

ATTACHMENT
APPLICATION TO APPROPRIATE WATER
OF
SEMITROPIC IMPROVEMENT DISTRICT OF
SEMITROPIC WATER STORAGE DISTRICT

ITEM 1. APPLICANT/AGENT

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ITEM 2. OWNERSHIP INFORMATION

Semitropic Water Storage District is a California water storage district formed and existing pursuant to California Water Code section 39000 et seq., and located within the County of Kern, State of California. Semitropic Improvement District is governed by the same Board of Directors as the Semitropic Water Storage District.

ITEM 3. PROJECT DESCRIPTION

Background

As background, Semitropic Water Storage District is located in north-central Kern County in the San Joaquin Valley, about 20 miles northwest of the City of Bakersfield and was organized in 1958 to supply supplemental water within its boundaries. The total land area within Semitropic is approximately 222,700 acres, with about 135,000 to 145,000 acres being irrigated (although that amount varies annually). On August 14, 1991, the Semitropic Improvement District was formed to carry out and manage, among other things, water projects of Semitropic Water District including those of its Buttonwillow Improvement District and Pond-Poso Improvement District, including the Semitropic Groundwater Bank. Semitropic imports State Water Project (SWP) supplies pursuant to its member unit contract with the Kern County Water Agency (KCWA) for 155,000 acre-feet of SWP Table A amount, and since the early 1990's Semitropic has successfully operated the Semitropic Groundwater Banking Program (Semitropic Groundwater Bank) which benefits both Semitropic's banking partners and Semitropic

landowners through improvement of local groundwater conditions. However, the groundwater basin (or subbasin) underlying Semitropic is still in a state of critical overdraft, SWP supplies available to Semitropic and its banking partners have become less available and reliable due to regulatory constraints and other factors, and the groundwater basin is in need of further replenishment. As described below, the Project will utilize both newly-constructed and existing facilities, including the California Aqueduct and multiple existing underground storage facilities that can divert water to and from the Aqueduct for direct delivery or exchange.

Tulare Lake Storage and Floodwater Protection Project

With the caveat that the Tulare Lake Storage and Floodwater Protection Project is currently undergoing environmental review and subject to change, a detailed description is included below (additional detail can be provided upon request and will be included in the EIR project description).

Semitropic Improvement District of Semitropic Water Storage District (District, SWSD or Semitropic) is proposing the construction and operation of the Tulare Lake Storage and Floodwater Protection Project (Project). The Project, would provide local, regional, and statewide public benefits to meet California's water storage and supply challenges by improving the management of floodwaters from the South Fork of the Kings River. The Project would also allow for possible management or regulation of other waters, including flood flows from streams tributary to Tulare Lake region (which principally include the Kaweah and Tule Rivers) and regional and statewide water supplies, including high flows from the Sacramento-San Joaquin Delta (Delta). The Project would manage available waters by developing new surface water storage and conveyance facilities and utilizing existing facilities and groundwater conjunctive use capacity south of the Delta. Water storage would be created by the construction of a leveed impoundment on approximately 19,700 gross acres within the dry Tulare Lake bed. Of the approximately 19,700 gross acres, approximately 12,000 net acres would be developed into a single surface storage reservoir with multiple interior storage cells with levees six to eight feet in height, resulting in a total storage capacity of approximately 15,000 to 30,000 acre-feet (AF)¹, respectively.

Available waters would be conveyed to and through the proposed Project storage reservoir (Kettleman Reservoir) constructed in the dry Tulare Lake bed through a combination of new and existing channels and canals; however, some improvements to existing conveyance facilities may be necessary. Depending on the location, canal-side pumping plants may be required to pump water from the conveyance canals into the reservoir. The proposed Project would also include a new conveyance facility (the Kettleman Canal) to convey water from the South Fork Canal to the Kettleman Reservoir and/or the California Aqueduct. The proposed Project would also include a second new conveyance facility, to convey water in both directions between the storage reservoir and the California Aqueduct (Aqueduct), referred to as the Aqueduct Intertie. The Aqueduct Intertie would have a capacity of up to approximately 2,100 cubic feet per second (cfs)

¹ An acre-foot equals 325,851 gallons.

and would consist of a pumping plant (Kettleman Pumping Plant #2), up to three approximate 144-inch ID diameter pipelines and/or a canal between the pumping plant and the Aqueduct, and a turn-in/turn-out structure on the east side of the Aqueduct. New Project facilities to be constructed in the Tulare Lake bed, in Kings County, are generally depicted in Figure 3.

Water stored in and conveyed through the Project reservoir would ultimately be transported, as capacity is available, into the California Aqueduct, principally for delivery to the SWSD service area to meet water needs of existing irrigated lands. Water diverted from the Aqueduct would be delivered to meet direct demands or stored underground by use of groundwater storage facilities and, to a lesser extent, surface storage facilities accessible from the Aqueduct, including in-lieu and direct recharge facilities of SWSD in Kern County. Stored (banked) water would be recovered through extraction and/or by way of exchange, and delivered to primarily meet the demands of existing irrigated lands within SWSD in Kern County and possibly other places of use including other irrigated lands in the Kern County and Kings County. Places of underground and surface storage and places of use are shown in Figures 1, 1A, 2 and 5, attached hereto, and in Exhibits 1, 2, and 3 attached to the Underground Storage Supplement.

Proposed reservoir and related facilities constructed in the dry Tulare Lake bed would be coordinated and integrated with the use of other existing facilities located inside and outside the boundaries of SWSD and possibly other water management programs, as described below.

Semitropic Groundwater Banking Program

The Semitropic Groundwater Banking Program (Semitropic Groundwater Bank) provides both in-lieu (indirect) and direct recharge storage of water underground. The Semitropic Groundwater Bank began operation in the early 1990's, and it is one of the largest groundwater banks in operation with an approved storage capacity of approximately 1.65 million AF. The goal of the Semitropic Groundwater Bank has been to provide long-term underground storage of surplus SWP and other supplies to stabilize declining groundwater levels and to provide drought supplies to banking partners, SWSD banking partners include: Metropolitan Water District of Southern California, Santa Clara Valley Water District, Zone 7 Water Agency, Alameda County Water District, Newhall Land and Farming Company, San Diego Water Authority, and the City of Tracy.

