



City of Portland, Oregon
Bureau of Development Services
Land Use Services
FROM CONCEPT TO CONSTRUCTION

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Date: March 25, 2015
To: Interested Person
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NOTICE OF A TYPE II DECISION ON A PROPOSAL IN YOUR NEIGHBORHOOD

The Bureau of Development Services has **approved** a proposal in your neighborhood. The mailed copy of this document is only a summary of the decision. The reasons for the decision, including the written response to the approval criteria and to public comments received on this application, are included in the version located on the BDS website <http://www.portlandonline.com/bds/index.cfm?c=46429>. Click on the District Coalition then scroll to the relevant Neighborhood, and case number. If you disagree with the decision, you can appeal. Information on how to do so is included at the end of this decision.

CASE FILE NUMBER: LU 14-248836 EN

GENERAL INFORMATION

Applicant: Rob Amsberry / City of Lake Oswego
380 A Avenue / Lake Oswego OR 97034

Owner: State of Oregon, Dept of Parks and Recreation
Attn: John Mullen
11321 SW Terwilliger Blvd / Portland, OR 97219

Consultant: John van Stavern / Pacific Habitat Services
9450 SW Commerce Circle, Suite 180 / Wilsonville, OR 97070

Site Address: Tryon Creek State Park, Northeast of 1257 Rockinghorse Lane

Legal Description: TL 600 9.66 ACRES, SECTION 34 1S 1E; TL 500 19.35 ACRES SPLIT LEVY R331658 (R991340070), SECTION 34 1S 1E

Tax Account No.: R991340020, R991340180

State ID No.: 1S1E34 00600, 1S1E34 00500

Quarter Section: 4229

Neighborhood: UNCLAIMED 13

District Coalition: Southwest Neighborhoods Inc., contact Leonard Gard at 503-823-4592.

Other Designations: Tryon Creek State Natural Area; Potential Landslide Hazard Area; 20 Percent Slopes; SW Hills Resource Protection Plan Site123, Tryon Creek State Park

Zoning: OSp – Open Space with the Environmental Protection (p) Overlay

Case Type: EN – Environmental Review

Procedure: Type II, an administrative decision with appeal to the Hearings Officer.

Proposal: The City of Lake Oswego proposes to stabilize an actively eroding stormwater runoff channel/gully that has the potential to destabilize an ancient, and recently active landslide within the city limits of both Lake Oswego and Portland, and to permanently repair a washed-out trail-crossing over the gully within the city limits of Portland. The existing gully has been created from a subdivision outfall in Lake Oswego. The gully is approximately 4 feet wide by 4

– 5 feet deep with channel slopes of about 2:1 to vertical or undercut. It crosses the toe of the ancient landslide, which has the potential to initiate new activity in the slide area which could have significant impacts to the subdivision. Stormwater moving down the steep gully has also knocked out an existing trail crossing near the end of the slope. The entire area project area within the City of Portland is located within Tryon Creek State Park. Project areas outside the Portland City Limits are not subject to this review.

To stabilize the landslide, Lake Oswego plans to install a shear wall along the toe of the slide within the Lake Oswego City Limits. Some of the grading required for the shear wall will occur within the Portland City Limits and includes filling a small 206 square-foot wetland. This wetland fill and grading area for the shear wall within Portland's environmental zone will be approximately 3,100 square feet.

To further reduce the potential for slide destabilization, Lake Oswego will pipe stormwater from the subdivision outfall through a 12-inch tightline drainpipe placed in the gully to a point beyond the toe of the slide. Approximately 290 linear feet of the gully within Portland City Limits will be filled to provide a bed for the stormwater drainpipe. The drainpipe will be placed in the fill area, which will then be covered to create a swale-like feature that will be planted with native shrubs and forbs.

The outfall at the end of the 290-foot long tightline drainpipe will have a riprap pad using Class 200 riprap with minimum dimensions of 5 feet wide, 8 feet long, and at least 4.3 feet thick. Downslope from the new outfall to the trail crossing, the gully will be regraded to have a 4-foot bottom width and 2:1 side slopes at a depth of about 3 feet. This created streambed will be approximately 200 feet long and extend to the existing, albeit washed-out, trail crossing. Large woody debris will be placed in this channel to further dissipate water energy from the outfall and native plants will be installed along the top of banks, but not in the channel. The outfall pad cannot be planted due to the thickness of the riprap pad.

Just upstream of the trail crossing, the open channel will be diverted to a proposed 48-inch diameter manhole that will drop the runoff water level approximately 6.5 feet to pass it under the trail instead of across it. Runoff will be directed through 30 feet of 24-inch pipe to discharge onto a second riprap pad on the far side of the trail crossing. This pad will be constructed to simulate a streambed in a newly constructed basin east of the trail crossing. The basin will have an elongated bowl shape with a 5-foot wide bottom that will form a pool prior to discharging water farther downslope towards Tryon Creek. Large boulders will be placed in rows that stair-step down the basin and several logs with rootwads will be placed along the basin slopes to further dissipate energy from the discharged stormwater. Coir-wrapped soil lifts and live stakes will line the basin slopes to provide additional stability as well as to revegetate the slope.

The washed out gravel path and trail crossing above the new drainpipe will be reconstructed and re-graveled after channel construction activities are completed. The total disturbance area within Portland's environmental conservation zone will be approximately 10,082 square feet.

Nineteen regulated trees will be removed for the project within Portland City Limits, including 14 red alders with diameters of 6 to 22 inches, 3 big leaf maples ranging from 16 to 24 inches, and 2 western red cedars at 8 and 16 inches respectively.

The standards of Ch.33.430.180 for stormwater outfalls cannot be met by this proposal.

Relevant Approval Criteria: To be approved, this proposal must comply with the approval criteria of Title 33. The relevant criteria for Environmental Review of outfalls are found in **Section 33.430.250.A.1 & 3.**

FACTS

Site and Vicinity: The project site is located in Tryon Creek State Park and Natural Area, within Portland City Limits, just north and east of the City boundary between Portland and Lake Oswego. The area is a designated Natural Area, is heavily forested, and contains an active slide along the south side of Rockinghorse Creek as described above. The gully feeds into Tryon Creek, a tributary of the Willamette River, which runs from northwest to southeast just west of the project site. The hillside is very steep with slopes of 20 percent or greater.

Stormwater originates from an existing subdivision in Lake Oswego. The cul-de-sac is named Rockinghorse Lane and is the source of the stormwater outfall. The outfall is approximately 80 feet north of the cul-de-sac and forms the beginning of the erosion gully that is referred to as Rockinghorse Creek.

Zoning: The site is zoned **Open Space (OS)** with the **Environmental Protection (p)** overlay. The Open Space zone is intended to preserve and enhance public and private open, natural, and improved park and recreational areas identified in the Comprehensive Plan.

Environmental overlay zones protect environmental resources and functional values that have been identified by the City as providing benefits to the public. The environmental regulations encourage flexibility and innovation in site planning and provide for development that is carefully designed to preserve the site's protected resources. They protect the most important environmental features and resources while allowing environmentally sensitive urban development where resources are less sensitive. The purpose of this land use review is to ensure compliance with the regulations of the environmental zones.

Environmental Resources: Environmental overlay zones protect environmental resources and functional values that have been identified by the City as providing benefits to the public. The environmental regulations encourage flexibility and innovation in site planning and provide for development that is carefully designed to be sensitive to the site's protected resources. They protect the most important environmental features and resources while allowing environmentally sensitive urban development where resources are less sensitive. The purpose of this land use review is to ensure compliance with the regulations of the environmental zones.

The site is described as Resource Site 123, Tryon Creek State Park, in the *Southwest Hills Resource Protection Plan*. Resource Site 123 is a 455-acre, undeveloped natural area and State Park that contains hiking trails but has minimal other improvements. The South Creek Trail is located near the bottom of the proposed stabilization project. Aside from the trail crossing, the project area is undeveloped and has a forested canopy composed of native deciduous trees. The outfall "creek" eventually flows into Tryon Creek, approximately 200 feet northeast of the trail crossing.

Impact Analysis and Mitigation Plan: A description of the proposal was provided on pages 1-2 of this report. The following discusses development alternatives other than the one proposed, which were also considered by the applicant and describes the proposed construction management and mitigation plans for the selected alternative.

