

## 3.3 FLOOD CONTROL AND HYDROLOGY

### 3.3.1 AFFECTED ENVIRONMENT

The sublease boundary is located approximately 0.25-miles north of the San Gabriel River. The San Gabriel River flows from the San Gabriel Mountains in the north through the San Gabriel Valley and the Los Angeles Coastal Plan before emptying into the Pacific Ocean through the Los Angeles/Long Beach Harbor. The major tributaries to the San Gabriel River include Walnut Creek, San Jose Creek, and Coyote Creek. The Rio Hondo, a manmade distributary of the San Gabriel River, branches from the river below Santa Fe Dam and flows westward to the Whittier Narrows area.<sup>1</sup> At Whittier Narrows, portions of the flow from the San Gabriel River are conveyed to the Rio Hondo by a manmade channel known as Lario Creek or Zone 1 Ditch (LACDPW 2005). Lario Creek conveys storm water flows, imported water, and recycled water between the San Gabriel River and the Rio Hondo. Whittier Narrows Dam, the largest flood control facility on the river, is operated by the USACE to regulate flows from the San Gabriel River to the Rio Hondo for flood control and conservation. Flood flows from the San Gabriel River are stored temporarily behind the dam in the Whittier Narrows area, and controlled releases are made to the Rio Hondo and/or the San Gabriel River (LADPW 2005).

The Whittier Narrows Dam Flood Control Project was completed and began operation in 1957 as the Whittier Narrows Dam Recreation Area (Recreation Area), a regional park featuring dry-land recreational activities and wildlife management areas. The USACE operates and maintains the flood control works at the Recreation Area. There is no permanent impoundment and operation of the reservoir is based on the control of the reservoir design flood to safely pass the spillway design flood. The USACE utilizes the project site and the entire Recreation Area as a major flood control reservoir behind the Whittier Narrows Dam. The dam protects a 554-square mile densely populated area comprised of residential, commercial, and industrial land. The San Gabriel River, the Rio Hondo Channel, and the flood-flow channel are within the reservoir (USACE 1996).

The 100-year flood elevation, set by the dam, is 227.3 feet above mean sea level. The majority of the sublease boundary, with the exception of the WNNC pad, restroom/storage facility, and the County Police substation, falls within the 100-year flood zone (USACE 1996). The 229-foot above mean sea level elevation represents the “taking line.” Construction planned within this elevation must compensate for any calculated loss of flood control storage. Areas on higher ground may have closed, flood-proof structures, such as the WNNC, which sits above the 229 foot elevation mark. Other features of the existing WNNC, including the parking lot and picnic area, are located within the taking line and have been designed to flood so as not to interfere with flood control operations.

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<sup>1</sup> A distributary, or a distributary channel, is a stream that branches off and flows away from a main stream channel.

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#### 3.3.2 REGULATORY FRAMEWORK

Per the USACE, land use projects located within the 100-year flood line to standard project flood elevation (229 feet “taking line”) are subject to infrequent flooding, sedimentation, and wave erosion. Flood-proof structures are permitted in these areas. Flood proofing is defined as a combination of structural changes and/or adjustments incorporated and/or construction and alteration of individual buildings, structures or properties subject to flooding primarily for the reduction or elimination of flood damages. All such structures must be approved by the USACE District Engineer. However, structures conducive to human habitation are prohibited within the taking line (USACE 1996).

#### 3.3.3 CRITERIA FOR SIGNIFICANCE OF EFFECTS

The proposed action would be considered to have a significant effect on flood control and hydrology if it would:

- Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in water table volume or a lowering of the groundwater level;
- Place within a 100-year floodplain structure which would impede or redirect flood flows; or
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including as a result of the failure of levees or a dam.

#### 3.3.4 PROJECT EFFECTS ON FLOOD CONTROL AND HYDROLOGY

##### 3.3.4.1 No ACTION ALTERNATIVE

Because no action would be taken, there would be no direct, indirect, or cumulative effects on flood control and hydrology. No changes to the sublease boundary would occur as part of the No Action Alternative. No substantial direct, indirect, or cumulative adverse effect to flood control and hydrology would occur.

##### 3.3.4.2 18,230 SF ALTERNATIVE

Potable water to the sublease boundary would be supplied by a new 3-inch water meter connected to existing water lines located in Durfee Avenue. No direct removal of well water would occur as part of the 18,230 sf Alternative. Some storm water collected within the sublease boundary would infiltrate into the ground; however, most of the wastewater and storm water would be treated and reused on-site for non-potable water purposes (e.g., landscape irrigation) and to keep portions of the constructed wetland/riparian area wet. The 18,230 sf Alternative would not substantially deplete groundwater supplies or interfere with groundwater recharge.

