

# **APPENDIX S**

## *Native Grassland Creation Mitigation Plan – Pueblo South*



**Conceptual Native Grassland Creation Mitigation Plan –  
Pueblo South for the North City Project,  
City of San Diego, California**

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# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## TABLE OF CONTENTS

<b><u>Section</u></b>	<b><u>Page No.</u></b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 Project Location .....	1
1.2 Mitigation Site Location .....	1
1.3 Native Grassland Creation Goals and Mitigation Requirements .....	1
<b>2 EXISTING CONDITIONS .....</b>	<b>9</b>
2.1 Project Site Existing Conditions .....	9
2.2 Mitigation Site Existing Conditions.....	10
2.3 Regulatory Requirements.....	12
<b>3 RESTORATION ROLES AND RESPONSIBLE PARTIES .....</b>	<b>13</b>
3.1 Restoration Team .....	13
<b>4 NATIVE GRASSLAND IMPLEMENTATION .....</b>	<b>15</b>
4.1 Rationale for Expecting Implementation Success .....	15
4.2 Site Preparation.....	16
4.2.1 Site Access .....	16
4.2.2 Mitigation Area Fencing.....	16
4.2.3 Weed Control & Trash Removal .....	16
4.2.4 Soil Preparation.....	17
4.2.5 Irrigation .....	17
4.2.6 Weed Grow and Kill Program .....	18
4.3 Seed Mix .....	18
4.4 Seed Installation.....	19
4.5 Erosion Control.....	20
4.6 Restoration Schedule .....	20
<b>5 RESTORATION MAINTENANCE AND MONITORING .....</b>	<b>23</b>
5.1 120-Day Plant Establishment and Warranty Period .....	23
5.2 5-Year Maintenance Period .....	23
5.2.1 Irrigation .....	23
5.2.2 Weeding .....	24
5.2.3 Trash and Debris Removal.....	24
5.2.4 Boundary Fence Maintenance.....	24
5.2.5 Pest and Disease Control .....	25
5.2.6 Vandalism, Site Protection and Access Control .....	25
5.2.7 Remedial Work and Corrective Actions.....	25

**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

---

**TABLE OF CONTENTS (CONTINUED)**

<b><u>Section</u></b>	<b><u>Page No.</u></b>
<b>6</b>	<b>BIOLOGICAL MONITORING.....27</b>
6.1	Maintenance Monitoring..... 27
6.2	Biological Monitoring..... 27
6.2.1	Qualitative Monitoring..... 27
6.2.2	Quantitative Monitoring..... 27
6.3	Reporting..... 28
<b>7</b>	<b>PERFORMANCE STANDARDS/SUCCESS CRITERIA .....29</b>
<b>8</b>	<b>REFERENCES.....31</b>

**FIGURES**

1	Regional Map.....3
2	Vicinity Map .....5
3	Native Grassland Impact Map - Pueblo North.....7
4	Native Grassland Creation Plan - Pueblo South .....21

**TABLES**

1	Permanent Impacts to Native Grasslands & Corresponding Mitigation – Miramar Reservoir Alternative .....2
2	Native Grassland Seed Mix .....19
3	Revegetation Schedule.....20
4	Biological Monitoring Schedule.....27
5	Annual Performance Standards/Success Criteria for Native Grassland Creation Areas .....29

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 1 INTRODUCTION

The North City Project (Project) is the first phase of the Pure Water Program, which would produce 30 million gallons per day of potable recycled water for the Miramar Reservoir Alternative. The North City Project would expand the existing North City Water Reclamation Plant and construct an adjacent North City Pure Water Facility (NCPWF). An in-depth project description can be found in the Project’s environmental impact report. This Native Grassland Creation Mitigation Plan (Plan) provides guidelines for native grassland creation to mitigate impacts to native grassland associated with Project construction.

### 1.1 Project Location

The Project would include a variety of facilities located throughout the central and coastal areas of San Diego County in the North City geographic area (Figures 1 and 2). The majority of proposed facilities for the North City Project would occur within developed land and/or along existing paved streets. The facilities were designed and sited to avoid and minimize impacts to biological resources to the extent feasible. A new pure water facility and three pump stations would be located within the City of San Diego. Pipelines would traverse a number of local jurisdictions, including the communities of University, Clairemont Mesa, and Linda Vista within the City of San Diego; the City of Santee; and the community of Lakeside in unincorporated San Diego County. Pipelines would also traverse federal lands within Marine Corps Air Station (MCAS) Miramar (Figure 2). Specifically, the Miramar Reservoir Alternative is within the Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5-minute quadrangle maps.

### 1.2 Mitigation Site Location

The proposed Pueblo South native grassland creation mitigation site is located immediately east of Interstate 805, south of Nobel Drive, north of the LOSSAN/North County Transit District (NCTD) railroad tracks, and west of a San Diego Gas & Electric (SDG&E) powerline utility easement in the City of San Diego, California (Figure 3). The site’s northern terminus coordinates are 32°52'4.84"N, 117°11'28.08"W and the southern tip coordinates are 32°51'56.6"N, 117°11'24.22"W.

### 1.3 Native Grassland Creation Goals and Mitigation Requirements

The goal of this plan is to provide native grassland restoration means and methods that will result in the creation of native grasslands to mitigate native grassland impacts from the Project.

Native grassland mitigation will be implemented in accordance with the San Diego Municipal Code, Land Development Code—Biology Guidelines and Landscape Regulations (City of San Diego

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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2012), the San Diego Municipal Code, Land Development Code—Landscape Standards (City of San Diego 2016), and the City of San Diego’s Whitebook, 2015 edition (City of San Diego 2015). Mitigation will occur at a 2:1 (mitigation:impact) ratio, with at least a 1:1 ratio of native grassland creation, as outlined in Table 1. The remaining 1:1 will be mitigation of Tier I (likely SOC) within the MHPA (in-Tier at SANDER). Native grassland creation will include native grasses and wildflower species typical of native grasslands in the area, and native species inventoried at the native grassland impact and mitigation sites.

Native grassland creation areas will be subject to an initial 120-day plant establishment and warranty period (PEP), and thereafter be monitored and maintained for 5 years (60 months) or until the performance standards outlined herein are met.

The quantity and location of native grassland impacts and corresponding mitigation are shown in Table 1.

