. In addition, the discharger must obtain a concurrence letter from the Regional Water Board that has jurisdiction over the site location.

I.K.3. Small Construction Erosivity Waiver

The U.S. EPA's Stormwater Phase II Final Rule provides the option for a Small Construction Rainfall Erosivity waiver. This waiver applies to construction sites between 1 and 5 acres and allows permitting authorities to waive those sites that do not have adverse water quality impacts.

Projects that do not qualify for the Small Construction Rainfall Erosivity waiver include:

a. Projects that are part of a larger common plan of development disturbing more than 5 acres; and/or,

b. Projects with construction lasting one year or greater.

Dischargers eligible for the Small Construction Erosivity waiver are exempt from coverage for this General Permit. The discharger must certify and submit to the State Water Board that small construction activity will occur only when the rainfall erosivity factor ("R" factor in the Revised Universal Soil Loss Equation) is less than 5 to obtain the waiver. The period of construction activity begins when the WDID number is issued and ends when the disturbed areas of the project meet the final stabilization conditions in Order Section III.H. The R value is calculated from the construction start date through all phases of construction (initial land disturbance through final stabilization). Small projects that are part of a larger plan of development (less than 5 combined acres of disturbance) use the earliest start date associated with the plan of development and their estimated time of meeting the final stabilization requirements.

Projects that qualify for the small construction erosivity waiver are not subject to the post-construction standards of this General Permit, but may be subject to existing permitted Phase I or Phase II municipal separate storm sewer system (MS4) post-construction requirements.

A waiver eligibility condition requires the operator to periodically inspect and properly maintain the area until the criteria for final stabilization defined in this General Permit is met. If use of this interim stabilization eligibility condition is relied upon to qualify for the waiver, a signature on the waiver with a certification statement constitutes acceptance of and commitment to complete the final stabilization process. The discharger must apply for a waiver in SMARTS prior to commencing construction activities.

U.S. EPA funded a cooperative agreement with Texas A&M University to develop an online rainfall erosivity calculator. Dischargers can access the calculator from the U.S. EPA's website.[89] Use of the calculator allows the discharger to determine potential eligibility for the rainfall erosivity waiver. It may also be useful in

89 U.S. EPA, Rainfall Erosivity Factor Calculator for Small Construction Sites, <https://lew.epa.gov/> [as of May 20, 2021]

determining the time periods during which construction activity could be waived from General Permit coverage.

I.L. Obtaining and Modifying General Permit Coverage

This General Permit states the Legally Responsible Person (LRP) or a person legally authorized to sign and certify on behalf of the LRP is responsible for obtaining General Permit coverage. The LRP must electronically submit[90] Permit Registration Documents prior to commencement of construction activities in the Stormwater Multiple Application Report Tracking System (SMARTS). Permit Registration Documents consist of:

- A Notice of Intent;
- A Risk Assessment;
- Post-Construction Calculations (when applicable);
- A Site Map;
- A SWPPP; and,
- The application fee.

A Waste Discharge Identification number (WDID) will automatically be emailed to the LRP once these components have been submitted and are deemed complete. Failure to obtain coverage under this General Permit for stormwater discharges to waters of the United States is a violation of the Clean Water Act and the California Water Code.

The LRP is typically the person who possesses the title of the land, easement, or leasehold interest of the estate upon which the construction activities will occur for the regulated site. The LRP for linear underground and overhead projects is typically the person authorized to make management decisions of the utility company, municipality, or other public or private company or agency that owns or operates the linear underground and overhead project.

The Duly Authorized Representative is a person who has legal authority to sign, certify, and electronically submit Permit Registration Documents and Notices of Termination on behalf of the Legally Responsible Person.

It is expected that as the stormwater program develops, the Regional Water Boards may issue general or individual permits containing more specific provisions. If this occurs, this General Permit no longer regulates those dischargers obtaining coverage under those general or individual permits.

90 Each signatory (LRP or DAR) must have an electronic authorization form on file with the State Water Board for each organization they represent in SMARTS.

Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

Annual Reports must be submitted by projects that are enrolled under this General Permit for more than 90 days in a reporting period. The Annual Reports shall be submitted electronically in SMARTS. Annual Reports are due to the State Water Board by September 1st of each year with a July 1st through June 30th reporting period.

The application requirements clearly identify the responsible parties, locations, and scope of operations of dischargers covered by this General Permit and documents the discharger's knowledge of the General Permit's requirements. Regional Water Boards will enter their inspection and enforcement data into SMARTS.

Coverage under this General Permit remains in effect until a Notice of Termination is submitted in SMARTS and approved by the applicable Regional Water Board where the project is located. The discharger is responsible for any missed or outstanding invoices if the Regional Water Board denies the Notice of Termination. For outstanding invoices, a complete Notice of Termination must be received by the Regional Water Board 90 days from the original invoice date in order to cancel the invoice. The invoice is deemed valid and payable if a complete Notice of Termination is received after 90 days.

This General Permit allows a discharger to terminate portions of a construction project if those portions have been sold to another owner. This General Permit is not transferable, so the new owner has the responsibility to obtain coverage, update the Stormwater Pollution Prevention Plan (SWPPP), and comply with General Permit requirements. The seller must notify the new owner about their responsibilities concerning this General Permit and must notify the State Water Board by submitting the new owner's name, address, and phone number on the Change of Information form for the termination to be processed. The seller must also disclose the state of construction, if construction activity is ongoing, or if the post-construction requirements are completed. The new owner for ongoing construction activity after the change of ownership is not exempt from this General Permit's SWPPP requirements and must submit new Permit Registration Documents within 30 days of the date of change of ownership. The new owner is expected to review and update the existing SWPPP to ensure it is appropriate for the construction activity being undertaken.[91]

The Legally Responsible Person is always ultimately responsible for project compliance. This individual must certify the Permit Registration Documents and will

91 The SWPPP must be amended, or a new SWPPP developed by the discharger's QSD if not already in compliance with this General Permit's SWPPP requirements in the Order for Linear Underground and Overhead Projects.

be the recipient of any Notices of Violations or Administrative Civil Liabilities (fines) for the project.

The current annual fees are included in the Water Code fee schedule[92] and are based on total disturbed area (acres) of the construction project. Projects continuing from the previous permit into this General Permit will pay the annual fees based on their current billing cycle.

Consistent with the 2022 U.S. EPA NPDES General Permit for Discharges from Construction Activity, this General Permit requires the discharger to post a sign or other General Permit coverage notice at a location viewable and legible by the public from a safe, publicly accessible location. This General Permit requires the posting of the project's unique WDID number, waiver identification number, and site and project contact information. If posting in a publicly accessible location is not possible, the discharger must make the site-specific WDID readily available upon request.

I.M. Notice of Termination Final Stabilization

This General Permit is consistent with the 2022 U.S. EPA NPDES General Permit for Discharges from Construction Activity which requires the following for Notice of Termination final stabilization:

I.M.1. Establish uniform, perennial cover of vegetation[93] (i.e., evenly distributed, without large bare areas) to provide 70 percent or more of the cover that is provided by permanent vegetation in local undisturbed areas; and/or,

I.M.2. Implement permanent non-vegetative stabilization measures to provide effective cover of any areas of exposed soil.

I.M.3. Exceptions:

a. Arid, semi-arid, and drought-stricken areas. Final stabilization is met if the area has been seeded or planted to establish vegetation that provides 70 percent or more of the cover that is provided by permanent vegetation in local undisturbed areas within three years and, to the extent necessary to prevent erosion on the seeded or planted area, non-vegetative erosion controls have been applied that provide cover for at least three years without active maintenance.

b. Disturbed areas on agricultural land that are restored to their preconstruction agricultural use.

92 State Water Resources Control Board, NPDES Storm Water Fees, <https://waterboards.ca.gov/resources/fees/water_quality/#stormwater> [as of May 20, 2021]

93 Applications of products where stabilization is dependent on vegetative growth (e.g., hydroseed) does not meet final stabilization criteria if vegetative growth is not achieved.

c. Areas that need to remain disturbed (e.g., racetracks, animal corrals, baseball diamonds, etc.). In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remains disturbed, and only the minimum area needed remains disturbed (e.g., dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, materials).

I.N. Discharge Prohibitions

This General Permit authorizes the discharge of stormwater to surface waters from construction activities that result in the disturbance of one or more acres of land, provided that the discharger satisfies all General Permit conditions. This General Permit prohibits the discharge of pollutants other than stormwater and non-stormwater discharges authorized by this General Permit or another NPDES permit. This General Permit also prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 Code of Federal Regulations §§ 117.3 and 302.4, unless a separate NPDES permit has been issued to regulate those discharges. In addition, this General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the nine Regional Water Boards. Discharges to Areas of Special Biological Significance (ASBS) are prohibited unless covered by an exception that the State Water Board has approved.

Non-stormwater discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-stormwater discharges may contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections during construction must be addressed through structural as well as non-structural BMPs. The State Water Board recognizes, however, that certain non-stormwater discharges may be necessary for the completion of construction projects. Authorized non-stormwater discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water dewatering, and other discharges not subject to a separate general NPDES permit adopted by a region. Therefore, this General Permit authorizes such discharges provided they meet the following conditions:

These authorized non-stormwater discharges must:

1. Comply with BMPs as described in the SWPPP;
2. Filter or treat, using appropriate technology, all dewatering discharges from sedimentation basins;
3. Meet the numeric action levels for pH and turbidity; and,
4. Not cause or contribute to a violation of water quality standards.

Additionally, authorized non-stormwater discharges must not be used to clean up failed or inadequate construction or post-construction BMPs designed to keep materials on-site. This General Permit prohibits the discharge of stormwater that causes or threatens to cause pollution or nuisance. Dewatering is also discussed in Section I.B.3.b.iii above.

I.O. Technology and Water Quality Based Effluent Limitations for All Types of Discharges

I.O.1. Technology-Based Effluent Limitations

NPDES permits for stormwater discharges associated with construction activity must meet all applicable provisions of §§ 301 and 402 of the Clean Water Act. These provisions require controls of pollutant discharges that utilize best available technology economically achievable (BAT) for toxic pollutants and non-conventional pollutants and best conventional pollutant control technology (BCT) for conventional pollutants. Additionally, these provisions require controls of pollutant discharges to reduce pollutants and any more stringent controls necessary to meet water quality standards. The U.S. EPA has already established such limitations, known as effluent limitation guidelines, for some industrial categories. The State Water Board implemented the effluent limitation guidelines and standards for the construction and development point source category into this General Permit as discussed in Section I.B.3 above. In instances where there are no effluent limitation guidelines, the permit writer is to use best professional judgment to establish discharger requirements using BAT and BCT technology. This General Permit contains narrative effluent limitations, technology-based numeric effluent limitations for active treatment systems and BMP-based, narrative, and numeric water quality-based effluent limitations for Total Maximum Daily Loads (TMDL) waste load allocation implementation.

The previous permit, as originally adopted by the State Water Board on September 2, 2009, contained numeric effluent limitations for pH (within the range of 6.0 and 9.0 pH units) and turbidity (500 Nephelometric Turbidity Units (NTU)) that applied only to Risk Level 3 and linear underground and overhead project Type 3 construction sites. The California Building Industry Association, the Building Industry Legal Defense Foundation, and the California Business Properties Association (petitioners) challenged the previous permit in *California Building Industry Association et al. v. State Water Resources Control Board*. The Superior Court ruled in favor of the State Water Board on almost all of the issues the petitioners raised, but the Superior Court invalidated the numeric effluent limitations for pH and turbidity for Risk Level 3 and linear underground and overhead project Type 3 sites because it determined that the State Water Board did not have sufficient BMP performance data to support those numeric effluent limitations. As a result of the Superior Court's writ of mandamus, the numeric effluent limitations for pH and turbidity were removed from the previous permit,

except for active treatment systems. In addition, the previous permit required Risk Level 3 and linear underground and overhead project Type 3 dischargers with discharges directly to surface waters to conduct receiving water monitoring if directed by Water Boards whenever their effluent exceeds specified receiving water monitoring triggers. The receiving water monitoring triggers were established at the same levels as the previous numeric effluent limitations (effluent pH outside the range of 6.0 and 9.0 pH units or turbidity exceeding 500 NTU). In restoring the receiving water monitoring requirements, the State Water Board determined that it was appropriate to require receiving water monitoring at the request of the Water Boards for these types of sites with discharges directly to surface waters that exceeded the receiving water monitoring triggers under any precipitation event scenarios because these sites represent the highest threat to receiving water quality.

This General Permit includes receiving water monitoring requirements for Risk Level 3 and linear underground and overhead project Type 3 with discharges directly to surface water. An exceedance of a receiving water monitoring trigger is not a violation of this General Permit.

BAT and BCT technologies include passive systems such as conventional runoff and sediment control and treatment systems such as coagulation or flocculation using sand filtration, when appropriate. Such technologies allow for effective treatment of soil particles less 0.02 mm (medium silt) in diameter. This General Permit requires the discharger to install structural controls, as necessary, such as erosion and sediment controls that meet BAT and BCT to achieve compliance with water quality standards. These effluent limitations constitute compliance with the requirements of the Clean Water Act.

Because this General Permit is an NPDES permit, there is no legal requirement to address the factors set forth in Water Code §§ 13241 and 13263, unless the permit is more stringent than what federal law requires. (See *City of Burbank v. State Water Resources Control Bd*. (2005) 35 Cal.4th 613, 618, 627.) None of the requirements in this General Permit are more stringent than the minimum federal requirements, which include technology-based requirements achieving BAT and BCT and strict compliance with water quality standards. The inclusion of numeric effluent limitations in the permit for active treatment systems does not cause this General Permit to be more stringent than current federal law. Numeric effluent limitations and best management practices are simply two different methods of achieving the same federal requirement: strict compliance with state water quality standards. Federal law authorizes both narrative and numeric effluent limitations to meet state water quality standards. The use of numeric effluent limitations to achieve compliance with water quality standards is not a more stringent requirement than the use of BMPs. (State Water Board Order No. WQ 2006-0012 (Boeing).) Accordingly, the State Water Board does not need to take into account the factors in Water Code §§ 13241 and 13263.

The State Water Board has concluded that the establishment of BAT and BCT will not create or aggravate other environmental problems through increases in air pollution, solid waste generation, or energy consumption. While there may be a slight increase in non-water quality impacts due to the implementation of additional monitoring or the construction of additional BMPs, these impacts will be negligible in comparison with the construction activities taking place on-site and would be justified by the water quality benefits associated with compliance.

a. pH Receiving Water Monitoring Trigger

The minimum standard control methods for pH in runoff requires the use of preventive measures such as avoiding concrete pours during rainy weather, covering concrete and directing flow away from fresh concrete if a pour occurs during rain, covering scrap drywall and stucco materials when stored outside and potentially exposed to rain, and other housekeeping measures to control potential contaminants. If necessary, pH-impaired stormwater from construction sites can be treated in a filter, settling pond, or basin, with additional natural or chemical treatment required to meet pH limits set forth in this General Permit. The basin or pond acts as a collection point and holds stormwater for a sufficient period for the contaminants to be settled out, either naturally or artificially, and allows any additional treatment to take place. The State Water Board considers these techniques to be equivalent to BCT. The State Water Board used best professional judgement in determining the pH concentration discharge limitations.

The chosen trigger was established by calculating three standard deviations above and below the mean pH of runoff from highway construction sites[94] in California. Proper implementation of BMPs should result in discharges that are within the range of 6.0 to 9.0 pH units.

b. Turbidity Receiving Water Monitoring Trigger

The turbidity receiving water monitoring trigger of 500 NTU is a performance-based trigger and was developed using three different analyses aimed at finding the appropriate threshold to set the performance-based limit to ensure environmental protection, effluent quality, and cost-effectiveness. The analyses fell into three, main types: (1) an ecoregion-specific dataset developed by Simon et. al. (2004); (2) Statewide Regional Water Quality Control Board enforcement data; and (3) published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites.

94 California Department of Transportation, Caltrans Construction Sites Runoff Characterization Study (September 2002) <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/ctsw-rt-03-065-a11y.pdf> [as of May 20, 2021]

A 1:3 relationship between turbidity (expressed as NTU) and suspended sediment concentration (expressed as mg/L) is assumed based on a review of suspended sediment and turbidity data from three gauges used in the USGS National Water Quality Assessment Program:

USGS 11074000 SANTA ANA R BL PRADO DAM CA

USGS 11447650 SACRAMENTO R A FREEPORT CA

USGS 11303500 SAN JOAQUIN R NR VERNALIS CA

The receiving water monitoring trigger represents staff determination that the trigger value is the most practicable based on available data. The turbidity receiving water monitoring trigger represents a bridge between the narrative effluent limitations and receiving water limitations. State Water Board staff analyzed construction site discharge information (monitoring data, estimates) and receiving water monitoring information to support this receiving water monitoring trigger.

Compliance with this value does not necessarily represent compliance with either the narrative effluent limitations (as enforced through the BAT and BCT standard) or the receiving water limitations since the turbidity receiving water monitoring trigger represents an appropriate threshold level expected at a site. In the San Diego region, some inland surface waters have a receiving water objective for turbidity equal to 20 NTU. A discharge up to, but not exceeding, the turbidity receiving water monitoring trigger of 500 NTU may still cause or contribute to the exceedance of the 20 NTU standard. Most of the waters of the State are protected by turbidity objectives based on background conditions.

Table 3 – Regional Water Board Basin Plans, Water Quality Objectives for Turbidity

Regional Water Board	WQ Objective	Background/Natural Turbidity	Maximum Increase
1	Based on background	All levels	20 percent
2	Based on background	> 50 NTU	10 percent
3	Based on background	0-50 JTU 50-100 JTU > 100 JTU	20 percent 10 JTU 10 percent
4	Based on background	0-50 NTU > 50 NTU	20 percent 10 percent
5	Based on background	0-5 NTU 5-50 NTU 50-100 NTU > 100 NTU	1 NTU 20 percent 10 NTU 10 percent
6	Based on background	All levels	10 percent
7	Based on background	N/A	N/A
8	Based on background	0-50 NTU	20 percent

Regional Water Board	WQ Objective	Background/Natural Turbidity	Maximum Increase
		50-100 NTU > 100 NTU	10 NTU 10 percent
9	Inland Surface Waters, 20 NTU All others, based on background	0-50 NTU 50-100 NTU > 100 NTU	20 percent 10 NTU 10 percent

Table 4 shows the suspended sediment concentrations at the 1.5-year flow recurrence interval for the 12 ecoregions in California from Simon et. al (2004).

Table 4 – Results of Ecoregion Analysis

Ecoregion	Percent of California Land Area	Median Suspended Sediment Concentration (mg/L)
1	9.1	874
4	0.2	120
5	8.8	35.6
6	20.7	1530
7	7.7	122
8	3.0	47.4
9	9.4	284
13	5.2	143
14	21.7	5150
78	8.1	581
80	2.4	199
81	3.7	503

The area-weighted average for the suspended sediment concentration is 1633 mg/L.

If a 1:3 relationship between turbidity and suspended sediment is assumed, the median turbidity is 544 NTU.

The following Table 5 is composed of turbidity readings measured in NTUs from administrative civil liability actions for construction sites from 2003 - 2009. This data was derived from the complete listing of construction-related administrative civil liabilities (ACLs) for the six-year period. All administrative civil liabilities were reviewed and those that included turbidimeter readings at the point of stormwater discharge were selected for this dataset.

Table 5 – Administrative Civil Liabilities (ACL) Sampling Data taken by Regional Water Board Staff

WDID#	Region	Discharger	Turbidity (NTU)
5S34C331884	5S	Bradshaw Interceptor Section 6B	1800
5S05C325110	5S	Bridalwood Subdivision	1670
5S48C336297	5S	Cheyenne at Browns Valley	1629
5R32C314271	5R	Grizzly Ranch Construction	1400
6A090406008	6T	El Dorado County Department of Transportation, Angora Creek	97.4
5S03C346861	5S	TML Development, LLC	1600
6A31C325917	6T	Northstar Village	See Subdata Set

Table 6 – Subdata Set Turbidity for Point of Stormwater Runoff Discharge at Northstar Village

Date	Turbidity (NTU)	Location
10/5/2006	900	Middle Martis Creek
11/2/2006	190	Middle Martis Creek
01/04/2007	36	West Fork, West Martis Creek
02/08/2007	180	Middle Martis Creek
02/09/2007	130	Middle Martis Creek
02/09/2007	290	Middle Martis Creek
02/09/2007	100	West Fork, West Martis Creek
02/10/2007	28	Middle Martis Creek
02/10/2007	23	Middle Martis Creek
02/10/2007	32	Middle Martis Creek
02/10/2007	12	Middle Martis Creek
02/10/2007	60	West Fork, West Martis Creek
02/10/2007	34	West Fork, West Martis Creek

A 95 percent confidence interval for mean turbidity in an administrative civil liability order was constructed. The data set used was a small sample size, so the 500 NTU (the value derived as the receiving water monitoring trigger for this General Permit) needed to be verified as a possible population mean. In this case, the population refers to a hypothetical population of turbidity measurements of which our sample of 20 represents. A t-distribution was assumed due to the small sample size:

Mean: 512.23 NTU

Standard Deviation: 686.85

Margin of Error: 31.45

Confide Interval: 190.78 NTU (Low), 833.68 NTU (High)

Based on a constructed 95 percent confidence interval, an administrative civil liability order turbidity measurement will be between 190.78 – 833.68 NTU. 500 NTU falls within this range. Using the same data set, a small-sample hypothesis test was also performed to test if the administrative civil liability turbidity data set contains enough information to cast doubt on choosing a 500 NTU as a mean. 500 NTU was again chosen due to its proposed use as an acceptable value. The test was carried out using a 95 percent confidence interval. Results indicated that the administrative civil liability turbidity data set does not contain significant sample evidence to reject the claim of 500 NTU as an acceptable mean for the administrative civil liability turbidity population.

There are few published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites. The most often cited study is a report titled, "Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control"[95]. The primary author, Dr. Horner states the following in a comment letter to the State Water Board summarizing this report:

"The most effective erosion control product was wood fiber mulch applied at two different rates along with a bonding agent and grass seed in sufficient time before the tests to achieve germination. Plots treated in this way reduced influent turbidity by more than 97 percent and discharged effluent exhibiting mean and maximum turbidity values of 21 and 73 NTU, respectively. Some other mulch and blanket materials performed nearly as well. These tests demonstrated the control ability of widely available BMPs over a very broad range of erosion potential."

Other technologies studied in this report produced effluent quality at or near 100 NTU. It is the best professional judgement of the State Water Board staff that erosion control is preferred and that technology performance in a controlled study showing effluent quality directly leaving a BMP is always easier and cheaper to control than effluent being discharged from the project (edge of property, etc.).

To summarize, the analysis showed that: (1) results of the Simon et. al dataset reveals turbidity values in background receiving water in California's ecoregions range from 16 NTU to 1716 NTU (with a mean of 544 NTU); (2) based on a constructed 95 percent confidence interval, construction sites will be subject to administrative civil liability (ACL) when their turbidity measurement falls between 190.78 – 833.68 NTU; and (3) sites with highly controlled discharges employing and maintaining good erosion control practices can discharge

95 Horner, Guedry, and Kortenhof, Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control (1990) <https://wsdot.wa.gov/research/reports/fullreports/200.1.pdf> [as of April 28, 2022]

effluent from the BMP with turbidity values less than 100 NTU. State Water Board staff has determined, using its best professional judgement, that it is most cost effective to set the receiving water monitoring trigger for turbidity at 500 NTU.

I.O.2. Determining Compliance with Effluent Standards

a. Numeric Action Levels

This General Permit contains technology based numeric action levels for pH and turbidity, and requirements for effluent monitoring at all Risk Level 2 and 3, and linear underground and overhead project Type 2 and 3 sites. The numeric action levels are: a pH numeric action level of 6.5 to 8.5, and a turbidity numeric action level of 250 Nephelometric Turbidity Units (NTUs). Additionally, this General Permit sets a turbidity numeric action level for receiving water monitoring of 500 NTU. Numeric action levels are essentially numeric benchmark values for certain parameters that, if exceeded in effluent sampling, trigger the discharger to take actions.

The primary purpose of numeric action levels is to assist dischargers in evaluating the effectiveness of their on-site measures. Construction sites need to employ many different systems that must work together to achieve compliance with the permit's requirements. The numeric action levels chosen should indicate whether the systems are working as intended. This General Permit requires dischargers with numeric action level exceedances to implement additional, alternative, or improved BMPs and revise their SWPPPs accordingly to either prevent pollutants in stormwater and authorized non-stormwater discharges from being discharged, or to substantially reduce the pollutants to levels consistently below the numeric action levels. An exceedance of a numeric action level does not constitute a violation of this General Permit, however, failure to implement any applicable requirement of this General Permit, or additional BMPs or improved BMPs to adequately prevent future numeric action level exceedances, and/or not reporting any numeric action level exceedance through SMARTS is a violation of this General Permit. Dischargers are required to electronically self-report any discharges that exceed numeric action levels or numeric effluent limitations. Multiple exceedances of a numeric action level or failure to report numeric action level exceedances through SMARTS can be cause for the discharger to implement an active treatment system.

Another purpose of numeric action levels is to provide information regarding construction activities and water quality impacts. This data will provide the Water Boards and the rest of the stormwater community with more information about levels and types of pollutants present in runoff and how effective the dischargers' BMPs are at reducing pollutants in effluent. The State Water Board also hopes to learn more about the linkage between effluent and

receiving water quality. In addition, these requirements will provide information on the mechanisms needed to establish compliance monitoring programs at construction sites in future permit deliberations.

i. pH

The chosen limits were established by calculating one standard deviation above and below the mean pH of runoff from highway construction sites in California. Proper implementation of BMPs should result in discharges that are within the range of 6.5 to 8.5 pH units.

The Caltrans study included 33 highway construction sites throughout California over a period of four years, which included 120 storm events. All of these sites had BMPs in place that would be generally implemented at all types of construction sites in California.

The Surface Water Ambient Monitoring Program (SWAMP) has a Guidance Compendium for Watershed Monitoring and Assessment. Sections 3.1.4 and 3.1.5 of this Compendium contain guidance for pH and turbidity sampling.[96]

ii. Turbidity

The State Water Board's staff used their best professional judgement to develop a numeric action level that can be used as a learning tool to help dischargers improve their site controls, and to provide meaningful information on the effectiveness of stormwater controls. A statewide turbidity numeric action level has been set at 250 NTU.

The Surface Water Ambient Monitoring Program (SWAMP) has a Guidance Compendium for Watershed Monitoring and Assessment. Sections 3.1.4 and 3.1.5 of this Compendium contain guidance for pH and turbidity sampling.

I.O.3. Receiving Water Limitations

Construction activities that cause or contribute to an exceedance of water quality objectives or standards must be addressed. The dynamic nature of construction activity gives the discharger the ability to quickly identify and monitor the source of the exceedances. This is because when stormwater mobilizes sediment, it provides visual cues of erosion, where corrective actions should take place, and how effective they are once implemented.

This General Permit requires that stormwater, dewatering, and authorized non-stormwater discharges eliminate the discharge of pollutants that cause or

96 A SWAMP Field Methods Course training CD is also available for the public at <www.waterboards.ca.gov/water_issues/programs/swamp/cdrom.html> or please contact stormwater@waterboards.ca.gov to request a copy. [as of May 20, 2021]

contribute to an exceedance of any applicable water quality objectives or standards. The sampling and analysis monitoring requirements in this General Permit will help determine whether BMPs installed and maintained are preventing pollutants in discharges from the construction site that may cause or contribute to an exceedance of water quality objectives or standards.

Water quality objectives or standards consist of designated beneficial uses of surface waters and the adoption of ambient criteria necessary to protect those uses. The ambient criteria are termed "water quality objectives" when adopted by the Water Boards. There is a risk that stormwater runoff from construction sites containing pollutants could enter surface waters and cause or contribute to an exceedance of water quality standards. For that reason, dischargers should be aware of the applicable water quality standards in their receiving waters. The best method to ensure compliance with receiving water limitations is to implement BMPs that prevent pollutants from contacting stormwater or leaving the construction site in runoff.

California water quality standards are published in the Basin Plans adopted by each Regional Water Board, the California Toxics Rule (CTR), the National Toxics Rule (NTR), and Statewide Water Board Plans, for example, the California Ocean Plan.

Dischargers can determine the applicable water quality standards by contacting Regional Water Board staff or by consulting one of the following sources. The actual Basin Plans that contain the water quality standards can be viewed at the website of the appropriate Regional Water Board[97], the State Water Board site for statewide plans,[98] or the U.S. EPA regulations for the NTR and CTR (40 Code of Federal Regulations §§ 131.36-38). Basin Plans and statewide plans are also available by mail from the appropriate Regional Water Board or the State Water Board. The U.S. EPA regulations are available on their website.[99]

I.O.4. Water Quality Based Effluent Limitations for Construction Stormwater: TMDLs and Waste Load Allocations

This General Permit implements Clean Water Act § 303(d) impaired water body(ies) with Regional Water Board or U.S. EPA adopted TMDLs identifying sources regulated by this General Permit. The TMDLs in Attachment H include the specific waste load allocation for this activity and source. Dischargers are required to comply with any applicable TMDL requirements in this General Permit (see

97 State Water Resources Control Board, RWQCB Directory, <https://www.waterboards.ca.gov/about_us/contact_us/rwqcbs_directory.html> [as of May 20, 2021]
98 State Water Resources Control Board, Plans and Policies, <https://www.waterboards.ca.gov/plans_policies/> [as of May 20, 2021]
99 U.S. EPA Website <https://www.epa.gov/> [as of May 20, 2021]

Attachment H and Section V of this Fact Sheet for additional TMDL applicability information).

Responsible Dischargers that are assigned TMDL-related numeric action levels or numeric effluent limitations are required to collect samples in accordance with the non-visible sampling requirements in Attachments D and E and compare all analytical results to the applicable numeric action levels or numeric effluent limitations specified in Attachment H of this General Permit.

I.P. Training Qualifications and Requirements

To ensure that the preparation, implementation, and oversight of the SWPPP is sufficient for effective pollution prevention, the Qualified SWPPP Developer and Qualified SWPPP Practitioner are responsible for creating, revising, overseeing, and implementing the SWPPP.

I.Q. Sampling, Monitoring, Reporting, and Record Keeping for Linear Underground and Overhead Projects and Traditional Construction Monitoring Requirements

I.Q.1. Introduction

This General Permit requires visual monitoring at all sites and effluent water quality monitoring at all Risk Level 2 and 3 and linear underground and overhead project Type 2 and 3 sites (also some Type 1 and Risk Level 1 sites). Receiving water monitoring may be required by the Regional Water Board at some Risk Level 3 and Type 3 sites as described below. All sites are required to submit the sampling results, inspection records, and Annual Reports specified in this General Permit, which contain specific documentation collected over the reporting period.

I.Q.2. Visual

Visual inspections of stormwater discharges, dewatering discharges, authorized non-stormwater discharges, and unauthorized non-stormwater discharges are required for all sites subject to this General Permit. This General Permit requires dischargers to implement corrective actions at the site to address deficiencies identified during the visual monitoring.

All dischargers are required to conduct visual inspections as described in General Permit Attachment's D or E. This General Permit requires the discharger to visually-inspect a site for indications of pollutants in stormwater runoff, erosion, failed BMPs, and improper BMP installation. Each discharge location and drainage area require an inspection for the presence of (or indications such as erosion, pollutant mobilization, or other potential threat to human health and the environment) unauthorized and authorized non-stormwater discharges and their sources. Dischargers must conduct pre, during, and post-precipitation event inspections to: (1) identify adequacy of BMP design, implementation, and effectiveness, (2) identify any necessary additional BMPs, and (3) revise the

SWPPP on-site and in SMARTS accordingly. Dischargers must maintain on-site records of all visual observations, personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

This General Permit requires visual monitoring for precipitation events which result in the discharge of water from the site. Sites are encouraged to use size catch basins to retain the first flush of a precipitation event, which is consistent with BAT and BCT. The size of a precipitation event cannot be predicted so an adequate trigger for a pre-precipitation event visual inspection is 50 percent or greater probability of producing precipitation based on the National Weather Service Forecast Office of the National Oceanic and Atmospheric Administration (NOAA).

General Permit Attachments D and E list the minimum criteria for an inspection checklist. Dischargers may develop their own inspection forms or may use a Water Board-developed form if one is available.

Some visual inspections may be delegated by the QSP to an individual that has received training as described in the discharger's site personnel roles and responsibilities in this General Permit.

I.Q.3. Non-Visible Pollutant Monitoring

This General Permit requires that all dischargers develop a sampling and analysis strategy for monitoring pollutants that are not visually detectable in stormwater. Some monitoring may be delegated by the QSP to an individual that has received training as described in the discharger's site personnel roles and responsibilities in this General Permit. Monitoring for non-visible pollutants is required at any site when the exposure of construction materials occurs and where a potential discharge can cause or contribute to an exceedance of a water quality objective or standard. Pollutants found in materials used in large quantities at construction sites throughout California and exposed throughout the rainy season, such as cement, fly ash, and other recycled materials or by-products of combustion are a significant concern for construction discharges. The water quality standards that apply to these materials will depend on their composition. Some of the more common stormwater pollutants from construction activity are not CTR pollutants. Examples of construction non-visible pollutants[100] include, but are not limited to, bacteria and viruses, fertilizers or nutrients, herbicides, greases; lubricants; oils, metals, synthetic chemicals, and pesticides.

a. Bacteria and Viruses

Bacteria and viruses are common stormwater contaminants. Construction site sources include, but are not limited to, animal excrement, waste management,

100 Section P.1.b adapted from the CASQA Construction BMP Handbook, p. 1-6, 1-7, 1-10.

and sanitary facilities. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.

b. Fertilizers and Nutrients

Fertilizers and nutrients are common stormwater contaminants. Construction site sources include, but are not limited to, landscape fertilization, these nutrients can result in excessive vegetation or algae growth in natural water systems or be toxic to aquatic life, resulting in impaired beneficial uses.

c. Herbicides and Pesticides

Herbicides and pesticides (including fungicides, rodenticides, and insecticides) have been detected repeatedly in stormwater at levels toxic to certain organisms, even when pesticides have been applied in accordance with label instructions. The washing of construction equipment used for noxious weed removal can also spread invasive species[101]. Construction site sources include, but are not limited to, noxious weed and vegetation management, pest control, and vector control.

d. Greases, Lubricants, Oils

Greases, lubricants, and oils include a wide array of hydrocarbon compounds and other synthetic materials, some of which are toxic to aquatic organisms at low concentrations. Construction site sources include, but are not limited to, equipment spills and leaks from delivery; storage; use, equipment and vehicle drive train; suspension; hydraulic system cleaning and maintenance, material storage, on-site staff parking areas, paving operations, and waste disposal.

e. Metals

Metals including, but not limited to, cadmium, copper, chromium, iron, lead, nickel, and zinc are commonly found in stormwater and are of concern because some are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies. Construction site sources, include but are not limited to, naturally occurring metals associated with earth disturbance, gravel materials, construction materials, equipment maintenance, equipment fluids, paving operations, and welding and fabrication activities.

101 Center for Environmental Excellence by AASHTO, Chapter 4 Construction Practices for Environmental Stewardship 4.11 Vegetation Management in Construction (2019) <https://www.epa.gov/sites/default/files/2015-11/documents/25-25-4-_fr.pdf> [as of April 28, 2022]

f. Synthetic Chemicals

Synthetic chemicals may be found in stormwater and can be toxic in low concentrations. Construction site sources include, but are not limited to, batteries, construction materials, chemical fire suppression, chemical storage, equipment and vehicle fueling (also related to Section I.Q.3.d above), paving operations, and waste management.

Many of the above sources can result in construction stormwater discharges containing pollutants. For example, high pH can result from improperly maintained treatment systems, cement and gypsum, and wash waters. Salts can also be found in construction site materials, including but not limited to, fertilizers and nutrients, herbicides and pesticides, soil treatments, and surfactants.

Some of these constituents are subject to Statewide Policy, water quality control plans, or Attachment H's TMDL Water Quality Based Effluent Limitations. Dischargers are encouraged to discuss these standards with Water Board staff and other stormwater quality professionals.

The most effective way to reduce or minimize the non-visible sampling and analysis requirements is to reduce and manage exposure of construction materials, activities, and equipment to precipitation and/or stormwater runoff. Materials or activities that are not exposed do not have the potential to enter stormwater runoff, and therefore receiving water sampling is not required. Preventing contact between stormwater and construction materials, equipment, or materials or preventing the runoff are the most important BMPs at any construction site.

