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HYDROSTOR, INC. GEM ENERGY STORAGE CENTER APPLICATION FOR CERTIFICATION PROJECT

JURISDICTIONAL DELINEATION REPORT

WILLOW SPRINGS, KERN COUNTY, CALIFORNIA

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EXECUTIVE SUMMARY

The Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project (Project) in Kern County, California was surveyed for potentially jurisdictional wetlands and waters of the United States and the State of California in August 2021. The intent of the delineation was to define existing jurisdictional drainage features and/or water bodies found within the Project boundary.

The purpose of this jurisdictional delineation report is to describe the extent of State and Federal jurisdiction within the Project limits, satisfy the requirements of the California Environmental Quality Act (CEQA) and the California Energy Commission (CEC), supply Project stakeholders with the locations of jurisdictional resources to advise during the design phase on possible avoidance, and/or support the procurement of jurisdictional waters permits if avoidance is not feasible.

A total of 58 mapped ephemeral dry drainage features occurs within the Project limits. Following the 2020 USACE Navigable Waters Protection Rule that eliminated ephemeral drainages from United States Army Corps of Engineers (USACE) jurisdiction, the drainage features are not regulated by the USACE. However, all 58 mapped drainage features are regulated by the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter Cologne Act, and the California Department of Fish and Wildlife (CDFW) under Section 1600 of the California Fish and Game Code. The 58 mapped drainage features total 23,428 linear feet and 2.285 acres of Non-wetland Waters of the State, regulated by the RWQCB, with overlapping bank-to-bank streambeds of 23,428 linear feet and 5.770 acres regulated by the CDFW. The Project is not covered under an approved Habitat Conservation Plan (HCP) or any other Natural Communities Conservation Plan (NCCP).

The proposed Project seeks to construct up to two energy storage facility sites (collectively known as the Gem Energy Storage Center on approximately 70 acres) and approximately 10.9 miles of 230 kilovolt (kV) single-circuit tie-lines interconnecting to the existing Southern California Edison (SCE) Whirlwind Substation or an approximately 3.5-mile 230 kV single-circuit tie-line interconnecting to the future Los Angeles Department of Water and Power (LADWP) Rosamond Substation. **It is anticipated that all 58 jurisdictional drainage features will be avoided during the Project design phase, with no impacts during construction, operations and maintenance phases. Therefore, no jurisdictional permitting would be required under this scenario.**

1.0 INTRODUCTION

On August 16, 17, and 23, 2021, Blackhawk Environmental, Inc. (Blackhawk) conducted a formal delineation survey of potentially jurisdictional waters and wetlands within the Project site associated with the proposed Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project (Project) Kern County, California (Figure 1, Attachment A).

The purpose of the jurisdictional delineation survey is to identify the extent of State and Federal wetlands and waters (if any) within the Project boundaries to support the resource-agency permitting process under Sections 401 and 404 of the Clean Water Act (CWA), Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1602 of the California Fish and Game Code.

Section 404 of the CWA covers Waters of the United States, as well as Federal wetlands, and is regulated by the USACE. Under Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) regulates at the State level all activities that are regulated at the federal level by the USACE. The RWQCB also regulates activities affecting non-Federal waters and wetlands under the Porter-Cologne Act. Section 1600 of the California Fish and Game Code is regulated by the California Department of Fish and Wildlife (CDFW) and covers aquatic features, which may include lakes and streams with a defined bed and bank, plus any adjacent riparian vegetation. If a proposed project could affect waters or wetlands, the project limits must be evaluated to determine the presence of jurisdictional waters. Permits for the proposed activity must be sought from each applicable resource agency. Details regarding each of these resource agencies as well as their regulatory authority, jurisdiction, permits, and regulatory processes are provided in Section 2, "Regulatory Setting."

The information and results presented herein document the investigation, best professional judgement, and conclusions of Blackhawk staff. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

1.1 Project Location

The proposed Project is located on privately-owned lands situated in and around the community of Willow Springs in Kern County (Attachment A, Figure 1). Elevations within the Project's Survey Area range from 2,591 feet above mean sea level (msl) to approximately 2,835 feet above msl, with topography generally sloping toward the southwest. The proposed Project seeks to construct up to two energy storage facility sites (collectively known as the Gem Energy Storage Center on approximately 70 acres) and approximately 10.9 miles of 230 kilovolt (kV) single-circuit tie-lines interconnecting to the existing Southern California Edison (SCE) Whirlwind Substation or an approximately 3.5-mile 230 kV single-circuit tie-line interconnecting to the future Los Angeles Department of Water and Power (LADWP) Rosamond Substation. Each tie-line would include a 125-foot-wide corridor on primarily undeveloped land. The proposed energy storage sites and the tie-lines are collectively known as the Hydrostor Gem Energy Storage Center Project (Project).

The western boundary of the Project Site is located approximately 8 miles west of the unincorporated community of Rosamond, immediately west of Willow Springs Butte, while the southern boundary of the Project Site is approximately 8 miles north of Antelope Acres. A portion of the Pacific Crest Trail (PCT) runs north-south approximately 1.5 miles from the eastern boundary of the Project Site. The Project

site is generally bound by Hamilton Road to the north, Rosamond Boulevard to the south, 172nd St W to the east, and 90th St W to the west (Attachment A, Figure 1).

The Project is situated with the United States Geological Survey (USGS) 7.5' series Fairmount Butte, Little Buttes, Tylerhorse Canyon and Willow Springs quadrangle maps. The Global Positioning System (GPS) general Project center point is located at latitude/longitude: 34.877968 -118.352371 (NAD83).

1.2 Project Description

The proposed Project broadly includes the installation of new energy storage facilities and new single-circuit tie-lines. The Gem Energy Storage Center (GESC or Gem) will be a nominal 500-megawatt (MW) advanced compressed air energy storage (A-CAES) facility deploying Hydrostor Inc. (Hydrostor) proprietary A-CAES technology. The site will be designed to store 500 MW for up to 14 hours and deliver up to 4,000 Megawatt hours (MWh) over an 8-hour period when discharging. The Gem project will consisting consist of the following main elements:

- Approximately 70-acre energy storage site(s) with security fencing and access gate
- Five electric motor-driven air compressors and five 100 MW turbine-generators
- Heat exchangers
- Thermal storage system
- Hydrostatically compensating approximately 500-acre-foot surface water reservoir with floating cover
- Underground compressed air storage cavern
- Related interconnecting conduits and facilities
- Electric fire pump with emergency 250 horsepower (hp) diesel-fired backup engine
- Two 5-MW, 4.16-kV emergency diesel-fired engines to maintain critical loads in the event of a loss of power
- Onsite 230 kV substation
- An approximately 10.9-mile 230 kV single-circuit tie-line interconnecting to the Southern California Edison (SCE) Whirlwind Substation, or an approximately 3.5-mile 230 kV single-circuit tie-line interconnecting to the future Los Angeles Department of Water and Power (LADWP) Rosamond Substation.

Gem does not require combustion of fossil fuel and will not produce combustion-related air emissions during normal operation.

Gem will be an energy storage facility consisting of five, 100-MW (nominal) power blocks. Each power block will contain a motor-driven air compressor drivetrain, heat exchangers, and an air turbine generator and their ancillary equipment. Each power block will share a common set of thermal storage tanks (hot and cold) as well as the air storage cavern.

Hydrostor's proprietary technology is a low-cost, bulk-scale energy storage solution. It provides long-duration, emission-free storage that can be flexibly sited where the electricity grid requires it, providing multi-hundred megawatts of generation capacity and a suite of ancillary services in a fifty (50) year life. This is enabled by combining industry-proven technologies with two key innovations: the use of hydrostatically compensated air storage caverns and a proprietary thermal management system.

The energy storage systems store compressed air in purpose-built underground storage caverns, analogous to those used worldwide for hydrocarbon storage. The storage caverns are flooded with water through a hydraulic conduit from a water storage compensation reservoir at the ground surface level. The weight of the water in this compensation reservoir maintains a near-constant air-pressure in the cavern throughout both the charging and discharging cycles, supporting efficient operation, and significantly reducing the cavern volume requirements.

The thermal management system captures the heat developed during air-compression, stores it, and re-uses it when generating electricity, making the process adiabatic. This increases the system's efficiency and eliminates the need for burning of fossil fuels, as is required for traditional CAES.

When the Hydrostor system is charging (known as "Charge Cycle"), off-peak or surplus electricity from the grid is used to drive air compressors, converting the electrical energy into potential energy in the compressed air and heat energy stored by the thermal energy management system. At multiple points in the compression process, the heat generated during air-compression is transferred to a thermal fluid by a set of heat exchangers and stored separately for later use during the discharge cycle.

The air stream exits the compression process at the same pressure as maintained in the air storage cavern which is governed by the vertical distance between the cavern and the connected hydrostatic compensation reservoir located at the surface. As air is charged into the storage cavern, water is displaced up the hydraulic conduit and into the surface reservoir. This maintains a near-constant pressure of the air within the cavern and stores substantial potential energy in the elevated water. Once in the cavern, the air can be stored until electricity is required.

To generate electricity (known as the "Discharge Cycle"), compressed air is discharged from the cavern, which allows the compensation water to re-flood the cavern. Similar to the charge cycle, the compensation water from the reservoir maintains a near-constant air pressure in the cavern during discharging. The cool high-pressure air exiting the cavern is re-heated using the heat stored by the thermal management system and the same set of heat exchangers that were initially used to extract it. The reheated compressed air is then used to drive air-expansion turbine-generators which efficiently convert the stored potential energy back into electricity for the grid.

2.0 REGULATORY SETTING

There are three primary agencies that regulate activities within drainage features, creeks, streams, rivers, wetlands, lakes, riparian areas and other water bodies in this portion of Kern County: USACE, RWQCB and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the Federal CWA. The State Water Resources Control Board (SWRCB), administered by the Colorado River Basin Regional Water Board, regulates activities pursuant to Section 401 of the Federal CWA and the California Porter-Cologne Water Quality Control Act of 1969 (California Water Code). The CDFW regulates activities within streambeds, lakes and wetlands pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code.

Any project that involves disrupting or otherwise working within drainage features, creeks, streams, rivers, wetlands, lakes, riparian areas and/or other water bodies may require permits from USACE, RWQCB and/or the CDFW before any work can commence.

The USACE will not issue its authorization until the RWQCB completes the Section 401 permit. Application to the CDFW for a 1600 Agreement and the RWQCB for a Section 401 permit both require submittal of a valid California Environmental Quality Act (CEQA) document.

2.1 Waters of the United States

The USACE and the Environmental Protection Agency (EPA) have issued guidance documents detailing the process for determining CWA jurisdiction over waters of the U.S. under the 2020 USACE Navigable Waters Protection Rule (2020 Rule). This supersedes all previous court decisions and rules. The EPA and USACE issued this Rule in January of 2020, and it is in full effect at the time of this report. The 2020 Rule is utilized for determining the jurisdiction over Waters of the United States under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation to determine USACE jurisdiction over the Project limits.

The 2020 Rule redefines Waters of the United States so that it includes only four categories of jurisdictional waters and provides clear exclusions for many water features that traditionally were regulated. The significant nexus test is no longer in effect.

These four categories protect the nation's navigable waters and the core perennial and intermittent tributary systems that flow into those waters.

(1) Territorial Seas and Traditional Navigable Waters (TNWs) [Category (a)(1)]

The 2020 Rule regulates territorial seas, and traditional navigable waters include large rivers and lakes and tidally influenced waterbodies used in interstate and/or foreign commerce.

(2) Tributaries [Category (a)(2)]

The 2020 Rule regulates tributaries, including perennial and intermittent rivers and streams that contribute surface flow to TNWs in a typical year. These tributaries must have perennial or intermittent flow. Ephemeral drainages are no longer regulated under the 2020 Rule.

Tributaries can connect to a TNW or territorial sea in a typical year either directly or through other Waters of the United States through channelized non-jurisdictional surface waters, through artificial features (including culverts and spillways), or through natural features.

Ditches are to be considered tributaries only where they satisfy the flow conditions of the perennial and intermittent tributary definition, and either were constructed in or relocate a tributary, or were constructed in an adjacent wetland and contribute perennial or intermittent flow to a TNW in a typical year.

(3) Lakes, Ponds, and Impoundments of Jurisdictional Waters [Category (a)(3)]

Lakes, ponds, and impoundments of jurisdictional waters are jurisdictional where they contribute surface water flow to a TNW or territorial sea in a typical year either directly or through other Waters of the United States through channelized non-jurisdictional surface waters, through artificial features (including culverts and spillways) or through natural features.

Lakes, ponds, and impoundments of jurisdictional waters are also jurisdictional where they are flooded by a Waters of the United States in a typical year.

(4) Adjacent Wetlands [Category (a)(4)]

Wetlands that physically touch other jurisdictional waters are "adjacent wetlands". This includes marshland habitats in tidal estuaries. Wetlands separated from a Waters of the United States by only a natural berm, bank or dune are also "adjacent". Wetlands inundated by flooding from a Waters of the United States in a typical year are "adjacent".

Wetlands that are physically separated from a jurisdictional water by an artificial dike, barrier, or similar artificial structure are "adjacent" so long as the structure allows for a direct hydrologic surface connection between the wetlands and the jurisdictional water in a typical year, such as through a culverts, flood or tide gate, pump, or similar artificial feature.

An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

The USACE generally takes jurisdiction within rivers and streams to the "ordinary high water mark (OHWM)," determined by erosion, the deposition of vegetation and/or debris, and changes in vegetation or soil characteristics.

The 2020 Rule also outlines what are not Waters of the United States. The following waters/features are not jurisdictional under the 2020 Rule:

- Waterbodies that are not included in the four categories of Waters of the United States listed above.
- Groundwater, including groundwater drained through subsurface drainage systems, such as drains in agricultural lands.
- Ephemeral features, including ephemeral streams, swales, gullies, rills and pools.
- Diffuse stormwater run-off and directional sheet flow over upland.

- Many farm and roadside ditches.
- Prior converted cropland retains its longstanding exclusion but is defined for the first time in the 2020 Rule. The agencies are clarifying that this exclusion will cease to apply when cropland is abandoned (i.e., not used for, or in support of, agricultural purposes in the immediately preceding five years) and has reverted to wetlands.
- Artificially irrigated areas, including fields flooded for agricultural production, that would revert to upland should application or irrigation water to that area cease.
- Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and log cleaning ponds, constructed or excavated in upland or in non-jurisdictional waters.
- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel.
- Stormwater control features excavated or constructed in upland or in non-jurisdictional waters to convey, treat, infiltrate or store stormwater runoff.
- Groundwater recharge, water reuse and wastewater recycling structures, including detention, retention and infiltration basins and ponds, that are constructed in upland or in non-jurisdictional waters.
- Waste treatment systems have been excluded from the definition of Waters of the United States since 1979 and will continue to be excluded under the 2020 Rule.

2.2 California Department of Fish and Wildlife Jurisdiction

Pursuant to Division 2, Chapter 6, Section 1602 of the Fish and Game Code, CDFW regulates all diversions, obstructions and/or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish and/or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for "any activity" that may substantially change the bed, channel or bank of any river, stream, or lake. In addition, CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian or wetland vegetation or at the top of the bank of a stream or lake, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement (LSAA).

2.3 Regional and State Water Quality Control Board Jurisdiction

The SWRCB, under the local RWQCB, is the principal state agency with primary responsibility for the coordination and control of water quality. In Kern County, the Colorado River Basin RWQCB regulates water quality activities, pursuant to Section 401(a)(1) of the Federal CWA as well as the Porter Cologne Water Quality Control Act (Water Code Section 13260). Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a Federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

In April 2019, the SWRCB adopted a "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" (Procedures). The Procedures consist of four major elements for State-regulated wetlands: 1) a wetland definition; 2) wetland delineation procedures; 3) a framework for determining if a feature that meets the wetland definition is a Water of the State; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. In adopting the Procedures, the State Water Board directed staff to develop implementation guidance for potential applicants.

2019 New Wetland Definition and Procedures

In 2019, the SWRCB issued "New Wetland Definition and Procedures of 2019" (Procedures) for redefining State "wetlands" enacted to ensure that State waters are protected, clarifying the State definition of a "wetland". On April 21, 2020, the SWRCB issued the "Implementation Guidance for the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State", providing guidance for implementing the 2019 Procedures. The wetland definition and delineation methods set forth in the Procedures apply to wetlands only, and not to non-wetland Waters of the State.