Development Alternatives: *The applicant explored four alternatives, including the proposed outfall design, which are discussed in Exhibit A.1 and summarized, below:*

- 1. Alternative one** would have the least amount of stormwater infrastructure, but would use only 200 feet of HDPE drainpipe. Approximately 280 linear feet of open channel improvements would be constructed downstream of the drainpipe outfall, and would involve grading in areas that would be difficult to access and that are more environmentally sensitive. Not all of the landslide toe would be protected from the erosive nature of the stormwater outfall as the pipe would not extend beyond the slide's toe.
- 2. Alternative two (preferred alternative)** would use 290 linear feet of fused HDPE pipe to tight-line stormwater to a point just beyond the toe of the existing landslide area, and create an open channel the remaining way to the trail crossing, as well as permanently

fixing the crossing so that it will not be subject to erosion from future high flow events. The drainpipe would be covered and planted with groundcovers and shrubs. Approximately 200 linear feet of open channel improvements would be made downstream of the pipe outfall.

3. **Alternative three** would use 390 linear feet of fused HDPE pipe and requires the most stormwater infrastructure of the 4 alternatives, and would also have the least amount of natural drainageway characteristics.
4. **Alternative four** would be an open channel for its entire length. A series of 50 one-foot log or rock-weir step-dams would be required along with shallow slopes that would increase the number of trees to be removed and which would not stabilize the existing landslide, which is the primary goal of the project.

Construction Management Plan: All construction activity will be conducted during the State of Oregon Department of Fish and Wildlife's in-water work period between July 15 and September 30, when water and run-off levels are typically at their lowest levels and ESA-sited species are least likely to be present in downstream waters. A Pollution Control Plan and an Erosion and Sediment Control Plan will be prepared and approved by the Cities of Portland and Lake Oswego prior to initiating the project. The construction staging area will be located within the Rockinghorse cul-de-sac within the city limits of Lake Oswego. The construction area clearing limits will be flagged and all temporary erosion control measures will be installed prior to any ground-disturbing activity. All "in-water" work will be properly isolated from any active channel flows (caused by infrequent summer rainstorms) and flow bypass measures will be installed as necessary. Anticipated erosion control measures may include compost berms or biobags, aggregate construction entrances, and temporary seeding and mulching.

Site access will follow the ". . . mostly open south edge of the forest . . . and will avoid impacts to mature trees. Equipment movement will be restricted to the narrow work corridor for coarse grading, pipe installation, shear key construction, trail reconstruction, and finish grading. Upon completion, disturbed areas will be seeded and mulched, and native riparian plants will be installed."

Land Use History: City records indicate there are no prior land use reviews for this site.

Agency and Neighborhood Review: A "Notice of Proposal in Your Neighborhood" was mailed on December 24, 2014. The following Bureaus have responded:

1. **Agency Review:** The Bureau of Environmental Services responded that the City has an existing sanitary sewer main located just east of the proposed outfall and noted that any future erosion of the creek bed in that portion of the project, inside the Portland City Limits, could have impacts to this main.

The Site Development Section of BDS responded that the project will require a geotechnical report containing both a slope stability analysis and a geologic assessment of the project at the time of permitting plan review. See comment letters for additional details.

2. **Neighborhood Review:** No written responses have been received from either the Neighborhood Association or notified property owners in response to the proposal.

ZONING CODE APPROVAL CRITERIA

33.430.250 Approval Criteria for Environmental Review, 2014

An environmental review application will be approved if the review body finds that the applicant has shown that all of the applicable approval criteria are met. When environmental review is required because a proposal does not meet one or more of the development standards of Section 33.430.140 through .190, then the approval criteria will only be applied to the aspect of the proposal that does not meet the development standard or standards.

Findings: The applicant's proposed outfalls fail to meet any of the development standards for outfalls, per 33.430.180.A-I, as follows:

- A channel outfall wider than the allowed 10 feet is proposed;
- Trees larger in diameter than 10 inches will be removed;
- Replacement trees will be in 1-gallon containers which the applicant states will be smaller than the standard 0.5 inch diameter;
- Slopes between the water source and the outfall will be steeper than 15 percent;
- Live stakes are not appropriate for this proposal due to gravel depth at the outfall riprap aprons;
- Two outfall pipes with diameters of 12 inches each will be used.

The following Approval Criteria apply to the proposed stabilization project within the Environmental Protection overlay zone, and are found in Section 33.430.250.A.

A. Public safety facilities, rights-of-way, driveways, walkways, outfalls, utilities, land divisions, Property Line Adjustments, Planned Developments, and Planned Unit Developments. Within the resource areas of environmental zones, the applicant's impact evaluation must demonstrate that all of the general criteria in Paragraph A.1 and the applicable specific criteria of Paragraphs A.2, 3, or 4, below, have been met:

Note that since this activity is neither a Public Safety Facility nor a Land Division or Planned Development, the criteria in Sections 33.430.250.A.2 and A.4 do not apply and are not included.

A.1. General criteria for public safety facilities, rights-of-way, driveways, walkways, outfalls, utilities, land divisions, Property Line Adjustments, Planned Developments, and Planned Unit Developments;

- a. **Proposed development locations, designs, and construction methods have the least significant detrimental impact to identified resources and functional values of other practicable and significantly different alternatives including alternatives outside the resource area of the environmental zone;**
- b. **There will be no significant detrimental impact on resources and functional values in areas designated to be left undisturbed;**
- c. **The mitigation plan demonstrates that all significant detrimental impacts on resources and functional values will be compensated for**
- d. **Mitigation will occur within the same watershed as the proposed use or development and within the Portland city limits except when the purpose of the mitigation could be better provided elsewhere; and**
- e. **The applicant owns the mitigation site; possesses a legal instrument that is approved by the City (such as an easement or deed restriction) sufficient to carry out and ensure the success of the mitigation program; or can demonstrate legal authority to acquire property through eminent domain.**

A.3. Rights-of-way, driveways, walkways, outfalls, and utilities;

- a. **The location, design, and construction method of any outfall or utility proposed within the resource area of an environmental protection zone has the least significant detrimental impact to the identified resources and functional values of other practicable alternatives including alternatives outside the resource area of the environmental protection zone;**
- b. **There will be no significant detrimental impact on water bodies for the migration, rearing, feeding, or spawning of fish; and**

c. Water bodies are crossed only when there are no practicable alternatives with fewer significant detrimental impacts.

Findings: (Note: where approval criteria of A.1 and A.3 are similar, responses have been combined.)

A.1.a & A.3.a These criteria require the applicant to demonstrate that alternative locations, designs and construction methods were considered during the design process, and that there are no practicable alternatives that would be less detrimental to the identified resources and functional values of the site.

In this case, the proposed location for the stormwater improvements is dictated by the location of the high velocity runoff channel across the toe of the ancient landslide which has undergone some recent slumping. This erosion channel/gully has the potential to destabilize the slide which could impact the housing development upslope in Lake Oswego. Stormwater runoff from the housing development has caused an approximately 650-foot long erosion gully down an approximate 20-percent slope before it levels out a bit prior to entering Tryon Creek. The erosion gully is approximately four to five feet deep and varies between 4 to 8 feet wide. Storm water has picked up debris and knocked out an existing trail crossing over the eroded channel approximately 450 feet downhill of the City outfall. The gully does not appear to collect water from any sources other than stormwater discharged from the Rockinghorse Lane culvert.

To help stabilize the slide area and protect the hillslope and trail crossing, stormwater from the Rockinghorse outfall must be better managed. Because the gully already exists, it is more practicable to use the existing gully for the stormwater containment and stabilization project than to create another drainageway somewhere else on this steep, forested slope.

To use the gully, it must first be rehabilitated so that it can contain the proposed 12-inch drainpipe without it breaking. Therefore the proposal includes filling the top portion of the gully to create a bed to seat the drainpipe and then cover the pipe to ground level. The new surface over the pipe will be restored with shallow-rooted native shrubs and groundcovers.

