

TERRA SCIENCE, INC.

Soil, Water & Wetland Consultants

**UPDATED C.W.S. VEGETATED CORRIDORS
ASSESSMENT REPORT FOR
PORTION OF TAX LOT 1700, T. 1S R. 1W Sec. 24
WASHINGTON COUNTY, OREGON**

Prepared for

PORTLAND GOLF CLUB
5900 S.W. Scholls Ferry Road
Portland, OR 97225

Prepared by

TERRA SCIENCE, INC.
4710 S.W. Kelly Avenue, Suite 100
Portland, Oregon 97239

TSI Project No. 2017-0916

JUNE 2023

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**UPDATED C.W.S. VEGETATED CORRIDORS
ASSESSMENT REPORT FOR
PORTION OF TAX LOT 1700, T. 1S R. 1W Sec. 24
WASHINGTON COUNTY, OREGON**

Section A. Introduction and Project Location

On behalf of Portland Golf Club (Owner), Terra Science, Inc. (TSI) updated the following report to document Vegetated Corridors for a sediment removal and placement project at Portland Golf Club (PGC). The PGC property is located at 5900 S.W. Scholls Ferry Road, Portland, Oregon (Figure 1, Appendix A); however, the sediment removal/ placement would occur in the south-center of the property where the irrigation pond is located. This vicinity is situated in unincorporated Raleigh Hills and Garden Home portion of Washington County, Oregon. The project is a subset of a much larger Tax lot 1700 on Washington County Assessor's Map no. 1S 1W 24 (Township 1 South, Range 01 West, Section 24, Figure 2). The centroid of the analysis area is approximately 45.471435° N and -122.760355° W.

The sediment removal/ placement project involves dredging of accumulated sediment from their irrigation pond and placement of sediment within geofabric bags in the southernmost portion of PGC property. Irrigation water is drawn from the pond in spring, summer and fall months to irrigate golf course tee boxes, fairways, greens, and landscaping. The water storage capacity of the pond has decreased as sediments have accumulated in the pond. The sediment originated from the upgradient segments of Woods Creek, rather than adjacent Fanno Creek. Such sediments have also decreased water quality in the pond due to shallower water depth (hence warmer temperatures).

The vicinity of the irrigation pond, as well as other components of the sediment removal/ placement project, has several inventoried natural resource features (as per Section 422 of Washington County code), including creeks, wetlands, riparian area, and wildlife habitat (separate report already submitted to County). Per Clean Water Services (CWS) regulations, the sediment removal/ placement necessitates environmental review due to presence of creeks, wetlands, and adjacent vegetated corridors. Particularly, Design and Construction Standards (R&O 19-5 as amended by R&O 19-22), CWS requires the verification and assessment of Sensitive Areas and their respective Vegetated Corridors in their review of any proposed project.

Section B. Analysis Area Features and Proposed Activity

The analysis area is larger than the proposed work area, since the required analysis must assess existing conditions and potential impacts to setback areas (aka Vegetated Corridors). Existing conditions within the vegetated corridors consists mostly mowed grasses, landscaping (bark mulch and ornamental shrubs), tree rows and open space with mixed tree stands and understory. Topographic LiDAR contours indicate elevations range from 206 feet above mean sea level (msl) in the lowest parts of the analysis area at the outlet of the irrigation pond to 260

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feet above MSL (Appendix A, Figure 7). The vicinity of the irrigation pond is situated within the 100-year FEMA floodplain. The analysis area includes portions of golf course fairways, greens, tee boxes, and other mowed land. Specifically, the focal point of the project is an irrigation pond in the north end of the analysis area where sediment dredging would occur. The pond is surrounded by fairways, tee boxes, a putting green and open space that slope toward the pond. Dredged sediments would be pumped via a temporary pipe across several fairways and into geofabric storage bags placed in open space. The sediment bag placement area is situated just north of Fanno Creek Trail. Such area is separated from the golf course by the former electric trolley-line berm that is vegetated with mostly colonized tree and shrub species. Of note, the analysis area in the sediment placement vicinity contains a stand of mature Douglas fir with brushy understory. The sediment bag placement area is situated above the 100-year floodplain.

Section C. Clean Water Services Sensitive Areas and Vegetated Corridors.

Sensitive Areas -- Clean Water Services (CWS) regulations define Sensitive Areas to include creeks, rivers, springs, natural lakes, pond, in-stream impoundments, wetlands, and created wetlands. In contrast, sensitive areas do not include stormwater infrastructure, vegetated corridors, off-stream lakes, fire ponds, drainage ditches and similar features. For the sediment removal vicinity, the sensitive areas include the irrigation pond and wetland fringe, Woods Creek, and wetland adjacent to Woods Creek. For the sediment bag placement area, the sensitive area is Wetland A, an emergent wetland fed by precipitation and upgradient runoff. All of these sensitive areas were delineated using the 1987 *Corps of Engineers Wetland Delineation Manual*, and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. The delineation findings and mapping were compiled in *Wetland Delineation Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24* (Terra Science, Inc., 2021). These sensitive area qualify as jurisdictional waters and wetlands, as per U.S. Army Corps of Engineers and Oregon Department of State Lands.

Vegetated Corridors – CWS also defines vegetated corridors as lands adjacent to sensitive areas that provide habitat, open space and water quality functions. The width of vegetated corridors varies on site conditions. For example, situations with slopes ≥ 25 percent next to sensitive areas have a vegetated corridor of 35 feet from the top of such slopes (not present for the PGC sediment removal/placement project). More typically, vegetated corridors are determined by the criteria on Table 1 (following page).

For the sediment removal and bag placement project, the vegetated corridor width is 50 feet for all of the sensitive areas. In particular, the irrigation pond is an impounded stream (50-foot width), and the pond wetland fringe (<0.5-acre, non-isolated) is also 50 feet wide. Woods Creek is a perennial stream (sustained by upgradient runoff, base flow), which has a 50-foot wide vegetated corridor. And Wetland A has a 50-foot wide vegetated corridor, since it is >0.50-acre. Wetland B is outside of the project area; however, mitigation plantings are proposed for such area.

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TABLE 1. Vegetated Corridor Adj.to Sensitive Areas Where Activity is Not Redevelopment

Sensitive Area Type	Width Slope <25%	Width Slope ≥25%
Existing or created wetlands:		
<0.5 acres and isolated*	25 ft	Variable from 25-200 ft.
<0.5 acres and not isolated*	50 ft.	Variable from 50-200 ft.
≥0.5 acres	50 ft.	Variable from 50-200 ft.
Natural lakes, ponds, and in-stream impoundments	50 ft.	Variable from 50-200 ft.
Springs:		
Intermittent flow	0 ft.	15 ft.
Perennial flow	50 ft.	Variable from 50-200 ft.
Intermittent Streams draining:		
<10 acres	0 ft.	0 ft.
≥10 to <50 acres	15 ft.	Variable from 50-200 ft.
≥50 to <100 acres	25 ft.	Variable from 50-200 ft.
≥100 acres	50 ft.	Variable from 50-200 ft.
Perennial Streams:		
Other than Tualatin River	50 ft.	Variable from 50-200 ft.
Tualatin River	125 ft.	Variable from 125-200 ft.

*Isolated Wetland: Wetlands not connected to streams or other surface water bodies.

Determination of Vegetated Corridor Condition – CWS regulations categorize the vegetative and habitat condition as good, marginal or degraded. Good condition corridors have 80 percent native species ground cover and 50 percent canopy (areal) cover. Marginal condition corridors have 50 to 80 percent native species ground cover and 25 to 50 percent canopy cover. Lastly, degraded condition corridors have less than 50 percent native species ground cover and less than 25 percent canopy cover. Each category is evaluated using sample plots similar to the vegetative sampling used for wetland delineation; however, 10-foot radius for herbaceous species and 30-foot radius for woody species. Native species and invasive species must be specifically identified and spatial distribution estimated.

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The sensitive areas and vegetation corridor conditions were evaluated and mapped simultaneous with the wetland delineation on April 20, 2018 and November 3, 2021. Additional detail was gathered during November 21, 2021 site visit that included the following:

- Sensitive Area sample plot data and photographs for establishing the Sensitive Area boundaries (detailed in Wetland Delineation Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24, compiled by Terra Science, Inc., 2021).
- GPS mapping of Sensitive Area boundaries (see Mapping Methodology, below).
- Field-verification and location of slope measurements and breaks (<25% slope to ≥25% slope) observed in LiDAR topographic data.
- Vegetated Corridor sample plot data at nine (9) sample plot locations throughout the analysis area (Appendix B).
- Vegetated Corridor photographs (Appendix C).

Sensitive Area Mapping Methods – Using a field tablet and a Juniper Systems Geode GPS receiver, TSI uploaded georeferenced aerial photography, 2014 one-foot LiDAR-generated topographic contours, Washington County GIS tax lots, and analysis area boundaries. Sensitive Area boundaries and sample plots were mapped in the field with this submeter-accuracy handheld unit. In office slope measurements using the LiDAR topography were field verified and slope breaks confirmed with the GPS unit. The field GPS shape files were later exported to AutoCAD using ArcMap 10.2. AutoCAD LT drafting software was utilized for graphics presentation, calculating acreages, and determining Vegetated Corridor offsets. All files are presented in the NAD 1983 / 2011 State Plane Oregon North basis of bearings. Appendix A includes the graphic exhibits showing analysis area, tax lots, LiDAR contours, Sensitive Areas, Vegetated Corridors, sample plot locations, slope breaks along with aerial photography.

Section F. Description of CWS Sensitive Areas and Vegetated Corridors.

The Sensitive Area descriptions are included in Section C and shown on Figures 7, 7A, 7B and 7C. The Vegetated Corridors and plant communities are shown the same figures and described in the following paragraphs:

North Vegetated Corridor for Irrigation Pond and Fringe– This corridor occurs along the north and east edges of the irrigation pond, wetland fringe (aka Wetland C), as well as the slopes north of Wetland B. This Vegetated Corridor mostly has gentle slopes (2 to 4 percent) of mowed turf (Fairways 7 and 11); however, south of a cart path the slopes increase to 16 to 20 percent. This steeper land has some tree cover, but generally lacks shrub cover. Where the herbaceous vegetation is not mowed bluegrass (Poa sp.) and ryegrass (Lolium sp.), other species present include English daisy (Bellis perennis) and self-heal (Prunella vulgaris var. vulgaris). The few trees present in this corridor include weeping willow (Salix x sepulcralis), Oregon ash (Fraxinus latifolia), Douglas fir (Pseudotsuga menziesii), and ornamental pine (Pinus sp.). Himalayan blackberry (Rubus armeniacus) occurs in a few areas in the east part of corridor. The Vegetated Corridor is considered having Degraded Condition due to very low tree canopy cover (7 percent) and very low native plant cover (5 percent). As such, this Vegetated Corridor is 50 feet wide.

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South Vegetated Corridor for Irrigation Pond– This Vegetated Corridor includes the west and south edge of the irrigation pond, wetland fringe, and edge of Wetland B parallel to Fairway 13. This vicinity has moderate slopes of 7 to 20 percent. The south edge of the irrigation Pond is primarily landscaped with bark mulch and rhododendron (*Rhododendron macrophyllum*), while remaining areas are partially treed and rough-mowed grasses. The herbaceous layer is mostly mowed bluegrass and ryegrass with scattered English daisy and self-heal. Trees in this corridor include Douglas-fir, western red cedar (*Thuja plicata*), plus a few planted true fir (*Abies* sp.), spruce (*Picea* sp.), red maple (*Acer rubra*) and European white birch (*Betula pendula*). Vegetated Corridor qualifies as Degraded Condition, since it has only 22 percent tree canopy cover and 27 percent native plant cover. The prescribed corridor width is 50 feet.

Wetland A Vegetated Corridor: This Vegetated Corridor surrounds Wetland A and has 2 to 14 percent slopes. This corridor is mostly unmanaged for 20+ years and portions have become brushy and/or dominated by invasive species. Tree canopy is dominated by red hawthorn (*Crataegus monogyna*) with scattered buckthorn cascara (*Frangula purshiana*) and red alder (*Alnus rubra*). The brushy understory contains thickets of Himalayan blackberry, hawthorn saplings, western hazel (*Corylus cornuta*), sweet cherry (*Prunus avium*), and wild rose (*Rosa* sp.). The herbaceous species include sword-fern (*Polystichum munitum*), piggyback plant (*Tolmiea menziesii*), plus lesser amounts of bentgrass, velvetgrass (*Holcus lanatus*) and field horsetail (*Equisetum arvense*). This Vegetated Corridor is also considered Degraded Condition due to low tree canopy cover (7 percent) and low native plant cover (34 percent); hence, the prescribed width is 50 feet.

