E.1.12 Water Resources

E.1.12.1 Environmental Setting

The Interstate 8 Alternative takes a southern route from the Imperial Valley Substation to a point near Milepost (MP) 130 on the proposed route. Much of this alternative is along Interstate 8, and much of this alternative crosses Forest Service land. Climate and terrain are typical of the desert links (Imperial Valley and Anza-Borrego) from MP I8-0 to approximately I8-40, typical of the Central Link from approximately MP I8-40 to I8-70, and of the Inland Valley Link west of I8-70. There are 17 major water crossings in this alternative (Table E.1.12-1), including several large perennial or intermittent streams such as the San Diego River, the Sweetwater River, Pine Valley Creek, La Posta Creek, San Vicente Creek, Kitchen Creek, and Cottonwood Creek. Cottonwood Creek is eligible for the Wild and Scenic River System. The Cleveland National Forest Land Management Plan directs the Forest Service to protect water quality in eligible watercourses. There are 79 watercourse crossings identified for this alternative (Table E.1.12-1). There may be other incidental water courses that were not identified. Beneficial uses as designated by the Regional Water Quality Control Board for Surface water are listed in Table E.1.12-1.

This alternative crosses the Imperial Valley Groundwater Basin, the Coyote Wells Valley Groundwater Basin, the Campo Valley Groundwater Basin, and the San Diego River Valley Groundwater Basin as indicated in Table E.1.12-1. The Coyote Wells Valley and Campo Valley groundwater basins are EPA-designated Sole Source Aquifers. This means the aquifer supplies more than 50% of a community's drinking water. Any project which is financially assisted by federal grants or federal loan guarantees, and which has the potential to contaminate a sole source aquifer, should be modified to reduce or eliminate the risk (USEPA, 2007; http://epa.gov/region09/water/groundwater/ssa-pdfs/ssafact.pdf).

Designated beneficial uses for groundwater include MUN and IND for the Imperial Valley Groundwater Basin; MUN and IND for the Coyote Wells Groundwater Basin; MUN, AGR, and IND for the Campo Valley Groundwater Basin; and, MUN, AGR, IND, and PROC for the San Diego River Valley Groundwater Basin.

The Coyote Wells Groundwater Basin, located near the international border with Mexico in the western Yuha Desert west of Imperial Valley, is in unconsolidated sediment up to 650 feet thick. Water bearing zones are mostly 100 to 300 feet below ground surface. Unconfined shallow groundwater exists in parts of the basin, but the quality of the water is poor. Natural fluoride levels in some wells are as high as 3.5 mg/L (California Department of Water Resources, 2007).

The Campo Valley Groundwater Basin is a small basin underlying the Campo Valley. The water-bearing alluvium for this basin ranges in thickness from a few feet to roughly 100 feet. Recharge is from direct precipitation and effluent from a small number of septic tanks. Groundwater quality is generally suitable for domestic and irrigation uses (California Department of Water Resources, 2007), for which it is currently used. Depth to groundwater may be as shallow as 15 feet.

The San Diego River Valley Groundwater Basin consists of alluvium deposited by San Diego River and its tributaries. Alluvium thickness exceeds 200 feet near Lakeside but typically is about 70 feet. Recharge is primarily from the San Diego River, San Vicente Creek, and El Capitan and San Vicente reservoirs.

Water quality varies from bicarbonate in the eastern portion of the basin to chloride in the western portion of the basin. This basin is used for municipal and agricultural uses.

Table E.1.12-1. Interstate 8 Alternative – Watercourse Crossing Table

Watercourse	Associated Groundwater Basin
I8-0 to I8-8	
Yuha Wash	Imperial Valley
Unnamed	Imperial Valley
Unnamed	Imperial Valley
Unnamed	Imperial Valley
Unnamed	Imperial Valley
I8-8 to I8-27	
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Coyote Wash	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Unnamed	Coyote Wells Valley
Palm Canyon Wash	Coyote Wells Valley
Unnamed	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Meyer Creek	Coyote Wells Valley [1]
I8-27 to I8-39	
Boulder Creek	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Boulder Creek	Coyote Wells Valley [1]
Carrizo Creek	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Carrizo Creek	Coyote Wells Valley [1]
Jacumba Valley	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
Unnamed	Coyote Wells Valley [1]
I8-39 to I8-58	
Unnamed	None
Campo Creek	Campo Valley
Miller Creek	None
Unnamed	None
Unnamed	None
Unnamed	None
Unnamed	None
La Posta Creek	None
Kitchen Creek	None
Unnamed	None
I8-58 to I8-70	
Cottonwood Creek	None
Unnamed	None
Unnamed	None
Unnamed	None
Unnamed	None
Pine Valley Creek	None
Unnamed	None
Unnamed	None
Unnamed	None
Sweetwater River	None
I8-70 to I8-79	
Unnamed	None
Unnamed [2] (I8-71.4)	None
Unnamed [2] (I8-72.0)	None
Unnamed [2] (I8-74.1)	None
Unnamed [2] (I8-75.2)	None
Unnamed [2] (I8-75.3)	None
Unnamed [2] (I8-76.4)	None
Unnamed [2] (I8-78.6)	None
Unnamed [2] (I8-79.2)	None
I8-79 to I8-92.7	
Unnamed	None
Unnamed	None
Unnamed	None
San Diego River	San Diego River Valley
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley [1]
Unnamed	San Diego River Valley
Unnamed	San Diego River Valley
San Vicente Creek	San Diego River Valley
Unnamed	San Diego River Valley
Unnamed	None