Preventing or eliminating the exposure of pollutants at construction sites is not always possible. Some materials and activities, such as soil amendments or earth moving equipment, are designed to be used in a manner that will result in exposure to stormwater. In these cases, it is important to make sure that these materials and activities are applied and operated according to the manufacturer's instructions and at a time when pollutants are less likely to be washed away. Other construction materials can be exposed when storage, waste disposal, or the application of the material is done in a manner not protective of water quality. Representative sampling is required for these situations, unless there is capture and containment of all stormwater that has been exposed. In cases where construction materials may be exposed to stormwater, but the stormwater is contained and is not allowed to run off the site, sampling will only be required when inspections show that the containment failed or is breached, resulting in potential exposure or discharge to receiving waters.

This General Permit requires the discharger to conduct a pollutant source assessment to develop a list of potential pollutants based on a review of site or project potential sources, which will include construction activities, equipment

materials, soil amendments, soil treatments, and historic contamination at the site. The discharger must review existing environmental and real estate documentation to determine the potential pollutants that could be present on the construction site as a result of past land use activities.

Possible reference materials for previously existing pollution and past land uses:

i. Environmental Assessments;

ii. Initial Studies;

iii. Phase 1 Assessments prepared for property transfers;

iv. Environmental Impact Reports or Environmental Impact Statements prepared under the requirements of the National Environmental Policy Act or the California Environmental Quality Act; and,

v. Available soil chemical analysis results.

I.Q.4. Effluent Monitoring

Consistent with 40 Code of Federal Regulations, § 122.44, all linear underground and overhead project Type 2 and 3 and Risk Level 2 and 3 dischargers (also some Type 1 and Risk Level 1 sites) must perform sampling and analysis of effluent discharges to characterize discharges associated with construction activity from the entire area disturbed by the project. Dischargers must collect samples of stored or contained stormwater that is discharged during or subsequent to a precipitation event. Some monitoring may be delegated by the QSP to an individual that has received training as described in the discharger's site personnel roles and responsibilities in this General Permit.

This General Permit requires stormwater runoff sampling for pH and turbidity for all Risk Level 2, linear underground and overhead project Type 2, Risk Level 3, and linear underground and overhead project Type 3 sites. Sampling is required at all locations where stormwater, dewatering, and/or authorized non-stormwater associated with construction activity is discharged off-site or enters any on-site waters of the United States (e.g., a creek running through a site). Dischargers are required to identify all sampling locations in the SWPPP and site map and sampling is only required when a discharge occurs. Attachments D and E of this General Permit require specific sampling requirements and non-sampling justifications.

This General Permit contains sampling, analysis, and monitoring requirements for pH and turbidity. Sampling of non-visible pollutants identified in the pollutant source assessment is required when the materials or chemicals have the potential to cause or contribute to an exceedance of a water quality standard (e.g., BMP breach, failure, malfunction, or leak or spill observed during a visual inspection).

This General Permit requires that all dischargers maintain a paper or electronic copy of all required records for three years from the date generated or date submitted, whichever is later. These records shall be available at the site until a Notice of Termination is approved by the Regional Water Board. Linear underground and overhead project documents may be retained in a crew member's vehicle and made available upon request.

a. Traditional Construction Monitoring Requirements

A summary of the monitoring and reporting requirements is found in Table 7 and 8 below. Dischargers are also required to report and retain records in accordance with this General Permit's Order and Attachment D requirements.

Table 7 – Required Monitoring Elements for Risk Levels

Risk Level	Visual	Non-Visible Pollutants	Effluent	Receiving Water
Risk Level 1	Required	As needed	Where applicable	Not required
Risk Level 2	Required	As needed	pH, turbidity	Not required
Risk Level 3	Required	As needed	pH, turbidity	For discharges directly to surface waters if: 1) pH or turbidity Receiving Water Monitoring Trigger exceeded; and 2) upon Regional Water Board direction

Table 8 – Stormwater Effluent Monitoring Requirements by Risk Level

Level	Frequency	Effluent Monitoring
Risk Level 1	When non-visible pollutants, identified in the SWPPP or otherwise known to be on site, may be discharged due to failure to implement BMPs, a container spill or leak, or a BMP breach, failure, or malfunction.	Applicable non-visible pollutant parameters
Risk Level 2 and 3	When non-visible pollutants, identified in the SWPPP or otherwise known to be on site, may be discharged due to failure to implement BMPs, a container spill or leak, or a BMP breach, failure, or malfunction.	Applicable non-visible pollutant parameters
Risk Level 2 and 3	One sample per discharge location per day of a precipitation event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and applicable non-visible pollutant parameters

b. Linear Construction Monitoring and Sampling Requirements

Attachment E establishes minimum monitoring and reporting requirements for all linear underground and overhead projects and the specific monitoring requirements depending on project complexity and risk to water quality. The monitoring requirements for Type 1 linear underground and overhead project are less than Type 2 and 3 projects because Type 1 projects have a lower potential to impact water quality.

This General Permit requires the discharger to prepare a monitoring program prior to the start of construction and immediately implement the program at the start of construction for linear underground and overhead projects. The monitoring program must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. Dischargers are also required to report and retain records in accordance with this General Permit's Order and Attachment E requirements.

Table 9 – Require Monitoring Elements for Linear Underground and Overhead Project Types

Risk Level	Visual	Non-Visible Pollutants	Effluent	Receiving Water
Type 1	Required	As needed	Where applicable	Not required
Type 2	Required	As needed	pH, turbidity	Not required
Type 3	Required	As needed	pH, turbidity	For discharges directly to receiving waters if: 1) pH or turbidity Receiving Water Monitoring Trigger exceed; and 2) upon Regional Water Board direction.

i. Type 1 Linear Underground and Overhead Project Monitoring Requirements

This General Permit requires a discharger to conduct daily visual inspections of Type 1 linear underground and overhead projects during site operating hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be conducted in conjunction with other daily activities. Inspections are conducted to ensure the BMPs are adequate, maintained, and in place at the end of the construction day. The required SWPPP revisions (when appropriate) should be based on the results of the daily inspections and reported so the site General Permit implementation is currently reflected. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been

completed and final stabilization has been achieved (e.g., trench has been paved, substructures have been installed, and successful final vegetative cover or other stabilization criteria have been met).

A discharger implementing a monitoring program for Type 1 linear underground and overhead projects is required to implement temporary and permanent stabilization BMPs after active construction is completed. Inspection activities are required until adequate permanent stabilization has been established and will continue in areas where re-vegetation is chosen until minimum vegetative coverage has been established. The required photograph requirements taken during site inspections are for verification of requirements and are submitted through SMARTS.

This General Permit also includes the minimum criteria required for an inspection checklist. Dischargers may develop their own inspection forms or may contact the Water Board for an inspection form, if one is available.

ii. Type 2 and 3 Linear Underground and Overhead Project Monitoring Requirements

This General Permit requires the discharger to conduct daily visual inspections of Type 2 and 3 linear underground and overhead projects during site operating hours when construction activities are occurring. Inspections are to be conducted by qualified personnel and can be in conjunction with other daily activities.

All Type 2 and 3 linear underground and overhead project dischargers are required to conduct inspections by qualified personnel of the construction site during site operating hours prior to all anticipated precipitation events, during, and after actual precipitation events. The discharger is required to conduct inspections during site operating hours for each 24-hour period during extended precipitation events. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures installed, and successful vegetative cover or other stabilization criteria have been met).

The goals of these inspections are: (1) to identify areas contributing to a stormwater discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, properly installed, and functioning in accordance with the terms of this General Permit; and (3) to determine if additional control practices or corrective maintenance activities are needed. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective BMP maintenance is to be performed as soon as possible, depending upon worker safety.

All dischargers are required to develop and implement a monitoring program for inspecting Type 2 and 3 linear underground and overhead projects that require temporary and permanent stabilization BMPs after active construction is completed. The inspections will be conducted to ensure the BMPs are adequate and maintained and will continue until adequate permanent stabilization has been established in areas where revegetation is chosen until minimum vegetative coverage has been established.

This General Permit also requires a log of inspections conducted before, during, and after the precipitation event(s) be maintained in the SWPPP. The log will provide the date and time of the inspection and who conducted the inspection. Photographs must be taken during site inspections and submitted through SMARTS.

This General Permit's Attachment E lists minimum criteria required for an inspection checklist. Dischargers may develop their own inspection forms or may contact the Water Board for an inspection form, if one is available.

iii. Sampling Requirements for all Linear Underground and Overhead Project Types

Linear underground and overhead projects are subject to sampling and analysis requirements for visible pollutants (i.e., sedimentation/siltation, turbidity, pH) and for non-visible pollutants.

1) Sampling for non-visible pollutants is required for Type 1, 2, and 3 linear underground and overhead projects.

Non-visible pollutant monitoring is required for pollutants associated with construction sites and activities that (1) are not visually detectable in stormwater discharges, (2) are known or should be known to occur on the construction site, and (3) could cause or contribute to an exceedance of water quality standard or objectives in the site's receiving waters. Sample collection for non-visible pollutants are required only: (1) during a precipitation event when pollutants associated with construction activities may be discharged with stormwater runoff in the event of a BMP breach, failure, malfunction, leak or spill, (2) identified in the discharge and is from construction activities and/or materials, and (3) when the discharger has failed to adequately clean the area of material and pollutants. Failure to implement appropriate BMPs will trigger the same sampling requirements as those required in (1) above, or when the discharger has failed to implement appropriate BMPs prior to the next precipitation event.

It is not anticipated that all linear underground and overhead projects will be required to collect samples for pollutants not visually detected in runoff due to the nature and character of the construction site and

activities as previously described in this Fact Sheet. Most linear underground and overhead projects are constructed in urban areas with public access (e.g., existing roadways, road shoulders, parking areas, etc.). This raises a concern regarding the potential contribution of pollutants from vehicle use and/or from normal activities of the public (e.g., vehicle washing, landscape fertilization, pest spraying, etc.) in runoff from the project site. Since the dischargers are not necessarily the landowners of the project area and are not able to control the presence of these pollutants in the stormwater that runs through their projects, it is not the intent of this General Permit to require dischargers to sample for these pollutants unless they are generated specifically from the linear underground and overhead project materials and/or activities. This General Permit does not require the discharger to sample for these types of pollutants except where the discharger has on-site materials or activities containing or specifically generating these pollutants and when the conditions described above occur.

2) Regional Water Board-Required Additional Monitoring Requirements

The Regional Water Board can require, in writing, additional monitoring requirements in this General Permit under Clean Water Act authority and specific authorities listed in this General Permit's Order and Attachment E. Additional monitoring requirements include, but are not limited to, requirements specified in an enforcement order, additional sampling parameters, frequency, methods, practices, and/or reporting (for stormwater, dewatering, and/or non-stormwater) based upon site-specific analysis.

3) Receiving Water Monitoring

This General Permit protects the receiving water's beneficial uses from construction site pollutants. Risk Level 3 and linear underground and overhead project Type 3 site discharges subject to the receiving water monitoring triggers with: (1) receiving water monitoring trigger exceedances defined in this General Permit, (2) discharges are directly into receiving waters, and (3) the discharger is directed to monitor by the Water Boards are required to monitor the upstream and downstream receiving water(s) for turbidity and pH (if applicable). These requirements were modified to make it clear that they do not apply to discharges to an MS4 that later discharges into a surface water.

Table 10 – Receiving Water Monitoring Requirements

Level or Type	Receiving Water Monitoring Triggers
Risk Level 1 and Linear Underground and Overhead Project Type 1	Not applicable/required
Risk Level 2 and Linear Underground and Overhead Project Type 2	Not applicable/required
Risk Level 3 and Linear Underground and Overhead Project Type 3	For discharges directly to surface waters if: 1) pH or turbidity Receiving Water Monitoring Trigger exceeded; and 2) upon Regional Water Board direction.

I.Q.5. Reporting Requirements

a. Reporting Numeric Effluent Limitation Violations (Water Quality Based Corrective Actions or Numeric Effluent Limitation Violation Report)

All discharges subject to TMDL-specific numeric effluent limitations requirements must electronically submit all precipitation event sampling results to the Water Boards through SMARTS no later than 10 days after receiving the field analysis results or analytical laboratory results. The purpose of the electronic certification and submittal of the Water Quality Based Corrective Actions or Numeric Effluent Limitation Violation Report is to: (1) allow public access to General Permit-required reporting, (2) document the discharger's compliance actions, and (3) notify the Water Boards of the exceedance so that they can determine whether any follow-up (e.g., inspection, enforcement) is necessary to bring the site into compliance.

Responsible Dischargers with a water quality exceedance are in violation of this General Permit and must additionally submit the Water Quality Based Corrective Actions or Numeric Effluent Limitation Violation Report containing:

- The analytical method(s), reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit are to be reported as "less than the method detection limit or <MDL");
- The date, place, and time of sampling;
- Any visual observation (inspections);
- Any measurements, including precipitation; and,
- A description of the current BMPs associated with the effluent sample that exceeded the numeric effluent limitation and any proposed corrective actions taken.

b. Reporting Numeric Action Level Exceedances (Numeric Action Level Exceedance Report)

All Risk Level 2 and 3 and linear underground and overhead project Type 2 and 3 dischargers must electronically submit all precipitation event sampling results for the pH and turbidity numeric action levels, through SMARTS, no later than 10 days after the conclusion of the precipitation event. All Risk Level 2 and 3 and linear underground and overhead project Type 2 and 3 dischargers must electronically submit all precipitation event sampling results for TMDL-related numeric action levels, through SMARTS, no later than 10 days after receiving the analytical laboratory results. In the event that any effluent sample exceeds an applicable numeric action level, a Regional Water Board or its delegate may request (in writing) that the Risk Level 2 or 3 and linear underground and overhead project Type 2 or 3 dischargers submit and certify a Numeric Action Level Exceedance Report, through SMARTS, within 30 days of receiving the written request.

In the event that an applicable pH, turbidity or TMDL-specific numeric action level has been exceeded, the required reporting contains:

- The analytical method(s), reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit are to be reported as "less than the method detection limit or <MDL");
- The date, place, and time of sampling;
- Any visual observation (inspections);
- Any measurements, including precipitation; and,
- A description of the current BMPs associated with the effluent sample that exceeded the numeric action level and any proposed corrective actions taken.

c. Analytical Sample Reporting

All dischargers are required to certify and submit analytical monitoring results in SMARTS using the monitoring ad hoc report (a separate ad hoc monitoring report is needed for each precipitation event). Electronically certified and submitted sampling and analysis results are required to include an upload of the original laboratory reports and chain of custody forms.

d. Annual Report

All dischargers must prepare and electronically certify and submit an Annual Report no later than September 1st of each year using SMARTS including the specified information described in this General Permit's Order and any additional necessary site compliance information such as a summary of all

corrective actions taken during the reporting period, or the identification of any compliance activities or corrective actions that were not implemented.

I.Q.6. Record Keeping

According to 40 Code of Federal Regulations §§ 122.21(p) and 122.41(j), the discharger is required to retain paper or electronic copies of all records required by this General Permit for a period of at least three years from the date generated or the date submitted to the Water Boards. A discharger must retain records for a period beyond three years if directed by Regional Water Board.

I.R. Risk Determination

A site Risk Level calculation is the estimated potential for sediment transport and risk to the receiving water. This General Permit contains calculation requirements to determine a project's Risk Level 1, 2 and 3, or a linear underground and overhead projects Type 1, 2, and 3 as described below. Construction industry-accepted sediment erosion models and Water Boards-provided or site-specific receiving water risk models are used to determine pre-construction project and post-construction project risks for all the project's construction phases.

I.R.1. Traditional Construction Projects

a. Overall Risk Determination

There are two major requirements related to site planning and risk determination in this General Permit. The project's overall risk is broken up into two elements: (1) project sediment risk (the relative amount of sediment that can be discharged, given the project and location details) and (2) receiving water risk (the risk sediment discharges pose to the receiving waters).

i. Project Sediment Risk:

The Revised Universal Soil Loss Equation (RUSLE) is used to calculate watershed sediment risk. The RUSLE was originally developed to calculate sheet and rill erosion rate in tons/acre/project duration. It is consistent with the original intent of the RUSLE to not introduce a project size threshold to develop risk categories expressed on tons/project duration.

The Regional Board has the authority to question any aspect of the sediment risk calculation, including the R factor used in determining Watershed Sediment Risk. The RUSLE2 computer program can also be used to calculate the R factor and in many cases yields more accurate values than those generated from the EPA Erosivity Calculator.

Project Sediment Risk is determined by multiplying the R, K, and LS factors from the Revised Universal Soil Loss Equation (RUSLE) to obtain an estimate of project-related bare ground soil loss expressed in tons/acre. The RUSLE equation is as follows:

$$A = (R)(K)(LS)(C)(P)$$

Where:

A is the rate of sheet and rill erosion

R is the rainfall-runoff erosivity factor

K is the soil erodibility factor

LS is the length-slope factor

C is the cover factor (erosion controls)

P is the management operations and support practices (sediment controls)

The C and P factors are given values of 1.0 to simulate bare ground conditions.

There is a map option[102] and a manual calculation option for determining soil loss. For the map option, the R factor for the project is calculated using the online calculator.[103] To determine soil loss in tons per acre, the discharger multiplies the R factor times the value for K times LS.

For the manual calculation option, the R factor for the project is calculated using the online calculator. The K and LS factors are determined using Attachment D.1.

Soil loss of less than 15 tons/acre is considered **low** sediment risk.

Soil loss between 15 and 75 tons/acre is **medium** sediment risk.

Soil loss over 75 tons/acre is considered **high** sediment risk.

The soil loss values and risk categories were obtained from mean and standard deviation RKLS values from the U.S. EPA EMAP program. High risk is the mean RKLS value plus two standard deviations. Low risk is the mean RKLS value minus two standard deviations

ii. Receiving Water Risk:

Receiving water risk is based on whether a project drains to a water body or watershed that is sediment-sensitive. A sediment-sensitive water body or watershed is either:

- On the most recent 303(d) list for water bodies impaired for sediment; or,

102 The guidance Geographic Information System Risk maps will be provided electronically on the State Water Board's website prior to the effective date of this General Permit.

103 U.S. EPA, Rainfall Erosivity Factor Calculator for Small Construction Sites, <https://lew.epa.gov/> [as of May 20, 2021]

- Has the beneficial uses of COLD, SPAWN, and MIGRATORY.

A project that meets at least one of the two criteria has a high receiving water risk. A list of sediment-sensitive water bodies is posted on the State Water Board's website[104] and included in Attachment D.1. An interactive map of 303(d) listed water bodies in California is available on the State Board's website.[105]

b. Effluent Standards

All dischargers are subject to the narrative effluent limitations specified in the General Permit. The narrative effluent limitations require stormwater discharges associated with construction activity to meet all applicable provisions of §§ 301 and 402 of the Clean Water Act. These provisions require controls of pollutant discharges that utilize BAT and BCT to reduce pollutants and any more stringent controls necessary to meet water quality standards.

Risk Level 2 dischargers that pose a medium risk to water quality are subject to numeric action levels for pH and turbidity, which were established based on best professional judgement. Risk Level 3 dischargers that pose a high risk to water quality are subject to numeric action levels for pH and turbidity, which were established based on best professional judgement.

c. Effluent Monitoring

Effluent monitoring is required for Risk Level 2 and 3 and linear underground and overhead project Type 2 and 3 project sites as described in the Order, Attachments D and E. Effluent monitoring results must be certified and submitted electronically through SMARTS.

d. Good Housekeeping

Proper handling and management of construction materials can help minimize threats to water quality. The discharger must consider good housekeeping measures for construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources. Examples include conducting an inventory of products used, implementing proper storage and containment, and properly cleaning all leaks from equipment and vehicles.

104 State Water Board, Surface Water Quality Assessment Webpage, <https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired> [as of May 20, 2021]

105 State Water Board, 303(d) Integrated Report <https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html> [as of June 21, 2022]

e. Non-Stormwater Management

This General Permit's Order defines the specific authorized non-stormwater discharges allowed and necessary prohibitions on other non-stormwater discharges. Non-stormwater discharges directly connected to receiving waters or the storm drain system have the potential to negatively impact water quality. The discharger must implement measures to control all non-stormwater discharges (e.g., properly washing vehicles or equipment in contained areas, cleaning streets, and minimizing irrigation runoff) during construction, and construction-associated dewatering activities. This General Permit includes specific construction site dewatering provisions designed to eliminate or reduce pollutant impacts on receiving waters from these activities.

f. Erosion Control

The best way to minimize the risk associated with erosion and sedimentation during construction is to disturb as little of the land surface as possible by fitting the development to the terrain. Little grading is necessary and erosion potential is lower when development is tailored to natural land contours. Other effective erosion control measures include preserving existing vegetation where feasible, limiting disturbance, timing disturbances around reduced precipitation conditions, and stabilizing and re-vegetating disturbed areas as soon as possible after grading or construction activities. Particular attention must be paid to large, mass-graded sites where the potential for soil exposure to the erosive effects of rainfall, snow melt, and wind is great and where there is potential for significant sediment discharge from the site to surface waters. Temporary soil stabilization can be the single most important factor in reducing construction site erosion. The discharger is required to consider measures such as: covering disturbed areas with mulch, temporary seeding and vegetation, soil stabilizers, non-toxic binders, fiber rolls or blankets, and permanent seeding. These erosion control measures are only examples of what should be considered and do not preclude the use of new or innovative approaches currently available or being developed. Erosion control BMPs should be the primary means of preventing stormwater contamination, and sediment control techniques should be used to capture any soil that becomes eroded.[106]

Areas that convey stormwater run-off are required to be appropriately armored against in channel erosion. A California licensed professional engineer may need to provide system design and/or calculations to control the erosion in the conveyance of stormwater (drainage channels).

106 U.S. EPA, Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites (May 2007), <https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf> [as of May 20, 2021]

g. Establishing Vegetation

Planting a site may be necessary during the construction phase to establish vegetation prior to termination of the project. Planted vegetation should match surrounding pre-existing native vegetation. It is expected that local climatic conditions, timing, soil types, soil compaction, topography, and nutrients need to be evaluated to ensure seed germination and plant establishment. The employment of healthy soil[107] principles may provide additional guidance on vegetative establishment in dry conditions (e.g., in arid and semi-arid climates dischargers should apply seed prior to the application of mulch). Dischargers may consider the advantages and limitations for each project area in regard to seed planting method (direct drilling, broadcasting, and/or hydraulic applications).

h. Sediment Control

Sediment control BMPs should be the secondary means of preventing polluted stormwater discharges. Sediment control techniques recover some of the soil that becomes eroded when erosion control techniques are ineffective. This General Permit requires dischargers to consider perimeter control measures such as installing silt fences or placing straw wattles below slopes. These sediment control measures are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed.

Additional requirements for the effective implementation of erosion and sediment controls year-round are imposed on Risk Level and Type 2 and 3 dischargers because these sites pose a higher risk to water quality. This General Permit authorizes the Regional Water Boards to require Risk Level 3 and linear underground and overhead project Type 3 dischargers to implement additional site-specific sediment control requirements when the implementation of other erosion or sediment controls are found to be inadequately protecting the receiving waters.

This General Permit requires the use of wildlife friendly BMPs that minimize wildlife entrapment and sets a prohibition on the discharge of trash and debris. Wildlife entrapment can be minimized by providing the means for wildlife to escape dig sites that are deeper than one meter and storing materials, like netting and tubing, in locations that are inaccessible to wildlife. Dischargers should use biodegradable wattles containing no plastic that can remain on a site when possible. Wattles containing plastic netting (including plastic specified as photo-degradable) become “trash” in the environment and/or a trap for

107 California Department of Food and Agriculture, Healthy Soils Program Website <https://www.cdfa.ca.gov/oefi/healthysoils/> [as of May 20, 2021]

wildlife. These are also considered “construction materials and waste” and must be disposed of properly per this General Permit.

i. Run-on and Runoff Control

Inappropriate management of run-on and runoff can result in excessive physical and chemical impacts to receiving waters from sediment and increased flows. The discharger is required to manage all run-on and runoff from a project site. Examples include installing berms and other temporary run-on and runoff diversions. Dischargers are responsible for commingled run-on (onto the site or within the site) from areas not related to the site’s construction activities and the pollutants contained in the commingled discharge.

j. Snow and Ice melt

Construction sites that are affected by snow and ice conditions shall use BMPs to avoid sedimentation migration and erosion from occurring.

k. Inspection, Maintenance, and Repair

All measures must be periodically inspected, maintained, and repaired to ensure that receiving water quality is protected. Frequent inspections coupled with thorough documentation and timely repair is necessary to ensure that all measures are functioning as intended.

I.R.2. Linear Underground and Overhead Projects

a. Linear Underground and Overhead Risk Determination

Linear underground and overhead projects vary in complexity and water quality concerns based on project type. This General Permit has varying application requirements based on the project’s risk to water quality. Factors that lead to the characterization of the project include location, sediment risk, and receiving water risk.

Linear projects are separated into project types based on the location and complexity of a project area or project segment/section area. Linear underground and overhead projects have been categorized into three project types as follows:

i. Type 1 linear projects are those construction projects where:

1) 70 percent or more of the construction activity occurs on a paved surface and where areas disturbed during construction will be returned to preconstruction conditions or equivalent protection established at the end of the construction activities for the day; or,

2) Greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them where:

a) Areas disturbed during construction will be returned to pre-construction conditions or equivalent protection established at the end of the construction activities for the day to minimize the potential for erosion and sediment deposition; and,

b) Areas where established vegetation was disturbed during construction will be stabilized and re-vegetated by the end of project. When required, adequate temporary stabilization BMPs will be installed and maintained until vegetation is established to meet minimum cover final stabilization requirements established in this General Permit.

Type 1 linear underground and overhead projects typically do not have a high potential to impact stormwater quality because: (1) these construction activities are not typically conducted during precipitation events, (2) these projects are normally constructed over a short period of time[108], minimizing the duration that pollutants could potentially be exposed to precipitation, and (3) disturbed soils such as those from trench excavation are required to be hauled away, backfilled into the trench, and/or covered (e.g., metal plates, pavement, plastic covers over spoil piles) at the end of the site operating hours for the construction day.

Type 1 linear underground and overhead projects are determined during the risk assessment found in Attachment E.1 to be 1) low sediment risk and low receiving water risk; 2) low sediment risk and medium receiving water risk; and 3) medium sediment risk and low receiving water risk.

This General Permit requires the discharger to ensure a SWPPP is developed by a Qualified SWPPP Developer for these construction activities that is specific to linear underground and overhead project type, location, and characteristics.

ii. Type 2 Linear Underground and Overhead Projects

Type 2 linear underground and overhead projects are determined to have a combination of High, Medium, and Low project sediment risk along with High, Medium, and Low receiving water risk. Type 2 linear underground and overhead projects are typically constructed over a short period of time like Type 1 projects, however, Type 2 projects have a higher potential to impact water quality because they:

1) Typically occur outside urban or developed areas;

108 Short period of time refers to a project duration of weeks to months, but typically less than one year in duration.

2) Have larger areas of soil disturbance that are not closed or restored at the end of the day;

3) May have on-site stockpiles of soil, spoil, and other materials;

4) Cross or occur in close proximity to a wide variety of sensitive resources that may include, but are not limited to, steep topography and/or water bodies; and,

5) Have larger areas of disturbed soils that may be exposed for a longer time interval before final stabilization, cleanup, and/or reclamation occurs.

This General Permit requires the discharger to ensure a SWPPP is developed by a Qualified SWPPP Developer and is implemented these site-specific construction activities for the project type, location, and characteristics.

iii. Type 3 Linear Underground and Overhead Projects

Type 3 linear underground and overhead projects are determined to have a combination of High and Medium project sediment risk along with High and Medium receiving water risk. Similar to Type 2 projects, Type 3 projects have a higher potential to impact water quality because they:

1) Typically occur outside urban and developed areas;

2) Have larger areas of soil disturbance that are not closed or restored at the end of the day;

3) May have on-site stockpiles of soil, spoil, and other materials;

4) Cross or occur in close proximity to a wide variety of sensitive resources that may include, but are not limited to, steep topography and/or water bodies; and,

5) Have larger areas of disturbed soils that may be exposed for a longer time interval before final stabilization, cleanup, and/or reclamation occurs.

This General Permit requires the discharger to ensure a SWPPP is developed by a Qualified SWPPP Developer and is implemented these site-specific construction activities for the project type, location, and characteristics.

b. Programmatic Permitting for Linear Underground and Overhead Projects

i. Regional Programmatic Permit Coverage:

Regionwide programmatic permit coverage allows a linear underground and overhead project discharger to submit one Notice of Intent for multiple non-contiguous linear underground and overhead projects, if the projects: 1) are

located within one Regional Water Board office boundary, 2) are a group of projects of similar scopes with common construction activities, and 3) have the same Legally Responsible Person. Thus, a linear underground and overhead project discharger may be issued a single waste discharge identification number (WDID) for each group of projects (e.g., electrical transmission, gas line transmission, wildfire prevention, etc.) that meet the above criteria.

A linear underground and overhead project discharger opting to obtain regional programmatic permit coverage must submit a common SWPPP with its application that addresses all the construction activities and pollutant sources relevant to the project scope. The linear underground and overhead project discharger must also submit a Linear Construction Activity Notification in SMARTS for each individual project with site-specific information per Attachment E.2, allowing the Regional Water Board to enforce individual projects per the requirements in this Order. Each project will share a WDID and will be assigned a WDID extension to identify and track the individual projects. Each individual project is terminated separately through a Linear Construction Termination Notification in SMARTS, pending Regional Water Board staff approval.

Regionwide programmatic permitting was requested by utility stakeholders to improve administrative efficiency related to construction stormwater permitting, in part by training contractors on a common SWPPP that can be implemented on a site-specific basis.

ii. Statewide Programmatic Permit Coverage for Mandated Installation of Broadband Utilities:

Statewide programmatic permit coverage allows a linear underground and overhead project discharger responsible in deploying construction activities to comply with sections 7 – 13 of the Governor's Executive Order N-73-20, or amendments thereto, to submit one Notice of Intent for multiple non-contiguous linear broadband underground and overhead projects, if the projects:

- Are located throughout two or more Regional Water Board boundaries,
- Are a group of projects for broadband utility installation outside of a construction project otherwise regulated by this General Order, and
- Have the same Legally Responsible Person.

The discharger will be issued a single waste discharge identification number (WDID) for each group of projects that meet the above criteria.

A linear underground and overhead project discharger opting to obtain statewide programmatic permit coverage must submit:

A common SWPPP with its application that addresses all the construction activities and pollutant sources relevant to the project scope, and

Project-specific additional pollution prevention measures to the common SWPPP, as applicable,

A Linear Construction Activity Notification in SMARTS for each individual project with site-specific and project-specific information per Attachment E.2.

Each individual project will share a common WDID and will be assigned a unique WDID extension corresponding to the Regional Water Board jurisdiction and the project risk level. The unique project-specific extension number will allow the corresponding Regional Water Board to enforce individual projects per the requirements in this Order specific to the project risk level. Each individual project is terminated separately through the Linear Construction Termination Notification process in SMARTS, and the Notice of Termination process of this General Permit.

Statewide programmatic permitting was requested by the California Department of Transportation, the statewide agency primarily responsible for the construction activity that fully deploys Governor's Executive Order N-73-20, or amendments thereto, by July 2026. To improve internal project efficiencies to comply with the executive order by July 2026, the Department has reduced its standard design-to-construction procedures from several months to two-to-three weeks. The permit enrollment administrative efficiency provided by statewide programmatic permitting will allow the Department, and other linear project dischargers deploying the executive order, to obtain permit coverage for individual projects, compatible with shortened design-to construction timelines, without submitting repetitive application information for similar projects within different regions.

c. Linear Underground and Overhead Project Effluent Standards

All linear underground and overhead projects are subject to the narrative effluent limitations specified in the General Permit. Type 2 and Type 3 projects are subject to technology-based numeric action levels for pH and turbidity.

d. Linear Underground and Overhead Project Good Housekeeping

Improper use and handling of construction materials could potentially cause a threat to water quality. All linear underground and overhead project dischargers must comply with a minimum set of Good Housekeeping measures specified in

Attachment E of this General Permit to ensure proper construction material site management.

e. Linear Underground and Overhead Project Non-Stormwater Management

All linear underground and overhead project dischargers must comply with the Non-Stormwater Management measures specified in Attachment E and Order of this General Permit in order to ensure control of all non-stormwater discharges during construction.

f. Linear Underground and Overhead Project Erosion Control

This General Permit requires all linear underground and overhead projects dischargers to implement effective wind erosion control measures, and soil cover for inactive areas. Type 3 linear underground and overhead projects posing a higher risk to water quality are additionally required to ensure the post-construction soil loss is equivalent to or less than the pre-construction levels.

g. Linear Underground and Overhead Project Sediment Control

All linear underground and overhead project dischargers must comply with the general Sediment Control measures specified in Attachment E or this General Permit in order to ensure control and containment of all sediment discharges. Additional requirements for sediment controls are imposed on Type 2 and 3 linear underground and overhead projects due to their higher risk to water quality.

h. Linear Underground and Overhead Projects Run-on and Runoff Control

Discharges originating outside of a project's perimeter and flowing onto the property can adversely affect the quantity and quality of discharges originating from a project site. All linear underground and overhead projects must comply with the run-on and runoff control measures specified in Attachment E of this General Permit in order to ensure proper management of run-on and runoff. Due to the lower risk of impacting water quality, Type 1 linear underground and overhead projects are not required to implement run-on and runoff controls unless deemed necessary by the discharger. Examples include installing berms and other temporary run-on and runoff diversions. Dischargers are responsible for commingled run-on (onto the site or within the site) from areas not related to the site's construction activities and the pollutants contained in the commingled discharge.

i. Linear Underground and Overhead Projects Inspection, Maintenance, and Repair

Proper inspection, maintenance, and repair activities are important to ensure the effectiveness of on-site measures to protect receiving water quality. All linear underground and overhead project dischargers are required to comply with the inspection, maintenance, and repair requirements specified in

Attachment E of this General Permit in order to ensure that these activities are adequately performed.

I.S. Active Treatment System[109] Requirements

I.S.1. General

The requirements in Attachment F only apply when an active treatment system is implemented on a project site. An active treatment system is defined in this General Permit as "a controlled treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation to aid in the reduction of turbidity caused by fine suspended sediment."

The active treatment system is designed to treat and reduce the turbidity level of construction stormwater discharges to meet water quality standards and the requirements of this General Permit at the flowrate required in the Active Treatment System Plans. The specified active treatment system flowrate is designed to dewater the basin within 10 hours. Typical equipment and materials may include pumps, manifolds, flocculants, filter bags, sand media filters, and other items designed to remove suspended materials from construction stormwater. The discharger is required to ensure the operators of the active treatment system are adequately trained and the appropriate professional designed the Active Treatment System Plan.

Bonded-fiber matrices, hydromulches, spray tackifiers, and other land-applied products used to stabilize soil are not considered active treatment nor passive treatment, but rather a form of erosion control.

The use of an active treatment system may be necessary when: (1) traditional erosion and sediment controls do not effectively control accelerated erosion at the construction site, (2) the construction site stormwater discharges may cause or contribute to an exceedance of a water quality standard, and/or (3) site constraints (e.g., very steep or long slope lengths,[110] clay, highly erosive soils) inhibit the ability to construct a correctly sized sediment basin.

The active treatment system industry in California started in the mid-1990s and is relatively young, however many developers use these systems to treat stormwater discharges from their construction sites. The active treatment system requirements in this General Permit are based on those in place for small wastewater treatment systems, active treatment system regulations from the Central Valley Regional

109 An active treatment system is a treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation in order to reduce turbidity caused by fine suspended sediment.

110 Pitt, R., S. Clark, and D. Lake. 2006. Construction Site Erosion and Sediment Controls: Planning, Design, and Performance. DEStech Publications. Lancaster, PA. 370pp.

Water Quality Control Board (September 2005 memorandum "2005/2006 Rainy Season – Monitoring Requirements for Stormwater Treatment Systems that Utilize Chemical Additives to Enhance Sedimentation"), the State of Washington's Department of Ecology Construction Stormwater Program, and recent advances in technology and knowledge of coagulant performance and aquatic safety.

The effective design of an active treatment system requires a detailed survey and analysis of site conditions. Properly planned and implemented active treatment system provide high-quality discharges and prevent significant impacts to surface water quality, even under extreme environmental conditions.

