LEGEND

- HANGMAN CREEK
- 200' SHORELINE **J**URISDICTION
- 200' BLUFF RIDGE SETBACK
- TRANSMISSION LINES (NO TREES)
- ----- PARCEL BOUNDARY
- ----- EXISTING TRAIL
 - CONSTRUCTION / EQUIPMENT TURNAROUND (TO BE FIELD LOCATED)

L1.1

IMAGERY SYMBOL



CITY OF SPOKANE SITE DISTURBANCE AREAS BLUFF ROAD RESTORATION

DISTURBANCE AREAS

MINOR:

Characteristics of minor disturbance areas, as indicated, are those areas which received no to little change in grades or soil redistribution through the road building process; although, there may be high vegetation disturbance. Generally, cross slope cuts will be under 1'-0" in height.

MODERATE

Characteristics of moderate disturbance areas, as indicated, are those areas that received from between 1' and 3' in soil cutting and/or fill material deposition. Substantial disturbance and removal of existing vegetation and the 'duff layer' of organic material that, along with plant materials, supports the natural erosion control process.

CITY OF SPOKANE

Characteristics of high disturbance areas, as indicated, are those areas that experienced more than 3' high cuts and/or fill depositions. These areas, not only have great effects on the existing vegetation layer and plant material, but now the surrounding slopes have been heavily relocated/modified to the point where the existing slopes may not be easily recognizable.







3. MODERATE ROAD CUT/FILL

DRAFT

200



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CURRENT CONDITION IMAGERY



2. BEGINNING OF NEW BLUFF ROAD



4. HIGH ROAD CUT/FILL



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MODERATE ROAD CUT/FILL 5.



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LEGEND

HANGMAN CREEK

200' SHORELINE JURISDICTION

200' BLUFF RIDGE SETBACK

TRANSMISSION LINES (NO TREES)

----- PARCEL BOUNDARY

----- EXISTING TRAIL

CONSTRUCTION / EQUIPMENT TURNAROUND (TO BE FIELD LOCATED)

L1.2

IMAGERY SYMBOL



SHE SHE

CITY OF SPOKANE SITE DISTURBANCE AREAS BLUFF ROAD RESTORATION

CURRENT CONDITION IMAGERY



HIGH ROAD CUT/FILL 6.



7. MINOR ROAD CUT/FILL







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8. MODERATE ROAD CUT/FILL

EXPRESSIONS

MAY 05

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MINOR DISTURBANCE - CURRENT CONDITIONS



- 2. TOPSOIL WILL BE IMPORTED, IF NEEDED, THAT IS BLENDED TO MATCH EXISTING SOIL, WITH A WEED FREE COMPOST ADDED TO IMPROVE PLANT SURVIVABILITY.
- 3. ALL PLANTS SHOWN REPRESENT A 10 YEAR GROWTH SIZE.

MINOR DISTURBANCE - RESTORATION



The primary locations of minor disturbance occurs at the North and South ends of the road. These areas are at little risk for further erosion, as adjacent vegetation is relatively still intact. Repair will consist of minor grading of the soil accumulations and/or cuts. Where applicable, pedestrian trail crossings will be restored to pre-existing conditions.



AVISTA - BLUFF ROAD RESTORATION - RESTORATION SECTIONS

CITY OF SPOKANE EXISTING & RESTORED CONDITIONS BLUFF ROAD RESTORATION

MODERATE DISTURBANCE - CURRENT CONDITIONS

MODERATE DISTURBANCE - RESTORATION

Repair will consist primarily of the redistribution of current fill soils 'uphill' to the cut areas to bring the natural slope back into position. These soils will be lightly compacted as they are reintroduced to their permanent location in order to secure the soil. Heavy compaction will not be allowed. Additional soils may be necessary to completely restore the existing slope to its prior condition. The intent is to mimic the existing soil profile as closely as possible, with the use of a more organic soil that will aid in the seeding and germination process. Specific erosion control measure will be implemented, where necessary; such as wattles, silt fences, and existing downed logs.