Wetland Waters of the State

The Procedures define an area as wetland as follows - An area is wetland if, under normal circumstances:

1. The area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;
2. The duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and
3. The area's vegetation is dominated by hydrophytes or the area lacks vegetation.

This modified three-parameter definition is similar to the Federal definition in that it identifies three wetland characteristics that determine the presence of a wetland: wetland hydrology, hydric soils and hydrophytic vegetation. Unlike the Federal definition however, the Procedures' wetland definition allows for the presence of hydric substrates as a criteria for wetland identification (not just wetland soils) and wetland hydrology for an area devoid of vegetation (less than 5% cover) to be considered a wetland. However, if any vegetation is present, then the USACE delineation procedures would apply to the vegetated component (i.e., hydrophytes must dominate). When determining the boundary of wetlands (vegetated or not), applicants can rely on Part II of the 1987 USACE Manual that provides information sufficient to determine wetland boundaries for compliance with the Procedures.

The USACE definition refers to "saturated soil conditions", whereas the Procedures' definition refers to saturated substrate leading to "anaerobic conditions in the upper substrate", which is a more inclusive term. Both descriptions define conditions that would lead to dominance of hydrophytes, if the site is vegetated. The Procedures definition refers to "continuous or recurrent saturation of the upper substrate". Continuous saturation describes hydrological conditions that are perennial or tend to persist for at least twelve months. Recurrent saturation describes hydrological conditions that persist for less than twelve months. Hydrological conditions may be periodic and sustained regularly (e.g., tidewater) or episodic and intermittent, (e.g., vernal pools). In order for the recurrent saturation to support the development of anaerobic conditions, the substrate must become, and remain, saturated for a duration of at least 14 days during an annual cycle.

Waters of the State

California Code of Regulations, title 23, section 3831(w) states that "*[a]all waters of the United States are also 'Waters of the State*". The regulation reflects the SWRCB's intent to include a broad interpretation of Waters of the United States into the definition of Waters of the State. Waters of the State includes features that have been determined by the EPA or the USACE to be Waters of the United States in an approved jurisdictional determination; Waters of the United States identified in an aquatic resource report certified by the USACE upon which a permitting decision was based; and features that are consistent with any *current* or *historic* final judicial interpretation of Waters of the United States or any current or historic Federal regulation defining Waters of the United States. Because the interpretation of Waters of the United States in place at the time section 3831(w) was adopted was broader than any post-Rapanos or post-SWANCC regulatory definitions that incorporated more limitations into the scope of Federal jurisdiction, it is consistent with the SWRCB's intent to include both historic and current definitions of Waters of the United States into the SWRCB's wetland jurisdictional framework.

A wetland will continue to be protected when it has been regulated in the past as a Waters of the United States regardless of any subsequent changes in Federal regulations. The inclusion of both current and historic definitions of Waters of the United States ensures regulatory stability in an area that has otherwise been in flux. Like the other categories of the SWRCB's wetland jurisdictional framework, the status as a Waters of the United States may only be used to establish that a wetland qualifies as a Water of the State. It cannot be used to exclude a wetland from qualifying as a Water of the State. Thus, wetlands that are categorically excluded from qualifying as a Waters of the United States may nevertheless qualify as Waters of the State under another jurisdictional category.

Jurisdictional Framework

The jurisdictional framework is intended to exclude small (less than an acre) artificially created, temporary features, such as tire ruts or other transient depressions caused by human activity from regulation, while still capturing smaller, naturally occurring features, such as seasonal wetlands and small vernal pools that may be outside of Federal jurisdiction. All artificial wetlands that are less than an acre in size and do not satisfy the criteria listed in section II.2, II.3.a, II.3.b, or II.3.c are not Waters of the State. Note that this jurisdictional framework applies only to features meeting the technical definition of a wetland.

If an aquatic feature does not meet the definition of a wetland, it may nonetheless be a different type of aquatic feature that may still be regulated as a non-wetland Water of the State (e.g., lakes, streams, and ocean waters). The Procedures do not include guidance for jurisdictional determinations for other Waters of the State. Non-wetland Waters of the State typically follow USACE regulations, however under the 2020 Rule, ephemeral drainages are excluded. No regulatory guidance has been issued by the SWRCB regarding the delineation of ephemeral drainages, however, until further notice the use of the OHWM will be used to delineate such resources.

Porter-Cologne Act

In the Porter-Cologne Act, the Legislature declared that the "State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation..." (California Water Code Section 13000). The Porter-Cologne Act grants the Boards the authority to implement and

enforce the water quality laws, regulations, policies and plans to protect the groundwater and surface Waters of the State. It is important to note that enforcement of the State's water quality requirements is not solely the purview of the Boards and their staff. Other agencies [i.e., CDFW] have the ability to enforce certain water quality provisions in state law.

The Porter-Cologne Act requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the Waters of the State to file a report of discharge (an application for waste discharge requirements (WDRs))" (Water Code § 13260(a)(1)). Discharge of fill material into Waters of the State which does not fall under the jurisdiction of the USACE pursuant to Section 404 of the CWA may require authorization through application for WDRs or through waiver of WDRs.

3.0 METHODS

3.1 Database and Literature Review

Prior to conducting the jurisdictional delineation, Blackhawk conducted a review of available background information pertaining to the Project, including current and historic aerials, geography and topography. The following resources were consulted to identify land use history and provide additional context to potentially atypical and problematic jurisdictional wetlands within the Project site, including:

- USGS *Fairmount Butte, Little Buttes, Tylerhorse Canyon* and *Willow Springs California* quadrangle topographic maps (USGS 2012)
- Historical aerial photographs (NETR 2021)
- Current and historical aerial photographs (Google 2021)
- National Wetland Inventory (USFWS 2021)
- National Hydrography Dataset (USGS 2021a)
- California Natural Diversity Database (CNDDB) search for sensitive riverine, riparian and/or aquatic species (CDFW 2021)

Site maps were generated with available aerial imagery, and potentially jurisdictional features were identified to assist in field verification.

3.2 Field Survey

Blackhawk biologists Kris Alberts and Lorena Bernal conducted field-based delineation surveys on August 16, 17 and 23, 2021, to evaluate the extent of drainage features and water bodies within the Project site subject to the potential jurisdiction of USACE, RWQCB and/or CDFW. The delineation effort followed guidelines set forth by USACE (1987, 2008a, EPA/Army 2020) and was performed to gather field data at potentially jurisdictional Waters of the U.S. and Waters of the State within the Project site. The delineation focused on analyzing the data revealed by the NWI/NHD dataset and identifying the presence/absence of potentially jurisdictional drainages and/or water bodies within the Project site. To account for all potential Project impact areas to sensitive aquatic resources, all areas within the larger Project right-of-way (ROW) were assessed for jurisdictional resources by visual inspection of presence/absence of drainage features and/or water bodies. Where drainage features and/or water bodies were found, each feature was then characterized and delineated based on commonality among vegetation community characteristics, hydrology and/or three-parameter testing methodology, as applicable.

The limits of Waters of the United States and Waters of the State were recorded in the field using aerial maps and submetric (accurate to within one meter) Global Positioning System (GPS) equipment as Mr. Alberts walked the lengths of each feature along its jurisdictional limits. Mrs. Bernal photo-documented each mapped drainage feature using the Wildnote application on her smartphone. This combined effort yielded highly accurate maps of each feature along with a complete geo-referenced photo log (Attachment B).

The potential wetland locations, water bodies and/or drainage features were examined to determine the presence of any of the three wetland parameters (i.e., hydrology, hydric soils, hydrophytic vegetation), drainage channels and/or water bodies. Soil type and classification data used in the

delineation were provided by the Natural Resource Conservation Service's web soil survey (NRCS 2021) (Attachment A, Figure 2).

Potential wetland locations, water bodies and/or drainage features observed within the Project site were evaluated using the methodology set forth in the USACE Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008a), as modified by the 2020 Rule. Wetland hydrology indicators may include evidence of inundation, saturation, water marks, drainage patterns, soil cracks, drift lines, sediment deposits, presence of aquatic invertebrates and other characteristics. Vegetation was analyzed using dominant species wetland indicator status (USACE 2018). Suspected non-wetland jurisdictional areas were evaluated for the presence of definable channels, ordinary high-water mark (OHWM), and connectivity to a Traditional Navigable Water (TNW) or Relatively Permanent Water (RPW).

The delineation survey was conducted in 2021, after several years of extended drought, which could have the effect of reducing the detectability of certain species, particularly plants. Therefore, conservative estimates regarding the possible presence of hydrophytic plant species were considered.

Following the survey, analysis of the field data was performed by the wetland and GIS specialists to define, designate and edit all jurisdictional water data. Linear feet and acreages were calculated using GIS analysis by referencing collected data and associated aerial imagery. The linear path and extent of Unvegetated Ephemeral Dry Washes were digitized using polylines with and accompanying width measurements. The width values were used to convert polylines to polygons for acreage calculations for each of the 58 mapped drainage features.

3.2.1 Delineating Waters of the U.S.

3.2.1.1 Non-wetlands

Federal (USACE) and State (RWQCB) jurisdiction over a Non-wetland Water of the U.S. extends to the OHWM, defined in 33 C.F.R. § 328.3 as the line established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation and/or the presence of litter and debris. In the Arid West region of the United States, waters are variable and include ephemeral, intermittent and perennial channel forms. Delineation methods and data sheets were completed in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark* (OHWM) in the Arid West Region of the Western United States (USACE 2008b) the *Updated Datasheet for the Identification of the Ordinary High Water Mark* (OHWM) in the Arid West Region of the Western United States (USACE 2010) and 2020 USACE Navigable Waters Protection Rule (Environmental Protection Agency and Department of the Army 2020).

3.2.1.2 Wetlands

The climate of the region drastically influences the hydrology, channel-forming processes and distribution of OHWM indicators such that delineations can be inconsistent (over space and time) and problematic. The dynamics of arid channel forms and the transitory nature of traditional OHWM indicators in arid environments render the limit of the active floodplain the only reliable and repeatable feature in terms of OHWM delineation (Lichvar and McColley 2008). This was supported by recent

additional research in *Vegetation and Channel Morphology Responses to Ordinary High Water Discharge Events in Arid West Stream Channels* (Lichvar et al. 2009).

To determine the extent of potential jurisdictional wetlands on a project site, the Army Corps of Engineers Wetlands Delineation Manual (USACE 1987) and Regional Supplement to the Army Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a) was used as a guide for identifying wetland characteristics. The following three indicators must all be present to be defined as a wetland:

1.) Hydrology, providing permanent or periodic inundation by groundwater or surface water;
2.) Hydrophytic vegetation; and
3.) Hydric soils.

To be considered a wetland, an area must exhibit at least minimal hydric conditions within these three parameters.

Wetland Hydrology

Wetland hydrology indicators are classified into four groups:

Group A – Observation of Surface Water or Saturated Soils: This group is based on the direct observation of surface water or saturated soils.

Group B – Evidence of Recent Inundation: This group consists of evidence that the site is subject to flooding or ponding, although the inundation may not be recent. Indicators include water marks, drift deposits, sediment deposits and similar characteristics.

Group C – Evidence of Recent Soil Saturation: This group consists of indirect evidence of recent soil saturation. Indicators include oxidized rhizospheres around living roots and the presence of reduced iron and sulfur in the soil profile.

Group D – Evidence from Other Site Conditions or Data: This group consists of soil and vegetation features that indicate current rather than historic hydric conditions. The presence of wetland hydrology is assessed at each location where the wetland criteria are met. Data recorded include the extent of surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil test pit.

Hydrophytic Vegetation

Hydrophytic plants grow partially or completely in water and are indicators of wetland environments. Hydrophytic vegetation typically occurs in areas where frequent or sustained inundations are sufficient to produce soil saturation that exerts a controlling influence on plant species. These periodic events must occur for sufficient duration to result in reduced oxygen soil conditions. Wetlands are characterized by communities of plants, so that the occurrence of individual hydrophytic species in an area otherwise dominated by upland species is insufficient to characterize the area as a wetland. In arid environments, specific indicator species are important in identification of wetlands (e.g., halophytes and phreatophytes are associated with many wetland settings in the Arid West), but in general, the totality of plant species growing on a site is of greater importance than the presence or

absence of particular indicator species. Species that are indicators of wetlands have been classified in the National Wetland Plant List (USACE 2018). Frequency of a species occurrence in wetlands has been divided into the following five categories.

1.) **Obligate Wetland (OBL):** Occurs almost always (estimated probability >99%) under natural conditions in wetlands.
2.) **Facultative Wetland (FACW):** Usually occurs in wetlands (estimated probability 67-99%) but occasionally found in non-wetlands.
3.) **Facultative (FAC):** Equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%).
4.) **Facultative Upland (FACU):** Usually occurs in non-wetlands (estimated probability 67-99%) but occasionally found in wetlands (estimated probability 1-33%).
5.) **Obligate Upland (UPL):** Occurs in wetlands in another region but occurs almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.

The USACE considers species that fall into the OBL, FACW and FAC categories as being positive indicators of wetland vegetation. The prevalent vegetation that occurs in a wetland may be associated with more than one community and is characterized by the dominant species. A dominance test (Indicator 1) is the basic hydrophytic vegetation indicator and is used to determine the dominant species of a given plant community. The 50/20 Rule is used to determine wetland status by examining the species that dominate a community. This method involves identifying the species type that makes up at least 50% of the stratum of the community, and then identifying a second species type that makes up at least 20% of the stratum. This method should be applied in every wetland determination. Although some plant communities cannot be characterized by the dominance test, most wetlands in the Arid West have plant communities that will pass the dominance test, and therefore this test provides a sufficient indicator in most situations. If the plant community passes the dominance test for wetland species, then the vegetation is characterized as hydrophytic, and no further vegetation analysis is required.

The prevalence index (Indicator 2) is used when the vegetation fails the dominance test, but hydric soils and wetland hydrology are present. The prevalence index weighs all of the plant species in a community, rather than just the dominant species. The prevalence index is a weighted-average wetland indicator status of the plant species in a sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and is weighted by the percent cover. Hydrophytic vegetation is present if the prevalence index is 3.0 or less.

Plant morphological adaptations (Indicator 3) can be used to distinguish certain wetland plant communities in the Arid West in the presence of hydric soils and wetland hydrology. Some hydrophytes develop easily recognized physical characteristics due to their adaption to wetland conditions. Common morphological adaptations include adventitious roots and shallow root systems developed on or in the upper layers of the soil. This indicator is applied when the wetland morphological adaptations are found on 50% or more of the FACU species present.

Hydric Soils

The National Technical Committee for Hydric Soils defines a hydric soil as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (NRCS 2018). Soils that are sufficiently wet because of artificial

measures are included in the concept of hydric soils. This classification includes soils that were historically hydric but have since become non-hydric as a result of artificial modification of the hydrologic system that originally created the hydric soil. Some series, designated as hydric, have phases that are not hydric, depending on water table, flooding and ponding characteristics.

Hydric soils are identified using soil indicators presented in the Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a) and the Field Indicators of Hydric Soils in the United States, Version 8.2, 2018 (NRCS 2018). Indicators of non-sandy hydric soils include an organic composition that is greater than 50% (formed in oversaturated conditions where the decomposition of plant debris is inhibited and slowly accumulates), the presence of sulfides in the soil composition that emanate a strong sulfur odor, and soils with peraquic (groundwater always at or near the soil surface) moisture regimes. The soil coloration produced by soil components is also an indicator that can be used to identify hydric soils while performing field observations. Gleyed soils are produced when reduced oxygen in the soil environment results in the pronounced chemical reduction of iron, manganese and other elements, thereby producing grayish, bluish and greenish soil colors. Mineral hydric soils that are saturated for substantial periods of the growing season (but not long enough to produce gleyed soils) will have bright mottles (marked with spots of contrasting colors) and a dark coloration matrix (the portion of the soil that makes up more than 50% of the composition that has the predominant color). In some mineral hydric soils, mottling may be absent and only the dark coloration occurs.

The coloration of the soil samples, matrix and mottles is assessed using the Munsell Soil Color Charts (Munsell 2009). The Munsell Color System is the field and laboratory standard for classifying soil color, rocks, and archaeological specimens. The system has three components: hue (a specific color), value (lightness and darkness), and chroma (color intensity). Samples of these components are arranged in books of color chips, each of which is labeled to indicate the assigned value of each of these components. The soil sample is viewed through an aperture below each chip to compare and contrast the coloration until a best-match determination is made.