The new drainpipe's outfall will be approximately 290 feet down the slope and will require a riprap pad to reduce and modify the expected large discharge. For a 25-year storm event, the pad will require Class 200 riprap and have a minimum width of 5 feet, a depth of 4.3 feet and a length of approximately 8 feet. Downstream of the riprap pad, the remaining eroded channel will be reconfigured to have a 4-foot wide bottom with 2:1 side-slopes at a depth of about 3 feet, and will terminate at the trail crossing. Large woody debris will be placed within the new streambed downslope of the new outfall. The new channel banks will be planted with a mix of large and small trees, shrubs and groundcovers to further reduce flows and to make the channel appear more like a natural stream. The proposed outfall from the tightline drainpipe into a new, swale-like channel will allow some of the velocity to dissipate prior to reaching the trail crossing.

At the trail crossing, the stormwater flow will have gained velocity because of the continued steepness of the slope. To maintain the reconstructed trail crossing, stormwater will be diverted to a 4 square-foot manhole, approximately 6.5 feet deep, before it is released at grade level, where it will exit onto a riprap pad into a newly created outfall basin downstream of the crossing. The new basin's slopes will be covered with coir-wrapped soil lifts containing live stakes to create a vegetated bank on the downhill side of the trail. The basin will contain a 6.5-foot by 18.5-foot stepped riprap pad that will be 1.5 feet thick to further dissipate energy from this second outfall pipe. At least four logs with attached root wads will be placed in the outfall basin and rows of boulders will be stair-stepped downslope of the outfall to further dissipate the runoff energy. The slowed runoff will enter Tryon Creek approximately 200 feet northeast of the second outfall.

Access to the site and construction staging will be from Rockinghorse Lane in Lake Oswego. Construction equipment will include spider excavators or rubber-tracked excavators, backhoes and graders used for steep slope, low impact grading and hauling. Erosion controls and a stormwater diversion pipe will be in place prior to construction initiation, and "access into the

upper drainageway will follow the mostly open south edge of the forest” and “proceed downslope to the bottom of the project corridor.” The width of the disturbance area will vary between 40 feet and approximately 90 feet. The widest area is at the top of the hill where grading for the shear toe installation will occur. The narrowest width will be at the first pipe outfall.

Re-using the existing channel to create a more natural setting for the storm outfall flows will have fewer impacts than would filling it and creating another trench within the forests of Tryon State Park. Due to the steep slopes throughout the surrounding area, there is no other way to reasonably dispose of stormwater other than discharging it down-slope. Therefore, the location of the proposed pipe and channel reconfiguration within the existing eroded gully is the most practicable site for this slope stabilization project.

With a condition to ensure that only the described construction equipment types are used on the site, and to keep such equipment within the proposed disturbance limits that vary between 40 to 90 feet, Criteria A.1.a and A.3.a will be met.

A.1.b & A.3.b These criteria require the project to not have significant impacts on resources and functional values in areas designated to be left undisturbed or on waterbodies for the migration, rearing, feeding, or spawning of fish.

Findings: Since water-flows in the channel are temporary and sporadic and travel down a 15 to 20 percent grade in a 4 to 5 foot-deep channel that is about 4 to 8 feet wide with vertical slopes, the gully does not provide any habitat for fish or upland wildlife. Therefore the gully does not provide any resources or functional values for the migration, rearing, feeding, or spawning of fish. However, Tryon Creek is approximately 200 feet downhill of the trail crossing and does have habitat value for fish and upland wildlife. Existing stormwater flows entering Tryon Creek may have negative impacts on fish and invertebrates due to velocity and turbidity. Reductions in velocity and turbidity that will result from this project should have positive impacts on Tryon Creek. Also, gully repair work will occur during the Oregon Department of Fish and Wildlife’s preferred in-water work period between July 15 and September 30 to further reduce any potential impacts on fish species downstream of the gully.

All proposed construction and clearing areas will be flagged and erosion control measures will be in place prior to commencement of any ground-disturbing activities. Construction fencing will be placed along the proposed work area limits to protect trees and other native vegetation that are outside the proposed disturbance area prior to any earth-moving activities. Sediment fencing will be installed inside the construction fencing and no activities will be allowed outside this construction barrier.

Disturbance areas will be restored to pre-existing grades and all soils will be seeded with a native riparian-to-upland grass seed mix upon project completion to provide short-term soil stabilization until larger plant material can take root. Steeper slopes may require erosion control matting or straw mulch to minimize soil loss until groundcover is established.

In addition, the applicant must prepare a “Pollution Control Plan and an Erosion and Sediment Control Plan” to be approved by both the City of Lake Oswego and the City of Portland. This plan includes isolating work areas from any active flows that might occur during construction, as well as creating flow “bypass” measures to ensure that sediments are not carried downstream. Any discharge water will be treated to remove debris, sediment, and other pollutants and will be released over an undisturbed vegetated area and through a sediment control BMP, i.e., a filter bag.

The Site Development section of the Bureau of Development Services requires a geotechnical report to be provided at the time of plan review and refers the applicant to the City of Portland’s *Erosion and Sediment Control Manual* for additional information. The report must include a slope stability analysis as well as a geologic assessment of the project. Further, Site Development noted that the erosion prevention and sediment control requirements of Title 10

apply to both the site preparation work and the actual development and that it is the applicant's responsibility to fully comply with these requirements.

The removal of a fast-moving, if temporary and sporadic water source from the toe of the existing landslide will help stabilize the slide area and reduce the potential for additional undercutting and re-activation of the slide, which would impact the subdivision on Rockinghorse Lane, as well as Tryon Creek and the Willamette River. Because stormwater runoff impacts will be moderated by this proposal, any existing impacts caused by stormwater exiting into Tryon Creek will also be moderated due to a reduction in both sediments and velocities flowing down Rockinghorse Creek.

Most of the trees to be protected are located outside the proposed disturbance area limits. However, site plans indicate that several trees that are to be preserved are located within the disturbance limits. All trees to be preserved inside the "limits of Disturbance" areas must be protected by 6-foot tall chain-link fencing placed along the tree's root protection zone, and secured with 8-foot steel posts driven into the ground. In addition, construction equipment disturbance areas should be minimized to the greatest extent feasible to minimize impacts to native vegetation and fragile soils on the steep slope.

The Construction Management Plan states that trees cut for access and project construction will subsequently be salvaged for use as large woody debris to be placed in and around the new channel and outfall areas. Any trees cut in the general area for this purpose must be within the specified project limits and must be replaced per the requirements of Table 430-3, Tree Replacement in Environmental Overlay Zones.

Therefore, with conditions that require the following, the above criteria will be met.:

- Gully repair work will occur during the Oregon Department of Fish and Wildlife's preferred in-water work period between July 15 and September 30;
- Disturbance areas will be restored to pre-existing grades and all soils will be seeded with a native riparian-to-upland grass/forb seed mix upon project completion;
- Construction equipment disturbance areas shall be minimized to the greatest extent feasible.
- The applicant will prepare a "Pollution Control Plan and an "Erosion and Sediment Control Plan" to be approved by the City of Portland, prior to initiating construction;
- A geotechnical report shall be provided at the time of City of Portland Plan Review that includes a slope stability analysis and a geologic assessment of the project;
- Erosion control matting and/or straw mulch will be placed on disturbed soil areas immediately following construction activity;
- Tree protection fencing shall be installed around trees to be preserved within the proposed disturbance limits;
- All trees to be preserved inside the "limits of Disturbance" areas will be protected by 6-foot tall chain-link fencing placed along the trees' root protection zones, and secured with 8-foot steel posts driven into the ground;
- Any "salvage" trees cut for use as large woody debris will be within the project limits and shall be replaced per the requirements of Table 430-3 of the *Portland Zoning Code*.
- Any reconstruction activity within Portland City limits that is required due to bank failure or excessive deposition that is outside the disturbance limits approved by this decision will require review by the City of Portland.

A.3.c. This criterion allows water bodies to be crossed only when there are no practicable alternatives with fewer significant detrimental impacts.

It is debatable whether the runoff gully is technically a “water body” as it contains water only temporarily and intermittently, during and immediately following rain events. However, the South Creek Trail is an existing Tryon State Park trail that crosses the erosion gully via a footbridge that was recently washed out by a large flow down the gully. Because the gully ends where it enters Tryon Creek approximately 200 feet downstream of the crossing, there is no crossing area available “downstream” that would not involve a constructed crossing.

