

4.3 HYDROLOGY AND WATER QUALITY

The following section analyzes and identifies drainage courses, flood hazards, and water quality issues associated with the project. Information in this section was compiled from documents: the Carbon Canyon Dam Sewer Pipeline Preliminary Design Report (prepared by RBF Consulting in Appendix E); the Water Quality Control Plan for the Santa Ana River Basin (8) (prepared by the California Regional Water Quality Control Board Santa Ana Region); the Drainage Area Management Plan (prepared by the State Water Resources Control Board); and the Canyon Crest Draft Environmental Impact Report (EIR No. 02-01) (prepared by RBF Consulting).

EXISTING CONDITIONS

The tributary off-site drainage area upstream of the proposed project site is roughly 7,000 acres. Immediately north of the proposed project site there is a 96.6-acre drainage area that is tributary to the project site. Telegraph Canyon Creek, the second major tributary in the watershed joins Carbon Canyon Creek within the Carbon Canyon Dam Reservoir. The primary purpose of Carbon Canyon Dam is to regulate flood flows downstream of Carbon Canyon Creek, thereby minimizing flood damage in the flood plain downstream of the dam. The ACOE maintains the dam, and is also responsible for 4,080 linear feet of Carbon Canyon Channel just south of the dam. South of this reach, Carbon Canyon Channel becomes an Orange County facility.

The Carbon Canyon Dam and Carbon Canyon Flood Control Reservoir (Carbon Canyon Reservoir) were constructed in 1961 by the ACOE to control flood runoff from Carbon Canyon and Telegraph Canyon Creeks. Telegraph Canyon Creek flows from the east to west to join Carbon Canyon Creek at the Dam Reservoir. The total watershed tributary to the Carbon Canyon Dam is 12,352 acres. The *Hydrology and Hydraulics Review of Design Features of Existing Dams for the Carbon Canyon, San Antonio and Tahchevah Dams*, August 1978, prepared by ACOE states that the Carbon Canyon reservoir design capacity is 9,300 cubic feet per second (cfs) peak inflow, based on the ACOE's Standard Project Flood Method. ACOE has collected data showing that the maximum measured peak inflow for a 100-year storm frequency is 4,600 cfs, with a spillaway design flood of 56,000 cfs inflow peak. A 100-year storm frequency hydrograph provided by Orange County indicates a peak flow of 8350 cfs for the Carbon Canyon Dam (roughly, 1,000 cfs less than the 9,300 cfs peak inflow design).

The Carbon Canyon Dam is used to regulate storm flows from Carbon Canyon Creek to the Carbon Canyon Channel downstream. Carbon Creek Channel and a series of retarding basins safely convey flows through urbanized areas. Just south of Orangethorpe Avenue in Anaheim, flows from the channel outlet to Miller Retarding Basin, southwest of the dam. Flows from Miller Retarding Basin convey into the Santa Ana River, which eventually drains into the Pacific Ocean immediately north of the City of Newport Beach. During times of higher flows storm water may go over the weir of the Miller Retarding Basin, in which case they are then routed to the San Gabriel River. The San Gabriel River drains into the Pacific Ocean south of the City of Long Beach Marina.

A portion of the project is located behind the Carbon Canyon Dam. The pipeline alignment is located within the 100-year flood plain. The contractor will be required to specifically address this issue in the Storm Water Pollution Prevention Plan (SWPPP).

IMPACTS

SIGNIFICANCE CRITERIA

Under the CEQA Guidelines a project may be considered to have a significant environmental effect if it would:

- Violate any water quality standards or waste discharge requirements.
- 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).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- 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.
- 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.
- Otherwise substantially degrade water quality.
- Place 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.
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- 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.
- Inundation by seiche, tsunami, or mudflow.

Impacts on long-term water quality are discussed below. As the proposed off-site pipeline alignment and underground pump station would be subsurface, there are no anticipated long-term impacts on hydrology and water quality.