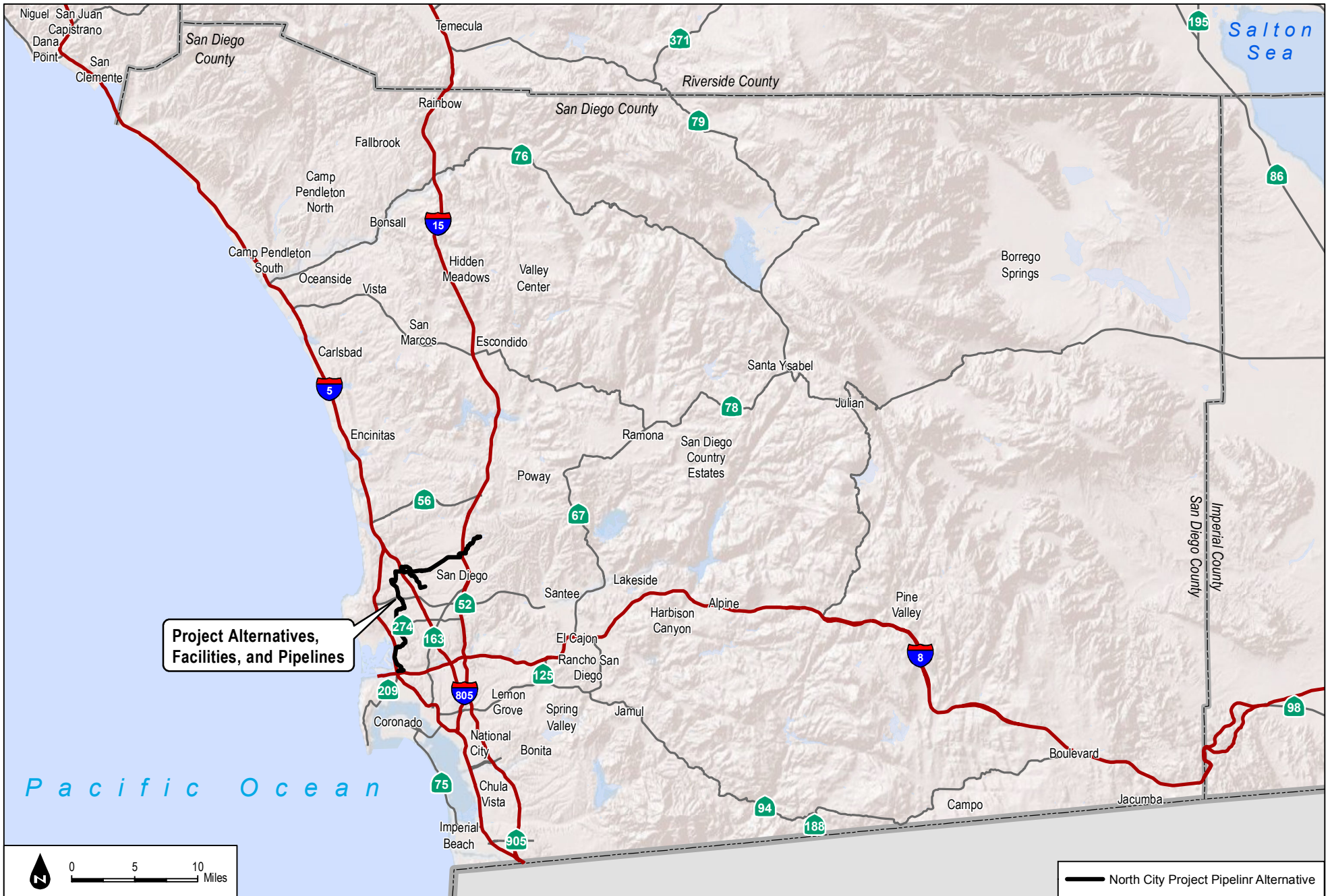
**Table 1**  
**Permanent Impacts to Native Grasslands & Corresponding Mitigation –**  
**Miramar Reservoir Alternative**

Impacted Vegetation Community/ Land Cover Type	Subarea Plan Designation	Impact Acreage Outside the MHPA	Mitigation				
			Outside MCAS Miramar		Mitigation Type and Acreage*		Total
			Mitigation Ratio	Mitigation Acres	Pueblo South - Native Grassland (in-kind)	SANDER - Scrub Oak Chaparral (in-tier)	
<i>Tier I – Rare Uplands</i>							
Native Grassland – Cumulative Impacts	I	1.30	2:1	2.60	1.30/2.46**	1.30	2.60

\* The total mitigation ratio for native grassland is 2:1, but 1:1 of the ratio will be mitigated by restoring native grassland at the Pueblo South site as specified in this Plan. The remaining 1:1 will be mitigated at SANDER as in-tier preservation of scrub oak chaparral.

\*\* As a contingency to ensure that a minimum of 1.3 acres is achieved, the City is restoring a total of 2.46 acres of native grassland. If the contingency is not needed to meet the mitigation requirement, the City will have up to 1.16 acres of native grassland for other future projects.





SOURCE: City San Diego 2016; ESRI 2016

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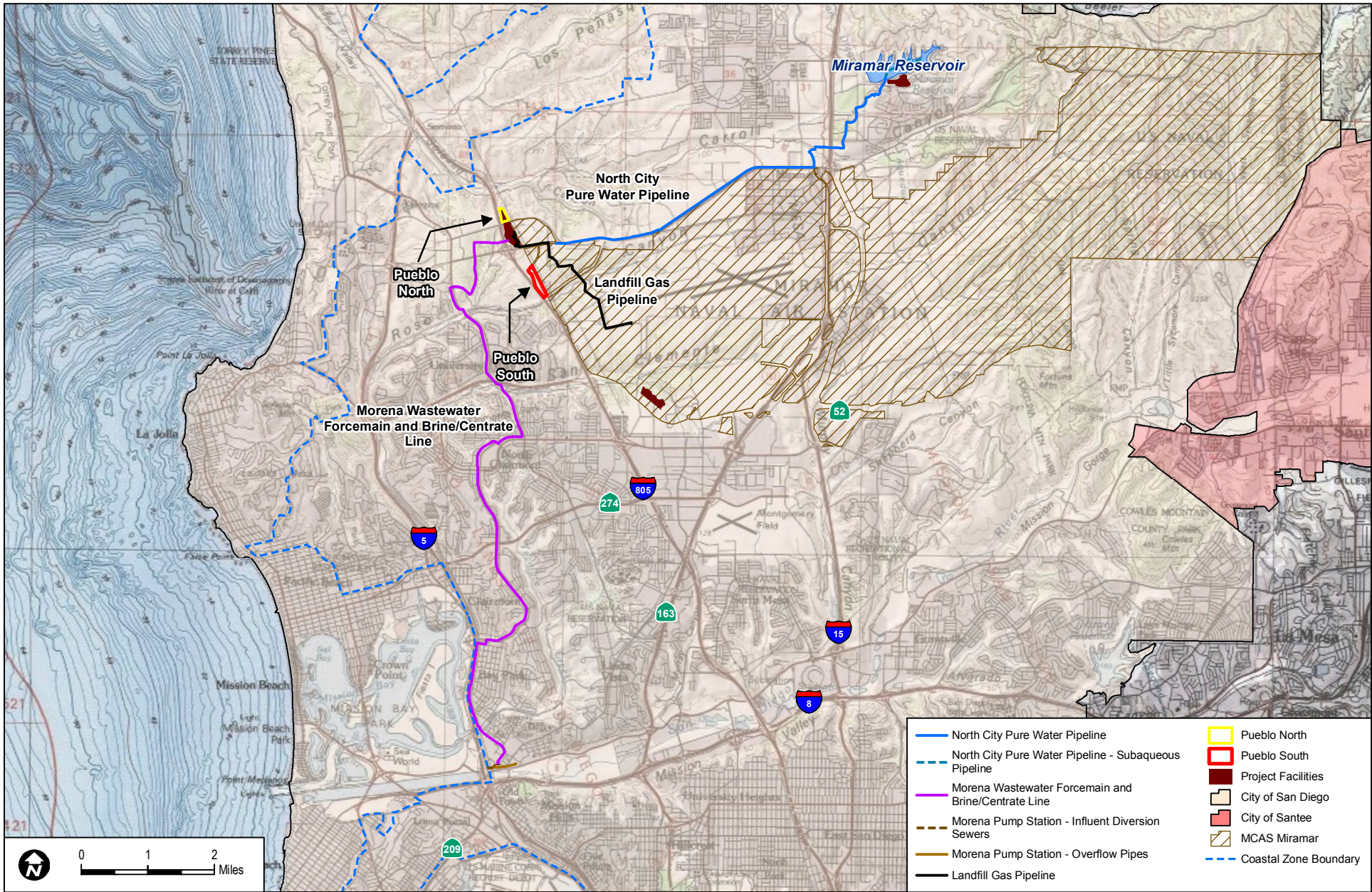
North City Pure Water Project

