HABITAT TECHNOLOGIES

WETLAND AND BUFFER ESTABLISHMENT AND RESTORATION PROGRAM

LaBossiere SHORT PLAT - #2016-SP-003
Parcel 6152900033
City of Lake Forest Park, King County, Washington

This document has been revised to incorporate review comments provided by the City of Lake Forest Park

prepared for

Mr. Tage Nickerson, Project Manager
@ Plats Financial Group LLC
720 Cedar Avenue, Suite C
Marysville, Washington 98270

and

Mr. Jack N. Molver, PE
@ David Evans and Associates, Inc.
1620 West Marine View Drive, Suite 200
Everett, Washington 98201

prepared by

Habitat Technologies
PO Box 1088
Puyallup, Washington 98371

May 18, 2015
REVISED
June 20, 2016

wetlands, streams, fisheries, wildlife – mitigation and permitting solutions
P.O. Box 1088, Puyallup, Washington 98371
voice 253-845-5119 contact@habitattechnologies.net

INTRODUCTION

As presently proposed, the existing parcel (**Parcel 6152900033**) that composes this project site would be short platted into four new single family homesites along with the establishment of five (5) tracts. The project site was recently re-formed through a boundary line adjustment of Parcels 6152900030 and 6152900033 (BLA 2015-LL-0004) which allowed for the retention of an existing single family homesite within Parcel 6152900030 and the reformation of Parcel 6152900033 into an approximately 4.05-acre area suitable for the proposed short platting. The proposed tracts to be established through short platting of Parcel 6152900033 are defined as:

Tract 996	Sensitive Areas Tract – Category 3 Wetland and associated buffer.
Tract 997	Open Space Tract with bioretention cell.
Tract 998	Tree Retention Area.
Tract 999	Sensitive Areas Tract – Type 3 Stream and associated buffer.
Access	A private access tract for a roadway connection to NE 195th Street.

The overall short platting proposal for Parcel 6152900033 would **not** require any adverse encroachments into the identified onsite Category 3 Wetland or the Type 3 Stream. The Category 3 Wetland and its associated standard buffer comprise 1.56-acres of this parcel. As a result of this wetland and buffer there is approximately 20 feet of clearance between the eastern boundary of Parcel 6152900030 and the outer boundary of the wetland buffer for the Category 3 Wetland within Parcel 6152900033. As such, this limited area makes it impossible to provide a safe access corridor consistent with the City of Lake Forest Park criteria between the proposed new homesite lots in the west-central and southwestern portions of Parcel 6152900033 and NE 195th Street along the northern boundary of the project site without a minor unavoidable encroachment into the standard buffer associated with the Category 3 Wetland. This encroachment would result in approximately 325 square feet of permanent loss of wetland buffer. In addition, because of existing site topography along this new access roadway excavation and fill activities within approximately 3,219 square feet of wetland buffer associated with the Category 3 Wetland are also unavoidably necessary to conform to City of Lake Forest Park safety access roadway design standards. The proposal would protect and establish the standard City of Lake Forest Park buffer for the Type 3 Stream at the southwestern corner of the project site.

As compensation for the unavoidable permanent loss of approximately 325 square feet of Category 3 Wetland buffer area and the temporary modification of approximately 3,219 square feet of Category 3 Wetland buffer area the proposed action would establish and restore a protective buffer for this Category 3 Wetland through the removal of dense thickets of invasive shrubs and the planting of a variety of desirable native trees and shrubs within the buffer and wetland areas. The program shall also increase the buffer area through the addition of approximately 8,249 square feet of area to the established wetland buffer in the northern eastern portion of the project site. These actions would provide for the restoration of the physical and biological functions of both the established buffer and retained wetland.

This document details the *Wetland and Buffer Establishment and Restoration Program* to be implemented as a part of the development of the Labosierre Short Plat. The project site is located within a well urbanized portion at 3035 NE 195th Street within the City of Lake Forest Park, King County, Washington (part of Section 4, Township 26 North, Range 04 East, W.M.) (Figure 1). The GOAL of this *Wetland and Buffer Establishment and Restoration Program* is to ensure that planned site development actions do not result in adverse environmental impacts to identified wetland/stream areas or downstream water quality, while also ensuring that the development of this residential community is consistent with the City of Lake Forest Park Comprehensive Plan, local zoning, and the local neighborhood.

PROJECT SITE DESCRIPTION

The project site was located within a well urbanized, primarily residential area of the City of Lake Forest Park. The project site had been modified by prior land use actions to include the development of an existing single family homesite within Parcel 6152900030, associated outbuildings, and managed lawn/landscaping generally located within the western portion of the project site. The remainder of the project site had at one time been managed as gardens, a chicken coop, mixed orchards, and a small pasture. However, more recently these areas had become overgrown with often very dense thickets of shrubs.

The project site sloped generally from the northwest to the southeast and was bound on the west, south, and east by existing single family homesites; and on the north by NE 195th Street. The general movement of seasonal surface water within and adjacent to the project site had been greatly modified. Seasonal stormwater from NE 195th Street and the residential areas to the north of NE 195th Street was captured within a public stormwater system and discharged into a constructed ditch leading to the east within the adjacent parcel to the east of the northeastern corner of the project site. Seasonal stormwater from the residential community to the west was captured within a public system and discharged into a ditch at the very southwestern corner of the project site. A small berm had also been created along the boundary of the two parcels directly to the east of the central portion of the project site. This berm appeared to cause seasonal surface water runoff to be retained onsite and then to eventually leave the project site near the southeastern corner. Seasonal surface water runoff from the project site appeared to continue easterly and enter Lyon Creek, a tributary to McLears Creek and eventually to the northern end of Lake Washington.

Directions to the Project Site: From Bothell Way NE along the northern end of Lake Washington turn northerly onto NE Ballinger Way (SR104). Continue northwesterly on NE Ballinger Way to 35th Avenue NE. Turn northerly onto 35th Avenue NE and continue to NE 195th Street. Turn westerly onto NE 195th Street and continue to project site at 3035 NE 195th Street.

SENSITIVE AREAS DETERMINATION

Habitat Technologies completed a series of onsite assessment from the fall of 2013 through the summer of 2014. Particular emphasis was given to the assessment of spring and early summer hydrology patters between February 2014 and June 2014. Onsite activities were completed in accordance with criteria and procedures established in the in the 1987 Manual with the 2010 *Regional Supplement*; the guidance provided for the Wash Manual; the WDNR Forest Practice Rules (WAC 222-16-030); and the City of Lake Forest Park Chapter 16.16 *Environmentally Sensitive Areas* (see *SENSITIVE AREAS STUDY LaBossiere Short Plat - #2016-SP-003*, Parcels 6152900030 and 6152900033 dated July 9, 2014 revised June 20, 2016).

WETLAND	CLASSIFICATION	WDOE RATING SCORE	WDOE HABITAT SCORE	CITY CATEGORY	BUFFER WIDTH
A	**Slope/Depression**	**47**	**15**	**3**	**50ft**

Wetland A was identified within the topographic depression located in the northeastern portion of the project site. This wetland had been modified by prior onsite and offsite land use actions and exhibited a seasonal hydrology pattern. The plant community was dominated by a mixed deciduous forest/shrub plant association. The soil profile included a surface layer of collected organics and the soil exhibited prominent field indicators of "hydric" soil. Wetland A was identified as a City of Lake Forest Park Category 3 Wetland as defined following the provisions of Chapter 16 and using the *Washington Department of Ecology Wetland Rating Worksheet*.

Stream A was located at the very southwestern corner of the project site. This surface water drainage originated at the outlet of a residential stormwater system offsite to the west and then continued to the south through an ornamental pond and rock lined stream corridor. This surface water drainage appeared best defined as a City of Lake Forest Park Type 3 Stream.

