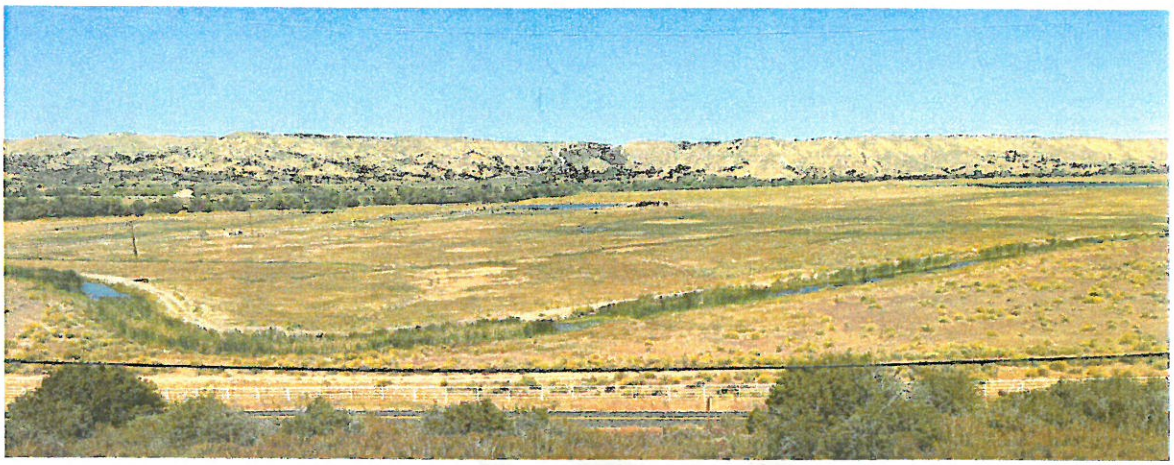
DRAFT PROSPECTUS

TAPESTRY MITIGATION BANK

Hesperia, San Bernardino County, California



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VCS Environmental
EXPERTS IN STRATEGIC SOLUTIONS

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1.0 INTRODUCTION

On behalf of the Bank Sponsor, VCS Environmental (VCS) prepared this draft prospectus for the proposed Tapestry Mitigation Bank (Proposed Bank), which covers approximately 2,000 acres in the City of Hesperia, California.

1.1 PROPOSED BANK NAME

Tapestry Mitigation Bank

1.2 BANK CONTACTS

Bank Sponsor:
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1.3 QUALIFICATIONS OF THE BANK SPONSOR

Members of the Bank Sponsor team have extensive real estate development experience in California and throughout the United States. They have developed major master-planned communities throughout the United States for more than 30 years, including implementing

mitigation projects for resource impacts and coordinating with various agencies and consultants for successful implementation. Select projects are included below.

- The Oak Valley masterplan is a 6,700-acre residential community that includes two golf courses, a 220-acre town center, and over 16,000 residential units. The Bank Sponsor worked with the various resource agencies to obtain all required resource permits. In addition, they worked with Rivers and Lands Conservancy and the Western Riverside County Regional Conservation Authority on establishment of over 1,200 acres of permanent open space within the project.
- The Bank Sponsor is developing the Silverwood masterplan in Hesperia, California, that will include over 15,600 residential units and 700,000 square feet of commercial space. They are working with the California Department of Fish and Wildlife (CDFW) on Joshua tree mitigation strategies and implementation of Streamed Alteration Agreements for the project.
- In Williamson County, Tennessee, the Bank Sponsor permitted a major wetlands rehabilitation project as part of a community called The Grove. This project was permitted through the United States Army Corps of Engineers (USACE) and the Tennessee Department of Environment and Conservation (TDEC).
- The Bank Sponsor implemented a 6.7-acre habitat restoration project in Eastvale, California, which included restoring riparian and riparian/upland transitional habitat followed by several years of maintenance, monitoring, and remedial activities as needed.

As a consultant to the Bank Sponsor, VCS Environmental (VCS) has extensive experience in the southern California region for project entitlement, California Environmental Quality Act (CEQA), biology, and jurisdictional waters and wetland regulations, serving both public and private sector firms. VCS has familiarity with every aspect of mitigation bank approvals and operations, having led the development of draft and final Bank Enabling Instruments, inter-agency coordination and all steps of the regulatory permitting process, CEQA documentation, grading permits, credit sales and marketing. VCS has consulted on several mitigation bank projects including Petersen Ranch, Soquel Canyon, Elizabeth Lake, and Colorado Lagoon. VCS managed and led the sales of mitigation credits for Land Veritas Mitigation Banks (Soquel Canyon, Petersen Ranch, and Elizabeth Lake). In this role, VCS prepared cost estimates, reservation agreements and sales agreements for clients interested in purchasing mitigation bank credits.

VCS also consults on all aspects of native habitat mitigation/restoration implementation including design, installation, maintenance, and compliance with regulatory permit guidelines. VCS staff provides expertise in the preparation of habitat mitigation and monitoring plans (HMMPs), mitigation monitoring reports (MMRs), California Rapid Assessment Method (CRAM) analysis reports, biological assessment reports, species survey reports, and habitat conservation plan

compliance documents. VCS staff are experienced in drafting, implementing, and meeting the monitoring requirements of restoration plans and HMMPs to meet success criteria and fulfill regulatory agency conditions and obligations.

VCS's Regulatory staff members play a key role in coordinating with regulatory agencies to secure permits and meet permit compliance requirements. Staff members have extensive experience in the preparation of United States Army Corps of Engineers (USACE) Section 404 Permits, California Department of Fish and Wildlife (CDFW) Section 1602 Streambed Alteration Agreements, and Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certifications and Waste Discharge Requirements permits.

Please note that the names and mailing addresses of adjacent Property Owners will be provided with the Final Prospectus for public notice mailing, per the May 2021 USACE Prospectus Checklist.

1.4 BUSINESS ENTITY VERIFICATION AND AUTHORIZATIONS

The Bank Sponsor is a Limited Liability Company. The required documents listed in the May 2021 USACE Prospectus Checklist will be provided with the Final Prospectus.

2.0 BACKGROUND

From the 1860s until 2021, the western portion of the Proposed Bank site was used for cattle ranching. While these activities inhibited establishment of native plant communities in portions of the site and degraded suitable arroyo toad (*Anaxyrus californicus*) breeding habitat in the drainages adjacent to the Proposed Bank site, grazing operations kept non-native species in check. According to communications with staff and board members from the Mojave Desert Resource Conservation District, it is likely that the continued removal of non-native biomass (e.g., thistles) by cattle significantly reduced fuel loads and likely prevented recent fires (i.e., the 2003 Old Fire and the unnamed fire in 2007) from encroaching into the West Fork Mojave River and nearby riparian habitats.

In 1973, the Crestline Sanitation District (CSD) began discharging disinfected secondary effluent to the Bank site via an eleven-mile outfall pipeline. The discharged water is carried by earthen canals to various agricultural ponds within the property and primarily remains onsite (refer to Appendix A). The entire system was set up to convey the water to the Tapestry site, hold it onsite for vegetation uptake and have the cows graze to remove the vegetation and pollutants.

The Proposed Bank is located within the southern portion of the City of Hesperia (City) and is designated as "Tapestry Specific Plan" within the City's General Plan. In 2016, the City approved the Tapestry Specific Plan, an approximately 9,365-acre planned community that includes development of residential housing, town centers, parks, open space areas, schools, public and civic facilities and associated infrastructure. The Specific Plan designates the western portion of the Bank property as residential development, and the rest of the Bank property as open space.

The Specific Plan includes a requirement to implement a Habitat Management Plan for existing conservation easements over two major drainage courses outside of the mitigation bank, as well as over the open space areas in the Specific Plan, including some areas which previously were within the Proposed Bank (refer to Appendix B). The Habitat Management Plan has been prepared by the developer's consultant and outlines the long-term, perpetual management of these areas in order to protect and monitor sensitive and special status biological resources. The Proposed Bank excludes all areas subject to the Habitat Management Plan; however, the Habitat Management Plan remains relevant to the Bank as it governs adjacent open space areas. The Habitat Management Plan has been approved by the City of Hesperia and will be implemented prior to the start of construction for Phase I of the development, which is located in the northernmost portion of the Specific Plan area.

In 2017, after a challenge by the Center for Biological Diversity, San Bernardino Valley Audubon Society, and Sierra Club (collectively, the "Petitioners"), the applicant agreed to exclude development within Planning Area 10 (constituting the majority of the Proposed Bank) and within portions of Planning Areas 6 and 8 (within the south central portion of the Specific Plan area and outside of the Bank) (*Center for Biological Diversity, et al. v. City of Hesperia, et al.*, San Bernardino County Superior Court Case No. CIVDS 1602824). The Planning Areas can be viewed in Appendix B – *Tapestry Specific Plan Project Design/Phasing Exhibit*. Per the settlement agreement, the Petitioners had 18 months to exercise an option to purchase this property (the "Option Property"). The Petitioners did not exercise this option. The agreement allowed for the creation of a mitigation bank within the Option Property, as outlined in Section VI (*Reservations*) of the agreement:

> "In the event that Petitioners do not exercise their Option or complete the purchase of the Option Property under the Agreement, HVI [Hesperia Venture I, LLC] and TVG [Terra Verde Group, LLC] reserves the post-closing right to utilize the Option Property for mitigation banking in accordance with California Department of Fish and Wildlife Conservation and Mitigation Banking Guidelines."

The Proposed Bank will provide habitat uplift activities and perpetual land management within a majority of the Option Property area, which includes those areas within and adjacent to the lands previously designated as Planning Area 10.

The settlement agreement also required the removal of cattle from the property, and cattle grazing operations onsite were concluded in 2021. With the removal of the cattle, non-native species will certainly dominate the previously grazed land, and the site will require active maintenance to prevent the spread of invasive species, reduce fuel loads and improve biological values onsite. The long-term management of this large piece of land will be costly. Habitat and aquatic resource credits purchased through the Proposed Bank will provide funding in perpetuity for this service in addition to other habitat uplift activities within the property.

3.0 BANK PURPOSE AND NEED

Tapestry Mitigation Bank is proposed as a private commercial mitigation bank, sponsored by Hesperia Venture I, LLC. The Bank proposes to offer credits as compensatory mitigation for the following:

- Aquatic resource impacts authorized under:
  - Section 404 of the Clean Water Act;
  - Porter Cologne Water Quality Control Act (Porter-Cologne); and
  - Section 1600 of the California Fish and Game Code (FGC).
- Impacts to arroyo toad authorized under the Federal Endangered Species Act (FESA).
- Impacts to sensitive habitats under CEQA.

Forecasts for the southern California region expect populations to increase 0.9 percent annually between 2020 and 2035, with some of the highest rates in the County of San Bernardino (SCAG 2012). To meet the needs of the growing population in the High Desert region, a number of large development projects are anticipated in the near future including large-scale roadway improvements, retail and commercial centers, distribution centers, master-planned communities, medical centers, airport improvements, and renewable energy projects (BLM 2015, City of Hesperia 2019, Coldwell Banker 2019). The Proposed Bank will have the ability to contribute a significant number of credits in order to meet the compensatory mitigation needs of future development in the region.