1 Crossing is outside the indicated groundwater basin but over a stream that drains to the groundwater basin.
2 Power line is underground and in a roadway.

E.1.12.2 Environmental Impacts and Mitigation Measures

Table E.1.12-2 summarizes the impacts of the Interstate 8 Alternative on water.

Table E.1.12-2. Impacts Identified – Interstate 8 Alternative – Water

Impact No.	Description	Impact Significance
Interstate 8 Alternative		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class II
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Interstate 8 Alternative Substation		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class II
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
Campo North Option, West Buckman Springs Option, South Buckman Springs Option		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II, III
Buckman Springs Underground Option		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class III
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class III
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
H-8	Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property	Class II
Chocolate Canyon Option		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class III
H-4	Groundwater dewatering for project construction could deplete local water supplies	Class II~~I~~
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives related to sediment, suspended solids, total dissolved solids, and turbidity.

Table E.1.12-1 lists 79 streams that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation in the I-8 Alternative. Since this alternative crosses regions characteristic of the Imperial Valley, Anza-Borrego, and Central Links of the Proposed Project, the general description of this impact for those Proposed Project links (Section D.12.4.3) is generally applicable to this alternative. APMs and the Stormwater Pollution Prevention Plan (SWPPP) are intended to control these impacts.

The Interstate 8 Alternative includes a new substation as well, at MP I8-65, in an area draining to the Sweetwater River. The Interstate 8 substation site is in a flat area resulting in the need for a relatively minimal amount of earth work. The disturbed area would extend over approximately 37 acres of private land. Construction of this substation could result in sediment impacts which could affect the Sweetwater River especially if construction is during the wet season.

Construction in Forest Service land is a special condition requiring Mitigation Measure H-1k. Without mitigation, Impact H-1 would be significant. With Mitigation Measures H-1a and H-1k in place, Impact H-1 will be less than significant (Class II).

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare substation grading and drainage plan; construct during the dry season.**

H-1k **Comply with Forest Service Conditions.**

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives related to oil and grease, toxicity, and chemical pollutants.

Impact H-2 would apply to the watercourses listed in Table E.1.12-1, and to the area downstream of the Interstate 8 Substation. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Nevertheless, Impact H-2 would be significant without mitigation as there are 17 major water crossings in this alternative, including several large perennial or intermittent streams and construction on Forest Service land. However, with Mitigation Measures H-1a ~~and~~, H-1k, and H-2d in place for the substation and Forest Service land, Impact H-2 will be less than significant (Class II).

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1a Prepare substation grading and drainage plan; construct during the dry season.

H-1k Comply with Forest Service Conditions.

H-2d Maintain vehicles and equipment.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Excavation for tower foundations in shallow groundwater could contaminate groundwater through accidental material spills. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives related to chemical pollutants, oil and grease, and toxic pollutants. The depth to groundwater in the Campo Valley Groundwater Basin may be as shallow as 15 feet, resulting in a potential for this groundwater to be encountered by the tower excavations which will be 20 to 40 feet. Groundwater in the San Diego River Valley and Imperial Valley groundwater basins is expected to be below the depth of excavation. Should groundwater be encountered, which is most likely in the Campo Valley Groundwater Basin, APMs WQ-APM-1, WQ-APM-2, WQ-APM-9, WQ-APM-13, WQ-APM-14, and WQ-APM-15 (Table D.12 6), and the construction SWPPP would address the issue of potential contamination by avoiding watercourses whenever possible and that hazardous materials are kept far from sensitive water resources and properly cleaned up and disposed of. Therefore, Impact H-3 is less than significant (Class III), and no mitigation is required.