Water is traditionally stored in the Semitropic Groundwater Bank when the banking partners make their SWP or other surplus water supplies available to SWSD. These surface supplies are delivered to landowners (farmers) in the District in-lieu of their groundwater pumping. There are two mechanisms available to return water to banking partners during extraction years; the first is through SWP entitlement water exchanges (entitlement exchange), where SWSD delivers pumped groundwater to landowners, and, in exchange, leaves SWP entitlement water in the SWP system for return to the banking partners. The second method occurs in particularly dry years when not enough SWP entitlement is available to meet SWSD's contractual commitment to return water to the banking partners. Under this condition, SWSD extracts groundwater and physically delivers it through pump-back facilities to the California Aqueduct (pumpback). Firm return capability (not including the SWRU) is up to about 133,000 AFY by entitlement

exchange and up to about 90,000 AFY by pumpback to the Aqueduct, for a total firm return capacity of up to approximately 223,000 AFY. Existing infrastructure associated with the Semitropic Groundwater Bank includes recovery wells, SWSD and landowner wells, conveyance pipelines, regulating basins and pumping plants, and other ancillary facilities. All of these existing facilities are within the SWSD service area in Kern County, near the City of Wasco and south of the proposed Project's facilities in Tulare Lake. Semitropic certified a final EIR covering the Semitropic Groundwater Bank Project in 1994.

SWSD's Stored Water Recovery Unit (or SWRU) is a component of the Semitropic Groundwater Bank that was developed to expand the recharge and recovery capacity of banked water for the benefit of existing and future banking partners and for SWSD. The SWRU has been evaluated under CEQA and certified by SWSD in 2000 in a final supplemental EIR (SEIR) to include increased banking capacity through the addition of up to 13,000 acres of in-lieu recharge facilities (which would add approximately 40,000 to 50,000 AFY of recharge capability), additional firm recovery capacity of up to 150,000 AF per year (for the recovery of banked groundwater), and enhanced capacity to deliver recovered water to the banking partners via the California Aqueduct or to the District's service area.

The final 1994 EIR and/or the 2000 SEIR for the Semitropic Groundwater Bank (including SWRU) have been amended by six addenda authorizing various changes including with respect to sizing or location of facilities, and to change the manner of operation to include storage of banking partner water in the Kern Water Bank and Pioneer banking projects when there are insufficient in-lieu irrigation demands in SWSD (Addendum No. 3). Specifically, each addendum analyzed the following:

- **Addendum No. 1** (February 2002) – This addendum evaluated the impacts of the increase of the defined capacity from one million (1,000,000) acre-feet to one million six hundred fifty thousand (1,650,000) acre-feet, with no additional facilities proposed.
- **Addendum No. 2** (July 2004) – This addendum addressed an increase in diameter (from 96 inches to 120 inches) of approximately seven miles of an east-west pipeline facility, the substitution of canal for some of the proposed pipeline in the north-south conveyance facilities, and a change in the configuration of the proposed regulating pond near the Pond-Poso Canal.
- **Addendum No. 3** (August 2005) – This document served as the First Addendum to the 1994 EIR in addition to amending the 2000 SEIR. The addendum made one change to the manner of operation of the Groundwater Banking Project. In particular, it identified additional points of delivery of water to be banked at the Project, and did not require any changes to either existing or planned facilities.
- **Addendum No. 4** (October 2008) – This addendum addressed an increase in pipeline diameter (from 84 inches to 108 inches) of approximately 0.7 miles of the north-south conveyance system, the substitution of approximately two and one-half miles of canal for an equal length of pipeline for the north-south conveyance system, a change in the location of two of the approved pumping

plant facilities, and a change in the alignment of a portion of the north-south pipeline and canal facilities.

- **Addendum No. 5** (February 2015) – This addendum made further modifications to the design of the north-south conveyance system, and changed the source of the electrical service for the operation of the SWRU’s deep wells and pumping plants.
- **Addendum No. 6** (March 2016) – This addendum alters the spatial distribution of the deep wells to be constructed.

In addition, in 2007, SWSD prepared and approved an initial study and negative declaration for the Pond-Poso Spreading Grounds Unit of the Semitropic Groundwater Bank. This unit includes the Pond-Poso Spreading Grounds connected to SWDS’s Pond-Poso Canal, consisting currently of about 580 net acres plus about 490 planned net acres, principally used for underground storage of water by way of direct-recharge, and related-water facilities.

The District’s groundwater banking operations are subject to various mitigation measures described in mitigation monitoring and reporting programs associated with each EIR and addenda, and which include a groundwater monitoring committee for the Bank and certain operational criteria to ensure SWSD landowners and landowners in neighboring districts do not suffer unmitigated significant adverse impacts.

Additional SWSD Water Storage Facilities

SWSD uses other certain facilities within its boundaries in addition to the facilities of the Semitropic Groundwater Bank, for direct recharge and/or surface storage. These facilities include the dry channel of Poso-Creek, Shuster Pit, the Pond-Poso Spreading Grounds (both existing and planned future facilities – described above), the Elo Fabbri Spreading Grounds, Goose Lake, and spreading conducted by individual land owners. Figure 2, attached hereto, includes a description of said facilities located within the boundaries of Semitropic. In addition, in 2017, SWSD approved a pilot program for “on-farm” recharge of water (particularly floodwaters) on certain lands within SWSD.

Inter-District Conveyance Facilities

To facilitate mutually-beneficial water banking and exchange arrangements with neighboring water districts, including access to alternative sources of water supplies, SWSD’s water distribution system includes established inter-connection facilities with the following districts:

- Buena Vista Water Storage District (60 cfs)
- Shafter-Wasco Irrigation District (30-35 cfs each way)
- North Kern Water Storage District (80 cfs each way after installation of one additional 40cfs pump/motor unit)

SWSD has existing agreements with these districts, which provide for banking and exchanges of water.