Table 2. Summary of Sensitive Areas, Vegetated Corridors, and Corridor Condition

Feature	Jurisdiction			Acreage	Condition
	DSL	USACE	CWS		
Irrigation Pond (impounded creek)	√	√	√	1.77	
Woods Creek (perennial creek)	√	√	√	0.06	
Wetland A (natural wetland)	√	√	√	0.72	
Wetland B (natural wetland)	√	√	√	0.21	
Wetland C (pond fringe)	√	√	√	0.13	
North Irrigation Pond Vegetated Corridor	n/a	n/a	√	0.81	Degraded
South Irrigation Pond Vegetated Corridor	n/a	n/a	√	1.28	Degraded
Wetland A Vegetated Corridor	n/a	n/a	√	1.58	Degraded
Total Acreage of Sensitive Areas (Wetlands, Creek and Pond):				2.89	
Total Acreage of Vegetated Corridors:				3.67	

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Section G. Impacts to CWS Sensitive Areas and Vegetated Corridors.

The impacts to Sensitive Areas and Vegetated Corridors are described in Section D. To summarize, there are temporary impacts to the irrigation pond fringe, Woods Creek and the outlet of Wetland A. These impacts are resolved with removal of temporary features (like sandbags) and ground restoration with native seeding and shrub planting. The permanent impacts to Sensitive Areas include sediment removal from the irrigation pond and sediment bag placement (e.g. fill material) in Wetland A. The sediment removal impact does not require rehabilitation, since such activity results in improved water quality and increased sediment storage for waters overflowing to Fanno Creek. The impact to Wetland A would be offset with a credit purchase from a local wetland mitigation bank, as coordinated with Oregon Department of State Lands and U.S. Army Corps of Engineers. No permanent impacts to Vegetated Corridors, but temporary disturbance would be offset with corrective actions, but not limited to recontouring, native seeding, and native tree and shrub planting. The table below summarizes proposed permanent and temporary impacts, and mitigation.

Table 3. Impacts and Mitigation to Sensitive Areas, Vegetated Corridors.

Feature	Proposed Impact	Proposed Mitigation
Irrigation Pond (impounded creek)	Permanent -- Sediment removal by dredging	Self-mitigating due to improved water quality and sediment storage.
Wetland C (irrigation pond fringe)	Temporary -- Vehicle disturbance, no fill	Remove floating dredge and launch ramp. Reseed disturbed ground, if needed (not anticipated)
Woods Creek (perennial creek)	Temporary -- Sandbag (coffer) dam installation	Remove sandbags. Reseed disturbed ground, if needed (not anticipated)
Wetland B (adjacent to Woods Ck)	Temporary -- Possible ground disturbance during sandbag dam installation.	Recontour (smooth) disturbed ground, reseed disturbed ground. Mitigation plantings added (see below).
North Vegetated Corridor (irrigation pond)	Temporary -- Vehicle disturbance, pipe placement atop land.	Recontour (smooth) disturbed ground, reseed disturbed ground. Plant native tree and shrubs at Wetland B
South Vegetated Corridor	Temporary -- Vehicle disturbance, pipe placement atop land.	Recontour (smooth) disturbed ground, reseed disturbed ground. Plant native tree and shrubs at Wetland B
Wetland A (natural wetland)	Permanent -- Sediment bag placement (fill material)	Mitigation bank credit purchase for 0.72-acre of PEM wetland. Salvaged topsoil. Native seeding for new upland.
Wetland A Vegetated Corridor	Temporary -- Vehicle disturbance, pipe placement atop land.	Wetland A converted to upland, so vegetated corridor would be removed. Native seeding for new upland.

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Section H. Mitigation Plantings for Vegetated Corridors Impacts.

Tree and shrub plantings would be arranged to create a diverse environment that perpetuates natural colonization of native species and matures in a naturalistic pattern. A qualified landscaper or suitable equivalent would install all plantings. According to nursery specifications, careful planting and fertilization procedures would be employed to promote healthy root growth and plant survival. For example, all container stock would be installed by digging oversized holes, then adding organic fertilizer (according to nursery specifications to promote good plant establishment).

The number of tree and shrub plantings follows CWS guidelines. The overall size of the mitigation planting area is 2 times the impact area to CWS vegetated corridors and sensitive areas (excluding Wetland A which is mitigated by a credit purchase). Planting efforts would likely occur between October 15 and November 15, when daily high temperatures and night low temperatures are moderate. All woody stock would have chew guard protection added (plastic sleeves or netting). An irrigation system would be installed for riparian setback area. The seed mixtures would contain upland and riparian grasses (Table 2). The seeding rates would range from 0.5 to 1 lbs. per 1000 sq. feet (depending on the species). Figure 6D shows the planting area and planting quantities proposed within Wetland B.

Table 4. Proposed mitigation plantings and quantities within Wetland B.

Common Name / Scientific Name	Quantity (7,750 sf.)
Oregon ash (<i>Fraxinus latifolia</i>), 1 gallon	25
Cascara (<i>Rhamnus purshiana</i>), 1 gallon	25
Douglas hawthorn (<i>Crateagus douglasii</i>), 1 gallon	27
Pacific willow (<i>Salix lasiandra</i>), 1 gallon	130
Pacific ninebark (<i>Physocarpus capitatus</i>), 1 gallon	130
Clustered rose (<i>Rosa pisocarpa</i>), 1 gallon	130

[continued on following page]

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Table 5. Proposed seeding and quantities for former Wetland A upland (0.9-acre).

Common Name / Scientific Name	Quantity (39,204 sf.)
California brome (<i>Bromus carinatus</i>), seed	40 lbs.
Roemer's fescue (<i>Festuca roemeri</i>), seed	30 lbs.
Blue wildrye (<i>Elymus glaucus</i>), seed	20 lbs.
Bi-color lupine (<i>Lupinus bicolor</i>), seed	6 lbs.
Yarrow (<i>Achillea millefolium</i>), seed	0.5 lbs.

NOTE: Availability of specific species may necessitate substitution of a different native seed or forb. Substitutions would be prescribed by restoration specialist (or project engineer).

Regularly scheduled maintenance visits should be conducted by golf course maintenance staff. A noxious weed management program would be implemented for the entire monitoring period. Hand-weeding, mowing, or cutting may be undertaken once or twice per year to control invasive species such as reed canarygrass, blackberry, teasel and/or tansy ragwort. Mowing or string trimming may be employed as a weed management tool to reduce the competitive effect of non-native weedy species. The use of herbicides is not anticipated.

Typical repairs are likely to include replacement plantings for dead plants or for plants damaged by vandalism, re-seeding barren ground, and/or invasive weeds controls. For example, native vegetation seeding and/or plantings would occur if the ground plant cover is less than 60 percent after the second year or the number of surviving plantings is less than 80 percent. Repairs to planting areas would be completed before the onset of the following wet season. As appropriate, the restoration specialist and/or project engineer would specify the required corrective actions, such as barren ground seeding, prescription of replacement plantings.

Photo documentation would be conducted by a restoration specialist and/or project engineer during early spring to evaluate the success of the planting project and identify corrective measures necessary to meet success criteria. A summary memo would document plant mortality and replacement plantings. Vegetative cover would be assessed with photographs. The summary memo would include maintenance recommendations and corrective actions needed to address dead plantings, removal of undesirable species and related matters.

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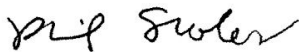
LIMITATIONS OF THIS REPORT

This report does not define or specifically assess conditions beyond the identified analysis area (portion of Tax Lot 1700, Washington County Assessor's Map Township 01 South, Range 01 West, Section 24) located in unincorporated Washington County, Oregon. This report makes no claim or conclusions about those conditions beyond the specified delineation footprint.

The data presented in this report were collected, analyzed and interpreted using standards of skill, care, and diligence ordinarily provided by the qualified professionals of Terra Science, Inc. The report findings are based on incidental information from the property owner, the observations of the project team, and the limitations of the methodologies identified in this report. The report findings and their significance should not be extrapolated beyond the immediate study area. Terra Science, Inc. shall not be liable beyond the fees paid for its services for errors and omissions.

This report was generated for the express use of Portland Golf Club and their designates. These parties shall not interpret the report findings or conclusions any differently than stated without prior discussion with or consent from Terra Science, Inc.

Respectfully submitted,



Phil Scoles
Soil and Water Scientist

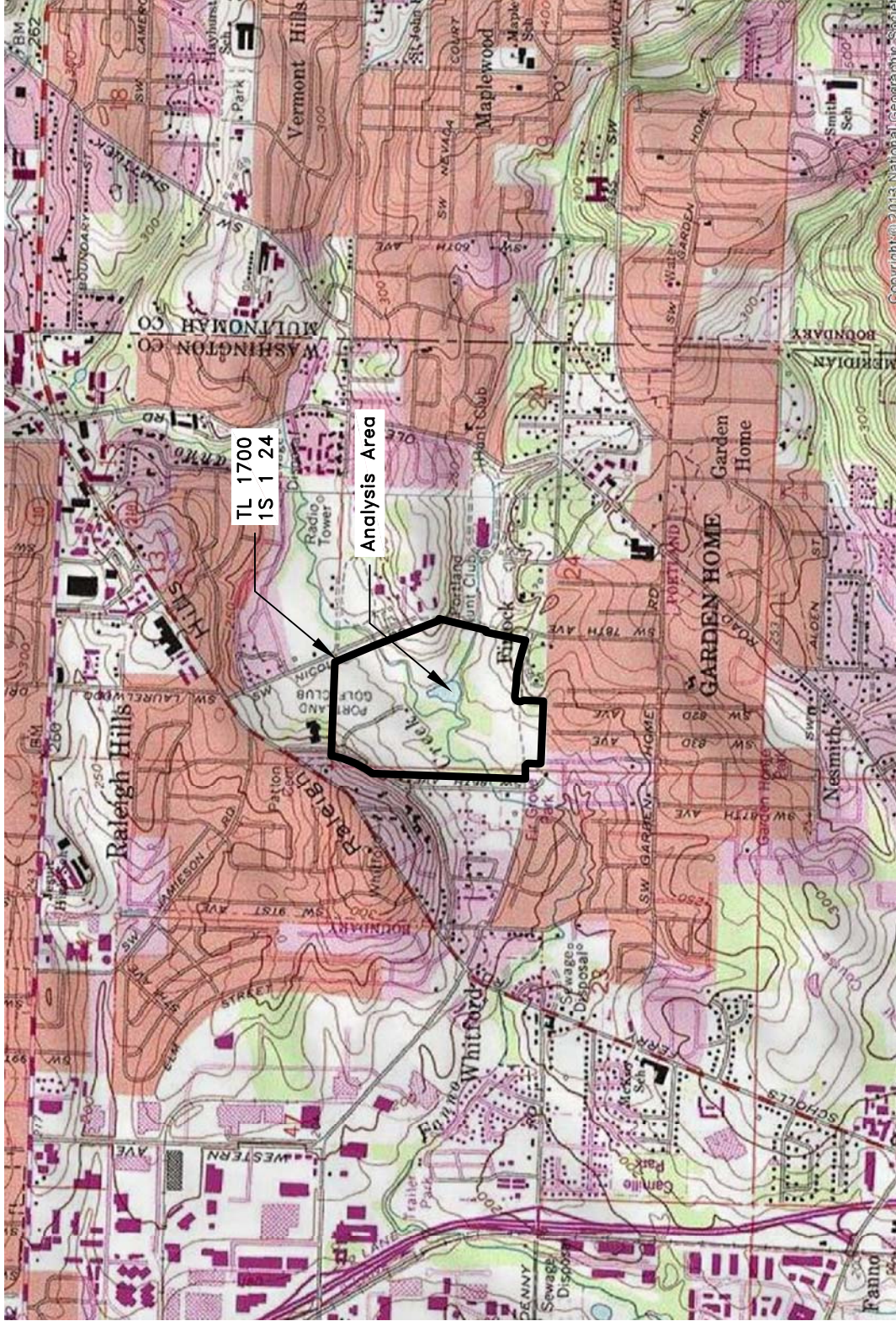
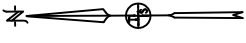
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APPENDIX A

**C.W.S. VEGETATIVE CORRIDORS
ANALYSIS FIGURES**



SOURCE: U.S. Department of the Interior, U.S. Geological Survey, The National Map Viewer, 2021. Available at: <https://apps.nationalmap.gov/viewer/>

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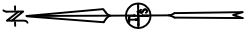


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January 2023

VICINITY
MAP

FIGURE 1



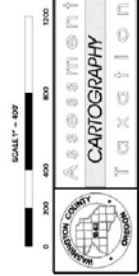
WASHINGTON COUNTY OREGON
SECTION 24 T1S 12R W.M.
SCALE 1" = 400'

26	31	32	33	34	35	36	37
1	6	6	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	19
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	37
1	6	5	4	3	2	1	6

FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT
www.co.washington.or.us

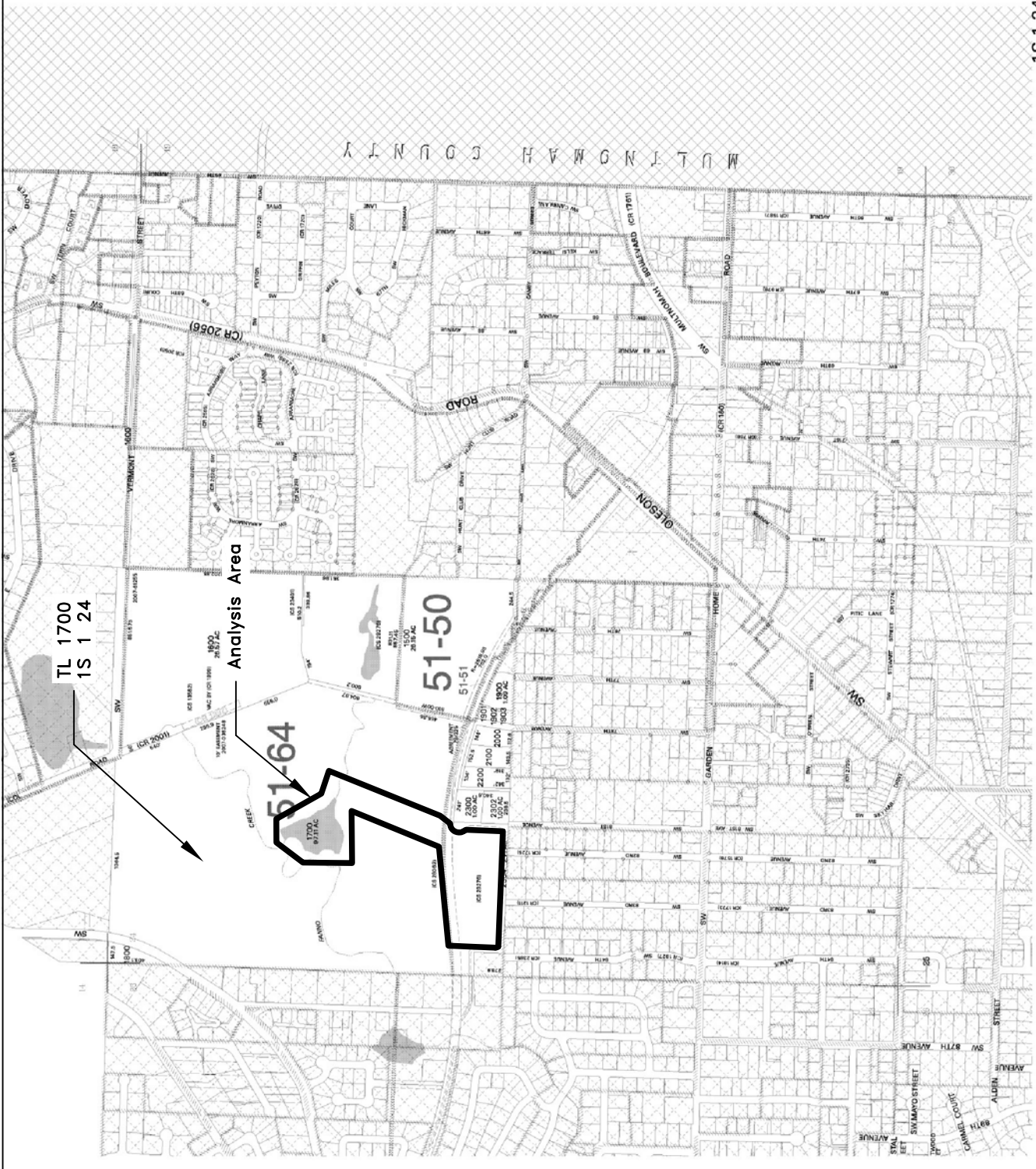
BB	BA	AB	AA
BC	BD	AC	AD
CB	CA	DB	DA
CC	CD	DC	DD

Cancelled Taxlots For: 1S124
100, 105, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370



PLOT DATE: December 11, 2015
FOR ASSESSMENT PURPOSES
ONLY FOR OTHER USE
Map areas delineated by other gray shading or cross-hatched patterns are for reference only and may not indicate the most current property boundaries. Please contact the assessor's map for the most current information.

PORTLAND
BEAVERTON
1S 1 24



1S 1 24

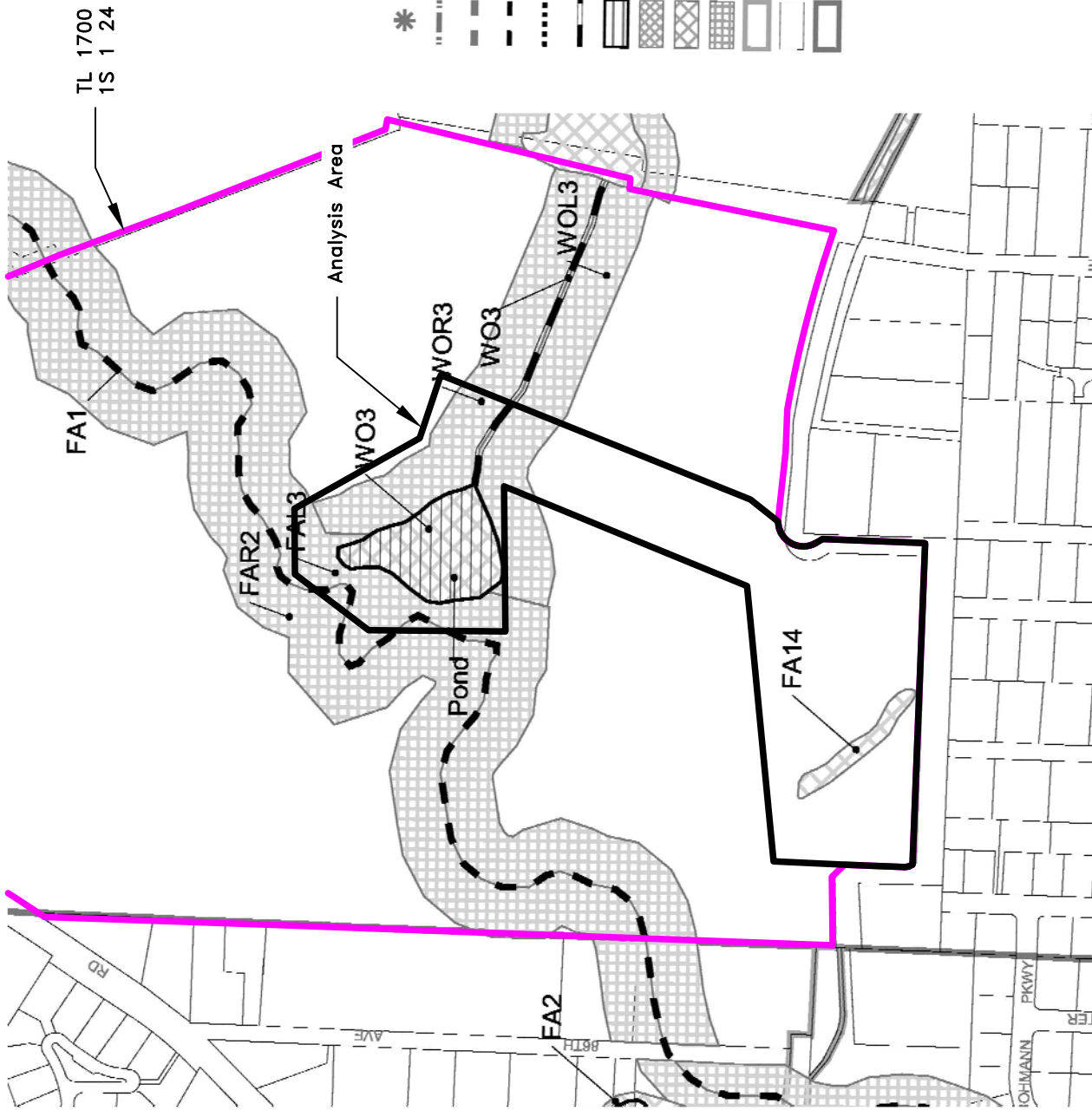
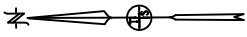
SOURCE: ORMAP website, Washington County Assessor's Map no. 1S 1 24, 2021. Available at: <<https://ormap.net/gis/index.html>>

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Legend

- * Sample Points
- Beaveron City Limits
- LWI Study Boundary
- Perennial
- Intermittent
- Channel
- Pond
- DSL Wetland
- Wetland
- Riparian
- Entry Permission Granted
- Taxiots
- Sections

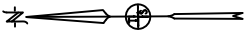
- NLSW= Not Locally Significant Wetland
- SWDF= Storm Water Detention Facility
- M= Mitigation
- AS= Ash Creek
- BE= Belaire Creek
- BR= Bronson Creek
- BV= Beaveron Creek
- CE= Center Creek
- CM= Cedar Mill Creek
- ER= Erickson Creek
- FA= Fanno Creek
- GO= Golf Creek
- HA= Hall Creek
- HI= Hiteon Creek
- JN= Johnson Creek North
- JO= Johnson Creek South
- SU= Summer Creek
- SY= Sywan Creek
- WA= Waterhouse Creek
- WE= Weir Creek
- WI= Willow Creek
- WO= Woods Creek

SOURCE: Oregon Dept. of State Lands website, Beaveron, Oreg. Local Wetland Inventory (2001). Available online.

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SOURCE: Google Earth, 2021. Available at: <<https://earth.google.com>>

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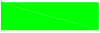








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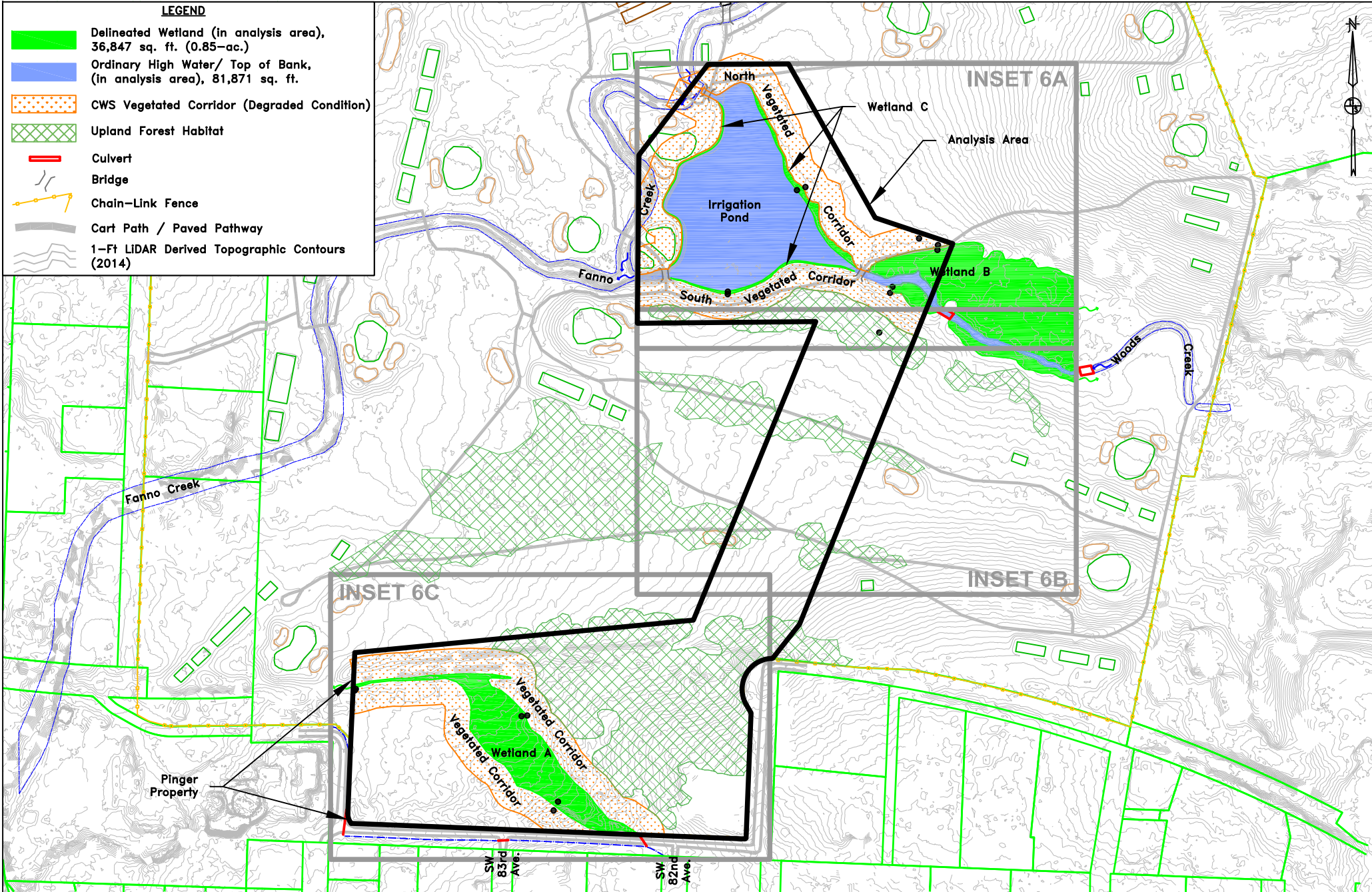
January 2023

