
Appendix E-2

Revegetation Monitoring and Management Plan

MEMORANDUM

To: Chris Peregrin, California Department of Parks and Recreation
From: Paul Walsh, Dudek
Subject: Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California
Date: September 2, 2021
cc: Vipul Joshi, Dudek

1 Introduction

This memorandum serves as a Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project (project) located in San Diego County, California. The Nelson-Sloan Quarry is located in the southern portion of the Tijuana River Valley and was the site of active mineral extraction prior to being purchased by the County of San Diego and incorporated as part of the Tijuana River Valley Regional Park in 2003. California Department of Parks and Recreation (CDPR) proposes the beneficial reuse of excess sediment excavated from a range of ongoing and proposed sediment management activities (e.g., sediment basins, flood control facilities and conveyances, habitat restoration and enhancement projects) in the Tijuana River Valley towards landform and habitat restoration in the abandoned Nelson Sloan Quarry. A detailed description of the project is included in the Environmental Impact Report (EIR) (Dudek 2021a) and Biological Resources Technical Report for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project (Dudek 2021b).

Revegetation has been designed as the final treatment for all of the project site, with the exception of permanent access roads. Revegetation will be implemented in four phases (Table 1).

Table 1. Schedule of Revegetation Phases

Revegetation Phase	Notes	Acres	Approximate Year Installed	5-Year Establishment Period
Pre-Project Restoration	This will occur at the onset of the project and does not involve grading or the import of sediment	3.57	Year 1	Year 6
Phase 3	This will occur following completion of sediment placement Phases 1 and 2	1.39	Year 3	Year 8
Phase 5	This will occur following completion of sediment placement Phases 3 and 4	3.50	Year 8	Year 13
Phase 6	This will occur following completion of sediment placement Phases 5 and 6	12.29	Year 14	Year 19
Total		20.75		

With the exception of the pre-project restoration, final revegetation would occur following completion of sediment placement and landform re-creation, per the design plans. Final revegetation would establish permanent habitat

and will be implemented in accordance with the design plans and specification. Please refer to the design plans for full details of the proposed revegetation including plant palettes, seed mixes, planting layout, irrigation, and various specifications. The design plans also include interim erosion control revegetation. Monitoring and management of sediment placement and interim erosion control are not included in this memo. This memo focuses on the required final revegetation installation, monitoring, management, and maintenance to ensure that proposed native habitat communities are established and self-sufficient per the design plans and project description.

1.1 Responsible Parties and Project Responsibilities

The following identifies the general roles and responsibilities of the anticipated team members that would be involved in revegetation of the project. CDPR is the current lead agency for environmental review and preparation of construction documents for the project. The project also includes a multi-jurisdictional agreement and operations and maintenance plan, which dictate roles and responsibilities of the various entities that are involved with the project. At this stage however, a lead agency and/or operator for the project has not been determined, and therefore, assignment of the roles listed below is also yet to be determined.

1.1.1 Project Revegetation Specialist/Biologist

Implementation of each phase of revegetation installation and establishment monitoring and maintenance will be conducted by a qualified revegetation specialist/biologist. The project biologist will review all aspects of pertinent contract documents, including but not limited to adjacent habitat and species protection, installation specification and methods, access routes, equipment to be used, schedule of formal site observations, lines of communication, and persons with stop-work authority, prior to project implementation.

The project biologist will oversee and coordinate implementation of each phase of the revegetation construction drawings and specifications (Dudek 2021c), interpret said plans, conduct field monitoring of project installation and monitoring during the 120-day maintenance period, and perform biological monitoring throughout each of the 5-year maintenance and monitoring periods. The project biologist shall possess specific knowledge and demonstrate experience with habitat revegetation projects and familiarity with sensitive plant and wildlife species identified on the site. The project biologist shall possess at least 5 years of upland habitat revegetation experience in Southern California.

The project biologist will inform all project personnel prior to implementation of each phase of revegetation of all on-site construction restrictions and conditions. The project biologist will inform all project personnel of the presence or potential presence of sensitive species and vegetation communities within or adjacent to the project areas, as well as any potential dangers on site (e.g., rattlesnakes, beehives, poison oak, steep grades, etc.). Information about federal, state, and local laws relating to these biological resources will be discussed as part of personnel education. Access and staging areas outside of environmentally sensitive areas will be established and flagged.