Wildlife Habitat Conservation Areas: As defined by the City of Lake Forest Park wildlife habitat conservation areas are those areas that provide habitats for feeding, breeding, and nesting sites for priority, endangered, or threatened species, regardless of number. These areas are managed for maintaining species in a wild state in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created. The project site was not identified and has not been documented to provide "priority habitats" or to be used by "priority species."

Both Wetland A and Stream A were identified as "waters of the state." However, neither area would be defined as either a City of Lake Forest Park priority habitat or identified to be used by a City of Lake Forest Park priority species. Protective buffers for these two areas would be defined pursuant to the wetland and stream provisions of the City of Lake Forest Park Chapter 16.16 *Environmentally Sensitive Areas*.

WETLAND AND BUFFER ESTABLISHMENT AND RESTORATION PROGRAM

The *Selected Development Action* for Parcel 6152900033 is to allow the division of the parcel into four new single family homesite lots and five specific tracts consistent with the City of Lake Forest Park Comprehensive Plan, local zoning, and the local neighborhood. The action would be completed without direct adverse impacts to the identified onsite City of Lake Forest Park Category 3 Wetland or the City of Lake Forest Park Type 3 Stream. In addition, the identified wetland and its established protective buffer shall be clearly defined and restored through the replacement of the existing invasive plant species with desirable native plant species to allow for the long-term protection of the physical and biological functions of the wetland and buffer. Site development would also utilize Best Management Practices to ensure protection of local water quality and to protect against adverse erosion. A protective buffer shall also be established adjacent to the Type 3 Stream at the southwestern corner of the project site.

ESTABLISHMENT/RESTORATION BENEFITS

The outer boundary of the established buffer associated with both the Category 3 Wetland and the Type 3 Stream shall be clearly defined onsite. In addition, both the wetland and its associated buffer shall be restored to create viable plant communities composed of native trees and shrubs. These plant communities would provide greater habitat opportunities for wildlife species common to the local area. The restored structure and plant diversity would provide greater nesting, cover, perching, and foraging opportunities for wildlife. In addition, the restored structure and plant diversity would provide thermal protection for the wetland, would provide a potential source of large woody debris important for aquatic habitats, would provide a source of detritus inputs into the aquatic environment, and would provide habitats for species important to the aquatic and terrestrial food web.

DESCRIPTION OF THE ESTABLISHMENT/RESTORATION PROGRAM

1. A protective buffer of 35 feet in width as measured from the ordinary high water mark shall be established for the Type 3 Stream in the southwestern corner of the project site.

2. A protective buffer shall be established and restored adjacent to the onsite Category 3 Wetland. These actions shall provide compensatory mitigation for the unavoidable encroachments into the standard buffer to provide a safe internal roadway corridor between the new homesites and NE 195th Street. Establishment and restoration actions shall be accomplished through the removal of the existing invasive shrubs and existing garbage, the planting of native trees and shrubs, and ongoing monitoring and maintenance to ensure project success. As a part of this program there shall be no adverse changes in the existing wetland.

3. Selected parts of the established wetland and buffer shall be initially cleared of invasive shrubs and existing garbage. Invasive shrub removal methods would concentrate primarily on plant pulling to remove as much of the root structure as possible. The pulled invasive vegetation shall be removed from the project site and disposed in an approved offsite location.

4. During the removal of invasive plant species all existing garbage within the established buffer shall also be removed and disposed in an approved offsite location.

5. The selected parts of the established wetland buffer shall be planted with a variety of native trees and shrubs common to the local area and selected to provide additional aquatic/terrestrial functions (see attached planting plan). This planting would also include the re-sloped area along the eastern side of the primary entry roadway. To help control the impact of invasive species and potential impacts during invasive species control actions, a 4-foot square mat of biodegradable fabric or cardboard may be placed around the base of each installed plant. A minimum 2-inch layer of composted organic material shall be placed on the mat to further reduce the establishment of reed canarygrass or blackberries.

6. Temporary and long-term erosion control measures shall be implemented. These measures include the use of Best Management Practices during initial actions and as a part of the maintenance program.

7. The outer boundary of the established wetland buffer and stream buffer shall be defined with a split-rail cedar fence (or other fence approved by the City) and then posted with standard City buffer boundary signs a minimum of every 50-linear feet to clearly define the established and restored area and help to reduce the potential for human intrusion.

8. All onsite activities shall be monitored by the onsite biologist.

9. Upon the completion of onsite planting activities an implementation report shall be prepared and submitted to the City. The implementation report shall include a description of who completed the onsite actions, a description of the scope of work completed, a description of work specifications, photo documentation of the actions taken, initial plant documentation at each established monitoring plot, and a detailed timeline of completed actions. The implementation report shall also include a project evaluation prepared by the project biologist.

10. Following the acceptance of the implementation report by the City a **five-year** monitoring program shall be undertaken to document the success of the buffer establishment and restoration program.

11. A series of financial guarantees – or other methods approved by the City of Lake Forest Park - may also be implemented if required by the City to assure that the proposed implementation, monitoring, and maintenance actions are completed and proven successful.

12. .Site development shall utilize designs to minimize potential impact to the established onsite wetland or stream buffers. Such designs include the re-direction of project related lighting away from the wetland, the location of activities that generate noise away from the wetland, the routing of untreated runoff away from the wetland, covenants to limit the use of pesticides and herbicides within 150 feet of the wetland, the treatment and dispersal of seasonal runoff into the buffer, and the implementation of best management practices for dust and water quality as much as practicable.

GOAL OF THE WETLAND BUFFER PROGRAM

The **GOAL** of the Wetland *Buffer Establishment and Restoration Program* is to ensure that the proposed site development action does not adversely impact the physical or biological functions of the Category 3 Wetland and associated protective buffer. This program would also re-establish a viable plant community composed of native trees and shrubs within an area impacted by prior land use actions.

Performance Criterion #A1: As defined by sampling at established plots 100% of the trees and shrubs initially planted within the restored wetland and buffer shall exhibit survival through the end of the first growing season following planting.

Performance Criterion #A2: As defined by sampling at established plots 80% of the trees and shrubs planted within the restored wetland and buffer shall exhibit survival through the end of the second and third growing seasons following initial planting.

Performance Criterion #A3: As defined by sampling at established plots the presence of invasive shrubs shall **not** adversely impact the survival of desirable vegetation. The restored buffer shall not exceed 10% aerial coverage of blackberries or other invasive shrubs at the end of the first, second, or third growing seasons following planting.

SELECTED PLANT COMMUNITIES

The plants selected for the restored wetland buffer area shall be obtained as nursery stock. These selected species are native and commonly occur in the local area. The plant species prescribed are selected to increase plant diversity, match present offsite communities, increase wildlife habitats, and enhance the aquatic environment. Many of the selected species can be somewhat sensitive to direct sunlight upon initial removal from the nursery and installation within the buffer area. Special care shall be

undertaken by the planting contractor during installation to utilize existing shading and to ensure that plants are handled and installed with some care. Adequate irrigation must also be provided at the time of installation.

