Biotic Assessment for the
North Cement Kiln Dust (CKD) Closure Plan Project
Davenport Cement Plant

Prepared for

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EXECUTIVE SUMMARY

This report presents the findings of a biotic assessment conducted by EcoSystems West Consulting Group (EcoSystems West) for the proposed RMC Pacific Materials, LLC North Cement Kiln Dust (CKD) Area Closure Plan Project (Closure Plan) (ARC 2018) associated with the Davenport Cement Plant within the County of Santa Cruz. Proposed closure activities include grading of the current surface of the North CKD Area, including mounds of CKD, so the landfill has the required slope for surface water flow and management; installing a new liner to cap CKD material; and reapplying topsoil and revegetating with erosion control grasses and plant species. The proposed Closure Plan also includes remediation of the Retention Pond, located south of the North CKD Area, and drainage improvements in and around the North CKD Area to protect the water quality in the area. Best Management Practices (BMPs) will be implemented to avoid and minimize potential impacts to sensitive biological resources, to protect water and air quality, and to minimize erosion.

EcoSystems West evaluated the Closure Plan Project Area and surroundings (Biological Study Area) for biological resources, including sensitive plants, wildlife species, and habitats, wetlands and other waters of the U.S. We assessed potential impacts to these resources and developed measures to minimize and mitigate for potential impacts. We outlined basic recommendations for inclusion in a conceptual mitigation plan.

The Biological Study Area is situated on the former quarry and cement processing plant and includes both developed industrial areas and natural lands with a long history of anthropogenic manipulation. The Study Area includes the industrialized areas of the Plant, the surrounding grassland terraces, non-native tree stands, intermittent drainages, and intermittent and perennial ponds.

Within the Study Area we identified two sensitive habitats, coastal scrub and arroyo willow riparian scrub. The project may result in minimal temporary impacts to coastal scrub located along the ditch system that conveys water from the North CKD Area to the Retention Pond. Arroyo willow scrub vegetation, a CCC one-parameter wetland, and habitat for the federally-listed California red-legged frog (CRLF), occurs at the western margin of the Seasonal Ponds, located immediately east of the CKD landfill. Proposed Closure Plan activities would result in permanent impacts to approximately 0.04 acres of arroyo willow scrub. Avoidance and minimization measures are recommended for the protection of sensitive habitats. Permanent loss of arroyo willow scrub would be mitigated through on-site replacement of this habitat type.

Proposed Closure Plan activities would result in temporary and permanent impacts to wetlands and other waters, including: 0.17 acres of permanent impacts to a seasonal wetland, 1.22 acres of permanent impacts and 0.06 acres of temporary impacts to intermittent and perennial ponds. Avoidance and minimization measures are recommended for the protection of these habitats. Permanent impacts would be mitigated through development and implementation of a Mitigation and Management Plan.

No special-status plant species were identified within the Study Area. The following sensitive wildlife species are present within the Study Area: monarch butterfly, California red-legged frog, Allen's hummingbird, northern harrier, white-tailed kite, birds of prey, other nesting common bird species, and common roosting bat species. The following species have potential to occur within the Biological Study Area: American peregrine falcon, olive-sided flycatcher, grasshopper sparrow, western red bat, and San Francisco dusky-footed woodrat. Avoidance, minimization, and mitigation measures are recommended for the protection of these species and/or their habitats and to reduce potential impacts to less than significant.

Impacts to sensitive habitats and wildlife species, wetlands, and other waters; and work below the break in bank of No-name Creek, would be subject to the regulatory authority of the County of Santa Cruz, California Department of Fish and Wildlife (CDFW), the Regional Water Quality Control Board (Water Board), the Army Corps of Engineers (USACE), and US Fish and Wildlife Service (USFWS).

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1 INTRODUCTION

This report presents the findings of a biotic assessment conducted by EcoSystems West Consulting Group (EcoSystems West) for the proposed RMC Pacific Materials, LLC North Cement Kiln Dust (CKD) Area Closure Plan Project (hereafter Closure Plan) (ARC 2018) associated with the Davenport Cement Plant (Plant) in Davenport within the County of Santa Cruz, California (Figure 1). EcoSystems West evaluated the Closure Plan Area and surroundings. The objectives of the biotic assessment were to:

- Review relevant studies, documents, and databases, and consult with associates and agency representatives;
- Characterize, map, and evaluate the vegetation and habitat types in the Study Area;
- Identify special-status plant and wildlife species occurring, or potentially occurring in the Study Area;
- Identify wildlife resources (habitats, species, and wildlife movement) in the vicinity of the Study Area;
- Summarize the results of surveys for the California red-legged frog (CRLF) (*Rana draytonii*), listed as threatened under the federal Endangered Species Act;
- Assess potential impacts to sensitive habitat types including Environmentally Sensitive Habitat Types (ESHA) as defined by the California Coastal Act (1976) and County of Santa Cruz Local Coastal Program (LCP) (1994);
- Assess potential impacts to sensitive plant and wildlife species and wildlife movement;
- Develop best management practices and minimization measures to avoid and minimize potential impacts to sensitive biological resources, to incorporate during project design, construction, and implementation; and
- Recommend a conceptual mitigation plan to offset potential impacts to sensitive biological resources, to be utilized during agency consultation and permitting.

Description of the Study Area

The approximately 166-acre Closure Plan Biological Study Area is located just north of the town of Davenport, Santa Cruz County, California. The Study Area is situated on property formerly operated as a limestone and aggregate materials quarry and cement processing plant beginning in 1906 and continuing under various ownerships until ceasing operations in 2010. The Study Area includes both developed industrial and natural lands with a long history of anthropogenic manipulation of the natural landscape and site topography. The Study Area is approximately bounded by the town of Davenport to the south, Highway 1 to the west, Warnella Road to the north, and undeveloped land currently owned by The Trust for Public Land (TPL) and managed by the Bureau of Land Management (BLM) to the east. Much of the open space surrounding the Study Area is now incorporated into Cotoni-Coast Dairies National Monument (BLM) and Coast Dairies State Park (California State Parks Department). The elevation ranges from 80 feet to 280 feet above mean sea level.

The industrialized portions of the plant are situated on several relatively level terraces northeast of Highway 1 and contain the remnants of cement manufacturing infrastructure and facilities in various states of decommissioning. Paved and dirt roads connect the industrial facilities, storage hangars, the existing CKD stockpile, and the south and north CKD area landfills. A maintained dirt road runs from the Plant east-northeast towards the Bonny Doon quarries, along the remnants of a conveyor belt which transported limestone and shale from the quarries to the Plant until 2010.

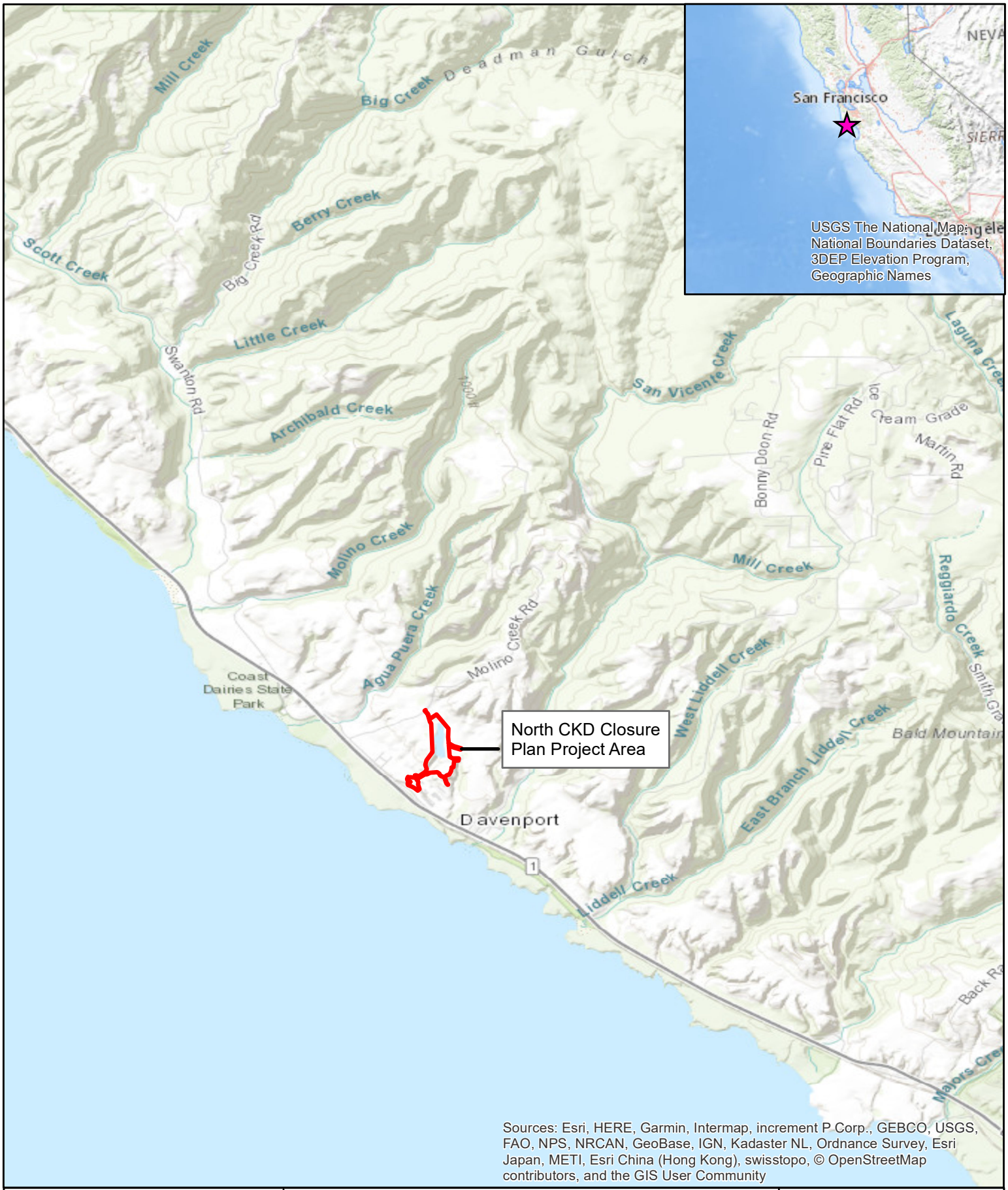

Figure 1.

North CKD Closure Plan Project Area. Davenport, CA

0 0.5 1 2 Miles

1 inch = 1 mile

N W E S

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Four ponds are located within the industrial perimeter. Two ponded basins are associated with retaining CKD on site and preventing significant amounts of CKD or other pollutants from entering the Pacific Ocean: the perennial Retention Pond and the occasionally flooded Detention Pond. At the northeast boundary of the industrial area, another pond, the Water Reservoir, a concrete lined pond receiving water from San Vincente and Mill Creek, is currently part of the water storage and infrastructure for the County of Santa Cruz Davenport Water Treatment Facility, which provides potable water to the town of Davenport. This pond appears in the earliest (1948) aerial photo of the plant available through the University of California photograph archives. A fourth pond, Tom's Pond, located towards the southern corner of the Plant facilities, was designed in the 1990's as a landscaping feature for the enjoyment of Plant employees, and consists of a cement lined basin fed by rainy season run-off conveyed by a French drain. A now leaky fireline pipe system conveys water throughout the Plant and water flow into this system is regulated by a valve. The French drain into Tom's Pond captures water leaking from the fireline system when water is flowing through this system. The remnants of other landscaping features are also present within the industrial area of the Study Area, consisting of pathways and landscape trees and plants.

Immediately surrounding the industrialized areas, intermittent drainages and an unnamed intermittent creek (hereafter No-name Creek), cut through the relatively flat to gently sloped non-native grassland and coastal scrub terraces, all of this modified by past anthropogenic activities. No-name Creek originates in the near-coastal foothills approximately 0.8 kilometers (0.5-miles) above and northeast of the CKD stockpile and existing North CKD area landfill in two intermittent drainages that converge and then flow generally southwest along the eastern boundary of the Project Area through a deeply incised canyon approximately 85-feet below the surrounding terrace. At the conveyor belt road, No-name Creek presumably flows downstream into Farmer's Pond through a buried culvert or subsurface beneath the fill material used for the elevated road crossing. Farmer's Pond is located immediately east of the Plant and was holds overflow from the Water Reservoir associated with the Davenport Water Treatment facility. At high volumes, Farmer's Pond overflows through a 36-inch culvert beneath the South CKD (Lonestar) Landfill[1] into a natural drainage and eventually through a series of culverts under Hwy 1 and the railroad tracks before emptying into the Pacific Ocean through "hole in the wall", a hole in the coastal cliff face above the high tide line.

Another unnamed intermittent drainage, located at the northern boundary of the Study Area, also originates in the near-coastal slopes approximately 0.6 kilometers (0.4 miles) northeast of the existing north CKD area landfill, with headwaters parallel and south of Warnella Road. Beginning in the 1940's the lower portions of this drainage were gradually filled with CKD and other debris. Presently, the incised upstream portion of the drainage supports dense arroyo willow riparian scrub terminating at the North Pond at the northern perimeter of the existing North CKD area landfill. Water is diverted from this pond through an existing, worn 30-inch bypass pipe that empties into Farmer's Pond just below the conveyor belt road.

The Seasonal Ponds are situated just east of the CKD stockpile with non-native grassland to the north and east, small patch of arroyo willow riparian to the northwest and west, non-native grassland to the north and east, and a eucalyptus grove to the south. During the winter rain period, these pond merge to form one large pond. As rainfall wains, through percolation and evapotranspiration, the ponds dry down into two ponds and are typically dry by July.

Open space surrounding the Project Area includes a series of expansive coastal terraces. Annual grassland dominates the gentle terraces and moderate slopes to the east and west of the Closure Plan Area and overlies the existing north CKD landfill. Coastal Scrub vegetation is common on south-facing aspects and

[1]The South CKD Area landfill was previously closed.

along the upper embankments of the incised unnamed drainages. The lower, more mesic portions of the drainages are comprised of mature riparian vegetation. All of the grassland and scrub areas were previously grazed with cattle and portions were in row-crop agriculture for several decades ending in 2004. Weedy, seasonal wetland depressions and several semi-natural seasonal ponds are also present in this altered landscape.

2 PROJECT DESCRIPTION

RMC Pacific Materials, LLC (Applicant) proposes to implement the Closure Plan (ARC 2018) at the former Davenport Cement Plant, as conditionally approved by the Central Coast Regional Water Quality Control Board (Water Board).

In February 2018, the Water Board issued Waste Discharge Requirement Order No. R3-2018-0001 (Order) to adopt provisions for closure, post-closure maintenance, and monitoring requirements for the North CKD Area. Together, this Order and the Closure Plan prepared on April 1, 2018 focus on closure of the North CKD Area as a Class II Solid Waste Landfill as defined by California Code of Regulations Title 27, §20240 and §20250. The primary goal of the Closure Plan is to minimize infiltration of water into the waste, thereby minimizing the production of contaminated leachate and potential groundwater impacts. After closure, a final landfill cover will constitute the principal waste containment feature for the North CKD Area. The Order currently requires the Applicant to complete final closure construction activities for the North CKD Area before October 1, 2020, or before October 1, 2022 if the Applicant obtains approval of an extension from the Water Board.

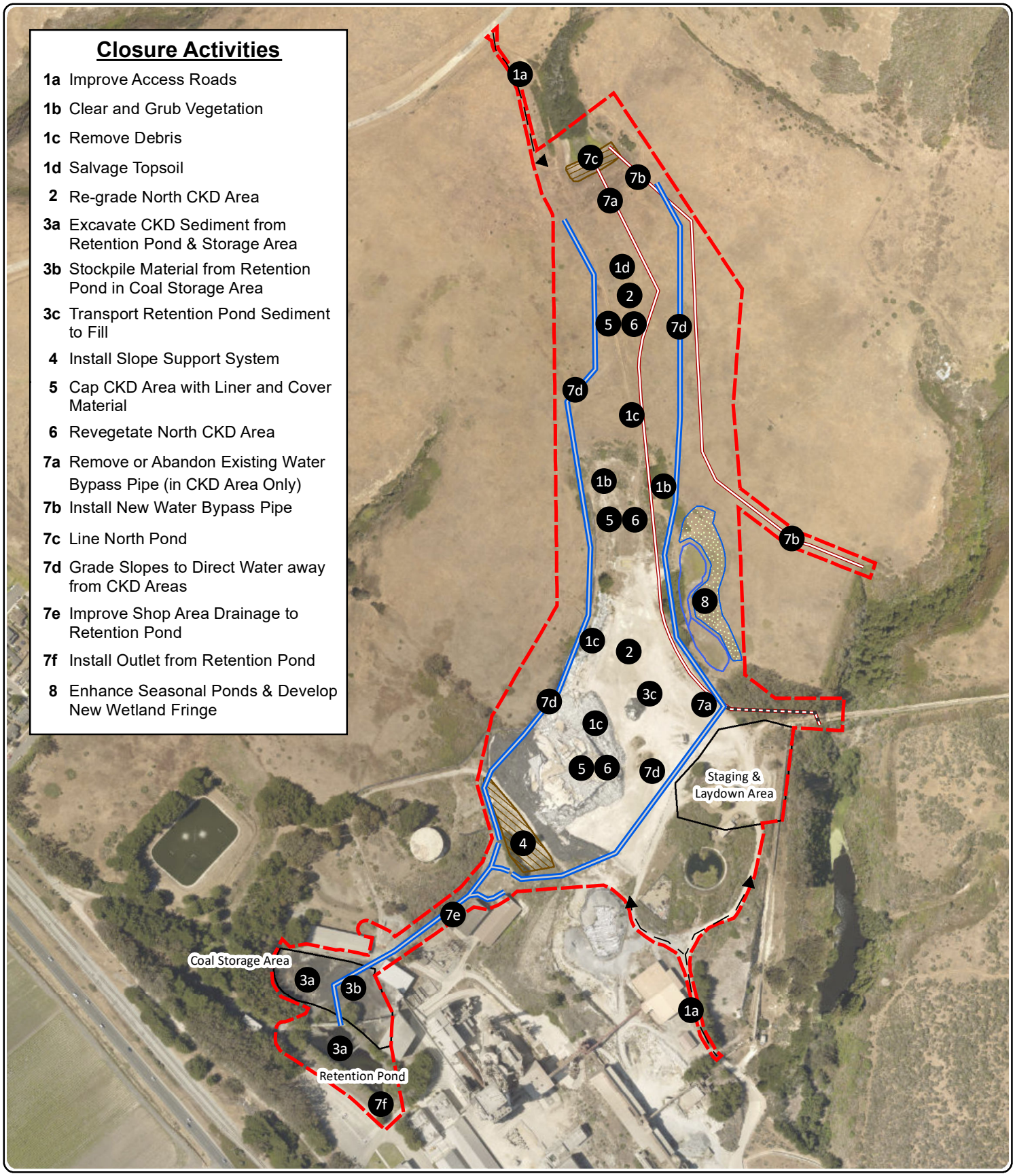
The proposed closure activities include grading of the current surface of the North CKD Area so it has the required slope for surface water flow and management, installing a new liner to cap CKD material, and reapplying topsoil and revegetating with native grasses and plant species. The proposed Closure Plan also includes remediation of the Retention Pond, located south of the North CKD Area, and drainage improvements in and around the North CKD Area to protect the water quality in the area. Best Management Practices (BMPs) will be implemented to avoid and minimize potential impacts to sensitive biological resources, to protect water and air quality, and to minimize erosion.

Project Location

The proposed Project is located at the former Davenport Cement Plant (Cement Plant) located at 700 Highway 1, approximately 0.5 miles north of the Davenport community in northern unincorporated Santa Cruz County.

The proposed closure activities would occur on approximately 40.6 acres of the Cement Plant and immediate surroundings (Project Area) (Figure 2). The southern portion of the Project Area is on land owned by RMC Pacific Materials, LLC. The northern portion of the Project Area is on property that is currently leased from The Trust for Public Land (TPL) and/or under agreement with TPL for temporary use to implement the Closure Plan.

The proposed closure activities would occur primarily within the developed and/or disturbed footprint of the Cement Plant and North CKD Area, in the northern portion of the facility. The exception is the proposed water conveyance pipeline between the North Pond and No-name Creek, which would extend through non-native grassland habitat (previously in agriculture) located northeast of the existing pipeline and North CKD landfill.



Aerial Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:
- Project Boundary (40.6 acres)
- Surface Water Conveyance Ditch
- Buried Water Conveyance Pipe
- Existing Pipe Left in Place Outside CKD Area

0 250 500 Feet

N

Project Closure Activities
Davenport CKD Closure Plan
RMC Pacific Materials
Santa Cruz County, California

Figure 2

1/10/2020

Disclaimer: The data was mapped for planning purposes only. No liability is assumed for accuracy of the data shown.

COMPASS LAND GROUP

Project Purpose and Background

The Davenport Cement Plant operated from 1906 to 2010, originally as the Santa Cruz Portland Cement Company, but is currently owned by RMC Pacific Materials, LLC, a wholly owned entity of CEMEX. The operation produced cement from limestone that was sourced from the nearby Bonny Doon Quarry. The cement was used for over a century as a component of concrete to rebuild San Francisco after the earthquake and to construct major infrastructure projects, including the Panama Canal, Golden Gate Bridge, and California Aqueduct. The CKD was a byproduct of cement manufacturing and was placed onsite as fill in what is now called the North CKD Area. Although no longer in operation, ongoing maintenance, security and monitoring activities continue at the site.

The North CKD Area contains fill composed primarily of CKD currently estimated to be approximately 848,000 cubic yards (cy) in volume, much of which is in a cemented, very dense "caked" condition. The CKD was placed within a previously existing canyon (also referred to as the CKD landfill) over several decades. The CKD level reached the elevation of the canyon rim such that the CKD landfill is either generally flat or rises above the adjacent terrain.

From mid 1990s until the cement plant closed in 2010, the "fresh" CKD was recycled and hauled away to be employed in soil amendments, road stabilization, and other uses. Given the closure of the cement plant, no additional CKD can be feasibly recycled. In development of the Closure Plan it was determined that "clean closure" (relocation of all residual waste offsite) was not feasible; therefore, the Closure Plan calls for onsite disposal of the CKD through installation of a linear low-density polyethylene (LLDPE) liner (impermeable cap), reapplication of topsoil, and subsequent vegetation/revegetation of the landfill area.

The existing North CKD Area has performed well under significant storm and seismic events since the first CKD deposition and has shown no signs of significant mass movement, degradation or erosion. Specifically, the steepest portion of the North CKD Area, at the west end, has shown no signs of seepage, sloughing or movement over time.

Drainage improvements associated with the proposed Closure Plan would direct the flow of surface runoff away from the CKD to prevent transport of CKD into streams, groundwater, and the Pacific Ocean. Remediation of the Retention Pond is also designed to protect water quality through removal and on-site disposal of CKD sediment and residual coal. Drainage improvements (including modification of the Retention Pond outlet structure), stormwater conveyance features, and remediation of the Retention Pond for the Closure Plan are designed to accommodate a 1,000-year 24-hour storm (design storm event) per consultation with the Water Board and as required by WDR Section C.9 and Title 27, Section 21090.

Summary of Closure Activities

The proposed closure activities would occur over two construction seasons and include the following tasks:

1. Conduct site preparation activities, including:
   a. Improve, as necessary, the existing access road extending from the southern portion of the Project Area to the North CKD Area and, as needed, the existing access road extending from Warnella Road north of the Project Area to the North CKD Area;
   b. Clear and grub, including removal of trees and shrubs.
   c. Remove cement blocks, tires, plastic, and other debris from around the North CKD Area and the Retention Pond, as needed, to allow for excavation and grading; and

   d. Remove topsoil that is currently covering CKD sediment in the North CKD Area and temporarily relocate to the Temporary Stockpile Areas.

2. Re-grade the North CKD Area so it is properly compacted to reduce settlement and has a 7 percent final slope for proper surface water flow and management, matching the design surface water flow calculations.
3. Remediate the Retention Pond located south of the North CKD Area, including:
   a. Excavate residual CKD sediment and debris and remove adjacent residual coal.
   b. Stockpile the excavated material for drying in the Coal Storage Area.
   c. Once dry (with the optimal moisture content for mixing and compaction), transport the material to be mixed with CKD and placed as fill in the North CKD Area under the LLDPE liner and soil cap.
   d. Regrade the final excavated surface of the Coal Storage Area to the contours shown on the grading plans.
4. Construct a slope support system (shotcrete wall with grouted soil nails), which would also serve as a cap over a portion of the CKD, along the southwest boundary of North CKD Area.
5. Cap the sediment in North CKD Area with a LLDPE liner, 18 inches of confinement layer (general backfill) material, and 8 inches (minimum) of vegetative soil layer (topsoil) from the Temporary Stockpile Areas and offsite sources for a total of 26 inches of soil cover.
6. After placement of topsoil, revegetate the North CKD Area with native plant species.
7. Construct drainage improvements to handle a 1,000-year 24-hour storm and avoid significant potential water quality impacts, as approved by the Water Board and in accordance with the aforementioned Water Board requirements, including:
   a. Remove or abandon and plug the existing 30-inch diameter pipe from the North Pond to No-name Creek.
   b. Install a new water conveyance (42-inch diameter bypass) pipe from the North Pond to No-name Creek (a tributary to Farmers Pond), including an outfall into No-name Creek;
   c. Place a geosynthetic clay liner of up to one foot in thickness in the North Pond along its southern (downstream) lateral face to further restrict water from the CKD landfill and to enhance CRLF aquatic habitat to facilitate suitable breeding conditions.
   d. Grade the slopes to direct water away from the North CKD Area, including construction of perimeter ditches, catch basins, drop structures, stilling basins, and a French drain system along the perimeter of the landfill;
   e. Improve the perimeter and Shop Area ditches that convey water from the North CKD Area to the Retention Pond; and
   f. Install an outlet riser and outfall pipe exiting the Retention Pond.
8. Line the Seasonal Ponds (clear, grub and install LLDPE) to improve retention of water during large storm events; and develop a shallow seasonal wetland along the eastern boundary of the ponds to mitigate for the loss of a seasonal wetland.

Additional detail on proposed Closure Plan activities is provided in *Detailed Description of Closure Activities (Appendix A).*

Best Management Practices

The proposed Project design plans (ARC 2018, Attachment 3) and specifications (ARC 2018, Attachment 2) include BMPs to avoid and minimize potential impacts to biological resources, to protect water and air quality, and to minimize erosion including the following:

- Unless otherwise authorized by the Water Board, conduct Project activities during the dry season [from April 15 to October 15 (or the first rain)] to minimize impacts to CRLF and biological resources.
- Install protective fencing around the work areas and confine Project activities to within these areas.
- Perform preconstruction biological surveys, provide environmental and erosion control trainings to construction personnel, check the work area for sensitive and common wildlife species, and ensure necessary protective measures are implemented by an agency-approved biological monitor and/or trained construction monitor.
- Implement air quality and dust control measures identified in the Dust Mitigation Plan (ARC 2018, Appendix F).
- Implement erosion control measures identified in the Multi-Season Construction Wet Weather Preparedness Plan (ARC 2018, Appendix E) and grading plans.
- Implement a construction Storm Water Pollution Prevention Plan (ARC 2019a) in accordance with the requirements of the State of California National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.
- Import soil required for fill in phases and during non-peak commute hours to minimize GHG emissions and traffic impacts (ARC 2018, Appendix F).

3 METHODS

Review of Literature and Data Sources

EcoSystems West botanists reviewed literature and special-status species databases to identify sensitive habitats, plants and wildlife species with potential to occur in the Study Area. Sources consulted include:

- CNDDB occurrence records (2019a) and resource maps from the Biogeographic Information and Observation System (BIOS) (CNDDB 2019b) for the Davenport USGS 7.5-minute quadrangle and (for plants) six surrounding quadrangles;
- USGS quadrangle occurrence records in the California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2019) for the Davenport quadrangle and the six surrounding quadrangles; and
- Local and regional floras (Thomas 1961; Munz and Keck 1973; Hickman 1993; Baldwin *et al*. 2012).

