Potential Landslide Remediation Plan for the Castlerock Project City of San Diego Project No. 10046

Prepared for

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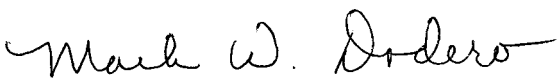

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TABLE OF CONTENTS

FIGURES

TABLES

1.0 Introduction

Pardee Homes is proposing a residential development at the Castlerock site in City of San Diego, California (Figures 1 and 2). This report evaluates two project development scenarios for this site (Figure 3). The first scenario (Annexation Scenario) assumes that the City of San Diego approves the project but the project is subsequently annexed into Santee. For the Annexation Scenario, Pardee Homes proposes to develop approximately 108.72 out of a total of 203.64 acres of the Castlerock site for residential use (NRC 2012; see Figure 3). The Annexation Scenario would result in the construction of 283 detached single-family residences, 147 single-family detached units clustered on larger lots (referred to as “green court” units), approximately 4.0 acres (gross) of public parks, 0.64 acre (gross) and 0.49 acre (usable) of pocket parks, a pedestrian trail, and public streets and private driveways on an undeveloped 203.64-acre site, within the East Elliott Community Plan. The remainder of the property (94.92 acres) would remain undisturbed as open space, except for small areas needed for brush management. Access to the Annexation Scenario would be provided from Mast Boulevard from the south.

The second scenario (No Annexation Scenario) assumes the project is not annexed into Santee and remains within City of San Diego. For the No Annexation Scenario, Pardee Homes proposes to develop approximately 108.91 out of a total of 203.64 acres of the Castlerock site for residential use (Natural Resource Consultants [NRC] 2012; see Figure 3). Due to the additional infrastructure requirements, the No Annexation Scenario has one less detached single-family residence. The No Annexation Scenario would involve minor changes in the land uses with 282 detached single-family residences, 140 single-family detached small lot units (referred to as “green court” units), approximately 4.0 acres (gross) of public parks, 0.50 acre (gross) and 0.39 acre (usable) of pocket parks, a pedestrian trail, and public streets and private driveways and 94.73 acres of open space.

This landslide remediation plan has been prepared to address the impacts from a potential landslide area located in the Multiple Habitat Planning Area (MHPA) (City of San Diego 1997). If a landslide area is found, the site may require remedial grading to stabilize a slope adjacent to the proposed Castlerock development. If these landslide remediation impacts occur, the area will be revegetated according to the standards presented in this plan.

The potential landslide area extends from the MHPA into the north central portion of the development area (NRC 2012) (see Figure 3). The extent of the suspected landslide will not be determined until further testing is done, prior to grading. Cut slopes exposing landslide materials that occur near proposed finish grade may be stabilized by construction of stability fills, drained earthen buttresses, or shear keys (RECON 2012).

1.1 Existing Conditions

The 203.64-acre Castlerock site is located in the City of San Diego, in the East Elliott Community Planning Area, on the north side of Mast Boulevard between Medina Drive and West Hills Parkway (see Figure 2). It consists primarily of annual grassland on rolling terrain of slopes and ridges, rising in elevation from east to west, and also from south to north on the associated ridges. Coastal sage scrub occupies the southwest section of the site, as well as patches in the northeastern and southern sections (see Figure 3). Disturbed coastal sage scrub occupies a significant portion of the site as well, with the majority along the western site boundary. The 2003 Cedar Fire burned much of the Diegan coastal sage scrub (CSS) in the project area. Additional habitats present onsite include baccharis-dominated coastal sage scrub, native grassland, eucalyptus woodland and disturbed areas (i.e., graded areas and dirt roads). Land uses adjacent to the Castlerock site include the Santee Lakes Regional Park, single-family residences, and MHPA. The maximum elevation on-site is approximately 668 feet above mean sea level (NRC 2012).

1.2 Responsible Parties

1.2.1 Property Owner

The party financially responsible for this remediation project is:

Pardee Homes
6025 Edgewood Bend Court
San Diego, CA 92130
Contact: Jimmy Ayala

The Owner will be responsible for contracting with personnel qualified in implementation, maintenance, and monitoring of restoration/revegetation sites and practices described in this plan. Upon contracting with a qualified person or organization to implement this plan, the Owner will designate a person or group as the Principal Restoration Specialist.

