

**Terrace Mitigation Bank
Mitigation Banking Instrument**

Vancouver, Washington



**Rotschy, Inc.
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October 10, 2016

1 **MITIGATION BANKING INSTRUMENT**
2 **Terrace Mitigation Bank**

3
4 This Mitigation Banking Instrument (hereinafter, the “Instrument”) regarding the establishment,
5 use, operation, and maintenance of the Terrace Mitigation Bank (hereinafter, the “Bank”) is
6 made and entered into by and among Rotschy, Inc. (hereinafter, the “Sponsor”), the U.S. Army
7 Corps of Engineers (hereinafter, the “Corps”), and the Washington State Department of Ecology
8 (hereinafter, “Ecology”) (hereinafter, collectively, the “Parties”) with reference to the following:
9

10
11 **I. PREAMBLE**

12
13 **A. Purpose.** The purpose of this Instrument is to specify responsibilities for the establishment,
14 use, operation, and maintenance of the Bank. It consists of this “Basic Agreement” establishing
15 the central obligations assumed and consideration provided by each Party, as well as Appendices
16 (hereinafter, the “Appendices”) that establish the detailed Bank implementation plan, including
17 site-specific conditions, standards and procedural requirements applicable to the Bank. The
18 terms and provisions of the Appendices are incorporated into the Instrument. The Bank will
19 provide compensatory mitigation for unavoidable impacts to waters of the United States and
20 waters of the State, including wetlands, aquatic habitat, and to other natural resources that result
21 from activities authorized by Federal, State, and local authorities, when use of the Bank has been
22 specifically approved by the appropriate regulatory agencies.
23

24 **B. Location and Ownership of Parcel.** Whereas, the Bank is located within the northwest
25 quarter of Section 13 and the northeast quarter of Section 14, in Township 2 North, Range 2 East
26 of the Willamette Meridian. The situs address of the Bank is 5721 NE 152nd Avenue, Vancouver,
27 Washington (**Figure A-1, Vicinity Map**). The site encompasses approximately 113.04 acres and
28 is comprised of Clark County tax parcel numbers 159331-000, 162111-000, and 162114-000
29 (**Figure A-2, Site Survey**). Clark County maps the Bank site in the Salmon Creek Subbasin
30 within the Salmon/Washougal portion of Water Resource Inventory Area (WRIA) #28. All real
31 property to be included within the Bank site area, as more completely described in the legal
32 description attached as **Exhibit A** to this Instrument, are under a purchase and sales agreement
33 by Rotschy, Inc. The adjacent Oregon White Oak Mitigation Bank (Oak Bank) is also under the
34 same purchase and sales agreement by Rotschy Inc., but is not within in the proposed Bank
35 boundaries.
36

37 The Bank site contains several easements, which are further described in Table 1. These
38 easements include a 15-foot wide waterline easement which runs north to south within the
39 footprint of the gravel road (an extension of NE 152nd Avenue) until it reaches the Bonneville
40 Power Administration (BPA) easement, where it shifts to the west and runs adjacent to the road.
41 The remaining easements are located within the 300-foot BPA easement in the southern portion
42 of the Bank site, and consist of two stormwater facilities, and several other utility easements
43 (storm sewer and sanitary sewer). The easements are not considered part of the credit generating
44 areas within the overall Bank Site. A breakdown of the overall bank acreage in relation to the
45 specific easement areas is illustrated on **Figure A-3a, Existing Conditions** and on Table 1
46 below.

1 **Table A-1: Existing Conditions Bank Habitats and Easement Areas**

	Area inside BPA (acres)	Area outside BPA easement(acres)	Total
Wetland	0.10	4.02	4.12
Upland	20.70	85.69	106.39
Stream	--	2.53	2.53
Total	20.80	92.24	113.04
Existing Easements within Bank			
Existing Easements within Bank	Area inside BPA (acres)¹	Easements outside BPA Area (acres)	
Wetland	0.10		
Upland	13.21		
Stormwater Facilities	5.63	--	
20' Storm Sewer Easement	0.67	--	
20' Sanitary Sewer Easement	1.10	--	
15' Water Line Easement	0.11	0.66	

¹ Acreages of individual Features/Areas within the Bank site may include acreage of overlap with other easements or features, and therefore totals of individual acreages listed may exceed the overall Bank acreage total of 113.04 acres.

2
3
4
5 **C. Project Description.** Whereas, the Sponsor has expressed intent to restore, rehabilitate,
6 and enhance approximately 113.04 acres of aquatic and associated upland habitat in accordance
7 with the provisions of this Instrument, and to then maintain the Bank in accordance with the
8 provisions of this Instrument. The Bank is projected to, among other purposes, re-establish
9 85.03 acres of wetland, rehabilitate 4.02 acres of wetland, and enhance 0.10 acres of wetland.
10 The enhancement of the Bank site also includes 2.54 acres of open channel enhancement along
11 Burnt Bridge Creek.

12
13 The Bank site encompasses areas that shall not generate Bank credits, including the easements
14 which are described in Table 1 above, and a variable width bank buffer (ranging from 50 to 100
15 feet) which extends around the perimeter of the Bank site. The buffer around the perimeter of
16 the site is based upon current and anticipated land-use intensities on adjacent properties and the
17 risk of impacts to the Bank from those activities. The overall Bank site consists of 113.04 acres
18 which includes 21.46 acres of easements and 7.29 acres of non-creditable buffer. The available
19 area for credit generation within the 113.04-acre Bank site is 84.30 acres.

20
21 The 113.04-acre Bank site's 21.46 acres of easements encompasses 20.80 acres of utility
22 easements (which includes the 0.10 acres of enhanced wetland listed above) and 0.66 acres of
23 gravel access road. These areas are further detailed in Appendix A and Appendix B and in
24 Tables 1 and 2 in this Instrument.
25

1 **Table 2. Bank Activity/Existing Bank Areas**

Bank Activity/Existing Bank Areas	Credible Area (acres)	Area in Bank Buffer (acres)	Area in BPA Easement (acres)	Mitigation Bank Site Total (acres)
WETLAND/STREAM				
<i>Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS)</i>				
Re-establishment	20.04	5.86	--	25.90
Rehabilitation	0.10	0.11	--	0.21
<i>Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS)</i>				
Re-establishment	15.48	0.93	--	16.41
Rehabilitation	0.67	0.05	--	0.72
<i>Palustrine Emergent (PEM)</i>				
Re-establishment	42.53	0.19	--	42.72
Rehabilitation	3.09	0.00	--	3.09
<i>Open Stream Channel</i>				
Enhancement	2.39	0.14	--	2.53
EASEMENTS				
Shrub Buffer Enhancement (BPA easement) (SB) (includes PSS) ¹	--	--	4.85 ²	4.85
Nootka Rose Hedgerow (BPA easement) (NRH) ³	--	--	0.41	0.41
Existing Vegetation Community (BPA Easement Area)	--	--	8.05	8.05
Utilities Easements within BPA Easement Area ⁴			7.49	7.49
Existing Gravel Access Road and waterline easement ⁵	--	--	--	0.66
TOTALS	84.30	7.28	20.80	
Total Bank Site Area				113.04

¹ This area is located within the BPA easement and serves as the 100-foot buffer of the Bank

² Includes 0.10 acres of existing wetland within the non-creditable BPA Easement Area.

³ This area is located within the BPA easement and is planted as a barrier between the Bank boundary and existing subdivision.

⁴ BPA easement includes individual storm sewer, sanitary sewer, water line, and storm facility easements. Individual acreages are listed on Figure A-3a - Existing Conditions in Appendix A

⁵ The existing access road and the water line easement are within the same footprint within the Bank area outside of the BPA easement

2
3 **D. Bank Overview.** The Bank site is located within the Orchards Peat Area, an area
4 classified as a historic peat marsh. According to Rigg (1958), the Orchards Peat Area was
5 considered a peat resource of Washington that encompassed 440 acres, and extends
6 approximately 1.5 miles to the west, and 1.5 miles east to end at Lacamas Creek. Around the late
7 1800s, portions of marsh were extensively drained, ditched, and tilled to facilitate agricultural
8 crop production because of the productive, organic soils. Burnt Bridge Creek's origin and its
9 current flow path downstream of the Bank are a direct result of the construction of this historic
10 drainage system. As evidenced on historical General Land Office (GLO) survey maps from the
11 1860s (GLO 1860), prior to the creek channelization for conversion to agriculture in the late
12 1800s, this area contained large swaths of marshland/swampland (wetlands) with no defined
13 stream channels. Farming for commodity crops has occurred on the Bank site since the 1940s,
14 with the primary crop being mint. Prior to the proposal of the site as mitigation bank, the

1 property had been referred to as the “Mint Farm,” based on its long history of use for the
2 production and processing of mint as a commodity crop. The use of the site for farming of a
3 mint crop was discontinued in the late 1990s, and replaced with farming of other commodity
4 crops, such as corn. The agricultural fields are currently fallow, with the last agricultural corn
5 crop harvested in 2014.

6
7 Recent topographic maps indicate that most of the area historically used as farm fields is nearly
8 level with elevations ranging between 198 and 200 feet above mean sea level. The Bank site
9 increases in elevation to the north (elevations of 200 to 202 feet) and to the south (elevations of
10 200 to 204 feet) within the BPA easement area (**Figure A-4, Site Topography**). A vacant
11 single-family residence and outbuildings that were historically used for agricultural
12 equipment/maintenance in various states of disrepair are northeast of the Bank site’s north
13 boundary.

14
15 The existing Bank site includes approximately 2,750 linear feet of Burnt Bridge Creek, which
16 originates at the east property boundary and flows east to west and 4.12 acres of Category III and
17 IV wetlands (**Figure A-3a**).

18
19 The general goal of the Bank is to restore and rehabilitate approximately 89.15 acres of self-
20 sustaining, diverse forest, scrub-shrub, and emergent wetland habitat, encompassing as many
21 pre-agricultural features as possible. The approximate 89.15-acre wetland area will be planted to
22 create 43.24 acres of forested/scrub-shrub, 0.10 acres of scrub-shrub, and 45.81 acres of
23 emergent wetland classes, with an additional 2.54 acres of open channel enhancement (**Figure**
24 **B-1, Bank Site Design**).

25
26 Ecologic performance standards related to hydrology, vegetation, invasive species control, and
27 habitat structure enhancement are addressed in Appendix C of this Instrument.

28
29 Anticipated functional lift post-construction is discussed in detail in Appendix A of this
30 Instrument. Generally, all functions related to habitat, water quality, and water quantity are
31 expected to increase as a result of design implementation.

32
33 The primary ecological goals of the Terrace Mitigation Bank are as follows:

- 34
- 35 ▪ Re-establishing hydrology through the disabling of the drain tiles throughout the site;
 - 36
 - 37 ▪ Establishing a native historic forested, scrub-shrub, and emergent wetland plant
38 community in re-established and rehabilitated wetland areas;
 - 39
 - 40 ▪ Establishing a native upland scrub-shrub plant community in the upland buffer area
41 within the BPA easement;
 - 42
 - 43 ▪ Reshaping of incised stream banks to reconnect the stream to its floodplain and existing
44 wetlands;
 - 45

- 1 ▪ Enhancing the riparian area along Burnt Bridge Creek by removing invasive species and
2 planting native trees and shrubs to increase shading and lower water temperatures, and
3 provide improved habitat structure and diversity;
- 4
- 5 ▪ Removing an existing culvert crossing at the west property boundary to improve stream
6 flow, and;
- 7
- 8 ▪ Removing existing invasive species and preventing the establishment of invasive species
9 throughout the Bank site.

10

11

12 **E. Interagency Review Team.** Whereas, in consideration of the establishment and
13 maintenance of the Bank, the Interagency Review Team (IRT) is willing to award compensatory
14 mitigation credits in accordance with the procedures outlined in this Instrument. These Bank
15 credits will be made available to serve as compensatory mitigation pursuant to applicable Federal
16 and Washington State laws and regulations. The Corps and Ecology serve as Co-Chairs of the
17 IRT. The IRT is the group of Federal, State, tribal, and local agencies that has reviewed, and will
18 advise the Co-Chairs regarding the establishment and management of the Bank pursuant to the
19 provisions of the Instrument.

20

21

22 NOW, THEREFORE, the Parties agree to the following:

23

24

25 **II. LEGAL AUTHORITIES**

26

27 **A. Authorities.** The establishment, use, operation, and maintenance of the Bank shall be
28 carried out in accordance with the following principal authorities.

- 29
- 30 1. Federal:
 - 31 a. Clean Water Act (33 USC §§ 1251 et seq.)
 - 32 b. Rivers and Harbors Act of 1899 (33 USC § 403)
 - 33 c. Regulatory Programs of the Corps of Engineers, Final Rule (33 CFR Parts 320 -332)
 - 34 d. U.S. Army Corps of Engineers Regulatory Guidance Letter 05-1, *Guidance on Use of*
35 *Financial Assurances, and Suggested Language for Special Conditions for*
36 *Department of the Army Permits Requiring Performance Bonds*, U.S. Army Corps of
37 Engineers, February 14, 2005
 - 38 e. Guidelines for the Specification of Disposal Sites for Dredged and Fill Material
39 (“404(b)(1) Guidelines,” 40 CFR Part 230)
 - 40 f. National Environmental Policy Act (42 USC §§ 4321 et seq.)
 - 41 g. Council on Environmental Quality Procedures for Implementing the National
42 Environmental Policy Act (40 CFR Parts 1500-1508)
 - 43 h. Executive Order 11990 (Protection of Wetlands)
 - 44 i. Executive Order 11988 (Protection of Floodplains)
 - 45 j. Executive Order 13112 (Invasive Species)
 - 46 k. Fish and Wildlife Coordination Act (16 USC §§ 661 et seq.)

- 1 l. Fish and Wildlife Service Mitigation Policy (46 FR 7644-7663, 1981)
- 2 m. Endangered Species Act (16 USC §§ 1531 et seq.)
- 3 n. Magnuson-Stevens Fishery Conservation and Management Act (16 USC §§ 1801 et
- 4 seq.)
- 5 o. National Historic Preservation Act, as amended (16 USC § 470)
- 6
- 7 2. State of Washington:
- 8 a. Washington Water Pollution Control Act, RCW 90.48 et seq.
- 9 b. Washington State Rule on Wetland Mitigation Banking (WAC 173-700, Wetland
- 10 Mitigation Banks)
- 11 c. State of Washington Wetlands Mitigation Banking Statute (RCW 90-84)
- 12 d. Washington State Environmental Policy Act (“SEPA” RCW 43.21C and WAC 197-
- 13 11)
- 14 e. Growth Management Act (RCW 36.70A)
- 15 f. Washington State Hydraulic Code (RCW 77.55, WAC 220-110, Hydraulic Project
- 16 Approval)
- 17 g. Washington State Shoreline Management Act (RCW 90.58, WAC 173-200 as
- 18 amended)
- 19 h. Washington State Salmon Recovery Act (RCW 77.85)
- 20 i. Washington State Aquatic Resources Act (RCW 79.90, RCW 90.74)
- 21 j. Executive Orders 89-10 and 90-04, Protection of Wetlands
- 22
- 23

24 III. ESTABLISHMENT OF THE BANK

26 **A. Permits.** The Sponsor shall obtain all appropriate environmental documentation, permits,
27 and other authorizations needed to establish and maintain the Bank, prior to the award of any
28 Bank credits. Compliance with this Instrument does not fulfill the requirement, or substitute, for
29 such authorization. Local authorizations and permits include, but are not limited to, City of
30 Vancouver approvals, permits, and authorizations issued under the statutory and regulatory
31 provisions listed in the Appendices of this Instrument.

33 **B. Bank Establishment.** The Sponsor agrees to establish the Bank as described in Appendix
34 B and to satisfactorily accomplish all performance standards reflected in Appendix C. In
35 recognition thereof, compensatory mitigation credits will be awarded to the Sponsor in
36 accordance with the procedures and schedules prescribed in the Appendices, particularly in
37 Appendices C and D. In establishing the Bank, deviations from the prescribed Bank
38 development plan and design, including deviations from any performance standards, may only be
39 made with the prior approval of the Corps and Ecology, in consultation with the IRT. To propose
40 modifications to the Bank development plan, the Sponsor shall submit a written request to the
41 Corps and Ecology. Documentation of implemented modifications shall be made consistent with
42 Article VI.B.2. of this Instrument. The Establishment Period of the Bank is defined in Article
43 IV.K.

45 **C. Financial Assurance Requirements.** The Sponsor agrees to provide the following
46 financial assurances for the work described in this Instrument.

47

1 **1. Financial Assurance Mechanisms for Mitigation Bank Establishment:** The
2 Sponsor shall furnish either a Letter of Credit or a Surety Bond to provide financial assurance
3 underlying the establishment and initial functionality of the Bank. This Letter of Credit or Surety
4 Bond must be initiated by the Sponsor, in a form and content approved by the Corps and
5 Ecology, and shall conform to the requirements of Appendix H, before any construction or
6 implementation activities may be conducted on-site as part of the establishment period of the
7 Bank, as defined in Article IV.K., and prior to the award of any Bank credits. Any construction
8 or implementation activities conducted on-site prior to the inception of the establishment period
9 must cease as of the effective date of this Instrument pursuant to Article VI.B.1, until an
10 approved Letter of Credit or Surety Bond is initiated. The Corps and Ecology will notify the
11 Sponsor that construction and implementation activities are authorized to commence, by granting
12 the initial award of Bank credits in recognition of meeting all the performance standards under
13 Objective 1, pursuant to Appendix D.

14
15 a. The Corps and Ecology must specifically approve all terms and
16 conditions of the Letter of Credit or Surety Bond, as well as the identity of the financial
17 institution issuing and underwriting the Letter of Credit or Surety Bond.

18
19 i. For Letters of Credit, only federally-insured institutions
20 rated investment grade or higher may issue the Letter of Credit. The Sponsor shall provide the
21 Corps and Ecology with a credit rating that indicates the financial institution has the required
22 rating as of the date of first issuance of the Letter of Credit. This credit rating shall be from a
23 recognized commercial rating service as specified in the Office of Federal Procurement Policy
24 Pamphlet No. 7, available through the website of the Office of Management and Budget,
25 Executive Office of the President. Provided the required credit rating is held, approval of the
26 financial institution selected by the Sponsor shall not be unreasonably withheld. If the Corps or
27 Ecology determines that the credit rating of the financial institution issuing the Letter of Credit
28 has subsequently failed to adhere to these requirements, the Corps or Ecology may direct the
29 Sponsor to provide an acceptable substitute Letter of Credit within 30 days. If an acceptable
30 substitute is not provided within the prescribed period, the Corps or Ecology may immediately
31 draw on the Letter of Credit up to its full value without any further notice to the Sponsor. If
32 notice of non-renewal as delineated in section H.1.B. of Appendix H has been provided, and the
33 Sponsor does not furnish an acceptable replacement Letter of Credit or other approved financial
34 assurance at least 30 days before the Letter of Credit's expiration, the Corps or Ecology may
35 immediately draw on the existing Letter of Credit up to its full value without any notice to the
36 Sponsor.

37
38 ii. For Surety Bonds, the surety must be currently certified on
39 the Department of the Treasury, Financial Management Service's Circular 570, Listing of
40 Approved Corporate Sureties. The penalty amount of the Surety Bond must fall within the per-
41 bond underwriting limitation prescribed in Circular 570, unless the amount which exceeds the
42 specified underwriting limit is coinsured or reinsured by a corporate surety currently certified in
43 the applicable list in Circular 570, and unless the amount of excess risk covered by coinsurance
44 or reinsurance does not exceed the underwriting limit of each coinsurer or reinsurer. The terms
45 and conditions of any coinsurance or reinsurance agreement must conform to the requirements of
46 31 Code of Federal Regulations sections 223.10 and 223.11, and the coinsurance or reinsurance

1 agreement must itself be specifically approved by the Corps and Ecology. Provided the required
2 certification is held and the applicable underwriting limitations are not exceeded, approval of the
3 surety selected by the Sponsor shall not be unreasonably withheld. If the Corps or Ecology
4 determines that the surety's certification under Circular 570 has been terminated, or that the per-
5 bond underwriting limitation prescribed in Circular 570 has been exceeded, the Corps or Ecology
6 may direct the Sponsor to provide an acceptable substitute Surety Bond within 30 days. If an
7 acceptable substitute financial assurance is not provided within the prescribed period, the Corps
8 or Ecology may immediately demand payment upon the Surety Bond up to its full value without
9 any further notice to the Sponsor. If notice of non-renewal as delineated in section H.1.B. of
10 Appendix H has been provided, and the Sponsor does not furnish an acceptable replacement
11 Surety Bond or other approved financial assurance at least 30 days before the Surety Bond's
12 expiration, the Corps or Ecology may immediately demand payment upon the penal sum of the
13 existing Surety Bond up to its full value without any notice to the Sponsor.

14
15 iii. If a replacement financial assurance is required, no further
16 credits will be awarded to the Bank without an effective Letter of Credit, Surety Bond, or other
17 approved financial assurance.

18
19 iv. If the financial assurance applicable to the Bank shall expire
20 by its own terms prior to rescission or cancellation pursuant to the terms of Article III.C.1.f., the
21 Sponsor must reinitiate an acceptable financial assurance so that there is no interval in which
22 there is no approved financial assurance in effect. No further credits will be awarded to the Bank
23 while the Bank lacks an effective financial assurance instrument.

24
25 b. The Corps or Ecology, acting independently or in concert, may direct
26 disbursement from the credit funds account on a Letter of Credit, or payment of the penal sum on
27 a Surety Bond, as applicable, under the following circumstances: upon abandonment of Bank
28 establishment efforts; upon a failure stemming from any cause to achieve any of the Bank
29 Objectives or Performance Standards as reflected in Appendix C, including, but not limited to,
30 deficient design, ineffective establishment, deterioration of functionality or performance, or
31 financial limitations of the Sponsor; or upon the Sponsor's failure to maintain in force, or to
32 promptly reinstate, renew, or extend, the Letter of Credit or Surety Bond, as applicable, as
33 required by this Article III.C.1 and Appendix H. The Corps and/or Ecology shall provide
34 specific and express written direction for corrective action to the Sponsor in accordance with
35 Article IV.H. of this Instrument and Appendix F, Section F.4. ninety (90) calendar days prior to
36 accessing funds pursuant to a Letter of Credit, or ninety (90) calendar days prior to requiring
37 payment of the penal sum on a Surety Bond. If, within ninety (90) days of delivery of notice of
38 the demand for corrective action, the Sponsor has initiated compliance efforts and the Corps and
39 Ecology have determined, in their sole discretion, that substantial progress has been made toward
40 completion of corrective action, the Corps and Ecology will defer accessing the Letter of Credit
41 or requiring payment on the Surety Bond, as applicable. The Corps and/or Ecology need not
42 provide the prior notice to the Sponsor prescribed in this Article III.C.1: (a) when requiring
43 payment on a Letter of Credit due to failure to maintain the necessary credit rating or certification
44 under Office of Federal Procurement Policy Pamphlet No. 7; (b) when requiring payment on a
45 Surety Bond due to failure to maintain the necessary credit rating or certification under Financial

1 Management Service Circular 570; or (c) in the event that notice of non-renewal has been
2 provided under Article III.C.1.a.i. or Article III.C.1.a.ii.
3

4 c. Following consultation with the IRT, the Corps and/or Ecology may
5 access the funds guaranteed by the Letter of Credit, or require payment on the Surety Bond, as
6 applicable, to ensure accomplishment of any of the following objectives or features of the Bank:
7 construction, establishment, monitoring, maintenance, or remedial action activities reflected in, or
8 directly supporting accomplishment of, the Objectives and Performance Standards reflected in
9 Appendix C. The Sponsor expressly waives any and all opportunity to challenge, delay, or
10 require substantiation for any direction by the Corps or Ecology accessing and disbursing the
11 funds guaranteed by the Letter of Credit, or requiring payment on the Surety Bond, as applicable.
12 The Corps and/or Ecology may elect, in consultation with the IRT, to accomplish all of the
13 Objectives and Performance Standards prescribed in Appendix C, Section C.2. and for which the
14 Sponsor has assumed responsibility under Article III.B. of this Instrument. In lieu of
15 accomplishing all Objectives and Performance Standards in Appendix C, the Corps and/or
16 Ecology, in their sole discretion, in consultation with the IRT, may accomplish only that
17 component or those components of the Objectives and Performance Standards that are deemed
18 reasonably necessary to achieve a project that is stable, self-sustaining, and provides a level of
19 general benefit to the aquatic resources of the watershed that the Corps and/or Ecology deem
20 appropriate under the circumstances. Accomplishment of corrective or remedial actions
21 determined to be necessary in order to achieve the Sponsor's obligations under the objectives and
22 performance standards will be achieved by a Third Party Designee designated by the Corps
23 and/or Ecology. Eligible Third Party Designees may include, but are not limited to, non-profit
24 entities, state or local agencies, tribal components, or private mitigation providers. Such
25 corrective or remedial action to accomplish specified Sponsor responsibilities under the
26 objectives and performance standards shall be achieved in accordance with a plan developed by
27 the Third Party Designee and approved by the Corps and Ecology as conforming to the
28 provisions of this Instrument.
29

30 d. Any Letter of Credit shall take the general form of an agreement on the
31 part of the issuing financial institution to honor the engagement reflected therein as directed by
32 one or both of the beneficiaries in the event that the Corps and/or Ecology determine, in their sole
33 and exclusive discretion, that the principal has failed to fulfill any of the obligations established
34 in this Instrument. Any Surety Bond shall take the general form of an indemnity contract in a
35 sum certain obliging the surety to pay the full face value of the bond as directed by one or both of
36 the beneficiaries in the event that the Corps and/or Ecology determine, in their sole and exclusive
37 discretion, that the principal has failed to fulfill any of the obligations established in this
38 Instrument. A Letter of Credit or Surety Bond, as applicable, shall be furnished to guarantee the
39 establishment activities of the Bank, in the following amounts:

40 (i): \$189,737
41
42

43 e. Upon certification by the Corps and Ecology that the following
44 performance standards, as prescribed in Appendix C and Table D-3 of Appendix D, have been
45 achieved, the Corps and Ecology will authorize in writing that the required amount of the Letter
46 of Credit, or the required penal sum of the Surety Bond, be modified as follows:

1
2 i. Following issuance of credit for Performance Standard 2A
3 the Grading As-Built Report, Performance Standard 3A the Planting As-built, and installation of
4 Habitat Features Performance Standard 4A Survey, a revised required amount of \$175,800

5
6 ii. Following completion of all Year 3 performance standards,
7 a revised required amount of \$105,600;

8
9 iii. Following completion of all Year 7 performance standards,
10 a revised required amount of \$40,800.

11
12 f. Upon satisfaction of all objectives and performance standards required
13 in Appendix C, and upon a determination by the Corps and Ecology that the Sponsor has satisfied
14 the additional requirements reflected in Article IV.K. of this Instrument for termination of the
15 establishment period of the Bank, the Corps and Ecology will waive their right to payment under,
16 and authorize rescission or cancellation of, the financial assurance instrument.

17
18 g. Notwithstanding the fact that the financial assurance may have been
19 accessed, or that payment upon that financial assurance may have been required, and full or
20 partial remedial or corrective action may have been taken by the Third Party Designee, unless
21 this Instrument is terminated pursuant to Article IV.J. or VI.B. the Sponsor shall remain
22 responsible for the timely and effective achievement of all the Objectives and Performance
23 Standards mandated in Appendix C.

24
25 h. Alternatively, the Sponsor may request, and the Corps and Ecology
26 may approve, a substitute financial assurance instrument for the financial assurance required
27 under this Instrument. The form and content of any financial assurance instrument must be
28 specifically approved before a substitution is utilized in satisfaction of the financial assurance
29 obligations during the establishment period of the Bank. The Corps and Ecology must
30 specifically approve the identity of the financial institution issuing and underwriting the financial
31 assurance instrument. The provisions of the substitute financial assurance instrument must
32 conform to each of the material requirements of this Article III.C.1., as well as Appendix H,
33 within this Instrument. Additionally, the substitute financial assurance must extend for the full
34 period of time that the financial assurance it replaces must extend, and may be terminated
35 pursuant to this Article III.C.1. and Appendix H. The replacement financial assurance instrument
36 must be instituted so that there is no portion of the establishment period, following initiation of
37 construction or other implementation activities on-site, during which there is no financial
38 assurance in effect. No further Bank credits will be awarded while the Bank lacks an effective
39 financial assurance instrument. The replacement financial assurance instrument must be
40 described in an amendment to the Instrument.

41
42
43 **2. Long-Term Management and Maintenance Endowment Fund:** The Sponsor shall
44 institute an endowment fund, established and maintained through an escrow account, to fund
45 management and maintenance actions as defined in Article IV.M.1. of this Instrument and
46 Appendix G, Section G.2., following the termination of the establishment period of the Bank.

1 This Long-Term Management and Maintenance (LTMM) Endowment Fund shall be
2 incrementally funded throughout the establishment period of the Bank, with the funds disbursed
3 to a Long-Term Steward upon the Sponsor's relinquishment of responsibility for long-term
4 maintenance and management of the Bank. The Sponsor agrees to continue to deposit funds in
5 the LTMM Endowment Fund escrow account, pursuant to Article III.C.2.a. of this Instrument,
6 until the LTMM Endowment Fund is fully funded in accordance with Article III.C.2.b. of this
7 Instrument.
8

9 a. The LTMM Endowment Fund escrow account shall be funded throughout the
10 establishment period of the Bank by depositing a designated sum corresponding to each sale or
11 transfer of Bank credits, or use of Bank credits by the Sponsor as compensatory mitigation for its
12 own activities causing adverse impacts to the aquatic environment. This designated sum shall be
13 \$1,805.00 per credit sold, used, or transferred. Deposits to the LTMM Endowment Fund must be
14 completed within 30 days of the sale, use, or transfer transaction. The Corps and Ecology must
15 specifically approve the identity of the institution, in which the escrow account is established, as
16 well as the form of that account. Approval of the identity of the financial institution at which the
17 escrow account is established, and the form of the investment account, shall not be unreasonably
18 withheld.
19

20 b. The LTMM Endowment Fund shall be considered to be fully funded when the
21 total value of the escrow account, including the principal amounts deposited and earnings, has
22 accumulated to a total of \$145,833.
23

24 c. The Sponsor shall enter into an escrow agreement with both the Corps and
25 Ecology conforming to the requirements of Appendix H, Section H.2. The escrow agreement for
26 the LTMM Endowment Fund shall be signed prior to the release of any Bank credits, before any
27 construction or implementation activities may be conducted on-site during the establishment
28 period of the Bank, as defined in Article IV.K.
29

30 d. Upon receipt of written instructions signed by the Sponsor, Corps, and Ecology,
31 the LTMM Endowment Fund escrow account shall be terminated and all funds disbursed
32 pursuant to the instructions of the Corps and Ecology.
33

34 **D. Real Estate Provisions.** All real property to be included within the Bank is presently under
35 a purchase agreement by Rotschy, Inc. The Sponsor shall burden the title to the Bank real
36 property through the grant of a conservation easement, pursuant to the provisions of Appendix G,
37 Section G.1. The conservation easement must be approved, initiated, and recorded pursuant to
38 Appendix G, Section G.1, prior to the award of any Bank credits and before any construction or
39 implementation activities may be conducted on-site during the establishment period of the Bank,
40 as defined in Article IV.K. Any construction or implementation activities conducted on-site prior
41 to the inception of the establishment period must cease as of the effective date of this Instrument
42 pursuant to Article VI.B.1, until an approved conservation easement is recorded. The Corps and
43 Ecology will notify the Sponsor that construction and implementation activities are authorized to
44 commence, by granting the initial award of bank credits in recognition of meeting all
45 performance standards under Objective 1, pursuant to Appendix D.
46

1 IV. OPERATION OF THE BANK

2
3 **A. Service Area.** The Bank is approved to provide compensatory mitigation for impacts to
4 the waters of the United States and waters of the State, including wetlands, within the Service
5 Area. A detailed description and maps of the Service Area are included in Appendix E.
6

7 **1.** The service area includes all plains and terraces, nearly level to gently sloping, within the
8 Terrace Hydrogeologic Unit as described in the Washington Department of Ecology's 2009
9 *Watershed Characterization of Clark County* and that also encompasses the somewhat
10 excessively drained to very poorly drained soils of bottom lands and terraces within Water
11 Resource Inventory Area (WRIA) 28. The service area includes the Lacamas, Salmon Creek,
12 Lakeshore, and Burnt Bridge Creek Watersheds, and their associated subwatersheds, with the
13 exception of the Mill Creek Subwatershed within the Salmon Creek Watershed, which is
14 excluded from the boundaries of the service area.
15

16 The extent of the service area across the majority of the Lacamas, Burnt Bridge, and Salmon
17 Creek Watersheds was justified based on the historic and existing surface water and ground
18 water (hydrologic) linkages throughout the watersheds, as well as the similarity of the watershed
19 priorities and existing conditions found within the Bank's watershed, and those within the
20 Service Area. Specifically, those portions of Lacamas, Burnt Bridge, and Salmon Creek
21 Watersheds included in the Bank's Service Area were those areas that: 1) have similar position
22 in the landscape, 2) are connected by ground water based on the configuration and slope of the
23 Troutdale Formation, which bisects the terrace area of all three watersheds, and 3) have similar
24 impairments and planning objectives that can be addressed at the Bank.
25

26 The Bank may be used to compensate for an impact that occurs within the Service Area if
27 specifically approved by the regulatory agency(ies) that have jurisdiction over that impact,
28 pursuant to the procedures and criteria prescribed in Appendix E. There may be some
29 circumstances where wetlands in the greater Salmon Creek Watershed (especially the upper
30 portions) that are providing low base-flow support to the watershed will be prohibited from using
31 the Bank, if they are deemed as providing this critical need in the Salmon Creek Watershed by
32 the agencies requiring mitigation. In instances where the hydrological functions being impacted
33 cannot be replaced at the Bank, it may be possible to decouple the hydrologic and habitat
34 impacts, and compensate the individual habitat impacts at the Bank with the authorizing agencies
35 approval. The Bank cannot be used to compensate for fish-related stream or tributary impacts
36 within the Salmon Creek Watershed, unless specifically approved by the permitting agencies and
37 the IRT.
38

39 **2.** In exceptional situations, the Bank may be used to compensate for an impact that
40 occurs outside of the Service Area, including the Mill Creek Subwatershed, if specifically
41 approved by the regulatory agency(ies) having jurisdiction over that impact and by the Corps and
42 Ecology, in consultation with the IRT, pursuant to the procedures and criteria prescribed in
43 Appendix E, Section E.1. If the Corps and/or Ecology determine that the Sponsor has sold, used,
44 or transferred Bank credits at any time to provide compensatory mitigation outside of the Service
45 Area without prior approval, the Corps and/or Ecology, in consultation with the IRT, may direct
46 that the sale, use, or other transfer of Bank credits immediately cease, and will determine, in

1 consultation with the IRT, the Sponsor and the appropriate regulatory authority, what remedial
2 actions are necessary to correct the situation and will direct their performance prior to the award
3 of any additional Bank credits. Notwithstanding the fact that ceasing sale, use, or other transfer
4 of Bank credits may have been required, unless this Instrument is terminated pursuant to Article
5 IV.J. or VI.B., the Sponsor shall remain responsible for the timely and effective achievement of
6 all the Objectives and Performance Standards mandated in Appendix C.
7

8 **B. Access to the Bank Site.** The Sponsor will allow, or otherwise provide for, access to the
9 Bank site by members of the IRT or their agents or designees, as reasonably necessary for the
10 purpose of inspection, compliance monitoring, and remediation consistent with the terms and
11 conditions of this Instrument and the Appendices, throughout the periods of Bank establishment,
12 operational life, and long-term management and maintenance. Inspecting parties shall provide
13 the Sponsor reasonable prior notice of a scheduled inspection, and shall not unreasonably disrupt
14 or disturb activities on the property.
15

16 **C. Availability of Bank Credits.**
17

18 **1. Availability and Sale, Transfer, or Use of Bank Credits.** Subject to the
19 documentation and scheduling provisions of Appendix D, Section D.1, the Sponsor may submit
20 to the IRT written evidence that particular performance standards have been achieved. If the
21 Corps and Ecology, after consulting with the IRT and the Sponsor, concur that certain
22 performance standards have been achieved in full, the Corps and Ecology will respond in writing
23 to the Sponsor that the Bank credits associated with those performance standards are available
24 for sale, transfer, or use by the Sponsor as compensatory mitigation for its own activities causing
25 adverse impacts to the aquatic environment. Each instance of sale or any other transfer of Bank
26 credits to a third party shall be reflected in a credit transaction agreement, retained by the
27 Sponsor and made available for Corps and/or Ecology review, if requested. Each such credit
28 transaction agreement must include the name, address, and telephone number of the purchaser or
29 transferee. Each transaction agreement that is associated with a permit must indicate the permit
30 number of the impacting project, the number of Bank credits involved in the transaction, and
31 must expressly specify that the Sponsor, and its successors and assigns, assumes legal
32 responsibility for accomplishment and maintenance of the transferee's compensatory mitigation
33 requirements associated with the impacting project, upon completion of the credit transaction.
34 Each credit transaction agreement that is associated with a permit shall be recorded with the
35 county auditor. A copy of the recorded transaction agreement shall be provided to the Corps and
36 Ecology.
37

38 **2. Availability of Bank Credits in the Event Financial Assurances are Accessed.** In
39 the event the Corps and/or Ecology, acting pursuant to Articles III.C.1.a. or III.C.1.b. of this
40 Instrument, accesses the financial assurances established pursuant to Article III.C.1. of this
41 Instrument and accomplishes any objectives, performance standards, or features of the Bank, the
42 Corps and Ecology, in consultation with the IRT, may award Bank credits for sale, use, or
43 transfer by the Sponsor, in a quantity reflecting the objectives and performance standards
44 achieved as a result of such remedial action.
45

1 **D. Credit Deficit or Fraudulent Transactions.** If the Corps and/or Ecology determine at any
2 point that the Bank is operating at a deficit, or has engaged in fraudulent transactions in the sale,
3 use, or other transfer of Bank credits, the Corps and/or Ecology will cease the award of, and will
4 direct the Sponsor to immediately cease sale, use, or other transfer of, Bank credits. The Corps
5 and/or Ecology will determine, in consultation with the IRT and the Sponsor, what remedial
6 actions are necessary to correct the situation and will direct their performance prior to the award
7 of any additional Bank credits.
8

9 **E. Provisions for Use of the Mitigation Bank Area.** The Corps and/or Ecology may
10 consider the Sponsor as being in material default of a provision of this Instrument and proceed
11 accordingly under Article IV.J., should the Corps and/or Ecology, in consultation with the IRT,
12 determine that either of the following have occurred:
13

14 1. The grant of additional easements, rights of way, or any other property interest in the
15 Bank site without the written notification to the Corps and Ecology, in accordance with Article
16 IV.N.
17

18 2. The use, or authorization of the use, or the suffering the use of any areas within the
19 Bank for any purpose that is contrary to the provisions of this Instrument or the conservation
20 easement, or which interferes with the conservation purposes of the Bank.
21

22 **F. Maintenance Provisions.** Following achievement of the performance standards, the
23 Sponsor agrees to perform all necessary work to maintain those standards as prescribed in
24 Appendix F, Section F.5.
25

26 **G. Monitoring Provisions.** The Sponsor agrees to perform all necessary work, pursuant to
27 Appendix F, to monitor the Bank during the establishment period to demonstrate compliance
28 with the performance standards established in Appendix C.
29

30 **H. Contingency Plans/Remedial Actions.** In the event the Bank fails to achieve one or more
31 of the performance standards within the specific time schedule delineated in Appendix D, the
32 Sponsor shall develop necessary contingency plans and implement appropriate remedial and
33 monitoring actions for the Bank as specified in Appendix F, Section F.4, to attain those project
34 objectives and performance standards. Prior to implementing any remediation, supplemental
35 monitoring, or other corrective measures, the Sponsor shall obtain approval of the contingency
36 plans from the Corps and Ecology. The Corps and Ecology shall consult with the IRT prior to
37 approval of the plans. All appropriate environmental documentation, permits, and other
38 authorizations needed to implement the contingency plan or take remedial action shall be
39 obtained by the Sponsor. In the event the Sponsor fails to implement necessary contingency
40 actions within the period prescribed by the Corps and/or Ecology in the notification of approval
41 of the contingency plan, the Corps and/or Ecology, in consultation with the Sponsor and the
42 IRT, will direct remedial, corrective, and/or sanctioning action in accordance with the procedures
43 specified in Appendix F, Section F.4. Alternatively, the Corps and/or Ecology may accomplish
44 such remedial action directly, acting through a Third Party Designee, by accessing the financial
45 assurance instrument pursuant to Articles III.C.1.a. and III.C.1.b. of this Instrument.
46

1 **I. Force Majeure.** The Sponsor may request pursuant to Article III.B., and the Corps and
2 Ecology may approve, changes to the construction, operation, objectives, performance
3 standards, timelines or credit generation and award schedule of the Bank, pursuant to the
4 standards and procedures specified in Appendix F, if all of the following occur: an act or event
5 causes substantial damage such that it is determined to be a force majeure; such act or event has
6 a significant adverse impact on the quality of the aquatic functions, native vegetation, or soils of
7 the Bank site; and such act or event was beyond the reasonable control of the Sponsor, its agents,
8 contractors, or consultants to prevent or mitigate.