JUNE 21, 2021
GOOGLE EARTH
AERIAL IMAGE

FIGURE 4

LEGEND

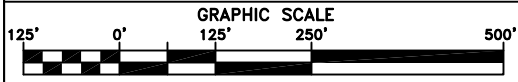
-  Delineated Wetland (in analysis area), 36,847 sq. ft. (0.85-ac.)
-  Ordinary High Water/ Top of Bank, (in analysis area), 81,871 sq. ft.
-  CWS Vegetated Corridor (Degraded Condition)
-  Upland Forest Habitat
-  Culvert
-  Bridge
-  Chain-Link Fence
-  Cart Path / Paved Pathway
-  1-Ft LIDAR Derived Topographic Contours (2014)



Terra Science, Inc.
Soil, Water, & Wetland Consultants

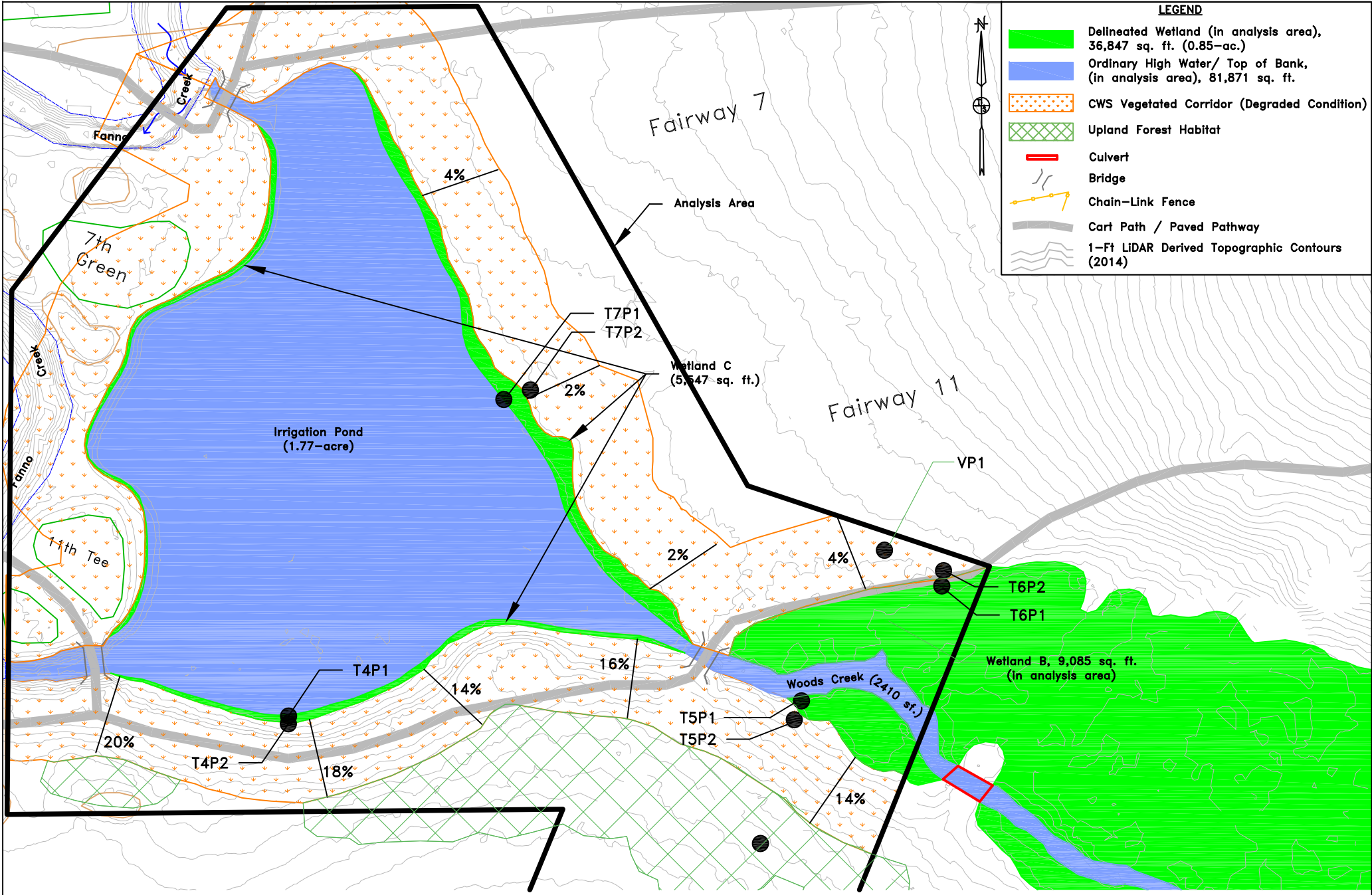
C.W.S. SENSITIVE AREAS - VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S, R. 1W, SEC 24)
Portland, Washington County, Oregon

EXISTING WATER, WETLAND,
AND RIPARIAN HABITAT
CONDITIONS INDEX MAP



January 2023

FIGURE 5

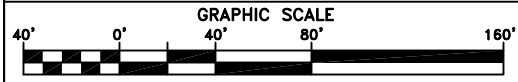


Terra Science, Inc.
Soil, Water, & Wetland Consultants

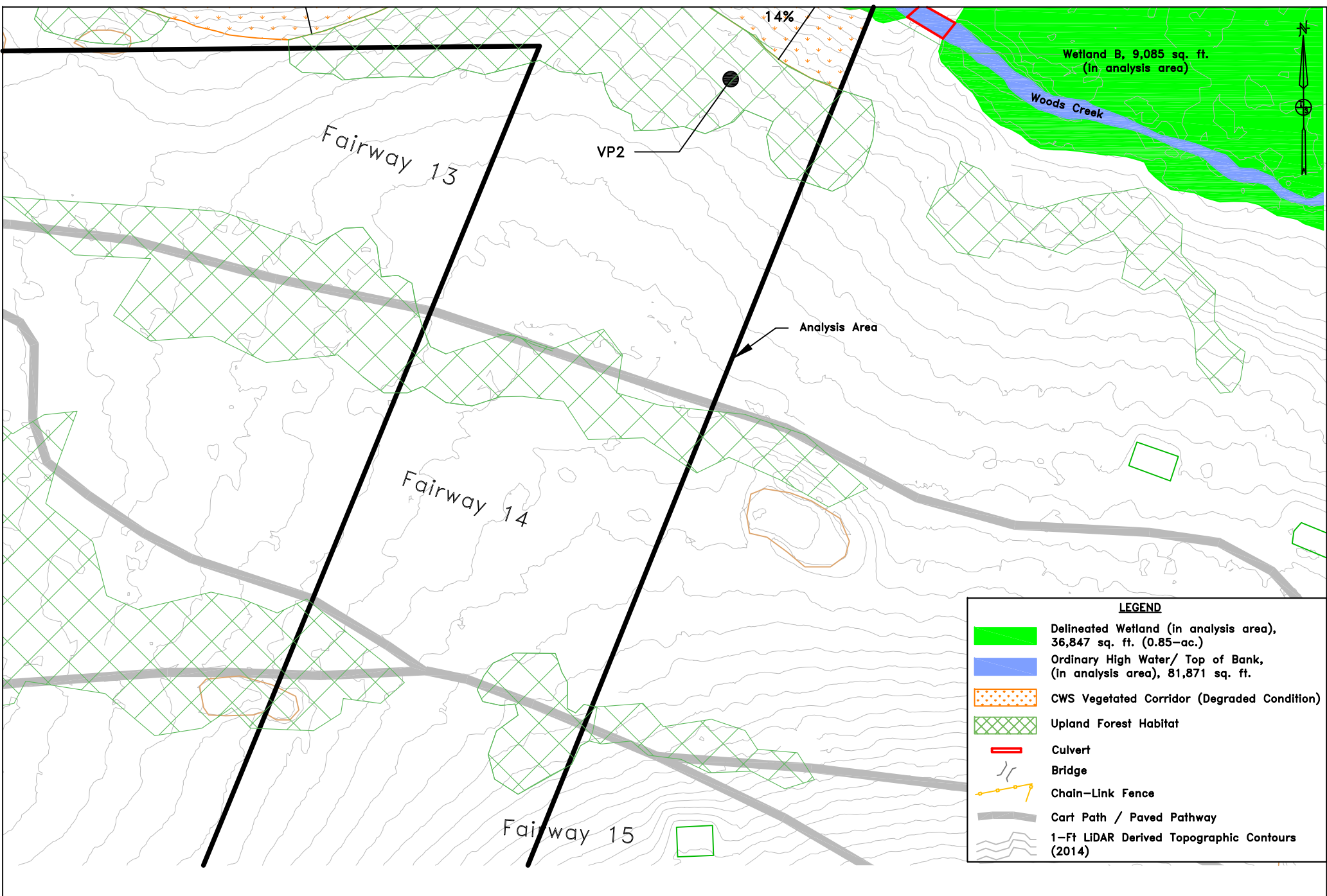
C.W.S. SENSITIVE AREAS - VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S, R. 1W, SEC 24)
Portland, Washington County, Oregon

EXISTING WATER, WETLAND,
AND RIPARIAN HABITAT
CONDITIONS MAP

INSET 5A



January 2023

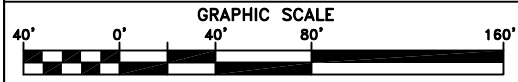


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C.W.S. SENSITIVE AREAS - VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S, R. 1W, SEC 24)
Portland, Washington County, Oregon

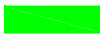








EXISTING WATER, WETLAND,
AND RIPARIAN HABITAT
CONDITIONS MAP

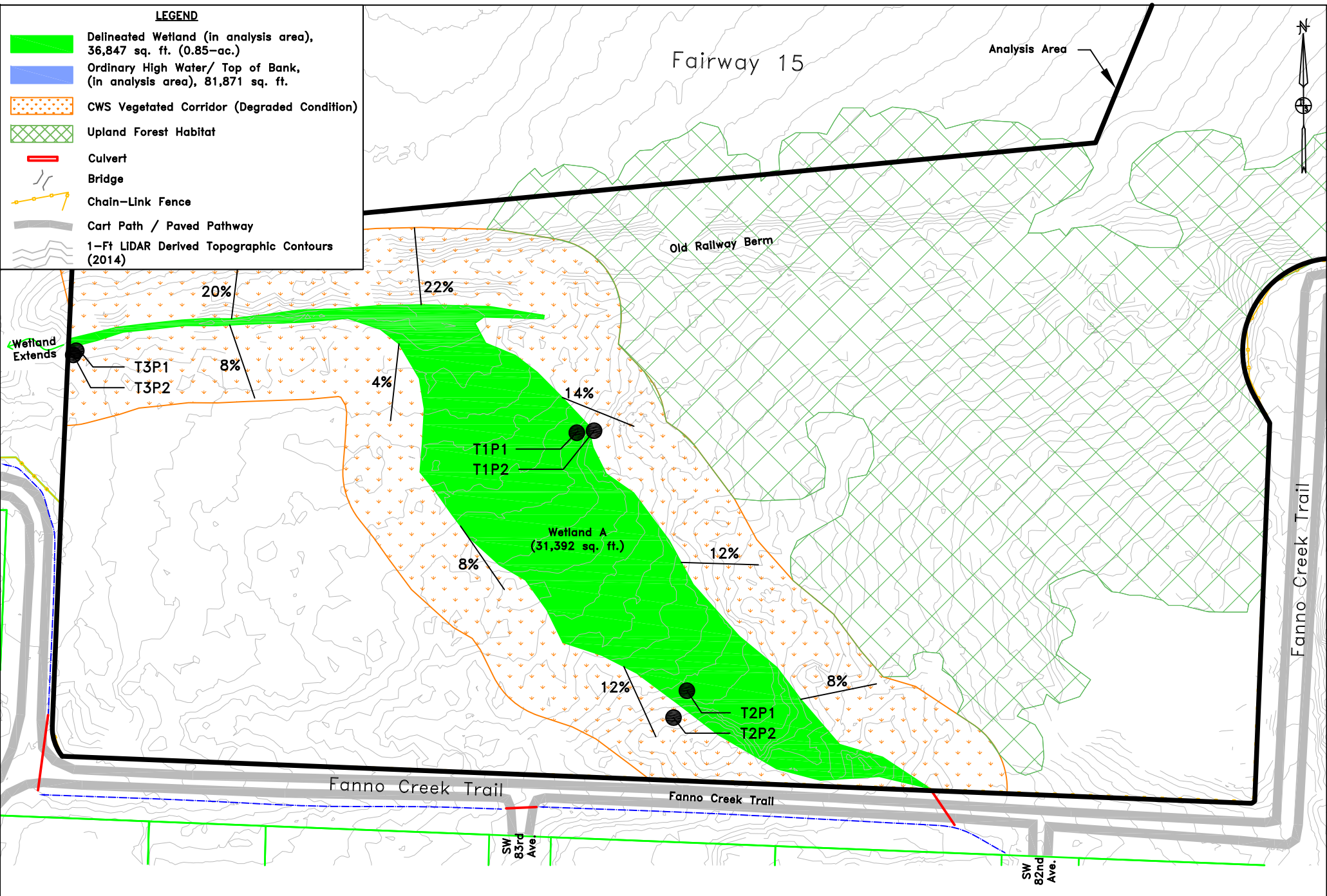
INSET 5B



January 2023

LEGEND

-  Delineated Wetland (in analysis area), 36,847 sq. ft. (0.85-ac.)
-  Ordinary High Water/ Top of Bank, (in analysis area), 81,871 sq. ft.
-  CWS Vegetated Corridor (Degraded Condition)
-  Upland Forest Habitat
-  Culvert
-  Bridge
-  Chain-Link Fence
-  Cart Path / Paved Pathway
-  1-Ft LIDAR Derived Topographic Contours (2014)