These systems can be very effective in reducing the sediment in stormwater runoff, but the systems that use additives or polymers to enhance sedimentation also pose a potential risk to water quality (e.g., inadequate training, operational failure, equipment failure, additive or polymer release). The State Water Board is concerned about the potential acute and chronic impacts that the polymers and other chemical additives may have on fish and aquatic organisms if released in sufficient quantities or concentrations. The literature and anecdotal evidence of polymer releases causing aquatic toxicity in California supports this concern.[111] For example, cationic polymers have been shown to bind with the negatively charged gills of fish, resulting in mechanical suffocation.[112] This General Permit establishes residual polymer monitoring and toxicity testing requirements due to the potential toxicity impacts associated with the release of additives or polymers into receiving waters from construction sites utilizing an active treatment system.

The primary treatment process in an active treatment system is coagulation and flocculation. Active treatment system operate on the principle that the added coagulant is bound to suspended sediment, forming floc, which is gravitationally settled in tanks or a basin, or removed by sand filters. A typical installation utilizes an injection pump upstream from the clarifier tank, basin, or sand filters, which is electronically metered to both flow rate and suspended solids level of the influent, assuring a constant dose. The coagulant mixes and reacts with the influent, forming a dense floc. The floc may be removed by gravitational setting in a clarifier tank or basin, or by filtration. Water from the clarifier tank, basin, or sand filters may be routed through cartridge(s) and/or bag filters for final polishing. Vendor-specific systems use various methods of dose control, sediment and floc removal, filtration, etc., that are detailed in project-specific documentation. The particular coagulant and/or flocculant used for a given project is determined based on the site water chemistry because the coagulants are specific in their reactions with

111 RomØen, K., B. Thu, and Ø. Evensen. 2002. Immersion delivery of plasmid DNA II. A study of the potentials of chitosan-based delivery system in rainbow trout (Onchorhynchus mykiss) fry. Journal of Controlled Release 85: 215-225.

112 Bullock, G., V. Blazer, S. Tsukuda, and S. Summerfelt. 2000. Toxicity of acidified chitosan for cultured rainbow trout (Oncorhynchus mykiss). Aquaculture 185:273-280.

various types of sediments. Appropriate selection of dosage must be carefully matched to the characteristics of each site. This General Permit prohibits the operation of an active treatment system or the batch storage to cause an uncontrolled release of chemicals used during the flocculation, coagulation, and/or filtration process for suspended sediment particles because these chemicals can negatively affect the beneficial uses of receiving waters and/or degrade water quality (e.g., acute and chronic toxicity).

Active treatment system are operated in two differing modes, batch or flow-through. Batch treatment can be defined as Pump-Treat-Hold-Test-Release. In batch treatment, water is held in a basin or tank, and is not discharged until treatment is complete. Batch treatment involves holding or recirculating the treated water in a holding basin or tank(s) until treatment is complete or the basin or storage tank(s) is full. In flow-through treatment, water is pumped into the active treatment system directly from the runoff collection system or stormwater holding pond, where it is treated and filtered as it flows through the system and is then directly discharged. “Flow-through treatment” is also referred to as “continuous treatment.”

I.S.2. Active Treatment System Effluent Standards

This General Permit requires discharges of stormwater associated with construction activity that undergo active treatment to comply with special operational and effluent limitations to ensure that these discharges do not adversely affect the beneficial uses of the receiving waters or cause degradation of their water quality and establishes numeric effluent limitations for discharges from construction sites that utilize an active treatment system. An exceedance of the active treatment system numeric effluent limitation constitutes a General Permit violation. These systems lend themselves to technology-based numeric effluent limitations for turbidity and pH because of their known reliable treatment. Advanced systems have been in use in some form since the mid-1990s. An active treatment system is considered reliable, can consistently produce a discharge of less than 10 NTU, and has been used successfully at many sites in several states since 1995 to reduce turbidity to very low levels.

This General Permit contains “compliance storm (precipitation) event” exceptions from the technology-based numeric effluent limitations for active treatment system discharges. The rationale is that technology-based requirements are developed assuming a certain design storm (precipitation) event. The industry-standard active treatment system design storm is 10-year, 24-hour (as stated in Attachment F of this General Permit), so the compliance precipitation event has been established as the 10-year, 24-hour event as well to provide consistency.

I.T. Passive Treatment Requirements

The U.S. EPA's 2022 NPDES General Permit for Stormwater Discharges from Construction Activities[113] requires the regulation of any chemically enhanced stormwater treatment. Chemically enhanced treatments are split into two categories: active treatment systems and passive treatment technologies (passive treatment including chemical and products). More information regarding active treatment systems can be found in the Section I.S above.

Passive treatment chemicals and products bind fine soil particles together through chemical ionic processes allowing heavy particles to settle out of solution without a fully mechanical or engineered system. Passive treatment technologies in the construction industry typically use coagulants and flocculants such as polyacrylamides (PAMs).

Construction site operators and dischargers regularly use passive treatment to reduce the turbidity levels in construction stormwater runoff. The construction industry uses passive treatment technologies because these products are a cost-effective method of reducing turbidity for compliance with turbidity numeric action levels in this General Permit, especially compared to active treatment systems. Examples of chemically enhanced BMPs used to meet General Permit turbidity numeric action levels are blocks, wattles, or water-applied products.

Many other industries use passive treatment chemicals in water purification, food production, and other industrial applications to reduce the turbidity and concentration of other pollutants in the discharge.

The types of flocculants and coagulants that can be included in passive treatment for this General Permit are non-ionic and anionic flocculants and coagulants. Cationic flocculants and coagulants can be used in an active treatment system and are regulated in Attachment F. Research on applicable chemical information indicates that many commonly used flocculants are toxic or contain toxic components, and when discharged to surface water have the potential to impact aquatic life and other beneficial uses.

Many types of passive treatment chemicals are toxic to fish and other aquatic organisms. Cationic PAM-based flocculants are acutely toxic to aquatic species in small quantities and are neurotoxins. Other flocculant products such as anionic PAM-based flocculants are chronically toxic to aquatic species in large quantities.

113 U.S. EPA, 2022 NPDES General Permit for Discharges from Construction Activities (January 11, 2017), <https://www.epa.gov/npdes/2022-construction-general-permit-cgp#2022cgp>

The California Stormwater Quality Association developed past guidance[114] on PAMs used in passive treatment technologies and included specific limitations to the use of soil binders containing PAMs:

1) Do not use PAMs on a slope that flows into a waterbody without passing through a sediment trap, sediment basin, or other sediment controls (e.g., wattles, silt fences, gravel bags);
2) The specific PAM copolymer formulation must be anionic. Cationic PAMs should not be used in any application because of known aquatic toxicity problems. Only the highest drinking water grade PAM certified for compliance with ANSI/NSF Standard 60 for drinking water treatment, should be used for soil applications;
3) PAMs designated for erosion and sediment control should be “water soluble” or “linear” or “non-cross linked”; and,
4) PAMs should not be used as a stand-alone BMP to protect against water-based erosion. When combined with mulch, its effectiveness increases dramatically.

Additionally, a low-turbidity discharge from a passive treatment chemical application site does not always correspond to low levels of solids in the discharge and/or an improvement in water quality downstream because:

1) Turbidity monitoring solely measures small size solids suspended in the water; turbidity monitoring does not measure particle size, weight, or bed load of sediment from flocculated solids leaving a site; and,
2) Passive treatment chemicals discharged either by aerial deposition or through stormwater runoff contributes similar toxicity threats to aquatic life.

This General Permit regulates the use of passive treatment in Attachment G, however, specific technology-based and/or water quality-based numeric effluent limitations have not been implemented in this General Permit for passive treatment chemicals because there is currently no consistent and proven data to determine the level of toxicity and water quality impacts that negatively outweighs the economic benefit associated with the use of passive treatment technologies.

I.U. Post-Construction Requirements

I.U.1. General

Past practices for new and redevelopment construction activities have resulted in modified natural watershed and stream processes. This is caused by altering the terrain, modifying the vegetation and soil characteristics, introducing impervious surfaces such as pavement and buildings, increasing drainage density through pipes and channels, and altering the condition of stream channels through straightening, deepening, and armoring. These changes result in a drainage

114 CASQA Construction BMP Handbook, 2015.

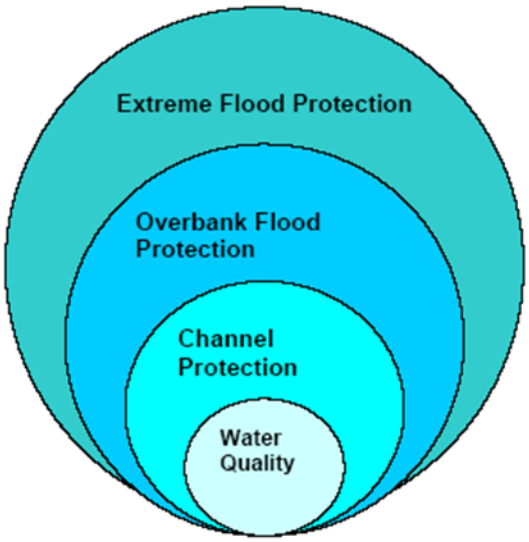
system where sediment transport capacity is increased, and sediment supply is decreased. A receiving channel's response is dependent on dominant channel materials and its stage of adjustment. Construction activity can lead to impairment of beneficial uses in two main ways:

a. Stormwater discharges occurring during the actual construction process can negatively affect the chemical, biological, and physical properties of downstream receiving waters. The most likely pollutant is sediment due to the disturbance of the landscape, however pH and other non-visible pollutants are also of great concern; and,

b. The finished project may result in significant modification of the site's long-term response to precipitation after most construction activities are completed at a construction site. New development and redevelopment projects have almost always resulted in permanent post-construction water quality impacts because more precipitation ends up as runoff and less precipitation is intercepted, evaporated, and infiltrated.

An effective stormwater management strategy must address the full suite of precipitation events (water quality, channel protection, overbank flood protection, extreme flood protection) (Figure 3).

Figure 3 – Suite of Precipitation Events



The post-construction stormwater performance standards in this General Permit specifically address water quality and channel protection events. Overbank flood protection and extreme flood protection events are traditionally dealt with in local drainage and flood protection ordinances. However, measures in this General Permit to address water quality and channel protection also reduce overbank and extreme flooding impacts. This General Permit aims to match post-construction runoff to pre-construction runoff for the 85th percentile, 24-hour storm event, which

reduces the risk of impact to the receiving water's channel morphology and provides some water quality protection.

Projects are exempt from the post-construction requirements in this General Permit if located within an area subject to post-construction standards of an active Phase I or II MS4 permit with approved post-construction requirements or if they are linear underground and overhead projects.

I.U.2. Water Quality

This General Permit requires dischargers to replicate the pre-project runoff water balance (defined as the amount of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event, or the smallest storm event that generates runoff, whichever is larger. Contemporary stormwater management generally routes these flows directly to the drainage system, increasing pollutant loads and potentially causing adverse effects on receiving waters. These smaller water quality events happen much more frequently than larger events and generate much higher pollutant loads on an annual basis. There are other adverse hydrological impacts that result from not designing according to the site's pre-construction water balance. In Maryland, Klein[115] noted that baseflow decreases as the extent of urbanization increases. Ferguson and Suckling[116] noted a similar relation in watersheds in Georgia. On Long Island, Spinello and Simmons[117] noted substantial decreases in base flow in intensely urbanized watersheds.

This General Permit emphasizes runoff reduction through on-site stormwater reuse, interception, evapotranspiration, and infiltration through non-structural controls and conservation design measures (e.g., downspout disconnection, soil quality preservation/enhancement, interceptor trees). Employing these measures close to the source of runoff generation is the easiest and most cost-effective way to comply with the pre-construction water balance standard. Using low-tech runoff reduction techniques close to the source is consistent with a number of recommendations in the literature.[118] In many cases, BMPs implemented close to

115 Klein 1979 as cited in Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE, p. 117.

116 Ferguson and Suckling 1990 as cited Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE, p. 117.

117 Center for Watershed Protection (CWP). 2000. The Practice of Watershed Protection: Techniques for protecting our nation's streams, lakes, rivers, and estuaries. Ellicott City, MD, p. 741.

118 Bay Area Stormwater Management Agencies Association (BASMAA). 1997. Start at the Source: Residential Site Planning and Design Guidance Manual for Stormwater Quality Protection. Palo Alto, CA;

the source of runoff generation cost less than end-of the pipe measures.[119] Dischargers are given the option of using the SMARTS Post-Construction Calculator to calculate the required runoff volume or a watershed process-based, continuous simulation model such as the EPA's Stormwater Management Model (SWMM) or Hydrologic Simulation Program Fortran. Such methods used by the discharger will be reviewed by the Regional Water Board upon Notice of Termination application.

I.U.3. Channel Protection

A basic understanding of fluvial geomorphic concepts is necessary to address channel protection. A dominant paradigm in fluvial geomorphology holds that streams adjust their channel dimensions (width and depth) in response to long-term changes in sediment supply and bank full discharge (1.5 to 2-year recurrence interval). The bank full stage corresponds to the discharge at which channel maintenance is the most effective (the discharge at which the moving sediment, forming or removing bars, forming or changing bends and meanders, and generally doing work that results in the average morphologic characteristics of channels).[120] Lane (1955 as cited in Rosgen 1996[121]) showed the generalized relationship between sediment load, sediment size, stream discharge, and stream slope (Figure 4). A change in any one of these variables sets up a series of mutual adjustments in the companion variables with a resulting direct change in the physical characteristics of the stream channel.

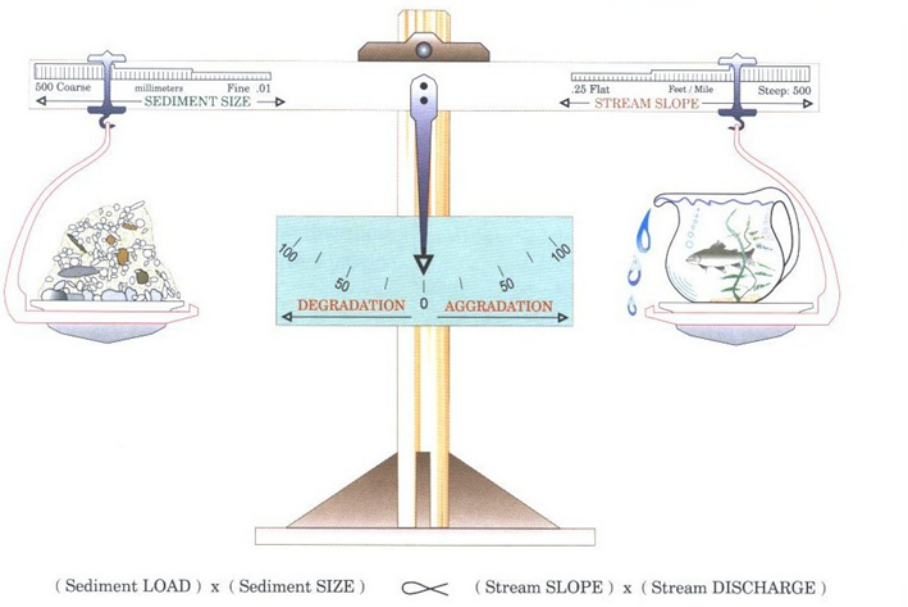
McCuen, R.H. 2003 Smart Growth: hydrologic perspective. Journal of Professional Issues in Engineering Education and Practice. Vol (129), p. 151-154;
Moglen, G.E. and S. Kim.2007. Impervious imperviousness-are threshold-based policies a good idea? Journal of the American Planning Association, Vol 73 No.2. p. 161-171.

119 Delaware Department of Natural Resources (DDNR). 2004. Green technology: The Delaware Urban Runoff Management Approach. Dover, DE, p. 117.

120 Dunne, T and L.B. Leopold. 1978. Water in Environmental Planning. San Francisco W.H. Freeman and Company.

121 Rosgen. D.L. 1996. Applied River Morphology. Pagosa Springs. Wildland Hydrology.

Figure 4 – Schematic of the Lane Relationship[122]



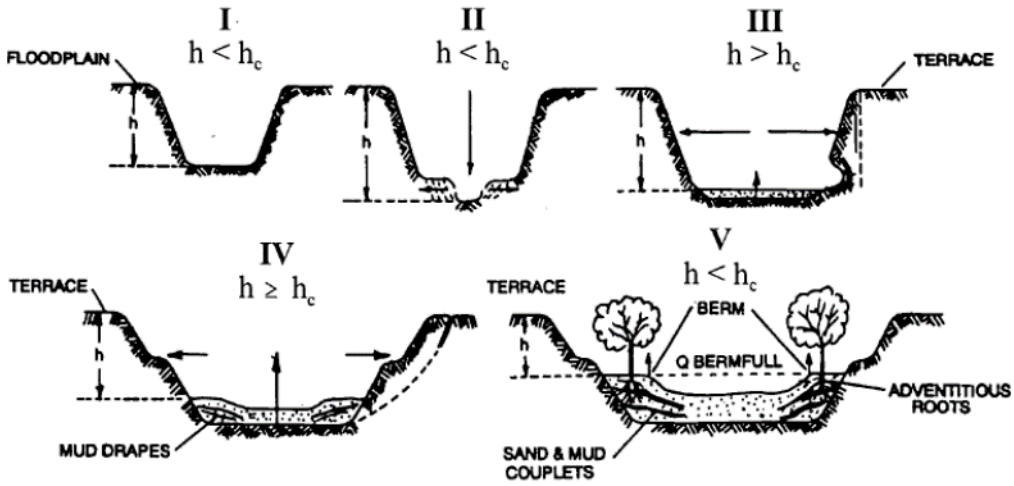
Stream slope multiplied by stream discharge (the right side of the scale) is essentially an approximation of stream power, a unifying concept in fluvial geomorphology (Bledsoe 1999). Urbanization generally increases stream power and affects the resisting forces in a channel (sediment load and sediment size represented on the left side of the scale).

Sediment loads can increase from 2 to 40,000 times over pre-construction levels during construction.[123] Most of this sediment is delivered to stream channels during large, episodic rain events.[124] This increased sediment load leads to an initial aggradation phase where stream depths may decrease as sediment fills the channel, leading to a decrease in channel capacity and increase in flooding and overbank deposition. A degradation phase initiates after construction is completed.

Schumm et. al (1984) developed a channel evolution model that describes the series of adjustments from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 5).

122 After Lane (1955) as cited in Rosgen (1996).
123 Goldman S.J., K. Jackson, and T.A. Bursztynsky. 1986. Erosion and Sediment Control Handbook. McGraw Hill. San Francisco.
124 Wolman 1967 as cited in Paul, M.P. and J.L. Meyer. 2001. Streams in the Urban Landscape. Annu. Rev. Ecol. Syst. 32, p. 333-365.

Figure 5 – Channel Changes Associated with Urbanization[125]



Channel incision (Stage II) and widening (Stages III and to a lesser degree, Stage IV) are due to a number of fundamental changes on the landscape. Connected impervious areas and compaction of pervious surfaces increase the frequency and volume of bank full discharges.[126] Increased drainage density (miles of stream length per square mile of watershed) also negatively impacts receiving stream channels.[127] Increased drainage density and hydraulic efficiency leads to an increase in the frequency and volume of bank full discharges because the time of concentration is shortened. Flows from engineered pipes and channels are also often "sediment starved" and seek to replenish their sediment supply from the channel.

Encroachment of stream channels can also lead to an increase in stream slope, which leads to an increase in stream power. In addition, watershed sediment loads and sediment size (with size generally represented as the median bed and bank particle size, or d_{50}) decrease during urbanization.[128] This means that even if pre-

125 After incised Channel Evolution Sequence in Schumm et. al 1984.
126 Booth, D.B. and C.R. Jackson. 1997. Urbanization of Aquatic Systems: Degradation Thresholds, Stormwater Detection, and the Limits of Mitigation. Journal of the American Water Resources Association Vol. 33, No. 5, p. 1077-1089.
127 May, C.W. 1998. Cumulative effects of urbanization on small streams in the Puget Sound Lowland ecoregion. Conference proceedings from Puget Sound Research '98 held March 12, 13 1998 in Seattle, WA;
Santa Clara Valley Urban Runoff Pollution Prevention Program. 2002. Hydromodification Management Plan Literature Review, p. 80.
128 Finkenbine, J.K., D.S. Atwater, and D.S. Mavinic. 2000. Stream health after urbanization. J. Am. Water Resour. Assoc. 36, p. 1149-60;

and post-development stream power is the same, more erosion will occur in the post-development stage because the smaller particles are less resistant (provided they are non-cohesive).

As shown in Stages II and III, the channel deepens and widens to accommodate the increased stream power[129] and decrease in sediment load and sediment size. Channels may actually narrow as entrained sediment from incision is deposited laterally in the channel. After incised channels begin to migrate laterally (Stage III), bank erosion begins, which leads to general channel widening.[130] At this point, a majority of the sediment that leaves a drainage area comes from within the channel, as opposed to the background and construction related hillslope contribution. Stage IV is characterized by more aggradation and localized bank instability. Stage V represents a new quasi-equilibrium channel morphology in balance with the new flow and sediment supply regime. In other words, stream power is in balance with sediment load and sediment size.

The magnitude of the channel morphology changes discussed above varies along a stream network as well as with the age of development, slope, geology (sand-bedded channels may cycle through the evolution sequence in a matter of decades whereas clay-dominated channels may take much longer), watershed sediment load and size, type of urbanization, and land use history. It is also dependent on a channel's stage in the channel evolution sequence when urbanization occurs. Management strategies must take into account a channel's stage of adjustment and account for future changes in the evolution of channel form (Stein and Zaleski 2005).[131]

Traditional structural water quality BMPs (e.g., detention basins and other devices used to store volumes of runoff) unless they are highly engineered to provide adequate flow duration control, do not adequately protect receiving waters from accelerated channel bed and bank erosion, do not address post-development increases in runoff volume, and do not mitigate the decline in benthic

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Pizzuto. J.E. W.S. Hession, and M. McBride. 2000. Comparing gravel-bed rivers in paired urban rural catchments of southeastern Pennsylvania. Geology 28, p. 79-82.

129 Hammer 1973 as cited in Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE, p.117;
Booth, D.B. 1990. Stream Channel Incision Following Drainage Basin Urbanization. Water Resour. Bull. 26, p. 407-417.

130 Trimble, S.W. 1997. Contribution of Stream Channel Erosion to Sediment Yield from an Urbanizing Watershed. Science: Vol. 278 (21), p. 1442-1444.

131 Stein, E.S. and S. Zaleski. 2005. Managing runoff to protect natural stream: the latest developments on investigation and management of hydromodification in California. Southern California Coastal Water Research Project Technical Report 475, p. 26.

macroinvertebrate communities in the receiving waters,[132] and suggest that structural BMPs are not as effective in protecting aquatic communities as a continuous riparian buffer of native vegetation. This is supported by the findings of Zucker and White,[133] where instream biological metrics were correlated with the extent of forested buffers.

This General Permit requires dischargers to maintain pre-development drainage densities and times of concentration in order to protect channels and encourages dischargers to implement setbacks to reduce channel slope and velocity changes that can lead to aquatic habitat degradation.

There are a number of other approaches for modeling fluvial systems, including statistical and physical models and simpler stream power models.[134] The use of these models in California is described in Stein and Zaleski (2005).[135] Rather than require a specific one-size-fits-all modeling method in this permit, the State Water Board intends to develop a stream power and channel evolution model-based framework to assess channels and develop a hierarchy of suitable analysis methods and management strategies. In time, this framework may become a State Water Board water quality control policy.

I.U.4. General Permit Linkage to Overbank and Extreme Flood Protection

Site design BMPs (e.g., rooftop and impervious disconnection, vegetated swales, setbacks and buffers) filter and settle out pollutants and provide for more infiltration than is possible for traditional centralized structural BMPs placed at the site's lowest point. They provide source control for runoff and lead to a reduction in pollutant loads. When implemented, they also help reduce the magnitude and volume of larger, less frequent storm events (e.g., 10-yr, 24-hour storm and larger), thereby reducing the need for expensive flood control infrastructure. Non-structural BMPs can also be a landscape amenity, instead of a large, isolated structure requiring substantial area for ancillary access, buffering, screening, and maintenance facilities. The multiple benefits of using non-structural benefits will be critically important as the state's population increases and imposes strains upon our existing water resources.

132 Horner, R.R. 2006. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices (LID) for the San Diego Region.
133 Delaware Department of Natural Resources (DDNR). 2004. Green Technology: The Delaware Urban Runoff Management Approach. Dover, DE, p. 117.
134 Finlayson, D.P. and D.R. Montgomery. 2003. Modeling large-scale fluvial erosion in geographic information systems. Geomorphology (53), p.147-164.
135 Stein, E.S. and S. Zaleski. 2005. Managing runoff to protect natural stream: the latest developments on investigation and management of hydromodification in California. Southern California Coastal Water Research Project Technical Report 475, p. 26.

Maintaining predevelopment drainage densities and times of concentration will help reduce post-development peak flows and volumes in areas not covered under a municipal permit. The most effective way to preserve drainage areas and maximize time of concentration is to implement landform grading, incorporate site design BMPs and implement distributed structural BMPs (e.g., bioretention cells, rain gardens, rain cisterns).

This General Permit requires dischargers to maximize sheet flow and use an "open" drainage system (e.g., swales, ditches, vegetated channels) for concentrated flows to meet the drainage density requirement. Sheet flow areas, swales, ditches, and vegetated channels are not considered streams for the purpose of calculating drainage density.

This General Permit requires dischargers to use recommended methods in the applicable local hydraulic design or flood control manual to meet the time of concentration requirements. The discharger is required to use the time of concentration calculation method contained in the Natural Resources Conservation Service's Technical Release 55: Urban Hydrology for Small Watersheds if a recommended method does not exist.

Dischargers with active General Permit coverage are required to use the post-construction calculator in SMARTS or the approved post-construction standards of an applicable Phase I or Phase II Municipal Separate Storm Sewer System (MS4) NPDES permit to report compliance with this General Permit post-construction requirements.

This General Permit requires the discharger to utilize the post-construction calculator in SMARTS if: (1) a construction project (other than a linear and underground and overhead project that is not subject to this General Permit's post-construction requirements) was or is approved by the local municipality prior to the municipality having post-construction standards adopted pursuant to a Phase I or Phase II MS4 permit or (2) the project was not subject to the post-construction standards of a Phase I or Phase II entity.

I.V. Stormwater Pollution Prevention Plans (SWPPPs)

U.S. EPA's Construction General Permit requires that qualified personnel conduct inspections and defines qualified personnel as "a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity."[136] U.S. EPA also suggests that qualified personnel prepare SWPPPs and points to

136 U.S. EPA, Developing Your Stormwater Pollution Prevention Plan (May 2017), <https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf> [as of May 20, 2021]

numerous states that require certified professionals to be on construction sites at all times.

This General Permit requires that all SWPPPs be site-specific and are written, amended, and certified by a Qualified SWPPP Developer and includes the information needed to demonstrate compliance with all requirements of this General Permit to ensure that water quality is being protected. SWPPP development and updates are required to be based on actual site conditions and maintain continued compliance with requirements of this General Permit. This General Permit also requires the current SWPPP be kept on-site, made available for review, and uploaded through SMARTS.

Although the QSD can change over the life of a project, a QSD, representing the discharger, is expected to make necessary corrections and amendments to the original SWPPP throughout the life of the project to ensure the site's compliance plan with this General Permit is documented and current. Similarly, a QSP, representing the discharger, must also oversee the implementation of the site-specific BMPs described in the corresponding site-specific SWPPP.

The local municipality cannot enforce General Permit requirements; this is done by the Regional Water Board inspectors. The local municipality is typically responsible for ensuring compliance with local stormwater ordinance which prohibits sediment and other pollutants from entering the MS4, and with a local grading ordinance that typically requires an erosion and sediment control plan (typically a sheet in the construction plan set) for projects with a grading permit. The local municipality may have a condition in their MS4 stormwater permit requiring the agency to check that certain items are included in the SWPPP. This does not constitute approval of the SWPPP, and the review is typically conducted prior to issuing a grading permit.

The previous versions of the General Permit required development and implementation of a SWPPP as the primary compliance mechanism. The SWPPP has three major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges, (2) to describe and ensure the implementation of site-specific BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges, and (3) to convey a plan to restore erosion protection and site hydrology post-construction. The SWPPP must include site-specific BMPs that address source control, pollutant control, and treatment control.

This General Permit shifts some of the previous measures into specific General Permit requirements, each individually enforceable as a General Permit term. This General Permit emphasizes the use of appropriately selected, correctly installed, and maintained site-specific BMPs. This approach provides the flexibility necessary to establish BMPs that can effectively control sources of pollutants during changing construction activities. These specific requirements also improve both the clarity and the enforceability of the General Permit so that the dischargers understand, and the

Water Boards and public can determine whether the discharges comply with this General Permit's requirements.

The SWPPP must be implemented at the appropriate level to protect water quality at all times throughout all of the construction project phases. The SWPPP must remain on the site during construction activities, commencing with the initial mobilization and ending with the termination of coverage under the General Permit. Linear underground and overhead project dischargers are required to make the SWPPP available at the construction site during site operating hours while construction is occurring and shall be made available upon request by a State, Federal, or Municipal inspector. A site-specific SWPPP may be kept in electronic format. All maps and figures must be printed, hard copy, full size, and available on the construction site. Current copies of the BMPs and maps and drawings will be left with the field crew and the original SWPPP shall be made available via a request by radio or telephone when the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site. The SWPPP shall be available from the SWPPP contact listed in the Permit Registration Documents until stabilization is achieved even when construction activities are complete.

A SWPPP must be appropriate for the type and complexity of a project and will be developed and implemented to address site-specific conditions. Some projects may have similarities or complexities, yet each project is unique in its progressive state that requires specific description and selection of BMPs needed to address all possible generated pollutants.

I.W. Total Maximum Daily Loads (TMDLs)

I.W.1. Introduction

Total Maximum Daily Loads (TMDLs) are regulatory tools that provide the maximum amount of a pollutant from potential sources in the watershed that a water body can receive while attaining water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 Code of Federal Regulations § 130.2, subd. (i).) Discharges covered by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 Code of Federal Regulations section 130.7." (40 Code of Federal Regulations § 122.44, subd. (d)(1)(vii).) In addition, Water Code § 13263, subdivision (a), requires that waste discharge requirements implement relevant water quality control plans. Many TMDLs in existing water quality control plans include both waste load allocation and implementation requirements. Attachment H of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-

established TMDLs that include TMDL requirements for dischargers covered by this General Permit.

TMDLs are adopted through a separate U.S. EPA and Regional Water Board public process. The previous permit included a list of potentially applicable TMDLs, and this list has been refined in this General Permit through consultation with the Regional Water Boards.

I.W.2. General Permit Implementation Requirements

Water Board staff evaluated and developed the following information in the development of the Attachment H implementation requirements:

- TMDL-specific requirements including implementation timelines, additional monitoring and reporting requirements, compliance determination language regarding compliance with numeric action levels, applicable TMDL-specific effluent limitations, and reporting requirements consistent with the applicable TMDL(s);
- Information regarding this General Permit's TMDL-specific requirements, timelines, and deliverables consistent with the assumptions and requirements of applicable waste load allocation(s) to implement the TMDL(s);
- Information regarding the implementation of BMPs (as applicable) to comply with applicable waste load allocations;
- Concentration-based monitoring requirements and information regarding the required determination of compliance for numeric effluent limitations through concentration-based compliance monitoring, corresponding calculation methodology, and reporting; and,
- Compliance deadlines, based on TMDL implementation schedules, were set for Responsible Dischargers to comply with the TMDL-specific requirements on, and after, the provided date. TMDLs that lacked or surpassed the implementation schedules prior to this issuance of this General Permit were assigned compliance deadlines set for the effective date of this General Permit.

I.W.3. TMDL Evaluation Steps

The State Water Board used the following process to evaluate and translate each TMDL in Attachment H:

- Step 1: Determined whether the TMDL applies to construction stormwater discharges and authorized non-stormwater discharges regulated by this General Permit (discharges regulated by this General Permit);
- Step 2: Identified the specific TMDL requirements that are applicable to discharges regulated by this General Permit;

- Step 3: Translated the TMDL requirements into TMDL-specific General Permit requirements, numeric action levels, or numeric effluent limitations;
- Step 4: Determined a compliance schedule that corresponds with the compliance date of the TMDL;
- Step 5: Developed monitoring and reporting requirements to determine compliance with waste load allocations;
- Step 6: Identified the existing General Permit requirements applicable to each constituent identified in the TMDLs, and evaluated if additional TMDL-specific requirements were required to implement the TMDL for discharges regulated by this General Permit; and,
- Step 7: Provided explanation regarding how the State Water Board translated each TMDL into specific requirements.

I.W.4. Applicability

Responsible Dischargers are: (1) dischargers with Notice of Intent coverage under this General Permit who discharge stormwater associated with construction activities and authorized-non-stormwater discharges, (2) either directly or through a municipal separate storm sewer system (MS4) to impaired water bodies identified in a U.S. EPA approved TMDL with an assigned waste load allocation to construction stormwater sources listed in Attachment H, and (3) have identified one or more TMDL-pollutants in the site's construction stormwater discharges.

Responsible Dischargers must comply with applicable TMDL-specific General Permit requirements in Attachment H and all other applicable provisions of this General Permit.

Each TMDL-specific permit requirement listed in Attachment H (Table H-2 for TMDL-specific General Permit Requirements) provides the specific translation and required actions for Responsible Dischargers as discussed below. Table H-2 includes the specific watershed, water body, or water bodies and additional tributaries to ensure Responsible Dischargers know which Table H-2 TMDL requirement applies depending on the receiving water body(ies) of the site.

This General Permit's pH and turbidity numeric action levels continue to apply in addition to the TMDL-specific requirements in Table H-2. The measurement of compliance with the TMDL-specific requirements, whether TMDL-related numeric action levels or numeric effluent limits, is defined in the Glossary (Attachment B). Stormwater discharges are intermittent in nature and many of the Attachment H TMDL waste load allocations are translated to numeric action levels or numeric effluent limitations for protection against acute impacts to beneficial uses in the receiving waters.

The following are examples to assist Responsible Dischargers in determining which water bodies are subject to the TMDLs in Table H-2:

- Watershed example: If the “Impaired Water Body/Watershed” column states “Napa River Watershed,” the TMDL and its requirements are applicable to dischargers discharging directly or through an MS4 into water bodies within the Napa River Watershed.
- River and tributaries (Watershed) example: If the “Impaired Water Body/ Watershed” column states “Los Angeles River and Tributaries,” this TMDL and its requirements are applicable to the dischargers discharging directly or through an MS4 into the Los Angeles River watershed.
- Lagoon example: If the “Impaired Water Body/ Watershed” column states “Colorado Lagoon,” this TMDL and its requirements are applicable to dischargers discharging directly or through an MS4 into the Colorado Lagoon.

TMDL-specific General Permit requirements do not apply to dischargers with a waiver or dischargers that meet the Notice of Non-Applicability (NONA) criteria.

There are currently few environmental laboratory accredited program (ELAP)-accredited laboratories capable of analyzing the following compounds (e.g., chlordane, dieldrin, total PCBs, total DDTs, 4,4-DDT, PAHs) to the low concentrations for some of the numeric action levels or numeric effluent limitations in Attachment H. Attachment H, Section I.G.5 provides a modified compliance protocol for Responsible Dischargers for the Los Angeles Area Lakes TMDL that are required to comply with TMDL-related numeric effluent limitations for Chlordane, Dieldrin, DDT, and PCBs. It is the expectation that the Water Boards will provide guidance and alternative methods for a Responsible Discharger to demonstrate compliance, if the Responsible Discharger has provided the Water Boards adequate information demonstrating that:

- It is infeasible to analyze a translated waste load allocation using an ELAP-accredited laboratory;
- The sample results would invalidate federally-required sufficiently sensitive methods; or,
- No method in 40 Code of Federal Regulations Part 136 can detect and quantify the amount specified for the construction stormwater.

I.W.5. General Permit Summary

The following requirements, applicable to dischargers enrolled under this General Permit, were considered in determining the necessity of additional TMDL-specific permit implementation for applicable to Responsible Dischargers:

- Storm Water Pollution Prevention Plan (SWPPP): This General Permit requires dischargers to identify construction materials handled at the site and describe all potential sources of pollutants that could be discharged from their site and describe the BMPs that will be implemented to control their discharges. This

General Permit requires Responsible Dischargers to revise their SWPPP whenever a significant change in monitoring or sampling occurs.