9 **1.** The evaluation of the damage caused by a force majeure and the resulting changes to
10 mitigation requirements involve a communicative process. If the Sponsor asserts a mitigation
11 site has sustained significant adverse impacts due to an event or act which may be determined to
12 be a force majeure, the Sponsor shall give written notice to the Corps, Ecology and the IRT as
13 soon as is reasonably practicable. After receiving written notice, the Corps and Ecology, in
14 consultation with the Sponsor and the IRT, shall evaluate whether the event qualifies as force
15 majeure. The Corps and Ecology, in consultation with the Sponsor and the IRT, will then
16 evaluate whether significant adverse impacts have occurred to the site. If a force majeure event
17 is determined to have occurred and significant adverse impacts are found to have occurred to the
18 site, the Corps and Ecology, in consultation with the IRT and the Sponsor, will evaluate whether
19 and to what extent changes to the Bank site will be in the best interest of the site and the aquatic
20 environment, and may approve such changes as detailed above. The Corps and Ecology retain
21 sole discretion over the final determination of whether an act or event constitutes force majeure,
22 whether significant adverse impacts to the Bank site have occurred, and to what extent changes
23 to the Bank site or its management will be permitted.

24 **2.** Force majeure events include natural or human-caused catastrophic events or
25 deliberate and unlawful acts by third parties.

- 26 a. Examples of a natural catastrophic event include, but are not limited to: a flood
27 equal to or greater in magnitude than the 100-year flood event; an earthquake or
28 a force projected from an earthquake with a return period of 475 years; drought
29 that is significantly longer than the periodic multi-year drought cycles that are
30 typical of weather patterns in the Pacific Northwest; as well as events of the
31 following type when they reach a substantially damaging nature: disease,
32 wildfire, depredation, regional pest infestation, or significant fluviogeomorphic
33 change.
- 34 b. Examples of a human-caused catastrophic event include, but are not limited to,
35 substantial damage resulting from the following: war, insurrection, riot or other
36 civil disorders, spill of a hazardous or toxic substance, or fire.
- 37 c. Examples of a deliberate and unlawful act include, but are not limited to,
38 substantial damage resulting from the following: the dumping of a hazardous or
39 toxic substance, as well as significant acts of vandalism or arson.
40
41
42

1 **3.** The consequences of any events of force majeure recognized as such by the Corps and
2 Ecology shall not affect the status of previously released credits, whether or not they have yet
3 been sold, used, or transferred.
4

5 **J. Default.** Should the Corps and/or Ecology, in consultation with the IRT, determine that the
6 Sponsor is in material default of any provision of this Instrument, the Corps and/or Ecology may
7 cease award of Bank credits, and may notify the Sponsor that the award, sale, and/or transfer of
8 Bank credits, or use by the Sponsor of Bank credits as compensatory mitigation for its own
9 activities causing adverse impacts to the aquatic environment, are suspended until the delineated
10 deficiencies are rectified. Upon written notification of suspension, the Sponsor agrees to
11 immediately cease any sale, or transfer transactions not yet finally completed, and/or to cease
12 any use by the Sponsor of Bank credits as compensatory mitigation for its own activities causing
13 adverse impacts to the aquatic environment where a Corps or Ecology permit or authorization, as
14 required, has not yet been issued, until informed by the notifying agency that award, sale, use, or
15 transfer of Bank credits may be resumed. Should the Sponsor remain in default for a period of
16 90 days, the Corps and Ecology, in consultation with the IRT, may terminate this Instrument and
17 any subsequent banking operations. In the event such termination action is commenced, the
18 Sponsor agrees to fulfill its pre-existing obligations to perform all establishment, monitoring,
19 maintenance, management, and remediation responsibilities that arise directly from Bank credits
20 that have already been awarded, sold, used, or transferred at the time of termination. In the event
21 of termination, no further sale or transfer of Bank credits may occur, nor any use by the Sponsor
22 of Bank credits as compensatory mitigation for its own activities causing adverse impacts to the
23 aquatic environment within the Service Area where a Corps or Ecology permit or authorization,
24 as required, has not yet been issued.
25

26 **K. Establishment Period of the Bank.** The establishment period of the Bank will commence
27 on the date the Instrument takes effect pursuant to Article VI.B.1. Prior to termination of the
28 establishment period of the Bank, the Corps and Ecology in consultation with the IRT, will
29 perform a final compliance inspection to evaluate whether all performance standards have been
30 achieved. The establishment period for the Bank will terminate, and the period of long-term
31 management and maintenance will commence, when the Corps and Ecology determine, in
32 consultation with the IRT and the Sponsor, that the following conditions have been met:
33

- 34 (1) all applicable performance standards prescribed in Appendix C have been achieved;
- 35 (2) all available credits have been awarded, or the Corps and Ecology, in consultation
36 with the IRT, have approved the Sponsor's written request to permanently cease
37 banking activities;
- 38 (3) the Sponsor has prepared a Long-Term Management and Maintenance Plan, that has
39 been approved by the Corps and Ecology, pursuant to Article IV.M.1 and Appendix
40 G, Section G.2;
- 41 (4) the Sponsor has either: (i) assumed responsibilities for accomplishing the Long-Term
42 Management and Maintenance Plan, in which case the Sponsor will fulfill the role of
43 Long-Term Steward, or (ii) has assigned those responsibilities to another Long-Term
44 Steward pursuant to Article IV.M.2. of this Instrument;
- 45 (5) the LTMM Endowment Fund has been fully funded;

- 1 (6) the contents of the LTMM Endowment Fund have been transferred to the Long-Term
2 Steward; and
3 (7) the Bank has complied with the terms of this Instrument.
4

5 **L. Operational Life of the Bank.** The operational life of the Bank will commence on the
6 date the Instrument takes effect pursuant to Article VI.B.1. Following the termination of the
7 establishment period of the Bank, and (1) upon sale, transfer, or use by the Sponsor as
8 compensatory mitigation for its own activities causing adverse impacts to the aquatic
9 environment, of all Bank credits, or (2) upon acceptance by the Corps and Ecology, in
10 consultation with the IRT, of the Sponsors of a written request to permanently cease banking
11 activities, the operational life of the Bank will terminate.
12

13 **M. Long-Term Management and Maintenance.**
14

15 1. The Sponsor shall develop a Long-Term Management and Maintenance Plan
16 consistent with the guidelines and objectives specified in Appendix G, Section G.2, and submit
17 the Long-Term Management and Maintenance Plan for approval by the Corps and Ecology, in
18 consultation with the IRT. The Sponsor is responsible, as Long-Term Steward, for execution of
19 the approved Long-Term Management and Maintenance Plan. The Sponsor may only deviate
20 from the approved Long-Term Management and Maintenance Plan upon written approval by the
21 Corps and Ecology, following consultation with the Sponsor and the IRT.
22

23 2. The Sponsor may assign its long-term management and maintenance responsibilities
24 to a third party assignee, which will then serve as Long-Term Steward in place of the Sponsor.
25 The identity of the assignee and the terms of the long-term management and maintenance
26 assignment agreement between the Sponsor and the assignee must be approved by the Corps and
27 Ecology, in consultation with the IRT, in advance of long-term management and maintenance
28 assignment.
29

30 3. Upon execution of a long-term management and maintenance assignment agreement
31 and the transfer of the contents of the LTMM Endowment Fund, and upon satisfaction of the
32 remaining requirements for termination of the establishment period of the Bank under Article
33 IV.K. of this Instrument, the Sponsor shall be relieved of all further long-term management and
34 maintenance responsibilities under this Instrument.
35

36 **N. Accomplishment of Sponsorship Responsibilities; Transfer of Ownership of the Bank
37 Site.** The Sponsor shall remain responsible for complying with the provisions of this Instrument
38 throughout the operational life of the Bank, regardless of the ownership status of the underlying
39 real property, unless those responsibilities have been assigned pursuant to the provisions of
40 Article VI.C. of this Instrument. The Sponsor shall provide written notice at least 60 days in
41 advance of any transfer of ownership of all or a portion of the Bank real property or rights to
42 another party, by any owners of real property comprising the Bank site, or their successors or
43 assigns.
44
45
46
47

1 **V. RESPONSIBILITIES OF THE CORPS AND ECOLOGY**

2
3 **A.** The Corps and Ecology agree to provide appropriate oversight in carrying out provisions of
4 this Instrument.

5
6 **B.** The Corps and Ecology agree to review and provide comments on project plans, monitoring
7 reports, contingency and remediation proposals, and similar submittals from the Sponsor in a
8 timely manner. As Co-Chairs, the Corps and Ecology will coordinate their review with the other
9 members of the IRT.

10
11 **C.** The Corps and Ecology agree to review requests to modify the terms of this Instrument,
12 determine achievement of performance standards in order to evaluate the award of Bank credits
13 for the Bank, or approve the Long-Term Management and Maintenance Plan. The Corps and
14 Ecology will coordinate the review with the IRT so that a decision is rendered, or comments
15 detailing deficiencies are provided, in a timely manner. The Corps and Ecology agree to not
16 unreasonably withhold or delay decisions on such requests.

17
18 **D.** The Corps and Ecology agree to act in good faith when rendering decisions about
19 acceptability of financial assurances, requiring corrective or remedial actions, requiring long-
20 term management and maintenance actions, awarding Bank credits. The Corps and Ecology will
21 exercise good judgment in accessing financial assurances and will utilize those monies only to
22 the extent they reasonably and in good faith conclude that such remedial or corrective actions are
23 an effective and efficient expenditure of resources. In implementing the process delineated in
24 Article III.C.1 of this Instrument, the Corps and Ecology will act in good faith in determining the
25 scope and nature of corrective actions to be undertaken; shall act in good faith in conducting
26 monitoring, developing reports, and assessing compliance with performance standards; and will
27 not unreasonably limit corrective action activities or otherwise apply their discretion so as to
28 unduly prejudice the Sponsor as to the timing or number of Bank credits awarded. Corps and
29 Ecology approval of the identity of any assignee responsible for executing the Long-Term
30 Management and Maintenance Plan, and approval of the terms of any long-term management
31 and maintenance assignment agreement, will not be unreasonably withheld.

32
33 **E.** The Corps and Ecology will periodically inspect the Bank site as necessary, in consultation
34 with the IRT, to evaluate the achievement of performance standards, to assess the results of any
35 corrective measures taken, to monitor implementation of the Long-Term Management and
36 Maintenance Plan, and, in general, to verify the Sponsor's compliance with the provisions of this
37 Instrument.

38
39 **F.** Upon satisfaction of the requirements of Article IV.K. under this Instrument, the Corps and
40 Ecology will jointly issue a letter certifying, that the establishment period of the Bank has
41 terminated, and that the period of long-term management and maintenance has begun, in
42 consultation with the IRT. Upon satisfaction of the requirements of Article IV.L. of this
43 Instrument, the Corps and Ecology will jointly issue a letter certifying that the operational life of
44 the Bank has terminated.

VI. GENERAL PROVISIONS

A. Decision Making by Consensus. The Corps and Ecology will strive to achieve consensus among the IRT regarding issues that arise pertaining to the establishment, operation, maintenance, and management of the Bank. The Corps and Ecology will coordinate the review and oversight activities of the IRT so as to best facilitate opportunity to reach the desired consensus. Review and oversight decisions will take into account the views of the Sponsor to the maximum extent practicable. Where consensus cannot otherwise be reached within a reasonable timeframe, following full consideration of the comments of the IRT and following consultation with the Sponsor, the Corps holds the responsibility and authority under Section 404 of the Clean Water Act, and Ecology holds independent responsibility and authority under Section 401 of the Clean Water Act and ch. 90.84 RCW, to make final decisions regarding the application of the terms of this Instrument.

B. Entry into Effect, Modification or Amendment, and Termination of the Instrument.

1. This Instrument, consisting of both this Basic Agreement and the Appendices, will enter into effect upon the signature by authorized representatives of each of the Corps, Ecology, the City of Vancouver fulfilling their role as the “local jurisdiction” acting pursuant to RCW 90.84.040, and the Sponsor, as of the date of the last of these signatures.

2. This Basic Agreement portion of the Instrument may be amended or modified only with the written approval of the Sponsor, the Program Manager for Shorelands and Environmental Assistance on behalf of Ecology, and the Seattle District Engineer on behalf of the Corps, or their designees. Any such modifications or amendments will take effect following consultation with the IRT. Amendment or modification of the provisions of the Appendices may be effectuated through an exchange of letters signed by the Sponsor, the Mitigation Program Manager serving as Co-Chair on behalf of the Corps, and the Wetland Section Manager serving as Co-Chair on behalf of Ecology, following consultation with the IRT, provided the exchange of letters expresses mutual agreement as to the exact language to be deleted or modified, and the exact language to be inserted.

3. This Instrument may be terminated by the mutual agreement of the Sponsor, Corps, and Ecology, following consultation with the IRT, or may be terminated under the terms of Article IV.J. of this Instrument in the case of default by the Sponsor. In the event any termination action is commenced, the Sponsor agrees to fulfill its pre-existing obligations to perform all establishment, monitoring, maintenance, management, and remediation responsibilities that arise directly from Bank credits that have already been awarded, sold, used, or transferred at the time of termination.

4. Upon termination of the operational life of the Bank pursuant to Article IV.L., and certification to that effect pursuant to Article V.F., this Instrument shall terminate without further action by any Party. Thereafter, the Long-Term Management and Maintenance Plan developed, approved, and instituted in accordance with Article IV.M. shall govern the continuing obligations of the Sponsor, or its assignee as applicable.

1 **C. Assignment of Obligations under this Instrument.** The Sponsor may be permitted to
2 assign its obligations, responsibilities, and entitlements under this Instrument to a third party.
3 The Corps and Ecology, following consultation with the IRT, must approve the identity of the
4 assignee in order for any assignment to effectively relieve the Sponsor of those obligations. In
5 evaluating a prospective assignee, the Corps and Ecology may consider characteristics such as
6 environmental mitigation expertise, wetlands mitigation project or analogous experience, and
7 financial strength and stability. Approval of the identity of the assignee will not be unreasonably
8 withheld. The assignee must execute a mitigation banking instrument with the Corps and
9 Ecology under terms identical, to the extent practicable, to the present Instrument. The
10 applicable financial assurances established pursuant to Articles III.C.1. and III.C.2. of this
11 Instrument must be initiated. The obligations, responsibilities, and entitlements under this
12 Instrument may reside in only a single entity at any one time, and may not be severed or
13 transferred piecemeal. However, the physical ownership of the Bank site real property and the
14 obligations, responsibilities, and entitlements under this Instrument are separate and distinct;
15 thus, ownership may be transferred pursuant to the provisions of Article IV.N., independently of
16 assignment of this Instrument. Once assignment of this Instrument has been properly
17 accomplished, the Sponsor will be relieved of all its obligations and responsibilities under this
18 Instrument. Specific additional provisions pertaining to the assignment of long-term
19 management and maintenance obligations are described at Article IV.M.
20

21 **D. Specific Language of this Basic Agreement Shall Be Controlling.** To the extent that
22 specific provisions of this Basic Agreement portion of the Instrument are inconsistent with any
23 terms and conditions contained in the Appendices, or inconsistent with other documents that are
24 incorporated into this Instrument by reference and that are not legally binding, the specific
25 language within this Basic Agreement shall be controlling.
26

27 **E. Notice.** Any notice required or permitted hereunder shall be deemed to have been given
28 either (i) when delivered by hand, or (ii) three (3) days following the date deposited in the United
29 States mail, postage prepaid, by registered or certified mail, return receipt requested, or (iii)
30 when sent by Federal Express or similar next-day nationwide delivery system, addressed as
31 follows (or addressed in such other manner as the party being notified shall have requested by
32 written notice to the other party):
33

34 **Rotschy, Inc.**

35 9210 NE 62nd Ave
36 Vancouver, WA 98665
37 360-334-3100
38

39 **U.S. Army Corps of Engineers, Seattle District**

40 Mitigation Banking Specialist/Co-chair of the IRT
41 Regulatory Branch
42 Seattle District, Corps of Engineers
43 4735 E. Marginal Way South
44 P.O. Box 3755
45 Seattle, WA 98124-3755
46 206-764-3495

1
2 **Washington State Department of Ecology**

3 Mitigation Banking Specialist/ Co-chair of the IRT
4 Shorelands and Environmental Assistance Program
5 P.O. Box 47600
6 300 Desmond Drive
7 Olympia, WA 98504-7600
8 360-407-6000
9

10 **F. Entire Agreement.** This Instrument, consisting of both this Basic Agreement and the
11 Appendices, constitutes the entire agreement between the Parties concerning the subject matter
12 hereof.
13

14 **G. Invalid Provisions.** In the event any one or more of the provisions contained in this
15 Instrument are held to be invalid, illegal, or unenforceable in any respect, such invalidity,
16 illegality, or unenforceability will not affect any other provisions hereof, and this Instrument shall
17 be construed as if such invalid, illegal, or unenforceable provision had not been contained herein.
18

19 **H. Effect of Agreement.**

20 1. This Instrument does not in any manner affect statutory authorities and responsibilities
21 of the signatory Parties. This Instrument is not intended, nor may it be relied upon, to create any
22 rights in third parties enforceable in litigation with the United States or the State of Washington.
23 This Instrument does not authorize, nor shall it be construed to permit, the establishment of any
24 lien, encumbrance, or other claim with respect to the Bank site, with the sole exception of the
25 right on the part of the Corps and Ecology to require the Sponsor to implement the provisions of
26 this Instrument, including recording the conservation easement, required as a condition of
27 approval of the crediting plan reflected in this Instrument and the issuance of any permits for
28 discharges of dredged and fill material into waters of the United States associated with
29 construction and operation and maintenance of the Bank.
30

31 2. Corps approval of this Instrument constitutes regulatory approval required for Terrace
32 Mitigation Bank to be used to provide compensatory mitigation for Department of Army permits
33 pursuant to 33 C.F.R. 332.8(a)(1). This Instrument is not a contract between the Sponsor or
34 property owner and the Corps or any other agency of the Federal government. Any dispute
35 under this Instrument will not give rise to any claim by the Sponsor or property owner for
36 monetary damages. This provision is controlling notwithstanding any other provision or
37 statement in the Instrument to the contrary.
38

39 **I. Attorneys' Fees.** If any action at law or equity, including any action for declaratory relief,
40 is brought to enforce or interpret the provisions of this Instrument, each party to the litigation
41 shall bear its own attorneys' fees and costs of litigation.
42

43 **J. Availability of Funds.** Implementation of this Instrument is subject to the requirements of
44 the Anti-Deficiency Act, 32 U.S.C. § 1341, and the availability of appropriated funds. Nothing
45 in this Instrument may be construed to require the obligation, appropriation, or expenditure of
46 any money from the United States Treasury, in advance of an appropriation for that purpose.

1
2 **K. Headings and Captions.** Any paragraph heading or caption contained in this Instrument
3 shall be for convenience of reference only and shall not affect the construction or interpretation
4 of any provision of this Instrument.

5
6 **L. Counterparts.** This Instrument may be executed by the Parties in any combination, in one
7 or more counterparts, all of which together shall constitute one and the same instrument.

8
9 **M. Binding.** This Instrument, consisting of both this Basic Agreement and the Appendices,
10 shall be immediately, automatically, and irrevocably binding upon the Sponsor and its heirs,
11 successors, assigns and legal representatives upon execution by the Corps, Ecology, the City of
12 Vancouver fulfilling its role as the “local jurisdiction” acting pursuant to RCW 90.84.040, and
13 the Sponsor.

14

1 IN WITNESS WHEREOF, the Parties hereto have executed this Instrument on the date herein
2 below last written.

3

4 **PARTIES**

5 By the Sponsor:

6

7

8 _____
9 Cornell Rotschy
10 Vice President, Rotschy, Inc.

_____ Date

11

12 By the Corps:

13

14

15 _____
16 John G. Buck
17 Colonel, Corps of Engineers
18 Seattle District Engineer

_____ Date

19

20 By Ecology:

21

22

23 _____
24 Gordon White
25 Program Manager, Shorelands and Environmental Assistance Program
26 Washington State Department of Ecology

_____ Date

27

28 **OTHER IRT MEMBERS:**

29 Signature by other IRT members indicates assent on the part of the represented organization to
30 the provisions of the Instrument, but does not give rise to any affirmative obligations, express or
31 implied. This Instrument is not binding on the other IRT members.

32

33

34

35 _____
36 Eric Holmes
37 City Manager
38 City of Vancouver

_____ Date

39

40

41 _____
XXXX
Environmental Protection Agency
Region 10

_____ Date

TERRACE MITIGATION BANK

Appendices to the Mitigation Banking Instrument

Rotschy, Inc.
9210 NE 62nd Avenue
Vancouver, Washington 98665

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APPENDIX A GENERAL BANK INFORMATION

A.1. Business Purpose and Ecological Goals of the Bank

The purpose of the Bank is to generate mitigation credits for projects that will have an adverse impact on the aquatic environment, and that need to compensate for those impacts as a condition of their permits or other regulatory requirements resulting from project impacts.

The primary ecological goals of the Terrace Mitigation Bank are as follows:

- Re-establishing hydrology through the disabling of the drain tiles throughout the site;
- Establishing a native historic forested, scrub-shrub, and emergent wetland plant community in re-established and rehabilitated wetland areas;
- Establishing a native upland scrub-shrub plant community in the upland buffer area within the BPA easement;
- Reshaping of incised stream banks to reconnect the stream to its floodplain and existing wetlands;
- Enhancement of the riparian area along Burnt Bridge Creek by removing invasive species and planting native trees and shrubs to increase shading and lower water temperatures, and provide improved habitat structure and diversity;
- Removing an existing culvert crossing at the west property boundary to improve stream flow, and;
- Removing existing invasive species and preventing the establishment of invasive species throughout the Bank site.

Relevant documentation supporting the technical information in these appendices is included in a separate Resource Folder. The Resource Folder is not considered part of the MBI but is prepared by the Sponsor and provided to all IRT members to serve as a reference document. The Resource Folder includes the wetland delineation report, wetland function assessment results, vegetation survey, water table monitoring, basis of design report and other technical information that was used to establish baseline conditions at the Bank and support the design for the site.

A.2. Bank Location and Legal Description

The Bank is located within the northwest quarter of Section 13 and the northeast quarter of Section 14, in Township 2 North, Range 2 East of the Willamette Meridian. The situs address of the Bank is 5721 NE 152nd Avenue, Vancouver, Washington (**Figure A-1, Vicinity Map**). The site encompasses approximately 113.04 acres and is comprised of Clark County tax parcel numbers 159331-000, 162111-000, and 162114-000 (**Figure A-2, Site Survey**). The written legal description and corresponding exhibit sketch of the Bank site is provided in Exhibit A at

the end of Appendix A. Clark County maps the Bank site in the Salmon Creek Subbasin within the Water Resource Inventory Area (WRIA) #28 (Salmon/Washougal). The Bank is located at the southern end of 152nd Avenue, south of State Route 500. This portion of 152nd Avenue is a gravel road, which bisects the property from north to south, and terminates near the south Bank boundary. The site is bordered by residential development and an Oregon White Oak Mitigation Bank (Oak Bank) to the north, residential development to the south, agricultural land to the east, and wetlands and wetland mitigation areas to the west.

All real property to be included within the Bank site area (Clark County tax parcels 159331-000, 162111-000, and 162114-000), as more completely described in the legal description attached as Exhibit A to this Instrument, are under a purchase and sales agreement by Rotschy, Inc. The properties have been pledged for use in the Bank in a manner consistent with this Instrument. The adjacent Oak Bank is also under the same purchase and sales agreement by Rotschy, but is not within in the proposed Bank boundaries.

A 15-foot wide waterline easement runs north to south within the footprint of the gravel road (an extension of NE 152nd Avenue) through the middle of the site, until it reaches the BPA easement, where it shifts to the west and runs adjacent to the road. A 300-foot Bonneville Power Administration (BPA) easement, two stormwater facilities, and several other utility easements (storm sewer and sanitary sewer) are located in the southern portion of the site (**Figure A-3a, Existing Conditions**). Bank use within the BPA easement is subject to a *Land Use Agreement*, which was signed and made effective on November 19, 2015. The overall Bank property size is approximately 113.04 acres, which consists of the habitat types and easement areas listed in Table A-1 and **Figure A-3a**.

The inclusion of the aforementioned property in the Bank and the granting of conservation easement restricting future land uses for the benefit of the Bank shall not convey or establish any property interest on the part of any Party to this Instrument, nor convey or establish any interest in Bank credits. The Instrument does not authorize, nor shall it be construed to permit, the establishment of any lien, encumbrance, or other claim with respect to the property, with the sole exception of the right on the part of the Corps and Ecology, in consultation with the IRT, to require the Sponsor to implement elements of this Instrument, including recording the conservation easement, in exchange for Corps and Ecology approval of this Instrument and the program of development and use of mitigation credits delineated herein.

Table A-1: Existing Conditions Bank Habitats and Easement Areas

	Area inside BPA (acres)	Area outside BPA easement(acres)	Total
Wetland	0.10	4.02	4.12
Upland	20.70	85.69	106.39
Stream	--	2.53	2.53
Total	20.80	92.24	113.04
Existing Easements within Bank			
Existing Easements within Bank	Area inside BPA (acres) ¹	Easements outside BPA Area (acres)	
Wetland	0.10		
Upland	13.21		
Stormwater Facilities	5.63	--	
20' Storm Sewer Easement	0.67	--	
20' Sanitary Sewer Easement	1.10	--	
15' Water Line Easement	0.11	0.66	

¹ Acreages of individual Features/Areas within the Bank site may include acreage of overlap with other easements or features, and therefore totals of individual acreages listed may exceed the overall Bank acreage total of 113.04 acres.

A.3. Site Description and Baseline Conditions

A.3.1 Site Description

The Bank site is located within the Orchards Peat Area, an area classified as a historic peat marsh. According to Rigg (1958), the Orchards Peat Area was considered a peat resource of Washington that encompassed 440 acres, and extends approximately 1.5 miles to the west, and 1.5 miles east to end at Lacamas Creek. Around the late 1800s, portions of marsh were extensively drained, ditched, and tiled to facilitate agricultural crop production because of the productive, organic soils. Burnt Bridge Creek's origin and its current flow path downstream of the Bank are a direct result of the construction of this historic drainage system. As evidenced on historical General Land Office (GLO) survey maps from the 1860s (GLO 1860), prior to the creek channelization for conversion to agriculture in the late 1800s, this area contained large swaths of marshland/swampland (wetlands) with no defined stream channels. Farming for commodity crops has occurred on the Bank site since the 1940s, with the primary crop being mint. Prior to the proposal of the site as mitigation bank, the property had been referred to as the "Mint Farm," based on its long history of use for the production and processing of mint as a commodity crop. The use of the site for farming of a mint crop was discontinued in the late 1990s, and replaced with farming of other commodity crops, such as corn. The agricultural fields are currently fallow, with the last agricultural corn crop harvested in 2014.

Recent topographic maps indicate that most of the area historically used as farm fields is nearly level with elevations ranging between 198 and 200 feet above mean sea level. The Bank site increases in elevation to the north (elevations of 200 to 202 feet) and to the south (elevations of 200 to 204 feet) within the Bonneville Power Administration (BPA) easement area (**Figure A-4, Site Topography**). A vacant single-family residence and outbuildings that were historically used for agricultural equipment/maintenance in various states of disrepair are northeast of the Bank site's north boundary. These structures were associated with the historic operation of the

Bank site as a mint farm, and with the exception of a 40- by 60-foot pole building, are proposed for demolition within the adjacent Oak Bank.

The site includes approximately 2,750 linear feet of Burnt Bridge Creek, which originates at the east property boundary and flows east to west across the proposed Bank site. Burnt Bridge Creek is classified by the Washington State Department of Natural Resources (WDNR) as a Type Np (non-fish bearing, perennial, greater than 5-foot diameter) stream (2015c). However, additional mapping lists both coho and winter steelhead as presumed present, while also listing a fish passage blockage downstream on the Bank (Salmonscape 2016). Differences in assessment of fish presence between stream typing and fish presence/stream blockage mapping have resulted in the requirement of an in-water work window of July 1 to October 31 for the section of the stream within the Bank by the Washington Department of Fish and Wildlife, to address any potential fish presence.

The Bank is surrounded by light industrial, office commercial, and residential zoned land, with a mix of existing uses (**Figure A-3c, Adjacent Land Uses – Existing Conditions**). The west boundary of the Bank (north of Burnt Bridge Creek) is adjacent to a recently constructed mitigation site, and existing wetlands currently proposed for mitigation for project impacts from the Bircher Vancouver Business Park (Corps Permit NWS2015-000226). This proposed business/commercial development will be located northwest of the Bank site. A Clark County stormwater treatment facility, sanitary sewer line easement, and stormwater easement are located adjacent to the west Bank Boundary and south of Burnt Bridge Creek.

To the north, the Bank is bordered by vacant land that is proposed for future commercial development and an area proposed for an Oregon White Oak Mitigation Bank. The proposed 14.80-acre Oak Bank is adjacent to the majority of the Bank's northern boundary. Of the 14.80 acres, approximately 10 acres consists of deciduous and coniferous forest, 8 acres of which is categorized as Oregon white oak woodland, which is considered a Priority Habitat by the Washington Department of Fish and Wildlife (WDFW 2015). The oak woodland includes approximately 277 oak trees and 167 Douglas-fir, with a mix of native and non-native understory. The area had historically been used to support the Bank site's agricultural crops, and includes several large agricultural buildings, paved parking areas, and a single-family residence. Activities proposed for the Oak Bank area include impervious surface (including agricultural buildings and residential structures) and debris removal, oak habitat creation, Douglas-fir stand release, invasive species removal, and enhancement of the existing oak woodland. The area that will constitute the Oregon White Oak Mitigation Bank (used for local permit requirements) will be subject to a conservation easement and serve predominantly as the northern buffer (100 feet of the Oak Bank) for the Terrace Mitigation Bank.

The east boundary of the Bank is adjacent to light industrial zoned land that is currently being used for agricultural purposes, and consists of vacant farmed fields. Single-family residential development extends along the entire southern Bank boundary, and the southern portion of the Bank adjacent to this residential development is encompassed by a 300-foot wide BPA easement (**Figure A-3c**).

Ecological Land Services Inc. (ELS) prepared a wetland delineation report for the Bank site (ELS 2015a), and delineated eighteen palustrine depressional wetlands totaling 4.12 acres within

the interior of the Bank site (**Figure A-3a**). Additional information regarding the hydrology of the site was provided through ground water table monitoring including piezometer measurements recorded from ten locations throughout the site from April 21 to May 29, 2014, and from January 20 to May 21, 2015. Both the 2014 and 2015 monitoring data and ground water table monitoring data from a Prior Converted Cropland (PCC) evaluation done by JD White in 1995, were included in the Basis of Design Report (ELS 2015b). All reports are provided in the Resource Folder.

A.3.2 Baseline Conditions

Wetlands and Streams

The primary onsite water feature is Burnt Bridge Creek, a jurisdictional Water of the United States. The site includes approximately 2,750 linear feet of Burnt Bridge Creek, which originates at the east property boundary and flows east to west across the proposed Bank site. Burnt Bridge Creek is classified by the Department of Natural Resources (2015c) as a Type Np (non-fish bearing, perennial, greater than 5-foot diameter) stream. Lateral ditches along portions of the east and west property lines feed into the creek. Four to six-inch diameter drain tile are present along intervals ranging from 60 to 150 feet along the stream, at depths ranging from 2 to 5-feet (JD White 1995). These drain tiles effectively drain both surface and subsurface hydrology, discharging to the stream. The eighteen wetlands onsite, identified as Wetlands A through R, are located primarily south of the creek. Wetlands A through N are classified and regulated as Category IV, depressional wetlands, and Wetlands O through R are Category III, depressional wetlands (Table A-2) according to the *Washington State Wetland Rating System for Western Washington, 2014 Update* (Hruby 2014) (**Figure A-3a**).

Table A-2. Summary of Wetlands Onsite

Wetland Name	Area (Acres onsite)	Cowardin Classification/HGM ¹	State/Local Classification	Habitat Score in the Rating Form
A	0.05	Emergent, depressional/saturated & seasonally ponded	IV	4
B	0.04	Emergent, depressional/saturated & seasonally ponded	IV	4
C	0.33	Emergent, depressional/saturated & seasonally ponded	IV	4
D	0.02	Emergent, depressional/saturated & seasonally ponded	IV	4
E	0.02	Emergent, depressional/saturated & seasonally ponded	IV	4
F	0.06	Emergent, depressional/saturated & seasonally ponded	IV	4
		Emergent,		

Wetland Name	Area (Acres onsite)	Cowardin Classification/HGM ¹	State/Local Classification	Habitat Score in the Rating Form
G	0.12	depressional/saturated & seasonally ponded Emergent,	IV	4
H	0.34	depressional/saturated & seasonally ponded Emergent,	IV	4
I	0.03	depressional/saturated & seasonally ponded Emergent,	IV	4
J	0.23	depressional/saturated & seasonally ponded Emergent,	IV	4
K	0.38	depressional/saturated & seasonally ponded Emergent,	IV	4
L	0.04	depressional/saturated & seasonally ponded Emergent,	IV	4
M	0.02	depressional/saturated & seasonally ponded Emergent,	IV	4
N	1.57	depressional/saturated & seasonally ponded Emergent,	IV	4
O	0.18	depressional/saturated & seasonally ponded Emergent,	III	5
P	0.19	depressional/saturated & seasonally ponded Emergent,	III	5
Q	0.31	depressional/saturated & seasonally ponded Emergent,	III	5
R	0.19	depressional/saturated & seasonally ponded Emergent,	III	5
Total Wetland Area (Acres)	4.12			

¹Cowardin *et al.* 1979

Hydrology

Based on both historic and current water table monitoring measurements, it appears the extensive drain tile system causes the water table to fluctuate from 2 feet below ground surface, to at or slightly above the ground surface in the spring, with the highest water table being located in the northwest, southwest, and southeast areas of the site according to the *Basis of Design Report for the Terrace Mitigation Bank* (ELS 2015b). These drain tiles effectively drain both surface and subsurface hydrology, discharging to the stream. Two stormwater detention and treatment ponds are located at the southern boundary of the property, which receive stormwater inputs from the

adjacent subdivision. No evidence of stormwater was observed in either facility during the multiple field site visits in spring of 2015, and historically there has not been visual evidence that the ponds overflow into the Bank site during major precipitation events. Burnt Bridge Creek flows westerly from the site, originating at the eastern boundary of the property. With regard to surface hydrology, the following conditions were observed during the delineation of ponded areas in spring 2015, from late March into mid and late April and were recorded in the *Wetland Delineation Report for the Terrace Mitigation Bank* (ELS 2015a):

- The soil had become compacted from agricultural equipment, and had formed a hard layer (tillage pan) which restricted water infiltration from the surface, resulting in areas of surface ponding. The primary soil type on the property, Semiahmoo muck, shallow variant, is described as very poorly drained, and susceptible to tillage pans or compaction (Soil Conservation Service 1972).
- It was observed that once soil surface begins to dry and crack, the ponded areas shrink rapidly in size, resulting from under-drainage by the tiles and the hydrology in the soil profile draining out rapidly from below. In areas where the soil had dried enough to have surface cracks, we observed the surrounding inundation flowing into the surface cracks and disappearing subsurface, without saturating the soil below the surface. In some areas where there was evidence of surface water ponding, the soil below was dry to as much as 18 inches below ground surface.
- The soil has very high shrink/swell capacity therefore dries quickly over the spring. In our observation, hydrology for the wetlands would likely not persist into the month of May. However, surface ponding can persist in some areas onsite for two weeks or longer (in March and April) which would allow these areas to meet wetland hydrology criteria. These areas were delineated as jurisdictional wetlands in 2015, based on physical observations of hydrology from late March into mid and late April 2015, and with average rainfall amounts occurring in these months (**Figure A-3a**).

The above conditions have also been observed historically on the property during numerous wetland delineations by ELS on the site dating back as far as 1999. During these delineations, observations of the drain tiles, soil texture, and hydrology of the overall site were documented and similarities existed to what is observed in present day. In a letter written to the U.S. Army Corps of Engineers (Corps) requesting the verification of wetland boundaries in July of 1999, ELS wrote “An observation made by us, consistent with the water table data collected by JD White, is that the water tables drop quickly, as much as 2 inches per day, as a result of the tile drainage. We also observed that the water appears to move downward through the soil along distinct “joints” separating the blocky-textured organic soil. This appears to explain why some test holes exhibited different water tables even though they were only a few feet apart. In several cases, even though the test hole was filled with water, the soil clods or blocky material taken from the hole was not saturated when pulled apart” (ELS 2015b).

Records of water table monitoring are available from 1995, 2009, 2014, and 2015 and are provided in the Resource Folder. In the Prior Converted Cropland (PCC) evaluation done by JD White in 1995, the majority of the site did meet PCC criteria (no evidence of flooding or ponding for 15 consecutive days or 10% of the growing season, whichever is less). Piezometer measurements were recorded from ten locations throughout the site from April 21 to May 29, 2014, and from January 20 to May 21, 2015. Based on both historic and current water table monitoring measurements, it appears that the water table fluctuates from 2 feet below ground

surface, to at or slightly above the ground surface in the spring, with the highest water table being located in the northwest, southwest, and southeast areas of the site (ELS 2015b).

As mentioned previously, a network of drain tiles runs throughout the site, keeping the groundwater deep enough for agricultural production. According to JD White (1995), historic records from the Soil Conservation Service indicate that tile drains are installed at spacings from 87 to 142 feet. The initial clay tiles were installed in the 1940s, with 4-inch plastic pipe drains installed in 1977. The average depth of the tile drains is 2 to 3 feet, but the pitch of drain increases as it gets closer to the creek, and these pipes may be as deep as 5 feet. JD White observed notches or excavations in the sides of the creek bed at both 50- and 100-foot spacings during their onsite investigations in 1995.

Soils

The U.S.D.A. Natural Resource Conservation Service (NRCS) *Clark County Soil Survey, Washington* (2015) maps soils within the Bank site as:

- Cove silty clay loam, 0 to 3 percent slopes (CvA)
- Semiahmoo muck, shallow variant (Su)
- Lauren very gravelly loam, 0 to 8 percent slopes (LIB)

Location of soil types within the Bank Site are shown on **Figure A-5, Soil Survey Map**. The State of Washington *Hydric Soils List for Washington* identifies Semiahmoo muck, and Cove silty clay loam as hydric soils (NRCS 2014). The dominant mapped soil type is Semiahmoo muck. The onsite hydric soils are gravelly loam dominated mineral soils around the perimeter and organic dominated muck in the interior (NRCS 2015). Detailed soil descriptions are included in the *Wetland Delineation Report for the Terrace Mitigation Bank* (ELS 2015a) in the Resource Folder.

Vegetation

The majority of the Bank site is regularly sprayed to eliminate weeds when fallow. The Bank site was sprayed for weeds and subsequently tilled in summer/fall of 2015. The site will be sprayed and then planted with a native seed mix in the spring of 2016, to further control invasive species. When test plot data was collected during the wetland delineation of the site in April in 2015, the dominant hydrophytic vegetation within the wetland areas onsite was recorded as annual bluegrass (*Poa annua*, FAC). In the upland areas surrounding the interior wetland areas, the dominant vegetation consists of annual ryegrass (*Lolium perenne*, FACU), fireweed (*Epilobium angustifolium*, NI), talus willowherb (*Epilobium ciliatum*, FACU), field chickweed (*Cerastium arvense*, FACU), field mustard (*Brassica campestris*, NI), and western marsh cudweed (*Gnaphalium palustre*, FACW). Along Burnt Bridge Creek, the dominant vegetation consists of reed canarygrass (*Phalaris arundinacea*, FACW), which extends along entire length of the stream bank within the Bank boundaries.

