

# **WINGS LANDING TIDAL HABITAT RESTORATION PROJECT**

*CEQA ADDENDUM*

## **APPENDIX I Invasive Vegetation Management Plan**



# WINGS LANDING TIDAL HABITAT RESTORATION PROJECT

## APPENDIX I

### INVASIVE VEGETATION MANAGEMENT PLAN

#### *CURRENT CONDITIONS AND INVASIVE SPECIES MANAGEMENT STRATEGIES*

Invasive plants at the Wings Landing Tidal Habitat Restoration Project (Project or Proposed Project) have historically been managed as part of ongoing duck club management operations. The interior of the Project Site is typically flooded in late October and drained in late February or early March following waterfowl hunting season. Flooding and draining occurs tidally through existing water control structures.

After the Project Site is dry in the spring, and throughout the summer dry-season, common reed (*Phragmites australis*) and other invasive plant removal is conducted as necessary, and levee and marsh plain vegetation is mowed. The entire interior of the Project Site, as well as all levee tops, have historically been mowed, disced, and otherwise managed for duck club maintenance (**Figure 1**). This annual management area covers 253.5 acres that are managed using mowing, cutting, discing, and water control practices to flood and “drown” invasive plants in the marsh plain. Under the Regional General Permit 3 (RGP3), a maximum of 20% of the site (approximately 50 acres) can be disced annually. Discing is concentrated on areas around duck hunting blinds and areas that become infected with cocklebur (*Xanthium strumarium*), an undesirable plant from a waterfowl nutrition perspective. All areas around the duck blinds are mowed annually, as well as the levee tops. Annually after the spring draw down occurs and the Project Site is dry enough to drive a bulldozer into the main marsh, earth moving occurs in the channels to ensure that they are deep and wide enough for boats to travel from the boat house to the hunting blinds. Herbicides are used in the event that areas become overly infested with *Phragmites*. This only occurs on the interior of the Project Site, and usually only within the brood pond. Herbicides are applied by a licensed applicator using herbicides such as glyphosate and imazapyr. It is estimated that *Phragmites* control occurs once every five years.

#### *ONGOING MANAGEMENT*

Following initiation of construction activities, the Project Site will continue to be maintained consistent with historic managed wetlands maintenance practices throughout construction to prevent listed species habitat from developing, as well as to control invasive plants.

Ongoing management for the purpose of controlling invasive plants would focus on areas throughout the Project Site that are known to support invasive plants and that may provide suitable habitat, such as the brood pond. In the event that invasive plants begin to threaten the success of Proposed Project objectives, invaded areas will be mowed and sprayed.

Additional vegetation management would be necessary to maintain access for maintenance and construction activities, as well as to prevent salt marsh harvest mouse habitat from developing in historically managed areas. Construction areas typically mowed for duck club maintenance will continue to be mowed as needed to keep tall vegetation from growing, up to 4 times per year, facilitating access and preventing development of suitable mouse habitat.

Herbicides labeled for aquatic use would be used to control nuisance vegetation in tidal areas. Herbicides would be mixed with appropriate surfactant/activator in accordance with the chemical manufacturer's recommendations. The following BMPs would be used to avoid and minimize impacts:

General BMPs:

- ▶ Herbicides would be mixed offsite or in designated upland staging areas to prevent spills in wetland areas and tanks would be rinsed offsite following application.
- ▶ Equipment would be fueled in designated staging areas or offsite and would be equipped with spill prevention materials.
- ▶ Equipment would be checked for leaks daily prior to use in wetland areas.
- ▶ Spill prevention and response measures would be identified prior to application of herbicides and identified in a Hazardous Materials Management Plan for the activity.
- ▶ No herbicide would be discharged directly into surface waters during application.
- ▶ Any herbicides would be used in accordance with manufacturer's label instructions.
- ▶ Only herbicides registered in California for use in or adjacent to aquatic environments would be used, and only when other means of invasive plant control are demonstrated to be infeasible or ineffective.
- ▶ Herbicide use in tidal areas would be done in accordance with the General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ, NPDES No. CAG990005) including receiving water monitoring to ensure receiving waters are below listed limitations.
- ▶ Herbicides would not be used when wind exceeds 10 miles per hour, during gusty conditions, or during potential inversions.
- ▶ Herbicides would not be used when local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events. All herbicides are registered

with the California Department of Pesticide Regulation and U.S. Environmental Protection Agency (EPA).