- Non-Stormwater Discharges (NSWDs): The only NSWDs authorized by this General Permit are described in the Order, and the discharge is prohibited unless regulated by a separate NPDES permit.
- Visual Observations: Dischargers are required to conduct pre, during, and post precipitation event site visual inspections which include: 1) monitoring of authorized NSWDs, 2) identification and elimination of unauthorized NSWDs, 3) identification of potential construction pollutant sources, and 4) necessary BMP maintenance and implementation.
- Sampling and Analysis: Dischargers must sample for all construction pollutants (with the potential to discharge to a waters of the United States) identified in their SWPPP in accordance with this General Permit. Dischargers are required to collect and analyze stormwater samples from construction site discharge locations over the reporting period in accordance with the requirements of this General Permit. When this previous permit's requirements were not sufficient to implement the TMDL, additional monitoring and sampling requirements are set forth in Attachment H's TMDL Compliance Table (Table H-2).

I.W.6. TMDL-Specific Requirements

Attachment H, Table H-2 contains TMDL-specific requirements for each TMDL with sources from discharges regulated by this General Permit. This Fact Sheet discusses TMDLs by pollutant since many of the TMDLs with the same pollutants are translated in the same manner. Table H-2 is organized by Regional Water Board jurisdiction and watershed, allowing the Responsible Dischargers to easily identify their applicable requirements.

a. Bacteria TMDLs

Nine Indicator Bacteria TMDLs (eight established by the Los Angeles Regional Water Quality Control Board and one by the U.S. EPA) apply to construction stormwater dischargers. Each TMDL addresses bacterial pollutants by establishing bacteria water quality objectives for one or more of the following Indicator Bacteria: Enterococcus, Escherichia coli (E. Coli), Fecal Coliform, and Total Coliform. These pollutants are referred to as Indicator Bacteria for the purpose of Attachment H and this Fact Sheet.

The water quality objectives for Indicator Bacteria are specific to fresh and marine waters and designated beneficial uses such as water contact recreation (REC-1), limited water contact recreation (LREC-1), and water non-contact recreation (REC-2).

Recreating in waters exceeding indicator bacteria water quality objectives has long been associated with adverse human health effects. Specifically, local and

national epidemiological studies demonstrate that there is a causal relationship between adverse health effects and recreational water quality, as measured by bacterial indicator densities.[137]

The Indicator Bacteria TMDLs and their beneficial uses are summarized below:

- Ballona Creek, Ballona Estuary, and Sepulveda Channel Bacteria TMDL[138]: Fresh Waters (LREC-1, REC-1, REC-2) and Marine Waters (REC-1)
- Harbor Beaches of Ventura County Bacteria TMDL[139]: Marine Waters (REC-1)
- Long Beach City Beaches and Los Angeles River Estuary Bacteria TMDL[140]: Marine Waters (REC-1)
- Los Angeles Harbor Bacteria TMDL[141]: Marine Waters (REC-1)
- Los Angeles River Bacteria TMDL[142]: Fresh Waters (LREC-1)
- Malibu Creek Bacteria TMDL[143]: Fresh Waters (REC-1) and Marine Waters (REC-1)

137 Ballona Creek, Estuary, and Tributary Bacteria TMDL, p. 2.
138 Los Angeles Regional Water Board, Ballona Creek, Estuary, and Tributary Bacteria TMDL (June 7, 2012), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R12-008_RB_BPA.pdf> [as of May 20, 2021]
139 Los Angeles Regional Water Quality Control Board, Harbor Beaches of Ventura County (Kiddie Beach and Hobie Beach) Bacteria TMDL (November 1, 2007), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2007-017_RB_BPA.pdf> [as of May 20, 2021]
140 United States Environmental Protection Agency IX, Long Beach City Beaches and Los Angeles River Estuary Total Maximum Daily Loads for Indicator Bacteria (March 26, 2012), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Longbeach/finalTMDLs-LongBeachCityBeaches-LARiverEstuaryBacteria.pdf> [as of April 28, 2022]
141 Los Angeles Regional Water Quality Control Board, Los Angeles Harbor Bacteria TMDL (Inner Cabrillo Beach Main Ship Channel) (July 1, 2004), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2004-011_RB_BPA.pdf> [as of May 20, 2021] (Los Angeles Harbor Bacteria TMDL)
142 Los Angeles Regional Water Quality Control Board, Los Angeles River Watershed Bacteria TMDL (July 9, 2010), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R10-007_RB_BPA1.pdf> [as of May 20, 2021] (Los Angeles Bacteria TMDL)
143 Los Angeles Regional Water Quality Control Board, Malibu Creek and Lagoon Bacteria TMDL (June 7, 2012),

- Marina del Rey Bacteria TMDL[144]: Marine Waters (REC-1)
- Santa Clara River Bacteria TMDL[145]: Fresh Waters (REC-1) and Marine Waters (REC-1)
- Santa Monica Bay Beaches Bacterial TMDL[146]: Marine Waters (REC-1)

The bacteria water quality objectives applicable to the beneficial uses associated with these water bodies are listed in Table 11 below.

Table 11 – Los Angeles Regional Water Quality Control Board Bacteria Water Quality Objectives

Beneficial Uses	E. Coli	Total Coliform	Fecal Coliform	Enterococcus	Total Coliform*
Fresh Waters REC-1	235/100 ml				
Fresh Waters LREC-1	576/100 ml				
Fresh Waters REC-2	4,000/100 ml				
Marine Waters REC-1		10,000/100 ml	400/100 ml	104/100 ml	1,000/100 ml

* If the fecal-to-total coliform ratio is greater than 0.1

- Source Analysis

  The primary sources of elevated indicator bacteria densities include dry-weather urban runoff and stormwater conveyed to the impaired waters. Although construction stormwater dischargers are not expected to be significant sources of indicator bacteria, they are considered Responsible Dischargers for these TMDLs.

<https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R12-009_RB_BPA.pdf> [as of May 20, 2021] (Malibu Creek Bacteria TMDL)

144 Los Angeles Regional Water Quality Control Board, Marina del Rey Harbor Mother's Beach and Back Basins Bacteria TMDL (August 7, 2003), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2003-012_RB_BPA.pdf> [as of May 20, 2021] (Marina del Rey Bacterial TMDL)

145 Los Angeles Regional Water Quality Control Board, Santa Clara River Estuary and Reaches 3, 5, 6, and 7 Indicator Bacteria TMDL (July 8, 2010), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R10-006_RB_BPA.pdf> [as of May 20, 2021] (Santa Clara River Bacteria TMDL)

146 Los Angeles Regional Water Quality Control Board, Santa Monica Bay Beaches Bacteria TMDL (July 2, 2014), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R12-007_RB_BPA1.pdf>

- Waste Load Allocation Translation

  The Indicator Bacteria TMDLs assign the waste load allocations in two different ways:

  i. The TMDLs for the: (1) Harbor Beaches of Ventura County, (2) Santa Clara River, (3) Long Beach City Beaches, and (4) Los Angeles River assigns a waste load allocation of zero (0) allowable exceedance days of the Bacteria WQOs, listed in Table 11 above.

  ii. The TMDLs for the: (1) Ballona Creek, Ballona Estuary, and Sepulveda Channel, (2) Malibu Creek, Lagoon, and adjacent beach, (3) Marina del Rey Harbor, Mother's Beach, and Back Basins, (4) Los Angeles Harbor (including Inner Cabrillo Beach and Main Ship Channel), and (5) Santa Monica Bay Beaches assign waste load allocations to construction stormwater dischargers equal to the Bacteria WQOs.

  The two waste load allocation definitions were translated similarly and require Responsible Dischargers to "meet and not exceed" the bacteria water quality objectives listed in Table 11. Responsible Dischargers will be required to implement minimum BMPs in order to comply with the translated waste load allocations because construction stormwater dischargers are not expected to be significant sources of indicator bacteria. This General Permit requires all dischargers to perform a pollutant source assessment and implement specific BMPs to prevent or eliminate any exceedance of water quality objectives contained within applicable TMDLs, including those for indicator bacteria. Therefore, compliance with this General Permit is consistent with the requirements and assumptions of the TMDL and sufficient to achieve compliance with the waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers with an applicable TMDL for Indicator Bacteria listed in Attachment H shall comply with the requirements of this General Permit.

  Responsible Dischargers that identify on-site sources of indicator bacteria in the required pollutant source assessment are to implement BMPs specific to preventing or controlling stormwater exposure to indicator bacteria. The minimum bacteria source control BMPs include QSP-conducted training of site staff, sanitary septic waste management, and routine housekeeping of identified bacteria sources. Structural BMPs such as retention, infiltration, or diversion of stormwater reduce bacteria loading to receiving waters. Responsible Dischargers that implement a suite of minimum BMPs to control stormwater exposure to source of indicator bacteria are expected to meet the assigned waste load allocation. If a BMP is observed failing, the Responsible Discharger is to evaluate the BMPs being used and identify

and implement a strategy in the site's SWPPP to prevent potential exceedances of the waste load allocations in the future. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about exceedances of the waste load allocation.

Compliance with Indicator Bacteria TMDLs shall be achieved by the effective date of this General Permit, as shown in Table H-2 in Attachment H.

b. Chloride and Salts TMDLs

Three TMDLs for chloride and other salts (Calleguas Creek, Santa Clara River Reach 3, and Upper Santa Clara River) apply to construction stormwater dischargers. Elevated levels of chloride and salts can impair a water body's beneficial uses associated with agricultural uses for irrigation of salt-sensitive crops and groundwater recharge to provide drinking water.

i. Calleguas Creek Watershed Salts TMDL[147]

The Los Angeles Regional Water Quality Control Board adopted the TMDL for Boron, Chloride, Sulfate, and TDS (salts) on October 4, 2007, to protect and restore water quality in the Calleguas Creek watershed by controlling the loading and accumulation of salts.

- Source Analysis

  Sources of salts in the watershed include water supply, water softeners that discharge to publicly treatment works (POTWS), POTW treatment chemicals, atmospheric deposition, pesticides and fertilizers, and indoor water use (e.g., chemicals, cleansers, food, etc.).[148] The salts are then transported through POTW discharges and runoff to surface water, shallow groundwater, or accumulate on the watershed within soils. Construction stormwater permittees are considered Responsible Dischargers for this TMDL.

- Waste Load Allocation Translation

  The Calleguas Creek Watershed Salts TMDL assigns interim and final waste load allocations during dry-weather conditions, when instream flow rates are below the 86th percentile flow and there has been no measurable precipitation in the previous 24 hours.[149] Both the interim

147 Los Angeles Regional Water Board, Calleguas Creek Watershed Salts TMDL (October 4, 2007), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2007-016_RB_BPA.pdf> [as of May 20, 2021]
148 Calleguas Creek Watershed Salts TMDL, p.3.
149 Calleguas Creek Watershed Salts TMDL, p. 7-8.

and final dry-weather waste load allocations, shown in Table 12 and Table 13 below, apply in the receiving water at the base of each subwatershed.

Table 12 – Calleguas Creek Interim Dry-Weather Waste Load Allocations

Pollutant	Interim Limit (mg/L)
Boron Total	1.3
Chloride Total	230
Sulfate Total	1289
TDS Total	1720

Table 13 – Calleguas Creek Final Dry-Weather Waste Load Allocations

Receiving Water	Critical Condition Flow Rate (mgd)	Chloride Allocation (lb/day)	TDS Allocation (lb/day)	Sulfate Allocation (lb/day)	Boron Allocation (lb/day)
Simi	1.39	1,738	9,849	2,897	12
Las Posas	0.13	157	887	261	N/A
Conejo	1.26	1,576	8,931	2,627	N/A
Camarillo	0.06	72	406	119	N/A
Pleasant Valley (Calleguas)	0.12	150	850	250	N/A
Pleasant Valley (Revolon)	0.25	314	1,778	523	2

Discharges that occur during dry-weather conditions are referred to as non-stormwater discharges (NSWDs) and are only authorized by this General Permit if dischargers meet the conditions of Section IV.A to control the discharge of pollutants off-site. Section IV.B of this General Permit's Order prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges are assumed to not commingle with stormwater associated with construction activity. The Los Angeles Regional Water Quality Control Board may impose additional requirements on NSWDs if deemed necessary per a site-specific analysis.

Wet-weather discharges are not assigned waste load allocations as flows transport a larger amount of salts at low concentrations for most construction stormwater dischargers, therefore meeting water quality objectives during wet weather.

- Compliance Actions and Schedule

  Compliance with this General Permit's requirements is consistent with the assumptions and requirements of the Calleguas Creek Salts TMDL and is sufficient to achieve the assigned salts waste load allocations. If a BMP is observed failing, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the waste load allocations in the future. Responsible Dischargers that perform pollutant assessments and implement BMPs specific to preventing or controlling stormwater exposure with salts are expected to meet the assigned waste load allocations. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about exceedances of the waste load allocations.

  The Calleguas Creek Watershed Salts TMDL's final compliance deadline is December 2, 2023. Therefore, the interim waste load allocations are applied to Responsible Dischargers upon the effective date of this General Permit.

ii. Santa Clara River Chloride Reach 3 TMDL[150]

The U.S. EPA adopted the Santa Clara River Chloride Reach 3 TMDL on June 18, 2003, to address the chloride impairment of Santa Clara River, Reach 3. Exceedances of chloride water quality standards in the Santa Clara River can impair the water's use as agricultural irrigation supply.

The U.S. EPA's analysis of available flow and loading data concluded that exceedances of the chloride water quality objectives are most likely to occur during low-flow conditions. Therefore, setting the TMDL and associated allocations at levels sufficient to implement the objectives during low-flow conditions will also result in attainment of the objectives during higher flow conditions.[151]

- Source Analysis

  The Santa Clara River Chloride Reach 3 TMDL identifies two major point sources (the Fillmore and Santa Paula Water Reclamation Plants) as well as a number of minor point sources, including runoff from

150 United States Environmental Protection Agency IX, Total Maximum Daily Load for Chloride in the Santa Clara River, Reach 3 (June 18, 2003) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Santa%20Clara%20River%20Reach%203%20Chloride%20TMDL/final%20SCR%20R3%20Cl%20TMDL.pdf> [as of May 20, 2021] (Santa Clara River Chloride Reach 3 TMDL)

151 Santa Clara River Chloride Reach 3 TMDL, p. 14.

construction sites. Construction stormwater permittees are therefore considered Responsible Dischargers for this TMDL. Sources of salts in the watershed include water supply, water softeners that discharge to publicly treatment works (POTWS), POTW treatment chemicals, atmospheric deposition, pesticides and fertilizers, and indoor water use (e.g., chemicals, cleansers, food, etc.).[152] The salts are then transported through POTW discharges and runoff to surface water, shallow groundwater, or accumulate on the watershed within soils.

- Waste Load Allocation Translation

  The Santa Clara River Chloride Reach 3 TMDL assigns a concentration-based chloride waste load allocation of 80 mg/L to Responsible Dischargers at the construction site's discharge locations(s) for dry-weather discharges into Santa Clara River Reach 3.

  Discharges that occur during dry-weather conditions are referred to as non-stormwater discharges (NSWDs) and are only authorized by this General Permit if dischargers meet the conditions of Order, Section IV.A to control the discharge of pollutants off the site. Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges are assumed to not commingle with stormwater associated with construction activities. The Los Angeles Regional Water Quality Control Board may impose additional requirements on NSWDs if deemed necessary per a site-specific analysis.

- Compliance Actions and Schedule

  Compliance with this General Permit's requirements is consistent with the assumptions and requirements of the Santa Clara River Chloride Reach 3 TMDL and is consistent with the assigned chloride waste load allocation. If a BMP is observed failing, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the waste load allocation in the future. Responsible Dischargers that perform pollutant assessments and implement BMPs specific to preventing or controlling stormwater exposure with salts are expected to meet the assigned waste load allocation. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about exceedances of the waste load allocation.

152 Santa Clara River Chloride Reach 3 TMDL, p. 11-12.

The Santa Clara River Chloride Reach 3 TMDL does not have an implementation plan, nor compliance deadline, as it was established by the U.S. EPA rather than the Los Angeles Regional Water Quality Control Board. Therefore, the discharger shall meet the assigned waste load allocation by the effective date of this General Permit.

iii. Upper Santa Clara River Chloride TMDL[153]

The Los Angeles Regional Water Quality Control Board adopted the Revision of the Upper Santa Clara River Chloride TMDL on October 9, 2014, to address elevated chloride concentrations causing exceedances of water quality objectives for Reaches 5 and 6 of the Santa Clara River. Chloride-impaired water bodies that are used for agricultural irrigation supply can negatively impact the growth of salt-sensitive crops.

- Source Analysis

  The primary sources of chloride into Reaches 5 and 6 of the river are discharges from the Saugus and Valencia Water Reclamation Plants, contributing roughly 70 percent of the load.[154] Other NPDES dischargers, including those covered under this General Permit, are considered minor contributors of chloride to the Upper Santa Clara River. Therefore, construction stormwater dischargers are considered Responsible Dischargers for this TMDL.

- Waste Load Allocation Translation

  The Responsible Dischargers have been assigned a waste load allocation of 100 mg/L as 3-month rolling average. Compliance with the 3-month rolling average is currently beyond the scope of the monitoring and sampling requirements of this General Permit. A requirement to calculate a 3-month rolling average would put an undue burden on the Responsible Dischargers. Therefore, the rolling average limit will be translated into a numeric action level of 100 mg/L, to be met at the construction discharge location(s), as shown in Table 14 below. Translating the 3-month rolling average limit into a numeric action level with the same concentration ensures that the limit is stringent enough to achieve the surface water quality objectives.

153 Los Angeles Regional Water Quality Control Board, Upper Santa Clara River Chloride TMDL (October 9, 2014), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R14-010_RB_BPA.pdf> [as of March 7, 2019]

154 Upper Santa Clara River Chloride TMDL, p. 4.

Table 14 – Upper Santa Clara River Chloride Waste Load Allocation Translation

Pollutant	3-Month Rolling Average (mg/L)	Numeric Action Level (mg/L)
Chloride	100	100

Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to chloride, as is required in this General Permit, are expected to meet the translated numeric action level. Therefore, compliance with this General Permit's requirements is consistent with the assumptions and requirements of the Upper Santa Clara River Chloride TMDL and is sufficient to achieve the assigned waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of chloride through the required pollutant source assessment shall compare all non-visible sampling and analytical results to the chloride numeric action level. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs implemented and identify a strategy in the site's SWPPP to prevent potential exceedances of the numeric action level in the future. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about exceedances of the numeric action level.

  The Upper Santa Clara River Chloride TMDL assigns the waste load allocation to Responsible Dischargers upon the effective date of the TMDL. Because the TMDL did not specify a final compliance deadline for construction stormwater dischargers, the numeric action level is applicable upon the effective date of this General Permit.

c. Diazinon TMDLs

One TMDL for diazinon applies to construction stormwater dischargers. Diazinon is an organophosphate pesticide that does not sorb to sediment but is instead mobilized through soils by dissolving in water. Discharges of stormwater containing diazinon, can cause exceedances of water quality objectives for toxicity in aquatic life in inland surface and estuarine waters. Diazinon was once used in both agricultural and urban settings but has since been banned for non-agricultural uses by the California Department of Pesticide Regulation.

i. Chollas Creek Diazinon TMDL[155]

The San Diego Regional Water Quality Control Board adopted the Chollas Creek Diazinon TMDL on August 14, 2002, to address the impairment of the Chollas Creek Watershed due to diazinon.

- Source Analysis

  The Chollas Creek Diazinon TMDL identifies urban stormwater flows as a significant source of diazinon and lists the Construction General Permit as a means of regulating discharges of diazinon.[156] Therefore, construction stormwater dischargers covered by this General Permit are considered Responsible Dischargers. However, the TMDL did not include a separate waste load allocation assigned to construction stormwater discharges.

- Compliance Actions and Schedule

  Compliance with this General Permit is consistent with the requirements and assumptions of this TMDL's waste load allocation(s). No additional requirements are incorporated into this General Permit to implement the Chollas Creek Diazinon TMDL. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about any exceedances of the waste load allocations.

d. Nutrients TMDLs

Seven Nutrient TMDLs apply to construction stormwater discharges and incorporate waste load allocations for one or more of the following pollutants: nitrogen compounds (e.g., ammonia, nitrate, nitrite) and phosphorous (e.g., orthophosphates). Excessive nutrient loading to water bodies and watersheds can cause eutrophic effects that negatively impact beneficial uses related to recreation, wildlife, and drinking water supply.

i. Pajaro River Basin Nutrients TMDL[157]

The Central Coast Regional Water Quality Control Board adopted the Pajaro River Basin Nutrients TMDL on July 30, 2015, to address the

155 San Diego Regional Water Quality Control Board, Chollas Creek Diazinon Total Maximum Daily Load (August 14, 2002) <https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/chollascreekdiazinon.html> [as of May 20, 2021]. (Chollas Creek Diazinon TMDL)

156 Chollas Creek Diazinon TMDL, p. 2 and 7.

157 Central Coast Regional Water Quality Control Board, Total Maximum Daily Loads for Nitrogen Compounds and Orthophosphate in Streams of the Pajaro River Basin (July 30, 2015),

discharges of nitrogen compounds and orthophosphate within the Pajaro River Basin. These exceedances of nutrient and nutrient-related water quality objectives can have negative impacts on beneficial uses such as municipal and domestic drinking water supply (MUN, GWR) and a range of aquatic habitats uses (WILD, COLD, WARM, MIGR, SPWN, BIOL, RARE).[158]

- Source Analysis

  Industrial and construction NPDES-permitted stormwater discharges were determined to be potential sources of ammonia, nitrate, and orthophosphate loading to receiving waters in the Pajaro River Basin.

- Waste Load Allocation Translation

  This Pajaro River Basin Nutrients TMDL assigns waste load allocations as concentration-based, single sample limits to construction stormwater dischargers for ammonia, nitrate, total nitrogen, and orthophosphate, to be met in the receiving waters. Therefore, dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL, if they identify sources of these pollutants on their site through the required pollutant source assessment. The waste load allocation for un-ionized ammonia is applied to all streams within the Pajaro River Basin, while waste load allocations for nitrate, total nitrogen, and orthophosphate are specific to individual water bodies in the basin. The waste load allocations are translated from single sample limits to numeric action levels, as shown in Tables 15 through 24 below.

Table 15 – All Streams in Pajaro River Basin – Un-Ionized Ammonia Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Un-ionized Ammonia	0.025	0.025

Table 16 – All Streams in Pajaro River Basin (with MUN Beneficial Uses) Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Nitrate-N	10	10

<https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/pajaro/nutrients/basin_plan_amend.pdf> [as of April 29, 2022] (Pajaro River Basin Nutrients TMDL)

158 Pajaro River Basin Nutrients TMDL, p. 1.

Table 17 – Pajaro River (All Reaches) and Pajaro River Estuary Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Nitrate-N	3.9	3.9
Dry-Weather Orthophosphate-P	0.14	0.14
Wet-Weather Nitrate-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 18 – Corralitos Creek and Salsipuedes Creek (All Reaches) Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Nitrate-N	1.8	1.8
Dry-Weather Orthophosphate-P	0.14	0.14
Wet-Weather Nitrate-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 19 – Beach Road Ditch and McGowan Ditch Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Nitrate-N	3.3	3.3
Dry-Weather Orthophosphate-P	0.14	0.14
Wet-Weather Nitrate-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 20 – Llagas Creek (Downstream of Cheseboro Reservoir), Carnadero Creek, Uvas Creek, and Furlong Creek (All Reaches) Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Nitrate-N	1.8	1.8
Dry-Weather Orthophosphate-P	0.05	0.05
Wet-Weather Nitrate-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 21 – San Juan Creek and West Branch of San Juan Creek (All Reaches) Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Nitrate-N	3.3	3.3
Dry-Weather Orthophosphate-P	0.12	0.12
Wet-Weather Nitrate-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 22 – Tequisquita Slough Waste Load Allocation Translation

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Nitrate-N	2.2	2.2
Dry-Weather Orthophosphate-P	0.12	0.12
Wet-Weather Nitrate-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 23 – Watsonville Slough, Harkins Slough, Gallighan Slough, and Struve Slough (All Reaches) Waste Load Allocation Translations

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Total Nitrogen-N	2.1	2.1
Dry-Weather Orthophosphate-P	0.14	0.14
Wet-Weather Total Nitrogen-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

Table 24 – Millers Canal (All Reaches) Waste Load Allocation Translations

Pollutant	Waste Load Allocation Single Sample Limit (mg/L)	Numeric Action Level (mg/L)
Dry-Weather Total Nitrogen-N	1.1	1.1
Dry-Weather Orthophosphate-P	0.04	0.04
Wet-Weather Total Nitrogen-N	8.0	8.0
Wet-Weather Orthophosphate-P	0.3	0.3

The Pajaro River Basin Nutrients TMDL assigns concentration-based waste load allocation to Responsible Dischargers for dry-weather discharges into the individual water bodies listed in Tables 15 through 24. Non-stormwater discharges are authorized in this General Permit if Section IV.A terms and conditions are met to control the discharge of pollutants from the construction site. Section IV.B prohibits all non-stormwater dischargers not authorized under Section IV.A; therefore, all unauthorized non-stormwater dischargers must be either eliminated or have regulatory coverage under a separate NPDES permit. Authorized non-stormwater dischargers, as defined in this General Permit, are authorized because these discharges do not commingle with stormwater associated with construction activity. The Regional Water Board may impose additional requirements on non-stormwater dischargers if deemed necessary per site-specific analysis.

This General Permit requires that Responsible Dischargers meet the assigned wet-weather waste load allocations as numeric action levels at the construction site's discharge locations, rather than the applicable receiving waters as stated in the Pajaro River Basin Nutrients TMDL. The decision to establish numeric action levels, instead of numeric effluent limitations, was made considering that construction stormwater discharges are not expected to contribute a significant load of nutrients to receiving waters. An exceedance of the waste load allocation in the receiving waters would likely be attributed to sources other than construction stormwater discharges. Since different sources of stormwater runoff are often comingled, it is difficult to identify where the nutrient loading originates. Monitoring at the discharge location would be more indicative of an exceedance of the nutrient-related water quality objectives that is associated with a specific construction site. Furthermore, compliance monitoring at the receiving waters can be infeasible or impractical as Responsible Dischargers may have restricted access to or be far-removed from the compliance points.

- Compliance Actions and Schedule

  At the time the Pajaro River Basin Nutrient TMDL was written, NPDES stormwater-permitted construction sites were generally expected to be meeting the proposed waste load allocations through the requirements of the previous permit or any subsequent Construction General Permit. However, available information did not conclusively demonstrate that all construction sites were meeting the waste load allocations.[159] Therefore, in addition to complying with the requirements of this General Permit, Responsible Dischargers identifying on-site sources of ammonia, nitrate,

159 Pajaro River Basin TMDL, p. 21.

total phosphorus, or total nitrogen shall compare all non-visible sampling and analytical results to the numeric action levels for the identified nutrients.

If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to nutrient sources, are expected to meet the numeric action levels. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the numeric action levels.

The Pajaro River Basin Nutrient TMDL's implementation schedule indicates that the waste load allocations are to be achieved within 25 years of the TMDL's effective date July 12, 2016. Therefore, the TMDL's compliance deadline is July 12, 2041. Since the compliance deadline is in the far future, compliance with this General Permit is considered compliance with the TMDL. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by July 12, 2041.

ii. Los Angeles Area Lakes Nutrients TMDL[160]

The U.S. EPA adopted the Los Angeles Area Lakes TMDL on March 26, 2012, to address the impairment of Peck Road Park Lake, Echo Park, Legg Lakes, and Puddingstone Reservoir due to nitrogen and phosphorus. Peck Road Park Lake, Echo Park Lake, and Legg Lakes are located in the Los Angeles River watershed and Puddingstone Reservoir is located in the San Gabriel River watershed.

- Source Analysis

  Nutrient loadings into Peck Road Park Lake, Echo Park, Legg Lakes, and Puddingstone Reservoir originate from a variety of sources, including discharges from storm drain outlets containing construction stormwater discharges from sites within the watershed.

160 United States EPA Region IX, Los Angeles Area Lakes Total Maximum Daily Loads for Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs (March 26, 2012), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Lakes/LALakesTMDLsEntireDocument.pdf> [as of May 20, 2021] (Los Angeles Area Lakes Nutrients TMDL)

- Waste Load Allocation Translation

  The Los Angeles Area Lakes TMDL assigns concentration-based waste load allocations for nitrogen and phosphorus to Responsible Dischargers at the site's discharge location(s) for construction stormwater discharges into Peck Road Park Lake, Echo Park, Legg Lakes, and Puddingstone Reservoir. Therefore, dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL. The waste load allocations for nitrogen and phosphorus differ depending on the receiving waters. The waste load allocations assigned to Responsible Dischargers for nitrogen and phosphorus are translated as shown in Table 25 and Table 26 below. The waste load allocations were set at monthly averages. The TMDL also states that "[a] three-year average will be used to evaluate compliance." Because of the variable nature of stormwater, monthly or yearly averages are not necessarily representative of pollutant loading, and the nitrogen waste load allocation was translated into a numeric action level.

  In addition to the explanation set forth in Section I.G.5.d of this Fact Sheet, implementation of the TMDL through numeric action levels is consistent with the assumptions and requirements of the waste load allocations because it is expected that compliance with this Permit will prevent exceedances of the numeric action levels. This TMDL was developed by U.S. EPA, and the Regional Board has not yet adopted an implementation plan. The TMDL also states, "if applicable water quality criteria for ammonia, dissolved oxygen and pH, and the chlorophyll-α target are met in the lake, then the total phosphorus and total nitrogen allocations are considered attained." Because an individual discharger cannot determine whether the applicable water quality criteria were being met at the time of their discharge, the waste load allocation is more appropriately translated into an action level. As further explained in Section I.G.5.d of this Fact Sheet, dischargers must take corrective actions in response to any numeric action level exceedance and this iterative process will protect water quality consistent with the requirements and assumptions set forth in this TMDL.

Table 25 – Total Nitrogen Waste Load Allocation Translation

Water Body	Waste Load Allocation Monthly Average (mg/L)	Numeric Action Level (mg/L)
Peck Road Park Lake	3.61	3.61
Echo Park Lake	1.33	1.33
Legg Lakes	1.8	1.8
Puddingstone Reservoir	2.0	2.0

Table 26 – Total Phosphorus Waste Load Allocation Translation

Pollutant	Waste Load Allocation Monthly Average (mg/L)	Numeric Effluent Limitation (mg/L)
Peck Road Park Lake	0.37	0.37
Echo Park Lake	0.16	0.16
Legg Lakes	0.64	0.64
Puddingstone Reservoir	0.4	0.4

This General Permit requires that Responsible Dischargers meet the assigned waste load allocations at the construction site's discharge location(s), which is consistent with requirements and assumptions of the TMDL.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of phosphorus and nitrogen shall compare all non-visible sampling and analytical results to the numeric action levels or numeric effluent limitations for the identified nutrients. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels or numeric effluent limitations in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to nutrient sources, are expected to meet the numeric action levels or numeric effluent limitations. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the numeric action levels or numeric effluent limitations.

  The Los Angeles Regional Water Quality Control Board has not adopted an Implementation Plan or a compliance schedule for the Los Angeles Area Lakes TMDL. The numeric action levels and numeric effluent limitations described above are applicable upon the effective date of this General Permit.

iii. Los Angeles River Nutrients TMDL[161]

The Los Angeles Regional Water Quality Control Board adopted the Los Angeles River Nutrients TMDL on December 6, 2012, to address

161 Los Angeles Regional Water Quality Control Board, Los Angeles River Nitrogen Compounds and Related Effects TMDL (July 10, 2003), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R12-010_RB_BPA.pdf> [as of May 20, 2021] (Los Angeles River Nutrients TMDL)

impairment of the Los Angeles River due to nitrogen compounds (ammonia, nitrite, and nitrate) and related effects (algae, pH, odor, and scum).

- Source Analysis

  The TMDL lists urban runoff as a point source which includes stormwater runoff from construction sites and other urban runoff sources such as industrial, municipal, and the California Department of Transportation.[162]

- Waste Load Allocation Translation

  The Los Angeles River Nutrients TMDL assigns concentration-based waste load allocations for nitrogen compounds to minor point sources, including construction stormwater runoff. Therefore, construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL. The waste load allocations for ammonia are given as one-hour averages and thirty-day averages, for discharges into the Los Angeles River above LA-Glendale Water Reclamation Plant, Los Angeles River below LA-Glendale Water Reclamation Plant, or to tributaries discharging into the Los Angeles River above or below the LA-Glendale Water Reclamation Plant. Because stormwater is an intermittent discharge, only the acute one-hour averages are appropriate to apply to Responsible Dischargers. The waste load allocation translations from one-hour averages to numeric action levels for the three different reaches of the Los Angeles River are shown in Tables 27 through 29 below. The one-hour averages are appropriate to translate into action levels because of the variable nature of stormwater, and when the non-visible sampling requirements are triggered, the effluent sampling results are not averaged.

  The Los Angeles River Nutrients TMDL assigns concentration-based waste load allocations for nitrate-nitrogen, nitrite-nitrogen, and nitrate-nitrogen plus nitrite-nitrogen as thirty-day averages to Responsible Dischargers into all reaches and tributaries of the Los Angeles River. The waste load allocations are translated to numeric action levels as shown in Table 30 below, since compliance with monthly averages is not appropriate to monitor stormwater due to its intermittent and variable nature.

  The May 2021 draft of the Construction Stormwater General Permit reissuance proposed a translation of the ammonia, nitrate-nitrogen, nitrite-nitrogen, and nitrate-nitrogen plus nitrite-nitrogen waste load allocations into numeric effluent limitations as the waste load allocations

162 Los Angeles River Nutrients TMDL, p. 5.

were concentration-based and assigned at the point of discharge. However, the Permit was revised to implement nitrogen-based nutrient waste load allocations as numeric action levels because numeric action levels are consistent with the assumptions and requirements of the waste load allocations.

Implementation of the TMDL through numeric action levels is consistent with the assumptions and requirements of the waste load allocation because it is expected that compliance with this Permit will prevent exceedances of the waste load allocations. Consistent with the explanation set forth in Section I.G.5.d of this Fact Sheet, the critical condition identified in the TMDL is low flow conditions (p.8). The TMDL also indicates that a majority of nutrient loading originates from major point sources such as water reclamation plants and other publicly owned treatment works,[163] while sources in stormwater runoff requires further evaluation.

Table 27 – Los Angeles River above LA-Glendale WRP Waste Load Allocation Translation

Pollutant	Waste Load Allocation One-Hour Average (mg/L)	Numeric Action Level (mg/L)
Ammonia	4.7	4.7

Table 28 – Los Angeles River below LA-Glendale WRP Waste Load Allocation Translation

Pollutant	Waste Load Allocation One-Hour Average (mg/L)	Numeric Action Level (mg/L)
Ammonia	8.7	8.7

Table 29 – Los Angeles River Tributaries Waste Load Allocation Translation

Pollutant	Waste Load Allocation One-Hour Average (mg/L)	Numeric Action Level (mg/L)
Ammonia	10.1	10.1

Table 30 – Los Angeles River Tributaries Waste Load Allocation Translation

Pollutant	Translated Numeric Action Level (mg/L)
Nitrate-Nitrogen	8.0
Nitrite-Nitrogen	1.0
Nitrate plus Nitrite-Nitrogen	8.0

163 For example, the principal source of nitrogen compounds identified in this TMDL are the water reclamation plants, which contribute 84.1 percent of the total dry weather nitrogen load (p.3). The TMDL states that stormwater may also contribute nitrate loads and that further evaluation of these sources is set forth in the implementation plan, but the implementation plan does not provide further detail about stormwater as a source.

This General Permit requires that Responsible Dischargers meet the numeric action levels at the construction site's discharge location(s), which is consistent with requirements and assumptions of the Los Angeles River Nutrients TMDL.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of ammonia, nitrate, or nitrite shall compare all non-visible sampling and analytical results to the numeric action levels for the identified nutrients. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to nitrogen compound sources, are expected to meet the assigned numeric action levels. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the numeric action levels.

  The Los Angeles River Nutrients TMDL's final compliance deadline for the waste load allocations was March 23, 2004. Since this compliance deadline has already passed, the numeric action levels are applicable upon the effective date of this General Permit.

iv. Machado Lake Nutrients TMDL[164]

The Los Angeles Regional Water Quality Control Board adopted the Machado Lake Nutrients TMDL on May 1, 2008, to address the impairment of Machado Lake due to eutrophication, algae, ammonia, and odors caused by an excess of nutrient loadings. These pollutants can have negative impacts on the beneficial uses of Machado Lake including recreation (REC-1 and REC-2), aquatic wildlife (WARM, WILD, RARE, and WET) and water supply (MUN).