Additional Banking Facilities

SWSD has agreements with other banking facilities for the storage of water supplies. These banking facilities are described below, and depicted in Figure 1 and 1A attached

hereto. See Exhibit 1, 1A and 3 and Table 3 to the Underground Storage Supplement, for recharge capacities and other data regarding the Kern Fan banking projects described below.

Kern Water Bank

The Kern Water Bank is a direct recharge-based project, with over 7,000 acres of spreading basins. The Kern Water Bank Authority developed and constructed the Kern Water Bank after implementation of the Monterey Agreement in 1996 by the DWR and all but two of the SWP Contractors. With a gross area of about 20,000 acres, the Kern Water Bank is located to the south of the District, astride the Kern River, and has the ability to convey water to and from Aqueduct. Semitropic is a member entity of the Authority and has rights to store and recover water from the bank.

Pioneer Project

The Pioneer Project is operated by the Kern County Water Agency and is a direct recharge-based water banking project, located on approximately 2,233 acres within the Kern fan, adjacent to the Kern Water Bank. Similar to the Kern Water Bank, the Pioneer Project has the ability to convey water to and from the Aqueduct. The Pioneer Project has “recharge participants” and “recovery participants”; the former have a first priority right to use of the recharge facilities, and the latter have a first priority right to use of the recovery facilities. Semitropic is a “recovery participant.” Semitropic’s right to use the Pioneer Project’s recharge capacity is second to that of the “recharge participants.”

City of Bakersfield 2800 Acres

The 2800 Acres recharge project is owned and operated by the City of Bakersfield as a direct recharge and recovery project. With a gross area of 2,800 acres, the project is located astride the Kern River and has the ability to convey water to and from the Aqueduct. Semitropic has rights to recharge and recovery water from the 2800 Acres, as a participant of the Pioneer Project.

Regional Banking, Transfer and Exchange Water Management Programs

Water captured by the Project may also be delivered to neighboring and other water districts in Kern County through use of the Aqueduct and other existing facilities (including those mentioned above) as part of existing or future banking, exchange, and transfer programs, subject to the approval of those entities with discretionary approval over the supplies and facilities as applicable. For example, in 2005, the Poso Creek Regional Water Management Group (RWMG) was formed to focus on improving water supplies through the Poso Creek Region (Region), which includes three Central Valley Project (CVP) contractors (Delano-Earlimart Irrigation District; Kern-Tulare Water District; Shafter-Wasco Irrigation District) and three non-CVP contractors (SWSD; North Kern Water Storage District, and Cawelo Water District). In 2007, the Poso Creek RWMG adopted an Integrated Regional Water Management Plan (IRWMP or Plan) which describes and proposes solutions to Region’s short-term and long-term water supply shortage challenges. The Plan was subsequently updated in 2014. In 2010, SWSD, as lead agency, adopted a negative declaration pursuant to CEQA for a project for groundwater banking and exchanges within the Poso Creek [IRWMP] Plan Area. Among other things, the project allows for groundwater banking and exchanges between

said districts using any supplies available. This project generally involves coordinating wet-period supply and limited available absorptive capacity with districts that have direct recharge and/or in-lieu recharge facilities with the capacity to absorb the wet-period supply at the time the water is available. Similar groundwater banking and exchanges are also covered by a USBR's NEPA Finding of No Significant Impact (FONSI) finalized in May, 2012, and related Final Environmental Assessment (EA) 09-121 – Poso Creek Integrated Regional Management Plan: 25-Year Groundwater Banking, Transfer and Exchange Program; and NEPA FONSI finalized in March, 2017, and related EA 16-036 for San Joaquin Municipal Utility District (SSJMUD) – Poso Creek Integrated Regional Management Plan.

Integrated use of the above for storage or recovery (including groundwater banking and exchanges) of project water is not expected to require construction of new facilities in addition to proposed Project facilities (except for possible additional SWRU facilities and Pond-Poso Spreading Grounds which have previously been evaluated pursuant to CEQA), and would be subject to all mitigation measures and other commitments applicable to the same.

Additional detailed information about existing and new Project-related facilities can be provided upon request, and will be included in the EIR for the Project. For more information, please also see the District's Agricultural Water Management Plan, December 2015.

ITEM 4. PURPOSE OF USE, DIVERSION/STORAGE AMOUNT AND SEASON

- a. The proposed maximum rate of diversion is about 2,200 cfs. The total combined amount for direct diversion and storage during any one year will be up to 1,600,000 acre-feet. It is not practical to separate the amounts as between direct diversion and storage inasmuch as all Semitropic's diversions are routed through storage facilities in Tulare Lake (Kettleman Reservoir), the California Aqueduct, and various surface and underground storage facilities owned or otherwise available to Semitropic as discussed below (See Figures 1, 1A, and 2).

The diversion season is from January 1 through December 31. The storage season is from January 1 through December 31.

Semitropic would divert, store and use Kings River water to help provide local communities protection from flood waters and for irrigation and replenishment of the underlying groundwater basin, among other beneficial uses and purposes.

Kings River water would initially be diverted from the South Fork of the Kings River and transported for direct conveyance through and/or storage in the Kettleman Reservoir and delivered to the California Aqueduct via the Aqueduct Intertie and turn-in/turn-out facility near Kettleman City.

Kings River water stored in the Kettleman Reservoir will, in addition to providing potential flood protection benefits for local disadvantaged communities and nearby prime agricultural lands, preserve and/or enhance wildlife by creating intermittent fresh water habitat benefitting waterfowl, including migratory birds along the Pacific

Flyway, and members of the public interested in viewing birds and water features will be able to do so at Project visitor sites.