Portions of the interpretive center associated with the 18,230 sf Alternative would be constructed within the flood zone. As such, backfill from the constructed wetland/riparian area would be used to raise the elevation of the entire interpretive center pad above the taking line and the 100-year flood elevation. The 18,230 sf Alternative would result in approximately 6,000 cubic yards of earthwork movement. All grading activities would be balanced on-site per USACE requirements. However, some fill material would be imported to the sublease boundary if the existing soil types would not meet suitability standards to serve as structural fill. Those structures located within the 100-year flood zone, including the covered outdoor classroom, open air classroom, and maintenance building would be designed to flood in the event of a 100-year storm event or would be constructed on raised platforms above the level of the taking line. During operation, no large structures would be located within the boundaries of the flood zone because the interpretive center would be elevated above the level of the 100-year flood. As such, the 18,230 sf Alternative does not have the potential to redirect or impede the flow of floodwaters, or expose people or structures to significant risk of loss as a result of flooding. No substantial direct, indirect, or cumulative effects would occur.

### **3.3.4.3 14,000 SF ALTERNATIVE (PROPOSED ACTION)**

No direct removal of ground water is anticipated as part of this alternative. Most of the wastewater and storm water collected on-site would be reused for non-potable water purposes (e.g., landscape irrigation). Similar to the 18,230 sf Alternative, portions of the interpretive center associated with the 14,000 sf Alternative would be constructed within the flood zone. Backfill from the constructed wetland/riparian area would be used to raise the elevation of the entire interpretive center pad above the taking line. All grading activities would be balanced on-site per USACE requirements. During operation, no large structures would be located within the boundaries of the flood zone because the interpretive center would be elevated above the level of the 100-year flood. As such, the 14,000 sf Alternative does not have the potential to redirect or impede the flow of floodwaters, or expose people or structures to significant risk of loss as a result of flooding. No substantial direct, indirect, or cumulative effects would occur.

### **3.3.4.4 10,000 SF ALTERNATIVE**

No direct removal of well water is anticipated as part of this alternative. Most of the storm water would be reused on-site for non-potable water purposes (e.g., landscape irrigation). Portions of the interpretive center associated with the 10,000 sf Alternative would be constructed within the flood zone. Backfill from the constructed wetland/riparian area would be used to raise the elevation of the entire interpretive center pad above the taking line. All grading activities would be balanced on-site per USACE requirements. During operation, no large structures would be located within the boundaries of the flood zone because the interpretive center would be elevated above the level of the 100-year flood. As such, the 10,000 sf Alternative does not have the potential to redirect or impede the flow of floodwaters, or expose people or structures to significant risk of loss as a result of flooding. No substantial direct, indirect, or cumulative effects would occur.

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#### **3.3.4.5 2,800 SF ALTERNATIVE**

Although the demand for water would increase slightly over existing conditions, it would not deplete groundwater supplies. No direct removal of well water would occur. Site drainage patterns would remain unchanged from existing conditions and the amount of impervious surfaces on-site would be similar to existing conditions. The interpretive center constructed as part of the 2,800 sf Alternative would be located entirely within the LACDPR's 0.63-acre parcel, which is located above the taking line and would not be subject to flooding during a 100-year storm event. Further, no additional structures would be constructed within the portion of the project below the taking line. Thus, the 2,800 sf Alternative would not expose people or structures to a significant risk of flooding or impede flood flows. No substantial direct, indirect, or cumulative effects would occur.

#### **3.3.5 MITIGATION MEASURES**

No mitigation measures are required.

#### **3.3.6 SIGNIFICANCE SUMMARY**

##### **3.3.6.1 NO ACTION ALTERNATIVE**

Because no action would be taken, there would be no direct, indirect, or cumulative effects to flood control and hydrology.

##### **3.3.6.2 18,230 SF ALTERNATIVE**

See Section 3.3.6.4 below.

##### **3.3.6.3 14,000 ALTERNATIVE (PROPOSED ACTION)**

See Section 3.3.6.4 below.

##### **3.3.6.4 10,000 SF ALTERNATIVE**

The alternatives would not have a significant direct, indirect, or cumulative effect on flood control or hydrology. The proposed features would be designed to accommodate 100-year flood flows. Removal of groundwater would not occur nor would the amount of groundwater recharge be reduced.

##### **3.3.6.5 2,800 SF ALTERNATIVE**

The 2,800 sf Alternative would not have a significant direct, indirect, or cumulative effect on flood control or hydrology. No structures would be constructed within the 100-year flood zone as part of this

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alternative. Site drainage patterns would not be substantially altered and groundwater recharge would not be affected.

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