- Source Analysis

  Stormwater discharges from the municipal separate storm sewer system (MS4), California Department of Transportation, and general

164 Los Angeles Regional Water Quality Board, Total Maximum Daily Load for Eutrophic, Algae, Ammonia, and Odors (Nutrient) in Machado Lake (May 1, 2008), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2008-006_RB_BPA.pdf> [as of May 20, 2021] (Machado Lake Nutrients TMDL)

construction and industrial discharges are identified has point sources of nutrients into Machado Lake.

- Waste Load Allocation Translation

  The Machado Lake Nutrients TMDL assigns waste load allocations as concentration-based monthly averages to construction stormwater dischargers for total phosphorus and total nitrogen based on in-lake concentrations. Therefore, dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL. The waste load allocations apply to discharges to Machado Lake or through the following subdrainage systems: Drain 553, Wilmington Drain, Project 77/510, and Walteria Lake. The waste load allocations are translated to numeric action levels, as shown in Table 31 below, because this TMDL assigned these waste load allocations in the receiving water (in-lake) instead of at the point of discharge from the construction site. This TMDL assigned the waste load allocations as monthly averages; however, precipitation events are intermittent and variable. Compliance with the waste load allocations based on monthly averages is inconsistent with the monitoring and reporting requirements in this General Permit.

Table 31 – Machado Lake Nutrient Waste Load Allocations Translation

Pollutant	Waste Load Allocation Monthly Average (mg/L)	Numeric Action Level (mg/L)
Total Phosphorus	0.1	0.1
Total Nitrogen	1.0	1.0

This General Permit requires Responsible Dischargers to meet the numeric action levels at the construction site's discharge location(s), which is consistent with requirements and assumptions of the TMDL.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of phosphorus and nitrogen shall compare all non-visible sampling and analytical results to the numeric action levels for the identified nutrients. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to nutrient sources, are expected to meet the numeric action levels. The Regional Water Board may assign additional monitoring,

reporting, and BMP requirements upon obtaining site specific information about exceedances of the numeric action levels.

The Machado Lake Nutrients TMDL's effective date was March 11, 2009, with a final compliance deadline set for September 11, 2018. Since the compliance deadline for this TMDL has passed, the discharger shall comply with the numeric action levels by the effective date of this General Permit.

v. Santa Clara River Nitrogen Compounds TMDL[165]

The Los Angeles Regional Water Quality Control Board adopted the Santa Clara River Nitrogen Compounds TMDL on August 7, 2003, to address nutrient-related impairment of Santa Clara River Reach 3 and Reach 7. In specific, biostimulatory substances such as ammonia, nitrate, and nitrite can lead to excessive algae growth and low dissolved oxygen in the receiving water body.

- Source Analysis

  The primary sources of these nitrogen compounds in the Santa Clara River can be attributed to local water reclamation and treatment plants. However, stormwater discharges were also identified as potential point sources of the nitrogen compounds.

- Waste Load Allocation Translation

  The Santa Clara River Nitrogen Compounds TMDL assigns concentration-based waste load allocations for ammonia and nitrate plus nitrite as nitrogen to construction stormwater sources regulated under NPDES permits. Therefore, construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL.

  Ammonia and nitrate plus nitrite as nitrogen waste load allocations are established to address both acute effects (one-hour average concentration) and chronic effects (30-day average concentration) on aquatic life. Because stormwater is an intermittent discharge, only the acute one-hour average waste load allocations for ammonia are appropriate to apply to Responsible Dischargers. The translation of one-hour average waste load allocations to numeric action levels for the two reaches of the Santa Clara River are shown in Table 32 and Table 33 below. The one-hour average waste load allocations appropriately

165 Los Angeles Regional Water Quality Control Board, Santa Clara River Nitrogen Compounds TMDL (August 7, 2003), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2003-011_RB_BPA.pdf> [as of April 28, 2022]

translate into numeric action levels due to the variable nature of stormwater. Nitrate plus nitrite as nitrogen waste load allocations were not translated as they were only established as 30-day averages.

Table 32 – Santa Clara River Reach 3 Ammonia as Nitrogen Waste Load Allocation Translation

Pollutant	Waste Load Allocation One-Hour Average (mg/L)	Numeric Action Level (mg/L)
Ammonia	4.2	4.2

Table 33 – Santa Clara River Reach 7 Ammonia as Nitrogen Waste Load Allocation Translation

Pollutant	Waste Load Allocation One-Hour Average (mg/L)	Numeric Action Level (mg/L)
Ammonia	5.2	5.2

This General Permit requires that Responsible Dischargers comply with the numeric action levels at the construction site discharge location(s), consistent with requirements and assumptions of the TMDL.

The May 2021 draft of the Construction Stormwater General Permit reissuance proposed a translation for the ammonia waste load allocations into numeric effluent limitations as the waste load allocations were concentration-based and assigned at the point of discharge. However, the Permit was revised to implement nitrogen-based nutrient waste load allocations as numeric action levels because numeric action levels are consistent with the assumptions and requirements of the waste load allocations.

As set forth in Section I.G.5.d of this Fact Sheet, the source analysis found that the principal source of ammonia, nitrite, and nitrate to the Santa Clara River is discharges from water reclamation plants and publicly owned public treatment works (BPA, p.2). The TMDL also acknowledged that stormwater discharge may contribute nitrate loads. But the allocations were set at the water quality objectives for receiving waters. The most critical conditions for water quality in the Santa Clara River are low-flow conditions, in particular at the end of the dry season (p. 72).

The TMDL also noted that “mass emission monitoring data conducted for MS4 NPDES Permit compliance indicate that the MS4 discharges are

below the waste load allocation in both wet and dry weather samples."[166] (p.62) CGP dischargers subject to this TMDL are located within a MS4.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of ammonia, nitrate, and nitrite shall compare all non-visible sampling and analytical results to the numeric action levels for the identified nutrients. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to nitrogen compound sources, are expected to meet the numeric action levels. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the numeric action levels.

  The Santa Clara River Nitrogen Compounds TMDL's compliance deadline for the waste load allocations was March 23, 2004. Since this compliance deadline has passed, the numeric effluent limitations are applicable upon the effective date of this General Permit.

vi. Ventura River Algae TMDL[167]

The Los Angeles Regional Water Quality Control Board adopted the Ventura River Algae TMDL on December 6, 2016, to address nutrient-related impairments in the Ventura River and its tributaries. Nutrient-related listings negatively impact beneficial uses such as water contact recreation, non-water contact recreation, warm and cold freshwater habitat, wetland habitat, rare/threated/endangered species habitat, migration of aquatic organisms, and spawning.

- Source Analysis

  Discharges conveyed via the municipal separate storm sewer (MS4), including stormwater and non-stormwater discharges, are estimated to

166 Staff Report, p. 62, available at https://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical documents/2003-011/03_0523/StaffReport06-16.pdf.

167 Los Angeles Regional Water Quality Control Board, Total Maximum Daily Load for Algae, Eutrophic Conditions, and Nutrients in the Ventura River and its Tributaries (December 6, 2012) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R12-011_RB_BPA.pdf> [as of April 28, 2022] (BPA)

contribute 21.3 percent of nutrient loading in dry weather and 28.3 percent in wet weather.

- Waste Load Allocation Translation

  The Ventura River Algae TMDL assigns concentration-based waste load allocations for nitrogen and phosphorus to construction stormwater dischargers during dry and wet-weather discharges. Therefore, construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL. No translation is necessary for the dry and wet-weather waste load allocations as they were already expressed as concentration-based limitations.

  1) Dry-Weather Waste Load Allocations

     The Ventura River Algae TMDL assigns concentration-based waste load allocations for dry-weather total nitrogen and total phosphorus, shown in Table 34 below, with compliance assessed by averaging two grab samples.

     Discharges that occur during dry-weather conditions are referred to as non-stormwater and only are authorized in this General Permit if the conditions in Order Section IV.A are met to control the discharge of pollutants from the construction site. Authorized non-stormwater discharges, as defined in this General Permit, are authorized because these discharges do not commingle with stormwater associated with construction activity. Order Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be either eliminated or have regulatory coverage under a separate NPDES permit. A dry-weather discharge to the Ventura River watershed with concentrations greater than the total nitrogen and total phosphorus waste load allocations would therefore be prohibited. The Regional Water Board may impose additional requirements on NSWDs if deemed necessary per site-specific analysis.

Table 34 – Ventura River Algae Dry-Weather Waste Load Allocations

Pollutant	Total Nitrogen Waste Load Allocation (mg/L)	Total Phosphorus Waste Load Allocation (mg/L)
Dry weather	1.15	0.115

  2) Wet-Weather Waste Load Allocations

     The wet-weather waste load allocations for nitrate plus nitrite as nitrogen, or total nitrogen where indicated, in Table 35 below are expressed as event mean concentrations or the average

concentration for all samples taken per precipitation event resulting in discharge.

Table 35 – Ventura River Algae Wet-Weather Waste Load Allocations

Reach	Nitrate Plus Nitrate as Nitrogen Numeric Action Levels (mg/L)
Estuary	*
Reach 1	*
Reach 2	10
Cañada Larga	10
Reach 3	5
San Antonio Creek	5
Reach 4	5
Reach 5	5

* The waste load allocations for the Estuary and Reach 1 are for total nitrogen at a concentration of 7.4 mg/L

The May 2021 draft of the Construction Stormwater General Permit reissuance proposed a translation for nitrate-nitrogen plus nitrite-nitrogen and total nitrogen waste load allocations into numeric effluent limitations as the waste load allocations were concentration-based and assigned at the point of discharge. However, the Permit was revised to implement nitrogen-based nutrient waste load allocations as numeric action levels because numeric action levels are consistent with the assumptions and requirements of the waste load allocations.

The TMDL states that, "[t]he discharges from the general NPDES permits are intermittent and considered negligible for the purposes of this source assessment." (Staff Report, p.40)[168] Accordingly, "[t]he loadings from the general NPDES permits [were] not quantified" in the source assessment. (Staff Report, p.40) According to the TMDL, the critical condition for the TMDL is dry weather, "and it is the dry-weather loading that results in water quality impairments." (BPA, p.5) "The watershed nutrient wet-weather loads are generally delivered directly to the ocean and thus do not contribute to exceedance of the biostimulatory substances…") (BPA, p.8) "Based on the linkage analysis, wet-weather loads do not have a significant impact on

168 Los Angeles Regional Water Quality Control Board, Algae, Eutrophic Conditions, and Nutrients Total Maximum Daily Loads for Ventura River and Its Tributaries (December 6, 2012) <https://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/73_New/Docs/Mar%202013/Staff%20report_Final%20120612.pdf> [as of June 28, 2022] (Staff Report)

receiving water quality in the Ventura River and its tributaries or the Estuary and biostimulatory objectives are attained." (Staff Report, p.79) The TMDL acknowledged that maintaining existing discharge quality would ensure that no further loading would occur in the receiving water. (BPA, p.8) The wet-weather loads were set to attain site-specific water quality objectives, (Staff Report, p.79) but "[f]or Reach 1 and Estuary, Wet-weather waste load allocations for stormwater sources are equal to existing water quality in stormwater discharges." (BPA, p.6) This suggests that the TMDL assumed that reductions in stormwater discharges were not necessary. Dry-weather waste load allocations were set at in-stream nutrient concentrations to meet biomass numeric targets. (Staff Report, p.76) All these statements support implementation of the TMDL through numeric action levels.

Although the implementation language specifies that the TMDL should be implemented as numeric water quality-based effluent limitations, the underlying assumptions contained in the TMDL support implementation via numeric action levels.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of nitrogen and/or phosphorus shall compare all non-visible sampling and analytical results to the numeric action level for the identified nutrients, when a wet-weather discharge occurs. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to nitrogen and phosphorous sources, are expected to meet the assigned numeric action levels. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the numeric action levels.

  The Ventura River Algae TMDL's compliance deadline for the waste load allocations was June 28, 2013. Since the compliance deadline has passed, the numeric action levels are applicable upon the effective date of this General Permit.

vii. San Diego Creek and Newport Bay Watershed Nutrients TMDL[169]

The Santa Ana Regional Water Quality Control Board adopted the San Diego Creek and Newport Bay Watershed Nutrients TMDL in 1998 to address nutrient-related impairments in Newport Bay, San Diego Creek, and its tributaries. Nutrients contribute to seasonal algal blooms that negatively impact recreational, aesthetic, and wildlife habit beneficial uses in these waters.

- Source Analysis

  The predominant source of nutrients are the tailwaters from agricultural crops and from commercial nurseries, however, runoff from construction sites can also contribute to nutrient loading through the erosion of sediment containing phosphorus.

- Waste Load Allocation Translation

  Construction stormwater dischargers are assigned an annual, mass-based waste load allocation for total phosphorus, aiming to reduce the loading of phosphorus by 50 percent. Therefore, construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for this TMDL if they identify sources of phosphorus on their site via the required pollutant source assessment. All construction sites were expected to achieve compliance with the annual waste allocation of 12,810 lbs/year total phosphorus by 2007.

  Requiring Responsible Dischargers to directly implement the waste load allocation and sample for the pollutants(s) would be impractical, costly, and not aligned with the requirements of this General Permit. It is infeasible to translate a mass-based annual waste load allocation applicable to all construction stormwater discharges to an effluent limitation that is applicable to an individual site. As mentioned in the source analysis, phosphorus loadings from construction stormwater discharges are in particulate form and associated with wet weather. Therefore, the following will address this TMDL:

  1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

  2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions.

169 Santa Ana Regional Water Quality Control Board, Nutrient TMDL for the Newport Bay/San Diego Creek Watershed (1998) <https://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/> [as of May 20, 2021] (San Diego Creek and Newport Bay Watershed Nutrients TMDL)

Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of phosphorus through the required pollutant source assessment are to implement BMPs specific to preventing or controlling stormwater exposure to the sources of phosphorus. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.D.2. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations.

  The San Diego Creek and Newport Bay Watershed Nutrients TMDL has waste load allocation compliance deadline set in 2007 for construction sites. Since this compliance deadline has passed, the compliance actions are applicable to the Responsible Dischargers upon the effective date of this General Permit.

e. Sediment TMDLs

Twenty-five (25) sediment TMDLs are translated for this General Permit. Sediment is the loose sand, clay, silt, and other soil particles that settle at the bottom of a body of water. Sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies.[170] Sediment can be transported in construction site discharges due to excessive erosion.[171] At construction sites, the rate of erosion is increased due to increased amount of exposed and disturbed soil. Therefore, construction sites that discharge into the watersheds of these water bodies are considered Responsible Dischargers and shall comply with the requirements set forth in these TMDLs.

170 California Stormwater Quality Association, Construction Stormwater Best Management Practice Handbook (August 2011), <http://www.casqa.org/> [as of May 20, 2021] (CASQA Construction BMP Handbook)
171 CASQA Construction BMP Handbook, p. 1-7.

i. Albion River Sediment TMDL[172]

The United States Environmental Protection Agency (U.S. EPA) established the Albion River Sediment TMDL on December 20, 2001, to address the impairment on the Albion River and its tributaries due to sediment.

The implementation requirements for the Albion River Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy[173] adopted on November 29, 2004. The North Coast Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[174] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Albion River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no significant point sources of sediment in the Albion River watershed.[175]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Quality Control Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

172 United States Environmental Protection Agency Region IX, Albion River Sediment TMDL for Sediment (December 2001), <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/albion_river/pdf/albionfinaltmdl.pdf> [as of May 20, 2021] (Albion River Sediment TMDL)

173 North Coast Regional Water Quality Control Board, Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region (November 29, 2004). <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/sediment_tmdl_implementation/> [as of May 20, 2021] (North Coast Sediment TMDL Implementation Policy)

174 North Coast Sediment TMDL Implementation Policy, p. 3.

175 Albion River Sediment TMDL, p. 35.

ii. Big River Sediment TMDL[176]

The U.S. EPA established the Big River Sediment TMDL on December 20, 2001, to address the impairment of Big River Sediment TMDL and its tributaries due to sediment.

The implementation requirements for the Big River Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[177] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Big River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no significant point sources of sediment in the Big River Sediment TMDL watershed.[178]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

iii. Eel River – Lower Main Sediment TMDL[179]

The U.S. EPA established the Eel River – Lower Main Sediment TMDL on December 18, 2007, to address the impairment of the Lower Eel River and its tributaries due to sediment.

176 United States Environmental Protection Agency Region IX, Big River Total Maximum Daily Load for Sediment (December 2001) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/big_river/pdf/bigfinaltmdl.pdf> [as of May 20, 2021] (Big River Sediment TMDL)

177 North Coast Sediment TMDL Implementation Policy, p. 3.

178 Big River Sediment TMDL, p. 36.

179 United States Environmental Protection Agency Region IX, Lower Eel River Total Maximum Daily Loads for Temperature and Sediment (December 18, 2007) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_l

The implementation requirements for the Eel River – Lower Main Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy[180] adopted on November 29, 2004. The North Coast Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[181] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Eel River – Lower TMDL.

- Waste Load Allocation Translation

  The source analysis supporting the allocations in Table 36 evaluated sediment loading at a subwatershed scale. The source analysis did not attempt to distinguish sediment loading at the scale of specific land ownerships nor did the analysis distinguish loading between land areas subject to NPDES regulation, or land areas not subject to NPDES regulation. Therefore, this TMDL includes separate but identical load allocations for non-point sources and waste load allocations for diffuse NPDES-permitted sources for each subarea. The diffuse NPDES-permitted pollutant sources are addressed in the statewide NPDES municipal stormwater permit for the California Department of Transportation, this statewide Construction Stormwater General Permit, the statewide Industrial Stormwater General Permit, and the City of Fortuna NPDES municipal stormwater permit.[182]

Table 36 – Sediment Load Allocations for the Lower Eel River Watershed and its Tributaries

Sediment Source	Load Allocation (tons/mi^2/year)	1955-2003 Loading (tons/mi^2/year)	Percent Reduction
Road (Episodic)	9	43	80 percent
Road (Chronic)	17	115	85 percent
Bank Erosion	6	21	70 percent

ower/pdf/LER-TMDL-final-121807-signed.pdf> [as April 28, 2022] (Eel River-Lower Main Sediment TMDL)

180 North Coast Regional Water Quality Control Board, Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region (November 29, 2004) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/sediment_tmdl_implementation/> [as of May 20, 2021] (North Coast Sediment TMDL Implementation Policy)

181 North Coast Sediment TMDL Implementation Policy, p. 3.

182 Eel River – Lower Main Sediment TMDL, p. 64.

Construction sites covered by this General Permit are considered to be human related sources of sediment to the watershed and therefore, Responsible Dischargers. Responsible Dischargers are not to exceed the load allocations assigned to roads (episodic and chronic) and bank erosion, as the allocations assigned to timber harvest and skid trails do not typically apply to construction sites. Responsible Dischargers calculate their annual loading by multiplying the area of the site with these load allocations.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

iv. Eel River – Middle Fork Sediment TMDL[183]

The U.S. EPA established the Eel River – Middle Fork Sediment TMDL in December 2003 to address the impairment of the Middle Fork Eel River and tributaries due to sediment.

The implementation requirements for the Eel River – Middle Fork Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy adopted on November 29, 2004. The North Coast Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[184] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Eel River – Middle Fork Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL identified discharges under the Construction General Permit and Caltrans Statewide Permit as current and prospective point sources that may discharge sediment in the watershed. Discharges from these

183 United States Environmental Protection Agency Region IX, Final Middle Fork Eel River Total Maximum Daily Loads for Temperature and Sediment (December 2003) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_middle_fork/pdf/tmdl.pdf> [as of April 28, 2022] (Eel River – Middle Fork Sediment TMDL)

184 North Coast Sediment TMDL Implementation Policy.

point sources cannot be readily determined and possible loading from these sources is not distinguished from general management-related loading in the source analysis. Therefore, this TMDL set the load allocations for nonpoint sources to also represent waste load allocations for point sources that would be covered by general NPDES permits.[185]

Table 37 – Sediment Load Allocations for the Middle Fork Eel River Watershed and its Tributaries (tons/mi^2/yr)

Sediment Source	Black Butte	Elk Creek	Round Valley	Upper Middle Fork	Williams/ Thatcher	Basin-wide Load
Small Management Sources	7	41	9	9	19	23
Percent Reduction	0 percent	32 percent	95 percent	0 percent	89 percent	70 percent

The construction sites covered by this General Permit are considered to be human related sources of sediment to the watershed. Responsible Dischargers are not to exceed the load allocations or reductions assigned to "small management sources." These allocations vary by subwatershed, as noted in Table 37 above. Responsible Dischargers calculate their annual loading by multiplying the area of the site with the appropriate load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

v. Eel River – Middle Main Sediment TMDL[186]

The U.S. EPA established the Eel River – Middle Main Sediment TMDL on December 31, 2005, to address the impairment of the Middle Main Eel River

185 Eel River – Middle Fork Sediment TMDL, p. 45.

186 United States Environmental Protection Agency Region IX, Final Middle Main Eel River and Tributaries Total Maximum Daily Loads for Temperature and Sediment (December 31, 2005) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_middle_main/pdf/mainmdl-eel-final.pdf> [as of April 28, 2022] (Eel River – Middle Main Sediment TMDL)

(from Dos Rios to the South Fork Eel River) and its tributaries due to sediment. A portion of the watershed is part of the Round Valley Indian Country. This TMDL does not apply to lands under tribal jurisdiction.

The implementation requirements for the Eel River – Middle Main Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[187] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Eel River – Middle Main Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) for construction sites because this source is not significant.[188]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

vi. Eel River – North Fork Sediment TMDL[189]

The U.S. EPA established the Eel River – North Fork Sediment TMDL on December 30, 2002, to address the impairment of the North Fork Eel River and its tributaries due to sediment. These TMDLs do not apply to lands under tribal jurisdiction.

The implementation requirements for the Eel River – North Fork Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy adopted on November 29, 2004. The North Coast Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-

187 North Coast Sediment TMDL Implementation Policy.
188 Eel River – Middle Main Sediment TMDL, p. 45.
189 United States Environmental Protection Agency Region IX, Final North Fork Eel River Total Maximum Daily Loads for Sediment and Temperature (December 30, 2002) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_north_fork/pdf/final.pdf> [as of April 28, 2022] (Eel River – North Fork Sediment TMDL)

related standards by all dischargers of sediment waste.[190] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Eel River – North Fork Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no significant point sources of sediment in the North Fork Eel River watershed.[191]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

vii. Eel River – Upper Main Sediment TMDL[192]

The U.S. EPA established the Eel River – Upper Main Sediment TMDL on December 29, 2004, to address the Impairment of the Upper Main Eel River (including Tomki Creek, Outlet Creek, and Lake Pillsbury) and its tributaries due to sediment.

The implementation requirements for the Eel River – Upper Main Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The North Coast Sediment Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[193] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Eel River – Upper Main Sediment TMDL.

190 North Coast Sediment TMDL Implementation Policy.
191 Eel River – North Fork Sediment TMDL, p. 23.
192 United States Environmental Protection Agency Region IX, Final Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury) Total Maximum Daily Loads for Temperature and Sediment (December 29, 2004) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_upper_main/pdf/uer-tmdl-final-12-28.pdf> [as of May 20, 2021] (Eel River – Upper Main Sediment TMDL)
193 North Coast Sediment TMDL Implementation Policy.

- Waste Load Allocation Translation

  This TMDL identified discharges under the Construction General Permit and Caltrans Statewide Permit as current and prospective point sources that may discharge sediment in the watershed and are therefore Responsible Dischargers. Discharges from these point sources cannot be readily determined and possible loading from these sources is not distinguished from general management-related loading in the source analysis. Therefore, this TMDL set the load allocations for nonpoint sources to also represent waste load allocations for point sources that would be covered by general NPDES permits.[194]

Table 38 – Sediment Load Allocations for the Upper Main Eel River Watershed and its Tributaries

Sediment Source	Load Allocation (tons/mi^2/year)	1940-2004 Loading (tons/mi^2/year)	Percent Reduction
Large Features (>3,000 yds^3)	36	71	49 percent
Road Related (Small Features)	14	28	50 percent

Construction sites covered by this General Permit are considered to be human (land management) related sources of sediment to the watershed. Responsible Dischargers are not to exceed the load allocations assigned to road related projects or "large features" as this General Permit regulates projects that disturb an acre or greater of land. Responsible Dischargers calculate their annual loading by multiplying the area of the site with these load allocations.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

viii. Eel River – South Fork Sediment TMDL[195]

The U.S. EPA established the Eel River – South Fork TMDL on December 16, 1999, to address the impairment of the South Fork Eel River and its

194 Eel River – Upper Main Sediment TMDL, p. 54.
195 United States Environmental Protection Agency Region IX, South Fork Eel River Total Maximum Daily Loads for Sediment and Temperature (December 16, 1999)

tributaries due to sediment. These TMDLs do not apply to lands under tribal jurisdiction.

The implementation requirements for the Eel River – South Fork Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy adopted on November 29, 2004. The North Coast Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[196] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Eel River – South Fork Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no significant point sources of sediment in the North Fork Eel River watershed.[197]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

ix. Gualala River Sediment TMDL[198]

The U.S. EPA established the Gualala River Sediment TMDL in December 2001 to address the impairment of the Gualala River and its tributaries due to sediment.

The implementation requirements for the Gualala River Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and

<https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_south_fork/pdf/eel.pdf> [as of April 28, 2022] (Eel River – South Fork Sediment TMDL)

196 North Coast Sediment TMDL Implementation Policy.

197 Eel River – North Fork Sediment TMDL, p. 23

198 United States Environmental Protection Agency Region IX, Gualala River Total Maximum Daily Load for Sediment (December, 2001) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/gualala_river/110707/gualalafinaltmdl.pdf> [as of May 20, 2021] (Gualala River Sediment TMDL)

enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[199] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Gualala River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no significant individual point sources of sediment in the Gualala River watershed.[200]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

x. Mad River Sediment TMDL[201]

The U.S. EPA established the Mad River Sediment TMDL on December 21, 2007, to address the impairment of the Mad River and its tributaries due to sediment.

The implementation requirements for the Mad River Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[202] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Mad River Sediment TMDL.

- Waste Load Allocation Translation

  The source analysis evaluated sediment loading at a subwatershed scale. The source analysis did not attempt to distinguish sediment

199 North Coast Sediment TMDL Implementation Policy.
200 Gualala River Sediment TMDL, p. 17.
201 United States Environmental Protection Agency Region IX, Mad River Total Maximum Daily Loads for Sediment and Turbidity (December 21, 2007) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/mad_river/pdf/Mad-TMDL-122107-signed.pdf> [as of May 20, 2021] (Mad River Sediment TMDL)
202 North Coast Sediment TMDL Implementation Policy.

loading at the scale of specific land ownerships nor did it distinguish loading between land areas subject to NPDES regulation and land areas not subject to NPDES regulation. Therefore, this TMDL includes separate but identical load allocations for nonpoint sources and waste load allocations for diffuse point sources. Construction activities permitted under this General Permit are considered diffuse point sources and are therefore Responsible Dischargers for this TMDL. This TMDL assigns a waste load allocation for permitted construction activities equivalent to the load allocation for roads.[203]

Table 39 – Sediment Load Allocations for the Mad River Watershed

Sediment Source	Load Allocation (tons/mi^2/year)	1940-2004 Loading (tons/mi^2/year)	Percent Reduction
Roads (Total Sediment)	174	1,540	89 percent

Responsible Dischargers are not to exceed the load allocations for total sediment. Responsible Dischargers are required to calculate their project site annual loading by multiplying the area of the site with this load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocation. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xi. Mattole River Sediment TMDL[204]

The U.S. EPA established the Mattole River Sediment TMDL on December 30, 2002, to address the impairment of the Mattole River and its tributaries due to sediment.

The implementation requirements for the Mattole River Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and

203 Mad River Sediment TMDL, p. 91.

204 United States Environmental Protection Agency Region IX, Mattole River Total Maximum Daily Loads for Sediment and Temperature (December 30, 2002) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/mattole_river/110707/mattole.pdf> [as of May 20, 2021] (Mattole River Sediment TMDL)

enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[205] The discharge of soil, silt, bark, sawdust, or other organic and earthen material from construction activities in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.[206] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Mattole River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no point sources of sediment in the Mattole River watershed.[207]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xii. Navarro River Sediment TMDL[208]

The U.S. EPA established the Navarro River Sediment TMDL in December 2000 to address the impairment of the Navarro River and its tributaries due to sediment.

The implementation requirements for the Navarro River Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[209] The discharge of soil, silt, bark, sawdust, or other organic and earthen material from construction activities in quantities deleterious to fish, wildlife, or other beneficial uses is

205 North Coast Sediment TMDL Implementation Policy.
206 Mattole River Sediment TMDL p. 9.
207 Mattole River Sediment TMDL, p. 41.
208 United States Environmental Protection Agency Region IX, Navarro River Total Maximum Daily Loads for Temperature and Sediment (December 2000) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/navarro_river/110708/navarro.pdf> [as of May 20, 2021] (Navarro River Sediment TMDL)
209 North Coast Sediment TMDL Implementation Policy.

prohibited.[210] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Navarro River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no known point sources of sediment in the Navarro River and its tributaries.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xiii. Noyo River Sediment TMDL[211]

The U.S. EPA established the Noyo River Sediment TMDL on December 16, 1999, to address the impairment of Noyo River due to sediment.

The implementation requirements for the Noyo River Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[212] The discharge of soil, silt, bark, sawdust, or other organic and earthen material from construction activities in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.[213] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Noyo River Sediment TMDL.

210 Navarro River Sediment TMDL, p. 3.
211 United States Environmental Protection Agency Region IX, Noyo River Total Maximum Daily Load for Sediment (December 16, 1999) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/noyo_river/pdf/noyo.pdf> [as of May 20, 2021] (Noyo River Sediment TMDL)
212 North Coast Sediment TMDL Implementation Policy.
213 Noyo River Sediment TMDL, p. 10.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources equal to zero (0) because there are no point sources of sediment in Noyo River.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xiv. Scott River Sediment TMDL[214]

The North Coast Regional Water Quality Control Board adopted the Scott River Sediment TMDL on December 7, 2005, to address the impairment of Scott River due to sediment.

The implementation requirements for the Scott River Sediment TMDL in this General Permit are based on the Scott River TMDL Action Plan[215] which describes the specific implementation actions necessary to fulfill the obligations of the Sediment TMDL Implementation Policy. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[216] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Scott River Sediment TMDL.

- Waste Load Allocation Translation

  Construction sites covered by this General Permit are considered to be anthropogenic related sources of sediment to the watershed.

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214 United States Environmental Protection Agency Region IX, Scott River Total Maximum Daily Load for Sediment (December 7, 2005) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/scott_river/> [as of May 20, 2021] (Scott River Sediment TMDL)

215 North Coast Regional Water Quality Control Board, Action Plan for the Scott River Sediment and Temperature TMDLs (August 11, 2006) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/scott_river/060307/bpl/Basin_Plan_Language.pdf> [as of May 20, 2021] (Scott River TMDL Action Plan)

216 North Coast Sediment TMDL Implementation Policy.

Responsible Dischargers are not to exceed the sum of load allocations assigned to road surface erosion and large or small discrete streamside features, which totals to 69 tons/mi^2/year.[217] Responsible Dischargers calculate their annual loading by multiplying the area of the site with this load allocation.

- Compliance Actions and Schedule

  The Scott River TMDL Action Plan describes the implementation actions necessary to achieve the TMDL within 40 years of U.S. EPA approval of the action plan or September 8, 2046. Since the compliance deadline is in the far future, compliance with this General Permit is considered compliance with the TMDL. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by September 8, 2046. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocation.

xv. Ten Mile River Sediment TMDL[218]

The U.S. EPA established the Ten Mile River Sediment TMDL in December 2000 to address the impairment of Ten Mile River due to sediment.

The implementation requirements for the Ten Mile River Sediment TMDL in this General Permit are based on the North Coast TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[219] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Ten Mile River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set a sediment waste load allocation for point sources at zero (0) as there are no point sources of discharge in the basin.[220]

217 Scott River TMDL Action Plan, p. 4-5.00.
218 United States Environmental Protection Agency Region IX, Ten Mile River Total Maximum Daily Load for Sediment (December 2000) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/ten_mile_river/pdf/tenmile.pdf> [as of May 20, 2021] (TMDL Mile River Sediment TMDL)
219 North Coast Sediment TMDL Implementation Policy.
220 Ten Mile River Sediment TMDL, p. 5.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Quality Control Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xvi. Trinity River Sediment TMDL[221]

The U.S. EPA established the Trinity River Sediment TMDL on December 20, 2001, to address the impairment of the Trinity River and its tributaries due to sediment. This TMDL does not apply to lands under tribal jurisdiction and South Fork Trinity River.

The implementation requirements for the Trinity River Sediment TMDL in this General Permit are based on the Sediment TMDL Implementation Policy adopted on November 29, 2004. The Sediment TMDL Implementation Policy directs the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[222]

- Waste Load Allocation Translation

  This TMDL identified discharges under the Construction General Permit from construction sites larger than 5 acres as current and prospective point sources that may discharge sediment in the watershed and are therefore considered Responsible Dischargers. The source analysis evaluated sediment loading at a subarea scale. The source analysis did not attempt to distinguish sediment loading at the scale of specific land ownerships nor did it distinguish between land areas subject to NPDES regulation and land areas not subject to NPDES regulation. Therefore, this TMDL includes separate but identical load allocations for nonpoint sources and waste load allocations for each subarea.[223]

221 United States Protection Agency Region IX, Trinity River Total Maximum Daily Load for Sediment (December 20, 2001) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/trinity_river/pdf/finaltrinitytmdl.pdf> [as of September 7, 2018] (Trinity River Sediment TMDL)
222 North Coast Sediment TMDL Implementation Policy.
223 Trinity River Sediment TMDL, p. 58.

Table 40 – TMDL and Allocations by Source Category for Upper Area (tons/mi^2/year)

Source Categories	Reference Subwatersheds[1]	Westside Tributaries[2]	Upper Trinity[3]	East Fork Tributaries[4]	Eastside Tributaries[5]
Total Management	281	105	690	65	60
Percent Reduction	25 percent	33 percent	46 percent	83 percent	37 percent

[1] Stuarts Fork, Swift Creek, Coffee Creek
[2] Stuart Arm Area, Stoney Creek, Mule Creek, East Fork Stuart Fork, West Side Trinity Lake, Hatchet Creek, Buckeye Creek
[3] Upper Trinity River, Tangle Blue, Sunflower, Graves, Bear Upper Trinity Mainstem Area, Ramshorn Creek, Ripple Creek, Minnehaha Creek, Snowslide Gulch Area, Scorpion Creek
[4] East Fork Trinity, Cedar Creek, Squirrel Gulch Area
[5] East Side Tributaries, Trinity Lake

Table 41 – TMDL and Allocations by Source Category for Upper Middle Area (tons/mi^2/year)

Source Categories	Weaver and Rush Creeks	Deadwood Creek, Hoadley Gulch, and Poker Bar Area	Lewiston Lake Area	Grass Valley Creek[1]	Indian Creek	Reading and Browns Creek
Total Management	169	68	49	44	81	66
Percent Reduction	41 percent	88 percent	74 percent	97 percent	96 percent	82 percent

[1] The rate in Grass Valley Creek do not account for the amount of sediment trapped by Buckhorn Dam and Hamilton Ponds

Table 42 – TMDL and Allocations by Source Category for Lower Middle Area (tons/mi^2/year)

Source Categories	Reference Subwatersheds[1]	Canyon Creek[2]	Upper Tributaries[3]	Middle Tributaries[4]	Lower Tributaries[5]
Total Management (tons/mi^2/year)	24	326	67	53	55
Percent Reduction	0 percent	87 percent	50 percent	35 percent	39 percent

[1] New River, Big French, Manzanita, North Fork, East Fork, North Fork
[2] Canyon Creek
[3] Dutch, Soldier, Oregon Gulch, Conner Creek Area
[4] Big Bar Area, Prairie Creek, Little French Creek
[5] Swede, Italian, Canadian, Cedar Flat, Mill, McDonald, Hennessy, Quinby Creek Area, Hawkins, Sharber

Table 43 – TMDL and Allocations by Source Category for Lower Area (tons/mi^2/year)

Source Categories	Reference Subwatersheds[1]	Mill Creek and Tish Tang	Willow Creek	Campbell Creek and Supply Creek	Lower Mainstem Area and Coon Creek[2]
Total Management (tons/mi^2/year)	528	210	94	1961	63
Percent Reduction	11 percent	74 percent	91 percent	87 percent	44 percent

[1] Horse Linto Creek

[2] Since background rates for Lower Mainstem Area and Coon Creek were not available from GMA (2001), EPA used the same rate as was calculated for the Quinby Creek Area, which is immediately upstream, because Quinby Creek Area is comparable in size and underlain by the same geology type (Galice Formation).