Semitropic would then deliver the water through existing California Aqueduct turn-in/turn-outs directly or by exchange for storage and beneficial use in Semitropic and potentially elsewhere in the KCWA service area, including groundwater banks accessible by Semitropic, e.g., the Semitropic Groundwater Bank, the Pioneer Project, the City of Bakersfield 2800 Acres, and the Kern Water Bank (see Figures 1, 1A, 2). Water stored underground would be subsequently extracted and conveyed via the Aqueduct and associated existing facilities for beneficial uses within Semitropic and possibly elsewhere in the KCWA service area. Project water may also be beneficially used to irrigate farm lands in Kern County and Kings County (Dudley Ridge Water District). See Figure 5 for depiction of places of use.

Year around, in addition to storing water in various groundwater banks described below, Semitropic imports supplement water (mostly SWP supplies) principally for irrigation uses within its boundaries, consisting of about 135,000-145,000 irrigated acres (although that amount varies), through a system of canals, pipelines and associated facilities. Approximately 110,000 acres are served with surface water, and about 40,000 acres are totally reliant on groundwater (with plans to extend surface water connections to some of those lands). The amount of water needed to irrigate crops in Semitropic can be as much as approximately 350,000-400,000 acre-feet annually. Semitropic's available supplies have recently ranged from 234,655 acre-feet (Wet/2011) to 32,179 (Critical/2016). Existing crops include: almonds, pistachios, grapes, fruits and vegetables, nursery, cotton, alfalfa and grain/pasture.

Year around, Semitropic operates the Semitropic Groundwater Bank, which includes about 110,000 acres of in-lieu recharge facilities, and uses about 580 net acres of direct-recharge spreading areas (Pond-Poso spreading grounds) within its boundaries in addition to Poso Creek and unlined canals to store water in the underlying groundwater basin. See Figure 2. By use of in-lieu facilities, Semitropic can store up to about 1,000,000 acre-feet in the underlying groundwater basin presently and an additional approximate 650,000 acre-feet with buildout of the Stored Water Recovery Unit (SWRU) of the Semitropic Groundwater Bank. Semitropic can recharge up to approximately 507,000 acre-feet annually through use of the existing and future planned Pond-Poso Spreading Grounds, the Goose Lake recharge area, and in-lieu recharge areas. See Figure 2, and Table 3 to Underground Storage Supplement.

In addition, year around, Semitropic could store additional waters in the underlying basin by use of available recharge capacity in water banks to which it has access via the California Aqueduct. The approximate maximum recharge capacities of those water banks are as follows: Pioneer Project (208,000 AF/y); 2800 Acres (250,000 AF/y); and Kern Water Bank (500,000 AF/y). See Table 3 to Underground Storage Supplement.

Water stored in the underlying groundwater basin is subsequently extracted and used by Semitropic landowners and other water users principally for irrigation. Groundwater from the aquifer recharged by Semitropic is also extracted for M&I and domestic uses by the City of Wasco, the Wasco State Prison, and the Lost Hills Public Utility District, although they are not directly served with surface water by Semitropic. Semitropic also delivers water to the Kern National Wildlife Refuge and various duck clubs located within its Wildlife Improvement District (WID) for wildlife preservation and/or enhancement purposes, which also pump groundwater from the aquifer recharged by Semitropic.

ITEM 5. SOURCES AND POINTS OF DIVERSION/REDIVERSION

- a./b.** Sources and points of diversion/rediversion in Kings County/Tulare Lake and Kings County/Kern County are shown on Figures 3 and 4, respectively.
- c.** In Kings County, Kettleman City Post Office (1000 Milham St., Kettleman City, CA 93239). In Kern County, Wasco Post Office (800 E Street, Wasco, CA 93280), which is located within Applicant's boundaries.

ITEM 6. WATER AVAILABILITY

- a.** As indicated in the GEI Memorandum Exhibit "B" attached to the accompanying Petition to revoke and/or revise the Kings River FAS Declaration, although the members of the Kings River Water Association (KRWA) claim to own rights to virtually all of the flow of the Kings River, substantial amounts of water have not been beneficially used within the Kings River service area or other authorized places of use, and there is a reasonable likelihood that unappropriated water is available for the proposed appropriation. Furthermore, as stated in the Petition, there may be other grounds for determining that the Kings River FAS Declaration be revoked and/or revised. Therefore, reasonable cause exists to conduct a hearing on the question of whether the fully appropriated status of the Kings River should be revoked or revised (23 CCR § 871).
- b.** Yes.
- c.** Yes, during all months.
- d.** Overall, Applicant does not have water supplies available to it sufficient to meet existing irrigation demands of landowners and water users within its boundaries. While Semitropic's water budget is in the process of being refined and subject to revision as appropriate, water use demands within Semitropic greatly exceed Semitropic's supplies as indicated above. (See, e.g., Semitropic Water Storage District, Agricultural Water Management Plan, Table 48.)

Semitropic is a member unit of the Kern County Water Agency (KCWA), and has a member unit contract for 155,000 acre-feet of State Water Project (SWP) Table A amount. The SWP has become increasingly unreliable over time with deliveries to

Semitropic averaging about 30% for the years 2014-2016 and 85% for 2017 (a year of extraordinary precipitation). Semitropic also has a permit (Permit 17538; Application 25117) for Poso Creek supplies in Kern County, although the availability of such water is generally irregular in time and amount and the quantity of usable water is relatively small. From time to time, Semitropic has purchased surplus or flood supplies (215 Water) from the Central Valley Project when available. Semitropic has rights to return flows resulting from supplies it has imported and banked. While usable groundwater underlies much of Semitropic, the basin (DWR Groundwater Basin No. 5-22.14) is designated in DWR's Bulletin 118 – *California's Groundwater Update 2003* - as in a critical state of overdraft. It is expected that the Sustainable Groundwater Management Act, effective January 1, 2015, will limit groundwater extractions from said basin including within Semitropic. Of these supplies, the only supplies currently available to Semitropic which may be re-regulated for storage via Project facilities located in the dry Tulare Lake bed, are Semitropic's SWP supplies when they cannot be used to meet then-existing irrigation demands or stored in Semitropic.