Terra Science, Inc.
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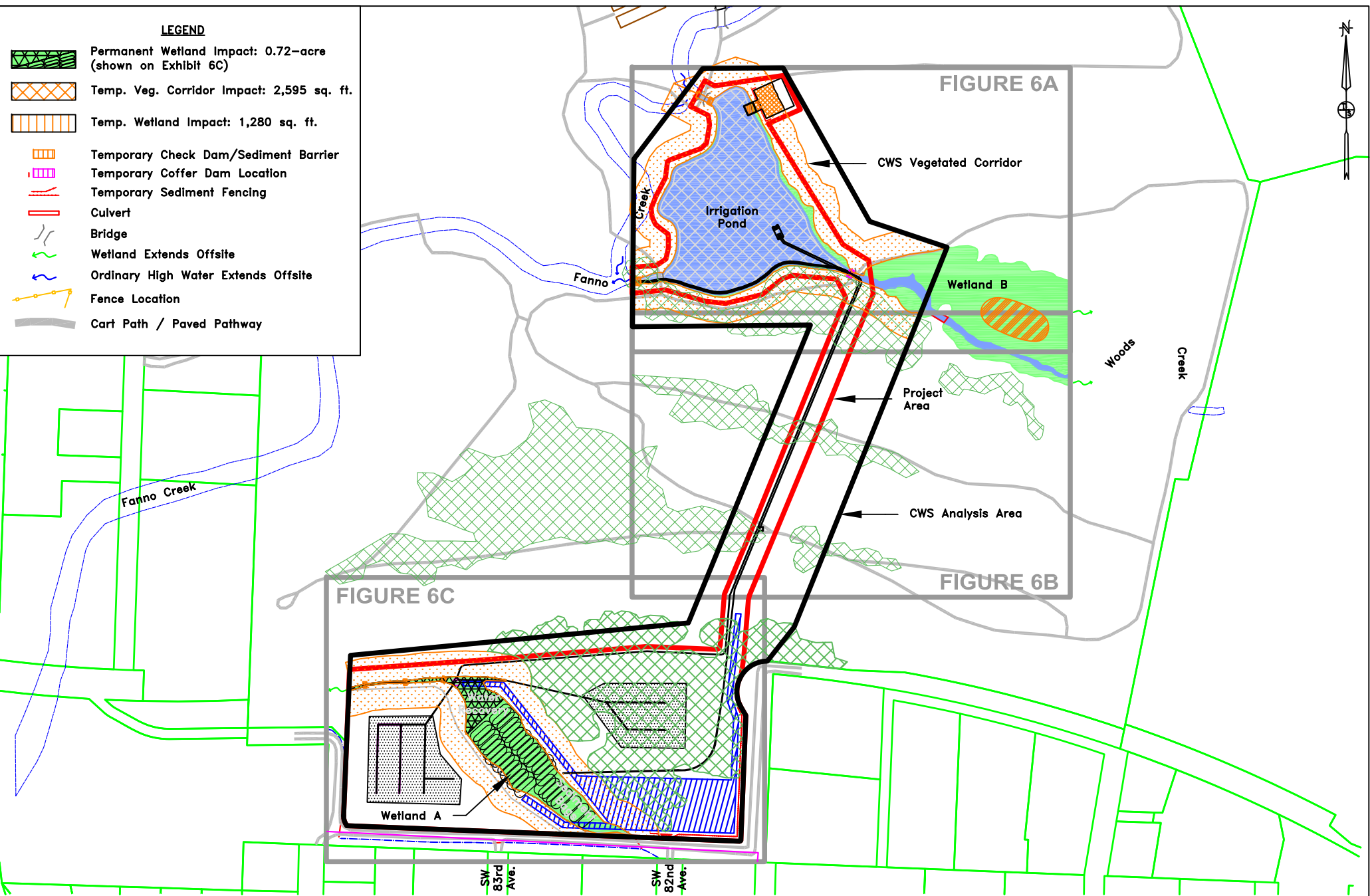
C.W.S. SENSITIVE AREAS - VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S, R. 1W, SEC 24)
Portland, Washington County, Oregon

EXISTING WATER, WETLAND,
AND RIPARIAN HABITAT
CONDITIONS MAP



January 2023

INSET 5C



SOURCE: Tax Lot Boundaries: Washington County GIS, 2021.

Terra Science, Inc.
Soil, Water, & Wetland Consultants

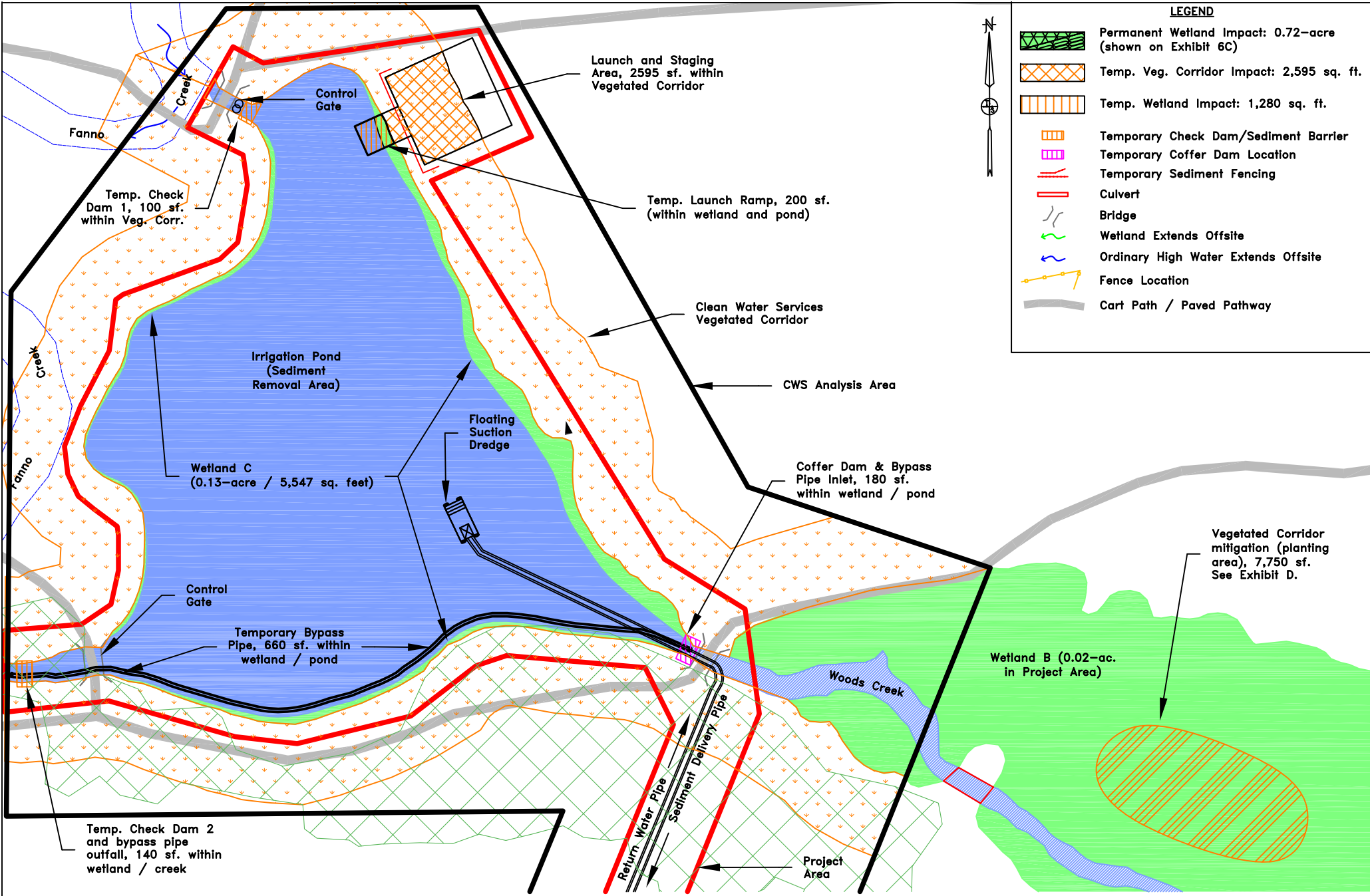
C.W.S. SENSITIVE AREAS – VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S R. 1W SEC. 24)
Portland, Washington County, Oregon

PROPOSED TEMPORARY IMPACTS
TO CWS VEGETATED CORRIDORS
INDEX MAP



January 2023 (Updated June 2023)

FIGURE 6



SOURCE: Tax Lot Boundaries: Washington County GIS, 2021.

Terra Science, Inc.
Soil, Water, & Wetland Consultants

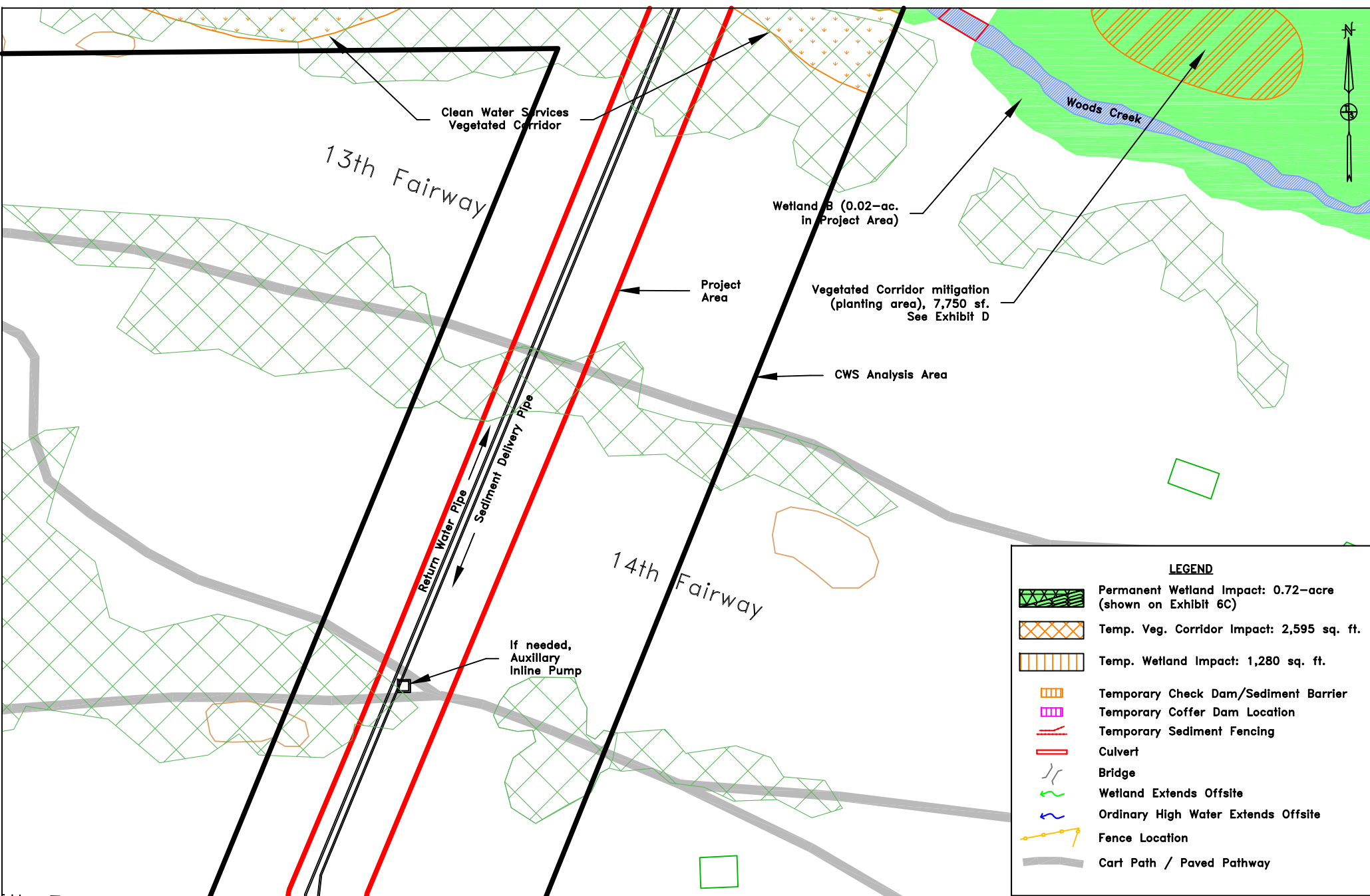
GRAPHIC SCALE
40' 0' 40' 80' 160'

C.W.S. SENSITIVE AREAS - VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S R. 1W SEC. 24)
Portland, Washington County, Oregon

January 2023 (Updated June 2023)

PROPOSED TEMPORARY IMPACTS TO CWS VEGETATED CORRIDORS

FIGURE 6A



SOURCE: Tax Lot Boundaries: Washington County GIS, 2021.