1.2.2 Principal Restoration Specialist

A Principal Restoration Specialist acceptable to the Owner shall be hired to implement this plan. The Principal Restoration Specialist can either be an individual or an organization, as long as the person(s) actively managing the program meets the qualifications outlined below to the satisfaction of the Owner and approved by the City of San Diego Development Services, Environmental Analysis Section and Mitigation Monitoring Coordinator. If the Principal Restoration Specialist is an organization, a project manager shall be designated. The Principal Restoration Specialist will be

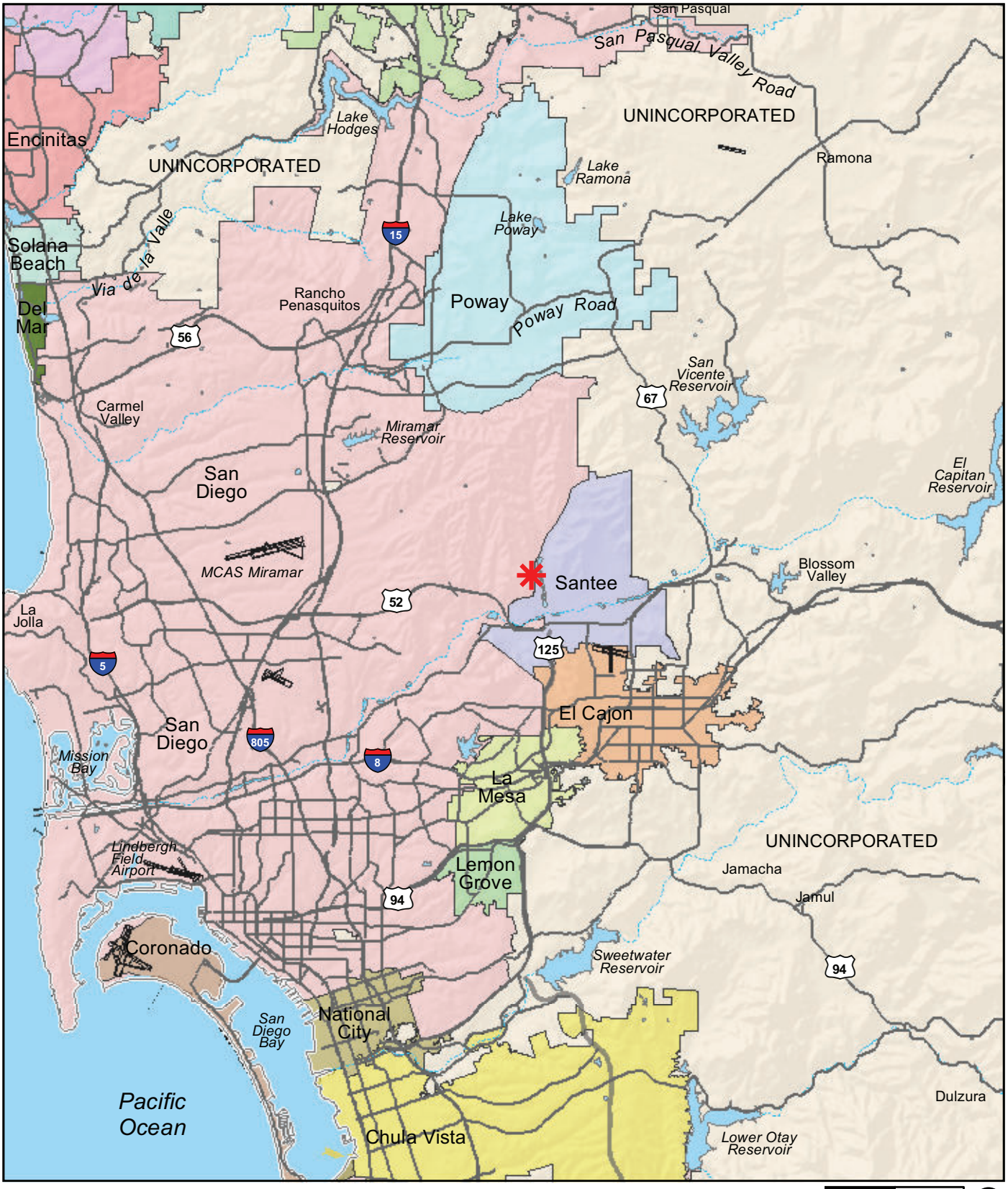

FIGURE 1

Regional Location

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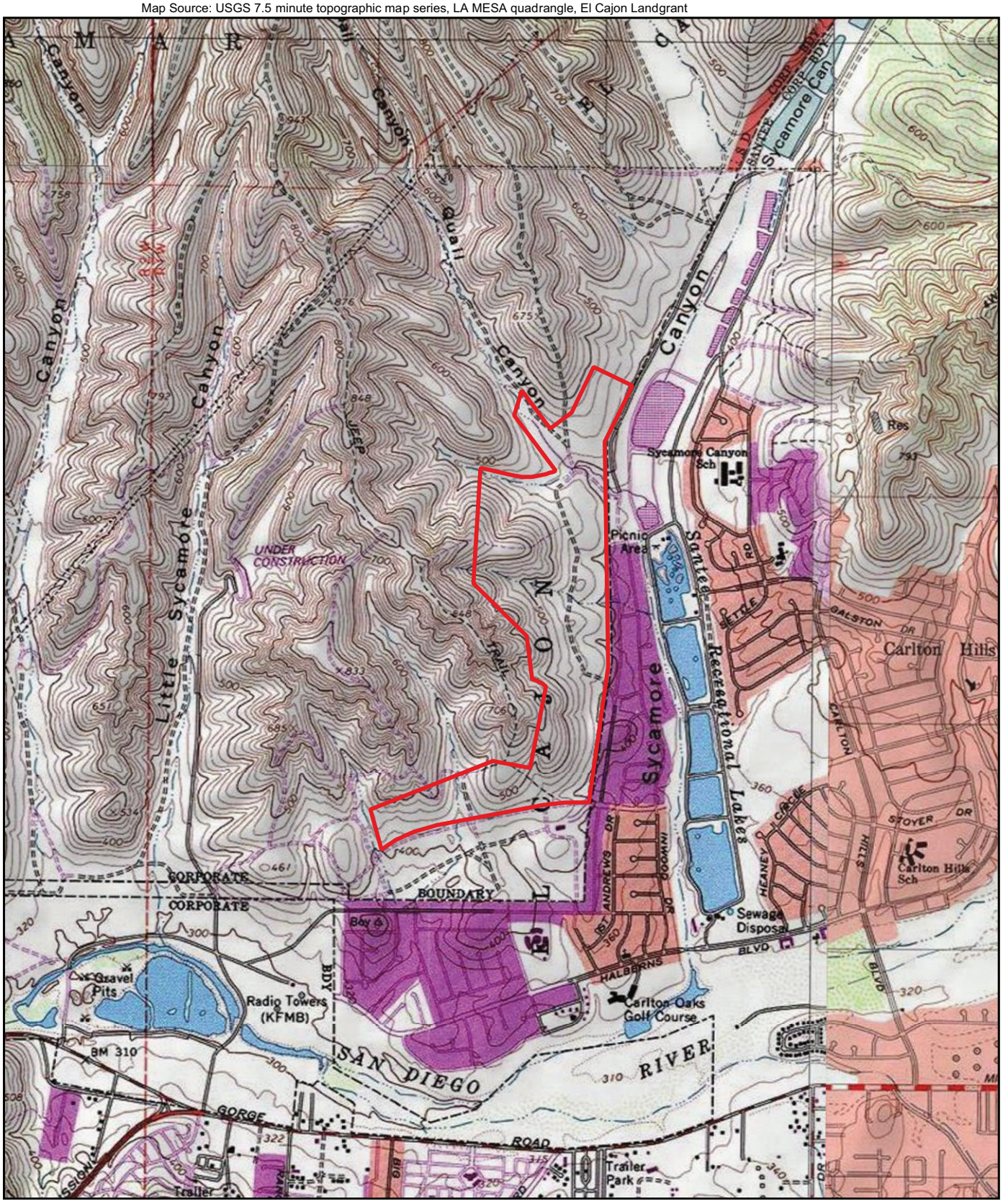
Map Source: USGS 7.5 minute topographic map series, LA MESA quadrangle, El Cajon Landgrant