ELS conducted a botanical survey of existing plant species at the Bank site on June 25, 2015, which was provided in the *Basis of Design Report for the Terrace Mitigation Bank* (ELS 2015b). A total of 75 plant species were identified within the Bank site. No federal endangered, threatened, proposed, candidate, or species of concern were found onsite. Likewise, no state endangered, threatened, or sensitive species were identified (WDNR 2015a). Both the City of

Vancouver and Clark County follow the Washington Department of Natural Resources, Natural Heritage Program for its listing of rare plants (WDNR 2015b).

A.3.3 Cultural Resources

Applied Archaeological Research NW Inc. conducted an archaeological predetermination survey for the Bank site on behalf of the project in 2015. No prehistoric or historical artifacts were found during the course of the survey.

A.4. Functional Assessment

A.4.1 Existing Wetland Functional Assessment

Using the Washington Department of Ecology's *Washington State Wetland Rating System for Western Washington, Revised* (Hruby 2014) the Bank site wetlands were scored based on the rating of three functions: water quality, hydrologic and habitat, as indicated by the potential of the site to provide the function (site potential), the potential of the landscape to maintain the function at the site scale (landscape potential), and the value each function may have for society (rating of value) (ELS 2015a). A score based on the ratings of site potential, landscape potential, and value for each of the three functions was then calculated, with the scores potentially ranging from 3 (lowest rating) to 9 (highest rating). Wetland rating forms and figures were included in the *Wetland Delineation Report for the Terrace Mitigation Bank* (ELS 2015a) and copies are provided in the Resource Folder.

There are 4.12 acres of wetlands within the Bank site consisting of 3.25 acres of Category IV Depressional wetlands and 0.87 acres of Category III depressional wetlands. The depressional Category III and IV wetlands provide a medium level of water quality functions (6 points), a lower medium level of hydrologic functions (5 points), and lower medium (5 points) to moderately low level of habitat functions (4 to 5 points). Total wetland scores were 15 points (Category IV) for Wetlands A through N and 16 points (Category III) for Wetlands O through R.

Water Quality

The depressional wetlands within the Bank site have a medium level of site potential for water quality improvement. The wetland unit consists of depressions with a highly constricted permanently flowing outlet (drain tiles and stream), allowing some pollutants to be retained within the wetland unit, and persistent, ungrazed plant species cover over less than 1/10 of the wetland unit that can function to filter out pollutants. The wetland area that is seasonally ponded is greater than ¼ of the total area of the wetland. The wetland's landscape potential is also medium due to more than 10 percent of the surrounding area consisting of residential, commercial, and urban land use. The wetland unit has a medium level of water quality improvement that is valuable to society as it is in a subbasin where water quality is an issue in some types of aquatic resource (wetland unit is in the same sub-basin as Burnt Bridge Creek, which is on the 303d list). The resulting overall score for the wetland unit improving water quality functions is medium (6 points).

Hydrologic Functions

The depressional wetlands within the Bank site have a medium level of potential to reduce flooding and erosion, as the wetland unit consists of depressions with a highly constricted permanently flowing outlet (drain tiles and stream), provide less than 0.5 feet of flood storage

during wet periods, and the area of the contributing basin is 100 times the area of the wetland unit. These characteristics reduce flooding (depressions, flood storage) and peak flows (area of contributing basin). The wetlands have a medium level of landscape potential to support hydrologic functions at the site, due to more than 10 percent of the surrounding area consisting of residential, commercial, and urban land use, and more than 25 percent of the contributing basin of the wetland unit being covered with intensive human land uses. The wetlands have a medium level of hydrologic function that is valuable to society, as the wetlands capture surface water that would otherwise flow down gradient of the unit. The resulting overall score for the wetland improving hydrologic function is lower medium (5 points).

Habitat Functions

The analysis of habitat functions provided within the depressional wetlands yielded a low score for the site's potential for habitat, reflecting the low level of habitat interspersion, and a lack of special habitat features (large, downed woody debris, standing snags, and less than 25 percent cover of invasive plants). The potential for the landscape to support habitat is rated as medium, as within 1 kilometer (km) of the wetland unit there is 20 to 33 percent of accessible habitat that abuts the unit, there is 10 to 50 percent of undisturbed habitat within 1 kilometer (km) of the wetland unit. For the Category IV wetlands, over 50 percent of the area within 1 km of the unit is in high intensity land use, with the Category III wetlands having less than 50 percent of the area within 1 km of the unit in high intensity land use. For all wetlands, the wetland unit provides a low amount of habitat that is valuable to society, as the site does not provide habitat for species that is valued in laws, regulations, or policies within 330 feet of the wetlands. The resulting overall score for habitat functions is lower medium for Category III wetlands (5 points) and moderately low for Category IV wetlands (4 points).

A.5. Post-Construction Functional Assessment

A.5.1 Anticipated Functional Lift

The Bank site has been extensively farmed since the 1940s, drastically altering the hydrology through tiling, the soils from plowing, and the vegetation from agricultural production. Currently, the site lies barren and is intensively managed for weeds providing very limited ecological function. The wetlands evaluated within the overall wetland unit classified as depressional wetlands. A *Western Washington Wetland Rating System* (Hruby 2014) was completed for the Bank site based on the anticipated post-construction condition (20 years following final mitigation site work and plantings). The post-construction Bank site scored 9 for water quality functions, 7 for hydrologic functions, and 7 for habitat functions for a total score of 23 points. The post-construction wetland is rated as a Category I wetland (wetlands with scores ranging from 23-27 points) based on the anticipated functions (ELS 2015b). The proposed Bank design will significantly improve all aspects of ecological function over its current degraded state by re-establishing high quality Category I forested, scrub-shrub, and emergent depressional flow-through wetlands where there is currently only non-native grasses and weedy forbs.

A.5.2 Hydrology

Currently, groundwater, runoff, and flood water from Burnt Bridge Creek within the Bank site is quickly and effectively conveyed downstream through the extensive drain tile system. In addition, Burnt Bridge Creek floodplain is disconnected from the stream by a man-made berm along the length of its banks. The stream bank reshaping of the incised channel will remove this man-made berm or raised mound that has formed over years of periodic ditch dredging and deposition of spoils on the banks above the top of the stream. This mound has inadvertently kept higher stream flows from spreading out into the adjacent floodplain where flood waters would normally be stored. Reconnection of Burnt Bridge Creek to its floodplain will provide rehabilitation to the existing floodplain wetlands onsite, which will see an improvement in hydrological function by enabling the floodplain wetlands to assist in capturing and reducing peak flows and downstream erosion processes.

Removal and disabling of numerous drain tiles will allow water storage within the current fields to increase dramatically, returning the wetlands to their historic condition of high water holding capacity. By doing so, the soils will re-saturate and replenish flows to Burnt Bridge Creek throughout the year and in an on-going and sustainable fashion, rather than constant fluctuating flows caused by the artificial drain tiles. High stream flows will saturate adjacent floodplain soils, improving natural detention and reducing downstream impacts of high flood flows. Conversely, the saturated soils will meter flows back into Burnt Bridge Creek after flood events, allowing a natural hydrological cycle. This will supplement summer base flows within Burnt Bridge Creek, buffer peak flows during flood events, reduce offsite flooding, reduce erosion, provide temperature regulation within the Burnt Bridge Creek during the summer, and recharge groundwater.

By increasing groundwater levels at the Bank site through disabling drain tiles, it will have an effect of “mounding” the groundwater. This adds downward pressure on the groundwater as well as increased storage due to the highly absorbent peat soils. Therefore, it should not be assumed that a groundwater elevation increase at the Bank site only benefits Burnt Bridge Creek Watershed hydrologically. Once the tiles are disabled, the flow path of the shallower groundwater will not only be lateral to Burnt Bridge Creek but also vertical and downward to the larger aquifer within the Upper Troutdale Formation (that bisects and discharges to both Burnt Bridge Creek and Lacamas Watersheds), thus providing hydrological improvements to areas well outside of the Bank boundary. The resulting overall score for the wetland unit improving hydrologic functions is moderately high (7 points), which reflects a 2 point increase over baseline conditions.

A.5.3 Water Quality

Water quality functions will be significantly improved over current conditions by replacing the existing disturbed wetland vegetation with forested, scrub-shrub, and emergent persistent vegetation that can trap nutrients, sediments and pollutants, and the increased inundation resulting from disabling the drain tiles will increase the wetland’s ability to provide denitrification. Reconnection of the stream to its floodplain will also provide additional water quality improvement within the stream, by allowing floodwaters to disperse into the site and be filtered through wetland soils before returning to the stream. In addition, planting the site with

native forested, scrub/shrub and emergent vegetation will increase sediment trapping opportunities on the site which will also increase water quality functions.

Additionally, the Bank site itself directly contributes agricultural runoff high in sediment and herbicides. Establishment of the Bank will allow onsite agricultural practices to cease, eliminating the potential for chemical contaminants to enter the downstream watershed from the site. The resulting overall score for the wetland unit improving water quality functions is high (9 points), which reflects a 3 point increase over baseline conditions.

A.5.4 Wildlife Habitat

The majority of the Bank site currently contains limited habitat for wildlife. The wetlands onsite are low quality wetlands within managed agricultural fields. Within the Bank site, Burnt Bridge Creek consists of a ditched, incised channel with very little native riparian vegetation. The Bank is adjacent to Oregon White Oak Woodland Priority Habitat within the Oak Bank, however, the woodland area is currently disconnected from the Bank's existing wetlands by the historic and existing agricultural use of the majority of the Bank site.

The proposed site plan will provide diverse wetland habitat for a variety of large and small mammals, song birds, waterfowl, amphibians, and insects. The addition of trees and shrubs along the Burnt Bridge Creek will provide temperature regulation, cover, and leaf litter, important to the overall health of the stream system. Large woody material will be incorporated within the Bank site, in the form of horizontal logs and snags, and habitat features such as bird boxes and perch poles will provide additional areas for perching and nesting habitat for avian species. The improvements to the Burnt Bridge Creek corridor traversing the Bank site will increase functions such as food chain support, lower water temperatures, and improve base flow support. These improvements will be transported offsite and will potentially benefit Burnt Bridge Creek downstream areas that have been mapped as fish-bearing (within a half-mile downstream of the Bank site). In addition, the restored Bank site wetlands will be mutually beneficial to the wildlife corridors located both east and west of the Bank site, which encompass both wetlands and mapped Priority Habitat and Species areas (Figure A-3b, Wildlife Habitat Corridors). The resulting overall score for the wetland unit providing wildlife habitat functions is moderately high (7 points), which reflects a 2 to 3 point increase over baseline conditions.

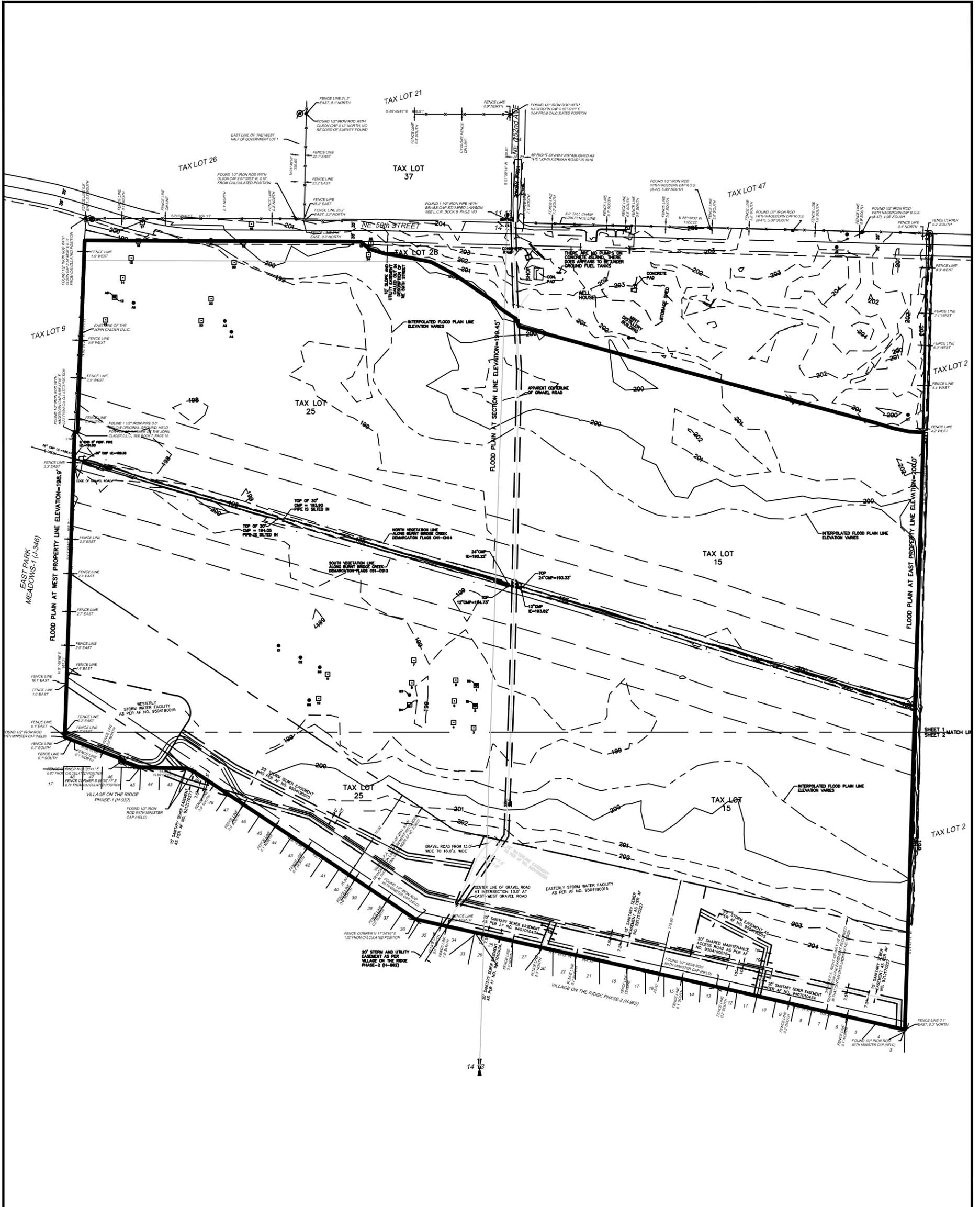
A.5.5 Summary

In summary, the Bank site will re-establish high quality wetlands and associated wildlife habitat where there is currently a mostly barren, drained agricultural field, providing for significant overall functional lift. Wetlands onsite are expected to be rated as Category I wetlands post-construction (20 years following final mitigation site work and plantings, in contrast to the majority of onsite wetlands which are currently considered Category IV wetlands. The overall functional lift (an increase of 7 to 8 wetland rating points) provided by the post-construction wetlands is reflected in the change (lift) in wetland rating score from the baseline conditions of the four existing Category III, and fourteen Category IV wetlands with the post-construction wetlands scoring 23 points (Category I wetland), and the existing wetlands scoring 15 or 16 total points (Category IV or Category III wetland).

The Bank site location within the landscape and overall design will provide a significant ecological benefit not only to the immediate, surrounding area, but throughout many portions of the watershed. The post-construction Bank site will consist of a forested, scrub-shrub, and emergent depression flow-through wetland system that contain the headwaters of a perennial stream. As a whole, the Bank site will provide a variety of water regimes, vegetation interspersions, and habitat features which will provide diverse habitat opportunities for wildlife. The re-established wetlands will also increase flood storage, improve water quality, help prevent downstream erosion, recharge groundwater to supplement low summer flows, and keep summer water temperatures cooler, similar to pre-agricultural conditions.

References

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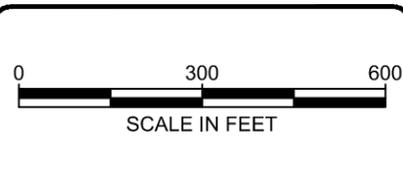
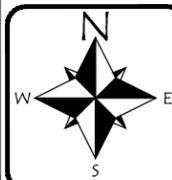
LEGEND:

Site Boundary/Bank Boundary (113.04 ac.)

**TOPOGRAPHIC SURVEY
FOR
TERRACE MITIGATION BANK**

NOTE(S):

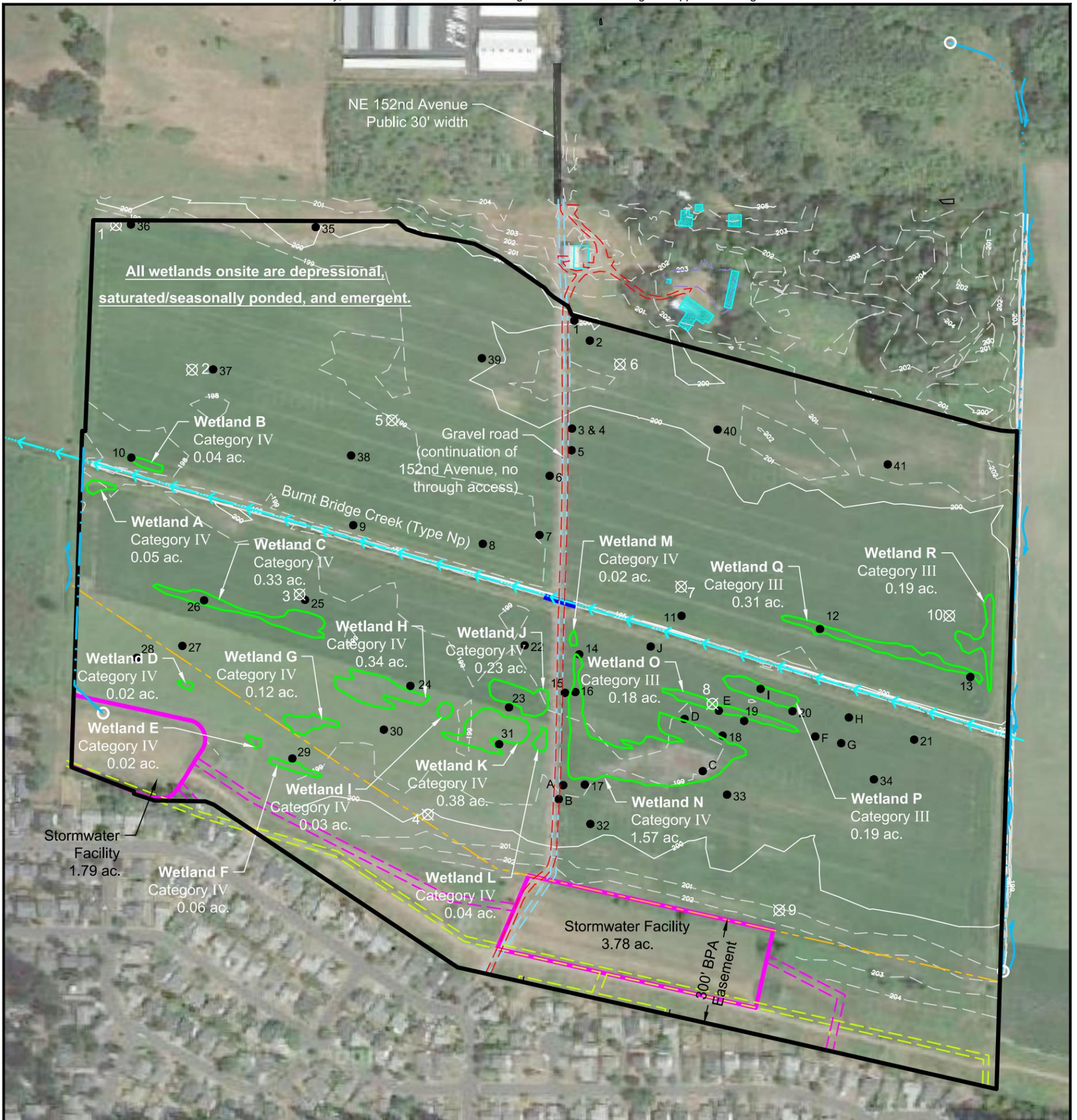
1. Base map from Minister - Glaeser.



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Figure A-2
SITE SURVEY
Terrace Wetland Mitigation Bank
Rotschy, Inc.
City of Vancouver, Clark County, Washington
Section 13 & 14, Township 2N, Range 2E, W.M.



LEGEND:

- Site Boundary/Bank Boundary (113.04 ac.)
- Stream
- Ditch
- Ditch Point of Origin
- Existing Wetland Boundary
- BPA Powerline Easement
- Existing Gravel Road (0.70 ac. onsite²)
- Existing Structure
- Culvert Location
- Test Plot Location
- Monitoring Well Location
- 20' Storm Sewer Easement
- 20' Sanitary Sewer Easement
- 15' Water Line Easement
- Stormwater Facility

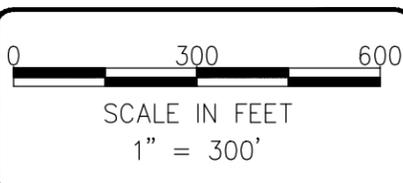
NOTE(S):

1. Aerial photograph (2012) provided by **Google Earth™**.
2. Existing gravel road acreage includes portions of the water line easement which overlay the alignment.

Table 1: Existing Conditions Bank Habitats and Easement Areas

	Area inside BPA (acres)	Area outside BPA easement(acres)	Total
Wetland	0.10	4.02	4.12
Upland	20.70	85.69	106.39
Stream	--	2.53	2.53
Total	20.80	92.24	113.04
Existing Easements within Bank			
Wetland	0.10		
Upland	13.21		
Stormwater Facilities	5.63	--	
20' Storm Sewer Easement	0.67	--	
20' Sanitary Sewer Easement	1.10	--	
15' Water Line Easement	0.11	0.66	

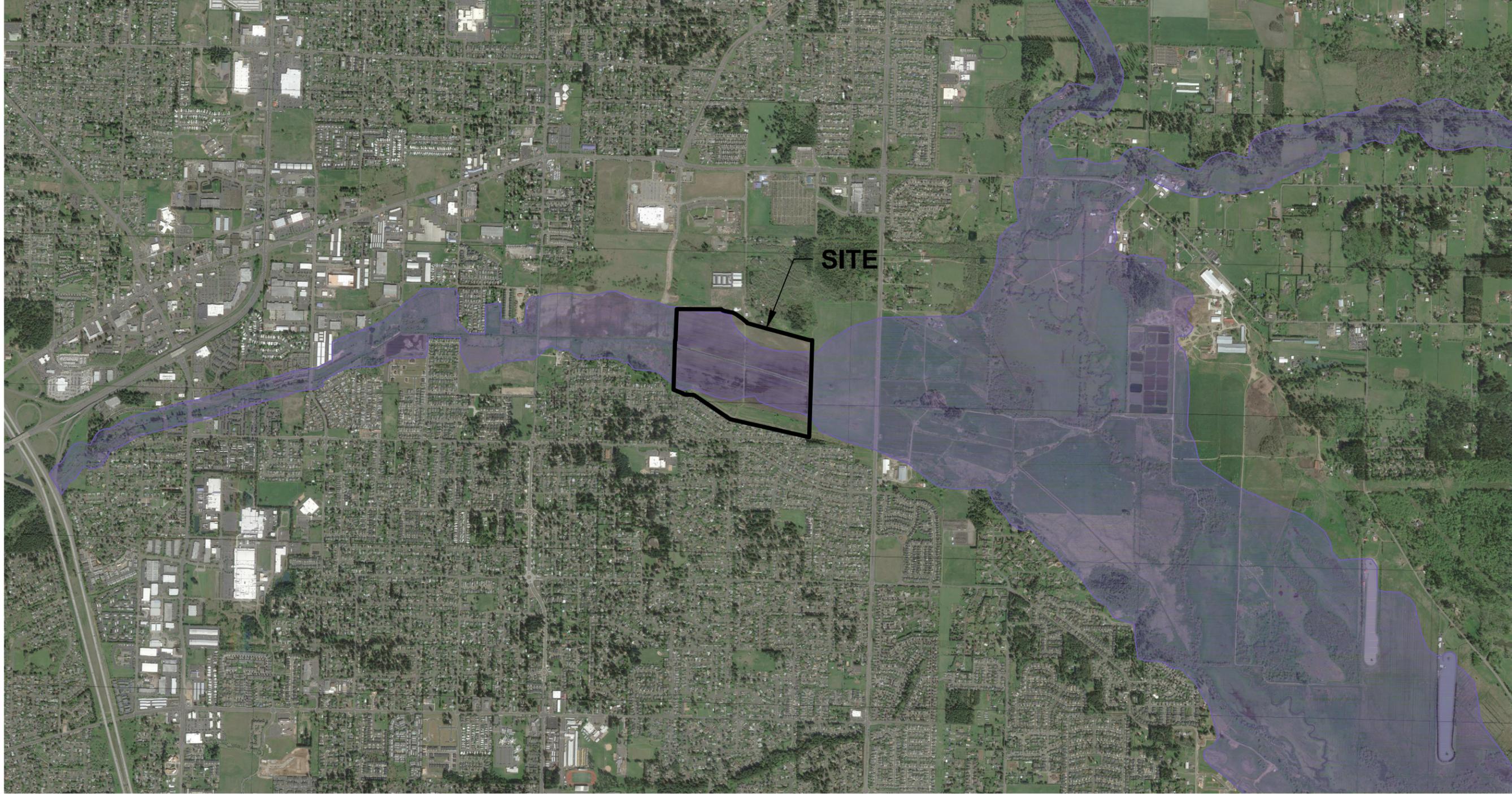
¹ Acreages of individual Features/Areas within the Bank site may include acreage of overlap with other easements or features, and therefore totals of individual acreages listed may exceed the overall Bank acreage total of 113.04 acres.



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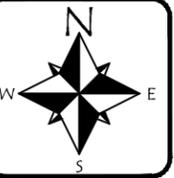
Figure A-3a
 EXISTING CONDITIONS
 Terrace Wetland Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 13 & 14, Township 2N, Range 2E, W.M.



LEGEND:

-  Bank Boundary
-  Wildlife Habitat Corridors (includes offsite wetlands and Priority Habitats and Species Areas)

NOTE: Location of wildlife habitat corridors based on /Clark County GIS Mapping (Wetland Presence and Priority Habitats and Species layers) and Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species Interactive Mapping, 2016.

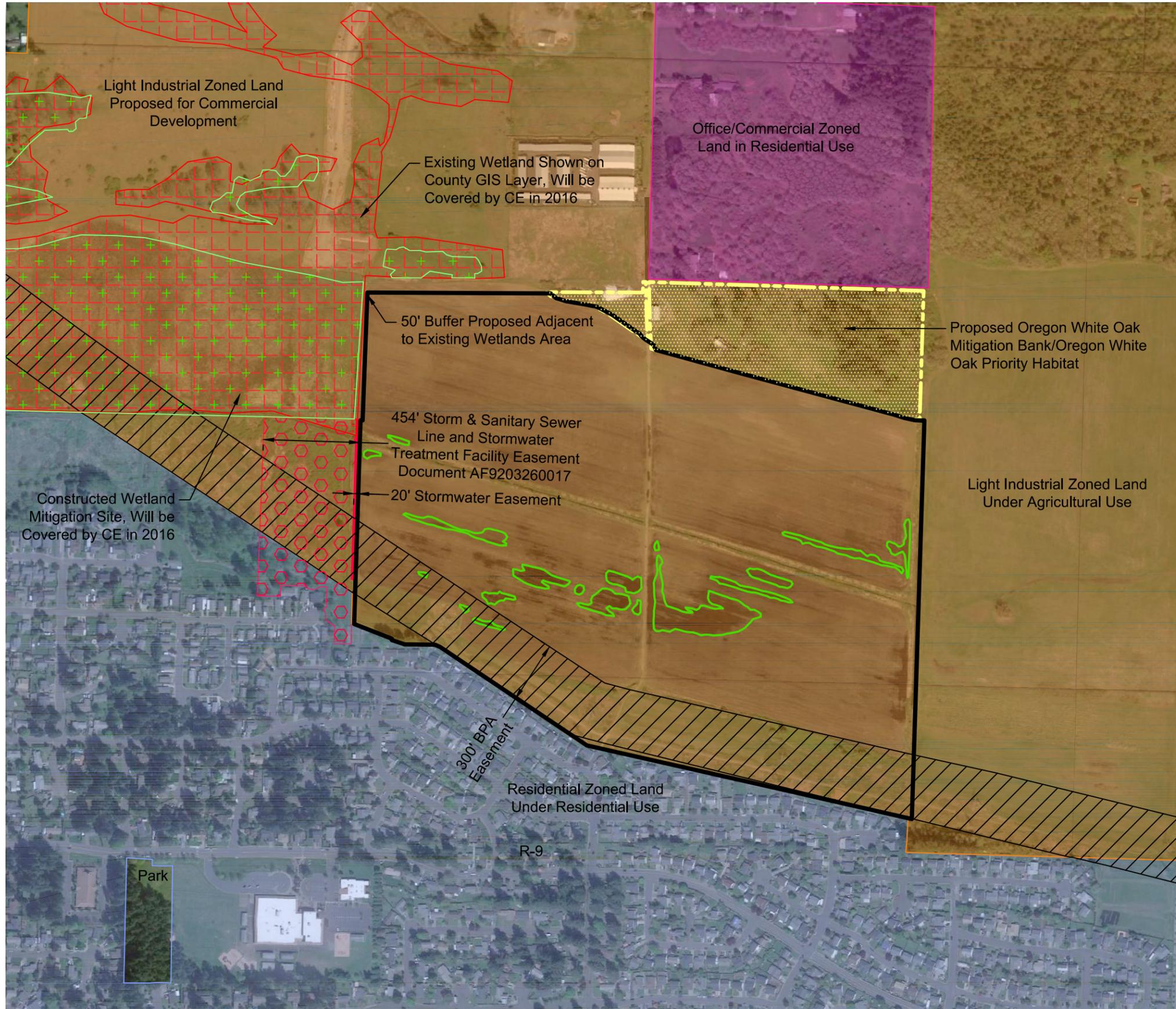


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Figure A-3b
WILDLIFE HABITAT CORRIDORS
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

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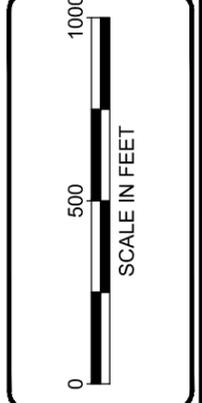
LEGEND:

-  Site Boundary/Bank Boundary
 -  Existing Onsite Wetland
 -  Proposed Oregon White Oak Mitigation Bank/Oregon White Oak Priority Habitat
 -  BPA Easement
 -  20' Stormwater Easement
 -  Storm & Sanitary Sewer Line and Stormwater Treatment Facility Easement
 -  Existing Wetland (Offsite)
 -  Existing Wetland Mitigation Site
- Clark County Zoning**
-  Light Industrial
 -  Office/Commercial
 -  R-9 (Residential District 7 - 9 units per acre)

Figure A-3c
ADJACENT LAND USES-EXISTING CONDITIONS
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

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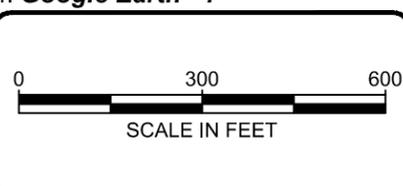





SITE TOPOGRAPHY FOR TERRACE MITIGATION BANK

NOTE(S):

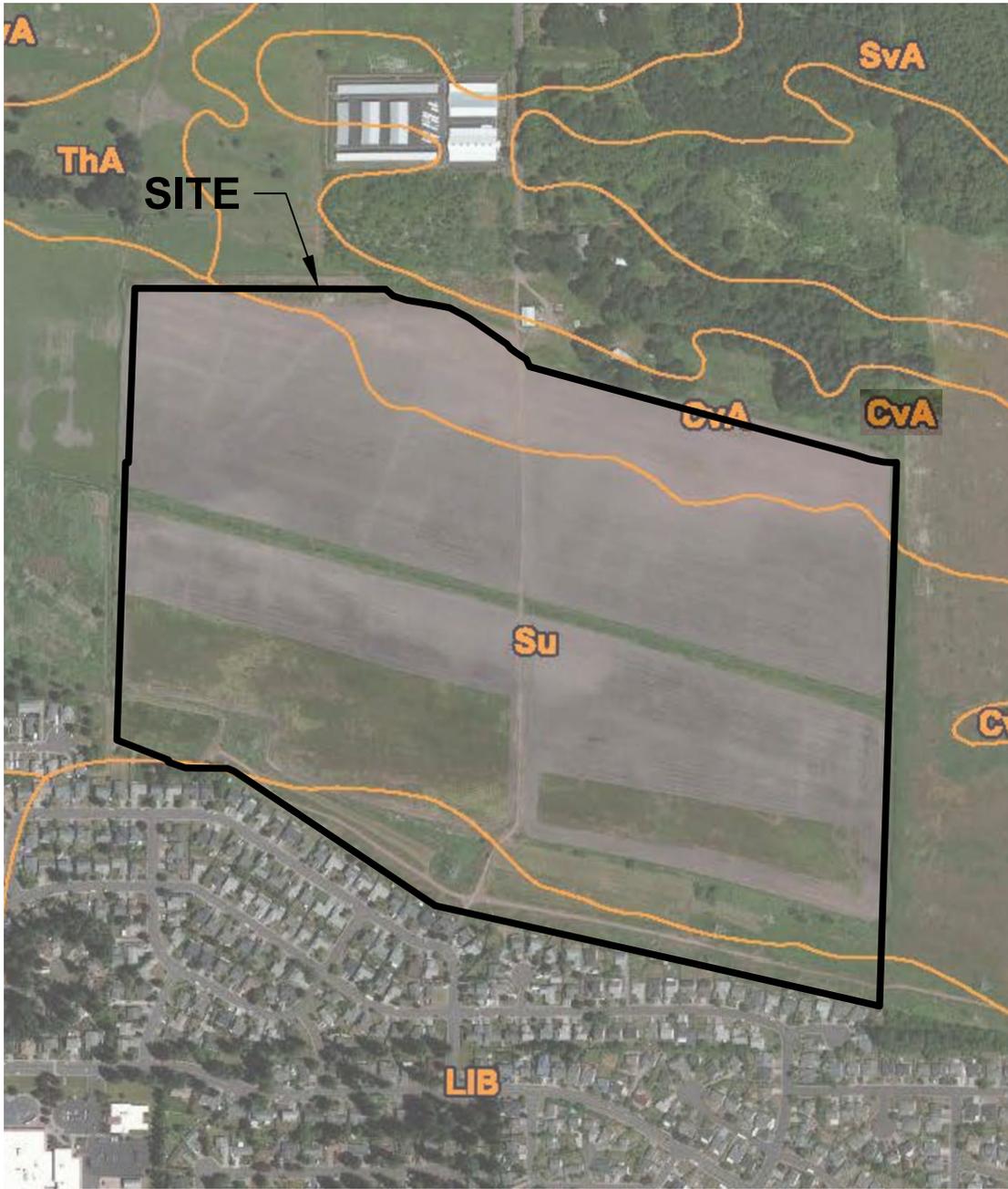
1. Topography from **Google Earth™**.
2. Aerial from **Google Earth™**.



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PRJ. MGR: KB
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PROJECT NO:
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Figure A-4
SITE TOPOGRAPHY
Terrace Wetland Mitigation Bank
Rotschy, Inc.
City of Vancouver, Clark County, Washington
Section 13 & 14, Township 2N, Range 2E, W.M.

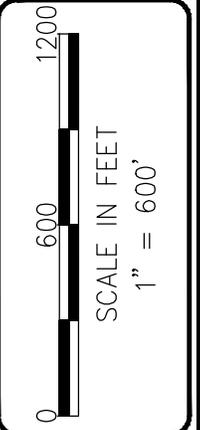
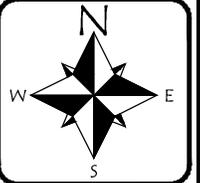


LEGEND:

- CvA** Cove silty clay loam, 0 to 3 percent slopes. Hydric.
- LIB** Lauren very gravelly loam, 0 to 8 percent slopes. Not hydric.
- Su** Semiahmoo muck, shallow variant. Hydric.
- SvA** Sifton gravelly loam, 0 to 3 percent slopes.

NOTE(S):

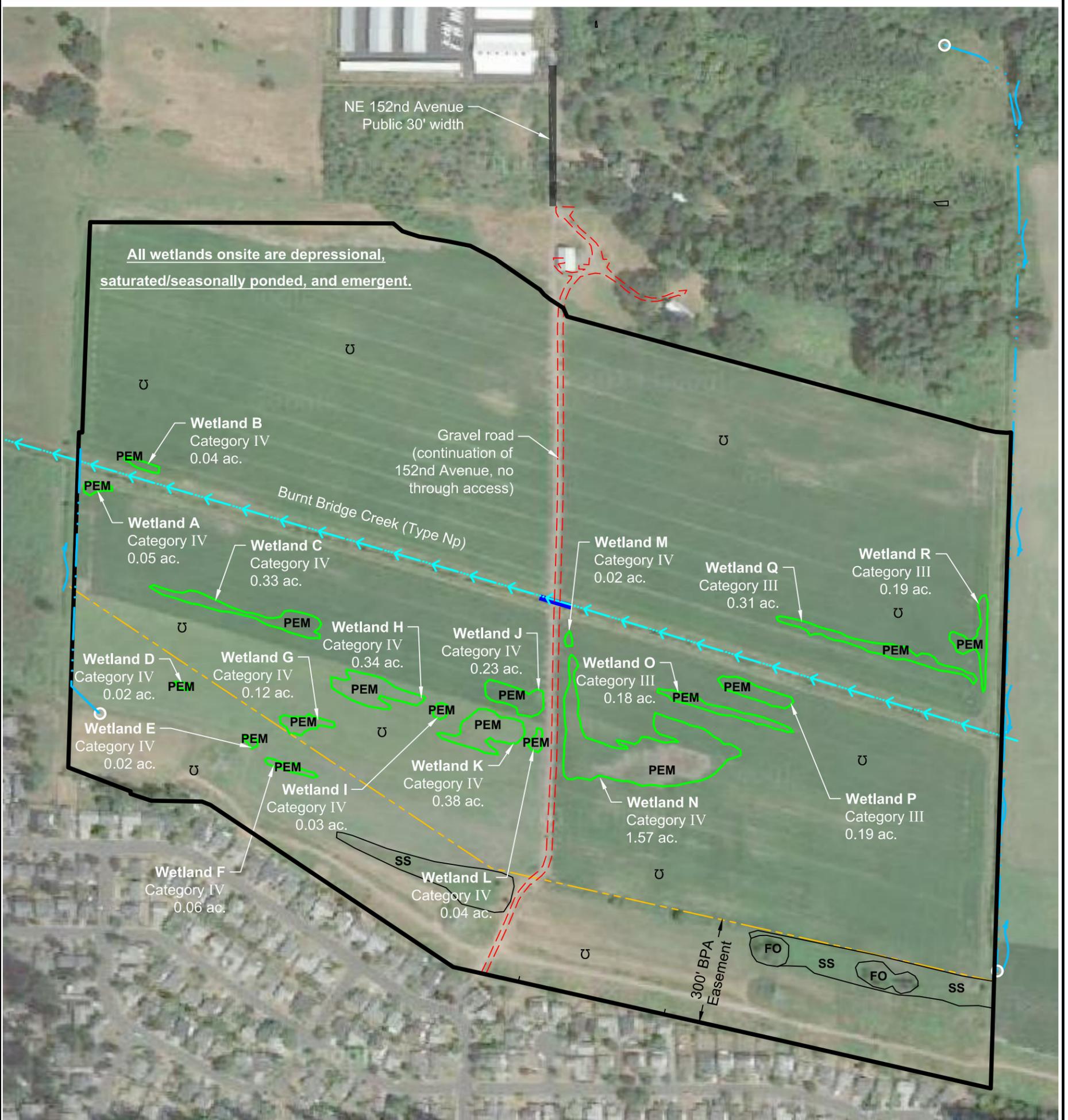
1. Map provided on-line by NRCS at web address:
<http://websoilsurvey.nrcs.usda.gov/app/>



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Figure A-5
SOIL SURVEY MAP
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

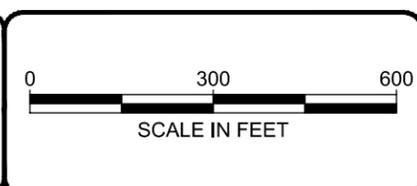


LEGEND:

- Site Boundary/Bank Boundary (113.04 ac.)
- Stream
- Existing Wetland Boundary
- Ditch
- Ditch Origin Point
- BPA Powerline Easement
- Existing Gravel Road (0.70 ac. onsite²)
- Culvert Location
- Cowardin Class Division
- PEM** Palustrine Emergent
- FO** Forested Upland
- SS** Scrub-shrub (Invasive) Upland
- U** Herbaceous Upland

NOTE(S):

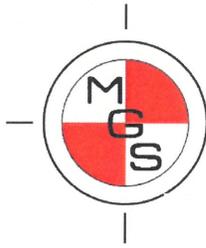
1. Aerial photograph (2012) provided by **Google Earth™**.