**FIGURE 1**  
Regional Map

**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

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SOURCE: USGS 7.5-Minute Series Del Mar, Poway, San Vicente Reservoir, La Jolla, La Mesa, El Cajon Quadrangles; City of San Diego 2016; CA Coastal Commission

**FIGURE 2**  
Vicinity Map

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North City Pure Water Project

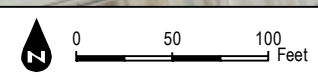
**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

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- Pueblo North
- Direct Impact Area
- Impacts to Native Grassland - 1.3 acre
- Vegetation Communities/Land Cover Types
- CSS - Diegan Coastal Sage Scrub
- DH - Disturbed Habitat
- NG - Native Grassland
- NNG - Non-Native Grassland
- VP - Vernal Pool



SOURCE: City San Diego 2016, 2017; SANDAG 2017

**DUDEK**

North City Pure Water Project

**FIGURE 3**  
Native Grassland Impact Map - Pueblo North

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for the North City Project, City of San Diego, California**

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# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 2 EXISTING CONDITIONS

### 2.1 Project Site Existing Conditions

The North City Project is located within the lower Peninsular Ranges and the coastal plain, and west of the desert basin. Elevation ranges from approximately 10 feet to 1,080 feet above mean sea level (AMSL) within the North City Project Alternatives. Much of the Project area is gently sloping or relatively flat, with steeper areas around the reservoirs. The Coastal Plain region ranges in elevation from 0 feet AMSL to 600 feet AMSL, and includes characteristic features such as mesa tops, coastal benches, elevated marine terraces, and level floodplains of river valleys. The lower Peninsular Ranges foothills are characterized by rolling to hilly uplands and frequent narrow and winding valleys, and traversed by several rivers and drainages. A cumulative list of all vegetation communities and sensitive plant and wildlife species observed in the Project footprint area are included in the Biological Resources Report for the North City Project (BRR; Dudek 2017).

The native grassland habitat that will be impacted by the Project is on a location referred to as the Pueblo North site (Figures 2 and 3). The Pueblo North site is a vacant 10-acre City-owned lot across Eastgate Mall, where the NCPWF will be constructed. The NCPWF is one component of the overall North City Project.

The native grassland habitat at the Pueblo North (NCPWF) site is characterized by a sparse cover of purple needlegrass (*Stipa pulchra*), with abundant non-native species in the interstices between bunch grasses. The percentage cover of native species is low, but an area is considered native grassland by the City if there is 20% cover of native grassland species. Non-native species within the native grassland habitat consist primarily of wild oat (*Avena* spp.), non-native brome grasses (*Bromus* spp.), annual ryegrass (*Festuca perennis*), mustards (*Brassica* spp., *Hirschfeldia incana*), tocalote (*Centaurea melitensis*), and filaree (*Erodium* spp.). Native grasslands in southern California typically occur on fine-textured soils that are moist or wet in the winter and very dry during summer and fall. The soil type mapped in this area is classified as Redding gravelly loam, 2 to 9 percent slopes (USDA 2017; Bowman 1973). The typical profile for the Redding gravelly loam soil type is gravelly loam (0-15 inches) and a transition from gravelly clay loam to gravelly clay (15-30 inches) (USDA 2017). The Redding gravelly loam soil type also includes approximately 10% minor components (e.g., Olivenhain cobbly loam, Huerhuero loam, and Chesterton fine sandy loam), which can be inclusions within the overall mapped soil type (USDA 2017). Where native grassland occurs at the Pueblo North site, the soils are predominantly fine textured (i.e., higher proportion of silts and clays relative to sand).

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 2.2 Mitigation Site Existing Conditions

The proposed 2.46-acre Pueblo South native grassland mitigation site is located in the City of San Diego, east of Interstate (I-) 805, west of the MCAS Miramar and SDG&E powerline easement, south of Nobel Drive, and north of the LOSSAN/NCTD rail road tracks, at an elevation of approximately 332 feet AMSL.

The site slopes in a north to south aspect at approximately 2%, with side slopes that range between 15% and 25%. The soil Conservation Service maps indicate the areas is mostly Olivenhain cobbly loam (Ohf) soil with occurrences of Redding gravelly loam (RdC). See below for a summary of the soil properties.

The dominant vegetation community within the proposed creation area is non-native annual grassland with a preponderance of wild oat grasses (*Avena* spp.) and brome grasses (*Bromus* spp.). There are also broadleaf weeds present in lesser quantities, including black mustard (*Brassica nigra*), yellow star thistle (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalis*), filaree (*Erodium* spp.), annual clover (*Melilotus* spp.), and others. Other native species observed in the proposed mitigation area include fascicled tarplant (*Deinandra fasciculata*), charming centaury (*Zeltnera venusta*), toad rush (*Juncus bufonius*), a few scattered broom baccharis (*Baccharis sarothroides*), and a small patch of purple and foothill needlegrass (*Stipa pulchra*; *S. lepida*). The site vegetation was also mapped by Helix Environmental as non-native grassland (Helix 2016). Adjacent vegetation communities include Diegan coastal sage scrub, chamise chaparral, and non-native vegetation (ornamental/landscape plantings).