Repair for the high disturbance areas, will follow the same process as the previous descriptions, but will be more extensive to address the additional soil. Soils will be lightly compacted again, and stabilized in lifts as necessary to prevent over compaction. Specific erosion control measure will be implemented, where necessary; such as wattles, silt fences, and existing downed logs.

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HIGH DISTURBANCE - CURRENT CONDITIONS



HIGH DISTURBANCE - RESTORATION





TRAIL RESTORATION - DETAIL



MANAGEMENT OF DOWNED TREES

- All fallen trees that are 6" and smaller will be chipped on site. The chips will be broadcast and dispersed accordingly.
- Fallen trees bigger than 6" will be utilized on the site. They will be used for erosion control and to direct trail users. The trees will be longitudinally trunk scored to help prevent pine beetles.
- The root wads and stumps will be relocated or removed.



'TUBEX' PLANT SHELTER



EXISTING CONDITIONS

L3.0

NEW VEGETATION *Images Shown at Mature Size



PONDEROSA PINE

• Community 2 "Shrub Areas" *Includes Grass/Forb Mix



SERVICEBERRY

• Community 3 "Grass/Forb Mix"



IDAHO FESCUE

Trees, shrubs, grasses, and forbs will also be planted to compensate for the no net loss of species and ecological functioning based on prior conditions, amount of disturbance, planting mitigation ratios, and the surrounding environment.

The plant ratio for replacement of trees is: • Shoreline Jurisdiction - 2:1 • Non-Shoreline Jurisdiction - 1:1

To account for mortality and timing of the year, the final tree planting will exceed 3:1.

Whenever possible, protection, such as, 'Tubex' tubes and stakes will be used to ensure plant survivability.

CITY OF SPOKANE RESTORATION DETAILS & INFORMATION BLUFF ROAD RESTORATION

Plant material represented in the following three communities will be consistent with the existing vegetation:

• Community 1 "Open Pine Stand" *Includes Grass/Forb Mix





SNOWBERRY

SERVICEBERRY

DOUGLAS HAWTHORN

SNOWBERRY



BULBOUS BLUEGRASS



YARROW



SILKY LUPINE

The re-vegetated areas will be monitored each fall, during September, for 3 years. Replanting, is to occur between Oct. 1 and Nov. 15th as needed each year.

Seed germination for natural grasses will also be monitored and documented. Reseeding will occur in the fall, based on the success of the spring seeding and as otherwise needed. Any bare areas will be reseeded.





SANDBERG BLUEGRASS

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Work will be completed in sections and all equipment is intended to be kept on the existing road cut and turnarounds.

Start date May 15

- Set up construction trailer and fence area at 3515 S Inland Empire Way (Avista substation)
- Install all necessary site/construction signage and fencing
- Chip all newly downed trees (wood) 6" or smaller
- Remove all stumps and root wads off site
- Collect all logs 6" and bigger to use at an onsite location
- Replace and appropriately compact cut and fill areas
- Place additional imported topsoil where needed
- Restore trail crossings to prior conditions
- Plant trees and shrubs
- Protect restored areas at cross trails
- Seed native grasses
- Install access gate with a pedestrian pass through at north end of project
- Start monitoring phase

MONITORING THE INITIAL PROJECT

After initial project completion, monitoring will be conducted by the City of Spokane.

A visual inspection will take place upon project completion for erosion control effectiveness and plant survivability. Monitoring will occur according to the following schedule:

2017 June: weekly July - Sept: every other week Sept - Nov: once per month Nov - Feb: winter 2018 March - June: one per month

Erosion control measures and remedial action, if necessary, are to be addressed within 1 week of identification. Additional erosion control monitoring will occur in the event of heavy rainfall

'Tubex' tree shelters will decompose over time, but may be removed during the monitoring phase, once tree establishment has occurred.

Weed Control Program:

Invasive weeds that exist in the adjacent landscape, such as dalmation toadflax, knapweed, sufur cinquefoil, if identified in the disturbed areas during the monitoring season, April-July, will be controlled through spot treatment, to help ensure the establishment of the native vegetation.