Sources consulted for current agency status information include U.S. Fish and Wildlife Service (USFWS) (2019a,b,c) for federally-listed species (including federal Proposed and Candidate species), and California Department of Fish and Wildlife (CDFW)(2019a,b,c,d) for state species listed as 'Threatened', 'Endangered', 'Species of Special Concern', and those species state ranked by NatureServe as critically imperiled, imperiled, and vulnerable (Faber-Langendoen 2012, CDFW CNDDB 2019). We obtained an Official USFWS Species List (dated October 8, 2019) (Appendix B).

For special-status plants, we reviewed the CNPS *Inventory* (Tibor 2001; CNPS 2019): List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere). We also reviewed List 3 (Plants About Which We Need More Information -- A Review List) and List 4 (Plants of Limited Distribution -- A Watch List) of the CNPS *Inventory*[2] (Tibor 2001; CNPS 2019).

For wildlife species, we reviewed the USFWS list of *Birds of Conservation Concern* (BCC) (USFWS 2008)[3] and the list of bat species considered 'High Priority' by the Western Bat Working Group (WBWG) (2017).

These plant and wildlife species fall under the provisions of the California Environmental Quality Act (CEQA) Guidelines. Based on information from the above sources, we developed target lists of special-status plants (Appendix C) and wildlife species (Appendix D) with potential to occur in the vicinity of the Study Area.

This preliminary assessment followed CNDDB (2019a,b) and other standard survey protocols. We reviewed distribution information for sensitive species to determine which species would have the potential to occur in or near the alignments and which species could be eliminated from consideration, based on soils, vegetation and habitat types in the alignments and surroundings, locations of known occurrences, dispersal distances (for wildlife), and professional knowledge of the region and local sensitive species.

[2] List 3 and List 4 plant species are considered to be of lower sensitivity, and generally do not fall under specific state or federal regulatory authority. Specific mitigation considerations are generally not required for species in these last categories (Tibor 2001; CNPS 2018).

[3] BCC are migratory nongame birds of concern because of (1) documented or apparent population declines, (2) small or restricted populations, and (3) dependence on restricted or vulnerable habitat (USFWS 2008).

Field Visits

BOTANY

An EcoSystems West plant ecologist conducted a focused rare plant surveys of the Study Area based on site visits during appropriate phenological periods in March through July from 2017 to 2019. The entire Study Area was thoroughly evaluated for special-status plants during field surveys. All vascular plant species in identifiable condition on the survey dates were identified to species or infraspecific taxon, regardless of their regulatory status. The identifications were facilitated by the use of keys and descriptions in Thomas (1961); Munz and Keck (1973); Hickman (1993); and Baldwin et al. (2012). The timing of the floristic surveys was adequate for identification of all of the special-status species listed in Appendix C.

The EcoSystems West ecologist characterized and mapped all habitat/natural community types, including wetlands and aquatic features, occurring within the Study Area. We also recorded data on physiognomy, dominant and characteristic species, topographic position, slope, aspect, substrate conditions, hydrologic regime, and evident disturbance for each habitat type. In classifying the habitat types on the site, we consulted the generalized plant community classification schemes of Holland (1986); Sawyer et al. (2009); and CDFW (2019c). Our final classification and characterization of the habitat types of the Study Area was based on field observations and CDFW relevé and rapid assessment protocols (CDFW 2018 and 2019e).

WILDLIFE

EcoSystems West wildlife biologists conducted site visits in June, August, September and October 2018; and March, June, September, and November 2019. Our objective during these visits was to assess and identify potential habitat for the sensitive species listed in Appendix D following standard survey techniques for each species.

Monarch Butterfly Winter Roost Assessment

In November 2019, EcoSystems West biologists assessed the Monterey cypress and eucalyptus groves within the Study Area as potential monarch butterfly autumnal and winter roost sites. To assess habitat suitability, we evaluated the site for the requisite biotic and abiotic factors:

- periodic exposure to (dappled) sunlight (often southeast aspect);
- cool shady roost areas for periods of warm weather;
- primary and secondary wind protection;
- proximity to nectaries (fall or winter blooming flowers);
- humidity; and
- water sources.

We examined the structures of the groves and focused our efforts on trees that are protected from the wind and receive dappled sunlight. Using binoculars, we thoroughly searched trees for the presence of monarch butterflies. We arrived early enough in the day (before the temperature reached above 55° F) in order to identify “clumps” of roosting butterflies in the tree foliage. We also surveyed the area for nectar plants.

CRLF Surveys

EcoSystems West biologists conducted surveys of the Study Area for all life stages of CRLF in 2017, 2018, and 2019. We assessed potential upland, dispersal, movement, and aquatic breeding and non-breeding habitats. Formal protocol-level surveys were not conducted as part of this effort. Decontamination guidelines were implemented for all field surveys.

EcoSystems West biologists followed the methods for site assessment outlined in the USFWS protocol (2005). Biologists reviewed the current and historic range of the species, reviewed previous survey results and consulted occurrence record databases within the designated 1.6-kilometer (1-mile) radius, and evaluated, described, and mapped potential habitats within the Study Area and designated radius using both field surveys and aerial photographs. Non-native predators were also noted, if present.

Raptors/Bird Assessment

EcoSystems West biologists evaluated the Study Area and reviewed distribution and occurrence data to determine which raptors and avian species could potentially nest on the site and which species could be eliminated from consideration. For certain bird species (such as those listed as "Fully Protected") we also considered wintering and foraging activities.

We conducted avian surveys during March and June 2019 to determine which sensitive and common bird species were utilizing the Study Area for breeding activities. We selected observation points and documented observations, including foraging, courtship displays, and breeding behavior by birds/raptors. A comprehensive breeding bird survey was not performed because nest sites for most avian species are dynamic and nest locations vary from year to year.

Mammal Assessment

EcoSystems West biologists evaluated the Study Area for sensitive and common bat roost features. We visually inspected the tree stands for potential roost features or evidence of bats (e.g., tree cavities, hollows, and crevices; senescent limbs, peeling bark, or guano deposition) (Brown et al. 1996). Biologists consulted P. Heady, bat biologist, to determine which species would be likely to occur within potential habitat in the Study Area (Heady 2018). EcoSystems West identified potential and occupied habitat for the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), including stick houses on the ground or in trees, scrub, and the understory of woodland habitat. We reviewed distribution and occurrence information for the American badger (*Taxidea taxus*) and assessed the Study Area and surroundings for potential habitat.

Wildlife Movement

EcoSystems West biologists assessed the Study Area for wildlife movement by looking for and documenting observations of individuals and sign including trails, tracks, and/or scat.

4 REGULATORY BACKGROUND

Sensitive habitats include those included in the County of Santa Cruz Sensitive Habitat Ordinance and LCP (1994). These include, but are not limited to, wetlands, riparian corridors, native grassland in the coastal zone, oak woodlands, coastal scrub, habitats for legally-protected species and CDFW 'Species of Special Concern', areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally-restricted habitat types. Habitat types considered sensitive also include those listed on the CDFW list of sensitive natural communities (i.e., those habitats that are rare or endangered within the borders of California) (CDFW 2019c). EcoSystems West botanists reviewed the CNDDB list of 'CDFW sensitive' natural communities and the Santa Cruz County General Plan and LCP (1994) for sensitive habitat designations prior to conducting the site assessment visit.

County of Santa Cruz Sensitive Habitat Protection Ordinance

The County of Santa Cruz Sensitive Habitat Protection ordinance (County Code §16.32) is intended to "minimize the disturbance of biotic communities which are rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activity." Sensitive habitats under the Santa Cruz County Code relevant to the Project include areas that provide habitat for locally unique biotic species/communities, such as oak woodlands and native grassland in the Coastal Zone; areas adjacent to essential habitats of rare, endangered or threatened species, or other rare species considered under CEQA; dunes, wetlands, lagoons, rivers, and riparian corridors; and areas defined by the LCP as ESHA under the Coastal Act.

The project is required to mitigate any unavoidable environmental impacts to sensitive habitats. The ordinance calls for protection of sensitive habitats "undisturbed by the proposed development activity" or on an adjacent parcel through measures such as conservation easements. Additionally, restoration "commensurate with the scale of the proposed development" is required for degradation of sensitive habitats caused by the project. Exemptions to this ordinance may be granted concurrently with authorized riparian and wetland buffer exceptions.

County of Santa Cruz Riparian Corridor and Wetlands Protection Ordinance

The County of Santa Cruz Riparian Corridor and Wetlands Protection (County Code §16.30) limits development activities in riparian corridors and wetlands and provides buffer/setback requirements based on slope and vegetation composition. The Santa Cruz County Planning Commission may authorize a riparian and/or wetland setback exception on a case by case basis. Exceptions are granted pending an approved application stating the applicant's proposed activities, best management practices (BMPs), and measures for mitigating impacts to the riparian corridor and/or wetland buffer.

Potential Wetlands and "Other Waters" of the U.S.

Wetlands and "other waters" of the U.S., including streams, ponds and lakes, are regulated by the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Wetlands are defined as, "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" [Environmental Protection Agency (EPA), 40 CFR 230.3, and CE 33 CFR 328.3].

Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation, such as lakes and ponds, or convey water, such as streams, are also subject to Section 404 jurisdiction. Along the Central California coast, these "other waters" can include intermittent and ephemeral streams, as well as lakes, and rivers. "Other waters" are identified by the presence of an ordinary high water (OHW)

mark, a defined river or stream bed, a bank, or by the absence of emergent vegetation in ponds or lakes. An OHW mark is defined as the natural line on the shore established by fluctuations of water. The Project Area was concurrently evaluated for the presence of wetlands and non-wetland "other waters" at the time of the assessment site visit (Environmental Laboratory 1987, USACE 2010).

Waters of the State of California

Section 401 of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Act (SWRCB 2018) assign overall responsibility for water rights and water quality protection to the State Water Resource Control Board (SWRCB), and direct the nine statewide Regional Water Quality Control Boards (RWQCBs), who are tasked to develop and enforce water quality standards within their boundaries. Under California State law, "Waters of the State" pertains to "any surface water or groundwater, including saline waters, within the boundaries of the state." As a result, water quality laws and permitting authority apply to both surface and groundwater.

Following the 2001 U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (SWANCC decision), the SWRCB released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act, the discharges to wetlands and other "waters of the state" are subject to State regulation. This ruling includes wetlands isolated from navigable waters or their tributaries. In general, the RWQCB regulates discharge into isolated waters in much the same way as they do for Federal jurisdictional waters, using Porter-Cologne rather than Section 404 authority (SWRCB 2001). In the absence of a federal permit requirement, impacts to waters of the state, including wetlands, requires a Waste Discharge Requirement (WDR) authorization from the RWQCB (SWRCB 2018).

In the Supreme Court decisions for *Rapanos v. United States* [547 U.S. 715 (2006)] and *Carabell v. United States Army Corps of Engineers* [391 F. 3d. 704 (6th Cir. 2004)] (collectively *Rapanos* decision), the Court recommended further restrictions on federal jurisdiction and required that a "significant nexus" test be applied to those wetlands and "other waters" which are not navigable waters. A joint memorandum issued in June 2007 and revised in December 2008 provides guidance to the USACE and EPA for implementing the Supreme Court's significant nexus test. Wetlands and others waters lacking a significant nexus to navigable waters of the U.S. may still be regulated by state RWQCBs.

On October 22, 2019 the Department of Defense (DOD), EPA and USACE published a final rule to repeal the 2015 Clean Water Rule, defining "Waters of the U.S." (DOD et al. 2019). This 2015 Rule was never implemented due to the 2017 Presidential Executive Order entitled "Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the 'Waters of the United States' Rule." Along with the repeal of the 2015 Rule, the 2019 Final Rule re-codifies the regulatory text that existed prior to the 2015 Rule outlined in the 2008 Rapanos joint memorandum (effective December 23, 2019).

On December 11, 2018, the EPA and the Corps signed the Proposed Rule: Revised Definition of "Waters of the U.S." to clarify federal authority under the Clean Water Act consistent with the February 2017 Executive Order (USACE et al. 2019). The proposed definition would replace the pre-2015 regulations. The Public Comment period on the Proposed Rule closed on April 15, 2019. A Final Rule is expected in 2020.

California Coastal Act

Under the Coastal Zone Management Act of 1972 and California Coastal Act of 1976, the California Coastal Commission (CCC) is entrusted to review proposed development in the Coastal Zone with the goal of protecting and enhancing the coastal environment while allowing utilization and public access for Coastal Zone-dependent uses.

Environmentally Sensitive Habitat Areas (ESHA)[4] and wetlands are given special protection, with a different set of rules for each. Allowed uses within ESHA are limited to those that are resource-dependent; and uses within wetlands are limited to a specific list of activities, which includes "restoration" and "similar resource-dependent activities" [California Public Resources Code (PRC) § 30240 (ESHA) as amended 1991 and § 30233 (wetlands) as amended 2006]. ESHA "shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas." "Development in areas adjacent to [ESHA] … shall be sited and designed to prevent impacts which would significantly degrade those areas; and shall be compatible with the continuance of those habitat … areas."

In Coastal Act wetlands – all areas meeting at least one wetland parameter – a handful of specifically authorized uses, including "restoration" and "similar resource-dependent activities," are permitted, but only where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects."

In Bolsa Chica Land Trust v. Superior Court (1999) 71 Cal.App.4th 493, 514-515, the California Court of Appeal held that, where an area in the Coastal Zone is both a wetland and an ESHA, the Coastal Act provision governing wetlands controls, and the provision governing ESHA does not also apply.

Within the Coastal Zone, the Coastal Act considers areas that include at least one positive wetland indicator (vegetation, soils, and hydrology) as an ESHA wetland. As a result, the CCC will often assume jurisdiction over a greater extent of wetlands in the Coastal Zone than the USACE or RWQCB. This is problematic in years of well above average rainfall because wetland hydrology is defined as areas that are inundated or saturated within the upper 12 inches of the soil profile for a minimum of only 14 consecutive days. Moreover, areas dominated by weedy "facultative" plant species including Italian ryegrass (*Festuca perennis*), curly dock (*Rumex crispus*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) may be dominated by "upland" plants in drier (normal) years. In general, hydric soil characteristics including redoximorphic mottles will not develop in one year and therefore, areas that would not be wetlands in most years would lack this indicator even during very wet periods.

Santa Cruz County Significant Tree Ordinance

The County of Santa Cruz prohibits the removal of "significant trees" in the Coastal Zone (County Code Section 16.34). Within the urban and rural services line, significant trees are those greater than 20 inches in diameter at breast height (DBH) for single stemmed trees; any sprout clump of five or more stems each of which is greater than 12 inches DBH; or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches DBH. Outside the urban services or rural services line where visible from a scenic road, any beach, or within a designated scenic resource area, significant trees include those equal to or greater than 40 inches DBH (approximately 10 feet in circumference); any sprout clump of five or more stems, each of which is greater than 20 inches DBH (approximately five feet in circumference); or, any group consisting of 10 or more trees on one parcel, each greater than 20 inches DBH. No stipulations are made for native versus non-native and/or ornamental trees. Exceptions are made for trees that are diseased or deemed hazardous to public safety; or pursuant to a Timber Harvest Plan or Fire Protection Plan submitted to and approved by the California Department of Forestry. Removal of significant trees would require a permit issued by the County of Santa Cruz Planning Department and would likely require mitigation including, but not limited to, planting of replacement trees at a ratio and species composition determined by the Planning Department.

[4] Under the Coastal Act, ESHA is defined as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

5 RESULTS

Floristic Inventory and Habitat Characterization

An EcoSystems West botanist recorded a total of 77 species of vascular plants within the Study Area. A complete species list of plants encountered during the site visit is presented in Appendix E. Nineteen of these identified species are native, and 58 species are non-native to the Davenport region. No special-status plant species were observed within the Study Area during the focused rare plant surveys. The majority of the naturalized portions of the Study Area consists of non-native grassland. There are several seasonal ponds within the Study Area that support arroyo willow riparian scrub and seasonal wetland vegetation around the pool margins. The Study Area is also bordered to the south by a deep, incised arroyo containing an unnamed drainage (No-name Creek). The upper embankments of the arroyo support coastal scrub interspersed with dense stands of invasive poison hemlock. The lower embankments support dense arroyo willow riparian scrub with scattered arborescent shrubs and small trees. A large retention pond is situated in an industrialized portion of the Study Area downslope and west of the proposed North CKD landfill. This feature currently contains very alkaline water quality due to CKD and coal sediments and the embankments are vegetated with non-native Ngaio and Monterey Cypress trees and scattered weedy grasses and forbs.

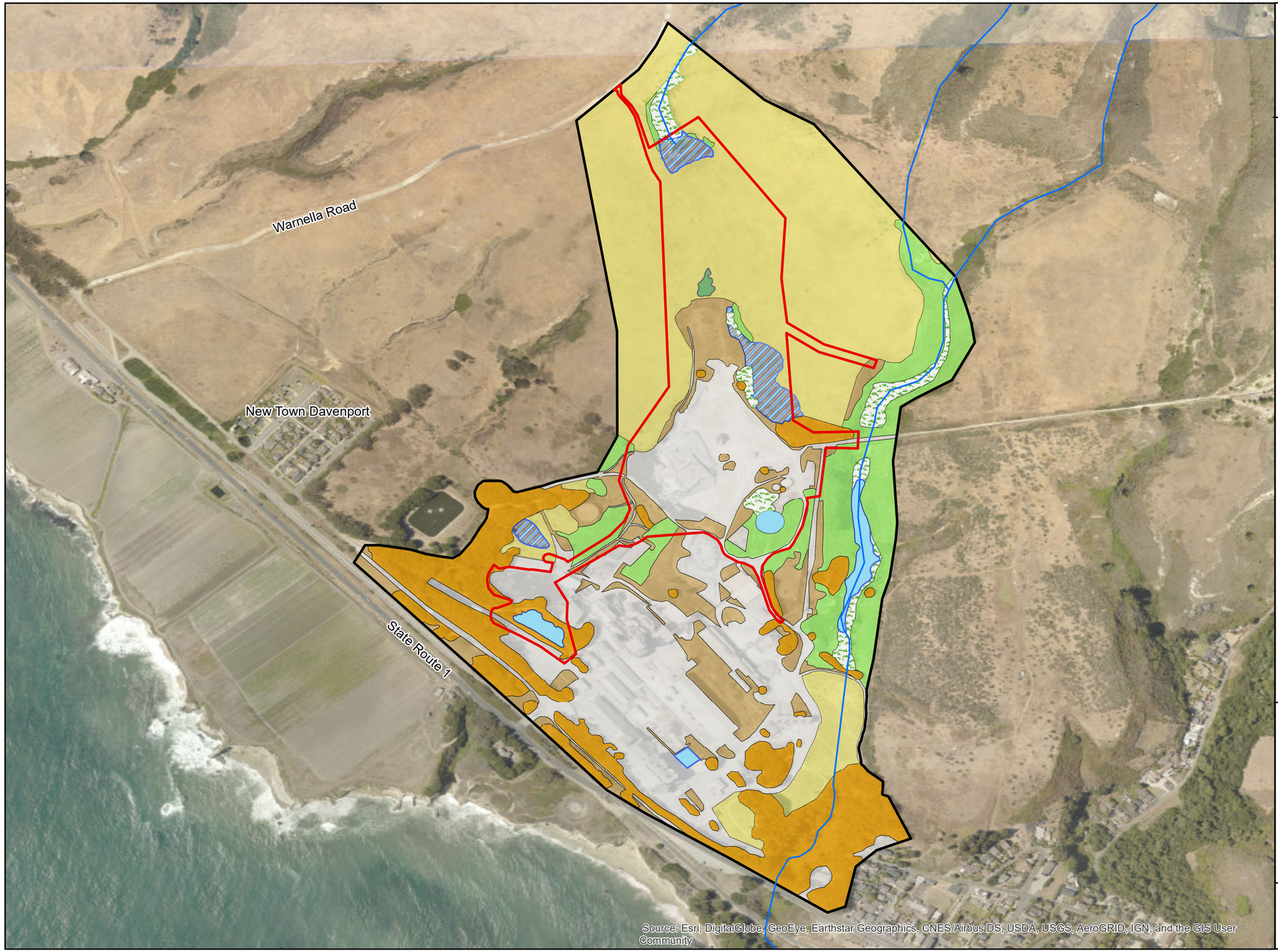
We recognize eight predominant habitat types occurring within the Study Area (Figure 3):

- Non-native grassland
- Arroyo willow riparian scrub
- Coastal scrub
- Palustrine emergent wetland
- Aquatic
- Non-native forest
- Ruderal
- Developed

Within the Study Area, developed areas are those which have been significantly modified for human uses, such as roads, buildings, and other infrastructure. Non-native grassland, non-native forest, and ruderal habitats are considered naturalized (CDFW semi-natural stands) as they are typically associated with past, or ongoing and often repeated, anthropogenic disturbance and the majority of this vegetation has been introduced, oftentimes intentionally. The arroyo willow riparian scrub, mixed coastal scrub, and palustrine emergent wetland habitats are generally considered native as they do not exist solely as a result of human influence and are dominated by native species. Aquatic habitat including seasonal ponds and intermittent creeks exhibit some degree of past disturbance that have created or altered these habitat types; however, some non-natives species usually occur, and may even be dominant, within these areas.

NON-NATIVE GRASSLAND

Within the Study Area, the non-native grassland habitat type corresponds to the *Avena-Bromus* (42.027.00) Semi-natural Herbaceous Alliance of Saywer et al. (2009) and CDFW (2019c), and to a phase of the non-native grassland type described by Holland (1986). Within the Study Area, non-native grasslands are recovering from past CKD landfill and agricultural activities. Very few native species were present within non-native grassland, and indicator species for native coastal prairie including California oatgrass (*Danthonia californica*) and purple needlegrass (*Stipa pulchra*) were not observed. Non-native grassland occurs on nearly-level to moderate hillslopes throughout the majority of the northernmost naturalized portion of the Study Area.



ECOSYSTEMS WEST CONSULTING GROUP

Figure 3.

Habitat Types and Natural Plant Communites

Davenport Cement Plant North CKD Area Closure Plan

- Biological Study Area
- Project Area
- Unnamed Intermittent Streams
- Palustrine Emergent Wetland
- Perennial Pond
- Seasonal/Intermittent Pond
- Coastal Scrub
- Arroyo WIllow Riparian Scrub
- Non-Native Grassland
- Non-Native Forest
- Ruderal
- Devloped

N
W E
S

1 inch=550 feet

0 250 500 1,000 Feet

Drawn By: J. Davilla, ESW
Date: 12/20/2019
Filepath: E:\North CKD Closure Plan
Image: ESRI Basemap

Non-native grassland is dominated by wild oats (*Avena* spp.), Italian ryegrass (*Festuca perennis*), brome grasses (*Bromus hordeaceus*, *B. diandrus*), barleys (*Hordeum murinum* ssp. *leporinum*, *H. marinum* ssp. *gussoneanum*), six-weeks fescue (*Festuca bromoides*), cutleaf geranium (*Geranium dissectum*), poison hemlock (*Conium maculatum),* four-seeded vetch (*Vicia tetrasperma*), and filarees (*Erodium* spp.) A large percentage of plant species identified within this habitat type are listed as invasive weeds with "moderate to high ecological impacts" by the California Invasive Plant Council (Cal-IPC) (2019). Under conditions where the subsurface soil and native seedbank have not been significantly altered by tilling/disking for agriculture or grading, it may be possible to revert non-native grassland to coastal terrace prairie by applying various management and restoration techniques including, but not limited to, managed grazing, mowing, prescribed fire, herbicides, and/or seeding and planting of native species. However, these restoration strategies have demonstrated varied success. Due to past disturbance, it is unlikely a native seedbank is persisting in grasslands within the Study Area. Non-native grassland is not a CDFW or County of Santa Cruz sensitive habitat type.

A number of common bird species utilize non-native grassland to forage for invertebrates and/or seeds, such as Brewer's blackbird *(Euphagus cyanocephalus)*, mourning dove *(Zenaida macroura)*, American crow *(Corvus brachyrhynchos)*, sparrow *(Zonotrichia sp)*, and red-winged blackbird *(Agelaius phoeniceus)* (Appendix F). Small mammals, such as Botta's pocket gopher (*Thomomys bottae*), ground squirrel, and California meadow vole (*Microtis californicus*) commonly occur in grasslands. Small mammal burrows were observed throughout the grassland habitats of the Study Area. Common lizard species such as coast range fence lizard (*Sceloporus occidentalis bocourtii*) and alligator lizard (*Elgaria multicarinata multicarinata*) are present. Both small mammals and lizards in turn provide prey for garter snake (*Thamnophis* sp.), gopher snake (*Pituophis catenifer catenifer*), or northern harrier [*Circus hudsonius* (previously *cyaneus*)] and other raptors, along with bobcat (*Lynx rufus*) and coyote (*Canis latrans*). Mammal burrows are also utilized by common and sensitive amphibian and reptile species for refuge. Kildeer *(Charadrius vociferous)*, mourning *dove (Zenaida macroura)*, western meadowlark *(Sturnella neglecta)*, song sparrow (*Melospiza melodia*), and northern harrier may utilize grasslands for nesting.

We have observed black-tailed deer (*Odocoileus hemionus*) within the grasslands of the Study Area as well as sign (scat) from coyote. According to the tracking efforts of the Puma Project (2019) the Study Area is within the documented home ranges of eight male and two female mountain lions (Puma concolor). This species is likely to hunt within the grasslands.

The edge habitats[5] or ecotones between the grasslands and adjacent eucalyptus stands, Monterey cypress, and scrub and riparian scrub habitats provide a range of foraging, refuge, and nesting opportunities for wildlife species.

COASTAL SCRUB

The coastal scrub habitat type in the study area is typified by low to moderate sized woody shrubs with mesophilic leaves and small diameter flexible branches. These shrubs are often relatively short-lived with a shallow root structure and typically occur in shallow, often rocky soils. Due to marine influence, soils tend to be higher in concentration in salts than more inland areas. Coastal scrub tends to persist as a stable natural community in areas with cool, mesic microclimates and persistent fog. Growth habits of dominant shrubs range from prostrate to arboreal. Within the Study Area, this habitat type corresponds to a phase of northern coastal scrub habitat type (Holland 1986) and the *Baccharis pilularis-Toxicodendron divsersilobum* Association (32.060.17, G5) of the *Baccharis pilularis* Alliance (32.060.00, G5/S5) of Sawyer et al. (2009) and CDFW (2019c). The embankments of No-name Creek support coastal scrub dominated by coyote brush (*Baccharis pilularis*) and poison oak (*Toxicodendron diversilobum*) with California sage

[5] Edge habitats occur when two or more habitat types abut one another. Edge habitats provide an abundance and variety of food sources because they have diverse plant species and microhabitat variability, including cover, shelter, and shade, as well as sun exposure for warmth and air flow for circulation.

(*Artemisia californica*), California blackberry (*Rubus ursinus*), and lizard tail (*Eriophyllum stachaedifolium*) also present in the shrub stratum. Grasses and forbs interspersed among openings in the shrub layer include brome grasses, wild oats, rock phacelia (*Phacelia californica*), red fescue (*Festuca rubra*), and sweet alyssum (*Lobularia maritima*). Large patches of invasive poison hemlock (*Conium maculatum*) also occur on the upper embankments of No-name Creek, in particular on the northern bank in close proximity to the proposed outfall of the proposed bypass pipeline from the North Pond.

Coastal scrub provides habitat for a range of wildlife species, offering varied food sources, in some cases nearly impenetrable cover from predators, and shelter. In some areas, coastal scrub is present near water sources, such as the creeks and ponds within the Study Area. Habitat mosaics (the intersection of multiple habitat types) and reliable water sources increase the habitat value of these coastal scrub habitats for wildlife.