3.2.2 Delineating Waters of the State of California

3.2.2.1 Regional Water Quality Control Board

Evaluation of jurisdiction under the RWQCB traditionally followed guidance from Section 401 of the CWA, and generally consists of the same jurisdictional areas as USACE. In addition, the wetland delineation procedures were followed per the "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" (SWRCB 2019).

3.2.2.2 California Department of Fish and Wildlife Jurisdiction

CDFW jurisdiction typically includes water features with a defined bed and bank. Evaluation of potentially jurisdictional areas followed the guidance of relevant CDFW materials and standard practices by CDFW personnel. CDFW jurisdiction was delineated by measuring the outer width and length boundaries of potentially jurisdictional areas, consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation.

4.0 ENVIRONMENTAL SETTING

This section describes the topography, land use, hydrology, vegetation characteristics and soils associated with the Project.

4.1 Topography

Within the Project limits, topography consists of gentle grades between 1 and 2 percent slope, generally sloping northwest to southeast. Areas of relatively steep slopes are present in the eastern portion of the Project limits. Elevations within the Project site range from 2,591 feet above mean sea level (AMSL) to approximately 2,835 feet AMSL.

4.2 Land Use

The eastern portion of the Project consists of a mix of rural residential development, agricultural land, and paved and dirt roads. The majority of the Project ROW is centered on paved and dirt roads, and a large stretch of the ROW parallels an existing transmission/gen-tie line running northwest to southeast. The Gem parcels are located entirely on sparsely vegetated, undeveloped land.

The central portion of the Project consists of generally flat, sparsely vegetated open areas with scattered residences and dirt roads. The ROW is primarily centered on dirt and paved roads with the remainder of the Survey Area on a mostly undeveloped area. Existing solar arrays occur along the northern and southern boundaries of this portion of the Survey Area.

The western portion of the Project consists of dirt and paved roads associated with historical and current rural residential development, as well as access roads to existing solar arrays to the northeast and south, Manzana Wind facilities to the north, and the existing Whirlwind Substation to the southwest. An existing transmission/gen-tie line, originating at the Whirlwind Substation, runs northeast to southwest through this portion of the Survey Area. Despite the presence of numerous dirt roads and scattered rural residential development, the western portion of the Survey Area remains mostly undeveloped.

4.3 Hydrology

The NWI/NHD review resulted in numerous drainage features that bisect the Project site (Attachment A, Figure 3). The NWI dataset included riverine, freshwater pond and lake features on or immediately adjacent to the Project ROW, and the NHD dataset included streams/rivers, pipelines and lakes/ponds.

4.3.1 Precipitation

Average total precipitation at the nearby Lancaster, CA WETS Station is 6.06 inches per year (http://agacis.rcc-acis.org/ 2021), using data from the past 20 years. Over the past five years, annual total precipitation averages at 6.08 inches.

4.3.2 Hydrologic Unit

The Project is located within the Antelope-Fremont Valleys hydrologic unit (HUC18090206) (USGS 2021b).

4.4 Soils

According to the Natural Resources Conservation Service (NRCS 2021), a total of 27 soil types are found within the boundaries of the Survey Area (Attachment A, Figure 2). The main mapped soil types that overlap with the proposed Project area include, Hesperia fine sandy loam, 2 to 5 percent slopes; Cajon loamy sand, 2 to 9 percent slopes; and Rosamond loam and DeStazo sandy loam, 0 to 2 percent slopes. None of these soils are considered hydric.

4.5 Vegetation

The Project site consists of a total of 13 vegetation communities, including Creosote-White Bursage Series, Saltbush Scrub, Developed/Disturbed, Creosote-Saltbush Series, Developed, California Matchweed-Rubber Rabbitbrush Series, Agricultural Land, Annual Buckwheat/ Grasses, Creosote-White Bursage Series – Disturbed, Rubber Rabbitbrush Scrub, Saltbush Scrub – Disturbed, Disturbed and Ornamental (Attachment A – Figure 6). The Project site broadly includes areas of sparse to moderately high desert vegetation cover, intermixed with disturbed areas, developed lands, and dirt and paved roads. No hydrophytic vegetation was observed within the Project site in significant concentrations, and no hydrophytic vegetation was dominant anywhere within the Project site, including a near total lack of hydrophytic vegetation from within the mapped drainage features.

5.0 RESULTS

The NWI/NHD review resulted in numerous drainage features and water bodies (including 21 riverine, one lake and six freshwater ponds) within 250 feet of the Project ROW (USFWS 2021, USGS 2021a) (Attachment A, Figure 3). The field-based delineation was focused on determining the current accuracy of the NWI/NHD data and the presence/absence of potentially jurisdictional resources throughout the Project site. It was determined that the Project site did not contain the same drainage features, types and/or locations as the NWI/NHD data revealed.

A total of 58 mapped ephemeral drainages were documented within the Project site, most of which extend upstream and/or downstream within 250 feet of the Project ROW; no wetlands, other drainage feature types or other water bodies were observed. No hydrophytic vegetation of any kind was observed in such concentrations to warrant wetland inspections; the few hydrophytic plant species that were observed occurred as sparse individuals in a non-dominant capacity.

An overview map of the features and their potential jurisdiction can be found in Attachment A, Figure 4 "Jurisdictional Survey Results Overview", and a mapbook detailing each feature can be found in Attachment A, Figure 5 "Jurisdictional Survey Results Mapbook". Tables 2 and 3 provide a summary of acreage and linear feet broken down for each mapped drainage feature and their correlated RWQCB and CDFW limits. Site photos are found in Attachment B. The Beta Arid West Streamflow Duration Assessment Method form is found in Attachment C.

Ephemeral Dry Drainages

A total of 58 ephemeral dry drainage features account for a combined 23,428 linear feet and 5.77 total acres within the Project limits. All drainage features are similar in character, vary between one and 125 feet in width, and typically flow northwest to southeast. These drainage features fall under the jurisdiction of two state agencies: the RWQCB and the CDFW.

All 58 ephemeral drainage features contained the same upland vegetation as their surroundings or were largely unvegetated, but with observable hydrological indicators such as shelving, sedimentation, cracked soil surfaces and/or drainage patterns. Many of the drainage features originated from upland swales, and many dissipated into uplands with no observable downstream connection. This observation was consistent with the NWI/NHD dataset. All 58 mapped ephemeral drainage features were delineated for their OHWM limits for RWQCB jurisdiction, as well as top-of-bank or OHWM limits, as applicable on a case-by-case basis, for CDFW streambed jurisdiction. Since all features were found to be ephemeral, there is no USACE jurisdiction on the Project site, per the 2020 Rule. The total RWQCB jurisdiction within the Project site includes 2.285 acres (23,428 linear feet), and total CDFW jurisdiction includes 5.770 acres (23,428 linear feet).

The NWI/NHD review suggested several lakes/freshwater ponds were present within the Project limits; however, the field-based delineation confirmed that none of these are present, with only ephemeral hydrological indicators present in some portions.

Hydrological input into the Project site appears to consist of periodic, ephemeral low to high velocity surface water runoff (depending on rainfall amounts and durations) occurring primarily as sheet flow from the surrounding hills to the north and paved surfaces. Runoff within the Survey Area appears to occur almost entirely within upland habitats, dissipating into sheet flow within the Project footprint, with

channelized flows directed through the mapped ephemeral drainage features and occasionally, dirt roadways. Flows through the Project site appear to dissipate into uplands downgrade of the Project site, with no direct connectivity to any potentially jurisdictional drainage features or water bodies. There appears to be no connectivity of the drainage features to any Relatively Permanent Waters (RPW) or Traditionally Navigable Waters (TNW).

Vernal pool vegetation or other wetland indicator species were not observed in concentrations to support, and do not occur within soil series typical of, vernal pool formation. As such, there are no drainage features or water bodies (seasonal or permanent) within the Project boundary that would be considered jurisdictional vernal pool waters of USACE.

All 58 mapped ephemeral dry drainage features are considered non-wetland waters of the State, regulated by the RWQCB, with overlapping bank-to-bank streambeds regulated by the CDFW. Under the 2020 USACE Navigable Waters Protection Rule, none of ephemeral drainage features would be considered Wetland/Non-wetland Waters of the United States.

The areas of jurisdiction include the entirety of all 58 ephemeral dry drainage features (OHWM and overlapping bank-to-bank streambed) that fall within the Project boundaries.

Total related jurisdiction within the Project limits includes 2.285 acres (23,428 linear feet) of RWQCB jurisdiction and 5.770 acres (23,428 linear feet) of CDFW jurisdiction as shown in Tables 2 and 3.

Table 2. Jurisdictional Waters Within the Project Site

Ephemeral Drainage Feature Number	RWQCB Non-wetland Waters of the State		CDFW Streambed	
	Acres	Linear Feet	Acres	Linear Feet
1	0.0161	351	0.0324	351
2	0.0018	79	0.0056	79
3	0.0591	449	0.2452	449
4	0.0198	588	0.1157	588
5	0.0065	283	0.0566	283
6	0.0037	163	0.0273	163
7	0.0202	879	0.1459	879
8	0.0017	73	0.0017	73
9	0.0089	386	0.0714	386
10	0.0134	292	0.0412	292
11	0.0147	319	0.0593	319
12	0.0160	354	0.0333	354
13	0.0928	447	0.0928	447

14	0.0068	297	0.0068	297
15	0.0067	292	0.0067	292
16	0.4415	391	0.5285	391
17	0.1601	1188	0.3089	1188
18	0.0555	133	0.0555	133
19	0.0259	365	0.0535	365
20	0.0007	28	0.0040	28
21	0.0188	299	0.0597	299
22	0.0441	871	0.1478	871
23	0.0101	440	0.0285	440
24	0.0026	115	0.0292	115
25	0.0446	1513	0.2715	1513
26	0.0113	254	0.0605	254
27	0.0033	145	0.0248	145
28	0.0183	399	0.1305	399
29	0.0247	270	0.0247	270
30	0.0154	276	0.1488	276
31	0.0025	108	0.0169	108
32	0.0066	293	0.0966	293
33	0.0029	125	0.0253	125
34	0.0216	803	0.1046	803
35	0.0335	844	0.2304	844
36	0.0180	392	0.0539	392
37	0.0107	252	0.0274	252
38	0.0125	545	0.0434	545
39	0.0035	151	0.0077	151
40	0.0050	218	0.0439	218
41	0.0080	188	0.0314	188
42	0.0033	145	0.0306	145
43	0.0036	155	0.0107	155
44	0.0147	433	0.0794	433
45	0.1190	2180	0.6370	2180

46	0.0091	111	0.0351	111
47	0.0050	108	0.0230	108
48	0.0488	584	0.1151	584
49	0.0058	253	0.1058	253
50	0.0133	255	0.1031	255
51	0.0755	383	0.1207	383
52	0.0011	48	0.0106	48
53	0.0230	189	0.0618	189
54	0.0623	915	0.1183	915
55	0.3964	812	0.4426	812
56	0.0071	228	0.0356	228
57	0.0975	388	0.1023	388
58	0.1093	386	0.2385	386
Total	**2.285**	**23,428**	**5.770**	**23,428**

Table 3. Jurisdictional Waters Summary

Jurisdictional Water Types	**Acres (Linear Feet)**
USACE Jurisdiction	
Wetland Waters of the United States	0.000
Non-Wetland Waters of the United States	0.000
USACE Total Jurisdiction	**0.000 (0)**
RWQCB Jurisdiction	
Wetland Waters of the State	0.00
Non-Wetland Waters of the State	2.285 (23,428)
RWQCB Total Jurisdiction	**2.285 (23,428)**
CDFW Jurisdiction	
Wetlands	0.00
Riparian	0.00
Bank to Bank	5.770 (23,428)
CDFW Total Jurisdiction	**5.770 (23,428)**

6.0 PROJECT IMPACTS

A total of 58 jurisdictional drainage features under the purview of RWQCB and CDFW were mapped within the Project ROW. No wetlands or riparian habitats were found. Since the Project is still in the design phase and all mapped drainage features could be feasibly avoided, it is anticipated that the Project will not impact any jurisdictional waters/habitat within and/or adjacent to the Project alignment, with no impacts during the construction, operations and maintenance phases (Table 4).

Table 4. Summary of Impacts to Potentially Jurisdictional Waters

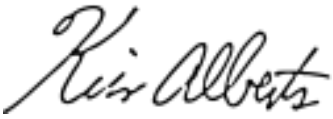
Jurisdictional Water Types	Permanent (acres)	Temporary (acres)
Proposed Impacts to USACE Jurisdiction		
Wetland Waters of the United States	0.00	0.00
Non-Wetland Waters of the United States	0.00	0.00
USACE Total Impacts	**0.00**	
Proposed Impacts to RWQCB Jurisdiction		
Open water	0.00	0.00
Wetland Waters of the State	0.00	0.00
Non-Wetland Waters of the State	0.00	0.00
RWQCB Total Impacts	**0.00**	
Proposed Impacts to CDFW Jurisdiction		
Open water	0.00	0.00
Riparian	0.00	0.00
Bank to Bank	0.00	0.00
CDFW Total Impacts	**0.00**	

7.0 CONCLUSIONS AND SUMMARY

The Project contains 58 mapped, ephemeral dry drainage features characterized as Non-wetland Waters of the State regulated by the RWQCB and overlapping bank-to-bank streambed areas regulated by the CDFW. Under the 2020 USACE Navigable Waters Protection Rule, and with no connectivity to any RPW or TNW, none of the ephemeral drainages would be considered a Wetland on Non-wetland Water of the United States. Within the Project site, a total of 2.285 acres (23,428 linear feet) of RWQCB jurisdiction and a total of 5.770 acres (23,428 linear feet) of CDFW jurisdiction is present. No impacts are anticipated to occur to the jurisdictional drainages within and adjacent to the Project site.

8.0 SURVEYOR CERTIFICATION

This report was prepared for Golder Associates, Inc. All data, statements, analyses, findings and attachments within this report are accurate and truthful in terms of describing the existing conditions and the Project as proposed to Blackhawk Environmental and are based on best available knowledge at the time of the report. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Blackhawk Environmental accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



Kris Alberts
Principal Biologist

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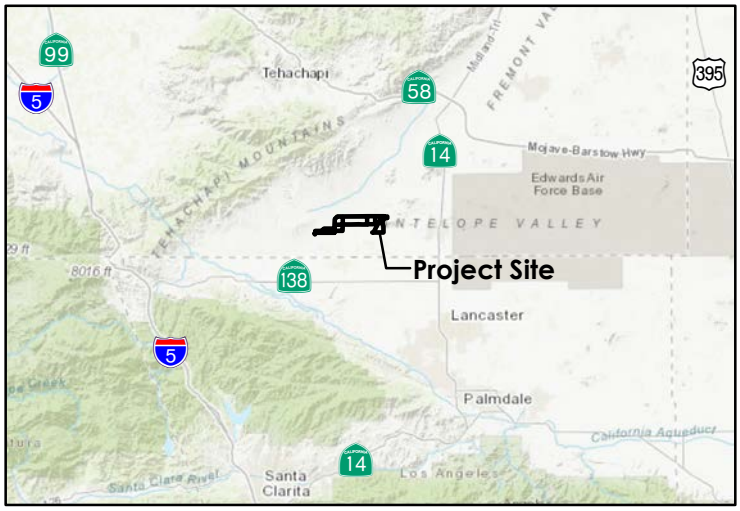
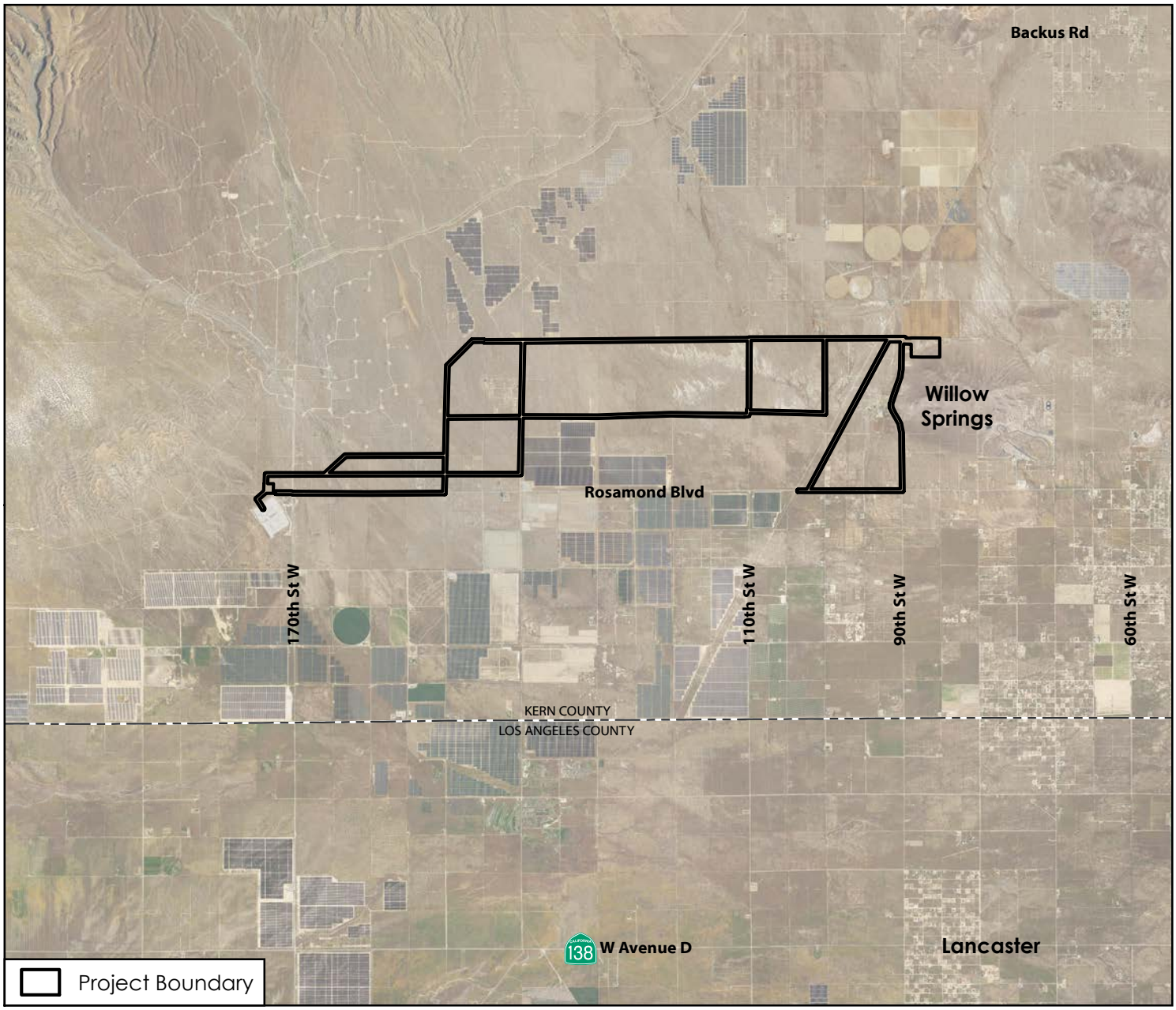
ATTACHMENT A