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II)

Dewatering or blasting for tower construction in the Campo Valley Groundwater Basin could result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells. This impact is less likely to occur where the alternative crosses the San Diego River Valley and Imperial Valley groundwater basins because of the depth of their groundwater basins which is expected to be lower than excavation depth. Should dewatering occur, WQ-APM-6 requires identification of these wells and provision of alternate water supplies during the period of depletion. ~~Impact H-4 is less than significant (Class III).~~ It is possible that excavation for the towers, especially those near drainageways, would encounter local subsurface water. Dewatering could result in a local drawdown of water levels that could temporarily affect the water supply to local vegetation. This impact would be temporary and localized, should not have any long-term adverse effect. ~~(Class III), and no mitigation is required.~~ Nonetheless, reduced water flows in wells and springs would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less-than-significant level through implementation of Mitigation Measures H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II)

Impact H-5 would be less than significant (Class III). The impervious area created by the new towers and foundations is minimal.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Watercourses listed for the overhead portion of the alternative in Table E.1.12-1 are potentially susceptible to Impact H-6, which would occur and result in damage to adjacent property, if towers are placed in or near watercourses (see Section E.1.4, Land Use, for information on sensitive receptors). Placement of towers in watercourses is unlikely except in the eastern (desert) portions of this alternative. Impact H-6 will be controlled in large part by APMs WQ-APM-2 and WQ-AMP-10 (Table D.12 6). Nevertheless, Impact H-6 could be significant without mitigation. With Mitigation Measure H-6a in place, Impact H-6 is less than significant (Class II) as it would protect the adjacent properties.

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 applies to the underground crossings listed in Table E.1.12-1. Most of these crossings are in established roadways that should be sufficiently robust to protect against scour, making the risk of Impact H-8 unlikely. Nevertheless, Impact H-8 could be significant without mitigation in the areas that do not cross in established roadways. With Mitigation Measure H-8ain place, Impact H-8 is less than significant (Class II).

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

E.1.12.3 Interstate Alternative 8 Substation

The Interstate 8 Alternative Substation would be used if the adopted transmission line route requires a conversion to 230 kV to allow the underground segment through Alpine. It would be located southeast of Descanso on private land adjacent to Cleveland National Forest land. The 500 kV line would enter the substation from the east, and a double-circuit 230 kV transmission line would exit the substation to the west after conversion from 500 to 230 kV.

Environmental Setting

The substation footprint is primarily a flat area of open grassland with fringes of chaparral on adjacent hillsides. The area is in a natural state. The site is a wide drainage swale with no visible drainage

channels except at the west end of the site where a small channel begins. This swale drains into Sweetwater River and Loveland Reservoir. The site is not above a groundwater basin.

Construction Impacts

Impact H-3 (Excavation could degrade groundwater quality in areas of shallow groundwater) would not occur as there is no groundwater basin at the site. Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) would not occur as there is no groundwater basin at the site.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity. The Interstate 8 Substation would be approximately 37 acres in size and would require local grading. The substation site has no identified water resources, but it is adjacent to a local watercourse draining to Peterson Canyon and Loveland Reservoir. Construction-related erosion and sedimentation at this substation could be substantial during a rainfall event. This would be a significant impact. With implementation of Mitigation Measures H-1a, Impact H-1 would be less than significant (Class II).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a Prepare substation grading and drainage plan; construct during the dry season.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Although there are no watercourses at the site, downstream watercourses, specifically the Sweetwater River and Loveland Reservoir, could be degraded through spills of contaminants such as oil, grease and gasoline from construction activities. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. Because there are no watercourses on the site, this impact is considered unlikely. With WQ-APM-8, WQ-APM-9, WQ-APM-13, WQ-APM-14 and the SWPPP in place, Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-6 (Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion) does not apply because the substation would be graded and runoff would be directed. Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) does not apply because there are no underground portions of the power line at the site.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II)

The substation would have a building pad of approximately 37 acres which would have a higher runoff coefficient than the existing ground, resulting in increased local peak flow rates, volumes and runoff frequency. This impact would be local and in the drainageways immediately downstream of the substa-

tion. Effects would diminish to negligible in the downstream direction as overall watershed size increases.

Local increases in runoff could be substantial, resulting in local offsite erosion which would occur in the area immediately downstream of the substation. Therefore, Impact H-5 would be significant without mitigation. Mitigation Measure H-5a would reduce this impact to less than significant (Class II).

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream

H-5a Install substation runoff control.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants from new electrical equipment at the substation could be released accidentally and contaminate local surface water or downstream groundwater. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. No spill would enter directly into surface water as there are no watercourses at the site, although should a large spill occur during the rainy season, it could travel downstream into the Sweetwater River and Loveland Reservoir. WQ-APM-13 will reduce the effect of this impact by requiring clean-up of spills and proper storage and disposal of contaminants. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With H-7a in place, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

E.1.12.4 Interstate 8 Route Options

Campo North Option

In this option, the route would remain north of the freeway in the vicinity of the wind farm, passing immediately adjacent to the southernmost wind turbine in the Kumeyaay Wind Energy Project (at about MP 45) and just north of the Caltrans ROW. This option would avoid two freeway crossings and shorten the route by about 0.5 miles.