Biological monitoring will occur throughout each phase of revegetation installation. Monitoring time may increase or decrease as required by field conditions and construction activities. Each site visit will be documented in a site observation report that will note contractor activities, project status, and any project deficiencies. The project biologist will conduct formal site observations in accordance with this plan.

Memorandum

Subject: *Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*

1.1.2 Final Project Revegetation Contractor

A qualified landscape contractor will implement the final revegetation installation and maintenance portion of the construction plans and specifications. Revegetation installation and associated labor shall be provided by a contractor possessing a valid California C-27 landscape contractor's license who has previous experience with native habitat revegetation in the region and who can demonstrate at least three successful similar revegetation projects in Southern California. The contractor must be able to identify California native plants and common weed species and demonstrate knowledge of habitat revegetation techniques.

The final revegetation contractor will be responsible for conformance to (1) project EIR, (2) resource agency requirements, and (3) all construction documents and this Revegetation Monitoring and Management Plan. The contractor's responsibility will continue until successful revegetation and final acceptance by the project biologist at the end of the initial 120-day plant establishment period. The contractor will not be released from contractual obligations until written notification is received from the operator/lead agency, in consultation with the project biologist, certifying satisfactory completion of all required installation tasks as defined in the installation contract, construction documents, the project permits, and this memo.

After initial installation and completion of the 120-day plant establishment period, the CDPR and/or operator will have 5 years of maintenance services performed by a qualified landscape maintenance contractor that specializes in native vegetation community revegetation. Maintenance work shall be performed as indicated herein and per the project biologist's recommendations. The CDPR and/or operator may choose to hire a maintenance contractor that is separate from the installation contractor.

2 Existing and Proposed Conditions and Requirements

The existing physical conditions of the project site, including vegetation communities, soils, hydrology, topography, and special-status plant and wildlife species, are summarized in the biological resources report (Dudek 2021b). Additionally, the proposed project will alter the soil types found on site once fill material is placed. Existing soils will be buried at depth. A description of final imported topsoil requirements/specifications is included in the revegetation construction drawings and specifications (Dudek 2021c).

The existing land use and regulatory conditions of the project site are described in the project EIR (Dudek 2021a). The project has been developed to maintain compliance with existing land use and regulatory conditions to the extent feasible. Mitigation measures may be included in the final project EIR that include additional requirements or restrictions on the site. At this stage, no such measures are required and all final revegetation goals are incorporated in the project description. If such measures are added during the CEQA review process, this memorandum and/or the construction plans and specifications shall be amended to meet those requirements. Similarly, regulatory permits that may be required to implementation the project, such as for grading, conditional use, incidental endangered species take, and/or others permits, may contain requirements or restrictions that are relevant to the revegetation goals, approach, monitoring, maintenance, management, and/or reporting. Those requirements should be incorporated into this memorandum and/or the construction plans and specifications to the extent applicable.

3 Revegetation Implementation Plan

Final revegetation implementation will include the replacement and preparation of topsoil, container plant installation, and the application of native Diegan coastal sage scrub (CSS). A description of these activities is provided in this section.

3.1 Revegetated Vegetation Communities

On-site revegetation will consist of CSS Type A (slope) and CSS Type B (mesa) (Dudek 2021b). Type A consists of a standard CSS mixture of plant species typically found on slopes in this portion of the Tijuana River Valley and is intended to provide habitat for multiple native wildlife species, including coastal California gnatcatcher (*Polioptila californica californica*). Type B consists of a selection of CSS plant species typical of Spooner's Mesa and is intended to provide habitat for multiple native wildlife species, including Quino checkerspot butterfly (*Euphydryas editha quino*).

3.2 Required Activities During Implementation

The following activities are required during implementation of revegetation, including but not limited to project installation and interim maintenance. All site features, including temporary perimeter fence, signage, and erosion control features, shall be maintained by the project contractor and kept in proper condition through the end of the project maintenance and monitoring period.

3.2.1 Construction Fence

Protection of existing vegetation will be provided by existing t-post and rope fencing and/or temporary orange construction fence or chain-link fence installed along the perimeter of each project phase to protect adjacent environmentally sensitive areas and revegetation areas from subsequent phased grading activity, Border Patrol access, and pedestrian access to the site. Actual fence locations will be approved by the project biologist prior to installation. Fences will be installed approximately 10–15 feet from the edge of grading limits to permit equipment access during subsequent project phases. After the completion of Phase 6 grading, it is anticipated that the majority of fence remaining on site will be removed except in those areas where continued revegetation area protection is needed. All fence will be removed following acceptance of Phase 6 reclamation by the resource agencies, the County of San Diego, and other responsible parties.

