DRAFT

NORTHLAKE
CASTAIC, LOS ANGELES COUNTY, CALIFORNIA

SPECIAL-STATUS PLANTS

IMPACT ASSESSMENT

AND

HABITAT MITIGATION AND MONITORING PLAN

July 2022 [Revised October and December 2022, February 2023, and April 2024

Prepared for:

Woodridge Capital Partners, LLC
1999 Avenue of the Stars, STE 2850
Los Angeles, CA 90067
Thomas DiPrima
Telephone: (310) 824-7093

Prepared by:

Glenn Lukos Associates, Inc.
1940 E Deere Avenue, Suite 250
Santa Ana, California 92705
Contact: Tony Bomkamp
Telephone: (949) 340-7333

TABLE OF CONTENTS

TABLES

EXHIBITS

I. INTRODUCTION/BACKGROUND

The project involves the phased development of up to 3,150 residential units, 9.2 acres of commercial uses, 13.9 acres of industrial uses, 799.5 acres of parks and open space, a 22.9-acre school site and a 1.4-acre pad for a future fire station (Project). Subsequent to the publication of the Final SEIR, the Regional Planning Commission requested that the Applicant include an affordable housing component in the Project. The Applicant made minor revisions to the Project to include an affordable component. Specifically, the Applicant eliminated 108,283 square feet (SF) of industrial use and 13,197 SF of commercial uses and reallocated 323 units from the Phase 2 area of the Project to the Phase 1 area. The County of Los Angeles Planning Commission approved the Northlake Project [Exhibits 1 and 2] on April 18, 2018 and the Los Angeles County Board of Supervisors approved the Project on April 2, 2019.

On January 11, 2021 the Los Angeles Superior Court ruled (Court Ruling) on the Center For Biological Diversity and Endangered Habitats League v. County Of Los Angeles, et al, and Real Parties in Interest, Northlake Associates, et al, Case No. 19STCPO1610, finding that relative to the five rare or special-status plants that the Supplemental Environmental Impact Report (SEIR) was deficient in failing to adequately delineate and define adequate mitigation measures for the relocation of the rare plants. The ruling on the rare plants is as follows.

ISSUE FOUR: THE MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE RARE PLANTS ARE NOT SUFFICIENT UNDER CEQA:

Five special status plant species have been identified during surveys to exist at various locations on the Project site. These are the round-leaved filaree, the club-haired mariposa lily and the slender mariposa lily (collectively lilies); the paniculate tarplant, and the southwestern spiny rush. AR 1926-29. As special status plant species, a destruction of their habitat must be mitigated to less than significance. Guidelines 15065(a)(l). The loss of these plants through the site development is to be mitigated by the transplantation of all existing individual plants as well as seeds or bulbs that are found. The FSEIR states:

> *A less than significant impact would be achieved through implementation of MM 5.2 -2, MM 5.2-3 and MM 5.2-11... which require a Riparian Restoration Program be developed and approved by USACE [US Army Corps of Engineers], CDFW, and LACDRP prior to issuance of grading permits, ... AR 8564*

MM 5.2-4 specifies procedures for the lilies. Seeds are to be collected and bulbs excavated for transplantation to a mitigation site and established as a self-sustaining population. A Biological Monitor is to prepare a Mitigation Plan for approval of LACDRP and is to oversee its implementation. AR 8568.

MM 5.2-5 specifies procedures for the round-leaved filaree, paniculate tarplant, and southwestern spiny rush. The Project applicant is to prepare procedures to collect and store the plants and seeds, create an alternate site to include soil preparation, irrigation, methods

to control competing plants at the new site and prepare a list of "County-approved success criteria."

The CDFW challenges the adequacy of the mitigation measures, pointing out that the sites for transplantation are not selected, that the procedures to accomplish transplantation are not specified, and that success criteria are yet to be determined. CDFW believes that the rare plants cannot be transplanted on the site as the available patches after development will be fragmented. The CDFW is likewise dubious about transplantation off-site:

> *The Department has concerns when the DSEIR states it will transplant species off-site as this implies other areas will be subject to impact by this action. This additional impact would then need mitigation as this ecosystem is now being altered. AR 7398.*

CDFW was concerned that the mariposa lilies might not survive transplantation, saying it was unaware of any population created by seeding or translocation having been successful "at demonstrating long-term self-sustaining population."

CDFW expressed dissatisfaction with the generality of the mitigation measures, saying:

> *MM7 [now MM 5.2-4 and -5] does not allow the Department to comment on the appropriateness of the location, technique, success criteria, monitoring methods, density, length of time monitoring is required, or the method proposed for long-term protection and funding. AR 7399.*

The deficiencies identified in the CDFW letter demonstrate that the deferred mitigation measures for transplantation of the rare plants do not satisfy the CEQA standards set forth in Guidelines section 15126.4(a)(l)(B).

The applicant relies on the Glenn Lukos Associates (Bomkamp) letter to supply the evidence that deferred mitigation measures for the relocation of the six plant varieties are guidance enough. AR16015-18. Bomkamp's letter advises that there are various locations where the soil conditions are suitable to re-establish the individual plant varieties, but, beyond that, no information is provided to address the deficiencies identified by the CDFW. Further detail is required for the mitigation measures proposed for the rare plants in order to mitigate the destruction of their habitat to a less than significant threshold.

The mitigation measures for successful relocation of the rare plants found at the Project site do not comply with CEQA requirements.

The purpose of this Special-Status Plants Impact Assessment (Impact Assessment) and Habitat Mitigation and Monitoring Plan (HMMP) is to address the Court Ruling. It includes an updated impact assessment and a comprehensive mitigation and monitoring program that will provide for mitigation of significant impacts to less than significant. This Impact Assessment and HMMP relies in part on the previous work by BonTerra Psomas (BonTerra) as set forth in the DSEIR and October 2017 *Special Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County,*

California[1] and where applicable incorporates specific methods and approaches proposed by BonTerra; while supplementing the BonTerra plan where appropriate to provide for an HMMP that addresses all aspects of the mitigation required to reduce potentially significant impacts to less than significant.

This HMMP also proposes long-term protection of the mitigation sites addressed in this HMMP through establishment of a Conservation Easement (CE) or easements, as appropriate. The CE would be dedicated to a local land conservancy or other appropriate entity that has been approved to hold and manage mitigation lands pursuant to Assembly Bill 1094 (2012). Assembly Bill 1094 amended Government Code sections 65965-65968. Under Government Code section 65967(c), the lead agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.

In addition, this HMMP identifies specific sites(s)/area(s) would be protected and depicts these site(s)/area(s) on accompanying exhibits. The plan specifies what resource(s) would occur/be protected in conserved site(s)/area(s). The Santa Monica Mountains Conservancy (SMMC) will serve as landowner, land manager, and endowment holder for the Marple Canyon spiny rush preservation site. The Mountains Recreation and Conservation Authority (MRCA) will serve as the Conservation Easement (CE) Grantee. Likewise, the SMMC is a potential landowner, land manager, and endowment holder for the mitigation areas within NorthLake holdings, with the MRCA holding the CE (the applicant is also exploring other entities that meet the above requirements and as of yet, no decision has been made regarding the long-term management of NorthLake holdings where mitigation would be conducted). The plan provides specific information on how the Lead Agency would enforce the long-term protection and funding of mitigation lands.

The DSEIR identified significant impacts to five special-status plants including round-leaved filaree (*California macrophylla*), paniculate tarplant (*Deinandra paniculata*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) Slender mariposa lily (*Calochortus clavatus* var. *gracilis*), club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*). Mitigation measures (MMs) were set forth in the DSEIR including MM 5.2-4 for the two varieties of Mariposa lily and MM 5.2-5 for the round-leaved filaree, paniculate tarplant, and southwestern spiny rush. Included in the mitigation measures was preparation of a "Special Status Plant Species Restoration Plan," which was provided by the *Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County, California* (BonTerra Rare Plant Plan) as part of the FSEIR. Thus, based on updated information and the Court Ruling, the HMMP sets forth mitigation measures for rare plants where the current determination is a potential significant impact.

[1] BonTerra Psomas. October 2017. *Special Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County, California.* Note: BonTerra merged with Psomas and because BonTerra Psomas. Older documents were prepared by BonTerra before the merger and later project documents were under BonTerra Psomas. This report uses "BonTerra" throughout.

The Impact Assessment below considers the following significance threshold from the CEQA Guidelines Appendix G, IV. Biological Resources: Would the Project

> a) *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 Game or U.S. Fish and Wildlife Service?*

II. SPECIES CHARACTERISTICS

Five special-status plant species were detected on the site during various surveys over multiple years. The species accounts address the species detected in 1998 and 2001 as well as by BonTerra in 2014. The Impact Assessment includes important updates, specifically with regard to the California Rare Plant Rank (CRPR) for the round-leaved filaree and the addition of the California Natural Diversity Database (CNDDB) Rarity rankings for southwestern spiny rush, paniculate tarplant, slender mariposa lily, and club-haired mariposa lily to provide a more robust analysis relative to the significance of the impacts.

Round-leaved filaree

Round-leaved filaree is an annual or biennial herbaceous species that occurs in clay soils in grasslands, openings in coastal sage scrub, and cismontane woodland (Allen and Roberts 2013). This species is less than six inches in height and generally blooms between mid-March and early May. Round-leaved filaree was listed with a CRPR of 1B.2 (Rare or endangered in California and elsewhere, fairly endangered in California) in October 2017, when BonTerra prepared the BonTerra Rare Plant Plan[2].

A total of 39 individuals of this species was observed in annual grassland in the central portion of the site in silty-clay soils in 2001, as depicted on Exhibit 3a, and was not observed during botanical surveys conducted in 2014 (BonTerra Psomas 2014). Associated plant species reported in 2001 included salt grass (*Distichlis spicata*), foxtail barley (*Hordeum murinum leporinum*), western plantain (*Plantago erecta*), fascicled tarweed (*Deinandra fasciculata*), and California goldfields (*Lasthenia californica*); however, neither the geographic extent or density of the population were reported and are thus unknown. On April 6 and 14, 2022 the location was visited by GLA biologist Tony Bomkamp to determine whether the occurrence was extant, and the species was not detected. On the April 14 site visit, County of Los Angeles Biologist Joe Decruyenaere was present and assisted in the survey. The site conditions appear to have become degraded and may explain why round-leaved filaree was not detected on either visit.

In November 2017, after completion of BonTerra's *Special Status Plant Species Restoration Plan* the California Native Plant Society removed this species from the "Inventory of Rare and Endangered Plants" changing the status from 1B.2 to "Considered but Rejected" (CBR),[3] with the

[2] Ibid.

[3] The California Rare Plant Rank is derived directly from the California Native Plant Society *Inventory of Rare and Endangered Plants.*

note: "**Too common statewide**"; with the additional comment: "counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern." Thus, this species no longer has special status under the CRPR (or as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFW) or U.S. Fish and Wildlife Service (USFW) as discussed below in the impact analysis. Nevertheless, the plant is considered locally rare by the County of Los Angeles and is addressed in this plan, should the occurrence be confirmed in preconstruction surveys.

Paniculate tarplant

Paniculate tarplant is an annual herbaceous species that is found in grassland, open chaparral and woodland, and disturbed areas, often in sandy or sandy-clay soil (Baldwin et al 2012). This is an upright species that grows up to 30 inches in height and typically blooms between May and November. Paniculate tarplant has a CRPR of 4.2 (Limited distribution in California, fairly endangered in California). Of note is the fact that paniculate tarplant has a CNDDB Rarity Ranking of S4 ("Apparently secure within California")[4] and CalFlora lists 710 records for this species as discussed below in the impact assessment.

One population of paniculate tarplant comprised of several hundred individual plants was observed during 2014 botanical surveys in the northern-central portion of the Project site, in an opening of sage scrub habitat on a northwest-facing slope [Exhibit 3a]. The 2014 report did not provide the geographic extent or density of the population. This occurrence was confirmed during a site visit on April 14, 2022, at which time the geographic extent was mapped using GPS and the density was observed to be variable ranging from approximately one to five plants per square meter, resulting in population estimate of 600. Associated plant species at this location include California sagebrush (*Artemisia californica*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), and nodding needlegrass (*Stipa cernua*).

Southwestern spiny rush

Southwestern spiny rush is a perennial rhizomatous herb that occurs in alkaline seeps and moist saline soils. This species grows from 20 to 50 inches in height and typically blooms between June and August (Baldwin et al 2012); however, it is detectable throughout the year. Southwestern spiny rush has a CRPR of 4.2 (Limited distribution in California, fairly endangered in California). Like the paniculate tarplant, Southwestern spiny rush has a CNDDB Rarity Ranking of S4[5] ("Apparently secure in California") and CalFlora lists 406 records for this species. Southwestern spiny rush was observed throughout Grasshopper Canyon, and it was estimated by BonTerra that several hundred individual plants exist in the Project development boundary. BonTerra's mapping showed that the majority of Grasshopper Creek was occupied; however, densities were not reported. Approximately 2,000 individuals of this plant were observed throughout the main drainage in Grasshopper Canyon in 2021 by GLA biologists. The

[4] http://www.rareplants.cnps.org/detail/1892.html
[5] http://www.rareplants.cnps.org/detail/939.html

plants were distributed throughout Grasshopper Creek areas depicted on Exhibit 4c. GLA noted that density varies from occasional individuals to dense thickets of nearly 100-percent cover for some localized patches. In general, the spiny rush was limited to the low flow channel and adjacent terraces. The plants were growing in mule fat scrub and mule fat scrub/spiny rush marsh vegetation. The substrate in these areas is sandy riverwash with cobbles and boulders (BonTerra 2014). The plant species generally associated with the individuals includes mule fat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*).

Slender mariposa lily and club-haired mariposa lily

Slender mariposa lily and club-haired mariposa lily are perennial herbs in the lily family and *Calochortus* genus, which consists of 50 species and/or subspecies that are native to California. Slender mariposa lily has a CRPR of 1B.2 (Rare or endangered in California and elsewhere, fairly endangered in California) and a CNDDB Rarity Ranking of S2S3 ("Imperiled" and "Vulnerable"), and club-haired mariposa lily has a CRPR of 4.3 (Limited distribution in California, not very threatened in California) and a CNDDB Rarity Ranking of S3. CalFlora lists 95 and 117 occurrences respectively. These plants represent varieties of the same species and are known to hybridize with each other. Due to this known hybridization, these two species are often treated as a single species for purposes of impact assessment and mitigation. For portions of the population BonTerra mapped occupied polygons [Exhibit 3b]; however, did not provide specific counts for each polygon so it is not possible to establish densities. GLA has observed this species on multiple sites in northern Los Angeles County and densities vary from very low (< one/square meter) to multiple/square meter. Density for the proposed establishment areas is addressed below.

III. IMPACT ASSESSMENT

Expected impacts to target species are based on plant surveys conducted by BonTerra in 2014, combined with observations from previous surveys in 2001 and 1998. Because plant populations vary year-to-year, the number of individual plants can only be estimated based on the previous surveys. A final determination of the number of plants, requiring mitigation for project impacts will be made during at least two separate pre-construction botanical surveys (performed during separate years). The purpose of the pre-construction surveys will be to quantify the number of plants subject to mitigation within the Project development boundary and to mark plants to facilitate collection of plant material. The following sections provide a summary of expected impacts to the various target plant species as well as an updated determination of the significance of the impacts.