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Figure A-6
 COWARDIN MAP
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 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.



**MINISTER-GLAESER
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(509) 544-7802 (509) 544-7862 FAX*

April 8, 2016

EXHIBIT “A”

113.04 ACRE WETLAND MITIGATION SITE ON KUNZE FARMS TRACTS:

A parcel of land in a portion of Northwest quarter of Section 13 and Northeast quarter and Government Lot 1 of Section 14, Township 2 North, Range 2 East, Willamette Meridian, Clark County, Washington, described as follows:

COMMENCING at the Northeast corner of said Section 14;

Thence South $01^{\circ}52'20''$ West, along the East line of said Section 14, for a distance of 70.03 feet; to a line 70.00 feet South (when measured at right angles) of the North line of said Section 14;

Thence North $89^{\circ}45'49''$ West, along a line 70.00 feet South (when measured at right angles) of the North line of said Section 14, for a distance of 456.10 feet to the **TRUE POINT OF BEGINNING**;

Thence continuing North $89^{\circ}45'49''$ West, along a line 70.00 feet South (when measured at right angles) of the North line of said Section 14, for a distance of 863.44 feet to the East line of the John Calder Donation Land Claim;

Thence South $02^{\circ}08'27''$ West, along the East line of said Donation Land Claim, for a distance of 601.13 feet to the Southeast corner thereof;

Thence North $88^{\circ}15'12''$ West, along the South line of said Donation Land Claim, for a distance of 9.42 feet to the West line of the East half of the Northeast quarter of said Section 14;

Thence South $01^{\circ}49'48''$ West, along said West line, for a distance of 957.21 feet;

Thence South $68^{\circ}51'48''$ East, for a distance of 190.70 feet;

Thence South $01^{\circ}49'48''$ West, for a distance of 6.91 feet;

113.04 ACRE WETLAND MITIGATION SITE ON KUNZE FARMS TRACTS

Page 2

Thence South 71°30'45" East, for a distance of 61.72 feet;

Thence South 77°57'06" East, for a distance of 0.88 feet to the North line of the plat of "Village on the Ridge Phase 1" according to the plat thereof recorded in Book "H" of plat at Page 932, Records of Clark County Washington;

Thence South 89°02'27" East, along said North line, for a distance of 143.83 feet to the Northwest corner of Lot 49 of Village on the Ridge Phase 2" according to the plat thereof recorded in Book "H" of plat at Page 962, Records of Clark County Washington;

Thence South 68°18'43" East, along the North line of said Lot 49, for a distance of 25.77 feet to the Southerly line of a 300-foot Bonneville Power Administration Transmission Line Easement recorded under Auditors File Number E58820, Records of Clark County Washington;

Thence South 56°12'58" East, along said Southerly line, for a distance of 832.70 feet;

Thence South 77°19'33" East, continuing along said Southerly line, for a distance of 964.33 feet;

Thence South 77°07'37" East, continuing along said Southerly line, for a distance of 605.39 feet to the East line of the West half of the Northwest quarter of said Section 13;

Thence North 01°47'14" East, along said East line of the West half of the Northwest quarter, for a distance of 1874.28 feet;

Thence leaving said East line South 86°22'00" West, for a distance of 12.99 feet;

Thence North 86°15'05" West, for a distance of 31.78 feet;

Thence North 78°06'28" West, for a distance of 51.43 feet;

Thence North 72°39'28" West, for a distance of 55.89 feet;

Thence North 74°54'40" West, for a distance of 769.44 feet;

Thence North 74°43'48" West, for a distance of 387.24 feet;

113.04 ACRE WETLAND MITIGATION SITE ON KUNZE FARMS TRACTS

Page 3

Thence North 23°58'55" West, for a distance of 27.19 feet;

Thence North 57°07'54" West, for a distance of 45.08 feet;

Thence North 50°58'56" West, for a distance of 21.42 feet;

Thence North 39°26'50" West, for a distance of 18.77 feet;

Thence North 57°07'54" West, for a distance of 10.20 feet;

Thence North 55°20'48" West, for a distance of 146.58 feet;

Thence North 62°22'23" West, for a distance of 78.31 feet;

Thence North 78°41'57" West, for a distance of 63.17 feet;

Thence North 80°32'42" West, for a distance of 85.40 feet;

Thence North 72°29'16" West, for a distance of 49.36 feet;

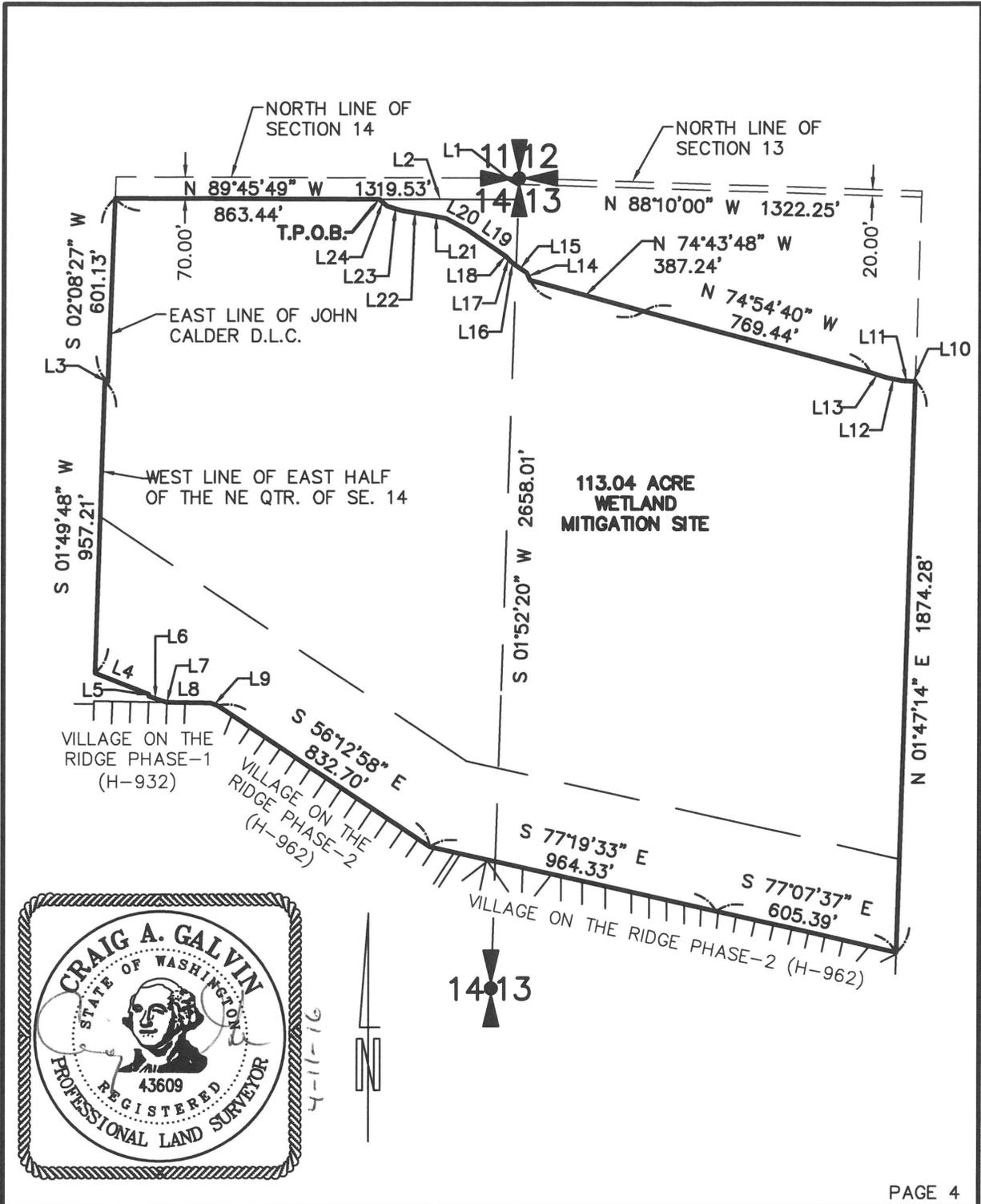
Thence North 49°30'19" West, for a distance of 34.68 feet to the **TRUE POINT OF BEGINNING.**

Containing 113.04 Acres.

Basis of Bearings - North 89°45'49" West for the North line of Section 14 as shown on Minister Survey recorded in Book 47, Page 124, Records of Clark County, Washington.

Together with and subject to easements, reservations, covenants and restrictions apparent or of record.





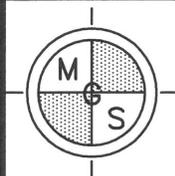
PREPARED BY:
MINISTER-GLAESER SURVEYING INC.
 2200 E. EVERGREEN BLVD.
 VANCOUVER, WA 98661
 (360) 694-3313

EXHIBIT "A"
WETLAND MITIGATION SITE
ON THE
KUNZE FARMS TRACTS

SCALE: 1"=500'
 JOB NO. 16-004
 DATE: 04-11-16
 DWG FILE: 16004L1
 DRAWN BY: CAG

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 01°52'20" W	70.03'
L2	N 89°45'49" W	456.10'
L3	N 88°15'12" W	9.42'
L4	S 68°51'48" E	190.70'
L5	S 01°49'48" W	6.91'
L6	S 71°30'45" E	61.72'
L7	S 77°57'06" E	0.88'
L8	S 89°02'27" E	143.83'
L9	S 68°18'43" E	25.77'
L10	S 86°22'00" W	12.99'
L11	N 86°15'05" W	31.78'
L12	N 78°06'28" W	51.43'

LINE TABLE		
LINE	BEARING	DISTANCE
L13	N 72°39'28" W	55.89'
L14	N 23°58'55" W	27.19'
L15	N 57°07'54" W	45.08'
L16	N 50°58'56" W	21.42'
L17	N 39°26'50" W	18.77'
L18	N 57°07'54" W	10.20'
L19	N 55°20'48" W	146.58'
L20	N 62°22'23" W	78.31'
L21	N 78°41'57" W	63.17'
L22	N 80°32'42" W	85.40'
L23	N 72°29'16" W	49.36'
L24	N 49°30'19" W	34.68'



PREPARED BY:
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EXHIBIT "A"
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APPENDIX B BANK DEVELOPMENT PLAN AND DESIGN

B.1 Development Plan – Overview

The general goal of the Bank is to restore and rehabilitate approximately 89.15 acres of self-sustaining, diverse forest, scrub-shrub, and emergent wetland habitat, encompassing as many pre-agricultural features as possible. The approximate 89.15-acre wetland area will be planted to create 43.24 acres of forested/scrub-shrub, 0.10 acres of scrub-shrub, and 45.81 acres of emergent wetland classes as defined by Cowardin (1979), with an additional 2.54 acres of open channel enhancement. The location of the plant communities was chosen according to the anticipated water regime based on topography, effectiveness for providing a multi-story buffer between the Bank site and adjacent land uses. Individual species were selected that are best suited for the corresponding growing environment (**Figure B-1, Bank Site Design**).

A non-credit generating buffer will extend along the interior perimeter of the Bank boundary, with the exception of the area along the northern Bank boundary adjacent to the Oregon White Oak Mitigation Bank (Oak Bank). In this area, the Oak Bank will function as an external buffer to the Bank, therefore no internal buffer will be required along the northern boundary of the bank where it is adjacent to the Oak Bank. The Oak Bank, will be protected in perpetuity through a conservation easement. .

Within the 20.80 acre BPA easement area, a 4.85 acre, 100 foot wide shrub buffer enhancement area will be planted and serve as a buffer to the Bank. Approximately 0.10 acres of existing wetland is located within the shrub buffer enhancement area, and is included in the 4.85 acres. Along the south boundary of the BPA easement and the south Bank boundary, a 0.41 acre Nootka rose hedgerow will be planted and serve as a buffer between the Bank boundary and the adjacent residential development. The remaining 15.54 acres within the BPA easement consists of 8.05 acres of existing vegetation (comprised of native and non-native grasses, forbs, and shrubs) and 7.49 acres of utility (stormwater, sanitary sewer, waterline, and stormwater facility) easements. The footprint of the gravel access road within the BPA easement is completely within multiple easement areas (sanitary sewer, stormwater facility, and waterline easements), so its acreage is reflected in the 7.49 acres of utility easements. Outside of the BPA easement area, the waterline easement and gravel access road (located within the same footprint) consists of 0.66 acres. Cowardin habitat acreage totals for each area are summarized in Table B-1 below and are further broken down into creditable and non-creditable acreages.

Table B-1. Proposed Plant Communities/Existing Bank Areas

Proposed Plant Communities /Existing Bank Areas	Credible Area (acres)	Area in Bank Buffer (acres)	Area in BPA Easement (acres)	Mitigation Bank Site Total (acres)
WETLAND/STREAM				
<i>Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS)</i>				
Re-establishment	20.04	5.86	--	25.90
Rehabilitation	0.10	0.11	--	0.21
<i>Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS)</i>				
Re-establishment	15.48	0.93	--	16.41
Rehabilitation	0.67	0.05	--	0.72
<i>Palustrine Emergent (PEM)</i>				
Re-establishment	42.53	0.19	--	42.72
Rehabilitation	3.09	0.00	--	3.09
<i>Open Stream Channel</i>				
Enhancement	2.39	0.14	--	2.53
EASEMENTS				
Shrub Buffer Enhancement (BPA easement) (SB)(includes PSS) ¹	--	--	4.85 ²	4.85
Nootka Rose Hedgerow (BPA easement) (NRH) ³	--	--	0.41	0.41
Existing Vegetation Community (BPA Easement Area)	--	--	8.05	8.05
Utilities Easements within BPA Easement Area ⁴			7.49	7.49
Existing Gravel Access Road and waterline easement ⁵	--	--	--	0.66
TOTALS	84.30	7.28	20.80	
Total Bank Site Area				113.04

¹ This area is located within the BPA easement and serves as the 100 foot buffer of the bank

² Includes 0.10 acres of existing wetland within the non-creditable BPA Easement Area.

³ This area is located within the BPA easement and is planted as a barrier between the bank boundary and existing subdivision.

⁴ BPA Easement includes individual storm sewer, sanitary sewer, water line, and storm facility easements, individual acreages are listed on Figure A3a - Existing Conditions in Appendix A

⁵ The existing access road and the water line easement are within the same footprint within the Bank area outside of the BPA easement

Because of the productive, organic soils, the historic wetlands were extensively drained, ditched, and tiled to facilitate agricultural crop production. Currently, the remaining wetlands on the site are found primarily south of Burnt Bridge Creek. The proposed Bank design would re-establish wetlands with as many features as possible to pre-agricultural historic conditions, given the current landscape and site conditions. As evidenced on historical GLO maps from the 1860s (General Land Office 1860), prior to the creek channelization for conversion to agriculture in the late 1800s, this area contained large swaths of emergent marshland/swampland (wetlands) with no defined stream channels. The highest elevations and the perimeter of the Bank site will develop into forested/scrub-shrub mosaic wetland, the area adjacent to Burnt Bridge Creek will develop into a forested/scrub-shrub riparian wetland, with the lowest elevations in the interior of

the site planted with emergent species. The inclusion of an emergent plant community reflects the historic plant community that would have been present prior to the conversion of the area to agriculture in the late 1800s. Remnants of this sedge dominated emergent community can still be evidenced in the existing soil profile.

The overall design of the mitigation bank was determined based on review of historic soil, hydrology, and vegetation information including studies by Rigg (1958), JD White (1995), a site history provided in the Soil Conservation Service *Soil Survey of Clark County's* soil survey descriptions (1972), historical GLO maps from the 1860s (General Land Office 1860), a wetland delineation report completed by Ecological Land Services, Inc. (ELS 2015), and a topographical survey completed by Minister Glaeser (2011).

Approximately 89.15 acres of wetlands will be re-established, rehabilitated, and enhanced. Of the 89.15 acres of wetland, 85.03 acres is being re-established, 4.02 acres rehabilitated, and 0.10 acres enhanced within the 113.04-acre Bank site. The wetlands onsite will exhibit multiple hydrologic regimes throughout the year from seasonally and occasionally flooded to seasonally saturated conditions. Burnt Bridge Creek, designated as a perennial, non-fish-bearing stream (Washington Department of Natural Resources 2015), will be located within the Bank site boundaries. The post-construction wetland rates as a Category I wetland under the 2014 *Western Washington Rating Form* scoring a 9 for water quality functions, 7 for hydrologic functions, and 7 for habitat functions, for a total score of 23 points.

Hydrology will be restored to the site by disrupting the existing tile system, requiring minimal ground disturbance (**Figure B-3, Drain Tile Cross Sections**). Locating the drain tiles for removal will be implemented by excavating trenches adjacent to Burnt Bridge Creek, running parallel to the creek and east-west across the entire Bank site. Once the drain tiles are located, they will be removed by excavation. Excavated areas will be backfilled and clay bentonite plugs will be installed in the remaining opening of each tile.

B.2 Site Construction

B.2.1 Stages of Construction

The construction of the project will consist of the initial grading work, which will include the excavation and disabling of drain tiles, removal of existing culvert crossing on Burnt Bridge Creek at the west Bank boundary, reshaping of the Burnt Bridge Creek stream bank, installation of habitat features, and seeding native grasses and emergent species throughout the site. Grading work will be followed by installation of the trees and shrubs in the forested and scrub-shrub habitat areas the following spring. This will allow post-construction site hydrology to be observed through fall/winter/spring before permanent planting of woody species, to ensure shrub and tree species are planted in the appropriate hydrologic regime.

B.2.1.1 Implementation Schedule

The following schedule will be implemented for the Bank site construction activities. Some activities may overlap or be performed concurrently with other activities:

- Mobilize and store all erosion control and soil stabilization products
- Install temporary construction entrances
- Install temporary stream bypass upstream of culvert removal area in Burnt Bridge Creek
- Remove culvert and crossing area at the west boundary of the Bank within Burnt Bridge Creek
- Remove temporary stream bypass
- Grade Burnt Bridge Creek stream banks
- Locate and break drain tiles adjacent to Burnt Bridge Creek and adjacent to BPA easement
- Install drain plugs and recompact drain tile removal areas
- Install non-perforated pipe within BPA easement
- Install habitat features
- Remove temporary construction access roads
- Seed and plant Bank site according to specifications

B.2.2 Site Preparation

B.2.2.1 Erosion Control

Erosion control measures will be installed prior to heavy equipment accessing the site. Construction access will be provided by 152nd Avenue which bisects the property, continuing as a gravel road which follows an existing water line easement, terminating at the south site boundary. The staging area will be located immediately offsite to the east of 152nd in the vicinity of an existing metal storage building. A temporary stream bypass will be constructed within the creek during culvert removal to prevent sedimentation within the stream. Minimal grading is necessary for the project, and will be limited to the reshaping of the bank slopes and the culvert removal. A temporary stream bypass will route the stream around the construction areas so sediment will not enter the water during culvert removal. All graded areas will be reseeded with a native seed mix following grading disturbance. Stream banks will also be mulched to prevent sedimentation in the stream during rain events prior to vegetation establishment. Because stream velocity is so low, no erosion control matting along the graded stream banks will be necessary. Any incidental fill in the stream channel will be removed prior to disabling the stream bypass. Seeded areas are expected to be fully established prior to water levels within the stream reaching graded areas, so no sedimentation or erosion is expected from stream flow.

B.2.3 Grading

Construction activities will consist of culvert removal, stream bank reshaping, and drain tile removal (**Figure B-2, Bank Site Grading Plan**). Grading activities will consist of removing a 36-inch culvert crossing and associated road fill within a 12- by 26-foot area within Burnt Bridge

Creek at the west property boundary, reshaping of approximately 2,700 linear feet of Burnt Bridge Creek stream bank, and locating and removing drain tiles within the Bank boundary, for a total of 2,847 cubic yards of material removed.

The 2,847 cubic yards of material removed will be disposed of immediately offsite within the Oak Bank upland areas. Excess material generated from bank reshaping will be contained in a single location within this upland area and soils containing reed canarygrass will be either treated with herbicide or solarization with fabric or plastic. Any additional material free of reed canarygrass will be used for additional compaction within tile removal areas.

B.2.3.1 Culvert Removal

The culvert crossing located on Burnt Bridge Creek at the west Bank boundary will be removed to improve stream flow and prevent the need for future maintenance (**Figure B-2 and Figure B-4, Stream Bank Cross Sections**). The culvert will be removed during the WDFW specified in-water work window, and if water is present a temporary sand bag dam or a temporary coffer dam will be installed within the creek to block flow, and a temporary stream bypass will route flow around the work area prior to removal. The stream bottom and side slopes will be graded to match adjacent creek elevations. Culvert removal will follow specifications detailed in the 2008 U.S. Army Corps of Engineers (Corps) *Programmatic Biological Assessment Restoration Actions in Washington State*.

B.2.3.2 Drain Tile Disruption

Area Adjacent to Burnt Bridge Creek

Information provided by JD White in 1995 indicates that there are at least two different types of subsurface drain tile systems installed in the farm fields, consisting of plastic drain pipe and clay drain tiles. The drain tiles are buried between 2 and 5 feet below ground surface (bgs). In most instances, removing the entire tile line is not necessary to disrupt drainage. If portions of the tiles are simply broken, removed, or plugged in place, they will no longer function. Locating the drain tiles for removal will be implemented by excavating a 3 feet wide by 5 feet deep trench approximately 15 feet from the top of the north and south banks of Burnt Bridge Creek, running parallel to the creek and east-west across the entire Bank site (**Figures B-2 and B-3**). Once the drain tiles are located, they will be removed by excavating a continuous trench with a trenching machine, excavator, or similar piece of equipment. Clay drain tiles will be removed in 50-foot sections, and plastic drain tiles will either be cut in a minimum of 50-foot sections and removed or attached to an excavator or backhoe and pulled until a large section is broken, and then removed. In all cases, at least 50-feet of tile will be removed within each individual tile line. Clay bentonite plugs will be installed in the remaining opening of each tile. Excavated areas will be backfilled and compacted to 80 percent of maximum density following tile removal.

Area Adjacent to BPA Easement

In order to ensure that the area within the Bonneville Power Administration (BPA) easement will not be subject to additional inundation/saturation from the tile disruption in the southern portion of the Bank site, a procedure will be employed to maintain current conditions under the BPA easement without negatively impacting the re-establishment of wetlands. This procedure was

also documented in the *Land Use Agreement* with the BPA which was executed on November 19, 2015. First, additional drain tiles will be removed within a 50 foot wide section immediately adjacent to the north BPA easement boundary and within the active Bank wetland re-establishment area. Location and removal procedures will be identical to what is described above in the area adjacent to Burnt Bridge Creek and shown on **Figure B-3**. Second, any remaining non-disabled tiles under the BPA easement will be connected to a plastic non-perforated pipe installed through the lowest portion of the BPA easement. This buried pipe, set at about 3 to 4 feet in depth, will be installed within the BPA easement, aligned east-west, then will turn due north at the west property line and discharge to Burnt Bridge Creek (**Figure B-1**). At that point it will discharge any water that the current drain tiles under the BPA easement are conveying, without impacting the proposed wetland re-establishment areas where tiles are being disabled/removed. Disabling the additional 50-foot section of drain tiles just north of the BPA easement will keep the existing tile sections under the BPA easement from draining the wetland re-establishment area north of the easement extending to the creek and restrict it to only maintaining the current hydrological conditions in the BPA easement area. Also, the non-perforated pipe will not serve to drain the soil, only convey water from the remnant tiles in the easement, in their current condition at the time of the pipe installation.

B.2.3.3 Burnt Bridge Creek Stream Bank Reshaping

Burnt Bridge Creek currently extends for approximately 2,700 linear feet through the middle of the Bank site and consists of a historically ditched and severely incised stream channel. The stream is disconnected from its floodplain by a man-made berm or raised mound that has formed over years of periodic ditch dredging and deposition of spoils on the banks above the top of the ditch. To increase stream bank stability and function, the stream bank will be graded by reshaping the banks and creating a 3-foot wide bench and a 4 to 1 slope to existing ground (**Figure B-4**). This stream bank reshaping will also remove the berm on either side of the stream bank, which will reconnect the stream to its floodplain, and assist in the rehabilitation of the onsite floodplain wetlands. The 2,847 cubic yards of material removed will be disposed of onsite within the Oak Bank offsite upland areas. Excess material generated from bank reshaping will be contained in a single location within the upland area and soils containing reed canarygrass will be either treated with herbicide or solarization with fabric or plastic. All graded areas will be reseeded with a native seed mix following grading disturbance. Stream banks will also be mulched to prevent sedimentation in the stream during rain events prior to vegetation establishment. Because stream velocity is so low, no erosion control matting along the graded stream banks will be necessary. Following reseeding, the reshaped area will be planted with willow cuttings which are a minimum of 1-inch in diameter, and planted on 4-foot centers, to deter regrowth of reed canarygrass, based on research done by King County Department of Natural Resources (2015).

B.2.4 Planting

B.2.4.1 Site Preparation

Site preparation has been on-going, with herbicide treatment of invasive species in spring 2015, and follow-up herbicide treatment and seeding of herbaceous species in spring 2016 to assist with native plant establishment and competition with invasive species (**Figure B-5, Plant List**).

B.2.4.2 Enhancement of Upland Buffer and Boundary Screening/Protection

In addition, enhancement of a 100-foot wide scrub-shrub buffer area within the northern portion of the BPA easement will be implemented to provide additional habitat, screening, and protection to the wetland re-establishment and rehabilitation areas within the Bank area north of the BPA easement. The shrub buffer area within the BPA easement includes 0.10 acres of emergent, depressional wetland, which will be enhanced as part of the planting of the shrub buffer area. This 100-foot wide area was allowed to serve as a buffer to the Bank by the IRT, based on the extremely low risk for disturbance from required maintenance by BPA, and the approval of the planting of the shrub buffer area that was granted as part of the BPA's *Land Use Agreement* with the Bank's property owner and Bank sponsor, executed on November 19, 2015 (provided in the Resource Folder). The stormwater facility which is located within the BPA easement area will not be planted, as the City of Vancouver prohibits any type of tree and shrub planting within an existing stormwater facility. This storm facility was installed by the City of Vancouver in the 1990s to provide treatment for the adjacent subdivision to the south. A 25-foot internal buffer from the north edge of this storm facility will be implemented to minimize future disturbance from periodic maintenance of the facility by City of Vancouver. (**Figure B-1**). A temporary orange construction fence, or something similar, and signs will be installed along the northern edge of the storm facility while plants are becoming established to help prevent mowing of young plants by stormwater pond maintenance crews (**Figure B-2**). An 8-foot wide Nootka rose (*Rosa nutkana*) hedgerow will be installed along the south Bank boundary to provide protection and screening from the adjacent residential subdivision. Additional site protection will include the installation of a locked chain-link gate at the south boundary to restrict access from the south (**Figure B-1**).

B.2.4.3 Planting of Wetland Areas (Palustrine Forested/Scrub-shrub Mosaic and Riparian)

Following grading and disruption of the drain tiles system, the re-established and rehabilitated wetlands within the Bank site will be planted to develop into a palustrine forested, scrub-shrub, and emergent wetland based on topographic elevation and anticipated water levels. Plant communities were developed according to the anticipated water regime and location within the Bank site and individual species were selected that are best suited for the corresponding growing environment. The project sponsors will plant the site with the species listed in Table 2 below and will follow up with phased, supplemental plantings based on which species are most successful. The final outcome for acreage of each habitat type will be determined by the success of individual species within the Bank site. The sponsors can be granted flexibility, by the Corps and Ecology, in consultation with the IRT, in the requirement to maintain specific acreages of

the different habitat types if natural processes cause the boundaries for specific stratum to change. These species will provide cover, forage, screening, and structure for all types of wildlife. Table B-2 below is a preliminary list of species to be planted at the site according to habitat class. Plant quantities by habitat type and acreage are listed in **Figure B-5, Plant List**.

Table B-2. Species List by Habitat Class.

Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS Mosaic)		
<i>Forest Stratum</i>		
Black cottonwood (FAC) <i>Populus balsamifera</i> ssp. <i>Trichocarpa</i>	Scouler willow (FAC) <i>Salix scouleriana</i>	Oregon ash (FACW) <i>Fraxinus latifolia</i>
Cascara (FAC) <i>Frangula purshiana</i>	Red alder (FAC) <i>Alnus rubra</i>	
<i>Shrub Stratum</i>		
Sitka willow (FACW) <i>Salix sitchensis</i>	Black hawthorn (FAC) <i>Crataegus douglasii</i>	Nootka rose (FAC) <i>Rosa nutkana</i>
Red osier dogwood (FACW) <i>Cornus sericea</i>	Pacific ninebark (FACW) <i>Physocarpus capitatus</i>	Black twinberry (FAC) <i>Lonicera involucrata</i>
Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS Riparian) (Includes Stream Bank Reshaping Area)		
<i>Forest Stratum</i>		
Pacific willow (FACW) <i>Salix lasiandra</i>	Scouler willow (FAC) <i>Salix scouleriana</i>	Oregon ash (FACW) <i>Fraxinus latifolia</i>
Red alder (FAC) <i>Alnus rubra</i>		
<i>Shrub Stratum</i>		
Sitka willow (FACW) <i>Salix sitchensis</i>	Cascara (FAC) <i>Frangula purshiana</i>	Nootka rose (FAC) <i>Rosa nutkana</i>
Pacific ninebark (FACW) <i>Physocarpus capitatus</i>	Red osier dogwood (FACW) <i>Cornus sericea</i>	
<i>Emergent Stratum</i> <i>Stream Bank Reshaping Area</i> (Used for erosion control purposes and competition with reed canarygrass)		
Meadow barley (FACW) <i>Hordeum brachyantherum</i>	Blue wildrye (FACU) <i>Elymus glaucus</i>	California Brome (NI) <i>Bromus carinatus</i>
	Short-awn foxtail (OBL) <i>Alopecurus aequalis</i>	

Palustrine Scrub-Shrub (PSS)

Shrub Stratum

Sitka willow (FACW) <i>Salix sitchensis</i>	Black hawthorn (FAC) <i>Crataegus douglasii</i>	Nootka rose (FAC) <i>Rosa nutkana</i>
Red osier dogwood (FACW) <i>Cornus sericea</i>	Pacific ninebark (FACW) <i>Physocarpus capitatus</i>	Black twinberry (FAC) <i>Lonicera involucrata</i>
Scouler willow (FAC) <i>Salix scouleriana</i>	Cascara (FAC) <i>Frangula purshiana</i>	

Shrub Buffer Enhancement (SS)

(Area within BPA easement)

Shrub Stratum

Common snowberry (FACU) <i>Symphoricarpus albus</i>	Nootka rose (FAC) <i>Rosa nutkana</i>	Tall Oregon grape (FACU) <i>Mahonia aquifolium</i>
Red osier dogwood (FACW) <i>Cornus sericea</i>	Pacific ninebark (FACW) <i>Physocarpus capitatus</i>	Black twinberry (FAC) <i>Lonicera involucrata</i>

Nootka Rose Hedgerow

Nootka rose (FAC)
Rosa nutkana

Palustrine Emergent (PEM)

Also under-planted in PFO/PSS Mosaic and PFO/PSS Riparian (outside of bank reshaping areas)

Emergent Stratum

Water foxtail (OBL) <i>Alopecurus geniculatus</i>	Dense sedge (OBL) <i>Carex densa</i>	Western mannagrass (OBL) <i>Glyceria occidentalis</i>
Small-fruited bulrush (OBL) <i>Scirpus microcarpus</i>	One-sided sedge (FACW) <i>Carex unilateralis</i>	Broadleaf water-plantain (OBL) <i>Alisma plantago-aquatica</i>
American slough grass (OBL) <i>Beckmannia syzigachne</i>	Soft-stem bulrush (OBL) <i>Scirpus tabernaemontani</i>	Creeping spikerush (OBL) <i>Eleocharis palustris</i>
Simple-stem bur-reed (OBL) <i>Sparganium emersum</i>	Rice cutgrass (OBL) <i>(Leersia oryzoides)</i>	Smallflower lupine (NI) <i>Lupinus polycarpus</i>
Blue-pod lupine (FAC) <i>Lupinus polyphyllus</i>	River-bank lupine (FAC) <i>Lupinus rivularis</i>	Fragrant popcorn-flower (FACW) <i>Plagiobothrys figuratus</i>
Common camas (FACU) <i>Camassia quamash</i>	Dense-flower willow herb (FACW) <i>Epilobium densiflorum</i>	Annual hair grass (FACW) <i>Deschampsia danthonioides</i>

Bareroot Specifications

1. Bareroot species will be grown by a native plant nursery.
2. Bareroot stock will be 2-0 stock or similar, depending on availability from grower.
3. The bareroot stock will have well-developed roots and sturdy stems, with an appropriate root-to-shoot ratio.
4. Bareroot stock will be kept cool and moist prior to being planted.
5. No damaged or desiccated roots or diseased plants will be accepted.
6. Unplanted bareroot stock will be properly stored at the end of each planting day to prevent drying out.

Willow Cutting Specifications

1. Cuttings will be purchased from a local native plant nursery or cut from local sources.
2. Cuttings will be a minimum of 3-feet long and greater than ¼-inch diameter. In the stream bank reshaping area, willows will be a minimum of 1-inch diameter.
3. Cuttings will be kept cool and moist prior to being planted.
4. Cutting stock should be installed within approximately 1 week of cutting.
5. Unplanted cutting stock will be properly stored at the end of each planting day to prevent desiccation.

Seeding

Seed mixes will either be broadcast or drilled in on site following final grading and construction. Rates of broadcast vary depending on seed size, seeding method and habitat type.

B.2.5 Habitat Structure Installation

A total of 34 habitat structures will be installed on the site after grading is finalized, but before the site has been seeded (Table B-3). Twenty habitat structures will be large woody material which includes snags and horizontal logs, with the other fourteen habitat structures consisting of nest boxes or perch poles (**Figures B-1 and B-6, Typical**s). Nest boxes will be installed on posts, snags or existing trees located at least 4 feet above the ground throughout the site at the time the site is planted. Snags will be installed with one-third of their overall length buried below ground surface. Horizontal logs will be placed throughout the site, and will not be anchored due to low risk of movement from shallow inundation and low stream/associated floodway velocities, and absence of a mapped floodway onsite. Large woody material will be obtained from offsite Oak Bank upland areas, from Douglas fir trees that have been removed in areas where they are encroaching on stands of Oregon white oak.

Table B-3. Proposed Habitat Features.

Type	Amount
Horizontal Logs	14
Snags	6
Total pieces	20
Standard Bird Nest Box	10
Perch Poles	4
Total Habitat Features	34

Large Woody Material Specifications

The following requirements will apply to horizontal, large woody material placement:

- Coniferous logs or rootwads.
- At least 12 inches diameter for at least 12 feet in length.
- Light to medium decay.
- Ends rough cut, mashed, or ripped.
- Lateral branches retained.

Snag Specifications

- Large coniferous logs at least 10-inches dbh.
- Hard to medium decay.
- Greater than 20-feet tall after installation, with as many lateral branches retained as is feasible.
- Above ground ends rough cut, mashed, or ripped if top has been cut off.

B.3 Bank Design Objectives

Because the Bank design objectives of re-establishment, rehabilitation, and enhancement differ throughout the site, the project design objectives are broken up by individual sections and described individually below.

B.3.1 Wetland Re-establishment Design Objectives

One of the main Bank design objectives is the re-establishment of 85.03 acres of wetland, through the disabling of drain tiles located throughout the site. It is presumed that disabling the tiles over the entire site, favoring wetland re-establishment in the area of 198 to 200 elevation with seasonal and occasional surface ponding, and in some areas perennial ponding, will also result in higher ground water elevations in slightly higher areas that have elevations of 200 to 202 feet. This is caused by three main effects: 1) "stacking of water" caused by saturation at the surface, or ponding, over the entire surface of the site; 2) the nearly level nature of the site with very little slope; and 3) the high organic content (peat) of the soil and its very high water holding capacity. We have correlated that, in association with review of the hydrology (ground water) monitoring wells, there is a tendency of the slightly higher elevations on the site to drain faster than the lower elevations. For example, in comparing water levels in monitoring wells at

different elevations, the differences in depths is simply a function of downward pressure on the water table caused by gravity and a hydraulic gradient resulting from the presence of drain tiles buried 2 to 5 feet below the ground surface. Once the tiles are disabled and the site returns to a natural drainage regime, the three main effects outlined above will result in the following anticipated hydrologic conditions:

- Elevations of 198 to 200 feet will be inundated seasonally or occasionally, some areas perennially or nearly so, to depths of 0.5 to 1.0 feet, controlled ultimately by the level of natural sheet flow to Burnt Bridge Creek.
- Elevations of 200 to 202 feet will be saturated seasonally, and occasionally inundated during storm events in some areas, but will retain sufficient soil saturation in the spring to meet wetland hydrology criterion and develop a wetland plant community.
- Areas next to Burnt Bridge Creek, ranging in elevation from 198 to 200 feet elevation, are expected to have a slightly different regime than other communities at this elevation, because the presence of the open channel will drain more rapidly those areas immediately adjacent to it, and the elevation of the stream bank is slightly higher due to excavated spoils that were periodically pulled from the channel during ditch maintenance. This area is anticipated to have occasionally inundated and saturated only water regimes.

Additionally, the Bank site design includes reconnection of the Burnt Bridge Creek floodplain to the stream through stream bank reshaping, which will remove a man-made berm or raised mound that has formed over years of periodic ditch dredging and deposition of spoils on the banks above the top of the stream bank. This mound has inadvertently kept higher stream flows from spreading out into the adjacent floodplain where flood waters would normally be stored. Reconnection of Burnt Bridge Creek to its floodplain will provide additional support for re-establishment of wetlands within the floodplain, and will provide an additional improvement in hydrological function by enabling the reestablished wetlands to store excess water during storm events.

Therefore, disabling of the drain tiles will result in 85.03 acres of additional wetland area through an increase in shallow ground water elevation and will extend soil surface inundation and saturation, thereby restoring hydrology to existing peat soils. This increase in wetland area is also supported by the reconnection of Burnt Bridge Creek's floodplain.

B.3.2 Wetland Rehabilitation and Enhancement Design Objectives

In addition to re-establishment, the proposed Bank design also includes a small amount of wetland rehabilitation, and proposes to rehabilitate the existing 4.02 acres of degraded wetland within the Bank site. Actions that are considered rehabilitation are based on their ability to provide functional lift in multiple categories of wetland function, whereas enhancement actions are those that provide functional lift to specific Cowardin vegetation communities. Additionally, this distinction between rehabilitation and enhancement is further defined in *Wetland Mitigation in Washington State – Part I, Version 1* (Ecology, et. al 2006) which states “In general, rehabilitation involves actions that are more sustainable and that reinstate *environmental processes*, at both the site and landscape scales (e.g. reinstating hydrologic processes in a floodplain by breaching dikes).” The guidance also states that “rehabilitation often involves

actions that substantially improve the hydrologic processes (i.e. previous patterns of water flow) that have been altered by human activities. Rehabilitation might involve breaking drain tiles and plugging ditches to stop the rapid removal of water from a degraded wetland and to restore wetland functions such as groundwater recharge.”

The Bank’s rehabilitation design objectives of floodplain reconnection and drain tile disabling both reinstate hydrologic processes through reconnection of stream hydrology to existing wetlands through overbank flooding, and disabling the extensive network of drain tiles located throughout the Bank, which are referred to as rehabilitation actions by the above referenced guidance. These specific actions as they pertain to the existing wetlands and the corresponding functional lift are described below. Those actions that are providing improvements within the vegetation communities without functional lift to other wetland functions, or those that are performed in primarily uplands, are described as below as enhancement actions.