3.2.2 Quino Checkerspot Butterfly Host Plant Surveys and Avoidance

Prior to the pre-restoration phase activities, a biologist shall survey the mesa for Quino checkerspot butterfly host plants. All host plant populations shall be flagged and a 20-foot buffer established around the host plant population(s). Restoration activities within this avoidance area shall be restricted to hand weeding and/or herbicide application only. No mechanical work shall be done in this avoidance area. Highly compacted soils that are not suitable for Quino checkerspot larvae within the 20-foot buffer can be excluded from the avoidance area as determined by the project biologist.

Memorandum

Subject: *Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*

In addition, general breeding season avoidance (see below) will reduce the potential for restoration activities to result in adverse effects to adult Quino checkerspot butterflies.

3.2.3 On-Site Construction Activity Restrictions

During revegetation installation, the following guidelines shall be followed:

- Compliance with applicable project mitigation measures, including:
 - MM-BIO-3 which prohibits clearing, grubbing, grading, or other ground-disturbing activities between March 1 and August 15.
 - MM-BIO-5 which prohibits removal of habitat that supports active nests between January 15 and September 15.
- Machinery shall stay in designated work areas. Machinery refueling and or servicing must take place at designated staging areas.
- No dumping of debris will occur in or near the revegetation areas.
- Construction access to the site will be limited to existing approved roads/routes.
- No smoking will be permitted within or adjacent to the revegetation site.
- Fire abatement equipment must be present on site when machinery is being operated.
- All staging areas shall be accessible to County and CDPR staff, the project biologist, and regulatory agencies, subject to applicable safety protocol.
- Environmentally sensitive area and revegetation area fences will be flagged and/or verified by the project biologist prior to the initiation of each mining phase.
- A water truck will be on site to provide dust control during soil disturbance. This water truck may also be used for fire abatement, as required.

3.2.4 Construction Monitoring by Project Biologist

The project biologist will make regular site visits during project implementation at a frequency that is appropriate for the construction activities being monitored. The project biologist will review activities for conformance to this plan, regulatory requirements, and the requirements of contract plans and specifications. Each site observation visit will be documented in an observation report. Photo documentation of construction progress and site conditions will be conducted, as needed.

In addition to biological monitoring outlined herein during implementation of the revegetation work, biological monitoring shall also occur during implementation of the geotechnical study and for any grading.

3.3 Site Preparation

Dredged and/or excavated materials placed on quarry slopes shall be ripped to 12 inches deep to relieve compaction from placement. Slopes shall be floated out (dragged with a section of chain link fence fabric) to remove ridges and depressions in the ripped soil surface. Any non-native and invasive plants that have germinated during the grading process shall be removed from the revegetation areas prior to planting or seeding. Perennial weeds or

Memorandum

Subject: *Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*

exotic species such as fennel (*Foeniculum vulgare*) and artichoke thistle (*Cynara cardunculus*) shall be treated with a systemic herbicide and removed once the root system is dead. All anthropogenic debris shall be removed from the sites prior to implementation.

3.4 Soil Preparation

Revegetation area soil shall be tested by a pre-approved soils testing laboratory for its suitability to grow native upland plant species. If soil deficiencies are detected, soil shall be amended pursuant to the soil laboratory's recommendations in consultation with the project biologist's recommendation to promote suitable soil that can support healthy native plant growth. At a minimum the following soil characteristics shall be evaluated by the soil tests: pH, salinity/ECe, SAR, macro and micro nutrient levels, texture, infiltration rate, and typical soil element levels.

Prior to planting and hydroseeding, revegetation areas shall be cleared of any dead plant material or other trash and/or debris to expose bare mineral soil and raked or roughed to incorporate seed.

3.5 Erosion Control and Best Management Practices

Applicable erosion control measures in the form of best management practices (BMPs) will be used as necessary on temporary slopes that have not reached final design elevation contours during each project phase. BMPs will be used during revegetation site preparation and incorporated into the installation of the revegetation sites to minimize erosion and topsoil loss, as site conditions necessitate. BMPs will be maintained throughout phased construction and during the 5-year maintenance period or until new native vegetation is sufficiently established to provide adequate soil protection and slope stability.