Project Boundary

FIGURE 2

Project Location on USGS Map

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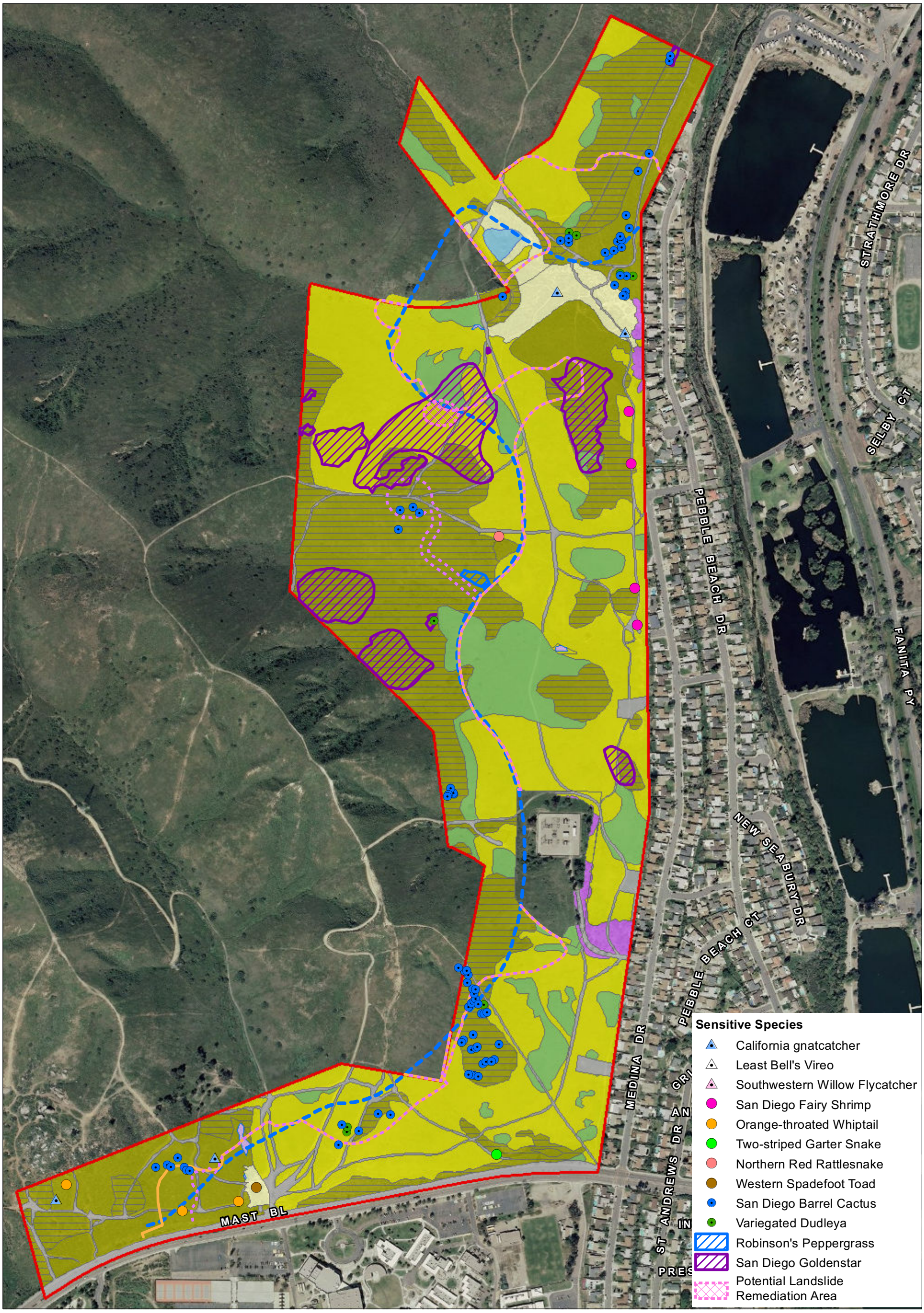

Project Boundary
Existing MHPA
Annexation Scenario Proposed MHPA
No Annexation Scenario Proposed MHPA

Vegetation Communities
Coastal Sage Scrub
Disturbed Coastal Sage Scrub
Baccharis-dominated CSS
Annual Grassland
Native Grassland
Coastal and Valley Freshwater Marsh
Emergent Wetland
Eucalyptus Woodland
Disturbed

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FIGURE 3

Location of Potential Landslide Remediation Area, Existing Vegetation Communities and Sensitive Plant Species

responsible for the day-to-day implementation of this plan and will carry out the requirements and objectives described herein.