### Soil Types at Pueblo South Native Grassland Mitigation Area

#### *OhF—Olivenhain cobbly loam, 30% to 50% slopes*

- Map Unit Setting
  - *National map unit symbol:* hbfd
  - *Elevation:* 100 to 600 feet
  - *Mean annual precipitation:* 14 inches
  - *Mean annual air temperature:* 63°F
  - *Frost-free period:* 290 to 330 days
  - *Farmland classification:* Not prime farmland



## Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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- Properties and Qualities
  - *Slope*: 30% to 50%
  - *Depth to restrictive feature*: About 10 inches to abrupt textural change
  - *Natural drainage class*: Well drained
  - *Runoff class*: Very high
  - *Capacity of the most limiting layer to transmit water (Ksat)*: Very low to moderately low (0.00 to 0.06 in/hr)
  - *Depth to water table*: More than 80 inches

### ***RdC—Redding gravelly loam, 2% to 9% slopes***

- Map Unit Setting
  - *National map unit symbol*: hbfy
  - *Elevation*: 100 to 1,500 feet
  - *Mean annual precipitation*: 14 to 25 inches
  - *Mean annual air temperature*: 61 to 63°F
  - *Frost-free period*: 230 to 320 days
  - *Farmland classification*: Not prime farmland
  - *Frequency of flooding*: None
  - *Frequency of ponding*: None
  - *Available water storage in profile*: Very low (about 1.3 inches)
- Properties and Qualities
  - *Slope*: 2% to 9%
  - *Depth to restrictive feature*: About 15 inches to abrupt textural change; 20 to 40 inches to duripan
  - *Natural drainage class*: Well drained
  - *Runoff class*: Very high
  - *Capacity of the most limiting layer to transmit water (Ksat)*: Very low to moderately low (0.00 to 0.06 in/hr)
  - *Depth to water table*: More than 80 inches

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Available water storage in profile:* Very low (about 1.8 inches)

## 2.3 Regulatory Requirements

### Integrated Natural Resources Management Plan

Because a portion of the North City Project crosses through MCAS Miramar lands, locations where it crosses MCAS Miramar land are subject to the regulations of the Integrated Natural Resources Management Plan (INRMP). However, native grassland impacts are entirely on land owned by the City of San Diego, and therefore the INRMP is not applicable to this mitigation plan.

### Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, “take” is defined as pursue, hunt, shoot, wound, kill trap, capture, or collect, or any attempt to carry out these activities (16 U.S.C. 703 et seq.). Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 Federal Register 3853–3856). Executive Order 13186 requires federal agencies to work with the U.S. Fish and Wildlife Service to develop a memorandum of understanding. U.S. Fish and Wildlife Service reviews actions that might affect these species. For revegetation, this means that removal of weedy vegetation or other activities that disturb vegetation will need to take place outside of the migratory bird nesting season (February 1 through September 15) or be reviewed for nesting activity by a qualified wildlife biologist no more than 48 hours within 10 days prior to such work.

### City of San Diego Biology Guidelines

The City of San Diego Development Services Department developed the Biology Guidelines presented in the Land Development Manual “to aid in the implementation and interpretation of the Environmentally Sensitive Lands Regulations (ESL), San Diego Land Development Code (LDC), Chapter 14, Division 1, Section 143.0101 et seq., and the Open Space Residential (OR-1-2) Zone, Chapter 13, Division 2, Section 131.0201 et seq.” (City of San Diego 2016). The guidelines also provide standards for the determination of impact and mitigation under the California Environmental Quality Act (CEQA) and the California Coastal Act.

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 3 RESTORATION ROLES AND RESPONSIBLE PARTIES

The Project proponent is the City of San Diego Public Utilities Department located at 9192 Topaz Way, MS-901, San Diego, California 92123. The contact persons for the City are Mark Brunette and Summer Adleberg. They can be reached at 858.492.5070. The Project proponent is responsible for the implementation, maintenance, monitoring, and success of the revegetation program.

### 3.1 Restoration Team

#### **Project Biologist**

The Project biologist/habitat restoration specialist (PB) must be a qualified individual or firm with experience performing habitat restoration in Southern California. The PB must have a Bachelor of Science or higher degree in ecology, biology, botany, natural resources management, or a closely related field. The PB must be familiar with native plants and weed species. The PB will ensure the mitigation work is installed in accordance with this plan, the final grassland mitigation landscape construction documents, and the final environmental impact report. The PB will perform monitoring and reporting duties as outlined herein and in landscape construction documents (LCDs).

#### **Landscape Architect**

The landscape architect must be a registered landscape architect with a valid license issued by the California Architects Board, Landscape Architect's Technical Committee (LATC). The landscape architect will work closely with the PB in preparation of the LCDs, including site preparation, planting, seeding, irrigation, erosion control, notes, details, and specifications.

#### **Revegetation Contractors**

The revegetation installation contractor (RIC) and revegetation maintenance contractor (RMC) must be a qualified person or entity who holds a valid California landscape contractor's license, Class C-27, and has experience performing native habitat restoration installation and maintenance services with at least one similar project in Southern California. The contractor must be familiar with weeds and invasive species and have in-depth experience in controlling wildland weeds and invasive species within sensitive habitat areas. The contractor must have a Qualified Pesticide Applicator's License or have a Pesticide Applicators' Certificate issued by the Department of Pesticide Regulation. The RIC and RMC must provide verification of experience and provide copies of licenses upon request. The RIC will provide installation and 120-day PEP maintenance services. The RMC will provide revegetation maintenance services for 5 years following approval of the 120-day PEP. The City may opt to issue maintenance contracts annually.

## **Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California**

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### **Seed Suppliers**

The native plant seed supplier must be located in Southern California region and have a valid Department of Agriculture Inspection Certificate. The seed supplier must have at least 2 years of verifiable experience growing, collecting, and storing native seed materials. The seed supplier must adequately store, test, and label all seed to indicate genus, species, and subspecies. The seed supplier must provide seed testing data indicated in the LCDs to the City upon request. All seed must be provided free of invasive weed species. The seed supplier must provide seed from origins indicated herein and per the LCDs and specifications. The seed supplier must abide by the California Seed Law requirements outlined by the California Department of Food and Agriculture (CDFA).

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 4 NATIVE GRASSLAND IMPLEMENTATION

Native grassland creation will be achieved through a process that includes site preparation, seed application, and maintenance. Site preparation will include delineating the mitigation area boundaries, removing trash and debris, clearing weeds and invasive species, de-compacting soils (where determined needed by the PB in consultation with the City), performing horticultural soil suitability testing, soil amending (if needed), installing a temporary on-grade irrigation system, and performing a grow and kill program. Upon completion of the site preparation work, the mitigation area will be seeded using the methods and species described below. Following seeding, the revegetation areas will be maintained by the RIC during the 120-day PEP and maintained by the RMC for 5 years following approval of the PEP. Each component of the implementation plan is outlined in detail below.

### 4.1 Rationale for Expecting Implementation Success

The selected site location for restoring native grassland was determined based on a review of current site conditions and historic aerial imagery. Current site conditions are described in Section 2.2, which indicate that the site currently supports non-native annual grassland and Olivenhain cobbly loam (Ohf) soil with occurrences of Redding gravelly loam (RdC).

As noted previously, native grasslands in southern California typically occur on fine-textured soils (i.e., higher proportion of silts and clays relative to sand) that are moist or wet in the winter and very dry during summer and fall. The soil type mapped in the proposed native grassland restoration site is the same as the soil type mapped in the impact area (e.g., Redding gravelly loam with Olivenhain cobbly loam components), which tends to include clay-dominated strata and inclusions. Site-specific soil tests indicated the presence of fine textured soils (ranging from 33% – 64% clay and silt). Based on this review, the soil appears suitable for establishing native grassland habitat.