A number of bird species were observed using the coastal scrub for forage and shelter (Appendix F). Coastal scrub is a preferred habitat for small mammals, such as brush rabbit (*Sylvilagus bachmani*) and ground squirrel (*Otospermophilus beecheyi*). Skunks (*Mephitis mephitis*) and racoons (*Procyon lotor*) may use the coastal scrub for cover. Coast range fence lizard was also observed in this habitat.

ARROYO WILLOW RIPARIAN SCRUB

This habitat type corresponds to the *Salix lasiolepis* Alliance (61.201.00, G4/S4) and Association (61.201.01) (Sawyer et al. 2009, CDFW 2019c), and to a phase of Central Coast riparian scrub (Holland 1986). Arroyo willow riparian scrub consists of areas dominated almost entirely by dense thickets of arroyo willow, with a relatively undeveloped understory of herbs and sub-shrubs. Within the Study Area,

Arroyo willow riparian scrub is located in the drainage immediately upstream of the North Pond (Pond E), along the western embankments of the Seasonal Ponds (Ponds C and D), and along the lower embankments of No-name Creek. Arroyo willow is typically a small- to medium-sized tree or arborescent shrub with multiple trunks from the base. Areas supporting this habitat type range from dense, monospecific stands to mixed assemblages of arroyo willow, coffeeberry, elderberry, poison oak, and California blackberry.

Along the ponds and creeks within the Study Area arroyo willow riparian scrub is likely to support a suite of wildlife species, including insects, amphibians, birds and mammals, especially as habitat conditions improve, post Closure Plan. Sierran chorus frog (*Pseudacris sierra*) and CRLF are known to occur in these habitats, as well as other amphibian species such as salamanders and newts. Riparian habitats provide a dense multi-tiered canopy with diverse foraging, roosting, sheltering, and/or nesting habitat for both residential and migratory bird species (Appendix F). The riparian vegetation provides cover from predators and insulating properties that shelter wildlife species from the sun and prevailing weather patterns. Foliage-roosting bat species may roost in these habitats and hunt over the adjacent water bodies.

The riparian vegetation also buffers the adjacent aquatic habitat of No-name Creek and Farmers Pond, contributing shade, food, and sources of nutrients. Structurally, downed trees and willow mats create scour pools and log jams that are important for birds, amphibians, and aquatic insects.

PALUSTRINE EMERGENT WETLANDS

Wetlands are those areas that are transitional between aquatic and terrestrial systems where surface water is at a depth and duration sufficient to promote the development of hydric soils and a preponderance of hydrophytic wetland vegetation. Within the Study, emergent freshwater wetland types are limited to seasonal and seep wetlands.

Seasonal wetlands and seeps are characterized by shallow depressional topography with inundation and/or saturation only occurring during the rainy season. These features are typically dominated by annual and perennial grasses and forbs, many of which may occur in both wetlands and upland habitats (i.e., facultative wetland species). In general, seasonal wetlands and seeps often contain a high percentage of non-native, weedy species including Italian ryegrass, curly dock (*Rumex crispus*), brome fescue (*Festuca bromoides*), Mediterranean barley (*Hordeum hordeum* ssp. *gussoneanum*), and rabbitfoot grass (*Polypogon monspeliensis*). One seasonal wetland totaling approximately 0.17 acres was identified within North CKD Closure Area in the north-central portion of the Study Area.

The seasonal wetland is presumed to exhibit overland and subsurface hydrologic connectivity with existing "v-lined" ditches that drain to the southwest into a large retention pond, and ultimately the Pacific Ocean. Because the seasonal wetland is considered to have a "significant nexus" with the Pacific Ocean, a Traditional Navigable Water (TNW), it is considered potentially jurisdictional under state and federal laws.

During the rainy season, the seasonal wetland within the Study Area may provide a hydration points or refuge for amphibian species such as Sierran chorus frog and CRLF as well as for other common wildlife species when shallow, standing water is present immediately following significant rain events.

AQUATIC

Aquatic habitat is composed of natural and man-made open bodies of water. Natural water bodies include intermittent and ephemeral streams crossing the study area, originating inland in the coastal foothills and terminating in the Pacific Ocean, as well as man-made seasonal ponds and a perennial retention basin. The North Pond was formed sometime prior to 1972 when a deep arroyo was filled with CKD to create a landfill. The pond contains a now abandoned and buried culvert that connects to a mostly below-ground pipeline that conveys water to the south into No-name Creek and Farmer's Pond. The North Pond does not remain ponded in normal years from approximately early July until the first significant seasonal precipitation in October or November. The Seasonal Ponds are ephemeral features that vary in hydroperiod and ponding depth depending the amount of seasonal rainfall. In above average rain years (including 2016-17 and 2018-19), these ponds merge to form one hydrologically contiguous feature. Hydrology includes direct precipitation, overland sheet flow, and elevated groundwater table. These ponds may also be partially supported by water leaking from the decaying North Pond conveyance pipe that runs along western border of these features. No-name Creek is an ephemeral to intermittent drainage that conveys water only during and immediately after rain events. This feature is bisected by several access roads that require passage through elevated culverts. As a result, water impounds below these culverts and in one section forms Farmer's Pond, an approximately 2-acre perennial waterbody.

Invertebrates and amphibians occupy the aquatic habitats of the Study Area, including Sierran chorus frog, CRLF, and newts (*Taricha* sp.). Migratory and residential bird species and mammals utilize these areas for foraging, hunting and hydration. Within the Study Area, aquatic features, along with the adjacent grassland, coastal scrub, and willow riparian habitats together form an ecologically rich mosaic with diverse opportunities sources of food, hydration, cover, and shelter. Water quality conditions, as well as the quality of the surrounding habitats will improve with the proposed Closure Plan, as developed, industrial, and ruderal areas are remediated and re-vegetated, and native habitats expand.

NON-NATIVE FOREST

Non-native forest is made up of planted and volunteer trees established either as ornamental groves or wind-breaks. This habitat type supports several monospecific and mixed stands of Monterey cypress (*Hesperocyparis macrocarpa*), Ngaio tree (*Myoporum latum),* and blue gum eucalyptus (*Eucalyptus*

globulus) groves. In its native range, Monterey cypress is a CNPS List 1B.2 special-status species; however, native Monterey cypress is restricted entirely to the Monterey peninsula and Del Monte Forest. Outside of its native range, this species is considered invasive by the California Invasive Plant Council (Cal-IPC 2019). Blue gum eucalyptus trees are able to rapidly grow from seed or can re-sprout following disturbance (cutting, fire, etc.) to an existing tree. Understory vegetation is often sparse due to litter accumulation and possible allelopathic effects of oils found in eucalyptus leaf and root exudates. Blue gum eucalyptus trees are an exotic species and rated as a "moderately invasive" by the California Invasive Plant Council (Cal-IPC 2019).

Within the Study Area, Monterey Cypress is prevalent within the lower, industrialized areas of the property near Cement Plant Road. A dense cypress grove extends northward from the perimeter of the retention pond to open lands currently supporting a County of Santa Cruz recycled water pond and CRLF mitigation swale. Ngaio trees are prevalent along the western and southern embankments of the retention pond. Both of these groves support a sparse, relatively undeveloped understory comprised of exotic grasses and escaped ornamental forms such as Jupiter's beard (*Centranthus ruber*) and jubata grass (*Cortaderia jubata*). A eucalyptus grove is situated between the Seasonal Ponds and No-name Creek and is comprised primarily of blue gum eucalyptus (*Eucalyptus globulus*) with a sparse to locally dense understory of California blackberry. This naturalized forest type corresponds to *Eucalyptus* Semi-Natural Woodland Stands of Sawyer et al (2009) and CDFW (2018c). Non-native forests are not considered a CDFW or County of Santa Cruz sensitive habitat type: however, larger trees may be subject to the County of Santa Cruz Significant Tree Ordinance.

Eucalyptus and Monterey cypress stands within the Study Area provide potential autumnal and winter roosting habitat for the monarch butterfly (*Danaus plexippus*). Individual monarchs have been observed over the course of field surveys but, based on 2019 surveys, the stands do not currently support winter roosts. Non-native forests within the Study Area provide foraging, roosting, and nesting habitat for migratory and residential birds and roosting habitat for common bat species.

RUDERAL

Ruderal areas are not described by Sawyer et al. (2009) or Holland (1986). Within the Study Area, ruderal communities consist of highly disturbed, weedy areas immediately adjacent driveways and developed areas on the site. Vegetation is dominated by aggressive, opportunistic species including poison hemlock (*Conium maculatum*), wild radish (*Raphanus sativus*), black mustard (*Brassica nigra*), pineapple weed (*Matricaria discoidea*), plantain (*Plantago coronopus*, *P. lanceolata*), fennel (*Foeniculum vulgare*), Bermuda grass (*Cynodon dactylon*), and filaree. Due to the proximity to roads and other ongoing disturbances, ruderal areas tend to persist over time and succession to other natural communities is limited.

Ruderal (and developed) habitats support opportunistic bird species such as American crow, barn swallow (*Hirundo rustica*), and house finch (*Haemorhous mexicanus*), as well as for common mammal species such as skunk, raccoon, and squirrels.

DEVELOPED

Developed areas are extensive within the Study Area and consist of paved and compacted gravel roads, buildings and infrastructure for past cement plant operations, the Davenport Water Treatment Facility, post and wire fencing surrounding portions of the Study Area. Ornamental landscaping including maintained lawns and trees is present near the entrance to the facility; however, the majority of vegetation surrounding developed areas is comprised of naturalized, ruderal plants.

Sensitive Habitats

COASTAL SCRUB

Coastal scrub comprised of the *Baccharis pilularis* Shrubland Alliance is considered ESHA by the County of Santa Cruz Local Coastal Program (LCP) (Santa Cruz County 1994) and County of Santa Cruz sensitive habitat (Santa Cruz County Code §16.32). This habitat type is limited to the steep embankments of No-name Creek, to a small area around the Water Reservoir, and to patches north- and southwest of the of the ditch system that conveys water from the North CKD landfill to the Retention Pond. Minimal temporary impacts may occur in the area northwest of the ditch system. Along the steep embankments of No-Name Creek, indirect impacts could result from the bypass pipeline outfall structure due to erosion or alteration of the hydrologic regime which may alter the native species composition and/or facilitate the establishment of invasive plants.

ARROYO WILLOW RIPARIAN SCRUB

Arroyo willow riparian scrub is considered an ESHA and sensitive habitat type by the County of Santa Cruz LCP, Sensitive Habitat Ordinance, and Riparian Corridor and Wetlands Protection Ordinance (Santa Cruz County Code 16.32). The *Salix lasiolepis* Shrubland Alliance is also described as a sensitive natural community by CDFW. These areas are also regulated as wetland habitats by the California Coastal Commission. Riparian communities are considered sensitive habitat due to their value to wildlife, limited distribution, and decreasing acreages statewide. Riparian vegetation is valued for wildlife habitat, flood protection, stream bank stabilization, erosion control, and water quality related to nutrient and sediment filtration by riparian vegetation. Arroyo Willow riparian scrub is not anticipated to be adversely affected by the proposed project.

Potential Wetlands and "Other Waters" of the U.S.

One 0.17-acre potentially jurisdictional seasonal wetland was identified within the Study Area in open grassland immediately abutting the existing CKD temporary storage area. This area was determined to have evidence of persistent hydrophytic vegetation, wetland hydrology, and hydric soils as required by USACE delineation guidelines. The methods used to delineate jurisdictional wetlands and "waters" were based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Valleys, Mountains and Coast Region, Version 2.0* (USACE 2010). This feature is fed by direct precipitation as well as overland and subsurface sheet flows. The feature is considered to have hydrologic connectivity to adjacent v-lined ditches that regularly convey water to a retention pond and ultimately the Pacific Ocean and therefore is considered potentially jurisdictional by the ACOE and CCC. Scrub-shrub wetlands dominated by arroyo willow and poison oak totaling 0.77 acres were also identified within the Study Area. These features were associated with the drainage above the North Pond, and along the western and northern embankments of the Seasonal Ponds. Open water habitat within the North Pond (Pond E), the Seasonal Ponds, the Retention Pond, and No-name Creek are considered potentially jurisdiction non-wetland "other waters" as they are Relative Permanent Waters (RPWs) with a significant nexus to the Pacific Ocean, a Traditional Navigable Water (TNW).

For a detailed account of potential wetlands and "Other Waters" of the U.S. please refer to the *Delineation of Aquatic Resources Subject to State and Federal Jurisdiction for the North CKD Closure Plan Project Area* (EcoSystems West 2019).

WATERS OF THE STATE OF CALIFORNIA

No additional areas exclusively classified as Waters of the State, including isolated wetlands, were identified within the Study Area. All existing wetlands and waterways are considered to be jurisdictional under Section 404 of the Clean Water Act.

COASTAL ACT WETLANDS

Within the Study Area, one 0.26-acre patch of arroyo willow scrub on the western embankment above the Seasonal Ponds is considered a Coastal Act one-parameter wetland. Several areas were dominated by Italian ryegrass, brome fescue, and poison hemlock, all considered facultative invasive weeds. However, in these areas co-dominant plants are classified as upland species and no direct or indirect evidence of wetland development including drainage patterns or topographic position was observed.

During the spring 2017 wetland delineation field visits, several areas in the northern portion of the western terrace were identified as possible Coastal Act wetlands due to a preponderance of facultative hydrophytic vegetation. However, rainfall totals recorded at the nearby Bonny Doon Weather Station during the 2016-17 rainy season measured approximately 155 percent of normal. During subsequent site visits in winter and spring 2018 and 2019 following normal seasonal rainfall totals, these areas now appear to be dominated primarily by upland plants and evidence of persistent wetland hydrology and hydric soil development was lacking. These areas are not considered to be one-parameter Coastal Act wetlands under normal conditions.

Significant Trees

The Study Area is located beyond the County of Santa Cruz urban and rural services line and is not visible from a designated scenic road, beach, or within a designated scenic resource area. Moreover, no individual trees or groves potentially removed for the proposed Project are large enough to be considered significant under the ordinance.

Special-Status Wildlife

During our 2018 and 2019 surveys, we observed five sensitive wildlife species listed in Appendix D:

- monarch butterfly (*Danaus plexippus*),
- California red-legged frog (*Rana draytonii*),
- northern harrier (*Circus hudsonius*),
- white-tailed kite (*Elanus leucurus*), and
- Allen's hummingbird (*Selasphorus sasin*).

In addition, our evaluation of the Study Area determined that potential habitat exists for the following special-status wildlife species listed in Appendix D:

- American peregrine falcon (*Falco peregrinus anatum*),
- grasshopper sparrow (*Ammodramus savannarum*),
- olive-sided flycatcher (*Contopus cooperi*),
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and
- western red bat (*Lasiurus blossevillii*).

Observations of sensitive wildlife species are depicted in Figure 4.

ECOSYSTEMS WEST CONSULTING GROUP

Figure 4.

Special Status Wildlife Habitat and Observations

Davenport Cement Plant North CKD Area Closure Plan

- Biological Study Area
- Project Area
- CRLF Aquatic Breeding Habitat
- CRLF Aquatic Non-Breeding Habitat
- CRLF Upland Habitat
- Unnamed Intermittent Streams
- Potential Monarch Butterfly Roost
- Known Monarch Butterfly Roost
- Allen's Hummingbird Observation (breeding)
- Northern Harrier/White Tailed Kite Observation
- Bat Sign

N
W E
S

1 inch=550 feet

0 250 500 1,000 Feet

Drawn By: J. Davilla, ESW
Date: 12/20/2019
Filepath: E:\North CKD Closure Plan
Image: ESRI Basemap

MONARCH BUTTERFLY

The monarch butterfly was petitioned to be listed as a Threatened species under the federal Endangered Species Act in 2014, and it is currently under review by USFWS after a positive 90-day finding (USFWS 2014). A final ruling is expected in December 2020. The winter roost sites of the monarch butterfly are listed by NatureServe as imperiled/vulnerable (S2/S3) within California[6] (CDFW CNDDB 2018). Because of this listing as a Special Animal, winter roost sites are considered ESHA under the California Coastal Act Santa Cruz County Local Coastal Program. The overwintering monarch population has seen an overall decline of 97% in coastal California (Schultz et al. 2017) and of 74% in less than the last 20 years (IELP and Xerces Society 2012, Pelton et al. 2016).

The life history of the monarch butterfly can be divided into two temporally defined periods: a spring/summer reproductive period and a fall/winter non-reproductive (wintering) period. During the spring and summer, monarchs exploit the widely distributed North American milkweed flora (*Asclepias* spp.) as food for their larvae. In the fall, the adult butterflies that are produced during the latter part of summer migrate to wintering habitats in coastal California or central Mexico to spend the winter months. Monarchs spend from 1 to 9 months as adults, depending on when they become reproductive. If they become reproductive immediately, they live 1-2 months as adults. Monarch adults that emerge from August through October typically migrate and overwinter before becoming reproductive the following spring. These monarchs live approximately 8-9 months as adults.

Monarchs arrive at overwintering sites in September and the first half of October to form fall aggregations. By mid-November they form more stable aggregations, which persist through January or February (Pelton et al. 2016). The monarch butterfly utilizes eucalyptus, Monterey pine, or Monterey cypress tree groves for winter roost sites, typically within 1.5 miles (2.4 kilometers) of the Pacific Ocean. Monarchs form aggregations on the underside of peripheral branches. The suitability of the stand is determined by both abiotic and biotic factors including:

- periodic exposure to (dappled) sunlight (often southeast aspect);
- cool shady roost areas for periods of warm weather;
- primary and secondary wind protection;
- proximity to nectaries (fall or winter blooming flowers);
- humidity; and
- water sources.

Winter roost sites are sufficiently heterogeneous to permit shifts of roost location in accord with prevailing weather conditions and seasonal variation in insulation. The roost site consists of the trees upon which the butterflies cluster, as well as the surrounding trees that provide wind protection. In addition, overwintering habitat includes nectar plants and water sources surrounding the roost site, since monarchs may fly some distance to obtain these resources (Pelton et al. 2016, Griffiths and Villablanca 2015).

We observed individual monarch butterflies over the course of our surveys, flying within and near the eucalyptus and cypress stands within the Study Area (Figure 4). No winter roosts were observed during November 2019 field surveys. One additional winter roost survey will be performed in 2019.

[6] S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.

These stands of eucalyptus and Monterey cypress trees provide potential autumnal and winter roost habitat with suitable roost features. The stands are developed and large enough that the internal portions of the stands are sheltered from the predominant onshore winds that are typical of the north coast terraces. The tree stands have a well-developed multi-tiered canopy with mid-tier branches receiving dappled sunlight. The grassland, scrub, ornamental/landscaped and non-native forest habitats support some nectary vegetation and the wetland, creek, and ponds provide water sources. Limited nectar plants may deter winter roost formation in these stands.

Residents of Davenport reported seeing more monarchs earlier in the fall in or near the stand of eucalyptus trees that borders the Study Area immediately to the southeast. This is a known winter roost site (Xerces Society 2019). At this roost site, in 2016 approximately 2,417 monarchs were counted during the annual Western Monarch Thanksgiving Count, in 2017, 2,876 monarchs were counted, and in 2018 694 monarchs were counted (Xerces Society 2019). It is possible that monarchs utilized this stand as an autumnal roost prior to settling in a more established winter roost location. Because of the precipitous decline in western monarch populations, only the most established winter roosts continue to be regularly occupied.

CALIFORNIA RED-LEGGED FROG

The California red-legged frog (CRLF) may use a variety of habitat types, including aquatic, riparian, and upland habitats. Breeding habitat includes ponds (including stock ponds), slow-flowing stream reaches (including lagoons), or deep pools in streams with vegetation such as bulrush (*Schoenoplectus californica*) and cattail (*Typha* sp.), or other substrates for egg mass attachment, and of sufficient duration (mid- to late summer on the north coast) that tadpoles can complete metamorphosis. Other primary constituent elements include riparian and upland habitats adjacent to occupied aquatic features that protect the hydrological, physical, and water quality of aquatic areas and provide foraging, shelter (shade, moisture, and cooler temperatures), and cover. Upland and riparian habitats must be of sufficient size and width to protect the function of the aquatic habitat and allow for dispersal and movement between aquatic habitats (Fellers and Kleeman 2007, USFWS 2002, USFWS 2010).

Upland habitat consists of natural areas near the edge of the riparian vegetation or the watershed boundary while dispersal habitat consists of upland and riparian habitat contiguous with breeding and non-breeding aquatic habitat that is free of barriers, and that connects two or more patches of aquatic habitat within 1 mile (1.6 km) of one another (USFWS 2010).

Individuals may live in a single habitat type for their entire life, given sufficient and varied food, shelter and cover to meet differing habitat requirements for all life stages; however, CRLF often move between breeding and non-breeding habitats. Varied landscapes consisting of aquatic, riparian, and upland habitats in close proximity to one another allow individuals to disperse based on environmental conditions (USFWS 2002).

The CRLF breeds from November to April with mating most commonly occurring in February or March on the North Coast. Eggs hatch and mature into tadpoles after 20 to 22 days, then develop into frogs after 11 to 20 weeks, usually between July and September and sometimes overwintering to metamorphose the following March or April (USFWS 2002).

California red-legged frog is known to occur within the Study Area and vicinity. EcoSystems West biologists have observed all life stages of this species within the Study Area during the course of 2018 and 2019 field surveys as well as during previous survey efforts in 2009, 2010, 2012, and 2017. In addition, BioSearch documented CRLF within the Study Area as early as 1996 in a personal communication citation (Aldenheysen 1996) and observed CRLF in 1997 and 1999.

Ponds within the Study Area provide potential aquatic breeding habitat (Figure 4). The ponds within the Study Area possess many of the requisite habitat features for CRLF: sufficient depth (greater than 1 meter); emergent vegetation for egg mass attachment; presence of food sources such as invertebrates and other amphibians; and shallower areas with cover and algal food sources for larvae. Currently, only three ponds retain water long enough into the summer for larvae to complete metamorphosis. Table 1 summarizes aquatic habitats within the Study Area, observations of CRLF, and breeding status within those features.

Table 1. California red-legged frog (CRLF) aquatic habitats, observations, and breeding status within the Study Area for the proposed North CKD Area Closure Plan Project, Davenport Cement Plant, Davenport, Santa Cruz County, CA.

Aquatic Feature	Adult/ Subadult	Metamorph	Larva	Egg Mass	Breeding Status
North Pond	x	-	x	x	Unsuccessful
Seasonal Ponds	x	-	x	x	Unsuccessful
Water Reservoir	x	x	x	x	Successful
Farmer's Pond	x	x	x	x	Successful
Detention Pond	x	-	x	x	Unsuccessful
Retention Pond	-	-	-	-	NA
Tom's Pond	x	x	x	x	Successful

Adults and subadults, egg masses and tadpoles have been observed at each of the ponds within the Study Area, with the exception of the Retention Pond[7]. No CRLF have been observed at the Retention Pond. Only the Water Reservoir, Farmer's Pond, and Tom's Pond have been observed to support successful reproduction. During all survey years the North Pond, the Seasonal Ponds, and the Detention Pond did not hold water later enough into the summer for CRLF larva to complete metamorphosis.

No-name Creek is an intermittent watercourse that provides potential non-breeding habitat for CRLF. In the fall/early winter, after the first rains, the drainage and its adjacent riparian habitat may provide foraging and dispersal habitat for young-of-the-year CRLF. In above average rainfall years, pools that form along the lower reach of No-name Creek may provide seasonal hydration points for CRLF; however, No-name Creek does not provide breeding habitat for CRLF because it lacks requisite habitat features for larval development: relatively deep, still bodies of water persisting into mid- to late summer and emergent aquatic vegetation necessary for egg mass attachment.

The seasonal wetland within the Study Area provides a marginal wet season hydration point for CRLF moving between aquatic habitats, when shallow standing water is present immediately following significant rain events.

Grassland, coastal scrub, riparian scrub, and non-native forest habitats within the Study Area provide potential upland and/or dispersal habitat for CRLF. In the rainy season and, on the North Coast, in the dry season during heavy fog, CRLF are expected to move through upland and dispersal habitats adjacent to and between aquatic breeding and non-breeding habitats.

[7] The Retention Pond has functioned as a collection pond for CKD runoff from the Project Area and consequently has highly alkaline conditions. With Plant Closure, pH of the Retention Pond is expected to become more neutral over time and the pond is likely to recruit CRLF in the future.

AVIAN SPECIES

During our 2019 surveys, we observed three sensitive avian species within the Study Area: northern harrier, white-tailed kite, and Allen's hummingbird. We listed three additional species as 'Possible" in Appendix D: peregrine falcon, olive-sided flycatcher, and grasshopper sparrow. Although we did not observe these species during 2019 surveys, they are known to occur in the immediate area (ebird 2019) and the Study Area provides potential nesting habitat (or potential foraging habitat for the peregrine falcon). These species are described in more detail below. We also observed a pair of red-tailed hawks during several survey dates and individual red-shouldered hawks. These raptors may utilize the tree stands within the Study Area for breeding.

All nesting birds of prey (i.e., hawks and owls), other native nesting birds and their occupied nests and individual birds of prey and passerine birds are protected by the California Fish and Game Commission Code (CFGC) (§ 3503 and 3503.5). Special-status bird species receive additional protections, primarily for nesting activities with some species (such as "fully-protected" species) receiving additional protection for wintering and foraging activities. Suitable potential nesting habitat for special-status birds, raptors, and other common avian species is present within the Study Area.

Northern Harrier

The nesting northern harrier is a CDFW Species of Special Concern (CDFW 2019d, Shuford and Gardali 2008). The northern harrier (*Circus hudsonius*) hunts over open wetlands, marshes, grasslands, pastures, and active and fallow agriculture fields. Its diet consists of rodents and other small to medium-sized mammals, birds, insects, reptiles, frogs and carrion (Smith et al. 2011).

Breeding occurs from April to September. The harrier nests in treeless habitats, building a loose nest composed of grasses, forbs, weeds, and wetland plants, on the ground or in thick vegetation near the ground in a well-concealed location, often near creeks or stock ponds. Females brood, raise and defend the young without the males. However, male and female northern harriers will roost communally (on the ground) during the non-breeding season (Smith et al. 2011).

During our 2019 site visits, we observed the northern harrier in the tree stands on the western boundary of the Study Area. Recent (2018 and 2019) ebird records document the northern harrier in the immediate area (eBird 2019). The grassland of the Study Area provides potential nesting and foraging habitat.

White-tailed Kite

The white-tailed kite (*Elanus leucurus*) is listed by the CDFW as Fully Protected (CDFW CNDDB 2019). The white-tailed kite inhabits agricultural fields, open grasslands, savannah-like habitats, and riparian and oak woodlands in a relatively narrow band on the west coast of the U.S. and Canada and over large parts of Mexico. An abundance of prey is a requisite habitat feature. The white-tailed kite feeds on rodents, lizards, birds, and insects. Nests sites are variable and may be located in herbaceous open stages of most habitats from large scrub to trees. The kite makes a stick nest near the top of its nest site, camouflaged from below but open on top. Some nest site fidelity has been observed. Kites may nest semi-colonially. Breeding season occurs from late February to early August. Occasionally kites will double brood in a single season (Dunk 1995, Laursen 2018).

During our 2019 surveys, EcoSystems West biologists observed the white-tailed kite within the tree stands on the western boundary of the Study Area. Non-native forest and riparian vegetation along No-name Creek provide potential nesting habitat for this species. The kite may hunt for small mammals and lizards over the grasslands and scrub habitats. Recent (2018 and 2019) eBird records document the kite in the immediate area (ebird 2019).