Rehabilitation actions providing functional lift to existing wetlands:

- **Floodplain reconnection** - the Bank design incorporates functional lift for both water quality and water quantity functions through the overbank flooding provided by reconnection of Burnt Bridge Creek’s floodplain to the wetlands through the removal of the berm adjacent to the stream (**Figure B-4**). This action will increase the potential to improve water quality functions by capturing and retaining more nutrients, sediments, and pollutants. Water quantity (hydrological) functions will be improved by capturing and reducing peak flows and downstream erosion processes.
- **Disabling of drain tiles** – improvements in both water quality and hydrology functions will occur from the disabling of existing drain tiles, which currently convey water to the stream and limit levels of impoundment within the existing wetlands. Water quality functions are improved through the increased inundation resulting from disabling the drain tiles which increase the wetland’s ability to provide denitrification. Further water quality function improvement will result from the installation of forested, scrub-shrub, and emergent persistent vegetation that can trap nutrients, sediments, and pollutants following tile disruption. Hydrological processes and function will also be improved once the drain tiles are disabled, as water will be impounded for a much longer duration than current conditions, and ground water storage will be increased, improving the site’s hydrologic function.

Enhancement actions providing functional lift to existing vegetation communities:

- **Open stream channel enhancement** – the Burnt Bridge Creek open stream channel will experience an increase in functional lift through the diversification of vegetation communities provided by the enhancement of the stream banks with the installation of three separate Cowardin classes of vegetation, and replacing the existing monoculture of invasive reed canarygrass that extends along the length of the channel within the Bank boundaries. The diversification is augmented by the stream bank reshaping that will occur prior to plant installation, which will reshape the incised channel to a more natural stream bank profile and remove the majority of the invasive species. In addition to providing diversification, stream water temperatures can be lowered by riparian

shading provided by the establishment of a diverse vegetative community of trees and shrubs, and these lower temperatures can contribute to improvements immediately downstream of the Bank site. A wide range of studies have shown that wooded riparian zones can reduce stream temperatures, particularly in terms of maximum temperatures. Because stream temperature is known to affect fish, amphibian, and invertebrate life history, the lowered stream temperatures resulting from riparian shading are likely to have a biological significance for the stream biotic community (Bowler et al. 2012). The anticipated change in stream channel temperature will be monitored by measuring stream temperatures with dataloggers at the locations where Burnt Bridge Creek flows on to and off of the Bank site (Details listed in Appendix C).

- **Shrub buffer enhancement** – additional vegetation diversity will be provided by the enhancement of a 100-foot wide shrub buffer area within the northern portion of the BPA easement. This area includes 0.10 acres of existing wetland, which will be enhanced as Palustrine Scrub-Shrub habitat. Installation of native shrubs will be implemented to provide additional habitat, screening, and protection to the re-established and rehabilitated wetlands.

B.4 Maintenance

General maintenance will be performed throughout the year to address conditions that may limit the success of the Bank and attain the performance standards and objectives described in Appendix C. Anticipated maintenance activities fall into two main categories and include, but are not limited to, vegetative maintenance and general maintenance. Vegetative maintenance includes such activities as watering, replanting failed plants to meet performance standards, repairing any areas subject to erosion, controlling invasive plants, mowing, and deterring herbivores such as voles, beaver, and deer. Spraying weeds at the base of trees and shrubs to discourage voles and root competition may occur for up to two years following planting and must be performed by a licensed applicator. General maintenance activities include: re-installing signs, maintaining nest boxes, and removing garbage. Watering will occur using the onsite fire hydrant, which is allowed by the City of Vancouver through the purchase of a hydrant water meter. All maintenance activities will be documented in monitoring reports.

B.4.1 Invasive Species Control

Weed control will occur as needed throughout the growing season and will target reed canarygrass (*Phalaris arundinacea*), Himalayan blackberry, any invasive knotweed, and any non-native invasive species that attempt to colonize the site. Japanese knotweed (*Polygonum cuspidatum*), English ivy, and purple loosestrife (*Lythrum salicaria*) will be immediately eradicated if found onsite. Invasive control will follow methods recommended by the Clark County Weed Management Department. Invasive plants will be controlled by repeated spraying of Washington State Department of Agriculture-approved herbicides. Weed control will occur prior to planting, and will continue throughout the active life of the Bank. Weed control methods will include hand pulling and spot spraying and weed wiping with appropriate herbicides according to the species and Washington Department of Agriculture regulations.

B.5 Erosion and Sediment Control (ESC) Plan

A copy of the Stormwater Pollution Prevention Plan (SWPPP), prepared in compliance with NPDES permit requirements, is provided in the Resource Folder. The purpose of the SWPPP is to describe the proposed construction activities and all temporary and permanent erosion and sediment control (TESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during the proposed construction project.

B.5.1 Inspection and Monitoring

All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. This person has the necessary skills to assess the site conditions and construction activities that could impact the quality of stormwater, and assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

- A Certified Erosion and Sediment Control Lead shall be onsite or on-call at all times.
- Whenever inspection and/or monitoring reveals that the BMPs identified in the SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

B.5.2 Maintaining an Updated Construction SWPPP

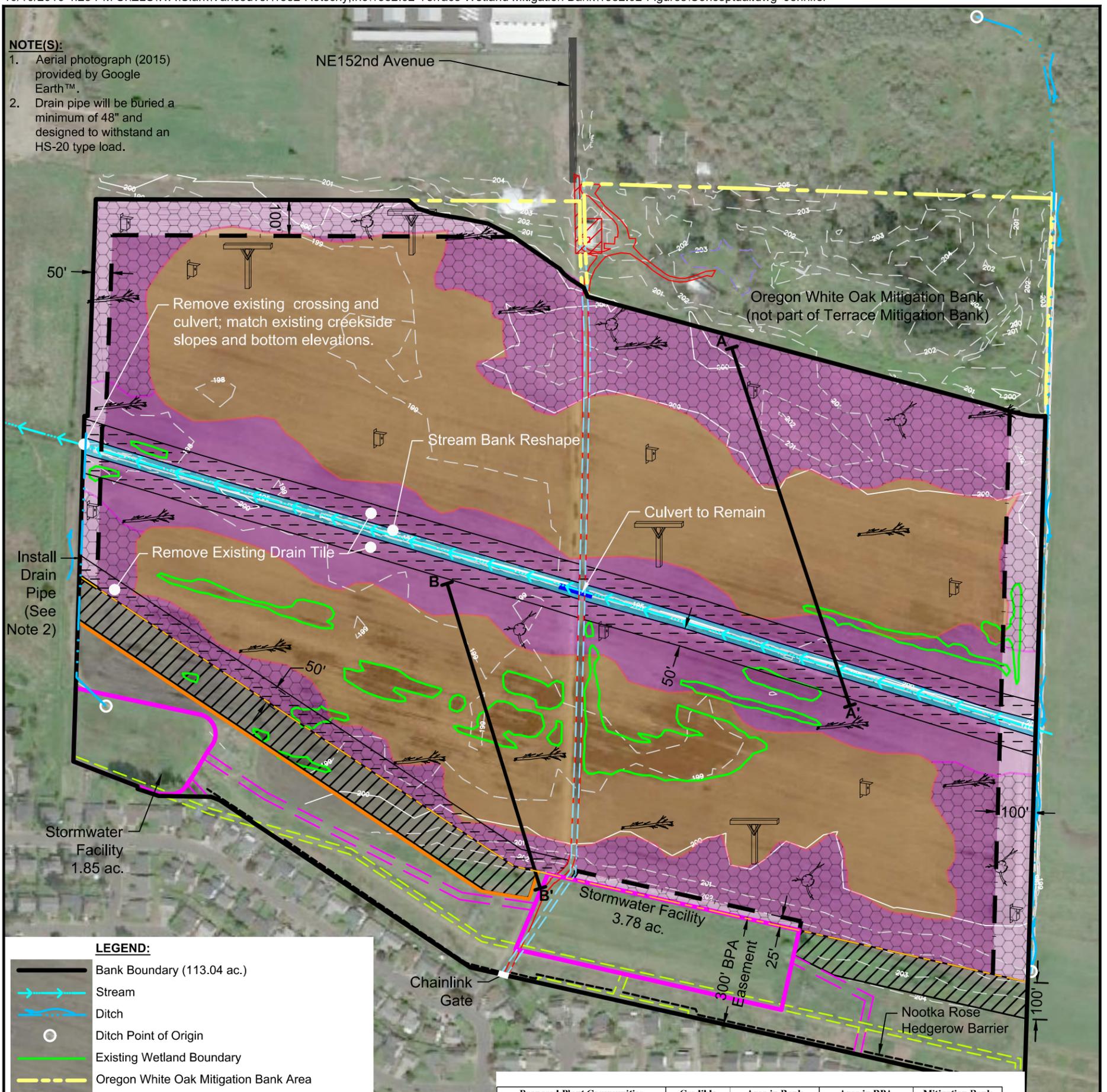
- The SWPPP shall be retained onsite or within reasonable access to the site.
- The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
- The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven (7) days following the inspection.

References

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NOTE(S):

1. Aerial photograph (2015) provided by Google Earth™.
2. Drain pipe will be buried a minimum of 48" and designed to withstand an HS-20 type load.



LEGEND:

- Bank Boundary (113.04 ac.)
- Stream
- Ditch
- Ditch Point of Origin
- Existing Wetland Boundary
- Oregon White Oak Mitigation Bank Area
- BPA Powerline Easement
- Existing Gravel Road
- Culvert Location
- Mitigation Bank Buffer (7.28 ac.)
- Staging Area
- Drain Tile Removal Area
- BPA Easement Drainage Pipe
- 20' Storm Sewer Easement
- 20' Sanitary Sewer Easement
- 15' Water Line Easement
- Stormwater Facility

Proposed Mitigation Habitat-See Figure B-5 for Species Composition

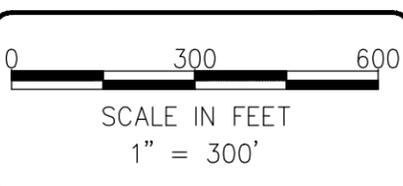
- Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS) (26.11 ac.)
- Palustrine Forested /Scrub-Shrub Riparian (PFO/PSS) (17.13 ac.)
- Palustrine Emergent (PEM) (45.81 ac.)
- Open Stream Channel Enhancement (2.53 ac.)
- Shrub Buffer Enhancement (SB) (4.85 ac.)
- 8-foot Wide Nootka Rose Hedgerow (NRB) (0.41 ac.)

Proposed Habitat Features

- Standard Bird Nest Box (10)
- Snags (6)
- Perch Poles (4)
- Horizontal Logs (14)

Proposed Plant Communities /Existing Bank Areas	Credible Area (acres)	Area in Bank Buffer (acres)	Area in BPA Easement (acres)	Mitigation Bank Site Total (acres)
WETLAND/STREAM				
<i>Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS)</i>				
Re-establishment	20.04	5.86	--	25.90
Rehabilitation	0.10	0.11	--	0.21
<i>Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS)</i>				
Re-establishment	15.48	0.93	--	16.41
Rehabilitation	0.67	0.05	--	0.72
<i>Palustrine Emergent (PEM)</i>				
Re-establishment	42.53	0.19	--	42.72
Rehabilitation	3.09	0.00	--	3.09
<i>Open Stream Channel</i>				
Enhancement	2.39	0.14	--	2.53
EASEMENTS				
Shrub Buffer Enhancement (BPA easement) (SB) ¹	--	--	4.85 ²	4.85
Nootka Rose Hedgerow (NRB) (BPA easement) (SS) ³	--	--	0.41	0.41
Existing Vegetation Community (BPA Easement Area)	--	--	8.05	8.05
Utilities Easements within BPA Easement Area ⁴	--	--	7.49	7.49
Existing Gravel Access Road and waterline easement ⁵	--	--	--	0.66
TOTALS	84.30	7.28	20.80	113.04
Total Bank Site Area				113.04

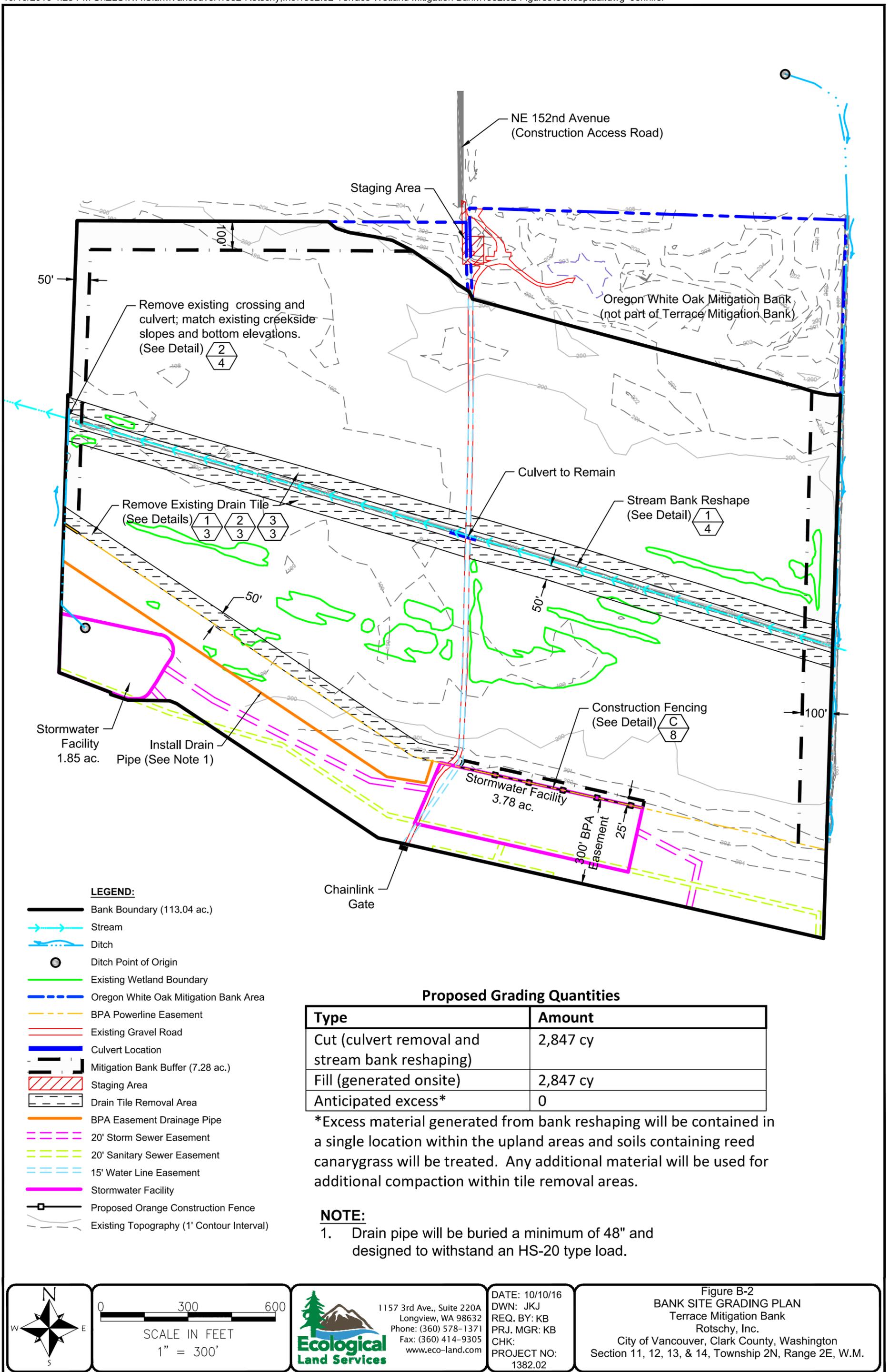
¹ This area is located within the BPA easement and serves as the 100 foot buffer of the bank
² Includes 0.10 acres of existing wetland within the non-creditable BPA Easement Area.
³ This area is located within the BPA easement and is planted as a barrier between the bank boundary and existing subdivision.
⁴ BPA Easement includes individual storm sewer, sanitary sewer, water line, and storm facility easements, individual acreages are listed on Figure 2 - Existing Conditions in Basis of Design Report
⁵ The existing access road and the water line easement are within the same footprint within the Bank area outside of the BPA easement



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DATE: 10/10/16
 DWN: JKJ
 REQ. BY: KB
 PRJ. MGR: KB
 CHK:
 PROJECT NO:
 1382.02

Figure B-1
BANK SITE DESIGN
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.



LEGEND:

- Bank Boundary (113.04 ac.)
- Stream
- Ditch
- Ditch Point of Origin
- Existing Wetland Boundary
- Oregon White Oak Mitigation Bank Area
- BPA Powerline Easement
- Existing Gravel Road
- Culvert Location
- Mitigation Bank Buffer (7.28 ac.)
- Staging Area
- Drain Tile Removal Area
- BPA Easement Drainage Pipe
- 20' Storm Sewer Easement
- 20' Sanitary Sewer Easement
- 15' Water Line Easement
- Stormwater Facility
- Proposed Orange Construction Fence
- Existing Topography (1' Contour Interval)

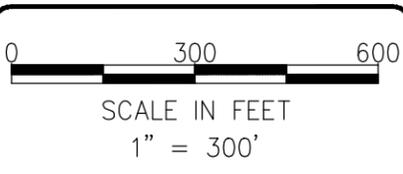
Proposed Grading Quantities

Type	Amount
Cut (culvert removal and stream bank reshaping)	2,847 cy
Fill (generated onsite)	2,847 cy
Anticipated excess*	0

*Excess material generated from bank reshaping will be contained in a single location within the upland areas and soils containing reed canarygrass will be treated. Any additional material will be used for additional compaction within tile removal areas.

NOTE:

1. Drain pipe will be buried a minimum of 48" and designed to withstand an HS-20 type load.

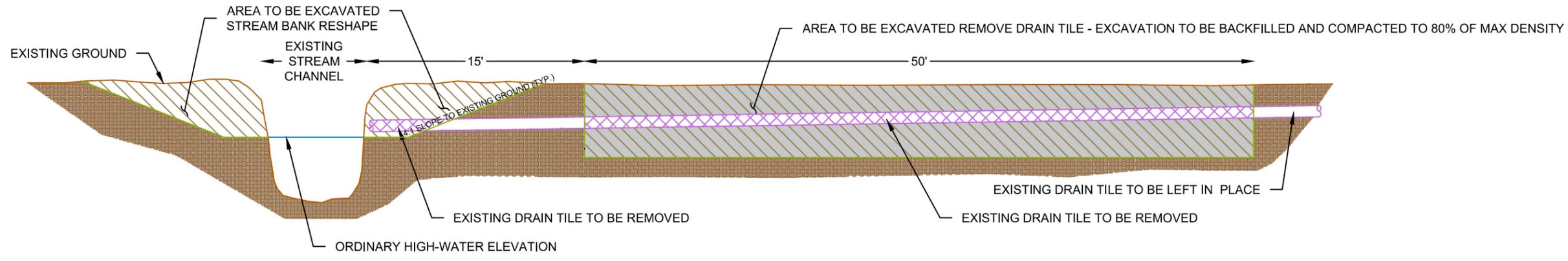


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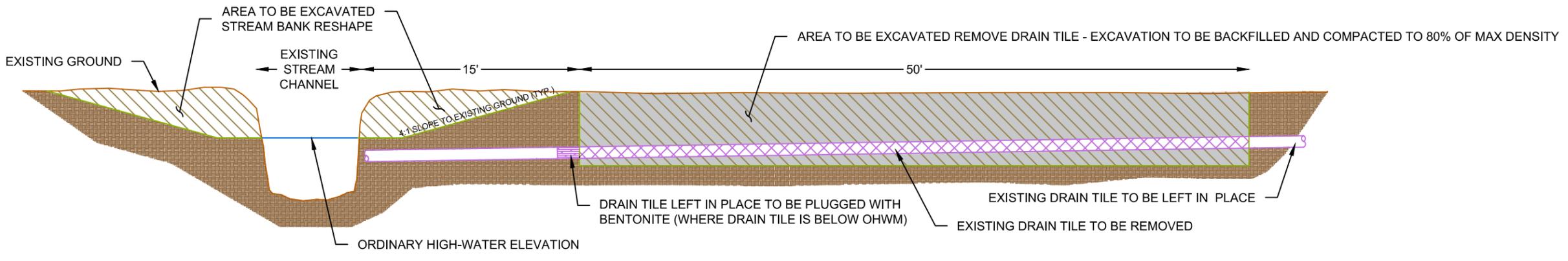
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 PROJECT NO:
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Figure B-2
 BANK SITE GRADING PLAN
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

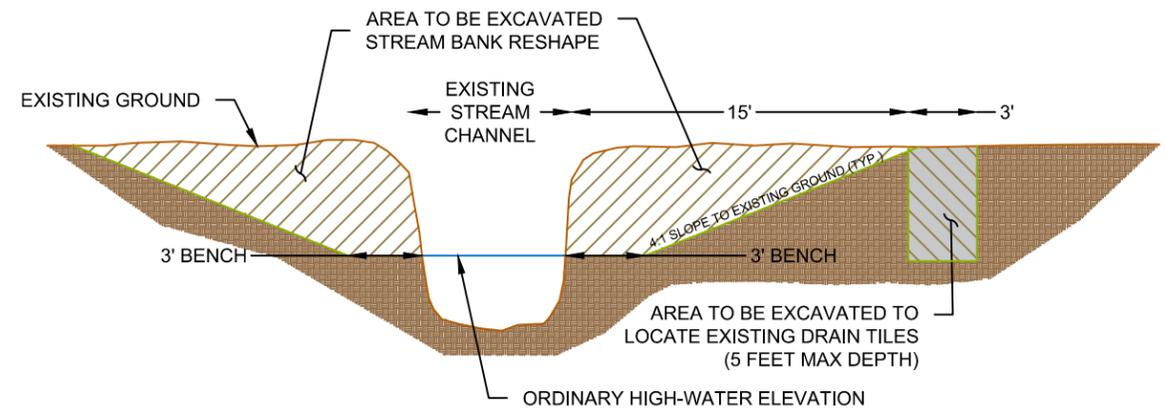
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DRAIN TILE REMOVAL
DETAIL AND CROSS SECTION
(DRAIN TILE LOCATED AT SAME ELEVATION AS STREAM BANK EXCAVATION)
TYPICAL 1/3
NTS



DRAIN TILE REMOVAL
DETAIL AND CROSS SECTION
(DRAIN TILES LOCATED AT ELEVATIONS LOWER THAN STREAM BANK EXCAVATION)
TYPICAL 2/3
NTS



EXCAVATION TO LOCATE DRAIN TILE DETAIL
TYPICAL 3/3
NTS

NOTE(S):

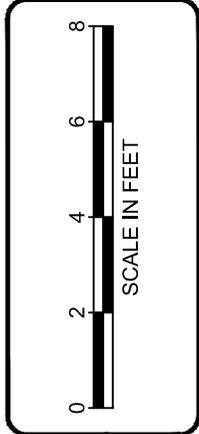
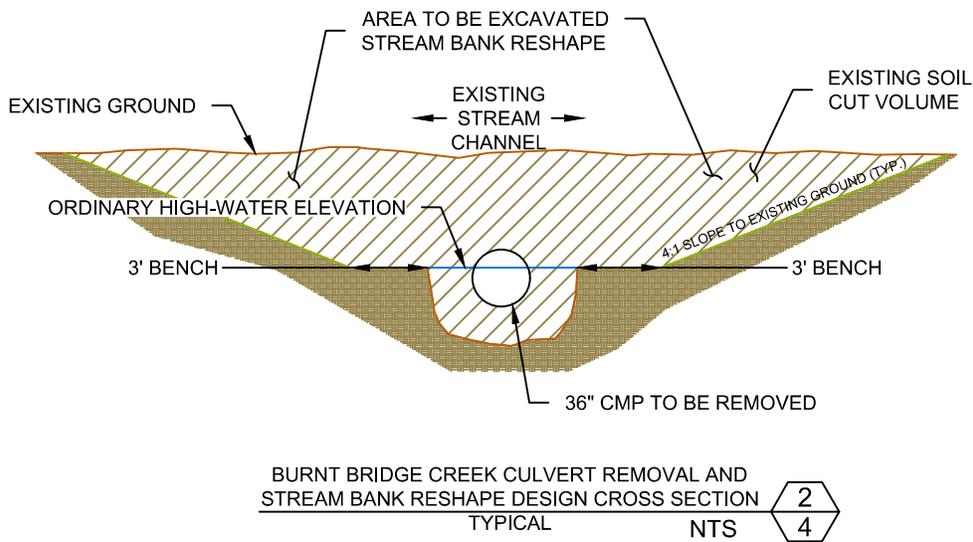
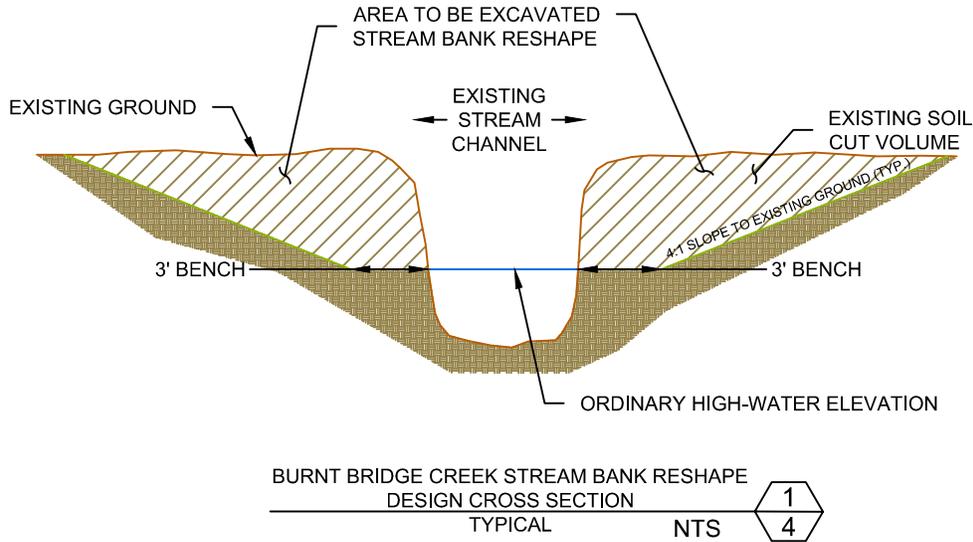
1. Cross sections and details by Rotschy, Inc.
2. Drain tile elevations range from 2 to 5 feet below ground surface. In areas where stream bank excavation intercepts a drain tile, drain tile will be removed and re-compacted starting where the tile originates at the stream bank. In areas where drain tiles are located below stream bank excavation elevations, the tiles will remain in place and will be removed and plugged landward of the stream bank excavation area.

Figure B-3
DRAIN TILE CROSS SECTIONS
Terrace Mitigation Bank
Rotschy, Inc.
City of Vancouver, Clark County, Washington
Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

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Figure B-4
STREAM BANK CROSS SECTIONS
Terrace Mitigation Bank
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City of Vancouver, Clark County, Washington
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Plant Quantities by Habitat Type and Acreage					
	Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS Mosaic)	Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS Riparian) ¹	Scrub-Shrub Buffer Enhancement (SS)	Nootka Rose Hedgerow Barrier (SS)	Palustrine Emergent (PEM)
Classification					
Acres (approximate)	26.11	17.13	4.85	0.41	45.81
Plants Per Acre:	550	900	450	4 ft spacing	
¹ Total plants per acre for PFO/PSS Riparian represents a blended stem per acre count based on willow 4 ft spacing within 15 ft bank reshaping area and remainder of trees/shrubs planted at 8 ft spacing.					
Classification/Species Name			Percentage	Plants	
Palustrine Forested/Scrub-Shrub Mosaic					
<i>Trees</i>					
Black cottonwood (<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>)	15%	2154			
Scouler willow (<i>Salix scouleriana</i>)	15%	2154			
Red alder (<i>Alnus rubra</i>)	10%	1436			
Oregon ash (<i>Fraxinus latifolia</i>)	10%	1436			
Cascara (<i>Frangula purshiana</i>)	10%	1436			
<i>Shrubs</i>					
Sitka willow (<i>Salix sitchensis</i>)	10%	1436			
Red osier dogwood (<i>Comus sericea</i>)	5%	718			
Nootka rose (<i>Rosa nutkana</i>)	10%	1436			
Black twinberry (<i>Lonicera involucrata</i>)	5%	718			
Pacific ninebark (<i>Physocarpus capitatus</i>)	5%	718			
Black Hawthorn (<i>Crataegus douglasii</i>)	5%	718			
TOTAL:	100%	14361			
Palustrine Forested/Scrub-Shrub Riparian					
<i>Trees</i>					
Pacific willow (<i>Salix lasiandra</i>)	15%	2313			
Black cottonwood (<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>)	15%	2313			
Scouler willow (<i>Salix scouleriana</i>)	15%	2313			
Oregon ash (<i>Fraxinus latifolia</i>)	10%	1542			
Cascara (<i>Frangula purshiana</i>)	5%	771			
<i>Shrubs</i>					
Sitka willow (<i>Salix sitchensis</i>)	15%	2313			
Nootka rose (<i>Rosa nutkana</i>)	15%	2313			
Red osier dogwood (<i>Comus sericea</i>)	5%	771			
Pacific ninebark (<i>Physocarpus capitatus</i>)	5%	771			
TOTAL:	100%	15417			
Shrub Buffer Enhancement (within BPA easement)					
Pacific ninebark (<i>Physocarpus capitatus</i>)	10%	218			
Black twinberry (<i>Lonicera involucrata</i>)	10%	218			
Nootka rose (<i>Rosa nutkana</i>)	30%	655			
Red osier dogwood (<i>Comus sericea</i>)	10%	218			
Tall Oregon grape (<i>Mahonia aquifolium</i>)	20%	437			
Common snowberry (<i>Symphoricarpus albus</i>)	20%	437			
TOTAL:	100%	2183			
Nootka Rose Hedgerow (8 ft wide)					
Nootka rose (<i>Rosa nutkana</i>)	100%	1110			

Classification/Species Name	Percentage
Palustrine Emergent Wetland (also underplanted in PFO/PSS Mosaic & PFO/PSS Riparian - outside of 15 ft wide stream bank reshaping area)	
Western mangrass (<i>Glyceria occidentalis</i>)	20%
American water-plantain (<i>Alisma subcordatum</i>)	20%
Creeping spikerush (<i>Eleocharis palustris</i>)	15%
American slough grass (<i>Beckmannia syzigachne</i>)	10%
Short-awn foxtail (<i>Alopercurus aequalis</i>)	5%
Soft-stem bulrush (<i>Scirpus tabernaemontani</i>)	5%
Bur-reed (<i>Sparganium eurycarpum</i>)	5%
Rice cutgrass (<i>Leerisa oryzoides</i>)	5%
One-sided sedge (<i>Carex unilateralis</i>)	3%
Bigleaf lupine (<i>Lupinus polyphyllus</i>)	2%
Large camas (<i>Camassia leichtlinii</i>)	2%
Annual hairgrass (<i>Deschampsia danthonioides</i>)	2%
Dense sedge (<i>Carex densa</i>)	1%
Small-fruited bulrush (<i>Scirpus microcarpus</i>)	1%
Small-flowered lupine (<i>Lupinus polycarpus</i>)	1%
Riverbank lupine (<i>Lupinus rivularis</i>)	1%
Dense primrose (<i>Epilobium densiflora</i>)	1%
Toad rush (<i>Juncus bufonius</i>)	1%
TOTAL:	100%
Palustrine Forested/Scrub-Shrub Riparian Emergent Underplanting (within 15 ft stream bank reshaping area for erosion control and reed canarygrass competition)	
Blue wildrye (<i>Elymus glaucus</i>)	40%
Meadow barley (<i>Hordeum brachyantherum</i>)	35%
Short-awn foxtail (<i>Alopercurus aequalis</i>)	15%
California brome (<i>Bromus carinatus</i>)	10%
TOTAL:	100%
<i>Plant species may be substituted based on availability</i>	

Figure B-5
PLANT LIST
Terrace Mitigation Bank
Rotschy, Inc.
City of Vancouver, Clark County, Washington
Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

DATE: 10/10/16
DWN: JKJ
REQ. BY: KB
PRJ. MGR: KB
CHK:
PROJECT NO: 1382.02

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com



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LEGEND:

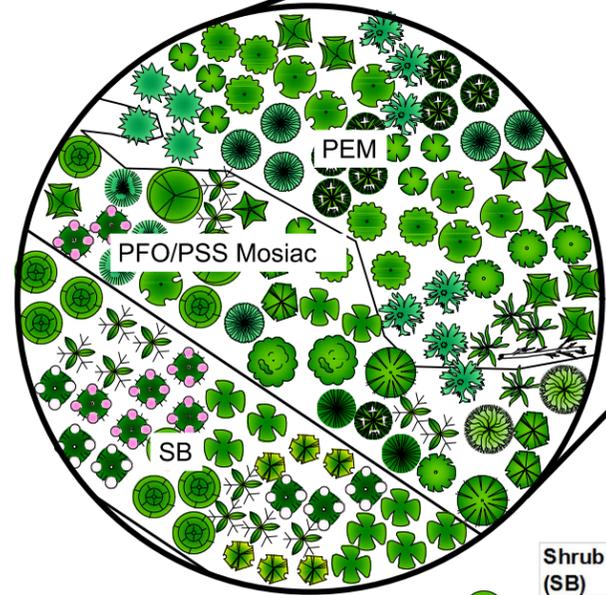
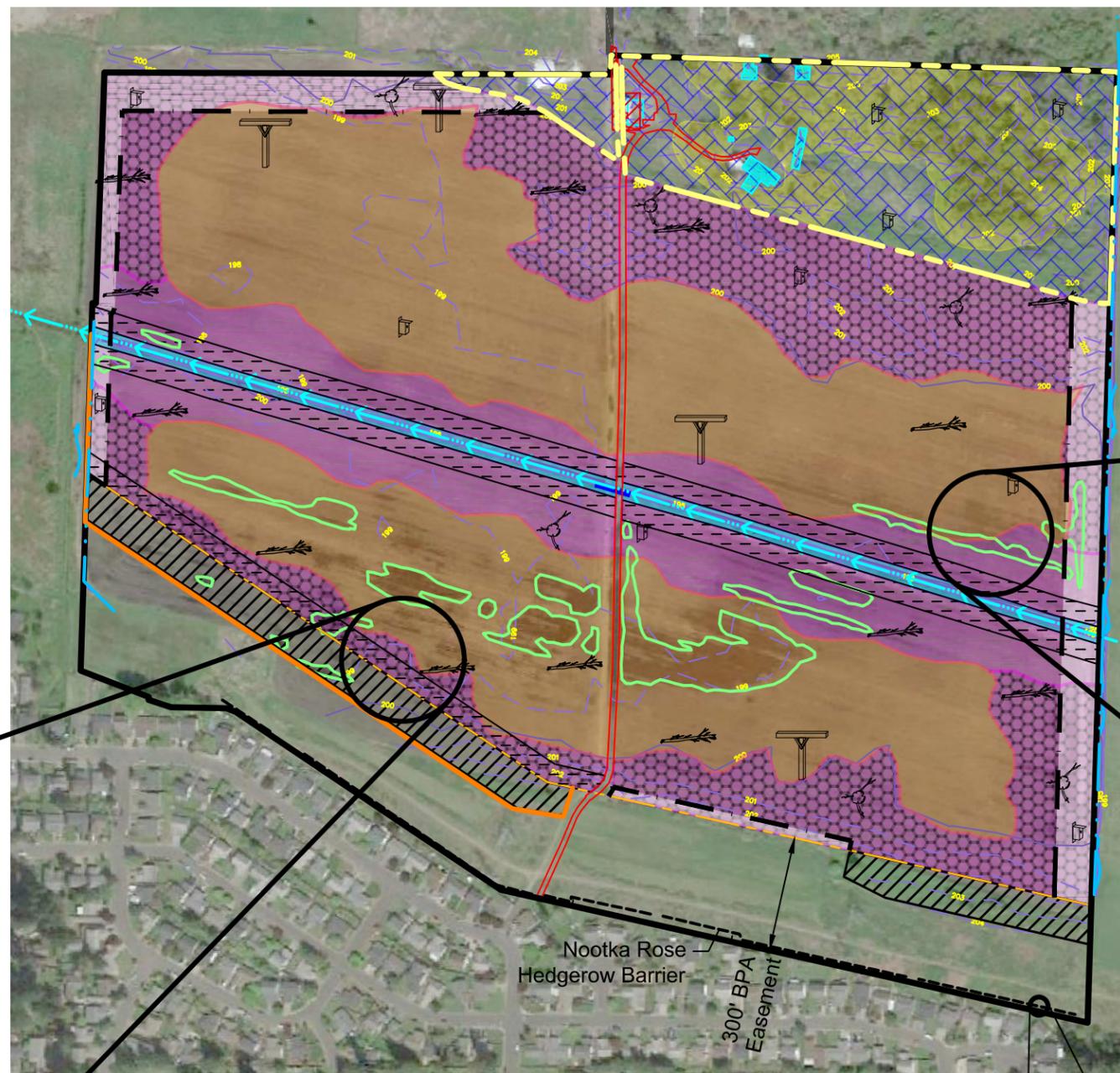
- Bank Boundary (113.04 ac.)
- Stream
- Ditch
- Existing Wetland Boundary
- Oregon White Oak Mitigation Bank Area
- BPA Powerline Easement
- Existing Gravel Road
- Culvert Location
- Mitigation Bank Buffer (7.28 ac.)
- Staging Area
- Drain Tile Removal Area
- BPA Easement Drainage Pipe

Proposed Mitigation Habitat

- Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS) (26.11 ac.)
- Palustrine Forested /Scrub-Shrub Riparian (PFO/PSS) (17.13 ac.)
- Palustrine Emergent (PEM) (45.81 ac.)
- Open Stream Channel Enhancement (2.53 ac.)
- Shrub Buffer Enhancement (SB) (4.85 ac.)
- 8-foot Wide Nootka Rose Hedgerow (NRH) (0.41 ac.)

Proposed Habitat Features

- Standard Bird Nest Box (10)
- Snags (6)
- Perch Poles (4)
- Horizontal Logs (14)

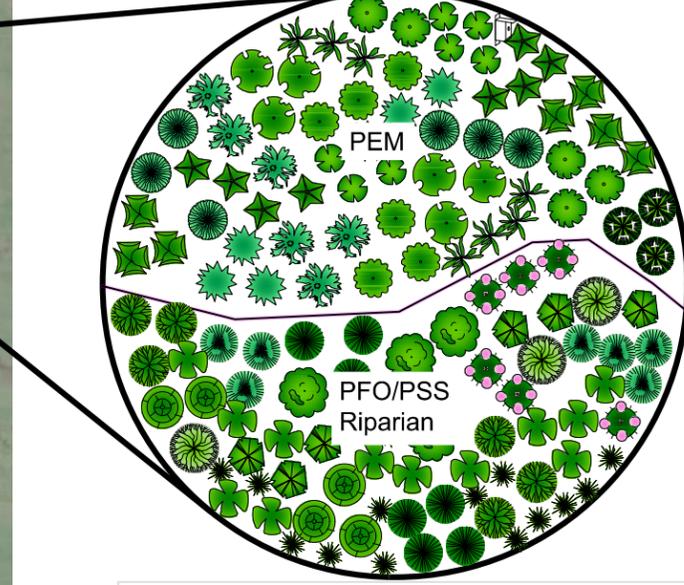


- Shrub Buffer Enhancement (within BPA easement) (SB)**
- Pacific ninebark (*Physocarpus capitatus*)
 - Black twinberry (*Lonicera involucrata*)
 - Nootka rose (*Rosa nutkana*)
 - Red osier dogwood (*Cornus sericea*)
 - Tall Oregon grape (*Mahonia aquifolium*)
 - Common snowberry (*Symphoricarpos albus*)

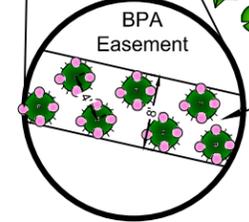
- Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS Mosaic)**
- Black Cottonwood (*Populus balsamifera* ssp. *Trichocarpa*)
 - Red Alder (*Alnus rubra*)
 - Oregon Ash (*Fraxinus latifolia*)
 - Scouler willow (*Salix scouleriana*)
 - Cascara (*Frangula purshiana*)
 - Sitka Willow (*Salix sitchensis*)
 - Red osier dogwood (*Cornus sericea*)
 - Nootka rose (*Rosa nutkana*)
 - Black twinberry (*Lonicera involucrata*)
 - Pacific ninebark (*Physocarpus capitatus*)
 - Black Hawthorn (*Crataegus douglasii*)

- Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS Riparian)**
- Pacific willow (*Salix lasiandra*)
 - Black Cottonwood (*Populus balsamifera* ssp. *Trichocarpa*)
 - Oregon Ash (*Fraxinus latifolia*)
 - Scouler willow (*Salix scouleriana*)
 - Cascara (*Frangula purshiana*)
 - Sitka Willow (*Salix sitchensis*)
 - Red osier dogwood (*Cornus sericea*)
 - Nootka rose (*Rosa nutkana*)
 - Pacific ninebark (*Physocarpus capitatus*)

- Palustrine Forested/Scrub-Shrub Riparian Emergent Underplanting** (within 15 ft stream bank reshaping area for erosion control and reed canarygrass competition)
- Meadow barley (*Hordeum brachyantherum*)
 - Blue wildrye (*Elymus glaucus*)
 - California Brome (*Bromus carinatus*)
 - Short-awn foxtail (*Alopercurus aequalis*)



- Palustrine Emergent Wetland (PEM) (also underplanted in PFO/PSS Mosaic & PFO/PSS Riparian - outside of 15 ft wide stream bank reshaping area)**
- Water foxtail (*Alopercurus geniculatus*)
 - Small-fruited bulrush (*Scirpus microcarpus*)
 - American slough grass (*Beckmannia syzigachne*)
 - Simple-stem bur-reed (*Sparganium emersum*)
 - Dense sedge (*Carex densa*)
 - One-sided sedge (*Carex unilateralis*)
 - Soft-stem bulrush (*Scirpus tabernaemontani*)
 - Rice cutgrass (*Leeria oryzoides*)
 - Western mannagrass (*Glyceria occidentalis*)
 - Creeping spikerush (*Eleocharis palustris*)
 - Broadleaf water-plantain (*Alisma plantago-aquatica*)



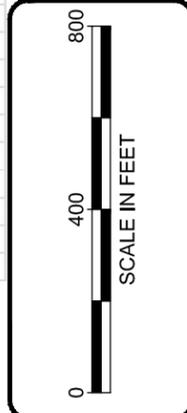
- Nootka Rose Hedgerow (NRH) (8-foot wide)**
- Nootka rose (*Rosa nutkana*) (4' Spacing O.C.)