The Proposed Bank is comprised of a significant piece of land containing valuable habitat and resources. Habitat within the Proposed Bank supports arroyo toad, southern willow scrub, riparian woodland, and alkali meadow, along with many other wildlife species. The Bank will provide habitat uplift activities, such as removal of invasive vegetation, re-grading ponds and channels to spread treated water discharges over a broader area, and creating suitable upland habitat for arroyo toad by planting scrub vegetation. These activities will provide ecological benefits by reducing suitable habitat for arroyo toad predators and improving wildlife habitat in general.

The Bank site provides local and regional connectivity for wildlife propagation and movement, connecting the San Bernardino Mountains to the High Desert Region. Large swaths of federally and state-owned lands surround the site to the east and south. Open space areas adjacent to the Bank will be conserved and managed in perpetuity as part of the Silverwood residential development (formerly known as Tapestry). The Bank will provide conserved land that will contribute to these existing habitat areas, reducing edge effects, and increasing habitat connectivity for wildlife movement.

4.0 LOCATION MAPS AND AERIAL PHOTOS

The Proposed Bank is located in the City of Hesperia (City), County of San Bernardino (County), California (Figures 1 and 2). The property totals approximately 2,000 acres. The Proposed Bank is regionally accessible from Interstate 15 at State Route 138 by heading east to State Route 173. State Route 173 roughly follows the southern boundary of the Proposed Bank before it turns north and crosses the eastern third of the Bank property. The Bank property is generally accessible from State Route 173, via gated entrances along the southern boundary of the site.

As shown in Figure 3, the Proposed Bank is located within Sections 21, 22, 23, 24, 26, 27, 28, and 33 of Township 3N and Range 4W of the United States Geological Survey 7.5-minute Silverwood Lake quadrangle map. The site is located at the following coordinates: 34.315031, -117.301947. A color aerial map depicting elevation contours within the property and showing the current conditions of the Proposed Bank and surrounding properties is included as Figure 4.

The Proposed Bank includes all or a portion of the following Assessor Parcel Numbers (APNs), which are depicted in Figure 5: 035720112, 035723135, 035720108, 035719115, 035717122.

The Proposed Bank will be situated adjacent to conserved, open space to the south (San Bernardino National Forest and Silverwood Lake) and to the east (Mojave River Forks Regional Park). As part of the Tapestry Specific Plan, a master planned residential community will be located to the northwest. Impacts to the Proposed Bank by the master planned community will be minimized through the use of BMPs such as vegetated swales and detention basins (PEC West 2014) as well as the installation and maintenance of fencing and signage to keep residents out of the Proposed Bank property. As part of the residential community, areas along the West Fork Mojave River and Grass Valley Creek will be subject to a conservation easement and managed in perpetuity. Areas west of the property are comprised of both privately held land and Bureau of Land Management (BLM) land. Refer to Figure 6, Conserved Land.

The presence of canals and stock ponds in historic aerial photographs demonstrate that the site was used for cattle grazing for many years. Historic aerials are included as Appendix C.

The Proposed Bank property is zoned for the Tapestry Specific Plan. The City of Hesperia General Plan Land Use map (February 7, 2020) is included as Figure 7. A map depicting the Federal Emergency Management Agency (FEMA) Flood Hazard Zones within and adjacent to the Bank property is included as Figure 8.

5.0 CREDITING

The Bank proposes to offer credits as compensatory mitigation for the following:

- Aquatic resource impacts authorized under:
  - Section 404 of the Clean Water Act;
  - Porter Cologne Water Quality Control Act (Porter-Cologne); and
  - Section 1600 of the California Fish and Game Code (FGC).
- Impacts to arroyo toad authorized under the Federal Endangered Species Act (FESA).
- Impacts to sensitive habitats under CEQA.

Within the western portions of the Bank that receive recycled water discharges from Crestline Sanitation District, key components of the existing infrastructure (e.g., flood gates, pipe culverts) are aging and do not allow for proper water flow in certain areas. Infrastructure would be replaced and/or improved and minor grading would occur to increase the surface area of land that will receive recycled water. These activities would occur primarily within the alkali meadow habitat onsite, providing establishment/re-establishment credits. Rehabilitation credits will be generated through the installation of riparian habitat in certain areas such as the agricultural ponds or the disturbed alkali meadows in order to increase habitat complexity, provide additional wildlife refugia, and improve water quality (e.g., reducing nitrates). Riparian species installed would be sourced from existing vegetation onsite to the extent possible via cuttings and would include Fremont's cottonwood, arroyo willow, and red willow.

Within the portions of the Bank east of the areas receiving recycled water discharges, the Bank proposes to generate enhancement credits through the management of non-native vegetation or preservation credits in areas not dominated by non-native vegetation.

The above-mentioned grading within the alkali meadow habitat would also reduce the depth of ponds and ditches onsite, thereby reducing the amount of suitable habitat for arroyo toad predators such as bullfrogs and crayfish. In order to restore suitable upland habitat for arroyo toad near the western and northwestern boundaries of the Bank, soils will be ripped and additional native scrub vegetation established within degraded upland habitat.

All portions of the Bank land would be placed under a conservation easement and installation/maintenance of fencing will occur as needed to prevent trespassing/off-highway vehicle use.

5.1 BANK ESTABLISHMENT AND OPERATION

The Proposed Bank will be established by undertaking the following tasks:

1. Recordation of a conservation easement over the Proposed Bank property, except where excluded as described in Section 12, upon the Interagency Review Team's (IRT) acceptance of the Bank Enabling Instrument (BEI). The conservation easement will be held by a non-profit or government entity approved by the IRT.
2. Development of a management plan for the Proposed Bank and establishment of an endowment to fund management activities of the Proposed Bank in perpetuity. The endowment will be held and managed by a non-profit or government entity approved by the IRT.
3. Restoration of alkali meadow habitat degraded from grazing activity and/or invasive species;
4. Removal and ongoing management of non-native vegetation within aquatic and upland habitats;
5. Expansion of freshwater wetland and riparian areas;
6. Restoration of suitable upland habitat for arroyo toad;
7. Establishment of fencing and monitoring to discourage off-road vehicles and limit trespassing.

The Proposed Bank property will continue to be owned by Hesperia Venture I, LLC or its successors. The conservation easement and endowment will be held and managed by entities approved by the IRT.

6.0 SERVICE AREA

Service areas for the Proposed Bank were determined using: a) guidance from the Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division USACE ("USACE guidance document"; USACE 2015); b) Level III Ecoregion data from the United States Environmental Protection Agency; and c) regional habitat data from the United States Department of Agriculture (Calveg 2007) and the Desert Renewable Energy Conservation Plan (DRECP; BLM 2015).

6.1 USACE SECTION 404

The USACE guidance document utilizes a watershed approach in service area determinations as required by the compensatory mitigation rule (33 C.F.R. part 332), and appropriate watersheds are included based on their Hydrologic Unit Code (HUC). Most commonly, this approach will use 8-digit and 10-digit HUCs (referred to as HUC-8 and HUC-10, respectively).

The Proposed Bank site is situated in the foothills of the San Bernardino Mountains within the southernmost reaches of the Mojave River watershed area. The site is located within the West Fork Mojave River watershed (HUC-10), in the southern portion of the Mojave River sub-basin (HUC-8). A majority of the Proposed Bank site is within the Mojave Basin and Range Ecoregion; the southeastern corner lies within the Southern California Mountains Ecoregion.

Based on the USACE guidance document, the HUC-10 watershed containing the site comprises the minimum service area for the Proposed Bank (Table 1). Areas that require minimal justification for inclusion are those that: a) abut the HUC-10 watersheds containing the site, b) occur within the same HUC-8 sub-basin as the site, and c) occur within the same ecoregion as the site. The HUC-10 watersheds that meet these three criteria were included in the primary service area. As the Proposed Bank site lies directly adjacent to large drainages that comprise a portion of the headwaters to the Mojave River, enhancement activities within these drainages on the Proposed Bank site will improve the function and services of the Mojave River. As such, additional HUC-10 watersheds were included in the proposed primary service area based on their hydrologic connectivity with the Mojave River. These additional watersheds are contained within the same HUC-8 sub-basin and ecoregion as the Proposed Bank site.

The regional land cover data show that desert scrub, desert wash, and desert riparian habitats within the Proposed Bank site also occur within the adjacent Antelope-Fremont Valleys, Coyote-Cuddeback Lakes, and Death Valley-Lower Amargosa Sub-basins, all of which occur within the same Basin (HUC-6) as the Proposed Bank. The Proposed Bank would perform habitat uplift activities within desert wash habitats similar to those found in the adjacent HUC-8 sub-basins.

Thus, the HUC-10 watersheds that abut the Proposed Bank Sub-basin (HUC-8) are proposed as secondary service areas.

Throughout the region there exists a need for mitigation for actions that minimally impact low-quality aquatic resources. These actions include minor infrastructure maintenance activities that impact flood control and conveyance drainages, detention basins, ditches, ephemeral urban drainages and other minor maintenance modifications. To address this regional need, and in the event no other bank credits are available, USACE will decide on a case-by-case basis if projects outside the primary and secondary service areas may be authorized to use 404 credits as compensatory mitigation.

See Figure 9 and Table 1 for a complete list of proposed USACE service areas.

Table 1. Proposed USACE Service Areas

		HUC-10	Hydrologic Unit Name	Sub-basin
PRIMARY SERVICE AREA	Minimum Service Area	1809020802	West Fork Mojave River	Mojave River (18090208)
	Areas Requiring Minimal Justification	1809020801	Deep Creek	
		1809020807	Bell Mountain Wash-Mojave River	
	Hydrologically Justified (based on hydrologic connectivity with Mojave River)	1809020804	Sheep Creek-El Mirage Lake	
		1809020803	Apple Valley Dry Lake	
		1809020808	Wild Wash	
		1809020809	Buckthorn Wash-Mojave River	
		1809020806	Lower Fremont Wash	
		1809020805	Upper Fremont Wash	
		1809020811	Daggett Wash-Mojave River	
		1809020810	Stoddard Valley	
		1809020812	Wall Street Canyon	
		1809020814	Manix Wash-Mojave River	
		1809020813	Troy Lake	
		1809020815	Langford Well Lake	
		1809020817	Cronise Lakes	
		1809020822	Baxter Wash-Mojave River	
		1809020816	Broadwell Lake	
		1809020826	Silver Lake	
		1809020824	Halloran Wash	
		1809020825	Soda Lake	
		1809020823	Willow Wash	