Pre-Construction Surveys

Pre-construction surveys will be conducted by qualified botanists or biologist during the blooming period for each species or when the species is easily identifiable. For example, the spiny rush is identifiable during all times of the year, while the round-leaved filaree, paniculate tarplant, and mariposa lilies have specific blooming periods when surveys will be performed. Specifically, the round-leaved filaree blooms during March, April, and May. Paniculate tarplant blooms from April

to November with peak flowering in July and August. The slender and club-haired Mariposa lilies bloom March through June. Surveys for the round-leaved filaree, paniculate tarplant, and Mariposa lilies will be conducted during peak blooming periods. In order to maximize detection, early season surveys that coincide with the beginning of the blooming period should be performed to ensure that the plants are in vegetative state or in early flowing period. Survey(s) will be conducted in accordance with accepted botanical survey guidelines (CDFW 2018, CNPS 2001, Nelson 1984, USFWS 2000). As discussed in more detail below, mitigation for impacts will be based on the largest number of plants recorded during pre-construction surveys or surveys conducted for the Biological Technical Report by BonTerra.

In evaluating the significance for the proposed impacts, it is important to note that none of the special-status plants are listed by the Federal Endangered Species Act (FESA) as threatened or endangered or under the State of California Endangered Species Act (CESA) as threatened, endangered, or rare. The special-status designation for the five plant species detected on the Project site are, as noted in the descriptions above, originally based on the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants of California*, which has been adopted by the State of California and provides the ranking for the CRPR. The impact analysis prepared by BonTerra for the SEIR was based on the CRPR; however, they did not include the CNDDB Rarity Ranking which ranks plants according to State, National and Global Rarity Rankings as discussed following the discussion of the CNPS/CRPR Ranking of certain plants.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. The CNPS' Eighth Edition of the *California Native Plant Society's Inventory of Rare and Endangered Plants of California* ("Inventory") separates plants of interest into five ranks. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW. CNPS has developed five categories of rarity that are summarized in Table 1, which in turn form the basis for the CRPR.

Table 1: CNPS Ranks 1, 2, 3, & 4, and Threat Code Extensions

CNPS Rank	Comments
Rank 1A – Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere	Thought to be extinct in California based on a lack of observation or detection for many years.
Rank 1B – Plants Rare, Threatened, or Endangered in California and Elsewhere	Species, which are generally rare throughout their range that are also judged to be vulnerable to other threats such as declining habitat.
Rank 2A – Plants presumed Extirpated in California, But Common Elsewhere	Species that are presumed extinct in California but more common outside of California.

Rank 2B – Plants Rare, Threatened or Endangered in California, But More Common Elsewhere	Species that are rare in California but more common outside of California.
Rank 3 – Plants About Which More Information Is Needed (A Review List)	Species that are thought to be rare or in decline but CNPS lacks the information needed to assign to the appropriate list. In most instances, the extent of surveys for these species is not sufficient to allow CNPS to accurately assess whether these species should be assigned to a specific rank. In addition, many of the Rank 3 species have associated taxonomic problems such that the validity of their current taxonomy is unclear.
Rank 4 – Plants of Limited Distribution (A Watch List)	Species that are currently thought to be limited in distribution or range whose vulnerability or susceptibility to threat is currently low. In some cases, as noted above for Rank 3 species, CNPS lacks survey data to accurately determine status in California. Many species have been placed on Rank 4 in previous editions of the "Inventory" and have been removed as survey data has indicated that the species are more common than previously thought. CNPS recommends that species currently included on this list should be monitored to ensure that future substantial declines are minimized.
Extension	**Comments**
.1 – Seriously endangered in California	Species with over 80% of occurrences threatened and/or have a high degree and immediacy of threat.
.2 – Fairly endangered in California	Species with 20-80% of occurrences threatened.
.3 – Not very endangered in California	Species with <20% of occurrences threatened or with no current threats known.

In considering impacts to List/Rank 4 species, it is important to note that these species often do not trigger a determination of "significant impacts" because as noted in Table 1 above, these "Species that are currently thought to be limited in distribution or range **whose vulnerability or susceptibility to threat is currently low**". Where appropriate, the "Threat Codes" are considered for major impacts; however, the CNPS Inventory includes the following notes regarding the Threat Codes:

Notes:

1. *The above Threat Rank guidelines only represent a starting point in the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in setting the Threat Rank.*
2. *Many of the Threat Ranks have not been reassessed since the time they were first designated after implementation of the Rare Plant Status Review Process, and therefore may not represent the current level of threats associated with a given taxon.*

3. *The Threat Ranks do not designate a change of environmental protections. For instance a CRPR 1B.3 plant has the same environmental protections as a CRPR 1B.1 plant, and it is mandatory that both be fully considered during preparation of environmental documents relating to CEQA.*[6]

As discussed below, three of the plants, southwestern spiny rush (4.2), paniculate tarplant (4.2), and club-haired mariposa lily (4.3), identified on the NorthLake site are List/Rank 4 species and two have a Threat Code of ".2". As noted by CNPS, many of the threat codes have not been reassessed; however, the CNDDB Rarity Rankings provide additional information regarding the rarity and threat of special-status plants as addressed below.

> *The classification scheme that CNHP and The Natural Heritage Network use to track rare species and natural communities is a standardized ranking system that allows the Heritage Network members and cooperators to target the most at risk species and ecosystems for inventory, protection, research, and management. Species and ecosystems are ranked on the Global (G), National (N), and Subnational/State/province (S) levels. The basic ranks used to classify species and ecosystems are:*
>
> *1 = Critically Imperiled (Example: G1 = Globally Ranked Critically Imperiled)*
> *2 = Imperiled (Example: N2 = Nationally Ranked Imperiled)*
> *3 = Vulnerable to Extirpation (Example: S3 = State Ranked Vulnerable to Ext.)*
> *4 = Apparently Secure*
> *5 = Demonstrably Widespread, Abundant, and Secure*[7]

NatureServe, from which the above is derived, defines S4 as follows: "**Apparently Secure** — At a fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors."[8]

Finally, relative to "State Rankings:"

> *The most widely used NatureServe rank in the United States are the State Ranks, which describe the rarity of a species within each state's boundary. These State Ranks begin with the letter "S". Global, National, and State ranks all use a 1-5 ranking system, summarized below:*
>
> *1 = Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences.*[9]

---

[6] https://www.cnps.org/rare-plants/cnps-rare-plant-ranks#:~:text=0.2%2DModerately%20threatened%20in%20California,or%20no%20current%20threats%20known)
[7] https://cnhp.colostate.edu/ourdata/help/heritage/
[8] https://help.natureserve.org/biotics/content/record_management/Element_Files/Element_Tracking/ETRACK_Definitions_of_Heritage_Conservation_Status_Ranks.htm
[9] Note that when addressing special-status plants, the term "occurrences" typically represents distinct sub-populations that are separated from other sub-populations across the geographic range. While in some rare instances

2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences.
3 = Rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences.
4 = Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences.
5 = Demonstrably widespread, abundant, and secure.[10]

Nevertheless, while plants with a CNDDB Rarity Ranking of S4 are considered "Apparently Secure" the California Department of Fish and Wildlife (CDFW) requires at a minimum that species from CRPR List 3 and 4 as well as species with an S4 Rarity Ranking be evaluated relative to significance of specific project impacts. In a recent letter, on an unrelated project in the western part of the City of Los Angeles, CDFW addressed treatment of plants from CRPR Lists 1A, 1B and 2:

CEQA provides protection not only for CESA listed and candidate species but for any species including: SSC that can be shown to meet the criteria for State-listing; and plants designated as 1A, 1B and 2 of the California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California, which consist of plants that, in a majority of cases, would qualify for listing (CEQA Guidelines §§ 15380[d] and 15065 [a]).[11]

The letter also notes that impacts to all special-status species that potentially occur on the Runyon Canyon site should be evaluated in the DEIR and that discussion includes one plant, Plummer's mariposa lily[12], listed as 4.3 on the CRPR and S4 in the CNDDB. Thus, CDFW distinguishes between plants from CRPR Lists 1A, 1B, and 2 and those on the "watch list" (List 4). The treatments below, consider all of these factors in the evaluation of the significant impacts for species on List 4 and with a CNDDB ranking of S4.

In addition, with respect to number of occurrences of populations, the Calflora database was used to provide additional information as to the number of occurrences of the species at issue in this report to further evaluate the State Rankings. Calflora's statewide database is based on information gathered from many sources including the Consortium of California Herbaria, iNaturalist, public agencies, non-profits, scientists, and private individuals. Calflora's research primarily concerns the presentation of already-digitized botanical information, including images, location, and collection information.

---

the term can apply to single individuals, in most cases it denotes a distinct group of plants that occur together and are separated from other similar groups.

[10] https://inr.oregonstate.edu/orbic/rare-species/ranking-definitions

[11] California Department of Fish and Wildlife. May 3, 2018. Comments on the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the 3003 Runyon Canyon (ENV-2016-4180-EIR) Project, City of Los Angeles, Los Angeles County (SCH# 2018041016).

[12] Plummer's mariposa lily a distinct species of Mariposa lily that was not observed on the Project site during focused surveys and, therefore, not further addressed here. BonTerra Biological Technical Assessment Report, Appendix D to the DSEIR, page 31.

Round-leaved filaree

Round-leaved filaree was observed during 2001 plant surveys, when 39 plants were observed within the Project development boundary. However, this species was not observed during surveys conducted in 2014, indicating that this species may have been extirpated from the Project site. Site visits on April 6 and 14, 2022 to the site location where the species was previously detected in 2001 did not find the population consistent with the finding that the population may have been extirpated. If this species is not detected during pre-construction plant surveys, it will be considered extirpated, and no mitigation will be required.

As noted above, in November 2017, the California Native Plant Society removed this species from the "Inventory of Rare and Endangered Plants" changing the status from 1B.2 to "Considered but Rejected" ("CBR")[13] with the note: "**Too common statewide**"; with the additional comment: "counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern." This species has over 600 reported occurrences in CalFlora statewide.[14] Thus, this species no longer has special status in California. The round-leaved filaree is not listed on an official, local, or regional plan; nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[15] Therefore, impacts to this species, if determined to be present, would be significant under the above significance threshold, Appendix G, Significance Threshold Biology IV(a). Potential impacts to this species, if it is still present on the NorthLake site, are considered significant and mitigation is required if present on the site.

Paniculate tarplant

Paniculate tarplant was observed in 2014 in a single population that consisted of several hundred individual plants, all of which occur in the Project development boundary. The population was detected on April 14, 2022, consistent with the previous observations. As noted, this species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, given (i) the CRPR rank of 4 and the S4 Rarity Ranking, (ii) over 700 reported population occurrences in CalFlora statewide,[16] substantially exceeding the minimum threshold of 100 occurrences for the S4 category, and (iii) that this species is not on any official local or regional plans; nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[17] Therefore, impacts to this species would be considered significant and would require mitigation with the removal of the Project site population under Appendix G, Significance Threshold Biology IV.(a).

[13] http://www.rareplants.cnps.org/detail/1340.html
[14] https://www.calflora.org/app/taxon?crn=10468
[15] June 08, 2021. Joseph Decruyenaere, Los Angeles County Biologist, Personal Communication regarding status of round-leaved filaree.
[16] https://www.calflora.org/app/taxon?crn=8915
[17] June 08, 2021. Joseph Decruyenaere, Los Angeles County Biologist, Personal Communication regarding status of paniculate tarplant.

Southwestern spiny rush

Southwestern spiny rush was observed throughout Grasshopper Canyon, and it was estimated by BonTerra that several hundred individual plants exist in the Project development boundary. GLA conducted a focused survey and census in 2021 and found approximately 2,000 individuals in Grasshopper Creek distributed throughout Grasshopper Creek, all of which are in the impact limits, as depicted on Exhibit 4c.[18] GLA noted that density varies from occasional individuals to dense thickets of nearly 100-percent cover for localized patches. As noted, this sub-species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, given (i) the CRPR rank of 4 and the S4 Rarity Ranking, (ii) over 400 reported occurrences in CalFlora, statewide[19] substantially exceeding the minimum threshold of 100 occurrences for the S4 category, and (iii) that this species is not on any official local or regional plans; nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[20] Therefore, impacts to this species would be considered significant with the removal of the Project site population under Appendix G Significance Threshold Biology IV.(a) and would require mitigation as set forth below.

Slender mariposa lily and club-haired mariposa lily

BonTerra reported that approximately 1,709 individuals of slender/club-haired mariposa lily hybrids were observed at 36 locations on the Project site during botanical surveys conducted in 2014; an additional 22 populations contained plants of varying densities, likely representing an additional 1,000 or more individuals. It is estimated that over 3,000 individuals occur on the Project site; however, in the BonTerra Draft Rare Plant Plan, it was clarified that of the approximately 3,000 individuals observed in the Project site, approximately 2,000 individuals are located within the Project development boundary. Given the List 1B status and S2S3 CNDDB Rank for the slender mariposa lily and the S3 Rarity Rank for the club-haired mariposa lily and the CalFlora occurrences (95[21] and 117[22] respectively), impacts to this species would be considered significant before mitigation and with mitigation would be reduced to less-than significant as evaluated below.

Peirson's Morning Glory

Peirson's morning glory was observed throughout the native upland vegetation types, especially in sage scrub-grassland ecotone areas, as well as in disturbed areas along the side of Ridge Route Road. Impacts to this CRPR List 4 taxon, which is still common in northern Los Angeles County (unlike the round-leaved filaree, paniculate tarplant and the southwestern spiny rush) was considered adverse, but less than significant due to the low status of these species and their relative abundance throughout their range and no mitigation was required. However, impacts on this species are expected to be reduced through the implementation of mitigation requirements for

[18] This includes Offsite Areas 1 and 3.
[19] https://www.calflora.org/app/taxon?crn=4433
[20] June 08, 2021. Joseph Decruyenaere, Los Angeles County Biologist, Personal Communication regarding status of southwestern spiny rush.
[21] https://www.calflora.org/app/taxon?crn=1274
[22] https://www.calflora.org/app/taxon?crn=1273

vegetation types and special status plants. These mitigation measures would require preservation or restoration of impacted sage scrub, foothill needlegrass grassland, and California annual grassland/wildflower fields; habitat types in which this species is found. Additionally, restored habitats would include this species as a target for seed mix. These measures combined would lessen any adverse impacts by providing for long-term population sustainment in the region. (SDEIR 5.2-24.) Specifically, Mitigation Measure 5.2-5 in the SEIR included a provision wherein "The harvested seeds of Peirson's morning glory will be included in the seed mixes for the restoration of foothill needlegrass grasslands described in Mitigation Measures 1 and 2." To provide a protocol for such seed collection, this species is included in this Plan.

IV. HABITAT MITIGATION AND MONITORING PLAN (HMMP)

A. Summary of Plan

The following provides a comprehensive detailed program intended to reduce the significant impacts to five special-status plants: round-leaved filaree (CRPR Rank: CBR, Locally Rare), paniculate tarplant (List 4.2, Locally Rare), southwestern spiny rush (List 4.2, Locally Rare), slender mariposa lily (List 1B.2 and S2S3), and the club-haired mariposa lily (List 4.3 and S3), the two mariposa lily species, which as noted by BonTerra, are known to hybridize and, therefore for purposes of this plan are treated together as a single taxon. The mitigation program set forth below incorporates components of the BonTerra Draft Rare Plant Plan and includes additional components based on GLA's experience with various rare plant species including Mariposa lily. Specifically, the components of the Rare Plant HMMP include the following:

- Goals
- Identification of mitigation receptor sites
- Preparation of receptor sites
- Methods for collection of seed for propagation
- Methods for collection of bulbs for translocation
- Methods for installation of bulbs at receptor sites
- Maintenance requirements
- Monitoring methods
- Performance standards
- Contingency measures
- Agency concurrence of completeness

It is important to note that the ecological characteristics, habitat requirements, and sensitivity, are different for the above-referenced species and therefore the associated restoration program for each species is different for the four species (the two subspecies of Mariposa lilies are treated together). The level of detail varies according to the ecological requirements, sensitivity, and the goals for each species. The HMMP components have been tailored for each species and are addressed in Sections IV.B – IV.E, below. It is important to note that for some of the species, not all the above-listed HMMP components are applicable and therefore are not included. For example, only the

Mariposa lilies exhibit bulbs, this character has no application for the other rare plants and is not included.

