ENCROACHMENT REMOVAL AND RESTORATION PLAN

PENINSULA POINT
CITY OF NEWPORT BEACH
ORANGE COUNTY, CALIFORNIA

December 2, 2019
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CITY OF NEWPORT BEACH, ORANGE COUNTY, CALIFORNIA

I. EXECUTIVE SUMMARY

This proposed Encroachment Removal and Restoration Plan (Plan/Project) addresses removal of private improvements on an area of beach located along the southern (oceanfront) side of Balboa Peninsula from the end of the existing Ocean Front boardwalk continuing east to Channel Road, also known as Peninsula Point, in the City of Newport Beach (City), Orange County, California. Encroachments consist of private landscaping elements including irrigated lawns, shrubs, trees, and groundcovers that have expanded beyond private property lines and onto City-owned public beach. The encroachments are varied in terms of type and extent, and in some cases have occurred over several decades, and have been passed on through previous owners to current owners. In some cases, encroachments may predate the City's current Local Coastal Program (LCP) and ordinances governing permissible improvements oceanward. A few properties have no encroachments, while other properties have landscaping that extends up to 50-60 feet oceanward from the property lines. There is also variety in level of maintenance currently being performed on the landscaping, ranging from minimal or no maintenance leading to a "natural" appearance, to irrigated and mowed lawns, resembling well-maintained yards. In several cases, native coastal strand vegetation is interspersed with the ornamental vegetation or beginning to establish in areas of less profuse ornamental vegetation.

In addition to lawns and other ornamental landscape features, a significant component of the vegetation interspersed with encroachments consists of hottentot fig "iceplant" (*Carpobrotus edulis*), an invasive exotic species that has historically been planted in coastal areas for erosion control purposes and currently occurs throughout areas of coastal strand on the Balboa Peninsula, including areas outside of the encroachment zones above the high tide mark. Local residents are concerned that removal of the iceplant would jeopardize their property since unvegetated sand is highly vulnerable to movement and erosion from natural processes such as wind and flooding during high tides and storm events. As such, this Plan proposes replacement of iceplant with native southern foredune/coastal strand vegetation to protect the stability of the sandy areas, particularly those close to the residences.

To date, multiple property owners have received Notices of Violation (NOV) from the California Coastal Commission (CCC) alleging unpermitted development under the Coastal Act. The NOV letters highlight that in addition to violation of the Coastal Act, the private encroachments are inconsistent with the City of Newport Beach LCP and thus the encroachments must be removed and sandy beach restored for public use.

To resolve the issue raised by private encroachments in a comprehensive manner, the City is proposing to take on the responsibility of encroachment removals and restoration of the area to sandy beach with dune vegetation appropriate for the coastal strand and facilitate public use of the beach. In addition to the private encroachments, this Plan also addresses ornamental vegetation on City property at street ends, that is not necessarily associated with resident encroachment, but will be removed as a part of implementation of this Plan.

The encroachment removal and restoration actions described herein provide a work plan and strategy to perform the removals and implement replacement of iceplant within the encroachment zones with native coastal strand vegetation and sandy beach using a phased approach. In order to avoid leaving large areas

of sand completely devoid of vegetation and unstable at any time during the process, removal of existing iceplant will be performed in stages over a two-year period, while introducing appropriate native vegetation in removal areas. This Plan also proposes five years of maintenance and monitoring following the encroachment removals. The five-year maintenance and monitoring period is inclusive of the two-year phased iceplant removal and replacement with coastal strand and native southern foredune vegetation.

The primary purpose of this Plan is to return the encroachment areas to sandy beach for public use. The replacement of iceplant with native coastal strand vegetation is driven by the goal to stabilize sand movement close to residences while removing iceplant from those areas immediately adjacent to residences.

II. PROJECT DESCRIPTION

A. Responsible Parties

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B. Project Location

This Encroachment Removal and Replacement Plan (Plan) addresses unpermitted improvements at Peninsula Point, located along the southern (oceanfront) side of Balboa Peninsula extending between the end of the existing bike trail west of F Street and terminating at Channel Road, in the City of Newport Beach, Orange County, California [Exhibit 1]. The areas addressed within this Plan consist of 74 properties and ornamental vegetation on City property at street ends located between the end of the existing bike trail west of F Street (latitude 33.555759N, longitude 117.533381W) and Channel Road (latitude 33.595346, longitude -117.882098) [Exhibit 2].

C. Encroachment Mapping Methodology

Current georeferenced aerial photographs dated April 16, 2019 were produced by the City using a drone to document the status of encroachments. Property parcel maps were overlaid onto the aerial photographs to identify the limits of encroachments associated with each parcel. The City produced preliminary measurement of cover by hardscape, lawn, groundcover, shrub, and tree vegetation types based on the aerial photography using Geographic Information System (GIS). This preliminary GIS data was provided to Glenn Lukos Associates (GLA) by the City as a basis for further analysis and inclusion in this Encroachment Removal and Restoration Plan.

GLA conducted a site walk to "ground truth" the aerial photography, confirming the accuracy of cover types provided by the City and refined the categories, as necessary, providing more detailed classifications of the City's mapping[1]. In some cases, the mapped polygons were refined using GPS to differentiate iceplant from ornamental ground covers at a finer scale. As much as possible, bare areas, dead iceplant, and native southern foredune vegetation intermingled with the groundcovers were cut out of the mapped encroachments. Notes were taken on vegetation types and encroachment materials during the site walk. New and previously taken photographs were used to further inform the mapping details.

The encroachment cover types were categorized as hardscaping/steppingstones, ornamental trees[2], ornamental shrub and groundcovers, and lawn associated with each property. Other cover types also

[1] The use of aerial photography, GIS mapping, and ground truthing is the industry standard for mapping that is acceptable by regulatory agencies for measurement of land cover types.