Allen's Hummingbird
Allen's hummingbird (*Selasphorus sasin*) is listed as a 'Bird of Conservation Concern' by the U.S Fish and Wildlife Service (2008). This species breeds occurs in the moist narrow coastal belt affected by summer fog, within 32 kilometers (20 miles) of the coast. Males establish breeding territories with a view of open areas of coastal scrub or riparian scrub. Females prefer nest sites that are more densely vegetated, such as shaded riparian areas, with some tree cover. Nesting begins in mid-Feb and continues to late June, with up to three broods raised (Clark et al. 2013).

During 2019 surveys, EcoSystems West biologists observed a male territorial display, indicating breeding activity, near the Seasonal Ponds. ebird documents the species during breeding season along San Vicente Creek, in Davenport, and in New Town (ebird 2019).

Peregrine Falcon
The American peregrine falcon (*Falco peregrinus anatum*) is listed as Fully Projected by CDFW (CDFW CNDDB 2018). Habitat for the American peregrine falcon (*Falco peregrinus anatum*) is variable. Most commonly occupied habitats contain cliffs open to the air for nesting and open landscapes for foraging. The peregrine is also known to use towers and buildings in urban environments for nesting. Typically, the peregrine falcon breeds February through July with replacement clutches only after nest failure. The peregrine predominantly captures its prey, mainly birds, in the air, but may also feed on mammals and pirated foods from other raptors (White et al. 2002).

We did not observe the peregrine falcon during 2019 surveys. This species may utilize the Study Area for foraging and may use the buildings for nesting. eBird documents observations of the American peregrine falcon from the immediate area (eBird 2019). This species is known to nest on the coastal cliffs across Highway 1 from the Project Area.

Olive-sided Flycatcher
The olive-sided flycatcher (*Contopus cooperi*) breeds in woodlands and forests, at edges and openings, such as meadows, grasslands, wetlands and ponds, near open water from Alaska through Canada into California. This bird builds a cup nest of twigs, rootlets, and lichens, placed near the tip on a horizontal branch of a tree. Tall, prominent trees and snags are used for perching, singing and from foraging. The olive-sided flycatcher winters primarily in Panama and the Andes Mountains of South America (Altman and Sallabanks 2012).

We did not observe the olive-sided flycatcher during our surveys. This species is known to occur in San Vicente Creek (ebird 2019) and potential nesting habitat is present within the Study Area.

Grasshopper Sparrow
The nesting grasshopper sparrow (*Ammodramus savannarum)* is a CDFW Species of Special Concern (CDFW 2018b, Shuford and Gardali 2008). The California breeding range for grasshopper sparrow (*Ammodramus savannarum)* is a very narrow band along the coast. The grasshopper sparrow is associated with short to medium-height grasslands, often with patchy bare ground, and may be found in pastures and agricultural fields. In the west, this species utilizes lusher grasslands with shrub cover. The grasshopper sparrow nests on the ground in grassland habitats between April and June and forages on insects and seeds (Vickery 1996).

We did not observe the grasshopper sparrow during out 2019 surveys. The grasshopper sparrow may inhabit the grassland habitats of the Study Area. Sightings are from Warnella Road and San Vicente Creek (ebird 2019).

Other Nesting Avian Species

A number of common bird species are expected to breed within the Study Area (Appendix F). The immediate Project Area, due to its mostly disturbed nature, provides limited habitat for avian nesting. Common bird species may utilize the eucalyptus stand adjacent to the Seasonal Ponds, as well as the non-native forest adjacent to the Retention Pond for nesting. Kildeer, mourning dove, western meadowlark, song sparrow, grasshopper sparrow, and northern harrier may utilize the grasslands within and adjacent to the Project Area for nesting. Raptors may utilize the stands of cypress in the southwest and southeast corners of the Study Area; the grove located in the southeast corner is adjacent to the proposed access road for the project and located approximately

A comprehensive breeding bird survey was not conducted because nest sites for most avian species are dynamic and nest locations vary from year to year, but incidental observations of breeding activity are noted.

MAMMALS

The California Fish and Game Code (CFGC) protect non-listed bat species and their roosting habitat, including individual roosts and maternity colonies. These include CFGC Section 86; 2000; 2014; 3007; 4150, along with several sections under Title 14 of California Code of Regulations (CCR).

Bat Species

One sensitive bat species listed in Appendix D may occur in the non-native forest and riparian scrub habitats of the Study Area: western red bat (*Lasiurus blossevillii*). The western red bat is considered 'Species of Special Concern' by the State (CDFW 2018b) and 'High Priority' by the Western Bat Working Group (WBWG 1998). Specific habitat requirements are briefly summarized in Appendix D. The typical breeding season for bats is from May to September. Depending on the species, female bats congregate in small or large numbers to form maternity colonies to give birth and rear their young over the spring/summer season, while males roost separately as individuals or in small bachelor groups. Juvenile bats begin flying by the fall season to forage and prepare for migration. Also depending on the species, males and females communally roost during the fall to breed before and during migration or hibernating through the winter season (Brown et al. 1996).

Common bat species, such as California myotis, Yuma myotis and big brown bat are also likely to occur in the forest and riparian habitats, as well as within the buildings within the Plant. The CFGC protects non-listed bat species and their roosting habitat, including individual roosts and maternity colonies (§ 86, 2000, 2014, 3007, and 4150) along with several sections under Title 14 of the CCR.

Eucalyptus and Monterey cypress stands, as well as riparian scrub provide potential habitat for sensitive and common bat species, including foliage roosting bats such as the western red bat. During our surveys, we identified potential bat roost features in the larger trees within the Study Area and two large guano piles in the coal hangar.

San Francisco Dusky-footed Woodrat

The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is considered a CDFW Species of Special Concern (CDFW 2018b). The woodrat is associated with riparian, oak woodland, redwood forest, and chaparral or other scrub habitats. The woodrat builds houses on the ground or in trees, utilizing understory, woody debris, human debris, structures or buildings. Houses range in size from 3 to 8 feet across at the base, up to 6 feet tall, and up to approximately 30 feet above the ground in tree canopies. The woodrat tends to live in colonies of three to 15 or more houses, with the inhabitants often representing multiple generations. Houses have food caches, latrines, and often *Peromyscus* sp. nests and/or amphibians within. The woodrat is mostly nocturnal, leaving its house to forage on different parts

of the same woody plant seasonally including leaves, bark, seeds and fruit of coast live oak, coffeeberry, poison oak, elderberry, but also grasses, flowers, and fungi. The woodrat breeds from December to September with a peak in mid-spring (Sakai and Noon 1993).

Within the Study Area, non-native forest and riparian scrub, especially on the margins of the grassland habitat provide suitable habitat for the woodrat. We did not observe woodrat houses in the immediate Project Area during our survey efforts.

Wildlife Corridors and Ecotones

Providing functional habitat connectivity between natural areas is essential to sustaining healthy wildlife populations, allowing for the continued dispersal of native plant and animal species, and is considered under the California Environmental Quality Act (CEQA).

Corridors for wildlife movement (also dispersal corridors, wildlife corridors, or landscape linkages) are features whose primary function is to connect at least two isolated habitat areas (Bond 2003). A basic description of the functions of corridors is as follows:

> *Corridors provide avenues along which (1) wide ranging animals can travel, migrate, and meet mates…(2) plants can propagate…(3) genetic interchange can occur…(4) populations can respond to environmental change…[and] (5) locally extirpated populations can be replaced from other areas (Beier and Loe 1992).*

Core habitat areas are undeveloped areas or open spaces that support the viability of rare plant or animal populations or consist of exemplary natural communities. Much of the North Coast, inland of Highway 1, would be considered core habitats.

Creeks, drainages, and associated riparian habitats would be considered linear habitats. Linear habitats in agricultural or developed landscapes provide habitat for native plants, canopy cover, opportunities for foraging, refuge from predators, as well as the opportunity to disperse (Beier and Loe 1992). The riparian habitat and cypress and eucalyptus stands that line the lower reaches of No-name Creek would be considered a linear habitat, with Davenport one side and the Cement Plant on the other.

Within the Study Area and vicinity, Highway 1 is the predominant barrier to wildlife movement. Inland of Highway 1, the Cement Plant, along with New Town to the northwest and Davenport to the southeast, exist as developed patches in a setting of largely contiguous open space.

Ecotones or edge habitats occur where two or more habitat types abut one another. Edge habitats provide an abundance and variety of food sources because they have diverse plant species and microhabitat variability, including cover, shelter, and shade, as well as sun exposure for warmth and air flow for circulation. Within the Study Area, edge habitats occur between grassland, coastal scrub, riparian, non-native forest and aquatic habitat types. These areas are expected to support an increased diversity and abundance of wildlife species, as described above under habitat descriptions.

6 POTENTIAL IMPACTS/AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

To the greatest extent feasible, the proposed Closure Plan has been designed to avoid and minimize impacts to biological resources. Closure Plan activities occur primarily within the disturbed habitat of the North CKD landfill area where CKD is mounded, in the adjacent non-native grassland habitat that currently covers the earlier portions of the North CKD landfill, and at the Retention Pond, which does not currently provide suitable conditions for most biological resources.

Ultimately, the proposed Closure Plan will result in positive outcomes for biological resources through:

- Closure of the CKD landfill and vegetation/re-vegetation of the North CKD area with native plant species,
- Development of a replacement wetland with greater functions and values, and locally-sourced native wetland plant species at the eastern fringe of the Seasonal Ponds,
- Enhancement of the Seasonal Ponds and North Pond through lining of these features and re-vegetation with native locally sourced plant species, and
- Remediation of the Retention Pond, with gradual improvement of pH levels towards neutral.

Below we have assessed potential impacts to biological resources and listed avoidance, minimization conceptual mitigation measures to reduce potential impacts to less than significant. Additional measures may be required by agency representatives, including USFWS, the Water Board, CDFW, and the County of Santa Cruz.

Sensitive Plant and Wildlife Species

Would the project:

	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
*1. **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, or U.S. Fish and Wildlife Service?***	☐	☒	☐	☐

The following sensitive wildlife species are present within the Study Area: monarch butterfly, California red-legged frog, Allen's hummingbird, northern harrier, white-tailed kite, birds of prey, other nesting common bird species, and common roosting bat species. The following species have potential to occur within the Biological Study Area: American peregrine falcon, olive-sided flycatcher, grasshopper sparrow, western red bat, and San Francisco dusky-footed woodrat. An overview of these species has been provided in the sections above and potential project-related impacts are described below. Avoidance, minimization, and mitigation measures are recommended for the protection of these species and/or their habitat and are listed below. These measures will reduce project-related impacts to less than significant.

BOTANY

No sensitive plant species were identified within the Study Area, nor are they expected to occur. No impacts to sensitive plant species are anticipated to result from the proposed Project. The following Best Management Practices will reduce impacts to native vegetation to less-than-significant.

- Minimize removal or disturbance of existing vegetation outside of the footprint of project construction activities. To the maximum extent feasible, confine project activities and operation of equipment and vehicles, including site access and parking, to designated staging areas.
- Prior to staging equipment on-site, clean all equipment caked with mud, soils, or debris from off-site sources or previous project sites to avoid introducing or spreading invasive exotic plant species. When feasible, remove invasive exotic plants from the Project Area.

MONARCH BUTTERFLY

The monarch butterfly was petitioned to be listed as a Threatened species under the federal Endangered Species Act in 2014, and it is currently under review by USFWS after a positive 90-day finding (USFWS 2014). A final ruling is expected in December 2020. The winter roost sites of the monarch butterfly are listed by NatureServe as imperiled/vulnerable (S2/S3) within California[8] (CDFW CNDDB 2018) and are considered under CEQA. Because of this listing as a Special Animal, winter roost sites are considered ESHA under the California Coastal Act Santa Cruz County Local Coastal Program.

Individual monarch butterflies were observed during field surveys. No winter roosts were observed during our November 2019 survey, but a known winter roost site has been documented (2016-2018) south and southeast of the access road (Xerces Society 2019). Monarch butterflies may utilize this stand or other eucalyptus and cypress stands within the Study Area as autumnal or winter roosts in the future (Figure 4).

IMPACT BIO-1: Trucks utilizing the access road could generate noise (vibrations) and dust that could harm potential roosting monarchs, generally mid-October (but as early as September) through March.

Implementation of the following measures will avoid potential impacts.

- A qualified biologist will conduct autumnal and winter roost surveys during each proposed construction year. If winter roosts are present, the biologist will determine the protective buffer necessary to avoid impacts to the roost and develop a site-specific monarch butterfly roost management plan following the guidelines described in Xerces Society 2017.

CALIFORNIA RED-LEGGED FROG

The California red-legged frog (CRLF) is listed as threatened under the federal Endangered Species Act and is a California Species of Special Concern. The CRLF is known to utilize the aquatic habitats of the Study Area for breeding and can be expected to utilize the adjacent upland, movement, and/or dispersal habitats. All life stages of CRLF were observed during 2018 and 2019 surveys of the Study Area. This species has been consistently observed within the Study Area since 1996 (BioSearch 1999, EcoSystems West, unpublished survey data, 2009, 2010, 2012, 2013, 2017).

[8] S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.

IMPACT BIO-2: Ultimately, the proposed Project will result in improved habitat conditions for CRLF through capping and revegetation of the unclosed portion of the CKD landfill, enhancement of the North Pond and the Seasonal Ponds, development of a replacement wetland at a 3:1 ratio, and remediation of the Retention Pond. Landfill closure activities are summarized in the Project Description above and described in greater detail in Appendix A.

Enhancement of the North Pond consists of excavating and removing or capping the existing bypass pipe and replacement with an upgraded bypass pipe that will maintain the water level at a depth of 3 feet for as long as intermittent seasonal flow in the pond persists. A clay/geotextile liner will be installed along the southern embankment of the North Pond to restrict downgradient percolation into the North CKD landfill. These activities are expected to extend the hydrologic period of the North Pond to support successful CRLF breeding (ARC, Pers. Comm. 2019b). Currently, CRLF attempt to breed (egg masses and numerous tadpoles have been consistently observed during winter and spring surveys of this feature); however, the water level drops abruptly in the late spring/early summer, presumably due to infiltration into the existing buried bypass pipe, and CRLF larva are unable to complete metamorphosis and perish.

Enhancement of the Seasonal Ponds consists of grubbing and lining the bottom 3 feet of the ponds with an LLDPE liner to restrict percolation, thereby retaining seasonal run-off longer into the summer (ARC, Pers. Comm. 2019b). As with the North Pond, the Seasonal Ponds currently do not hold water long enough into the summer for CRLF larva to complete metamorphosis. The development of a mitigation (replacement) wetland on the eastern fringe of the Seasonal Ponds will also improve habitat conditions for CRLF. Along the outside edge of the wetland a shallow area of a minimum of 0.5 acres will be excavated and planted with native wetland vegetation including *Juncus* species and arroyo willow. When standing water is present, this area will provide potential tadpole rearing habitat with warmer, shallower water, vegetative cover and ostensibly, algal food sources. Later in the season the wetland would provide potential upland habitat for CRLF.

Remediation of the Retention Pond will result in gradual improvement of habitat conditions at this currently unsuitable (due to highly alkaline conditions) and uninhabited perennial pond, as the pH level improves toward more neutral conditions. Remediation at the pond includes the development of a shallow area along the eastern side of the feature that will provide enhanced habitat conditions for CRLF, once water quality improves.

The Project may result in temporary impacts to CRLF during Closure Plan activities, including grubbing and vegetation removal, grading of the landfill, drainage improvement activities, scraping and lining of the Seasonal Ponds and North Pond, excavation for and installation of drainage improvements, including the new bypass pipe and outfall structure into No-name Creek, and equipment and vehicle access.

Work occurring directly in CRLF habitat would temporarily reduce available CRLF habitat in the ponds, non-native grassland and scrub habitats, and just below the break in bank at No-name Creek. Construction activities would temporarily degrade CRLF habitat in and adjacent to the construction footprint through the introduction of sediment, highly alkaline CKD, and potential unanticipated releases of equipment fuel, hydraulic fluid, or other potentially hazardous substances used in construction equipment; and through vegetation removal, grubbing, and disturbance in aquatic, upland and dispersal habitats.

CRLF are likely to move through the Project Area during Closure Plan activities. Construction equipment, grading, earth moving, and drainage improvements could cause direct injury or mortality to CRLF, as well as

harassment though increased noise levels, vibrational, and visual disturbances, and barriers to movement and dispersal. These activities could interfere with important CRLF life events, including movement to breeding habitat, breeding, foraging, dispersal, and movement to aquatic non-breeding habitats.

During construction, erosion and sediment control measures would be installed and maintained to reduce sediment and chemical-laden runoff introductions. These best management practices have been incorporated into Project plans and would reduce potential impacts to CRLF and habitat to less-than-significant.

Elimination of the existing bypass pipe from the North Pond will reduce direct water flow into Farmer's Pond, known breeding habitat for CRLF. Currently, an undetermined volume of water is captured at the existing buried bypass pipe in the North Pond. This pipe, although decaying, still conveys water to Farmer's Ponds until approximately July, when the volume of water in the pipe is reduced to a trickle. No-name Creek is a second source of water into Farmer's Pond, located immediately upstream of Farmer's Pond, north of the Beltline Road, and presumed to flow intermittently into the pond either through subsurface flow or through a buried culvert. The new proposed bypass pipe will discharge water from the North Pond further east into No-Name Creek, such that the volume of water lost through elimination of the existing bypass would be replaced through discharge into No-name Creek; however, no quantifiable information is available on the existing or proposed bypass pipe flow volumes or on the connectivity between No-name Creek and Farmer's Pond. A third source of water into Farmer's Pond is the Water Reservoir overflow. Water from San Vicente and Mill Creeks directed into the sand box and subsequently the Water Reservoir, is treated for drinking water for the town of Davenport. Flow volume is regulated by the County of Santa Cruz. When at capacity, the Water Reservoir overflows a weir located on its eastern side into Farmer's Pond. At the request of CEMEX, flow into the Reservoir is maintained such that it is constantly discharging water into Farmer's Pond. This flow ensures sufficient inundation in Farmer's Pond during the summer months to support CRLF tadpole development.

To avoid unlawful "take" of CRLF, during project permitting under Section 404 of the Clean Water Act, the USACE will initiate formal consultation with USFWS. This biotic assessment and a federal Biological Assessment will be provided to USFWS at that time. Based on informal consultation with USFWS representative, Chad Mitcham, we anticipate that USFWS will generate a biological opinion for the project under Section 7 of the Endangered Species Act. The Biological Opinion will describe protective measures and conditions for the Project, including the conditions for a USFWS-approved biologist to handle and relocate CRLF that move into the Project Area. With the approval of USFWS, the biologist will identify relocation sites for CRLF.

Implementation of the following measures will reduce potential impacts to less-than-significant:

- During project activities, employ avoidance measures, including biological monitoring for California red-legged frog (CRLF) and other sensitive wildlife species:
    - Prior to initiation of construction activities, a USFWS- and CDFW-approved biologist shall prepare a construction monitoring plan that identifies all areas to be protected with exclusion fencing on a 1:1500 scale map (or similar scale determined to be practicable), and all areas requiring monitoring by a USFWS- and CDFW-approved biologist.
    - Prior to initiation of construction activities, a USFWS-approved biologist shall conduct an environmental training for all construction personnel. The training shall include a description of CRLF and its habitat, and measures to protect CRLF, and other sensitive wildlife species known or

with potential to occur in the Project alignments and surroundings (sensitive and native nesting bird species, potential roosting bats species, and potential San Francisco dusky-footed woodrat).

- Prior to initiation of construction activities, the construction contractor shall install exclusion fencing (solid silt fencing) in specified areas along the project boundaries, 2.0 feet below grade and 3.0 feet above grade, with wooden stakes at intervals of not more than 5.0 feet. The fence shall be maintained in working order for the duration of construction activities. The USFWS-approved biologist or designated trained construction monitor shall inspect the fence daily and notify the construction foreman when fence maintenance is required. The fence shall allow for wildlife passage across the Project Area at intervals to be determined in conjunction with USFWS and CDFW.
- If feasible, construction activities shall take place during the dry season and before the first rain of the season, especially vegetation removal and work in or near aquatic features, including ditch wetlands. Avoid working at night or during rain events when special-status amphibians and mammals are generally more active. Consult weather forecasts from the National Weather Service at least 72 hours prior to performing work.
- The approved biologist shall have the authority to stop work that may result in the "take" of a special-status species.
- The approved biologist or construction monitor will check under all equipment for wildlife before use. If any special-status wildlife is observed under equipment or within the work area, the approved biologist will be permitted to handle and relocate it.
- At the end of each work day, excavations shall be secured with a cover, or a ramp installed to prevent wildlife entrapment.
- All trenches, pipes, culverts or similar structures shall be inspected for animals prior to burying, capping, moving, or filling.

- The County will maintain sufficient flow into the Sand Box and Water Reservoir to support current habitat conditions; at a minimum, the County will allow overflow into Farmer's Pond to ensure successful CRLF breeding [water of at least 1 meter (3 feet) in depth through August to allow complete metamorphosis of larva].

AVIAN SPECIES

Allen's hummingbird (USFWS BCC), northern harrier (CDFW SSC), and white-tailed kite (CDFW Fully Protected Species) were observed during 2019 field surveys in or near the Project Area. The American peregrine falcon (USFWS BCC and CDFW Fully Protected), olive-sided flycatcher (USFWS BCC and CDFW Fully Protected), and grasshopper sparrow (CDFS SSC) may occur within or near the Project Area based on suitable available habitat and recent occurrences in the immediate area (ebird 2019).

Both sensitive and common avian species (such as those species listed in Appendix F) are likely to utilize the habitats of the Study Area for nesting activities. The Study Area provides suitable nesting habitat for the white-tailed kite, other raptors, and the olive-sided flycatcher in the large cypress/eucalyptus groves located in the southwest corner of the Study Area, where the kite was observed [adjacent to the Retention Pond and approximately 80 meters (270 feet) from the CKD landfill work area. Another cypress/eucalyptus grove located in the southeast corner of the Study Area [adjacent to the proposed access road, approximately 300 meters (1000 feet) from the Retention Pond and approximately 300 meters (1000 feet) from the CKD landfill work area] also provides potential nesting habitat for these sensitive avian species.

The northern harrier and grasshopper sparrow (if present) may utilize the non-native grasslands within and north, east, and west of the Project Area for breeding. Two male Allen's hummingbirds were observed in a territorial display neat the Seasonal Ponds during spring 2019 surveys; this species is presumed to breed within scrub and riparian habitats within and near the Project Area. The peregrine falcon and other raptors, including owls, may utilize the Pre-heater Tower and Coal Mill buildings for breeding and perching [approximately 70 meters (230 feet) from the Retention Pond and 90 meters (290 feet) from the CKD Landfill work area. The peregrine is likely to forage over the Project Area. The coastal and riparian scrub, eucalyptus grove, and non-native forest habitats within the Project Area all provide potential nesting habitat for common avian species.

Breeding bird season is typically February 1 to September 15. All nesting birds of prey (i.e., hawks and owls), other native nesting birds and their occupied nests and individual birds of prey and passerine birds are protected by the California Fish and Game Commission Code (CFGC) (§ 3503 and 3503.5). Sensitive bird species receive additional protections, primarily for nesting activities with some species (such as "fully-protected" species) receiving additional protection for wintering and foraging activities.

IMPACT BIO-3: Project construction activities during the avian breeding season (February 1 to September 15) may disrupt breeding activities, cause nest abandonment or failure, or directly harm or cause mortality to nesting birds, eggs, and young located within the Project Area and surroundings.

Limited tree and scrub removal may result in direct harm or mortality to nesting avian species and loss of potential nesting habitat. Limited non-native tree and vegetation removal (totaling approximately 0.3 acres) would be replaced at a minimum 1:1 ratio with native trees and vegetation. Once established, replacement plantings would benefit nesting avian species. Ultimately, the project will benefit avian species through capping and revegetation of the unclosed CKD landfill, enhancement of aquatic features, and re-vegetation with native plant species.

Construction activities, including grubbing and vegetation removal, grading/earth moving of the landfill, excavation, and equipment and vehicle access will generate increased dust, noise, and vibrational and visual disturbances. These activities may disrupt sensitive and common bird species nesting within the Project Area or Study Area.

Implementation of the following measures will reduce potential impacts to less-than-significant:

- The avian breeding season occurs between February 1 and September 15. If feasible, initiate non-native tree and ruderal vegetation removal activities outside of breeding bird season to avoid direct harm or mortality to potential nesting bird species and other sensitive biological resources.
- For all project activities initiated during the breeding bird season, or if construction activities lapse for a period of two weeks or more during breeding bird season, a qualified biologist will conduct a breeding bird survey for nesting birds, including raptors. Surveys will be conducted within 15 days, prior to beginning project activities and will include all work, staging, and access areas and a minimum buffer radius of 150 meters (or more as determined by the resource agencies). The survey will include potential habitat for raptors and sensitive and common nesting avian species known to occur within the Study Area [arroyo willow riparian scrub, coastal scrub, eucalyptus grove (adjacent to the Seasonal Ponds), other non-native forest (adjacent to the Retention Pond), large cypress/eucalyptus groves, non-native grassland, and the Pre-heater Tower and Coal Mill buildings].

- If no nesting sensitive or common avian species are observed during breeding bird surveys no additional measures would be required.
- If nesting birds are observed within vegetation proposed for removal, postpone vegetation removal activities until young have fledged to avoid direct harm or mortality of nesting birds.
- Sensitive bird species, if nesting in or near the Project Area, will be given special consideration and may require additional protective measures as determined through consultation with the relevant agency (USFWS or CDFW), such as protective buffers recommended in PG&E et al. 2015:
    - American peregrine falcon: 150 meters (500 feet)
    - Northern harrier, white-tailed kite, and other raptors: 90 meters (300 feet).
    - Olive-sided flycatcher and grasshopper sparrow: 25 meters (75 feet)
    - Allen's hummingbird: 15 meters (50 feet).

SAN FRANCISCO DUSKY-FOOTED WOODRAT

The San Francisco dusky-footed woodrat is considered a CDFW Species of Special Concern (Bolster 1998, CDFW 2019d). During field surveys, no woodrat houses were identified in the immediate Project Area. Coastal scrub and arroyo willow riparian scrub habitats, especially those adjacent to aquatic features and other edge habitats, provide potential habitat for this species.

IMPACT BIO-4: If removal of coastal scrub and arroyo riparian willow scrub is determined to be necessary, individual woodrats present in this habitat or their houses may be directly impacted. Construction activities may directly impact woodrat individuals if present within the work area.

Implementation of the following measures will reduce potential impacts to less-than-significant:

- Prior to construction, a qualified biologist shall conduct a preconstruction survey for woodrat houses, and clearly flag all houses within the construction impact area and immediate surroundings.
- The construction contractor shall avoid woodrat houses to the extent feasible by installing a minimum 10-foot (preferably 25-foot) buffer with silt fencing or other material that shall prohibit encroachment. If this buffer and avoidance is not feasible, the qualified biologist shall allow encroachment into the buffer, but preserve microhabitat conditions such as shade, cover and adjacent food sources.
- If avoidance of woodrat houses is not possible, in coordination with CDFW, a qualified biologist shall develop and implement a San Francisco Dusky-footed Woodrat Relocation Plan.
- See also avoidance and monitoring measures, as listed for CRLF above.

BATS

The western red bat (*Lasiurus blossevillii*) is listed as High Priority by the Western Bat Working Group (2017) and is a CDFW Species of Special Concern (Bolster 1998, CDFW 2019d). The western red bat may roost in the foliage of tree canopies in the mature arroyo willow scrub, riparian and non-native forest habitats (Heady 2018). Common bats may also utilize these habitats for roosting. Two large bat guano piles were observed in the coal hangar during spring 2019 surveys. Common bat species are expected to utilize the buildings within the Plant for roosting. Bat maternity roosting occurs typically between May 1 and September 1, and winter hibernacula (shelter occupied during the winter by a dormant animal) for many bat species are found between November 1 and February 15.