		HUC-10	Hydrologic Unit Name	Sub-basin
		1809020821	Crucero Hill	
		1809020820	Lower Kelso Wash	
		1809020819	Upper Kelso Wash	
		1809020818	Devils Playground Wash	
SECONDARY SERVICE AREA	Ecologically Justified	1809020609	Le Montaine Creek-Eller Slough	Antelope-Fremont Valleys (18090206)
		1809020619	Mescal Creek-Rocky Buttes	
		1809020622	Rogers Lake	
		1809020621	Peerless Valley	
		1809020707	Town of Kramer Junction-Town of Jimgrey	Coyote-Cuddeback Lakes (18090207)
		1809020711	Harper Lake	
		1809020710	Mount General	
		1809020709	Black Canyon	
		1809020704	Superior Lake	
		1809020703	Coyote Lake	
		1809020701	Nelson Lake-Bicycle Lake	
		1809020310	Red Pass Lake-Salt Creek	Death Valley-Lower Amargosa (18090203)
		1809020314	Riggs Wash-Salt Creek	
		1809020311	Upper Kingston Wash	
TERTIARY SERVICE AREA		1809020312	Lower Kingston Wash	Death Valley-Lower Amargosa (18090203)
		1809020313	1809020313	
		1809020315	1809020315-Amargosa River	
		1809020316	Leach Lake	
		1809020317	Buckwheat Wash-Amargosa River	
		1809020405	1809020405	Panamint Valley (18090204)
		1809020406	Pilot Knob Valley	
		1809020407	1809020407	
		1809020509	Black Hills	Indian Wells-Searles Valleys (18090205)
		1809020604	Lower Cache Creek	Antelope-Fremont Valleys (18090206)
		1809020608	Koehn Lake	
		1809020610	Big Rock Creek-Big Rock Wash	
		1809020612	1809020612	
		1809020620	1809020620	
		1809020623	Rock Creek-Buckhorn Lake	
		1809020702	Goldstone Lake	

		HUC-10	Hydrologic Unit Name	Sub-basin
		1809020705	Inscription Canyon	Coyote-Cuddeback Lakes (18090207)
		1809020706	Cuddeback Lake	
		1809020708	1809020708	

6.2 LAHONTAN RWQCB (SECTION 401/PORTER-COLOGNE)

It is anticipated that credits from the Proposed Bank will be utilized to mitigate impacts to Waters of the State authorized by the Lahontan Regional Water Quality Control Board (RWQCB) under Porter-Cologne and impacts to Waters of the United States authorized under Section 401 of the Clean Water Act. The proposed primary andsecondary service areas are the same as those proposed for Section 404 service areas (see Section 6.1 for a discussion of the proposed service areas). As with the Section 404 service area, in the event no other bank credits are available, RWQCB will decide on a case-by-case basis if projects outside the primary and secondary service areas may be authorized to use 401/Porter-Cologne credits as compensatory mitigation. See Figure 10 and Table 2 for a complete list of proposed Lahontan RWQCB service areas.

Table 2. Lahontan RWQCB Service Areas

		HUC	Hydrologic Unit Name	Sub-basin
PRIMARY SERVICE AREA	Minimum Service Area	1809020802	West Fork Mojave River	Mojave River (18090208)
	Areas Requiring Minimal Justification	1809020801	Deep Creek	
		1809020807	Bell Mountain Wash-Mojave River	
	Hydrologically Justified	1809020804	Sheep Creek-El Mirage Lake	
		1809020803	Apple Valley Dry Lake	
		1809020808	Wild Wash	
		1809020809	Buckthorn Wash-Mojave River	
		1809020806	Lower Fremont Wash	
		1809020805	Upper Fremont Wash	
		1809020811	Daggett Wash-Mojave River	
		1809020810	Stoddard Valley	
		1809020812	Wall Street Canyon	
		1809020814	Manix Wash-Mojave River	
		1809020813	Troy Lake	
		1809020815	Langford Well Lake	
		1809020817	Cronise Lakes	
		1809020822	Baxter Wash-Mojave River	

		HUC	Hydrologic Unit Name	Sub-basin
		1809020816	Broadwell Lake	
		1809020826	Silver Lake	
		1809020824	Halloran Wash	
		1809020825	Soda Lake	
		1809020823	Willow Wash	
		1809020821	Crucero Hill	
		1809020820	Lower Kelso Wash	
		1809020819	Upper Kelso Wash	
		1809020818	Devils Playground Wash	
SECONDARY SERVICE AREA	Ecologically Justified	1809020609	Le Montaine Creek-Eller Slough	Antelope-Fremont Valleys (18090206)
		1809020619	Mescal Creek-Rocky Buttes	
		1809020622	Rogers Lake	
		1809020621	Peerless Valley	
		1809020707	Town of Kramer Junction-Town of Jimgrey	Coyote-Cuddeback Lakes (18090207)
		1809020711	Harper Lake	
		1809020710	Mount General	
		1809020709	Black Canyon	
		1809020704	Superior Lake	
		1809020703	Coyote Lake	
		1809020701	Nelson Lake-Bicycle Lake	
		1809020310	Red Pass Lake-Salt Creek	Death Valley-Lower Amargosa (18090203)
		1809020314	Riggs Wash-Salt Creek	
		1809020311	Upper Kingston Wash	
TERTIARY SERVICE AREA		1809020312	Lower Kingston Wash	Death Valley-Lower Amargosa (18090203)
		1809020313	1809020313	
		1809020315	1809020315-Amargosa River	
		1809020316	Leach Lake	
		1809020317	Buckwheat Wash-Amargosa River	
		1809020405	1809020405	Panamint Valley (18090204)
		1809020406	Pilot Knob Valley	
		1809020407	1809020407	
		1809020509	Black Hills	Indian Wells-Searles Valleys (18090205)
		1809020604	Lower Cache Creek	
		1809020608	Koehn Lake	

		HUC	Hydrologic Unit Name	Sub-basin
		1809020610	Big Rock Creek-Big Rock Wash	Antelope-Fremont Valleys (18090206)
		1809020612	1809020612	
		1809020620	1809020620	
		1809020623	Rock Creek-Buckhorn Lake	
		1809020702	Goldstone Lake	Coyote-Cuddeback Lakes (18090207)
		1809020705	Inscription Canyon	
		1809020706	Cuddeback Lake	
		1809020708	1809020708	

6.3 CDFW (SECTION 1600)

The Proposed Bank site lies within two adjacent ecoregions and thus exhibits habitat characteristic of both ecoregions. The site contains fresh emergent wetland, montane riparian, and valley foothill riparian habitats characteristic of the Southern California Mountains Ecoregion, as well as desert scrub, desert wash, and desert riparian habitats representative of the Mojave Basin and Range Ecoregion. The service area proposed for Section 1600 impacts authorized by CDFW includes the HUC-10 watersheds within the Section 404 and Section 401 primary and secondary service areas described above, but excludes areas outside of San Bernardino County to keep the service area within the limits of CDFW Region 6 (Figure 11). Areas outside of the proposed service area could be considered by CDFW on a case-by-case basis.

6.4 SPECIAL STATUS SPECIES AND SENSITIVE HABITATS

6.4.1 ARROYO TOAD (USFWS)

The arroyo toad population within and adjacent to the Bank property is part of desert transverse range populations. The presence of arroyo toad offers opportunities to restore upland areas onsite to provide improved foraging and aestivation habitat and to reduce available habitat for arroyo toad predators, thereby furnishing the rationale for providing mitigation credits for this species. Based on coordination with Ruben Ramirez, the proposed primary service area for arroyo toad habitat impacts is comprised of all watersheds contained within the Mojave River Sub-basin (HUC-8) (Figure 12). Projects outside of the primary service area will be considered by USFWS on a case-by-case basis.

6.4.2 CEQA

In addition to the sensitive species described above, the Proposed Bank can offer compensatory mitigation credits for sensitive habitats covered under CEQA (See Section 7.5, Table 6). The

Proposed Bank site lies within two adjacent ecoregions and thus exhibits habitats characteristic of both ecoregions. The site contains fresh emergent wetland, montane riparian, and valley foothill riparian habitats characteristic of the Southern California Mountains Ecoregion, as well as desert scrub, desert wash, and desert riparian habitats representative of the Mojave Basin and Range Ecoregion. The proposed service area for impacts authorized under CEQA includes the entirety of the Southern California Mountains and Mojave Basin and Range Ecoregions (Figure 13).

7.0 BASELINE SITE CONDITIONS

7.1 TOPOGRAPHY AND HYDROLOGY

The Proposed Bank is situated directly north of the San Bernardino Mountains. Elevations range from 3,100 to 3,800 feet above mean sea level. The site is characterized by a lower lying valley, with hills to the west and east and a 200-foot high bluff separating the Bank site from the High Desert habitats to the north.

The West Fork of the Mojave River (West Fork Mojave River) abuts the Proposed Bank site to the north and west and flows in a northeasterly direction from its source in the San Bernardino Mountains. From the mountains, it flows into Silverwood Lake, which lies approximately 0.25 mile south of the site, then continues along the western edge of the Proposed Bank site via the Silverwood Lake Spillway. East of the Bank site it converges with Deep Creek to form the Mojave River.

Grass Valley Creek bisects the eastern portion of the Bank site, but is not contained within the Bank boundary; rather the Bank site lies adjacent to Grass Valley Creek on either side. Grass Valley Creek flows in a northerly direction from the San Bernardino Mountains until it reaches its confluence with West Fork Mojave River.

West of the Bank site, the drainage in Horsethief Canyon flows in a northeasterly direction from the San Bernardino Mountains before its confluence with the West Fork Mojave River, west of the Bank site.

The California Aqueduct lies northwest of the Proposed Bank site. North of the Bank site, the above-ground aqueduct is directed underground in large diameter pipes and continues south toward Los Angeles.

The Cedar Springs Dam is located immediately south of the site. The dam was constructed in 1971 as a regulating reservoir along the East Branch of the State Water Project and formed Silverwood Lake. It has an outlet into the West Fork Mojave River. Occasionally, surface drainage from precipitation in the San Bernardino Mountains enters the lake. When this occurs, an equal volume is released from the lake within a short time to maintain natural flows in the Mojave River (MWA 2019).

Ground water component flows consisting of natural ground water underflow and underflow seepage of California aqueduct water from Silverwood Lake occur at the Bank site. No natural

surface flows occur within the Bank property apart from onsite sheet flows as a result of storm events. Recycled water is discharged to the property as described below.

The CSD currently discharges secondarily treated wastewater within the western half of the Bank property, where cattle grazing operations historically occurred. Water quality constituent levels for water discharged onto the site, including dissolved oxygen, pH, Biochemical Oxygen Demand, and Methylene Blue Active Substances, are in compliance with the regulatory requirements of the RWQCB as documented in CSD's annual reports (CSD 2021). The discharged water is carried by earthen canals to various agricultural ponds and primarily remains onsite. This water has been dispersed onsite for almost 50 years and is expected to be dispersed for at least another 50 years. Based on their data from the past 10 years, CSD delivers approximately 680 acre-feet of water per year to the property, ranging from 525 acre-feet to 900 acre-feet per year, depending on winter rainfall (i.e., wet winter versus drought). Refer to Table 3 below.

Table 3. Annual CSD Discharges to Proposed Bank Property

Year	Annual Discharge (acre-feet)[1]
2010	909.7
2011	881.7
2012	607.3
2013	587.7
2014	559.1
2015	525.0
2016	577.0
2017	728.8
2018	574.8
2019	828.3

[1]Source: Crestline Sanitation District

As noted in Appendix A, data provided by CSD indicates that groundwater within the Bank property is found at shallow depths (5 to 18 feet below the surface). Groundwater Monitor Well No. 1 is located upgradient of the CSD discharge area and can be used to infer what natural groundwater depths (i.e., without the discharges of treated wastewater) would be for the Bank property. The groundwater depths for Well No. 1 have been compiled from Appendix A into Table 4 below.