ITEM 7. PLACE OF USE

- a. Semitropic will use a combination of existing and new facilities to divert, convey and store for beneficial uses and purposes Kings River in the Kettleman Reservoir and associated facilities in the dry Tulare Lake bed in Kings County. Kings River water will be transported to and through the California Aqueduct and associated turn-in/turn-out structures and other existing facilities and delivered directly or by exchange to meet then-existing irrigation demands or for storage (direct recharge or in-lieu) and beneficial uses within the boundaries of Semitropic or other irrigated lands in Kern County (including the KCWA service area) and Kings County, including storage in Kern Fan groundwater banks (Figure 1A) to which Semitropic is a participant or otherwise has access, with stored water being subsequently extracted, rediverted, and stored and beneficially used via existing facilities within the place of use (Figure 5). Kings River water could also be delivered via the Aqueduct and associated facilities to meet the demands of irrigated lands in Kings County (Figure 5). (Based on Division of Water Rights Guidance [Booklet at p. 14], Semitropic understands that for irrigation within public districts, mutual water companies, or other extremely large areas, it is sufficient to identify exterior boundaries of the general service area. Additional information can be provided upon request if required.)
- b. Applicant's understanding is that, in lieu of APNs, it is sufficient to identify the exterior boundaries of place of use where, as here, the place of use covers an extremely large area. APNs, however, can be provided upon request if required.

ITEM 8. PROJECT SCHEDULE

The project will utilize a combination of new and existing facilities; thus, it can be viewed as proposed or partially complete. Semitropic owns exclusive easements and other existing

property interests in the Tulare Lake area where new facilities will be constructed. Those new facilities are described in the response to Item 3 above (Project Description). In general, the project will utilize existing points of diversion/diversion, water distribution facilities, and groundwater storage facilities including recharge ponds. The Stored Water Recovery Unit of the Semitropic Water Bank has been evaluated pursuant to CEQA, with approximately 13,000 acres of in-lieu water distribution facilities remaining to be completed and approximately 490 net acres of direct recharge ponds added to the existing 580 net acres of Pond-Poso Spreading Grounds. See Figure 2.

The estimated time for all construction to be completed is 3 to 5 years.

Applicant believes water applied for can be used to the full extent intended presently and, in any event, no later than approximately 3 to 7 years after filing of this application based on past hydrologic records.

ITEM 9. JUSTIFICATION OF AMOUNTS REQUESTED

a. Irrigation use is also discussed in Item 4 above. Although irrigated acres vary annually, there are about 135,000-145,000 irrigated acres in Semitropic. The number of irrigated acres in Kern County and Kings County (Dudley Ridge Water District), see Figure 5, is estimated to be approximately 875,000 acres. The amount of water needed to irrigate crops in the place of use is estimated at 2.5 million acre-feet annually.

b./e./h. The City of Wasco, Wasco State Prison, and Lost Hills Public Utility District are not directly served by Semitropic, but rely upon groundwater from the basin recharged by Semitropic for M&I and domestic purposes. The requested data for domestic, municipal and industrial use is provided below, to the extent known.

City of Wasco

Actual Use

Period	Population	MAXIMUM MONTH Avg Daily Use (gallons per capita)	MAXIMUM MONTH Rate of Diversion (cfs)	ANNUAL USE Average daily use (gallons per capita)	ANNUAL USE Acre-foot (per capita)	ANNUAL USE Total (acre-feet)
Present	26,159					
2016	26,159	149	6.02	105.99	0.119049 32	3103
2015	26,159	170	6.87	125.82	0.140936 50	3595
2014	19,511	263	7.95			

Future Use (Based on 2010 Urban Water Management Plan, Revised 2013)

Period	Population	MAXIMUM MONTH Avg Daily Use (gallons per capita)	MAXIMUM MONTH Rate of Diversion (cfs)	ANNUAL USE Average daily use (gallons per capita)	ANNUAL USE Acre-foot (per capita)	ANNUAL USE Total (acre-feet)
Present	26,159	305	12.34	216	0.24	6327
2020	30,881	346	16.54	245	0.27	8479
2025	36,566	376	21.25	266	0.30	10895
2030	42,251	405	26.49	287	0.32	13579
2035	47,936	435	32.24	308	0.34	16528

The City of Wasco supplies potable water to a population of approximately 26,159 residents.² The City's sole source of potable water is pumped from groundwater wells owned and operated by the City.³ The City delivers approximately three-quarters of its water for residential use.⁴ The remaining quarter is used for commercial, institutional, government, industrial, and landscape purposes.⁵

The projected future annual use is based on the City of Wasco's 2010 Urban Water Management Plan (prepared in June 2011 and revised January 2013). The plan projects a steady population growth of 1,137 people per year. The maximum month average is calculated using data from the City's 2015 and 2016 Total Monthly Potable Water Production. The maximum amount diverted each year was August 2016 and July 2015. In August 2016, the amount of potable water produced was 11.9 percent of the City's annual total, while in July 2015 the amount was 11.7 percent. The table uses a mean of these figures, 11.8 percent, to calculate the average daily use in the maximum month.

Wasco State Prison

According to the California Department of Corrections and Rehabilitation, the Prison's population was 5,261 as of May 17, 2017. Prison water use has been estimated at 232.74 million gallons or 714 acre-feet per year (<http://greenbuildings.ca.gov/Facility/9328>).

Lost Hills Public Utility District

² June 2014 – January 2017 Supplier Report Dataset

³ CITY OF WASCO 2010 URBAN WATER MANAGEMENT PLAN, p.1

⁴ Id. at p. 16

⁵ Id.

Lost Hills operates a well field located within approximately 70 acres of Semitropic, which principally provides the domestic and M&I supplies for the residents of the community of Lost Hills.

d./k. Semitropic delivers water to duck clubs and the National Wildlife Refuge within its boundaries for recreation and/or fish and wildlife preservation and/or enhancement, which also pump groundwater from the basin which is recharged by Semitropic. The Kettleman Reservoir to be constructed in Tulare Lake will create intermittent fresh water habitat for migratory and other birds and waterfowl, which the public will be able to view at project visitor information and viewing sites.

l. Description and basis for determination of amount of water needed for storage and groundwater replenishment is discussed in Items 4 and 6 above.