Terra Science, Inc.
Soil, Water, & Wetland Consultants

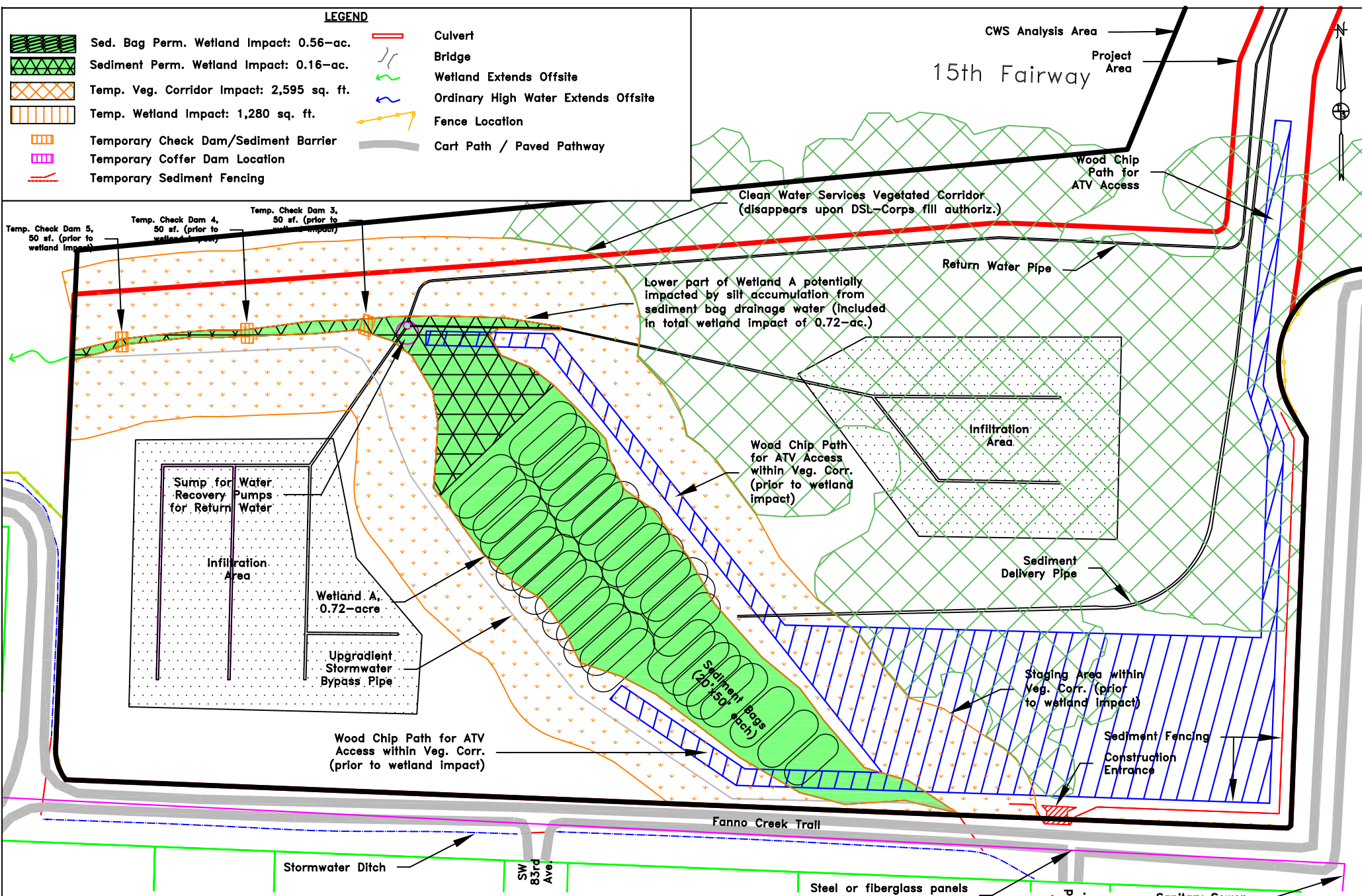
GRAPHIC SCALE
40' 0' 40' 80' 160'

C.W.S. SENSITIVE AREAS – VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S R. 1W SEC. 24)
Portland, Washington County, Oregon

January 2023 (Updated June 2023)

PROPOSED TEMPORARY IMPACTS TO CWS VEGETATED CORRIDORS

FIGURE 6B

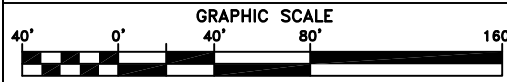


SOURCE: Tax Lot Boundaries: Washington County GIS, 2021.

Terra Science, Inc.
Soil, Water, & Wetland Consultants

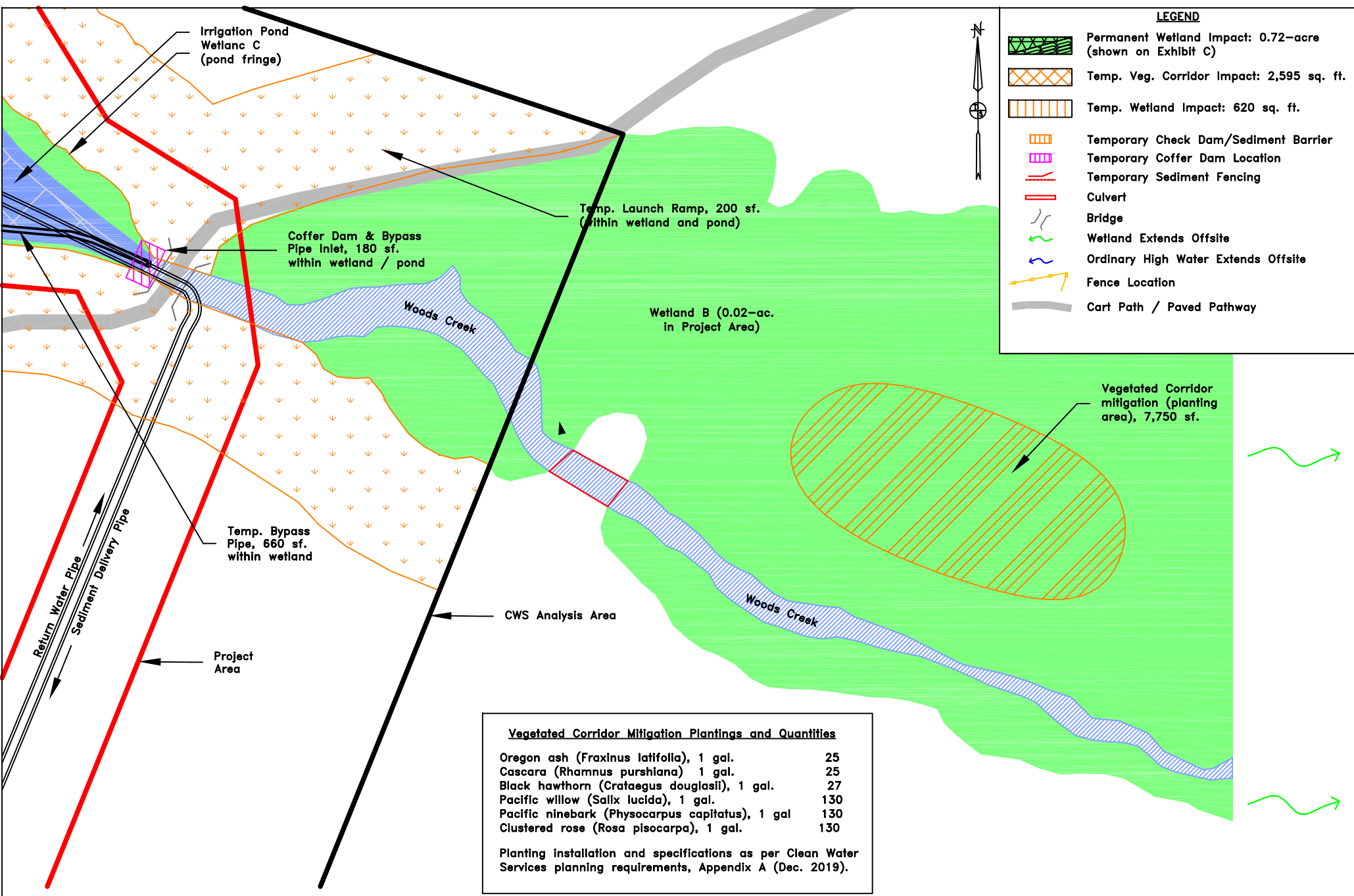
C.W.S. SENSITIVE AREAS – VEGETATED CORRIDORS ASSESSMENT
FOR PORTION OF TAX LOT 1700 (T.1S R. 1W SEC. 24)
Portland, Washington County, Oregon

PROPOSED TEMPORARY IMPACTS TO CWS VEGETATED CORRIDORS



January 2023 (Updated June 2023)

FIGURE 6C



SOURCE: Tax Lot Boundaries: Washington County GIS, 2021.

Terra Science, Inc.
Soil, Water, & Wetland Consultants

GRAPHIC SCALE
40' 0' 40' 80' 160'

C.W.S. SENSITIVE AREAS – VEGETATED CORRIDORS ASSESSMENT FOR PORTION OF TAX LOT 1700 (T.1S R. 1W SEC. 24) Portland, Washington County, Oregon

January 2023 (Updated June 2023)

PROPOSED MITIGATION (PLANTING) FOR TEMPORARY IMPACTS TO CWS VEGETATED CORRIDORS

FIGURE 6D

TERRA SCIENCE, INC.

Soil, Water & Wetland Consultants

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon

APPENDIX B
VEGETATED CORRIDORS
DATA

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24

Portland, Washington County, Oregon

North Irrigation Pond and Fringe Sample Plot Data & Results

	T6P2	T7P2	VP1		Corridor Condition
Tree Stratum				Mean Areal Tree Cover	DEGRADED
<i>Pinus sylvestris</i>			5	$20/3 = 7\%$	
<i>Pseudotsuga menziesii</i> *			15		
Shrub Stratum					
Herb Stratum					
<i>Agrostis stolonifera</i>	5				
<i>Bellis perennis</i>			5		
<i>Lolium sp.</i>			15		
<i>Poa sp.</i>	90	97	75		
<i>Prunella vulgaris v. vulgaris</i>			5		
<i>Ranunculus repens</i>	5				
<i>Trifolium repens</i>		3			
Woody Vine Stratum					
				Mean Areal Cover	
Total Areal Cover	100	100	120	$320/3 = 107\%$	
Total Native Areal Cover*	0	0	15	$15/3 = 5\%$	
Relative Native Areal Cover				$5/107 = 5\%$	

*Native species.

South Irrigation Pond and Fringe Sample Plot Data & Results

	T4P2	T5P2	VP2		Corridor Condition
Tree Stratum				Mean Areal Tree Cover	DEGRADED
<i>Acer rubra</i>			10	$65/3 = 22\%$	
<i>Betula pendula</i>		35			
<i>Fraxinus latifolia</i> *			15		
<i>Pinus sylvestris</i>			5		
Shrub Stratum					
<i>Rhododendron macrophyllum</i> *	60				
Herb Stratum					
<i>Bellis perennis</i>		10	5		
<i>Poa sp.</i>		65	65		
<i>Prunella vulgaris v. vulgaris</i>		5	10		
Woody Vine Stratum					
<i>Hedera hibernica</i>		2		Mean Areal Cover	
Total Areal Cover	60	117	110	$287/3 = 96\%$	
Total Native Areal Cover*	60	0	15	$75/3 = 25\%$	
Relative Native Areal Cover				$25/96 = 26\%$	

*Native species.