To go around the channel would involve an approximately 450-foot hike up the steep, 15 percent hillside and again back down the other side of the gully. This option would create far more impacts on the hillslope than would replacing the washed out bridge as it would require new trail construction up the hill and back down the other side, creating at least 900 linear feet of detrimental impacts on native vegetation and soils. Reconstruction of the existing trail bridge over the reconstructed channel will involve replacing washed out soils over the new drainpipe and planting new vegetation along the crossing slopes.

In addition, this channel is not a natural creek channel, but is a stormwater erosion gully from an uphill development that has cut its way down the face of a steep slope. Therefore, the only realistic solution for the trail crossing is to replace the existing crossing once stormwater runoff has been controlled.

The restored trail crossing will be above the top of the gully as stormwater will be directed into a 12-inch drainpipe located approximately 6.5-feet below the crossing to prevent future erosion of the trail. Thus, there will be no open channel at the trail crossing. Because there is no practicable alternative that would have fewer impacts than replacing the trail crossing at its existing location, this condition is met.

A.1.c. The mitigation plan demonstrates that all significant detrimental impacts on resources and functional values will be compensated for.

Findings: Because of the linear nature of the proposal, the steepness of the site, and the amount of grading/excavation required, approximately 10,082 square feet of temporary disturbance area will be created, and 19 regulated native trees ranging in diameter from 6 to 24 inches will be removed. However, the proposal is a remediation plan to reduce impacts from development’s stormwater outfall.

The applicant proposes to plant a 15,455 square-foot area in and around the disturbance area with 180 native trees including two conifer species, four deciduous species, and one willow species. In addition, 775 native shrubs and eight groundcover species in a native riparian-to-upland seed mix will be planted along the banks of the new channel and in the construction disturbance areas to both stabilize the channel slopes and revegetate the disturbance area. The ground covers will be 1 gallon in size or plugs to be planted on 3-foot centers. Steeper slopes will be treated with erosion control matting or a straw mulch to minimize soil loss until groundcover is established.

The applicant states that the planting area will be monitored for a period of 5 years with a goal of 70 percent survival of native trees, shrubs, and groundcovers, with no more than 20% non-native invasive groundcover species within the 5-year period. Control and/or removal of invasive vegetation will also be conducted during this 5-year maintenance period. Also, stream flow will be monitored for the first two years following the modifications to confirm channel stability and to observe flow retention within the new swale. Any evidence of bank failure or excessive deposition during this period will be investigated and resolved as necessary during this period.

This proposed planting plan demonstrates that the construction areas will be restored to a condition as good as or better than the original site once the plants reach maturity. This plan will result in an overall enhancement of resources and functional values at this site due to the

number and variety of native species that will be installed, which demonstrates that all significant detrimental impacts on resources and functional values will have been successfully mitigated.

With conditions that the disturbance areas are replanted with the number, species and spacing of plants listed in Exhibit C.4.c, this criterion will be met.

A.1.d. Mitigation will occur within the same watershed as the proposed use or development and within the Portland city limits except when the purpose of the mitigation could be better provided elsewhere; **and**

A.1.e. The applicant owns the mitigation site; possesses a legal instrument that is approved by the City (such as an easement or deed restriction) sufficient to carry out and ensure the success of the mitigation program; or can demonstrate legal authority to acquire property through eminent domain.

Findings: As stated above, the applicant's stabilization plan includes planting the site with trees, shrubs and groundcovers for long-term stabilization benefits. This planting will occur within the disturbance area along the channel banks, on top of the buried tightline drainpipe, and within the discharge basin at the downstream end of the project. Also, John Mullen, of the State of Oregon Parks and Recreation, signed the City of Lake Oswego's application form as "owner" for the proposed project within Tryon State Park. It is the applicant's responsibility to work with the State of Oregon Parks and Recreation to maintain the stabilization project and remediation plantings. acquire any other jurisdictions' approval of the proposed restoration plans.

With conditions that the proposed plant material is installed and maintained as described in this report and in the application material, and that any reconstruction activity within Portland City Limits that is required to maintain the new channel must first be reviewed by the City of Portland, these criteria will be met.

DEVELOPMENT STANDARDS

Unless specifically required in the approval criteria listed above, this proposal does not have to meet the development standards in order to be approved during this review process. The plans submitted for a building or zoning permit must demonstrate that all development standards of Title 33 can be met, or have received an Adjustment or Modification via a land use review prior to the approval of a building or zoning permit.

CONCLUSIONS

This project has two purposes: to stabilize the toe of an existing landslide to help prevent future slides that could impact the Rockinghorse subdivision area, and to reduce erosion caused by a City of Lake Oswego stormwater outfall that flows down the steep slope, and which washed out an Oregon State Parks' trail crossing over the eroded gully. The project will tightline stormwater flows in a 12-inch drainpipe to be placed along the toe of the existing slide, and then allow stormwater from that pipe's outfall to flow through a reconstructed surface channel that will be planted with native species and appear as a more natural stream channel. Stormwater will then be diverted through a manhole, pipe and 2nd outfall downstream of the restored trail crossing where it will be further slowed down prior to entering Tryon Creek.

Extensive mitigation has been proposed that will recreate a natural setting in and around the channel. This project has met the criteria for locating outfalls within the environmental zone subject to several conditions as listed below, that also include requirements to provide a Pollution Control Plan and an Erosion and Sediment Control Plan and monitoring reports to be approved by both the City of Lake Oswego and the City of Portland's Bureau of Development Services for a period of three years.

ADMINISTRATIVE DECISION

Approval of an Environmental Review to:

- Grade an approximately 3,100 square-foot hillslope area and fill a 206 square foot wetland area within Portland City Limits for the construction of a shear wall outside Portland City Limits;
- Stabilize an actively eroding stormwater runoff gully by installing a 12-inch diameter tightline drainpipe in the top half of the gully, place fill over the top of the pipe, and plant the area with native groundcovers and shrubs;
- Reshape the channel below the drainpipe and place large woody debris in the new channel;
- Install a manhole and a second 12-inch culvert under an existing trail crossing;
- Create an outfall “basin” below the second culvert to further slow runoff using large boulders, vegetation and large woody debris;
- Revegetate the disturbance areas within the Environmental Protection overlay zone

in substantial conformance with Exhibits C.2.a through C.4.c as modified and approved by the City of Portland Bureau of Development Services on **March 23, 2015**. Approval is subject to the following conditions:

- A. A BDS Zoning Permit** is required for inspection of approved restoration/mitigation plantings. The Zoning Permit must be obtained prior to any construction activity on the site.
- B. All Permits:** Copies of the approved and stamped Exhibits C.2.a through C.4.c from LU 14-248836 EN and Conditions of Approval listed below, shall be included within all plan sets submitted for permits (building, Zoning, grading, Site Development, erosion control, etc.). These exhibits shall be included on a sheet that is the same size as the plans submitted for the permit and shall include the following statement, ***“Any field changes shall be in substantial conformance with approved LU 14-248836 EN Exhibits C.3 through 4.c.”***
- C.** Temporary construction fencing shall be installed in accordance with Title 11.60.030 and Section 33.248.090 (Mitigation and Restoration Plantings), unless specified otherwise if noted below. Construction fencing shall be placed along the Limits of Construction Disturbance for the approved development, prior to any construction activity on the site, and as depicted on Exhibit C.3, Construction Management Plan.
 1. Erosion and sediment control mechanisms shall be installed prior to commencement of construction activity;
 2. Heavy construction equipment shall include only rubber-tracked vehicles, including but not limited to: backhoes, graders and crawlers, and/or spider excavators within Portland City Limits, unless site conditions require track equipment.
 3. Mechanized construction vehicles are prohibited outside of the approved “Limits of Construction Disturbance” delineated by the temporary construction fencing. All planting work, invasive vegetation removal, and other work to be done outside the Limits of Construction Disturbance shall be conducted using hand-held equipment.
 4. Construction access and disturbance shall be limited to those areas described and shown on the applicant’s Construction Management Site Plan.
 5. The temporary access route shall be completely restored and revegetated with native vegetation upon project completion (the plan must show standard landscaping symbols and a replanting schedule).
 6. Complete restoration of the stormwater channel, construction access areas, and stream crossing shall occur immediately following construction and installation of the

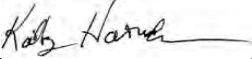
drainpipes and stormwater basin.