[2] Many of the mapped ornamental trees are Mexican Fan Palms, consistent with planted trees along the boardwalk and otherwise present throughout Peninsula Point.

mapped included iceplant and wildland weeds/escaped ornamentals. Encroachments and vegetation types at street ends outside the parcel line alignment for adjacent properties were attributed to the City.

Iceplant in the vicinity of the encroachments associated with each property and at street ends was also mapped for inclusion in the beach restoration program described herein, but the square footage of the iceplant is not counted toward encroachments because this invasive species is ubiquitously present throughout the coastal strand, is not limited to the encroachment areas, and it cannot be conclusively determined to have been planted in the encroachment areas by the homeowners. It is not the intent of this Plan to remove all the existing iceplant throughout the coastal strand, rather only mapped iceplant in close vicinity to the encroachment areas.

In a few cases, ornamentals from one property expanded beyond the property line to the neighboring property that did not appear to have encroachments otherwise. Wildlands weeds were also sometimes present intermixed with ornamental groundcovers and iceplant. These were categorized as wildland weeds/escaped ornamentals and were not counted as encroachments, though they will be removed as a part of this Plan. In cases of intermixed cover types that could not be separated by finer mapping, the mapping was attributed to the dominant layer.

Appendix A provides a measurement of encroachments by type at each property, and at City property at street ends. Appendix A includes detailed notes regarding type and material of hardscaping, presence of irrigation systems, invasive plants, and any other notable information for each property. Appendix B provides a measurement of iceplant and wildland weeds/escaped ornamentals associated with each property and at City property at street ends. Exhibit 3 provides a map of encroachments by type.

D. Summary of Encroachments

Existing encroachments include landscaping elements placed by private property owners on sandy beach areas owned by the City and within the jurisdiction of the California CCC. Landscape features include hardscaping such as patios, walking paths, steppingstones, planter boxes; vegetation including ornamental, trees, shrubs and groundcovers, lawns; and irrigation valves and components ranging from a few feet from the property line to 50-60 feet oceanward. Some encroachments have developed over several decades, in some cases by previous property owners, and some may predate the City's current LCP and policies and ordinances governing permissible improvements oceanward. A few properties have no or very minor encroachments, while several have extensive encroachments. There is a variety in the level of maintenance currently being performed on the landscaping, ranging from minimal or no maintenance leading to a "natural" appearance, to irrigated and mowed lawns, resembling well-maintained yards. In some cases, native coastal strand vegetation is interspersed with the ornamental vegetation or beginning to establish in areas of less profuse ornamental vegetation.

A total of 53,859 square feet (1.24 acres) of encroachments were mapped based on the April 2019 aerial photography and using the encroachment mapping methodology described above. Of the total square footage, 51,875 square feet (1.19 acres) were associated with private residences and 1,984 square feet (0.05 acre) were associated with the City (primarily areas at street ends). Appendix A provides a measurement of encroachments by type associated with each property and City, as appropriate. Exhibit 3 provides a map of encroachments by type for each property and City property at street ends, as appropriate.

In many instances, a significant component of the ground cover within the encroachment areas consists of iceplant, an invasive species that currently occurs throughout areas of coastal strand, including areas outside of the encroachment zones above the high tide mark. A concern of the residents is that removal of the iceplant would jeopardize their property since unvegetated sand is highly vulnerable to movement and erosion from natural processes such as wind and flooding during high tides and storm events. Several property owners have voiced strong apprehensions about removing the existing iceplant groundcover to the City due to concerns regarding erosion and sand movement. As a result, phased removal of iceplant and replacement with native southern foredune scrub vegetation typical of the coastal strand is being proposed as a part of this Plan. Exhibit 4 provides mapping of the existing iceplant within encroachment zones and immediately adjacent on the beach outside of encroachment zones.

A total of 42,651 square feet (0.98 acres) of iceplant and wildland weeds/escaped ornamentals were mapped based on the April 2019 aerial photography. Escaped ornamentals and wildland weeds, while not being considered encroachments, were mapped, as shown on Exhibit 3, and will be removed as a part of the restoration plan. Appendix B provides measurement of mapped iceplant and wildland weeds/escaped ornamentals associated with each property and City property at street ends, as appropriate.

E. Proposed Encroachment Removal and Restoration

The City proposes to resolve the encroachment issue through a program consisting of:

1. The removal of encroachments from all City-owned areas extending oceanward from resident property lines to reinstate the area to public sandy beach;

2. Implementation of a phased iceplant removal program over two years and replacement with appropriate native coastal strand vegetation; and

3. Five years of maintenance and monitoring following encroachment removals.

The City will coordinate closely with property owners prior to the removal of the encroachments and throughout the removal and restoration process

F. Existing Native Plant Communities

Southern Foredune Scrub/Coastal Strand/Coastal Beach[3]

The existing native plant community on the Balboa Peninsula in the vicinity of the encroachment areas consists primarily of Coastal Strand with sparse patches of southern foredune scrub, a plant community that is found along the Pacific Coast in loose sand just above the high tide line and before soil-based scrub plant communities occur. In southern California, this plant community is the most adjacent to public beach use and provides important functions in terms of protection from sand erosion and providing scenic and visual qualities. Due to its position in areas of high recreational use, this plant community is often disturbed.

The coastal strand is characterized by low plant density (often less than 20-percent cover by vegetation) and low species diversity, as few species can withstand the harsh conditions characteristic of this environment

[3] Munz, Philip A. (2003). Introduction to Shore Wildflowers of California, Oregon, and Washington (p.13-14).

including wind, sand and salt spray, low soil nutrients, lack of soil moisture retention, high summer temperatures, and human disturbance. Typical coastal strand plants are perennial, have gray or succulent leaves (or both), have prostrate or creeping growth patterns, and often produce roots along their length, reproducing both vegetatively and through seed dispersal. Plants typically have a long flowering season.