Table 4. Groundwater Monitor Well No. 1 Water Depths

Year	Depth from Surface to Groundwater (feet)			
	March	June	September	December
2009	8.8	10.8	11.9	12.6
2010	8.7	9.8	13.8	14.9
2011	10.3	13.0	17.5	16.0
2012	16.9	17.0	17.0	10.2
2013	12.5	12.5	13.0	12.7
2014*	8.1	11.9	13.6	17.1
2015*	8.3	9.2	13.8	11.9
2016*	11.2	15.2	15.9	14.9
2017*	8.4	ND	ND	ND
2018*	15.2	16.5	17.9	11.0
2019*	10.0	16.5	17.9	9.5
AVERAGE	**10.7**	**13.2**	**15.2**	**13.1**

Source: Crestline Sanitation District

ND: No data reported

*Beginning in 2014, groundwater depths at all wells were reported based on elevation. The depths from the surface to groundwater have been extrapolated from the data collected in 2014-2019 to be consistent with data reported in 2009-2013.

The soils within the Proposed Bank consist of sand and sandy loam associated with alluvial fans, river washes, water, or mountains (Figure 14). The Proposed Bank property contains nine (9) soil types:

- 102—Avawatz-Oak Glen Association, gently sloping
    - Alluvial Fans, 0 to 15 inches sandy loam, 15-60 inches loamy sand, somewhat excessively drained
- 119—Cajon-Wasco, Cool Complex, 2 to 9 percent slopes
    - Alluvial fans, 0 to 8 inches sand, 8-60 inches sand, somewhat excessively drained
- 121—Crafton-Sheephead-Rock Outcrop Association, steep
    - Mountains, 0 to 10 inches and 10 to 35 inches sandy loam, well drained
- 126—Gullied Land-Haploxeralfs Association
    - Alluvial fans, excessively drained
- 178—Water
- DnF—Trigo family-Lithic Xerorthents, warm complex, 30 to 50 percent slopes
- DnG—Trigo family-Lithic Xerorthents, warm complex, 50 to 75 percent slopes

- DxF—Wapi-Pacifico families, dry-Rock outcrop complex, 30 to 50 percent slopes
- PsD—Avawatz-Oak Glen, dry families association, 2 to 15 percent slopes

7.2 SITE HISTORY AND SURROUNDING LAND USES

The Proposed Bank site was used for cattle ranching from the 1860s until 2021. Land uses adjacent to the Proposed Bank property include recreational activities within the San Bernardino National Forest and Silverwood Lake to the south and within the Mojave River Forks Regional Park to the northeast (Figure 6). A portion of the Pacific Crest Trail runs through the southeastern corner of the site. Residential development occurs north of the site and there are single-family residences scattered along Highway 173 to the south. Las Flores Ranch, one of the largest privately held ranches in the region, occurs just outside the Proposed Bank boundary to the west. Note that lands in the vicinity of the property have been subjected to fires in the recent past including the 2003 Old Fire, which burned a large area west of the site, and a 2007 unnamed fire north of the Bank site, which burned a majority of the area north of Summit Valley and east of the California Aqueduct.

The approximately 5,000-acre Silverwood residential community, part of the Tapestry Specific Plan area, is planned for development along the western and northern borders of the Proposed Bank site (Figure 2). This community will consist of a combination of low-, medium-, and high-density residential development as well as schools and community parks.

7.3 ZONING AND LAND USE

The Proposed Bank is located within the southern portion of the City of Hesperia and is designated as "Tapestry Specific Plan" within the City's General Plan. In 2016, the City approved the Tapestry Specific Plan (Plan), which included the development of the Proposed Bank property. After a challenge by the Center for Biological Diversity, San Bernardino Valley Audubon Society, and Sierra Club, the applicant agreed to remove a portion of the land from the development plan. The settlement agreement between these parties and the developer allowed for the creation of a mitigation bank within the southcentral and southeastern portions of the Plan. Thus, the current zoning and land uses are compatible with and allow for the creation of the Proposed Bank. Other open space areas related to the residential development, as identified on Figure 2, will be subject to a Habitat Management Plan to protect and monitor sensitive and special status biological resources and provide perpetual management of the land. Two resources located adjacent to the Bank, the West Fork Mojave River and Grass Valley Creek, will be deed restricted and managed in perpetuity under the aforementioned Habitat Management Plan.

7.4 AQUATIC RESOURCES

An abundance of aquatic resources occur within the Proposed Bank site, including wetland and riparian habitats as well as desert washes and ephemeral streams. The National Wetlands Inventory (NWI; USFWS 2021b) indicates wetland areas within the site, based on changes in vegetation patterns as observed from satellite imagery. A map showing NWI resources within the Bank site is included as Figure 15. An aquatic resource delineation was conducted by VCS using aerial imagery and field visits performed in 2019/2020 (Figures 16 and 17). Table 5 reports the calculated acreages of the habitat types. Site photographs are included as Appendix D, and photo locations can be viewed on Figures 16 and 17.

Table 5. Aquatic Resources within the Proposed Bank

Resource	Habitat Type	Acres
Non-wetland / Non-riparian	Agricultural Ponds	39.2
	Alkali meadow	157.0
	Big sagebrush scrub	0.1
	Chamise chaparral	12.8
	Disturbed habitat	3.7
	Interior live oak chaparral	0.4
	Interior live oak woodland	16.4
	Mojave mixed scrub	5.7
	Rabbitbrush Scrub	0.1
	Semi-desert chaparral	1.1
	Mojave Juniper Woodland	1.4
Wetland and/or Riparian	Alkali Meadow	199.9
	Disturbed Wetland	2.4
	Freshwater Marsh	7.9
	Mojave Riparian Forest	1.3

Resource	Habitat Type	Acres
	Mule Fat Scrub	0.8
	Riparian Woodland	24.4
	Southern Willow Scrub	1.6

7.4.1 WETLAND RESOURCES

Wetlands within the Proposed Bank occupy approximately 238.3 acres and consist of saturated wetlands, semipermanently flooded wetlands, and forested/shrub wetlands.

Freshwater Emergent Wetland (PEM1Bm)

Saturated wetlands are present within the alkali meadow habitat located south of the West Fork Mojave River. Alkali meadows are composed of dense to fairly open perennial grasses and sedges. Plant species that make up this vegetation community include salt grass (*Distichlis spicata*), Mexican rush (*Juncus mexicanus*), California field sedge (*Carex praegracilis*), and yerba mansa (*Anemopsis californica*). Alkali meadow is found in the western portion of the site. Portions of the alkali meadow are characterized as wetlands based on the development of hydric soil indicators. Approximately 200 acres of alkali meadow are considered wetlands, while 157 acres are considered non-wetlands; non-wetland alkali meadow is subject to CDFW jurisdiction as a riparian aquatic resource.

Classification code : PEM1Bm

System Palustrine (P) : The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Class Emergent (EM) : Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

Subclass Persistent (1) : Dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.

Water Regime Seasonally Saturated (B) : The substrate is saturated at or near the surface for extended periods during the growing season, but unsaturated conditions prevail by the end of the season in most years. Surface water is typically absent, but may occur for a few days after heavy rain and upland runoff.

Special Modifier Managed (m) — This modifier is used to identify wetlands where water inputs are controlled to achieve a specific water regime or habitat type. Water control structures in combination with dikes and impoundments are common.

Riverine Semipermanently Flooded Wetlands (R3UBFx)

Semipermanently flooded wetlands occur within the earthen canals that carry sanitation district discharges within the southern portions of the bank; these areas are characterized by freshwater marsh habitat dominated by perennial, emergent monocots, such as cattails (*Typha* sp.).

Classification code: R3UBFx

System Riverine (R) : The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.

Subsystem Upper Perennial (3) : This Subsystem is characterized by a high gradient. There is no tidal influence, and some water flows all year, except during years of extreme drought. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. The natural dissolved oxygen concentration is normally near saturation. The fauna is characteristic of running water, and there are few or no planktonic forms. The gradient is high compared with that of the Lower Perennial Subsystem, and there is very little floodplain development.

Class Unconsolidated Bottom (UB) : Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.

Water Regime Semipermanently Flooded (F) : Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.

Special Modifier Excavated (x): This Modifier is used to identify wetland basins or channels that were excavated by humans.

Freshwater Forested/Shrub Wetland (PSSB)

Freshwater forested/shrub wetlands occur onsite as riparian woodland and southern willow scrub habitats, located primarily within the eastern portion of the Bank site.

Classification code: PSSB

System Palustrine (P) : The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Class Scrub-Shrub (SS) : Includes areas dominated by woody vegetation less than 6 m (20 feet) tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.

Water Regime Seasonally Saturated (B) : The substrate is saturated at or near the surface for extended periods during the growing season, but unsaturated conditions prevail by the end of the season in most years. Surface water is typically absent, but may occur for a few days after heavy rain and upland runoff.

7.4.2 NON-WETLAND RESOURCES

Non-wetland resources within the Proposed Bank occupy approximately 237.9 acres and consist of freshwater ponds and ephemeral streams.

Agricultural Ponds (PUBHm)

Freshwater agricultural ponds are found sporadically throughout the western portion of the site in and around the alkali meadow areas. These ponds are primarily unvegetated.

Classification code: PUBHm

System Palustrine (P) : The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Class Unconsolidated Bottom (UB) : Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.

Water Regime Permanently Flooded (H) : Water covers the substrate throughout the year in all years.

Special Modifier Managed (m) — This modifier is used to identify wetlands where water inputs are controlled to achieve a specific water regime or habitat type. Water control structures in combination with dikes and impoundments are common.

Ephemeral Streambed (R4SB1, R4SB4, R4SB7)

Ephemeral streams within the Proposed Bank consist of first- and second-order streams originating in steep uplands, with water flowing during or immediately following substantial precipitation events. Vegetation within these areas include Semi-desert Chaparral, Mojave Juniper Woodland, Chamise Chaparral, and Mojave Mixed Scrub communities. Descriptions for these community types are found in Section 7.5.

7.5 VEGETATION COMMUNITIES

Based on biological surveys conducted in 2019/2020, the proposed Bank site is characterized by a number of sensitive vegetation communities, as shown in Table 6 and Figure 18. The habitat present onsite totals approximately 2,000 acres. A full list of plant species observed within the Bank property is attached as Appendix E.