Based on a review of aerial imagery, the site appears to have been disturbed in the late 1960s or early 1970s, and has remained disturbed habitat, now dominated by non-native annual grasses and broadleaf weeds (NETROnline 2017). Prior to disturbance, the site appears to have been primarily an herbaceous species dominated community (few shrubs are visible in the imagery). A few sparse native bunch grasses are present among the predominantly non-native community, indicating that the habitat is conducive to native grasses. Therefore, from a habitat perspective, native grassland is appropriate for the site.

Implementation of the native grasslands restoration includes a heavy focus on weed control to allow native species to adequately establish. Implementation also includes restoration techniques that provide site preparation (e.g., decompaction and imprinting) and supplemental

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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watering to provide an ideal environment for seed germination and plant establishment. The use of local seed stock also provides assurance that the selected species are appropriate and adapted to expected site conditions.

The suitable site conditions coupled with the implementation program outlined below provides sufficient rationale for expecting implementation success.

## **4.2 Site Preparation**

### **4.2.1 Site Access**

Temporary construction access to the mitigation area shall be along paths pre-approved by the City in consultation with the PB. Access shall not incur impacts to environmentally sensitive habitat. Approved temporary construction access routes shall be demarcated with orange snow fencing or 5' long metal t-posts and yellow nylon rope, as deemed appropriate by the City and PB.

At this time the preferred access is from the SDG&E utility easement located along the eastern border of the site. There is a gate located along Nobel Drive that allows access down the existing utility access road. The City, and, or installation contractor will need to coordinate with the utility easement holder and process the necessary right of entry permits. A potential alternate access would be to enter the site from the northbound I-805 freeway/Nobel Drive off-ramp. This alternative would temporarily impact ornamental landscaping and would need to be coordinated with Caltrans. This alternative would require installing a lockable double access gate in the existing chainlike fence.

### **4.2.2 Mitigation Area Fencing**

The mitigation area boundaries will be surveyed, staked, and reviewed by the PB and City. Boundary fencing will include 5-foot-long metal T-posts on the surveyed/staked and approved Project boundaries. T-posts will be installed at 10 feet on-center, with the bases set 12 inches into grade. T-posts will be set plumb and include a single strand of yellow nylon rope installed between T-posts.

### **4.2.3 Weed Control & Trash Removal**

Prior to weeding, the PB will review the site with the RIC and mark out any native vegetation and/or wildflower populations to protect in-place. All weeding/vegetation clearing work will be performed outside of the migratory bird nesting season to the extent practical. If site clearing needs to occur during the nesting season, a nesting bird survey will be conducted no more than 10 days beforehand to ensure there are no nesting birds present. Any active nests will be protected in accordance with the MBTA, and as directed by the PB in consultation with the City.

## **Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California**

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All weeds in the mitigation areas will be cut to grade with string trimmers or small mowing/clearing equipment. Any perennial weeds will be treated with the appropriate systemic herbicide. Upon completion of weeding, bare mineral soil will be exposed. Any trash found on site will be removed. All weed slash and trash will be loaded into a roll-off bin or trucks, covered, and removed from the site. All weed slash and trash will be transported to a green waste recycling or landfill facility. Because the Project disturbs more than an acre of land it will require a Stormwater Pollution Prevention Plan (SWPPP) and a designated Qualified SWPPP Practitioner (QSP). The SWPPP and QSP will include erosion and sediment control measures necessary during construction and until final stabilization is achieved.

### **4.2.4 Soil Preparation**

Following fence installation and weed and trash removal, the site will be cross-ripped to a depth of 8 inches. Cross-ripping will include multiple passes in varying, perpendicular directions. Ripping teeth will be spaced no more than 10 inches apart. Following soil ripping soil testing will be performed at 3-4 locations, as directed by the PB. While we do not anticipate the need for soil amending, if the soil test results indicate amending is necessary it will be performed as recommended by the soil testing laboratory and the PB's directions.

Slopes with a run:rise ratio equal to or greater than 6:1 will be track-walked upon completion of ripping work. Track-walking will be conducted up and down slope. The remainder of the site will be imprinted with a seed imprinter. Imprints will be made such that the long axis of the imprints is on-contour. Imprints shall make "v" formation with a minimum depth of 4 inches. Imprints will be offset to avoid the channelization of water.

Any debris brought to the surface by ripping will be removed from the mitigation area and disposed of at a landfill facility.

Imprinting work will be reviewed and approved by PB and City prior to installing the irrigation system and initiating the grow and kill program.

### **4.2.5 Irrigation**

A temporary above-grade sprinkler irrigation system will be installed and used to germinate, grow, and kill the weeds as indicated in Section 4.1.5, below. Upon completion of the grow and kill program, irrigation will be used to facilitate native seed germination, seed survival, and seedling establishment.

The irrigation system will include a programmable solar or battery operated controller and master valve. Continuous pressure mainlines, ball valves, and remote control valves will be

## **Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California**

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installed below grade. Lateral lines and sprinkler heads will be staked to grade. The above-grade components of the irrigation system will be removed once the mitigation effort has met the performance standards and deemed complete by City staff.

If an irrigation system is not feasible due to lack of, or distance to a water source, the grow and kill program outlined in Section 4.1.5 will be performed for 12 consecutive months (minimum), the seeding rate will be doubled, and seeding will only occur in fall or early winter (October 15-December 15).

### **4.2.6 Weed Grow and Kill Program**

A grow and kill program will be implemented upon approval of the irrigation system installation work. During the grow and kill period the site shall be irrigated at least twice a week to wet the top one inch of soil in order to germinate the weed seed present in the site soil. Once the weeds have germinated and obtained an average height of 6 inches and before they begin to set seed, they shall be sprayed with an appropriate herbicide. This shall occur for at least 4 continuous months, and may be extended by the PB if there is evidence that the weed seed bank has not been depleted. Upon conclusion of the grow and kill program all weed slash and debris shall be removed from the site in order to expose bare mineral soil prior to seeding.

If the site is non-irrigated, the grow and kill program shall be performed for 12 continuous months. In this case the site will rely on natural rainfall to germinate the weeds. Weeds shall be controlled as indicated above. If it is a drought year the grow and kill program may be extended for an additional year, as determined by the PB in consultation with the City.

### **4.3 Seed Mix**

The native grassland seed mix is provided in Table 2. Seed species were selected based on species inventoried at both the impact and mitigation sites, as well as species expected to occur within native grasslands habitat in the region. All seed materials shall have origins from cismontane San Diego County, unless approval is granted otherwise by the PB in coordination with City staff. Local collections may be necessary to obtain seed for some of the species in the seed mix. The PB, in coordination with the City, may make substitutions to the seed mix based on availability. The seed mixes have been designed to create habitat similar to those impacted and provide erosion control until the native grassland vegetation becomes established. Seeding will be scheduled to occur in the fall to the maximum extent practical to minimize water use and maximize germination rates and seedling survival. If the site ends up being non-irrigated it shall be seeded between October 15 and December 15. The seeded area is shown on Figure 4.



## Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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**Table 2**  
**Native Grassland Seed Mix**

Scientific Name	Common Name	Pure Live Seed (PLS)	Pounds per Acre	Total Pounds (2.55 acres)
<i>Acmispon glaber</i>	deerweed	24	0.5	1.3
<i>Bromus carinatus</i>	California brome	76	1.0	2.6
<i>Croton setiger</i>	doveweed	72	1.0	2.6
<i>Cryptantha intermedia</i>	common cryptantha	5	2.0	5.1
<i>Deinandra fasciculata</i>	fascicled tarplant	2.5	0.5	1.3
<i>Eriophyllum confertiflorum</i>	golden yarrow	22.32	1.0	2.6
<i>Eschscholzia californica</i>	California poppy	71	1.0	2.6
<i>Festuca microstachys</i> var. <i>microstachys</i>	small fescue	72	2.0	5.1
<i>Gnaphalium californicum</i>	California everlasting	2.5	0.5	1.3
<i>Grindelia camporum</i>	gumplant	20	1.0	2.6
<i>Lasthenia californica</i>	California goldfields	30	0.5	1.3
<i>Lessingia filaginifolia</i>	sand aster	0.08	2.0	5.1
<i>Lupinus bicolor</i>	pygmy lupine	78.4	2.0	5.1
<i>Plantago erecta</i>	dot-seed plantain	86.33	2.0	5.1
<i>Sidalcea sparsifolia</i>	checkerbloom	54	0.5	1.3
<i>Sisyrinchium bellum</i>	blue-eyed grass	71.25	3.0	7.7
<i>Stipa lepida</i>	foothill needlegrass	54	2.0	5.1
<i>Stipa pulchra</i>	purple needlegrass	42	10.0	25.5
<i>Zeltnera venusta</i>	charming centaury	54	1.0	2.6
<b>Total</b>			<b>34.0</b>	<b>86.7</b>

### 4.4 Seed Installation

The PB shall review the site prior to, during, and after seeding work to help ensure conformance with this plan and final LCDs. The RIC shall submit to the PB and MMC the proposed seed materials at least 5 days prior to seeding. The PB shall verify that the seed mix meets the specified requirements. The revegetation areas shall be free of weeds and trash and have best management practices (BMPs) installed prior to seeding. The site will be hydroseeded using the seed mix in Table 2 along with the following hydroseed slurry mix following approval of the grow and kill program: wood fiber mulch at 2,000 lbs./acre, Aztac M-Binder (or approval equal), at 50 lbs./acre, starter fertilizer at label rates, and green dye. Seeding shall be performed such that the entire soil surface is covered with no bare mineral soil exposed. Due to potential access constraints, the hydroseeding truck may not have access directly to the restoration site, and would need to use hoses connected to the hydroseeding truck. Alternatively, if hydroseeding equipment cannot gain reasonable access to the site (e.g., within 1,000 feet), then the restoration

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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area may be seeded using a calibrated “belly” spreader. Seed should be lightly scratched into the soil surface and covered with a pre-approved seed-topper to a depth of 1/8 inch.

## 4.5 Erosion Control

BMPs will be installed promptly after site preparation work (soil disturbance/vegetation clearing) is completed to provide interim (pre-native vegetation establishment) erosion control. Fiber rolls, silt fence, and or rock filled burlap gravel bags will be installed as necessary to prevent erosion. Fiber rolls will be biodegradable and encased in burlap material. They will be free of nylon/plastic netting and mesh and be certified free of noxious weeds. The location of the BMPs will be determined by the City, and, in accordance with the Project’s SWPPP and QSP.

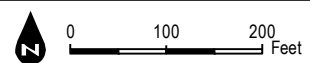
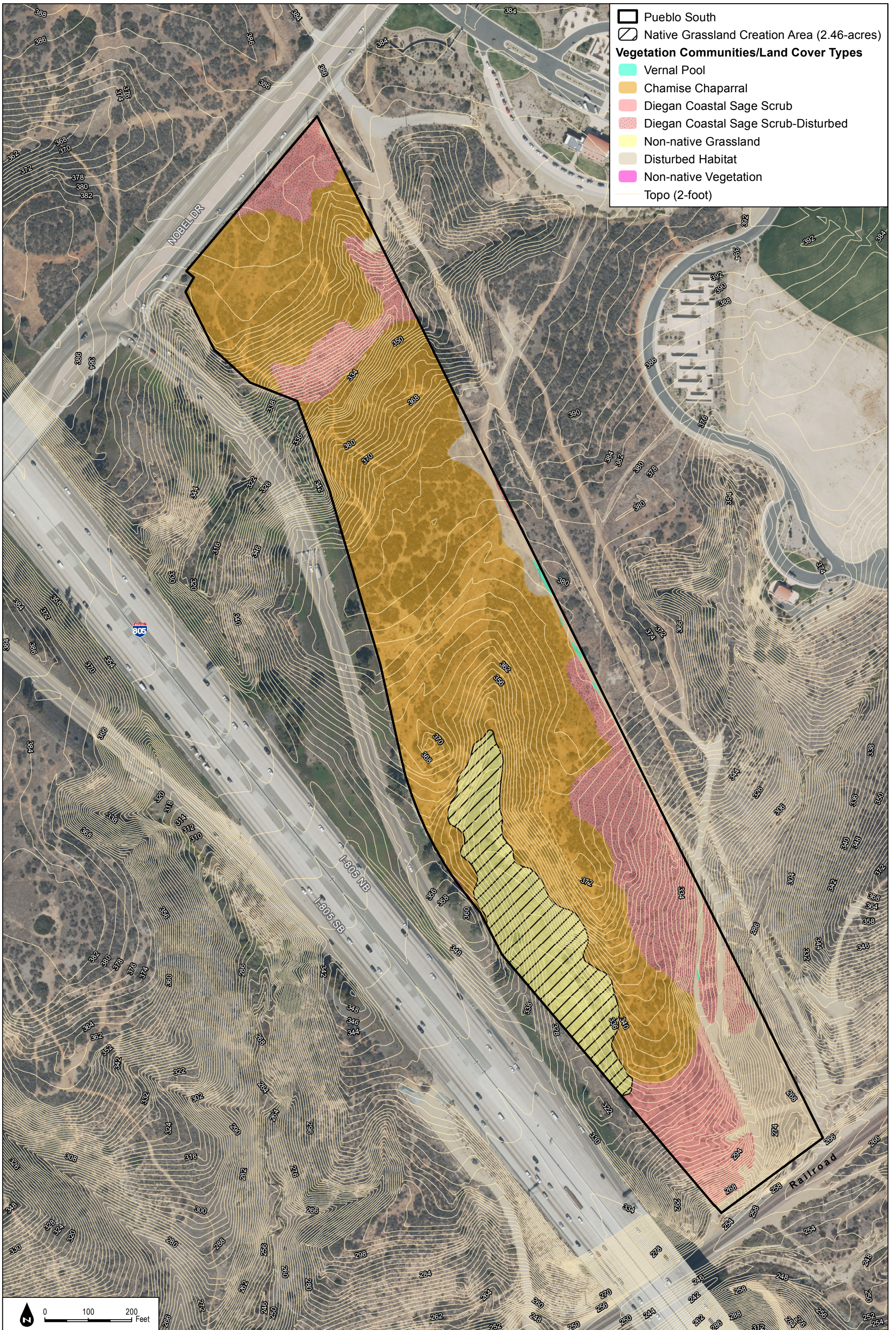
## 4.6 Restoration Schedule