These characteristics enable plants in the coastal strand plant community to withstand the unstable sandy substrate, strong winds, poor water retention, and high summer surface temperatures. Common species include pink sand verbena (*Abronia umbellata*), beach primrose (*Cammisoniopsis cheiranthifolia*), beach morning glory (*Calystegia soldanella*), sand bur (*Ambrosia chamissonis*), saltgrass (*Distichlis spicata*), and beach saltbush (*Atriplex leucophylla)*.

A map of existing coastal strand/southern foredune vegetation in the vicinity of the encroachment removal areas is attached as Exhibit 4.

G. Special-Status Wildlife Species

Western Snowy Plover (*Charadrius alexandrinus nivosus*)

The western snowy plover is a small shorebird listed as federally threatened (FT) and a State of California species of special concern (SSP). This species uses sandy or gravelly beaches in peninsulas, offshore islands, bays, and estuaries of the Pacific Coast for nesting/wintering habitat. The breeding season for this species is March 1 through September 30, predominantly in May. Nesting occurs on coastal sandpits, dune-backed beaches, beaches at creek mouths, and lagoons, and saltpans and lagoons and estuaries. Plover nests are simple depressions in the sand and may be next to kelp, shells, driftwood and rocks.[4] The non-breeding season, or "wintering" period, occurs from September through February. This species in known to return to the same beaches every year after nesting elsewhere and has been observed to use the Balboa Peninsula primarily as wintering habitat rather than nesting.[5]

A 25-acre unit of critical habitat for the western snowy plover was designated by the United States Fish and Wildlife Service (USFWS) in June 2012 [referenced in the Federal Register[6] as CA 48] is immediately adjacent to the encroachment areas, generally bounded by A Street and G Street [Exhibit 5]. This unit was occupied at the time of listing and supported two breeding adult western snowy plovers in 2009 (P. Knapp, pers. comm. 2010) and three breeding adults in 2010 (T. Ryan, in litt. 2010). It also supported an average wintering flock of 35 western snowy plovers from 2003 through 2010 (Service unpublished data). Since 2009, additional year-round surveys have been conducted, including surveys by Josh Weinik during 2013, 2014, and 2015. Counts are variable but the majority of the snowy plovers were observed during the wintering season. Plover numbers were low or absent between mid-March to mid-July.[7]

This unit of critical habitat is currently being managed by the City's Recreation and Senior Services Department. A comprehensive management plan for this unit has been prepared by the City and is currently under review by the California Coastal Commission.

[4] http://www.fws.gov/refuge/willapa/wildlife_and_habitat/western_snowy_plover.html
[5] Glenn Lukos Associates. July 2019. Western Snowy Plover Management Plan for East Balboa Peninsula Beaches.
[6] Federal Register/ Vol. 77, No. 118 / Tuesday, June 19, 2012 / Rules and Regulations (p. 36771).
[7] Josh Weinik. PowerPoint Presentation provided to Tony Bomkamp June, 2019.

III. PROJECT IMPLEMENTATION

A. Project Goals

This Plan outlines the following goals:

1. To remove the unauthorized encroachments oceanward beyond resident property lines between the terminus of the existing bike trail west of F Street extending east to Channel Road;

2. Provide for a two-year iceplant removal program which gradually replaces the invasive groundcovers with appropriate native coastal strand vegetation and sandy public beach; and

3. Conduct five years of maintenance and monitoring (including the two-year phased iceplant removal) to ensure successful restoration of coastal strand plant community in the encroachment areas.

B. Schedule of Work

Work is expected to occur in two phases:

- Phase 1: Encroachment Removal (Spring 2021)

- Phase 2: Iceplant Removal and Coastal Strand Restoration, Maintenance, and Monitoring (Summer 2021-Winter 2025)

Phase 1 – Encroachment Removals

The Initial Removal Phase is expected to begin following approval of this Plan by the CCC, in spring 2021. Encroachment removals are recommended to occur between the months of March and May 2021, a time period of minimum snowy plover presence/activity. Work will consist mainly of removal of ornamental landscaping components (lawns, trees, shrubs, groundcovers, and hardscape) as detailed in Appendix C. Initial removals may be performed through a variety of physical removal methods including use of heavy equipment such as front loader/excavator, manual/mechanical removal, and limited use of chemicals for species that cannot be otherwise controlled. Installation of a stabilizing fabric or binder application may be necessary in some or all encroachment removal areas, to stabilize sand.

Phase 2 – Iceplant Removal and Coastal Strand Restoration

Invasive iceplant occurs throughout the coastal strand on the Balboa Peninsula and has established within many of the encroachment areas. In some areas, the occurrence is sparse and limited due to existing natural constraints associated with hot, dry sand. In other areas, the iceplant has formed thick mats benefitting from ornamental landscape irrigation. The presence of iceplant functions as a natural sand stabilizer, which is important to the residents on beachfront properties. Native dune plants would serve the same purpose once established within the encroachment zones. Therefore, this Plan proposes phased removal of iceplant within encroachment areas and replacement with native species over a five-year period.

The initial step in iceplant removal is herbicide treatment in place to allow dieback facilitating future phased removal. This initial step is recommended to occur in summer 2021 after completion of the encroachment landscape elements. Effective treatment may require up to two follow-up treatments.