NUMBER	COMMON NAME (ID) - SCIENTIFIC NAME	SIZE
19	Big leaf maple (ACM) – *Acer macrophyllum*	2 gallon
8	Western paper birch (BEP) - *Betula papyifera*	2 gallon
17	Pacific dogwood (CON) - *Cornus natalli*	2 gallon
19	Western hawthorne (CRD) - *Crataegus douglasii*	2 gallon
21	Sitka spruce (PIS) - *Picea sitchensis*	2 gallon
22	Bitter cherry (PRE) - *Prunus emarginata*	2 gallon
17	Douglas fir (PSM) - Pseudotsuga menziesii	2 gallon
9	Western red cedar (THP) - *Thuja plicata*	2 gallon
4	Oregon ash (FRL) - *Fraxinus latifolia*	2 gallon
2	Western crabapple (PYF) - *Pyrus fusca*	2 gallon
4	Pacific willow (PYF) - *Salix lasiandra*	2 gallon
142	**TOTAL TREES**	
9	Red osier dogwood (COS) - *Cornus stolonifera*	1 gallon
11	Pacific ninebark (PHC) - *Physocarpus capitatus*	1 gallon
10	Sitka willow (SAS) - *Salix sitchensis*	1 gallon
15	Vine maple (ACC) - *Acer circinatum*	1 gallon
30	Tall Oregon grape (BEA) - *Berberis aquifolium*	1 gallon
123	Oregon grape (BEN) - *Berberis nervosa*	1 gallon
38	Hazelnut (COC) - *Corylus cornuta*	1 gallon
117	Salal (GAS) - *Gaultheria shallon*	1 gallon
15	Oceanspray (HOD) - *Holodiscus discolor*	1 gallon
31	Black twinberry (LOI) - *Lonicera involucrata*	1 gallon
15	Flowering currant (RIS) - *Ribes sanguineum*	1 gallon
46	Wild rose (ROG) - *Rosa gymnocarpa*	1 gallon
18	Nootka rose (RON) - *Rosa nutkana*	1 gallon
48	Snowberry (SYA) - *Symphoricarpus albus*	1 gallon
194	Kinnickinnick (ARU) - *Arctostaphylos uva ursi*	1 gallon
720	**TOTAL SHRUBS**	
50	Slough sedge (CAO) - *Carex obnupta*	4- in plug
50	Hardstem bulrush (SCA) - *Scirpus acutus*	4- in plug
50	Small fruited bulrush (SCM) - *Scirpus microcarpus*	4- in plug
150	**TOTAL EMERGENTS**	

IMPLEMENTATION INSPECTION

Essential to the success of the establishment/restoration program is the accurate inspection of onsite activities immediately prior to and during the initial invasive control and planting phase. These activities include pre-implementation site inspection, onsite inspection and technical direction during invasive species removal and planting activities, and post-planting site inspection and evaluation. The project biologist shall complete onsite inspections, verify, and approve the following project tasks (at a minimum):

1. Marking of work areas and access corridors.
2. Marking of desirable plants to be retained.
3. Removal of invasive species and existing garbage.
4. Nursery stock acceptance.
5. Modification of plant species and sizes if required.
6. Installation of the temporary irrigation system.
7. Installation of buffer fence boundary signs.

The pre-implementation site inspection allows the project team and the project biologist to evaluate and, if necessary, adjust the onsite implementation steps. These steps include analysis of project site elevation features, project sequencing and timing, final grade analysis, unforeseen required minor modifications to the original establishment plan, and the establishment of environmental protections (silt fences, etc.) required during planting. Onsite technical inspection during implementation and planting activities shall be implemented by the project biologist. The project biologist shall perform implementation oversight and address minor unforeseen implementation difficulties to assure that the goal of the buffer program is met.

The project biologist shall be responsible for ensuring that the species and sizes of native plants selected and noted within the final planting plan are utilized during implementation. If selected native species become unavailable, the project biologist shall approve substitute plant species to assure that the goal of the buffer program is met.

Following the completion of onsite planting activities an implementation report plan shall be prepared and submitted to the City. The implementation report shall include a description of who completed the onsite compensatory actions, a description of the scope of work completed, a description of work specifications, photo documentation of the actions taken, initial plant documentation at each established monitoring plot, and a detailed timeline of completed actions. The implementation report shall also include a project evaluation prepared by the project biologist.

MITIGATION IMPLEMENTATION SEQUENCE

Based on a fall implementation schedule the following shall be accomplished. This schedule may change depending upon permit issuance dates and the timing for the development of the internal roadway.

TASK	PROJECT TASK	TASK SCHEDULE
#1	Onsite pre-implementation meeting	on or before Aug. 15, 201x
#2	Placement of clearing limit fencing and silt fencing as required; final marking and identification of work areas and access corridors.	on or before Aug. 25, 201x
#3	Confirmation by surveyor that mitigation areas are properly identified and clearly marked.	on or before Aug. 30, 201x
#4	Confirmation by the Project Biologist that Task #3 was correctly undertaken.	on or before Aug. 30, 201x
#5	Notification to City that area has been correctly marked.	on or before Sept. 5, 201x
#6	Removal of invasive plants and garbage within the wetland and buffer area.	on or before Sept. 15, 201x
#7	Planting of buffer area.	on or before Oct. 20, 201x
#8	Seeding of disturbed areas (if required)	on or before Oct. 20, 201x
#9	Installation of protective fence and buffer boundary signs along outer boundary of established wetland and stream buffers.	on or before Oct. 30, 201x
#10	Implementation report to City.	on or before Nov. 20, 201x
#11	Irrigation of buffer area.	As needed

PROJECT MONITORING

Following the successful completion of the proposed buffer program a five-year monitoring and evaluation program shall be undertaken. The purpose of this monitoring is to ensure the success of the buffer program as measured by an established set of performance criteria.

STANDARDS OF SUCCESS

A minimum of four (4) 15-foot radius sample plots shall be established within the restored wetland and buffer. The locations of these sample plots shall be depicted on the implementation report graphic and shall correspond to established photopoints. Observations and measurements shall be recorded for all plant species in order of dominance based on the relative percent cover for each species within the various vegetation strata.

1. As a part of each monitoring period the project biologist shall count the number of live plants which were planted within the identified monitoring plots. Plants shall be identified to species and observations of general plant condition (i.e., plant health, amount of new growth) are to be recorded for each plant within each sample plot.

2. At identified sample plots the project biologist shall determine percent coverage of vegetation for emergent species and for the scrub/shrub and sapling tree species.

3. At identified sample plots the project biologist shall count the number and tag for removal undesirable invasive shrubs and estimate the aerial coverage (as if the observer were looking straight down from above) of these invasive shrubs.

4. At identified monitoring plots the project biologist shall count the number of desirable "volunteer" plants and estimate the aerial coverage of these plants.

5. The project biologist shall take photographs that show the restored area. During the five-year monitoring period photos shall be taken in the same direction and at the same location to provide a series of photos. These photos shall show plant growth, plant species, and plant coverage.

6. Upon the completion of each monitoring period as noted below the project biologist shall prepare a report defining methods, observations, and results along with the date the observations were completed. Each report shall be provided to the City.

MONITORING YEAR	PLANT COMMUNITY MONITORING	SUBMITTAL OF MONITORING REPORT
YEAR-1	on or about April 15, 201x+1	
	on or about Sept. 15, 201x+1	report due Oct. 7, 201x+1
YEAR-2	on or about April 15, 201x+2	
	on or about Sept. 15, 201x+2	report due Oct. 7, 201x+2
YEAR-3	on or about Sept. 15, 201x+3	report due Oct. 7, 201x+3
YEAR-4	on or about Sept. 15, 201x+4	report due Oct. 7, 201x+4
YEAR-5	on or about Sept. 15, 201x+5	report due Oct. 7, 201x+5

201x represents the implementation year

VEGETATION MAINTENANCE PLAN

Maintenance of the restored plant communities may be required. Such maintenance shall be identified during the monitoring period and shall be undertaken at the direction of the project biologist. The overall objective is to establish undisturbed plant communities that do not require maintenance. Activities may include, but are not limited to, the removal of invasive non-native vegetation and the irrigation of selected areas. Established maintenance activities include the removal of any trash within the established buffer area.