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24

Portland, Washington County, Oregon

Wetland A Sample Plot Data & Results

	T1P2	T2P2	T3P2		Corridor Condition
Tree Stratum				Mean Areal Tree Cover	DEGRADED
<i>Crataegus monogyna</i>	15	2		20/3 = 7%	
<i>Frangula purshiana</i> *	3				
Shrub Stratum					
<i>Corylus cornuta</i> *	10	5			
<i>Crataegus monogyna</i>	10	2	50		
<i>Mahonia aquifolium</i> *			5		
<i>Prunus avium</i>	5				
<i>Rosa sp.</i> *	5				
<i>Rubus armeniacus</i>	50	93	15		
<i>Symphoricarpos albus</i> *			10		
Herb Stratum					
<i>Polystichum munitum</i> *	50	5	10		
<i>Tolmiea menziesii</i> *	5				
Woody Vine Stratum					
<i>Hedera hibernica</i>			30	Mean Areal Cover	
Total Areal Cover	153	107	120	380/3 = 127%	
Total Native Areal Cover*	73	10	25	108/3 = 36%	
Relative Native Areal Cover				36/127 = 28%	

*Native species.

TERRA SCIENCE, INC.

Soil, Water & Wetland Consultants

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon

APPENDIX C
GROUND LEVEL COLOR PHOTOGRAPHS

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon



Point 1 (above): Southwest to south facing view of the irrigation pond (CWS Sensitive Area) taken from the northwest corner of pond. A wetland fringe (aka Sensitive Area) is present along the edge of pond. The 50-foot wide CWS vegetated corridor for the pond has degraded condition due to mowed turf and lack of tree canopy.



Photo Point 2 (above): North facing view of the irrigation pond Sensitive Area, adjacent wetland Sensitive Area (Wetland C, between shovel and pond), and its associated Vegetated Corridor (Northeast Vegetated Corridor, right of shovel) taken from east edge of Irrigation Pond. These are in degraded condition due to the presence of heavily managed golf course turf grasses and lack of tree canopy.

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon



Photo 3 (above): Southwest facing view of Wetland B, left of shovel (CWS Sensitive Area). The associated Vegetated Corridor (aka North Vegetated Corridor) begins right of shovel and extends into Fairway no. 11. This 50-foot wide corridor qualifies as degraded condition due to mowed turf (non-native grasses) and lack of trees and shrubs (outside of wetland).



Photo 4 (above): East facing view of Woods Creek (CWS Sensitive Area), which includes wetland flanking both sides of creek (albeit overgrown by blackberries and mowed turf). The South Vegetated Corridor (to the right) extends from the planted birch trees into a mowed section of Fairway no. 13. Both Vegetated Corridors (opposite sides of creek area) qualify as degraded (50-wide) due to the invasive species (blackberries to left), mowed turf grasses and non-native trees/shrubs.

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon



Photo 5 (above): East facing view of the irrigation pond (CWS Sensitive Area), with submerged wetland fringe (not visible, at base of retaining wall). The South Vegetated Corridor begins to the right of the pond. This Vegetated Corridor condition also qualifies as degraded due to managed landscaping and low tree canopy cover. About half of tree grove in photo occurs in the 50-foot wide Vegetated Corridor.



Photo 6 (above): North by northwest facing view of Wetland A (CWS Sensitive Area Sensitive Area. This feature is not shown on County natural resource inventory, but it is mapped on Beaverton Local Wetland Inventory. The associated Vegetated Corridor surrounding the wetland is dominated by invasive Himalayan blackberry, non-native grasses and has relative low tree canopy. This 50-foot wide Vegetated Corridor condition qualifies as degraded, as per CWS criteria.

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon

APPENDIX D

**WETLAND DELINEATION REPORT AND
DSL CONCURRENCE LETTER**



Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

State Land Board

January 12, 2022

Portland Golf Club
Attn: Lonnie Lister, General Manager
5900 SW Scholls Ferry Road
Portland, OR 97225

Kate Brown
Governor

Shemia Fagan
Secretary of State

Re: WD # 2021-0646 **Approved**
Wetland Delineation Report for Irrigation Pond Maintenance
Washington County; T1S R1W S24B TL1700 (Portion)
City of Beaverton Local Wetlands Inventory Wetland WO-3

Tobias Read
State Treasurer

Dear Lonnie Lister:

The Department of State Lands has reviewed the wetland delineation report prepared by Terra Science, Inc. for the site referenced above. Please note that the study area includes only a portion of the tax lot described above (see the attached maps). Based upon the information presented in the report, we concur with the wetland and waterway boundaries as mapped in Figure 6, 6A, 6B and 6C of the report. Please replace all copies of the preliminary wetland maps with these final Department-approved maps.

Within the study area, 3 wetlands (Wetland A, B and C, totaling approximately 2.19 acres), Woods Creek, and a pond (Irrigation Pond) were identified. The wetlands, creek and pond are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined). In addition, Fanno Creek, an essential salmonid stream with a managed connection to the irrigation pond, is located just outside the study area boundary. Fill or removal of any amount of material below Fanno Creek's OHWL may require a state permit.

This concurrence is for purposes of the state Removal-Fill Law only. We recommend that you attach a copy of this concurrence letter to any subsequent state permit application to speed application review. Federal, other state agencies or local permit requirements may apply as well. The U.S. Army Corps of Engineers will determine jurisdiction under the Clean Water Act, which may require submittal of a complete Wetland Delineation Report.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. If you have any questions, please contact Chris Stevenson, PWS, the Jurisdiction Coordinator for Washington County at (503) 986-5246.

Sincerely,

A rectangular area of the document has been redacted with a grey pixelated pattern, obscuring the signature of Peter Ryan.

Peter Ryan, SPWS
Aquatic Resource Specialist

Enclosures

ec: Jason Clinch, Terra Science, Inc.
Washington County Planning Department
Danielle Erb, Corps of Engineers
Michael De Blasi, DSL

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: <https://apps.oregon.gov/DSL/EPS/program?key=4>.

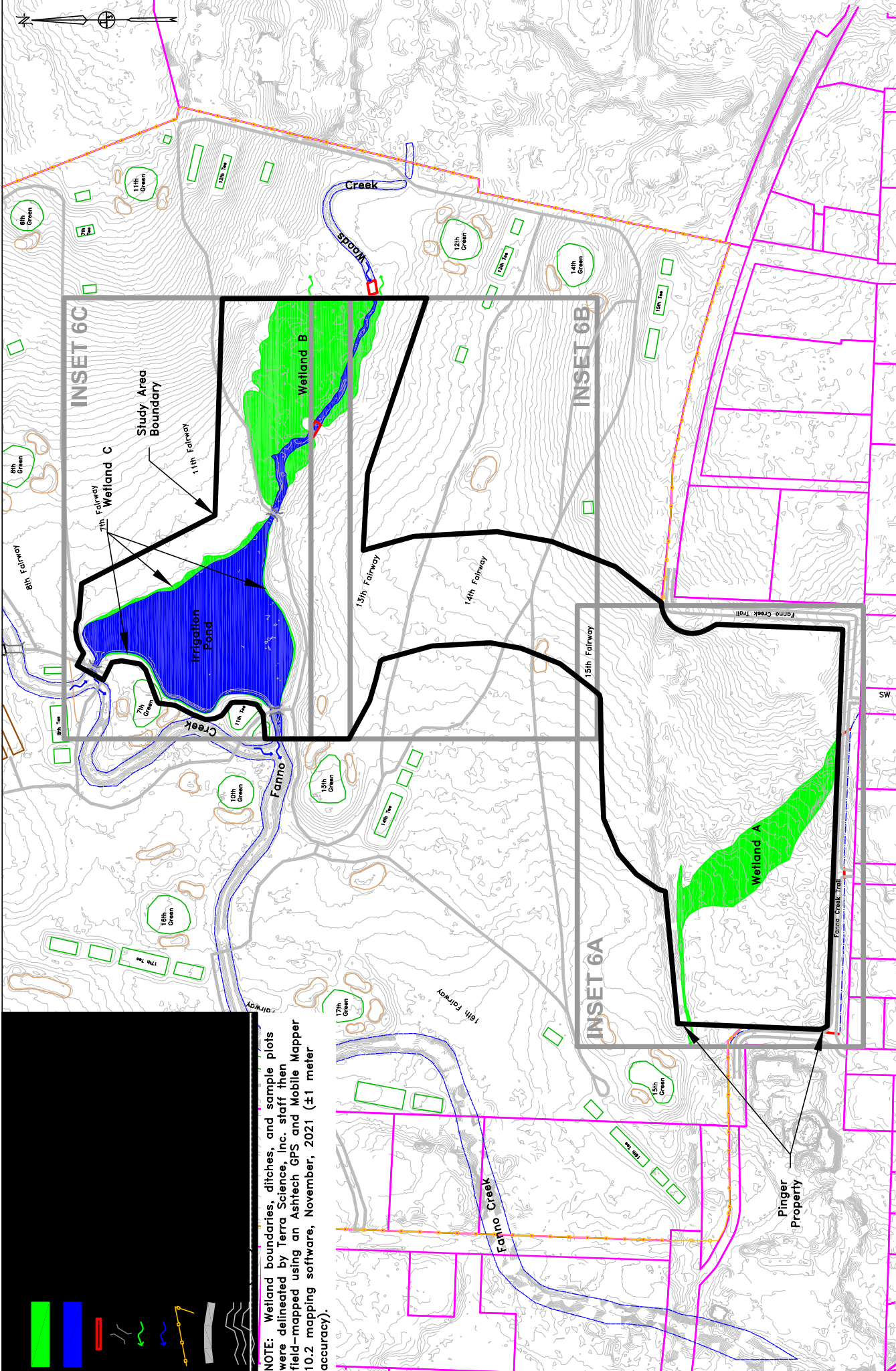
Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to:

Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.

A single PDF of the completed cover form and report may be e-mailed to: Wetland_Delineation@dsl.state.or.us.

For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information			
<input checked="" type="checkbox"/> Applicant <input checked="" type="checkbox"/> Owner Name, Firm and Address: Portland Golf Club Attn: Lonnie Lister, General Manager 5900 S.W. Scholls Ferry Road Portland, OR 97225	Business phone #	(503) 292-2651	
	Mobile phone # (optional)	N/A	
	E-mail:	N/A	
<input type="checkbox"/> Authorized Legal Agent, Name and Address (if different): N/A	Business phone #	N/A	
	Mobile phone # (optional)	N/A	
	E-mail:	N/A	
I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact. Typed/Printed Name: <u>Lonnie Lister</u> Signature: _____ Date: <u>11/17/2021</u> Special instructions regarding site access: <u>Please contact wetland consultant prior to entering site.</u>			
Project and Site Information			
Project Name: Portland Golf Club	Latitude: 45.471435°N	Longitude: -122.760355°W	
Proposed Use: Irrigation Pond Maintenance	Tax Map # 1S 1W 24	Tax Lot(s) Portion of 1700	
	Tax Map #	Tax Lot(s)	
Project Street Address (or other descriptive location): 5900 S.W. Scholls Ferry Rd	Township 1S Range 1W Section 24 QQ B		
	Township Range Section QQ		
City: Portland County: Washington	Waterway: Fanno Creek River Mile: Unknown	USGS / NWI Quad(s): Beaverton, OR	
Wetland Delineation Information			
Wetland Consultant Name, Firm and Address: Terra Science, Inc., Attn: Jason Clinch 4710 S.W. Kelly Avenue, Suite 100 Portland, Oregon 97239	Phone #	(503) 274-2100	
	Mobile phone #	N/A	
	E-mail:	jason@terrascience.com	
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.			
Consultant Signature: _____	Date: 11-19-2021		
Primary Contact for report review and site access is <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent			
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Study Area size: ±17.43 acres Total Wetland Acreage: 2.19 acres			
Check Box Applicable Boxes Below			
<input type="checkbox"/> R-F permit application submitted	<input checked="" type="checkbox"/> Fee payment submitted \$ 475		
<input type="checkbox"/> Mitigation bank site	<input type="checkbox"/> Fee (\$100) for resubmittal of rejected report		
<input type="checkbox"/> EFSC/ODOE Proj. Mgr:	<input type="checkbox"/> Request for Reissuance. See eligibility criteria. (no fee)		
<input type="checkbox"/> Wetland restoration/enhancement project (not mitigation)	DSL #:	Expiration date:	
<input type="checkbox"/> Previous delineation/application on parcel	<input checked="" type="checkbox"/> LWI shows wetlands or waters on parcel		
If known, previous DSL #:	Wetland ID code: Multiple ID codes		
For Office Use Only			
DSL Reviewer: <u>CS</u>	Fee Paid Date: ___ / ___ / ___	DSL WD #: <u>2021-0646</u>	
Date Delineation Received: <u>11 / 19 / 2021</u>	Scanned: <input type="checkbox"/>	Electronic: <input checked="" type="checkbox"/>	DSL App. #: _____