7. All trees to be preserved inside the "Limits of Disturbance" areas must be protected by 6-foot tall chain-link fencing placed along the trees' root protection zones, and secured with 8-foot steel posts driven into the ground.
- D.** Only trees that are cut within the proposed disturbance limits for site access or pipeline construction may be used as large woody debris.
- E.** A geotechnical report that includes a slope stability analysis as well as a geologic assessment that references the City of Portland's *Erosion and Sediment Control Manual* must be provided to the Site Development section of the Bureau of Development Services at the time of plan review for this project.
- F.** A minimum of 180 native trees, 775 native shrubs, and a groundcover plant mix including at least 8 native species to be planted on 3-foot centers as well as 35 pounds of a native grass seed mix, all as shown on Exhibit C.4.c, or as otherwise selected from the Portland Plant List, shall be planted in substantial conformance with Exhibit C.4.a.
- G.** Mitigation plants must be planted in the fall following construction, or if planted during the summer months, must be watered on a regular basis.
- H. The applicant shall maintain the required plantings** for a minimum of five years per the approved mitigation and monitoring plan to ensure survival and replacement. The applicant, i.e., the City of Lake Oswego, is responsible for ongoing survival of required plantings during and beyond the designated five-year monitoring period. The applicant shall:
1. Obtain a Zoning Permit for an inspection at the end of the first 2-years of the maintenance and monitoring period. The permit must be finalized no later than 5 years from the final inspection for the installation of mitigation planting to ensure that the required plantings remain and are healthy. Required tree and shrub plantings must show a minimum 70 percent survival rate and no more than a maximum 20 percent invasive plant coverage. Additional plants must be planted to achieve this survival rate if it is not met at the end of the 5 year period.
- I.** Any reconstruction activity within Portland City limits required due to bank failure or excessive deposition that is outside the disturbance limits approved by this decision will require review by the City of Portland.
- J.** Failure to comply with any of these conditions may result in the City's reconsideration of this land use approval pursuant to Portland Zoning Code Section 33.700.040 and /or enforcement of these conditions in any manner authorized by law.
- K.** Any reconstruction activity within Portland City limits required due to bank failure or excessive deposition that is outside the disturbance limits approved by this decision will require review by the City of Portland.

Note: In addition to the requirements of the Zoning Code, all uses and development must comply with other applicable City, regional, state and federal regulations.

This decision applies only to the City of Portland's environmental regulations. Activities which the City regulates through PCC 33.430 may also be regulated by other agencies. In cases of overlapping City, Special District, Regional, State, or Federal regulations, the more stringent regulations will control. City approval does not imply approval by other agencies.

Staff Planner: Kathy Harnden

Decision rendered by:  on March 23, 2015
By authority of the Director of the Bureau of Development Services

Decision mailed: March 25, 2015

About this Decision. This land use decision is **not a permit** for development. Permits may be required prior to any work. Contact the Development Services Center at 503-823-7310 for information about permits.

Procedural Information. The application for this land use review was submitted on December 12, 2014, and was determined to be complete on **December 23, 2014**.

Zoning Code Section 33.700.080 states that Land Use Review applications are reviewed under the regulations in effect at the time the application was submitted, provided that the application is complete at the time of submittal or complete within 180 days. Therefore this application was reviewed against the Zoning Code in effect on December 12, 2014.

ORS 227.178 states the City must issue a final decision on Land Use Review applications within 120-days of the application being deemed complete. The 120-day review period may be waived or extended at the request of the applicant. In this case, the applicant did not extend the 120-day period. Unless further extended by the applicant, **the 120 days will expire on: April 21, 2015.**

Some of the information contained in this report was provided by the applicant.

As required by Section 33.800.060 of the Portland Zoning Code, the burden of proof is on the applicant to show that the approval criteria are met. The Bureau of Development Services has independently reviewed the information submitted by the applicant and has included this information only where the Bureau of Development Services has determined the information satisfactorily demonstrates compliance with the applicable approval criteria. This report is the decision of the Bureau of Development Services with input from other City and public agencies.

Conditions of Approval. If approved, this project may be subject to a number of specific conditions, listed above. Compliance with the applicable conditions of approval must be documented in all related permit applications. Plans and drawings submitted during the permitting process must illustrate how applicable conditions of approval are met. Any project elements that are specifically required by conditions of approval must be shown on the plans, and labeled as such.

These conditions of approval run with the land, unless modified by future land use reviews. As used in the conditions, the term "applicant" includes the applicant for this land use review, any person undertaking development pursuant to this land use review, the proprietor of the use or development approved by this land use review, and the current owner and future owners of the property subject to this land use review.

Appealing this decision. This decision may be appealed to the Hearings Officer, which will hold a public hearing. Appeals must be filed **by 4:30 PM on April 8, 2015** at 1900 SW Fourth Ave. Appeals can be filed at the Development Services Center Monday through Wednesday and Fridays between 8:00 am to 3:00 pm and on Thursdays between 8:00 am to 12:00 pm. After 3:00 pm Monday through Wednesday and Fridays, and after 12:00 pm on Thursdays, appeals must be submitted at the reception desk on the 5th floor. **An appeal fee of \$250 will be charged.** The appeal fee will be refunded if the appellant prevails. There is no fee for ONI recognized organizations appealing a land use decision for property within the organization's boundaries. The vote to appeal must be in accordance with the organization's bylaws. Assistance in filing the appeal and information on fee waivers is available from BDS in the Development Services Center. Please see the appeal form for additional information.

The file and all evidence on this case are available for your review by appointment only. Please call the Request Line at our office, 1900 SW Fourth Avenue, Suite 5000, phone 503-823-7617, to schedule an appointment. I can provide some information over the phone. Copies of all information in the file can be obtained for a fee equal to the cost of services. Additional

information about the City of Portland, city bureaus, and a digital copy of the Portland Zoning Code is available on the internet at www.portlandonline.com.

Attending the hearing. If this decision is appealed, a hearing will be scheduled, and you will be notified of the date and time of the hearing. The decision of the Hearings Officer is final; any further appeal must be made to the Oregon Land Use Board of Appeals (LUBA) within 21 days of the date of mailing the decision, pursuant to ORS 197.620 and 197.830. Contact LUBA at 775 Summer St NE, Suite 330, Salem, Oregon 97301-1283, or phone 1-503-373-1265 for further information.

Failure to raise an issue by the close of the record at or following the final hearing on this case, in person or by letter, may preclude an appeal to the Land Use Board of Appeals (LUBA) on that issue. Also, if you do not raise an issue with enough specificity to give the Hearings Officer an opportunity to respond to it, that also may preclude an appeal to LUBA on that issue.

Recording the final decision.

If this Land Use Review is approved the final decision must be recorded with the Multnomah County Recorder. A few days prior to the last day to appeal, the City will mail instructions to the applicant for recording the documents associated with their final land use decision.

- *Unless appealed*, The final decision may be recorded on or after **April 9, 2015 – (the day following the last day to appeal)**.
- A building or zoning permit will be issued only after the final decision is recorded.

The applicant, builder, or a representative may record the final decision as follows:

- By Mail: Send the two recording sheets (sent in separate mailing) and the final Land Use Review decision with a check made payable to the Multnomah County Recorder to: Multnomah County Recorder, P.O. Box 5007, Portland OR 97208. The recording fee is identified on the recording sheet. Please include a self-addressed, stamped envelope.
- In Person: Bring the two recording sheets (sent in separate mailing) and the final Land Use Review decision with a check made payable to the Multnomah County Recorder to the County Recorder's office located at 501 SE Hawthorne Boulevard, #158, Portland OR 97214. The recording fee is identified on the recording sheet.

For further information on recording, please call the County Recorder at 503-988-3034
For further information on your recording documents please call the Bureau of Development Services Land Use Services Division at 503-823-0625.

Expiration of this approval. An approval expires three years from the date the final decision is rendered unless a building permit has been issued, or the approved activity has begun.

Where a site has received approval for multiple developments, and a building permit is not issued for all of the approved development within three years of the date of the final decision, a new land use review will be required before a permit will be issued for the remaining development, subject to the Zoning Code in effect at that time.

Zone Change and Comprehensive Plan Map Amendment approvals do not expire.