B. Round-Leaved Filaree

1. Goals

The goal of round-leaved filaree replacement program is to establish a self-sustaining population consisting of the number of individuals detected during pre-construction surveys. As noted, round-leaved filaree was observed during 2001 plant surveys, when 39 plants were observed within the Project development boundary. The 2001 location was mapped as a single point and the geographic extent was not provided. This species was not observed during surveys that were conducted in 2014 or site visits in April 2022, indicating that this species may have been extirpated from the Project Site. If this species is not detected during two years of pre-construction plant surveys, with average or above-average rainfall it will be considered extirpated, and no mitigation will be required. Rainfall is considered average if it is within one quartile (+/- relative to the mean). The average rainfall for northwestern Los Angeles County is 20 inches per year using the Del Valle Weather Station, approximately six miles to the southwest of the Project site. Thus, where seasonal rainfall is at least 15 inches for the season, October 1 and April 15, the rainfall is considered average and suitable for surveys. If the species is detected during pre-construction surveys, the goal of the program would be to replace the existing population, through the methods described below, which includes growing container stock from seed for introduction to a suitable receptor site and through soil salvage. Replacement would be based on the largest number of plants detected during the two years of surveys. While the geographic extent of the population is not known, based on the diminutive size of the plants a population much larger than 39 could be easily accommodated within 0.25 acre.

2. Identification of Receptor Sites

The suitability of receptor sites was determined by the presence of suitable soils, specifically the Castaic-Balcom silty clay loams and Sorrento loams which occurs within various areas of Project open space. Given the small size of the population and the diminutive stature of the plants, the receptor area for this required for this species will cover less than 0.25 acre and can be accommodated at various locations. For purposes of efficiency, areas adjacent to the western spadefoot toad pool creation sites. These areas would be graded for creation of the spadefoot pools (grading is depicted by purple topographic lines on Exhibit 4a); however, following grading the area surrounding the pools would be restored to native habitat and would provide adequate area with suitable soils as depicted on Exhibit 4a. In addition, we have identified a second location of a west-facing slope that consists of the Castaic Balcom silty clay loam and could also be used as receptor site for the round-leaved filaree depicted on Exhibit 4a, should the primary receptor site adjacent to the western spadefoot toad pool sites fail to meet performance standards. As noted, the round-leaved filaree is a diminutive plant, typically less than six inches in diameter. Thus, at a density of one plant per square foot, which would be low density, a site covering approximately 0.25 acre could accommodate 10,890 individuals. Thus, based on counts by BonTerra in 2001, 0.25 acre would be more than sufficient area for the receptor site based on 39 plants being observed

at that time. It should also be noted that the location for round-leaved filaree, based on BonTerra's mapping is a gentle west facing slope, which would be provided by the proposed translocation site adjacent to the spadefoot ponds.

In addition, as noted by BonTerra, "round-leaved filaree receptor site(s)…should consist of (1) grassland areas that are dominated by native grass species of moderate density or (2) openings within sage scrub habitats that have low coverage of shrub species. If a potential receptor site has moderate to dense non-native grass cover, pre-transplantation weed removal combined with ongoing weed control efforts will be necessary to prevent non-native species from displacing round-leaved filaree plants".

3. Preparation of Receptor Sites

The proposed receptor sites are currently vegetated with non-native grasses and forbs including ripgut (*Bromus diandrus*) and summer mustard (*Hirschfeldia incana*). Beginning at least one full year prior to introduction of the container stock and soil blocks (if incorporated as addressed below), a grow-and-kill program will be initiated to reduce the cover by non-native grasses and forbs to levels acceptable for introduction of the round-leaved filaree container stock, which would be less than 20-percent non-native cover by the end of the ten-year monitoring period (see performance standards below for additional discussion of ongoing reduction of non-native cover during the maintenance and monitoring period). Installation of the round-leaved filaree would occur following the second full year of maintenance where the cover of non-native grasses and herbs has been reduced to 30 percent or less. Should non-native cover exceed 30-percent at the end of two years, introduction of the round-leaved filaree would be delayed until year three or when the 30 percent threshold has been achieved.

To increase the likelihood of success and to ensure that the primary translocation site is not adversely affected by weedy competitors, the site would be planted with a mix of native grasses and shrubs typical of native habitat on the site that would provide habitat for the round-leaved filaree. The native plant palette would be planted after one full year of maintenance to suppress weed cover. Table 2 below provides the plant palette for the proposed habitat. The alternative translocation site supports a mix of scrub and non-native grasses and would require weed removal and maintenance should planting occur at this location. The performance standards would apply to both sites. The round-leaved filaree would be translocated following installation of the scrub and grassland palette and as noted above only after non-native weedy cover is at or below 30 percent cover.

TABLE 2
Sample Seed Palette

Botanic Name	Common Name	Lbs/Acre
Acmispon glaber	Deerweed	0.5
Corethrogyne filaginifolia	Common sandaster	4.0

Croton setiger	Turkey-mullein	4.5
Deinandra paniculata	Paniculate tarplant	3.0
Deinandra fasciculata	Clustered tarweed	3.0
Eriogonum fasciculatum	California buckwheat	2.0
Festuca microstachys	Small fescue	2.0
Hordeum brachyantherum	Meadow barley	2.0
Stipa pulchra	Purple needlegrass	2.0
Stipa lepida	Foothill needlegrass	0.5
Total		**23.5**

Monitoring Plan for Grassland and Scrub Revegetation Areas First-Year

First First-Year Monitoring

Success Standard: A minimum of 30-percent coverage by native species;
100-percent of proposed canopy species present;
50-percent of proposed understory present
No greater than 40-percent coverage by non-native species.

Second-Year Monitoring

Success Standard: A minimum of 40-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 30- percent coverage by non-native species.

Third-Year Monitoring

Success Standard: A minimum of 50-percent coverage by native species;
100-percent of proposed canopy species present 60-percent of proposed understory present
No greater than 25- percent coverage by non-native species.

Fourth-Year Monitoring

Success Standard: A minimum of 60-percent coverage by native species;
100-percent of proposed canopy species present
75-percent of proposed understory present
No greater than 20- percent coverage by non-native species.

Fifth-Year Monitoring

Success Standard: A minimum of 70-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present

No greater than 20- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

Sixth through Tenth-Year Monitoring

Success Standard: A minimum of 80-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present
No greater than 20- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

4. Methods for Collection of Seed for Propagation

If the round-leaved filaree is detected during pre-construction surveys, seed will be collected during the appropriate timeframe following flowering, at the end of each survey season, which would occur between June and August. Location of plants will be staked and/or flagged and recorded using sub-meter GPS Technology. To ensure that the maximum amount of seed is procured each season, the biological monitor will visit the site every two weeks following the start of the flowering season to collect seed as the fruits ripen. The fruits (mericarp) from each plant would be hand-collected and placed in paper bags for temporary storage in a cool, dry facility. Once collection is complete, the collected material would be transferred to an appropriate seed storage facility that is certified to hold or work with rare plants, for cleaning and storage until ready for reestablishment on the site. Fifty percent of the seed will be preserved for using in contingency sites if needed. If not needed for contingency purposes because the performance standards have been achieved, the contingency seed will be hand-broadcast at the receptor site following successful completion.

During seed collection, soil from the site will also be collected from the area around the existing population for use in the propagation in a native plant propagation facility. The soil will be stored in a cool, dry location until transfer to a facility for propagation.

In conjunction with site preparation, the seed would be transferred to a facility that specializes in native plant propagation (e.g., Tree of Life Nursery) for propagation. The seeds would be germinated in flats with the soil collected from the site and then transferred to "liners" that also contain soil from the area of the population that will be planted as container stock in the receptor site or sites.

In addition to use of container stock, the soil from the impact sites was initially proposed for collection using the soil-block method as described by BonTerra:

> *Collection of blocks of soil is a useful tool for plant translocation as soil in known locations of special status species contains a seed bank for these species as well as any beneficial microorganisms. If a population of round-leaved filaree is identified during pre-construction surveys, soil that contains these plants will be collected and relocated to an appropriate receptor site. Soil will be collected at*

round-leaved filaree populations after seed collection has occurred in approximate two to four square foot blocks to a depth of four to six inches.

This method could be implemented in conjunction with container stock installation and the soil squares would be installed in proximity to the container plants to maximize the potential for replacement of the round-leaved filaree. The number of soil blocks would be determined by the project biologist at the timed of the salvage, based on areal extent and density of the population. Because the site that has been mapped as containing the round-leaved filaree is currently dominated by non-native grasses and forbs, it may be detrimental to move soil blocks due to importation of weeds to the translocation site and based on site conditions observed in spring of 2022 is not recommended due to substantial weed cover (estimated at greater than 75 percent). If this condition remains, it would be determined to be harmful by the Project biologist, and soil block translocation would not occur.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the container stock and soil blocks. Maintenance will occur over the life of the translocation/mitigation project, for a ten-year period. The Project Biologist will monitor all aspects of the round-leaved filaree replacement effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for container stock establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Trash and debris removal
- Pest control

Inspection of Receptor Sites

After initial planting, the Project Biologist will check the restoration plots bi-monthly during round-leaved filaree growing season which can begin as early as January through July every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memorandums shall focus on identified problems including vandalism,

weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control
Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing season (January-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.

Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed Pest Control Advisor ("PCA"). The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal
The receptor sites shall be well maintained as needed, to deter vandalism and trash dumping. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control
The receptor sites will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

Monitoring Methods
The receptor sites will be monitored for ten years following the completion of container stock and soil clump installation. The monitoring program will consist of the observation and evidence of vegetative growth, observation of emergent and flowering round-leaved filaree along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel

and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The Project Biologist will conduct monitoring surveys quarterly during non-growing season (September – April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) for up to five years to document the growth of the replacement population.

Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as the growth, flowering and seed production of the round-leaved filaree, as well as pest problems, weed establishment, mortality, and site security, will be noted in each site walkover. The Project Biologist will also note observations on native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Surveying Flowering and Seed Production

All flowering and non-flowering individuals observed within the receptor sites will be counted. As noted above, quantitative surveys may require multiple visits per month as the blooming period may be staggered along several months (i.e., vegetative growth or non-blooming individuals may not be detected until that individual has bloomed). Peak blooming periods may fluctuate year to year due to seasonal conditions, therefore multiple visits will aid in a more accurate count of flowering individuals.

Each flowering individual in the created plots will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results and will be incorporated into the data on emergent plants to capture the total of emergent plants that do no flower and emergent plants that exhibit flowering.

Photo-Documentation

Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

Monitoring Schedule

During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) for ten years.

Annual Monitoring Reports

At the end of each monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the transplant sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary.

Since planting may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after planting). These reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also 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 for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.
- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

In developing the performance standards for the round-leaved filaree, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of this plant consisting of the number of individuals/population size determined during pre-construction surveys. With replacement of the exiting population, the impacts would be fully mitigated. This requires consideration of the following factors:

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival and overall stability of the population. To this end, this plan proposes a ten-year monitoring term to track emergent plants along with flowering individuals which in combination provides the best and easiest indicators to track that the translocation is succeeding.

- Various threats to the plants must be minimized to ensure survival, germination, and ultimate flowering of recruited individuals, with seed set, leading to future germination/successful reproduction.

- Habitat characteristics including an abundance of non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability in the number of flowering individuals from year-to-year, the performance standards will have been achieved during at least three years during the ten-year monitoring program. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. Thus, if the following standard

is met in at least three years of the ten-year monitoring period then the program is considered successful.

Year One Through Year Ten (Begins with Installation of Round-Leaved Filaree)

- Flowering of a minimum of 100-percent of the total number of flowering plants originating from container stock, seed bank, and/or soil blocks, shall equal or exceed the number of container stock individuals planted (at least three years of the ten-year monitoring period); and
- Habitat subject to translocation must exhibit same or less cover by non-native grasses; and forbs than during the initial planting (20-percent at year five continuing through year ten).

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the first step will be to introduce hand watering, especially should significant drought occur. Hand watering would be performed during the spring prior to blooming to enhance growth and lead to flowering. Hand watering would be conducted for two years and if it does not result in achievement of performance standards, would require identification of alternative sites.
- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be propagated from the contingency seed supply held at the nursery for the (and maintained for at least ten years). Should the performance standards be achieved, contingency plant materials will be broadcast or installed in the translocation sites, with no additional performance standards for the contingency materials.
- The alternate site will be prepared as outlined for the initial site and modifications incorporated as determined by the project biologist in coordination with CDFW. Once an approach has been determined in coordination with CDFW, the container stock would be propagated from the contingency seed and the plants would be installed at the alternate site and a ten-year program, that included monitoring and maintenance would be initiated as set forth above.

Temporal Loss

If the translocation program fails such that at the end of ten years the site has failed to support round-leaved filaree, there would be a temporal loss that would require additional mitigation to compensate for the temporal loss. The additional mitigation would be performed at a ratio of 1.5:1.

C. Paniculate Tarplant

1. Goals

The goal of paniculate tarplant replacement program is to establish a self-sustaining population of paniculate tarplant based on the largest number of individuals detected during pre-construction surveys or original surveys conducted in support of the previously approved Project, whichever is largest. As noted, paniculate tarplant was observed by BonTerra during 2014 plant surveys, when a single population that consisted of several hundred individual plants was observed in Project development boundary. GLA confirmed the location and approximate number of plants on April 14, 2022 and determined the occupied area to cover about 0.30 acre. Pre-construction surveys would be conducted during two average or above-average rainfall years to determine the number of individuals present, with the goal of replacing the number of individuals detected during the largest of the two years of pre-construction surveys. Rainfall is considered average if it is within one quartile (+/- relative to the mean). The average rainfall for northwestern Los Angeles County is 20 inches per year using the Del Valle Weather Station, approximately six miles to the southwest of the Project site. Thus, where seasonal rainfall is at least 15 inches for the season, October 1 and April 15, the rainfall is considered average and suitable for surveys.

2. Identification of Receptor Sites

The suitability of receptor sites is determined by the presence of suitable soils, specifically the Castaic-Balcom silty clay loams which occurs within various areas of project open space. GLA has extensive experience with the paniculate tarplant on Rancho Mission Viejo in south Orange County where the species is commonly occurring in the tens of thousands in suitable years and occurs across a variety of soil types and within a variety of vegetation alliances including non-native grasslands and disturbed areas. Thus, the selected receptor sites here exhibit high suitability for this opportunistic species. Given the relatively small size of the population (a few hundred individuals), the receptor area for this species will cover 0.50 acre and can be accommodated at various locations. For purposes of efficiency, areas adjacent to the western spadefoot toad pool creation sites would provide adequate area with suitable soils as depicted on Exhibit 4a. Paniculate tarplant is an annual herb that can reach three feet in height with a diameter of up to 18 inches. Densities can be as high as five per square meter.[23] Thus, at a density of one plant per square meter, which would be low density, a site covering approximately 0.30 acre could accommodate approximately 1,200 individuals. Thus, based on counts by BonTerra in 2014 and observations by GLA in April of 2022, 0.30 acre would be more than sufficient area for the receptor site assuming a few hundred individuals, thus the 0.50 acre depicted on Exhibit 4a provides sufficient area.