The environmental setting for this alternative is identical to that portion of the Interstate 8 Alternative that would be replaced. There is one unnamed stream crossing in this alternative. The alternative is not above a groundwater table.

Construction Impacts

Impact H-3 (Excavation could degrade groundwater quality in areas of shallow groundwater) does not apply. There is no groundwater basin at the site. Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) does not apply. There is no groundwater basin at the site.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

The Campo North Alternative could cause construction-related disturbances resulting in water quality degradation in the one unnamed watercourse crossing, resulting in an adverse effect on downstream beneficial uses.WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 as described in Table D.12-6 are considered sufficient to ensure that construction-related water quality degradation through erosion and sedimentation. Impact H-1 is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could find their way to and pollute surface waters. This impact would apply to the unnamed watercourse along this alternative. , resulting in an adverse effect on beneficial uses.

APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. With these in place Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-7 (Accidental releases of contaminants from project facilities could degrade water quality) does not apply. This alternative has no facilities with contaminants. Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) does not apply. There are no underground portions of the power line at the site.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads could result in additional runoff through creation of impervious areas and compaction of soils. Because of the very small alteration of impervious area caused by this alternative, Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class III)

Encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-6 is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse. Due to the length of the option and because there is only one watercourse in this option it is unlikely that any towers would be placed such that they would cause flooding, flood diversion, or erosion. Impact H-6 is less than significant (Class III).

Buckman Springs Underground Option

The environmental setting for this alternative is virtually identical to that portion of the Interstate 8 Alternative that would be replaced. See Section E.1.1 for a description of this option. Kitchen Creek is the largest watercourse crossed. There is no groundwater basin at this site.

Construction Impacts

Impact H-3 (Excavation could degrade groundwater quality in areas of shallow groundwater) does not apply. There is no groundwater basin at the site. Impact H-4 (groundwater dewatering for project construction could deplete local water supplies) does not apply. There is no groundwater basin at the site.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

The Buckman Springs Underground Option could cause construction-related disturbances resulting in water quality degradation in the one unnamed watercourse crossing, resulting in adverse effect to beneficial uses. WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 (as defined in Table D.12-6) include specific provisions to minimize erosion and sedimentation, and are considered sufficient to ensure that construction-related water quality degradation through erosion and sedimentation. Impact H-1 is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could find their way to and pollute surface waters. This impact would apply to the unnamed watercourse along this alternative, resulting in adverse effect to beneficial uses.

APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. With these in place Impact H-2 is less than significant (Class III).

Operational Impacts

Impact H-5 (Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream) and Impact H-6 (Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion) do not apply. This alternative has no aboveground facilities.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Operation the Buckman Springs Underground Option would include maintenance and monitoring of the hydraulic systems for the pressurization of the dielectric fluids within the cable. Leaking of the dielectric fluids would be a significant impact if it reached local surface water causing contamination. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives related to oil and grease, toxicity, and chemical pollutants. APM WQ-APM-13 requires clean-up of spills and proper storage and disposal of contaminants. However, WQ-APM-13 does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, Impact H-7 would be significant. Mitigation Measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II)

Impact H-8 applies to the Kitchen Creek crossing and could result in scour damage to the power line and adjacent property. With Mitigation Measure H-8 in place, Impact H-8 is less than significant (Class II).

Mitigation Measure for Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property

H-8a Bury power line below 100-year scour depth.

West Buckman Springs Option

The environmental setting for this alternative is similar to that portion of the Interstate 8 Alternative that would be replaced; the West Buckman Springs Option crosses Cottonwood Creek but does not cross Kitchen Creek (the Interstate 8 Alternative crosses Kitchen Creek in the corresponding area). There is no groundwater at this site.

Construction Impacts

Impact H-3 (Excavation could degrade groundwater quality in areas of shallow groundwater) does not apply. There is no groundwater basin at the site. Impact H-4 (groundwater dewatering for project construction could deplete local water supplies) does not apply. There is no groundwater basin at the site.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

The West Buckman Springs Option could cause construction-related disturbances resulting in water quality degradation in the one unnamed watercourse crossing. , resulting in adverse effect to beneficial uses downstream. WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 are sufficient to ensure that construction-related water quality degradation through erosion and sedimentation. Impact H-1 is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids could find their way to and pollute surface waters resulting in adverse effect to beneficial uses. This impact would apply to the unnamed watercourse along this alternative. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 include specific provisions to reduce the likelihood of water quality contamination through material spills. With these measures in place, Impact H-2 would be less than significant (Class III).