Figures

Blackhawk Environmental





Aerial Photo: USDA NAIP 2020

Figure 1

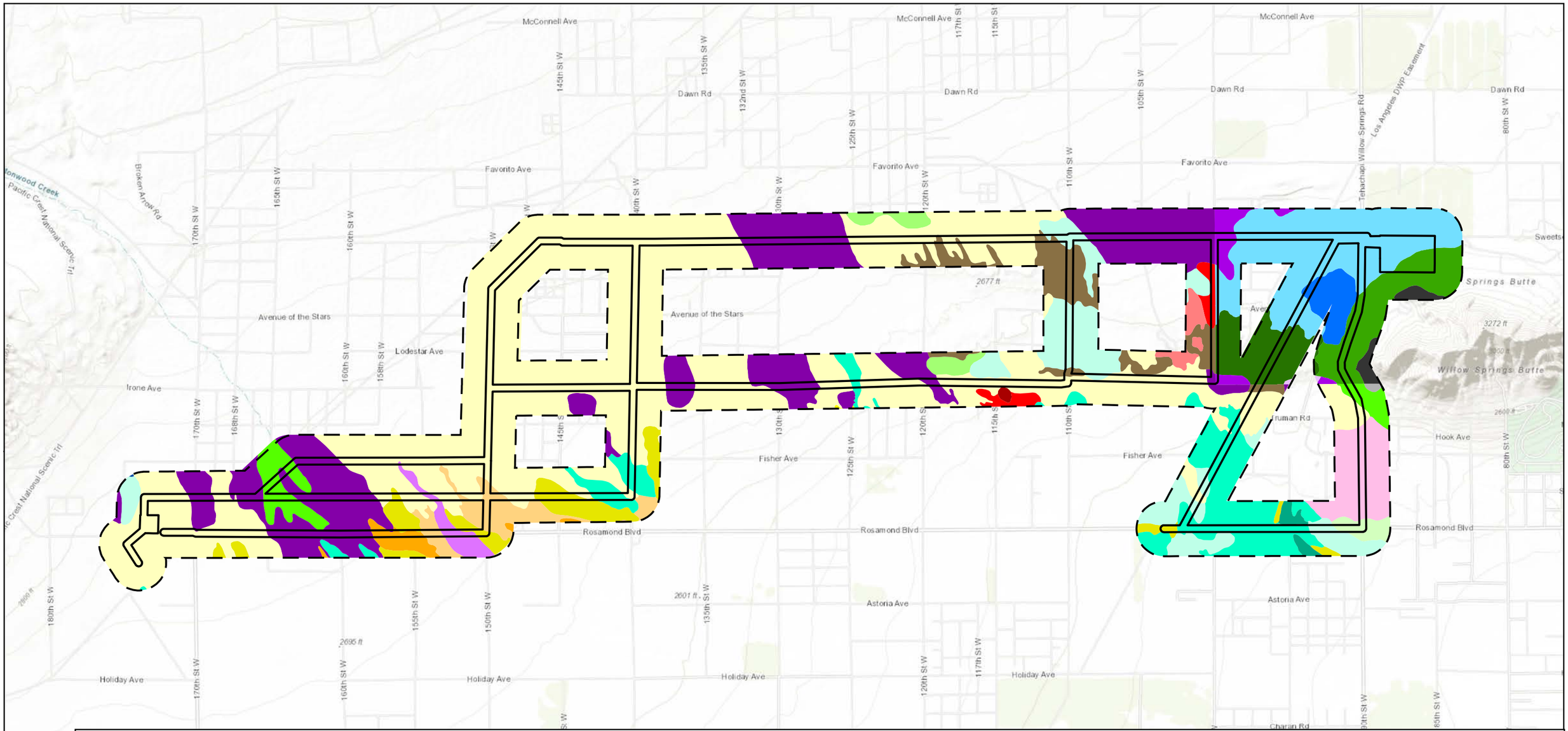
Project Location and Vicinity

Hydrostor, Inc. Gem Energy Storage Center
Application for Certification Project

BLACKHAWK Environmental

N

0 2 Miles



Source: USDA NRCS

Figure 2

Soils

BLACKHAWK Environmental

N

0 3,500 Feet

Project Boundary
1000-foot Buffer

National Wetlands Inventory (NWI)
Riverine
Freshwater Pond
Lake

National Hydrography Dataset (NHD)
Stream/River
Artificial Path
Pipeline
Lake/Pond

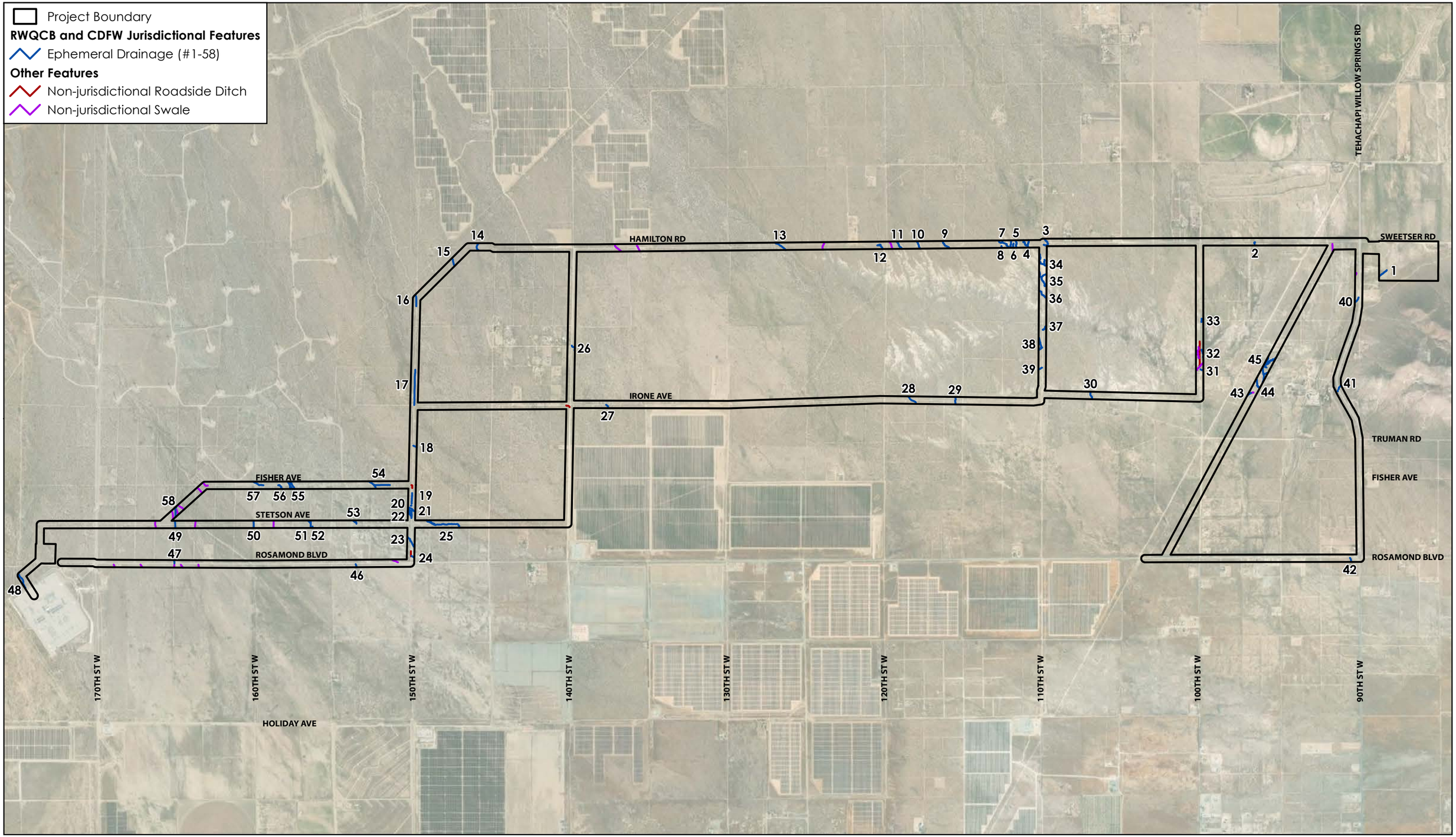
HAMILTON RD
IRONE AVE
FISHER AVE
STETSON AVE
ROSAMOND BLVD
HOLIDAY AVE
SWEETSER RD
TRUMAN RD
FISHER AVE
ROSAMOND BLVD
TEHACHAPI WILLOW SPRINGS RD
170TH ST W
160TH ST W
150TH ST W
140TH ST W
130TH ST W
120TH ST W
110TH ST W
100TH ST W
90TH ST W

Source: USFWS; USGS; Aerial Photo: Maxar, Esri 2020

Figure 3
NWI & NHD

BLACKHAWK Environmental

N
0 3,500 Feet



Source: USFWS; USGS; Aerial Photo: Maxar, Esri 2020

Figure 4

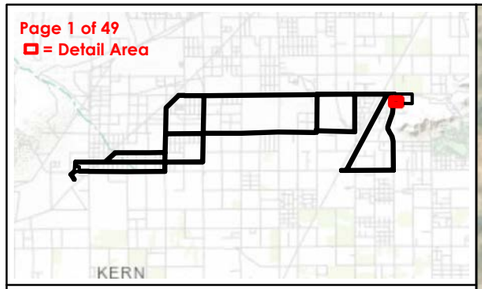
Jurisdictional Survey Results Overview

Blackhawk Environmental

N

0 3,000 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Swale

Non-jurisdictional Swale 8
Photo 1
TEHACHAPI WILLOW SPRINGS RD
Photo 1
Photo 2
Photo 3
Photo 4
Ephemeral Drainage 1

Aerial Photo: Maxar, Esri 2020

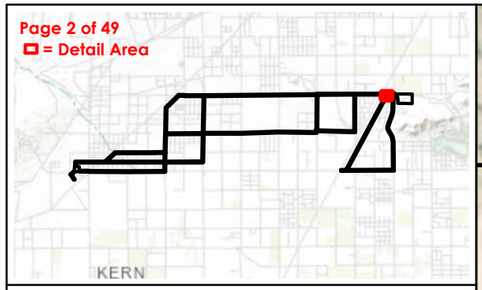
Figure 5-1

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Swale

HAMILTON RD

MANLY RD

Photo 3

Non-jurisdictional Swale 1

Photo 2

Photo 1

Aerial Photo: Maxar, Esri 2020

Figure 5-2

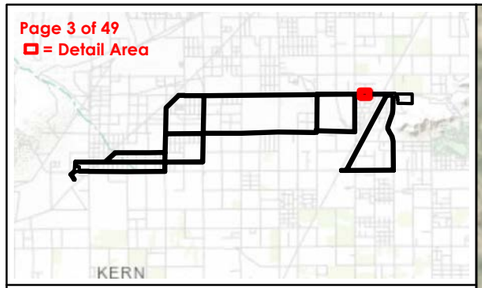
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location
Culvert

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

N

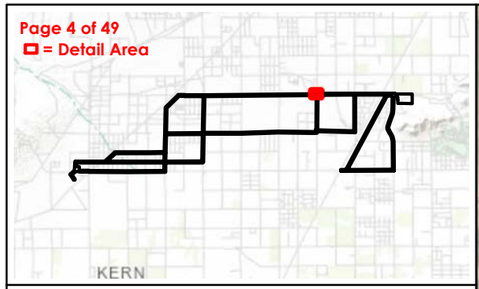
0 100 Feet

Figure 5-3

Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 1
Photo 2
Photo 10
Photo 9
Photo 3
Photo 7
Photo 8
Photo 6
Photo 4
Photo 5
Ephemeral Drainage 4
Photo 1
Photo 2
Photo 3
Ephemeral Drainage 3
Photo 4
Photo 5
Photo 6
Photo 8
Photo 7
Photo 9
Photo 10
Photo 11
Photo 12
Photo 14
Photo 13
HAMILTON RD
110TH ST W
Photo 1

Aerial Photo: Maxar, Esri 2020

Figure 5-4

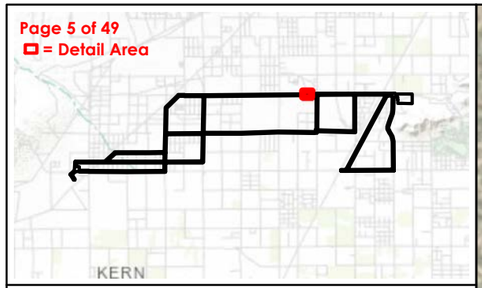
Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 11
Photo 10
Photo 9
Photo 12
Photo 8
Photo 4
Photo 7
Photo 6
Photo 3
Photo 2
Photo 1
Ephemeral Drainage 7
Photo 5
Photo 1
Photo 4
Photo 3
Photo 2
Photo 1
Ephemeral Drainage 8
Photo 1
Photo 2
Ephemeral Drainage 6
Ephemeral Drainage 5

Aerial Photo: Maxar, Esri 2020

Figure 5-5

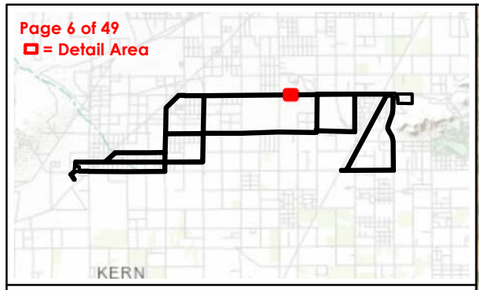
Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

Blackhawk Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 1
Photo 2
Photo 3
Ephemeral Drainage 10
Photo 4
Photo 5

Photo 1
Photo 2
Photo 3
Ephemeral Drainage 9
Photo 4
Photo 5

Aerial Photo: Maxar, Esri 2020

Figure 5-6

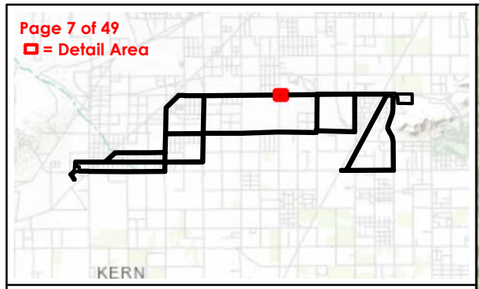
Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Swale