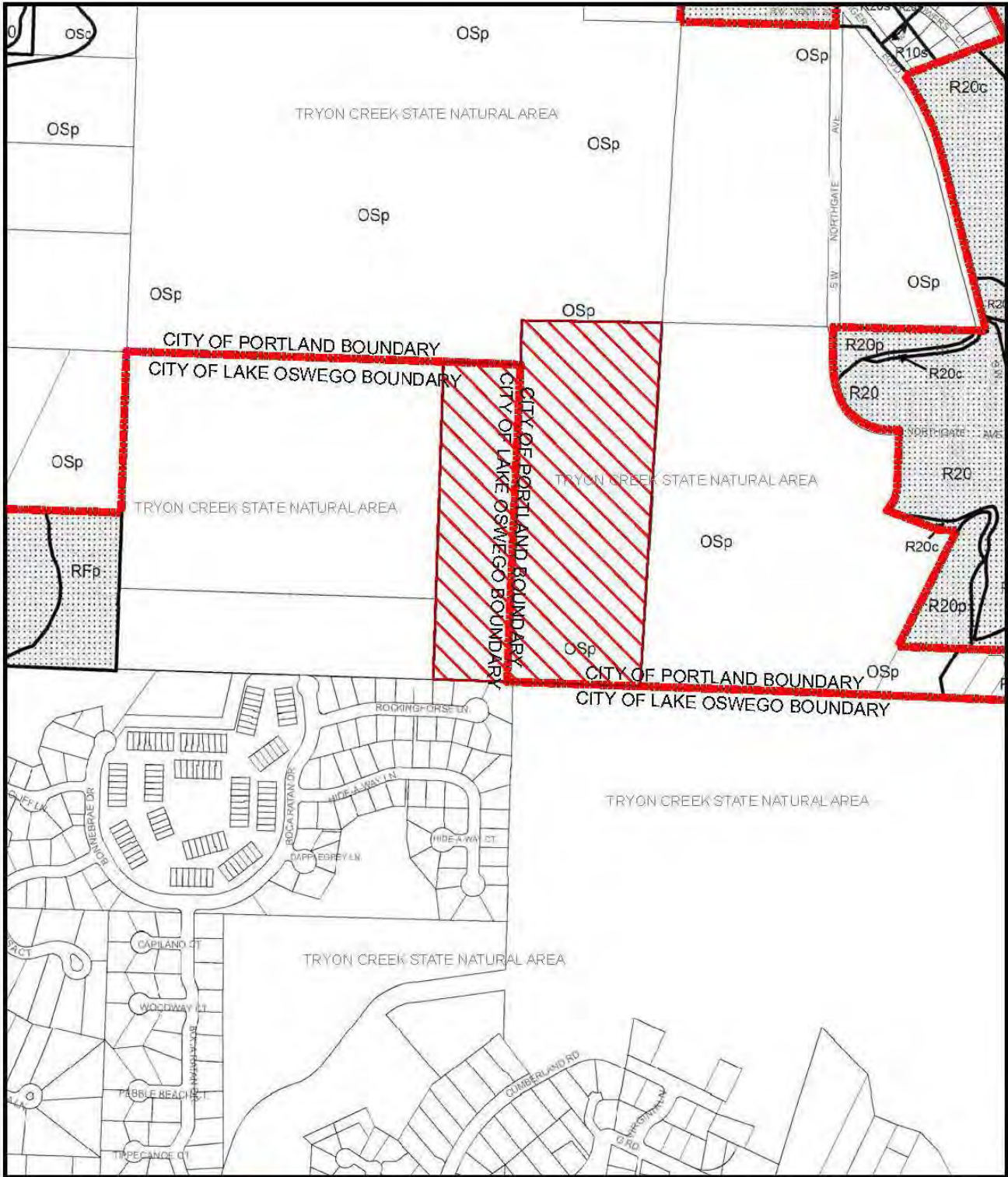
Applying for your permits. A building permit, occupancy permit, or development permit may be required before carrying out an approved project. At the time they apply for a permit, permittees must demonstrate compliance with:

- All conditions imposed herein;
- All applicable development standards, unless specifically exempted as part of this land use review;
- All requirements of the building code; and
- All provisions of the Municipal Code of the City of Portland, and all other applicable ordinances, provisions and regulations of the City.

EXHIBITS
NOT ATTACHED UNLESS INDICATED

- A. Applicant's Statement
 - 1.a. Application Narrative
 - b. Attachment B – Compensatory Non-Wetland Mitigation Plan
 - c. Attachment C – Trail Widths
- B. Zoning Map (attached)
- C. Plans/Drawings:
 - 1. Existing Conditions Site Plan
 - 2.a. Proposed Development (attached)
 - b. Proposed Trail Crossing (attached)
 - 3. Construction Management (attached)
 - 4.a. Revegetation Site Plan (attached)
 - b. Swale Planting Plan
 - c. Riparian Planting List (attached)
- D. Notification information:
 - 1. Mailing list
 - 2. Mailed notice
- E. Agency Responses:
 - 1. Bureau of Environmental Services
 - 2. Site Development Review Section of BDS
- F. Correspondence: None received
- G. Other:
 - 1. Original LU Application

The Bureau of Development Services is committed to providing equal access to information and hearings. Please notify us no less than five business days prior to the event if you need special accommodations. Call 503-823-7300 (TTY 503-823-6868).



ZONING



Site



Unincorporated Multnomah County Pockets

This site is located within the:
Tryon Creek State Natural Area



Please note that the portion of the site which lies within the City of Lake Oswego is not subject to this review through the City of Portland

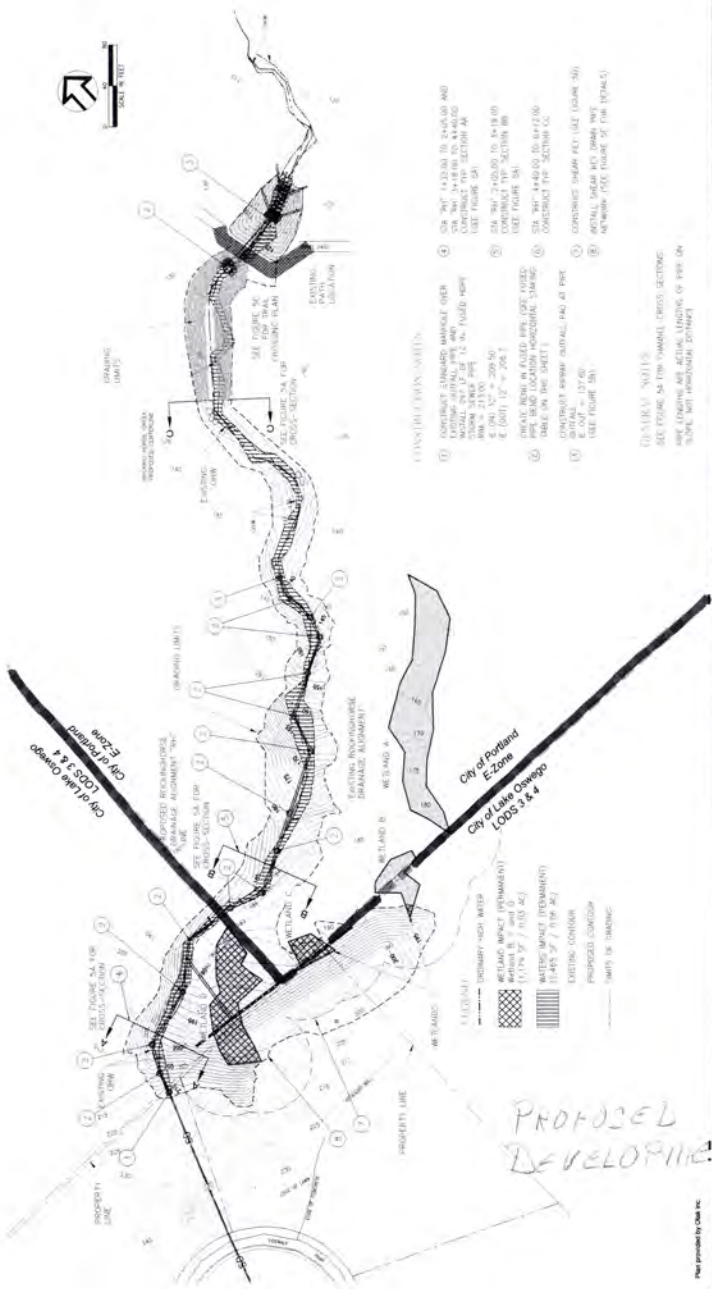
File No. LU 14-248836 EN

1/4 Section 4229

Scale 1 inch = 533 feet

State_Id 1S1E34 600

Exhibit B (Mar 19, 2015)