Table 6. Vegetation Communities Present

Vegetation Community*	Alliance**	Sensitive Community	Acres	Dominant Species
Agricultural Pond [POND]	N/A	N/A	39.3	Unvegetated
Alkali Meadow (incl. disturbed areas) [AM]	*Distichlis spicata* Herbaceous Alliance (Salt Grass Flats);	CEQA	570.8	salt grass (*Distichlis spicata*), rush (*Juncus* sp.), yerba mansa (*Anemopsis californica*)
Big Sagebrush Scrub [BSS]	*Artemisia tridentata* Shrubland Alliance (Big sagebrush)	No	12.8	Big sagebrush (*Artemisia tridentata*), four-wing saltbush (*Atriplex canescens*), white rabbitbrush (*Ericameria nauseosa* var. *hololeuca*)

Vegetation Community*	Alliance**	Sensitive Community	Acres	Dominant Species
Chamise Chaparral [CC]	*Adenostoma fasciculatum* Shrubland Alliance (Chamise chaparral)	No	457.7	Chamise (*Adenostoma fasciculatum*)
Developed [DEV]	N/A	No	4.40	N/A
Disturbed Habitat [DH]	N/A	N/A	31.2	Unvegetated or few non-native species
Disturbed Wetland [DW]	*Lepidium latifolium* Herbaceous Semi-Natural Alliance (Perennial pepper weed patches)	No	2.4	Perennial pepperweed (*Lepidium latifolium*), rye grass (*Festuca perennis*), American licorice (*Glycrrhiza lepidota*)
Freshwater Marsh [FWM]	*Typha latifolia* Herbaceous Alliance (Cattail marshes)	CEQA	7.9	Broad-leaf cattail (*Typha latifolia*), umbrella sedge (*Cyperus eragrostis*), rush
Interior Live Oak Chaparral [ILOC]	*Quercus wislizeni* Shrubland Alliance (Interior Live Oak Chaparral)	CEQA, S3	16.3	Interior live oak (*Quercus wislizenii*), holly-leaf cherry (*Prunus ilicifolia* var. *ilicifolia*), mountain mahogany (*Cercocarpus betuloides*)
Interior Live Oak Woodland [ILOW]	*Quercus wislizeni* Forest Alliance (Interior live oak woodland)	CEQA	70.1	Interior live oak, western sycamore (*Platanus racemosa*), basket bush (*Rhus aromatica*)
Mojave Juniper Woodland [MJW]	*Juniperus californica* woodland alliance (California Juniper Woodland)	No	174.9	California juniper (*Juniperus californica*), chaparral yucca (*Hesperoyucca whipplei*)
Mojave Mixed Scrub (incl. disturbed areas) [MMS]	*Ericameria nauseosa* Shrubland Alliance (Rubber rabbitbrush scrub)	CEQA	439.3	White rabbitbrush, black-banded rabbitbrush (*Ericameria paniculata*), interior goldenbush (*Ericameria linearfolia*), Buckwheat

Vegetation Community*	Alliance**	Sensitive Community	Acres	Dominant Species
				(*Eriogonum* spp.), yerba santa
Mojave Riparian Forest [MRF]	*Populus fremontii* Forest Alliance (Fremont cottonwood forest)	S3.2, CEQA	1.4	Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*)
Mule Fat Scrub [MFS]	*Baccharis salicifolia* Shrubland Alliance (Mulefat thickets)	No	0.8	Mulefat
Rabbitbrush Scrub [RBS]	*Ericameria nauseosa* Shrubland Alliance (Rubber rabbitbrush scrub)	No	59.2	White rabbitbrush
Riparian Woodland [RW]	*Populus fremontii* Forest Alliance (Fremont cottonwood forest)	S3.2, CEQA	48.5	Velvet ash (*Fraxinus velutina*), western sycamore, Fremont cottonwood
Semi-desert Chaparral [SDC]	*Eriogonum fasciculatum* Shrubland Alliance (California buckwheat scrub)	No	46.0	Buckwheat (*Eriogonum* spp.), Nevada ephedra (*Ephedra navadensis*), yerba santa (*Eriodictyon trichocalyx*)
Southern Willow Scrub [SWS]	*Salix gooddingii – Salix laevigata* Forest & Woodland Alliance (Gooding's willow - red willow riparian woodland and forest)	S3, CEQA	7.3	Red willow, arroyo willow

*Vegetation communities previously mapped using Holland (1986) classification.
** Vegetation Alliance(s) present onsite, based on the Manual of California Vegetation, 2nd edition (Sawyer et al. 2009).
Bracketed letters correspond with Vegetation/Land Cover figure abbreviations.

Agricultural Ponds [POND]

Several agricultural ponds occur within the western portion of the Proposed Bank. A majority of these ponds hold water seasonally and are dry during the summer and fall months. However, a few of the ponds hold water for longer periods of time as they are fed by canals which carry treated wastewater through the western portions of the site.

Alkali Meadow (including disturbed) [AM]

Alkali meadows are composed of dense to fairly open perennial grasses and sedges. Relatively few plant species make up this vegetation community, some of which may include alkali sacaton, salt grass, rush (*Juncus* sp.), and yerba mansa. Alkali meadows are usually low growing, but occasionally have tufts up to 1 meter in height, and are found in valley bottoms and on the lower portions of alluvial slopes. Alkali meadow is found within the western portion of the Proposed Bank. Alkali meadow-disturbed includes a higher percentage of non-native species including rye grass and perennial pepperweed. Alkali meadow is disturbed in the Proposed Bank where it has been affected by heavy cattle grazing.

Big Sagebrush Scrub [BSS]

Big sagebrush scrub is composed of mostly soft-woody shrubs, up to 2 meters tall, usually with bare ground underneath and between the shrubs. This vegetation community occurs on a wide variety of soils and terrain, from rocky, well-drained slopes to fine-textured valley soils with high water tables. Big sagebrush scrub usually occurs between 4,000 and 9,000 feet above mean sea level (amsl) in scattered localities within and along the margins of the Mojave and Sonoran deserts, on desert mountain ranges. Big sagebrush is the dominant plant species, with fourwing saltbush, white rabbitbrush, and blackbrush (*Coleogyne ramosissima*) as other characteristic species. Big sagebrush scrub occurs within several portions of the proposed Bank but is mostly concentrated along the West Fork Mojave River.

Chamise Chaparral [CC]

Chamise is a widely distributed chaparral shrub, and chamise chaparral is dominated by chamise. This vegetation community is found from Baja California, Mexico to northern California in pure or mixed stands. It often dominates at low elevations and on xeric, south-facing slopes with 60 to 90 percent canopy cover. Chamise chaparral occurs mostly within the hilly southeastern portions of the Proposed Bank.

Developed [DEV]

Developed areas within the Bank site include SR-173.

Disturbed Habitat [DH]

Disturbed habitat is devoid of vegetation due to soil disturbance (dirt roads) or is dominated by exotic, annual forbs without a major grass component. Disturbed habitat within the Proposed Bank is comprised of access roads and horse and cattle pens within the site.

Disturbed Wetland [DW]

This vegetation community is dominated by exotic, wetland species that invade areas that have been previously disturbed or undergo periodic disturbance. These exotic species become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Dominant, non-native species in this community in the Proposed Bank include perennial pepperweed and rye grass with native species such as American licorice and narrow-leaf milkweed (*Asclepias fascicularis*). Disturbed wetland occurs within the central portion of the Proposed Bank in previously grazed pastures.

Freshwater Marsh [FWM]

Freshwater marsh is dominated by perennial, emergent monocots, 5 to 13 feet tall, forming incomplete to completely closed canopies. This vegetation community occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, and freshwater or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current. Dominant species found within this community in the Proposed Bank include broad-leaf cattail, umbrella sedge, rushes, and spike-sedge (*Eleocharis* sp.). Freshwater marsh is found along water canals within the site.

Interior Live Oak Chaparral [ILOC]

Interior live oak chaparral is a dense and tall plant community dominated by interior live oak and California scrub oak (*Quercus berberidifolia*) with several other shrubs. Stumps of interior live oak sprout readily following fire. The persistent leaf litter and dense canopy precludes much understory. This is a fairly mesic chaparral of valleys and foothills away from the immediate coast, often intergrading with chamise chaparral on adjacent, south-facing slopes. Dominant species found within the Proposed Bank include interior live oak, holly-leaf cherry, mountain mahogany, and buckwheat. Interior live oak chaparral is found within the eastern portions of the Proposed Bank along the base of the San Bernardino Mountains.

Interior Live Oak Woodland [ILOW]

Interior live oak woodland is a broad-leaved, sclerophyllous woodland up to 50 feet tall dominated by interior live oak. Dense canopy and abundant, persistent leaf litter preclude much understory. Interior live oak woodland is usually found on moderate to steep slopes on north facing hillsides below 8,500 feet amsl and intergrading with interior live oak chaparral on more

xeric or frequently burned sites. Dominant species found within the Proposed Bank include interior live oak, western sycamore, basket bush, holly-leaf cherry, and big sagebrush within openings. Interior live oak woodland occurs within eastern portion of the Proposed Bank along the foothills of the San Bernardino Mountains.

Mojave Juniper Woodland [MJW]

Mojave juniper woodland is an open woodland dominated by California juniper with an understory typical of Mojave mixed scrub. The understory may actually exceed tree cover. Mojave juniper woodland is found on gentle slopes or alluvium. Dominant species found within the bank include California juniper, buckwheat, and rabbitbrush. Mojave juniper woodland is found within the eastern portion of the Proposed Bank. Stands of junipers are quite dense and evenly spaced.

Mojave Mixed Scrub (including disturbed) [MMS]

Mojave mixed scrub is an open scrub community found throughout the bank, but especially in the southern portions. This vegetation community includes buckwheat species, white rabbitbrush, black-banded rabbitbrush, and big sagebrush. Mojave mixed scrub-disturbed is characterized by a higher cover of non-native grasses and was previously subject to cattle grazing.

Mojave Riparian Forest [MRF]

Mojave riparian forest is a relatively open, broad-leaved, winter-deciduous, streamside forest with a dense, shrubby understory. This community occurs on flat, fine-grained, sub-irrigated alluvium along perennial desert rivers. Dominant species within this community in the Proposed Bank include Fremont cottonwood, red willow, arroyo willow, velvet ash, and western sycamore.

Mule Fat Scrub [MFS]

Mule fat scrub is a depauperate, shrubby, riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early, seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood- or sycamore-dominated riparian woodland or forest. In some environments, limited hydrology may favor the persistence of mule fat. Mule fat scrub occurs within the central portion of the Proposed Bank.

Rabbitbrush Scrub [RBS]

Rabbitbrush scrub is a community dominated by white rabbitbrush. Rabbitbrush scrub occurs within the Great Basin and western margin of the Mojave Desert, reaching west across the Sierra-Cascade axis. Stands of rabbitbrush scrub are found scattered throughout the site.

Riparian Woodland [RW]

Riparian woodlands are often composed of winter-deciduous trees that require water near the soil surface. Willow, cottonwood, and western sycamore typically form a dense, medium-height woodland in moist canyons and drainage bottoms. Dominant species found in this community within the Proposed Bank include velvet ash, western sycamore, Fremont cottonwood, arroyo willow, narrow-leaf willow (*Salix exigua*), and mule fat. Riparian woodland occurs along the West Fork Mojave River and in the eastern portion of the site.

Semi-Desert Chaparral [SDC]

Semi-desert chaparral is an open community dominated by California juniper, buckwheat, and cacti (*Opuntia* spp.). This plant community is dormant in winter (from colder temperatures) and in late summer and fall (from drought). Dominant plant species found in the Proposed Bank include Nevada ephedra, buckwheat, and yerba santa. Semi-desert chaparral is found within the eastern portion of the site.