REMOVAL OF INVASIVE NON-NATIVE VEGETATION

As a contingency, should the removal of invasive non-native shrubs become necessary, the project proponent would contact the City to establish and define specific actions to be taken. Resultant contingency plan activities shall be implemented when the ongoing vegetation monitoring program indicates that invasive shrubs are becoming dominant in the onsite plant community (i.e. invasive shrubs greater than 10% aerial coverage).

The following invasive vegetation removal program shall be implemented to ensure the establishment of desirable plant communities. At the direction of the project biologist additional removal actions (if required) shall also be undertaken to ensure the establishment of desirable plant communities. The project proponent shall not be responsible for replacement of plants that may be removed or damaged by others.

MONITORING YEAR	FIRST REMOVAL ACTION	SECOND REMOVAL ACTION	THIRD REMOVAL ACTION
YEAR-1	On or about April 15, 201x+1	on or about May 30, 201x+1	on or about July 15, 201x+1
YEAR-2	On or about April 15, 201x+2	on or about May 30, 201x+2	on or about July 15, 201x+2
YEAR-3	On or about April 15, 201x+3	on or about May 30, 201x+3	on or about Aug. 15, 201x+3
YEAR-4		on or about May 30, 201x+4	on or about Aug. 15, 201x+4
YEAR-5		on or about May 30, 201x+5	on or about Aug. 15, 201x+5

CONTINGENCY PLAN

As a contingency, should the proposed restoration program fail to meet the performance criteria, the project proponent shall undertake required remedial actions. Where plant survival is the failing component, the project proponent shall replant and ensure the success of this second planting which would be held to the same standard of success as measured by threshold criteria and monitoring processes. Where non-native, invasive shrubs exceed 10% aerial coverage the project proponent shall undertake removal actions. Such removal actions shall be completed using hand tools or pulling the plants by hand to remove the invasive vegetation without disrupting the soil profile. All cut or pulled vegetation shall be removed from the restoration area and disposed in an approved location. Herbicides shall only be used following approval by the City. If used, all herbicide application shall be completed by a licensed professional.

Should additional remedial actions be required, the project proponent shall meet with the City to establish and define actions to be taken to meet the desired goal of this restoration program.

TEMPORARY IRRIGATION

The project proponent shall ensure that a minimum of **one (1) inch of water is supplied each week** to the restoration area between May 1 and October 15 for a least the first two years following initial planting. The calculated amount of required water shall include both natural rainfall and temporary irrigation. The need for additional years of irrigation shall be determined based on site conditions and overall plant survival. The amount of water supplied to the restoration area shall be increased if onsite monitoring defines such a need. Irrigation shall be provided via a temporary system placed on the ground surface within the buffer area or with optional hand watering. The system shall allow for a minimum of 10% overlap of coverage between sprinklers and the sprinklers shall be a minimum of four (4) feet above ground. The project team shall employ a landscape contractor to install, operate, and maintain the irrigation system. All actions shall also be monitored onsite by the project biologist.

PLANTING NOTES

All plant materials utilized within the buffer area shall be native to the Puget Sound Region. The onsite biologist shall inspect plant materials to assure the appropriate plant schedule and plant characteristics are met. The project proponent shall warrant that all plants would remain alive and healthy for a period of one year following completion of planting activities. The project proponent shall replace all dead and unhealthy plants with plants of the same specifications.

FINANCIAL GUARANTEE

The project proponent shall provide a financial guarantee or other mechanism acceptable to the City. Part One (Implementation Guarantee) shall be associated with the initial onsite elements of the buffer program. Part Two (Performance Guarantee) shall be associated with the maintenance and monitoring elements of the proposed buffer program. The Implementation Guarantee shall be deemed to be released by the City upon the successful completion of the initial onsite compensation elements and the acceptance by the City. The Performance Guarantee shall be deemed to be released upon meeting the established threshold criteria and acceptance by the City of the required reporting documents. If applicable, equivalent portions of the Performance Guarantee shall be released by the City after each monitoring period.

Implementation Guarantee

TASK	ASSOCIATED COST
Removal of invasive vegetation, and debris. (16 hrs/4 person crew at $100/hr.)	$ 1,600.00
Silt fencing and installation (appro. 630 linear feet x $5/ft)	$ 3,150.00
142 2-gallon trees with installation ($25.00/each)	$ 3,550.00
720 1-gallon shrubs with installation ($12.50/each)	$ 9,000.00
150 4-inch plug emergents with installation ($1.50/each)	$ 225.00
Onsite biologist technical oversight (12 hours at $100/hr)	$ 1,200.00
Installation of a temporary irrigation system	$ 2,000.00
Production of “record drawing” and report (8 hrs at $100/hr).	$ 800.00
Buffer fencing and installation (appro. 630 linear feet x $14/ft)	$ 8,820.00
IMPLEMENTATION GUARANTEE TOTAL	**$30,345.00**

Performance Guarantee

TASK	ASSOCIATED COST
Year-One onsite monitoring with expenses Two times for plants (6 hrs at $100/hr) Annual report with photos (3 hrs at $100/hr)	$ 975.00
Year-Two onsite monitoring with expenses Two times for plants (6 hrs at $110/hr) Annual report with photos (3 hrs at $110/hr)	$ 1,025.00
Year-Three onsite monitoring with expenses One time for plants (3 hrs at $120/hr) Annual report with photos (3 hrs at $120/hr)	$ 775.00
Year-Four onsite monitoring with expenses One time for plants (3 hrs at $120/hr) Annual report with photos (3 hrs at $120/hr)	$ 775.00
Year-Five onsite monitoring with expenses One time for plants (3 hrs at $120/hr) Annual report with photos (4 hrs at $120/hr)	$ 875.00
Temporary Irrigation Program One inch of water per week between June 1st and October 15th for years one and two.	$ 4,000.00
Invasive Vegetation Removal Four times (early March, early April, mid-June, mid-September) for years one, two, and three (each at 8 hrs, 2 person crew at $50/hr.)	$ 4,800.00
PERFORMANCE GUARANTEE TOTAL	**$13,225.00**

STANDARD OF CARE

This document has been completed by Habitat Technologies for use by **Plats Financial Group LLC.** Prior to extensive site planning the defined critical habitats should be reviewed and verified by the City of Lake Forest Park personnel and potentially other resource and permitting agencies. Habitat Technologies has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. Habitat Technologies is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