- CONSTRUCTION NOTES**
1. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 2. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 3. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 4. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 5. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
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 11. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 12. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 13. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)
 14. CONDUIT SHALL BE 18" DIA. (SEE FIGURE 5)

COMMENTS:
 SEE FIGURE 5 FOR SYMBOL CROSS SECTION.
 PIPE LENGTHS ARE ACTUAL LENGTHS OF PIPE IN
 SLOPE NOT HORIZONTAL DISTANCE

Grading Limits
 Proposed Development Plan

Approved
 City of Portland - Bureau of Development Services
 LU # 14-248836 EN

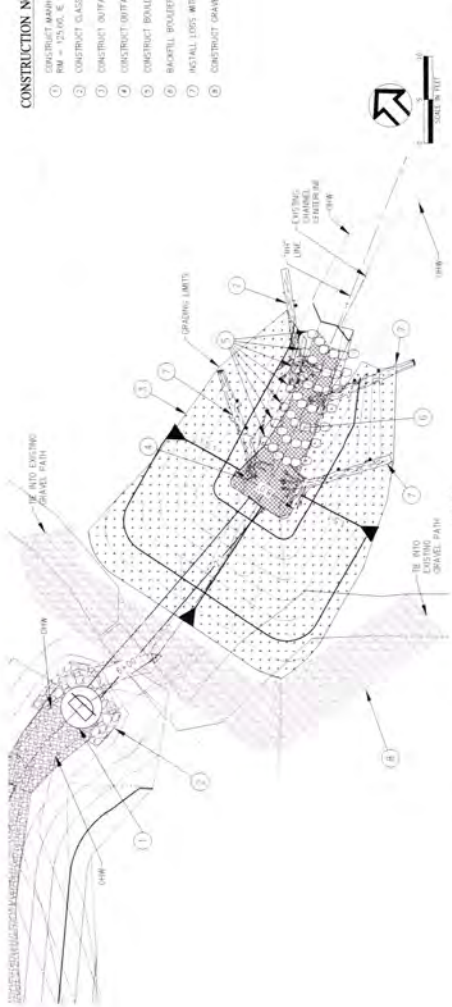
Planner: S. Hancock Date: 3/2/2014
 Approved for Environmental Review only. Not a building permit.
 Additional zoning requirements may apply.



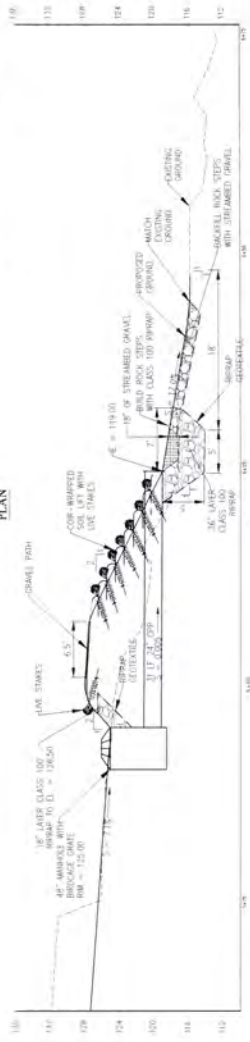
C.2.0

CONSTRUCTION NOTES:

1. CONSTRUCT MANHOLE WITH BRICKS
RM = 125.00, E (DWT) 24" = 119.15
2. CONSTRUCT CLASS 100 REBAR PAD (0.5' X 0.5' X 18" THICK)
3. CONSTRUCT OUTFALL BASIN TO ELEVATION 100.00
4. CONSTRUCT OUTFALL SEE PROFILE THIS SHEET
5. CONSTRUCT ROCKER STEPS SEE PROFILE THIS SHEET
6. BACKFILL ROCKERS WITH STREAMBED GRAVEL
7. INSTALL LOGS WITH NOTCHES AND CUTTINGS
8. CONSTRUCT GRAVEL PATH



PLAN



PROFILE
SCALE: 1" = 4' HORIZ
1" = 1' VERT

Plan and Profile provided by OAR Inc.

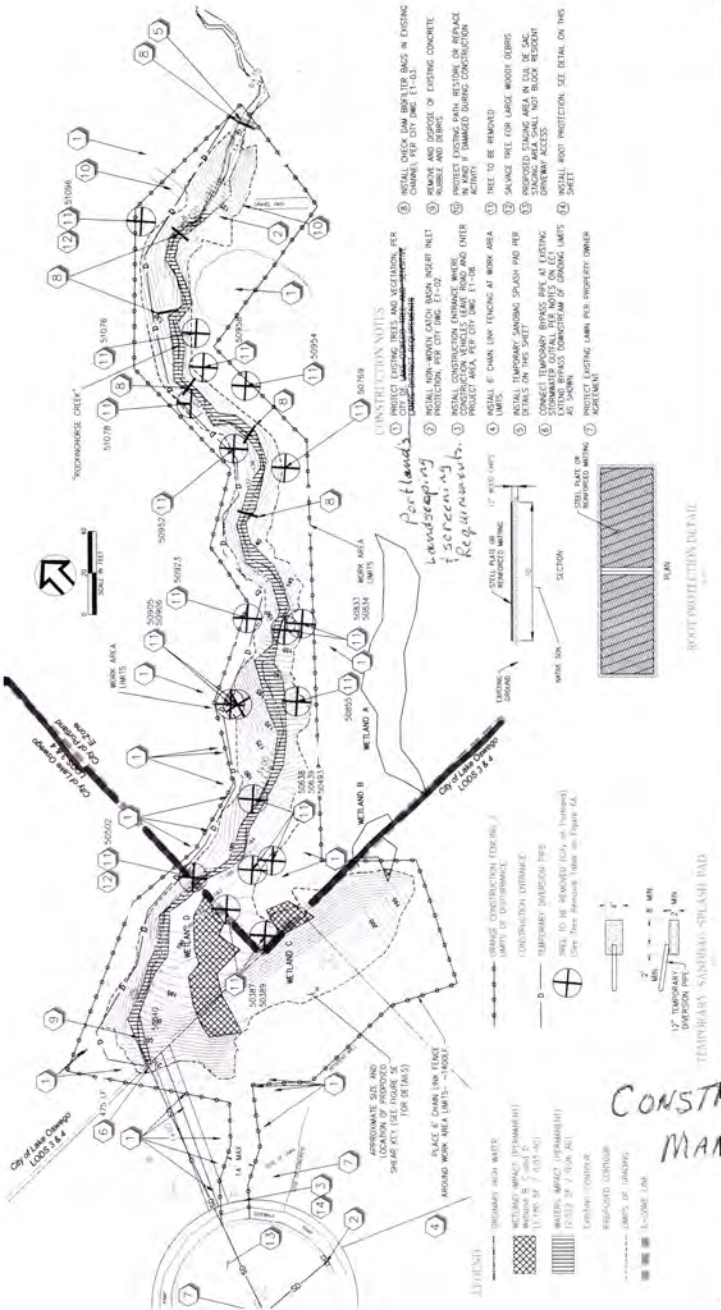


Approved
City of Portland - Bureau of Development Services
LU # **14-248836 EN**

Permanent Trail Crossing Plan and Profile
Rockhorse Lane Drainage Improvement Project - Lake Oswego, Oregon

FIGURE
5C
10-25-2014

Planner: *S. Heston* Date: *3/23/2015*
Approval for Environmental Review only. Not a building permit.
Additional zoning requirements may apply.