In addition, as noted for the round-leaved filaree receptor site(s), discussed above, the paniculate tarplant receptor sites will consist of (1) grassland areas that are dominated by native grass species of moderate density or (2) openings within sage scrub habitats that have low coverage of shrub species. If a potential receptor site has moderate to dense non-native grass cover, pre-seeding weed

[23] Bomkamp, Tony. Personal observation of a large regional population in the Orange County Southern Subregion Habitat Conservation Plan Habitat Reserve between 1995 and 2020.

removal combined with ongoing weed control efforts will be implemented. It is important to note that the paniculate tarplant is disturbance adapted and can grow in non-native grasslands and the level of effort of site preparation for the round-leaved filaree discussed above will be more than sufficient for the paniculate tarplant.

3. Preparation of Receptor Sites

The proposed receptor sites are currently vegetated with non-native grasses and forbs including ripgut (*Bromus diandrus*) and summer mustard (*Hirschfeldia incana*). Beginning at least one full year prior to introduction of the paniculate tarplant seed (addressed below), a grow-and-kill program will be initiated to reduce the cover by non-native grasses and forbs to levels acceptable for introduction of the seed, which would be less than 30-percent non-native cover (see performance standards below for additional discussion of ongoing reduction of non-native cover during the maintenance and monitoring period). Installation of the paniculate tarplant would occur following the second full year of maintenance where the cover of non-native grasses and herbs has been reduced to 30 percent or less (ongoing maintenance will ultimately reduce non-native cover to 20 percent). Should non-native cover exceed 30-percent at the end of two years, introduction of the paniculate tarplant would be delayed until year three or when the 30 percent threshold has been achieved.

To increase the likelihood of success and to ensure that the translocation site is not adversely affected by weedy competitors, the site would be planted with a mix of native grasses and shrubs typical of native habitat on the site that would provide habitat for the round-leaved filaree. Table 2 above provides the plant palette for the proposed habitat with the associated performance standards following Table 2 above.

4. Methods for Collection of Seed for Propagation

Where the paniculate tarplant is detected during pre-construction surveys, seed will be collected during the appropriate timeframe following flowering, which would occur between June and August. The overall boundaries of the occupied area will be staked and flagged and recorded using sub-meter GPS Technology. To ensure that the maximum amount of seed is procured, the Biological Monitor will visit the site every two weeks following the start of the flowering season to collect seed as the fruits ripen. The seed from each plant would be hand-collected and placed in paper bags for temporary storage in a cool, dry facility. Once collection is complete, the collected material would be transferred to an appropriate seed storage facility (e.g., California Botanical Garden) for cleaning and storage until ready for hand broadcasting at the receptor site. Fifty-percent of the seed will be preserved for using in contingency sites if needed. If not needed for contingency purposes because the performance standards have been achieved, the contingency seed will be hand-broadcast at the receptor site following successful completion.

While BonTerra proposed collection of soil blocks as part of the paniculate tarplant replacement effort, this is not necessary as this plant can be restored through seed collection hand broadcasting and soil collection will not be implemented. Specifically, the paniculate tarplant is an annual that is highly disturbance adapted and performs well through seeding and thus, the soil block method

is not necessary and may be detrimental due to importation of additional weed seeds in the soil blocks.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the seeded paniculate tarplant over the life of the translocation/mitigation project, for at least a ten-year period. The Project Biologist will monitor all aspects of the paniculate tarplant replacement effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for paniculate tarplant establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Trash and debris removal
- Pest control

Inspection of Receptor Sites

After initial seeding, the Project Biologist will check the restoration plots bi-monthly during paniculate tarplant growing season which can begin as early as February through July or August every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memorandums shall focus on identified problems including vandalism, weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control

Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing season (January-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.

Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed PCA. The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal

The receptor sites shall be well maintained as needed, to deter vandalism and dumping of trash. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal activities. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control

The receptor sites will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

Monitoring Methods

The receptor sites will be monitored for ten years following the completion of seeding. The monitoring program will consist of the observation and evidence of vegetative growth, observation of emergent and flowering paniculate tarplant along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The Project Biologist will conduct monitoring surveys quarterly during non-growing season (September – April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July or August) for ten years to document the growth of the replacement population.
Qualitative surveys, consisting of a general site walkover and habitat characterization, will be

completed during each monitoring visit. General observations, such as the growth, flowering and seed production of the paniculate tarplant, as well as pest problems, weed establishment, mortality, and site security, will be noted in each site walkover. The Project Biologist will also note observations on native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Surveying Flowering and Seed Production

All flowering individuals observed within the receptor sites will be counted. As noted above, quantitative surveys may require multiple visits per month as the blooming period may be staggered along several months (i.e., vegetative growth or non-blooming individuals may not be detected until that individual has bloomed). Peak blooming periods may fluctuate year to year due to seasonal conditions, therefore multiple visits will aid in a more accurate count of flowering individuals.

Each flowering individual in the restoration plots will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results.

Photo-Documentation

Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

Monitoring Schedule

During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July and August) for ten years.

Annual Monitoring Reports

At the end of each monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the transplant sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary.

Since seeding may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after seeding). These reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also 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 for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.

- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

In developing the performance standards for the paniculate tarplant, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of this plant consisting of the number of individuals/population size determined during pre-construction surveys. This requires consideration of the following factors:

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival. To this end, this plan proposes a ten-year monitoring term to track flowering individuals which provides the best and easiest indicators to track that the translocation is succeeding.

- Various threats to the plants must be minimized to ensure survival, and ultimate flowering of seeded individuals leading to future germination/successful reproduction.

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability of the number of flowering individuals from year-to-year, the performance standards will be considered to have been achieved if during any of three years of the ten-year monitoring period, the target number is achieved. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period.

Year One Through Year Ten

- Flowering of 100-percent of the total number of flowering plants originating from seed shall equal or exceed the number of container individuals counted during the two-year monitoring period (at least three years of the ten-year monitoring period).
- Habitat subject to translocation must exhibit same or less cover by non-native grasses; and forbs than during the initial planting (30-percent).

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period the first step will be to introduce hand

watering, especially should significant drought occur. Hand watering would be performed during the spring prior to blooming to enhance growth and lead to flowering. Hand watering would be conducted for two years and if it does not result in achievement of performance standards, would require identification of alternative sites.

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to broadcast seed from the contingency seed supply held at the seed facility (and maintained for at least ten years). Should the performance standards be achieved, contingency seed would be broadcast in the receptor site.
- The alternate site will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with CDFW. Once an approach has been determined in coordination with CDFW, the seed would be broadcast at the contingency seed and seeded at the alternate site and a ten-year program, that includes monitoring and maintenance would be initiated as set forth above.

D. Southwestern Spiny Rush

1. Goals

The goal of spiny rush preservation and replacement program is to provide for a self-sustaining population of spiny rush that contributes to the persistence of this species within northern Los Angeles County. The proposed mitigation, for impacts to approximately 2,000 individuals, will include replacement of spiny rush in combination with preservation of approximately 523 individuals of spiny rush detected during surveys by GLA within Marple Canyon on March 7, 2022. As noted, GLA confirmed the approximate number of plants on the NorthLake site during surveys in 2021 wherein GLA biologists counted approximately 2,000 plants in Grasshopper Creek, including the areas designated as Offsite 1 and Offsite 3 on Exhibit 4a. In addition to preservation of approximately 523 individuals within Marple Canyon, replacement of spiny rush will be implemented within a segment of Grasshopper Creek downstream of the project site within lands under the ownership of NorthLake. Based on densities of spiny rush within the NorthLake project site, the offsite segment of Grasshopper Creek could support approximately 200 individuals providing for a combined total of 723 individuals. It should be noted that preservation of the Marple Canyon population includes long-term management by the Santa Monica Mountains Conservancy that will be responsible for the Marple Canyon preservation area.

Given the status and the total number of occurrences in the CNDDB as noted above: "…this sub-species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, given (i) the CRPR rank of 4 and the S4 Rarity Ranking, (ii) over 400 reported occurrences in CalFlora, statewide[24] substantially exceeding the minimum threshold of 100 occurrences for the S4 category…" the combined preservation and establishment within the downstream segment of Grasshopper Creek as depicted on Exhibit 4b, the population within northern Los Angeles County would remain secure and the impacts would be mitigated to less-than-significant through the combination of establishment and preservation.

[24] https://www.calflora.org/app/taxon?crn=4433

2. Identification of Receptor Sites

The suitability of receptor site was determined by the presence of suitable soils within the subject segment of Grasshopper Creek and suitable hydrology due to the presence of upstream debris basins that will provide for surface and subsurface flows to the proposed establishment site. Specifically, the debris basins will provide for slow release of storm flows that will extend the periods of saturated and/or wet soils in the establishment area. This combined with groundwater recharge due to the basins, which will provide subsurface water to the establishment area, will ensure adequate hydrology for the spiny rush. The proposed establishment site is depicted on Exhibit 4b in the context of the overall site with a close-up of the establishment site with debris basins that will be constructed as part of the development depicted on Exhibit 4c.

The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.

3. Preparation of Receptor Sites

The proposed receptor site in Grasshopper Creek, which is below the terraces where the western spadefoot toad pools will be located [see Exhibit 4C that shows the separation], is currently sparsely vegetated with occasional patches of mulefat (*Baccharis salicifolia*) and non-native grasses and forbs. Beginning at least one full year prior to introduction of the spiny rush, a non-native removal program will be initiated to reduce the cover by non-native grasses and forbs to levels acceptable for introduction of the spiny rush, which would be less than 30-percent non-native cover. Where spiny rush occurs within Grasshopper Creek and Marple Creek, it occurs in low densities under areas of willow riparian canopy and where canopy is lacking, it often occurs in dense thickets that exhibit near 100-percent cover. To preserve space for the spiny rush within Grasshopper Creek, and thereby maximize numbers, no canopy or other plantings are proposed for the establishment areas other than riparian species, which recruit naturally.

4. Methods for Collection of Seed for Propagation and Cuttings for Planting

As noted, spiny rush is common within Grasshopper Creek, allowing for the collection of abundant seed during the appropriate phenology, which would occur during July and August. To ensure that the sufficient seed is procured, the Biological Monitor will visit the site every two weeks following the start of the flowering season to collect seed as the fruits ripen. The seed from each plant would be hand-collected and placed in paper bags for temporary storage in a cool, dry facility. Once collection is complete, the collected material would be transferred to an appropriate seed storage and propagation facility (e.g., Tree of Life Nursery or other native plant nursery) for cleaning and storage until ready for initiation of growth of container stock. Fifty-percent of the seed will be preserved for growing additional container stock as needed to replaced dead or dying plants or for use in contingency sites if needed. If not needed for additional container stock or contingency purposes because the performance standards have been achieved, the contingency seed will be hand-broadcast at the receptor site or within Marple Canyon following successful completion.

To augment seed and associated container stock, cuttings from the root balls would be obtained. Cuttings would be obtained during the fall by landscape crews experienced in collecting such cuttings. A minimum of 200 cuttings would be collected from plants within the segment of Grasshopper Creek proposed for impacts and collection would occur within two months of impacts. Following collection, the cuttings would be placed in bucket with a few inches of water and the buckets would be moved to the establishment areas for planting. Cuttings would remain in the buckets for 15 to 45 days prior to transplantation and would be installed by the landscape crews.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the established spiny rush over the life of the translocation/mitigation project, for at least a ten-year period. The Project Biologist will monitor all aspects of the spiny rush replacement effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for spiny rush establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Trash and debris removal
- Pest control

Inspection of Receptor Sites

After initial planting of container stock, the Project Biologist will check the restoration plots bi-monthly during spiny rush growing season which can begin as early as February through July every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memoranda shall focus on identified problems including vandalism, weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control

Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing

season (January-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.

Weed eradication will minimize competition that could prevent the establishment of native species including spiny rush recruits. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed PCA. The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal

The receptor site shall be well maintained as needed, to deter vandalism and dumping of trash. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal activities. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control

The receptor site will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

Monitoring Methods

The receptor site will be monitored for ten years following the completion of planting of container stock. The monitoring program will consist of the observation and evidence of vegetative growth, observation of flowering spiny rush along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The habitat restoration specialists, biologists, or horticulturists will conduct monitoring surveys quarterly for ten years to document the growth of the replacement population. Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as mortality or lack of vigor along with the growth, flowering and seed production of the spiny rush, as well as pest problems, weed establishment, and site security, will be noted in each site walkover. The Project Biologist will also note observations on native plant recruitment, including spiny rush, for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Quantifying Established Plants

All spiny rush individuals observed within the receptor site will be counted. As noted above, quantitative surveys will be conducted once per year. Each individual in the restoration plot will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results.

Photo-Documentation

Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

Monitoring Schedule

During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored in a quantitative manner to determine the number of individuals (approximately March through June) each year for ten years.

Annual Monitoring Reports

At the end of each quantitative monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the establishment sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary.

The reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also 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 for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.
- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

In developing the performance standards for the spiny rush, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of approximately 200 plants. This requires consideration of the following factors:

- There will be loss of some of the planted individuals due to unsuitable micro habitat conditions and it will be necessary to replace container plants that do not survive initial plantings. To this end, this plan proposes a ten-year monitoring term to track survival of planted individuals which provides the best and easiest indicator to track that the establishment is succeeding.

- Various threats to the container plants must be minimized to ensure survival, germination of recruits, and ultimate flowering of planted and recruited individuals, with seed set, leading to future germination/successful reproduction.

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the potential loss of planted individuals from year-to-year, the performance standards will be considered to have been achieved if at the end of the ten-year monitoring period, the target number is achieved. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period.

Year One

- Survival of 80-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Year Two

- Survival of 90-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Year Three through Ten

- Survival of 100-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period the first step will be to introduce watering by means of a water truck, especially should significant drought occur. Watering would be performed throughout the year to promote survival and growth and lead to flowering and reproduction. Watering would be conducted for three years and if it does not result in achievement of performance standards, would require identification of alternative sites.
- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to establish container stock (and maintained for at least ten years). Should the performance standards be achieved, contingency seed would be broadcast in the receptor site.
- The alternate site will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with CDFW. Once an approach has been determined in coordination with CDFW, the container stock would be established at the alternate site and a ten-year program, that includes monitoring and maintenance would be initiated as set forth above.

Temporal Loss

If the translocation program fails such that at the end of ten years the site has failed to support spiny rush, there would be a temporal loss that would require additional mitigation to compensate for the temporal loss. The additional mitigation of the 200 plants proposed for establishment would be performed at a ratio of 1.5:1.

E. Slender/Club-Haired Mariposa Lily

As reported by BonTerra, the Project will result in a significant impact on the slender and club-haired Mariposa lily (slender/club-haired mariposa lily), which are treated as a single taxon for purposes of this HMMP:

> *Approximately 1,709 individuals of slender/club-haired mariposa lily hybrids were observed at 36 locations on the project site during botanical surveys conducted in 2014; an additional 22 populations contained plants of varying densities, likely representing an additional 1,000 or more individuals. It is estimated that over 3,000 individuals occur on the project site and approximately 2,000 individuals are located within the project development boundary.*[25]

[25] *Special Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County, California,* p.4.

