



## 4.9 HYDROLOGY AND WATER QUALITY

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?			✓	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			✓	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			✓	
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			✓	
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			✓	
f. Otherwise substantially degrade water quality?			✓	
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				✓
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				✓
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			✓	
j. Inundation by seiche, tsunami, or mudflow?			✓	

**a) *Violate any water quality standards or waste discharge requirements?***

**Less Than Significant Impact.** As part of Section 402 of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) has established regulations under the National Pollutant Discharge Elimination System (NPDES) program to control direct storm water discharges. In California, the State Water Regional Control Board (SWRCB) administers the NPDES permitting program and is responsible for developing NPDES permitting requirements. The NPDES program regulates industrial pollutant discharges, which include construction activities. The SWRCB works in coordination with the Regional Water Quality Control Boards (RWQCB) to preserve, protect, enhance, and restore water quality. The City of Long Beach is within the jurisdiction of the Los Angeles RWQCB.



## Short-Term Construction

Dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP would list Best Management Practices (BMPs) the discharger would use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP would contain: a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP.

The project's construction activity would be subject to the State's General Construction Permit, as discussed above, because it involves clearing, grading, and disturbances to the ground such as stockpiling or excavation, and a construction site with soil disturbance greater than one acre. More specifically, as part of the project's compliance with NPDES requirements, the City would be required to prepare a Notice of Intent (NOI) for submittal to the Los Angeles RWQCB providing notification of intent to comply with the General Construction Permit. A copy of the SWPPP would be made available and implemented at the construction site at all times. The SWPPP is required to outline the erosion, sediment, and non-storm water BMPs, in order to minimize the discharge of pollutants at the construction site. These BMPs would include measures to contain runoff from vehicle washing at the construction site, prevent sediment from disturbed areas from entering the storm drain system using structural controls (i.e., sand bags at inlets), and cover and contain stockpiled materials to prevent sediment and pollutant transport. Implementation of the BMPs would ensure runoff and discharges during the project's construction phase would not violate any water quality standards. Compliance with NPDES requirements would reduce short-term construction-related impacts to water quality to a less than significant level.

## Long-Term Operations

### Los Angeles RWQCB Requirements for Long Beach

Since 1990, operators of municipal separate storm sewer systems are required to develop a storm water management program designed to prevent harmful pollutants from impacting water resources via storm water runoff. The City of Long Beach owns and/or operates a large municipal separate storm sewer system (MS4) that conveys and ultimately discharges into surface waters under the jurisdiction of the Los Angeles RWQCB. These discharges originate as surface runoff from the various land uses within the City's boundary. Untreated, these discharges contain pollutants with the potential to impair or contribute to the impairment of the beneficial uses in surface waters. Since 1999, the City's monitoring data and analyses in support of Total Maximum Daily Load (TMDL) development have identified pollutants of concern in discharges from the MS4. These pollutants of concern vary by receiving water. They generally include, but are not limited to, copper, lead, zinc, cadmium, PCBs, PAHs, pyrethroid pesticides, organophosphate pesticides fecal indicator bacteria, and trash. The project area's receiving waterbody is the Los Angeles River which contain the following pollutants of concern: chlordane, DDT, lead, PCBs, sediment toxicity, zinc, and trash.

On September 8, 2016, the Los Angeles RWQCB made effective Order No. R4-2014-0024-A01, which amended the municipal NPDES permit. As prescribed in Order No. R4-2014-0024-A01, *Water Discharge Requirements for*



*Municipal Separate Storm Sewer System Discharges From The City of Long Beach*, the City of Long Beach shall develop and implement procedures to ensure that a discharger fulfills the following for non-storm water discharges to MS4s:<sup>1</sup>

- Notifies the City of Long Beach of the planned discharge in advance, consistent with requirements in Table 7 of Order No. R4-2014-0024-A01 or recommendations pursuant to the applicable BMP manual;
- Obtains any local permits required by the City of Long Beach;
- Provides documentation to the City of Long Beach that it has obtained any other necessary permits of water quality certifications for the discharge;
- Conducts monitoring of the discharge, if required by the City of Long Beach;
- Implements BMPs and/or control measures as specified in Table 7 or in the applicable BMP manual(s) as a condition of the approval to discharge into the MS4; and
- Maintains records of its discharge to the MS4, consistent with requirements in Table 7 or recommendations pursuant to the applicable BMP manual.