Physical removal of iceplant biomass will be performed in two stages or "rounds", with each round being followed by installation of native container plants and seed. Round 1 will entail removal of approximately fifty-percent of the iceplant biomass in fall 2021, followed by installation of native coastal strand plants and seed. Round 2 will occur in fall 2022 and will entail removal of the remaining iceplant, followed by a second installation of native coastal plants and seed. Each fall during the subsequent maintenance period, a supplemental native seed mix may be applied to the encroachment removal areas to continually expand coverage by native coastal strand species, as coverage by iceplant is diminished.

Maintenance and monitoring is proposed to continue through the end of the 2025, with an annual monitoring report to be submitted to the CCC at the end of each calendar year for a period of five year starting in 2021.

Table 1 below provides the recommended timeline of encroachment removals, native plant replacement, maintenance, monitoring, and reporting for the proposed activities.

TABLE 1
IMPLEMENTATION SCHEDULE

Work Phase/Seasonal Timeline	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)	Winter (Dec-Feb)
PHASE 1 - Removals	**2021**				**2022**				**2023**				**2024**				**2025**			
Encroachment Removals																				
Stabilizer Fabric Application																				
PHASE 2 - Restoration	**2021**				**2022**				**2023**				**2024**				**2025**			
Spray Iceplant (leave in place)																				
Round 1 Iceplant Removal (50%)																				
Round 1 Install Native Plants/Seed																				
Round 2 Iceplant Removal (100%)																				
Round 2 Native Plants/Seed																				
Supplemental Seed (if necessary)																				
Qualitative Monitoring (Bi-Monthly Yrs 1-2 and Quarterly Yrs 3-5)																				
Maintenance (Bi-Monthly Yrs 1-2 and Quarterly Yrs 3-5)																				
Quantitative Monitoring (Annually)																				
Annual Report																				

C. Snowy Plover Breeding and Wintering

The breeding season for snowy plover is March 1 through September 30, predominantly in May. The non-breeding season, or "wintering" period, occurs from September through February. Observation of the plover population on the Balboa Peninsula has indicated that the plovers primarily use the area as wintering habitat rather than for nesting. The Project implementation schedule provides for encroachment removals during the months of March and May, when plovers have been documented as either absent, or present in low numbers. Presence of a biological monitor during the encroachment removal is required to minimize any incidental impacts to the snowy plover as a result of project activities.

D. Responsible Parties

The City will be responsible for the implementation of this Plan.

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E. Biological Monitoring

Glenn Lukos Associates has extensive experience designing habitat restoration projects in southern California, including projects within the coastal zone. This experience provides a strong basis for confidence in the success of the program proposed herein, as well as a valuable resource in the field for ensuring that any necessary changes are implemented should unanticipated site conditions warrant in-field changes to the Plan. A qualified resource specialist, referred to herein as Project Biologist, will supervise the implementation and maintenance of the Project and perform the proposed five-year monitoring of the restored encroachment areas.

The Project Biologist will be on-site to monitor the removal of the encroachments and monitor the phased removal of invasive groundcovers and replacement with native coastal strand vegetation. The Project Biologist will also perform ongoing training with landscape personnel during the course of the removals as the vegetative components vary among the encroachment areas and provide direction and monitoring during the native plant establishment and maintenance period.

F. Contractor Education

Contracting for the Project comprises two categories. The first category consists of removal of encroachments, which is some cases may require heavy equipment and can be performed by a commercial landscape contractor. For the purpose of this Plan, this contractor will be referenced as the "Removal Contractor". It is recommended that the same Removal Contractor conduct all the encroachment removals for continuity. Prior to the commencement of Project related activities, the Project Biologist will review all aspects of the Encroachment Removal and Replacement Plan with the Removal Contractor. A contractor education handbook will be prepared by the Project Biologist to familiarize Contractor personnel with the native coastal strand plant community within and adjacent to the encroachment areas and provide them with field copies of a plant identification guide depicting native plant species to be protected during the removal of unauthorized landscape/encroachments.

The second category, consisting of invasive plant treatment/removal and replacement with native coastal strand vegetation will require specialized knowledge in native plant communities. This work shall be performed by a qualified landscape contractor with a minimum of five years of experience in habitat restoration projects. For the purpose of this Plan, this contractor will be referenced as the "Restoration Contractor". The Restoration Contractor will be required to demonstrate experience in this field to the Project Biologist prior to contracting with the Applicant. The Restoration Contractor shall possess C27 and Pest Control Advisor (PCA) licenses for herbicide treatment of the invasive non-native species in the encroachment removal areas.

All contractors must strictly adhere to the Best Management Practices and Impact Minimization Measures outlined in Section IV.C. of this Plan.

G. Cost Estimate

The approximate cost for implementation of the Plan is provided in Table 2 below. The cost estimate is an initial estimate based on average costs that are typically encountered for revegetation projects. However, this project differs from other revegetation projects due to the labor intensive aspect of this Plan that is associated with encroachment removals. The City has mechanisms to provide efficiencies and reduce the cost through the competitive bidding process and use of City crews for a portion of the labor during removals. As such, this table should be used a conservative estimate to establish not-to-exceed costs for the proposed tasks.

TABLE 2
COST ESTIMATE

Task	Cost
Phase 1-Initial Removals	$ 200,000
Biological Monitoring During Removals	$ 15,000
Phase 2-Iceplant Thinning and Removal	$ 50,000
Container Stock Installation (Including plant costs)	$ 30,000
Seeding (Including seed cost)	$ 20,000
Irrigation	$ 48,000
Erosion Control	$ 15,000
Five-Year Maintenance	$ 92,500
Five-Year Monitoring	$ 75,000

IV. WORK PLAN FOR ENCROACHMENT REMOVAL [PHASE 1]

A. Survey/Staking

The City will survey/stake the limits of the encroachment removal areas prior to start of work by the Removal Contractor to clearly delineate private residence property boundaries, limits of encroachment removals and access path for equipment to minimize driving on the beach and existing dunes. Survey stakes will be spaced within a line of sight and no more than 50 feet apart. Access routes will be limited to the footprint of existing encroachments within 25 feet of property lines and shall not exceed the limits of encroachments in cases where encroachments extend beyond 25 feet beachward of property lines.