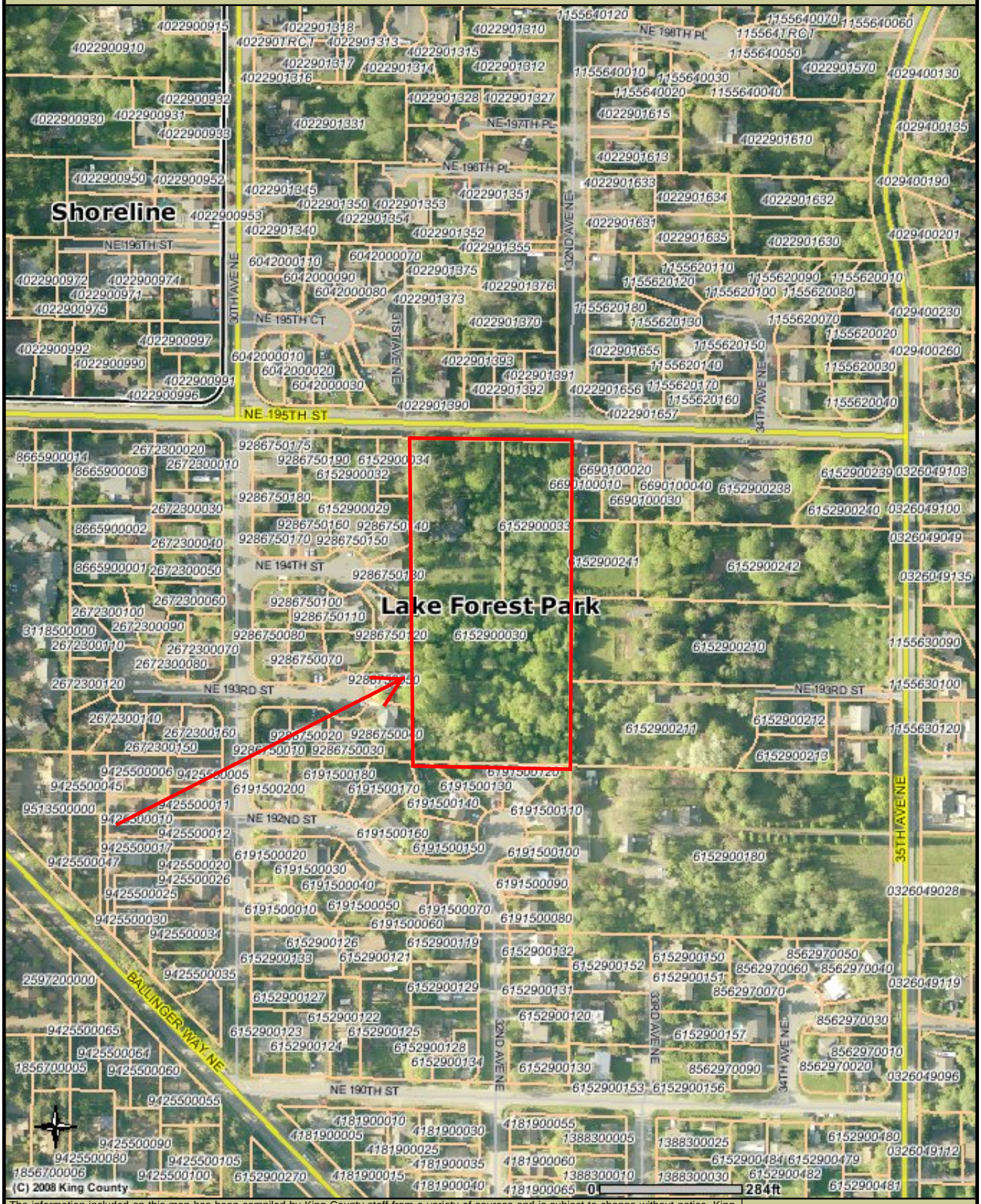
Thomas D. Deming

Bryan W. Peck
Wetland Biologist

Thomas D. Deming, PWS
Habitat Technologies

FIGURES

Figure 1 Site Vicinity



Date: 7/28/2014 Source: King County iMAP - Sensitive Areas (http://www.metrokc.gov/GIS/iMAP)

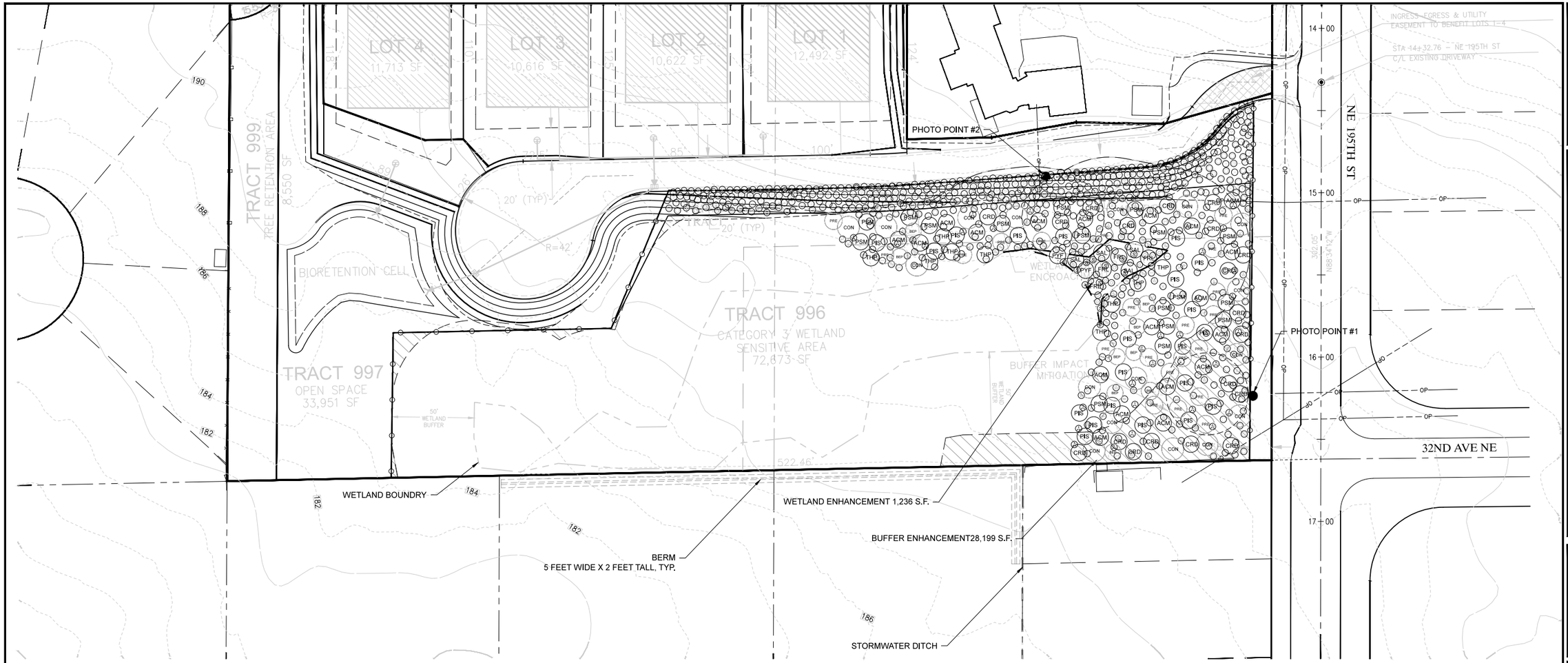
King County

PHOTOS

The onsite wetland was dominated by a mixed deciduous forest/shrub plant community bound by dense thickets of blackberries.

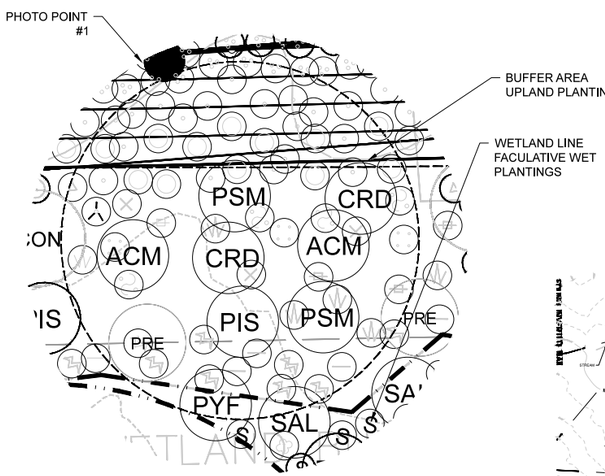
The southern portion of the project site was once managed a pasture and is presently dominated by dense thickets of blackberries.

ATTACHMENTS – PLANTING PROGRAM



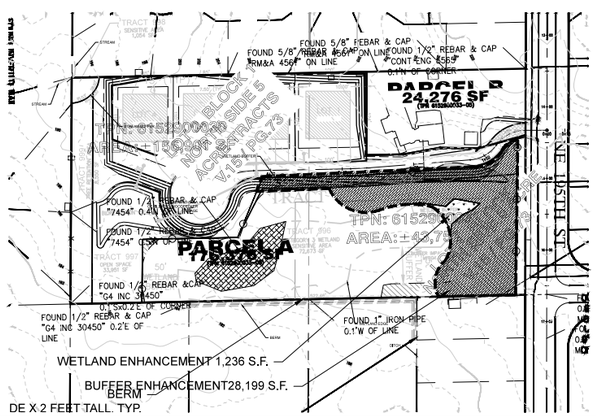
MITIGATION PLAN

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.