ITEM 10. DIVERSION AND DISTRIBUTION METHOD

a./b./c./d./e. In general, the currently proposed diversion and distribution method is as follows. Conveyance canals for the Project begin at Empire Weir No. 2, located at the terminus of the South Fork of the Kings River. The Empire Weir No. 2 bifurcates the South Fork of the Kings River into three major manmade canals: Blakeley, South Fork, and Tulare Lake. These canals are used for irrigation deliveries and floodwater management. During irrigation operations the canals convey water from the South Fork Kings River to various diversions along the length of the canals. Under moderate flood operations these canals are used to manage floodwaters within Tulare Lake, moving water to existing storage facilities or to agricultural lands designated for flooding. Under major flood conditions on the Kings River, floodwater is conveyed from the South Fork Kings River into the South Fork Canal and then to the Tulare Lake bottom. The Project will utilize the Blakeley and South Fork canals to convey floodwaters from the Kings River to the Project's storage and conveyance facilities.

The Project includes a conveyance facility connecting the Kettleman Reservoir and Kettleman Canal to the California Aqueduct southwest of Tulare Lake. The conveyance facility (Aqueduct Intertie) will include an intertie between the Project and the Aqueduct that will consist of an intake/discharge canal, pumping plants, pipelines, and a turn-in/turn-out structure on the east side of the Aqueduct with a capacity of up to approximately 2,100 cfs, depending on ultimate configuration. Flood flows in excess of the capacity to pump water into the Aqueduct would be delivered into the proposed Kettleman Reservoir. If the capacity to pump water into the Aqueduct is 2,100 cfs, then any inflows in excess of 2,100 cfs would be conveyed into the storage area. Water will be stored temporarily until capacity becomes available at the Aqueduct Intertie, when the stored volume will be pumped into the Aqueduct. When available capacities are not used for King River waters, they could be used for other available waters including local flood or nuisance waters and/or re-regulation of available SWP supplies delivered from the

Aqueduct through the same Aqueduct Intertie for temporary storage in the Kettleman Reservoir. Water stored in the Kettleman Reservoir would be conveyed back to the Aqueduct when needed for underground storage and beneficial use.

a. Diversion will be by gravity by means of: pipe in unobstructed channel

b. Diversion will be by pumping from: channel/canal

Pump discharge rate: 2,100 cfs

Horsepower: (12) 4,000 horsepower (hp) vertical turbine, below-grade pumps.

Pump Efficiency: high

c. Conduit from diversion point to first lateral or to offstream storage reservoir:

CONDUIT - channel

MATERIAL – natural channel

CROSS-SECTION – 40 feet wide at base, 10 feet deep, with a side slope of 3:1 ratio

LENGTH – 71,000 feet

TOTAL LIFT – 200 feet

CAPACITY – 2,100 cfs

d. Storage reservoirs: (For underground storage, complete and attach underground storage form)

RESERVOIR NAME OR NUMBER - Kettleman Reservoir

Surface area when full (acres) – 12,000 acres

Capacity (acre-feet) – 15,000 to 30,000 acre-feet of storage

Maximum water depth (feet) – 6 feet

e. Outlet pipe: Complete for storage reservoirs having a capacity of 10 acre-feet or more.

RESERVOIR NAME OR NUMBER

Diameter in inches - three 144-inch ID diameter pipelines

Length in feet – each 13,200 linear feet in length

Fall: 150 feet

Head: 150feet

Dead Storage: n/a

ITEM 11. CONSERVATION AND MONITORING

a. Semitropic developed and implemented a groundwater storage project, more than 50 years ago, which is based on the conjunctive use of available surface water and groundwater, further augmented by the capabilities of the Semitropic Groundwater Bank and other groundwater banks to which Semitropic has access, to increase the efficient use of both surface and groundwater resources. Through this project, Semitropic has regulated a highly variable SWP supply through both surface storage and conveyance facilities (via the California Aqueduct) and underground storage. It is a classic, and one of the first, large-scale in-lieu recharge projects of its kind. Semitropic principally uses

the concrete-lined canals and pipelines to deliver water. The water is measured at the point of diversion from Aqueduct, at the point where it enters Semitropic, and at each point of delivery, whether to irrigation or groundwater replenishment. Regarding irrigation deliveries, there has been a trend, over many years, toward permanent crops and away from annual crops. With this change has come a corresponding increase in the growers' use of more controlled irrigation methods, such as micro sprinklers and drip. In this regard, it is important to note, and is in fact the basis for Semitropic's project, that all water that percolates to the underlying groundwater, whether intentionally through spreading or seepage from canals, is recoverable for reasonable and beneficial use. Kings River water will be managed through use of these same conservation and monitoring facilities, and applicable water conservation plans and policies, including Semitropic's water shortage allocation policies and Drought Management Plan (see, e.g., Semitropic Water Storage District, Agricultural Water Management Plan (December 2015)).

ITEM 12. RIGHT OF ACCESS

a./b. Semitropic holds recorded easements and licenses (available upon request) where the water will be diverted, stored, transported and used on nearly 20,000 acres of property in Tulare Lake where new facilities will be constructed, including a license agreement with Reclamation District No. 761. Discussions with members of the Kings River Water Association including Tulare Lake Basin Water Storage District, and the Army Corp of Engineers, which Semitropic at this time believes may own or administer points of diversion upstream of said property are ongoing or will be initiated in the near future, and is Semitropic is confident it will obtain any necessary consent. Semitropic either owns or has contract rights to use facilities in Kern County. Discussions with DWR for construction of a turn-in/turn-out agreement to tie into and use the Aqueduct for conveyance of Kings River water are ongoing. In this regard, Semitropic notes that applicable SWP contracts provide for conveyance of non-project water, and the Wheeling Statutes (Water Code § 1810 et seq.) allow for use of unused capacity in water conveyance facilities.

