

1.0 Introduction

The City of Deer Park wishes to restore native wetland vegetation associated with an approximately 17-acre wetland located immediately east of East Boulevard between East Thirteenth Street and East X Street. This wetland is unique in that it is a historical swale and was placed under a restrictive easement as part of the mitigation required for the construction of East Boulevard. As such it requires special consideration for the restoration of vegetation.

The sections below describe existing conditions and requirements for restoring the vegetation of the wetland.

2.0 Existing Conditions

Existing vegetation within the wetland is typified by the presence of Chinese tallow trees (*Triadica sebifera*) with scattered native tree species including green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), and laurel oak (*Quercus laurifolia*). The dominant tree species within the wetland (Chinese tallow) are primarily smaller individuals with diameter breast height (dbh) of roughly 2-5 inches with varying spacing (approximately 3-15 feet between centers); however, some larger individuals were present. Additionally, the dominant shrub species in the wetland is buttonbush (*Cephalanthus occidentalis*). Along the margins of the wetland, the non-native Cherokee rose (*Rosa laevigata*), yaupon (*Ilex vomitoria*), and blackberries (*Rubus* sp.) create relatively dense understory. Herbaceous vegetation within the wetland is quite dense and includes a number of obligate and facultative wetland species, including members of *Typha*, *Carex*, *Eleocharis*, and *Cyperus* genera. Total areal cover within the wetland was estimated to be >85%.

3.0 Vegetation Clearing Effort

Clearing efforts will be directed primarily at eliminating reproductive age Chinese tallow within the wetland and surrounding buffer. Doing so will require the strict use of hand clearing tools (e.g., chainsaw, hand saws, machete) to prevent the need for U.S. Army Corps of Engineers (USACE) permitting. No vehicular machinery can be used to remove vegetation. Therefore, all clearing efforts must be based on methods that do not constitute fill by the USACE Galveston District. Clearing must be carried out with the techniques described in Sections 3.1 through 3.3.

3.1 Girdle Treatment Method

Girdling is the preferred method to treat all Chinese tallow trees that are greater than 3 inches diameter at breast height (dbh). This method requires to exposing no less than a three-inch section of the tree's cambium within the lowest 24 inches of the trunk and immediately spraying the exposed cambium with herbicide (e.g., triclopyr, glyphosate, or similar) to speed the death of the tree. Although girdling may be performed at any time of the year, optimal mortality is generally achieved when herbicides can be applied during the growing season (May-August).

Treated trees will be left standing and allowed to decay as they stand. Although the density of trees in this age class ranges across the site, the bidder should expect to have to traverse the entire property. The City of Deer Park requires that no greater than 1% of the trees in this size class will survive more than 12 months after treatment.

3.2 Stump Spray Treatment Method

Stump spray treatment is the preferred method to treat Chinese tallow trees and saplings that are less than 2 inches dbh. This method involves manually cutting the stems of the trees using hand tools (e.g., loppers, machete, or similar) and immediately spraying the exposed stump with herbicide (e.g., triclopyr, glyphosate, or similar) to speed the death of the tree. Stumps should be cut to within 6 inches of the ground or water level to ensure that resprouting does not occur. Felling and stump treatment may be performed any time of year, although optimal mortality is generally achieved when herbicides can be applied during growing season (May-August).

Felled material should be manually removed by the contractor. Although the density of trees in this age class ranges across the site, this tree class is found throughout the tract. The City of Deer Park requires that no greater than 10% of the trees in this size class will survive more than 12 months after treatment.

3.3 Foliar Application Method

Treating of seedlings will be through the use of foliar herbicide application. This method entails applying herbicide (e.g., triclopyr, glyphosate, or similar) directly to the leaves of target plants using a hand-held sprayer or similar means. This method will only be used on Chinese tallow seedlings for which the entire foliar crown can be treated. If the entire crown cannot be treated, the stump spray method will be used. Foliar application must be performed during the peak of the growing season (between the months of May and August) to maximize uptake of the herbicides and thereby optimize mortality rate.

Seedlings treated by foliar application will be left standing and allowed to decay. This age class is found throughout the site. The City of Deer Park requires that no more than 10% of the seedlings will be found alive by the end of the treatment year. Although not specifically required, the City of Deer Park recommends the use of herbicide surfactants to ensure that herbicide application is successful.

3.4 Additional Recommendations

Existing native trees will be incorporated into the final stem density of woody vegetation; therefore, surveying and visibly marking native tree species with flagging ribbon will be required before clearing to prevent their removal.

The herbaceous and shrub strata of the wetland areas are relatively high functioning and have high cover in portions of the wetland. Assuming the contractor does not significantly clear these strata, they should re-establish effectively following completion of planting efforts.