ENLARGED PLANTING PLAN

GRAPHIC SCALE
(IN FEET)
1 inch = 10 ft.



PLANT LEGEND

WETLAND TREES, SHRUBS & GROUNDCOVER

SYMBOL	QTY	DESCRIPTION	SIZE
FRL	4	Fraxinus latifolia Oregon ash	2 GAL. MIN. 12' O.C.
PYF	2	Pyrus fusca Western crabapple	2 GAL. MIN. 12' O.C.
SAL	4	Salix lasandra Pacific willow	2 GAL. MIN. 12' O.C.
	9	Cornus stolonifera red osier dogwood	1 GAL. @ 5' O.C.
	11	Physocarpus capitatus ninebark	1 GAL. @ 5' O.C.
S	10	Salix sitchensis Sitka Willow	1 GAL. @ 5' O.C.
	50	Carex obnupta slough sedge	4" plug @ 1' O.C.
	50	Scirpus acutus Hardstem Bulrush	4" plug @ 1' O.C.
	50	Scirpus microcarpus small fruited bulrush	4" plug @ 1' O.C.

BUFFER TREES

SYMBOL	QTY	DESCRIPTION	SIZE
ACM	19	Acer macrophyllum Big Leaf Maple	2 GAL. MIN. 12' O.C.
BEP	8	Betula papyifera Western Paper Birch	2 GAL. MIN. 12' O.C.
CON	17	Cornus nutallii Pacific Dogwood	2 GAL. MIN. 12' O.C.
CRD	19	Crataegus douglasii Western Hawthorne	2 GAL. MIN. 12' O.C.
PIS	21	Picea sitchensis Sitka spruce	2 GAL. MIN. 12' O.C.
PRE	22	Prunus emargenata bitter cherry	2 GAL. MIN. 12' O.C.
PSM	17	Pseudotsuga menziesii Douglas fir	2 GAL. MIN. 12' O.C.
THP	9	Thuja plicata Western red cedar	2 GAL. MIN. 12' O.C.

/BUFFER SHRUBS

SYMBOL	QTY	DESCRIPTION	SIZE
	15	Acer circinatum Vine Maple	1 GAL. @ 5' O.C.
	30	Berberis aquifolium Tall Oregon Grape	1 GAL. @ 5' O.C.
	123	Berberis nervosa Oregon Grape	1 GAL. @ 5' O.C.
	38	Corylus cornuta hazelnut	1 GAL. @ 5' O.C.
	117	Gautheria shallon Sallal	1 GAL. @ 5' O.C.
	15	Holodiscus discolor Oceanspray	1 GAL. @ 5' O.C.
	31	Lonicera involucrata black twinberry	1 GAL. @ 5' O.C.
	15	Ribes sanguineum flowering currant	1 GAL. @ 5' O.C.
	46	Rosa gymnocarpa wild rose	1 GAL. @ 5' O.C.
	18	Rosa nutkana Nootka rose	1 GAL. @ 5' O.C.
	48	Symphoricarpos albus snowberry	1 GAL. @ 5' O.C.
	194	Arctostophylus uva ursi 'Massachusetts' Kinnickinnick	1 GAL. @ 5' O.C.

Nature By Design
Landscape Architecture
253.460.6067
1320 Alameda Avenue, Suite B Fircrest, WA 98466
www.naturebydesigninc.com

PROJECT
LAKE FOREST PLAT
LAKE FOREST, WA
Habitat Technologies
P.O. Box 1088
Puyallup, WA 98371

REVISIONS:

DRAWING ISSUED FOR:
AGENCY REVIEW
DATE: JUNE 27, 2016

STATE OF WASHINGTON
REGISTERED LANDSCAPE ARCHITECT
KATHERINE OWENS
CERTIFICATE NO. 692

PROJECT NO.:	1638
FILE NAME:	1638WLA
X-REFS:	HABITAT PLAN
DRAWN BY:	KLO
CHECKED BY:	KLO
PLOT SCALE:	
DRAWING SCALES:	1:1 1:30 1:10

DRAWING CONTENTS:
SELECTED DEVELOPMENT ACTION

DRAWING NO.:
WL1
1 OF 3

WETLAND AND BUFFER ESTABLISHMENT AND RESTORATION PROGRAM

The *Selected Development Action* for Parcel 6152900033 is to allow the division of the parcel into four new single family homesite lots and five specific tracts consistent with the City of Lake Forest Park Comprehensive Plan, local zoning, and the local neighborhood. The action would be completed without direct adverse impacts to the identified onsite City of Lake Forest Park Category 3 Wetland or the City of Lake Forest Park Type 3 Stream. In addition, the identified wetland and its established protective buffer shall be clearly defined and restored through the replacement of the existing invasive plant species with desirable native plant species to allow for the long-term protection of the physical and biological functions of the wetland and buffer. Site development would also utilize Best Management Practices to ensure protection of local water quality and to protect against adverse erosion. A protective buffer shall also be established adjacent to the Type 3 Stream at the southwestern corner of the project site.

DESCRIPTION OF THE ESTABLISHMENT/RESTORATION PROGRAM

1. A protective buffer of 35 feet in width as measured from the ordinary high water mark shall be established for the Type 3 Stream in the southwestern corner of the project site.

2. A protective buffer shall be established and restored adjacent to the onsite Category 3 Wetland. These actions shall provide compensatory mitigation for the unavoidable encroachments into the standard buffer to provide a safe internal roadway corridor between the new homesites and NE 195th Street. Establishment and restoration actions shall be accomplished through the removal of the existing invasive shrubs and existing garbage, the planting of native trees and shrubs, and ongoing monitoring and maintenance to ensure project success. As a part of this program there shall be no adverse changes in the existing wetland.

3. Selected parts of the established wetland and buffer shall be initially cleared of invasive shrubs and existing garbage. Invasive shrub removal methods would concentrate primarily on plant pulling to remove as much of the root structure as possible. The pulled invasive vegetation shall be removed from the project site and disposed in an approved offsite location.

4. During the removal of invasive plant species all existing garbage within the established buffer shall also be removed and disposed in an approved offsite location.

5. The selected parts of the established wetland buffer shall be planted with a variety of native trees and shrubs common to the local area and selected to provide additional aquatic/terrestrial functions. This planting would also include the re-sloped area along the eastern side of the primary entry roadway. To help control the impact of invasive species and potential impacts during invasive species control actions, a 4-foot square mat of biodegradable fabric or cardboard may be placed around the base of each installed plant. A minimum 2-inch layer of composted organic material shall be placed on the mat to further reduce the establishment of reed canarygrass or blackberries.

6. Temporary and long-term erosion control measures shall be implemented. These measures include the use of Best Management Practices during initial actions and as a part of the maintenance program.

7. The outer boundary of the established wetland buffer and stream buffer shall be defined with a split-rail cedar fence (or other fence approved by the City) and then posted with standard City buffer boundary signs a minimum of every 50-linear feet to clearly define the established and restored area and help to reduce the potential for human intrusion.

8. **All onsite activities shall be monitored by the onsite biologist.**

9. Upon the completion of onsite planting activities an implementation report shall be prepared and submitted to the City. The implementation report shall include a description of who completed the onsite actions, a description of the scope of work completed, a description of work specifications, photo documentation of the actions taken, initial plant documentation at each established monitoring plot, and a detailed timeline of completed actions. The implementation report shall also include a project evaluation prepared by the project biologist.