Photo 1
Photo 2
Photo 3
Photo 4
Ephemeral Drainage 11
Non-jurisdictional Swale 2
Photo 1
Photo 2
Photo 3
Photo 4
Photo 8
Photo 9
Photo 6
Photo 5
Photo 7
Photo 4
Photo 3
HAMILTON RD
Ephemeral Drainage 12
Photo 2
Photo 1

Aerial Photo: Maxar, Esri 2020

Figure 5-7

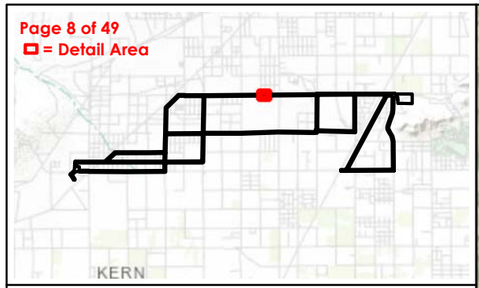
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Swale

HAMILTON RD

Photo 1

Photo 2

Photo 3

Non-jurisdictional Swale 3

Aerial Photo: Maxar, Esri 2020

Figure 5-8

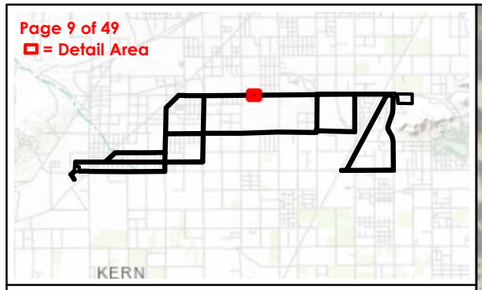
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

HAMILTON RD

Ephemeral Drainage 13

Aerial Photo: Maxar, Esri 2020

Figure 5-9

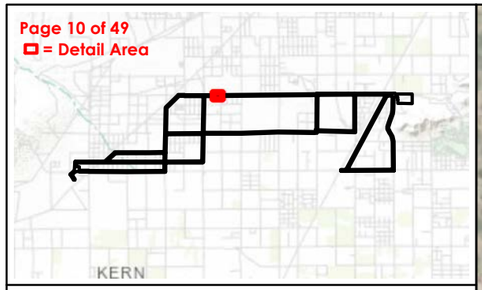
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

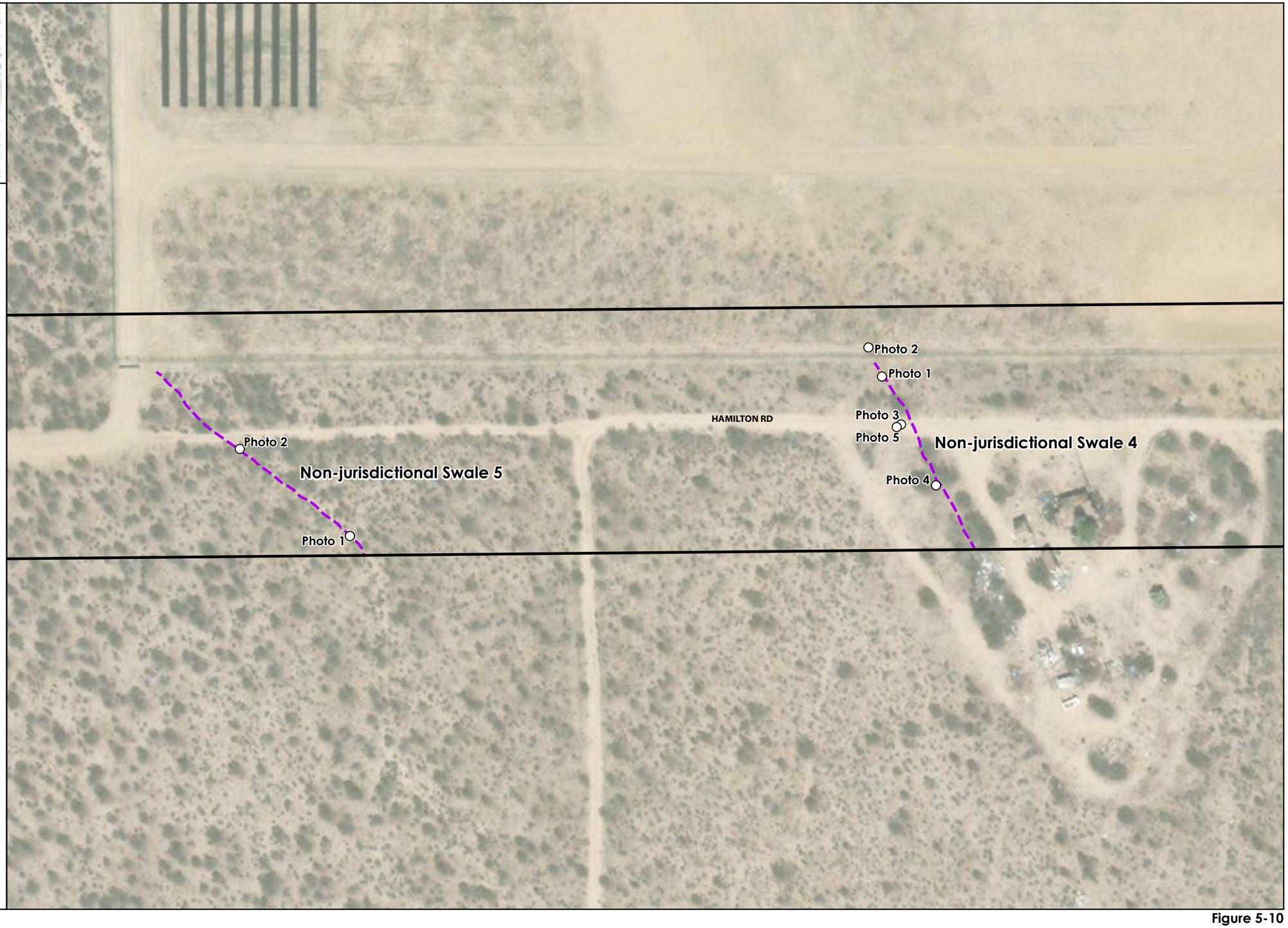
= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Swale



Aerial Photo: Maxar, Esri 2020

Figure 5-10

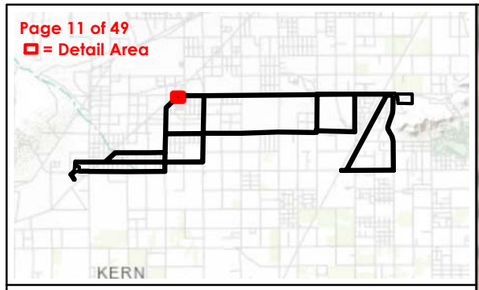
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

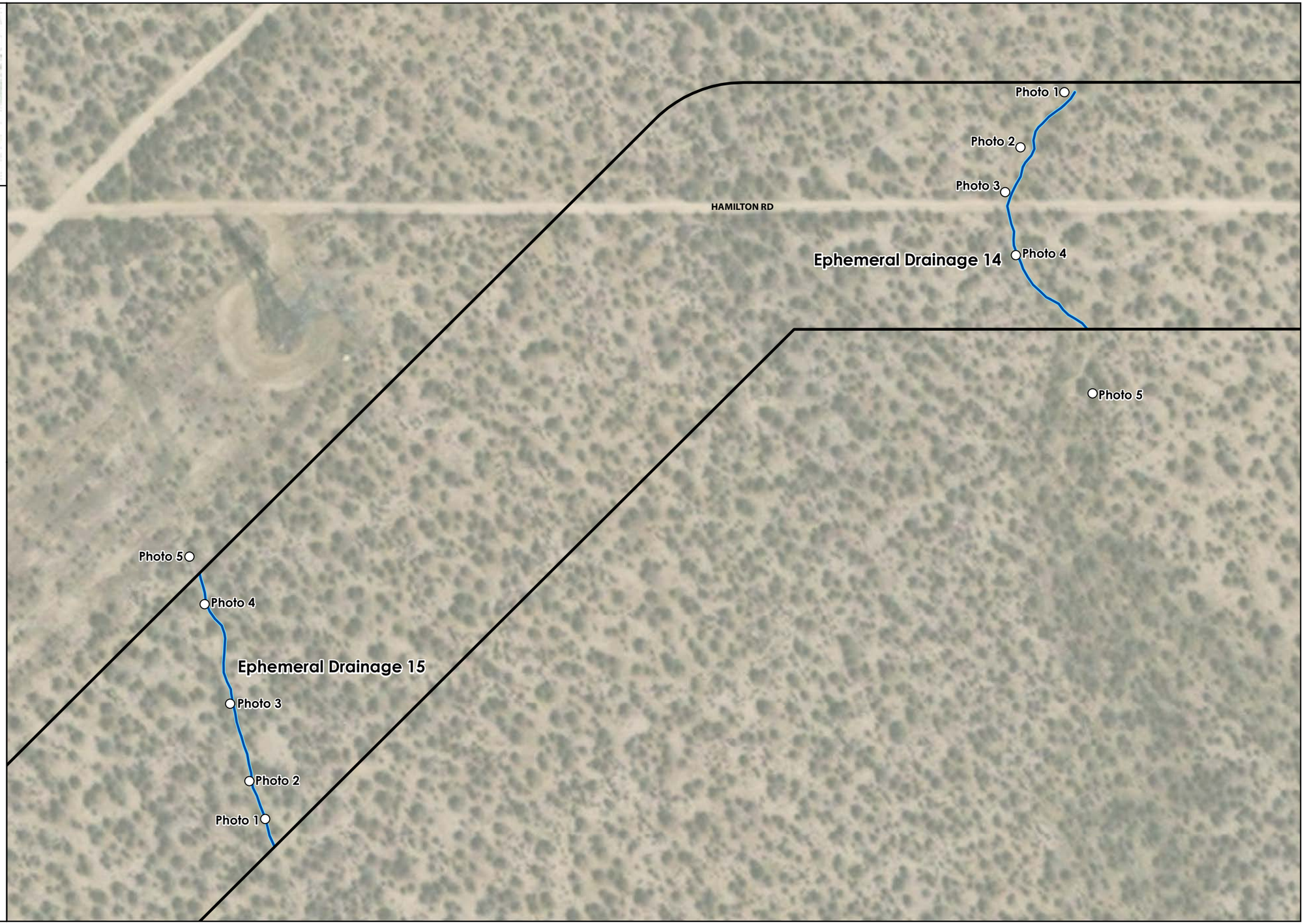
= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage



Aerial Photo: Maxar, Esri 2020

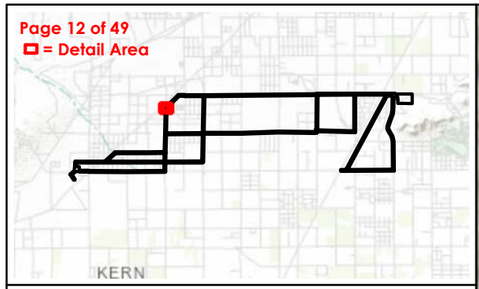
BLACKHAWK Environmental

N
0 100 Feet

Figure 5-11

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 1
Photo 11
Photo 9
Photo 8
Photo 10
Ephemeral Drainage 16
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
150TH ST W

Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

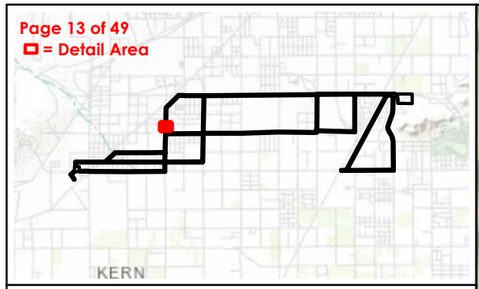
N
0 100 Feet

Figure 5-12

Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

150TH ST W

Photo 7
Photo 8
Ephemeral Drainage 17
Photo 6
Photo 9
Photo 5
Photo 4

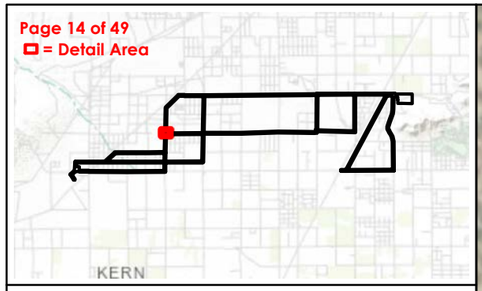
Aerial Photo: Maxar, Esri 2020

N
0 100 Feet

Figure 5-13

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 2

Photo 3

Photo 10

Ephemeral Drainage 17

Photo 1

IRONE AVE

150TH ST W

Aerial Photo: Maxar, Esri 2020

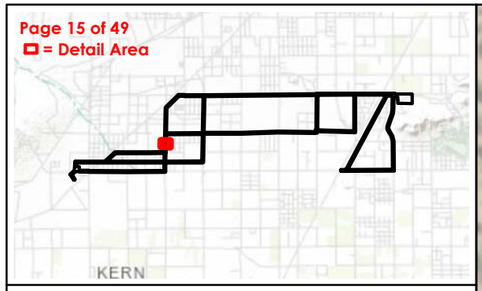
N

0 100 Feet

Figure 5-14

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Ephemeral Drainage 18
150TH ST W

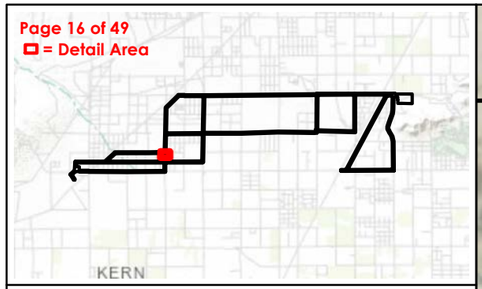
Aerial Photo: Maxar, Esri 2020

N
0
100
Feet

Figure 5-15

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Roadside Ditch

Photo 1
Photo 3
Photo 4
Photo 2
Photo 5
Non-jurisdictional Roadside Ditch 1
150TH ST W
Photo 1
Photo 2
Photo 3
Photo 5
Photo 6
Photo 4
Ephemeral Drainage 19
Photo 1
Photo 2
Ephemeral Drainage 20
Photo 1

Aerial Photo: Maxar, Esri 2020

Figure 5-16

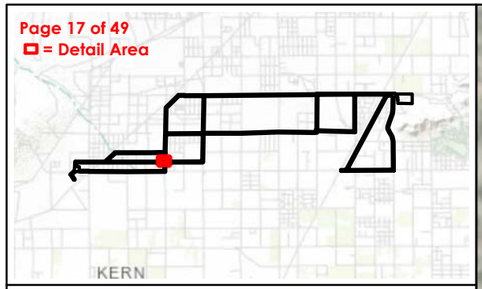
Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 1
Photo 2
Ephemeral Drainage 20
Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 1
Ephemeral Drainage 21
Photo 2
Photo 3
Photo 6
Photo 7
Photo 8
Photo 4
Photo 12
Photo 5
Photo 7
Photo 6
Photo 13
Photo 9
Photo 8
Photo 9
Photo 10
Photo 14
Photo 11
Photo 15
Photo 16
Ephemeral Drainage 22
Photo 17
Photo 18
Photo 19
150TH ST W

Aerial Photo: Maxar, Esri 2020

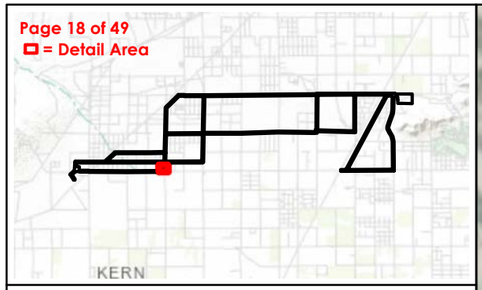
Figure 5-17

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Roadside Ditch
Non-jurisdictional Swale

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Ephemeral Drainage 23
Photo 8
150TH ST W
Photo 9
Photo 2
Non-jurisdictional Roadside Ditch 2
Photo 5
Photo 1
Photo 1
Photo 2
Photo 3
Photo 4
Ephemeral Drainage 24
Photo 1
Non-jurisdictional Swale 11
Photo 2
Photo 3
ROSAMOND BLVD