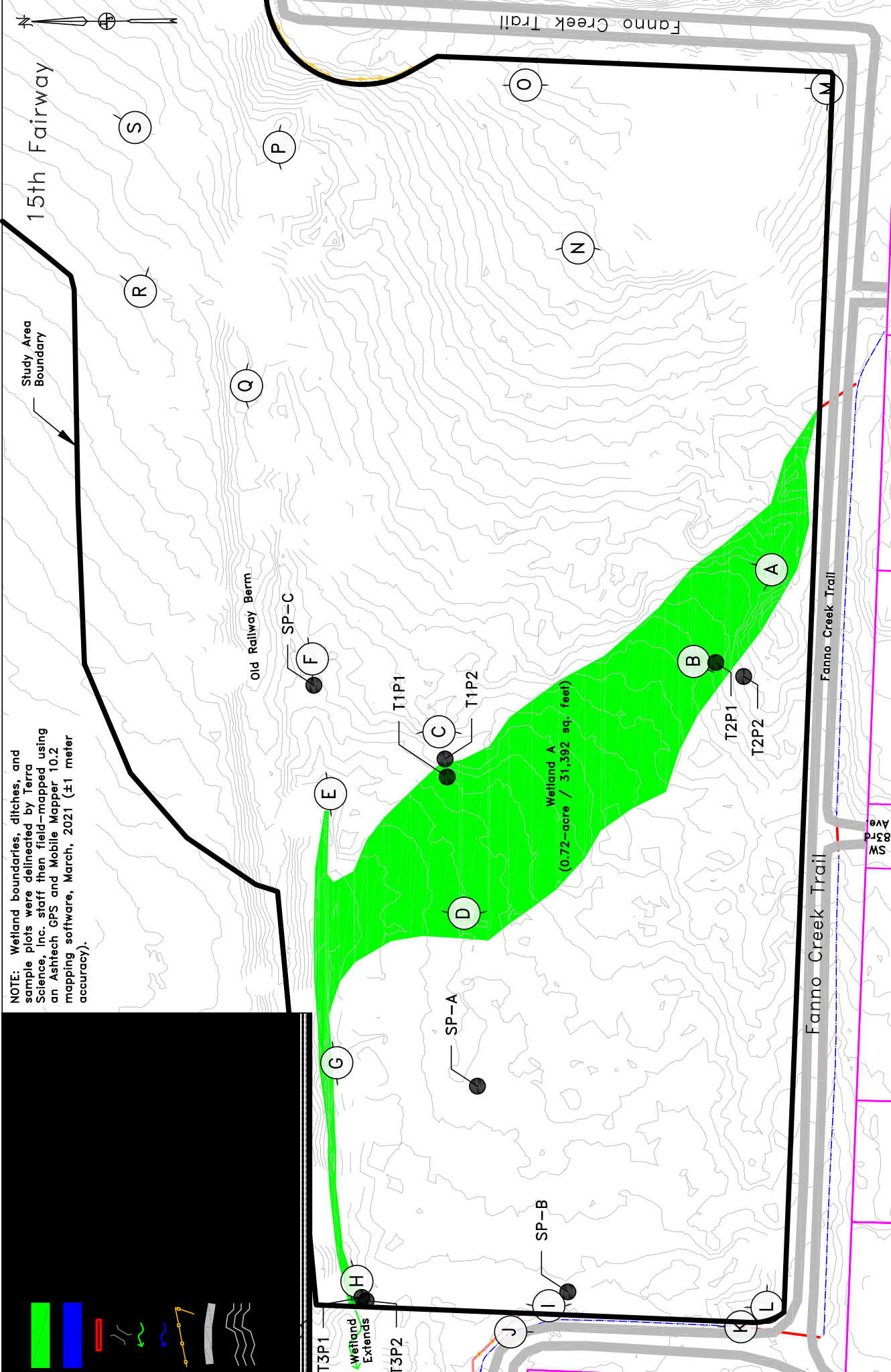


NOTE: Wetland boundaries, ditches, and sample plots were delineated by Terra Science, Inc. staff then field-mapped using an Ashtech GPS and Mobile Mapper 10.2 mapping software, November, 2021 (± 1 meter accuracy).

SOURCES: LIDAR: Dept. of Geology and Mineral Industries. OLC Metro 2014: Final Delivery. Watershed Sciences, Inc. Tax Lot Boundaries: Washington County GIS, 2021.

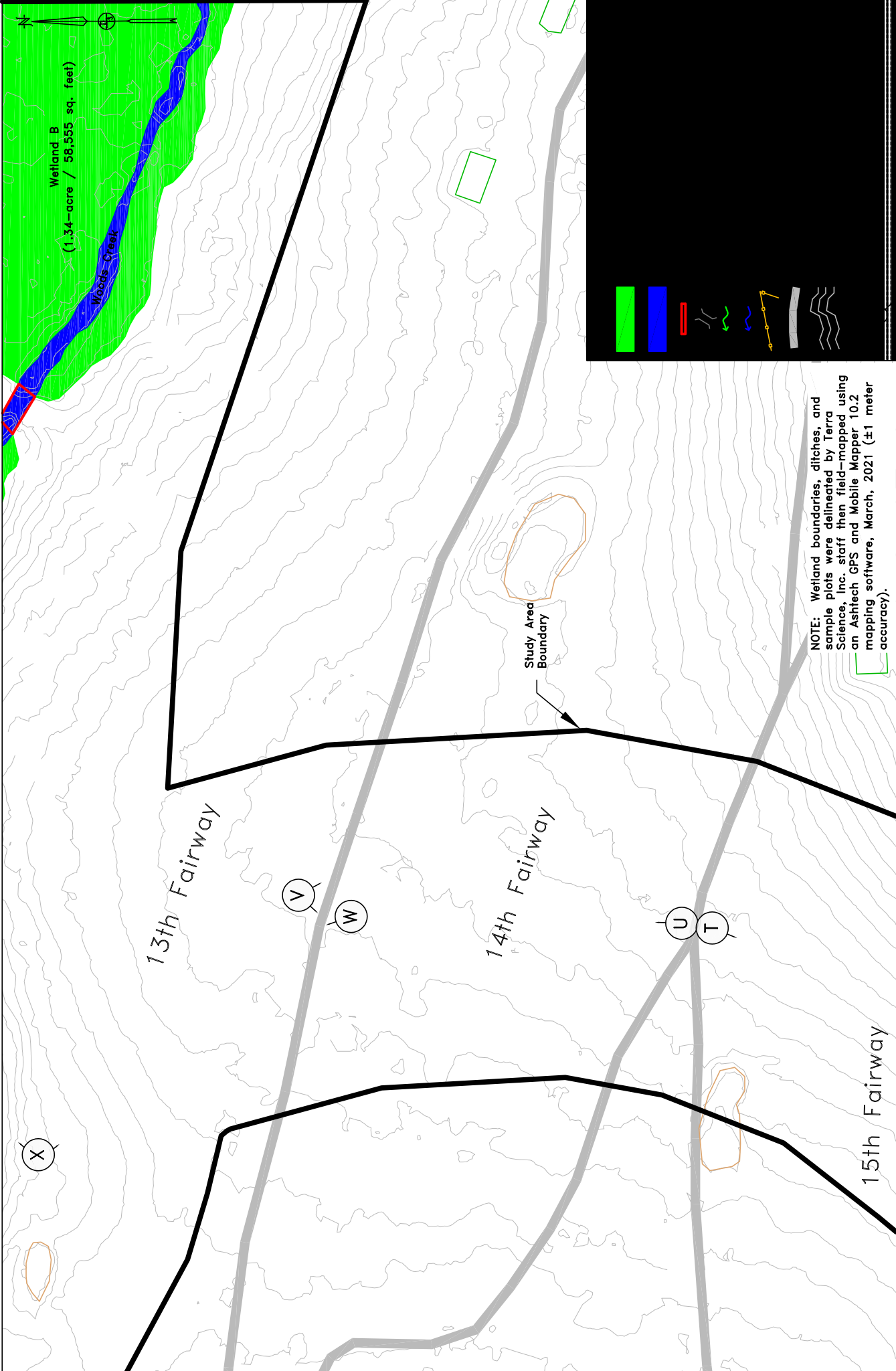
DSL WD # 2021-0646
 Approval Issued 1/12/2022
 Approval Expires 1/12/2027

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 Tax Lot Boundaries: Washington County GIS, 2021.

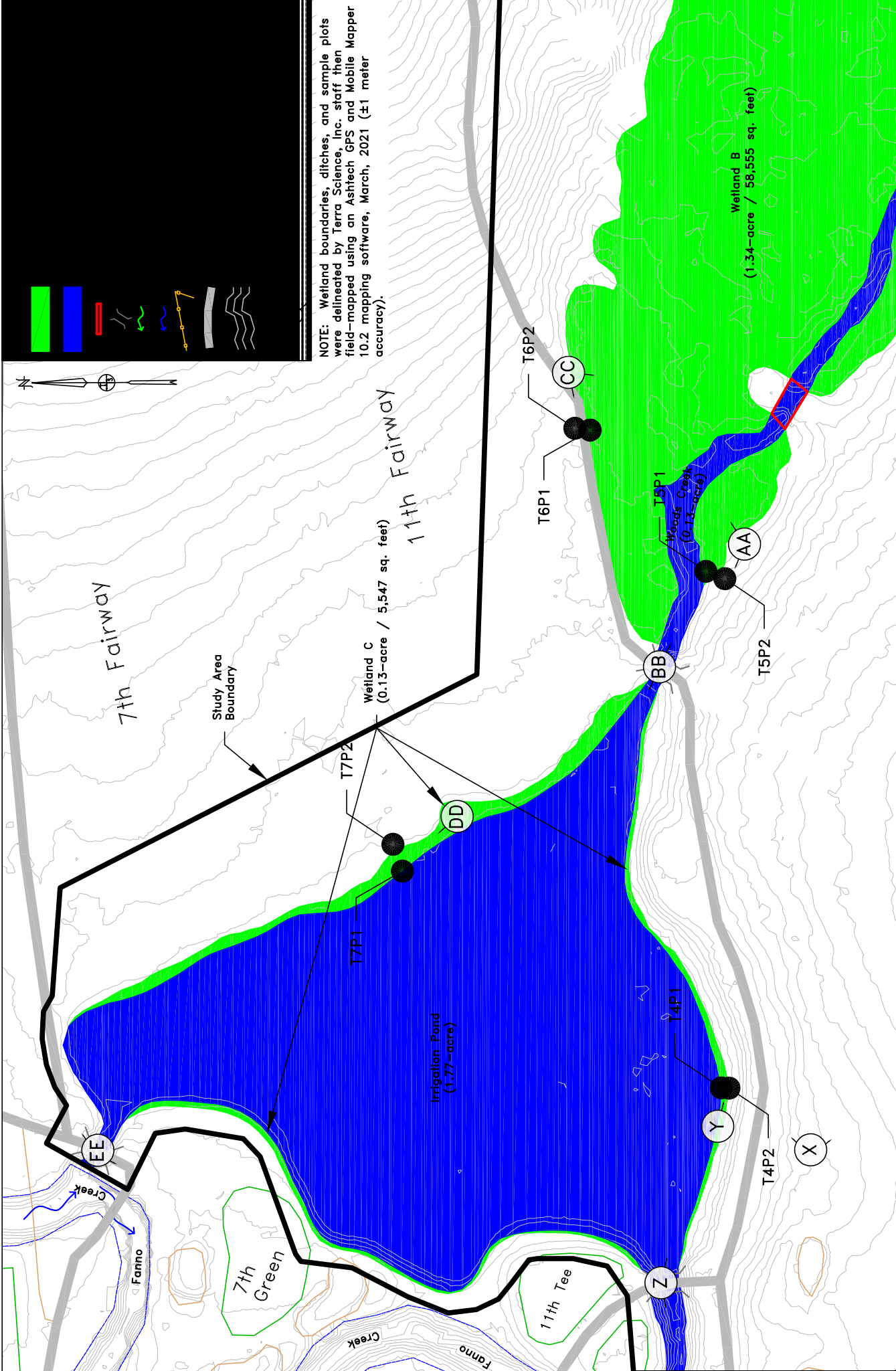
DSL WD # 2021-0646
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DSL WD # 2021-0646
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DSL WD # 2021-0646
 Approval Issued 1/12/2022
 Approval Expires 1/12/2027

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24
Portland, Washington County, Oregon

APPENDIX E
LITERATURE CITATIONS

CWS Vegetated Corridors Report for Portion of Tax Lot 1700, T. 1S R. 1W Sec. 24

Portland, Washington County, Oregon

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