Operational Impacts

Impact H-7 (Accidental releases of contaminants from project facilities could degrade water quality) does not apply. This alternative has no facilities with contaminants. Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) does not apply. There are no underground portions of the power line at the site.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads could result in additional runoff through creation of impervious areas and compaction of soils. Because of the very small alteration of impervious area caused by this alternative, Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class III)

Encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property (see Section E.1.4, Land Use), or increased erosion on adjacent property. This impact is unlikely to occur because no towers have been identified as being at risk of inducing this impact. Impact H-6 is less than significant (Class III).

South Buckman Springs Option

The environmental setting for this alternative is similar to that portion of the Interstate 8 Alternative that would be replaced for the reason that this alternative is parallel and relatively close to the Interstate 8 Alternative. The South Buckman Springs Option crosses one more minor watercourse than the corresponding I-8 Alternative, but avoids crossing Kitchen Creek (the crossing of Cottonwood Creek is below the Kitchen Creek confluence). There is no groundwater basin identified for this alternative.

Construction Impacts

As there is no groundwater basin at the site of the South Buckman Springs Option, Impact H-3 (Excavation could degrade groundwater quality in areas of shallow groundwater) and Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) would not occur.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

The South Buckman Springs Option could cause construction-related disturbances resulting in water quality degradation in the one unnamed watercourse crossing, resulting in adverse effect to beneficial uses. WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 are considered sufficient to ensure that construction-related water quality degradation through erosion and sedimentation. Impact H-1 is less than significant (Class III).

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials such as lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other

fluids could find their way to and pollute surface waters. This impact would apply to the unnamed watercourse along this alternative, resulting in adverse effect to beneficial uses. -.

APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. With these in place Impact H-2 is less than significant (Class III).

Operational Impacts

As there will be no facilities that would require contaminants along the South Buckman Springs Option, Impact H-7 (Accidental releases of contaminants from project facilities could degrade water quality) would not occur. There would be no underground portions of the South Buckman Springs Option and therefore Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) would not occur.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of substations, tower foundations and access roads could result in additional runoff through creation of impervious areas and compaction of soils. Because of the very small alteration of impervious area caused by this alternative, Impact H-5 is less than significant (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. This impact is unlikely to occur. The tower locations identified in preliminary engineering are not at risk, but final engineering could change current locations. However, there could be some risk of Impact H-6 at or near Cottonwood Creek. Mitigation Measure H-6a ensures Impact H-6 to be less than significant (Class II).

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

Chocolate Canyon Option

The Chocolate Canyon Option begins at a point just south of the I-8 freeway at approximately MP 79.4 of the I-8 Alternative, and ends at a point approximately 3,200 feet downstream of El Capitan Dam. The Chocolate Canyon Option crosses an unnamed canyon watercourse at MP CC-3.32, the San Diego River at MP CC-3.21, and 32 small local drainageways (watershed area approximately 2 to 60 acres) throughout the length of the option. All but one of these small watercourses drain to El Capitan Reservoir either directly or via Chocolate Canyon. The option passes within 200 feet of El Capitan Dam. This option is within 150 to 900 feet of El Capitan Reservoir for 1.3 miles, and within 150 to 600 feet of the Chocolate Canyon watercourse for one mile. Beneficial uses of surface water include MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, and RARE.

El Capitan Reservoir is operated by the City of San Diego Water Department as part of their water supply system. The water is used for drinking and municipal use in the San Diego area.

At approximately MP CC-3.21 the Chocolate Canyon Option crosses the upstream end of the San Diego River Valley Groundwater Basin. Beneficial uses of this basin include MUN, AGR, IND, and PROC. El Capitan Reservoir provides a substantial source of recharge to this groundwater basin, which is used for municipal and agricultural purposes. Water quality in this basin varies from bicarbonate in the eastern portion of the basin to chloride in the western portion of the basin.

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

The Chocolate Canyon Option crosses 34 waterways that are potentially at risk of water quality degradation due to construction-induced erosion and sedimentation. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives related to sediment, suspended solids, total dissolved solids, and turbidity. The Chocolate Canyon Option crosses regions characteristic of the Inland Valley Link of the Proposed Project, the general description of this impact for those Proposed Project link (Section D.12.8) is generally applicable to this alternative. APMs WQ-APM-1, WQ-APM-2, WQ-APM-3, WQ-APM-4, WQ-APM-5, WQ-APM-14, and WQ-APM-15 would ensure that construction-related water quality degradation through erosion and sedimentation (Impact H-1) is reduced, however, due to the close proximity between the Chocolate Canyon Option and the Capitan Reservoir, Mitigation Measure H-1a, would be required to reduce the impact to a less than significant level (Class II).