- LEGEND**
- 1. APPROXIMATE SET AND SPREAD AREAS FOR SPLASH RAY DET. FIGURE 52 (FOR DETAILS)
 - 2. PLACE & CHAIN LINK FENCE AROUND WORK AREA LIMITS - 1000'
 - 3. TEMPORARY SIGN POST
 - 4. TEMPORARY SIGN POST
 - 5. TEMPORARY SIGN POST
 - 6. TEMPORARY SIGN POST
 - 7. TEMPORARY SIGN POST
 - 8. TEMPORARY SIGN POST
 - 9. TEMPORARY SIGN POST
 - 10. TEMPORARY SIGN POST
 - 11. TEMPORARY SIGN POST
 - 12. TEMPORARY SIGN POST
- CONSTRUCTION ZONES**
- 1. CONSTRUCTION ZONE
 - 2. CONSTRUCTION ZONE
 - 3. CONSTRUCTION ZONE
 - 4. CONSTRUCTION ZONE
 - 5. CONSTRUCTION ZONE
 - 6. CONSTRUCTION ZONE
 - 7. CONSTRUCTION ZONE
 - 8. CONSTRUCTION ZONE
 - 9. CONSTRUCTION ZONE
 - 10. CONSTRUCTION ZONE
 - 11. CONSTRUCTION ZONE
 - 12. CONSTRUCTION ZONE
- ROOT PROTECTION DETAIL**
- 1. 17" WIDE (MIN)
 - 2. 17" WIDE (MIN)
 - 3. 17" WIDE (MIN)
 - 4. 17" WIDE (MIN)
 - 5. 17" WIDE (MIN)
 - 6. 17" WIDE (MIN)
 - 7. 17" WIDE (MIN)
 - 8. 17" WIDE (MIN)
 - 9. 17" WIDE (MIN)
 - 10. 17" WIDE (MIN)
 - 11. 17" WIDE (MIN)
 - 12. 17" WIDE (MIN)

Construction Management Plan
Root Protection Detail - Lake Oswego, Oregon

Approved
City of Portland - Bureau of Development Services
LU # 14-248836 EN

Date 3/23/2015
S. Harsh
Approval for Environmental Review only. Not a building permit.
Additional zoning requirements may apply

CONSTRUCTION MANAGEMENT



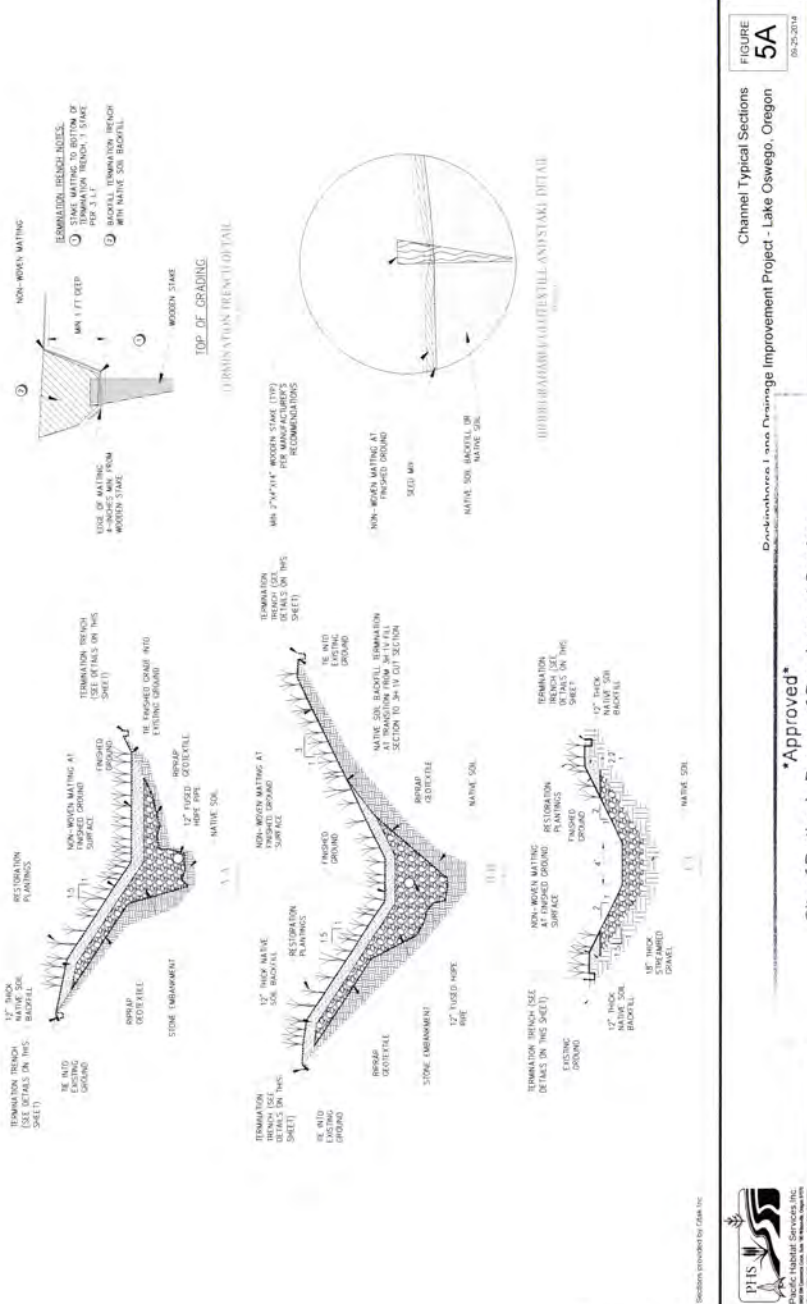


FIGURE
5A

Channel Typical Sections
Lake Oswego, Oregon

08-25-2014

Don't know how to use AutoCAD

City of Portland - Bureau of Development Services

LU # **14-248836 EN**

Date **3/25/15**

X. Horvath

Approved for Environmental Review only. Not a building permit.
Additional section requirements may apply.



DESIGN PROVIDED BY PHS INC.

LU 14-248836 EN

046

LU # 14-248836 EN

not K. Hornd Date 3/23/15

Approved for Environmental Review only. Not a building permit.

Additional zoning requirements may apply.

Table 4. Riparian Corridor/Buffer Plantings - City of Portland (15,455 sq. ft.)

Species	Common Name	Plant Size	Minimum Spacing	Quantities
TREES				
<i>Abies grandis</i>	Grand fir	1 gal	15' OC	25
<i>Acer macrophyllum</i>	Bigleaf maple	1 gal	15' OC	25
<i>Alnus rubra</i>	Red alder	1 gal	12' OC	30
<i>Cornus nuttallii</i>	Flowering dogwood	1 gal	10' OC	25
<i>Rhamnus (Frangula) purshiana</i>	Cascara	1 gal	8' OC	30
<i>Salix scouleriana</i>	Scouler's willow	1 gal	10' OC	20
<i>Thuja plicata</i>	Western red cedar	1 gal	15' OC	25
SHRUBS				180
<i>Acer circinatum</i>	Vine maple	1 gal	8' OC	110
<i>Amelanchier alnifolia</i>	Saskatoon serviceberry	1 gal	8' OC	75
<i>Corylus cornuta</i>	Hazelnut	1 gal	6' OC	35
<i>Oemleria cerasiformis</i>	Indian plum	1 gal	6' OC	110
<i>Rosa gymnocarpa</i>	Baldhip rose	1 gal	4' OC	75
<i>Rubus spectabilis</i>	Salmonberry	1 gal	6' OC	110
<i>Sambucus racemosa</i>	Red elderberry	1 gal	6' OC	110
<i>Symphoricarpos albus</i>	Common snowberry	1 gal	4' OC	150
GROUNDCOVER				775
<i>Athyrium filix-femina</i>	Lady fern	1 gal or plug	3' OC	TBD
<i>Carex leptopoda</i>	Dewey's sedge	1 gal or plug	3' OC	TBD
<i>Dicentra formosa</i>	Bleeding heart	1 gal or plug	3' OC	TBD
<i>Geum macrophyllum</i>	Largeleaf avens	1 gal or plug	3' OC	TBD
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	1 gal or plug	3' OC	TBD
<i>Polystichum munitum</i>	Sword fern	1 gal or plug	3' OC	TBD
<i>Tellima grandiflora</i>	Fringecup	1 gal or plug	3' OC	TBD
<i>Tolmiea menziesii</i>	Youth on age	1 gal or plug	3' OC	TBD

Proposed Riparian/Woodland Seed Mix

Scientific name	Common name	Lbs/ac PLS*
<i>Bromus vulgaris</i>	Columbia brome	7
<i>Elymus glaucus</i>	Blue wildrye	10
<i>Elymus trachycaulis</i>	Slender wildrye	8
<i>Festuca subulata</i>	Bearded fescue	10
Total Seed		35

*Pure Live Seed