IMPACT BIO-5: Minimal tree/vegetation removal (0.3 acres) of non-native forest/scrub vegetation is proposed for Closure Plan activities. If roosting bats are present in trees proposed for removal, direct harm or mortality of bats may occur. Minimal potential bat roosting habitat will be removed as a result of this project; non-native trees will be replaced with native tree species and, once established, replacement habitat will benefit roosting bats. Bats are expected to utilize the buildings within the Plant for roosting. Noise, vibrations, dust, and other disturbances associated with Closure Plan activities may disrupt bat maternity roosts, if present.

Implementation of the following measures will reduce potential impacts to less-than-significant:

- If feasible conduct limbing/tree removal operations between September 15 and November 1 to avoid bat maternity roosts and winter hibernacula, as well as other sensitive biological resources.
- To avoid impacts to potential roosting bats, a qualified biologist shall conduct a pre-construction survey for bats during all months as follows:
    - A qualified biologist shall determine if bats are utilizing the site for roosting. For any trees/snags/buildings that could provide roosting space for cavity or foliage-roosting bats, potential bat roost features shall be thoroughly evaluated to determine if bats are present. Visual inspection and/or acoustic surveys shall be utilized as initial techniques. If roosting bats are found, the biologist shall develop and implement acceptable passive exclusion methods in coordination with or based on CDFW recommendations. If feasible, exclusion shall take place during the appropriate windows (September 15 and November 1) to avoid harming bat maternity roosts and/or winter hibernacula. (Authorization from CDFW is required to evict winter hibernacula for bats).
    - If established maternity colonies are found, in coordination with CDFW, a buffer shall be established around the colony to protect pre-volant young from construction disturbances until the young can fly; or implement other measures acceptable to CDFW.
    - If a tree is determined not to be an active roost site for roosting bats, it may be immediately limbed or removed as follows:
        - If foliage roosting bats are determined to be present, limbs shall be lowered, inspected for bats by a bat biologist, and chipped immediately or moved to a dump site. Alternately, limbs may be lowered and left on the ground until the following day, when they can be chipped or moved to a dump site. No logs or tree sections shall be dropped on downed limbs or limb piles that have not been in place since the previous day.
    - If the tree is not limbed or removed within four days of the survey, the survey efforts shall be repeated.

WILDLIFE

In addition, the following BMPs would typically be employed to further reduce impacts to wildlife species:

- Construction lighting should be limited to low-intensity light. Light fixtures will focus light downward onto the property and minimize casting light onto natural areas adjacent to the immediate work area.
- During construction, all food trash that may attract predators into the work area should be properly contained and removed from the work site on a daily basis. Construction debris and trash should also be properly contained and removed from the work site on a regular basis.

Sensitive Habitats/Tree and Vegetation Removal

2.	***Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations (e.g., wetland, native grassland, special forests, intertidal zone, etc.) or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***	☐	☒	☐	☐

Two sensitive habitats, coastal scrub and arroyo willow riparian scrub, occur within the Study Area. Avoidance and minimization measures are recommended for the protection of these habitats. A description of these habitat types is provided in the sections above. A discussion follows below of potential project-related impacts and recommended avoidance, minimization, and mitigation measures to reduce project-related impacts to less than significant.

To the greatest extent feasible, the proposed Closure Plan has been designed to avoid and minimize impacts to biological resources, including sensitive habitats. Closure Plan activities occur primarily within the disturbed habitat of the North CKD landfill area where CKD is mounded, in the adjacent non-native grassland habitat that currently covers the earlier portions of the North CKD landfill, and at the Retention Pond, which does not currently provide suitable conditions for most biological resources.

No permanent impacts to coastal scrub are anticipated as a result of the Closure Plan. Temporary disturbance to coastal scrub would result from improvements to the ditch system that conveys water from the North CKD Area to the Retention Pond. An enlarged ditch system is proposed to be installed along the footprint of the existing Shop Ditch alignment (ARC 2018, Attachment 3 – Design Plans, Sheet DR7). Non-native grassland and coastal scrub are located immediately north of portions of the Shop Ditch system.

Arroyo willow scrub vegetation, a CCC one-parameter wetland, occurs at the western margin of the Seasonal Ponds. Adult CRLF have been observed utilizing this habitat. Based on these factors, arroyo willow scrub at this location is considered a sensitive habitat. Closure Plan activities are proposed within the Seasonal Ponds to improve water retention for large (> 100 year) storm events and enhance CRLF habitat. These activities would impact arroyo willow scrub.

Grubbing and lining the Seasonal Ponds with LLDPE would result in the removal of approximately 169 square meters (1,820 square feet or 0.04 acres) of arroyo willow scrub. The lining would be covered with sediment and topsoil but would not subsequently support arroyo willow in the same location.

IMPACT BIO-6: Improvements to the ditch systems that conveys water from the North CKD Area to the Retention Pond would result in minimal potential temporary impacts to coastal scrub, a Coastal Zone ESHA, located immediately north of portions of the ditch system and within the proposed Project footprint (Figures 2 and 3). Equipment access, ditch removal, excavation and installation of the new ditch system may result in temporary disturbance to coastal scrub.

Implementation of the following measures will reduce potential impacts to less-than-significant:

- Equipment for this activity will be staged in ruderal and developed areas only and, to the greatest feasible, equipment will access the ditch system from the south side in ruderal and developed habitat.

- Coastal scrub will be fenced off to prevent encroachment and the construction footprint will be minimized.
- The Project will result in no net loss of coastal scrub habitat. Where temporary impacts to coastal scrub occur, re-vegetate as needed with locally-sourced native coastal scrub plantings. Adjacent non-native grassland and ruderal habitats may also be planted with coastal scrub vegetation, where appropriate.

IMPACT BIO-7: Enhancement of the Seasonal Ponds through installation of the LLDPE liner would result in the permanent loss of approximately 169 square meters (1,820 square feet or 0.04 acres) of arroyo willow scrub, a sensitive habitat and Coastal Act wetland. The lining would be covered with sediment and topsoil but would not subsequently support arroyo willow in the same location.

Implementation of the following measures will reduce potential impacts to less-than-significant:

- To the greatest extent feasible, minimize removal of arroyo willow scrub and protect the remaining habitat from Closure Plan activities through installation of protective fencing.
- At a minimum, the Project will result in no net loss of arroyo willow scrub habitat. Replace arroyo willow scrub at a ratio to be determined by the County and other state and federal agencies.
- Arroyo willow stakes will be planted in and adjacent to the mitigation wetland along the eastern boundary of the Seasonal Ponds, where deemed appropriate in the Mitigation and Management Plan.

Wetlands/Other Waters

3.	***Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***	☐	☒	☐	☐

A jurisdictional aquatic resources delineation report (EcoSystems West 2019) was prepared. Proposed Closure Plan activities would result in temporary and permanent impacts to wetlands, other waters, and associated habitats as listed in Table 2.

The outfall structure for the proposed bypass pipe between the North Pond and No-name Creek would be located below the break-in-bank of No-Creek within habitat dominated by the non-native and invasive plant, poison hemlock. Installation of the 42-inch bypass pipe system (ARC 2018, Attachment 3 – Design Plans, Sheets D3, D4, PS4, and DR 4) consists of excavation and installation of the bypass pipe along the designated alignment within non-native grassland. The 42-inch bypass pipe would terminate in an 84-inch manhole, from which flow would either dissipate through an 8-inch drain pipe or bubble from the top of the manhole over a rip rap apron and spillway at the outfall to No-name Creek. This bypass outlet structure is situated in non-native grassland. The proposed 15-foot wide, 2-foot deep rock armoring would extend down the embankment of No-Name Creek approximately 10 feet (an area of 150 square feet), situated entirely in poison hemlock. No-name Creek is located approximately 85 feet downslope from the proposed outfall structure with intervening shallow bedrock and coastal scrub. No equipment would be operated below the break-in-bank; rock would be installed with equipment staged above in non-native grassland. This would not be considered a significant impact under CEQA. Because of the location of the outfall structure below the break-in-bank, it is anticipated that CDFW will regulate work proposed for the

Table 2. Temporary and Permanent Impacts to Aquatic Resources and Associated Habitats by Project Activity, proposed North Cement Kiln Dust (CKD) Area Closure Plan Project, Davenport Cement Plan, Davenport, Santa Cruz County, CA.

	Aquatic Resource	Closure Plan Activity	Description	Wetlands		Other Waters		Other Habitats	
				Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
A	Weedy Seasonal Wetland	CKD Landfill Closure	Grub Existing Weedy Vegetation Remove Topsoil Grade to Improve Surface Run-off Install LLPDE Liner Install Protective Cover Soil (Compacted General Fill) and Vegetative Soil Layer Re-vegetate	0.17 acres 7600 ft^2 11,400 ft^3	0	-	-	-	-
B	North Pond (Intermittent)	Water Quality Protection	Access Road Install Grated Inlet Structure & Rock Slope Protection for Proposed Bypass Re-vegetate	-	-	0.01 acres 500 ft^2 1000 ft^3	0.01 acres 500 ft^2	-	-
		Enhancement for CRLF	Grub Existing Weedy Vegetation Expose and Cap or Remove Existing Bypass Line Southern Embankment w/ Clay/Geotextile Fabric	-	-	0.2 acres 8900 ft^2 8900 ft^3	0	-	-
C	Seasonal Ponds (Intermittent)	Storm Event Catchment/ Enhancement for CRLF	Access Road Grub Existing Vegetation Line Lower 3 feet with LLDPE Re-vegetate	-	-	0.5 acre 2100 ft^2 2100 ft^3	0.05 acres 2000 ft^2	Arroyo Willow (CCC) 0.04 acres 1,820 ft^2	0
D	Retention Pond (Perennial)	Remediation/ Water Quality Improvements	Remove Non-native Materials (Coal and CKD)	-	-	0.5 acres 2300 ft^2 110,000 ft^3	0	-	-
			Install Outfall Structure	-	-	0.005 acres 210 ft^2 315 ft^3	0	-	-
E	(West) Embankment of No-Name Creek (Intermittent)	Outfall Structure	Install Rip Rap below Break-In-Bank approximately 75 feet above Channel	-	-	-	-	Poison Hemlock 0.003 acres 150 ft^2 300 ft^3 15 linear ft	0
Total Impact Areas				**0.17 acres**	**0**	**1.22 acres**	**0.06 acres**	**0.043 acres**	**0**

embankment of No-name Creek under Section 1602, through issuance of a Lake and Streambed Alteration Agreement (LSAA). The proposed structure would be positioned well above the ordinary high-water mark (OHWM) and therefore, would not require a Section 404 Permit from the USACE. This structure may require a Riparian Exception from the County of Santa Cruz.

Proposed Closure Plan activities would displace a seasonal wetland located within the existing North CKD landfill. One shallow, seasonal wetland of 0.17 acres, comprised of non-native weedy plants (Italian ryegrass, curly dock, brome fescue, Mediterranean barley, and rabbitfoot grass) would be permanently displaced by proposed for grading, lining, and capping of the existing North CKD landfill. These activities would convey surface water away from CKD and prevent pooling of surface water on top of the liner/cap system in order to avoid potential water quality impacts to No-name Creek, groundwater, and the Pacific Ocean.

Proposed Closure Plan activities would affect three intermittent ponds (the Seasonal Ponds and the North Pond) and one perennial pond (the Retention Pond). The Seasonal Ponds located southeast of the North CDK Area would be cleared and grubbed for placement of an LLDPE liner to restrict percolation. Under proposed closure conditions, the Ponds are anticipated to capture less water than current conditions due to drainage improvements east of the Ponds. The liner will allow for surface water catchment in large storm events and is expected to retain reduced surface run-off, thereby enhancing conditions for CRLF (ARC, pers. Comm. 2019).

Work proposed for within the North Pond includes grubbing weedy vegetation, exposing and capping or removing the existing bypass pipe, installation of an inlet structure for the proposed upgraded bypass pipe, and installation of a geosynthetic clay liner along the southern embankment of the pond. The volume of water retained in the North Pond would be limited to a depth of 1 meter (3 feet) (the depth of the inlet structure to the bypass pipe). The liner will restrict percolation of the retained water and is expected to enhance CRLF aquatic habitat to facilitate suitable breeding conditions (ARC, Pers. Comm. 2019).

Proposed plans for the Retention Pond include dewatering, excavation to remove approximately 0.6 meters (2 feet) of non-native materials (CKD and coal sediments) and installation of upgraded inlet and outlet structures.

Work within wetlands and other waters is subject to regulation by the USACE under Section 404 of the CWA, by the Water Board under Section 401 of the CWA, and by CDFW under Section 1600. Wetlands are granted protections under the County's Sensitive Habitat Protection and Riparian Corridor and Wetlands Protection ordinances (SCCC 16.30 and 16.32). In order to conduct work within 100 feet of a wetland, the project must be granted a riparian exception. Based on the following criteria, the Project meets the preliminary requirements for approval of a Riparian Exception by the County:

- There are special circumstances or conditions affecting the property. The seasonal wetland that would be permanently lost during CKD landfill closure is located within the boundary of the existing CKD landfill. Grading of this area would be necessary to install the LLDPE liner/cap system and to direct surface and subsurface water away from the CKD landfill in order to prevent pooling on top of the liner/cap system and avoid potential water quality impacts to Noname Creek, groundwater, and the Pacific Ocean. Proposed work within the aquatic features (ponds) is for the purpose of improving drainage, water quality and/or enhancing habitat for CRLF.

- The riparian exception is necessary for the proper design and function of Closure Plan activities proposed for the existing CKD landfill, a permitted activity.
- The granting of the riparian exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located; proposed Closure Plan activities have been designed for the purpose of protecting water quality in compliance with WDR No. R3-2018-0001, conditionally approved by the Water Board.
- The granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor; no impacts to the riparian corridor are anticipated as a result of the proposed Project and there is no feasible less environmentally damaging alternative.
- The granting of the exception is in accordance with the purpose of the Riparian Ordinance. The proposed Project will ultimately help preserve, protect, and restore the riparian corridor and wetlands within the immediate area, including for the protection and enhancement of wildlife habitat; water quality; aquatic habitat; and open space, as well as the other values listed in the purpose of the Riparian Ordinance. The project has been designed for the 1000-year (24-hour) storm event; water quality protections and erosion control measures have been included in Closure Plan designs and associated documentation (ARC 2018 and ARC 2019a).

IMPACT BIO-8: Closure Plan activities would permanently impact 14 square meters (150 square feet) along the top of the west embankment of No-Name Creek. Based on the design of the outlet structure to dissipate flows and the location of the structure within poison hemlock approximately 85 feet above the channel of the intermittent No-name Creek, with intervening shallow bedrock and coastal scrub, no impacts to the aquatic habitat of No-Name Creek, the adjacent riparian vegetation, or intervening coastal scrub are anticipated. This would not be considered a significant impact under CEQA and no minimization measures are required.

Closure Plan activities would displace a 0.17-acre seasonal wetland. The displacement of this feature is unavoidable and no feasible less environmentally-damaging alternative exists. Implementation of the measures listed below would mitigate this permanent impact to less-than-significant.

Closure Plan activities would result in temporary (0.06 acres) and permanent (1.23 acres) impacts to the Seasonal Ponds, the North Pond, and the Retention Pond, as shown in Table 2. Temporary impacts would result from the development of access roads to allow equipment to work within the Seasonal Ponds and the North Pond. Permanent impacts would result from installation of liners in the Seasonal Ponds and the North Pond, inlet structures in the North Pond and the Retention Pond, and improvements to the outlet in the Retention Pond.

Implementation of the following measures would reduce impacts to wetlands and other waters to less than significant:

- Avoid or minimize disturbance to wetlands, aquatic features (ponds), as well as to other sensitive habitats (coastal scrub, arroyo willow scrub, and edge habitats). Fence the work, staging, and access areas; and restrict all activity to within this footprint.
- Where feasible, avoid grubbing and construction within 100 feet of the edge of wetlands, ponds, and No-name Creek per the County of Santa Cruz General Plan/LCP and Sensitive Habitats Ordinance.

Restrict access roads into aquatic features to one location and minimize access roads to the greatest extent feasible.

- Develop a replacement seasonal wetland at a ratio of 3:1, as included in the Closure Plan. A shallow mitigation feature of a minimum of 0.51 acres would be excavated along (outside of) the eastern fringe of the Seasonal Ponds, planted with locally sourced native wetland vegetation, including but not limited to seed mix composed of California oat grass, Mediterranean barley, and seep monkey flower; plugs of spreading rush and Pacific rush; and stakes of arroyo willow where applicable.

- In consultation with USFWS, develop a shallow CRLF habitat feature along the eastern edge of the Retention Pond, to enhance potential future CRLF habitat.

- Develop and implement a Mitigation and Management Plan that will include the following:
    - Plan mitigation strategies with regulatory agencies including the County of Santa Cruz, CDFW, the Water Board, and USFWS.
    - Description of the Project including acreage of temporary and permanent impacts to palustrine emergent wetlands, Coastal Act wetlands (arroyo willow scrub), and aquatic features (ponds) as identified in the formal delineation of jurisdictional wetlands and other Waters of the U.S.;
    - Goals of compensatory mitigation project including types and areas of wetland and aquatic habitat to be created, restored, and/or enhanced, and mitigation ratios (created/restored/enhanced : impacted);
    - Location and acreage of wetland and riparian mitigation areas including size and ownership status;
    - Detailed wetland and aquatic construction and planting techniques;
    - Replacement of all non-native tree and shrub vegetation with native, locally-sourced vegetation;
    - Description and design of habitat requirements for special-status wildlife, including CRLF, potentially occupying wetland and aquatic habitats;
    - Maintenance activities during the monitoring period, including replanting native wetland and riparian vegetation and weed removal, that will not result in take of CRLF;
    - Long-term quantitative and qualitative monitoring and reporting, documenting ability to meet or surpass performance criteria;
    - Adaptive management strategies to ensure long-term viability of mitigation areas; and
    - Strategies to protect remaining wetland and aquatic/riverine habitats.

Wildlife Movement

4.	***Interfere substantially with the movement of any native resident or migratory fish or wildlife species or migratory wildlife corridors, or impede the use of native wildlife nursery sites?***	☐	☐	☒	☐

The Closure Plan may temporarily deter wildlife from moving through the Project Area, but the proposed Closure Plan activities will soon improve movement opportunities in the Study Area by capping and

revegetating the unclosed portion of the North CKD landfill. This best management practice will further reduce temporary impacts to wildlife movement.

- If feasible, during Project activities, allow a corridor for wildlife movement along the southern boundary of the project footprint by fencing the project in stages as work is performed in specific areas.

Local Policies and Ordinances

5.	***Conflict with any local policies or ordinances protecting biological resources (such as the Sensitive Habitat Ordinance, Riparian and Wetland Protection Ordinance, and the Significant Tree Protection Ordinance)?***	☐	☒	☐	☐

The project would require approval of a Riparian Exception in order to be consistent with the County of Santa Cruz Riparian Corridor and Wetlands Protection Ordinance, as described under #3 above. Preliminary analysis has determined that the project complies with these findings. The project is therefore consistent with the County of Santa Cruz Riparian Corridor and Wetlands Protection Ordinance, and impacts from project implementation would be less than significant with mitigation incorporated.

Approximately 0.3 acres of non-native forest and vegetation would be removed in order to implement Closure Plan activities. This includes up to 3 non-native cypress trees that would not be considered Significant Trees under the Significant Tree Protection Ordinance criteria for projects located outside of the rural services line. Non-native trees and vegetation would be replaced with native locally-sourced native vegetation. No further measures would be required.

Habitat Conservation Plans

6.	***Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?***	☐	☐	☒	☐

With the exception of the County's Sensitive Habitat Protection and Riparian Corridor and Wetlands Protection ordinances (SCCC 16.30 and 16.32), the project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Justification for obtaining a County Riparian Exception was provided above. This impact is considered less-than-significant.

Recommended Best Management Practices Natural Resource Protection

Below we have listed additional best management practices to further reduce potential impacts to biological resources:

- Follow all conservation regulations, policies, and principles in Chapter 5- Conservation and Open Space of the General Plan and LCP (1994). For wildlife habitats and sensitive communities, including wetlands, follow applicable regulations from Sections 16.30 and 16.32 of the Environmental and Resource Protection section of County of Santa Cruz Municipal Code.

- Refueling and/or maintenance of vehicles and equipment will be performed in designated staging areas. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. Follow all state and federal laws pertaining to hazardous material handling and management.
- Position all stationary equipment such as motors, pumps, generators, and/or compressors over drip pans. Store vehicles and equipment in designated staging area. Position parked equipment over drip pans or absorbent material.
- To the greatest extent possible, stabilize all exposed or disturbed areas within the construction area. Install erosion control measures such as silt fences, weed-free straw bales, plywood, straw wattles, water check bars, and broadcast weed-free straw wherever silt laden water has the potential to leave the work site and enter the nearby drainages. Modify, repair, and/or replace erosion control measures as needed.
- Prohibit smoking or allow workers to smoke in designated areas clear of dry vegetation and away from hazardous materials. Dispose of cigarette butts in an appropriate area away from the project site.

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APPENDIX A. DETAILED DESCRIPTION OF CLOSURE ACTIVITIES

PROJECT DESCRIPTION

FOR THE

DAVENPORT

NORTH CEMENT KILN DUST AREA CLOSURE PROJECT

Prepared by:

RMC Pacific Materials, LLC.
700 Highway 1
Davenport, CA 95017

January 2020

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1.0 INTRODUCTION

1.1 Project Overview

RMC Pacific Materials, LLC (Applicant) proposes to implement the Final North Cement Kiln Dust (CKD) Area Closure Plan at the former Davenport Cement Plant, as conditionally approved by the Central Coast Regional Water Quality Control Board (Water Board) (Project). See Figure 1, Site Vicinity Map, and Figure 2, Existing Conditions. The Applicant seeks Santa Cruz County (County) approval of a Grading Permit, Coastal Development Permit, and Riparian Exception for this purpose.

In February 2018, the Water Board issued Waste Discharge Requirement Order No. R3-2018-0001 (Order) to adopt provisions for closure, post-closure maintenance, and monitoring requirements for the North CKD Area. Together, the Order and the Final North CKD Closure Plan prepared on April 1, 2018 (Closure Plan) focus on closure of the North CKD Area as a Class II Solid Waste Landfill as defined by California Code of Regulations Title 27, §20240 and §20250. The primary goal of the North CKD Area closure is to minimize infiltration of water into the waste, thereby minimizing the production of contaminated leachate and potential groundwater impacts. After closure, a final landfill cover will constitute the principal waste containment feature for the North CKD Area. The Order currently requires the Applicant to complete final closure construction activities for the North CKD Area before October 1, 2020, or before October 1, 2022 if the Applicant obtains approval of an extension from the Water Board.

The proposed closure activities include grading the current surface of the North CKD Area so it has the required slope for surface water flow and management, installing a new liner to cap CKD material, reapplying topsoil, and revegetating with native grasses and plant species. The proposed Project also includes remediation of the Retention Pond, located south of the North CKD Area, and drainage improvements in and around the North CKD Area to protect water quality in the area (see Figure 3, Project Closure Activities). Best Management Practices (BMPs) will be implemented to avoid and minimize potential impacts to sensitive biological resources, to protect water and air quality, and to minimize erosion.

The Closure Plan was developed in consultation with the Water Board as documented by the following approvals and conditions.

- Water Board Waste Discharge Requirements Order No. R3-2018-0001 (dated February 8, 2018
- Water Board Cemex Davenport Cement Plant CKD Landfills, Santa Cruz County - Final Closure Plan Conditional Approval. Water Board letter to Kori Andrews, CEMEX (dated October 2, 2018)

The Closure Plan describes the proposed closure activities in detail and includes technical documents and plans as appendices and attachments (see Section 1.5, below).

1.2 Name and Addresses of Applicant's Representatives

Applicant:
Attn: Kori Andrews
RMC Pacific Materials, LLC.
700 Highway 1
Davenport, CA 95017
(502) 377-2973

Agent / Land Use Consultant:
Attn: Yasha Saber
Compass Land Group
3140 Peacekeeper Way, Suite 102
McClellan, CA 95652
(916) 825-4997

Engineer:
Attn: Wayne C. Adams, PE, Peng, EG
Adams Resource Consultants Company
PO Box 1770
Duvall, WA 98019
(425) 788-3244

1.3 Project Location

The proposed Project is located at the former Davenport Cement Plant (Cement Plant) located at 700 Highway 1, approximately 0.5 miles north of the Davenport community in northern unincorporated Santa Cruz County (Figures 1 and 2).

The Project closure activities would occur on approximately 23 acres of the Cement Plant property, located within a larger 40-acre Project boundary that also includes access roads and adjacent lands (Figure 3). The Project site's Assessor Parcel Numbers are 058-071-06, 058-022-09, 058-022-10, 058-022-14, and 058-022-16 (see Figure 4, Parcel Map).

The southern portion of the Project area is on land owned by RMC Pacific Materials, LLC. The northern portion of the Project area is on property that is currently leased from The Trust for Public Land (TPL) and/or under agreement with TPL for temporary use to implement the Closure Plan.

The proposed closure activities would occur primarily within the developed and/or disturbed footprint of the Cement Plant and North CKD Area, which covers approximately 22 acres in the northern portion of the facility. The exception is the proposed water conveyance pipeline between the North Pond and Noname Creek, which would extend through non-native grassland (previously in agriculture) located generally east of the existing pipeline and CKD field. The retention pond in the southern portion covers approximately 1 acre.

1.4 Project Purpose and Background

The Davenport Cement Plant operated from 1906 to 2010, originally as the Santa Cruz Portland Cement Company, but is currently owned by RMC Pacific Materials, LLC, a wholly owned entity of CEMEX. The operation produced cement from limestone that was sourced from the nearby Bonny Doon quarry. The cement was used for over a century as a component of concrete to

rebuild San Francisco after the earthquake and to construct major infrastructure projects, including the Panama Canal, Golden Gate Bridge, and California Aqueduct. The CKD was a byproduct of cement manufacturing and was placed onsite as fill in what is now called the North CKD Area. Although no longer in operation, ongoing maintenance, security and monitoring activities continue at the site.

The North CKD Area contains fill composed primarily of CKD currently estimated to be approximately 848,000 cubic yards (cy) in volume, much of which is in a cemented, very dense "caked" condition. The CKD was placed within a previously existing canyon (also referred to as the CKD landfill) over several decades. The CKD level reached the elevation of the canyon rim such that the CKD landfill is either generally flat or rises above the adjacent terrain.

From the mid-1990s until the cement plant closed in 2010, the fresh CKD was recycled and hauled away to be employed in soil amendments, road stabilization, and other uses. However, given the closure of the cement plant, no additional CKD can be feasibly recycled. In development of the Closure Plan it was determined that "clean closure" (relocation of all residual waste offsite) is not feasible. Therefore, the Closure Plan calls for onsite disposal of the CKD through installation of a linear low-density polyethylene (LLDPE) liner (impermeable cap), reapplication of topsoil, and subsequent revegetation of the landfill area.

The North CKD Area has performed well under significant storm and seismic events since the first CKD deposition and has shown no signs of significant mass movement, degradation or erosion. Specifically, the steepest portion of the North CKD Area, at the west end, has shown no signs of seepage, sloughing or movement over time.

Drainage improvements associated with the proposed Project would direct the flow of surface runoff away from the CKD to prevent transport of CKD into streams, groundwater, and the Pacific Ocean. Remediation of the Retention Pond is also designed to protect water quality through removal and on-site disposal of CKD sediment and residual coal. These materials would be placed temporarily in windrows or stockpiles in the adjacent former coal storage area to dry, and then transported to the North CKD Area to be placed as fill under the LLDPE liner and soil cap. Drainage improvements (including modification of the Retention Pond outlet structure), stormwater conveyance features, and remediation of the Retention Pond for the Closure Plan are designed to accommodate a 1,000-year 24-hour storm (design storm event) per consultation with the Water Board and as required by WDR Section C.9 and Title 27, Section 21090.