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a (CC) Construct during the dry season. All construction of the Chocolate Canyon Option shall occur during the dry season months. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains. Implement the City of San Diego Source Water Protection Guidelines for New Development (2004) that describes procedures for minimizing the adverse water quality effect of new development near water supply reservoirs such as El Capitan. These guidelines specify best management practice procedures to be used by the development, which would include the Chocolate Canyon Option.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Impact H-2 would apply to the watercourses listed in the Chocolate Canyon Option setting. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives related to oil and grease, toxicity, and chemical pollutants. APMs WQ-APM-8, WQ-APM-9, WQ-APM-13, and WQ-APM-14 address the issue of water quality contamination through material spills. WQ-APM-8 requires that excavated groundwater, which could be contaminated from construction, not be returned to the natural system without treatment. WQ-APM-9 requires storage of hazardous materials away from groundwater supply wells. WQ-APM-13 requires proper disposal of hazardous materials and trash, as well as prompt clean-up of spills. WQ-APM-14 requires compliance with State regulations and implementation of a SWPPP which would address materials disposal and clean-up during construction. Additionally, APMs WQ-APM-1, WQ-APM-2 and WQ-APM-15 situate construction activities away from streams where possible. Nevertheless, given the proximity of the option to the Capitan Reservoir, Impact H-2 would be significant without mitigation. However, with Mitigation Measures H-1a and H-2d, Impact H-2 will be less than significant (Class II).

Mitigation Measure for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

H-1a (CC) Construct during the dry season.

H-2d Maintain vehicles and equipment.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class III)

Excavation for tower foundations in shallow groundwater could contaminate groundwater through accidental material spills. Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives related to chemical pollutants, oil and grease, and toxic pollutants. The depth to groundwater in the San Diego River Valley is expected to be below the depth of excavation. Should groundwater be encountered APMs WQ-APM-1, WQ-APM-2, WQ-APM-9, WQ-APM-13, WQ-APM-14, and WQ-APM-15 (Table D.12 6), and the construction SWPPP would address the issue of potential contamination. Therefore, Impact H-3 is less than significant (Class III), and no mitigation is required.

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II)

In the San Diego River Valley depth to groundwater is expected to be below the depth of excavation. Therefore it is unlikely that dewatering or blasting for tower construction in would result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells. Should this occur, WQ-APM-6 requires identification of these wells and provision of alternate water supplies during the period of depletion. ~~Impact H-4 is less than significant (Class III).~~ It is possible that excavation for the towers, especially those near drainageways, would encounter local subsurface water. Dewatering could result in a local drawdown of water levels that could temporarily affect the water supply to local vegetation. This impact would be temporary and localized, should not have any long-term adverse effect. ~~(Class III), and no mitigation is required.~~ Nonetheless, reduced water flows in wells and springs would be significant should it occur. This impact would be significant (Class II), but it could be mitigated to a less-than-significant level through implementation of Mitigation Measures H-4b, which would restrict blasting where wells would be affected and would ensure timely drinking water replacement.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4b Avoid blasting where damage to groundwater wells or springs could occur.

Operational Impacts

As there will be no facilities that would require contaminants along the Chocolate Canyon Option, Impact H-7 (Accidental releases of contaminants from project facilities could degrade water quality) would not occur. There would be no underground portions of the Chocolate Canyon Option and therefore Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) would not occur.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impact H-5 would be less than significant (Class III) because of the very small alteration of impervious area caused by this alternative.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Watercourses listed for the Chocolate Canyon Option are potentially susceptible to Impact H-6, which would occur and result in damage to adjacent property if towers are placed in or near watercourses. Placement of towers in watercourses would not occur with the Chocolate Canyon Option; however, they would be adjacent to the El Capitan Reservoir. Impact H-6 will be controlled in large part by APMs WQ-APM-2 and WQ-AMP-10 (Table D.12 6) Nevertheless, Impact H-6 could be significant without mitigation due to the proximity of the option and the waterway. With Mitigation Measure H-6a in place, Impact H-6 is less than significant (Class II) because it would protect adjacent properties.

Mitigation Measure for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include avoidance of bank erosion and effects to adjacent property.

E.1.12.5 Future Transmission System Expansion for Interstate 8 Alternative

As described in Section E.1.1, the Interstate 8 Alternative Substation that would be built as a part of the Interstate 8 Alternative would accommodate up to six 230 kV circuits and a 500 kV circuit. Only two 230 kV circuits are proposed by this alternative at this time, but construction of additional 230 kV circuits and a 500 kV circuit out of the Interstate 8 Alternative Substation may be required in the future. This section considers the impacts of construction and operation of these potential future transmission lines. There are three routes that are most likely for these future lines; each is addressed below. Figure Ap.1-29 illustrates the potential routes of the transmission lines.

Environmental Setting – 230 and 500 kV Future Transmission System Expansion

The future 230 and the 500 kV lines from the Interstate 8 Alternative Substation would most likely follow one or more of the following routes:

Interstate 8 route including underground within Alpine Boulevard

Please note the Interstate 8 route including underground within Alpine Boulevard would only be applicable for future 230 kV lines.