10. Following the acceptance of the implementation report by the City a **five-year** monitoring program shall be undertaken to document the success of the buffer establishment and restoration program.

11. A series of financial guarantees – or other methods approved by the City of Lake Forest Park - may also be implemented if required by the City to assure that the proposed implementation, monitoring, and maintenance actions are completed and proven successful.

12. Site development shall utilize designs to minimize potential impact to the established onsite wetland or stream buffers. Such designs include the re-direction of project related lighting away from the wetland, the location of activities that generate noise away from the wetland, the routing of untreated runoff away from the wetland, covenants to limit the use of pesticides and herbicides within 150 feet of the wetland, the treatment and dispersal of seasonal runoff into the buffer, and the implementation of best management practices for dust and water quality as much as practicable.

GOAL OF THE WETLAND BUFFER PROGRAM

The **GOAL** of the Wetland *Buffer Establishment and Restoration Program* is to ensure that the proposed site development action does not adversely impact the physical or biological functions of the Category 3 Wetland and associated protective buffer. This program would also re-establish a viable plant community composed of native trees and shrubs within an area impacted by prior land use actions.

Performance Criterion #A1: As defined by sampling at established plots 100% of the trees and shrubs initially planted within the restored wetland and buffer shall exhibit survival through the end of the first growing season following planting.

Performance Criterion #A2: As defined by sampling at established plots 80% of the trees and shrubs planted within the restored wetland and buffer shall exhibit survival through the end of the second and third growing seasons following initial planting.

Performance Criterion #A3: As defined by sampling at established plots the presence of invasive shrubs shall **not** adversely impact the survival of desirable vegetation. The restored buffer shall not exceed 10% aerial coverage of blackberries or other invasive shrubs at the end of the first, second, or third growing seasons following planting.

SELECTED PLANT COMMUNITIES

The plants selected for the restored wetland buffer area shall be obtained as nursery stock. These selected species are native and commonly occur in the local area. The plant species prescribed are selected to increase plant diversity, match present offsite communities, increase wildlife habitats, and enhance the aquatic environment. Many of the selected species can be somewhat sensitive to direct sunlight upon initial removal from the nursery and installation within the buffer area. Special care shall be undertaken by the planting contractor during installation to utilize existing shading and to ensure that plants are handled and installed with some care. Adequate irrigation must also be provided at the time of installation.

IMPLEMENTATION INSPECTION

Essential to the success of the establishment/restoration program is the accurate inspection of onsite activities immediately prior to and during the initial invasive control and planting phase. These activities include pre-implementation site inspection, onsite inspection and technical direction during invasive species removal and planting activities, and post-planting site inspection and evaluation. The project biologist shall complete onsite inspections, verify, and approve the following project tasks (at a minimum):

1. Marking of work areas and access corridors.
2. Marking of desirable plants to be retained.
3. Removal of invasive species and existing garbage.
4. Nursery stock acceptance.
5. Modification of plant species and sizes if required.
6. Installation of the temporary irrigation system.
7. Installation of buffer fence boundary signs.

The pre-implementation site inspection allows the project team and the project biologist to evaluate and, if necessary, adjust the onsite implementation steps. These steps include analysis of project site elevation features, project sequencing and timing, final grade analysis, unforeseen required minor modifications to the original establishment plan, and the establishment of environmental protections (silt fences, etc.) required during planting. Onsite technical inspection during implementation and planting activities shall be implemented by the project biologist. The project biologist shall perform implementation oversight and address minor unforeseen implementation difficulties to assure that the goal of the buffer program is met.

The project biologist shall be responsible for ensuring that the species and sizes of native plants selected and noted within the final planting plan are utilized during implementation. If selected native species become unavailable, the project biologist shall approve substitute plant species to assure that the goal of the buffer program is met.

Following the completion of onsite planting activities an implementation report plan shall be prepared and submitted to the City. The implementation report shall include a description of who completed the onsite compensatory actions, a description of the scope of work completed, a description of work specifications, photo documentation of the actions taken, initial plant documentation at each established monitoring plot, and a detailed timeline of completed actions. The implementation report shall also include a project evaluation prepared by the project biologist.

MITIGATION IMPLEMENTATION SEQUENCE

Based on a fall implementation schedule the following shall be accomplished. This schedule may change depending upon permit issuance dates and the timing for the development of the internal roadway.

TASK	PROJECT TASK	TASK SCHEDULE
#1	Onsite pre-implementation meeting	on or before Aug. 15, 201x
#2	Placement of clearing limit fencing and silt fencing as required; final marking and identification of work areas and access corridors.	on or before Aug. 25, 201x
#3	Confirmation by surveyor that mitigation areas are properly identified and clearly marked.	on or before Aug. 30, 201x
#4	Confirmation by the Project Biologist that Task #3 was correctly undertaken.	on or before Aug. 30, 201x
#5	Notification to City that area has been correctly marked.	on or before Sept. 5, 201x
#6	Removal of invasive plants and garbage within the wetland and buffer area.	on or before Sept. 15, 201x
#7	Planting of buffer area.	on or before Oct. 20, 201x
#8	Seeding of disturbed areas (if required)	on or before Oct. 20, 201x
#9	Installation of protective fence and buffer boundary signs along outer boundary of established wetland and stream buffers.	on or before Oct. 30, 201x
#10	Implementation report to City.	on or before Nov. 20, 201x
#11	Irrigation of buffer area.	As needed

PROJECT MONITORING

Following the successful completion of the proposed buffer program a five-year monitoring and evaluation program shall be undertaken. The purpose of this monitoring is to ensure the success of the buffer program as measured by an established set of performance criteria.

VEGETATION MAINTENANCE PLAN

Maintenance of the restored plant communities may be required. Such maintenance shall be identified during the monitoring period and shall be undertaken at the direction of the project biologist. The overall objective is to establish undisturbed plant communities that do not require maintenance. Activities may include, but are not limited to, the removal of invasive non-native vegetation and the irrigation of selected areas. Established maintenance activities include the removal of any trash within the established buffer area.

REMOVAL OF INVASIVE NON-NATIVE VEGETATION

As a contingency, should the removal of invasive non-native shrubs become necessary, the project proponent would contact the City to establish and define specific actions to be taken. Resultant contingency plan activities shall be implemented when the ongoing vegetation monitoring program indicates that invasive shrubs are becoming dominant in the onsite plant community (i.e. invasive shrubs greater than 10% aerial coverage).

The following invasive vegetation removal program shall be implemented to ensure the establishment of desirable plant communities. At the direction of the project biologist additional removal actions (if required) shall also be undertaken to ensure the establishment of desirable plant communities. The project proponent shall not be responsible for replacement of plants that may be removed or damaged by others.

MONITORING YEAR	FIRST REMOVAL ACTION	SECOND REMOVAL ACTION	THIRD REMOVAL ACTION
YEAR-1	On or about April 15, 201x+1	on or about May 30, 201x+1	on or about July 15, 201x+1
YEAR-2	On or about April 15, 201x+2	on or about May 30, 201x+2	on or about July 15, 201x+2
YEAR-3	On or about April 15, 201x+3	on or about May 30, 201x+3	on or about Aug. 15, 201x+3
YEAR-4		on or about May 30, 201x+4	on or about Aug. 15, 201x+4
YEAR-5		on or about May 30, 201x+5	on or about Aug. 15, 201x+5

CONTINGENCY PLAN

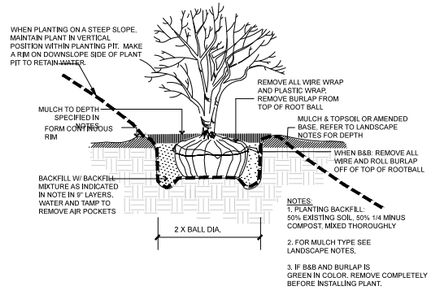
As a contingency, should the proposed restoration program fail to meet the performance criteria, the project proponent shall undertake required remedial actions. Where plant survival is the failing component, the project proponent shall replant and ensure the success of this second planting which would be held to the same standard of success as measured by threshold criteria and monitoring processes. Where non-native, invasive shrubs exceed 10% aerial coverage the project proponent shall undertake removal actions. Such removal actions shall be completed using hand tools or pulling the plants by hand to remove the invasive vegetation without disrupting the soil profile. All cut or pulled vegetation shall be removed from the restoration area and disposed in an approved location. Herbicides shall only be used following approval by the City. If used, all herbicide application shall be completed by a licensed professional. Should additional remedial actions be required, the project proponent shall meet with the City to establish and define actions to be taken to meet the desired goal of this restoration program.