An outline of the anticipated Project installation sequence and schedule is provided in Table 3. Site preparation work, irrigation system installation, BMP installation, and the weed grow and kill program will occur prior to seeding. Seed installation is best performed between October 15 and December 15 to maximize seed germination and minimize irrigation water usage. The 5-year biological monitoring and maintenance period will commence upon successful completion of the 120-day PEP.

**Table 3  
Revegetation Schedule**

Task Description	Anticipated Work Period
Seed ordering	9–12 months prior to anticipated installation
Site preparation	Early-mid summer
Irrigation installation	Mid-late summer
Weed grow and kill program*	Late summer–fall
Seeding	Fall/early winter
120-day plant establishment & warranty period (PEP)	Commence upon approval of all installation work
60-month (5-year) maintenance and monitoring program	Commence upon successful completion of 120-day PEP

\* If no irrigation system is provided, the grow and kill program shall continue for 12 months and the site shall be seeded in mid-late fall the following year.



SOURCE: City San Diego 2016, 2017; SANDAG 2017

**DUDEK**

North City Pure Water Project

**FIGURE 4**  
Native Grassland Creation Plan - Pueblo South

**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

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# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 5 RESTORATION MAINTENANCE AND MONITORING

This maintenance and monitoring section provides direction for maintenance and monitoring activities to be performed during the initial 120-day PEP and the 5-year maintenance and monitoring period. The 5-year maintenance period begins when the PB and City certify that the mitigation installation work and 120-day PEP have been completed in substantial conformance with this plan, the final LCDs, and applicable environmental documents.

### 5.1 120-Day Plant Establishment and Warranty Period

The RIC will begin the 120-day PEP, maintenance, and warranty period following completion and acceptance of the revegetation installation work. Maintenance during this time includes controlling weeds and invasive species, litter removal, watering as needed for healthy plant establishment, irrigation system maintenance and programming, boundary fence maintenance and repair, BMP maintenance and repair, and re-seeding any areas that fail to germinate. At a minimum, maintenance will be performed once every two weeks during the 120-day PEP. The RIC shall review the revegetation areas monthly with the PB. At the end of the 120-day PEP the contractor shall review the site with the City's representative and PB. If all work has been completed as outlined herein and per the LCDs, the City will deem the PEP complete.

### 5.2 5-Year Maintenance Period

Following successful completion of the 120-day PEP, the RMC will maintain the revegetation areas for 5 continuous years. The contractor shall review the site with the PB and City representative at least once every six months. At the end of the 5-year maintenance period the mitigation area will be reviewed with the City and PB. If the mitigation/restoration maintenance work has been performed in accordance with this plan and the LCDs the City will provide an acceptance letter to the RMC. Any punch-list items must be corrected and accepted by the City prior to final approval.

#### 5.2.1 Irrigation

Irrigation will be performed as-needed to germinate native seeds and establish them until they are acclimated to natural rainfall cycles (typically 1 to 3 years). The contractor will adjust the watering time and frequency as needed to ensure healthy growth while avoiding erosion and over-watering. The contractor will inspect the irrigation systems regularly and make any necessary repairs and adjustments, as required, for proper system operation. Once the seeds are established, the irrigation schedules will be reduced and/or terminated in consultation with the PB and City in order to provide evidence that the site is self-sustaining direct irrigation of the restoration area must be ceased at least 2 years prior to the end of the maintenance/monitoring period. The irrigation system will be removed once the restoration has been accepted as successful.

## **Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California**

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If a water source/point of connection for irrigation is not available supplemental watering may be provided by charging the irrigation system with a water-truck. A special water truck coupling station and hose would be needed in order for the water truck to couple to the irrigation system. The water truck would likely need to park on the utility easement road while charging the system. If this method is utilized seeding should take place in mid-late fall to the extent practical in order to take advantage of precipitation during the winter rainy season.

### **5.2.2 Weeding**

Non-native plant species are common within the proposed restoration area. The predominant maintenance work effort will be related to management and control of non-native plant species. Weed control efforts will include a combination of physical removal, and/or herbicide applications where appropriate and legal according to herbicide restrictions. Any herbicide use shall be coordinated with the PB to ensure that desirable vegetation is not inadvertently damaged from herbicide overspray.

The majority of non-native species documented onsite are annuals; therefore, effective control will rely on minimizing seed production. Many of these species are ubiquitous, and complete control will not be feasible (e.g., filaree, rattail fescue). Further, some of these species may not pose a considerable threat to the establishment and successful function of the native grassland habitat (e.g., narrow-leaf cottonrose [*Logfia gallica*]). While maintenance efforts will attempt to address all non-native species, the focus of the weed control efforts shall be on those species that present the greatest threat to the success of the Project. Those species include those listed on the California Invasive Plant Council's (Cal-IPC) California Invasive Plant Inventory Database (Cal-IPC 2017) that have a moderate to high rating for threat to natural lands.

Weed control efforts should be conducted early in the growing season prior to seed set and dispersal. Thus, the maintenance visits will be closely spaced during the winter and early spring when the annual weed species are developing seed. Weed control efforts will likely be minimal in summer and fall when the annual weeds have died.

### **5.2.3 Trash and Debris Removal**

During each site visit the RMC will remove any trash and debris that has accumulated in the mitigation area. Natural debris such as leaf drop will be left on site.

### **5.2.4 Boundary Fence Maintenance**

During each site visit the RMC will perform fence repairs and maintenance if necessary.

## **Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California**

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### **5.2.5 Pest and Disease Control**

Vertebrate pest control is not anticipated as part of this Project, nor are insect pests expected to be severe enough to warrant control. However, if an insect pest becomes significant enough to warrant control (i.e., threatens overall plant/habitat establishment), the contractor shall implement control methods utilizing the Integrated Pest Management methodologies. If plant diseases become a problem during the 5-year maintenance period the RMC shall notify the PB and City to determine the appropriate control measures. Herbivory problems such as loss of plant material from herbivores such as rabbits, deer and gophers shall be brought to the immediate attention of the PB and City to determine the appropriate control measures.

Pest and disease control will be conducted following all applicable laws, regulations, label directions, and safety precautions. Should the contractor require specific pest control recommendations, the contractor shall consult a licensed pest control adviser. The contractor shall provide reports of all pest control measures implemented at the site, including details of methods and materials used, such as pesticide applications. Copies of any written recommendations shall also be provided.