In a letter dated June 15, 2017, the CDFW submitted a comment letter that included a discussion of the mitigation measures proposed for the slender/club-haired mariposa lilies.[26] The letter was prepared prior to preparation of the BonTerra Draft Rare Plant Plan, which itself was prepared to address many of the comments from CDFW. Nevertheless, to ensure that all CDFW's concerns are addressed, relevant comments are excerpted below:

> *B) Mariposa Lily Impacts. Impacts to club-haired mariposa lily (Calochortus clavatus var. clavatus) and over 3,000 slender mariposa lily (Calochortus clavatus var. gracilis) are proposed in Mitigation Measure 7 (MM7) that states the mitigation site will be located in dedicated open space in the study area or at an off-site mitigation site, and does not contain critical information including; [sic] numbers or densities, specific locations, techniques, or success criteria. The Department considers the loss of over 3,000 rare lilies regionally significant and MM7 does not demonstrate this population will survive long-term. The Department is not aware of any Mariposa lily seeding or translocation projects that have been successful at demonstrating a long-term self-sustaining population. The Department is aware of several large-scale lily seeding/translocation projects required by Los Angeles County in various CEQA documents; however, the Department has not received any evidence to demonstrate these undertakings are successful at securing a secure, self-sustaining population. A number of these projects involved transplanting bulbs into off-site areas already occupied with slender mariposa lily. The methods used in planting the bulbs ended up damaging the receptor site and caused more take of lily that occurred at this location.*
>
> *The Department recommends avoidance of this significant population of a regionally rare species. If avoidance is not feasible, specific information on how impacts will be mitigated are necessary for the Department to make meaningful comments or recommendations as to the biological soundness of any proposal. As stated above, MM7 does not appear to contain mitigation that the Department considers adequate in providing long-term success or survival of this species. MM7 does not allow the Department to comment on the appropriateness of the location, technique, success criteria, monitoring methods, density, length of time monitoring is required, of the method for long-term protection and funding.*
>
> *The Department does not support the use of irrigation, and any monitoring should begin after any irrigation and weed control has been completed as this is considered the installation or preparation phase. Monitoring for rare plants should occur for a minimum of 10 years to allow trends to be analyzed. No negative trend in rare plant individuals (counted separately as flowering, seed set and non-flowering individuals), and no positive trend in non-native plant cover should occur over the 10 years.*

[26] California Department of Fish and Wildlife. June 15, 2017. "Northlake Specific Plan Project (PROJECT) DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (DSEIR) SCH#2015031080.

MM7(f) states 60 percent of the seeds and bulbs collected shall be planted the first year, in an undetermined location. The Department does not concur with planting 60 percent of the collected seed/plants in the first year. Small scale, in situ plots with a few individuals should be conducted first to establish the baseline that these plants will naturally grow and set seed in these locations. Preferably, these growth plots should occur several years before grading impacts, to allow suitable planting areas be identified based on successful seed set. This could take multiple growing seasons and require germination studies. MM7(j) specifies undisclosed donor sites for seed collection. The Department strongly discourages mixing different population alleles into new areas as it compromises the integrity of the entire regional population.

First, as noted above, approximately 3000 slender/club-haired mariposa lilies are estimated to occur within the Project site with approximately 2,000 slender/club-haired mariposa lilies estimated to occur within the Project development/grading limits (Project Impact Area). A final count will be made during the two years of surveys prior to construction, and the number subject to the performance standards will be established during these surveys as described in more detail below. Thus, it will be necessary to ensure that the final total of impacted individuals within the Project Impact Area are adequately mitigated, which in turn will require replacement of sufficient numbers of mariposa lilies within areas of suitable habitat to mitigate the impacts. Establishment of a self-sustaining population or sub-populations that can be shown to persist at the receptor sites is the most critical component of the mitigation program because once the target number of plants are established and are reproducing within suitable habitat, the program can be considered a success. Thus, as set forth below, 1:1 or greater replacement is not necessary; nevertheless, there must be sufficient replacement to ensure that the reestablished population(s) are viable and contribute substantially to the regional population.

It is important to recognize CDFW's concerns that previous efforts to reestablish certain species or varieties of Mariposa lily have allegedly not been successful to date and that it will be necessary to ensure that suitable receptor sites are available and utilized, which is addressed below. In addressing CDFW's concerns the following proposals have been eliminated:

- Bulbs will not be translocated to occupied areas within the proposed mitigation sites based on pre-construction surveys with extant populations of slender or club-haired lilies[27]
- Irrigation by means of hand watering will be used in the translocation sites if determined necessary by the project biologist
- Monitoring will be conducted for 10 years
- Any offsite collection sites for seeds and bulbs that extends more than five miles beyond the Project site will be coordinated with CDFW to ensure genetic integrity

[27] GLA conducted surveys of the proposed translocation sites depicted on Exhibit 5 and found very low densities; only a few small patches within the some translocation sites. The presence of the species is important as it confirms overall suitability of the area for translocation including appropriate soils, aspect, and topography. Translocation would only be performed in areas that do not support extant populations.

1. Identification of Suitable Receptor Sites

The BonTerra Draft Rare Plant Plan identified the habitat occupied by the slender/club-haired mariposa lily hybrids, which informs the requirements of the receptor sites:

> *Slender mariposa lily and club-haired mariposa lily receptor site(s) shall consist of areas with rocky soils that naturally allow only low to moderate cover of native shrubs. Such areas consist of openings in sage scrub habitat, ridgelines, rocky slopes, and grassland areas. If a potential receptor site has moderate to dense non-native grass coverage, pre-transplantation weed removal combined with ongoing weed control efforts will be necessary. Potential receptor sites that contain gophers should be avoided as they are known to eat transplanted lily bulbs. If a receptor site is chosen that contains gophers, protective cages that extend above and below ground shall be installed around groups of transplanted lily bulbs.*[28]

BonTerra also addressed opportunities for relocation or establishment of lily populations on the Project site:

> *Because most of the project site will be graded for project development, few on-site opportunities remain for special status plant restoration. Potential on-site receptor locations were assessed based on existing soils, aspect, and vegetation. A large area of native sage scrub habitat occurs in the northwest corner of the project site (Exhibit 4). This area does not contain clay soils…but does contain gaps in shrub coverage that may provide limited opportunities for mariposa lily transplantation. However, a significant constraint on the use of this area for target species establishment is its potential utilization by the federally Threatened coastal California gnatcatcher (Polioptila californica californica) (gnatcatcher). Nesting activity by this bird species has been observed immediately east of this area, and gnatcatchers could potentially occur in the northwest corner of the site; therefore, maintenance tasks would have to be implemented in a manner that did not adversely impact gnatcatchers. Another potential on-site receptor site is in the southeast corner of the site which does contain some clay soils and provides limited potential for establishment of…mariposa lilies. However, this area was burned in 2013 and as vegetation recovers, overall habitat conditions may become too dense for long-term establishment. High- and medium-density populations of mariposa lilies occur in an area located in the southern-central portion of the site which will not be graded. This area may provide opportunities for the enhancement of these existing target plants through the relocation of mariposa lily bulbs, although it would be very difficult to distinguish between relocated bulbs and those which occur there naturally. All areas that are subject to fuel modification activities are not acceptable for the relocation of salvaged plant materials for the target species, due to the ongoing soil disturbance associated with such activities.*

[28] Ibid., p 7.

Subsequently, BonTerra conducted a more detailed feasibility study for onsite parcels, offsite parcels within the NorthLake ownership as well as offsite properties under other ownership and potentially available as set forth in their Memorandum dated August 24, 2018: *Feasibility Analysis of NorthLake Biological Mitigation Requirements* addressed to John Arvin, NorthLake [attached as Appendix A]. In their feasibility analysis BonTerra identified approximately 300 acres onsite and 450 acres of offsite lands under the NorthLake ownership suitable for translocation. BonTerra also identified an additional 13 offsite properties with up to 20,500 acres of potentially suitable habitat for the translocation of impacted lilies. Densities for different species and varieties of Mariposa lily can vary substantially based on site conditions. For the NorthLake site, BonTerra categorized the slender/club-haired Mariposa lily occurrences as low-, medium-, and high-density but did not quantify these terms. To establish the number of acres needed to accommodate approximately 2,000 mariposa lilies, GLA used a large dataset for the intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) (IML) from southern Orange County associated with the Orange County Southern Subregion Habitat Conservation Plan (SSHCP). The IML within a large subarea of the SSHCP exhibited a density of 205 lilies per acre for occupied habitat. Using this as a surrogate for the slender/club-haired Mariposa lily, it will be necessary to obtain approximately 9.7 acres of suitable habitat to ensure replacement of approximately 2,000 impacted lilies. The analysis of the occupied habitat determined a ratio of approximately 10:1 of area to obtain sufficient areas with suitable conditions. Thus, for 2,000 slender/club-haired Mariposa lilies, it will be necessary to obtain approximately 100 acres of area with suitable soils.

- GLA conducted on review of potential sites within the NorthLake ownership and identified an approximately 167-acre parcel immediately to the east of the NorthLake development area that exhibits suitable soils, native coastal sage scrub habitat suitable for translocation of salvaged slender/club-haired Mariposa lilies. As noted above, based on typical densities, approximately 9.7 acres would be necessary for planting of approximately 2,000 lilies. GLA identified a minimum of 30.19 acres, or about three times the area needed. Exhibit 5 depicts the 30.19-acre area that would receive the translocated Mariposa lilies. During the April 14, 2022 site visit, GLA noted a few individuals of slender/club-haired Mariposa lilies within the proposed mitigation area, which confirms the suitability of the area for this taxon. In order to confirm that the proposed mitigation area was not already at capacity, GLA conducted a more detailed survey on May 2, 2022 and counted a total of 43 lilies within the proposed mitigation, which was expanded during the May 2 site visit to ensure that additional suitable areas were available. Exhibit 5 depicts the location of slender/club-haired Mariposa lilies and the additional receptor sites identified. As noted, the potential receptor sites total 30.19 acres. As noted above, bulbs will not be translocated to occupied areas within the proposed mitigation sites based on pre-construction surveys with extant populations of slender or club-haired lilies[29] To ensure that extant populations are not impacted by installation of bulbs or container plants, all slender/club-haired Mariposa lilies detected during two-year pre-construction surveys in the 30.19-acre observed area will be

[29] GLA conducted surveys of the proposed translocation sites depicted on Exhibit 5 and found very low densities consisting of a few small patches within some translocation sites. The presence of the species, even in low densities is important as it confirms overall suitability of the area for translocation including appropriate soils, aspect, and topography. Translocation would only be performed in areas that do not support extant populations.

flagged and a 25-foot buffer around slender/club-haired Mariposa lilies will be established and demarcated to ensure protection during installation.

2. Collection of Seed and Bulbs

To collect seed and bulbs it is necessary to conduct pre-construction surveys in areas of suitable habitat to mark the locations for plants from which seeds can be collected as well as the location of specific plants for salvage of bulbs. BonTerra included a discussion in the BonTerra Draft Rare Plant Plan:

> *Botanical surveys shall be conducted by the Biological Monitor to mark the locations of plant material that is to be salvaged and relocated as part of this mitigation program. These surveys shall be conducted during at least two separate years, when sufficient rainfall has fallen to maximize the opportunity to observed annual plant species. To determine if sufficient rainfall has occurred for plant surveys to proceed, the California Nevada River Forecast Center website (NOAA 2017) shall be consulted to determine if the current water year is within 80 percent of normal rainfall... As needed, the locations (coordinates) of target plants will be recorded with Global Positioning System (GPS) equipment (single plants, or groups of plants) to facilitate the relocation of target plants. Individual ...mariposa lily plants will be marked by colored pin flags to identify their location, so that seeds and bulbs can be collected after these species enter dormancy.*

The number of slender/club-haired mariposa lilies flagged within the impact boundaries during the two years of pre-construction surveys will be used to establish a final impact total. Note that because of the variability of the flowering for this species, it is likely that some plants will be encountered in both years while others are only detected during one or the other years. Thus, the total number of lilies will be based on the actual total of plants where those identified during both years are counted as a single individual, as will be those encountered in only one of the years. Thus, after the second survey, it will be possible to establish a more accurate number of plants to be impacted and subject to this mitigation program. Should the count of lilies during the two-year preconstruction surveys be less than the 2,000 estimated by BonTerra within the Project development area, the number of plants impacted would be 2,000, which would be the largest number determined through the various surveys in the Project Impact Area. Finally, because of the large population on the site and the ease of detection when the plants are flowering, it will not be necessary to rely on reference populations. As noted, surveys will start prior to flowering to monitor phenology to ensure that surveys capture all individuals for purposes of an accurate impact determination.

The BonTerra Draft Rare Plant Plan included details regarding seed and bulb collection, which also included "soil blocks" that would be implemented for areas of high density of the mariposa lilies. Seed and bulb collection would be limited to plants within the Project Impact Area. Plants within areas subject to avoidance would not be utilized for seed collection or bulb salvage.

Seed Collection
Seeds from all of the target species shall be collected by a qualified native seed collector, who shall monitor plant populations to determine when seeds have reached maturity for collection. Seed will be subsequently cleaned and stored in an appropriate facility for later application in receptor sites.

Soil Blocks
Collection of blocks of soil is a useful tool for plant translocation as soil in known locations of special status species contains a seed bank for these species as well as any beneficial microorganisms. If a [dense]population of mariposa lily is identified during pre-construction surveys, soil that contains these plants will be collected and relocated to an appropriate receptor site. Soil will be collected…after seed collection has occurred in approximate two to four square foot blocks to a depth of [eight] to [ten] inches.

Bulb Collection
Bulb retrieval will be performed by the Seed Collector during biological dormancy of the lilies (e.g., prior to winter rains) in late fall to maximize the survivorship of transplanted individuals. Using hand tools, the Seed Collector will excavate small blocks of soil surrounding each flagged lily to a depth of 10 to 14 inches. Individual lily bulbs will be collected from the soil blocks and will be transferred to a native plant nursery for storage until the receptor sites have been prepared for transplantation. Lily bulbs will be stored at the native plant nursery for at least one year so that the bulbs can be allowed to germinate and non-target bulbiferous species can be removed from the collected materials.

Suitable soil from Mariposa lily impact areas will also be salvaged and incorporated into the mitigation plantings. Equipment such as a backhoe, excavator, or front loader may be used to excavate soil from areas where bulbs are salvaged and to transport soil to the receptor plots. Alternately, soil may be stockpiled in areas approved by the Project Biologist and transported to the relocation areas using a wheelbarrow or all-terrain vehicle (ATV), as appropriate and as site access allows. The quantity of soil required will be based upon the number and size of receptor plots and will be directed by the Project Biologist.

3. Installation of Bulbs at Receptor Sites

Installation of the bulbs and container stock (container stock is addressed in Subsection (F) below) to the receptor sites is the most critical and difficult component of the program. Each bulb or clump of bulbs will be flagged, and the number of bulbs represented by each flag will be recorded and the flags will provide the exact location for the translocated bulbs. Similarly, any Mariposa lilies planted as container stock would be flagged and recorded in the same manner. This will allow the Project Biologist to follow each translocated bulb or clumps of bulbs. As described below, each bulb or clump of bulbs will be carefully installed to optimize survival and each bulb will protected to eliminate the potential for herbivory. Specifically, during extreme drought, bulbs are more likely to be eaten by small mammals for their water content (e.g., mice, voles, gophers,

rabbits), thus requiring protection by use of gopher wire and cages extending below ground to protect bulbs from burrowing mammals.

Based on soil and subsoil conditions and as determined by the Project Biologist, a layer of up to 18 inches of soil may be translocated from the Mariposa lily impact areas to the receptor site(s). Surrounding soil and biomass will also be collected during bulb salvage. The soil biomass should remain as consolidated as possible during the excavation process.