1.5 Requested Entitlements

The Applicant anticipates needing to obtain the following County entitlements for the Project:

- A **Grading Permit** pursuant to Section 16.20.050 of the County Code.
- A **Coastal Zone Development Permit** pursuant to Section 13.20 of the County Code.

- A **Riparian Exception** pursuant to Section 16.30.060 of the County Code, for Project activities that fall within protected riparian areas. A Riparian Exception is warranted for this Project given:

    - That there are special circumstances or conditions affecting the property, the most notable of which is the requirement of Waste Discharge Requirement Order No. R3-2018-0001 (Order) to close the North CKD Area as a Class II Solid Waste Landfill as defined by California Code of Regulations Title 27, §20240 and §20250;
    - That the exception is necessary for the proper design and function of some permitted or existing activity on the property;
    - That the granting of the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located;
    - That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative; and
    - That the granting of the exception is in accordance with the purpose of Chapter 16.30 of the County Code, and with the objectives of the General Plan and elements thereof, and the Local Coastal Program Land Use Plan.

Justification for a riparian exception is further described in the Biotic Assessment referenced in Section 1.6, below. The County will determine if additional entitlements are necessary.

1.6 Plans and Technical Studies Prepared in Support of Application

The following plans and technical studies have been submitted in support of this application:

County Application Attachments (Binder Part 1 of 2):

1. Erosion Control Revegetation Plan (EcoSystems West January 2020)
2. Biotic Assessment (EcoSystems West December 2019)
3. Delineation of Aquatic Resources (EcoSystems West December 2019)
4. Phase I and Extended Phase I Archaeological Investigations (Albion July 2019 and September 2019)

Final North CKD Area Closure Plan (Binder Part 2 of 2):

5. Final North CKD Area Closure Plan and Postclosure Monitoring and Maintenance Plan (ARC April 1, 2018)

   North Cement Kiln Dust (CKD) Area Closure Design Plans (ARC December 2019)

Appendix A North CKD Area Landfill Closure Stormwater Hydraulic Analysis Report (ARC March 26, 2018)

Appendix B Closure and Postclosure Maintenance Cost Estimates (ARC September 7, 2018)

Appendix C Final Geotechnical Design, North CKD Area (ARC July 27, 2018)

Appendix D Supplemental Site Characterization Report, North CKD Area Closure (TRC March 23, 2018)

Appendix E Multi-Season Construction Wet Weather Preparedness Plan (ARC March 23, 2018)

Appendix F Dust Mitigation Plan related to Closure Construction (Watson and Sheth May 30, 2019)

Appendix G Retention Pond Corrective Action Plan (TRC April 1, 2018)

Appendix H Water Board Waste Discharge Requirements Order No. R3-2018-0001

2.0 SUMMARY OF CLOSURE ACTIVITIES

The proposed closure activities would occur over two construction seasons and include the following tasks, presented in approximate sequential order. The corresponding locations of these activities in the Project area are shown on Figure 3. Additional detail is provided under *Detailed Description of Closure Activities* below.

1. Conduct site preparation activities, including:
    a. Improve, as necessary, the existing access road extending from the southern portion of the Project area to the North CKD Area and possibly the existing access road extending from Warnella Road north of the Project area to the North CKD Area.
    b. Clear and grub, including vegetation removal.
    c. Remove concrete blocks, tires, plastic, and other debris from around the North CKD Area and the Retention Pond, as needed, to allow for excavation and grading. Relocated materials would be relocated onsite to a location within the developed area and outside the revegetated area.
    d. Remove topsoil that is currently covering CKD sediment in the North CKD Area and temporarily relocate to the Temporary Stockpile Areas.
2. Re-grade the North CKD Area so it is properly compacted to reduce settlement and has a 7 percent final slope for proper surface water flow and management, matching the design surface water flow calculations.

3. Remediate the Retention Pond located south of the North CKD Area, including:
    a. Excavate residual CKD sediment and debris and remove adjacent residual coal.
    b. Stockpile the excavated material for drying in the Coal Storage Area.
    c. Once dry (with the optimal moisture content for mixing and compaction), transport the material to be mixed with CKD and placed as fill in the North CKD Area under the LLDPE liner and soil cap.
    d. Regrade the final excavated surface of the Coal Storage Area to the contours shown on the grading plans.
4. Construct a slope support system (shotcrete wall with grouted soil nails), which would also serve as a cap over a portion of the CKD, along the southwest boundary of North CKD Area.
5. Cap the sediment in the North CKD Area with a LLDPE liner, 18 inches of confinement layer (general backfill) material, and 8 inches (minimum) of vegetative soil layer (topsoil) from the Temporary Stockpile Areas and offsite sources for a total of 26 inches of soil cover.
6. After placement of topsoil, revegetate the North CKD Area with native plant species.
7. Construct drainage improvements to handle a 1,000-year 24-hour storm and avoid significant potential water quality impacts, as approved by the Water Board and in accordance with the aforementioned Water Board requirements, including:
    a. Remove or abandon and plug the existing 30-inch diameter pipe from the North Pond to Noname Creek.
    b. Install a new water conveyance (42-inch diameter bypass) pipe from the North Pond to Noname Creek, including an outfall into Noname Creek.
    c. Place a geosynthetic clay liner of up to one-foot in thickness in the North Pond along its southern (downstream) lateral face to further restrict water from the CKD landfill and to enhance CRLF aquatic habitat to facilitate suitable breeding conditions.
    d. Grade the slopes to direct water away from the North CKD Area and construct perimeter ditches, catch basins, drop structures, stilling basins, and a French drain system along the perimeter of the landfill.
    e. Improve the perimeter and Shop Area ditches that convey water from the North CKD Area to the Retention Pond.
    f. Install an outlet riser and outfall pipe exiting the Retention Pond.
8. Enhance the Seasonal Ponds (aka Ponds C and D) to provide adequate hydrologic function and mitigate for the loss of the seasonal wetland. A shallow approximately 0.7-acre seasonal wetland would be developed along the northern and eastern boundary of the ponds.

3.0 DETAILED DESCRIPTION OF CLOSURE ACTIVITIES

3.1 Site Preparation

Prior to initiating Project activities, the contractor would delineate the work and staging areas and install protective fencing, barriers or signage around all potentially active areas within the Project area, including:

- Construction equipment,
- Materials storage,
- Stockpiling,
- Vehicle/equipment access/parking,
- Turn-around areas,
- Areas proposed for excavation and grading,
- Drainage improvements, and
- Revegetation and enhancement.

Protective fencing would serve the purposes of defining the area of disturbance; confining all work to the fenced Project area(s), including mobilization of equipment and materials; minimizing the transport of sediment and run-off from the work area; and excluding wildlife from entering the Project area(s).

The contractor would improve access roads and access areas as needed to perform proposed closure activities. The contractor would prepare the work area by removing materials that may be in the way of grading/construction, including but not limited to, trees, shrubs, concrete blocks, tires and plastic sheeting. All debris would be stockpiled for removal or for approved use during Project activities. Following clear and grub of existing vegetation, topsoil would be excavated and stockpiled separately from other materials for use in the final soil cover. Tree removal outside the North CKD Area is not anticipated.

The contractor would likely select two main roadways for access to the CKD work area, one from the south and one from the north. The south access route would make use of an existing partly paved roadway that winds through the Cement Plant. This route turns south of the Office building then uphill past the Closed Lonestar CKD Area and back north past the water tanks. The access route from the north would likely follow an unpaved roadway from Warnella Road north of the North Pond. Refer to Figure 3.

3.2 North CKD Area

Following clear and grub of vegetation and the excavation and stockpiling of topsoil (as described in the Site Preparation section above), the contractor would excavate, crush, and regrade previously deposited CKD within the existing landfill footprint as necessary to achieve design

grades in preparation for accepting a compacted foundation layer for the LLDPE liner. Additional soil materials from the stockpiles, Retention Pond sediment and residual coal area would be mixed with the CKD.

The foundation layer for the LLDPE would be a 2-foot thick compacted layer consisting of regraded CKD and, if necessary, imported general backfill materials. The LLDPE cap would consist of welded sheets of textured 60 mil LLDPE liner. The LLDPE liner/cap would be installed over the foundation layer and overlain with a geocomposite drainage layer that would facilitate lateral drainage to increase the stability of the liner/cap and protective cover soil.

The liner/cap and drainage layer system would be covered with 26 inches of soil, including 18 inches of protective cover soil (PCS) and an overlying 8-inch minimum vegetative soil layer with amendments such as compost of other organic materials to promote native vegetation communities. The vegetative soil layer would be planted with native plant species.

The estimated amount of fill needed for a final cover is approximately 110,700 cubic yards (cy), with approximately half obtained onsite and half imported from an offsite location, as shown in **Table 1**. The soil would be imported from a quarry, sand plant and/or soil farm located in north Santa Cruz County or San Mateo County.

TABLE 1
ESTIMATED SOIL REQUIRED FOR FINAL COVER

Phase	Total Fill (cubic yards)	Approximate Percentage of Fill to be Imported	Imported Fill (cubic yards)
Mass Grading (foundation fill under LLDPE liner)	110,700	0	0
Protective Cover Soil (General fill above LLDPE liner)	38,500	92	35,600
Vegetative Soil Cover (Topsoil fill above PCS and LLDPE liner)	15,800	75	11,800
TOTAL FILL	**165,000**	**29**	**47,400**
Source: Bid Form (ARC, December 2019)			

The steeper area at the southwest end of the Project would not be included with the mass grading of the CKD. Instead, a slope support system consisting of a 6-inch-thick steel-reinforced shotcrete wall, anchored to the slope with grouted soil nails, would be installed. The shotcrete cover would be underlain with fabric drain strips to capture any water that flows down the slope

behind the shotcrete cover, anticipated to be minimal. A shotcrete tie-in would be installed at the top of the wall to cover the LLDPE liner along the south ditch.

The primary purpose of the shotcrete cover is to protect the slope from surface water infiltration or erosion. This slope is considered to be stable in its existing conditions, and exhibits no evidence of sloughing, movement, or slides, likely as a result of the cemented nature of the CKD cake that comprises the slope (refer to Appendix 1, Closure Plan, Section 4.3, for more information). Along the base of the shotcrete wall, a crushed-rock-filled geocell-reinforced ditch would convey water from the east drop structure to the lower Shop Area collection system.

3.3 Drainage Improvements

Drainage improvements would be installed around the North CKD Area to direct surface and subsurface water away from the CKD landfill in order to prevent pooling on top of the liner/cap system and avoid potential water quality impacts to Noname Creek, groundwater, and the Pacific Ocean. Post-construction inspection and maintenance would ensure that water is transmitted away from the CKD landfill. The stormwater drainage conveyance and retention features in the Closure Plan have been designed to handle a design storm event, as required by Title 27 and the Water Board WDR and defined above, based on hydraulic analysis conducted for the Project (Appendix 2).

Once the North CKD Area has been filled and graded to reach final elevations, the perimeter ditches, French drains and other ditches would undergo final grading. Drainage ditches located along the eastern and western perimeters of the North CKD Area, positioned to achieve positive drainage down slope, would be replaced and enlarged to collect runoff. The new armored ditch system would be designed to be flexible and durable, withstand minor earth movements, prevent scour, and require minimal long-term maintenance. The LLDPE liner would extend under the perimeter ditches. The ditches would be lined with a 6-inch thick rocked-filled geocell covered with 2 inches of crushed rock or concrete (Sheets D1, D3 and DR7 Section A in Appendix 8, Design Plans). The north ends of the perimeter ditches are located near the North Pond to provide back-up overflow relief. The perimeter ditches direct surface water flow southward and connect with enlarged trenches at the southern edge of North CKD Area and east and west drop structures (Sheets DR4 and DR7 in Appendix 8).

A perimeter French drain system would be installed along the western and southeast perimeters of the North CKD Area to intercept sheet-flow stormwater run-on and shallow groundwater that could build up under or alongside the LLDPE-lined ditches. The French drain would be constructed by excavating trenches, positioned on the outboard side of the perimeter ditches, and where grades allow, extending to depths equal to the perimeter ditches. The French drain would consist of an 8-inch diameter perforated polyvinyl chloride (PVC) pipe enclosed in drain rock and surrounded by filter fabric. The French drains would empty into the drop structures at the south end of Area 3 (Sheet D-1 in Appendix 8).

Drop structure pipes would convey water down the steeper grades along the southern edge of the landfill to the lower Shop Area stormwater conveyance system. Drop structures would be

constructed of high-density polyethylene (HDPE) pipes. Inlet manholes to the drop structures will be capped with trash-racks to minimize clogging. Stilling basins will be installed at the pipe outlets to dissipate energy and protect the outlets from erosion (Sheet DR7 in Appendix 8).

The drainage ditches in the lower Shop Area of the Plant would be replaced. Loose plastic sheeting would be removed, and an enlarged permanent ditch system would be installed. The lower ditches would also employ the rock-filled geocell-lined system to be installed in the perimeter ditches. A short section of this system would be lined with 3 inches of concrete (Sheet DR7 in Appendix 8).

A new water conveyance (bypass) pipe system would be installed, between the North Pond and Noname Creek east of the North CKD Area, to direct surface water around the North CKD Area. The 42-inch bypass pipe would upgrade and relocate the existing 30-inch corrugated metal pipe that would be removed or abandoned in place after being filled with grout or other acceptable engineered material. Vegetation and sediment would be removed, as necessary, from the North Pond to expose the existing pipe inlet(s). The sediment would be stockpiled for use during regrading. The inlet structure would be installed at the North Pond, such that a pond depth of at least three feet would be reached before water would discharge into the bypass pipe. The trench for the upgraded bypass pipe would be backfilled with free-draining fill and the ground surface along the pipe would be configured as a shallow, less-permeable swale to facilitate capture of sheet flow and shallow subsurface flow, which would be directed into a series of four catch basins along the swale and in turn into the bypass pipe via manholes. The 42-inch bypass pipe would terminate in an 84-inch manhole, from which flow would either dissipate through an 8-inch drain pipe or bubble from the top of the manhole over a rip rap apron and spillway at the outfall to Noname Creek (Sheets DR4 and PS4 in Appendix 8).

Pending authorization from applicable regulatory agencies including the Water Board, US Army Corps of Engineers, and California Department of Fish and Wildlife, a geosynthetic clay liner of up to one-foot in thickness would be placed in the North Pond along its southern (downstream) lateral face to enhance CRLF aquatic habitat to facilitate suitable breeding conditions. The liner would be overlain with 0.5 feet of compacted general backfill and 1 foot of topsoil (Sheet DR10 in Appendix 8).

3.4 Retention Pond

Proposed plans for the Retention Pond include dewatering, excavation to remove deposited sediments from the North CKD Area and former coal storage area located immediately upslope (north) of the Retention Pond, and improvements to inflow and outflow structures. Details are shown on Sheets DR5 and DR6 in Appendix 8.

A minimum of approximately 2 feet of deposited sediments and underlying soil would be removed [a volume of approximately 3,681 cubic yards (CY)] during the first construction season. Sediments would be visually identified during excavation. Additional excavation may be required and has been accounted for the in the grading plan in the Closure Plan (Appendix 1).

Excavated sediments would be placed in the former Coal Storage Area in temporary windrows or stockpiles for drying. The stockpiled sediments would be covered during the intervening rainy season. During the second construction season, the dry stockpiled sediments would be relocated to the North CKD Area for placement under the LLDPE cap. The excavated Coal Storage Area would be regraded in accordance with the specifications on the plans, as approved under the Grading Permit (Sheet G3 in Appendix 8).

If groundwater seeps into the exposed surface of the pond basin, it would be sampled and tested for contamination, treated (if determined to be necessary) and discharged, utilized for dust control, or transported to an approved off-site facility.

Additional stormwater run-off and sediments may be directed into the Retention Pond during the construction period and intervening rainy season. During the second Project construction season, the pond would be dewatered, and the sediments would be stockpiled and dried, then transported to the North CKD Area.

The Retention Pond would receive collected water from the newly capped North CKD Area via a buried outlet pipe, which would collect water from the southwest end of the Shop Area ditch. The pipe will deposit this flow onto a rip rap apron at the side of the Retention Pond. A concrete gravity wall would be constructed, and a checked-valve orifice would be installed in the outlet of the riser structure, to allow the pond to drain water between storm events and take advantage of available storage (Sheets DR5 and DR6 in Appendix 8).

3.5 Enhancement of Seasonal Ponds

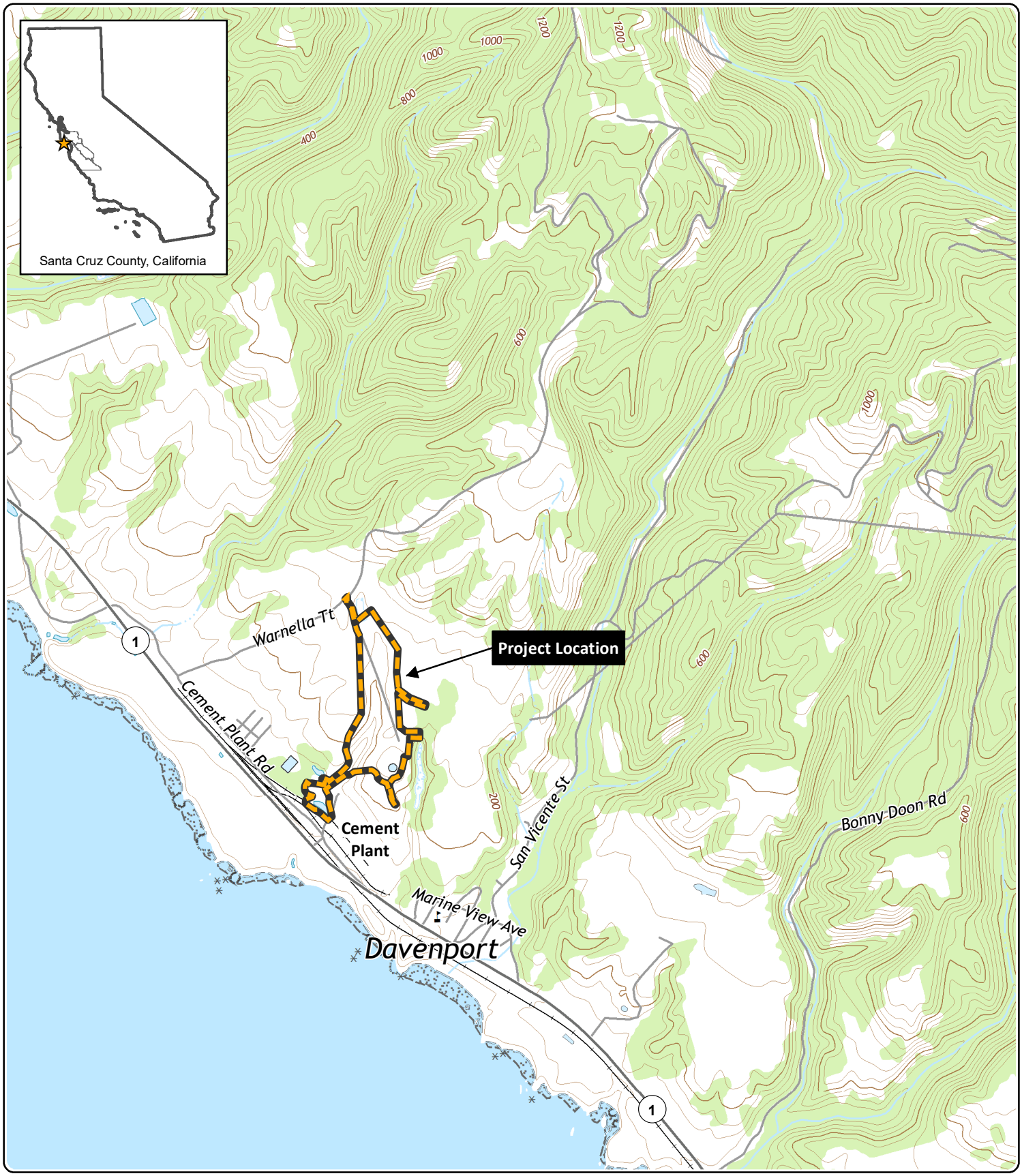
The Seasonal Ponds (Ponds C and D) located southeast of the North CDK Area (Figure 3) would be cleared and grubbed for placement of an LLDPE liner to provide adequate hydrologic function and to enhance existing non-breeding aquatic habitat for CRLF. Under proposed closure conditions, the Ponds are anticipated to capture less water than current conditions due the replacement and improvement of the bypass system between the North Pond and Noname Creek. The Seasonal Ponds would be lined to retain the water that is captured. The liner would consist of the same LLDPE used on the rest of the Project and would extend to the elevation shown (259 feet, Sheet DR9, Detail 1, in Appendix 8). The liner would be covered with sediment and topsoil. The southern end of the Seasonal Ponds is designed to expose the end of a perimeter French drain, and this low point would serve as an overflow outlet if unexpected water volumes fill the ponds (Sheet DR9 in Appendix 8). Grading would occur on the north and east side of the ponds to develop approximately 0.7 acre of seasonal wetland, which would be vegetated with native seasonal wetland vegetation, to mitigate for loss of a seasonal wetland in the North CKD area.

4.0 CONSTRUCTION BEST MANAGEMENT PRACTICES

The proposed Project design plans (Appendix 8) and specifications (Closure Plan, Attachment 2, incorporated by reference) include BMPs to avoid and minimize potential impacts to biological resources, to protect water and air quality, and to minimize erosion including the following:

- Unless otherwise authorized by the Water Board, conduct Project activities during the dry season (from April 15 to October 15 or the first rain) to minimize impacts to CRLF and biological resources.
- Install protective fencing around the work areas and confine Project activities to within these areas.
- Perform preconstruction biological surveys, provide environmental and erosion control trainings to construction personnel, check the work area for sensitive and common wildlife species, and ensure necessary protective measures are implemented by an agency-approved biological monitor and/or trained construction monitor.
- Implement air quality and dust control measures and monitoring during construction, as identified in the Dust Mitigation Plan (Appendix 5).
- Implement erosion control measures identified in the Multi-Season Construction Wet Weather Preparedness Plan (Appendix 4) and grading plans.
- Prepare and implement a construction Stormwater Pollution Prevention Plan in accordance with the requirements of the State of California National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.
- Import soil required for fill in phases and during non-peak commute hours to minimize GHG emissions and traffic impacts.

FIGURES



Data: United State Geological Survey, Davenport Quadrangle California 7.5'. 2018. Data Downloadable Online. Accessed [12/19/2019].

Legend:

Project Boundary

0 0.25 0.5 Miles

N

Site Vicinity Map
Davenport CKD Closure Plan
RMC Pacific Materials
Santa Cruz County, California

Figure 1

01/10/2020

Disclaimer: The data was mapped for planning purposes only. No liability is assumed for accuracy of the data shown.

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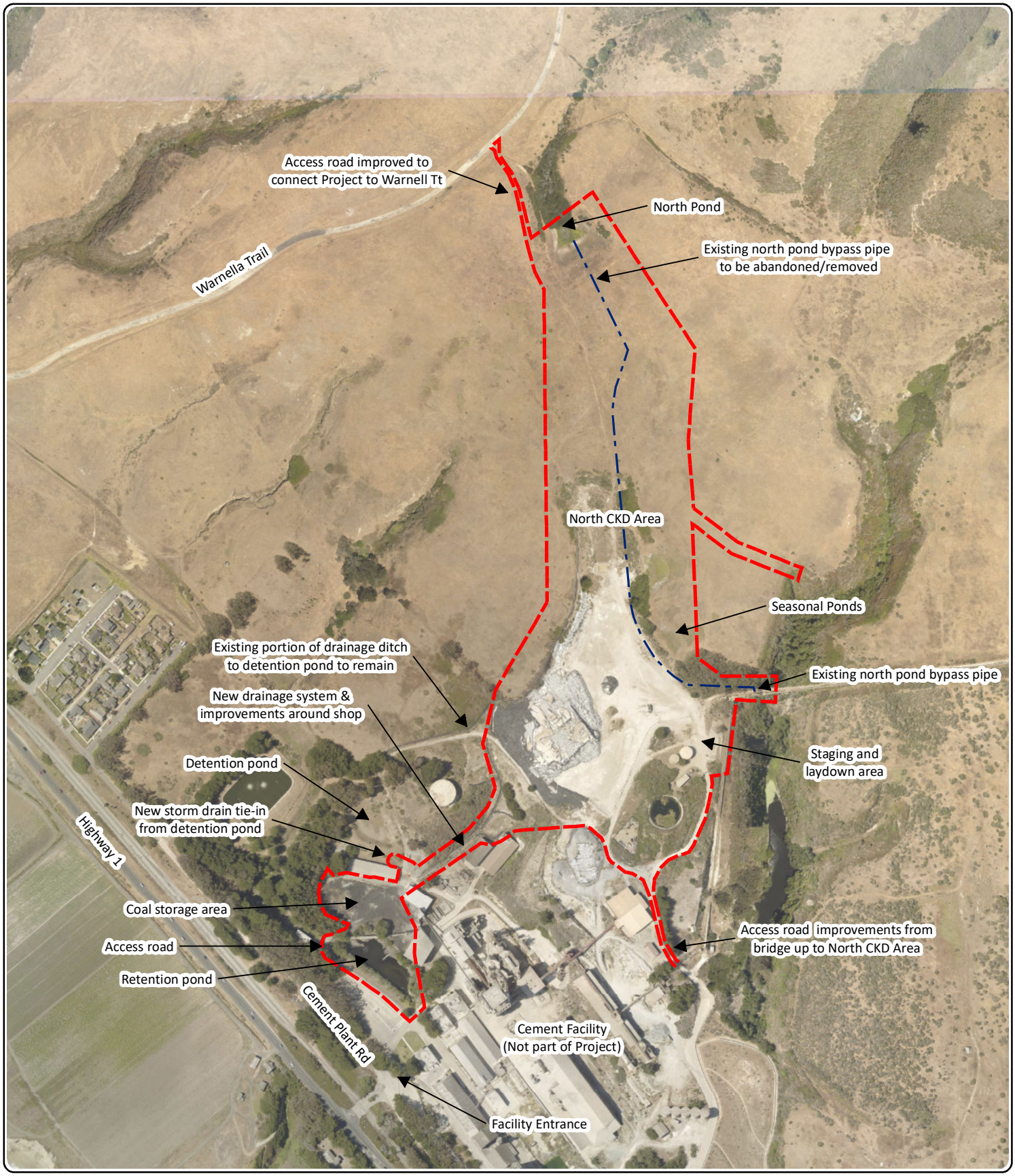

Aerial Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

Project Boundary (40.6 acres)

0 300 600 Feet

N

Existing Conditions
Davenport CKD Closure Plan
RMC Pacific Materials
Santa Cruz County, California

Figure 2

1/10/2020

Disclaimer: The data was mapped for planning purposes only. No liability is assumed for accuracy of the data shown.