BMPs include installation (as necessary) of a non-invasive, non-habitat forming erosion control seed mix (to be defined in the grading plans and specifications), silt fencing, fiber rolls, and gravel bags at key locations where the potential for erosion and soil transport exists. A sediment basin will be maintained on site throughout all project phases. Runoff from manufactured slopes shall be directed to the sediment basin through sheet flow and temporary swales. BMPs shall be implemented as indicated in the project's Stormwater Pollution Prevention Plan for compliance with the State Water Resources Control Board's Construction General Permit. The project's Qualified Stormwater Pollution Prevention Plan Practitioner will monitor during the project to help ensure BMP compliance. The use of non-native seeds shall not be permitted in erosion control seed mixes.

3.6 Project Access Routes

Access to the project site is gained via an existing dirt road off Monument Road. Monument Road connects to Dairy Mart Road for Interstate 5 access. It is assumed that all dredged and excavated materials will be hauled to the previous quarry site via Monument Road. Separate staging areas will be established on the previous quarry site for Phases 1-4 and Phases 5-6.

3.7 Planting Design

A planting plan (Dudek 2021c) was prepared based on the vegetation community descriptions and species account from the biological technical report (Dudek 2021b).

3.8 Vegetation Establishment Methods

Vegetation communities will be reestablished through native seed application and container plant installation. All work shall be monitored by the project biologist and installed by a licensed landscape contractor (Class C-27) with demonstrated experience performing habitat restoration in the region.

3.8.1 Temporary Aboveground Irrigation System

Installation of a temporary aboveground irrigation system is recommended to support vegetation development until plants can survive on their own, based on observed and predicted seasonal rainfall and effective plant rooting depth (see Dudek 2021c). Container plant establishment will progress more rapidly and have lower fatality rates than if left to seasonal rainfall patterns within the first few growing seasons.

All irrigation will be installed by the qualified landscape contractor under direction of the project biologist. The irrigation system should be designed with aboveground components to facilitate removal once the system is decommissioned.

The irrigation system would use a programmable solar-powered controller that would operate independent irrigation circuits, minimizing irrigation maintenance requirements for the site. The irrigation system may utilize irrigation spray heads or drip irrigation, as determined appropriate and feasible by the landscape architect, project biologist, and CDPR.

The goal of the revegetation project is to create native, self-sustaining plant communities. Ideally, irrigation use would be discontinued at least 2 years before the end of each phased 5-year maintenance and monitoring period to demonstrate the vegetation communities' ability to survive without supplemental water. The project biologist would consult with CDPR and the project contractor regarding the watering schedule during the monitoring period and the timing for the cessation of irrigation. Irrigation should stop at the earliest possible date without risking significant loss of plantings.

3.8.2 Plant Material Installation

Plant material installation must be coordinated with the project contractor, CDPR and/or operator, and the project biologist. Plant material and seed is ideally installed in late fall, winter, or early spring when low ambient daytime temperatures, short daylight periods, and low evaporation encourage seed germination and establishment of seedling and container plants.

Plant materials for the planting plan will include container stock and a native hydroseed mix as indicated in the planting plan (Dudek 2021c). All container plants will be checked for viability and general health upon arrival at the revegetation site. Plant species and quantities will be confirmed by the project biologist.

Standard planting procedures will be employed for installing container plants. Holes approximately twice the size of the root-ball of the plant will be dug using a posthole digger or power auger. Holes will be filled with water and allowed to drain immediately prior to planting. Backfill soil containing amendments (such as a fertilizer tab or equivalent), as directed by the project biologist, will be placed in every planting hole following soaking, and container plants installed so that the top of the root-ball is at grade.

Memorandum

Subject: *Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*

After container plants have been installed, hydroseed mixtures will be applied to all planting areas. Labels for each hydroseed mixture shall be inspected and approved by the project biologist prior to mixing and application. All hydroseed mixes are to include the specified seed mix at the prescribed rate per acre: virgin wood cellulose fiber mulch at 2,500 pounds per acre, commercial fertilizer at the specified rate as directed by the project biologist during finish grading, and a commercial binder (Az-Tac, Guar Gum, or equivalent) at 100 pounds per acre.