### **5.2.6 Vandalism, Site Protection and Access Control**

The site is currently fenced off from the public so trespassing and vandalism is not likely to occur as long as the fence is kept in good repair and gates are kept locked. Signs may be posted around the perimeter of the mitigation area to inform people that the area is a mitigation site. The City will coordinate with the police department if needed to have trespassers and or homeless encampments removed from the area.

### **5.2.7 Remedial Work and Corrective Actions**

The PB will make corrective recommendations, such as over-seeding of sparse areas, if needed to bring the restoration areas into compliance with the performance standards outlined herein.

**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

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# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 6 BIOLOGICAL MONITORING

Biological monitoring and reporting of the mitigation area will be performed as outlined below at the frequencies shown in Table 4. The monitoring program will begin with site preparation and habitat installation and continue until Project sign off, approximately 5 years following the completion of the 120-day PEP.

**Table 4**  
**Biological Monitoring Schedule**

Activity	Frequency
Site Preparation/Installation	Daily
120-Day PEP	2x/Month
Year 1	Monthly
Years 2-3	Monthly February-July Every other month August-January
Years 4-5	Quarterly

### 6.1 Maintenance Monitoring

The PB will visit the mitigation area at the intervals shown in Table 4 above. Maintenance monitoring will assess weed control, erosion control, trash accumulation, and condition of Project fencing. A summary report will be submitted to the RIC and the City following each site visit. Remedial measures, if needed, will be included in the reports.

### 6.2 Biological Monitoring

Biological monitoring includes evaluating the status of seed germination, plant establishment, natural recruitment, plant survival, and habitat development. Biological monitoring is divided up into qualitative and quantitative monitoring.

#### 6.2.1 Qualitative Monitoring

During scheduled monitoring visits, the PB will assess seed germination, plant establishment, and natural recruitment. Permanent photo viewpoints will be established so vegetation development and cover can be visually documented during the 5-year maintenance and monitoring period.

#### 6.2.2 Quantitative Monitoring

Quantitative monitoring will include measuring the percent native and weed cover each year. Data will be recorded onto field forms and include percentage cover by native species, percent

## **Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California**

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cover weed and invasive species, the percent bare ground, notes on surface condition (e.g., rock, sand, vegetative detritus), and overall species richness within the revegetation area boundaries. Point-intercept transects will be established to collect cover data at each 0.5 meter. The data will be used to determine percent native and weed cover, percent bare ground, and species richness relative to performance standards.

### **6.3 Reporting**

Annual biological reports will be prepared by the PB to document the progress of the revegetation effort, including vegetation assessment data and a comparison of the results with the performance standards outlined herein. Each annual report will include photographs from key vantage points, and make remedial recommendations, if necessary to meet the annual performance standards. Annual reports will be submitted to the City each year.

# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 7 PERFORMANCE STANDARDS/SUCCESS CRITERIA

The goal of the native grassland creation effort is to create a high-quality native grassland vegetation community that is self-sustaining and provides valuable habitat for native wildlife species. The performance standards indicated in Table 5 below have been established to define when the revegetation effort is judged successful and are based on the condition of the impacted site documented in the BRR.

Should the PB determine that any part of the mitigation program is not meeting the performance standards, corrective measures will be recommended in the annual report. Corrective measures may include, but are not be limited to reseeded, controlling pests, applying fertilizers or other soil amendments, or making adjustments to irrigation and maintenance practices.

**Table 5**  
**Annual Performance Standards/Success Criteria for Native Grassland Creation Areas**

	Minimum Percent Native Cover	Minimum Percent Native Grasses	Maximum Percent Weed Cover	Maximum Percent Invasive Species*	Minimum Species Richness**
YEAR 1	10	5	30	10	6
YEAR 2	20	10	20	5	8
YEAR 3	30	15	10	5	10
YEAR 4	40	20	10	5	10
YEAR 5	50	20	10	0	10

\* Cal-IPC Moderate and High listed invasive species

\*\* Species richness shall include only native species

### Completion of 5-Year Native Grassland Mitigation Program

Upon completion of 5-year maintenance and monitoring period the PB will prepare a final (Year 5) monitoring report indicating that the revegetation program is complete. The report will indicate that the mitigation area is in substantial conformance with the performance standards outlined herein. If the Project does not meet the performance standards, the PB will make recommendations to bring the Project into compliance, and the maintenance-and-monitoring period will continue until the performance standards are met.

The City’s Public Utilities Department, Development Services Department, and Parks and Recreation Department will be notified of the completion of the restoration effort through submittal of a final (Year 5) monitoring report. The City departments noted above will discuss and provide confirmation that the mitigation project is complete.

**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

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# Conceptual Native Grassland Creation Mitigation Plan – Pueblo South for the North City Project, City of San Diego, California

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## 8 REFERENCES

- Bowman, R. 1973. *Soil Survey of San Diego Area, California, Part 1*. United States Department of Agriculture, Soil Conservation Service and Forest Service.
- Cal-IPC (California Invasive Plant Council). 2017. *California Invasive Plant Inventory*. California Invasive Plant Council: Berkeley, California. Accessed online at <http://cal-ipc.org/ip/inventory/>. May 31.
- City of San Diego. 1997. City of San Diego MSCP Subarea Plan, Multiple Species Conservation Program. March.
- City of San Diego. 2012. *San Diego Municipal Code, Land Development Code—Biology Guidelines*. Amended April 23, 2012 by Resolution No. R-307376. Accessed online at: <https://www.sandiego.gov/sites/default/files/legacy/development-services/pdf/industry/landdevmanual/ldmbio.pdf>. May 31.
- City of San Diego. 2015. *The “Whitebook.”*. Accessed May 31, 2017. [https://www.sandiego.gov/sites/default/files/2015\\_whitebook.pdf](https://www.sandiego.gov/sites/default/files/2015_whitebook.pdf).
- City of San Diego. 2016. *San Diego Municipal Code, Land Development Code—Landscape Standards*. Amended April 5, 2016 by Resolution No. O-20634. [https://www.sandiego.gov/sites/default/files/dsdlldc\\_landscapestandards\\_2016-04-05.pdf](https://www.sandiego.gov/sites/default/files/dsdlldc_landscapestandards_2016-04-05.pdf).
- Dudek. 2017. Biological Resources Report for the North City Project, City of San Diego, California. Prepared for the City of San Diego – Development Services Department. April 2017.
- Helix Environmental Planning Inc. 2016. *Existing Conditions Letter Report for the Pure Water San Diego Program North City Water Purifications Project*. Prepared for the City of San Diego. November 7.
- NETRonline 2017. Historic Aerials. <https://www.historicaerials.com/viewer>. June 20.
- USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. Published April 1, 2008. Accessed May 31, 2017. <http://websoilsurvey.nrcs.usda.gov/>.

**Conceptual Native Grassland Creation Mitigation Plan – Pueblo South  
for the North City Project, City of San Diego, California**

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