The U.S. EPA expects the waste load allocations to be evaluated on a ten-year rolling average basis because of the natural variability in sediment delivery rates and does not expect the load allocation to be met for every square mile within a source category.[224] Responsible Dischargers are not to exceed the load allocations or reductions assigned to the "Total Management" source category, provided in tons/mi^2/yr. These allocations vary by subwatershed, as noted in Table 40 through Table 43 above. Responsible Dischargers calculate their annual loading by multiplying the area of the site with the appropriate load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

224 Trinity River Sediment TMDL, p. 63.

xvii. Van Duzen River Sediment TMDL[225]

The U.S. EPA established the Van Duzen River Sediment TMDL on December 16, 1999, to address the impairment of the Van Duzen River and its tributaries due to sediment. These TMDLs do not apply to lands under tribal jurisdiction.

The implementation requirements for the Van Duzen River Sediment TMDL in this General Permit are based on the North Coast Sediment TMDL Implementation Policy adopted on November 29, 2004. The North Coast Sediment TMDL Implementation Policy requires the use of existing permitting and enforcement tools to pursue compliance with sediment-related standards by all dischargers of sediment waste.[226] Construction stormwater dischargers covered under this General Permit are considered Responsible Dischargers for the Van Duzen River Sediment TMDL.

- Waste Load Allocation Translation

  This TMDL set the sediment waste load allocation for point sources at zero (0) because there are no point sources of sediment in the Van Duzen River watershed.[227]

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and the Sediment TMDL Requirements in Attachment H. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocation. The North Coast Sediment TMDL Implementation Policy does not include an implementation date for this TMDL. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xviii. Lagunitas Creek Sediment TMDL[228]

The San Francisco Bay Regional Water Quality Control Board adopted the Lagunitas Creek Sediment TMDL on June 11, 2014, to address the

225 United States Environmental Protection Agency Region IX, Van Duzen River and Yager Creek Total Maximum Daily Load for Sediment (December 16, 1999) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/vanduzen_river/pdf/vanduzen.pdf> [as of May 20, 2021] (Van Duzen River Sediment TMDL)

226 North Coast Sediment TMDL Implementation Policy.

227 Van Duzen River Sediment TMDL, p. 46.

228 San Francisco Bay Regional Water Quality Control Board, Lagunitas Creek Fine Sediment Reduction and Habitat Enhancement Plan (March 10, 2014), <https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/lag

impairment of Lagunitas Creek due to sediment. Point sources of sediment in the watershed contribute minimal sediment loading and are associated with municipal and construction stormwater runoff, which are regulated through NPDES permits. Construction sites that discharge into the Lagunitas Creek watershed are therefore considered Responsible Dischargers.

- Waste Load Allocation Translation

  The Lagunitas Creek Sediment TMDL set the sediment waste load allocation for construction stormwater runoff at 30 tons/year, which is equivalent to the current load from construction sites. Per the implementation measures of this TMDL, complying with the requirements of this General Permit is appropriate in addressing this waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocation.

  The final compliance deadline for the Lagunitas Creek Sediment TMDL is June 11, 2034. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by June 11, 2034.

xix. Napa River Sediment TMDL[229]

The San Francisco Bay Regional Water Quality Control Board adopted the Napa River Sediment TMDL on September 9, 2009, to address the impairment of Napa River due to sediment. Point sources of sediment that were identified as contributors of sediment to the watershed are associated with urban stormwater runoff, including construction stormwater runoff, and wastewater treatment plants, which are regulated by NPDES permits.

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unitascrksediment/LagunitasSedimentHabitat%20StaffReportPublicReviewDraft.pdf> [as of April 28, 2022] (Lagunitas Creek Sediment TMDL)

229 San Francisco Bay Regional Water Quality Control Board, Napa River Sediment Reduction and Habitat Enhancement Plan (September 15, 2009), <https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/TMDLs/napariversedimenttmdl.html#:~:text=The%20Napa%20River%20Sediment%20TMDL,healthy%20fishery%20in%20this%20watershed.> [as of April 28, 2022] (Napa River Sediment TMDL)

Construction sites that discharge into the Napa River watershed are therefore considered Responsible Dischargers.

- Waste Load Allocation Translation

  The Napa River Sediment TMDL set the sediment waste load allocation for construction stormwater runoff at 500 tons/year, which is equivalent to the current load from construction sites. Per the implementation measures of this TMDL, complying with the requirements of this General Permit is appropriate in addressing this waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocation.

  The final compliance deadline for the Napa River Sediment TMDL is September 9, 2029. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by September 9, 2029.

xx. Pescadero and Butano Creek Sediment TMDL[230]

The San Francisco Bay Regional Water Quality Control Board adopted the Pescadero and Butano Creek Sediment TMDL on June 13, 2018, to address the impairment of Pescadero and Butano Creek due to sediment. The only known point sources of sediment to the watershed are associated with stormwater runoff from state highways, municipalities, and construction sites; which are regulated by NPDES permits. Construction sites that discharge into the Pescadero-Butano Creek watershed are therefore considered Responsible Dischargers.

- Waste Load Allocation Translation

  The Pescadero and Butano Creek Sediment TMDL set the sediment waste load allocation for construction stormwater runoff at 150 tons/year, which is equivalent to the current load from construction sites. Per the implementation measures of this TMDL, complying with the

230 San Francisco Bay Regional Water Quality Control Board, Pescadero-Butano Watershed Sediment TMDL and Habitat Enhancement Plan (December 11, 2018), <https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/pescadero/BPA%20FINAL.pdf> [as of May 20, 2021] (Pescadero and Butano Creek Sediment TMDL)

requirements of this General Permit is appropriate in addressing this waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations.

  The final compliance deadline for the Pescadero and Butano Creek Sediment TMDL is June 13, 2038. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by June 13, 2038.

xxi. Sonoma Creek Sediment TMDL[231]

The San Francisco Bay Regional Water Quality Control Board adopted the Sonoma Creek Sediment TMDL on December 10, 2008, to address the impairment of Sonoma Creek due to sediment. The only known point sources of sediment to the watershed are associated with urban stormwater runoff from state highways, municipalities, industrial facilities, and construction sites; which are regulated by NPDES permits. Construction sites that discharge into the Sonoma Creek watershed are therefore considered Responsible Dischargers.

- Waste Load Allocation Translation

  The Sonoma Creek Sediment TMDL set the sediment waste load allocation for construction stormwater runoff at 300 tons/year, which is equivalent to the current load from construction sites. Per the implementation measures of this TMDL, complying with the requirements of this General Permit is appropriate in addressing this waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon

231 San Francisco Bay Regional Water Quality Control Board, Sonoma Creek Watershed Sediment TMDL and Habitat Enhancemnt Plan (December 12, 2008), <https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/TMDLs/napariversedimenttmdl.html> [April 28, 2022] (Sonoma Creek Sediment TMDL)

obtaining site specific information about exceedances of the waste load allocation.

The final compliance deadline for the Sonoma Creek Sediment TMDL is December 10, 2028. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by December 10, 2028.

xxii. San Lorenzo River Sediment TMDL[232]

The Central Coast Regional Water Quality Control Board adopted the San Lorenzo River Sediment TMDL on May 16, 2003, to address the sediment related impairment of San Lorenzo River which is accelerated by anthropogenic watershed disturbances. The source analysis did not distinguish sediment loading between point and nonpoint sources, but rather assigned load allocations to water bodies within the San Lorenzo River watershed. Construction activities were included under the load allocation for Other Urban and Rural Lands sediment category. Therefore, construction sites covered under this General Permit are considered Responsible Dischargers.

- Waste Load Allocation Translation

  The San Lorenzo River Sediment TMDL did not establish a waste load allocation for construction sites, as it is included in the load allocation for the Other Urban and Rural Lands sediment category as indicated in Table 44 below.

Table 44 – Other Urban and Rural Land Load Allocations for San Lorenzo River Sediment TMDL

Water Body	Allocation (tons/yr)
Carbonara Creek	2,622
Lompico Creek	965
Shingle Mill Creek	310
San Lorenzo River	43,368

Per the San Lorenzo River Sediment TMDL implementation plan, complying with the requirements of this General Permit is appropriate to meet the load allocations.

232 Central Coast Regional Water Quality Control Board, San Lorenzo River Total Maximum Daily Load and Implementation Plan for Sediment Including Carbonera Creek, Lompico Creek, and Shingle Mill Creek (May 16, 2003), <https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/san_lorenzo/sediment/index.html> [as of May 20, 2021] (San Lorenzo River Sediment TMDL)

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about excessive sediment loading. The final compliance deadline for the San Lorenzo River Sediment TMDL is May 16, 2028. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by May 16, 2028.

xxiii. Squaw Creek Sediment TMDL[233]

The Lahontan Regional Water Quality Control Board adopted the Squaw Creek Sediment TMDL in April 2006 to address the impairment of Squaw Creek due to sediment. Accelerated hillslope erosion from land disturbances related to development in natural erosion-prone areas contribute to excess sediment delivery to the creek. Therefore, construction sites covered under this General Permit are considered Responsible Dischargers.

- Waste Load Allocation Translation

  There are currently no NPDES-regulated point sources in the watershed; therefore, the waste load allocation is zero (0).[234] Additionally, the load allocations are not viewed as appropriate for discharge specifications in permits as they are broad estimates. Based on the assumptions for assigning the requirements of this TMDL, complying with the requirements of this General Permit is appropriate in addressing this waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about excessive sediment loading.

  The final compliance deadline for the Squaw Creek Sediment TMDL was estimated to be 20 years, or April 2026. Future reissuances of this General Permit may incorporate additional or revised compliance

233 Lahontan Regional Water Quality Control Board, Total Maximum Daily Load for Sediment, Squaw Creek, Placer County (April 2006), <https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/squaw_creek/docs/basin_plan_amendment_final.pdf> [as of May 20, 2021] (Squaw Creek Sediment TMDL)

234 Squaw Creek Sediment TMDL, p. 2.

requirements or interim targets to progress towards the required final compliance by April 2026.

xxiv. Truckee River Sediment TMDL[235]

The Lahontan Regional Water Quality Control Board adopted the Truckee River Sediment TMDL in May 2008 to address the impairment of the Middle Truckee River Watershed due to sediment discharges during high-flow events such as those caused by thunderstorms. Primary sources of sediment include runoff from urban areas, dirt roads, legacy erosion sites, and graded ski runs. Although not explicitly stated, construction sites within urban areas or that utilize dirt roads, covered under this General Permit, can contribute to sediment loading in the Truckee River watershed and are therefore considered Responsible Dischargers.

- Waste Load Allocation Translation

  This TMDL set a total waste load allocation for all sediment point sources at 4,936 tons/yr. The source analysis did not attempt to distinguish sediment loading at the scale of specific land ownerships. NPDES-regulated point sources are expected to achieve compliance through the requirements of their respective NPDES permits. Per the implementation plan of the Truckee River Sediment TMDL, compliance with this General Permit is appropriate in addressing this waste load allocation.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about excessive sediment loading.

  The final compliance deadline for the Truckee River Sediment TMDL was estimated to be 20 years, or May 2028. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by May 2028.

235 Lahontan Regional Water Quality Control Board, Total Maximum Daily Load for Sediment Middle Truckee River Watershed (May 2008), <https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/truckee/docs/adopted_basinplan_amendment.pdf> [as of May 20, 2021] (Truckee River Sediment TMDL)

xxv. San Diego Creek and Newport Bay Sediment TMDL[236]

The Santa Ana Regional Water Quality Control Board adopted the San Diego Creek and Newport Bay Sediment TMDL on April 16, 1999, to address the erosion in the San Diego Creek watershed and resultant siltation in Newport Bay. Anthropogenic activities such as extensive grading for development and increased runoff due to urbanization contribute to sediment loading in this watershed. Construction sites covered under this General Permit are considered Responsible Dischargers for this TMDL.

- Load Allocation Translation

  The San Diego Creek and Newport Bay Sediment TMDL assigns a load allocation of 13,000 tons/yr to construction sites that discharge to Newport Bay and 13,000 tons/yr to construction sites that discharge into the San Diego Creek watershed. The load allocations are shared amongst all construction sites within the Newport Bay/San Diego Creek watershed and are implemented as a 10-year running annual average. The primary implementation measure for this TMDL is complying with the requirements of this General Permit which is expected to be appropriate to address this load allocation.

  Responsible Dischargers shall comply with the requirements of this General Permit upon its effective date. The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about excessive sediment loading.

  The San Diego Creek and Newport Bay Sediment TMDL does not include a deadline to achieve compliance. Therefore, Responsible Dischargers are required to comply with this TMDL upon the effective date of this General Permit.

xxvi. Los Peñasquitos Lagoon Sediment TMDL[237]

The San Diego Regional Water Quality Control Board adopted the Los Peñasquitos Lagoon Sediment TMDL on June 13, 2012, to address the impairment of Los Peñasquitos Lagoon due to sediment.

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236 Santa Ana Regional Water Quality Control Board, Basin Plan Amendment Total Maximum Daily Load for Sediment in the Newport Bay/San Diego Creek Watershed (April 16, 1999) <https://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/docs/tmdl02.pdf> [as of May 20, 2021] (San Diego Creek and Newport Bay Sediment TMDL)

237 San Diego Regional Water Quality Control Board, Amendment to the Water Quality Control Plan for the San Diego Basin (9) to Incorporate the Sediment Total Maximum Daily Load (TMDL) for Los Peñasquitos Lagoon (June 13, 2012)

The watershed sources of sediment consist of point and non-point source discharges in the watershed draining into Los Peñasquitos Lagoon. Anthropogenic activities such as land development exacerbate erosive processes by exposing sediment and creating more impervious surfaces which increases the velocity and volume of runoff. The Los Peñasquitos Lagoon Sediment TMDL identifies construction stormwater discharges as contributing sediment to the Lagoon and are therefore considered Responsible Dischargers.[238] According to the Los Peñasquitos Lagoon Sediment TMDL staff report, the potential contribution of pollutant loadings from construction stormwater is low because non-stormwater discharges are prohibited or authorized under strict permit circumstances.[239]

- Waste Load Allocation Translation

  The Los Peñasquitos Lagoon Sediment TMDL assigns a final waste load allocation of 2,580 tons/year to the combined responsible parties for discharges into the Los Peñasquitos Lagoon Watershed.[240] Responsible parties include: Phase I Municipal Separate Storm Sewer Systems (MS4s) co-permittees (the County of San Diego, City of San Diego, City of Del Mar, and City of Poway), Phase II MS4 permittees, the California Department of Transportation, and general construction and industrial stormwater NPDES permittees. The Phase I MS4 co-permittees and the California Department of Transportation are responsible for assuming the lead role in coordinating and carrying out the necessary actions, compliance monitoring requirements, and successful implementation of the adaptive management framework required as part of this TMDL. Responsible Dischargers are expected to cooperate with all responsible parties to reduce their collective sediment load.

  Responsible Dischargers are required to monitor sediment discharges from their sites to demonstrate progress towards compliance with final waste load allocations.[241] Monitoring flow rates for construction stormwater discharges is not required for all dischargers in this General Permit and is specific to Responsible Dischargers located in the Los

<https://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2012/R9-2012-0033_Attach_A.pdf> [as of May 20, 2021] (Los Peñasquitos Lagoon Sediment TMDL)

238 Los Peñasquitos Lagoon Sediment TMDL, p. A-5.

239 San Diego Regional Water Quality Control Board, Sediment TMDL for Los Peñasquitos Lagoon Staff Report (June 13, 2012), <https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/los_penasquitos_lagoon/updates071212/Staff_Report.pdf> [as of May 20, 2021]

240 Los Peñasquitos Lagoon Sediment TMDL, p. A-6.

241 Los Peñasquitos Lagoon Sediment TMDL, p. A-8.

Peñasquitos Lagoon Watershed to assess the correlation between flow and sediment deposition in this water body.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit and are required to provide an estimate of a representative flow rate from their construction site for at least one precipitation event that generates discharge within the reporting year. Monitoring flow rate values should be consistent with the monitoring, calculation, and reporting methods and framework used by the Phase I MS4 co-permittees. Responsible Dischargers shall submit the representative flow estimate as a PDF attachment to the Annual Report required in this General Permit.[242] The Regional Water Board may assign additional monitoring, reporting, and BMP requirements upon obtaining site specific information about exceedances of the waste load allocations.

  Compliance actions will be required upon the effective date of this General Permit. The final compliance deadline for the Los Peñasquitos Lagoon TMDL is July 14, 2034. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance by July 14, 2034.

f. Temperature TMDLs

Seven Temperature TMDLs, established by the U.S. EPA, are applicable to construction stormwater dischargers. These include the Temperature TMDLs

242 Unless another alternative electronic method in SMARTS is provided by the Water Boards.

for the Mattole River,[243] Navarro River,[244] Scott River[245] and the Lower Main,[246] Middle Main,[247] North Fork,[248] and Upper Main[249] extents of the Eel River. Stream temperature is a critical physical characteristic of aquatic habitats that directly impacts salmonid species. Metabolism, food requirements, growth rates, timing of adult migration upstream, timing of juvenile migration downstream, and sensitivity to diseases are all affected by stream temperature. Although stream temperatures in Northern California naturally provide a wide range of summer conditions for rearing salmonids, the removal of riparian vegetation from road building and urbanization are amongst the sources observed to increase stream temperatures. Excessive sediment input also

243 United States Environmental Protection Agency Region IX, Mattole River TMDL for Sediment and Temperature (December 30, 2002), <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/mattole_river/110707/mattole.pdf> [as of May 20,2021] (Mattole River Temperature TMDL)

244 United States Environmental Protection Agency Region IX, Navarro River TMDL for Sediment and Temperature (November 2004), <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/navarro_river/110708/navarro.pdf> [as of May 20, 2021] (Navarro River Temperature TMDL)

245 North Coast Regional Water Quality Control Board, Scott River TMDL (June 2018), Ch. 4, p. 65, <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/scott_river> [as of April 28,2022] (Scott River Temperature TMDL)

246 United States Environmental Protection Agency Region IX, Lower Eel River Total Maximum Daily Loads for Temperature and Sediment (December 18, 2007) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_lower/pdf/LER-TMDL-final-121807-signed.pdf> [as of April 28, 2022] (Eel River – Lower Main Temperature TMDL)

247 United States Environmental Protection Agency Region IX, Final Middle Main Eel River and Tributaries (from Dos Rios to the South Fork) Total Maximum Daily Loads for Temperature and Sediment (December 31, 2005) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_middle_main/pdf/mainmdl-eel-final.pdf> [April 28, 2022] (Eel River – Middle Main Temperature TMDL)

248 United States Environmental Protection Agency Region IX, North Fork Eel River Total Maximum Daily Loads for Sediment and Temperature (December 30, 2002) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_north_fork/pdf/final.pdf> [as of April 28, 2022] (Eel River – North Fork Temperature TMDL)

249 United States Environmental Protection Agency Region IX, Final Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury) Total Maximum Daily Loads for Temperature and Sediment (December 29, 2004) <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/eel_river_uper_main/pdf/uer-tmdl-final-12-28.pdf> [as of April 28, 2022] (Eel River – Upper Main Temperature TMDL)

raises stream temperature by widening stream channels, filling pools, and eliminating riparian vegetation during flood events.[250]

The requirements set forth in these TMDLs apply to all point sources within the watersheds of these water bodies, which was assumed to include construction stormwater discharges. Therefore, dischargers covered under this General Permit are considered Responsible Dischargers for the Temperature TMDLs.

The Temperature TMDLs for the Klamath River, Shasta River, and the Middle Fork of the Eel River were not translated for this General Permit. These TMDLs had no known point sources that increase stream temperature and therefore did not assign any waste load allocations.

- Waste Load Allocation Translation

  The Temperature TMDLs define the waste load allocations in two different ways:

  1. The TMDL for the Lower Main Eel River assigns a waste load allocation of "zero (0) net increase in receiving water temperature" to construction sites subject to this General Permit.
  2. The TMDLs for the Mattole River, Navarro River, Scott River and the Middle Main, North Fork, and Upper Main extents of the Eel River set the waste load allocation at zero (0), as no point sources are considered to contribute to the total loading of the respective water bodies.

  The two waste load allocation definitions will be translated similarly and require that the Responsible Dischargers do not produce discharges that result in elevated stream temperatures.

  The implementation requirements for the Temperature TMDLs in this General Permit are based on the Temperature Implementation Policy adopted by the North Coast Regional Water Quality Control Board on March 13, 2014. The North Coast Temperature Implementation Policy requires the use of existing permitting and enforcement tools such as NPDES permits to pursue compliance with the water quality objectives for temperature. Additionally, the Temperature Implementation Policy[251] relies on the

250 Eel River – Upper Main Temperature TMDL, p. 7.

251 North Coast Regional Water Quality Control Board, Policy for the Implementation of the Water Quality Objectives for Temperature (March 13, 2014), <https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/temperature_amendment/> [as of May 20, 2021], (North Coast Temperature Implementation Policy)

Sediment TMDL Implementation Policy[252] as a means of addressing elevated water temperatures associated with excess sediment discharges.[253] The effective implementation of erosion and sediment controls, as well as meeting post-construction standards, required by this General Permit are expected to achieve the waste load allocation. Therefore, complying with the requirements of this General Permit is consistent with the assumptions and requirements of the Temperature and Sediment TMDL Implementation Policies.

- Compliance Actions and Schedule

  Compliance with this General Permit's requirements is consistent with the assumptions and requirements of the Temperature Implementation Policy and is sufficient to achieve the assigned waste load allocation. Responsible Dischargers that implement BMPs specific to preventing or controlling stormwater exposure with sediment and comply with post-construction standards are expected to meet the assigned waste load allocation. If a BMP is observed failing, the Responsible Discharger shall evaluate the BMPs being used and implement a strategy in the site's SWPPP to prevent potential exceedances of the waste load allocation in the future. The Regional Water Quality Control Boards may assign additional monitoring, reporting, and BMP requirements upon obtaining site-specific information about exceedances of the waste load allocation.

  The North Coast Temperature Implementation Policy does not include an implementation deadline for Temperature TMDLs. Therefore, Responsible Dischargers are required to comply with the Temperature TMDLs upon the effective date of this General Permit, as listed in Table H-2 of Attachment H.

g. Metals and Toxics TMDLs

   Seventeen (17) Metals and/or Toxics TMDLs are translated for this General Permit. Metals can be toxic to aquatic life and cause impairments of beneficial uses within water bodies. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood)

252 North Coast Regional Water Quality Control Board, Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region (November 29, 2004), <https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/sediment_tmdl_implementation/> [as of May 20, 2021] (North Coast Sediment TMDL Implementation Policy)

253 North Coast Temperature Implementation Policy, p.4.200.

contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach.[254]

Other toxic pollutants in stormwater include organochlorine (OC) pesticides (chlordane, DDD, DDE, DDT, dieldrin, and toxaphene), polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs), which can contribute to the impairment of beneficial uses within water bodies. The use of these pollutants has been banned for many years because of potential human health and environmental harm, however, the physio-chemical properties of the pollutants allow them to persist in the environment, bioaccumulate through the food web, and pose risks to aquatic life, wildlife, and human health.

The primary transport mechanism for the metals and toxics is the mobilization of fine sediment via stormwater and authorized NSWDs. OC pesticides, PAHs, PCBs, and metals have an affinity for organic matter and will partition from water and sorb to organic substances such as sediment. Sediment and particulates transported through construction stormwater discharges eventually settle in the bed of the receiving water.

Some of the TMDLs addressed in this Section have receiving water sediment numeric targets translated to dry-weight sediment concentration waste load allocations to be met by Responsible Dischargers at the site's discharge location(s). The sediment targets address receiving waterbed-toxicity. Because these TMDLs associate receiving waterbed-toxicity targets to discharges of metals, OC pesticides, PAHs, and PCBs bound to sediment particulates, these TMDLs are addressed by implementing sediment control measures so that sediment-bound particulates do not leave a construction site's area and settle in the receiving waterbed via stormwater discharges and authorized NSWDs.

This General Permit currently requires implementation of site-specific erosion and sediment controls to minimize sediment in construction runoff. The site-specific erosion control requirements address erosion in downstream channels and banks, upgradient run-on flow diversion conveyances, and cut and fill slopes.

In addition, Responsible Dischargers with the potential to discharge into a TMDL watershed, water body, or reach are required to install erosion controls that will result in predicted erosion rates that are as protective as pre-construction conditions (e.g., undisturbed vegetation for the area) for each phase of the construction project. The Responsible Discharger shall use RUSLE2 to calculate the predicted erosion rates, as described in Attachment H.

254 CASQA, California Stormwater Best Management Practice Handbook: Construction (July 2015). <https://www.casqa.org/resources/bmp-handbooks/construction>. [as of May 20, 2021]. (CASQA Construction BMP Handbook).

Sediment produced by erosion occurring in channels is not estimated by RUSLE2[255]. This General Permit controls channel erosion by requiring engineered conveyance of up gradient run-on water, channel and streambank erosion control, and peak flowrate and volume controls.

Other TDMLs addressed in this Section assign waste load allocations to Responsible Dischargers in one of the following ways:

- A fixed concentration-based waste load allocation as a solution of effluent, where a concentration-based waste load allocation is assigned directly to Responsible Dischargers at the point of discharge;
- A fixed concentration-based waste load allocation as dry-weight sediment, where a concentration-based waste load allocation is assigned directly to Responsible Dischargers at the point of discharge;
- A hardness-based floating concentration waste load allocation, where the waste load allocation is hardness dependent on receiving water; or,
- A waste load allocation that assigned both a mass-based waste load allocation and a concentration-based waste load allocation

Concentration-based waste load allocations, where applicable, were translated into numeric action levels or numeric effluent limitations for Responsible Dischargers to comply with.

i. Ballona Creek Metals TMDL[256]

The Los Angeles Water Quality Control Board (Los Angeles Regional Water Quality Control Board) adopted the Ballona Creek Metals TMDL on September 6, 2007, to address the impairment of Ballona Creek and Sepulveda Canyon Channel due to copper, lead, and zinc.

- Source Analysis

  Storm drains convey a large percentage of metals loadings during dry weather. During wet weather, most of the metals loadings in Ballona

255 USDA-Agricultural Research Service, DRAFT User's Reference Guide Revised Universal Soil Loss Equation Version 2 (May 2008), p. 22-23 <http://fargo.nserl.purdue.edu/rusle2_dataweb/userguide/RUSLE2_User_Ref_Guide_2008.pdf> [as of May 20, 2021]

256 Los Angeles Regional Water Quality Control Board, Proposed Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the Ballona Creek Metals TMDL <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/Ballona20Metals/R13-010M_RB_BPA.pdf> [as of April 28, 2022] (Ballona Creek Metals TMDL)

Creek are in particulate form and are associated with wet-weather storm flows.[257]

- Waste Load Allocation Translation

  1) Dry-Weather Waste Load Allocation

     The Ballona Creek Metals TMDL assigns a dry-weather waste load allocation of zero (0) for Responsible Dischargers. Non-Stormwater Discharges (NSWDs) are authorized in this General Permit if Section IV.A terms and conditions are met to control the discharge of pollutants from the construction site. Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be either eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges do not comingle with stormwater associated with construction activity. The Regional Water Board may impose additional requirements on NSWDs if deemed necessary per site-specific analysis.

  2) Wet-Weather Waste Load Allocations

     The Ballona Creek Metals TMDL assigns mass-based waste load allocations per construction area in grams per day per acre (g/day/acre) for copper, lead, and zinc. The waste load allocations for metals are shown in Table 45 below.

Table 45 – Ballona Creek and Sepulveda Channel Waste Load Allocations

Pollutant	Waste Load Allocation (g/day/acre)
Copper	1.673×10^{-10} x Daily storm volume (L)
Lead	9.369×10^{-10} x Daily storm volume (L)
Zinc	1.279×10^{-9} x Daily storm volume (L)

Directly implementing the copper, lead, and zinc waste load allocations will result in a unique mass load for each Responsible Discharger dependent on the area of the construction site. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most metal loadings in this

257 Ballona Creek Metals TMDL, p. 3.

watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the copper, lead, and zinc, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the identified metals. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

  The TMDL's final compliance deadline was January 11, 2015. Since this compliance deadline has passed, the Responsible Dischargers shall comply with the requirements of this General Permit and the RUSLE2 modeling requirements in Attachment H, Section I.G.2, upon the effective date of this General Permit.

ii. Ballona Creek Estuary Toxics TMDL[258]

The Los Angeles Regional Board adopted the Ballona Creek Estuary Toxics TMDL on July 7, 2005, to address the impairment of Ballona Creek and Ballona Creek Estuary (Ballona Watershed) due to cadmium, chlordane, copper, DDT, lead, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), silver, toxicity in sediment, and zinc. Chlordane and DDT are organochlorine (OC) pesticides. The Ballona Creek Estuary Toxics does not include a TMDL for PAHs because recent data does not show PAH levels exceeding the numeric targets.[259]

258 Los Angeles Regional Water Quality Control Board, Proposed Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the Ballona Creek Estuary Toxic Pollutants TMDL <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/Ballona%20Toxics/R13-010T_RB_BPA.pdf> [as of May 20, 2021] (Ballona Creek Estuary Toxics TMDL)

259 Ballona Creek Estuary Toxics TMDL, p. 2.

- Source Analysis

  The Ballona Creek Estuary Toxics TMDL identifies urban stormwater as a substantial source of metals and the most prevalent metals in urban stormwater are consistently associated with particulates. As a result, metals have the potential to accumulate in estuarine sediments where they may pose a toxicity risk. A majority of organic constituents in stormwater such as PAHs, phthalates, and OC compounds are also associated with particulates.[260]

- Waste Load Allocation Translation

  The Ballona Creek Estuary Toxics TMDL assigns grouped mass-based waste load allocations per construction area in grams per year per acre (g/yr/ac) for cadmium, chlordane, copper, DDT, lead, PAHs, PCBs, silver, toxicity in sediment, and zinc. The waste load allocations for are shown in Table 46 below.

Table 46 – Ballona Creek Estuary Waste Load Allocations

Pollutant	Waste Load Allocation (g/yr/ac)
Cadmium	0.1
Copper	3
Lead	4
Silver	0.1
Zinc	13
Chlordane	0.00011
DDTs	0.00016
Total PCBs	0.00028

Directly implementing the waste load allocations will result in a unique mass load for each Responsible Discharger dependent on the area of construction site. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most metal and toxic pollutant loadings in this watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions.

260 Ballona Creek Estuary Toxics TMDL, p. 3.

Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the metals and toxic pollutants, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the identified metals and toxic pollutants. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

  The TMDL's final compliance deadline was January 11, 2015. Since this compliance deadline has passed, the Responsible Dischargers shall comply with the requirements of this General Permit and the RUSLE2 modeling requirements in Attachment H, Section I.G.2, upon the effective date of this General Permit.

iii. Calleguas Creek Metals and Selenium TMDL[261]

The Los Angeles Water Quality Control Board (Los Angeles Water Board) adopted the Calleguas Creek Metals and Selenium TMDL on October 13, 2016, to address the impairment of Calleguas Creek, Mugu Lagoon, and Revolon Slough due to copper, mercury, nickel, and selenium.

- Source Analysis

  The significant sources of metals and selenium in the watershed include urban runoff, agricultural runoff, POTW effluent, and groundwater. Open space was also a significant source for mercury. Higher loads were delivered during wet weather for all constituents due to the association between metals and particulate matter. The source analysis indicates that naturally occurring metals and selenium may be contributing sources in soil. The Calleguas Creek Metals and Selenium TMDL includes plans for special studies to further assess natural sources of metals in soil.[262]

261 Los Angeles Regional Water Quality Control Board, Total Maximum Daily Load for Metals and Selenium in the Calleguas Creek, its Tributaries and Mugu Lagoon <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R16-007_RB_BPA.pdf> [as of May 20, 2021] Calleguas Creek Metals and Selenium TMDL)

262 Calleguas Creek Metals and Selenium TMDL, p. 4, p. 13.

- Waste Load Allocation Translation

  1) Dry-weather Waste Load Allocations

     The Calleguas Creek Metals and Selenium TMDL assigns concentration-based waste load allocations for dry-weather. Non-Stormwater Discharges (NSWDs) are authorized in this General Permit if Section IV.A terms and conditions are met to control the discharge of pollutants from the construction site. Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be either eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges do not commingle with stormwater associated with construction activity. The Regional Water Board may impose additional requirements on NSWDs if deemed necessary per site-specific analysis.

  2) Wet-weather Interim Waste Load Allocations for Copper

     The Calleguas Creek Metals and Selenium TMDL assigns an interim concentration-based wet-weather waste load allocation for copper to "Permitted Stormwater Dischargers (PSDs)" to be met at the receiving water. Responsible Dischargers are identified as a PSDs as defined in the Calleguas Creek Metals and Selenium TMDL.[263] The interim wet daily maximum concentration-based waste load allocation will be translated into a numeric action level for Responsible Dischargers until the final waste load allocations apply. The interim waste load allocations were translated into numeric action levels as shown in Table 47 below. The numeric action levels are in mg/L to be consistent with the reporting units in SMARTS.

Table 47 – Calleguas Creek, Conejo Creek, and Revolon Slough Interim Wet-Weather Waste Load Allocations

Water body	Waste Load Allocation for Copper (ug/L)	Total Copper Numeric Action Level (mg/L)
Calleguas and Conejo Creek	204	0.204
Revolon Slough	204	0.204

263 Calleguas Creek Metals and Selenium TMDL, p. 19.

3) Wet-weather Final Waste Load Allocations Copper, Nickel, and Selenium

The Calleguas Creek Metals and Selenium TMDL assigns a final mass-based wet-weather waste load allocations for copper, nickel, and selenium in pounds per day to "Permitted Stormwater Dischargers (PSDs)" to be met in the water column of Calleguas Creek or Revolon Slough. The waste load allocation for copper, nickel, and selenium are shown in Table 48 below.

Table 48 – Calleguas Creek, Conejo Creek, and Revolon Slough Interim Wet-Weather Waste Load Allocations

Pollutant	Waste Load Allocation for Calleguas Creek and Conejo Creek (lbs/d)	Waste Load Allocation for Revolon Slough (lbs/d)
Copper*	(0.00054*Q^2*0.032*Q – 0.17)*WER – 0.06	(0.0002*Q2+0.0005*Q)*WER
Nickel**	0.014*Q^2+0.82*Q	0.027*Q^2+0.47*Q
Selenium**	(a)	0.027*Q^2+0.47*Q

*The approved site-specific WER of 1.51 for Mugu Lagoon is used to calculate the assigned waste load allocations for discharges to Calleguas and Conejo Creek to ensure the downstream standard is achieved. Permitted stormwater dischargers may apply a WER of up to 3.69 for discharges to upstream reaches, with the exception of Reaches 4 and 5, to calculate the assigned waste load allocations. If a WER of greater than 1.51 is applied, permitted stormwater dischargers shall be required to provide detailed quantitative analysis to demonstrate that the waste load allocations as modified by the WER are protective of downstream reaches. No site specific WER for Revolon Slough was approved so default WER value of 1 is applied. Regardless of the final WERs, total copper loading shall not exceed current loading.
**Current loads do not exceed loading capacity during wet weather. Sum of all loads cannot exceed loads presented in the table. Q: Daily storm volume (cfs). (a) Selenium allocations have not been developed for this reach as it is not on the 303(d) list.

Directly implementing the final copper, nickel, and selenium waste load allocations will result in a unique mass load for each Responsible Discharger dependent on the daily stormwater flows and area of construction site. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most metal loadings in this watershed are in

particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

4) Wet-weather Interim Limits and Final Waste Load Allocations for Mercury

The Calleguas Creek Metals and Selenium TMDL assigns mass-based interim and final waste load allocations for mercury pounds per year (lbs/yr) to "Permitted Stormwater Dischargers (PSDs)" to be met at the receiving water. The waste load allocations for mercury are shown in Table 49 below.