Final staging and access will be determined prior to commencement of work and be approved by Coastal Commission staff.
The Project Biologist will flag limits of existing native plants to be avoided during the encroachment removal activities.

B. Removal of Encroachments

Encroachment removals are recommended to occur between the months of March and May, a time period of minimal snowy plover presence/activity. The City is committed to removal of ornamental landscaping components (lawns, trees, shrubs, groundcovers, and hardscape) as detailed in Appendix C. Initial removals may be performed through a variety of physical removal methods including use of heavy equipment such as front loader/excavator, manual/mechanical removal, and limited use of chemicals for species that cannot be otherwise controlled. Installation of a stabilizing fabric or binder application may be necessary in some areas to stabilize sand. The type and quantity of fabric installed will require coordination with the CCC, City, and Project Biologist.

Hardscape and Irrigation

In cases of structural encroachments such as patios or decks that are attached to a residence, individual homeowners will be responsible to obtain appropriate demolition permits and perform the demolition and removal to the property line using their own contractors. Appendix A lists all properties with structural encroachments to be removed by homeowners. Private contractors shall coordinate the work schedule with the City for scheduling and adherence to Best Management Practices and Impact Minimization Measures outlined in this Plan. The City will be responsible for removal of hardscape elements such as pavers, bricks, planter boxes, and stepping stones that are not attached. All hardscape encroachments will be removed and disposed of offsite, in an appropriate landfill. Irrigation lines will be capped at the private property limit and visible components will be removed. Buried irrigation lines not immediately visible or made visible during the landscape removal activity will be capped but remain buried.

Ornamental Vegetation

The initial removal of ornamental vegetation will be performed using a combination of removal methods including use of heavy equipment such as a front loader or excavator, manual or mechanical removal, and limited use of herbicides for species that cannot be otherwise controlled. It is important that all soil amendments, lining and borders associated with the lawns be removed, leaving native sand.

Lawns

Irrigated grass lawns are one of the main components of the encroachments. Lawns may be treated with herbicide prior to removal to achieve initial “kill” prior to hauling away. All sod and soil amendments shall be completely removed and the condition returned to sandy beach.

Trees

Trees may be removed using the cut/stump treatment, a method that involves the cutting of the trunk at ground level and painting the stump with herbicide. Follow-up monitoring and as needed treatment in the next years would consist of herbicide treatment of any new growth. This method would be repeated as necessary each year during the maintenance and monitoring period.

Ornamental Shrubs and Groundcover
Removal of ornamental shrubs and groundcover will be performed using a combination of removal methods including use of heavy equipment such as a front loader/excavator, manual/mechanical removal, and limited use of herbicide for species such as Bermuda grass and English Ivy that cannot be otherwise controlled.

In areas where ornamental shrubs/groundcovers or invasive species are intermixed with native coastal strand vegetation, the ornamental and invasive species will be removed manually around the native plants in order to allow for the expansion of the native species without competition. Native plants must be protected in place during the removal activities and trampling minimized to the extent feasible. In some cases, the invasive species (i.e. iceplant) may be spot sprayed with herbicide and left in place to function as interim groundcover while the native species expand coverage.

Hottentot Fig (Iceplant)
This species constitutes a large segment of the mapped vegetation within the encroachment zones. Since its proliferation has largely occurred naturally and not through planting by homeowners, it is not being counted toward the encroachments, but will be removed as a part of this restoration program. This Plan proposes removal of iceplant in phases, and replacement with native coastal strand vegetation. In instances where the iceplant is very thick, it may be partially removed with equipment and treated using herbicide to reduce biomass before phased removal as a part of Phase 2, described below in Section V.

Wildland Weeds/Escaped Ornamentals
In cases where lawns, ornamental shrubs or groundcovers from one property appeared to have expanded beyond the property line to the neighboring property, and in areas where patches of wildland weeds were present, these were mapped, but not counted as encroachments, but will be removed as a part of this restoration program.

C. Best Management Practices and Impact Minimization Measures

All work will be performed in conformance with BMPs outlined in this Plan and under the direction of the Project Biologist experienced in habitat restoration and resource management in Southern California. BMPs set forth herein limit the introduction, transport, and proliferation of invasive species on the beach and to ensure that all work is performed with the least incidental impact to native plant communities and protected wildlife.

- Flagging, stakes, and/or rope shall be used to demarcate the boundary of the work areas and the beach, particularly previously mapped snowy plover locations.
- All contractors working on site shall be instructed on the sensitivity of the area by the Project Biologist prior to start of work and receive information regarding impact avoidance and minimization to the snowy plover and coastal strand habitat.
- Equipment access and staging areas shall be identified by the City and approved by Coastal Commission staff prior to start of work Goal is to limimt access and staging to within 25-feet from property lines, if possible.
- Flagging or roping off native species locations to be avoided within encroachment areas shall be conducted by the Project Biologist prior to start of work.
- Contractors shall clean all equipment, tools, gear, and clothing prior to start of work to avoid introduction of invasive species to work areas.

- Clear demarcation of access routes prior to start of work shall be conducted by the City and the Project Biologist.

D. Waste Disposal

Waste Disposal locations to be identified at one or multiple locations prior to start of work. All materials removed from encroachment areas shall be disposed of offsite at a landfill. The ornamental plant material will be removed off-site to a "green" waste recycling facility or otherwise legally disposed of, as necessary. Nonnative plant material will be covered during transport.