NOTE: Plants are not to scale and locations are approximate as shown. Actual planting locations will be determined in the field to produce the most natural appearance possible.

Figure B-6
PLANTING DETAILS
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

DATE: 10/10/16
 DWN: JJK
 REQ. BY: KB
 PRJ. MGR: KB
 CHK:
 PROJECT NO:
 1382.02

1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371
 Fax: (360) 414-9305
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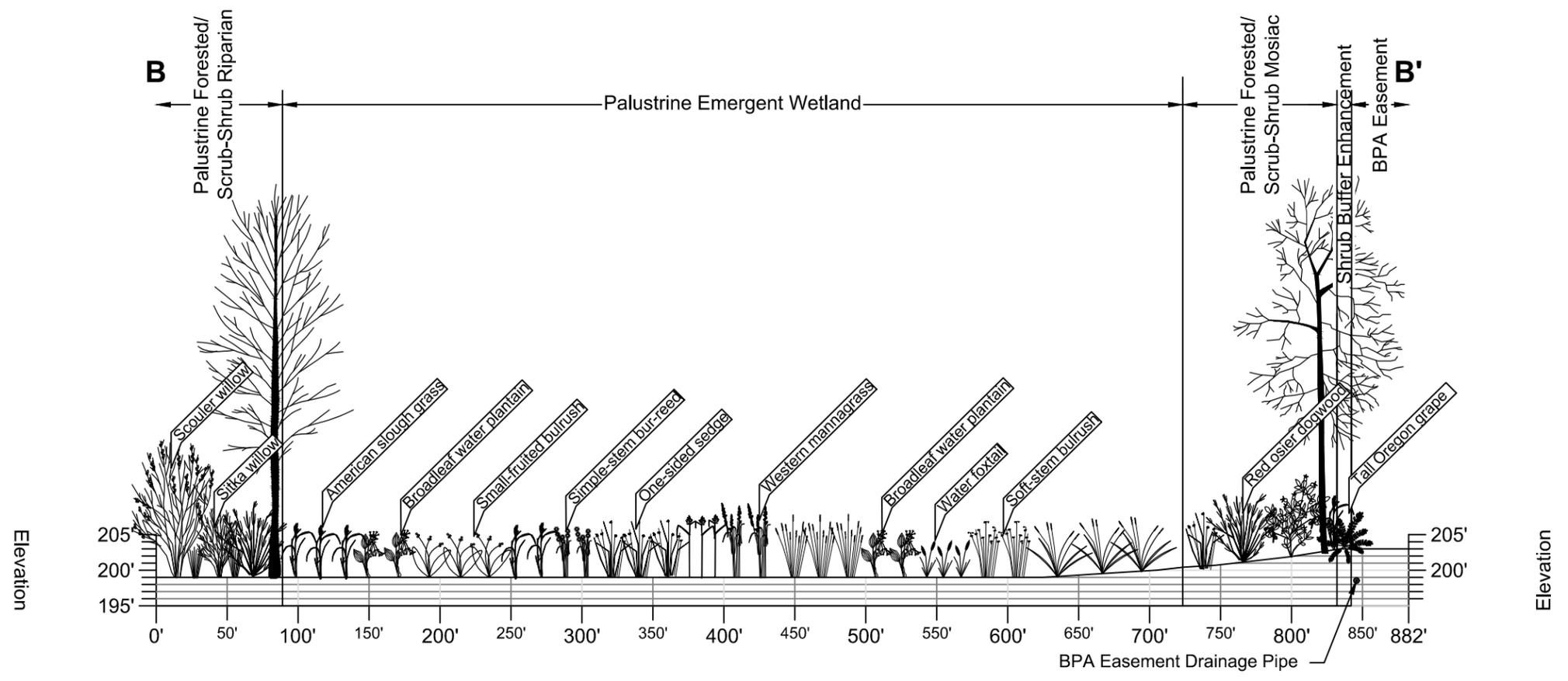
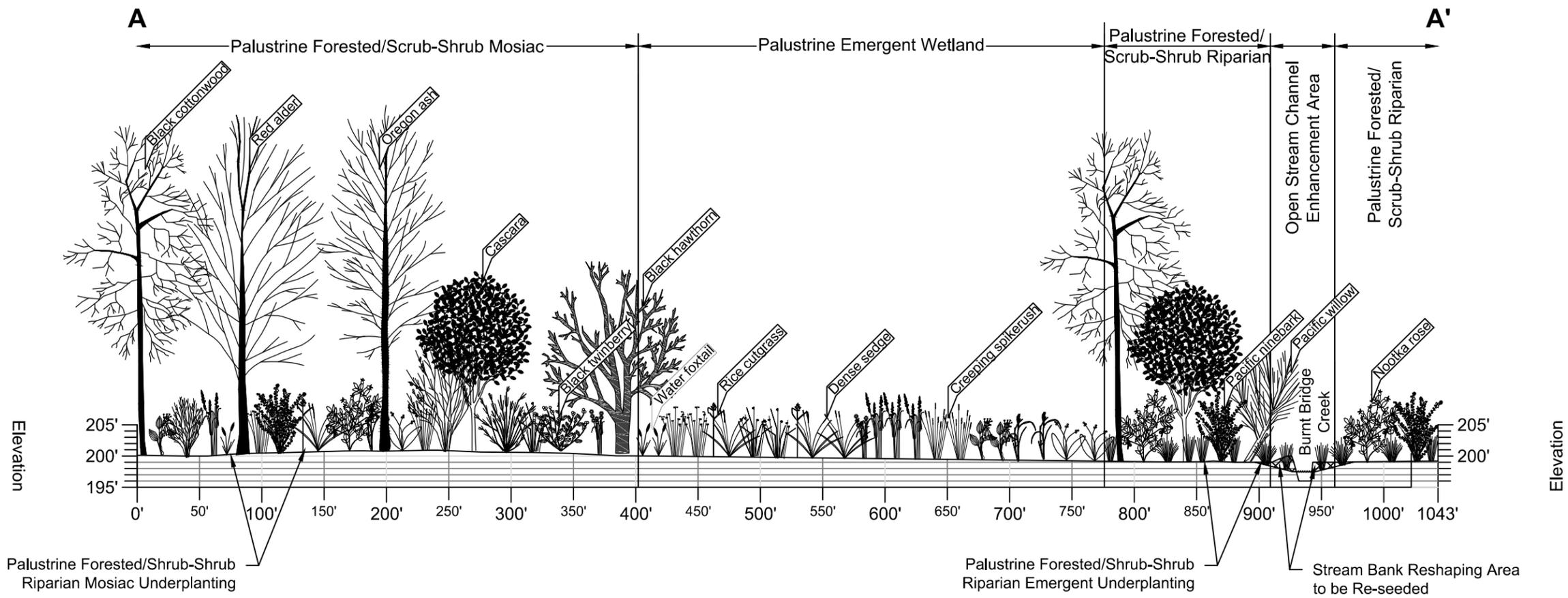
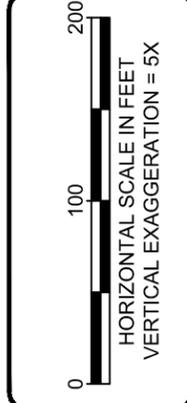


Figure B-7
 PLANTING AREA PROFILE VIEWS
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

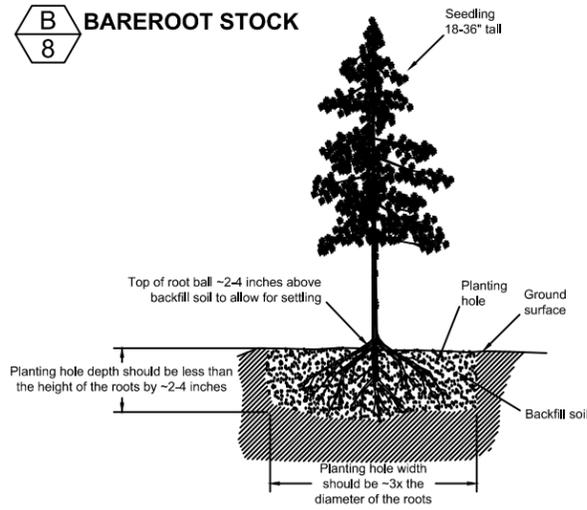
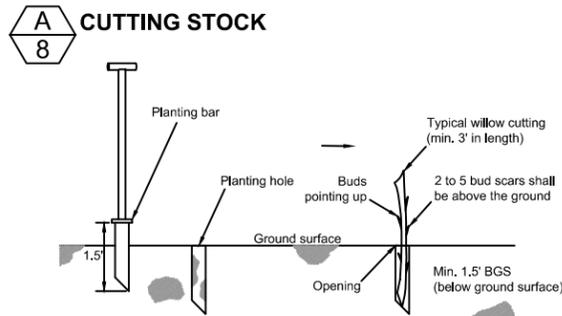
DATE: 10/10/16
 DWN: JKJ
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 PRJ. MGR: KB
 CHK:
 PROJECT NO:
 1382.02

1157 3rd Ave., Suite 220A
 Longview, WA 98632
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Ecological Land Services



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- NOTES:**
1. Use a shovel to slice into the loose soil; gently compact the soil and do not step on the backfill.
 2. Water heavily after transplanting.
 3. Do not add soil amendments or fertilizers in the planting hole.

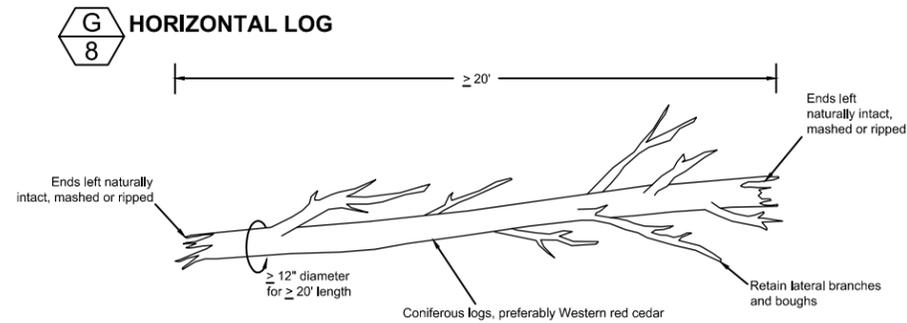
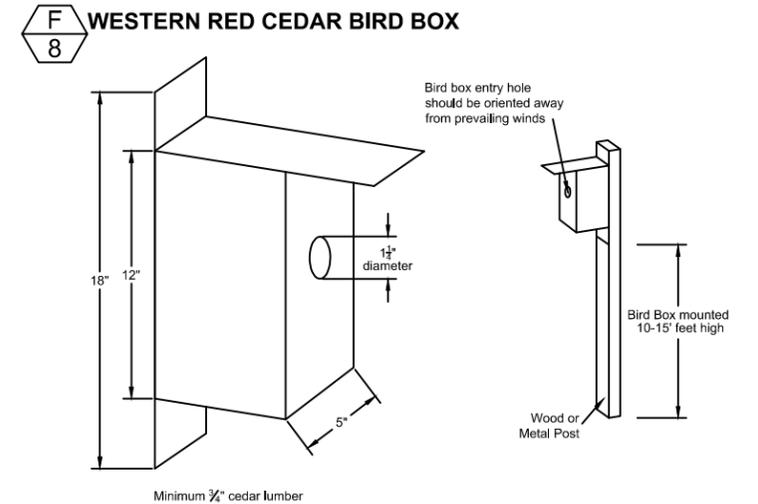
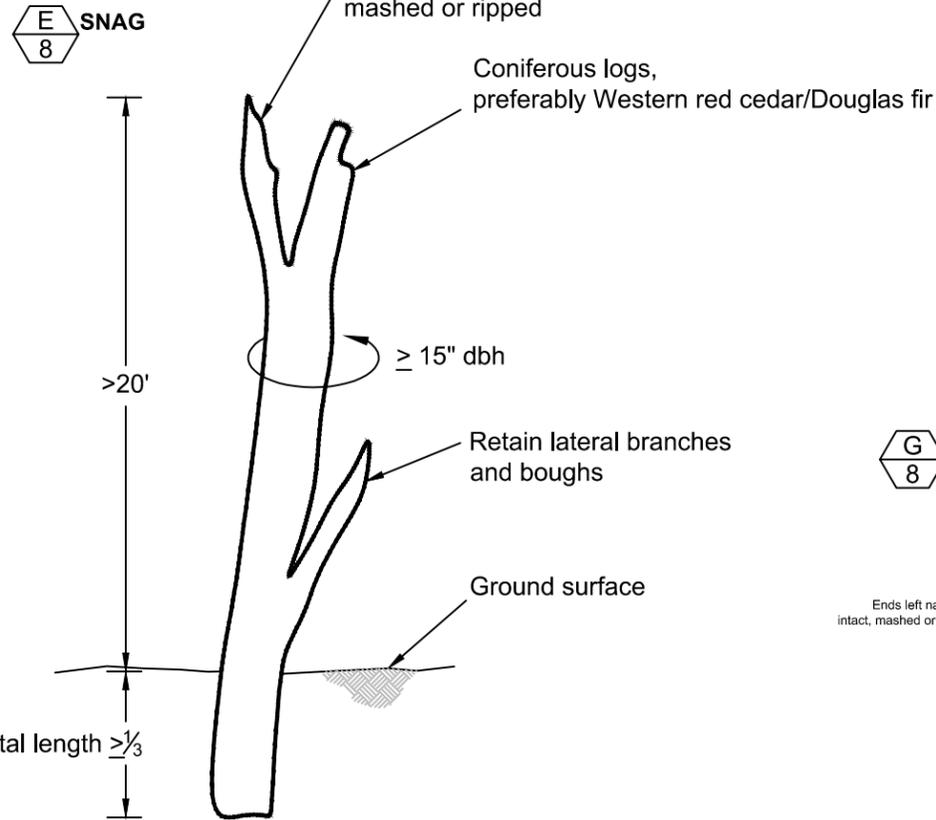
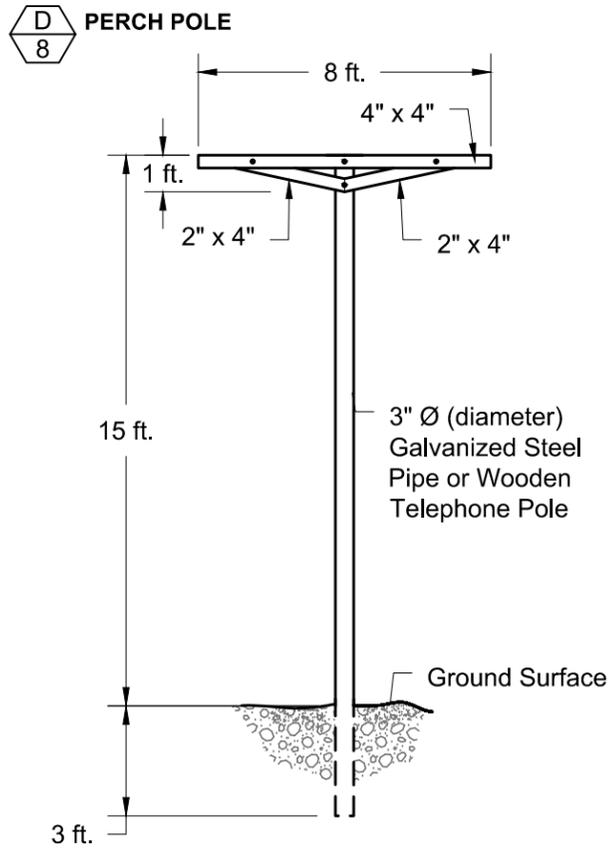
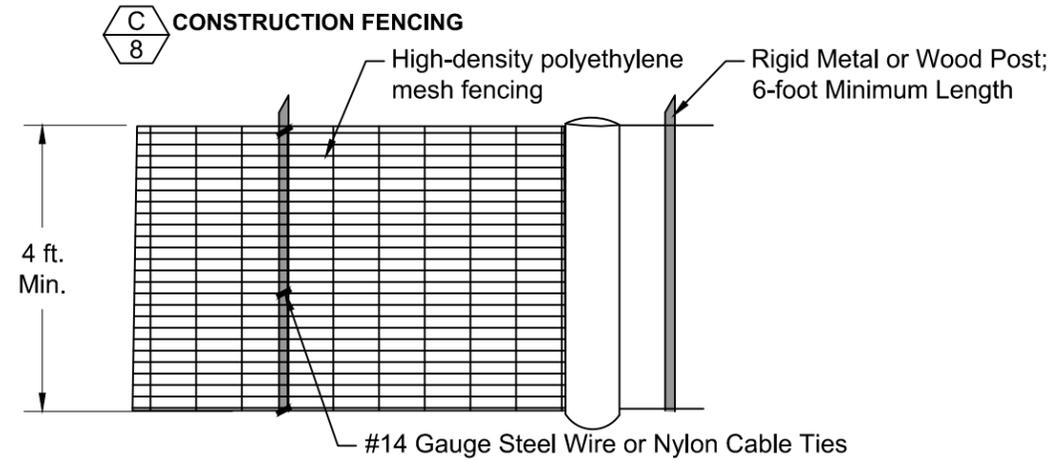


Figure B-8
TYPICALS
Terrace Mitigation Bank
Rotschy, Inc.
City of Vancouver, Clark County, Washington
Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

DATE: 10/10/16
DWN: JKJ
REQ. BY: KB
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1382.02

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APPENDIX C BANK OBJECTIVES AND PERFORMANCE STANDARDS

C.1 Requirements for Bank Objectives and Performance Standards:

A. Implementation of the Terrace Mitigation Bank is anticipated to result in substantial gains in aquatic ecosystem functions, as compared to those now present, or those that would likely accrue on the site if the Bank were not constructed. The Sponsor must be able to demonstrate tangible aquatic ecosystem gains before Bank credits can be awarded for sale, use, or other transfer, because these functional gains will be used to offset comparable losses to other components of the aquatic environment in the Bank service area. The Bank's success will be measured by the enumerated objectives, each of which is subdivided into specific performance standards. The prescribed performance standards each provide a gauge for measuring the success of the ecological re-establishment, restoration, and enhancement efforts at the Bank.

B. Unless otherwise noted, all documentation required for demonstrating attainment of performance standards will be submitted to the IRT for review and approval as a condition of credit award. Documentation can typically be included in required monitoring reports. IRT award of credits will be reflected in a letter issued using a joint letterhead and signed by the Corps and Ecology.

C. Recreational, educational, and scientific activities that do not conflict with the use limitations or other provisions of the conservation easement, do not interfere with the delineated purposes and goals of the Bank, and do not adversely affect the ecological viability and functionality of the Bank may take place on the Bank site. Specifically, the site may be used by the owners and guests for walking, bird watching and other passive recreation. City of Vancouver requires that activities on the Bank site also comply with the City of Vancouver Municipal Code (VMC) including, but not limited to, VMC 20.740 (Critical Areas Protection), VMC 20.770 (Tree Conservation), VMC 20.790 (SEPA), and VMC Title 20 (Land Use and Development).

D. All performance standards apply to the entire Bank site including the buffer area, the planted easement areas, and Burnt Bridge Creek.

C.2 Bank Objectives and Performance Standards

Objective 1: Protect Aquatic Ecosystem Functions

Permanently protect aquatic ecosystem functions at the Bank by instituting the Instrument and implementing a conservation easement with permanent funding for site stewardship. Each of the performance standards associated with this objective must be met before any Bank credits may be awarded, and before any construction or other implementation activities may be initiated pursuant to this Instrument. Any construction or implementation activities conducted on-site prior to the inception of the establishment period must cease as of the effective date of this Instrument pursuant to Article VI.B.1, until the Objective 1 performance standards 1.a through 1.e have been accomplished. The initial award of credits in recognition of accomplishment of these performance standards will serve as the IRT's notification that construction and implementation activities are authorized to commence.

Performance Standard	Documentation
1A. Complete the development of an appropriate Mitigation Banking Instrument and Appendices.	Mitigation Banking Instrument has been signed by the Sponsor and the applicable regulatory agencies. An original signed Instrument must be provided to each of the signatories.
1B. Protect ecosystem function by placing IRT-approved conservation easement on the property.	Provide the IRT copies of the signed, IRT-approved conservation easement and evidence that they have been recorded by Clark County and placed on the property title.
1C. Provide financial assurance by establishing an IRT-accepted financial assurance mechanism pursuant to the requirements established in Article III.C.1. of the Instrument.	Demonstrate to the IRT that a compliant and acceptable financial assurance mechanism has been established to provide financial assurance for the establishment period.
1D. Establish a Long-Term Management and Maintenance Endowment Fund escrow account and develop an escrow agreement, all pursuant to the requirements established in Article III.C.2 of the Instrument.	Demonstrate to the IRT that a Long-Term Management and Maintenance Endowment Fund has been initiated through establishment of a compliant and acceptable escrow account. Enter into an escrow agreement with the Corps and Ecology.
1E. Obtain all appropriate environmental documentation, permits, and other authorizations needed to establish and maintain the Bank.	Provide IRT with copies of all environmental documentation, permits, and other authorizations.

Objective 2: Hydrology

Re-establish and rehabilitate wetland hydrology by disabling the extensive drain-tile system currently used to convey water off of the site. Remove existing culvert crossing to improve stream flow.

Performance Standard	Documentation
2A. Disable drain tiles onsite. Remove existing culvert at west Bank boundary, and reshape incised stream banks.	As-built drawings and photographs showing completed grading, including ditch disabling, culvert removal, and stream bank reshaping are approved by the IRT. As-built will also include baseline data from stream temperature monitoring sites. This grading as-built report can be submitted before site planting is complete.
2B. A minimum of 79 acres of the site will have wetland hydrology present at 3 years following approval of as-built grading plan.	To demonstrate wetland hydrology, soil will be saturated to the surface, or there will be free water in soil pits or shallow water wells at 12 inches or less below the soil surface for at least 30

	consecutive days ¹ of the growing season, where the growing season is defined in the 1987 Corps of Engineers Delineation Manual and appropriate supplements. A monitoring report showing the data from wells and/or soil pits sufficient to document the extent of wetland hydrology on the site is submitted to and approved by the IRT.
2C. A minimum of 85 acres of wetland will be present on the site at Years 5 and 10 following approval of as-built grading report.	The wetlands onsite will be delineated according to the 1987 Corps of Engineers Delineation Manual and appropriate supplements in effect at the time of delineation. Wetland delineation report is submitted to and approved by the IRT.
2D. In Years 3, 5, and 10, permanently ponded areas lacking any vegetation will comprise less than 5% of the total creditable area of the Bank site.	Measure the perimeter of the permanently ponded areas with GPS and document with photographs during August or September in Years 3, 5, and 10. Monitoring reports documenting permanently ponded area in Years 3, 5, and 10 submitted to and approved by IRT.

Objective 3: Vegetation

Establish native wetland vegetation communities comparable to pre-agricultural conditions on the site and in accordance with the targeted hydrologic regimes across the site. Vegetation communities to include Palustrine Emergent Wetland (PEM), Palustrine Forested Scrub-Shrub Mosaic (PFO/PSS Mosaic), Palustrine Forested Scrub-Shrub Riparian (PFO/PSS Riparian), Shrub Buffer (SB), Palustrine Scrub-Shrub (PSS)², and Nootka Rose Hedgerow (NRH).

Note: “Cover” is used in this MBI to mean the actual proportion of the ground surface of the sample plot that is covered by a vertical projection of foliage (by single species or defined group of species) as viewed from above (or below for taller shrubs and trees), or by bare substrate.

Performance Standards for All Areas of the Site:

Performance Standard	Documentation
3A. Planting of site completed according to IRT approved plans.	As-built planting plan showing completed planting, submitted to and approved by the IRT. Include a species list, plant spacing and density, seeding rate, and final planted acreages of vegetative community types.

¹ Definition based on the joint agency guidance document *Wetland Mitigation in Washington State –Part 2: Developing Mitigation Plans (Version 1)* (Department of Ecology et. al. 2006)

² The Palustrine Scrub-Shrub (PSS) community is located within the existing 0.10 acres of wetland within the Shrub Buffer area located in the BPA Easement.

Performance Standard	Documentation
<p>3B. Within each habitat type [PFO/PSS Mosaic and Riparian, Shrub Buffer (SB), Nootka Rose Hedgerow (NRH), Palustrine Scrub-Shrub (PSS) (found within the SB in the BPA easement area), and PEM] Himalayan blackberry, Scot’s broom, tansy ragwort, common teasel, Canada thistle, and bull thistle do not collectively exceed 10% cover at Years 1, 3, 5, 7, and 10 following approval of as-built planting plan. Cover is not averaged for the entire site – maximum applies to each habitat type. Additional species may be added pursuant to Article VI.B.2.</p>	<p>Monitoring reports documenting non-native invasive species presence and percent cover submitted to and approved by IRT. Document the percent cover of invasives in each habitat type and data plot at Years 1, 3, 5, 7, and 10.</p>
<p>3C. Within each habitat type [PFO/PSS Mosaic and Riparian, Shrub Buffer (SB), Nootka Rose Hedgerow (NRH), Palustrine Scrub-Shrub (PSS) (found within the SB in the BPA easement area), and PEM] cover of reed canarygrass will not collectively exceed 10% at Year 1, 25% at Year 3, and 30% in Years 5, 7, and 10 following approval of Year 0 as-built planting plan. Cover is not averaged for the entire site – maximum applies to each habitat type.</p>	<p>Monitoring reports documenting reed canarygrass presence and percent cover submitted to and approved by IRT. Document the percent cover of reed canarygrass in each data plot at Years 1, 3, 5, 7, and 10.</p>
<p>3D. Over the entire site, zero tolerance of Japanese knotweed (and related hybrids), purple loosestrife, and English ivy colonization is maintained, and includes any species on the Class A noxious weed list. Map any specimens and eradicate during growing season of same year. Additional species may be added pursuant to Article VI.B.2.</p>	<p>Monitoring reports documenting identification and eradication submitted to and approved by the IRT. Inventory annually and include in monitoring reports at Years 1, 3, 5, 7, and 10.</p>

Performance Standards for Palustrine Emergent Wetland (PEM):

Performance Standard	Documentation
3E. In the Palustrine Emergent Wetland area there will be at least 6 native facultative or wetter species present. At least 3 native facultative or wetter species will each have a minimum of 5% cover.	In Years 3, 5, 7, and 10, monitoring reports documenting native species presence are submitted to and approved by the IRT. Provide photos from established photo points.
3F. In the Palustrine Emergent Wetland, native emergent plant species will have a minimum of 30% cover at Year 1, 40% cover at Year 3, 50% cover at Year 5, 60% cover at Year 7, and 75% at Year 10 following approval of Year 0 as-built planting plan.	In Years 1, 3, 5, 7, and 10, monitoring reports documenting native emergent species percent cover are submitted to and approved by the IRT.

Performance Standards for Palustrine Forested/ Scrub-Shrub Wetland (PFO/PSS) Mosaic and Riparian:

Performance Standard	Documentation
3G. The Palustrine Forested/Scrub-Shrub Wetland Mosaic shall have a minimum density of native trees and shrubs of at least 500 plants ³ per acre at Year 1 and will have a minimum percent aerial cover of 30% cover at 3 years, 40% cover at 5 years, 60% cover at 7 years, and 70% cover at 10 years following approval of the Year 0 as-built planting plan.	Monitoring reports documenting stem density of native woody vegetation in Year 1, and percent native woody cover in Years 3, 5, 7, and 10 are submitted to and approved by the IRT.
3H. The Palustrine Forested/Scrub-Shrub Wetland Mosaic shall have a minimum density of at least 270 trees per acre at Year 3, 235 trees/acre at Year 5, 200 trees/acre at Year 7, and 165 trees/acre at Year 10 following approval of the Year 0 as-built planting plan.	Monitoring reports documenting plant density of native trees in Years 3, 5, 7, and 10 are submitted to and approved by the IRT.
3I. The Palustrine Forested/Scrub-Shrub Wetland Riparian shall have a minimum density of native trees and shrubs of at least 810 ⁴ stems per acre at Year 1 and will have a minimum percent aerial cover of 30% cover at 3 years, 40% cover at 5 years, 60% cover at 7 years, and 70% cover at 10 years following approval of the Year 0 as-built planting plan.	Monitoring reports documenting stem density of native woody vegetation in Year 1, and percent native woody cover in Years 3, 5, 7, and 10 are submitted to and approved by the IRT.

³ 500 native trees and shrubs per acre consists of 300 trees per acre and 200 shrubs per acre in Year 1.

⁴ 810 native trees and shrubs per acre consists of 490 trees per acre and 320 shrubs per acre in Year 1.

Performance Standard	Documentation
3J. The Forested/Scrub-Shrub Wetland Riparian shall have a minimum density of at least 450 trees per acre at Year 3, 390 trees/acre at Year 5, 330 trees/acre at Year 7, and 270 trees/acre at Year 10 following approval of the Year 0 as-built planting plan.	Monitoring reports documenting plant density of native trees in Years 3, 5, 7, and 10 are submitted to and approved by the IRT.

Performance Standards for Shrub Buffer and Nootka Rose Hedgerow:

Performance Standard	Documentation
3K. Native shrubs in the Shrub Buffer (SB); (includes area of PSS in the BPA Easement) shall have a minimum density of shrubs of at least 400 plants per acre at Year 1 and will have a minimum percent aerial cover of 30% cover at 3 years, 40% cover at 5 years, 60% cover at 7 years, and 80% cover at 10 years following approval of the As-built planting plan.	Monitoring reports documenting stem density of native woody vegetation in Year 1, and percent cover in Years 3, 5, 7, and 10 are submitted to and approved by the IRT.
3L. Native shrubs in the Nootka Rose Hedgerow (NRH) shall have a minimum density of 1,000 plants at Year 1 and will have a minimum percent aerial cover of 30% cover at 3 years, 50% cover at 5 years, 75% cover at 7 years, and 90% cover at 10 years following approval of the As-built planting plan.	Monitoring reports documenting plant density of Nootka rose in Year 1, and percent cover in Years 3, 5, 7, and 10 are submitted to and approved by the IRT.

Objective 4: Wildlife

Create and improve habitat for wildlife on the site by installing habitat features and removing unnecessary culvert crossing on Burnt Bridge Creek. Improve habitat for wildlife by shading stream banks with native PFO/PSS vegetation.

Performance Standard	Documentation
4A. Horizontal logs, snags, nest boxes, and perch poles installed according to IRT approved plan.	As-built drawings showing location of habitat features are approved by the IRT.
4B. A minimum of 80% of the original number, as shown on the approved as-built drawings, of each type of habitat feature will be present at 10 years following approval of the as-built plans. Habitat features include:	Monitoring reports documenting the location of habitat features approved by the IRT. Document location of habitat features at Year 10.

Performance Standard	Documentation
horizontal logs, snags, nest boxes, and perch poles.	
4C. Open stream channel shall have a decrease in baseline stream temperature resulting from stream bank shading by PFO/PSS Riparian Vegetation by Year 5.	Monitoring report documenting change in stream temperature in Years 0, 1, 3, 5, and 10 are submitted to and approved by the IRT.

References

Washington State Department of Ecology (Ecology), U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. 2006. *Part 2: Developing Mitigation Plans (Version 1)*. March. Washington Department of Ecology Publication #06-06-011a. Olympia, Washington.

APPENDIX D CREDIT GENERATION AND AWARD SCHEDULE

D.1 Generation of Credits:

A. Credits will be established and awarded to the Bank upon the Sponsor's demonstration that the Performance Standards reflected in Appendix C, Section C.2 have been met.

B. A "Universal Credit" is defined as a unit of measure representing the increase in the ecological value of the Bank site. A universal credit for this Bank represents the increase in functions, values, and areal extent of the wetland systems on the project site. This increase in function results from the re-establishment, rehabilitation, and enhancement of wetlands on the Bank site as detailed in Appendix B and Table D-1 below. The anticipated number of universal credits reflected in Table D-1 are determined based on the projection, if the performance standards are achieved, that the re-established, rehabilitated, and enhanced wetlands at the Bank site will rate as a high functioning wetlands upon maturity. In addition to re-establishing wetlands in areas where they would have historically existed, the existing wetlands will experience a significant functional lift through rehabilitation by disabling of the existing drain tile systems and the reconnection of Burnt Bridge Creek to its floodplain/floodplain wetlands through stream bank reshaping. These rehabilitation measures will provide substantial improvements in the water quality and hydrological functions of the existing wetlands, over and above what could be provided by enhancement alone. A universal credit is also based on the improvement to water quality, water quantity, and habitat functions within the created, enhanced or preserved wetlands on the bank site which are documented as performance standards are met.

C. The precise number of credits actually generated by the Bank cannot be determined until the project is constructed and the success of restoration and enhancement activities is assessed by the Corps and Ecology, in consultation with the IRT. The final number of credits will be determined by the Corps and Ecology, in consultation with the IRT, and will be based on achievement of the performance standards set forth in Appendix C of this instrument.

D. Credits generated by the Bank will be calculated as shown in Table D-1 below:

Table D-1: Wetland Credit Generation by Bank Development Activity

Bank Activity	Area (Acres) of Credit Generation	Credit Ratio (Activity Area: Universal Credit)	Anticipated Number of Credits
<i>Wetland Re-establishment</i>			
Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS)	20.04	1:1	20.04
Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS)	15.48	1:1	15.48
Palustrine Emergent (PEM)	42.53	1:1	42.53
<i>Wetland Rehabilitation</i>			
Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS)	0.10	2:1	0.05
Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS)	0.67	2:1	0.34
Palustrine Emergent (PEM)	3.09	2:1	1.55
<i>Stream Enhancement</i>			
Open Stream Channel	2.39	3:1	0.80
Total	84.30		80.79

Table D-2 provides an overview of changes in habitat type anticipated to result from Bank site construction.

Table D-2: Change in Habitat Type - Summary of Existing and Proposed Habitat Types

	Existing Acreage	Proposed Acreage	Activity Proposed
Total Upland Area	106.39	21.36 ¹	Shrub-scrub buffer enhancement and Nootka rose hedgerow barrier
Total Stream Channel	2.53	2.53	
Total Wetland Area	4.12	89.15 ²	Disrupt drainage system and drain tiles, plant emergent vegetation, shrubs, and trees to enhance wetland
Total Bank Site Area	113.04	113.04	
Wetland Area by Cowardin Classification:			
PFO/PSS Mosaic and Riparian	0	42.31	Re-establishment
	0	0.93	Rehabilitation
PSS	--	0.10	Buffer Enhancement
PEM		42.72	Re-establishment
	4.12	3.09	Rehabilitation
Total Wetland Area	4.12	89.15	

¹Includes 20.70 acres of upland in BPA easement area, and 0.66 acres of existing gravel access road.

²Includes 0.10 acres of wetland within the BPA easement area, which is not part of the 89.05 acres of wetland reestablishment and rehabilitation activities proposed on the Bank site.

D.2 Credit Award Schedule:

A. Credits will be awarded to the Bank for sale, use, or other transfer as the performance standards associated with those credits are met, with the following exceptions: (1) no credits may be awarded prior to meeting all of the performance standards associated with Objective 1 in Appendix C, and (2) no credits associated with the Year 10 performance standards may be awarded until at least 60% of all possible credits associated with Years 0 through 9 have been awarded. In addition, no credits associated with Year 10 performance standards may be awarded until the specific performance standards associated with the uncreditable buffer area are accomplished and approved by the Corps and Ecology in consultation with the IRT.

B. The Corps and Ecology, in consultation with the IRT, will typically approve the award of credits according to the schedule in Table D-3, below. Credits may not be awarded sooner than specified in Table D-3, except where otherwise noted or in extraordinary situations with the written approval of the Corps and Ecology, in consultation with the IRT. If the Bank is not able to meet a particular performance standard by the year indicated in Table D-3, the Sponsor may submit documentation of successful satisfaction of that performance standard during a subsequent year, and the Corps and Ecology, in consultation with the IRT, will give full

consideration to the award of appropriate credits for sale, use, or transfer without reduction or other penalty.

C. The Corps and Ecology may, at its discretion, following consultation with the IRT, award partial credit for partial accomplishment of a performance standard. In the event a specific performance standard is not met, but the IRT feels that the site is progressing satisfactorily, the Corps and Ecology may at their discretion following consultation with the IRT, award credits.

D. Once a credit is awarded, the Bank may sell, use, or otherwise transfer that credit at any time, subject to the provisions of this Instrument.

E. If the institution of an adaptive management or remedial action plan as described in Section F.4 of Appendix F causes delay in the achievement of a performance standard, the timeline for achievement of each subsequent milestone for that performance standard will be deferred for a like interval, unless otherwise specifically approved by the Corps and Ecology, following consultation with the IRT. The Corps and Ecology, following consultation with the IRT and with the Sponsor, will determine what remedial actions are necessary to correct the situation, pursuant to Article IV.H. and Section F.4, and direct their performance prior to the award of any additional mitigation credits.