Depending on a variety of factors including existing vegetation, steepness of slope, and ease of access, as determined by the Project Biologist, a layer of up to 18-inches of translocated soil, salvaged from the same areas from which Mariposa lily bulbs are obtained, will be placed in each relocation plot covering pre-installed gopher wire, chicken wire, or hardware cloth that will line the excavated holes where the soil clumps would be installed. Following installation of the soil clumps, the area would be covered with gopher wire, chicken wire, or hardware cloth that would extend a minimum of 12 inches beyond the perimeter of the soil clump. For individual bulbs, it will be necessary to install cages, within which the salvaged soil and bulbs would be placed. The cages would be approximately six inches in diameter and bulbs should be placed so that there is at least two inches of soil between the bulb(s) and the cage to prevent burrowing mammals from reaching the bulbs. Soil will not be compacted once placed in plots. Salvaged bulbs, within the cages, may then be planted in the plots by hand as follows: Bulbs must be planted at a depth of approximately two to six inches. Bulbs will be oriented with roots down, stem up, in the soil, which is native to the translocation site or translocated to the site during bulb salvage. The less crowded the bulbs are placed, the more likely they will thrive. Salvage and translocation (soil clumps, individual bulbs and container stock) would occur during late summer and fall and before the rainy season during the dormancy period for the bulbs. Thus, salvage and translocation would occur between August 15 and October 15. Each of these steps will be directed by the Project Biologist.

To minimize potential for large-scale failure of the translocated bulbs and container stock, the salvage and translocation will be phased over a three-year period. Because of the scale of the project, grading will be conducted in phases allowing for phased salvage and translocation. To the extent that the grading phases require salvage of a larger number of slender/club-haired Mariposa lilies that set forth in Table 3 below, bulbs will be stored in a facility certified for storage of rare plant seed and bulbs.

Table 3: Schedule of Bulb Salvage and Translocation

Year	Percent of bulbs salvaged	Percent of bulbs translocated
Year 1	40-percent	40-percent
Year 2	40-percent	40-percent
Year 3	20-percent	20-percent
Total	**100-percent**	**100-percent**

As noted above, during periods of drought, hand-watering would be conducted to maximize survivorship of the bulbs within soil clumps, individual bulbs and container stock. Hand-watering would be conducted during the rainy season to mimic natural rainfall conditions. During each

month, beginning November 1, where rainfall for the month is less than 75-percent of normal for the month, supplemental watering would be conducted to bring the amount of moisture to the monthly average. This would be repeated for December, January, February, March and up to April 15.

4. Propagation of Container Stock

A portion of the seeds collected as described above will be used by a native plant nursery to grow slender/club-haired Mariposa lily container stock for introduction to the receptor sites to supplement the plantings and to use as replacement for failed bulbs as described in the Contingency Section below. A total of 500 container plants would be grown and if not needed for contingency purposes would be incorporated in receptor sites to supplement the original planting as determined appropriate by the Project Biologist. Based on GLA's experience with propagated Mariposa lilies, it takes approximately four to five years for the bulbs to reach sufficient size to produce leaves and flowers in suitable years. Thus, container plants should be held in the containers for at least three to four years before installation with subsequent monitoring of five additional years following planting. Thus, the timeline for propagated Mariposa lilies is up to five years for propagation followed by ten years of monitoring. Thus, should container stock be incorporated, it will extend the monitoring period beyond the ten years that will be needed for the salvaged bulbs and the up to five additional years would be only for container stock if utilized as a component of the mitigation program.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the translocated bulbs. Maintenance will occur over the life of the translocation/mitigation project, for at least a ten-year period. The Project Biologist will monitor all aspects of the transplant effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from erosion, vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for native bulb establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Repair and maintenance of fencing
- Trash and debris removal
- Pest control

Inspection of Receptor Sites
After initial planting, the Project Biologist will check the restoration plots bi-monthly during slender/club-haired Mariposa lily growing season which can begin as early as November through May every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memorandums shall focus on identified problems including vandalism, weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control
Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing season (November-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.
Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed PCA. The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal
The receptor sites shall be well maintained as needed, to deter vandalism and dumping of trash. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal activities. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control
The receptor sites will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

a. Monitoring Methods

The receptor sites will be monitored at least ten years following the completion of bulb receptor. The monitoring program will consist of the observation and evidence of vegetative growth, observation of emergent and flowering slender/club-haired mariposa lily along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The Project Biologist will conduct monitoring surveys quarterly during the non-growing season (September – April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) for up to ten years to document the growth of the transplanted population.

Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as the growth, flowering and seed production of the slender/club-haired mariposa lily, as well as pest problems, weed establishment, mortality, and site security, will be noted in each site walkover. The Project Biologist will also note observations on wildlife use and native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Counts for Mariposa Lilies in Vegetative State
As noted, depending on site conditions, slender/club-haired mariposa lilies will emerge following early season rains; however, not all emergent plants will flower following emergence. Nevertheless, the emergent plants are part of the population and should be counted. Early season surveys will be conducted to capture the emergent plants, which will be flagged to identify location and numbers. The emergent plants will be compared with the flowering plants and both will be counted for determining the number of total plants (while ensuring that emergent plants that also flower are not double counted).

Surveying Flowering and Seed Production
All flowering individuals observed within the receptor sites will be counted. As noted above, quantitative surveys may require multiple visits per month as the blooming period may be staggered along several months (i.e., vegetative growth or non-blooming individuals may not be detected until that individual has bloomed). Peak blooming periods may fluctuate year to year due to seasonal conditions, therefore multiple visits will aid in a more accurate count of flowering individuals.

Each flowering individual in the created plots will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results and will be incorporated into the data on emergent plants to capture the total of emergent plants that do no flower and emergent plants that exhibit flowering.

Photo-Documentation
Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

b. Monitoring Schedule

The Project Biologist will conduct monitoring surveys quarterly during non-growing season (September–April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) at least ten years.

c. Annual Monitoring Reports

At the end of each monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the transplant sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary. Since planting may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after planting). These reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also 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 for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.
- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

The BonTerra Draft Rare Plant Plan included the following performance standard for the slender/club-haired mariposa lilies:

Germination and flowering of at least 70 percent of transplanted bulbs bloom during the first year after transplantation, 60 percent the second year, 50 percent the third year, 40 percent the fourth year, and 30-percent the fifth year.

The rationale for the decreasing percentages is because bulbs are expected to be more active immediately following translocation and that flowering activity will decline in subsequent years. This does not represent a decrease in the number of individual lilies in the population; rather it is the observed response to such events as fire and translocation, which appear to stimulate flowering. This will be followed by an increase as the program nears completion as reproduction results in increases in the number of the slender/club-haired Mariposa lily. Nevertheless, to ensure achievable performance standards, while recognizing the variability in natural systems, certain factors need to be considered to ensure success of the mitigation program.

- The first factor that GLA has observed is that within a given population of Mariposa lilies, many plants emerge to capture sunlight and store energy in early spring but do not necessarily flower if environmental conditions are not suitable. Nevertheless, these are viable plants that contribute to the population and it is appropriate to account for them.

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival. To this end, this plan proposes a ten-year monitoring term to track emergent plants along with flowering individuals which in combination provides the best and easiest indicators to track that the translocation is succeeding.

- Various threats to the translocated bulbs must be minimized to ensure survival, germination, and ultimate flowering of recruited individuals, with seed set, leading to future germination/successful reproduction. Thus, as proposed by BonTerra, where it is suspected that herbivory of the bulbs would cause the loss of the translocated bulbs, wire cages or gopher screens will be installed with the bulbs at the outset.

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

- Finally, as noted above in the discussion of impacts, BonTerra estimated approximately 2,000 individual slender/club-haired mariposa lilies within the development footprint; however, the initial target for replacement of the slender/club-haired mariposa lilies will be based on actual counts obtained during the two years of pre-construction surveys during which counts, based on marked individual plants (both emergent and flowering) will be used to establish the target number. As noted above, the number of slender/club-haired mariposa lilies flagged within the Project Impact Area boundaries during the two years of pre-construction surveys will be used to establish a final impact total. Note that because of the variability of the flowering for this species, it is likely that some plants will be encountered in both years while others are only detected during one or the other years.

Thus, the total number of lilies will be based on the actual total of plants where those identified during both years are counted as a single individual, as will be those encountered in only one of the years. Thus, after the second survey, it will be possible to establish a more accurate number of plants to be impacted and subject to this mitigation program. Should the count of lilies during the two-year preconstruction surveys be less than the 2,000 estimated by BonTerra within the Project Impact Area, the number of plants considered impacted would be 2,000, which would be the largest number determined through the various surveys. Once the final counts are obtained, the performance standard will be established as 100-percent of the plants identified in the two years of pre-construction surveys as the final performance standard. Successful establishment of 100-percent of the impacted population at year 10 will result in a self-sustaining population (and/or sub-populations) for the slender/club-haired Mariposa lily.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability of flowering individuals from year-to-year, the performance standards will have been achieved if within any of the ten years, the target number is recorded as either emergent plants or flowering plants (these cannot be added to avoid double counting). Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. The performance standards below reflect early response by the bulbs, a plateau in middle years, and then increase in the last years as reproduction begins to take effect. To the extent that propagated container stock is used as discussed above, the monitoring of container plants would also extend for ten years from time of planting and as such, could result in a ten-year monitoring effort for translocated bulbs and a subsequent ten-year monitoring period that would begin with installation of the container plants. Finally, because the salvaged plantings will be phased over a three-year period as described above, the monitoring period would be ten years for each phase or a minimum of 13 years beginning from the start of phase 1. As noted in Table 3 above, under the phased translocation, 40-percent of plants would be translocated in year 1, 40-percent in year 2 and 20-percent in year 3.

Year One

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Two

- Emergence of leaves for of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Three

- Emergence of leaves for of a minimum of 50-percent of the translocated bulbs

- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Four

- Emergence of leaves for of a minimum of 50-percent of the translocated bulbs
- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Five

- Emergence of leaves for of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Six

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Seven

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Eight

- Emergence of leaves for of a minimum of 80-percent of the translocated bulbs
- Flowering of a minimum of 60-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Nine

- Emergence of leaves for of a minimum of 90-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Ten

- Emergence of leaves for of a minimum of 100-percent of the translocated bulbs
- Flowering of a minimum of 80-percent of the translocated bulbs

- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the phased ten-year monitoring period, which will result in 13 years of monitoring, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If any of the receptor sites are observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be stored at a nursery for the first year of the program (and maintained for at least 10 years).
- If the receptor sites appear on track to meet the performance standards, the remaining plant material may be planted after five years at the receptor sites (if space allows) or additional acceptable receptor sites will be identified. This would allow for five years of monitoring of the container stock.
- Seeds and/or bulbs will continue to be harvested from lilies maintained in the nursery and installed in the receptor sites on an as-needed basis to ensure translocation/receptor sites are progressing toward final performance.
- If the receptor sites fail to achieve the performance standard by the tenth year of the program, the monitoring period may be extended yearly if the Biological Monitor determines that the site is continuing to progress and can ultimately achieve the performance standards. Alternatively, if it is determined that a particular receptor site is not able to meet performance standards then additional receptor sites will be identified to make up the difference. Thus, for example, if a receptor site received 500 bulbs, at the 80-percent success criteria it must have 400 emergent plants or 300 flowering plants to be successful. If the site only exhibits 40-percent emergent plants and 30-percent of flowering Mariposa lilies, then the site would be credited with the success achieved and an additional site where the shortfall could be made up.

V. PROPOSED CLUB-HAIRED/SLENDER LILY MITIGATION MEASURE

MM 5.2-4 Mitigation for the club-haired mariposa lily and the slender mariposa lily shall consist of transplantation of lilies to a mitigation site and establishment of a self-sustaining population as set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated May 2022 (*Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*).[30] The *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* has been subject to review and approval by LACDRP and CDFW. A designated Project Biologist approved

[30] Glenn Lukos Associates. May 2022. *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan.*

by the LACDRP and CDFW and shall oversee its implementation. Seeds will be collected from lilies that are located within the impact boundaries and bulbs will be subsequently excavated and stored for later transplantation to the translocation site depicted on Exhibit 5 of the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*. The Mitigation Program in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* sets forth of the following activities necessary fully mitigate the significant impacts to the club-haired mariposa lily and the slender mariposa lily:

- A pre-grading survey shall be conducted for two seasons following emergence of leaves and during the peak flowering period (approximately March through June) by the Biological Monitor. The Biological Monitor shall clearly identify each lily location within the impact area with a pin flag for later collection. The pre-grade survey shall also document the approximate coverage of native and non-native plants at each lily population to be impacted.
- Prior to seed collection, the existing lily locations marked during pre-construction surveys shall be monitored every two weeks by Biological Monitor or a qualified Seed Collector to determine when the seeds are ready for collection. The Seed Collector shall collect seeds from the plants within the collection area when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or an institution with appropriate storage facilities.
- Individual lily bulbs shall be excavated and collected following the seed collection and once the bulbs have entered their winter dormancy period (approximately September 1). The bulbs shall be stored by a qualified nursery or institution with appropriate storage facilities and all non-target bulbiferous species shall be discarded.
- A portion of the collected seeds will be used to grow 500 slender/club-haired mariposa lilies for contingency purposes and stored a native plant nursery until needed as determined by the project biologist.
- Receptor site or sites identified by BonTerra in their *Feasibility Analysis of NorthLake Biological Mitigation Requirements* and refined by GLA for the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* shall be located in dedicated open space or the site will be subject to dedication with a Conservation Easement or Easements (CE(s)). The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.
- Receptor sites on lands currently owned by NorthLake will be managed by SMMC or other approved entities as set forth on page 3, above. Prior to commencing the actions set forth in this plan, the applicant shall submit final agreements to CDFW and the County with the acceptable entities that will hold the CE(s) and provide long-term management.