In 2001, the City revised its Long Beach Storm Water Management Program (LBSWMP). The LBSWMP is a comprehensive program containing several elements, practices, and activities aimed at reducing or eliminating pollutants in storm water to the maximum extent possible. Furthermore, the City's NPDES and Standard Urban Storm Water Mitigation Plan (SUSMP) regulations contained in Chapter 18.61 of the *LBMC* state that:

- A. The Building Official shall prepare, maintain, and update, as deemed necessary and appropriate, the NPDES and SUSMP Regulations Manual and shall include technical information and implementation parameters, alternative compliance for technical infeasibility, as well as other rules, requirements and procedures as the City deems necessary, for implementing the provisions of this chapter.
- B. The Building Official shall develop, as deemed necessary and appropriate, in cooperation with other City departments and stakeholders, informational bulletins, training manuals and educational materials to assist in the implementation of this chapter.

Project implementation would construct the MUST facility, which would include pretreatment wetlands, treatment facility, and storage/polishing pond, and 11 segments of conveyance facilities. All conveyance facilities associated with the proposed project would be constructed as either subsurface pipelines or as open channels. The conveyance facilities would not have the capacity to result in substantial amounts of impervious surfaces, and as such, would not result in runoff that would violate water quality standards or waste discharge requirements.

The MUST facility would be constructed on land that is currently vacant and unpaved (pervious). Thus, implementation of the MUST facility would result in an increase in impervious surfaces as compared to existing conditions which could result in urban runoff affecting water quality in the project area. However, the Long Beach MUST Project would result in substantial beneficial impacts pertaining to water quality, since it would divert and treat urban runoff from tributary areas in the project area that would otherwise discharge into the LA River. The proposed MUST facility would provide a solution to meeting clean water mandates, as required under the NPDES Permits, as well as under the LA River Total Maximum Daily Load (TMDL) requirements, which are overseen by the Los Angeles RWQCB, SWRCB, and the U.S. Environmental Protection Agency (USEPA) under the Clean Water Act. All first

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<sup>1</sup> Los Angeles Regional Water Quality Control Board, *Order No. R4-2014-0024-A01, NPDES Permit No. CAS004003*, September 8, 2016.



flush and dry weather urban runoff directly from the MUST facility site would be contained on-site and directed through the project's treatment system, prior to discharge to the LA River.

Thus, with compliance with the requirements of the NPDES, SUSMP, Order No. R4-2014-0024-A01, and the LBSWMP, impacts related to water quality standards and waste discharge requirements during long-term operations would be less than significant. Implementation of the MUST would result in substantial benefits in water quality for the project area since it would result in the treatment of urban runoff prior to discharge to the LA River.

**Mitigation Measures:** No mitigation is required.

- b) ***Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?***

**Less Than Significant Impact.** The proposed project site exists within a developed, urbanized area. The proposed project would be constructed on vacant/open space land and within existing right-of-way. According to the *Seismic Safety Element* of the *General Plan*, the project site's depth to groundwater ranges from 60 feet to less than 10 feet. Construction activities include subgrade excavation for the MUST facility, which would extend to a maximum vertical depth of 30 feet below ground surface (bgs), and the conveyance facilities, which would extend to a maximum vertical depth of 15 feet bgs. Should dewatering be required, the project would be required to get a Dewatering Permit with the Los Angeles Regional Water Quality Control Board (Los Angeles RWQCB), which require treatment, as necessary prior to discharge to the storm drain system. These activities would not substantially deplete groundwater and impacts in this regard would be less than significant. Further, the conveyance facilities would be constructed as either underground pipelines or open channels and would not substantially increase impervious areas or have the capacity to affect groundwater supplies or recharge. The project occurs within a highly developed and urbanized portion of Long Beach, and no designated groundwater recharge basins or infrastructure occur in the project area. Although the impervious surface area at the MUST site would increase as compared to existing conditions, project implementation would not include any components that would directly affect groundwater. Therefore, the project would not have the capacity to interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or lowering of the groundwater table level. Impacts in this regard would be less than significant.