Additional 230 kV circuits could be installed underground within Alpine Boulevard, with appropriate compact duct banks and engineering to avoid, or possibly relocate, existing utilities. See Section E.1.8.1 and E.1.8.2 for a description of the Environmental Setting and Mitigation Measures for Water Resources for the Interstate 8 Alternative. The future transmission line route would follow the Interstate 8 Alternative's 230 kV route to the point where it meets the Proposed Project at MP 131. The future transmission route would then join the proposed route corridor to the west, continuing past the Sycamore Canyon Substation to the Chicarita Substation. See Sections D.12.2, D.12.8, and D.12.9 for a description of the Environmental Setting and Mitigation Measures for Water Resources of the Inland

Valley Link and the Coastal Link of the Proposed Project. The Interstate 8 230 kV future transmission route could then follow the Proposed Project's 230 kV Future Transmission Expansion route from Chicarita to the Escondido Substation shown in Figure B-12a. See Section D.12.11 for a description of the Environmental Setting and Mitigation Measures for the Proposed Project's Future Transmission Expansion System.

Route D Alternative corridor

Additional 230 or 500 kV circuits could follow the Route D Alternative corridor to the north of Descanso, after following the Interstate 8 Alternative 230 kV route from the Interstate 8 Substation to MP I8 70.3. The Environmental Setting and Mitigation Measures for Water Resources of the Route D Alternative can be found in Section E.3.12.1 and in Section E.3.12.2. It should be noted, however, that the Route D Alternative Water Resources impacts and mitigation measures are for a 500 kV transmission line, and the Interstate 8 future transmission line as detailed above could be either a 500 kV line or a 230 kV line.

The Route D corridor would connect with the Proposed Project corridor at MP 114.5, and could then follow either: (1) the Proposed Project southwest to the Chicarita Substation and then follow the Proposed Project's 230 kV Future Transmission Expansion route (see description in Section B.2.7) from Chicarita to the Escondido Substation; or (2) the Proposed Project northeast to the Proposed Central East Substation and then follow the Proposed Project's 500 kV Future Transmission Expansion route shown in Figure B-12b (see description in Section B.2.7) to connect with SCE's existing Serrano-Valley 500 kV line in Riverside County. See Section D.12.2 for more information on the Water Resources setting of the Central, Inland Valley, and Coastal Links of the Proposed Project.

For the Water Resources setting, impacts, and mitigation measures of the Proposed Project's 230 kV Future Transmission Expansion route and the Proposed Project's 500 kV Future Transmission Expansion route see Section D.12.11.

Interstate 8 Alternative with Modified Route D alignment and West of Forest alignment

The future 230 or 500 kV lines could follow the proposed Interstate 8 Alternative route from the Interstate 8 Alternative Substation until reaching the Modified Route D Alternative corridor (within the 368 Corridor identified by the Department of Energy's Draft West-wide Corridor Programmatic EIS) and then follow the Modified Route D Alternative corridor south for 11 miles to MP MD-26. For the Water Resources Setting and Impacts along the Modified Route D corridor see Section E.4.12. At MP MD-26, new 230 or 500 kV circuits would turn west and connect with the northernmost segment of the West of Forest Alternative route as described in Section E.1.1. This route would meet up with the Interstate 8 Alternative at approximately MP I8-79 and would follow the Interstate 8 Alternative's overhead 230 kV route to the point where it meets the Proposed Project at MP 131. The future transmission route would then join the proposed route corridor to the west, continuing past the Sycamore Canyon Substation to the Chicarita Substation. It could then follow the Proposed Project's 230 kV Future Transmission Expansion System (see description in Section B.2.7) from Chicarita to the Escondido Substation.

West of Forest Segment

From MP MD-26 to MP I8-79, the climate and topography is similar to that of the Interstate 8 alignment between MP I8-70 to MP I8-79.

Surface Water. Surface water resources within the alignment are listed in Table E.1.12-3. There are at least 13 identified watercourse crossings associated with the future transmission route after it turns west from Modified Route D. The future transmission route crosses approximately 500 feet from the Loveland Reservoir. There are other minor watercourses along this route that have not been identified in the table.