1.2.2.1 Qualifications of the Principal Restoration Specialist

The individual or project manager identified by the organization contracted to implement this plan must meet the following criteria:

- B.S. or B.A. degree in ecology, botany, biology, landscape maintenance, range management, or related field.
- At least three years of experience in native habitat restoration in southern California, preferably San Diego County.
- Demonstrated experience in similar remediation and restoration projects.

2.0 Methods

2.1 Landslide Remediation Methods

If the presence of a landslide is confirmed, remedial grading could remove between 1.5 to 5 acres of coastal sage scrub and/or non-native grassland habitat in the MHPA (NRC 2012). San Diego goldenstar (*Bloomeria ~~Muilla~~ clevelandii*), which is a covered species under the City of San Diego's Multiple Species Conservation Plan (MSCP), is located in this area. The area occupied by San Diego goldenstar that will be affected by grading will need to be quantified after further geological testing prior to grading (NRC 2012).

Due to the potential for the area of San Diego goldenstar plants to be extensive, it would not be practical to translocate the San Diego goldenstar in this remediation area. Therefore, impacts to the San Diego goldenstar shall be mitigated through preservation of an equivalent population on an off-site parcel. Parcel 366-040-39 may contain at least five acres of San Diego goldenstar based on San Diego goldenstar surveys completed for the adjacent Sycamore Landfill parcel. This parcel is within Pardee ownership and may be suitable to mitigate for San Diego goldenstar landslide remediation impacts. Other parcels under Pardee ownership in the vicinity are also known to contain San Diego goldenstar; however, it is unknown if they contain an adequate acreage of occupied habitat. The ultimate site utilized for goldenstar mitigation shall be surveyed prior to conveyance to ensure that adequate acreage and equivalent population of San Diego goldenstar are present. The ultimate preservation area would be subject to approval by the City and would be dedicated to the City.

The graded area will be revegetated with a mix of CSS and scattered grassland species. Since much of the CSS habitat in the vicinity of the project was burned in the Cedar Fire, restoration of this community type will provide habitat benefits for a number of species, including the coastal California gnatcatcher (*Polioptila californica californica*).

All CSS or grassland seed used for plant propagation will come from within 10 miles of the site at a similar elevation. The restoration of coastal sage scrub communities to this site will be based on a principle of reestablishing suitable soil conditions, including mycorrhizal fungi, and native seed banks.

Coastal sage scrub is the dominant native vegetation types in coastal areas of San Diego County. It occurs in the same general areas as chaparral but in areas that receive less rainfall or on more xeric soils (Barbour and Major 1977). Coastal sage scrub communities are dominated by lower-growing shrubs and subshrubs that are facultatively drought deciduous (Holland 1986). Many of the shrubs and subshrubs in CSS are three to six feet tall and have relatively open canopies. There is often a significant herbaceous understory, including native grasses and in the spring, colorful native annual wildflowers.

Planting techniques will include hydroseeding of collected local seed as well as installing container stock grown from the same seed supply. The reestablishment of a fully diverse CSS community will be a long-term process, relying on appropriate initial conditions and intensive maintenance to eradicate non-native species.

Target species for CSS restoration are listed in Table 1 and include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and black sage (*Salvia mellifera*) typical of the area. The target values for the restored CSS areas will be based on a reference site used to define the target vegetation and establish target values for cover, diversity, and wildlife usage. Reference sites will be chosen from unburned open space areas in the vicinity of the Castlerock project. As part of the landslide revegetation program, any impacted plants of coastal cholla (*Cylindropuntia prolifera*) and coastal prickly pear (*Opuntia littoralis*) will be salvaged and planted in appropriate areas of the open space as directed by the project biologist.

TABLE 1
PLANT AND SEED MATERIAL FOR COASTAL SAGE SCRUB/NATIVE GRASSLAND REVEGETATION

Scientific Name	Common Name	Container Plants (per acre)
Artemisia californica	California sagebrush	500 one-gallon
Chloragalum parviflorum	Smallflower soap plant	200 four-inch
Cylindropuntia prolifera	Coast cholla	50 cuttings
Dichelostemma capitatum	Blue dicks	200 four-inch
Deinandra fasciculata	Tarplant	Seed
Encelia californica	Common encelia	100 one-gallon
Eriogonum fasciculatum	California buckwheat	100 one-gallon
Isomeris arborea	Bladderpod	25 one-gallon
Lotus scoparius	California broom	25-one gallon
Mimulus aurantiacus	Monkey flower	100 one-gallon
Mirabilis californica	Wishbone bush	100 one-gallon
Nassella pulchra	Purple needlegrass	700 four-inch
Opuntia littoralis	Coast prickly pear	25 cuttings
Salvia mellifera	Black sage	100 one-gallon
Sisyrinchium bellum	Blue-eyed grass	200 four-inch
Viguiera laciniata	San Diego Viguiera	200 one-gallon