- Performance criteria have been developed in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated May 2022 and pre-approved by the LACDRP and CDFW. The performance criteria shall address (1) native and non-native plant coverage requirements (mitigation site conditions should be consistent with lily populations in the impact area) and (2) percentage of lilies that exhibit emergent leaves that that bloom each year as follows (because the salvaged plantings will be phased over a three-year period as described above the monitoring period would be ten years for each phase or a minimum of 13 years beginning from the start of phase 1. As noted in Table 3 above, under the phased translocation, 40-percent of plants would be translocated in year 1, 40-percent in year 2 and 20-percent in year 3):

Year One

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Two

- Emergence of leaves for of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Three

- Emergence of leaves for of a minimum of 50-percent of the translocated bulbs
- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Four

- Emergence of leaves for of a minimum of 50-percent of the translocated bulbs
- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Five

- Emergence of leaves for of a minimum of 60-percent of the translocated bulbs

- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Six

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Seven

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Eight

- Emergence of leaves for of a minimum of 80-percent of the translocated bulbs
- Flowering of a minimum of 60-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Nine

- Emergence of leaves for of a minimum of 90-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Ten

- Emergence of leaves for of a minimum of 100-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

The monitoring shall be conducted for ten years (for each phase) from installation of the translocated bulbs or from installation of container plants. As noted, this could result in two separate and unrelated ten-year monitoring efforts, including one that originates with bulb installation and a subsequent

effort that begins with container stock installation. If the performance standards are not being met during the first year, additional measures may be suggested as determined appropriate by the Biological Monitor as set forth in the Contingency Plan set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated May 2022 as set follows:

- If any of the translocation/receptor sites are observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be stored at a nursery for the first year of the program.
- If the receptor sites appear on track to meet the performance standards, the remaining plant material may be planted at the receptor sites (if space allows) or additional acceptable receptor sites will be identified.
- Seeds and/or bulbs will continue to be harvested from lilies maintained in the nursery and installed in the receptor sites on an as-needed basis to ensure receptor sites are progressing toward final performance.
- If the receptor sites fail to achieve the performance standard by the tenth year of the program, the monitoring period may be extended if the Biological Monitor determines that the site is continuing to progress and can ultimately achieve the performance standards. Alternatively, if it is determined that a particular receptor site is not able to meet performance standards then additional receptor sites will be identified to make up the difference. Thus, for example, if a receptor site received 500 bulbs, at the 80-percent success criteria it must have 400 emergent plants or 300 flowering plants to be successful. It the site only exhibits 40-percent emergent plants and 30-percent of flowering Mariposa lilies, then the site would be credited with the success achieved and an additional site where the shortfall could be made up.
- Potential seed sources from additional donor sites shall also be identified in case it becomes necessary to collect additional seed for use on the site following performance of remedial measures

F. Peirson's Morning Glory Seed Collection

The BonTerra Biological Technical Report dated December 15, 2015 noted the following regarding Peirson's morning glory:

> *Peirson's morning-glory was observed throughout the Project site. Given the spreading nature of the species and high density, an accurate count could not be made; however, the entire Project site likely supports thousands of individuals. Peirson's morning-glory was observed in both sage scrub and grassland vegetation types. Associated species typically include California sagebrush, purple sage, arroyo lupine, blue dicks, black mustard (Brassica nigra), redstem filaree, and red brome.*

For two years prior to start of impacts to areas occupied by the Peirson's morning glory and to obtain seed for use in project grassland establishment, a biologist or seed collector will conduct surveys on the Project site to identify location or locations of Peirson's morning glory. Once locations are detected, areas will be marked using pin flags and will also be recorded using GPS Technology to allow the biologist or seed collector to revisit the locations. For two years, populations of Peirson's morning glory will be visited every two weeks beginning in April and continuing through June or until all available seed is collected. One half pound per acre will be used in the grassland reestablishment plant palette. Thus, the number of pounds to be collected will be determined by the total number of acres of grassland restoration.

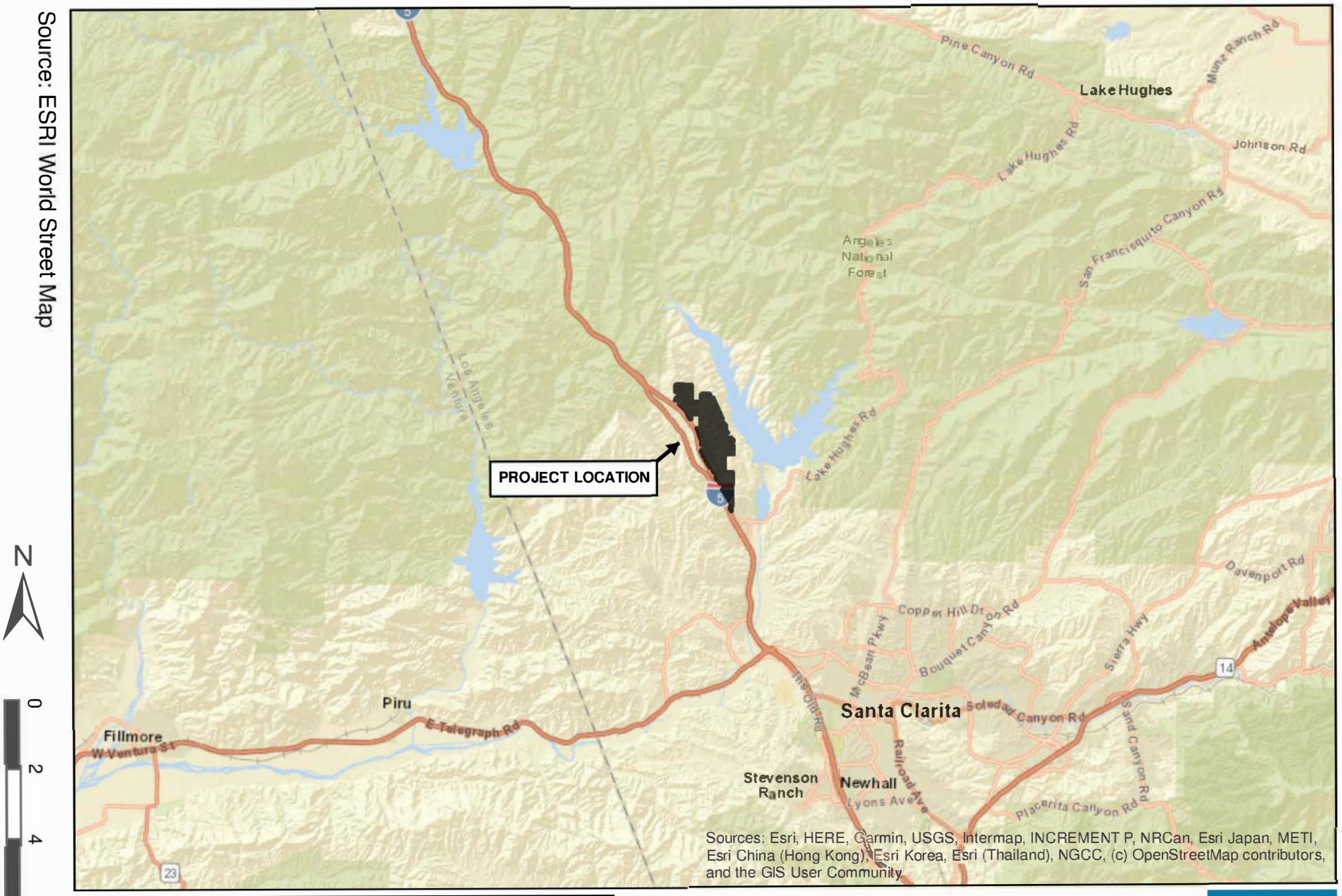
G. Long-Term Conservation

As noted on page 3, the Project will ensure long-term protection of the mitigation sites addressed in this HMMP through establishment of a CE(s), as appropriate. The CE(s) would be dedicated to a local land conservancy or other appropriate entity that has been approved to hold and manage mitigation lands pursuant to Assembly Bill 1094 (2012). Assembly Bill 1094 amended Government Code sections 65965-65968. Under Government Code section 65967(c), the lead agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.

In addition, this HMMP identifies specific sites(s)/area(s) where mitigation would occur, which would be protected and depicts these site(s)/area(s) on accompanying exhibits. The SMMC will serve as landowner, land manager, and endowment holder for the Marple Canyon spiny rush preservation site. MRCA will serve as the Conservation Easement (CE) Grantee. Likewise, the SMMC is a potential landowner, land manager, and endowment holder for the mitigation areas within NorthLake holdings with the MRCA holding the CE; however, the applicant is also exploring other entities that meet the above requirements, and to date, no decision has been made regarding the entities that would be responsible for the long-term management of NorthLake holdings where mitigation would be conducted.

Mitigation Measure:

Prior to initiation of ground-disturbance, in anticipation of grading, the Project will provide the County and CDFW proof that a draft C has been submitted to CDFW and that a land manager, conservation easement grantee, and endowment holder for NorthLake lands where mitigation will be conducted, has been selected and such has entered into an agreement or contract to serve as land manager, conservation easement grantee, and endowment holder for NorthLake lands.



Source: ESRI World Street Map

N

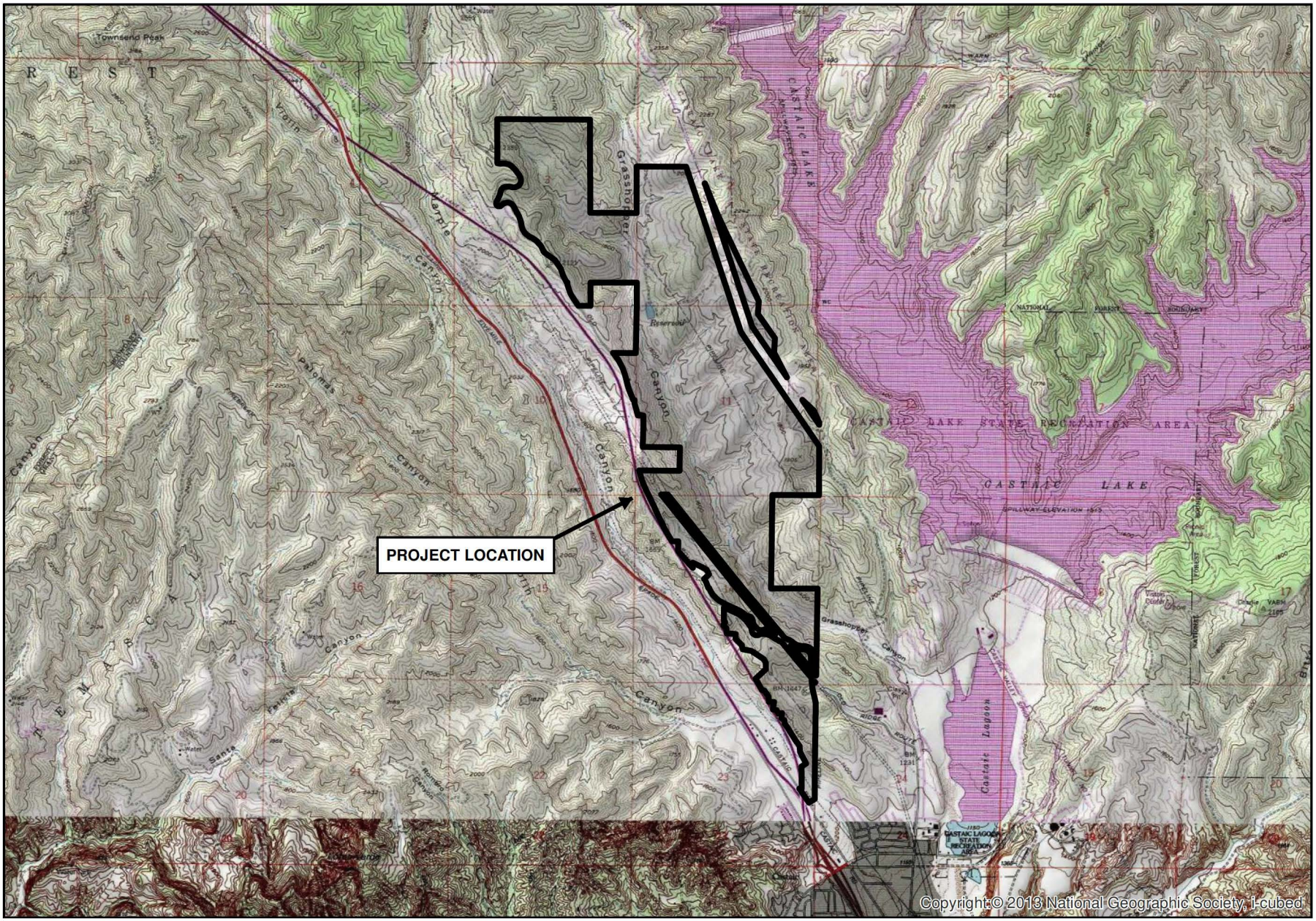
0 2 4 8 Miles

NORTHLAKE SPECIFIC PLAN

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



NORTHLAKE SPECIFIC PLAN

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2

Castaic Lake

1

2

3

5

5

Project Location
Offsite Area
Permanent Impact
Temporary Impact
Proposed Conservation Area
Paniculate Tarplant
Round Leaved Filaree
Southern California Black Walnut

N

0 750 1,500 3,000
Feet

1 inch = 1,500 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

NORTHLAKE SPECIFIC PLAN

Round-Leaved Filaree and Paniculate Tarplant Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\RarePlantsGIS\1115-6_RLF-PT_Impacts.mxd

Castaic Lake

1

2

3

5

5

Project Location

Offsite Area

Permanent Impact

Temporary Impact

Proposed Conservation Area

Slender Clubhaired Mariposa Lily Density *

High

Medium

Low

Unknown

** Source: BonTerra*

N

0 750 1,500 3,000

Feet

1 inch = 1,500 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

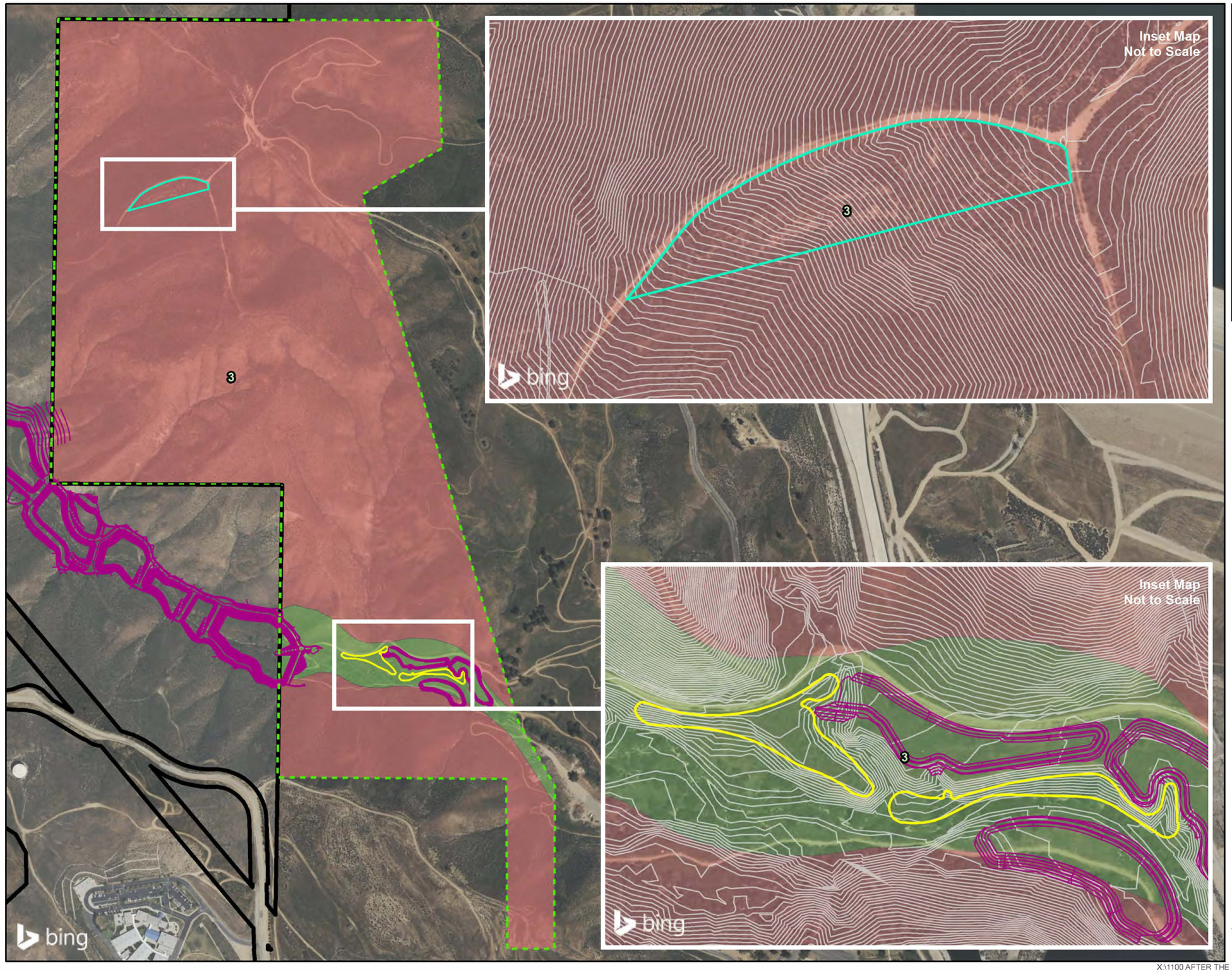
NORTHLAKE SPECIFIC PLAN

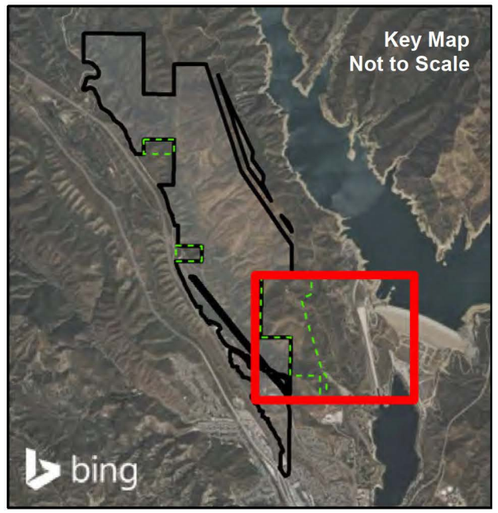
Slender Clubhaired Mariposa Lily Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 3B