Table E.1.12-3. Surface Water Resources – West of Forest Segment (MP MD-26 to MP I8-79)

Watercourse	Approximate location
Lyons Valley Creek	Lyons Valley Road
No Name	Intersection of Skyline Dr. and Wisecarver
No Name	Hilary Dr.
Lawson Creek	North of Lawson Valley Rd.
Sweetwater River	South of Loveland Res.
Sycuan Creek	Sycuan Truck Trail
No Name	Dehesa Road
Harbison Canyon Creek	South of Harbison Canyon
No Name	Off of Harbison Canyon Creek
No Name	Mountain Rd.
No Name	Mountain Rd.
No Name	North of Mountain Rd.
No Name	Near Reservoir

1 Watercourse drains to this groundwater basin. Crossing is outside the basin.

Loveland Reservoir is a water supply reservoir operated by the South Bay Irrigation District, which serves National City, Bonita and parts of Chula Vista. Based on USGS stream flow records, the Sweetwater River can have flow in any month of the year, although summer discharges are very low (less than one cubic foot per second), and periods of summer zero flow are common. Average discharge in winter is as high as 34 cubic feet per second. Water quality concerns in the Sweetwater watershed include coliform bacteria, trace metals and other toxics (Project Clean Water, 2007).

Beneficial uses as designated by the Regional Water Quality Control Board for Surface water are listed in Table E.1.12-3. Designated beneficial uses for Loveland Reservoir water include MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, and WILD.

Environmental Impacts – 230 or 500 kV Future Transmission System Expansion

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the overhead transmission line towers, pull stations, and access roads, would require excavation and grading for roads and towers. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams. Beneficial uses for surface water could be adversely affected through violation of RWQCB water quality objectives for sediment, suspended solids, total dissolved solids, and turbidity

Degradation of water quality due to erosion and sedimentation is considered mitigable to less than significant levels with adoption of mitigation measures (Class II). These measures include Mitigation Measures H-1c through H-1i below, which implement the following requirements: minimize disturbance to waterways to the extent feasible, placement of structures shall avoid watercourses to the extent feasible,

establishment of exclusion zones along waterways, and construction of waterway crossings during low flow periods. A Stormwater Pollution Prevention Plan for construction would be required by the RWQCB. Mitigation Measure H-1a (Prepare substation grading and drainage plan; construct during the dry season) could also apply. With implementation of Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, and H-1i in place, Impact H-1 would be less than significant (Class II). The full text of all mitigation measures is in Appendix 12.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare substation grading and drainage plan; construct during the dry season.**

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. Beneficial uses for surface water and groundwater could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants. This impact would apply to all watercourses along the route (Table E.1.12-3).

Degradation of water quality through the spill of potentially harmful materials is mitigable to less than significant levels (Class II). With Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, H-1i, H-2a, H-2b, H-2c, H-2d, P-1a, and P-1b in place, Impact H-2 would be less than significant (Class II).

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-2d Maintain vehicles and equipment.

P-1a Implement Environmental Monitoring Plan.

P-1b Maintain emergency spill supplies and equipment.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Groundwater beneficial uses could be adversely affected through violation of RWQCB water quality objectives for inorganic chemicals, oil and grease, toxicity, and toxic pollutants.

This impact is unlikely to occur primarily for the reason that most towers are expected to be on high ground with relation to groundwater, and groundwater will be crossed by only a small portion of the expansion lines. However, a few towers could be located in areas of shallow groundwater.

Implementation of mitigation would be required, including (1) Proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) ensure that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) determine the depth of groundwater prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With Mitigation Measures H-1c, H-2a and H-3a in place, Impact H-3 is less than significant (Class II).

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1c Minimize construction and maintenance disturbance to riparian areas. [WQ-APM-1]

H-2a Groundwater testing and treatment before disposal. [WQ-APM-8]

H-3a Detect and avoid groundwater with project excavations. [WQ-APM-11]

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (Class II)

Dewatering for tower construction in the groundwater basins traversed by the future transmission line projects could result in a local and temporary drawdown of groundwater levels, temporarily reducing the yield of nearby water supply wells. Groundwater is unlikely to be encountered by tower excavation. Mitigation Measure H-4a regarding identification of wells and provision of alternate water supplies during the period of depletion would ensure less than significant (Class II) impact.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4a Avoid using source water and provide alternative sources where avoidance is not possible. [WQ-APM-6]

Operational Impacts

As the will be no substation or other project facilities that will house contaminants, Impact H-7 (Accidental releases of contaminants from project facilities could degrade water quality) would not occur. As the future transmission line route within this portion is overhead Impact H-8 (Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property) would not occur.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. In the case of the future transmission line projects, there may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III) and no mitigation is required.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a flow path or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. This impact is likely to occur only where power poles or other permanent project features are constructed in or closely adjacent to a watercourse. As the future transmission line crosses some watercourses near residential areas (e.g., near Wisecarver Truck Trail) this would be a significant impact. The potential for Future Expansion structures to result in flooding or erosion is considered to be mitigable to less than significant levels (Class II). With Mitigation Measures H-1c and H-6a in place, Impact H-6 is less than significant (Class II).

Mitigation Measures for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-6a **Scour protection to include avoidance of bank erosion and effects to adjacent property.**