#### Tidal Wetlands BMPs:

- ▶ Herbicides used in tidal wetland areas below Mean High Water would be labeled for aquatic use.
- ▶ Any herbicide application in tidal areas would occur at low tide and would be applied by hand to minimize overspray.
- ▶ Any listed or rare plants would be identified and avoided.

Herbicides labeled for aquatic use (**Table 1**) would be sprayed with backpack sprayer or spray rig attached to a truck, boat, or all-terrain vehicle (ATV), or by drone, depending on patch size and accessibility. After the herbicide begins to take effect, the vegetation would be mowed without disturbing rhizomes or scarifying soil. Spraying and mowing would be repeated as necessary.

No more than 50 acres total per year would be sprayed with herbicide at the Project Site (but multiple treatments of the same patch may occur). This would not be considered additive acreage. Herbicides would be applied up to four times per year.

**Table 1: Herbicides that could be used for future invasive vegetation management<sup>1</sup>**

Habitat type	Herbicide	IUPAC Name
<b>Terrestrial (above MHW)</b>	Chlorsulfuron	2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl) aminocarbonyl] benzenesulfonamide
<b>Aquatic<sup>2</sup></b>	Imazapyr	(RS)-2-(4-Methyl-5-oxo-4-propan-2-yl-1H-imidazol-2-yl) pyridine-3-carboxylic acid
<b>Aquatic<sup>2</sup></b>	2,4 D	(2,4-Dichlorophenoxy) acetic acid
<b>Aquatic<sup>2</sup></b>	Glyphosate	N-(phosphonomethyl) glycine
<b>Aquatic<sup>2</sup></b>	Triclopyr	[(3,5,6-Trichloro-2-pyridinyl)oxy] acetic acid
<b>Aquatic<sup>2</sup></b>	Diquat	9,10-dihydro-8a,10a-diazoniaphenanthrene

<sup>1</sup> Chemicals not listed here may be substituted for these chemicals if analysis is provided that demonstrates effects similar to or less than what was analyzed for the listed chemicals.

<sup>2</sup> Herbicides are included in the General NPDES Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ, NPDES No. CAG990005)

## POST-CONSTRUCTION MANAGEMENT

Following completion of construction activities, the natural, tidal flood and drain cycle will continue to promote desirable vegetation throughout the majority of the Project Site.

Natural Resources Group, Inc. and DWR expect that new colonization of undesirable plants would be ongoing following restoration. DWR and CDFW would continue to monitor the restored Project Site for undesirable invasive vegetation for 10 years after tidal restoration

as part of the Proposed Project. When invasive vegetation is found onsite, DWR would assess the invasive species and appropriate management actions would be taken to attempt to control it. Methods could include hand removal, mowing using a tracked amphibious vehicle, and spraying herbicides (**Table 1**). Pest control methods would be implemented upon detection of known invasive species. When possible, plants would be removed by hand or other mechanical methods. Herbicides would be used if mechanical methods are infeasible or ineffective. There are currently no approved effective biological control agents for the expected invasive plants in Suisun Marsh. Plant management methods would be informed by the best available information. Five years after tidal restoration, the Project Site would be monitored in accordance with the Long-term monitoring and management plan, which would include ongoing management of invasive species.

## **Mechanical**

Mechanical control could include hand removal (e.g., pulling or cutting) or mowing. Mowing would be done with conventional tools and equipment where possible and specialized amphibious tracked equipment where necessary. Mowing would be done at low tide, and residual vegetation material would be hauled offsite for disposal.

## **Chemical**

Herbicides listed above and potentially others would be selected to target specific invasive plant species, minimize off-target effects, and limit the potential for herbicide resistance. Herbicide application in tidal areas would be applied during low tide to minimize the potential for any chemicals to be discharged into surface waters and would be applied following the manufacturer's label instructions, including tank mixes or surfactants. **Table 1** describes the herbicides that may be used to control invasive plants during and after restoration construction. With the exception of Chlorsulfuron, all herbicides would be aquatic formulations. Chlorsulfuron would only be used above Mean High Water (5.50 feet NAVD88) in accordance with the manufacturer's label instructions.

## **Cultural**

Following removal of invasive plants, native plants would be planted or seeded where necessary to reduce further establishment of invasive plants. Appropriate planting species and methods would be determined based on elevation and surrounding plant types. Plantings would include bulrush (*Schoenoplectus* sp.), cattails (*Typha* sp.), or other appropriate mid- to high-marsh species. Native vegetation may be broadcast via seeds, rhizomes, or adult plugs, and may include bundles of rhizomes and vegetation.