TEMPORARY IRRIGATION

The project proponent shall ensure that a minimum of **one (1) inch of water is supplied each week** to the restoration area between May 1 and October 15 for a least the first two years following initial planting. The calculated amount of required water shall include both natural rainfall and temporary irrigation. The need for additional years of irrigation shall be determined based on site conditions and overall plant survival. The amount of water supplied to the restoration area shall be increased if onsite monitoring defines such a need. Irrigation shall be provided via a temporary system placed on the ground surface within the buffer area or with optional hand watering. The system shall allow for a minimum of 10% overlap of coverage between sprinklers and the sprinklers shall be a minimum of four (4) feet above ground. The project team shall employ a landscape contractor to install, operate, and maintain the irrigation system. All actions shall also be monitored onsite by the project biologist.

PLANTING NOTES

All plant materials utilized within the buffer area shall be native to the Puget Sound Region. The onsite biologist shall inspect plant materials to assure the appropriate plant schedule and plant characteristics are met. The project proponent shall warrant that all plants would remain alive and healthy for a period of one year following completion of planting activities. The project proponent shall replace all dead and unhealthy plants with plants of the same specifications.



SHRUB PLANTING DETAIL
No Scale

Nature By Design
Landscape Architecture
253.460.6067
1320 Alameda Avenue, Suite B, Fircrest, WA 98466
www.naturebydesigninc.com

PROJECT
LAKE FOREST PLAT
LAKE FOREST, WA
Habitat Technologies
P.O. Box 1088
Puyallup, WA 98371

REVISIONS:

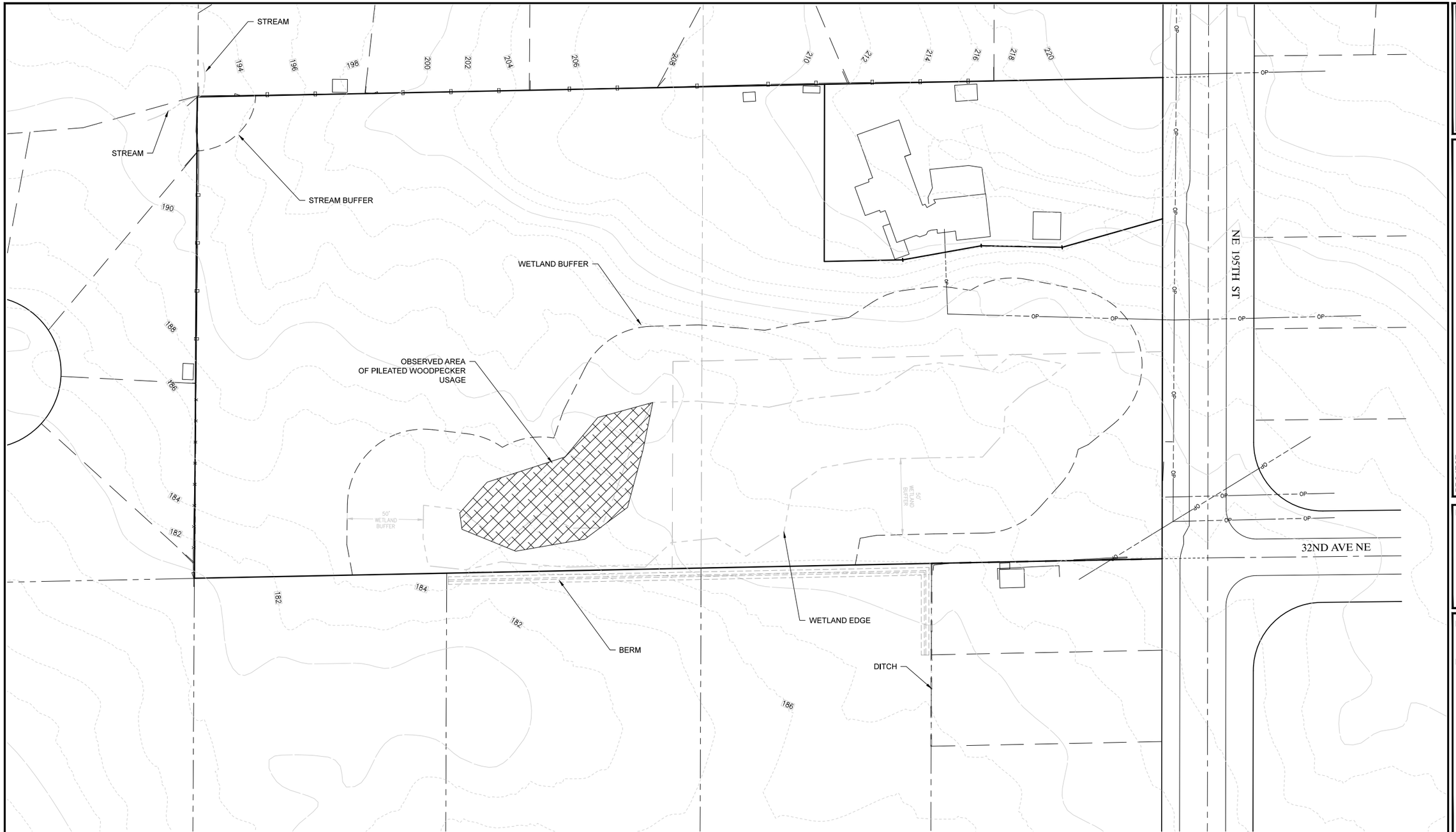
DRAWING ISSUED FOR:
AGENCY REVIEW
DATE: JUNE 27, 2016

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
KATHERINE OWENS
CERTIFICATE NO. 692

PROJECT NO.:	1638
FILE NAME:	1638LSA
X-REFS:	HABITAT PLAN
DRAWN BY:	KLO
CHECKED BY:	KLO
PLOT SCALE:	1:1
DRAWING SCALES:	N.T.S.

DRAWING CONTENTS:
SELECTED DEVELOPMENT ACTION

DRAWING NO.:
WL2



EXISTING SENSITIVE AREAS

N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

1 inch = 30 ft.

Nature By Design
Landscape Architecture

253.460.6067

1320 Alameda Avenue, Suite B, Fircrest, WA 98466

www.naturebydesigninc.com

PROJECT

LAKE FOREST PLAT

LAKE FOREST, WA

Habitat Technologies
P.O. Box 1088
Puyallup, WA 98371

REVISIONS:

DRAWING ISSUED FOR:

AGENCY REVIEW

DATE: JUNE 27, 2016

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

KATHERINE OWENS
CERTIFICATE NO. 692

PROJECT NO.: 1638
FILE NAME: 1638WLA
X-REFS: HABITAT PLAN
DRAWN BY: KLO
CHECKED BY: KLO
PLOT SCALE: 1:1
DRAWING SCALES: 1:30

DRAWING CONTENTS:

EXISTING SENSITIVE AREA PLAN

DRAWING NO.:

WL3

3 **OF** 3