IMPACT DISCUSSION

WOULD THE PROJECT:

- (a) *Violate any water quality standards or waste discharge requirements? **Less Than Significant Impact With Mitigation Incorporated.***

During the construction phase and following construction, prior to the establishment of ground cover, the potential for soil erosion, siltation, and sedimentation would be the greatest. The contractor would be required to comply with the requirements of the California Regional Water Quality Control Board (RWQCB). Under the RWQCB General Permit for Discharges of Storm Water Associated with Construction Activity ([Construction General Permit, 99-08-DWQ](#)), a project that involves the disturbance of more than one acre necessitates the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

The proposed Expanded Service Area Option would result in the same environmental impacts on hydrology and water quality. As the primary difference between the proposed project and this

option would result in an increase in pipe size from 27 to a minimum of 30 inches, any increase in direct impacts is anticipated to be nominal. Refer to the hydrology and water quality impact discussion above for the proposed project.

In addition, the potential impacts associated with the proposed development projects are being analyzed in a program EIR being prepared by the County of Los Angeles. The related Notice of Preparation is available for review at the County of Los Angeles.

- (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)?* **No Impact.**

The proposed project site is situated in an undeveloped area and would not have the potential to substantially deplete groundwater supplies or interfere with groundwater recharge. The project would not have the capacity to increase the amount of water consumed regionally through increased withdrawals from groundwater sources. Therefore, no impacts would occur.

- (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 that would result in substantial erosion or siltation on- or off-site?* **No Impact.**

The implementation of the proposed project does not have the capability to alter the existing drainage pattern of the area or any related stream or river because once completed the entire facility would be underground. The installation of a 27 inch or 30-36 inch diameter pipeline would not significantly alter surface water absorption rates. Project implementation would not involve the installation of impenetrable surfaces. Based on this, the proposed project would cause changes in drainage patterns.

- (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?* **No Impact.**

Refer to Response (c), above.

- (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 with Mitigation Incorporated.**

Refer to Response (a), above.

- (f) *Otherwise substantially degrade water quality?* **Less Than Significant Impact.**

Once construction is completed, the proposed project would have a minimal probability of degrading surface water quality. Based on the fact that the proposed project is an underground sewer pipeline subject to periodic monitoring, the likelihood of pipeline failure generating hazardous conditions is negligible. In addition, the pipeline would be constructed in accordance with standard design/construction practices. Therefore, the project is not anticipated to result in significant impacts to 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? **No Impact.***

The proposed project does not involve any housing components. No impacts would occur in this regard.

- (h) *Place within a 100-year flood hazard area structures that would impede or redirect flood flows? **No Impact.***

See Response (g), above.

- (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? **No Impact.***

The proposed project itself would not expose people or structures to flood hazards, as the project involves the implementation of an underground sewer pipeline. Although the proposed project would trench and tunnel in the vicinity of an earthen flood control dam (Carbon Canyon Dam) the trenching and tunneling operations are located within areas that would not compromise the geotechnical strength of the dam and additionally are of such a scale as to not compromise the geologic stability of the dam.

- (j) *Inundation by seiche, tsunami, or mudflow? **No Impact.***

Due to the location and nature of the proposed project, in northeastern Orange County, well removed from the Pacific Ocean and other large bodies of water, the potential for inundation by seiche, tsunami, or mudflow is not anticipated.

MITIGATION MEASURES

SHORT-TERM WATER QUALITY IMPACTS

- HWQ-1 Orange County Sanitation District must comply with the existing California State Water Resources Control Board (SWRCB) General Construction Activity Storm Water Permit No. CAS000002 (general permit), for discharges of storm water associated with construction. This includes the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), identification and implementation of a Best Management Practices (BMPs), and completion of Monitoring Program (MP) by the Contractor.

UNAVOIDABLE SIGNIFICANT IMPACTS

No unavoidable significant impacts have been identified.