ITEM 13. EXISTING WATER RIGHTS AND RELATED FILINGS

a./b. Other: Semitropic holds a license for diversion, conveyance, storage and use of Kings River and other local flood waters as part of the recorded easements and licenses referenced in Item 12, relating to and providing for among other things use of Empire Weir No. 2 and the Blakeley Canal, from the owners of said 20,000 acres and Reclamation District No. 761. Also, as mentioned in the Petition, Semitropic has had extension discussions with representatives of KRWA, with the hopes of reaching agreement with respect to rights to use flood water for the Project. Otherwise, the information requested by b. either does not exist or is unknown to Semitropic at this time.

c. Semitropic has a water right permit (Permit No. 017538) to divert up to 66,000 acre-feet from Poso Creek for beneficial use within a portion of the place of use (Semitropic).

ITEM 14. OTHER SOURCES OF WATER

The Project could possibly be used to re-regulate available SWP supplies and/or divert unallocated flood or nuisance waters flowing into Tulare Lake bed for other local streams (e.g. Tule and/or Kaweah). Other than Semitropic existing SWP contract supplies, the details of any such purchase, contract or other arrangement are unknown.

ITEM 15. MAP REQUIREMENTS

See Figures 3, 4 and 5 for maps of the proposed points of diversion and place of use.

ITEM 16. COUNTY PERMITS

See response to Item 17 below.

ITEM 17. STATE/FEDERAL PERMITS AND REQUIREMENTS

a./b.

Possible permits and approvals required for the Project include the following:

Agency	Type of Approval
FEDERAL	
U.S. Army Corps of Engineers	Clean Water Act, Section 404 Permit for any fill of wetlands or waters of the US
U.S. Fish and Wildlife & National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service	Section 7 Consultation/Biological Opinions
STATE	
Department of Water Resources (DWR)	Approval of Division of Safety of Dams (DSOD) for storage facilities in excess of 6 feet in height
DWR	Approval of State Water Project Pump-in Proposal (PIP)
DWR	DWR Encroachment Permit, Construction and Post-Construction Emergency Action Plan, Aqueduct Turn-in/Turnout Agreement
Central Valley Regional Water Quality Control Board (CVRWQCB)	Clean Water Act, Section 401 Water Quality Certification
CVRWQCB	Notice of Intent for coverage under Statewide Construction Stormwater Permit (Section 402 Clean Water Act)
CVRWQCB	Notice of Intent for coverage under Low-Threat Discharge Order for Dewatering during Construction and for Pipeline Discharges for Testing and Startup

State Water Resources Control Board (SWRCB)	Approval of Water Right
Native American Heritage Commission (NAHC)	Notification and Consultation (as requested) with California Native American Tribes per requirements of Assembly Bill 52
California Department of Fish and Wildlife (CDFW)	Streambed Alteration Agreement for pipeline crossings of streams and substantial diversions of water, even if there is no alteration to the streambed or course for a stream
CDFW	Incidental Take Permit for California Endangered Species Act (CESA)
CA Office of Historic Preservation	Section 106 Consultation
Caltrans	Permits required in event of construction activities occurring within the rights-of-way of Caltrans; encroachment permits
LOCAL/OTHER	
Kings County	Encroachment permit (as needed)
Kings County	Williamson Act Contract Cancellation for loss of agricultural lands
San Joaquin Valley Air Pollution Control District	Authority to Construct/Permit to Operate
Pacific Gas & Electric Company	Coordination Study for Tie-in; Preliminary Engineering Study Plan Agreement; Distribution Service and Extension Agreement
NAHC and tribe(s)	AB 52 Compliance consultation

ITEM 18. ENVIRONMENTAL DOCUMENT

a./b. Semitropic filed a Notice of Exemption (NOE) on November 17, 2016 with the Kings County Clerk pursuant to the California Environmental Quality Act, for acquisition of real property easements and licenses relating to the approximate 20,000 acres of real property where new Project facilities are proposed to be construed in the Tulare Lake bed in Kings County (see Item 3 for description of project facilities). A copy of the NOE is available upon request.

c. Semitropic as lead agency is preparing an EIR for the project.

ITEM 20. ARCHEOLOGY

a./b./c. Semitropic as lead agency is preparing an EIR for the project, which will include a cultural resources report including any known archeological or historic sites within the general project area

ITEM 21. ENVIRONMENTAL SETTING

See 10 photos attached, taken at:

- Army Weir – Downstream (3 Photos)
- Army Weir – Upstream
- Empire Weir No. 2 – Blakeley Canal – Downstream
- Empire Weir No. 2 – Blakeley Canal – Upstream
- Empire Weir No. 2 – South Fork Canal – Downstream
- Empire Weir No. 2 – South Fork Canal – Upstream
- Empire Weir No. 2 – Tulare Lake Canal - Downstream
- Empire Weir No. 2 – Tulare Lake Canal - Upstream

Table 1 to Attachment to
Semitropic Application to Appropriate

**Table 1 to Application
Kings River/Tulare Lake Points of Diversion and Rediversion**

Point of Diversion/Point of Rediversion numbers	Water Agency/Name	California Coordinates (NAD 83)		Township	Range	Section
		Northing	Easting			
1	Army Weir	2024812	6329801	18S	20E	10
2	Crescent Weir	2024790	6304280	18S	20E	11
3	Empire Weir #2	1949812	6315308	20S	20E	19
4	Kettleman Canal Turn-in/out	1932494	6317652	21S	20E	5
5	Reservoir Turn-in/out	1908406	6296168	21S	19E	34
6	Reservoir Turn-in/out	1896947	6296168	22S	19E	10
7	Reservoir Turn-in/out	1884447	6296038	22S	19E	22
8	Blakeley Turn-in	1910350	6287511	21S	19E	28
9	Blakeley Turn-in	1897495	6278246	22S	19E	6
10	Blakeley Turn-in	1879841	6288052	22S	19E	28
11	Aqueduct Turn-in/out	1872121	6282627	22S	19E	32