**Mitigation Measures:** No mitigation is required.

- c) ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?***

**Less Than Significant Impact.** Soil disturbance would temporarily occur during project construction due to earth-moving activities such as excavation and trenching for foundations and utilities, soil compaction and moving, and grading. Disturbed soils would be susceptible to high rates of erosion from wind and rain, resulting in sediment transport via storm water runoff from the project site.

The project would be subject to compliance with the requirements set forth in the NPDES Storm Water General Construction Permit for construction activities; refer to Response 4.9(a). Compliance with the NPDES, including preparation of a SWPPP would reduce the volume of sediment-laden runoff discharging from the site. The implementation of BMPs such as storm drain inlet protection and fiber rolls would reduce the potential for sediment and storm water runoff containing pollutants from entering receiving waters. Therefore, project implementation would not substantially alter the existing drainage pattern of the site during the construction process such that substantial erosion or siltation would occur. Impacts in this regard would be less than significant.



The long-term operation of the proposed MUST facility and associated conveyance facilities would not have the potential to result in substantial erosion or siltation on- or off-site. The proposed conveyance facilities would be constructed as either subsurface pipelines, or as vegetated open channels and would not have the capacity to result in substantial erosion.

In addition, the project would not substantially alter the existing topography or drainage patterns at the MUST facility site. As noted above in Response 4.9(a), above, first flush and dry weather urban runoff at the MUST facility would be conveyed through the project's treatment system. By capturing the first flush from the LA River, the conveyance systems and the MUST would reduce the amount of sediment reaching receiving waters. Runoff during storm events, from the project location, would be collected via an on-site drainage system and conveyed to the LA River, similar to existing conditions. Since the land use is being converted from a vacant lot to an impervious surface, the amount of sedimentation during a storm event would be reduced compared to current conditions. As such, the project would not have the capacity to substantially alter drainage patterns in the project area, such that substantial erosion or siltation would occur on- or off-site. Impacts in this regard would be less than significant.

**Mitigation Measures:** No mitigation is required.

- d) ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***

**Less Than Significant Impact.** Refer to Response 4.9(c), above. The proposed conveyance facilities would be constructed as either subsurface pipelines, or as vegetated open channels and would not have the capacity to substantially alter drainage patterns that could result impacts related to flooding.

As noted above, the impervious surface area at the MUST facility site would increase; however, the project is not expected to result in substantial changes to drainage patterns since stormwater would be collected via an on-site drainage system that would be sized to adequately convey storm flows, and conveyed to the LA River, similar to existing conditions. As such, impacts in this regard would be less than significant.

**Mitigation Measures:** No mitigation is required.

- e) ***Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?***

**Less Than Significant Impact.** Refer to Responses 4.9(a), 4.9(c), and 4.9(d) above. The conveyance facilities would include below ground pipelines or open channels that would convey urban runoff to the MUST facility; no associated stormwater drainage improvements would be required as part of the conveyance improvements and no additional sources of polluted runoff would occur. Implementation of the MUST facility would result in a nominal increase in impervious surfaces as compared to existing conditions. However, the project is expected to result in beneficial water quality impacts as the treatment facility would collect dry-weather and "first flush" storm flows and treat the water prior to entering the LA River. Runoff during storm events would be collected via an on-site drainage system and conveyed to the LA River, similar to existing conditions. Water quality concerns associated with construction activities would be addressed through the Construction General Permit. Impacts would be less than significant in this regard.

**Mitigation Measures:** No mitigation is required.

- f) ***Otherwise substantially degrade water quality?***

**Less Than Significant Impact.** The proposed project is not anticipated to result in water quality impacts other than the potential impacts identified above in Responses 4.9(a) and 4.9(c). Water quality concerns associated with



construction activities would be addressed through the Construction General Permit. Impacts in this regard would be less than significant.