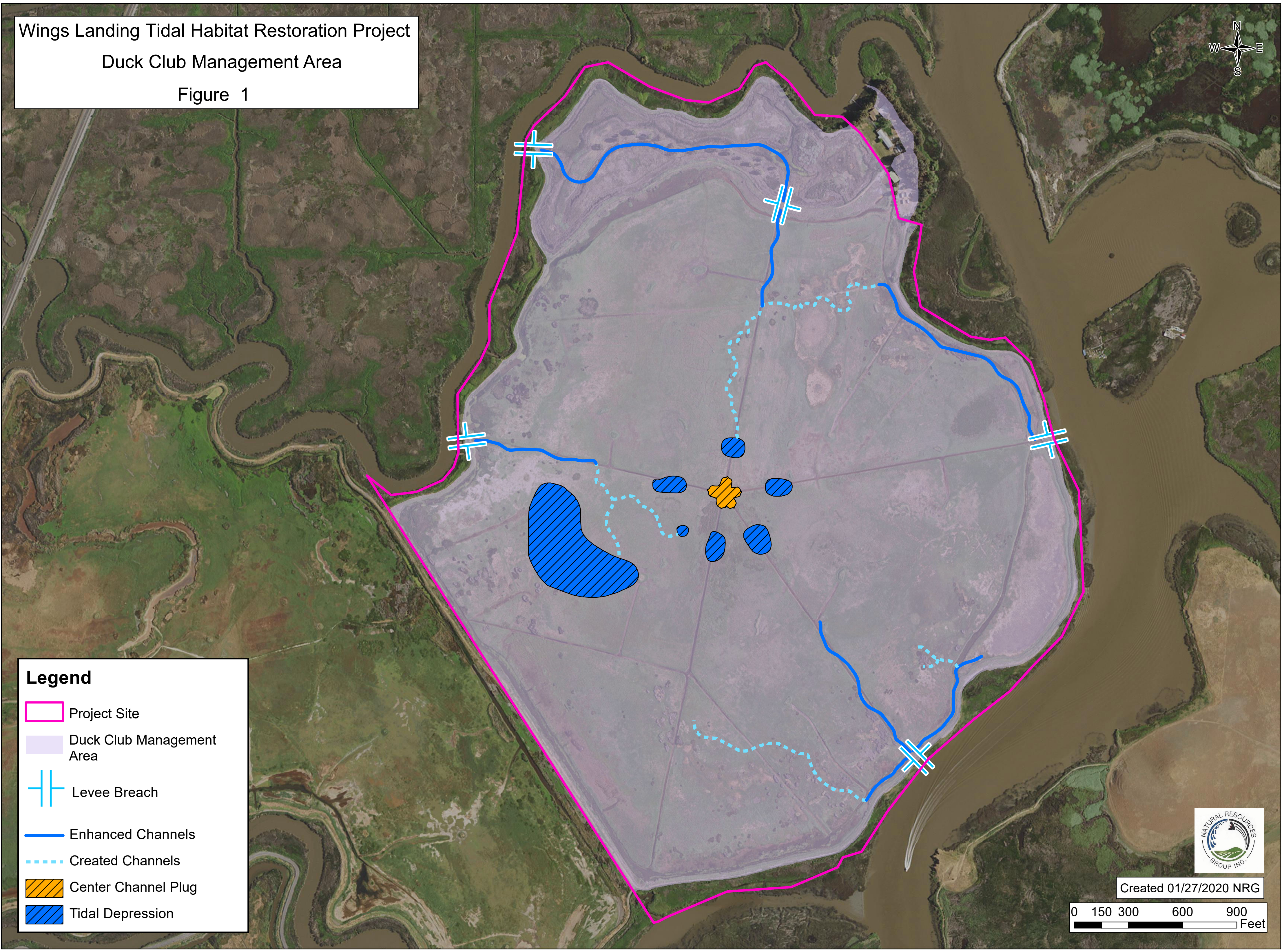


Wings Landing Tidal Habitat Restoration Project  
Duck Club Management Area  
Figure 1



**Legend**

- Project Site
- Duck Club Management Area
- Levee Breach
- Enhanced Channels
- Created Channels
- Center Channel Plug
- Tidal Depression



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