Table 49 – Interim Limits and Final Waste Load Allocations for Mercury in Suspended Sediment for Calleguas Creek and Revolon Slough

Flow Range	Calleguas Creek Interim (lb/yr)	Calleguas Creek Final (lb/yr)	Revolon Slough Interim (lb/yr)	Revolon Slough Final (lb/yr)
0-15,000 Million Gallons per Year	3.3	0.4	1.7	0.1
15,000-25,000 Million Gallons per Year	10.5	1.6	4	0.7
Above 25,000 Million Gallons per Year	64.6	9.3	10.2	1.8

Directly implementing the copper and nickel waste load allocations will result in a unique mass load for each Responsible Discharger dependent on the range of stormwater flows and area of construction site. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most metal loadings in this watershed are in particulate form and

associated with wet-weather flows. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  The TMDL's interim compliance deadline was March 27, 2007. Since this compliance deadline has passed, the interim waste load allocations shall be met by the effective date of this General Permit. Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers shall compare all non-visible sampling and analytical results to the numeric action level for copper. If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the waste load allocations in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to copper, nickel, selenium, and mercury sources are expected to meet the assigned waste load allocations.

  The TMDL's final compliance deadline was March 27, 2022. Since this compliance deadline has passed, the Responsible Dischargers shall comply with the erosion and sediment control requirements of this General Permit and RUSLE2 modeling requirements in Attachment H, Section I.G.2, upon the effective date of this General Permit.

iv. Calleguas Creek OC Pesticide and PCBs TMDL[264]

The Los Angeles Regional Water Quality Control Board adopted the Calleguas Creek OC Pesticide and PCBs TMDL on June 9, 2006, to address the impairment of Calleguas Creek Watershed due to

264 Los Angeles Regional Water Quality Control Board, Total Maximum Daily Loads (TMDLs) for Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation in Calleguas Creek, its Tributaries, and Mugu Lagoon (July 7, 2005), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/2005-010_RB_BPA.pdf> [as of May 20, 2021] (Calleguas Creek OC Pesticides and PCBs TMDL)

organochlorine (OC) pesticides and polychlorinated biphenyls (PCBs). Eleven of fourteen reaches in the watershed are identified as impaired for these toxic pollutants on the 2002 303(d) list.

- Source Analysis

  The largest sources of OC pesticides and PCBs in the watershed were estimated to be agricultural runoff and residues from past uses, respectively. Urban runoff is considered a minor source of OC pesticides and PCBs. Both impairing contaminants are known to bind to sediments and fine particles, which are transported to the watershed through runoff and erosion.

- Waste Load Allocation Translation

  The Calleguas Creek OC Pesticide and PCBs TMDL assigns interim and final waste load allocations for pollutants in sediment for stormwater permittees, shown in Table 50 and Table 51 below. Although not specifically identified in the TMDL, waste load allocations were interpreted as applicable to construction stormwater dischargers due to the sediment and erosion intensive activities associated with construction. Therefore, construction stormwater dischargers are considered Responsible Dischargers for the Calleguas Creek OC Pesticide and PCBs TMDL.

Table 50 – Interim Sediment Waste Load Allocations (ng/g) for Stormwater Permittees

Constituent	Mugu Lagoon*	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	2.0	2.0	2.0	2.0	2.0	2.0
4,4-DDE	2.2	1.4	1.4	1.4	1.4	1.4
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
PCBs	180.0	120.0	130.0	120.0	120.0	120.0
Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6

* Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2

Table 51 – Final Sediment Waste Load Allocations (ng/g) for Stormwater Permittees

Constituent	Mugu Lagoon*	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	2.0	2.0	2.0	2.0	2.0	2.0
4,4-DDE	2.2	1.4	1.4	1.4	1.4	1.4
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
PCBs	180.0	120.0	130.0	120.0	120.0	120.0
Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6

* Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2

Compliance with the sediment-based waste load allocations is measured as an in-stream annual average at the base of each subwatershed where the dischargers are located. Requiring Responsible Dischargers to sample for the pollutant(s) within the receiving waters would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, OC pesticide and PCB loading are associated with sediment and fine particles transported by runoff. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of organochlorine compounds associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the organochlorine compounds. Furthermore, Responsible Dischargers are to comply with the RUSLE 2 modeling requirements in Attachment H, Section I.G.2.

  The Calleguas Creek OC Pesticide and PCBs TMDL's interim compliance deadline for the TMDLs was March 26, 2007. Since the deadline has already passed, Responsible Dischargers shall comply with

the interim waste load allocations through the requirements of this General Permit and the RUSLE2 modeling requirements in Attachment H, Section I.G.2, upon the effective date of this General Permit. Compliance with the final waste load allocations shall be achieved by March 26, 2027.

v. Colorado Lagoon Toxics TMDL[265]

The Los Angeles Regional Water Quality Control Board adopted the Colorado Lagoon Toxics TMDL on October 1, 2009, to address the impairment of Colorado Lagoon due to metals, organochlorine (OC) pesticides (chlordane, DDT, and dieldrin), polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and sediment toxicity.

- Source and Linkage Analysis

  The Colorado Lagoon watershed is divided into five sub-basins that discharge stormwater and urban dry weather runoff to Colorado Lagoon.[266] The impairing contaminants in sediment are associated with fine-grained particles that are primarily delivered to the sediments through suspended solids in stormwater and urban runoff.[267] Therefore, construction sites covered under this General Permit are considered Responsible Dischargers for the Colorado Lagoon Toxics TMDL.

- Waste Load Allocation Translation

  The Colorado Lagoon Toxics TMDL assigns concentration-based waste load allocations for lead, zinc, OC pesticides, PAHs, and PCBs to be met at the construction site's discharge point(s) for discharges into Colorado Lagoon.[268] The waste load allocations are shown in Table 52 below.

265 Los Angeles Regional Water Quality Control Board, Total Maximum Daily Load for Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs), Sediment Toxicity, Polycyclic Aromatic Hydrocarbons (PAHs), and Metals for Colorado Lagoon (October 1, 2009), <https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/coloradolagoontoxicity/signedresolutionr09_005_amendments.pdf> [as of April 29, 2022] (Colorado Lagoon Toxics TMDL)
266 Colorado Lagoon Toxics TMDL, p. 3.
267 Colorado Lagoon Toxics TMDL, p. 4.
268 Colorado Lagoon Toxics TMDL, p. 5, 10.

Table 52 – Colorado Lagoon Waste Load Allocations

Pollutants	Waste Load Allocation Suspended Sediment-Associated Contaminants (ug/dry kg)
Chlordane	0.50
Dieldrin	0.02
Lead	46,700.00
Zinc	150,000.00
PAHs	4,022.00
PCBs	22.70
DDT	1.58

Requiring Responsible Dischargers to sample for the pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most metal loadings in this watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the toxic pollutants associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the organochlorine compounds. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

  The final compliance deadline for the Colorado Lagoon Toxics TMDL was July 28, 2018. Since the deadline has already passed, Responsible Dischargers shall comply with the waste load allocations through the requirements of this General Permit and the RUSLE2 modeling requirements in Attachment H, Section I.G.2, upon the effective date of this General Permit.

vi. Los Angeles Area Lakes Waters Toxics TMDL[269]

The U.S. EPA adopted the Los Angeles Area Lakes Toxics TMDL on March 26, 2012, to address the impairment in three of the nine assessed lakes in the Los Angeles Region due to organochlorine (OC) pesticides (chlordane, dieldrin, DDT) and polychlorinated biphenyls (PCBs). The three identified lakes for OC pesticides and PCBs impairments are Peck Road Park Lake, Echo Park Lake, and Puddingstone Reservoir. Peck Road Park Lake and Echo Park Lake are located in the Los Angeles River watershed. Puddingstone Reservoir is located in the San Gabriel River watershed.

- Source Analysis

  The manufacturing and use of OC pesticides and PCBs are currently banned and no additional allowances for new sources of discharges are expected in the Los Angeles Area Lakes Toxics TMDL. Source control BMPs and pollutant removal are the most suitable courses of action to reduce OC pesticides and PCBs. The TMDL identified many historic and current loadings of pollutants into Peck Road Park Lake, Echo Park Lake, and Puddingstone Reservoir including construction sites that would be covered under this General Permit. Therefore, construction stormwater dischargers are considered Responsible Dischargers for the Los Angeles Area Lakes Toxics TMDL.

- Waste Load Allocation Translation

  The Los Angeles Area Lakes TMDL assigns concentration-based waste load allocations for OC pesticides and PCBs in the water column to be met at the construction site's discharge location(s) into Peck Road Park Lake, Echo Park Lake, and Puddingstone Reservoir, summarized in Table 53 through Table 55 below.

Table 53 – Peck Road Park Lake Toxics Waste Load Allocation

Pollutant	Waste Load Allocation – Water Column (mg/L)
Chlordane	5.9×10^{-7}
Dieldrin	1.4×10^{-7}
Total DDTs	5.9×10^{-7}
Total PCBs	1.7×10^{-7}

269 Los Angeles Regional Water Quality Control Board, Los Angeles Area Lakes Waters Toxics TMDL (May 2011) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Lakes/LALakesTMDLsEntireDocument.pdf> [as of April 28, 2022] (Los Angeles and Long Beach Harbor Water TMDL)

Table 54 – Echo Park Lake Toxics Waste Load Allocation

Pollutant	Waste Load Allocation – Water Column (mg/L)
Chlordane	5.9×10^{-7}
Dieldrin	1.4×10^{-7}
Total PCBs	1.7×10^{-7}

Table 55 – Puddingstone Reservoir Toxics Waste Load Allocation

Pollutant	Waste Load Allocation – Water Column (mg/L)
Chlordane	5.7×10^{-7}
Dieldrin	1.4×10^{-7}
Total DDTs	5.9×10^{-7}
Total PCBs	1.7×10^{-7}

The May 2021 draft of the Construction Stormwater General Permit reissuance proposed a translation of the waste load allocations into numeric effluent limitations. However, the translated numeric effluent limitations for chlordane, DDT, dieldrin, and PCBs in the Los Angeles Area Lakes Toxics TMDL were below the respective reporting limits for the constituents and would render determining compliance at the point of discharge infeasible.

Dischargers that discharge to the applicable Los Angeles Area Lakes waterbodies are to conduct a soil screening investigation for chlordane, DDT, dieldrin, and PCBs (as applicable) as part of the pollutant source assessment to determine whether they are Responsible Dischargers per Attachment H, Section I.G.5. Dischargers are considered Responsible Dischargers if the TMDL analytes are measured above their respective reporting limits and will be required to comply with a numeric effluent limitation of 100 mg/L total suspended solids (TSS) as the applicable limitation for each of the applicable TMDL-pollutants identified through the soil screening investigation.

State Water Board staff reviewed literature[270] and concluded that measurements of total suspended solids at the point of discharge, following a non-visible pollutant monitoring trigger, are the most

270 Nasrabadi T, Ruegner H, Schwientek M, Bennett J, Fazel Valipour S, Grathwohl P (2018) “Bulk metal concentrations versus total suspended solids in rivers: Time-invariant & catchment-specific relationships.”;
Washington Department of Ecology (2004) “A Total Maximum Daily Load Evaluation for Chlorinated Pesticides and PCBs in the Walla Walla River.”;
Angela Gorgoglione, Fabián A. Bombardelli, Bruno J. L. Pitton, Lorence R. Oki, Darren L. Haver and Thomas M. Young (2018) “Role of Sediments in Insecticide Runoff from Urban Surfaces: Analysis and Modeling.”

reasonable way to assess presence of chlordane, DDT, dieldrin, and PCBs, as these organic pollutants are readily sorbed to sediment.

The measurement of total suspended solids at or above of 100 mg/L is an appropriate indicator of the presence of chlordane, DDT, dieldrin, and PCBs in runoff, if the pre-project soil analysis (described in Attachment H, Section I.G.5) demonstrated these pollutants are present in the soil. There is a strong positive correlation between total suspended solids and chlordane, DDT, dieldrin, and PCBs, indicating that concentrations of pollutants increase and decline proportionally with the TSS concentrations. If the constituents were measured in the soil at or above the reporting limit, a small fraction will be in the TSS sample as well.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of toxic pollutants associated with the impaired water bodies, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the metals. Furthermore, the Responsible Discharger shall compare all non-visible sampling and analytical results to the TSS numeric effluent limitation to address toxic pollutants associated with the impairment of the water body. Exceedances of the TSS numeric effluent limitation equates to an exceedance of each applicable TMDL-specific pollutant identified in the soil screening investigation.

  The Los Angeles Regional Water Quality Control Board has not adopted an Implementation Plan or a compliance schedule for the toxic pollutants addressed by the Los Angeles Area Lakes Toxics TMDL. Therefore, Responsible Dischargers are required to achieve compliance with the TSS numeric effluent limitation by the effective date of this General Permit.

vii. Los Angeles and Long Beach Harbor Waters TMDL[271]

The Los Angeles Regional Water Quality Control Board adopted the Los Angeles and Long Beach Harbor Waters TMDL on May 5, 2011, to address the impairment and affected benthic communities of the Dominguez Channel, Greater Los Angeles, and Long Beach Harbor Waters due to

271 Los Angeles Regional Water Quality Control Board, Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters (May 2011) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R11-008_RB_BPA.pdf> [as of May 20, 2021] (Los Angeles and Long Beach Harbor Waters TMDL)

cadmium, certain polyaromatic hydrocarbon (PAH) compounds, chlordane, chromium, copper, DDT, dieldrin, lead, mercury, polychlorinated biphenyls (PCBs), toxaphene, toxicity, and zinc.

- Source Analysis

  Chromium, copper, lead, mercury, PAHs, and zinc are currently deposited into the watershed via urban runoff and then washed into storm drains and channels that discharge to the Dominguez Channel and Greater Harbor Waters. Organochlorine (OC) pesticides (chlordane, DDT, dieldrin) and PCBs are legacy pollutants and remain present in the environment. Urban runoff and rainfall mobilize OC pesticides, PAHs, and PCBs bound to fine-grained particles, which are then washed into storm drains and channels that discharge to the Dominguez Channel and Greater Harbor Waters. Runoff from construction sites covered under this General Permit has the potential to transport these toxic pollutants into the waters. Therefore, construction stormwater dischargers are considered Responsible Dischargers for the Los Angeles and Long Beach Harbor Waters Toxics TMDL.

- Waste Load Allocation Translation

  1) Dominguez Channel and Torrance Lateral Freshwater Wet Weather Interim Waste Load Allocations

     This TMDL assigns interim concentration-based waste load allocations for copper, lead, and zinc to Responsible Dischargers to be met at the construction site's discharge location(s) for discharges into the Dominguez Channel or Torrance Lateral. The interim concentration-based waste load allocations will be translated to numeric action levels as an interim target for Responsible Dischargers until the final waste load allocations apply. The compliance deadline of the interim waste load allocations is upon effective date of the TMDL and therefore, apply at that time. The interim numeric action levels are shown in Table 56 below.

Table 56 – Dominguez Channel and Torrance Lateral Interim Waste Load Allocation Translation

Pollutant	Waste Load Allocation (ug/L)	Interim Numeric Action Level (mg/L)
Total Copper	207.51	0.20751
Total Lead	122.88	0.12288
Total Zinc	898.87	0.89887

2) Dominguez Channel and Torrance Lateral Wet-Weather Final Waste Load Allocations

This TMDL assigns wet-weather final concentration-based waste load allocations for copper, lead, and zinc to Responsible Dischargers to be met at the construction site's discharge location(s) for discharges into the Dominguez Channel (above Vermont Avenue).

Exxon Mobil Torrance Refinery and "all other dischargers" are assigned concentration-based waste load allocations of copper, lead, and zinc equal to the sediment targets to be met at the construction site's discharge location(s) for discharges into the Dominguez Channel and Torrance Lateral, shown in Table 57 below. Responsible Dischargers are assumed to be included in the "all other dischargers" definition. The concentration-based waste load allocations are translated into numeric effluent limitations. However, the numeric effluent limitations are not immediately effective because the compliance deadline for attaining the waste load allocation for dischargers into Dominguez Channel and Torrance Lateral is beyond this General Permit's term.

Table 57 – Dominguez Channel and Torrance Lateral Final Waste Load Allocation

Pollutant	Waste Load Allocation* (mg/L)
Total Copper	0.0097
Total Lead	0.0427
Total Zinc	0.0697

*Hardness used = 50 mg/L. Recalculated concentration-based allocations using ambient hardness at the time of sampling are considered consistent with the assumptions and requirements of these waste load allocations. In addition to the waste load allocations above, samples collected during flow conditions less than the 90th percentile of annual flow rates must demonstrate that the acute and chronic hardness dependent water quality criteria provided in the CTR are achieved.

The May 2021 draft of the Construction Stormwater General Permit reissuance proposed a translation for the final total copper, lead, and zinc waste load allocations into numeric effluent limitations as the waste load allocations were concentration-based and assigned at the point of discharge. However, this General Permit incorporates a soil screening investigation and a total suspended solids numeric effluent limitation to assess compliance with the final waste load allocations for total copper, lead, and zinc.

Starting at the effective date of the final waste load allocations, May 23, 2032, dischargers that discharge to the Dominguez Channel and Torrance Lateral are to conduct a soil screening investigation for

copper, lead, and zinc as part of the pollutant source assessment to determine whether they are Responsible Dischargers per Attachment H Section I.G.5. Dischargers are considered Responsible Dischargers if the TMDL analytes are measured above the monitoring threshold values, which are equivalent to the waste load allocations , and will be required to comply with a numeric effluent limitation of 100 mg/L total suspended solids (TSS) as the applicable limitation for each of the applicable TMDL-pollutants identified through the soil screening investigation, instead of the numeric effluent limitations for total copper, lead, and zinc.

State Water Board staff reviewed literature[272] and concluded that measurements of TSS at the point of discharge, following a non-visible pollutant monitoring trigger, are the most reasonable way to assess the presence of copper, lead, and zinc, as these metals are a readily sorbed to sediment, which is the most common pollutant discharged from construction sites and can be managed effectively with BMPs.

Staff determined the measurement of TSS at or above 100 mg/L is an appropriate indicator of the presence of copper, lead, and zinc in runoff, if the pre-project soil monitoring (described in Attachment H, Section I.G.5) demonstrated these pollutants are present in the soil. There is a strong positive correlation between TSS and metals, indicating that concentrations of pollutants increase and decline proportionally with the TSS concentrations. If the constituents were measured in the soil at or above the monitoring threshold value, a small faction will be in the TSS sample as well.

3) Dominguez Channel Estuary and Greater Los Angeles and Long Beach Harbor Waters Interim Sediment Waste Load Allocations

This TMDL assigns concentration-based interim sediment waste load allocations for copper, lead, zinc, DDT, PAHs, and PCBs to Responsible Dischargers for discharges into the Dominguez Channel Estuary and Greater Harbor Waters, shown in Table 58 below.

272 Nasrabadi T, Ruegner H, Schwientek M, Bennett J, Fazel Vailpour S, Grathwohl P (2018) “Bulk metal concentrations versus total suspended solids in rivers: Time-invariant & catchment-specific relationships.”

Table 58 – Dominguez Channel Estuary and Greater Harbor Waters Interim Sediment Waste Load Allocations in mg/kg sediment

Water Body	Copper	Lead	Zinc	DDT	PAHs	PCBs
Dominguez Channel Estuary	220.0	510.0	789.0	1.727	31.60	1.490
Long Beach Inner Harbor	142.3	50.4	240.6	0.070	4.58	0.060
Los Angeles Inner Harbor	154.1	145.5	362.0	0.341	90.30	2.107
Long Beach Outer Harbor (inside breakwater)	67.3	*46.7	150	0.075	*4.022	0.248
Los Angeles Outer Harbor (inside breakwater)	104.1	*46.7	150	0.097	*4.022	0.310
Los Angeles River Estuary	53.0	*46.7	183.5	0.254	4.36	0.683
San Pedro Bay Near/Offshore Zones	76.9	66.6	263.1	0.057	*4.022	0.193
Los Angeles Harbor – Cabrillo Marina	367.6	72.6	281.8	0.186	36.12	0.199
Los Angeles Harbor – Consolidated Slip	1470.0	1100.0	17050	1.724	386.00	1.920
Los Angeles Harbor – Inner Cabrillo Beach	129.7	*46.7	163.1	0.145	*4.022	0.033
Fish Harbor	558.6	116.5	430.5	40.5	2102.7	36.6

*Values are also the final allocation

Directly implementing the final waste load allocations would be impractical, costly, and not aligned with the monitoring requirements in this General Permit. As mentioned above, this TMDL associates bed toxicity with discharges of metals, OC pesticides, PAHs, and PCBs bound to sediment particulates. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

4) Dominguez Channel Estuary and Greater Harbor Waters Final Water-Column Waste Load Allocations

This TMDL assigns concentration-based final waste load allocations for the metals and organic compounds identified in Table 57 and Table 58 below. The waste load allocations are to be met in the water column for discharges to Dominguez Channel Estuary and the Greater Harbor Waters. Greater Harbor Waters include Inner and

Outer Harbor, Main Channel, Consolidated Slip, Southwest Slip, Fish Harbor, Cabrillo Marina, Inner Cabrillo Beach, Los Angeles River Estuary, and San Pedro Bay. The concentration-based waste load allocations are translated to numeric action levels because the waste load allocations are assigned to be met in the receiving waters and not at the point of discharge. The assigned waste load allocations of copper, lead, and zinc are based on the Criteria Chronic Concentration, and are inappropriate to assign to stormwater discharges. Therefore, the California Toxics Rule (CTR) Criterion Maximum (acute) Concentration is applied to Responsible Dischargers. The units are converted from ug/L to mg/L to be consistent with the reporting units in SMARTS. The numeric action levels assigned to Responsible Dischargers are shown in Table 59 and Table 60 below.

Table 59 – Dominguez Channel Estuary Final Water Column Waste Load Allocation Translations

Pollutant	Waste Load Allocation (ug/L)	Dissolved Saltwater Criterion Maximum Concentration (ug/L)	Total Saltwater Criterion Maximum Concentration (ug/L)	Numeric Action Level (mg/L)
4,4-DDT	0.00059			$5.9 X10^{-7}$
Chlordane	0.00059			$5.9 X10^{-7}$
Dieldrin	0.00014			$1.4 X10^{-7}$
Total Copper	3.73	4.8	5.8**	0.0058
Total Lead	8.53	210	221**	0.221
PAHs	0.049			$4.9 X10^{-5}$
Total PCBs	0.00017			$1.7 X10^{-7}$
Total Zinc	85.6	90	95**	0.095

* CTR human health criteria were not established for total PAHs. Therefore, the CTR criterion for individual PAHs of 0.049 µg/L is applied individually to benzo(a)anthracene, benzo(a)pyrene, and chrysene. The CTR criterion for Pyrene of 11,000 µg/L is assigned as an individual waste load allocation to Pyrene. Other PAH compounds in the CTR shall be screened as part of the TMDL monitoring.
**Values were rounded to match Criterion significant figures.

Table 60 – Greater Harbor Final Water Column Waste Load Allocation Translations

Pollutant	Waste Load Allocation (ug/L)	Dissolved Saltwater Criterion Maximum Concentration (ug/L)	Total Saltwater Criterion Maximum Concentration (ug/L)	Numeric Action Level (mg/L)
4,4-DDT	0.00059			$5.9 X10^{-7}$
Total Copper	3.73	4.8	5.8**	0.0058
Total Lead	8.53	210	221**	0.221
Total PCBs	0.00017			$1.7 X10^{-7}$
Total Zinc	85.6	90	95**	0.095

**Values were rounded to match Criterion significant figures.

5) Dominguez Chanel Estuary, Consolidated Slip, and Fish Harbor Final Sediment Waste Load Allocations

This TMDL assigns concentration-based final sediment waste load allocations for cadmium, chromium, and mercury to be met at the construction site's discharge point(s) for discharges into Consolidated Slip and Fish Harbor, cadmium discharges into Dominguez Channel Estuary and Consolidated Slip, and chromium discharges into Consolidated Slip.

Table 61 – Dominguez Channel Estuary, Consolidated Slip and Fish Harbor Final Sediment Waste Load Allocations

Pollutant	Waste Load Allocation (mg/kg sediment)
Cadmium*	1.2
Chromium**	81
Mercury***	0.15

* Applies to Dominguez Channel Estuary and Consolidated Slip
** Applies to Consolidated Slip
*** Applies to Consolidated Slip and Fish Harbor

Directly implementing the final waste load allocations would be impractical, costly, and not aligned with the monitoring requirements in this General Permit. As mentioned above, this TMDL associates bed toxicity with discharges of metals bound to sediment particulates. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that discharge into the Dominguez Channel or the Torrance Lateral, and identify on-site sources of copper, lead, and zinc through the required pollutant source assessment, shall compare all non-visible sampling and analytical results to the applicable interim numeric action levels for the metals. Responsible Dischargers that discharge into the Dominguez Channel Estuary or the Greater Harbor waters, and that identify on-site sources of the metals and toxic pollutants listed in Table 60 and Table 61 are to implement BMPs specific to preventing or controlling stormwater contact with those metals and toxic pollutants. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2, in order to address applicable interim sediment-based waste load allocations.

  If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the interim numeric action levels and TSS numeric effluent limitations in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to the metals and toxic pollutant sources are expected to meet the assigned numeric action levels and TSS numeric effluent limitations.

  The effective date of the TMDL, March 23, 2012, is the interim compliance deadline. Since this compliance deadline has passed, the requirements to meet the interim numeric action levels shall be met by the effective date of this General Permit. Responsible Dischargers are to comply with the final numeric action levels and TSS numeric effluent limitations by March 23, 2032, the final compliance deadline for the Los Angeles and Long Beach Harbor. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance when a final numeric action level or TSS numeric effluent limitation applies.

viii. Los Angeles River Metals TMDL[273]

The Los Angeles Regional Water Quality Control Board adopted the Los Angeles River Metals TMDL on April 9, 2015, to address the impairment of Los Angeles River and its tributaries due to cadmium, copper, lead, selenium, and zinc.

- Source Analysis

  Dry weather loading from storm drains contributes a large percentage of the loading because of low flows but high concentration of dissolved metals. During wet weather most metals loadings are in the particulate form where stormwater flows contribute a large percentage of cadmium, copper, lead, and zinc loading. Studies are underway to evaluate whether selenium levels represent a "natural condition" for this watershed.[274]

- Waste Load Allocation Translation

  1) Dry-weather Waste Load Allocations

     The Los Angeles River Metals TMDL assigns concentration-based waste load allocations for dry-weather. Non-Stormwater Discharges (NSWDs) are only authorized in this General Permit if the terms and conditions in Section IV.A are met to control the discharge of pollutants from the construction site. Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be either eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges do not commingle with stormwater associated with construction activity. The Regional Water Board may impose additional requirements on NSWDs if deemed necessary per site-specific analysis.

  2) Wet-weather Waste Load Allocations

     The Los Angeles River Metals TMDL assigns a mass-based waste load allocation per construction area in grams per day per acre (g/d/ac) for cadmium, copper, lead, and zinc at the construction site's discharge point(s) for discharges into the Los Angeles River or

273 Los Angeles Regional Water Quality Control Board, Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Los Angeles River and Tributaries Metals TMDL (April 2015) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R15-004_BPA_CH_7.pdf> [as of May 20, 2021] (Los Angeles River Metals TMDL)

274 Los Angeles River Metals TMDL, p. 4.

tributaries (Los Angeles River Watershed).[275] In addition, daily storm volume flows are required to calculate the waste load allocation for each metal. The waste load allocations are shown in Table 62 below.

Directly implementing the copper, lead, and zinc waste load allocations would result in a unique mass load for each Responsible Discharger depended on the daily stormwater flows and the construction site's acreage. Requiring Responsible Dischargers to calculate the site-specific mass load of a pollutant would be impractical, costly, and not aligned with the monitoring requirements in this General Permit.

The Los Angeles River Metals TMDL Staff Report allows for compliance to be assessed based on concentration. Additionally, the TMDL Staff Report states, "the wet-weather mass-based waste load allocations for the general construction and industrial stormwater permittees (Table 6-12) will be incorporated into watershed specific general permits. Concentration-based permit conditions may be set to achieve the mass-based waste load allocations. These concentration-based conditions would be equal to the concentration-based waste load allocations assigned to the other NPDES permits."

This TMDL states "each general construction stormwater permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with the final waste load allocations."[276] Therefore, it is consistent with the requirements and assumptions of the waste load allocation to apply the Los Angeles River Metals TMDL Numeric Targets as concentration-based numeric action levels (permit conditions).

The numeric action level iterative process in this General Permit requires dischargers to implement and evaluate performance of site-specific BMPs to demonstrate compliance with applicable waste load allocations. The units are converted from ug/L to mg/L to be consistent with the reporting units in SMARTS. The translated numeric action levels are shown in Table 62 below and a WER of 3.97 is used for copper.

275 Los Angeles River Metals TMDL, p. 13.
276 Los Angeles River Metals TMDL, p. 23.

Table 62 – Los Angeles River Waste Load Allocations Translation for Total Recoverable Metals

Pollutant	Waste Load Allocation (g/d/ac)	Numeric Target (ug/L)	Numeric Action Level (mg/L)
Cadmium*	WER x (7.6×10^{-12}) x daily volume (L) – (4.8×10^{-6})	WER x 3.1	0.0031
Copper**	WER x (4.2×10^{-11}) x daily volume (L) – (2.6×10^{-5})	WER x 17	0.06749
Lead*	WER x (4.2×10^{-11}) x daily volume (L) – (8.7×10^{-5})	WER x 94	0.094
Zinc*	WER x (3.9×10^{-10}) x daily volume (L) – (2.2×10^{-4})	WER x 159	0.159

* WER(s) have a default value of 1.0 unless site-specific WER(s) are approved.
**The WER for this constituent is 3.97.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that discharge into the Los Angeles River or its tributaries, and that identify on-site sources of cadmium, copper, lead, and/or zinc through the required pollutant source assessment, shall compare all non-visible sampling and analytical results to the applicable numeric action levels for the identified metals.

  Responsible Dischargers shall install, operate, and maintain site-specific BMPs to address identified on-site sources of cadmium, copper, lead, and/or zinc.

  If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to the sources of metals are expected to meet the numeric action levels.

  The final compliance deadline for the Los Angeles River Metals TMDL was January 11, 2016. Since this compliance deadline has passed, the numeric action levels are applicable upon the effective date of this General Permit.

ix. Los Cerritos Channel Metals TMDL[277]

The U.S. EPA adopted the Los Cerritos Metals TMDL on March 17, 2010, to address the impairment of Los Cerritos Channel due to copper, lead, and zinc.

- Source Analysis

  Sources of metals from construction sites include sediment-bound metals, construction materials, and equipment used on construction sites. Additionally, in highly urbanized Los Cerritos Channel freshwater watershed, re-development of former industrial sites has a higher potential to discharge sediments laden with metals. During wet-weather, runoff from construction sites has the potential to contribute metals loadings to the Channel. Building materials and construction waste exposed to stormwater can leach and contribute metals to waterways.[278] Therefore, construction sites covered under this General Permit are considered Responsible Dischargers for the Los Cerritos Channel Metals TMDL.

- Waste Load Allocation Translation

  1) Dry-weather Waste Load Allocation

     The Los Cerritos Channel Metals TMDL assigns a concentration-based waste load allocation for dry-weather. Non-Stormwater Discharges (NSWDs) are authorized in this General Permit if Section IV.A terms and conditions are met to control the discharge of pollutants from the construction site. Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be either eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges do not commingle with stormwater associated with construction activity. The Regional Water Board may impose additional requirements on NSWDs if deemed necessary per site-specific analysis.

277 U.S. Environmental Protection Agency Region IX, Los Cerritos Channel Total Maximum Daily Loads for Metals (March 2010) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Los%20Cerritos%20Channel%20Metals%20TMDL/03-18-10LosCerritosChannel-metalsTMDLs.pdf> [as of April 28, 2022]

278 Los Cerritos Channel Metals TMDL, p. 20.

2) Wet-weather Waste Load Allocations

The Los Cerritos Channel Metals TMDL assigns a mass-based waste load allocation per construction area in grams per day per acre (g/day/ac) for copper, lead, and zinc for discharges into the Los Cerritos Channel. In addition, daily storm volume flows are required to calculate the waste load allocation for each metal. The mass-based waste load allocations are shown in Table 63 below.

Table 63 – Los Cerritos Mass-based Waste Load Allocations

Pollutant	Waste Load Allocation (g/day/ac)
Copper	0.497×10^{-3} x daily volume(L)
Lead	2.835×10^{-3} x daily volume(L)
Zinc	4.860×10^{-3} x daily volume(L)

Directly implementing the copper, lead, and zinc mass-based waste load allocations would result in a unique mass load for each Responsible Discharger, dependent on the daily stormwater flows and the construction site's acreage. Requiring Responsible Dischargers to calculate the site-specific mass loading of a pollutant(s) is impractical, costly, and not aligned with the monitoring requirements of this this General Permit. The Los Cerritos Channel TMDL Implementation Plan[279] requires incorporation of the waste load allocations in this General Permit as wet-weather permit limitations expressed as event mean concentrations.

The term permit limitation in the TMDL implementation plan is defined as "a water-quality based effluent limitation or a receiving water limitation…permittees may demonstrate compliance with wet-weather waste load allocations in any one of three ways. First, general industrial and construction storm water permittees may be deemed in compliance with permit limitations if they demonstrate that there are no exceedances of the permit limitations at their discharge points or outfalls. Second, general industrial and construction storm water permittees may be deemed in compliance with permit limitations if they demonstrate that there are no exceedances of the permit limitations in the receiving water at, or downstream of, the

279 Los Angeles Regional Water Quality Control Board, Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Implementation Plan for the Total Maximum Daily Loads for Metals in the Los Cerritos Channel <https://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/99_New/Los%20Cerritos%20Metals%20implementation%20plan%20and%20schedule%20BPA_rev%20053013.pdf> [as of April 28, 2022] (Los Cerritos Channel Metals TMDL Implementation Plan)

permittee's outfalls. Third, if permittees provide a quantitative demonstration that control measures and best management practices (BMPs) will achieve wet-weather waste load allocations consistent with the schedule in Table 7-20.2, then compliance may be demonstrated by implementation of those control measures and BMPs, subject to Executive Officer approval."[280] The assigned mass-based waste load allocations require site-specific calculations that are incompatible with the monitoring and reporting requirements in this General Permit. Therefore, it is consistent with the requirements and assumptions of the waste load allocations to implement the Los Cerritos Channel Metals TMDL Numeric Targets as concentration-based numeric action levels to align the mass-based waste load allocations to the requirements in this General Permit. The TMDL implementation plan provided Responsible Dischargers the above-stated three options for demonstrating waste load allocation compliance. The option implemented in this General Order is to implement the TMDL-specific numeric action levels at the point of discharge for the Responsible Discharger's construction site. The assigned concentration based numeric action levels are shown in Table 64 below. The units are converted from ug/L to mg/L to be consistent with the reporting units in SMARTS.

Table 64 – Los Cerritos Channel Waste Load Allocations (Concentration-based, Total Recoverable)

Pollutant	Numeric Targets (ug/L)	Numeric Action Levels (mg/L)
Copper	9.8	0.0098
Lead	55.8	0.0558
Zinc	95.6	0.0956

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that discharge into the Los Cerritos Channel and that identify on-site sources of copper, lead, and zinc through the required pollutant source assessment, shall compare all non-visible sampling and analytical results to the applicable numeric action levels for the identified metals.

  If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and

280 Los Cerritos Channel Metals TMDL Implementation Plan, p. 4-5.

implement BMPs specific to preventing or controlling stormwater exposure to the metals' sources are expected to meet the assigned numeric action levels.

The TMDL's final compliance deadline was September 30, 2017. Since this compliance deadline has passed, the numeric action levels are applicable upon the effective date of this General Permit.

x. Machado Lake Toxics TMDL[281]

The Los Angeles Regional Water Quality Control Board adopted the Machado Lake Toxics TMDL on September 2, 2010, to address the impairment of Machado Lake due to chemical group organochlorine (OC) pesticides (chlordane, DDT, dieldrin) and polychlorinated biphenyls (PCBs).

- Source Analysis

  The point sources of OC pesticides and PCBs into Machado Lake are stormwater and urban runoff discharges from the municipal separate storm sewer system (MS4), the California Department of Transportation, and general construction and industrial dischargers. Therefore, construction sites covered under this General Permit are considered Responsible Dischargers for the Machado Lake Toxics TMDL.