E. Erosion Control

In areas where large sections of lawn or ornamental vegetation are to be removed, temporary erosion control may be installed to prevent excessive sand movement following the removals. Erosion control may be achieved through the installation of jute netting or similar natural material. Any future erosion control will be addressed on a case by case basis. Any proposed erosion control action will be subject to approval by the CCC prior to implementation.

V. WORK PLAN DURING ICEPLANT REMOVAL AND RESTORATION [PHASE 2]

A. Iceplant Removal

As previously described, invasive iceplant occurs throughout the coastal strand on the Balboa Peninsula and has established within many of the encroachment areas. In some areas, the occurrence is sparse and limited due to existing natural constraints associated with hot, dry sand. In other areas, the iceplant has formed thick mats benefitting from ornamental landscape irrigation. The presence of iceplant functions as a natural sand stabilizer, which is important to the residents on beachfront properties. Native dune plants would serve the same purpose once established within the encroachment area. Therefore, this Plan proposes phased removal of iceplant and replacement with native species over a two-year period.

The initial step in iceplant removal is herbicide treatment in place to allow dieback facilitating future phased removal. This initial step is recommended to occur in summer 2021 after completion of the encroachment landscape elements. Effective treatment may require up to two follow-up spray treatments.

Physical removal of iceplant biomass will be performed in two stages or "rounds", with each round being followed by installation of native container plants and seed. Round 1 will entail removal of approximately fifty-percent of the iceplant biomass in fall 2021, followed by installation of native coastal strand plants and seed. Round 2 will occur in fall 2022 and will entail removal of the remaining iceplant, followed by a second installation of native coastal plants and seed. Each fall during the subsequent maintenance period, a supplemental native seed mix may be applied to the encroachment removal areas to continually expand coverage by native coastal strand species, as coverage by iceplant is diminished.

B. Native Plants and Seed

It is expected that in time the encroachment areas will begin to reestablish with coastal strand native vegetation through natural recruitment following the removal of the ornamental landscaping and continued

weed abatement within the encroachment removal areas. A slow transition from the invasive iceplant groundcover is proposed through gradual thinning of the iceplant over a two-year period, leaving the decomposing biomass as groundcover[8] while promoting the growth of native species such as pink sand verbena, beach primrose, beach morning glory, sand bur, saltgrass, and beach saltbush. It is important to note that ultimately the decomposing iceplant will be removed to avoid soil formation on the sand as the native coastal strand species establish over the five-year project maintenance period.

To aid the revegetation by native coastal strand species, a combination of native container stock and seed mix will be installed in removal areas to initiate the growth of native groundcovers. Container stock will be generally installed within the iceplant removal areas, while a native seed mix will be applied to the encroachment removal areas, as depicted on Exhibit 6.

Table 3 below provides a list of container stock to be planted in the fall months following encroachment removals.

TABLE 3
COASTAL STRAND PLANT LIST

Species	Common Name	Stock Type	Number/Acre
Abronia umbellata	Pink sand verbena	1-gallon	100
Ambrosia chamissonis	Sand bur	1-gallon	50
Atriplex leucophylla	Beach saltbush	1-gallon	50
Calystegia soldanella	Beach morning glory	1-gallon	100
Cammisoniopsis cheiranthifolia	Beach evening primrose	1-gallon	100
Distichlis spicata	Saltgrass	1-gallon	100

Source of Plant Materials

It is preferred that the source of all propagules and seed used at the mitigation site be from coastal Orange County. If not available, the remainder of propagules and seed required may be considered from coastal San Diego and Los Angeles Counties, and collected as close to the restoration site as possible to preserve regional genetic integrity.

Contract Growing

Contract growing of all container plants shall be by a local experienced native plant nursery. Substitution of plant material at the time of planting depends upon the discretion of the Project Biologist. Any substitutions that are approved will be documented in the annual monitoring reports to the City and CCC.

Container Stock

One-gallon container stock, rosepots, and liners may be utilized for the restoration project, as available, with one-gallon size being the preferred container size. Plant materials will be inspected by the Project Biologist and approved as healthy, disease free, and of proper size prior to planting. Overgrown, root-bound container stock will be rejected. Container stock will be laid out in such a manner that mimics natural plant distribution

[8] This method has been successful in restoration efforts in the adjacent western snowy plover critical habitat, in eradicating iceplant while increasing native coastal strand vegetation. Personal conversation with Michelle Clemente (City of Newport Beach) on July 18, 2013.

(i.e., in clusters and islands) to emulate existing the coastal strand plant community on Balboa Peninsula. Prior to container stock installation, the Project Biologist will flag plant locations in the field with pin-flags that will be color coded as to plant species. A list of species with their appropriate color code will be provided to the Contractor prior to plant installation.

Table 4 below provides a list of species and application rate to be applied to encroachment removal areas. This seed mix may be applied multiple times during the five-year monitoring period, as directed by the Project Biologist.

TABLE 4
COASTAL STRAND SEED MIX

Species	Common Name	Stock Type	Lbs/Acre
Abronia umbellata	Pink sand verbena	Seed	5
Ambrosia chamissonis	Sand bur	Seed	5
Atriplex leucophylla	Beach saltbush	Seed	5
Cammisoniopsis cheiranthifolia	Beach evening primrose	Seed	5
Lupinus bicolor	Dove lupine	Seed	8

Method and Timing of Seed Application
The seed mix will be broadcast by hand and will be scattered mainly in the larger encroachment removal areas. To maximize the germination of seed, broadcast will occur following a rain event of roughly 1-inch, or more, in the months between September and February.

Irrigation
Planting and seeding will be conducted during the late fall and winter months (between November and February) to take advantage of cooler temperatures and natural rain cycles to establish planted container stock and seed. However, in case of unseasonable warm winters or drought conditions, the Project Biologist may recommend supplemental irrigation to establish the native plant material. This will be conducted using a water buffalo or similar vehicle to apply water by hose/hand to the planted container stock once per week for a four-month period to establish the native container plant material, and as-needed thereafter.