4 5-Year Interim Maintenance Plan

All areas of revegetation will be subject to the requirements specified in this memorandum and construction drawings and specifications (Dudek 2021c). The operator/contractor will be responsible for the maintenance and monitoring of the revegetation sites until the project has met the success criteria and is accepted as complete by the regulatory agencies, County of San Diego, and potentially other responsible parties.

Because the goal of the revegetation effort is to establish a mosaic of native vegetation consistent with those surrounding the impacted areas that can support themselves with little or no maintenance, the primary effort of the maintenance program is concentrated in the first few seasons of plant growth following project installation, when weeds can easily out-compete native plants. The intensity of the maintenance activity is expected to subside each year as the native plant materials become more established and local competition from non-native plants for resources in the revegetation areas is minimized through ongoing control of non-native plants.

4.1 Maintenance Activities

Maintenance activities will be conducted concurrent with the installation of the container plants and seeding, will continue throughout the initial 120-day establishment period and through the interim maintenance and monitoring period, and will conclude at the end of the 5-year period for each revegetation phase. Contractor maintenance activities shall be conducted to maintain the site in conformance with the established performance criteria. The project biologist will conduct inspections every other month during Year 1 and on a quarterly basis from Years 2 through 5. Recommendations by the project biologist for maintenance efforts will be based on site observations and will include assessment of and recommendations to improve or repair emerging native vegetation as listed below. Additional maintenance visits may be recommended if interim performance criteria are not being met.

4.1.1 Non-Native Plant Species Control

Ongoing weed control activities will occur throughout the 5-year maintenance period. Weed control will consist of the complete control of selected non-native vegetation. Weeding will be performed at least seasonally and as recommended by the project biologist and CDPR to meet the performance standards indicated herein. All debris and slash generated from weed removal activities will be disposed of offsite in a legally acceptable manner.

Weed control measures may include direct physical removal using non-mechanized hand tools and/or carefully spot spraying with herbicide when adjacent native seedlings and vegetation can be avoided. Herbicide treatments must be pre-approved by CDPR, prescribed by a licensed pest control advisor, and applied under supervision of a licensed or certified pest control applicator.

Memorandum

Subject: *Revegetation Monitoring and Management Plan for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*

Weeds shall be controlled before they set seed and prior to accumulating significant green waste. Weed debris shall be promptly bagged and removed from the site. Maintenance crews must be adept at distinguishing between native and non-native plants.

Chain saws, string trimmers, mowers, or other mechanized methods will only be allowed outside of the migratory bird nesting season and must be pre-approved for use by the project biologist and CDPR and/or operator.

4.1.2 Trash Removal

Trash will be removed from the site by hand during maintenance visits. Trash consists of all human-made materials, equipment, or debris dumped, thrown, washed, blown, and left within the revegetation areas. Trash and inorganic debris deposited on the revegetation site will be removed regularly. Deadwood and leaf litter of native plants will not be removed. Downed branches and leaf litter provide valuable micro-habitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals.

4.1.3 Irrigation System Maintenance

Contractor maintenance shall include adjustment and repair to the temporary irrigation system. This may include repair or replacement of broken or malfunctioning components and programming the timer based on weather patterns and precipitation. The project biologist may make recommendations to the contractor to increase or decrease watering time or scheduling.

5 Monitoring Plan

5.1 Performance Standards

The goal of this revegetation plan is to restore native CSS vegetation on the manufactured slopes and mesa to fully reclaim the Nelson-Sloan Quarry in accordance with the project description and any subsequent regulatory requirements. By the end of Year 5 of each phased installation, final revegetation areas shall achieve coverage, general plant composition, and structural complexity of surrounding, non-impacted vegetation of the same community type. Tables 2a and 2b present the interim and final performance standards that define the success of the reclamation effort. These standards apply to each revegetation phase to allow phases to be signed off independent of subsequent phased efforts.

If interim standards are not attained, the project biologist will adaptively manage the revegetation program through maintenance modifications and or remedial measures that will bring the project into conformance. Such modifications may include changes to the maintenance activities including additional weed control, adjustments to the irrigation regime, soil amending, drainage alterations, and/or reseeding selected underperforming revegetation areas.

At the end of the 120-day period after installation, container plants shall have a survival rate of 100%. At the end of Year 5, annual weeds will make up no more than 5% of the entire cover on site within native revegetation areas. All revegetation areas shall be free of invasive, perennial plant species such as artichoke thistle, fennel, and tree tobacco (*Nicotiana glauca*).