Southern Willow Scrub [SWS]

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat and with scattered emergent Fremont cottonwood and western sycamore. This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early, seral community preventing succession to a riparian woodland or forest. Southern willow scrub occurs mostly along the West Fork Mojave River and in some areas of the western portion of the site.

7.6 SPECIAL STATUS WILDLIFE SPECIES

The California Natural Diversity Database (CNDDB) was reviewed to identify any special status wildlife that may exist within a two-mile radius of the Proposed Bank site. Documented occurrences within the vicinity of the Bank are shown on Figure 19. A list of wildlife species observed within the Proposed Bank during site visits conducted in 2019/2020 is included as Appendix F.

7.6.1 ARROYO TOAD

United States Fish and Wildlife Service (USFWS) designated critical habitat for the federal endangered arroyo toad occurs along West Fork Mojave River, Horsethief Canyon, and Grass Valley Creek, including approximately 1,243 acres of upland and alkali meadow habitats southeast of the West Fork Mojave River and areas adjacent to Grass Valley Creek within the Proposed Bank (Figure 20). Numerous focused surveys and telemetry studies since 1998 have

confirmed that these three large drainages are occupied by arroyo toad and are used for breeding, burrowing, foraging, and aestivation (USFWS 2003, Cadre 2003, Cadre 2007). During surveys conducted in 2013, adult and juvenile arroyo toad were observed within West Fork Mojave River and surveyors concluded that it is likely that breeding had occurred recently in this area (Helix 2014). During the 2013 surveys, 54 active and inactive American beaver (*Castro canadensis*) dams and dens were observed in Horsethief Canyon and West Fork Mojave River, creating steep-sided deep pools unsuitable for arroyo toad breeding (Helix 2014).

An updated arroyo toad habitat assessment and abbreviated USFWS focused surveys were conducted within the West Fork Mojave River on April 2nd and 16th, 2020, and Grass Valley Creek on May 7th, 2020 by Ruben Ramirez (USFWS Permit 780566-14 and CDFW Permit 02243) (Appendix G). Neither of these watercourses are within the current boundaries of the Proposed Bank site; however, adjacent upland within the Bank site provides suitable arroyo toad foraging habitat.

West Fork Mojave River

A total of seven (7) arroyo toad subadults ranging between 45-49mm snout-vent length (SVL) were documented within the West Fork Mojave River survey area. No arroyo toad adults >50mm SVL or indication of breeding activity (clutches or larvae) were documented within the survey area. Beavers and active dams were observed within the West Fork Mojave River. With the exception of the freshwater marsh habitat and constructed dissipaters located immediately downstream of the Silverwood Reservoir (Cedar Spring Dam) spillway, the arroyo toad has been documented or is expected to occur throughout the reach of the West Fork Mojave River adjacent to the Proposed Bank property. Suitable disturbed habitats within the West Fork Mojave River drainage include the entire active channel (breeding) and bench (foraging/aestivation) habitats located within the terrace and floodprone area as shown in Appendix G (Attachment C, *Arroyo Toad Habitat Suitability Map*, and Attachment F, *Current Survey Area Photographs*). Please note that the Proposed Bank limits shown on the figures within Appendix G are more extensive than the current Proposed Bank boundary; however, suitable upland habitat for arroyo toad exists within the current Bank boundaries.

Grass Valley Creek

No arroyo toads were documented within the Grass Valley Creek survey area. However, arroyo toads have been documented within Grass Valley Creek during previous survey efforts, and conditions within this reach provide suitable breeding, foraging, movement and aestivation habitat. Sign of potential beaver activity was documented within the Grass Valley Creek survey area near the crossing of SR173. The arroyo toad has been documented within Grass Valley Creek from the confluence of the West Fork Mojave River upstream approximately 2,000 feet north of

the Proposed Bank/SR173 boundary. Suitable arroyo toad habitat is located throughout the reach of the Grass Valley Creek floodprone area and terrace habitats, as shown in Appendix G (Attachment C, *Arroyo Toad Habitat Suitability Map*, and Attachment F, *Current Survey Area Photographs*). Please note that the Proposed Bank limits shown on the figures within Appendix G are more extensive than the current Proposed Bank boundary; however, suitable upland habitat exists outside of the excluded Grass Valley Creek conservation easement and within the Bank site.

Primary stressors on arroyo toad within the Proposed Bank property and nearby watercourses are described below:

- **Beaver** – Significant alteration of hydrogeomorphology of the West Fork Mojave River continues to result in limited available breeding sites and the creation of refugia for nonnative predators of the arroyo toad.
- **Cedar Spring Dam Releases** – Unnatural discharges alter velocities and depths at breeding sites, dislodge clutches and larvae, and extend the inundation of the West Fork Mojave River behind beaver dams.
- **Cattle** – Previous ranching activities did not restrict cattle from the West Fork Mojave River floodprone area which resulted in trampled breeding season pools and stream bank burrowing habitat. Extensive cattle defecation within the channel and banks has also contributed to an increase in nitrates and a decrease in water quality. Since the arroyo toad habitat assessment was conducted, cattle grazing operations onsite have ceased.
- **American Bullfrog** - Deep pools provide habitat for a number of exotic species that are detrimental to the continued persistence of the arroyo toad within the proposed Bank, including the American bullfrog, which is an active predator of the arroyo toad.

7.6.2 OTHER SPECIES PREVIOUSLY OBSERVED

USFWS designated critical habitat for the federal and State endangered southwestern willow flycatcher occurs within approximately 38 acres along the West Fork Mojave River on the Proposed Bank site (Figure 20). Previous protocol surveys did not observe southwestern willow flycatcher within the site (Helix 2014).

During 2014 surveys conducted by Helix, one least Bell's vireo (*Vireo bellii pusillus*) was detected within Horsethief Canyon just outside of the Proposed Bank boundary. Brown-headed cowbirds (*Molothrus ater*), a brood parasite to least Bell's vireo, have been detected onsite in multiple years.

It is presumed that wintering bald eagles (*Haliaeetus leucocephalus*) are present within the portion of the West Fork Mojave River adjacent to the Bank, based on surveys conducted by Bloom Biological in 1999 and 2000, annual winter census counts conducted by San Bernardino National Forest staff at Silverwood Lake, and observations by Helix in 2014 (Bloom 2000, SBNF 2013, Helix 2014). As many as six bald eagles have been observed perching, hunting, and/or roosting.

7.7 WILDLIFE CORRIDORS

The three major drainages adjacent to the Proposed Bank site (West Fork Mojave River, Horsethief Canyon, and Grass Valley) function as regional wildlife movement corridors, connecting the San Bernardino Mountains to the High Desert Region. The site itself provides local corridors for wildlife, allowing access between riparian and upland habitats.

The Proposed Bank is within the San Gabriel-San Bernardino Connection, a South Coast Missing Linkage (South Coast Wildlands, 2008). The San Gabriel-San Bernardino Connection provides connectivity between the Angeles and San Bernardino National Forests. This Connection allows for wildlife movement across Interstate 15, State Route 138, and throughout the mountains and foothills below connecting land that would otherwise become an island of habitat surrounded by urban and agricultural land. The Proposed Bank is located in the northeast section of the Connection, northeast of Silverwood Lake.

8.0 REGIONAL CONTEXT

As described in previous sections of this document, the Proposed Bank is located adjacent to the San Bernardino National Forest, Silverwood Lake, and the Mojave River Forks Regional Park. It would provide connectivity to large ecological service areas and further support their sustained function for plant and wildlife propagation and movement.

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The Habitat Conservation Plans and Natural Community Conservation Plans within California as listed on CDFW and USFWS websites (CDFW 2020, USFWS 2020) were reviewed for inconsistencies with the Proposed Bank. No approved Habitat Conservation Plans were found to occur within any of the proposed service areas for the Bank. One Habitat Conservation Plan within Apple Valley is in preparation and occurs within the proposed service area for sensitive habitats under CEQA within the Proposed Bank. Based on the list of Natural Communities and Land Cover Types proposed for the Town of Apple Valley Multi-Species Habitat Conservation Plan, some of the natural communities proposed for inclusion in the HCP may overlap with the sensitive natural communities within the Bank. Thus, the proposed limits of the Town of Apple Valley Multi-Species Habitat Conservation Plan can be excluded from the CEQA service area for the Bank if appropriate.

The Bank property is located within the West Mojave Plan administered by the Bureau of Land Management in San Bernardino, Kern, Inyo, and Los Angeles Counties. The West Mojave Plan is "a habitat conservation plan and federal land use plan amendment that (1) presents a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel (MGS) and nearly 100 other sensitive plants and animals and the natural communities of which

they are a part, and (2) provides a streamlined program for complying with the requirements of the California and federal Endangered Species Acts" (BLM 2004).

The land within the Proposed Bank is open space. The western portions of the Bank were previously subject to cattle grazing/ranching for over 100 years, however, these areas are no longer subject to cattle operations or other agricultural activities. These land uses are compatible with the establishment of a mitigation bank.

The Proposed Bank would not be inconsistent with any regional conservation plans, conceptual area plans, or any other land use plans, policies, or regulations.

9.0 CONCEPTUAL DEVELOPMENT PLAN

9.1 BANK OBJECTIVES

The Tapestry Mitigation Bank is being proposed to:

1. Uplift and maintain ideal habitat conditions to provide upland foraging and aestivation habitat for arroyo toad on the Proposed Bank lands;
2. To allow the establishment/re-establishment, rehabilitation, enhancement, and preservation of stream, wetland, and riparian habitat; and
3. To allow the sale of "credits" as off-site compensatory mitigation for any of the following impacts within the service areas:
    a. Unavoidable impacts to waters of the United States, including wetland, stream and riparian habitat, which result from activities authorized under Section 404 of the Clean Water Act (CWA, Section 404);
    b. Impacts to federally listed arroyo toad, under FESA;
    c. Mitigation for impacts to wetlands, streams, sensitive habitat and wildlife resources under the applicable sections CEQA, Public Resources Code Section 21000;
    d. Unavoidable impacts to waters of the State of California which result from activities authorized under Section 1600 of the California Fish and Game Code;
    e. Unavoidable impacts to waters of the State of California which result from activities authorized under Section 401 of the CWA; and
    f. Unavoidable impacts to waters of the State of California which result from activities authorized under the Porter-Cologne Water Quality Control Act.

9.2 SUMMARY OF BANK ACTIVITIES

The following activities are proposed within the Proposed Bank to generate credits:

- Restoration of alkali meadow habitat degraded from grazing activity and/or invasive species;
- Restore upland habitat for arroyo toad foraging and aestivation;
- Removal and ongoing management of non-native vegetation within aquatic and upland habitats, including buffer areas;
- Expansion of freshwater wetland and riparian areas;
- Establish fencing and monitoring to discourage off-road vehicles and limit trespassing;
- Recordation of a conservation easement(s) to protect the site in perpetuity; and
- Funding of a long-term endowment to support management and monitoring in perpetuity.

Other mitigation activities may be proposed during finalization of the Implementation Plan to support conservation, preservation, and enhancement of onsite resources.