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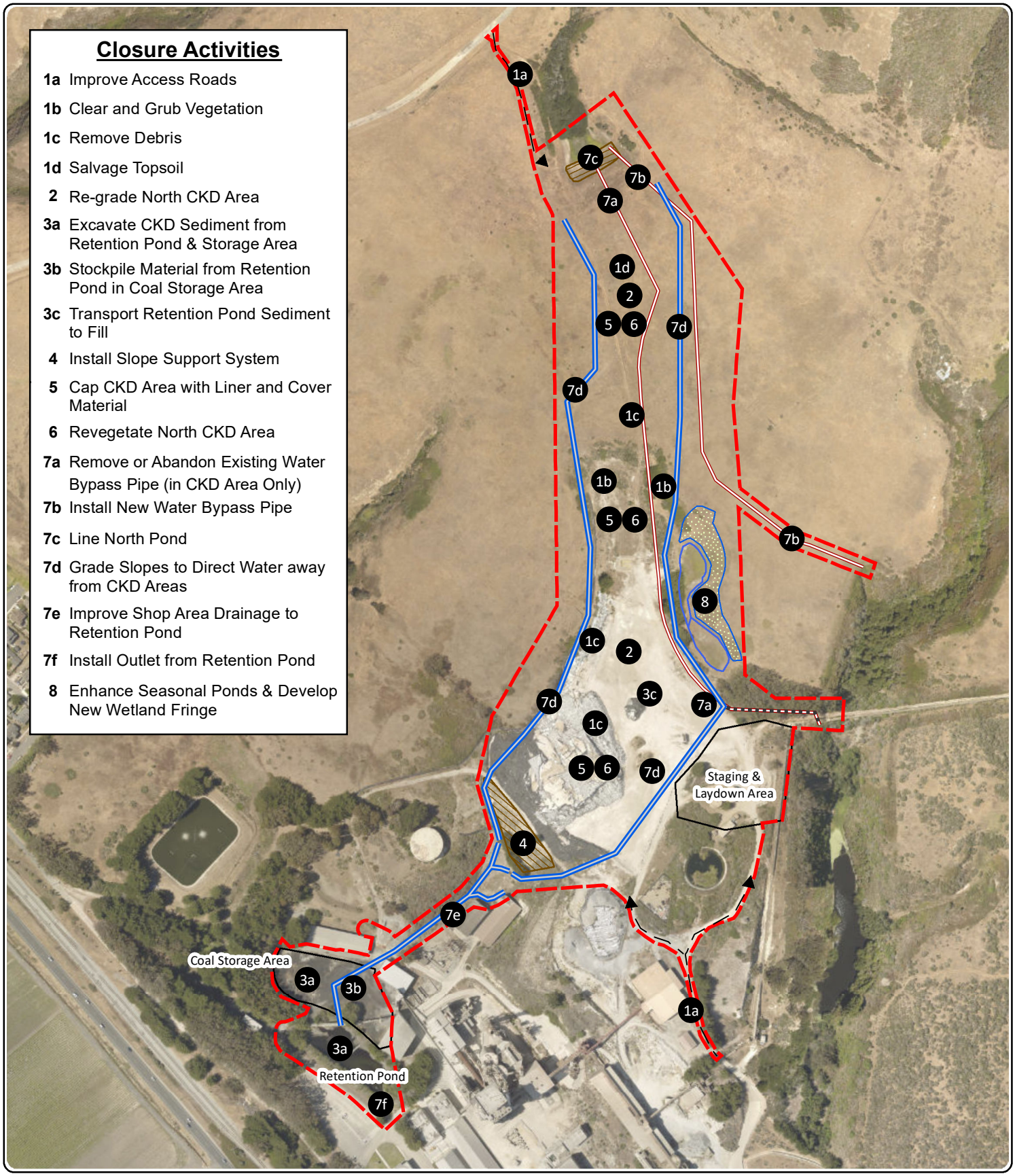

Aerial Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:
- Project Boundary (40.6 acres)
- Surface Water Conveyance Ditch
- Buried Water Conveyance Pipe
- Existing Pipe Left in Place Outside CKD Area

0 250 500 Feet

N

Project Closure Activities
Davenport CKD Closure Plan
RMC Pacific Materials
Santa Cruz County, California

Figure 3

1/10/2020

Disclaimer: The data was mapped for planning purposes only. No liability is assumed for accuracy of the data shown.

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Aerial Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

Project Boundary (40.6 acres)

Santa Cruz County Parcel

0 500 1,000 Feet

N

Parcel Map
Davenport CKD Closure Plan
RMC Pacific Materials
Santa Cruz County, California

Figure 4

01/10/2020

Disclaimer: The data was mapped for planning purposes only. No liability is assumed for accuracy of the data shown.

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APPENDIX B. OFFICIAL USFWS SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
Phone: (805) 644-1766 Fax: (805) 644-3958

In Reply Refer To: October 08, 2019
Consultation Code: 08EVEN00-2019-SLI-0438
Event Code: 08EVEN00-2020-E-00032
Project Name: RMC Davenport Cement Plant North CKD Area Closure Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
(805) 644-1766

Project Summary

Consultation Code: 08EVEN00-2019-SLI-0438

Event Code: 08EVEN00-2020-E-00032

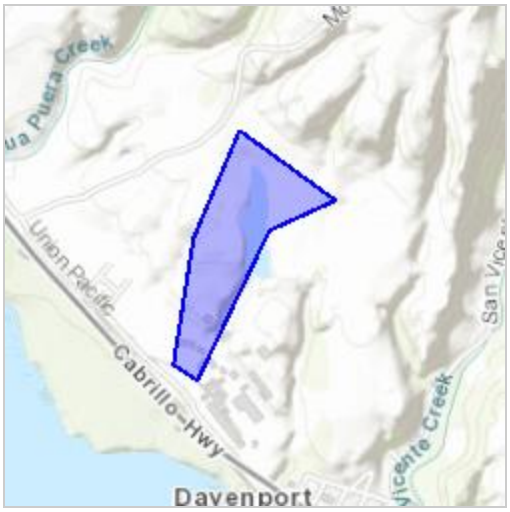
Project Name: RMC Davenport Cement Plant North CKD Area Closure Project

Project Type: MINING

Project Description: CEMEX proposes to conduct reclamation activities within the Davenport Cement Plant and immediate surroundings, including: 1) scraping of the existing north CKD Landfill (removing and retaining the topsoil), capping with a polymer (LDPE) material, and reapplying the topsoil; 2) relocation and distribution of the CKD stockpile to the proposed landfill location adjacent to the existing landfill, capping with polymer (LDPE) material, and approximately 12−18 inches of topsoil;
3) installation of a new water conveyance pipe between the North Pond (aka Pond E) and the Unnamed Stream; 4) excavation of the Retention Pond and its immediate surroundings to remove residual coal debris; and 5) clearing and lining the cement−lined v−ditches that convey water from the CKD Landfill to the Retention Pond. Activities would be performed during the dry season only over a two-year period. CEMEX has worked closely with the State Water Resources Control Board to design the project to protect surface and ground water.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.02037561706068N122.19924025112698W



Counties: Santa Cruz, CA

Endangered Species Act Species

There is a total of 17 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
San Francisco Garter Snake *Thamnophis sirtalis tetrataenia*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5956

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2891

NAME	STATUS
California Tiger Salamander *Ambystoma californiense*	Threatened

Population: U.S.A. (Central CA DPS)
There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2076

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/57

Insects

NAME	STATUS
Zayante Band-winged Grasshopper *Trimerotropis infantilis*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1036

Flowering Plants

NAME	STATUS
Ben Lomond Spineflower *Chorizanthe pungens var. hartwegiana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7498	Endangered
Ben Lomond Wallflower *Erysimum teretifolium* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7429	Endangered
Marsh Sandwort *Arenaria paludicola* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Menzies' Wallflower *Erysimum menziesii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2935	Endangered
Scotts Valley Polygonum *Polygonum hickmanii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3222	Endangered
Scotts Valley Spineflower *Chorizanthe robusta var. hartwegii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7108	Endangered

Conifers and Cycads

NAME	STATUS
Santa Cruz Cypress *Cupressus abramsiana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1678	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final

APPENDIX C. STATUS, DISTRIBUTION AND HABITAT OF SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Appendix C. Status, distribution, and habitat of special-status plants with potential to occur in the vicinity of the North CKD Area Closure Plan Study Area, Davenport Cement Plant, Davenport, Santa Cruz County, CA.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Agrostis blasdalei Blasdale's bent grass	None	None	List 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie	MEN, MRN, SCR, SMT, SON	May-July	**UNLIKELY.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs and therefore not considered coastal prairie. Openings in coastal scrub along the embankments of Noname Creek may support this species. This species was not observed during June 2018 focused rare plant survey.
Amsinckia lunaris bent-flowered fiddleneck	None	None	List 1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub	ALA, CCA, COL, LAK, MRN, NAP, SBT, SCL, SCR, SHA?, SIS?, SMT, SON, YOL	March-June	**LOW.** Although occurring in habitat types supported by the Study Area, this species was not observed during June 2018 focused rare plant surveys. Grasslands were heavily impacted by past CKD landfill activities and row cropping and therefore a persistent seedbank for this species is not expected. Not observed during June 2018 focused rare plant survey.
Arenaria paludicola marsh sandwort	Endangered	Endangered	List 1B.1	Freshwater marshes	LAX*, SBD*, SCR*, SFO*, SLO, Washington*	May-August	**UNLIKELY.** Marsh sandwort has been reintroduced in several areas in Wilder Ranch State Park including Baldwin Creek. However, natural occurrences of this species are considered extirpated from Santa Cruz County. Not observed during June 2018 focused rare plant survey.
Astragalus pycnostachyus var. *pycnostachyus* coastal marsh milk vetch	None	None	List 1B.2	Coastal dunes, coastal scrub, marshes and swamps, almost always in wetlands or along streambanks	HUM, MEN, MRN, SMT	April-October	**UNLIKELY**. Existing ponds and streambanks above Noname Creek provide marginal suitable habitat; however, this species is not known to occur in Santa Cruz County. The nearest documented occurrence is in Southern San Mateo County in the Pescadero Marsh approximately 20 miles north of the Study Area. Not observed during June 2018 focused rare plant survey.
Campanula californica swamp harebell	None	None	List 1B.2	Bog and fen, closed cone coniferous forest, coastal prairie, marsh and swamp, meadow and seep, North coast coniferous forest, wetland.	MEN, MRN, SCR*, SON	Jun-Oct	**UNLIKELY.** Potentially suitable semi-permanently inundated wetland and aquatic habitat present. However, this species is typically found in bogs and fens within coniferous forests and is presumed extirpated from Santa Cruz County. Not observed during the June 2018 focused rare plant survey.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Carex comosa bristly sedge	None	None	List 2.1	Marshes and swamps, lake margins, coastal prairie, valley and foothill grassland	CCA, LAK, MEN, SAC, SBD*, SCR*, SFO*, SHA, SJQ, SON, Idaho, Oregon, Washington, other states	May-September	**UNLIKELY.** Although suitable inundated wetland habitat is present within portions of the Study Area, the only known extant occurrences of this species are approximately 16 miles southeast in Nisene Marks State Park. Not observed during June 2018 focused rare plant survey.
Carex saliniformis deceiving sedge	None	None	List 1B.2	Coastal prairie, coastal scrub, meadows, coastal salt marshes	HUM, MEN, SCR*, SON	June-July	**UNLIKELY.** Potentially suitable mesic/wetland habitat present in the Study Area; although the majority of wetlands in close proximity to the Study Area are freshwater. The nearest known extant occurrence is located on the UCSC upper campus. Not observed during June 2018 focused rare plant survey.
Castilleja ambigua ssp. *ambigua* Johnny nip	None	None	List 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool edges	ALA, CCA, DNT, HUM, MEN, MRN, NAP, SCR, SFO(?), SLO, SMT, SON, OR, WA	March-August	**LOW.** Typically occurring in native coastal prairie and on mima mounds surrounding vernal pools. These habitat types are not present in the Study Area. May occur in openings in coastal scrub above Noname Creek; however, this species was not observed during June 2018 focused rare plant survey.
Chorizanthe pungens var. *hartwegiana* Ben Lomond spineflower	Endangered	None	List 1B.1	Inland marine sands in chaparral, closed-cone coniferous forest, sand parkland, sandhill ponderosa pine forest	SCR	April-July	**NONE**. Suitable habitat, particularly sand parkland, not present within the Study Area. Not observed during 2018 focused rare plant survey.
Chorizanthe robusta var. *hartwegii* Scotts Valley spineflower	None	Endangered	List 1B.1	Meadows and seeps (sandy), valley and foothill grassland (outcrops)	SCR	April-July	**NONE.** Only known from limited geographic range near Scotts Valley in sandstone and mudstone outcrops in mesic grasslands. Not observed during June 2018 focused rare plant survey.
Chorizanthe robusta var. *robusta* robust spineflower	Endangered	None	List 1B.1	Coastal dunes, coastal scrub, openings in cismontane woodland, in sandy or gravelly soil	ALA*, MNT, MRN, SCL*, SCR, SFO, SMT*	April-September	**UNLIKELY.** Openings in coastal scrub contain mudstone shale that is not expected to support this species. The nearest known extant occurrence is located in Pogonip Park approximately nine miles southeast of the Study Area. Not observed during June 2018 focused rare plant survey.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Cirsium andrewsii Franciscan thistle	None	None	List 1B.2	Broad-leafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub; mesic, sometimes serpentinite	CCA, MRN, SFO, SMT, SON*?	March-July	**UNLIKELY.** Suitable coastal scrub habitat on the upper embankments of Noname Creek; however, this species is not documented to occur in Santa Cruz County. The nearest documented occurrence approximately 10 miles northwest near Año Nuevo is presumed extirpated. Not observed during June 2018 focused rare plant survey.
Collinsia multicolor San Francisco collinsia	None	None	List 1B.2	Closed-cone coniferous forest, coastal scrub, broad-leafed upland forest; rocky soils, often decomposed shale with humus, sometimes serpentinite.	MNT, SCL, SCR, SFO, SMT	March-May(June)	**LOW.** Several extant occurrences less than 5 miles north of the Study Area at Swanton Pacific Ranch on rocky mudstone escarpments similar to those on the upper embankments of Noname Creek. However, this species is more commonly found in the understory of forested habitats. An historic occurrence from 1936 is located south of Davenport in close proximity to the Study Area. Not observed during June 2018 focused rare plant survey.
Erysimum ammophilum sand-loving wallflower	None	None	List 1B.2	Chaparral, coastal dunes, coastal scrub; sandy openings	MNT, SBA, SCR, SDG, SMI, SMT	Feb-June	**NONE.** Coastal scrub habitat on the embankments of Noname Creek lacks sandy openings. Not observed during June 2018 focused rare plant survey or other field site visits.
Erysimum teretifolium Santa Cruz wallflower	Endangered	Endangered	List 1B.1	Inland marine sands in chaparral, closed-cone coniferous forest, sand parkland, sandhill ponderosa pine forest	SCR	March-July	**NONE.** Suitable habitat, particularly sand parkland, not present within the Study Area. Not observed during June 2018 focused rare plant survey.
Fritillaria agrestis stinkbells	None	None	List 4.2	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland; clay, sometimes serpentinite	ALA, CCA, FRE, KRN, MEN, MER, MNT, MPA, PLA, SAC, SBA, SBT, SCL, SCR, SLO, SMT, STA, TUO, VEN, YUB	March-June	**UNLIKELY.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs. No other habitat types supporting this species are present in the Study Area. Not observed during June 2018 focused rare plant survey.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Fritillaria liliaceae fragrant fritillary	None	None	List 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland, often on serpentine soils	ALA, CCA, MNT, MRN, SBT, SCL, SFO, SMT, SOL, SON	February-April	**UNLIKLEY.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs and therefore not considered coastal prairie. Rarely occurs in coastal scrub habitat. Moreover, serpentine soils are not present within the Study Area. Not observed during June 2018 focused rare plant survey.
Grindelia hirsutula var. *maritima* San Francisco gumplant	None	None	List 3.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy or serpentine soils	MNT, MRN, SCR, SFO, SLO, SMT	June-September	**UNLIKELY.** Coastal scrub and non-native grasslands do not support sandy or serpentine soils. Other *Grindelia* species were readily identifiable elsewhere in the Davenport area during June 2018 focused rare plant survey.
Heperevax sparsiflora var. *brevifolia* short-leaved evax	None	None	List 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie; sandy bluffs and flats	DNT, HUM, MEN, MRN, SCR, SFO*****, SMT, SON	March-June	**UNLIKELY.** Coastal scrub habitat associated with the upper embankment of Noname Creek are steep and lacking sandy soils. The nearest recorded occurrence is approximately 6.5 miles northeast of the Study Area near Big Basin State Park in sandy openings although this population has not been observed since 1953. Not observed during June 2018 focused rare plant surveys.
Hesperocyparis abramsiana var. *abramsiana* Santa Cruz cypress	Threatened	Endangered	List 1B.2	Closed cone coniferous forest, chaparral, lower montane coniferous forest; sandstone or granitic substrates	SCR, SMT	N/A	**NONE.** Suitable habitat not present within the Study Area. The nearest documented occurrences of this species are in Bonny Doon at elevations much higher than the project site. Not observed during June 2018 focused rare plant survey.
Hesperocyparis abramsiana var. *butanoensis* Butano Ridge cypress	Threatened	Endangered	List 1B.2	Closed cone coniferous forest, chaparral, lower montane coniferous forest; sandstone or granitic substrates	SCR, SMT	N/A	**NONE.** Suitable habitat not present within the Study Area. The only documented occurrence of this species occurs on Butano Ridge in San Mateo County at elevations much higher than the project site. Not observed during June 2018 focused rare plant survey.
Hoita strobilina Loma prieta hoita	None	None	List 1B.1	Chaparral, cismontane woodland, riparian woodland; usually serpentinite, mesic	ALA *****, CCA, SCL, SCR	May-July (Aug-Oct)	**UNLIKELY.** Mesic riparian woodland on the lower embankments of Noname Creek; however, this area does not support serpentine soils. Not observed during the June 2018 focused rare plant survey.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Holocarpha macradenia Santa Cruz tarplant	Threatened	Endangered	List 1B.1	Coastal prairie, valley and foothill grassland, coastal scrub, often in clay or sandy soils	ALA*, CCA*, MNT, MRN*, SCR, SON*	June-October	**UNLIKELY.** The valley and foothill grassland in Watsonville loam suggests this species may have occupied portions of the Study Area at one time. However, this grassland has been heavily disturbed by past agricultural activities and there are no documented occurrences of this species in Santa Cruz County west/north of the San Lorenzo River. The nearest extant occurrence is approximately nine miles southeast of the Study Area at Graham Hill Showgrounds. Not observed during June 2018 focused rare plant survey.
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	None	None	List 1B.1	Openings in closed-cone coniferous forest, maritime chaparral, coastal scrub, coastal prairie, in sandy or gravelly soil	ALA*, MRN*, MNT, SBA, SCR, SFO*, SLO, SMT	April-September	**UNLIKLEY.** This species is primarily located in dunes and sand parkland supporting maritime chaparral. Although coastal prairie with rocky, shale is present on the upper embankments of Noname Creek, this species was not observed during June 2018 focused rare plant survey.
Horkelia marinensis Point Reyes horkelia	None	None	List 1B.2	Coastal dunes, coastal prairie, coastal scrub, in sandy soil	MEN, MRN, SCR, SMT, SON	May-September	**UNLIKELY.** Several historic occurrences of this species are a located in relatively close proximity to the Study Area. The nearest known extant occurrence is located immediately south of the UCSC campus. However, this species is almost always located in sandy soils which are not present in the Study Area. Not observed during June 2018 focused rare plant survey.
Iris longipetala coast iris	None	None	List 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps; mesic	ALA, CCA, HUM, MEN, MNT, MRN, NAP, SBT, SCL, SFO, SMT, SOL, SON	Mar-May	**UNLIKELY.** Mesic grasslands are highly disturbed from past agricultural activity and creation of the North CKD landfill. Due to past disturbance, mesic coastal prairie is not present within the Study Area. Although focused rare plant survey was conducted slightly after the blooming period, this species would have been observed during other field visits including the wetland delineation which occurred during the Mar-May blooming period. No additional surveys are recommended.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Micropus amphibolus Mt. Diablo cottonweed	None	None	List 3.2	Rocky areas in broadleaved upland forest, chaparral, cismontane woodland, valley and foothill grassland, coastal scrub	ALA, CCA, COL, LAK, MNT, MRN, NAP, SBA, SCL, SCR, SJQ, SLO, SOL, SON	March-May (June)	**UNLIKELY.** This species is located in rocky openings in grassland habitats not generally supported by the Study Area. This species was not located during close inspection of coastal scrub along the embankments of Noname Creek during June 2018 focused rare plant survey.
Microseris paludosa marsh microseris	None	None	List 1B.2	Moist places in closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland	MEN, MNT, MRN, SBT, SCR, SFO*, SLO, SMT*, SON	April-June	**LOW.** This species in generally restricted to mesic, grassy meadows that are generally supported by the Study Area; however, grasslands on the site are highly disturbed due to past agricultural activities. The nearest extant occurrence is approximately 5 miles northwest of the Study Area at H-H Ranch near Swanton Road. Not observed during June 2018 focused rare plant survey.
Monolopia gracilens woodland woolythreads	None	None	List 1B.2	Openings in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland; often serpentinite	ALA, CCA, MNT, SBT, SCL, SCR, SLO, SMT	(Feb)March-July(August)	**UNLIKELY.** Within grasslands, this species is typically found in rocky and/or serpentine soils not supported by the Study Area. The nearest extant occurrence is located approximately 7 miles northeast of the Study Area in Boulder Creek at an elevation much higher than project site. Not observed during June 2018 focused rare plant survey.
Pedicularis dudleyi Dudley's lousewort	None	Rare	List 1B.2	Chaparral (maritime), cismontane woodland, North Coast coniferous forest, valley and foothill grassland	MNT, SCR*, SLO, SMT	April-June	**NONE.** Presumed extirpated from Santa Cruz County. Nearest known occurrence approximately 15 miles north of the Study Area in San Mateo County on steep embankments in coast redwood forest. Not observed during June 2018 focused rare plant survey.
Perideridia gairdneri ssp. *gairdneri* Gairdner's yampah	None	None	List 4.2	Moist sites in coastal prairie, broadleaved upland forest, chaparral, valley and foothill grassland, vernal pools	CCA, DNT, KRN, LAX*, MEN, MNT, MRN, NAP, ORA*, SBT, SCL, SCR, SDG*, SLO, SMT(*?), SOL, SON	June-October	**LOW/MODERATE.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs. Other habitat types supporting this species do not occur in the Study Area. This species is documented to occur in disturbed areas. Nearest known occurrence on a marine terrace approximately 3 miles northwest of the Study Area. Not observed during 2018 focused rare plant survey.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Plagiobothrys chorisianus var. chorisianus Choris' popcorn-flower	None	None	List 1B.2	Moist places in chaparral, coastal prairie, coastal scrub	ALA(*?), SCR, SFO, SMT	March-June	**UNLIKELY.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs and therefore not considered coastal prairie. Coastal scrub is located on steep, xeric embankments above Noname Creek and are unlikely to support this species. Not observed during June 2018 focused rare plant survey.
Plagiobothrys chorisianus var. *hickmanii* Hickman's popcorn-flower	None	None	List 4.2	Moist places in closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, vernal pools	MNT, SBT, SCL, SCR, SLO, SMT?	April-June	**UNLIKELY.** Seasonal wetland habitat within the Study Area is highly degraded and dominated entirely by weedy, exotic plants. The nearest known extant occurrences are known from the Santa Cruz Mountains near Scotts Valley and Ben Lomond. This species was not observed during June 2018 focused rare plant survey.
Plagiobothrys diffusus San Francisco popcorn flower	None	Endangered	List 1B.1	Coastal prairie, valley and foothill grassland	ALA, SCR, SFO*, SMT	March-June	**LOW.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs. This species is known from occurrences in Moore Creek Preserve approximately seven miles southeast of the Study Area but was not observed during June 2018 focused rare plant survey.
Polygonum hickmanii Scotts Valley polygonum	Endangered	Endangered	List 1B.1	Valley and foothill grassland; sandstone	SCR	May-August	**NONE.** This sandstone specific species is known only from two small populations in Scotts Valley in sandstone substrate. Not observed during June 2018 focused rare plant survey.
Senecio aphanactis chaparral ragwort	None	None	List 2B.2	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline	ALA, CCA, FRE, LAX, MER, MNT, ORA, RIV, SBA, SBD, SBT, SCL, SCR, SCT, SCZ, SDG, SFO, SLO, SMT, SOL, SRO, TUL, VEN	January-April(May)	**UNLIKELY.** This species is typically found in xeric chaparral or coastal scrub at higher elevations than the Study Area. The nearest known occurrence is located in maritime chaparral in Bonny Doon approximately 4 miles northeast of the Study Area. Not observed during June 2018 focused rare plant survey.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Silene scouleri ssp. *scouleri* Scouler's catchfly	None	None	List 2B.2	Coastal bluff scrub, coastal prairie, valley and foothill grassland	DNT, HUM, MRN, SFO, SMT, SON	(March-May) June-August (September)	**Not Present.** This species is generally found on rocky outcrops (not shale) and sandy soils which are not present within suitable habitat supported by the Study Area. However, this species is only known from Santa Cruz County near Swanton Pacific Ranch in relatively close proximity to the project site. Nevertheless, this species was not observed during June 2018 focused rare plant survey.
Silene verecunda ssp. *verecunda* San Francisco campion	None	None	List 1B.2	Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland, in sandy or rocky soil	SCR, SFO, SMT, SUT	March-August	**LOW.** This species is generally found on rocky mudstone outcrops which are present in coastal scrub within the Study Area on the upper embankments of Noname Creek. The nearest extant occurrence is located approximately 4.5 miles northwest of the Study Area at Swanton Pacific Ranch. However, this species was not observed during June 2018 focused rare plant survey.
Stebbinsoseris decipiens Santa Cruz microseris	None	None	List 1B.2	Broadleaved upland forest, closed cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland	MNT, MRN, SCR, SFO, SLO, SMT	April-May	**UNLIKELY.** Grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs. The nearest known extant occurrence is approximately 5 miles northwest of the Study Area at Swanton Pacific Ranch in native coastal prairie grassland. Not observed during June 2018 focused rare plant surveys.
Stuckenia filiformis ssp. alpina slender-leaved pondweed	None	None	List 2B.2	Marshes and swamps (assorted shallow freshwater)	ALA, BUT, CCA, ELD, LAS, MER, MNO, MOD, MPA, NEV, PLA, SCL, SHA, SIE, SMT, SOL, SON	May-July	**UNLIKELY.** Although widespread in overall distribution throughout the Western U.S., this species has not been documented to occur in Santa Cruz County. Not observed in inundated ponds and wetlands during June 2018 focused rare plant surveys.
Trifolium buckwestiorum Santa Cruz clover	None	None	List 1B.1	Coastal prairie; margins of broadleaved upland forest, cismontane woodland	MEN, MNT, SCL, SCR, SMT, SON	April-October	**LOW.** Known primarily from mesic meadows including seasonally wet coastal prairie at Swanton Pacific Ranch less than 3 miles north of the Study Area. However, this species usually occurs in gravelly soils in association with relatively undisturbed native vegetation. Grasslands within the Study Area are recovering from past agricultural activity and considered highly degraded. Not observed during June 2018 focused rare plant surveys.

Species Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[6]	Flowering Period[7]	Potential for Occurrence
Trifolium polyodon Pacific Grove clover	None	Rare	List 1B.1	Closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland; mesic, sometimes granitic	MNT, MRN, SCR, SON	Apr-Jun(Jul)	**LOW.** Mesic grasslands in the Study Area are recovering from past agricultural operations and are dominated almost entirely by weedy, non-native grasses and forbs. Soils supporting this species are typically sandy or of granitic origin. The nearest extant occurrence is approximately 6 miles west of the Study Area at UCSC. Not observed during June 2018 rare plant survey.