Table 2a. Performance Standards – Coastal Sage Scrub Type A (Slope)

End of Monitoring Year	Relative Native Cover (%)	Species Diversity ¹ (%)	Maximum Non-Native Annual Relative Cover (%)	Maximum Non-Native Perennial Relative Cover (%)
1	20	100	15	5
2	35	90	12	3
3	55	80	10	2
4	70	80	7	1
5	85	80	5	0

¹The species diversity percentage shall be based on the number of species planted and seeded.

Table 2b. Performance Standards – Coastal Sage Scrub Type B (Mesa)

End of Monitoring Year	Relative Native Cover (%)	Species Diversity ¹ (%)	Maximum Non-Native Annual Relative Cover (%)	Maximum Non-Native Perennial Relative Cover (%)
1	20	100	15	5
2	30	90	12	3
3	45	80	10	2
4	65	80	7	1
5	70	80	5	0

¹The species diversity percentage shall be based on the number of species planted and seeded.

If performance goals for weed control and native plant establishment are met prior to the end of Year 5 of each phase, the project phase will be considered to have fulfilled its revegetation requirements, and the project biologist will solicit final project sign off from the County of San Diego and any other applicable agencies or parties.

5.2 Monitoring Schedule

Upon completion of project phase final revegetation installation and verification by the project biologist, the 5-year monitoring period will be initiated. During the first 120 days following installation, the project will be monitored monthly by the project biologist to ensure 100% survival of container plants at the end of that time period. Plants that die within this period will be replaced by the landscape contractor as recommended by the project biologist. The project biologist will perform qualitative monitoring visits every other month during Year 1 and on a quarterly basis during Years 2 through 5.

After each qualitative visit, a site observation report will be provided to appropriate lead agency staff, the project operator, and the landscape maintenance contractor. The site observation report will include descriptions of the project status, site conditions, and any maintenance recommendations or remedial actions.

5.3 Revegetation Monitoring Methods

Qualitative monitoring of the revegetation site will be performed by the project biologist during the 120-day establishment period and regularly throughout the duration of the 5-year monitoring period.

Observations of native vegetation coverage, weed presence, and site progress will be noted during monitoring visits and will be summarized in the annual monitoring report. Qualitative monitoring will be conducted to assess native plant vigor and development, seedling recruitment from applied native seed and natural sources, soil moisture content, presence/absence of plant pests or diseases, erosion and/or drainage conditions on site, presence/absence of non-native or invasive plant species, trash or debris accumulation, wildlife presence/absence, and project fencing. All qualitative monitoring visits to the project site will be documented with a monitoring report, which will be forwarded to the lead agency staff, project operator, and landscape maintenance contractor. Any project deficiencies will be noted in the monitoring report, with accompanying recommendations for maintenance or remedial actions.

5.4 Annual Reports

Annual monitoring reports will be submitted to the lead agency staff and project operator for their distribution to applicable regulatory agencies, landowner, and other responsible parties during the 5-year maintenance and monitoring period of the project. Annual reports outlining the results of the project monitoring will be submitted on the anniversary date of the start of the 5-year maintenance and monitoring period. The monitoring reports will describe the existing conditions of the project areas derived from qualitative field observations. The reports will provide a comparison of annual performance criteria with field conditions; identify all shortcomings of the revegetation project, project implementation, etc.; and recommend remedial measures necessary for successful completion of the project. Each yearly report will provide a summary of the accumulated information. Annual reports also will include the following:

- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities
- Figures, including photographs depicting site progress
- Maps identifying monitoring areas, planting zones, and weed removal areas as appropriate

6 Contingency Measures

Contingency measures are designed to provide a methodology for adaptive management during the revegetation monitoring and maintenance period. Although all potential contingencies cannot be identified, the most common issues requiring adaptive management actions are discussed below.

6.1 Initiating Procedures for Contingency Measures

If performance criteria are not met for all or any portion of the revegetation project, remedial action may be recommended to rectify the conditions. If the ultimate performance criteria are not met, the project biologist and lead agency and/or operator shall prepare an analysis of the causes of failure within the appropriate annual report

and, if determined necessary by the project biologist, propose remedial action for regulatory agency, landowner, and other responsible parties approval.