9.3 WETLAND CREDITS

9.3.1 WETLAND RE-ESTABLISHMENT CREDITS

Within the western portions of the Bank that receive recycled water discharges from CSD, key components of the existing infrastructure (e.g., flood gates, pipe culverts) are aging or have sediment buildup and do not allow for proper water flow in certain areas. Infrastructure would be replaced and/or improved in order to increase the surface area of land that will receive recycled water, primarily within the alkali meadow habitat onsite, providing establishment/re-establishment credits. Additional earthen channels may also be built to spread the recycled water, support riparian habitat and reduce nutrient loads. This will increase the area of wetland habitats but will also increase the function of surrounding wetland habitats. In addition, non-native vegetation removal will occur within these areas.

9.3.2 WETLAND REHABILITATION CREDITS

Rehabilitation credits will be generated through the installation of riparian habitat in certain areas (e.g., the agricultural ponds) in order to increase habitat complexity, provide additional wildlife refugia, and improve water quality (e.g., reducing nitrates). Riparian species installed will be sourced from existing vegetation onsite or in adjacent drainages to the extent possible via cuttings and will include Fremont's cottonwood, arroyo willow, and red willow. In addition, non-native vegetation removal will occur within these areas.

9.3.3 WETLAND ENHANCEMENT CREDITS

Other wetland habitats not included in the above sections will provide enhancement credits through non-native vegetation removal and the placement of fencing to deter trespassing.

9.3.4 WETLAND PRESERVATION CREDITS

For some wetland habitats within the Bank property, particularly within the easternmost areas, access for active maintenance (e.g., non-native vegetation removal) is limited and non-native vegetation is not abundant. These areas will provide preservation credits through the placement of a conservation easement.

9.4 NON-WETLAND WATERS CREDITS

9.4.1 NON-WETLAND WATERS ENHANCEMENT CREDITS

Non-wetland enhancement credits will be generated when improvements are made to some, but not all, functions performed by an existing non-wetland aquatic system. Non-wetland enhancement will occur in areas containing woody or scrub habitats and will consist of non-native vegetation removal and perpetual management of the land.

9.4.2 NON-WETLAND WATERS PRESERVATION CREDITS

Other non-wetland features within the Bank will provide preservation credits through the placement of a conservation easement.

9.5 WETLAND/STREAM BUFFER CREDITS

Wetland and stream buffer credits will be generated by the perpetual management and preservation of buffer areas surrounding the aquatic resources onsite. Buffer areas serve as transitional habitat to protect aquatic resources by stabilizing soils and reducing erosion, reducing the risk of invasion by non-native species, filtering pollutants, providing breeding and foraging habitat for wildlife, and reducing the effects of anthropogenic stressors. Buffer credits are proposed within the Bank Property for areas contributing to the function of wetlands and streams. Habitat within the buffer areas will be improved through a reduction of non-native plant species. A wide buffer typically provides more habitat, better habitat value, and better water quality, amongst other valuable functions; thus, buffer areas within the Bank may be as wide as 250 meters from the edge of the aquatic resource.

9.6 ARROYO TOAD HABITAT CREDITS

9.6.1 REDUCTION OF PREDATOR HABITAT

Minor grading of the agricultural ponds and channels will increase the surface area of land receiving recycled water discharges, creating a broader flowing condition that would reduce the depth of ponds and ditches onsite. This will reduce available habitat for arroyo toad predators such as bullfrogs and crayfish. This will benefit the arroyo toad, which are expected to forage and aestivate within upland portions of the Bank site.

9.6.2 RESTORE UPLAND HABITAT

Based on discussions with Ruben Ramirez, an opportunity exists to restore areas of upland habitat within 3,000 feet of the West Fork Mojave River, near the western and northwestern

boundaries of the proposed Bank to improve arroyo toad foraging and aestivation habitat. Specifically, areas of disturbed Rabbitbrush Scrub (RBS-D) and disturbed Mojave Mixed Scrub (MMS-D) include large amounts of non-native vegetation (refer to Figure 18). After removal of non-native vegetation, the soils within these areas would be decompacted/ripped and additional native scrub vegetation would be planted.

9.6.3 CATTLE EXCLUSION AND NON-NATIVE VEGETATION CONTROL

Cattle grazing activities occurred within the West Fork Mojave River and upland areas south of the river for over a century; however, cattle were removed from the property in 2021. No cattle grazing activity historically occurred along Grass Valley Creek. Cattle grazing operations will be prohibited as part of the Proposed Bank. The cessation of cattle grazing operations within the property is expected to cause a proliferation of invasive species. To address this, a variety of invasives removal methods may be used in compliance with the Settlement Agreement. Removal may be conducted manually, by use of mowing and trimming tools, or with emergent or pre-emergent herbicides, as deemed appropriate by the land manager. Herbicide use will be conducted by a licensed applicator under the direction of the land manager, and field crews should be educated/knowledgeable, as necessary, in plant identification to be able to differentiate among invasive, non-native species and desired native species. Non-native invasive vegetation will be cut, processed and/or disposed of in a legal manner and, at all times, placed in a manner which prevents its reestablishment and does not negatively affect native vegetation. Invasives removal will occur at least annually to reduce the occurrence of non-native invasive plant species and would be prioritized not to occur anywhere on site between March 15 and September 15 to avoid impacts to nesting birds. To avoid impacts to arroyo toads, invasives removal would also be prioritized not to occur in upland areas between March 1 and August 31.

Controlled burns may also be considered for reducing invasive floral biomass, should invasive species proliferation greatly outnumber native vegetation and the benefits of the burn outweigh the disturbance to native vegetation. Controlled burns would be conducted in upland areas only during the arroyo toad aestivation period, November 1 – February 28, thereby reducing the potential for direct and/or indirect impacts to arroyo toads.

10.0 LONG-TERM MANAGEMENT & MONITORING PLAN

The proposed Bank will be managed according to a long-term management plan (LTMP) that will provide management guidelines and performance standards for credited habitat in order to create self-sustaining and naturally resilient habitats. In addition, the LTMP will allow for "adaptive management" to address potential direct/indirect impacts to arroyo toad and other sensitive species from prolonged drought, extreme weather events, flood events, fire, or failure of the Cedar Springs Dam. Contingency funds will be set aside to ensure that funding is available to adapt to such situations or trends as circumstances require. Adaptive management methods may include replanting affected areas, removal of invasive species, modification of water conveyance channels, or other measures recommended by the long-term Bank property manager in consultation with the resource agencies.

11.0 ADAPTATION AND RESILIENCE TO CLIMATE CHANGE IMPACTS

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, which last for an extended period of time. Greenhouse gases, such as water vapor, carbon dioxide, and methane, slow or prevent the loss of heat from the earth's atmosphere. Human activities that emit additional greenhouse gases increase the amount of infrared radiation that gets absorbed before escaping into space, thereby enhancing the greenhouse effect and causing the Earth's surface temperature to rise. A warming of about 0.2°C (0.36°F) per decade is projected (Dudek 2021).

The increasing temperatures are projected to further decrease the supply of water and increase the risk of drought and wildfires in California (EPA 2016). These factors could cause a ripple effect resulting in increased water temperatures and eutrophication, existing species emigration, new species migration (including opportunities for invasive species), increased extinction risks, changes in the timing of seasonal life-cycle events, food web disruptions and possible irreversible damage to or loss of biological resources. The effects of climate change will also likely cause increasingly rare yet extreme storm events. The effects of increased wildfires, coupled with extreme storm events, could also cause significant flooding, erosion and sedimentation. Habitat restoration, conservation, and resource management can help support natural resource communities prepare for climate change and increase climate resiliency.

11.1.1 POSITIVE EFFECTS ON CLIMATE CHANGE

On a regional level, implementation of the proposed Bank would provide beneficial services that would help combat the effects of climate change. Planting and restoring native species increases carbon capture, which reduces the amount of carbon dioxide in the atmosphere, and in turn helps prevent a rise in global temperatures. Furthermore, the proposed Bank would include the creation of wetland habitats. Wetlands provide high carbon sequestration rates that would assist in drawing down existing carbon levels in the atmosphere (Sturm 2019).

11.1.2 MITIGATING THE IMPACTS OF CLIMATE CHANGE

The proposed Bank would account for potential impacts of climate change through invasive species removal, infrastructure updates, and the allowance of adaptive management as determined appropriate by the bank manager. These changes would help the Bank property counter the impacts of climate change, including fires, floods and invasive species.

Invasive Species

Invasive species are one of the biggest causes of biodiversity loss and species extinctions. Climate change can facilitate the spread and invasiveness of species and create new opportunities for

alien species to become invasive (IUCN, 2017). This may result in invasives outcompeting specialist native flora and fauna. For example, drought weakens trees' ability to produce resin, leaving them vulnerable to pests such as invasive bark beetles, which infiltrate and further weaken trees, cut off their moisture supply completely, and leave them to die. These dead trees subsequently provide large amounts fuel for future fires, which can increase wildfire risk, further exacerbating the effects of climate change (Dudek 2021).

The proposed Bank will combat the impact invasive plant species may have by performing invasive plant species removal throughout most of the Bank property. Adaptative management techniques (discussed in Section 9.7.3 below) could also be utilized to address future invasive species such bark beetles. Removal of invasive species would continue to protect the site from large/high intensity wildfire events. And not only will these efforts prevent the establishment of invasive species within the Bank property, but they can also prevent the spread of invasives into new regions adjacent to the proposed Bank.

Replacement of Infrastructure

Droughts are expected to become more frequent and more intense by mid-century and may additionally constrain water resources, impacting water availability for native flora and fauna. Drought can create stress for water-reliant biological resources such as precipitation-sensitive vegetation communities. It is anticipated that wetlands and other freshwater environments will be heavily impacted by climate change throughout the state due to water availability and extreme climatic events (Dudek 2021).

Replacement and maintenance of the CSD infrastructure noted in Section 9.3.1 would allow for proper water flow throughout the Bank. The installation and replacement of this infrastructure would further help facilitate water distribution across a larger area of wetland habitats as well as increase the function of surrounding wetland habitats. These factors could not only help prevent significant fires due to drought but also mitigate flood events. Having a reliable source of water is crucial to the longevity of the bank. The CSD currently discharges secondarily treated wastewater within the western half of the Bank property and discharges are anticipated to continue for another 50-100 years. The infrastructure is designed to make use of recycled water, which is important as the availability of natural water in the region is projected to become increasingly scarce.

Additionally, the bank is located between two large water detainment structures (i.e., dams) at the headwaters of the watershed, which are anticipated to stabilize the groundwater depth in comparison to properties not associated with dams or further downstream in the watershed. The high and stabilized groundwater will moderate water availability for vegetation onsite,

particularly for mature and deep-rooted vegetation, and will help increase the increase climate resiliency of the habitat onsite.

11.1.3 ADAPTIVE MANAGEMENT FOR CLIMAGE CHANGE

The suitability of sites for restoration activities will change as environmental conditions alter and species distributions shift. In the event that impacts of climate change continue to increase beyond the scope of the proposed Bank, adaptive management should be used to ensure the viability and longevity of the Bank.