2.1.1 Cover

Yearly target values for cover and diversity of coastal sage scrub are presented in Table 2. Because full establishment of the target vegetation is expected to require significantly longer than the five-year monitoring period, the five-year success criteria shall be 60 percent of the reference site for shrub cover and 50 percent of the reference site for herbaceous cover.

TABLE 2
COASTAL SAGE SCRUB TARGET VALUES,
AS A RELATIVE PERCENTAGE OF REFERENCE AREA VALUES

Year	Coverage of Shrubs	Coverage of Herbs	Diversity
1	20	–	–
2	30	20	50
3	45	35	60
4	55	45	70
5	60	50	75

2.1.2 Species Diversity and Composition

Overall species richness and species diversity based on cover abundance by taxon shall be evaluated at the reference site and restoration site. The restoration site shall be considered to meet the diversity and composition criteria if 75 percent of its plant taxa

are shared with the reference site and if the overall species richness and diversity is approximately equivalent to the control after the five-year monitoring period.

2.1.3 Weeds

Target weed species, defined as those species that have the potential to become established as permanent detractive elements of the plant community shall be controlled in the restoration area. Cover of species on List A and B of the California Invasive Plant Council (Cal-IPC) will be zero percent (Cal-IPC 2006). Within the restoration site, the relative cover of all weed species shall not exceed an absolute value of 10 percent.

2.1.4 Irrigation

The CSS plantings will be timed to coincide with natural rainfall events. If necessary, a water truck will be used to irrigate newly planted shrubs until they become established. Mechanical irrigation will not exceed the average annual precipitation period.

3.0 Coastal Sage Scrub Restoration Site Maintenance and Monitoring

The proposed monitoring, maintenance, and reporting methods for the CSS restoration program is described below.

3.1 Maintenance

Maintenance tasks include hand watering during the first planting season, exotic species control, and replacement planting, if needed. Table 3 outlines the maintenance schedule.

TABLE 3
FIVE-YEAR MAINTENANCE SCHEDULE

Type/Task	Year 1 2013–2014	Year 2 2014–2015	Year 3 2015–2016	Year 4 2016–2017	Year 5 2017–2018
Watering	As needed	As needed	As needed	—	—
Weed control	Four times	Four times	Four times	Three times	Twice
Planting	Winter	Winter	Winter, if needed	—	—

3.1.1 Irrigation

The CSS plantings will be timed to coincide with natural rainfall events. If necessary, a water truck will be used to irrigate newly planted shrubs until they become established. Watering of the remediation site will mimic natural precipitation patterns, and, therefore, will not exceed the typical rainfall season (November–March).

3.1.2 Weeding

Weeds must be removed by well-trained and skilled maintenance workers under close supervision of the project biologist to prevent impacts. The monitoring biologist shall direct weeding crews to remove weeds that require control during the five-year monitoring period. The need for weeding is expected to decrease substantially by the end of the monitoring period provided successful habitat restoration has been achieved.

Weeds may be removed by mechanical weed cutters or sprayed with herbicide. When herbicide is used, there shall be little to no wind present, as overspray may potentially harm native plants. Weeds must be removed four times annually, or more often, if directed by the project biologist, for the first three years to adequately control weed species and reduce the weed seed bank in the soil. Less intensive weeding efforts will be conducted in Years 4 and 5, unless otherwise required.

3.1.3 Site Protection

Protection of the landslide remediation site from human disturbance is essential for success. Of particular importance is protection from pedestrians and off-road vehicles. Currently, Open Space Lot ‘P’ is unfenced and the site is accessible. There are graded dirt roads and unauthorized bike trails that traverse the site, providing access to the Open Space Lot ‘P’. This access is helpful for implementation of the remediation program, but the roads may also allow unauthorized vehicles to enter the area. If needed, the remediation area may be fenced at strategic locations to prevent unauthorized vehicle access. Any fencing and signage will be installed in consultation with the project owner and the City of San Diego. Signs identifying the area as a restoration site may also be necessary.