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\RarePlantsGIS\1115-6_Lily_Impacts.mxd





Project Location

Offsite Area #3

Existing Topo

Rough Grading Plan

CmF — Castaic-Balcom silty clay loams, 30 to 50 percent slopes

SsB — Sorrento loam, 2 to 5 percent slopes

Round-Leaved Filaree & Paniculate Tarplant Establishment Sites

Primary Establishment Site

Alternative Establishment Site

0 275 550 1,100
Feet

1 inch = 550 feet

N

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 18, 2022

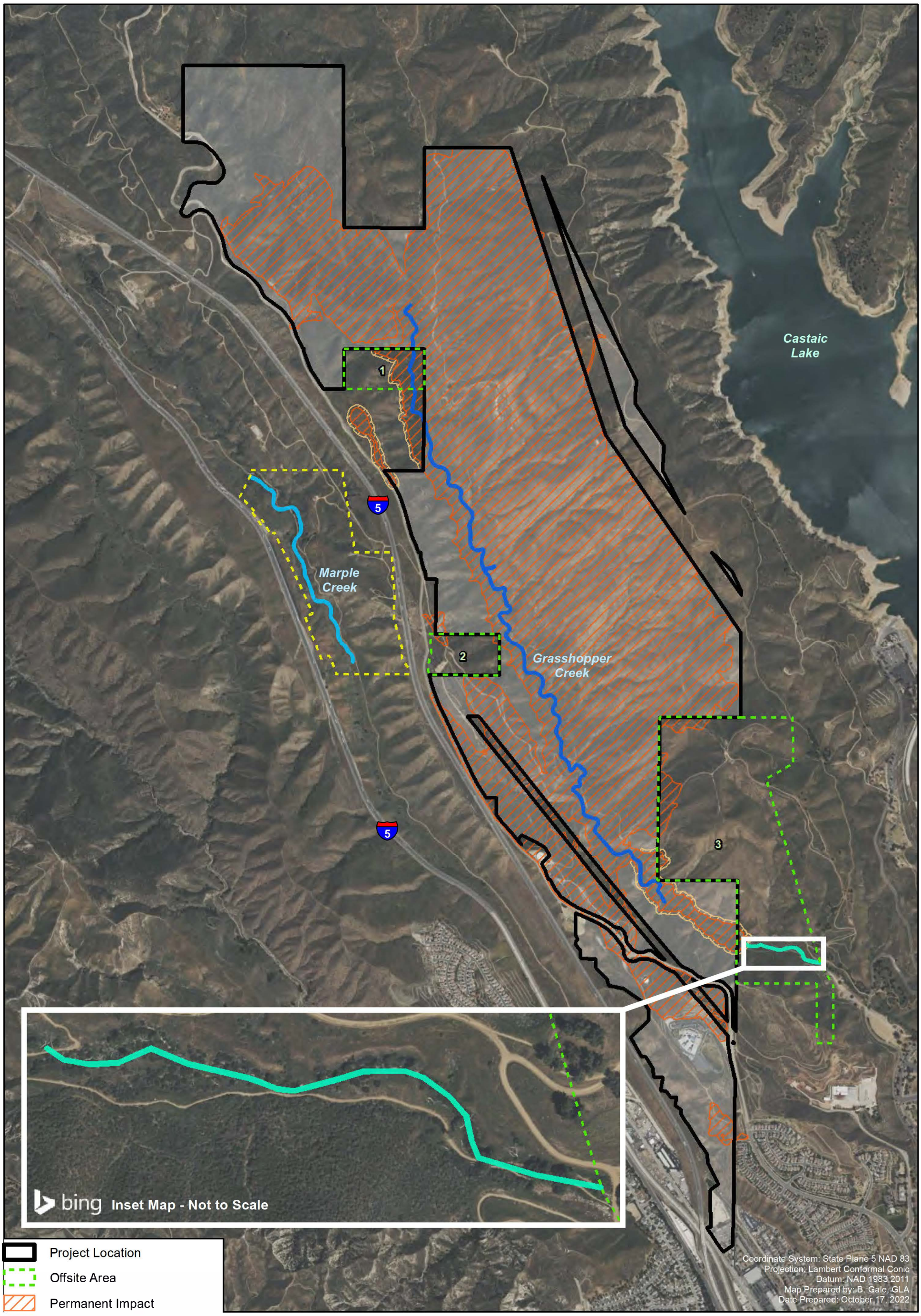
NORTHLAKE SPECIFIC PLAN

Round-Leaved Filaree &
Paniculate Tarplant Establishment Sites

GLENN LUKOS ASSOCIATES

Exhibit 4A

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_RLF-PT_Establishment.mxd



Project Location
Offsite Area
Permanent Impact
Temporary Impact
Proposed Conservation Area
Spiny Rush (2000 Counted Individuals)
Spiny Rush Conservation (523 Counted Individuals)
Spiny Rush Establishment

N

0 750 1,500 3,000
Feet

1 inch = 1,500 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

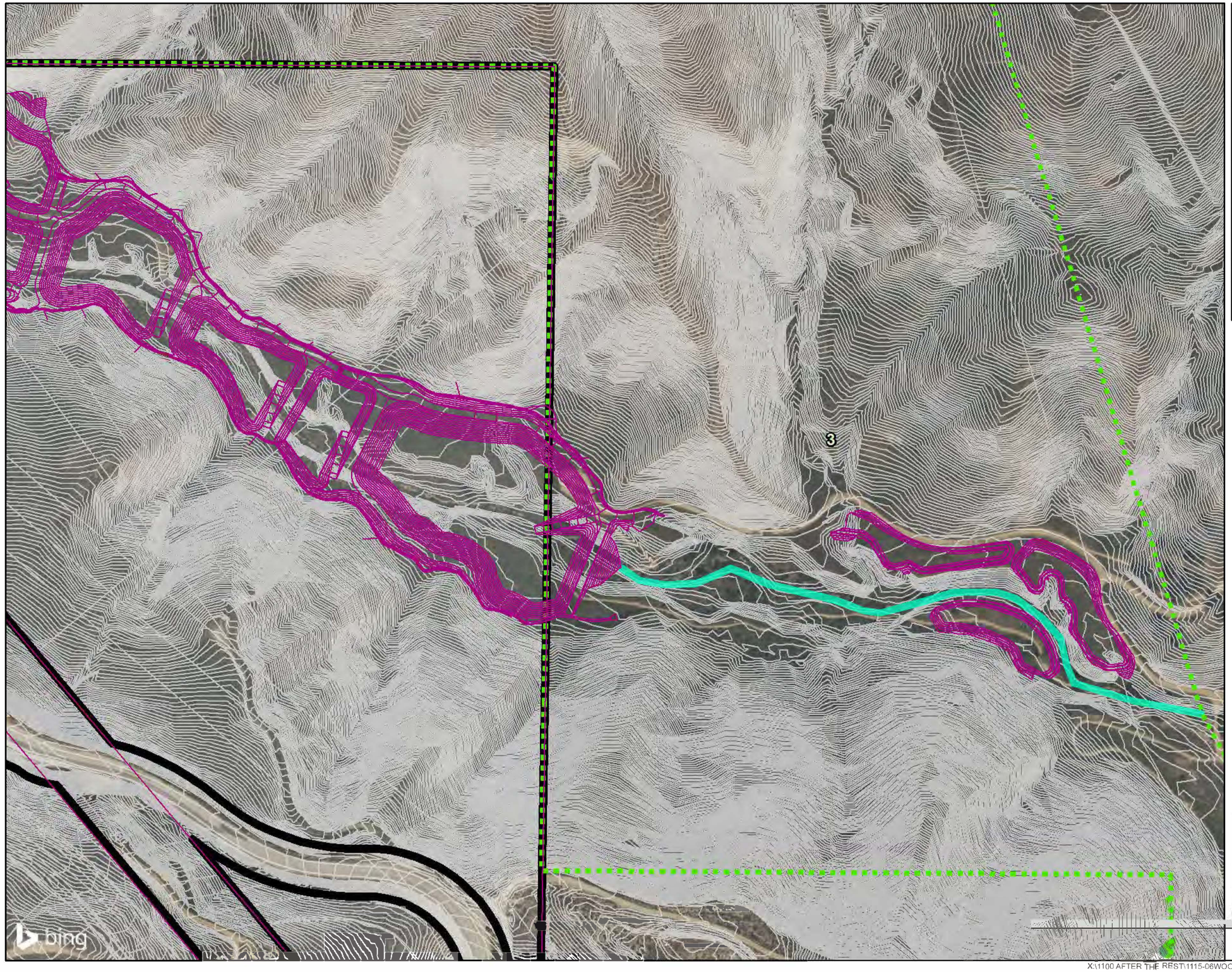
NORTHLAKE SPECIFIC PLAN

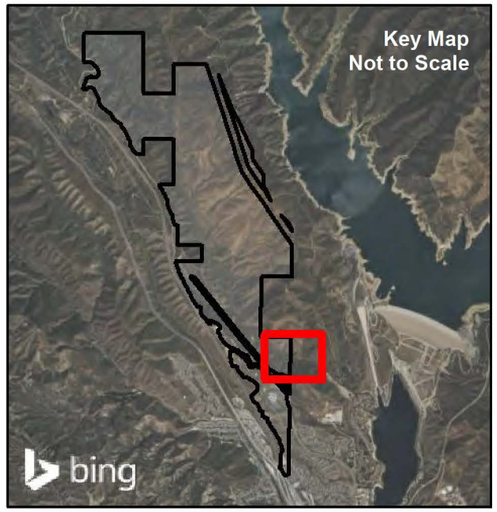
Southwestern Spiny Rush, Impact, Conservation and Establishment Sites

GLENN LUKOS ASSOCIATES

Exhibit 4B

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\RarePlantsGIS\1115-6_SpinyRush_ImpactsConservationEstablishment.mxd





Project Location

Offsite Area

Existing Topo

Rough Grading Plan

Spiny Rush Establishment

N

0 62.5 125 250

Feet

1 inch = 200 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

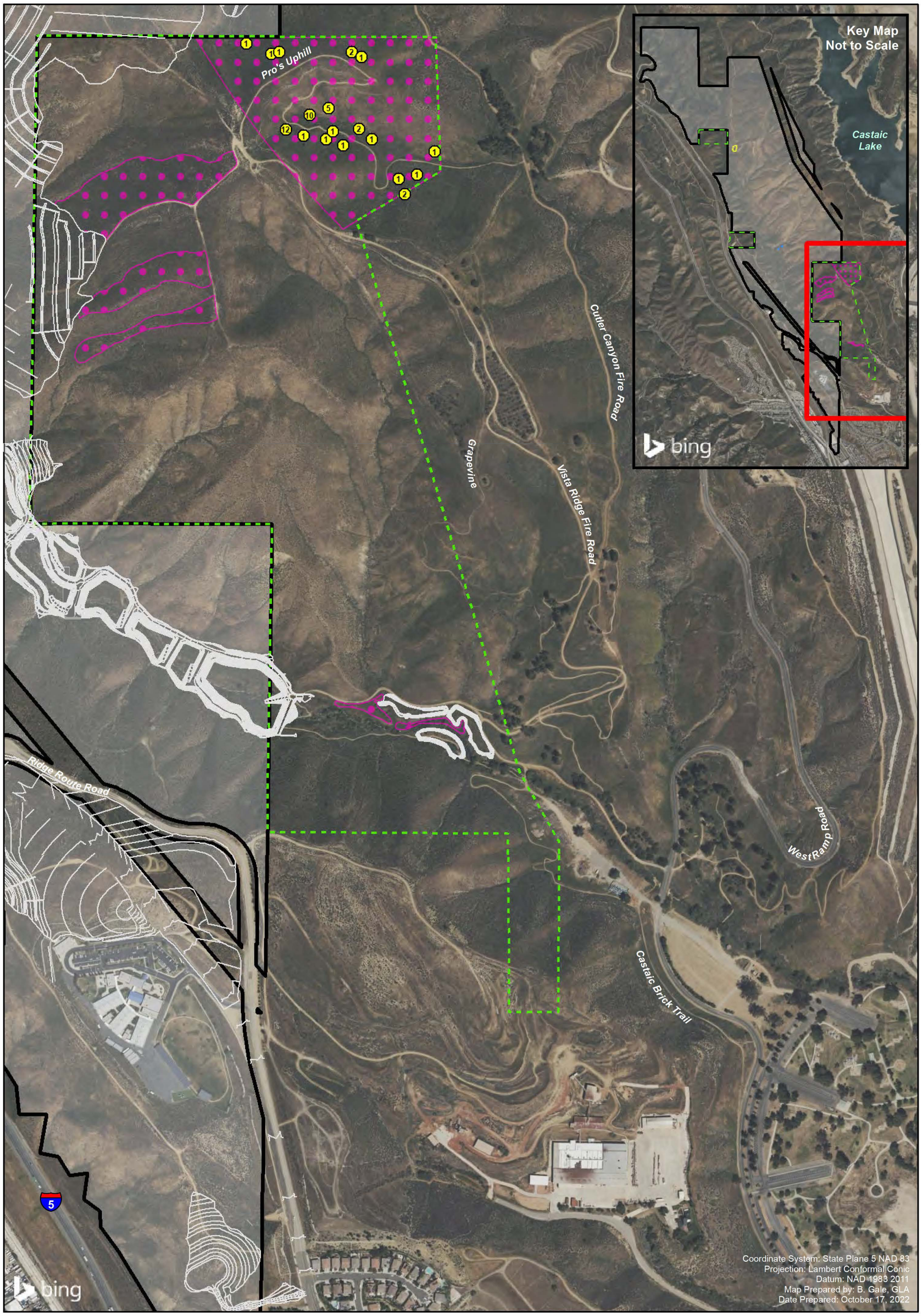
NORTHLAKE SPECIFIC PLAN

Southwestern Spiny Rush Establishment
Site Close-up with Debris Basins

GLENN LUKOS ASSOCIATES

Exhibit 4C

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_SpinyRush_Establishment_wDebris Basins.mxd



Project Location

Offsite Area 3 (180.21 ac.)

Rough Grading Plan

Potential Lily (30.19 ac.)

Existing Slender Clubhaired Mariposa Lily

N

0 250 500 1,000

Feet

1 inch = 500 feet

NORTHLAKE SPECIFIC PLAN

Slender Clubhaired Mariposa Lily Receptor Sites

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_ LilyReceptorSites.mxd