No permanent irrigation systems will be installed as a part of this plan.

Fencing/Signage
The primary purpose of this Plan is to return the encroachment areas to sandy beach for public use. Placement of fencing would deter public use and create a visual nuisance to residents as well as the public, and therefore is not being proposed as a part of this Plan. While temporary signage may be appropriate during the two-year iceplant removal and replacement process to deter trampling of native plants being established, the type, size, and material of such signage should be selected carefully to reduce visual impacts and placement to be limited to City property at street ends. All signage should be removed following final sign-off. Proposed signage locations are depicted on Exhibit 7. Final sign locations and design to be approved by Coastal Commission staff.

VI. MAINTENANCE

A. Responsible Parties

The City will be responsible for carrying out the five-year maintenance program.

B. Weed Abatement

Following initial encroachment removals during Phase 1, regrowth of some of the ornamental species, as well as a variety of opportunistic annual and perennial non-native species such as red brome (*Bromus madritensis* ssp. *rubens*), sea rocket (*Cakile maritima*), and Bermuda grass (*Cynodon dactylon*), among others, may proliferate within encroachment removal areas. The follow-up maintenance will focus on the suppression of these and other non-native species in the encroachment removal areas, while promoting the recruitment of native coastal strand species.

To the extent practicable, follow-up non-native species control will largely consist of hand-pulling or spot spray to avoid impacts to newly establishing native species. Herbicide use shall occur only in areas where native species will not be affected and only after consulting the Project Biologist. Large, conspicuous piles of dead biomass shall not be left on the beach.

The type and quantity of herbicide application will be determined by a California licensed Pest Control Advisor (PCA) who will recommend types of herbicide to be used, rates of application, and areas to which herbicides are to be applied. A licensed Pest Control Operator (PCO) may work under the supervision of the PCA who will employ best management practices regarding the timing, quantity, and type of herbicide for each species. The PCA will determine both immediate and follow-up herbicide application for each species. All recommendations will be submitted to the Project Biologist for approval prior to treatment.

Hottentot Fig (Iceplant)
While this species comprises a significant groundcover within the encroachment zones, it will not be removed during the initial Phase 1 removals. In instances where the iceplant is very thick due to irrigation, spot treatment using herbicide may be recommended by the Project Biologist to reduce the biomass.

Mixed Ornamental Shrubs and Groundcovers and Native Species
In areas where ornamental shrubs/groundcovers or invasive species are intermixed with native coastal strand vegetation, the ornamental and invasive species will be removed manually around the native plants in order to allow for the expansion of the native species without competition.

C. Irrigation

This will be conducted using a water buffalo or similar vehicle to apply water by hose/hand to the planted container stock on an as-needed basis during the maintenance period, under the direction of the Project Biologist.

D. Trash Removal

The Project areas shall be well-maintained in order to deter vandalism and dumping of trash. Contractor shall, during routine quarterly maintenance, manually remove weeds, liter, and trash from the Project areas

and dispose of off-site as permitted by law. Driftwood, wrack and other natural vegetative debris shall be left in place.

E. Supplemental Seeding

Each year, the Project Biologist will assess the infill of native coastal strand species and recommend supplemental seeding of the seed mix outlined in Table 4, if necessary, to provide additional vegetative cover for sand stabilization.

F. Maintenance Schedule

The maintenance program will begin immediately following initial removals in spring 2021 and will occur on a monthly basis during the first year following removals and quarterly thereafter for the remainder of the five-year restoration project. Table 5 below provides a recommended maintenance schedule.

TABLE 5
MAINTENANCE SCHEDULE

Season/ Schedule	Maintenance Activity
Year 1 - 2021	
Spring	Initial removals
Summer	Spray iceplant in place; remove weeds and regrowth of ornamentals
Fall	Remove weeds and regrowth of ornamental/perform thinning of iceplant (50%)/remove trash
Winter	Install native coastal strand plants and seed/remove weeds and regrowth of ornamentals/remove trash
Year 2 - 2022	
Spring	Remove weeds and regrowth of ornamentals/remove trash
Summer	Remove weeds and regrowth of ornamentals/remove trash
Fall	Remove weeds and regrowth of ornamental/perform thinning of iceplant (100%)/remove trash
Winter	Install native coastal strand plants and seed/remove weeds and regrowth of ornamentals/remove trash
Year 3 - 2023	
Spring	Remove weeds and regrowth of ornamentals/remove trash
Summer	Remove weeds and regrowth of ornamentals/remove trash
Fall	Remove weeds and regrowth of ornamentals/remove trash
Winter	Remove weeds and regrowth of ornamentals/remove trash; apply native seed (if necessary)
Year 4 - 2024	
Spring	Remove weeds and regrowth of ornamentals/remove trash
Summer	Remove weeds and regrowth of ornamentals/remove trash
Fall	Remove weeds and regrowth of ornamentals/remove trash
Winter	Remove weeds and regrowth of ornamentals/remove trash; apply native seed (if necessary)
Year 5 - 2025	
Spring	Remove weeds and regrowth of ornamentals/remove trash
Summer	Remove weeds and regrowth of ornamentals/remove trash
Fall	Remove weeds and regrowth of ornamentals/remove trash
Winter	Remove weeds and regrowth of ornamentals/remove trash; apply native seed (if necessary)

VII. MONITORING PLAN

A. Baseline Data

Aerial photography using drone imagery will be used to measure vegetative coverage by native coastal strand vegetation, non-native vegetation, and sandy beach on the areas outside the encroachment on the Balboa Peninsula between F Street and Channel Street. Representative sampling from the snowy plover critical habitat area will also be included to establish baseline conditions as a reference point for the restoration program. These aerial photographs will be produced at high resolution to map the existing vegetation within reference areas. Field truthing of the aerial photography will be conducted by the Project Biologist and a plant list will be compiled of the vegetated portion of the baseline reference areas to measure species composition and coverage.