Techniques may include planting of additional species that are more drought tolerant and adapted to fire. During any adaptive management replanting efforts, a wide range of species should be considered and planted. This is to ensure at least some species will prevail in the event others are not able to adapt to the changing temperatures and conditions. Resilience and adaptability can be enhanced by genetic diversity within and among species, capitalizing on the capacity of species to adapt to environmental change through plasticity, selection, or gene flow. (Rice et al., 2003).

As further discussed in section 12.2, riparian trees installed within the Bank property are anticipated to reach groundwater during all or portions of the year and continue to provide high quality wildlife habitat.

Another strategy to combat the potential effects of climate change would include increasing the content of organic matter in soils. This can be done through additional plantings or other methods determined appropriate by the Bank manager. Increasing soil organic matter would increase soil water holding capacity, increase baseflows and aquifer recharge, reduce flooding and erosion, increase carbon sequestration, and reduce climate-related water deficits, thereby developing hydrologic resilience to climate change while simultaneously reducing atmospheric greenhouse gases (California 2021).

12.0 BANK OPERATION

It is anticipated that the Bank property will continue to be owned by the Bank Sponsor during bank establishment, operation, and long-term management. The Bank will be established by recording a conservation easement over the Bank property upon acceptance of the BEI by the IRT. A long-term management plan and development plan for the Bank property will be developed pursuant to the BEI requirements, and an endowment will be funded to ensure management activities in perpetuity. The proposed endowment holder and conservation easement grantee for the Bank is the Southwest Resource Management Association, subject to IRT approval. If deemed appropriate, the following financial mechanisms shall be secured by the Bank Sponsor: construction security, performance security, and/or interim management security.

During Bank establishment, operation, and long-term management, the site is intended to serve as an educational resource to the community, by allowing guided tours on foot or horseback within designated dirt trails onsite. Students from local colleges such as Victor Valley College have previously visited the site for agricultural and natural resource studies. The Proposed Bank intends to continue allowing this type of educational use onsite while also meeting the conservation goals of the Bank.

A 40-acre Rock House parcel is located within the northeastern portion of the site as depicted in Figure 21. This parcel contains a single residence and will be set aside for the Bank Sponsor's personal use. As such, this parcel will be excluded from the Bank crediting area and is shown in Figure 21 as Not A Part of the Bank.

13.0 RESPONSIBILITIES OF STAKEHOLDERS

The Proposed Bank land has several stakeholders with varying interests pertaining to the property. Table 7 identifies the stakeholders and their responsibilities with respect to the Bank property.

Table 7. Bank Property Stakeholders and Responsibilities

Entity	Role	Requirements Associated with Bank Property
Hesperia Venture I, LLC	Bank Sponsor	Required to comply with Board Order 6-96-24 and Bank Enabling Instrument
City of Hesperia	CEQA Lead Agency	Habitat Management Plan required for a portion of Bank property as part of CEQA approval of Tapestry Specific Plan. Issuance of grading permit for establishment activities.
Center for Biological Diversity	Petitioner in legal challenge to the Tapestry Specific Plan	As it pertains to the Bank, the agreement requires exclusion of cattle from a majority of the Bank property.
Crestline Sanitation District (CSD)	Agency discharging treated effluent to Bank property	Required to comply with Board Order 6-94-57, including monitoring requirements at onsite wells
Lahontan RWQCB	Regulator of CSD discharges to Bank property	Has issued Waste Discharge Requirements Board Order 6-94-57 and Board Order 6-96-24 for the discharge of treated effluent to Bank property
Third-party Conservation Entity	Long-term Bank property manager	Responsible for long-term management of Bank property

The CSD is regulated by the Lahontan RWQCB Waste Discharge Requirements Board Order 6-94-57 for effluent discharged to the Bank site, while the landowner is regulated by Board Order 6-96-24. The following constituents are monitored by CSD at monitoring wells located on the property:

- Sulfate
- Sodium
- Methylene Blue Active Substances
- Chloride
- Total Dissolved Solids

- Kjeldahl Nitrogen
- Ammonia Nitrogen
- Nitrate Nitrogen
- Purgeable Halocarbons
- Purgeable Aromatics
- Base/Neutral

The CSD makes its annual reports publicly available on its website[1]. The 2021 annual report is included as Appendix H to this Prospectus. Based on communications with CSD personnel, the groundwater that is tested onsite via monitoring wells is meeting water quality standards for the constituents listed above. The Bank will help to improve the quality of the groundwater through the installation of native woody shrubs and trees (e.g., willows and cottonwood) to facilitate nutrient uptake, such as nitrates. In addition, increasing the amount of surface area where discharges are spread across the property will help improve water quality by allowing more filtration and removal of excess nutrients.

Per the requirements of Board Orders 6-94-57 and 6-96-24, the Bank property will be managed and operated in a manner to prevent persistent ponding of wastewater which can promote mosquito breeding. In addition, surface flow or visible discharge of sewage or recycled wastewater at, or from, the authorized disposal site to adjacent land areas or surface waters is prohibited. Increasing the amount of surface area where discharges are spread across the property as part of the proposed Bank activities will reduce the potential for future water quality violations by the CSD by enabling the site to have more holding capacity and thus better handle larger discharges that may occur during excess flow conditions.

[1] https://crestlinesanitation.com/public-notices/annual-reports/

14.0 REAL ESTATE RECORDS

14.1 EXISTING EASEMENTS AND ENCUMBRANCES

Easements for Southern California Edison transmission lines occur within the eastern and southern portions of the site. Road easements also occur within the site; Arrowhead Lake Road runs in a north- south direction in the eastern portion of the site and also along the southern boundary of the site. An easement for the Pacific Crest Trail occurs in the southeast corner of the property. The habitat areas within the utility easements as well as the Pacific Crest Trail easement will not be credited.

An easement for overflow from the dam occurs along the West Fork Mojave River and a USACE flowage easement occurs in the same area, extending further south into the historic cattle grazing area. Lands within the dam overflow and USACE flowage easements will be credited, as these easements do not conflict with the establishment of a mitigation bank or significantly impact the conservation value of the land.

Existing dirt roads within the property will need to be used for land management and maintenance purposes. Furthermore, an existing residence will remain on the property for use by the underlying property owner. These areas will not be credited within the Proposed Bank.

Please refer to Figure 21 depicting existing easements within the Bank property. All easements other than the dam overflow and USACE easement will be excluded from crediting.

14.2 WATER RIGHTS

The Proposed Bank occurs within the Alto Subarea of the adjudicated Mojave Basin Area which encompasses about 3,400 square miles of San Bernardino County in total. As a minimal producer, the Bank property retains a Base Annual Production right of 10 acre-feet per year.

The Bank will rely on receiving secondarily treated effluent from CSD to support the proposed habitats and uplift activities onsite. Based on communications with the Bank Sponsor's water rights attorney and confirmation from CSD, the CSD discharges within the Bank property are not part of the adjudicated basin and the CSD is required to treat these discharges onsite, including through the establishment of vegetation. Activities occurring within the Bank site would not impact downstream water rights. The CSD and the Bank Sponsor have entered into an agreement to allow CSD to discharge water onto the property for 50-100 years. The agreement guarantees a minimum discharge to the bank property of 400 acre-feet per year. As discussed between CSD and VCS Environmental on May 12, 2020, CSD has no plans to alter the discharge volume over

the next 50-100 years and has no plans for utilizing an alternate discharge site, as no alternate sites are currently available. CSD management noted that there are few uses for recycled water currently in their district, and they do not have plans for substantial increases in recycled water use for their district.

As identified in Appendix A and Table 4 (Section 7.1), Groundwater Monitor Well No. 1 is located upgradient of the CSD discharge area and could help identify what natural groundwater depths (i.e., without the discharges of treated wastewater) would be for the Bank property. Data collected from Well No. 1 from 2009 to 2019 show the following average groundwater levels:

- March: 10.7 feet below the surface
- June: 13.2 feet below the surface
- September: 15.2 feet below the surface
- December: 13.1 feet below the surface

In the event that discharges from CSD cease on the Bank property, the riparian trees installed within the Bank property should be able to reach groundwater during all or portions of the year and continue to provide high quality wildlife habitat.

14.3 MINERAL RIGHTS

Mineral rights within the proposed Bank property are owned by the Bank Sponsor, Hesperia Venture I, LLC. There are no conflicting mineral rights or easements within the Proposed Bank site. An exhibit depicting easements within the proposed Bank property is included as Figure 21.

15.0 PERPETUAL PROTECTION

A conservation easement will be recorded over approximately 1,925 acres of the Proposed Bank property following the IRT's acceptance of the BEI. This acreage excludes some areas as described in Section 12. It is proposed that the conservation easement be held by Southwest Resource Management Association or another non-profit or government entity approved by the IRT.

16.0 LANDS NOT APPROPRIATE

The Proposed Bank property has not been, nor is currently:

- CDFW owned or conserved lands;
- used as mitigation for a previous project;
- designated for purposes which are inconsistent with habitat preservation; or
- acquired by a public entity or provided to a jurisdiction for a park or natural open space purposes.

The Tapestry Specific Plan, which was approved for the planned residential community located north and west of the Bank, included a requirement to implement a Habitat Management Plan for the existing conservation easements over two major drainage courses outside of the Proposed Bank and open space areas in the Specific Plan area, including some areas which previously were within the Proposed Bank (refer to Appendix B). The Proposed Bank no longer includes any areas subject to the Habitat Management Plan; however, the Plan remains relevant to the Bank as it governs adjacent open space areas.

The Habitat Management Plan outlines the long-term, perpetual management of the development's open space areas in order to protect and monitor sensitive and special status biological resources. Following approval of the Tapestry Specific Plan, a private-party settlement agreement was reached. The agreement excluded development within Planning Area 10 (constituting the majority of the Proposed Bank) and portions of Planning Areas 6 and 8 (outside of the Bank within the southern portion of the property), designating it as open space, while still allowing for the creation of a mitigation bank within these areas. While this land is designated as open space, it has been grazed for over 100 years and requires maintenance and long-term management to improve biological values onsite.

Any areas with existing easements that are incompatible with the purposes of the Bank will not be available as credits. No public funding has been received for the Proposed Bank and funding is anticipated to be provided privately through Hesperia Venture I, LLC. Please note that the Western Mojave Resource Conservation District has been conducting research within the wastewater discharge area onsite as part of a grant given to CSD in order to help improve water quality (including the reduction of nitrates) onsite. Continued coordination with these agencies will occur as the CSD's wastewater will continue to be discharged onto the Bank property.

17.0 PHASE I ENVIRONMENTAL SITE ASSESSMENT

A Phase I Environmental Site Assessment will be provided with the Final Prospectus.

18.0 PERMITS

To implement the restoration actions, the Proposed Bank will temporarily impact resources that are governed by various governmental agencies. Implementation of the proposed restoration actions may require the following resource permits and permissions:

- Section 1602 Streambed Alteration Agreement from CDFW;
- Waste Discharge Requirements and/or Section 401 from RWQCB;
- Section 404 Nationwide Permit from USACE; and
- Grading permit from the City.

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