6.2 Adaptive Management Plan

Adaptive management will be implemented in the event of unforeseen or probable but unpredictable circumstances. Adaptive management is defined, for the purposes of this project, as a flexible, iterative approach to the management of biological resources, directed over time by the results of ongoing monitoring activities and direct observation of environmental stressors producing adverse results within the site. Adaptive management will include the utilization of regular qualitative assessments and rapid qualitative assessment data gathered in the field prior to and during the revegetation project to assess the health and vigor of native vegetation within the site. Following an event that causes damage to all or part of the revegetation sites, these data will be used in part to drive management considerations for repair of the damaged areas. Achieving the key goals of project completion and establishment of self-sustaining native vegetation communities will be the focus of all adaptive management decisions. Individual environmental stressors are discussed below along with an anticipated range of management responses to correct any damage that may occur to the revegetation site.

6.2.1 Drought

Seasonal drought is a normal annual cycle in San Diego County, and all plant palettes have been designed with drought-tolerant plant species that are capable of withstanding seasonal fluctuations in available moisture. However, an extended drought could potentially occur, including low seasonal rainfall and prolonged high temperatures that may negatively affect the revegetation site (e.g., lower native cover, higher plant mortality, increased potential for pest infestations on site, etc.).

If drought conditions limit native vegetation development, the temporary irrigation system may be used to sustain the plants.

6.2.2 Herbivory

Some grazing and browsing by native herbivores is expected to occur within the revegetation areas. The plant palettes for each vegetation community have been designed to tolerate a moderate level of plant browsing. If browse levels should become elevated (i.e., if significant plant mortality and cover reduction occurs) as indicated by qualitative monitoring of the revegetation site, remedial measures shall be implemented. Browse guards (plastic fencing/wire cages) may be installed around the base of trees and young shrub plants in affected areas to reduce plant mortality. In addition, remedial planting or seeding may be necessary, depending upon the stage of the project. Each of these options would require the use of contingency funds to restore affected areas.

6.2.3 Fire

This region of San Diego County experiences periodic wildfires. Vegetation communities native to the area are adapted to this periodic fire regime, with plant species possessing the ability to stump, sprout, or otherwise regenerate from underground plant material. While fire is a co-evolutionary factor, it also presents the possibility for faster-growing, early

successional non-natives to out-compete the recovering native species. In the event of fire affecting the revegetation areas, the project biologist will assess the post-fire conditions and provide adaptive management recommendations.

6.2.4 Border Patrol Activities

If an incursion by Border Patrol agents is observed within the revegetation areas, coordination with Border Patrol management officers should be initiated. Every effort should be made to redirect access around the revegetation area. Barriers and signage at the point of entry may be necessary to effect change in the access routes. Areas damaged by vehicular traffic should be remediated through reseeding and re-establishment of erosion control.

6.3 Funding Mechanisms

The same funding source available for the intended revegetation project, as established by the project multijurisdictional agreement, is assumed to also be available for any additional planning, implementation, and monitoring of any contingency procedures that may be required to achieve the revegetation goals. Adequate contingent funds will be established to provide remedial measures as necessary. Should the project responsibility change hands, financial obligations for this revegetation effort will transfer to the future responsible assignee of the project.

7 Completion of Revegetation Program

7.1 Notification of Completion

The lead agency shall notify the County of San Diego and other applicable regulatory agencies upon submitting the annual report for the final year in which the ultimate performance criteria have been met for each revegetation phase. County and/or regulatory agency staff may request confirmation that the project has met performance goals and require a final site review. Early release may be possible if performance standards are met early and the County/regulatory agencies/responsible parties agrees with the level of establishment. Removal of the protection fence, erosion control devices, irrigation system, and signage would occur prior to final sign off.

7.2 Regulatory Agency Confirmation

Following receipt of the notification of completion, the County, regulatory agencies, and/or other responsible parties may visit the site to confirm completion of the revegetation effort and will issue formal letters of success prior to acceptance.

8 References

Dudek. 2021a. *Draft Environmental Impact Report for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*. Prepared for the California Department of Parks and Recreation. September 2021.

Memorandum

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Dudek. 2021b. *Draft Biological Resources Technical Report for the Nelson-Sloan Quarry Restoration and Beneficial Reuse of Sediment Project, San Diego County, California*. Prepared for the California Department of Parks and Recreation. September 2021.

Dudek. 2021c. *Revegetation Construction Drawings and Specifications for the Nelson Sloan Quarry Restoration Project*. Prepared for the City of San Diego Development Services Department.