Coverage data of baseline conditions will be used as the reference for comparison to measure the effectiveness of the proposed restoration strategy and to ensure ultimate consistency of the encroachment removal areas with existing conditions outside the encroachment areas. Baseline data will be collected concurrently with the initiation of Project activities.

B. Performance Standards

The coastal strand is characterized by low plant density (often less than 20-percent cover by vegetation) and low species diversity, as few species can withstand the harsh conditions characteristic of this environment.

To assess performance, baseline data on coverage by native species, non-native species, and sandy beach will be collected as outlined above. This data will be used as the final (fifth-year) success standard for comparison. Due to the slow growing nature of the native coastal strand species and phased removal of the iceplant, performance standards are proposed for years 3 and 5.

The performance standard for native plant coverage for year 3 will be 50-percent of the baseline coverage, while performance standard for year 5 will be 90-percent of baseline coverage. For example, if baseline coverage by native species is 20-percent, the performance standard for year 3 will be set at 10-percent and for year 5 at 18-percent. The maximum cover by native species shall not exceed 20-percent of the encroachment removal areas in order to preserve sandy beach.

Additional performance standards include eradication of ornamental plant species, and control of invasive non-native species such as iceplant to less than 5-percent cover within the encroachment removal areas.

Table 6 below provides the proposed performance standards for years 3 and 5.

TABLE 6
Performance Standards

Cover Attribute	Performance Standard
Year 3	
Native Cover	50-Percent of Baseline

Ornamental Cover	Less than 5-Percent
Non-Native Invasive Cover	Less than 10-Percent
Year 5	
Native Cover	90-Percent of Baseline
Ornamental Cover	Less than 1-Percent
Non-Native Invasive Cover	Less than 5-Percent

C. Monitoring Methods

For the duration of the five-year monitoring period, elimination of the ornamental and invasive ground cover and establishment of the plantings will be measured through a series of qualitative and quantitative measurements assessing native species cover, non-native species cover, and unvegetated sandy beach. Monitoring will be performed by a qualified Biologist/Ecologist, and continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

Qualitative Monitoring

The Project Biologist will conduct qualitative monitoring surveys on a bimonthly basis during the first two years and quarterly during the last three years of the five-year monitoring period. Qualitative surveys will consist of walking the length of the encroachment area and documenting general observations, such as regrowth of ornamental vegetation, natural recruitment of native coastal strand species, establishment of planted container stock and seed, trash/debris, signs of disturbance, and weed invasions. Records will be kept of signs of erosion, predator bird species such as crows, and weed infestation. The Project Biologist will determine adaptive management measures to be undertaken to ensure successful implementation of the Plan. All adaptive management measures undertaken will be referenced in annual monitoring reports submitted to the CCC.

Quantitative Monitoring

Consistent with the methodology used for baseline data collection, aerial photography using drone imagery will be flown annually to measure vegetative coverage by native coastal strand vegetation, non-native vegetation, and sandy beach within the encroachment removal and restoration areas. Georeferenced aerial photographs will be produced at high resolution to map the vegetation within encroachment removal and restoration areas. Field truthing of the aerial photography will be conducted by the Project Biologist and a plant list will be compiled of the vegetated portion of the assessment areas to measure species composition and coverage.

Photo-Documentation

Permanent stations for photo-documentation will be established before the initiation of the Project as a part of baseline data collection and recorded using GPS. Photos shall be taken during each quantitative monitoring event from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring reports.

D. Monitoring Schedule

The monitoring program will begin immediately following initial removals. Qualitative monitoring will occur on a bimonthly basis during the first two years and quarterly for years three through five of the five-year monitoring period. Quantitative monitoring will be conducted annually in spring months, with annual monitoring reports to be submitted to the CCC by the end of each year (December 31).

E. Annual Monitoring Reports

At the end of each of the five years of maintenance and monitoring, an annual report shall be prepared by the City for submittal to the CCC. These reports will document the revegetation progress of the work areas and summarize maintenance activities that occurred during each respective year. At the end of the fifth monitoring year, the CCC will be notified in writing that the monitoring period is complete. All annual monitoring reports shall 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 encroachment removal and restoration sites;
- an aerial photograph/drone imagery flown each year at the same time of year;
- a site plan identifying GPS points or polygons for significant natural recruitment of native coastal strand species, invasive non-native species removal areas, photo station locations, etc.;
- a description of the status native plant communities, and percent cover by non-native species in the Project areas;
- an analysis of monitoring results; and
- copies of all monitoring photographs.

The City will notify the CCC in writing when the five-year monitoring period is complete. The final report will provide an assessment of encroachment removal areas and achievement of the fifth-year performance standards. If any portion of the performance standards have not been met, adaptive management measures will be implemented to address any deficiency.

F. Adaptive Management

The five-year maintenance period in this Plan, as outlined in Section VI and Table 5, provides for an adaptive management component during the maintenance period, which includes application of native seed each of the five years, as necessary, to promote infill of southern foredune vegetation within the encroachment removal areas. Additional adaptive management measures may include planting container stock and continuing weed abatement until performance standards are met.

The monitoring period will be extended one year at a time until stated performance standards are satisfied and the CCC provides written confirmation that the City has completed their maintenance and monitoring obligation within the encroachment removal areas.

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Distribution Page of all Persons Receiving a Copy of the Encroachment Removal and Replacement Plan and Annual Monitoring Reports

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