3.2 Monitoring

Monitoring of the remediation site requires frequent site visits and collection of qualitative and quantitative data to ensure the project is progressing toward the stated performance standards (see Table 2). The monitoring methods are described below.

3.2.1 Monitoring Methods

A monitoring program will be conducted for five years following the initial planting. Monitoring is necessary to determine the survival and performance of the remediation plantings and to adjust procedures as needed to ensure progress toward the program goals. Monitoring will be conducted by a biologist with experience in the preparation, implementation, and monitoring of habitat restoration projects. The monitoring program will include both qualitative and quantitative assessments of the vegetation.

3.2.1.1 Qualitative Monitoring

Evaluation of plant health and identifying and correcting problems as they arise are necessary for ensuring successful establishment. Following planting, the site will be monitored weekly during the initial 120-day plant establishment period (PEP). After the PEP, qualitative monitoring will be conducted monthly during the growing season for the remainder of the first year and quarterly for the remainder of the five-year maintenance and monitoring period. Permanent photo points will be established at selected locations within the remediation and enhancement area. Repeat photographs will be taken each spring and these photographs will be included in the annual reports.

Table 4 summarizes the monitoring schedule.

TABLE 4
FIVE-YEAR MONITORING SCHEDULE

Type/Task	Year 1 2013–2014	Year 2 2014–2015	Year 3 2015–2016	Year 4 2016–2017	Year 5 2017–2018
Qualitative Monitoring	Weekly/ Monthly*	Four times during the growing season	Four times during the growing season	Four times during the growing season	Four times during the growing season
Quantitative Monitoring					
Transects	–	Spring	Spring	Spring	Spring
Exotic Cover estimate	–	Spring	Spring	Spring	Spring

*Qualitative monitoring will occur weekly during the 120-day PEP and monthly thereafter during the growing season.

3.2.1.2 Quantitative Monitoring

Transects data will be collected annually in the spring beginning in Year 2. Data will be compared to yearly performance standards and results will be included in the annual reports. Exotic species cover will be estimated annually to determine if the cover criteria for weeds are being met. Weed cover will be estimated at the remediation site as an absolute cover percentage.

3.3 Reporting

An as-built report will be submitted to the City of San Diego documenting the landslide remediation effort at the Castlerock site. Two copies of the as-built report shall be submitted to the City of San Diego at the end of the 120-day PEP. This report shall include a discussion of weed control, horticulture treatments, erosion control, trash/debris removal, watering, site protection/signage, pest management, and vandalism as applicable to this remediation project. An assessment of the progress of the remediation effort shall be provided at the end of the 120-day PEP.

An annual monitoring report summarizing maintenance and monitoring results of the remediation effort will be submitted to the City of San Diego and the wildlife agencies by the project biologist no later than December 1 each year. The monitoring section will include survey methods, data summary analysis, comparison of performance standards, discussion, reporting remedial actions, recommendations, and photodocumentation. The maintenance section will include weeding procedures and plant care activities. Each annual report from Year 2 on will compare findings of the current year with those in previous years.

3.4 Remedial Measures

If needed, the project biologist may recommend remedial measures based on the annual quantitative monitoring results or qualitative observations made in the field so that the plantings move toward the performance standards. Additional propagation, planting, monitoring, and maintenance would follow the methods discussed in this plan. Other remedial measures may also include more intensive weeding efforts within the remediation area which may add additional monitoring years.

4.0 Notification of Completion

After the fifth year success criteria are met, the final monitoring report will be submitted to the City of San Diego for review. If the project has met the performance standards outlined herein, the project biologist will contact the City of San Diego and recommend final approval of the project. A request for a pre-final inspection shall be submitted with the final monitoring report. The City of San Diego will respond in writing after a 30-day review period or may request an on-site meeting to review the remediation area.

The landslide remediation requirement will be deemed complete when written approval by the City of San Diego has been received. Upon confirmation of project success, the City of San Diego shall release the property owner of any additional obligations. The applicant understands that failure of any significant portion of the revegetation area may

result in a requirement to replace that portion of the site and/or to extend the monitoring and establishment/maintenance period until all success criteria are met.

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