Table D-3 Credit Release Schedule

	Pre-Construction Credits	Year 0 ¹ Credits	Year 1 Credits	Year 3 Credits	Year 5 Credits	Year 7 Credits	Year 10 Credits	Total Credits
Objective 1. Administrative Protections								
1A MBI Signed	2.26							2.26
1B CE Recorded	2.26							2.26
1C Financial Assurances Completed	2.26							2.26
1D Long-Term M & M Fund and Escrow Agreement Created	2.27							2.27
1E. Obtain environmental documentation and permits	2.27							2.27
Objective 2. Hydrology								
2A Grading As-built		4.5						4.50
2B Establish WL Hydrology in Year 3				2.00				2.00
2C Minimum Wetland Acreage in Years 5, 10					2.50		1.00	3.50
2D Permanently Poned Area Less Than 5% Of Creditable Area. Years 3,5,10				1.00	1.00		0.50	2.50
Objective 3. Vegetation - All Areas of Site								
3A Planting Plan As-built		4.5						4.50
3B Maximum Cover Invasives. Years 1,3,5,7,10			1.00	1.25	1.25	1.00	0.75	5.25
3C Maximum Cover RCG Years 1,3,5,7,10			1.00	2.00	2.00	1.50	0.50	7.00
3D Zero Tolerance Invasives. Years 1,3,5,7,10			1.00	1.25	1.25	1.00	0.75	5.25
Palustrine Emergent Wetlands (PEM)								
3E PEM Species Richness. Years 3,5,7,10				1.00	1.25	1.27	0.50	4.02
3F PEM Species % Cover. Years 1,3,5,7,10			1.00	1.00	1.25	1.50	0.50	5.25

	Pre-Construction Credits	Year 0 ¹ Credits	Year 1 Credits	Year 3 Credits	Year 5 Credits	Year 7 Credits	Year 10 Credits	Total Credits
Palustrine Forested Scrub-shrub Wetland (PFO/PSS) Mosaic and Riparian								
3G PFO/PSS Mosaic Stem and Tree Density Year 1, % Cover Years 3,5,7,10			1.00	1.00	1.25	1.75	0.75	5.75
3H PFO/PSS Mosaic Tree Density Years 3,5,7,10				1.00	1.25	1.75	0.75	4.75
3I PFO/PSS Riparian Stem and Tree Density Year 1, % Cover Years 3,5,7,10			1.00	1.00	1.25	1.75	0.75	5.75
3J PFO/PSS Riparian Tree Density Years 3,5,7,10				1.00	1.25	1.75	0.75	4.75
3K Shrub Buffer Stem and Tree Density Year 1, % Cover Years 3,5,7,10								0.00 ²
3L Nootka Rose Hedgerow Stem and Tree Density Year 1, % Cover Years 3,5,7,10								0.00 ²
Objective 4. Wildlife								
4A Habitat Features Installed per MBI		3.12						3.12
4B Habitat Features Remain per MBI Year 10							0.58	0.58
4C Open Stream Channel Temperature Assessment 1,3,5 & 10					1.00 ³			1.00
Total Credits Available in the Period	11.32	12.12	6.00	13.50	16.50	13.27	8.08	80.79

¹Year 0 is the calendar year during which construction is completed and the as-built drawings are submitted by the Sponsor and approved by the IRT. Year 1 is the first year of site monitoring following approval of the as-built drawings.

²Performance Standards 3K (Shrub Buffer) and 3L (Nootka Rose Hedgerow) are not assigned credit as they are located in the non-creditable buffer area of the Bank.

³It is anticipated that Performance Standard 4C will be met at Year 5, however, stream temperature data will be reported in Years 0, 1, 3, 5, and 10. If the standard is not met in Year 5, the Year 5 credit will be held until such time as the standard is met.

APPENDIX E PROCEDURES FOR USE OF MITIGATION BANK CREDITS AND DEBIT USE

E.1 Service Area

A. The Terrace Mitigation Bank service area includes all plains and terraces, nearly level to gently sloping, within the Terrace Hydrogeologic Unit (**Figure E-1, Terrace Mitigation Bank Service Area**) as described in the Washington Department of Ecology’s 2009 *Watershed Characterization of Clark County* and that also encompasses the somewhat excessively drained to very poorly drained soils of bottom lands and terraces within Water Resource Inventory Area (WRIA) 28. The service area includes the Lacamas, Salmon Creek, Lakeshore, and Burnt Bridge Creek Watersheds, and their associated subwatersheds, with the exception of the Mill Creek Subwatershed within the Salmon Creek Watershed, which is excluded from the boundaries of the service area (Table E-1).

Table E-1. Extent of Terrace Mitigation Bank Service Area.

Limits of Terrace Mitigation Bank Service Area	
Northern Limits	West Slope (Gee Creek Subwatershed) and East Fork Lewis River Watersheds
Western Limits	Vancouver Lake and Lake River waterbodies, Lakeshore and Salmon Creek River Mile (RM) 00.06 Subwatersheds
Southern Limits	Columbia Slope Watershed (Columbia Slope and Camas Subwatersheds)
Eastern Limits	Washougal River (Little Washougal Subwatershed) and East Fork Lewis River Watersheds
Watersheds that extend into Service Area	Sub-watersheds in Service Area
Lacamas	China Ditch, Lower Fifth Plain, Lacamas Creek, Upper Fifth Plain Creek, Shanghai Creek, Upper Lacamas Creek, Lower Lacamas Creek, Matney Creek, Dwyer Creek, and Lacamas Lake
Burnt Bridge Creek	Lower Burnt Bridge Creek, Burnt Bridge Middle Burnt Bridge Creek, Upper Burnt Bridge Creek, and Burton Sink
Salmon Creek	Salmon Creek RM 3.83, 8.96, 14.66, and 22.20; Cougar Creek, Curtin Creek, Woodin Creek, Morgan Creek, Rock Creek, and Upper Whipple Creek
Vancouver Lake/Lake River	Lakeshore

The rationale for the extent of the service area across the majority of the Lacamas, Burnt Bridge, and Salmon Creek Watersheds was justified based on the historic and existing surface water and ground water (hydrological) linkages throughout the watersheds, as well as the similarity of the watershed priorities and existing conditions found within the Bank’s watershed, and those within the service area. Specifically, those portions of Lacamas, Burnt Bridge, and Salmon Creek Watersheds included in the Bank’s service area were those areas that: 1) have similar position in the landscape, 2) are connected by groundwater based on the configuration and slope of the Troutdale Formation, which bisects the terrace area of all three watersheds, and 3) have similar impairments and planning objectives that can be addressed at the Bank.

The overall landscape of the service area encompasses a broad plateau or terrace overlaying a consistent, and in some areas shallow, groundwater table. The groundwater supports wetlands and both natural and man-made drainages that express as hydrology at the land surface/subsurface interface. At the Bank site the existing tile drains artificially keep the groundwater at the site approximately 2 to 4 feet lower than would naturally occur without the tiles. Disabling the tiles on the site will increase groundwater/surface water storage by 300 acre feet of water. The high water storage/holding capacity of the predominant peat/muck soils onsite will augment water storage. Once absorbed, water will be held for long durations and released slowly to groundwater and downstream sources. The effect of the increase of approximately 300-acre feet of groundwater storage will directly benefit Burnt Bridge Creek, and due to proximity and shared groundwater resources, Salmon Creek and Lacamas Watersheds.

A primary factor is the configuration and slope of the Troutdale Formation which holds the largest aquifer in the 4th Plains Region and which bisects the terrace area of all three watersheds (United States Geological Survey 1960). The Bank is located in an extremely level landscape with little or no slope, at the east edge of the Burnt Bridge Creek Watershed, and 1,300 feet horizontal distance from the adjacent Lacamas Watershed boundary. This area of the Lacamas Watershed is drained by the tributary Big Ditch Creek, just east of the Burnt Bridge Creek/Lacamas Watershed divide at NE 162nd Avenue. The direction of surface water flow in this area is dictated by man-made ditches because the land surface is virtually flat. Below the surface water in the ditches, the groundwater is likely very constant throughout this area and clearly bisects both the Burnt Bridge Creek and Lacamas Watersheds.

Upper Burnt Bridge Creek is slightly flatter than the Lacamas drainage and groundwater, and assuming it moves toward a steeper gradient, it is likely flowing downward and eastward toward Lacamas Watershed despite the shallower westward surface water flow in Burnt Bridge Creek. By increasing groundwater levels at the Bank site by three feet through disabling drain tiles, it will have an effect of “mounding” the groundwater. This adds downward pressure on the groundwater as well as increased storage due to the highly absorbent peat soils (Exhibit E-1). Once the tiles are disabled, the flow path of the shallower groundwater will not only be lateral to Burnt Bridge Creek but also vertical and downward to the larger aquifer that bisects and discharges to both watersheds.

The other watershed benefiting from increased groundwater elevations at the Bank is the Curtin Creek drainage within Salmon Creek Watershed. A review of groundwater expressing as surface water can be found northwest of the Bank within the Salmon Creek Watershed, from the Curtin Creek tributary, extending 17,000 feet horizontally to a wetland at 190 feet elevation north of NE 88th Street and west of 79th Court. While this location is nearly twice the distance from the Bank to the same elevation westerly on Burnt Bridge Creek, the 190-foot elevation on both Curtin Creek and Burnt Bridge Creek are roughly aligned on a southeast to northwest axis. The Troutdale formation slopes southwesterly such that the Bank site is positioned higher on the Troutdale formation slope than Curtin Creek, suggesting groundwater can trend in a west and northwesterly direction from the Bank toward both Curtin Creek and Burnt Bridge Creek (Exhibit E-1).

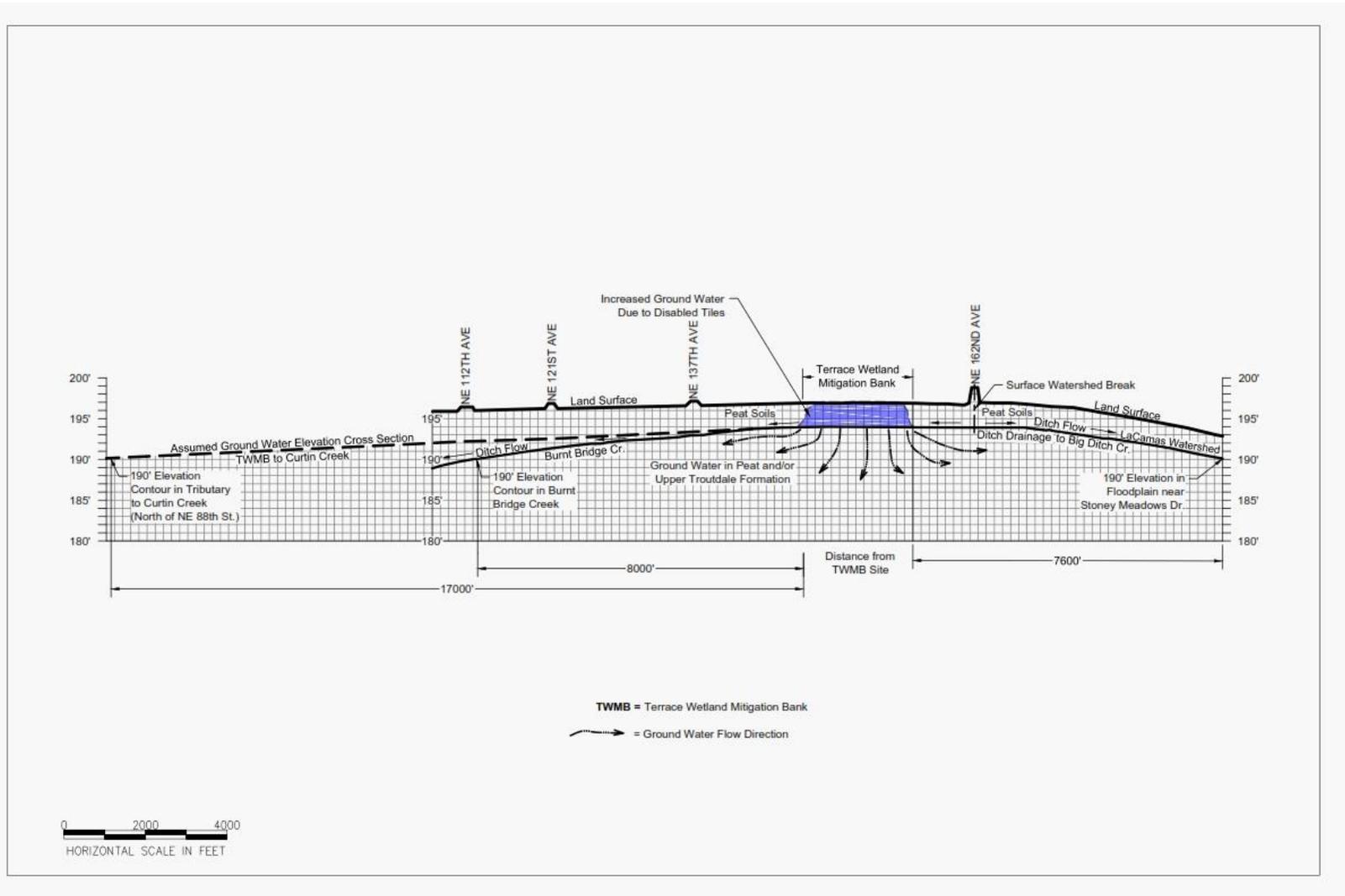


Exhibit E-1. Groundwater cross section.

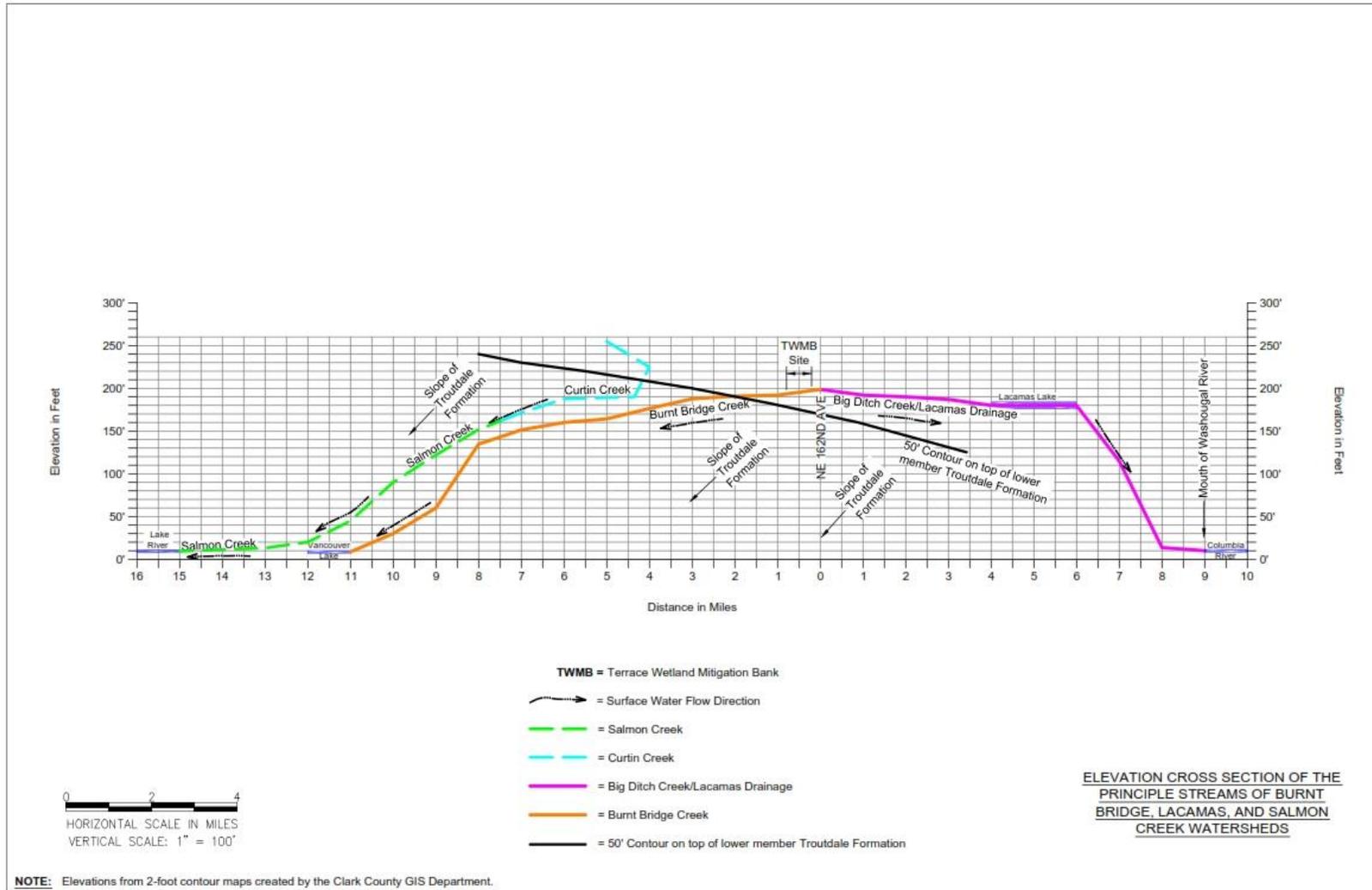


Exhibit E-2. Watershed streams cross section.

Exhibit E-2 displays a cross-sectional comparison of elevations of the primary drainages in the Burnt Bridge Creek, Lacamas, and Salmon Creek Watersheds. As discussed above, the proposed Bank can provide increased water storage, which based on the interconnectivity of wetlands, groundwater, and stream flows provide a hydrological benefit to all watersheds within the service area, by increasing natural storage in groundwater and wetlands.

The Bank may be used to compensate for permitted (permanent, direct, indirect, temporary and buffer) impacts that are located within the service area if specifically approved by the appropriate agencies requiring mitigation. There may be some circumstances where wetlands in the greater Salmon Creek Watershed (especially the upper portions) that are providing low base-flow support to the watershed will be prohibited from using the Bank, if they are deemed as providing this critical need in the Salmon Creek Watershed by the agencies requiring mitigation. In instances where the hydrological functions being impacted cannot be replaced at the Bank, it may be possible to decouple the hydrologic and habitat impacts, and compensate the individual habitat impacts at the Bank with the authorizing agencies approval. The Bank cannot be used to compensate for fish-related stream or tributary impacts within the Salmon Creek Watershed, unless specifically approved by the permitting agencies and the IRT.

B. The Bank may be used to compensate for permitted impacts outside the service area, including the Mill Creek Subwatershed, if specifically approved by the appropriate agencies requiring mitigation and the Corps and Ecology, following consultation with the IRT, provided that such mitigation would be practicable and environmentally preferable to other mitigation alternatives. As such, out-of-service-area impacts will only be allowed in special circumstances, which will be evaluated on a case-by-case basis. Examples include projects that span multiple basins, such as transportation and utility corridors and pipelines, and settlement of enforcement actions.

E.2 Credit-Debit Ratios

A. Bank credits may be used, subject to the approval of the regulatory agencies with jurisdiction over the impact, to compensate for authorized permanent or temporary impacts, as well as to resolve enforcement or permit compliance actions such as replacing previously implemented project-specific mitigation that has partially or completely failed.

B. Each credit withdrawal transaction agreement that is associated with a permit must indicate the permit number of the impacting project, the number of credits transacted, and must expressly specify that the Sponsor, and its successors and assigns, assumes responsibility for accomplishment and maintenance of the permittee's compensatory mitigation requirements associated with the impacting project, upon completion of the credit transaction.

C. The following table depicts the approximate number of Bank credits typically required by the IRT agencies to compensate for each unit of permanent loss of listed aquatic resource type and functional level. The actual number of Bank credits required to compensate for an adverse impact to aquatic resources in any particular situation depends on many factors (such as whether the impact is permanent or temporary) and will be determined on a case-by-case basis by the regulatory agency(ies) authorizing the impact. The wetland functional categories are based on

the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Ecology Publication #14-06-029). Units of loss are measured in acres for wetland and buffer impacts and may be measured in either acres or linear feet for stream impacts. Due to the variety and typically high level of functioning of both streams and Category I wetland, compensation for impacts to these resources by Bank credits will be determined by the regulatory agencies on a case-by-case basis.

Table E-2: Typical Credit-Debit Ratios

Resource Impact	Bank Credits: Impact Acreage
Wetland, Category I	Case-by-Case
Wetland, Category II	1.2:1
Wetland, Category III	1:1
Wetland, Category IV	0.85:1
Critical Area Buffer	Case-by-Case

E.3 Procedures for Use of Mitigation Bank Credits

A. **Use of Mitigation Bank Credits:** Public and private proponents of activities regulated under Sections 401 and 404 of the Clean Water Act (33 U.S. Code §§ 1341, 1344), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code § 403), Washington State Water Pollution Control Act (Chapter 90.48, RCW), Shoreline Management Act (RCW 90.58), Growth Management Act (RCW 36.70A), Hydraulic Code (RCW 75.20), and other Federal, State, and local authorities may be eligible to use the Bank as mitigation for unavoidable impacts. The Bank will be eligible to serve public and private end users by providing advance compensatory mitigation for authorized impacts to regulated areas that require mitigation to settle enforcement claims. The Bank is intended to provide replacement of lost functions and values including: wetlands, endangered species habitat, riparian habitat, and upland/buffer habitat.

B. An applicant seeking a permit for a project with adverse impacts to the aquatic environment within the service area must generally obtain the approval of each regulatory agency with jurisdiction over that project, in order to use the Bank as a source of compensatory mitigation. To receive approval to use the Bank, the applicant must demonstrate to the satisfaction of the pertinent regulatory agencies that the project complies with all applicable requirements pertaining to alternatives and mitigation sequencing and that purchasing credits from the Bank for compensatory mitigation would be environmentally preferable. Specifically, a permit applicant must generally be able to demonstrate to the satisfaction of the involved regulatory agencies that:

(1) There is no practicable alternative to adversely impacting the water body, critical area, buffer, or other regulated area; and

(2) All appropriate and practicable measures to minimize adverse impacts to the aquatic ecosystem have been considered and included in the project.

It is solely the determination of the agency(ies) permitting the project with adverse impacts as to whether a proposed use of Bank credits within the service area is environmentally preferable and appropriate to other mitigation alternatives.

C. . Upon receiving permission to utilize credits from the Bank the permittee must contact the Sponsor to ensure that credits are available. Upon completion of the transaction, the Sponsor will inform the permitting agencies of each completed transaction, via email or letter with an attached copy of the accounting ledger.

D. Other types of credit users may include, but are not necessarily limited to, purchases made that will not be associated with a particular project or impact (i.e., “good will” purchase), purchases made by natural resource stewards resulting from expenditures from in-lieu-fees (or similar type funds), and other conservation purposes.

E. The Sponsor may use the Bank site to provide compensatory mitigation to offset impacts to environmental elements other than aquatic resources. Such use shall result in no physical changes to the Bank site unless approved by the Corps and Ecology, in consultation with the IRT. The Sponsor must obtain approval from the Corps and Ecology, following consultation with the IRT, prior to establishing currencies other than the wetland mitigation credits that are established by Appendix D of this Instrument. The agencies that regulate those specific environmental elements are responsible for establishing the value of the currency and release schedules, and determining the appropriateness of using the Bank as compensatory mitigation for impacts to those elements. The Corps and Ecology, in consultation with the IRT, will determine how withdrawal of those currencies will affect the amount of potential wetland mitigation credits remaining. The Sponsor shall record the award and use of all currencies on the Bank ledger and otherwise follow the procedures as outlined in Appendix E.4. Use of the Bank for compensatory mitigation for other environmental elements shall not conflict with the provisions of this Instrument.

E.4 Accounting Procedures

A. The Sponsor shall establish and maintain for inspection and reporting purposes a ledger of all credits that are awarded through the achievement of specified performance standards, as well as credits that are sold, used or transferred. The Sponsor will record each credit withdrawal transaction that receives a permit with the Clark County Auditor, and submit a copy of the recorded transaction to each member of the IRT within 30 days from the stamped registration date.

B. The ledger must follow the current ledger template approved by the Corps and Ecology. The following information will be recorded in the ledger for each transaction:

- (1) Date of transaction.
- (2) Number of credits transacted.

(3) For credits awarded, reference the performance standard(s) to which the awarded credits correspond.

(4) For credit sales/use/transfers, include the name, address, and telephone number of purchaser/user/transferee; and include all the following information that applies: permit number(s), permit issuance date, and name of the regulatory agency(ies) issuing permits; location of the project for which the credits are being purchased/used/transferred; the size of the impacts; and a brief description of the project impacts requiring compensatory mitigation (e.g., nature and quality of aquatic resources affected).

(5) For credits withdrawn from the ledger for reasons other than credit sale/use/transfer, include the specific reason for withdrawal.

(6) Bank balance after the award or transaction.

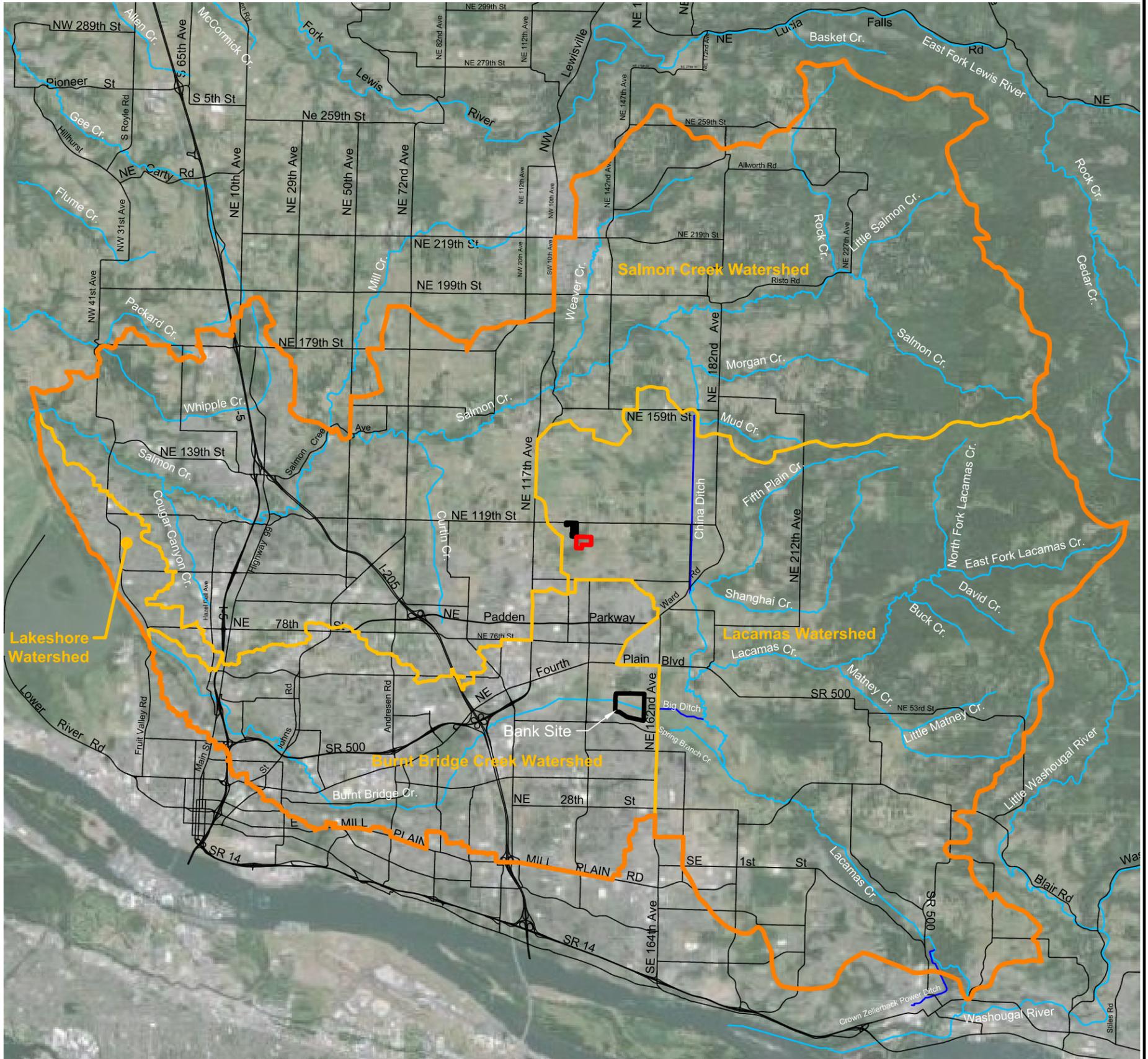
C. The Sponsor will provide an updated ledger to each member of the IRT each time credits are awarded, sold, used, or otherwise transferred. This must be provided within 30 days of any credit transaction. The Sponsor will also submit an annual ledger by February 1 of each year. The annual ledger must show a cumulative tabulation of all credit transactions at the Bank through December 31. This ledger will be submitted in conjunction with the monitoring reports until (1) all credits have been awarded and sold, used, or otherwise transferred; or (2) until the Corps and Ecology, in consultation with the IRT, has accepted the Sponsor's written request to permanently cease all banking activity.

References

Hruby, T. 2014. *Washington State Wetland Rating System for Western Washington – 2014 Update*. Washington State Department of Ecology Publication #14-06-029.

U.S. Geological Survey. 1960. *Geology and Groundwater Resources of Clark County, Washington* (Water Bulletin #9).

Washington State Department of Ecology, 2009. *Watershed Characterization and Analysis of Clark County*. Washington State Department of Ecology Publication # 09-06-019.



Service Area

The Bank's Service Area extends to the limits of the Terrace hydrogeologic unit, as described in the Watershed Characterization of Clark County (Ecology 2009). This covers the majority of the Salmon-Washougal portion of Water Resource Inventory Area (WRIA 28).

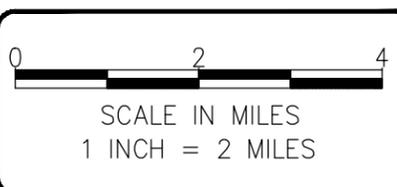
LEGEND:

- Service Area
- Watershed Boundary

Table E-1. Extent of Terrace Mitigation Bank Service Area.

Limits of Terrace Mitigation Bank Service Area	
Northern Limits	West Slope (Gee Creek Subwatershed) and East Fork Lewis River Watersheds
Western Limits	Vancouver Lake and Lake River waterbodies, Lakeshore and Salmon Creek River Mile (RM) 00.06 Subwatersheds
Southern Limits	Columbia Slope Watershed (Columbia Slope and Camas Subwatersheds)
Eastern Limits	Washougal River (Little Washougal Subwatershed) and East Fork Lewis River Watersheds
Watersheds that extend into Service Area	Sub-watersheds in Service Area
Lacamas	China Ditch, Lower Fifth Plain, Lacamas Creek, Upper Fifth Plain Creek, Shanghai Creek, Upper Lacamas Creek, Lower Lacamas Creek, Matney Creek, Dwyer Creek, and Lacamas Lake
Burnt Bridge Creek	Lower Burnt Bridge Creek, Middle Burnt Bridge Creek, Upper Burnt Bridge Creek, and Burton Sink
Salmon Creek	Salmon Creek RM 3.83, 8.96, 14.66, and 22.20; Cougar Creek, Curtin Creek, Woodin Creek, Morgan Creek, Rock Creek, and Upper Whipple Creek
Vancouver Lake/Lake River	Lakeshore

NOTES: Aerial photo from Google Earth™. Subwatershed boundaries from Clark County GIS Department.



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DATE: 10/10/16
 DWN: JKJ
 REQ. BY: KB
 PRJ. MGR: KB
 CHK:
 PROJECT NO:
 1382.02

Figure E-1
TERRACE MITIGATION BANK SERVICE AREA
 Terrace Mitigation Bank
 Rotschy, Inc.
 City of Vancouver, Clark County, Washington
 Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

APPENDIX F

ESTABLISHMENT PERIOD MONITORING, REPORTING, MAINTENANCE, AND REMEDIAL ACTION

During the establishment period, the Sponsor shall monitor and report on the progress of the Bank toward achieving the goals, objectives, and performance standards established by these Appendices and take all actions directed by the Corps and/or Ecology, following consultation with the IRT, to remediate any consideration that prevents a component of the Bank from achieving the goals, objectives, and performance standards of the Bank. Procedures for as-built reports, monitoring reports, and remedial actions are described below.

F.1 As-Built Reports

As-built reports will be submitted to the IRT upon the completion of construction to verify topography, hydrology, and planting. The As-built drawings shall be signed and stamped by a licensed surveyor at one-foot elevation topographic intervals. This may be one report that describes all construction, or it may be separated into two reports that are submitted at different times, one following grading and related construction, the other following completion of planting. At a minimum, the following components should be included in one or both (as appropriate) of the as-built reports:

- Name and contact information for the parties responsible for the Bank construction site including the Bank Sponsor, engineers, and wetland professional onsite during construction
- Ecology, Corps, and Local permit numbers
- Dates when activities began and ended such as grading, culvert removal, removal of invasive plants, installing plants, and installing habitat features
- Photographs of the site at as-built conditions taken from photo stations (panoramic photos are recommended)
- Description of any problems encountered and solutions implemented (with reasons for changes) during construction of the Bank site
- List of any follow-up actions needed with a schedule
- 11x17 maps of the Bank site showing:
 - Completed grading, culvert removal, and stream bank reshaping
 - Installed planting scheme – quantities, densities, sizes, approximate locations, and the sources of plant material
 - Locations of dataloggers
 - Locations of habitat features
 - Locations of permanent photo stations
 - Date when the maps were produced and, if applicable, when information was collected

As-built reports will be submitted to each member of the IRT within 90 days of completing construction of the Bank, and must demonstrate compliance with Appendix B and any modifications to the Bank development plan and design, approved by the Corps and Ecology

prior to their construction or implementation, following consultation with the other members of the IRT.

Permanent photo points will be established in Year 0 to document the progression of each habitat type. Photo point locations will be documented in the as-built report. A Terrace Mitigation Bank construction manager will document Year 0 post-construction conditions in the as-built report for grading, plantings, large woody material and other habitat features; and will include photographs and as-built drawings.

F.2 Establishment Period Monitoring:

A performance monitoring program will be implemented to determine the degree of success of the mitigation effort during the establishment period. Monitoring will include periodic surveys and site evaluations to establish the foundation on which the Bank can demonstrate to the IRT that pertinent performance standards have been achieved and continue to be maintained. Monitoring will include measurements and observations of site stabilization, wetland hydrology, vegetative cover, plant survival, vegetation structure, stream temperature, as well as species composition, functional values, and noxious weed invasion.

F.2.1 Overview of Monitoring Requirements:

As-built and on-going monitoring requirements specific to each performance standard (see Section C.2. of Appendix C) are summarized below.

Objective 2: Hydrology: Re-establish and rehabilitate wetland hydrology by disabling the extensive drain-tile system currently used to convey water off of the site. Remove existing culvert crossing to improve stream flow.

- Document in an as-built report the disabling of drain tiles that presently convey water off the site, culvert removal, and stream bank reshaping to improve floodplain connectivity to the site. Also document baseline stream temperatures in the as-built report at monitoring sites on Burnt Bridge Creek. (Performance Standard 2A).
- Monitor wetland hydrology in Years 0, 1, 2, and 3 for wetland hydrology determination in Year 3 (Performance Standard 2B).
- Conduct wetland delineations in Years 5 and 10, documenting wetland acreage, vegetation, and soil development (Performance Standard 2C).
- Document permanently ponded areas in Years 3, 5, and 10 (Performance Standard 2D).

Objective 3: Vegetation: Establish native wetland vegetation communities comparable to pre-agricultural conditions on the site and in accordance with the targeted hydrologic regimes across the site. Vegetation communities to include Palustrine Emergent Wetland (PEM), Palustrine Forested Scrub-Shrub Mosaic (PFO/PSS Mosaic), Palustrine Forested Scrub-Shrub Riparian (PFO/PSS Riparian), Shrub Buffer (SB), Palustrine Scrub-Scrub (PSS)¹, and Nootka Rose Hedgerow (NRH). Control invasive species across the site.

¹ The Palustrine Scrub-Shrub (PSS) community will only be located within the existing 0.10 acres of wetland within the Shrub Buffer area located in the BPA Easement.

For all habitat types on site:

- Document Year 0 As-Built conditions showing plant locations, planted acreages, species, seeding rate, planting quantities, and planting densities (Performance Standard 3A).
- Conduct vegetation monitoring in Years 1, 3, 5, 7, and 10 documenting non-native invasive species presence and cover (Performance Standard 3B).
- Conduct vegetation monitoring in Years 1, 3, 5, 7, and 10 documenting aerial extent of reed canarygrass (Performance Standard 3C).
- Conduct annual inventory for aggressive non-native invasive species including Japanese knotweed, purple loosestrife, English ivy, and Class A noxious weeds presence and eradication reported in monitoring reports for Years 1, 3, 5, 7, and 10 (Performance Standard 3D).

For Palustrine Emergent Wetland (PEM) Habitat:

- Document species presence within sampling plots in Years 3, 5, 7, and 10 (Performance Standard 3E).
- Document native species percent cover within sampling plots in Years 1, 3, 5, 7, and 10 (Performance Standard 3F).

For Palustrine Forested/Scrub-Shrub (PFO/PSS) Mosaic and Riparian Habitat Type:

- In PFO/PSS habitat, document density of native woody plants in Year 1 and percent cover in Years 3, 5, 7, and 10 (Performance Standards 3G and 3I)
- In PFO/PSS habitat, document density of native trees in Years 3, 5, 7, and 10 (Performance Standards 3H and 3J)

For Shrub Buffer (SB) and Nootka Rose Hedgerow (NRH):

- In Shrub Buffer habitat document density of native woody plants in Year 1 and percent cover in Years 3, 5, 7, and 10 (Performance Standard 3K)
- Within Nootka Rose Hedgerow document density of Nootka rose plants in Year 1 and percent cover in Years 3, 5, 7, and 10 (Performance Standard 3L)

Objective 4: Wildlife

Create and improve habitat for wildlife on the site by installing habitat features and removing unnecessary culvert crossing on Burnt Bridge Creek. Improve habitat for wildlife by shading stream banks with native PFO/PSS vegetation.

- Document on the as-built map at Year 0, location and number of installed horizontal logs, snags, perch poles, and nest boxes and in Year 10, document location and number of habitat features in the Year 10 monitoring report. (Performance Standards 4A and 4B).
- Document change in stream temperatures from PFO/PSS vegetation shading within the Burnt Bridge Creek stream channel in Years 1, 3, 5, and 10 (Performance Standard 4C).

Table F-2 Summary of Annual Monitoring Tasks

Bank Year	Report name	Performance Standard	Monitoring Task	Monitoring Area	Expected Site Visits
Year 0	Baseline	2B	Collect hydrology data over site after disabling tiles and re-grading of stream bank and before planting	Entire Bank site	Multiple August - March
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
	As-built Report	2A	Submittal of grading as-built, including baseline stream temperature data	Entire Bank site	90 days after completion
		3A	Submittal of planting as-built	Entire Bank site	90 days after completion
		4A	Habitat features installed	Entire Bank site	90 days after completion
Year 1	Year 1 Monitoring Report	2B	Collect hydrology data over site	Entire Bank site	Multiple March-June
		3B, 3C, 3D	Monitor for non-native species	Within each habitat class entire Bank site	June-Sept, one time in year
		3F	Collect cover data in PEM habitat	PEM	Aug-Sept, one time in year
		3G, 3I	Collect plant density in PFO/PSS Wetland Mosaic and Riparian Habitat	PFO/PSS	Aug-Sept, one time in year
		3K, 3L	Collect density in Shrub Buffer habitat and Nootka Rose Hedgerow	SB/NRH	Aug-Sept, one time in year
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
Year 2	--	2B	Collect hydrology data over site	Entire Bank site	Multiple March-June
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
Year 3	Year 3 Monitoring Report	2B	Collect hydrology data over site	Entire Bank site	Multiple March-June
		2D	Measure permanently ponded areas	Entire Bank site	August one time in year
		3B, 3C, 3D	Monitor for non-native invasive species	Within each habitat class entire Bank site	June-Sept, one time in year
		3E	Collect species presence and cover data for native species	PEM	Aug-Sept, one time in year
		3F	Collect cover data in PEM habitat	PEM	Aug-Sept, one time in year
		3G, 3I	Collect cover data in PFO/PSS Wetland Mosaic and Riparian habitat	PFO/PSS	Aug-Sept, one time in year
		3H, 3J	Collect tree density in PFO/PSS Wetland Mosaic and Riparian habitat	PFO	Aug-Sept, one time in year
		3K, 3L	Collect cover data in Shrub Buffer habitat and Nootka Rose Hedgerow	SB/NRH	Aug-Sept, one time in year
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
Year 5	Year 5 Monitoring Report	2C	Conduct wetland delineation	Entire Bank site	Single March – June
		2D	Measure permanently ponded areas	Entire Bank site	August one time in year
		3B, 3C, 3D	Monitor for non-native invasive species	Within each habitat class entire Bank site	June-Sept, one time in year

		3E	Collect species presence and cover data for native species	PEM	Aug-Sept, one time in year
		3F	Collect cover data in PEM habitat	PEM	Aug-Sept, one time in year
		3G, 3I	Collect cover data in PFO/PSS Wetland Mosaic and Riparian Habitat	PFO	Aug-Sept, one time in year
		3H, 3J	Collect tree density in PFO/PSS Wetland Mosaic and Riparian habitat	PFO	Aug-Sept, one time in year
		3K, 3L	Collect cover data in Shrub Buffer habitat and Nootka Rose Hedgerow	SB/NRH	Aug-Sept, one time in year
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
Year 7	Year 7 Monitoring Report	3B, 3C, 3D	Monitor for non-native invasive species	Within each habitat class entire Bank site	June-Sept, one time in Year
		3E	Collect species presence and cover data for native species	PEM	Aug-Sept, one time in year
		3F	Collect cover data in PEM habitat	PEM	Aug-Sept, one time in year
		3G, 3I	Collect cover data in PFO/PSS Wetland Mosaic and Riparian habitat	PFO	Aug-Sept, one time in year
		3H, 3J	Collect tree density in PFO/PSS Wetland Mosaic and Riparian habitat	PFO	Aug-Sept, one time in year
		3K, 3L	Collect cover data in Shrub Buffer habitat and Nootka Rose Hedgerow	SB/NRH	Aug-Sept, one time in year
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
Year 10	Year 10 Monitoring Report	2C	Conduct wetland delineation	Entire Bank site	Single March-June
		2D	Measure permanently ponded areas	Entire Bank site	August one time in year
		3B, 3C, 3D	Monitor for non-native invasive species	Within each habitat class entire Bank site	June-Sept, one time in year
		3E	Collect species presence and cover data for native species	PEM	Aug-Sept, one time in year
		3F	Collect cover data in PEM habitat	PEM	Aug-Sept, one time in year
		3G, 3I	Collect cover data in PFO/PSS Wetland Mosaic and Riparian habitat	PFO	Aug-Sept, one time in year
		3H, 3J	Collect tree density in PFO/PSS Wetland Mosaic and Riparian habitat	PFO	Aug-Sept, one time in year
		3K, 3L	Collect cover data in Shrub Buffer habitat and Nootka Rose Hedgerow	SB/NRH	Aug-Sept, one time in year
		4B	Collect data on condition and number of remaining habitat features	Entire Bank site	One time in year
		4C	Collect stream temperature data	In stream channel	Download datalogger data bi-yearly
Years 1, 3, 5, 7, and 10	Individual Year Monitoring Report	--	Record photos from established photo points	Entire Bank site	Aug-Sept, one time in year

F.2.2 Monitoring Protocols

Formal monitoring will include both qualitative and quantitative monitoring to address fulfillment of the Bank objectives and performance standards (see Appendix C). Formal monitoring will occur throughout Years 1, 3, 5, 7, and 10 according to the monitoring schedule and sampling protocol described below. Year 0 is the calendar year during which the as-built/as-planted drawings are approved in writing by the Corps and Ecology, in consultation with the IRT. Year 1 is the first year of site monitoring after approval of the as-built/as-planted drawings. Wetland determinations will be conducted in areas intended to be wetland during Year 3. Full wetland delineations will be conducted throughout the entire Bank area in Years 5 and 10.