[1]Nomenclature follows Hickman (1993); Tibor (2001); California Native Plant Society (2019).
[2]U.S. Fish and Wildlife Service (2019a, b, c).
[3]Section 1904, California Fish and Game Code (California Department of Fish and Game 2019a).
[4]Tibor (2001); California Native Plant Society (2019).
CNPS Lists: List 1A: Presumed extinct in California. List 1B: Rare, Threatened, or Endangered in California and elsewhere. List 2: Rare, Threatened, or Endangered in California, more common elsewhere. List 3: Plants about which more information is needed. List 4: Plants of limited distribution: a watch list.
Threat Code extensions: .1: Seriously endangered in California. .2: Fairly endangered in California. .3 Not very endangered in California.
[5]Thomas (1960); Munz and Keck (1973); Hickman (1993); Baldwin et al (2012); Tibor (2001); California Native Plant Society (2019); and unpublished information.
[6]Tibor (2001); California Native Plant Society (2019); and unpublished information; counties abbreviated by a three-letter code (below); occurrence in other states as indicated.
[7]Munz and Keck (1973); Tibor (2001); California Native Plant Society (2019)

* Presumed extinct in these counties or states.
? Uncertainty about distribution or identity

ALA: Alameda
AMA: Amador
BUT: Butte
CCA: Contra Costa
COL: Colusa
DNT: Del Norte
FRE: Fresno
GLE: Glenn
HUM: Humboldt
KRN: Kern
LAK: Lake
LAX: Los Angeles
MAD: Madera
MEN: Mendocino
MER: Merced
MNT: Monterey
MOD: Modoc
MPA: Mariposa
MRN: Marin
NAP: Napa
NEV: Nevada
ORA: Orange
PLA: Placer
PLU: Plumas
RIV: Riverside
SAC: Sacramento
SBA: Santa Barbara
SBD: San Bernardino
SBT: San Benito
SCL: Santa Clara
SCR: Santa Cruz
SCZ: Santa Cruz Island (SBA Co.)
SDG: San Diego
SFO: San Francisco
SHA: Shasta
SIE: Sierra
SIS: Siskiyou
SJQ: San Joaquin
SLO: San Luis Obispo
SMT: San Mateo
SOL: Solano
SON: Sonoma
SRO: Santa Rosa Island (SBA Co.)
STA: Stanislaus
SUT: Sutter
TEH: Tehama
TRI: Trinity
TUL: Tulare
TUO: Tuolumne
VEN: Ventura
YOL: Yolo
YUB: Yuba

APPENDIX D. CONSERVATION STATUS, HABITAT REQUIREMENTS, AND OCCURRENCE POTENTIAL OF SENSITIVE WILDLIFE SPECIES

Appendix D. Sensitive wildlife species: conservation status, habitat requirements, and potential for occurrence in the vicinity of the proposed North CKD Area Closure Plan Project, Davenport Cement Plant, Davenport, Santa Cruz County, California.

Common Name *Scientific Name*	Status Federal/State/Other			Habitat Requirements	Potential to Occur in Project Site
Invertebrates					
Ohlone tiger beetle (OTB) *Cicindela ohlone*	FE	-	S1	Coastal terrace prairie and open grassland with barren areas for burrow construction (Knisley and Arnold 2013).	**Not Expected** This species occurs within suitable habitat in a very restricted range. Re-colonization is unlikely due to distance [11 km (7 miles)] between active OTB populations in Jade Ranch, Younger Ranch, and Moore Creek Preserve and potential habitat near the Project Area.
monarch butterfly *Danaus plexippus* (wintering sites)	P-FT	-	S2S3 L	Eucalyptus, Monterey pine, or Monterey cypress tree groves. Abiotic and biotic factors including southeast aspect, wind protection and proximity to nectaries will determine habitat suitability (Dayton and Bell 1992).	**Present** Individuals observed during 2018-2019 surveys. The eucalyptus trees located immediately adjacent to (south and southeast of) the Seasonal Ponds do not provide suitable habitat due to exposure to prevailing winds and lack of buffer trees. Larger eucalyptus/cypress groves within the Study Area provide potential roosting habitat. The eucalyptus grove immediately southeast of the Study Area is a known winter roost site (Xerces Society 2019).
Amphibians and Reptiles					
California red-legged frog (CRLF) *Rana draytonii*	FT	SSC	S2S3	Requires the presence of surface water until mid to late summer for reproduction; occupies ephemeral and/or perennial water with standing or slow-moving flows. Upland habitat includes leaf litter, dense grassland, small mammal burrows, irrigated agricultural fields, and greenhouses. Adults are known to travel up to 2 miles overland between aquatic sites (USFWS 2002, Fellers and Kleeman 2007, USFWS 2010).	**Present** Egg masses, tadpoles, metamorphs, juveniles and adults have been observed within and immediately adjacent to the Project Area during survey efforts over multiple years (2009, 2010, 2012, 2017, 2018, 2019) and during previous survey efforts in 1996, 1997 and 1999 (BioSearch 1999). CRLF attempt to breed in the North Pond and the Seasonal Ponds, which do not provide sufficient hydration for metamorphoses to be successful. Breeding is successful in the Water Reservoir, Farmer's Pond, and Tom's Pond. The surroundings provide non-breeding aquatic habitat, hydration points, riparian habitat, as well as upland and dispersal habitat.
California giant salamander *Dicamptodon ensatus*	-	SSC	S2S3	Wet coastal forests near cool streams and seeps. Aquatic larvae are found in streams and occasionally lakes and ponds (Stebbins and McGinnis 2012, Nafis 2018).	**Not Expected** The riparian forest and creeks do not provide sufficiently dense canopy or cool temperatures. Nearest records are from 4 km (2.5 miles) northeast (inland) in Bonny Doon and 6 km (3.6 miles) northwest (inland) of the Project Area in Scott Creek (CDFW 2018c,d).

Appendix D. (Continued)

Common Name *Scientific Name*	Status Federal/State/Other			Habitat Requirements	Potential to Occur in Project Site
Santa Cruz black salamander *Aneides niger*	-	SSC	S3	Mixed deciduous woodland, coniferous forests, and coastal grasslands. Found under rocks near streams, in talus, under damp logs, and other objects. In Santa Cruz, found near water under rocks near streams, seeps, and springs (Stebbins and McGinnis 2012, CDFW CWHR 2014, 2016, Nafis 2018).	**Not Expected** The Project Area and immediate surroundings lack the moist habitat features and conditions this species requires because of the intermittent and ephemeral nature of the ponds and creeks that would be affected by the Project. May occur along Farmer's Pond. Known from east side of San Vicente Creek, 2.5 miles north/northeast of the Project Area (CDFW 2019c,d) and from the shale quarries 1 km (0.6 miles) and 2 km (1.4 miles) northeast of the Project Area (HERP 2019).
western pond turtle (WPT) *Emys marmorata*	-	SSC	S3	Found in ponds, marshes, rivers, streams, and irrigation ditches containing aquatic vegetation; usually seen sunning on logs, banks, or rocks. Moves up to 3-4 miles within a creek system, especially during "walk-abouts" before a female lays eggs; nests up to several hundred feet from aquatic habitat, in woodlands, grasslands, or open forest (Holland and Bury 1998).	**Not Expected** May occur in streams, ponds, and lagoons near the Project Area. Known from Moore Creek 11 km (7 miles) southeast of the Project Area. Suitable habitat is present in Yellow Bank Creek 3.3 km (2 miles) southeast of the Project Area (City of Santa Cruz 2012, CDFW 2018c,d, Entrix 2004).
Birds (Nesting and/or Wintering)					
nesting birds of prey (various species)		CFGC 3503.5	-	Variety of woodland and savanna habitats.	**Present** During 2019 surveys, a pair of red-tailed hawks was observed foraging over Study Area, as well as several individual red-shouldered hawks. Larger trees and decommissioned Plant buildings provide nesting habitat for birds of prey.
native nesting birds		CFGC 3503		Various habitats.	**Present** Nesting activities (courtship and nest building) were observed during 2019 surveys. The Study Area provides nesting habitat for a range of native bird species. Native bird species are expected to nest within the Study Area.
golden eagle *Aquila chrysaetos*		FP	S3	Resident in open mountains, foothills, canyons, or plains near open spaces for hunting. Nests in a mass of sticks on cliffs or in trees (Kochert et al. 2002).	**Not Expected** Known to forage over the grasslands, creeks, and lagoons of the North Coast (ebird 2019). Suitable nesting habitat for the golden eagle is not present in the Project Area but may use the larger trees within the Study Area.
northern harrier *Circus cyaneus* (nesting)	-	SSC	S3	Ground nester; grasslands, sloughs, wet meadows, savanna, prairies and marshes (Brekenridge 1935, Simmons 1988, Smith et al. 2011).	**Present** Breeds in grasslands and on the coastal bluffs and terraces. Observed during 2019 surveys. Recent (2018 and 2019) ebird records document presence in the immediate area (eBird 2019).
white-tailed kite *Elanus leucurus*	-	FP	S3S4	Nests in trees on the margins of open areas including grasslands and sloughs containing a high abundance of small mammals and lizards (Dunk 1995) .	**Present** Observed during 2019 surveys. Tree stands within the Study Area provide potential nesting habitat. Recent (2018 and 2019) ebird sightings in the immediate area (ebird 2019).
American peregrine falcon *Falco peregrinus anatum*	BCC	FP	S3S4	Inhabits open wetlands near cliffs, also occurs in some cities where nests on buildings and bridges (White et al. 2002).	**Possible** Nests on the coastal cliffs across Hwy 1 from the Project Area. Recent (2018 and 2019) sightings near the Study Area (ebird 2018). This species is likely to forage over the Study Area and may utilize buildings for nesting.

Appendix D. (Continued)

Common Name *Scientific Name*	Status Federal/State/Other			Habitat Requirements	Potential to Occur in Project Site
long-eared owl *Asio otus* (nesting)	-	SSC	S3?	Utilizes abandoned stick nests of other large birds or squirrel nests in a variety of wooded areas, including orchards and usually near aquatic and open areas for foraging; forages mostly on rodents (Marks et al. 1994).	**Not Expected** Ebird record (11-2017) documents this species on the North Coast south of Scott Creek. Not known to nest in Santa Cruz County (Suddjian 2013).
western burrowing owl *Athene cunicularia* (nesting)	BCC	SSC	S3	Found in open areas with low-growing vegetation including annual and perennial grasslands, deserts, open scrub habitats, and agricultural fields with suitable burrows. Burrows of fossorial mammals are an essential component of their nesting and wintering habitat, but they may also use artificial structures such as culverts, openings in asphalt pavement, woody debris/rock piles, and crevices in stacks of straw bales (Poulin et al. 2011).	**Not Expected** Grasslands with short stature vegetation provide potential wintering habitat. Ebird (2019) documents winter sightings from the Warnell Truck Trail (2015) and Swanton Road (2018).
Vaux's swift *Chaetura vauxi* (nesting)	-	SSC	S2S3	Nests in large tree hollows in forested environments. Nest made of conifer needles or small twigs are glued together with salvia and attached to inside wall of hallow tree usually near the bottom. Post breeding flocks up to several hundred may roost together in chimney like tree hollows. Also known to use manmade chimneys (Bull and Collins 2007).	**Not Expected** The Study Area does not provide suitable nesting habitat. Recent (9-2019) records from San Vicente Creek and Swanton Road (ebird 2019).
olive-sided flycatcher *Contopus cooperi* (nesting)	BCC	SSC	-	Inhabits woodland and forest habitats. Nests in tall trees, generally near the edges and openings to meadows, grasslands, wetlands, and ponds (Altman and Sallabanks 2012).	**Possible** Habitat present within the Study Area. Recent sightings from San Vicente Creek (ebird 2019).
willow flycatcher *Empidonax traillii* (nesting)	BCC	SE	-	Willow riparian forest for nesting and foraging (Vickery 1996).	**Not Expected** Seasonal migrant along North Coast (ebird 2019). No breeding records in Santa Cruz County (Suddjian 2013).
loggerhead shrike *Lanius ludovicianus* (nesting)	BCC	SSC	-	Grassland, agricultural fields, and shrub habitats with small reptiles and insects. Nests in dense trees or shrubs adjacent to open areas. Known to impale prey items on barbed wire fences (Yosef 1996).	**Not Expected** Known to occur on the coastal bluffs, mostly in the fall (ebird 2019). Study Area provides potential foraging habitat. No recent breeding records in Santa Cruz County (Rinkert 2018).
bank swallow *Riparia riparia* (nesting)	-	ST	-	Nests in erodible soils on vertical or near-vertical banks and bluffs of rivers and streams. Also found in sand and gravel quarries (Garrison 1999).	**Not Expected** Considered extirpated in as a breeding species in Santa Cruz County. Closest known breeding colony is from Ano Nuevo (Rinkert 2018).
oak titmouse *Baeolophus inornatus* (nesting)	BCC	-	-	Nests in natural cavities, old woodpecker holes, artificial nest boxes from mid-March through April. Inhabits oak woodlands along the Pacific Slope. Requires elevated perches for foraging and eating (Cicero 2000, Cicero et al. 2017).	**Not Expected** The Study Area lacks the oak woodland and oak-pine woodland this species utilizes for nesting. Known to occur in San Vicente Creek (ebird 2019).
yellow-breasted chat *Icteria virens* (nesting)	-	SSC	S3	Dense riparian vegetation 1-8 ft. above the ground, with a well-developed understory (Eckerle and Thompson 2001).	**Not Expected** No expected to breed on the coast. Known from Davenport, (ebird 2019).
yellow warbler *Setophaga petechia* (nesting)	BCC	SSC	S3S4	Nests in deciduous riparian woodland with open canopy along streams or other watercourses; forages in dense understory of riparian woodland (Lowther et al. 1999).	**Not Expected** Occurs as a seasonal migrant. Sightings from the Project Area and vicinity (ebird 2019). No recent nesting records in Santa Cruz County (Suddjian 2008).
grasshopper sparrow *Ammodramus savannarum* (nesting)	-	SSC	S3	Associated with short to medium-height grasslands with little or no shrub cover. May be found in pastures and agricultural fields. Feeds on insects and seeds. Nest on ground in grassland habitats between April and May (Vickery 1996, Biosearch 2008).	**Possible** Grasslands of the Study Area provide potential habitat. Sightings are from Warnell Truck Trail and San Vicente Creek (ebird 2019).

Appendix D. (Continued)

Common Name *Scientific Name*	Status Federal/State/Other			Habitat Requirements	Potential to Occur in Project Site
tricolored blackbird *Agelaius tricolor*	BCC	ST	S1S2	Colonial breeders. Breeding sites require nearby water, suitable nesting substrate, and open-range foraging habitat of natural grassland, shrubland, or agricultural cropland (Meese and Beedy 2015, Beedy et al. 2017).	**Not Expected** Flocks have been observed in the immediate area outside of breeding season (ebird 2019), but no confirmed breeding in Santa Cruz County since 2008 (Meese 2017).
Lawrence's goldfinch *Spinus lawrencei* (nesting)	BCC	-	S3S4	Typically occupies arid and open woodlands within the near vicinity of three habitat components: chaparral or other brushy areas; tall annual weed fields; and water source such as stream, small lake, or farm pond (Watt et al. 2016).	**Not Expected** An uncommon breeder on the coast. **E**bird (2019) records document sightings during migration.
Allen's hummingbird *Selasphorus sasin*	BCC	-	-	Breeding occurs in the moist narrow coastal belt affected by summer fogs. Breeding has not been documented beyond 20 miles (32 km) from the coast. Males establish breeding territories with a view of open areas of coastal scrub or riparian shrubs. Females prefer nest sites that are more densely vegetated areas with some tree cover.	**Present** Breeding migrants start arriving in Santa Cruz County in January and are common to abundant during spring and summer (Suddjan 2013). Ebird records are from San Vicente Creek, Davenport, and Newtown (ebird 2019).
Mammals					
roosting bat species		CFGC		Variable	**Present**
Townsend's big-eared bat *Corynorhinus [Plecotus] townsendii*	-	SSC	HP S2	Roost sites are highly associated w/ caves and mines; buildings must offer "cave-like" features; known to roost in large tree hollows and under bridges (WBWG 2017).	**Not Expected** Project area lacks roosting features. May forage or fly over Study Area. Nearest recent roost records are from buildings at Swanton Pacific Ranch (CDFW 2019c,d).
pallid bat *Antrozous pallidus*	-	SSC	HP S3	Roost sites are primarily associated with oak, redwood, ponderosa pine, and giant Sequoia forests. Will also roost under bridges and in buildings and rock outcrops (WBWG 2017).	**Not Expected** Project Area lacks suitable roosting habitat. The closest record for the species is from Soquel Creek (CDFW 2019c,d).
western red bat *Lasiurus blossevillii*	-	SSC	HP S3	Roosts in foliage primarily in riparian and wooded habitats (WBWG 2017, Harvey et al.1999, Pierson et al. 1997).	**Possible** Tree canopies provide potential roosting habitat. Nearest detection record is from east branch of Moore Creek at Meder Street crossing (EcoSystems West 2004, Heady 2018).
fringed myotis *Myotis thysanodes*	-	-	HP S3	Roosts sites in California are primarily in buildings or mines; will also roost in large conifer snags and in caves (O' Farrell and Studier 1980, WBWG 2017).	**Not Expected** The Project Area lacks preferred roost features for this species. Known from Felton (CDFW 2018c,d).
long-legged myotis *Myotis Volans*	-	-	HP S3	Roosts primarily in large hollow tree snags, or live trees with exfoliating bark; also uses rock crevices, mines, and buildings (Warner and Czaplewski 1984).	**Not Expected** The Project Area lacks preferred roost features for this species. Occurs on Moore Creek Preserve (EcoSystems West 2004, Heady 2018).
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	-	-	SC	Associated with riparian, oak woodland and redwood forest habitats and edge habitats. Builds houses from sticks and leaves under or in buildings and trees, in hollow trees, or in tree canopy (Sakai and Noon 1993).	**Possible** The immediate Project Area lacks suitable habitat for this species. May occur in the willow riparian and poison oak scrub.
American badger *Taxidea taxus*	-	-	SC	Occurs in open, uncultivated grasslands and meadows, and open stages of shrub and forest habitats with dry with friable soils. Forages on burrowing rodents, insects, and ground nesting birds (CDFW CWHR 2008, Quinn 2015).	**Not Expected** Adjacent scrub and grassland provides potential habitat. May move along or through the Study Area but no project impacts are anticipated. Nearest record is from UCSC campus lands (EcoSystems West 2004).

Appendix D. (Continued)

NOTES:

Federal Status

FE = Endangered: Any species, which is in danger of extinction throughout all, or a significant portion of its range (USFWS 2019a).

FT = Threatened: Any species, which is likely to become an endangered species within the foreseeable future throughout all, or a significant portion of its range (USFWS 2019b).

P-FT = Petitioned as Threatened (USFWS 2014).

BCC = Species of migratory nongame birds that are considered to be of concern in the United States because of (1) documented or apparent population declines, (2) small or restricted populations, (3) dependence on restricted or vulnerable habitats (USFWS 2008).

State Status

SE Endangered: A native species or subspecies of animal which is in serious danger of becoming extinct throughout all, or a significant portion of its range, due to loss of habitat, change in habitat, over exploitation, predation, competition and/or disease (CDFW 2019a).

ST Threatened: A native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Fish & G. Code, §2067 (CDFW 2019a)

SSC = CDFW Species of Special Concern: Designated because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction (CDFW 2019d, CDFW CNDDB 2019).

FP = Fully Protected[9]: State's initial protection for animals that were rare or faced possible extinction. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

CFGC = California Fish and Game Code:
3503 - Protects active nests and eggs of birds from take, possession, or needless destruction.
3503.5. - Protects birds of prey (Orders Falcinoformes and Strigiformes)
Section 86; 2000; 2014; 3007; 4150, and Title 14 CCR - Protects non-listed bat species and their roosting habitat, including individual roosts and maternity colonies.

Other (CDFW CNDDB 2018)

NatureServe Ranking[10]: S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.
S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.

L = Locally unique and protected by City and County ordinances.

HP = Considered "High Priority" on the Western Bat Working Group's (WBWG) Western Bat Species Regional Priority Matrix (2018).

[9] More information on Fully Protected species and the take provisions can be found in the Fish and Game Code, (birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Additional information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 2, Article 4, §5.93.

[10] Originally developed by The Nature Conservancy and now maintained and recently revised by NatureServe. Includes a **Global rank** (G-rank), over the taxon's entire distribution, and a **State rank** (S-rank), over its state distribution. For subspecies and varieties, there is also a "T" rank describing the global rank for the infraspecific taxon. Criteria are used to assign element ranks, from G1 to G5 for the Global rank and from S1 to S5 for the State rank, taking into account rarity, threats, and trends (CDFW CNDDB 2018).

APPENDIX E. LIST OF ALL VASCULAR PLANT SPECIES OBSERVED

Appendix E. List of all vascular plant species sorted by family observed during the proposed North CKD Closure Plan Project Biotic Assessment and Rare Plant Surveys, Davenport Cement Plant, Davenport, Santa Cruz County, CA.

SPECIES NAME	COMMON NAME
ANACARDIACEAE	
Toxicodendron diversilobum	**poison oak**
APIACEAE	
Conium maculatum	poison hemlock
Foeniculum vulgare	sweet fennel
Torilis arvensis	hedge parsley
ASTERACEAE	
Ageratina adenophora	snakeroot
Artemisia californica	**California sagebush**
Artemisia douglasiana	**California mugwort**
Baccharis gluninosa	**Douglas' baccharis**
Baccharis pilularis	**coyote brush**
Carduus pycnocephalus	Italian thistle
Cirsium vulgare	bull thistle
Erigeron canadensis	**Canada horseweed**
Eriophyllum stachaedifolium	**lizard tail**
Gnaphalium palustre	**lowland cudweed**
Helminthotheca echioides	prickly ox-tongue
Hypochaeris glabra	smooth cat's ear
Hypochaeris radicata	rough cat's ear
Lactuca serriola	prickly wild lettuce
lotus corniculatus	bird's foot trefoil
Matricaria discoidea	pineapple weed
Pseudognaphalium luteoalbum	Jersey cudweed
Pseudognaphalium stramineum	**cottonbatting plant**
Silybum marianum	milk thistle
Sonchus asper	spiny sowthistle
Sonchus oleraceus	common sowthistle
Tragopogon porrifolius	purple salsify
BORAGINACEAE	
Echium candicans	pride of Madeira
BRASSICACEAE	
Brassica nigra	black mustard
Lobularia maritima	sweet alyssum
Raphanus sativus	wild radish
CHENOPODIACEAE	
Atriplex prostrata	fat hen

SPECIES NAME	COMMON NAME
CUPRESSACEAE	
**Hesperocyparis macrocarpa*	Monterey cypress
CYPERACEAE	
Cyperus eragrostis	**tall flatsedge**
FABACEAE	
Medicago polymorpha	bur clover
Melilotus albus	white sweetclover
Melilotus indicus	annual sweetclover
Trifolium angustifolium	narrowleaved clover
Vicia sativa	spring vetch
Vicia tetrasperma	four seeded vetch
FAGACEAE	
Quercus agrifolia	**Coast live oak**
GERINACEAE	
Erodium botrys	broadleaved filaree
Erodium brachycarpum	foothill filaree
Erodium cicutarium	redstem filaree
Geranium dissectum	cutleaf geranium
GENTIANACEAE	
Zeltnera davyi	**Davy's centaury**
JUNCACEAE	
Juncus bufonius	**toad rush**
Juncus effusus	**soft chess**
Juncus patens	**spreading rush**
LYTHRACEAE	
Lythrum hyssopifolia	Loosestrife
MYRSINACEAE	
Lysimachia arvensis	scarlet pimpernel
MYRTACEAE	
Eucalyptus globulus	blue gum
PAPAVERACEAE	
Fumaria capreolata	white fumory
PLANTAGINACEAE	
Plantago coronopus	cutleaf plantain
Plantago lanceolata	English plantain

SPECIES NAME	COMMON NAME
POACEAE	
Avena barbata	slender wild oat
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess
Cortaderia jubata	pampas grass
Cynodon dactylon	Bermuda grass
Ehrharta erecta	upright veldt grass
Elymus glaucus* ssp. *glaucus	**blue wildrye**
Festuca bromoides	six-weeks fescue
Festuca myuros	rat-tail grass
Festuca perennis	Italian ryegrass
Festuca rubra	**red fescue**
Gastridium phleoides	nit grass
Hordeum murinium ssp. *leporinum*	foxtail barley
Hordum marinum ssp. *gussoneanum*	Mediterranean barley
Polypogon monspeliensis	rabbitfoot grass
POLYGONACEAE	
Persicaria maculosa	spotted lady's thumb
Rumex crispus	curly dock
Rumex pulcher	fiddle dock
ROSACEAE	
Rubus ursinus	**California blackberry**
Rubus armeniacus	Himalayan blackberry
SALICACEAE	
Salix lasiolepis	**arroyo willow**
SCROPHULARIACEAE	
Myoporum laetum	Ngaio tree
VALERINACEAE	
Centranthus ruber	Jupiter's beard

Species native to California and the Davenport Area in bold

*Considered native special-status plant species in other parts of California but considered non-native invasive species in vicinity of the Study Area.

APPENDIX F. BIRD SPECIES OBSERVED OR HEARD VOCALIZING DURING 2019 SURVEYS

Appendix F. Bird species observed or heard vocalizing during 2019 Surveys, Davenport Cement Plant, Davenport, Santa Cruz County, CA.

Species	Retention Pond	Seasonal Ponds	Study Area	Conservation Status
Allen's Hummingbird (*Selasphorus sasin)*	O	B		BCC
American Coot *(Fulica americana)*		O		
American Crow (*Corvus brachyrhynchos)*	B	O		
American Robin (*Turdus migratorius)*	O			
Anna's Hummingbird (*Calypte anna)*	O	O		
Bewick's Wren (*Thryomanes bewickii*)	V	V		
Barn Swallow *(Hirundo rustica)*		O		
Black Phoebe (*Sayornis nigricans)*	O, F	O		
Brewer's Blackbird *(Euphagus cyanocephalus)*	O			
Bushtit (*Psaltriparus minimus)*	V	O		
California Scrub-Jay (*Aphelocoma californica)*		O		
California Towhee (*Melozone crissalis)*		O		
Common Raven *(Corvus corax)*		B		
Chestnut-backed Chickadee (*Poecile rufenscens)*	O			
Dark-eyed Junco (*Junco hyemalis)*		V		
European Starling *(Sturnus vulgaris)**	O			
Golden-crowned Sparrow *(Zonotrichia atricapilla)* **				
House Finch *(Haemorhous mexicanus)*	O	V		
Lesser Goldfinch *(Spinus psaltria)*	O			
Mallard *(Anas platyrhynchos)*		P		
Northern Harrier *(Circus hudsonius)*		O, F	O	SSC
Orange-crowned Warbler (*Oreothlypis celata)*		O		
Purple Finch *(Haemorhous purpureus)*	V	V		
Red-shouldered Hawk (*Buteo lineatus)*	O	O		
Red-tailed Hawk *(Buteo jamaicensis)*	P	P		
Red-winged Blackbird *(Agelaius phoeniceus)***		O		
Ring-necked Duck *(Aythya collaris)*		O		
Ruby-crowed Kinglet *(Regulus calendula)***	H			
Say's Phoebe *(Sayornis saya)*	O			
Spotted Towhee *(Pipilo maculatus)*		O		
Song Sparrow *(Melospiza melodia)*		O		
Townsend's Warbler *(Setophaga townsendi)***	O			
Turkey Vulture *(Cathartes aura)*	O	O		
Violet-green Swallow *(Tachycineta thalassina)*	O			
Western Meadowlark *(Sturnella neglecta)*		O		
Wilson's Snipe *(Gallinago delicate)***		O		
White-crowned Sparrow *(Zonotrichia leucophrys)*		O		
Yellow-rumped warbler *(Setophaga coronate)***	O	O		
White-tailed kite (*Elanus leucurus*)			O	FP
Wrentit *(Chamaea fasciata)*		V		

* = Non-native species
** Over-wintering species

O = Observed
B = Breeding Behavior
P= Pair
F = Foraging
V = Vocalizing

BBC = Birds of Conservation Concern
SSC = Species of Special Concern
FP = Fully Protected