**Mitigation Measures:** No mitigation is required.

**g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?***

**No Impact.** According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the project area, the majority of the project site is located within "Zone X," within an area protected by levees from the one percent annual chance flood, which is outside of the 100-year flood hazard area. However, conveyance segment 8 is located within "Zone AH," which is in the 100-year flood hazard area.<sup>2,3,4,5,6</sup> However, this segment would be constructed underground. Since the project area is outside of the 100-year flood hazard area (with the exception of segment 8) and no housing is proposed as part of the project, no impacts would result in this regard.

**Mitigation Measures:** No mitigation is required.

**h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows?***

**No Impact.** Refer to Response 4.9(g).

**Mitigation Measures:** No mitigation is required.

**i) *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?***

**Less Than Significant Impact.**

According to the *Public Safety Element* of the *General Plan*, the failure of structures that might cause flooding are dikes in the waterfront area of the City and flood-control dams which lie upstream from the City of Long Beach. Areas within 2 feet above mean sea level (msl) are considered most susceptible and areas over 2 feet up to 5 feet above msl are considered secondary flooding zones.

Three flood control dams lie upstream from the City: Sepulveda Basin, Hansen Basin, and Whittier Narrows Basin. The Sepulveda and Hansen Basins lie more than 30 miles upstream from where the LA River passes through the City. Due to the intervening low and flat ground and the distance involved, flood waters resulting from a dam failure at either of these reservoirs would be expected to dissipate before reaching the City of Long Beach. In the event of failure of the Whittier Narrows Dam while full, flooding could occur along both sides of the San Gabriel River where it passes through the City but would probably be most severe on the eastside of the river channel. Due to the infrequent periods of high precipitation and high river flow, the probability of flooding as a result of seismically induced failure of these structures is considered to be very low. Thus, impacts in this regard would be less than significant for the project area.

<sup>2</sup> Federal Emergency Management Agency, Flood Insurance Rate Map #06037C1815F, Panel 1815 of 2350, revised September 26, 2008.

<sup>3</sup> Federal Emergency Management Agency, Flood Insurance Rate Map #06037C1960F, Panel 1960 of 2350, revised September 26, 2008.

<sup>4</sup> Federal Emergency Management Agency, Flood Insurance Rate Map #06037C1955F, Panel 1955 of 2350, revised September 26, 2008.

<sup>5</sup> Federal Emergency Management Agency, Flood Insurance Rate Map #06037C1962F, Panel 1962 of 2350, revised September 26, 2008.

<sup>6</sup> Federal Emergency Management Agency, Flood Insurance Rate Map #06037C1964F, Panel 1964 of 2350, revised September 26, 2008.



**Mitigation Measures:** No mitigation is required.

j) ***Inundation by seiche, tsunami, or mudflow?***

**Less Than Significant Impact.** A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. A tsunami is a great sea wave, commonly referred to as a tidal wave, produced by a significant undersea disturbance such as tectonic displacement of a sea floor associated with large, shallow earthquakes. Mudflows result from the downslope movement of soil and/or rock under the influence of gravity.

The LA River is located immediately west of the project site and the Long Beach Harbor and Pacific Ocean are located to the south. Based on the State of California *Tsunami Inundation Map for Emergency Planning, Long Beach Quadrangle*, conveyance segment 11 is situated within a tsunami inundation area.<sup>7</sup> However, the conveyance facilities would be constructed underground or open channel, and would not involve any aboveground facilities that could result in hazards to human health or property. In addition, although the project site is located adjacent to the LA River, the risk of seiche is considered low due to the limited amount of water typically present in the river.

Due to the relatively flat and urbanized nature of the project area, inundation resulting from mudflows is not expected. A less than significant impact is anticipated in this regard.

**Mitigation Measures:** No mitigation is required.

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<sup>7</sup> California Geological Survey, *Tsunami Inundation Map for Emergency Planning, Long Beach Quadrangle*, Scale 1:24,000, March 1, 2009.



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