Informal monitoring provides a general overview of site progress, and will be conducted during Years 2, 4, 6, 8, and 9 for which there is no formal quantitative monitoring reporting requirement to ensure that the site appears to be progressing towards meeting performance standards. Specifically, a qualitative visual inspection of the Bank will be conducted during periodic site visits to identify concerns associated with meeting Bank objectives and performance standards, if any. Informal monitoring will usually include observation notes and site photos. Informal monitoring may quantitatively address some performance standards for upcoming years, but may be less statistically rigorous than formal monitoring. Informal monitoring will be the only monitoring method during the years for which there are no performance standards, although it will also be employed during years of formal monitoring.

Photo Documentation

Photo points will be established in areas that will provide general vantage points around the margin of the Bank, vantage points within the Bank, and at specific monitoring locations such as hydrology monitoring locations, vegetation sampling points, or habitat features, in sufficient numbers to give a visual representation of onsite conditions. Location of photo points will be recorded by hand-held GPS and marked in the field using metal stakes. Documentation of the location of the photo points will be provided on the site map included in As-built and formal monitoring reports.

F.2.2.1 Hydrology

Following construction and grading of the site, eight permanent hydrologic monitoring datalogger devices will be installed at locations approved by the IRT. Each datalogger location will be identified on as-built drawings and will record groundwater and/or surface water levels as well as water temperature, one time every 24 hours (totaling 365 readings per year), throughout each year of the Bank's 10 Year monitoring period. Data will be downloaded from the individual dataloggers every six months, and reviewed annually. Calibration of dataloggers will be performed at the intervals specified by the datalogger manufacturer. A map showing approximate locations of the dataloggers at the Bank site is shown on **Figure F-1**. Dataloggers will be placed within perforated tubing at a depth approximately 40 inches below the soil surface. Readings will be compensated for barometric pressure at the site and distance below the ground surface at each monitoring location. Continuous hydrologic data collection at relevant locations and elevations across the site will be used to measure the attainment of performance standards relating to the reestablishment of wetland hydrology on the site. Data collected during

the fall and winter after grading and construction and prior to planting will assist in determining the planting boundaries between various habitat communities across the site.

Hydrologic data collected from dataloggers in Years 0, 1, 2 and 3 will be used in the wetland hydrology determination in Year 3 to measure the attainment of performance standard 2B, “*a minimum of 79 acres of the site will have wetland hydrology present at 3 years*”. In addition to data collected from the dataloggers, shallow soil pits will be located across the site during the Year 3 wetland hydrology determination to provide additional documentation of wetland hydrology and hydric soil development above and beyond datalogger data.

Shallow soil pits (20 inches in depth) are intended to document the presence of shallow groundwater, saturated soils, and hydric soil development that would support wetland conditions, which may not be captured by dataloggers. Wetland hydrology for the project site is defined as datalogger readings, soil saturation to the surface, or free water in the soil pits, at 12 inches or less below the soil surface for at least 30 consecutive days of the growing season, where the growing season is defined in the 1987 Corps of Engineers Delineation Manual and appropriate supplements. If performance standards are not met, further data collection will be conducted, as necessary.

For Year 3, formal monitoring will include a wetland hydrology determination which includes spot checking in the areas that are intended to be wetland to determine if site characteristics related to the extent and duration of wetland hydrology are establishing. The areas that have been checked for wetland characteristics will be shown on a determination map. For Years 5 and 10, formal monitoring will include a full wetland delineation on the entire site, using the *1987 Corps of Engineers Wetland Delineation Manual* (U.S. Army Corps of Engineers 1987) and appropriate supplements. The wetland edge will be clearly marked in the field by a qualified wetland biologist. The wetland edge will be surveyed and mapped by a licensed land surveyor. A GPS-based survey method is acceptable as long as it has sub-meter accuracy. Computer-aided drawing software will be used to calculate the size of each wetland area after the determination and delineation have been completed. Results from both formal and informal monitoring will be summarized in the Monitoring Reports submitted to the IRT.

Hydrologic data collected from the dataloggers will also provide relevant information for wetland delineations conducted in Years 5 and 10 at the site (Performance Standard 2C). In addition to datalogger data, hydrologic data will be collected from shallow groundwater monitoring wells (24 inches in depth) during the growing seasons of Years 5 and 10 to inform the wetland delineations at those times.

Photo points will be established at each permanent hydrologic monitoring point. Data and photo points for hydrology shall include those locations with permanent dataloggers as well as two to three additional locations that will allow for representative shallow soil pit sampling in each area intended to be wetland as approved by the IRT. At a minimum, data collected from permanent data/photo points shall be reported during Years 1, 3, 5, 7, and 10. All hydrology monitoring results shall be reported in applicable monitoring reports.

F.2.2.2 Vegetation

A stratified random sampling approach as described in Elzinga et al. (1998) will generally be used to collect data to assess attainment of performance standards related to vegetation (Performance Standards 3A through 3L). Each vegetation community will be treated as a separate stratum. The vegetation communities are: Palustrine Emergent Wetland (PEM), Palustrine Forested/Scrub-Shrub Wetland Mosaic (PFO/PSS Mosaic), Palustrine Forested/Scrub-Shrub Riparian (PFO/PSS Riparian), Shrub Buffer (includes the Palustrine Scrub-Shrub (PSS) community in the BPA Easement), and Nootka Rose Hedgerow.

The performance standards address PFO/PSS Wetland Mosaic and Riparian, PEM, Shrub Buffer, and Nootka Rose Hedgerow vegetation communities separately. To the extent possible when permanent monitoring plots are established, each individual plot will be located so as to include only one vegetation community (PFO/PSS, PEM, Shrub Buffer, or Nootka Rose Hedgerow) based on as-built plantings and on the ground conditions. If more than one vegetation community is present in the same plot, then the plot designation will be determined based on the dominant vegetation community contained in the majority of the plot and monitored accordingly, and/or be moved in a direction to fully encapsulate whatever vegetation community is being monitored for the plot. If a plot has to be adjusted by length or width to account for the clustered approach to planting, the biologist will note that in field notes and within the monitoring report, and will revise the Bank site map accordingly. Additional plots may be added during field monitoring at the biologist's discretion. If the monitoring methodology as written does not accurately inform the IRT about the success of a particular habitat area even though it may be thriving, the Bank Sponsor will coordinate with the IRT about changing the monitoring approach, which performance standards to apply in those areas, or how existing performance standards could be modified.

Using AutoCAD, 4 grid patterns will be generated to fit each vegetation community (PFO/PSS, PEM, Shrub Buffer, or Nootka Rose Hedgerow) and overlaid onto each corresponding vegetation community as defined on the final as-built planting plan. The length and distance of grid-pattern lines and intersections will be evenly spaced over each vegetation community at distances able to generate an adequate number of potential monitoring points within each community. Grid-pattern line intersections falling within the vegetation community will be utilized while intersections falling outside the vegetation community will be discarded. Potential monitoring points will be identified at each grid pattern line intersection. Within each community, all grid-pattern line intersections will be assigned numbers, and monitoring points (where monitoring plants would be located) will be randomly selected using a random number generator utilizing that number set. The number of monitoring plots will depend on the monitoring protocols for that vegetation community being sampled. A minimum of 1% of the total acreage of PFO/PSS Wetland Mosaic and Riparian vegetation communities, Shrub Buffer, and Nootka Rose Hedgerow will be sampled, and a minimum of three plots per acre of the PEM habitat will be sampled. The coordinates of each random monitoring plot location will be compiled using the computer program AutoCAD Civil 3D. In addition, the random plot locations will be evaluated to confirm that they are relatively evenly distributed across individual vegetation communities and across the Bank site to ensure representative sampling of the entire Bank site. If deemed necessary, alternate random plots will be substituted to avoid over-

sampling (plot clusters) or under-sampling of portions of the vegetation communities. During the course of the monitoring period, additional plots may be added if deemed necessary by the Corps and Ecology, after consultation with the IRT, to better represent the condition and establishment of the vegetation community. Monitoring plot coordinates will then be entered into a hand held Global Positioning System (GPS) unit and located in the field.

Plot locations will be field-verified, and if a plot is determined to be unusable during field sampling, (e.g., lies in the middle of an access path) another randomly located plot will be substituted. An example of locating monitoring points using the stratified random sampling approach and grid pattern line intersections is shown on **Figure F-1**. Final plot locations will be recorded by GPS in the field, will be shown on site maps in monitoring reports, and the same plot locations will be sampled during each monitoring period. Using the GPS data, individual plot locations will be located/identified in the field during monitoring events.

Sampling plots are established to measure species presence, percent cover, and native plant density to determine site progress in meeting performance standards. Where it occurs in a sample plot, bare soil percentage will be identified separately from vegetation within the overall percent cover. Minimum sampling requirements are established by the acreage of each habitat type, where at least 1% of the area of each forested and shrub habitat type (PFO/PSS Wetland Mosaic, PFO/PSS Riparian, Shrub Buffer, and Hedgerow) is sampled, and a minimum of three plots per acre are sampled in the herbaceous habitat type (PEM). The minimum sampling area for each habitat type was determined based on methods described in Tiner (Wetland Indicators: A Guide to Wetland Identification, Delineation, Classification, and Mapping, 1999) and Krebs (Ecological Methodology, 1999), and in consultation with the IRT. Sample plot sizes were based on methods described in Gage and Cooper (Vegetation Sampling for Wetland Delineation 2010) and consultation with the IRT.

Sample Plot Sizes:

Forested/Shrub communities (PFO/PSS Wetland Mosaic and Riparian) shall be sampled with a 15-foot radius circle (area of the sample plot equals 707 square feet).

Shrub Buffer community shall be sampled with a 12-foot radius (area of the sample plot equals 452 square feet).

Nootka Rose Hedgerow shall be sampled using sample plots of 5-feet wide by 20-feet long (area of sample plot equals 100 square feet).

Herbaceous communities (PEM) shall be sampled with a 3-foot radius circle (area of the sample plot equals 28 square feet).

Additional sample plots may be added if deemed necessary by the Sponsor or by the IRT. All monitoring plot locations will be shown on maps in the monitoring reports.

Table F-1 Sample Plots by Proposed Habitat Type

Habitat Type	Proposed Acreage	Sample Plots (Minimum 1% of area of habitat type for PFO/PSS Wetland Mosaic and Riparian, 3 plots/acre PEM)	Proposed # of Sample Plots
PFO/PSS Wetland Mosaic	26.11	16	16
PFO/PSS Riparian	17.13	11	11
PEM	45.81	144	144
Shrub Buffer	4.85	5	6
Nootka Rose Hedgerow	0.41	2	3
TOTAL PLOTS	-	178	180

For all habitat types, non-native invasive species presence and percent cover will be documented in monitoring reports as recorded at each sampling plot for Years 1, 3, 5, 7, and 10. The cover of reed canarygrass, Himalayan blackberry, scotch broom, tansy ragwort, Canada thistle, and bull thistle shall be documented separately for each habitat type, and reported in monitoring reports for Years 1, 3, 5, 7, and 10. There shall be zero tolerance for Japanese knotweed (and hybrids), Purple loosestrife, English Ivy, and Class A noxious weeds onsite. Presence and eradication of these species must be noted in monitoring reports for Years 1, 3, 5, 7, and 10. Annual surveys for these species shall occur.

Monitoring for vegetation will be conducted towards the end of summer, but before leaf drop (mid-August through mid-September).

Vegetation communities planned on the site are based on existing surface elevations at the site and the expected hydrologic regime. PEM is anticipated to be at elevations between 198 and 200 feet. PFO/PSS Wetland Mosaic is anticipated to be at elevations between 199 and 202 feet, with the higher elevations being located at the northeast and southeast portions of the Bank site. Along Burnt Bridge Creek, the PFO/PSS Riparian community is anticipated to be at elevations between 198 to 200 feet. The exact locations of each vegetation community and change between the PFO/PSS and PEM Wetland communities will be mapped by a qualified wetland biologist before formal vegetation monitoring begins in Year 1. Where the vegetation community in sample plots differ from those anticipated in monitoring plot configurations, the monitoring report for that Year will note the change based on the expression of vegetation dominance (tree/shrub and emergent) within each plot.

F.2.2.3 Stream Temperature Monitoring

To assist with stream temperature monitoring, dataloggers (Onset Hobo datalogger or similar type datalogger) will be installed within Burnt Bridge Creek to measure any change in water temperature from riparian vegetation shading from the upstream end (where the creek begins at the east Bank boundary) to the downstream end (where the creek leaves the Bank site at the west boundary). Dataloggers will be installed within the stream channel below the surface of the

water (at depths sufficient to stay submerged during times of low flow) on metal t-posts or rebar. The data logger at the upstream end will be installed within the channel, in a location immediately east of where the riparian vegetation is installed. This location was selected in order to record the temperature of the stream unaffected by shading for comparison to the temperature recorded by the downstream datalogger. The downstream datalogger will be installed in the channel immediately inside the west boundary of the Bank, adjacent to the area planted with PFO/PSS riparian vegetation.

Each datalogger will be identified on as-built drawings and will record water temperature at least one time every 24 hours (totaling 365 readings per year), throughout each year of the Bank's 10-Year monitoring period, or until Performance Standard 4C is met. A map showing approximate locations of the stream temperature dataloggers at the Bank site are shown on **Figure F-1**. Dataloggers will be calibrated at the intervals specified by the manufacturer. Continuous stream temperature data collection at the two proposed locations will be used to measure the attainment of the performance standards relating to the establishment of PFO/PSS riparian vegetation and subsequent shading provided as the vegetation matures. It is anticipated that riparian vegetation will mature sufficiently to shade the stream channel by Year 5, however, monitoring will begin at Year 0 and continue through Year 10..

F. 2.2.4 Wildlife Features

The location of features intended for wildlife use on the site will be recorded on the final as-built. Wildlife features include horizontal logs, snags, perch poles, and nest boxes (Performance Standard 4A). In addition, the numbers and conditions of the installed wildlife features will be assessed during the vegetation monitoring event in Year 10 (Performance Standard 4B). Although there are no performance standards for wildlife use, monitoring reports will include observations of wildlife use of the site. Anecdotal observation of wildlife use, including types of wildlife and/or their sign, will be recorded while staff is on site for other monitoring purposes.

F.3 Reports

The Sponsor or their consultants will prepare and submit to the IRT monitoring reports that will inform the IRT of the status of Bank establishment and operation. The Reports will include the name of the entity responsible for preparing the report, the names of the individuals who gathered the data and who authored the report, and will include a summary table comparing relevant performance standards for that year's report to monitoring results. These reports will document Bank conditions and provide the supporting information required to document the attainment of goals, objectives, and performance standards, as a basis for a decision whether to award credits. Monitoring reports for each calendar year will be submitted by February 1 of the following year, with a copy for each member of the IRT. Each monitoring report will contain the following information:

A. An overview of the current ecological condition of the Bank, including a survey of the vegetative communities, effectiveness of the restoration and reestablishment activities accomplished to date, and progress of the Bank in achieving the specific performance standards of the Bank. To provide data for evaluating progress towards achievement of performance

standards, vegetation plots, hydrologic monitoring points, and photo points will be established at selected locations within the Bank to evaluate relevant performance standards. Vegetation data in forested, scrub-shrub, and emergent areas will include, species presence, cover by species, and density as appropriate. IRT approved vegetation measures and techniques will be used to demonstrate whether performance standards are being met. Experience in the field may indicate that other performance monitoring methods would provide more useful information; the Corps and Ecology, following consultation with the IRT must approve in advance any changes in the means of gathering or reporting performance data. All monitoring will be conducted by qualified personnel. This data will be summarized in the monitoring reports using tables and/or graphs, and raw data used for compiling the summary will be located in an appendix to the report for reference. The monitoring report will also contain tables which list the applicable performance standards for the monitoring year, and whether or not the performance standard was met, along with any corrective actions proposed.

B. A detailed discussion about the likely cause and impact of any setback or failure that occurred and recommendations for future actions and strategies that might resolve those problems.

C. Pertinent additional information on such aspects of the Bank as hydrology, soils, vegetation, fish and wildlife use of the area, recreational and scientific use of the Bank, and natural events such as disease, wildfire, and flooding that occurred.

D. Explanations of the need for any contingency or remedial measures, and detailed proposals for their implementation.

E. Photographs of the Bank taken from permanent locations that are accurately identified on the as-built drawings. The photographs are intended to document the progress of each component of the Bank, as well as the Bank in general, toward achieving the objectives and performance standards of the Bank. Such photo-monitoring will include general vantage points around the margin of the Bank, vantage points within the Bank, and at specific monitoring locations such as transects and/or sampling points.

F.4 Remedial Action during the Establishment Period of the Bank

In the event that one or more components of the Bank do not achieve performance standards or comply with any other requirement of this Instrument, the following sequence of remedial actions will be taken.

A. If the monitoring reports, or inspection by representatives of the IRT agencies, indicate persistent failure to achieve and maintain the prescribed performance standards, the Sponsor will propose adaptive management actions to correct the shortcomings. A thorough analysis of vegetation, wetland and stream monitoring data may result in the identification of other factors, not identified in the performance standards or monitoring data, causing the project to fall short of its objectives. The Corps and/or Ecology, following consultation with the IRT and the Sponsor may also direct adaptive management actions if the Corps and/or Ecology identify a need for

corrective action and no adaptive management plan acceptable to the IRT has been submitted within a reasonable period of time. The adaptive management plan shall specify the nature of further examination of areas for potential causes of failure and/or corrective action to be conducted, the schedule of completion for those activities, and a monitoring plan for assessing the effectiveness of the corrective action. The objective of the adaptive management plan shall be to attain the originally prescribed project objectives, either through achieving the original performance standards or through new standards subsequently developed based on evaluation of the site as it matures and is assessed. The Sponsor shall also implement all mitigation that the Corps and/or Ecology, following consultation with the IRT determines is reasonably necessary to compensate for those authorized impacts to the aquatic environment that have not been successfully redressed by the Bank pursuant to the requirements of this Instrument. If modified or replacement performance standards are proposed, the Sponsor may not initiate activities designed to achieve those replacement standards until those performance standards are approved by the Corps and/or Ecology, following consultation with the IRT. During the period that a specific component of the Bank is out of compliance, the Corps and/or Ecology, following consultation with the IRT may direct that credits generated by that Bank component may not be sold, used, or otherwise transferred.

B. If remedial actions taken by the Sponsor under the provisions of the preceding paragraph do not bring that performance standard of the Bank into compliance with the requirements of this Instrument, including any approved changes to the Instrument; the Sponsor may request approval to discontinue efforts to achieve one or more performance standards for the Bank. If the Corps and Ecology, following consultation with the IRT, approves of the proposal to discontinue efforts to achieve one or more performance standards, they need not be accomplished but no additional credits may be awarded for those performance standard(s). At the discretion of the Corps and Ecology, following consultation with the IRT, the Sponsor may also be released from future maintenance and monitoring obligations for those performance standard(s), provided that releasing the Sponsor from those obligations does not adversely affect the remainder of the Bank, or affect credits already sold, used, or transferred to date.

C. If the Corps and Ecology, following consultation with the IRT, determine that the failure of one or more performance standards of the Bank to comply with the requirements of this Instrument adversely affects the ability of the Bank to achieve its goals or objectives, or if the Sponsor does not make a reasonable effort to bring the Bank into compliance with this Instrument, the Corps and Ecology, following consultation with the IRT, may terminate this Instrument and the operation of the Bank pursuant to Article IV.J.

D. If the Corps and/or Ecology, following consultation with the IRT, direct remedial or adaptive management action pursuant to Section F.4.A. and compliance with the performance standards is not restored within a further reasonable period of time, and the Sponsor does not obtain approval of any request to discontinue efforts pursuant to Section F.4.B, the Corps and/or Ecology may alternatively implement remedial action on their own initiative, acting through a Third Party Designee, by accessing the financial assurance instrument pursuant to Article III.C.1. and Section H.1 of Appendix H to this Instrument.

F.5 Maintenance during the Establishment Period of the Bank

General maintenance will be performed throughout the year to address conditions that may limit the success of the Bank and attainment of performance standards and objectives. The Sponsor is responsible for all site maintenance activities throughout the establishment period of the Bank. Maintenance activities will include, but are not limited to, vegetative maintenance (including replanting, repair of any areas subject to erosion, weed control around plantings, mowing, control of invasive species, control and discouragement of voles, beaver and deer foraging on plants), and general maintenance (including fence repair, cleaning and repair of nesting boxes, and clean-up of trash) also per Section B.4.

References

- Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*, and appropriate supplements.
- Elzinga et. al. 1998. *Measuring and Monitoring Plant Populations*. BLM/RS/ST-98/005+1730
- Gage, Edward and David J. Cooper. 2010. *Vegetation Sampling for Wetland Delineation - A Review and Synthesis of Methods and Sampling Issues*.
- Krebs, C.J. 1999. *Ecological Methodology, 2nd ed.* Addison-Wesley Educational Publishers, Inc.
- Tiner. 1999. *Wetland Indicators: A Guide to Wetland Identification, Delineation, Classification, and Mapping*.



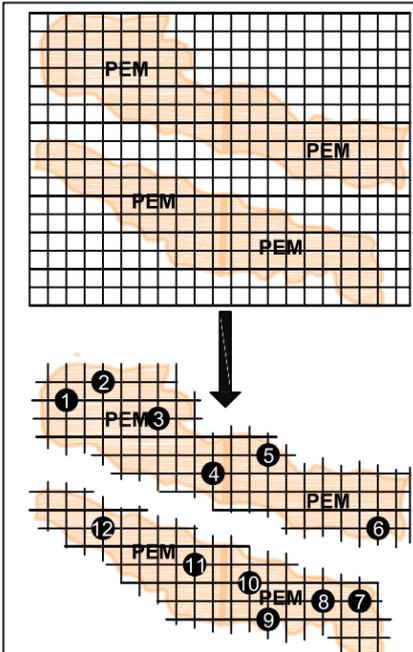
NOTE(S):
1. Aerial photograph (2015) provided by Google Earth™.

- LEGEND:**
- Bank Boundary (113.04 ac.)
 - Stream
 - Ditch
 - Existing Wetland Boundary
 - Oregon White Oak Mitigation Bank Area
 - BPA Powerline Easement
 - Existing Gravel Road
 - Culvert Location
 - Mitigation Bank Buffer (7.28 ac.)
 - Staging Area
 - Drain Tile Removal Area

- Proposed Mitigation Habitat-See Figure B-5 for Species Composition**
- Palustrine Forested/Scrub-Shrub Mosaic (PFO/PSS) (26.11 ac.)
 - Palustrine Forested /Scrub-Shrub Riparian (PFO/PSS) (17.13 ac.)
 - Palustrine Emergent (PEM) (45.81 ac.)
 - Open Stream Channel Enhancement (2.53 ac.)
 - Shrub Buffer Enhancement (SB) (4.85 ac.)
 - 8-foot Wide Nootka Rose Hedgerow (NRH) (0.41 ac.)

- Proposed Habitat Features**
- Standard Bird Nest Box (10)
 - Snags (6)
 - Perch Poles (4)
 - Horizontal Logs (14)

- Vegetation Monitoring**
- Proposed Location of Hydrology Dataloggers
 - Proposed Location of Stream Temperature Dataloggers



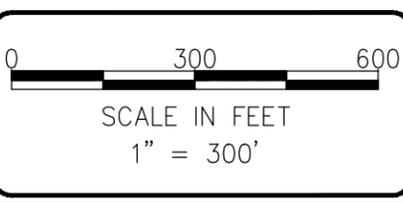
Stratified Random Sampling Approach

1. Vegetation stratum defined (PEM, PFO/PSS, SS, hedgerow)
2. Grid pattern lines for each stratum established through AutoCAD.
3. All grid pattern line intersections assigned numbers within a vegetation stratum, those falling outside stratum discarded.
4. An adequate number of monitoring points chosen by random number generator for each stratum.
5. Coordinates for each monitoring plot determined using AutoCAD Civil 3D.
6. Coordinates uploaded to GPS and located in the field.

NOTE:
Example of sampling approach. Plots and figures not to scale and do not display required plot amounts.

Table F-1 Sample Plots by Proposed Habitat Type

Habitat Type	Proposed Acreage	Sample Plots (Minimum 1% of area of habitat type for PFO/PSS Wetland Mosaic and Riparian, 3 plots/acre PEM)	Proposed # of Sample Plots
PFO/PSS Wetland Mosaic	26.11	16	16
PFO/PSS Riparian	17.13	11	11
PEM	45.81	144	144
Shrub Buffer	4.85	5	6
Nootka Rose Hedgerow	0.41	2	3
TOTAL PLOTS	-	178	180



1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com

DATE: 10/10/16
DWN: JKJ
REQ. BY: KB
PRJ. MGR: KB
CHK:
PROJECT NO: 1382.02

Figure F-1
VEGETATION MONITORING & DATALOGGER LOCATION
Terrace Mitigation Bank
Rotschy, Inc.
City of Vancouver, Clark County, Washington
Section 11, 12, 13, & 14, Township 2N, Range 2E, W.M.

APPENDIX G LONG-TERM PROTECTION AND MANAGEMENT

G.1 Conservation Easements

A. The Sponsor will ensure, pursuant to Article III.D. of this Instrument, that an appropriate conservation easement is granted and recorded dedicating in perpetuity the property constituting the Bank, that is to be created, restored, or enhanced for credit. This conservation easement must be approved by the Corps and Ecology, following consultation with the IRT, and shall be recorded with the Clark County Auditor. A copy of the recorded easement shall be provided to all members of the IRT. The conservation easement shall reflect that it may not be removed, modified, or transferred without written approval of the Corps and Ecology, in consultation with the IRT. The Corps and Ecology may consider any alteration or rescission of the conservation easement a default of the Sponsor's obligations under this Instrument and may institute appropriate action pursuant to Article IV.J. The Sponsor shall provide no less than 60 days written notice to the IRT of any transfer of fee title or any portion of the ownership interest in the Bank real property to another party. Use prohibitions reflected in the easements will preclude the site from being used for activities that would be incompatible with the establishment and operation of the Bank. All restrictions shall be granted in perpetuity without encumbrances or other reservations, except those encumbrances or reservations (e.g., retention of recreation and privileges by the landowners and their guests) approved by the Corps and Ecology and not adversely affecting the ecological viability of the Bank. Any portion of the site not encumbered by the conservation easement will not be credited for use in the Bank.

B. The conservation easement shall provide that all structures, facilities, and improvements within the Bank, including roads and fences, that are merely incidental to the functionality of the mitigation site but are necessary to the Bank management and maintenance activities, shall be maintained by the Sponsor or its assignee for as long as it is necessary to serve the needs of long-term management and maintenance. All structures, facilities and improvements that directly and substantially contribute to the functionality of the mitigation site will be included within the responsibilities delineated in the Long-Term Management and Maintenance Plan.

G.2 Long-Term Management and Maintenance Plan

A. The Sponsor is responsible for ensuring that a Long-Term Management and Maintenance Plan is developed and implemented to protect and maintain in perpetuity the aquatic functions and values of the Bank site. This plan must be approved by the Corps and Ecology, following consultation with the IRT, prior to the termination of the establishment period of the Bank. Once the establishment period of the Bank has terminated pursuant to Article IV.K. of this Instrument, the Sponsor will assume responsibility for implementing that Plan, as provided in Article IV.M. of this Instrument,

unless the Sponsor assigns this responsibility pursuant to the provisions of Article IV.M. and Section G.2.D. of this Appendix.

B. To gain IRT approval, the Long-Term Management and Maintenance Plan will consist of enumerated objectives. The Bank will document that it is achieving each objective by submitting status reports to the IRT on a schedule approved by the IRT. A primary goal of the Bank is to create a self-sustaining natural aquatic system that achieves the intended level of aquatic ecosystem functionality with minimal human intervention, including long-term site maintenance. As such, natural changes to the vegetative community, other than changes caused by noxious weeds, that occur after all Bank performance standards have been met are not expected to require remediation.

C. The Long-Term Management and Maintenance Plan will include those elements necessary to provide long-term protection for the aquatic ecosystem and habitat resources of the Bank site. The specific elements of the Plan must be tailored to meet the specific protection needs of the site. At minimum, the IRT will likely find the following core elements to be necessary for inclusion in the Long-Term Management and Maintenance Plan. The particular characteristics of the Bank site at the end of the establishment period may necessitate including other elements not specified below, that are needed to protect the ecosystem resources present at the Bank.

(1) Periodically patrol the Bank site for signs of trespass and vandalism. Maintenance will include reasonable actions to deter trespass and repair vandalized Bank features.

(2) Monitor the condition of structural elements and facilities of the Bank site such as signage, fencing, and roads. The Long-Term Management and Maintenance Plan will include provisions to maintain and repair these improvements as necessary to achieve the objectives and functional performance goals of the Bank and comply with the provisions of the conservation easement. Improvements that are no longer needed to facilitate or protect the ecological function of the Bank site may be removed or abandoned if consistent with the terms and conditions of the conservation easement.

(3) Inspect the Bank site annually to locate and eradicate any occurrence of knotweed. The IRT anticipates that this long-term control will involve identifying and eradicating a relatively small number of recurrences each year. In the event the Corps and Ecology, in consultation with the IRT, determines that the watershed within which the Bank is located becomes infested with knotweed in the future, so that its effective control on the Bank site is either no longer practicable or unreasonably expensive, the IRT will consider appropriate changes to the Long-Term Management and Maintenance Plan.

(4) Inspect the site annually to locate and control noxious weeds other than knotweed. Noxious weed control measures may include mechanical vegetation control, herbicide treatments, and temporary plantings

D. If the Sponsor elects to request the approval of the IRT to assign long-term management and maintenance to a Long-Term Steward pursuant to Article IV.M.2., the long-term management and maintenance assignment agreement will reflect that the assignee has assumed (1) the obligation, owed to the IRT, of accomplishing the Long-Term Management and Maintenance Plan; as well as (2) the legal responsibility for continued accomplishment and maintenance of the compensatory mitigation requirements associated with all impacting projects that satisfied their mitigation requirements through the application of Bank credits. The Corps and Ecology will also execute this assignment agreement. In exchange for the assignee's promise to achieve the Long-Term Management and Maintenance Plan, contemporaneously with the assignment of long-term management and maintenance responsibilities the Corps and Ecology will direct disbursement of the "full funding" amount specified in Article III.C.2.c. of this Instrument from the Long-Term Management and Maintenance Endowment Fund escrow account, pursuant to Article III.C.2.e. of this Instrument. In the event the responsibility for executing the Long-Term Management and Maintenance Plan is not assigned to a third-party assignee, at the termination of the establishment period of the Bank the "full funding" amount specified in Article III.C.2.c. of this Instrument will be disbursed from the Long-Term Management and Maintenance Endowment Fund escrow account to the Sponsor.

APPENDIX H FINANCIAL ASSURANCES

The Sponsor will institute and maintain financial assurances in accordance with the subsections immediately below. The Sponsor will provide a Letter of Credit to provide financial assurance underlying the establishment and initial functionality of the Bank.

H.1 Letter of Credit

A. The Irrevocable Letter of Credit prescribed in Article III.C.1. of this Instrument, underlying the establishment and functionality of the Bank, will adhere to the following form and contents.

B. Each Letter of Credit will be irrevocable and without condition other than those authorized in this Instrument. Each Letter of Credit may not be withdrawn or canceled by the issuing financial institution prior to the designated expiration date, which may be no earlier than 12 years from the date of issuance. If the Letter of Credit applicable to the Bank shall expire by its own terms prior to the termination of the establishment period of the Bank as specified in Article IV.K. of this Instrument, the Sponsor must reinitiate an acceptable Letter of Credit so that there is no interval in which there is no Letter of Credit in effect. In lieu of a Letter of Credit with an effective period of 12 years, the Sponsor may elect to submit a Letter of Credit with an initial expiration date that is a minimum period of one year from the date of issuance. The Letter of Credit shall provide that, unless the issuer provides the Beneficiaries written notice of non-renewal at least 60 days in advance of the current expiration date, the Letter of Credit is automatically extended without amendment for one year from the expiration date, or any future expiration date, until a period of 12 years commencing with the date of first issuance is completed. If the Sponsor does not furnish an acceptable replacement Letter of Credit, or other acceptable financial assurance, at least 30 days before a Letter of Credit's expiration, the Corps and/or Ecology may immediately draw on the existing Letter of Credit up to its full value without any notice to the Sponsor. If the Corps and Ecology determine that the issuing financial institution's rating has dropped below the requirements specified in Article III.C.1. of this Instrument, the Corps and Ecology may direct the Sponsor to provide an acceptable substitute Letter of Credit within 30 days. If an acceptable substitute is not provided within the prescribed period, the Corps and/or Ecology may immediately draw on the Letter of Credit up to its full value without any further notice to the Sponsor. No further credits will be awarded from the Bank without an effective Letter of Credit. Each Letter of Credit will provide that the issuing financial institution shall honor the credit engagement and pay to the Third Party Designee the directed sum without inquiring whether the directing Beneficiary agency or the receiving Third Party Designee has a right to make such a demand.

C. Each Letter of Credit will be issued to, and will designate, the Corps and Ecology as distinct and independent Beneficiaries. If the IRT has informed the Sponsor that one has been so designated, each Letter of Credit shall identify and designate the Third Party Designee. Upon presentation of a sight draft by either the Corps or Ecology, in writing on agency letterhead, accompanied by no other documentation other than the original Letter of Credit, the issuing financial institution shall disburse from the credit funds account to the Third Party Designee the

amount specified by the Corps or Ecology, up to a maximum cumulative amount as reflected in the Letter of Credit. The Corps or Ecology shall be authorized to direct or make partial drawings, and multiple successive drawings, upon the credit account. The Corps and Ecology shall have the exclusive authority to direct disbursement of funds from the credit funds account, and the direction of only one of these two agencies is required in order to accomplish a disbursement.

D. Each Letter of Credit shall acknowledge that, from time to time, the Beneficiary agencies may authorize a reduction in the required level of credit during the effective period of the Letter of Credit. Any such reduction must be authorized by both the Corps and Ecology, as Beneficiary agencies. Upon receipt of both authorizations, in writing on agency letterhead, the issuing financial institution will be authorized to reduce the level of maximum extended credit, and it may, as arranged between the Sponsor and the issuing financial institution, reissue or amend the applicable Letter of Credit accordingly to reflect that change.

E. Each Letter of Credit shall acknowledge that the Beneficiary agencies may authorize cancellation of the Letter of Credit prior to the scheduled expiration date reflected therein. Any such cancellation must be authorized by both the Corps and Ecology, as Beneficiary agencies. Upon receipt of both authorizations, in writing on agency letterhead, the issuing financial institution will be authorized to withdraw or rescind, as arranged between the Sponsor and the issuing financial institution, the applicable Letter of Credit.

F. If so directed by the Corps and Ecology, the Sponsor agrees to substitute the identification of the Third Party Designee with a replacement entity for each applicable Letter of Credit. The Sponsor agrees that it shall execute either an amendment or replacement of each applicable Letter of Credit in order to effect such a substitution. If substitution of the Third Party Designee is directed, all other terms and conditions of the applicable Letter of Credit shall remain unchanged, particularly including the credit amount and the expiration date.

G. Upon request of the Sponsor, the Corps and Ecology, in consultation with the IRT, may authorize reductions in the required credit account limits of each of the Letters of Credit when the Corps and Ecology have determined, in consultation with the other members of the IRT and the Sponsor, that the Bank objectives and performance standards reflected in Appendix C are being timely met.

H. The Sponsor is solely responsible for any costs, fees, or premiums associated with the issuance, modification, continuation in force, or termination of each Letter of Credit. Any such costs may not be deducted from the principal of the Letter of Credit.

H.2 Long-Term Management and Maintenance Endowment Fund

A. In order to implement the Long-Term Management and Maintenance Endowment Fund, prescribed in Article III.C.2. of this Instrument and underlying management and maintenance actions to be taken following completion of the establishment period of the Bank, the Sponsor will establish an escrow account in an accredited and Federally-insured financial institution, as follows.

B. The Long-Term Management and Maintenance Endowment Fund escrow account will be incrementally funded until it is fully funded, as prescribed in Articles III.C.2.a. and III.C.2.b. of this Instrument. Once the Long-Term Management and Maintenance Endowment Fund is fully funded, the Sponsor will be released from any further obligation to deposit a designated sum corresponding to each sale, use, or transfer of credits. The Sponsor will be permitted to accelerate contributions to the Long-Term Management and Maintenance Endowment Fund, and by doing so, the Sponsor may defer subsequent contributions until the balance in the Endowment Fund no longer matches or exceeds the balance required by the computation in Article III.C.2.a. The Sponsor will provide to the IRT an annual account statement displaying a cumulative tabulation of all deposits into the Long-Term Management and Maintenance Endowment Fund escrow account, with each deposit referencing the associated sale/use/transfer transaction, as well as the principal balance and total account balance, as of December 31 of the previous calendar year, by February 1 of each year. This statement will be submitted until (1) the Long-Term Management and Maintenance Endowment Fund is fully funded or (2) until approval by the Corps and Ecology, in consultation with the IRT, of the Sponsor's written request to permanently cease banking activities.

C. The Long-Term Management and Maintenance Endowment Fund escrow account may bear interest or other earnings. Any earnings generated by the escrow funds shall remain deposited with other escrow account funds. Earnings in excess of the full funding amount specified in Article III.C.2.b. of this Instrument will be returned to the Sponsor at the time that the full funding amount is disbursed to the Long-Term Steward. The Long-Term Management and Maintenance Fund account contents may be invested only in the following: an interest-bearing savings or passbook account, savings certificate, or certificate of deposit, held in each case by an institution that is insured by the Federal Deposit Insurance Corporation; alternatively, the Fund principal and earnings may be invested in direct obligations of the Government of the United States of America, in obligations of agencies or insurers that are guaranteed by the Government of the United States of America, or in a money market mutual fund consisting solely of such obligations.

D. The Sponsor will be responsible for all escrow agency and associated account fees, including account termination and final reconciliation costs, which may not be paid out of escrow account funds, or out of the interest or earnings generated thereon.

E. The terms of the escrow instructions will permit regular recurring deposits to the escrow principal as sales, use, or transfers of credits are made and designated sums corresponding to those sales, use, or transfers are deposited to the escrow account.