  OC pesticides are no longer legally sold or used, but remain ubiquitous in the environment, bound to fine-grained particles. The chemicals are transported to new locations when these particles become waterborne. The more recent small discharges of OC pesticides and PCBs to Machado Lake most likely come from the erosion of pollutant-laden sediment further up in the watershed. Urban runoff and rainfall higher in the watershed mobilize the particles, which are then washed into storm drains and channels that discharge to the lake. Stormwater and urban runoff discharges to Machado Lake occur through the Wilmington Drain, Project 77, and Project 510 subdrainage systems. The estimated contributions of OC pesticides and PCBs from point sources is much smaller than the estimated contribution from internal lake sediments. However, a waste load allocation is assigned to ongoing point source discharges to the lake.

- Waste Load Allocation Translation

  The Machado Lake Toxics TMDL assigns a suspended sediment concentration-based waste load allocations for OC pesticides and PCBs

281 Los Angeles Regional Water Quality Control Board, Machado Lake Pesticides and PCBs TMDL (September 2, 2010), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R10-008_RB_BPA.pdf> [as of May 20, 2021] (Machado Lake Toxics TMDL)

to be met at the construction site's discharge location(s) for discharges into Machado Lake, shown in Table 65 below.

Table 65 – Machado Lake Toxics Waste Load Allocations

Pollutant	Waste Load Allocation of Suspended Sediment-Associated Contaminants (ug/kg dry weight)
Chlordane	3.24
DDD (all congeners)	4.88
DDE (all congeners)	3.16
DDT (all congeners)	4.16
Dieldrin	1.9
Total DDTs	5.28
Total PCBs	59.8

Requiring Responsible Dischargers to directly implement the waste load allocation and sample for the pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most toxic pollutants loadings in this watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the toxic pollutants associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the toxic pollutants. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

  The Machado Lake Toxics TMDL's final compliance deadline was September 30, 2019. Since this compliance deadline has passed, compliance with the waste load allocations shall be met upon the effective date of this General Permit.

xi. Marina del Rey Toxics TMDL[282]

The Los Angeles Regional Water Quality Control Board adopted the Marina del Rey Toxics TMDL on February 6, 2014, to address the impairment of Marina del Rey Harbor due to chlordane, copper, DDT, dieldrin, fish consumption advisory, lead, polychlorinated biphenyls (PCBs), sediment toxicity, and zinc. During the development of this TMDL, review of available data indicated that dieldrin is no longer a cause of impairment, and that there is a dissolved copper impairment in the water column and sediment.

- Source Analysis

  Urban stormwater has been recognized as a substantial source of metals. Numerous researchers have documented that the most prevalent metals in urban stormwater (i.e., copper, lead, and zinc) are consistently associated with suspended solids. Because metals are typically associated with fine particles in stormwater runoff, they have the potential to accumulate in marine sediments where they may pose a toxicity risk. A majority of organic constituents in stormwater are also associated with particulates. Once the particles accumulate in the sediments in the harbor, the sediments themselves can become a source through re-suspension and are thus assigned load allocations. Therefore, construction sites covered under this General Permit are considered Responsible Dischargers for the Marina del Rey Toxics TMDL.

  In addition to stormwater runoff, copper-based anti-fouling paints are recognized as substantial sources of dissolved copper in the water column and sediments. Site-specific modeling indicated that 100 percent of copper loading came from copper-based anti-fouling hull paint and hull cleaning activities. Direct deposition of airborne particles to the water surface may be a minor source responsible for contributing metals and organic pollutants to the Marina del Rey Harbor.[283]

- Waste Load Allocation Translation

  The Marina del Rey Toxics TMDL assigns a mass-based waste load allocation per construction area in grams per day per acre (g/day/ac) or milligrams per day per acre (mg/day/ac) for chlordane, copper, total DDTs, Dichlorodiphenyldichloroethylene (p,p'-DDE), lead, total PCBs,

282 Los Angeles Regional Water Quality Control Board, Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the Marina del Rey Harbor Toxic Pollutants TMDL (February 6, 2014), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R14-004_RB_BPA.pdf> [as of May 20, 2021] (Marina del Rey Harbor Toxics TMDL)

283 Marina del Rey Harbor Toxics TMDL, p. 3-4.

and zinc for discharges into the Marina del Rey Harbor. The mass-based waste load allocations are shown in Table 66 and Table 67 below.

Table 66 – Marina del Rey Toxics Metals Waste Load Allocations

Pollutant	Waste Load Allocation (g/yr/ac)
Copper	1.9
Lead	2.6
Zinc	8.5

Table 67 – Marina del Rey Toxics OC Pesticides Waste Load Allocations

Pollutant	Waste Load Allocation (mg/yr/ac)
Chlordane	0.03
Total PCBs	1.3
Total DDTs	0.09
p,p'-DDE	0.12

Requiring Responsible Dischargers to directly implement the waste load allocation and sample for the pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most toxic pollutants loadings in this watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

100 percent of the copper loadings into the Marina del Rey Harbor comes from the leaching of antifouling hull paint and from hull cleaning operations. Therefore, the copper numeric target will not be assigned to Responsible Dischargers and compliance with this waste load allocation shall be through compliance with this General Permit.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the metals and toxic pollutants associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the metals and toxic pollutants. Furthermore, Responsible Dischargers are

to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

The Marina del Rey Toxics TMDL's final compliance deadline was March 22, 2016. Since this compliance deadline has passed, the waste load allocations shall be met upon the effective date of this General Permit.

xii. Oxnard Drain No. 3 Toxics TMDL[284]

The U.S. EPA adopted the Oxnard Drain No. 3 Toxics TMDL on October 6, 2011, to address the impairment of the Oxnard Drain No. 3 due to bifenthrin, chlorpyrifos, organochlorine (OC) pesticides (chlordane, DDT, dieldrin, and toxaphene), polychlorinated biphenyls, and sediment toxicity.

- Source Analysis

  The Oxnard Drain No. 3 Toxics TMDL identifies historic and current loadings of toxic pollutants, including construction sites that would be covered under this General Permit. During wet weather, discharges from construction sites have the potential to contribute toxic pollutant loadings. However, dry weather discharges have less potential to contribute to toxic pollutant loadings as non-stormwater discharges authorized by this General Permit are only authorized when they do not cause or contribute to a violation of any water quality standard. Therefore, construction sites covered under this General Permit are considered Responsible Dischargers for the Oxnard Drain No. 3 Toxics TMDL.

- Waste Load Allocation Translation

  The Oxnard Drain No. 3 Toxics TMDL assigns a concentration-based waste load allocation to construction stormwater discharges for 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, bifenthrin, chlorpyrifos, dieldrin, total chlordane, total PCBs, and toxaphene expressed as water, bed sediment and suspended sediment concentrations in ug/kg to be met at the construction site's discharge location(s) for discharges into the Oxnard Drain No. 3. OC pesticides and PCBs have an affinity for organic matter and will partition from water to organic substances such as sediment, benthic organisms, and fish, so the sediment allocations are applied, shown in Table 68 below.

284 United States EPA Region IX, Total Maximum Daily Loads for Pesticides, PCBs, and Sediment Toxicity in Oxnard Drain No.3 (October 6, 2011), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/Oxnard%20Drain%20No.%203%20Pesticides%20PCBs%20and%20Sediment%20Toxicity%20TMDL/oxnard-drain-3-tmdl-10-2011.pdf> [as of April 28, 2022] (Oxnard Drain No. 3 Toxics TMDL)

Table 68 – Oxnard Drain No. 3 Waste Load Allocations

Pollutant	Waste Load Allocation of Suspended Sediment-Associated Contaminants (ug/kg dry weight)
4,4'-DDD	2.0
4,4'-DDE	2.2
4,4'-DDT	0.3
Bifenthrin	-
Chlordane, Total	3.3
Chlorpyrifos	-
Dieldrin	4.3
PCBs, Total	180
Sediment Toxicity	-
Toxaphene	360

Requiring Responsible Dischargers to directly implement the waste load allocation and sample for the pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most toxic pollutants loadings in this watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the toxic pollutants associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the toxic pollutants. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

  The Los Angeles Regional Water Quality Control Board has not adopted an Implementation Plan or a compliance schedule for the toxic pollutants addressed by the Oxnard Drain No. 3 Toxics TMDL. Therefore, Responsible Dischargers are required to achieve compliance with the waste load allocations upon the effective date of this General Permit.

xiii. San Gabriel River Metals and Selenium TMDL[285]

The U.S. EPA adopted the San Gabriel River Metals TMDL on March 26, 2007, to address the impairment of San Gabriel River, estuary, and tributaries due to copper, lead, selenium, and zinc. A TMDL was not developed for the elevated levels of selenium in Reach 6 during dry weather conditions because the sources of selenium appear to be related to natural levels of selenium in the soils.

- Source Analysis

  Sources of metals from construction sites include sediment-bound metals, construction materials, and equipment used on construction sites. Building materials and construction waste exposed to stormwater can leach and contribute metals to waterways. During dry weather, the potential contribution of metals loading from Responsible Dischargers is low.[286]

- Waste Load Allocation Translation

  1) Dry-weather Waste Load Allocation

     The San Gabriel River Metals TMDL assigns concentration-based and mass-based waste load allocations for dry-weather discharges of copper and selenium. Non-Stormwater Discharges (NSWDs) are authorized in this General Permit if Section IV.A terms and conditions are met to control the discharge of pollutants from the construction site. Section IV.B prohibits all NSWDs not authorized under Section IV.A; therefore, all unauthorized NSWDs must be either eliminated or have regulatory coverage under a separate NPDES permit. Authorized NSWDs, as defined in this General Permit, are authorized because these discharges do not commingle with stormwater associated with construction activity. The Regional Water Board may impose additional requirements on NSWDs if deemed necessary per site-specific analysis.

  2) Wet-weather Waste Load Allocations

     The San Gabriel River Metals TMDL assigns a mass-based waste load allocation per construction area in kilograms per day (kg/d) for lead for discharges into the San Gabriel River Reach 2 watershed (all

285 U.S. Environmental Protection Agency Region IX, Total Maximum Daily Loads for Metals and Selenium San Gabriel River and Impaired Tributaries (March 26, 2007) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/San%20Gabriel%20River%20Metals%20TMDL/final_sangabriel_metalstmdl_3-27-07.pdf> [as of May 20, 2021] (San Gabriel River Metals TMDL)

286 San Gabriel River Metals TMDL, p. 22.

upstream reaches and tributaries) and Coyote Creek or its tributaries. The waste load allocations are shown in Table 69 and Table 70 below.

Table 69 – San Gabriel River Reach 2 Watershed Waste Load Allocation

Pollutant	Waste Load Allocation (kg/d)
Lead	0.8

Table 70 – Coyote Creek Watershed Waste Load Allocations

Pollutant	Waste Load Allocation (kg/d)
Copper	0.513
Lead	2.07
Zinc	3.0

The San Gabriel River Metals TMDL Implementation Plan[287] requires incorporation of the waste load allocations in this General Permit as permit limitations expressed as event mean concentrations. The term permit limitation is defined in the TMDL compliance plan as "a water-quality based effluent limitation or a receiving water limitation…permittees may demonstrate compliance with wet-weather waste load allocations in any one of three ways. First, general industrial and construction storm water permittees may be deemed in compliance with permit limitations if they demonstrate that there are no exceedances of the permit limitations at their discharge points or outfalls. Second, general industrial and construction storm water permittees may be deemed in compliance with permit limitations if they demonstrate that there are no exceedances of the permit limitations in the receiving water at, or downstream of, the permittee's outfalls. Third, if permittees provide a quantitative demonstration that control measures and best management practices (BMPs) will achieve wet-weather waste load allocations consistent with the schedule in Table 7-20.2, then compliance may be demonstrated by implementation of those control measures and BMPs, subject to Executive Officer approval."[288]

287 Los Angeles Regional Water Quality Control Board, Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Implementation Plan for the Total Maximum Daily Loads for Metals and Selenium in the San Gabriel River and Impaired Tributaries (June 6, 2013) <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/docs/R13-004_RB_BPA.pdf> [as of May 20, 2021] (San Gabriel River Metals TMDL Implementation Plan)

288 San Gabriel River Metals TMDL Implementation Plan, p. 4-5.

The assigned mass-based waste load allocations require site-specific calculations that are incompatible with the monitoring and reporting requirements in this General Permit. Therefore, it is consistent with the requirements and assumptions of the waste load allocations to implement the San Gabriel River Metals and Selenium TMDL Numeric Targets as concentration-based numeric action levels to align the mass-based waste load allocations to the requirements in this General Permit. The TMDL implementation plan provided Responsible Dischargers the three above-stated options for demonstrating waste load allocation compliance and the appropriate option is to implement the TMDL-specific numeric action levels at the point of discharge for the Responsible Discharger's construction site. The assigned concentration-based numeric action levels are shown in Table 71 and Table 72 below. The units are converted from ug/L to mg/L to be consistent with the reporting units in SMARTS.

Table 71 – San Gabriel River Reach 2 Watershed Waste Load Allocation Translation (concentration-based, total recoverable)

Pollutant	Numeric Targets (ug/L)	Numeric Action Levels (mg/L)
Lead	166	0.166

Table 72 – Coyote Creek Watershed Waste Load Allocations (concentration-based, total recoverable)

Pollutant	Numeric Targets (ug/L)	Numeric Action Levels (mg/L)
Copper	27	0.027
Lead	106	0.106
Zinc	158	0.158

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that discharge into the San Gabriel River and that identify on-site sources of copper, lead, and zinc through the required pollutant source assessment, shall compare all non-visible sampling and analytical results to the applicable numeric action levels for the identified metals.

  If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to the metals sources are expected to meet the numeric action levels.

The San Gabriel River Metals TMDL's final compliance deadline was September 30, 2017. Since this compliance deadline has passed, the numeric action levels are applicable upon the effective date of this General Permit.

xiv. Santa Monica Bay Toxics TMDL[289]

The U.S. EPA adopted the Santa Monica Bay Toxics TMDL on March 26, 2012, to address the impairment for Santa Monica Bay due to DDTs and polychlorinated biphenyls (PCBs). Santa Monica Bay, as defined in this TMDL, is Point Dume to Point Vicente and the Palos Verdes shelf from Point Vicente to Point Fermin.

- Source Analysis

  DDTs are organochlorine insecticides widely used in the past on agricultural crops and to control disease-carrying insects. The United States banned the use of DDTs in 1972, except for public health emergencies involving insect diseases and control of body lice. Although use of DDTs is limited, it can persist in the environment, adhering strongly to soil particles. PCBs are mixtures of up to 209 individual chlorinated compounds (known as congeners). In 1976, the manufacturing of PCBs was prohibited because of evidence that they build up in the environment and can cause harmful health effects. Similar to DDTs, PCBs adhere to soil and can be transported into watersheds via erosion and stormwater runoff. Studies within the watershed indicated that concentrations of DDTs and PCBs in stormwater may exceed human health criteria. Therefore, construction sites covered under this General Permit are considered Responsible Dischargers for the Santa Monica Bay Toxics TMDL.

- Waste Load Allocation Translation

  The Santa Monica Bay Toxics TDML assigns mass-based waste load allocations of 0.16 g/yr for DDT and 0.82 g/yr for PCBs to be met at the construction site's discharge location(s) for discharges into Santa Monica Bay. The waste load allocations are based on the aggregate area represented by individual permittees covered under this General Permit, which is roughly 0.56 percent of the watershed's total area. Table 73 shows the waste load allocation below.

289 U.S. Environmental Protection Agency Region IX, Santa Monica Bay Total Maximum Daily Loads for DDTs and PCBs (March 26, 2012), <https://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/SantaMonica/FinalSantaMonicaBayDDTPCBsTMDL.pdf> [as of May 20, 2021] (Santa Monica Bay Toxics TMDL)

Table 73 – Santa Monica Bay Toxics Waste Load Allocations

Pollutant	Waste Load Allocation (g/yr)
DDTs	0.16
PCBs	0.82

Permittees covered under this General Permit are not expected to perform individual sampling. Requiring Responsible Dischargers to directly implement the waste load allocation and sample for the pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most toxic pollutants loadings in this watershed are in particulate form and associated with wet-weather flows. Therefore, the following will address this TMDL:

1) Comply with the site-specific erosion and sediment control, and post-construction requirements in this General Permit.

2) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

- Compliance Actions and Schedule

Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of the toxic pollutants associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the toxic pollutants. Furthermore, Responsible Dischargers are to comply with the RUSLE 2 modeling requirements in Attachment H, Section I.G.2.

The Los Angeles Regional Water Quality Control Board has not adopted an Implementation Plan or a compliance schedule for the toxic pollutants addressed by the Santa Monica Bay Toxics TMDL. Therefore, Responsible Dischargers are required to achieve compliance with the waste load allocations upon the effective date of this General Permit.

xv. San Diego Creek and Newport Bay Toxics TMDL[290,291]

The U.S. EPA adopted the San Diego Creek and Newport Bay Toxics TMDL on June 14, 2002, to address the impairments of San Diego Creek and Newport Bay due to cadmium, chlordane, chlorpyrifos, chromium, copper, DDT, diazinon, dieldrin, lead, mercury, polychlorinated biphenyls (PCBs), selenium, toxaphene, and zinc. However, the Santa Ana Regional Water Quality Control Board adopted a separate Revised Organochlorine Compounds (chlordane, DDT, dieldrin, PCBs, and toxaphene) TMDL on July 15, 2011, which revises the loading capacities in the U.S. EPA TMDL based on an updated impairment assessment. For the purpose of this General Permit and factsheet, both TMDLs will be addressed as a single San Diego Creek and Newport Bay Toxics TMDL.

- Source Analysis

  The San Diego Creek and Newport Bay Toxics TMDL provides source analyses specific to the pollutant categories: metals, organochlorine compounds, chromium, and mercury. These pollutants are known to adsorb or adhere to sediment which are transported through the watershed via soil erosion and runoff. Surface runoff from natural background and man-made contributions are estimated to be the largest source of metals within San Diego Creek and its tributaries. The largest source of dissolved metals (except copper) to Upper and Lower Newport Bay are thought to be freshwater-borne loads from San Diego Creek. Likewise, the main source of continual loadings of organochlorine pollutants to the Newport Bay watershed is also attributed to erosion of surface soils or in-stream sediments, primarily from San Diego Creek. Construction activities have the potential to exacerbate erosion within the watershed, therefore construction sites covered under this General Permit are considered Responsible Dischargers.

290 United States EPA, Total Maximum Daily Loads for Toxic Pollutants San Diego Creek and Newport Bay, California (June 14, 2002), <https://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/docs/sd_crk_nb_toxics_tmdl/summary0602.pdf> [as of May 20, 2021] (San Diego Creek and Newport Bay Toxics TMDL)

291 Santa Ana Regional Water Quality Control Board, Revised Organochlorine Compounds TMDLs for San Diego Creek, Upper and Lower Newport Bay (July 15, 2015), <https://www.waterboards.ca.gov/rwqcb8/water_issues/programs/tmdl/docs/oc/2011-0037/FINAL/R8-2011-0037_Attachment2_Final_BPA.PDF> [as of May 20, 2021] (San Diego Creek and Newport Bay Toxics TMDL)

Chlorpyrifos, chromium, diazinon, dieldrin, mercury, and selenium are not translated for this General Permit as construction stormwater discharges are not identified as sources of these pollutants.

- Waste Load Allocation Translation

  The San Diego Creek and Newport Bay Toxics TMDL assigns waste load allocations for various metals (cadmium, copper, lead, and zinc) and organochlorine compounds (chlordane, DDT, PCBs, and toxaphene) to Responsible Dischargers to be met at the site's discharge location(s) for dischargers into Newport Bay or San Diego Creek and its tributaries. The following list details the water bodies and their associated pollutants with assigned waste load allocations:

  1) San Diego Creek: cadmium, copper, lead, zinc, DDT, and toxaphene

     The San Diego Creek and Newport Bay Toxics TMDL assigns concentration-based waste load allocations for cadmium, copper, lead, and zinc to the category "Other NPDES permittees" which includes Responsible Dischargers in addition to seven other NPDES permits. The TMDL does not specifically identify construction stormwater dischargers as a major source of metals to the impaired waterbodies or divide the waste load allocations between permitted dischargers. Furthermore, the TMDL includes an option for the Water Boards to conduct a permit-specific analysis to divide the waste load allocations; however, conducting the analysis on a discharge flow, volume, and timing basis is not aligned with the framework of this General Permit.

     The waste load allocations are assigned to Responsible Dischargers to be met at the construction site's discharge location(s) for discharges into San Diego Creek and its tributaries including the Santa Ana-Delhi Channel, Big Canyon Channel, East Costa Mesa Channel, and other tributaries into San Diego Creek (San Diego Creek Watershed). Therefore, these waste load allocations are translated as concentration-based numeric action levels applied at the point(s) of discharge from the Responsible Discharger's construction site. The waste load allocations are hardness dependent, meaning the receiving water body hardness must be known to calculate the waste load allocations.

     Receiving water body hardness is dependent on receiving water body flow. The U.S. EPA calculated the hardness-dependent criteria for cadmium, copper, lead, and zinc as shown in Table 5-2 of the San Diego Toxics TMDL with the following CTR equation:

CMC = WER X (Acute Conversion Factor) X
(exp{mA[ln (hardness)]+bA})

Where CMC stands for criterion maximum concentration, WER is the water effect ratio, and mA and bA are constants, specific to each metal. Hardness is defined as the concentration of calcium carbonate (CaCO3) in the water column and has the units of milligram per liter (mg/L). Freshwater aquatic life criteria for certain metals are expressed as a function of hardness because hardness and/or water quality characteristics that are usually correlated with hardness can reduce or increase the toxicity of some metals. The site-specific hardness is used to calculate the metal numeric targets.

Only one hardness value is selected to be representative of the receiving water body instead of requiring Responsible Dischargers to sample for receiving water body hardness in concurrence with taking a discharge sample to calculate the metal criteria. This is consistent with the approach taken in many hardness-dependent TMDLs of assigning a hardness value based on existing data. The U.S. EPA and the Santa Ana Regional Water Quality Control Board staff evaluated daily flow records of the San Diego Creek for 19 years. The TMDL developed multiple receiving water hardness values based on flow and did not assign one hardness value to be representative of the San Diego Creek water body. A hardness of 197mg/L was calculated as the average hardness for large flows and is selected as the typical hardness value associated with a precipitation event flow at San Diego Creek. Table 5-2 of the San Diego Toxics TMDL shows how the California Toxics Rule (CTR) equation was used to calculate the acute concentration criteria at a hardness of 197 mg/L.

Table 74 – San Diego Creek Watershed Waste Load Allocation Translation

Parameter	CTR Equation	Total Criteria with 197 hardness in mg/L	Total freshwater acute concentration Numeric Action Level mg/L*
Cadmium	(exp(1.128*ln(hardness)-3.6867))	0.0097	0.0097
Copper	(exp(0.9422*ln(hardness)-1.7))	0.027	0.027
Lead	(exp(1.273*ln(hardness)-1.460))	0.194	0.194
Zinc	(exp(0.8473*ln(hardness)+0.884))	0.21	0.21

*Values are rounded to reflect the significant figures of each respective pollutant

An average hardness of San Diego Creek was selected to calculate the criteria for translating each pollutant into a numeric action level in the San Diego Toxics TMDL because it is not feasible or practical to require Responsible Dischargers to collect the ambient hardness of the receiving water body in concurrence with each monitoring sample.

The Revised Organochlorine Compounds TMDL assigns mass-based waste load allocations for total DDT and toxaphene on an annual basis to Responsible Dischargers in the San Diego Creek watershed, shown in Table 76 below. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most organochlorine compound loadings in this watershed are in the form of fine sediment transported through erosion. The TMDL's implementation plan intends to use source control to reduce the loading of organochlorine compounds into the watershed, which is aligned with the requirements of this General Permit. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment controls, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

2) Upper Newport Bay: cadmium, copper, lead, zinc, chlordane, DDT, and PCBs

Mass-based waste load allocations for dissolved cadmium, copper, lead, and zinc are assigned to be met in the receiving water of Upper Newport Bay. Concentration-based waste load allocations for cadmium, copper, lead, and zinc in Upper Newport Bay are assigned to Other NPDES Dischargers, which includes construction stormwater dischargers. However, the TMDL does not specifically identify construction stormwater dischargers as a major source of metals to the impaired waterbodies or divide the waste load allocations between permitted dischargers. The TMDL includes an option for the Water Boards to conduct a permit-specific analysis to dive the waste load allocations; however, conducting the analysis on a discharge flow, volume, and timing basis is not aligned with the framework of this General Permit. Therefore, these waste load

allocations are translated as concentration-based numeric action levels applied to the point(s) of discharge from the Responsible Discharger's construction site. The concentration-based waste load allocations are translated into total concentrations using the CTR conversion factor for saltwater acute criteria. The numeric action levels are shown in Table 75 below.

The Revised Organochlorine Compounds TMDL assigns mass-based waste load allocations for chlordane, DDT, and PCBs on an annual basis to Responsible Dischargers in Upper Newport Bay, shown in Table 76 below. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most organochlorine compound loadings in this watershed are in the form of fine sediment transported through erosion. The TMDL's implementation plan intends to use source control to reduce the loading of organochlorine compounds into the watershed, which is aligned with the requirements of this General Permit. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment controls, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

3) Lower Newport Bay: copper, lead, zinc, chlordane, DDT, and PCBs

Mass-based waste load allocations for dissolved copper, lead, and zinc are assigned to be met in the receiving water of Lower Newport Bay. Concentration-based waste load allocations for copper, lead, and zinc in Lower Newport Bay are assigned to Other NPDES Dischargers, which includes construction stormwater dischargers. However, the TMDL does not specifically identify construction stormwater dischargers as a major source of metals to the impaired waterbodies or divide the waste load allocations between permitted dischargers. The TMDL includes an option for the Water Boards to conduct a permit-specific analysis to dive the waste load allocations; however, conducting the analysis on a discharge flow, volume, and timing basis is not aligned with the framework of this General Permit. Therefore, these waste load allocations are translated as concentration-based numeric action levels applied to the point(s) of

discharge from the Responsible Discharger's construction site. The concentration-based waste load allocations are translated into total concentrations using the CTR conversion factor for saltwater acute criteria. The numeric action levels are shown in Table 75 below.

The Revised Organochlorine Compounds TMDL assigns mass-based waste load allocations for chlordane, DDT, and PCBs on an annual basis to Responsible Dischargers in Lower Newport Bay, shown in Table 76 below. Requiring Responsible Dischargers to calculate the construction site's specific mass loading of a pollutant(s) would be impractical, costly, and not aligned with the requirements of this General Permit. However, as mentioned in the source analysis, most organochlorine compound loadings in this watershed are in the form of fine sediment transported through erosion. The TMDL's implementation plan intends to use source control to reduce the loading of organochlorine compounds into the watershed, which is aligned with the requirements of this General Permit. Therefore, the following will address this TMDL:

a) Comply with the site-specific erosion and sediment controls, and post-construction requirements in this General Permit.

b) For each phase of the construction project, install erosion controls that will result in predicted erosion rates that are as protective as pre-construction (e.g., undisturbed vegetation for the area) conditions. Calculate the predicted erosion rates by using RUSLE2 modeling as described in Attachment H.

4) Rhine Channel Area of Lower Newport Bay: copper, lead, and zinc

Mass-based waste load allocations for dissolved, copper, lead, and zinc are assigned to be met in the receiving water of the Rhine Channel. Concentration-based waste load allocations for copper, lead, and zinc in Lower Newport Bay are assigned to Other NPDES Dischargers, which includes construction stormwater dischargers. However, the TMDL does not specifically identify construction stormwater dischargers as a major source of metals to the impaired waterbodies or divide the waste load allocations between permitted dischargers. The TMDL includes an option for the Water Boards to conduct a permit-specific analysis to dive the waste load allocations; however, conducting the analysis on a discharge flow, volume, and timing basis is not aligned with the framework of this General Permit. Therefore, these waste load allocations are translated as concentration-based numeric action levels applied to the point(s) of discharge from the Responsible Discharger's construction site. The concentration-based waste load allocations are translated into total

concentrations using the CTR conversion factor for saltwater acute criteria. The numeric action levels are shown in Table 75 below.

Table 75 – Upper Newport Bay, Lower Newport Bay and Bay Segments, and Rhine Channel Metals Waste Load Allocation Translation

Parameter	Dissolved saltwater acute TMDLs and allocations (ug/L)	CTR Conversion Factor for saltwater acute criteria	Total saltwater acute concentration Numeric Action Level (mg/L)
Cadmium*	42	0.994	0.042**
Copper	4.8	0.83	0.00578**
Lead	210	0.951	0.221**
Zinc	90	0.946	0.095**

*Applies to Upper Newport Bay only
**Values are rounded to reflect the significant figures of each respective pollutant

Table 76 – San Diego Creek, Upper Newport Bay and Lower Newport Bay Organochlorine Compounds Waste Load Allocations

Parameter	Total DDT (g/yr)	Chlordane (g/yr)	Total PCBs (g/yr)	Toxaphene (g/yr)
San Diego Creek	99.8			1.5
Upper Newport Bay	40.3	23.4	23.2	
Lower Newport Bay	14.9	8.6	60.7	

- Compliance Actions and Schedule

  1) Metals

     Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that discharge into San Diego Creek, Upper Newport Bay, Lower Newport Bay, or the Rhine Channel and that identify on-site sources of cadmium, copper, lead, and zinc through the required pollutant source assessment, shall compare all non-visible sampling and analytical results to the applicable numeric action levels for the identified metals.

     If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric action levels in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to the metals' sources are expected to meet the numeric action levels.

     The Santa Ana Regional Water Quality Control Board has not adopted an Implementation Plan or a compliance schedule for the

metals addressed by the San Diego Creek and Newport Bay Toxics TMDL. Therefore, Responsible Dischargers are required to achieve compliance with the translated numeric action levels by the effective date of this General Permit.

2) Organochlorine Compounds

Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that identify on-site sources of organochlorine compounds associated with the impaired water body, through the required pollutant source assessment, are to implement BMPs specific to preventing or controlling stormwater exposure to the organochlorine compounds. Furthermore, Responsible Dischargers are to comply with the RUSLE2 modeling requirements in Attachment H, Section I.G.2.

The Revised Organochlorine Compounds TMDL's final compliance deadline for the TMDLs is December 31, 2020. Therefore, Responsible Dischargers shall comply with the requirements of this General Permit and the RUSLE2 modeling requirements in Attachment H, Section I.G.2, upon the effective date of this General Permit.

xvi. Chollas Creek Metals TMDL[292]

The San Diego Regional Water Quality Control Board adopted the Chollas Creek Metals TMDL on June 13, 2007, to address the impairment of Chollas Creek due to dissolved copper, lead, and zinc.

- Source Analysis

The major urban runoff contributors of copper, lead, and zinc into Chollas Creek include freeways, commercial, and industrial land uses.[293] Construction erosion is a potential source of metals in Chollas Creek.[294]

292 San Diego Regional Water Quality Control Board, A Resolution Adopting an Amendment to the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay, and to Revise the Toxic Pollutants Section of Chapter 3 to Reference the California Toxics Rule (June 2007) <https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/cholascreekmetals/update011509/R9-2007-0043_Signed.pdf> [as of May 20, 2021] (Chollas Creek Metals TMDL)

293 Chollas Creek Metals TMDL, p. 3.

294 San Diego Regional Water Quality Control Board, Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay (May 2007)

Sediment is assumed to not reside in Chollas Creek long enough to allow metal concentrations to build to high enough levels that the sediment becomes a source to the creek.[295] However, construction sites covered under this General Permit are identified as Responsible Dischargers for the Chollas Creek Metals TMDL.

- Waste Load Allocation Translation

  The Chollas Creek Metals TMDL assigns waste load allocations for dissolved copper, lead, and zinc to Responsible Dischargers to be met at the construction discharge location(s).

  The waste load allocations for dissolved copper, lead, and zinc are concentration-based and set equal to 90 percent of the numeric targets, which is the CTR acute criteria, shown in Table 77 below.

Table 77 – Chollas Creek Metals Waste Load Allocations

Pollutant	90 Percent of Dissolved Metal Concentration Numeric Targets (ug/L)
Dissolved Copper	(0.90) X (0.96) X exp(0.9422 X ln[hardness] – 1.700) X WER
Dissolved Lead	(0.90) X [1.46203 – 0.145712 X ln(hardness)] X exp(1.273 X ln[hardness] – 1.460) X WER
Dissolved Zinc	(0.90) X (0.978) X exp(0.8473 X ln[hardness] + 0.884) X WER

The CTR acute criteria for dissolved copper, lead, and zinc are calculated using water effect ratios (WER), which represents the correlation between the concentrations present in the water column and the concentrations that are biologically available and toxic to aquatic life. The San Diego Regional Water Board adopted Resolution R9-2017-0015 which established site-specific WERs for dissolved copper (6.998) and zinc (1.711) in Chollas Creek. In the absence of a site-specific WER, such as for lead, a default value of 1.0 is used.

The CTR acute criteria calculation also requires receiving water body hardness, which results in a floating target that would differ at each sample because the receiving water body hardness is dependent on receiving water body flow. Hardness is defined as the concentration of calcium carbonate (CaCO3) in the water column and has the units of milligram per liter (mg/L). Freshwater aquatic life criteria for certain metals are expressed as a function of hardness because hardness

<https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/cholascreekmetals/update011509/Technical_Report.pdf> [as of May 20, 2021] (Chollas Creek Metals TMDL Technical Report)

295 Chollas Creek Metals TMDL Technical Report, p. 49-50.

and/or water quality characteristics that are usually correlated with hardness can reduce or increase the toxicities of some metals.

Known site-specific hardness data is used to calculate the waste load allocation instead of requiring Responsible Dischargers to calculate their metal limit by sampling the receiving water body hardness in concurrence with taking a discharge sample. This is consistent with the approach taken in many hardness dependent TMDLs of assigning a hardness value based on existing data. Hardness data for Chollas Creek was obtained by Regional Board TMDL staff from California Integrated Water Quality System (CIWQS). Data analysis was conducted on hardness results from wet-weather sampling events from the Chollas Creek TMDL watershed with sample dates ranging from 1994 to 2017. All results obtained were marked as part of the Chollas Creek TMDL project, however not all stations had specific location information. Statistics run on the data set produced a hardness geometric mean of 94.07 mg/L. Table 78 below shows how the CTR equation was used to calculate the acute concentration criteria at a hardness of 94.07 mg/L.

Table 78 – Chollas Creek Dissolved Metals Waste Load Allocation Translation

Pollutant	CTR equation	Total Criteria (ug/L) using hardness of 94.07 mg/L	90 Percent of Total Criteria as the Waste Load Allocation (ug/L)	Translated Numeric Effluent Limitations (mg/L)*
Copper	6.998 X (exp(0.9422 X ln[hardness] - 1.7))	92.4823777	83.23413993	0.083
Lead	1 X (exp(1.273 X ln[hardness] - 1.460))	75.5324136	67.97917227	0.068
Zinc	1.711 X (exp(0.8473 X ln[hardness] + 0.884))	194.6576544	175.181889	0.175

*Values are rounded to reflect the significant figures of each respective pollutant

A geometric mean hardness of Chollas Creek was selected to calculate the criteria for translating each pollutant into a numeric effluent limitation in the Chollas Creek Metals TMDL because it is not feasible or practical to require Responsible Dischargers to collect the ambient hardness of the receiving water body in concurrence with each monitoring sample. Therefore, Responsible Dischargers are assigned numeric effluent limitations for dissolved copper, lead, and zinc for discharges to Chollas Creek to be met at the construction site's discharge location(s).

- Compliance Actions and Schedule

  Responsible Dischargers shall comply with the requirements of this General Permit. Responsible Dischargers that discharge into Chollas Creek and that identify on-site sources of copper, lead, and zinc through the required pollutant source assessment, shall compare all non-visible sampling and analytical results to the applicable numeric effluent limitations for the identified metals.

  If an exceedance or failure of a BMP is observed, the Responsible Discharger shall evaluate the BMPs being used and identify and implement a strategy in the site's SWPPP to prevent potential exceedances of the numeric effluent limitations in the future. Responsible Dischargers that perform the required pollutant source assessment and implement BMPs specific to preventing or controlling stormwater exposure to the metals' sources are expected to meet the numeric effluent limitations.

  The Chollas Creek Metals TMDL's final compliance deadline is October 22, 2028. As an interim target, Responsible Dischargers shall apply the translated numeric effluent limitation values as numeric action levels up until the compliance date of October 22, 2028. Future reissuances of this General Permit may incorporate additional or revised compliance requirements or interim targets to progress towards the required final compliance when a numeric effluent limitation applies.