Table 2 to Attachment to
Semitropic Application to Appropriate

Table 2 to Application
Kings/Kern County Points of Diversion and Rediversion

Point of Diversion/Point of Rediversion numbers	Water Agency/Name	California Coordinates (NAD 83)		Township	Range	Section
		Northing	Easting			
1	Kern River Canal Easdt	2320290	6236482	29S	27E	33
2	Pioneer Canal Headworks	2316849	6224833	30S	26E	1
3	Kern Water Bank Canal	2300058	6189531	30S	25E	24
4	Main Canal	2298636	6185782	30S	25E	23
5	EWSID/TLBWSD/Co. of Kings	2558085	5978681	30S	25E	23
6	DRWD 1	2546844	5984933	22S	18E	24
7	DRWD 1-B	2535484	5989644	22S	19E	30
8	TLBWSD C	2520501	5995388	23S	19E	5
9	DRWD 1A	2520488	5995394	23S	19E	21
10	DRWD 2	2509346	6000612	23S	19E	22
11	TLBWSD B	2509341	6000613	24S	19E	2
12	Coastal Branch	2501021	6001585	24S	19E	2
13	DRWD 3	2500279	6001837	24S	19E	23
14	KWB Basin L1	2298426	6184837	24S	19E	26
15	KCWA (Lost Hills 1)	2476888	6009377	25S	20E	6
16	KCWA (Lost Hills 2)	2472304	6015700	25S	20E	8
17	KCWA (Lost Hills 3)	2449950	6024425	25S	20E	16
18	KCWA (Berenda Mesa 2)	2448880	6031780	26S	20E	2
19	KCWA (Lost Hills 4)	2448880	6031780	26S	20E	1
20	KCWA (Lost Hills 7A)	2431468	6046867	26S	21E	17
21	KCWA (Lost Hills 7B)	2431475	6046861	26S	21E	17
22	KCWA (Lost Hills 5)	2427949	6049140	26S	21E	28
23	KCWA (Lost Hills 6)	2416270	6056154	27S	21E	3
24	KCWA (Lost Hills 8)	2413747	6057709	27S	21E	3
25	KCWA (Belridge 1)	2396897	6064730	27S	21E	25
26	KCWA (Belridge 1A)	2393475	6065858	27S	21E	26
27	KCWA (Buena Vista 1A, 1B)	2393145	6065997	27S	21E	36
28	KCWA (Semitropic)	2393145	6065997	27S	21E	36
29	KCWA (Semitropic Penstock)	2393030	6066042	27S	21E	36
30	KCWA (Belridge 2)	2390737	6066181	28S	21E	19
31	KCWA (Belridge 3)	2371785	6071400	28S	22E	32
32	KCWA (Belridge 4)	2359048	6074421	28S	22E	32
33	KCWA (Belridge 5)	2356484	6075665	29S	22E	4
34	KCWA (Belridge 6)	2345463	6082362	29S	22E	15
35	KCWA (West Kern, La Paloma)	2332271	6100996	29S	23E	19
36	KCWA (Buena Vista 6/Elk Hills)	2315427	6126906	30S	23E	1
37	KCWA (Buena Vista 2)	2302769	6150346	30S	24E	15
38	KCWA (Cross Valley Canal/H. Miller)	2296900	6160285	30S	24E	24
39	KCWA (Rosedale-Rio Bravo)	2296843	6160382	30S	25E	19
40	KCWA (West Kern Turnin)	2289033	6167720	30S	25E	32
41	KCWA (West Kern 1)	2285322	6170978	31S	25E	9
42	KCWA (Buena Vista 7)	2277955	6172939	31S	25E	9
43	KCWA (Buena Vista 5/Kern-Cawelo)	2277101	6172406	31S	25E	17
44	KCWA (Buena Vista 3)	2276476	6171290	31S	25E	17
45	KCWA (Buena Vista 4)	2253279	6160021	31S	24E	25
46	KCWA (West Kern 2)	2233800	6150155	32S	24E	26
47	KCWA (Teerink-Maricopa 2)	2225780	6151790	12N	23W	32
48	KCWA (Teerink-Maricopa 3)	2222247	6163127	12N	23W	34
49	KCWA (Teerink-Maricopa 4)	2221257	6173129	12N	22W	31
50	KCWA (Teerink-Maricopa 5)	2215943	6193228	11N	22W	2
51	KCWA (Teerink-Maricopa 6)	2215823	6206228	11N	21W	6
52	KCWA (Teerink-Maricopa 7)	2212426	6223057	11N	21W	11
53	KCWA (Teerink-Maricopa 8)	2209800	6233982	11N	20W	18
54	KCWA (Teerink-Maricopa 9)	2200415	6250027	11N	20W	16
55	KCWA (Arvin Edison WSD)	2201482	6255765	11N	20W	22
56	KCWA (Teerink-Maricopa 9A)	2197143	6263535	11N	20W	23
57	KCWA (Teerink-Maricopa 10)	2194766	6268317	11N	20W	26
58	KCWA (Teerink-Maricopa 11)	2186192	6264587	10N	20W	3
59	KCWA (Teerink-Maricopa 12)	2177725	6276093	10N	19W	6

**Table 2 to Application
Kings/Kern County Points of Diversion and Rediversion**

Point of Diversion/Point of Rediversion number	Water Agency/Name	California Coordinates (NAD 83)		Township	Range	Section
60	KCWA (Teerink-Maricopa 13A)	2176051	6283398	10N	19W	9
61	KCWA (Teerink-Maricopa 13)	2174713	6286841	10N	19W	9
62	KCWA (Teerink-Maricopa 13B)	2172124	6290937	10N	19W	24
63	KCWA (Teerink-Maricopa 14)	2164776	6305130	10N	18W	19
64	KCWA (Teerink-Maricopa 15, Tehachapi-Cummings)	2167353	6313540	10N	18W	20