Aerial Photo: Maxar, Esri 2020

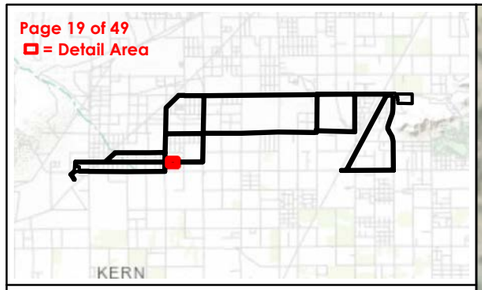
Figure 5-18

Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N
0 100 Feet



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
Photo 9
Photo 10
Photo 11
Photo 12
Photo 13
Photo 14
Photo 15
Photo 16
Photo 17
Photo 18
Photo 19
Photo 20
Photo 21
Photo 22
Photo 23
Photo 24
Photo 25

Ephemeral Drainage 25

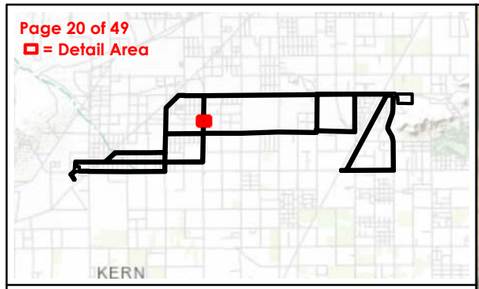
Aerial Photo: Maxar, Esri 2020

N
0
100
Feet

Figure 5-19

Jurisdictional Survey Results Mapbook

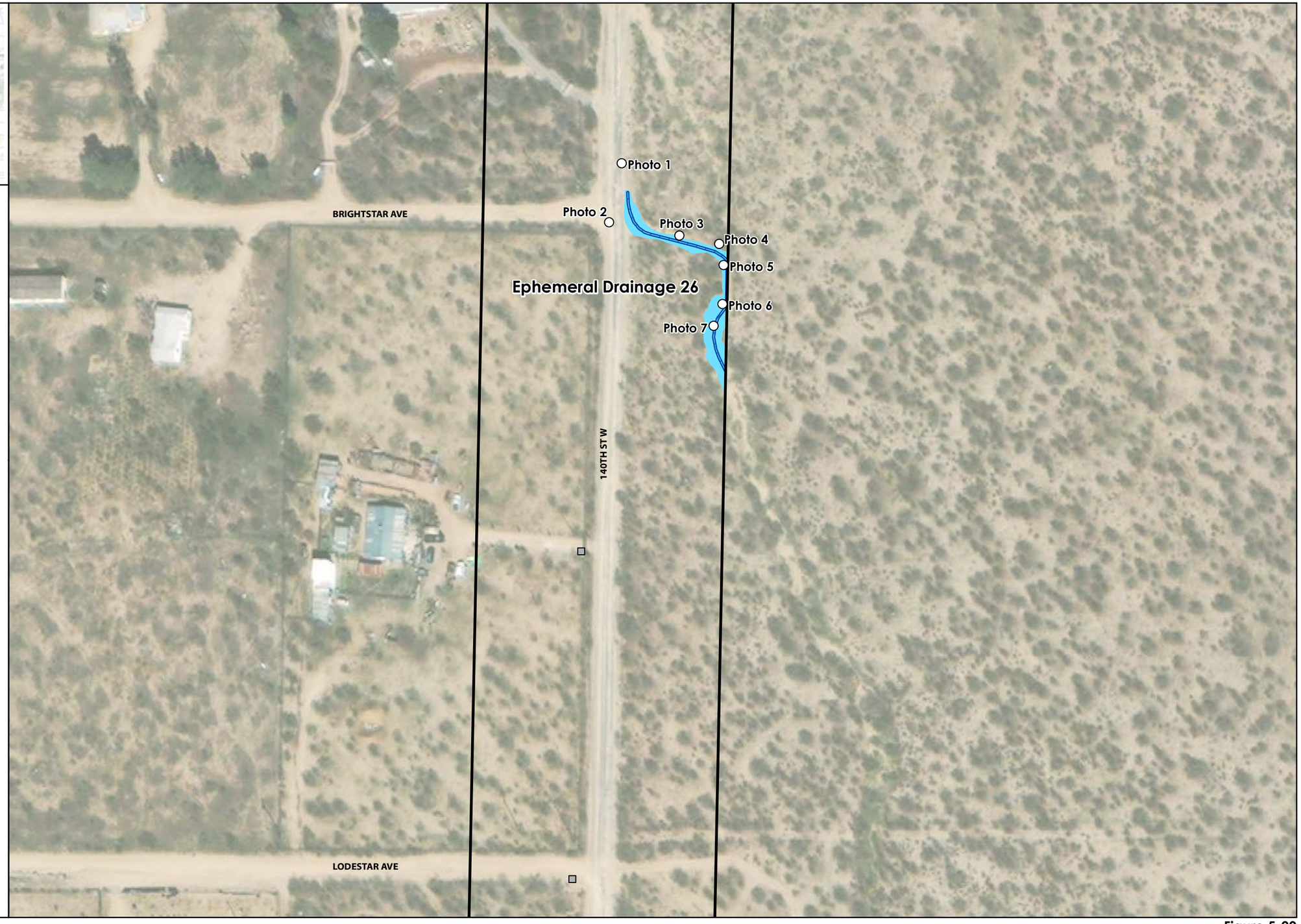
= Detail Area



Project Boundary
Photo Location
Culvert

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage



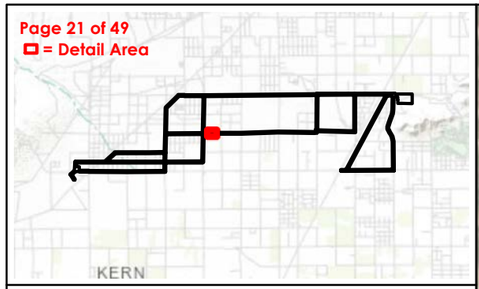
Aerial Photo: Maxar, Esri 2020

N
0
100
Feet

Figure 5-20

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Aerial Photo: Maxar, Esri 2020

Figure 5-21

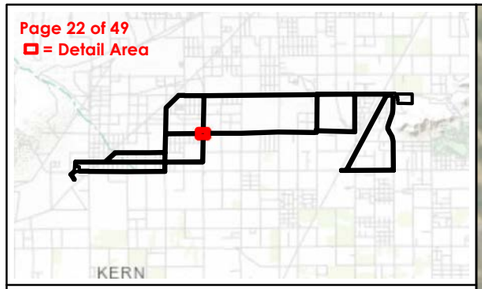
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Roadside Ditch

IRONE AVE

Photo 1

Photo 2

Non-jurisdictional Roadside Ditch 3

140TH ST W

Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

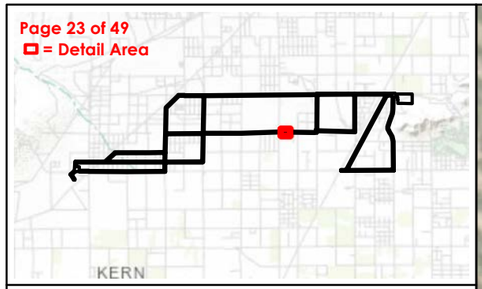
N

0 100 Feet

Figure 5-22

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

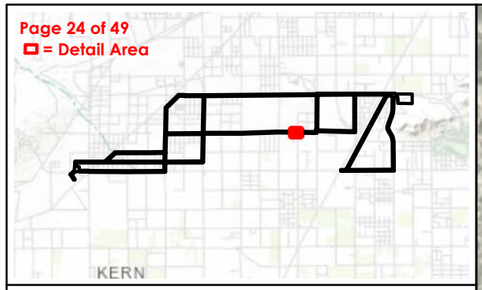
Photo 1
Photo 2
Ephemeral Drainage 28
Photo 3
Photo 4
Photo 5
IRONE AVE
Photo 6
Photo 7

Aerial Photo: Maxar, Esri 2020

N
0
100
Feet

Figure 5-23

Jurisdictional Survey Results Mapbook



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Aerial Photo: Maxar, Esri 2020

Figure 5-24

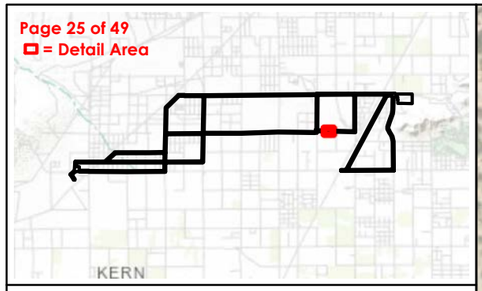
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 1

Photo 2

Ephemeral Drainage 30

Photo 3

Photo 4

Photo 5

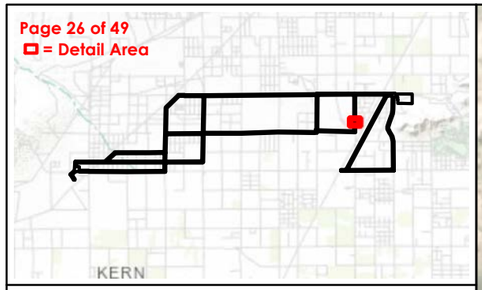
Aerial Photo: Maxar, Esri 2020

N

0 100 Feet

Figure 5-25

Jurisdictional Survey Results Mapbook



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Roadside Ditch
Non-jurisdictional Swale

Non-jurisdictional Swale 7
Photo 5
Photo 1
Photo 2
Photo 4
Photo 3
100TH ST W
Photo 1
Photo 2
Photo 4
Photo 5
Photo 3&6
Photo 7
Ephemeral Drainage 32
Photo 4
Photo 5
Photo 8
Photo 9
Photo 6
Photo 7
Photo 3
Photo 8
Non-jurisdictional Roadside Ditch 4
Photo 2
Photo 1
Photo 2
Photo 1
Photo 3
Non-jurisdictional Swale 6
Photo 1
Ephemeral Drainage 31
Photo 2
Photo 3

Aerial Photo: Maxar, Esri 2020

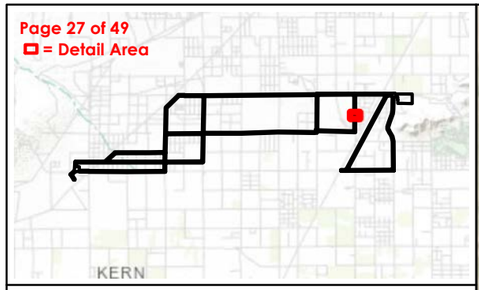
Figure 5-26

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Roadside Ditch

Ephemeral Drainage 33
Photo 1
Photo 2
Photo 3
Photo 4
100TH ST W
Photo 7
Photo 8
Non-jurisdictional Roadside Ditch 4
Photo 6

Aerial Photo: Maxar, Esri 2020

Figure 5-27

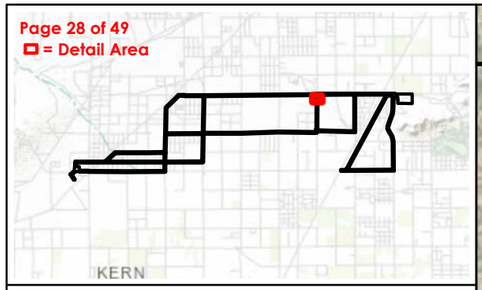
Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

110TH ST W

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Ephemeral Drainage 34
Photo 6
Photo 7
Photo 8
Photo 9
Photo 10
Photo 11
Photo 12
Photo 16
Photo 13
Photo 14
Photo 15
Photo 1
Photo 3
Photo 4
Photo 2
Photo 5

Aerial Photo: Maxar, Esri 2020

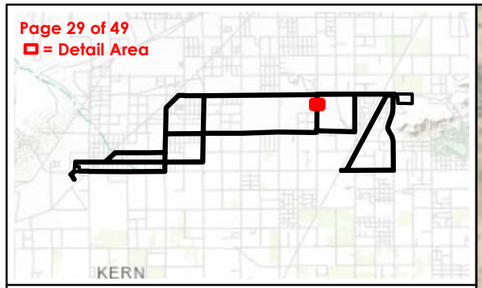
Figure 5-28

Jurisdictional Survey Results Mapbook

Blackhawk Environmental

N
0 100 Feet

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 4
Photo 2
Photo 5
Photo 6
Photo 18
Photo 7
Photo 8
Photo 9
Photo 10
Photo 11
Ephemeral Drainage 35
Photo 12
Photo 13
Photo 14
Photo 15
Photo 16
Photo 17
110TH ST W
Photo 1
Photo 2
Photo 3
Ephemeral Drainage 36
Photo 4
Photo 5
Photo 6
Photo 7

Aerial Photo: Maxar, Esri 2020

Figure 5-29

Jurisdictional Survey Results Mapbook

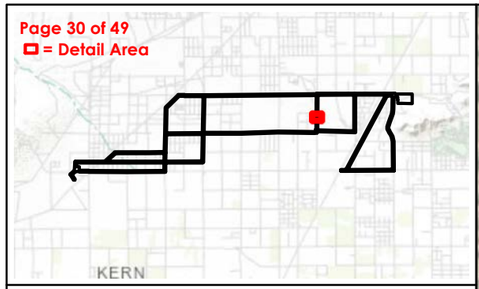
Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Ephemeral Drainage 37
Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
Photo 9

110TH ST W

Ephemeral Drainage 38
Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
Photo 9
Photo 10

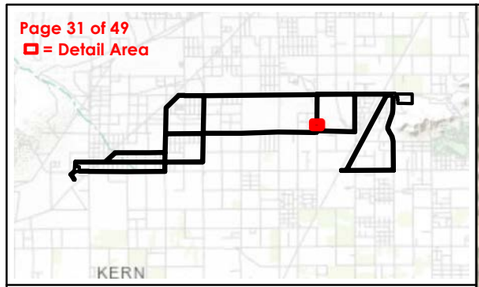
Aerial Photo: Maxar, Esri 2020

N
0
100
Feet

Figure 5-30

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary

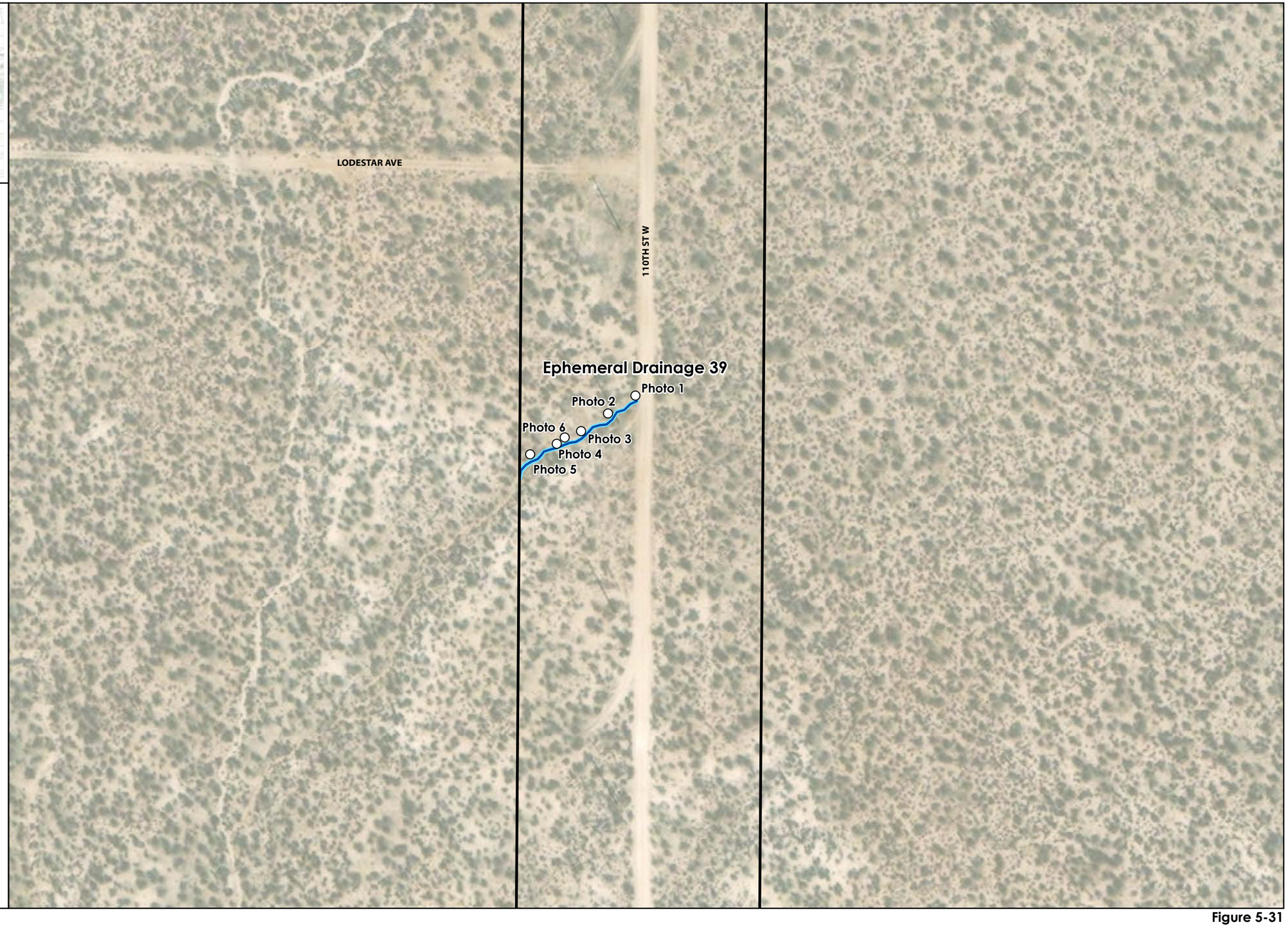
Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage



Aerial Photo: Maxar, Esri 2020

Figure 5-31

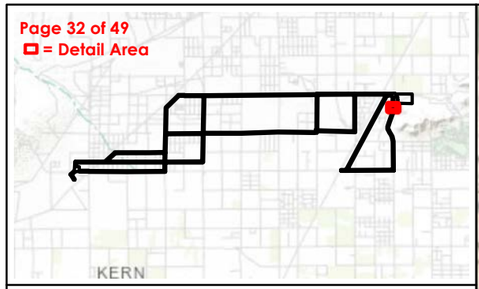
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location
Culvert

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Aerial Photo: Maxar, Esri 2020

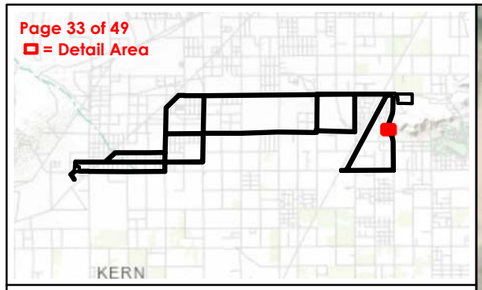
Figure 5-32

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N 0 100 Feet

= Detail Area



Project Boundary
Photo Location
Culvert

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

90TH ST W

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6

Ephemeral Drainage 41

Aerial Photo: Maxar, Esri 2020

Figure 5-33

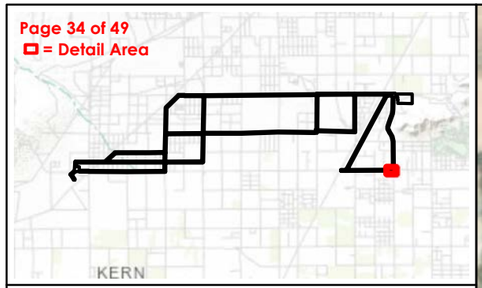
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

ROSAMOND BLVD
Photo 3
Photo 2
Ephemeral Drainage 42
90TH ST W
Photo 1

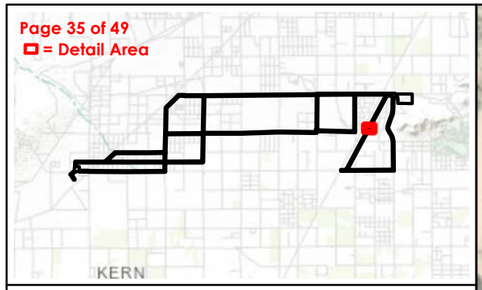
Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

N
0 100 Feet

Figure 5-34

Jurisdictional Survey Results Mapbook



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Swale

Ephemeral Drainage 45
Photo 24
Photo 25
Photo 26
Photo 1
Photo 2
Photo 3
Photo 4
Ephemeral Drainage 44
Photo 5
Photo 6
Photo 7
Non-jurisdictional Swale 10
Photo 3
Photo 1
Photo 2
Photo 1 & 2
Ephemeral Drainage 43
Photo 3
Photo 1
Non-jurisdictional Swale 9

Aerial Photo: Maxar, Esri 2020

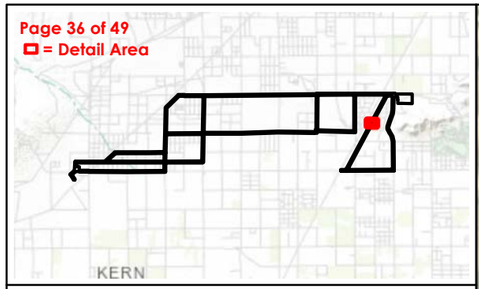
Figure 5-35

Jurisdictional Survey Results Mapbook

Blackhawk Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
Photo 9
Photo 10
Photo 11
Photo 12
Photo 13
Photo 14
Photo 15
Photo 16
Photo 17
Photo 18
Photo 19
Photo 20
Photo 21
Photo 22
Photo 23
Photo 24
Photo 25

Ephemeral Drainage 45
Ephemeral Drainage 45

Aerial Photo: Maxar, Esri 2020

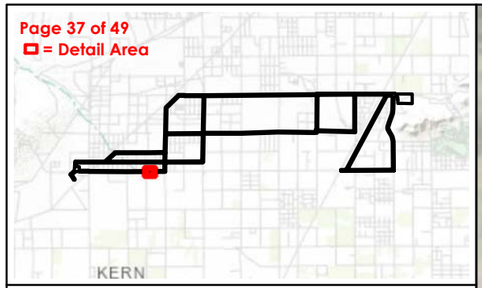
Figure 5-36

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location
Culvert

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Aerial Photo: Maxar, Esri 2020

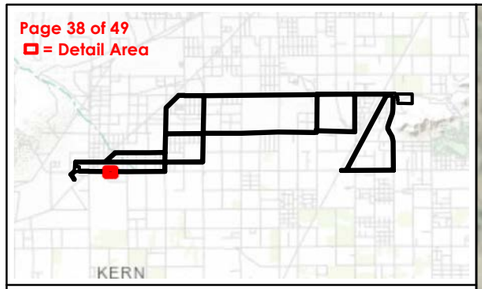
BLACKHAWK Environmental

N
0
100
Feet

Figure 5-37

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Swale

Photo 1
Ephemeral Drainage 47
Photo 2
Photo 3
ROSAMOND BLVD
Photo 3
Non-jurisdictional Swale 14
Photo 2
Photo 1
Photo 2
Non-jurisdictional Swale 13
Photo 1
Photo 3
Non-jurisdictional Swale 12
Photo 2
Photo 1

Aerial Photo: Maxar, Esri 2020

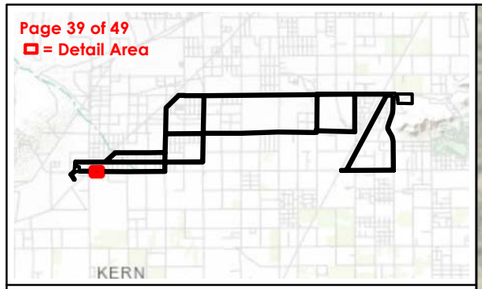
Figure 5-38

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Swale

168TH ST W

ROSAMOND BLVD

Photo 2

Non-jurisdictional Swale 16

Photo 1

Photo 3

Non-jurisdictional Swale 15

Photo 2

Photo 1

Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

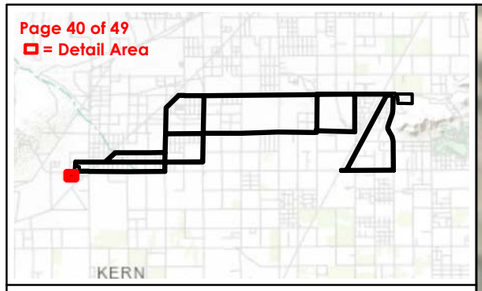
N

0 100 Feet

Figure 5-39

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

ROSAMOND BLVD

Photo 10

Photo 9

Photo 8

Photo 7

Photo 6

Photo 5

Photo 4

Photo 3

Photo 2

Photo 1

Ephemeral Drainage 48

Aerial Photo: Maxar, Esri 2020

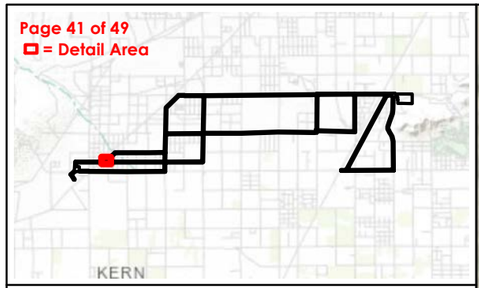
N

0 100 Feet

Figure 5-40

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Swale

Ephemeral Drainage 58
Photo 1
Photo 2
Photo 3
Non-jurisdictional Swale 22
Photo 1
Photo 2
Photo 3
Non-jurisdictional Swale 24
Photo 1
Photo 2
Photo 4
Photo 4
Photo 5
Non-jurisdictional Swale 23
Photo 3
Photo 2
Photo 6
Photo 1
Photo 1
Ephemeral Drainage 49
Photo 2
Photo 3
Photo 4
Photo 5
Photo 1
Non-jurisdictional Swale 17
Photo 2
Photo 3
Photo 4

Aerial Photo: Maxar, Esri 2020

Figure 5-41

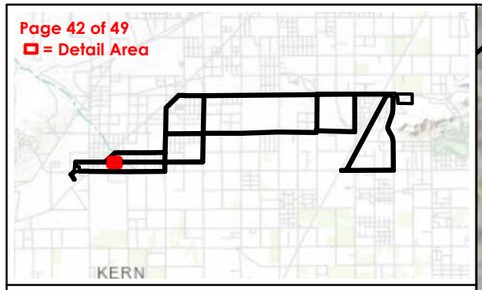
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Swale

Aerial Photo: Maxar, Esri 2020

Figure 5-42

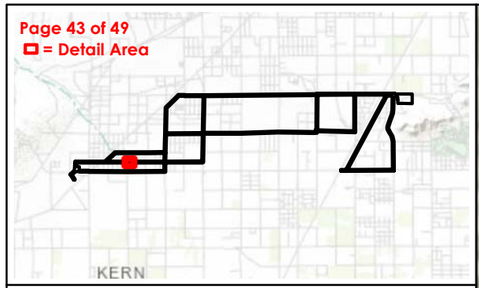
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Other Features
Non-jurisdictional Swale

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
Photo 9
Photo 10
Ephemeral Drainage 50
Non-jurisdictional Swale 19
160TH ST W

Aerial Photo: Maxar, Esri 2020

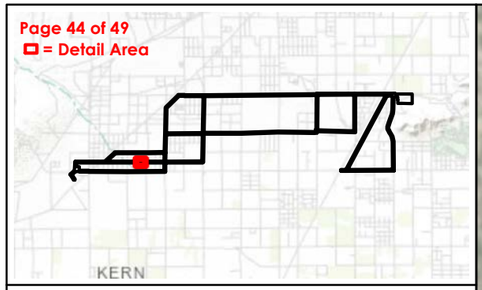
Figure 5-43

Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N
0
100
Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 4
Photo 1
Photo 5
Photo 2
Photo 6
Photo 7
Ephemeral Drainage 51
Photo 3
Photo 8
Photo 9
Photo 1
Photo 2
Photo 10
Photo 3
Ephemeral Drainage 52
Photo 4

Aerial Photo: Maxar, Esri 2020

Figure 5-44

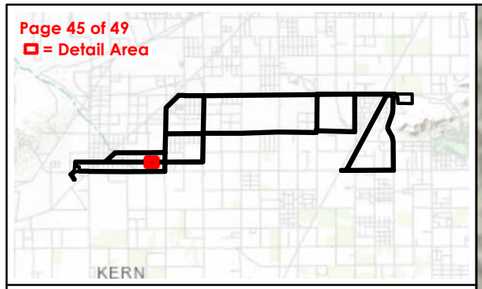
Jurisdictional Survey Results Mapbook

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project

BLACKHAWK Environmental

N
0 100 Feet

= Detail Area



Project Boundary

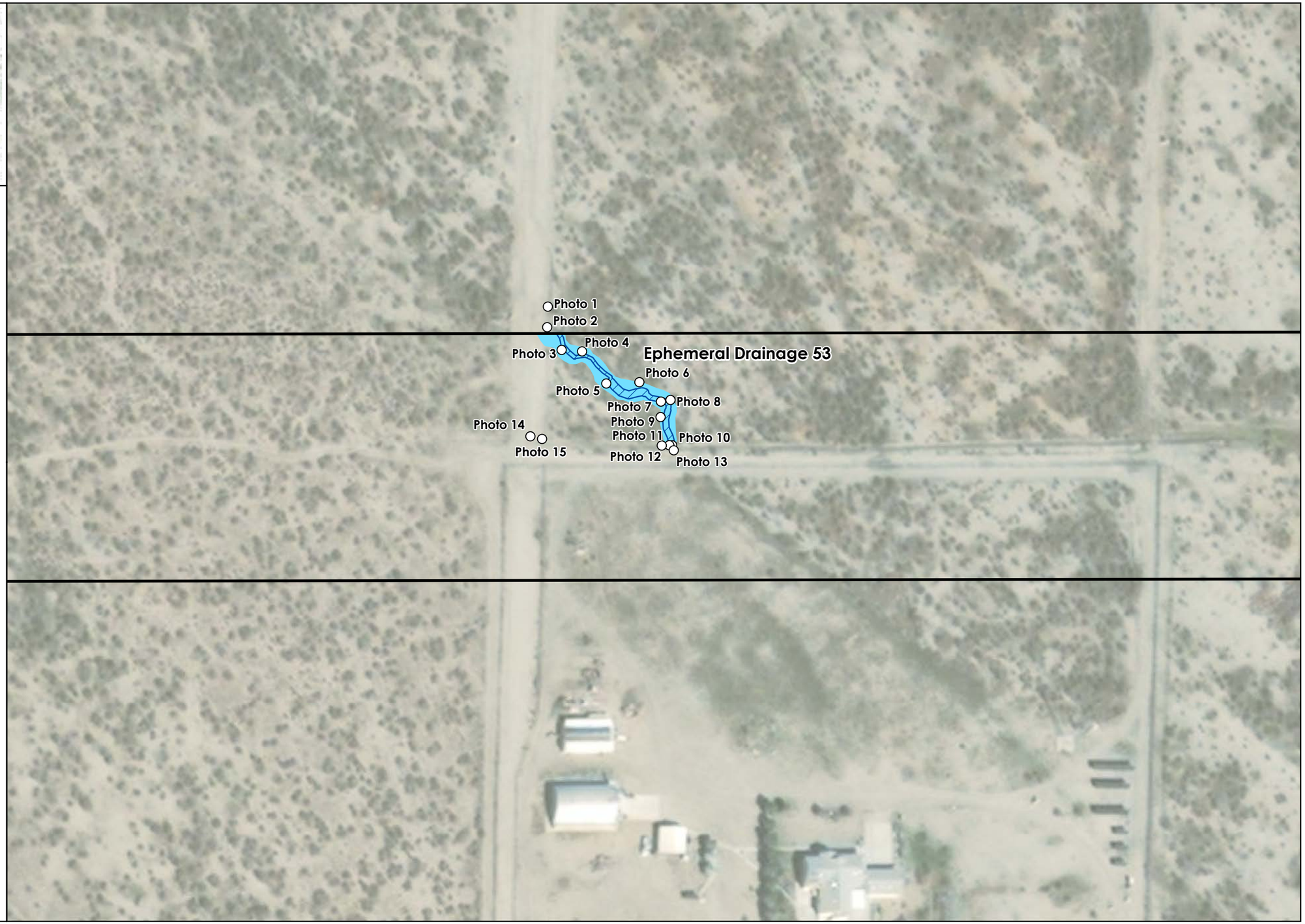
Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage



Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

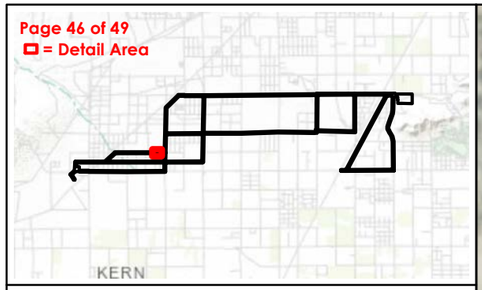
N

0 100 Feet

Figure 5-45

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

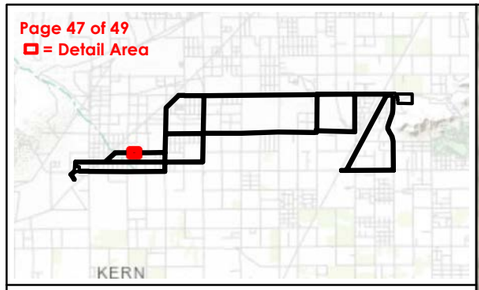
N

0 100 Feet

Figure 5-46

Jurisdictional Survey Results Mapbook

= Detail Area



Project Boundary

Photo Location

RWQCB Jurisdictional Features

Ephemeral Drainage

CDFW Jurisdictional Features

Ephemeral Drainage

Photo 1
Photo 2
Photo 3
Photo 4

Ephemeral Drainage 56

Photo 1
Photo 10
Photo 11
Photo 13
Photo 2
Photo 14
Photo 19
Photo 12
Photo 3
Photo 20
Photo 18
Photo 21
Photo 15
Photo 17
Photo 22
Photo 4
Photo 16
Photo 5
Photo 8
Photo 9
Photo 23
Photo 6
Photo 7
Photo 24

Ephemeral Drainage 55

FISHER AVE

Aerial Photo: Maxar, Esri 2020

Figure 5-47

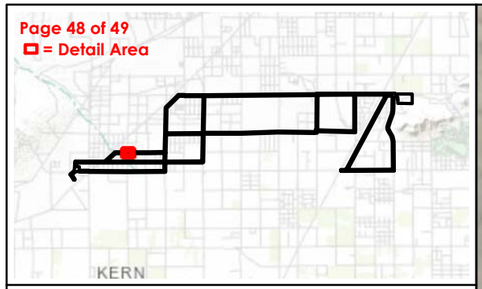
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

RWQCB Jurisdictional Features
Ephemeral Drainage

CDFW Jurisdictional Features
Ephemeral Drainage

Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Ephemeral Drainage 57
FISHER AVE
160TH ST W

Aerial Photo: Maxar, Esri 2020

Figure 5-48

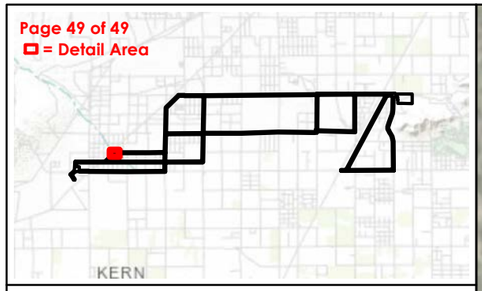
Jurisdictional Survey Results Mapbook

BLACKHAWK Environmental

N

0 100 Feet

= Detail Area



Project Boundary
Photo Location

Other Features

Non-jurisdictional Swale

Photo 1
Photo 2
Non-jurisdictional Swale 20
Photo 3
Photo 4
Photo 5
FISHER AVE
Photo 1
Non-jurisdictional Swale 21

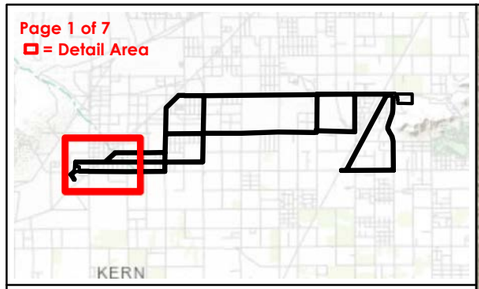
Aerial Photo: Maxar, Esri 2020

N
0
100
Feet

Figure 5-49

Jurisdictional Survey Results Mapbook

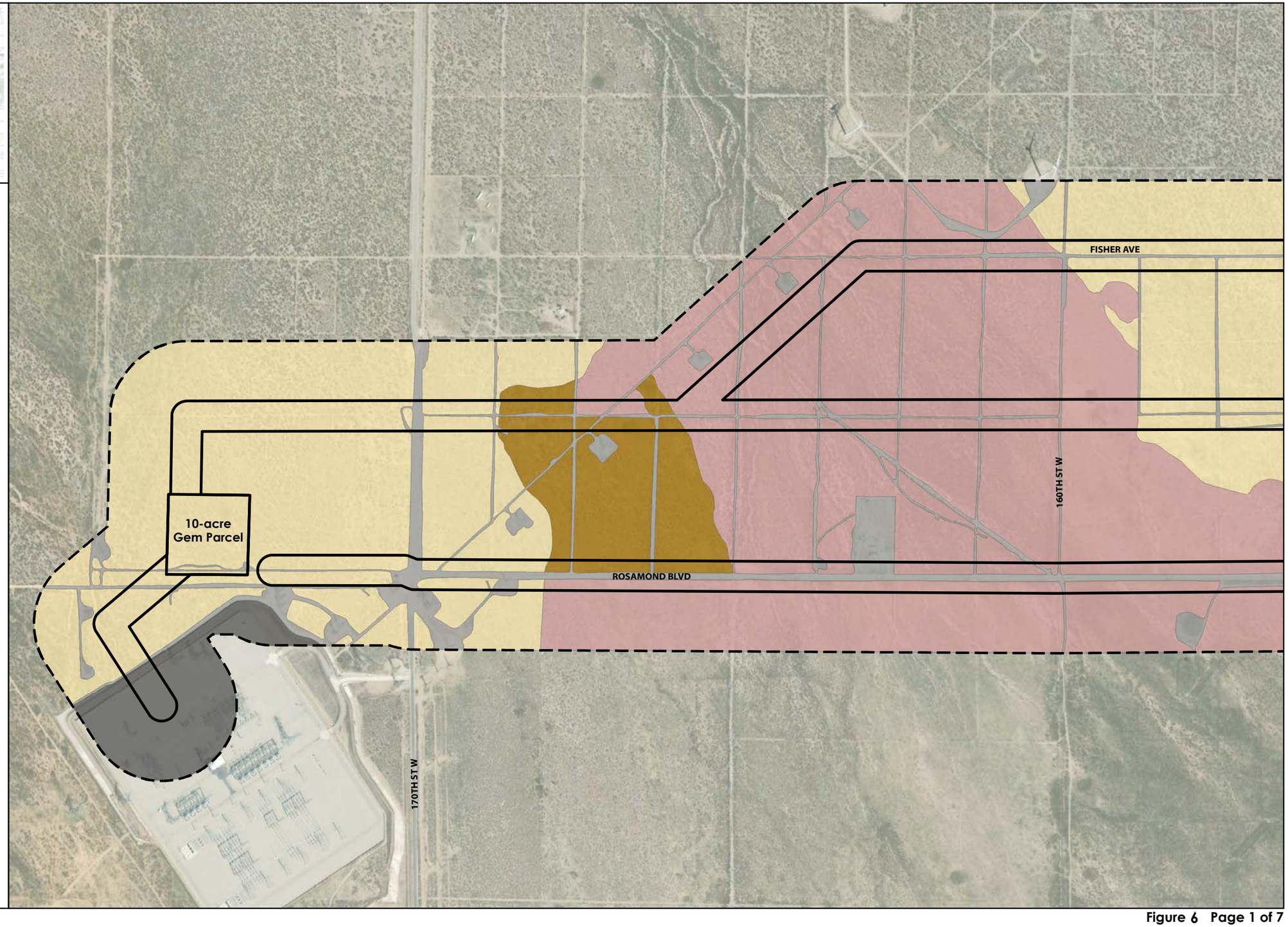
Page 1 of 7
= Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-saltbush series
- Saltbush scrub
- Developed
- Developed/Disturbed



Aerial Photo: Esri 2020

BLACKHAWK Environmental

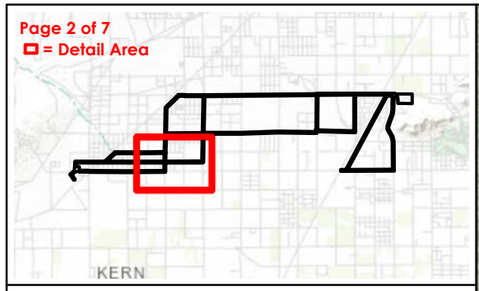
N
0 800 Feet

Figure 6 Page 1 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 2 of 7
= Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Saltbush scrub
- Developed
- Developed/Disturbed

FISHER AVE
150TH ST W
140TH ST W
ROSAMOND BLVD

Aerial Photo: Esri 2020

BLACKHAWK Environmental

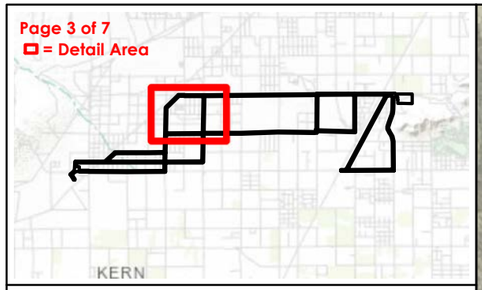
N
0 800 Feet

Figure 6 - Page 2 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 3 of 7
= Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-white bursage series disturbed
- Rubber rabbitbrush scrub
- Disturbed
- Developed
- Developed/Disturbed

Aerial Photo: Esri 2020

BLACKHAWK Environmental

N

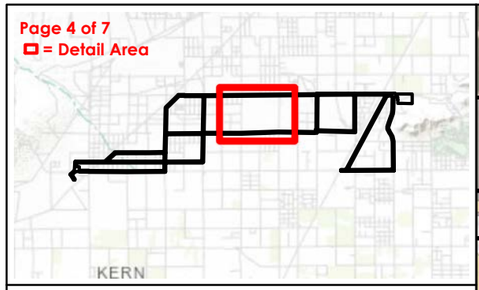
0 800 Feet

Figure 6 - Page 3 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 4 of 7
▭ = Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Saltbush scrub
- Rubber rabbitbrush scrub
- Disturbed
- Developed
- Developed/Disturbed

Aerial Photo: Esri 2020

BLACKHAWK Environmental

N

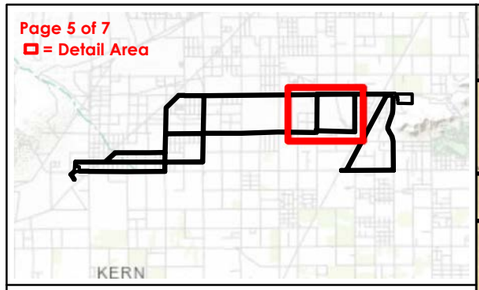
0 800 Feet

Figure 6 - Page 4 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 5 of 7
= Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-white bursage series disturbed
- Saltbush scrub
- Annual buckwheat/grasses
- Developed
- Developed/Disturbed

HAMILTON RD
110TH ST W
100TH ST W
IRONE AVE

Aerial Photo: Esri 2020

BLACKHAWK Environmental

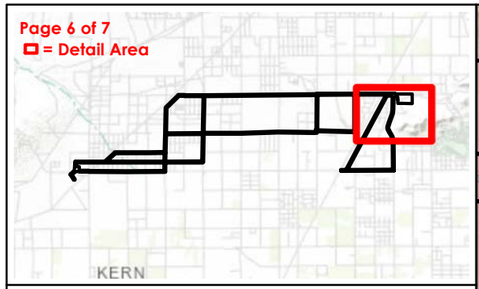
N
0 800 Feet

Figure 6 - Page 5 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 6 of 7
▭ = Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-saltbush series
- Saltbush scrub
- Saltbush scrub disturbed
- Annual buckwheat/grasses
- Agricultural land
- Disturbed
- Developed
- Developed/Disturbed

HAMILTON RD
SWEETSER RD
60-acre Gem Parcel
TEHACHAPI WILLOW SPRINGS RD
90TH ST W
MANLY RD

Aerial Photo: Esri 2020

BLACKHAWK Environmental

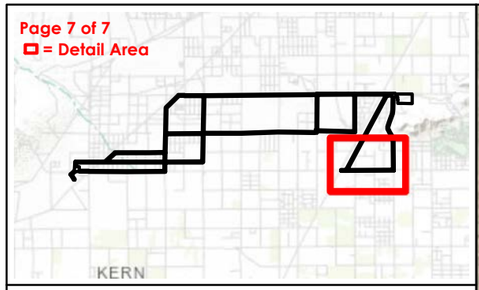
N
0 800 Feet

Figure 6 - Page 6 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

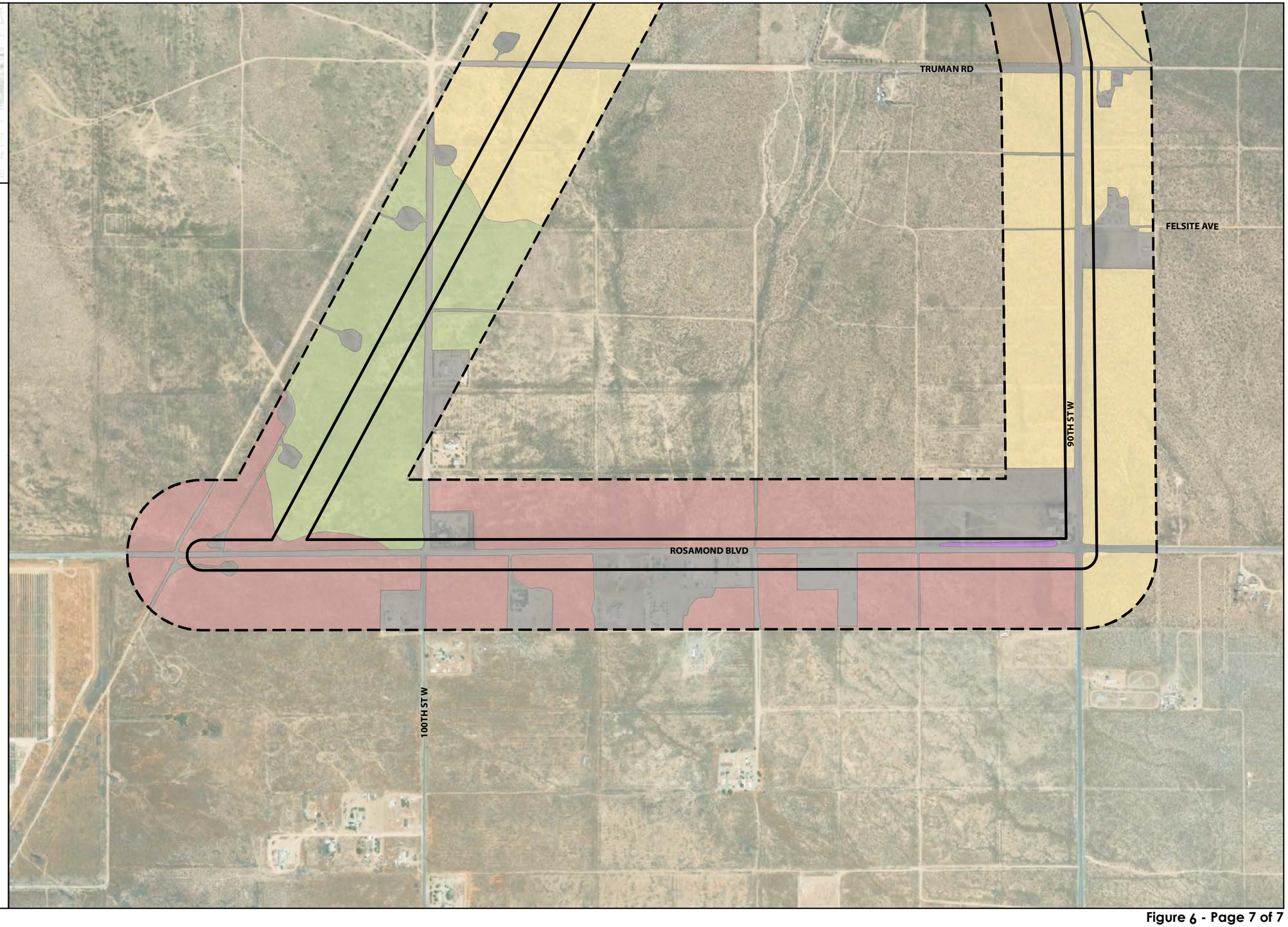
Page 7 of 7
= Detail Area



Project Boundary
Survey Buffer

Vegetation

- Creosote-white bursage series
- Saltbush scrub
- California matchweed-rubber rabbitbrush series
- Ornamental
- Agricultural land
- Developed/Disturbed



Aerial Photo: Esri 2020

BLACKHAWK Environmental

N

0 800 Feet

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Vegetation

Hydrostor Gem Energy Storage Center Project