



US Army Corps
of Engineers ®
Seattle District

**BIOLOGICAL EVALUATION
FOR INFORMAL ESA CONSULTATION**
For: _____ (Corps Reference Number)
Version: May 2012



**** This form is for projects that have insignificant or discountable impacts on listed species. It contains all the information required for a biological evaluation, but in abbreviated form and with minimal instructions on how to fill it out. For more detailed instructions, a format for development of a biological assessment or biological evaluation can be found on the Seattle District Corps website (www.nws.usace.army.mil – click on regulatory and then on endangered species, BA Template). You may also contact the Corps at 206-764-3495 for further information.**

Drawings and Photographs - Drawings and photographs must be submitted. Photographs must be submitted showing local area, shoreline conditions, existing overwater structures, and location of the proposed project. Drawings must include a vicinity map; plan, profile, and cross-section drawings of the proposed structures; and over- and in-water structures on adjacent properties. (For assistance with the preparation of the drawings, please refer to our *Drawing Checklist* located on our website at www.nws.usace.army.mil Select Regulatory – Regulatory/Permits – Forms.) Submit the information to: U.S. Army Corps of Engineers, Regulatory Branch, P.O. Box 3755, Seattle, Washington 98124-3755.

Date: August 2016

SECTION A - General Information			
1. Applicant name: Eric LaFrance, P.E., City of Redmond			
Mailing address: MS: 2NPW, 15670 NE 85 th St, PO Box 97010, Redmond, WA 98052			
Work phone: 425 556-2722	Home phone:	Email: elafrance@redmond.gov	Fax:
2. Joint-use applicant name (if applicable): n/a			
Mailing address:			
Work phone:	Home phone:	Email:	Fax:
3. Authorized agent name: Brad Thiele, Northwest Environmental Consulting			
Mailing address: 3639 Palatine Ave N Seattle, WA 98103			
Work phone: 206 634-9193	Home phone:	Email: brad@northwest-environmental.com	Fax:
4. Location where proposed work will occur			
Address (street address, city, county): Parcel 0225059250 between Red-Wood Road and 160 th Ave NE			
Location of joint-use property (street address, city, county):			
Waterbody: Unnamed Tributary to Sammamish River			
¼ Section: NE	Section: 2	Township: 25N	Range: 5E
Latitude: 47.68709N		Longitude: -122.12845W	

5. Description of Work:

Include project drawings and site photographs.

Describe the proposed project in detail. Please describe any mitigation that is being proposed for impacts from your project. Attach a mitigation plan as an appendix, if appropriate.

The purpose of this project is to repair erosion and stability issues in the ravine between Red-Wood Road NE (SR 202) and 160th Avenue NE, at NE 98th Street and to reconstruct the outlet pipe and piping under Red-Wood Road NE. See Figure 1 – Vicinity Map.

The culvert at NE 98th Street discharges to a 24-inch CMP pipe that daylights in the ravine southwest of Red-Wood Road NE. Stormwater flows southwest through the ravine to a bird-cage structure at 160th Avenue NE, and via a series of pipes to the Sammamish River (Figure 2 – Stormwater System Map). The 24-inch CMP has failed and broken into several pieces, resulting in erosion throughout the ravine and a buildup of sediment deposits at the bird-cage structure. The pipe failure is located close to the retaining wall that supports Red-Wood Road NE (Project Drawings – Sheet 2). Before the pipe failure, the outfall was piped to the bottom of the slope, after which the water flowed to the birdcage. As part of the WDFW requirements, the stream will be daylighted to the maximum extent practicable.

Construction will start with mobilization by the contractor to the site. The first steps will be to install silt fencing, a bypass runoff tributary to the ravine, and create temporary construction access. The areas to be excavated will be cleared and the old pipe pieces will be removed. The new channel and pipe foundation will be constructed. The existing 24-inch pipe under Red-Wood Road NE to the outfall will be repaired by lining with 20-inch HDPE pipe. The 20-inch HDPE pipe will then extend above ground to the original outfall location. Habitat features for the approximately 90-foot-long cascade and pool stretch will be constructed and all stream bed materials placed in the channel. All graded areas will be stabilized and planted with native trees and shrubs. See Project Drawings, Sheets 2 and 9.

For projects that include pile driving

If steel or concrete piles are being installed with an impact hammer pile driver, marbled murrelets may be adversely impacted. For installation of any type of pile with a vibratory pile driver, marine mammals may be adversely impacted. A monitoring plan may be required to ensure protection of these species.

No pile driving is proposed.

6. Construction Techniques:

Describe methods and timing of construction to be employed in building the project and any associated features. Identify actions that could affect listed / proposed species or designated / proposed critical habitat and describe in sufficient detail to allow an assessment of potential impacts. Consider actions such as vegetation removal, temporary or permanent elevations in noise level, channel modifications, hydrological or hydraulic alterations, access roads, power lines etc. Also discuss construction techniques associated with any interdependent or interrelated projects.

Address the following:

A. Construction sequencing and timing of each stage (duration and dates):

Construction is planned for Summer 2017 or 2018; the in-water work will be performed within the fish window (approximately July 1 to August 31). The following is a possible construction sequence:

- Prepare work plan, initiate traffic control on Red-Wood Road, install storm drain inlet protection.
- Begin construction from upstream end and work downstream towards bird cage.
- Install stormwater bypass on Red-Wood Road, and high-vis fence and construction entrance.
- Special chamber work: reline existing pipe, connect to structure, install new pipe in special chamber.
- Slope side work: backfill scoured area, reline existing pipe and connect to structure, install new pipe to proposed outfall and connect to pipe and structure.
- Construct roughened channel: prepare work area, removing trees and vegetation as needed; place angular backfill below channel section; install roughened channel; install plantings; place trees.
- Restore project area.

Restoration planting likely to occur after October 1 to avoid need for irrigation.

B. Site preparation:

Site preparation will consist of mobilizing the work crew to the site and preparing access. Erosion control BMPs will be installed and work limits marked with high visibility fencing before any work is completed. A stormwater bypass will be constructed and work will commence.

C. Equipment to be used:

Track hoe, bobcat sized loader, trucks, and hand tools.

D. Construction materials to be used:

The following materials will be used:

- Suitable aggregate material for HDPE pipe.
- Pipe anchors
- Erosion control materials;
- Streambed gravels, cobbles and boulders for the roughened channel
- Logs from offsite or recycled on site

E. Work corridor:

The limits of work are shown on Sheet 2 and 3 and the site will be accessed from 160th Ave NE.

F. Staging areas and equipment wash outs:

Staging areas are located on Sheet 3. No vehicle washouts are proposed. Ingress and egress will be graveled to prevent dirt from being deposited on the roadway. If dirt reaches the roadway, the road will be swept.

G. Stockpiling areas:

Stockpiling and staging will occur in the same area.

H. Running of equipment during construction:

Equipment will only be run when in use.

I. Soil stabilization needs / techniques:

The stream stabilization is shown on Sheet 5 to 7. The area will be stabilized and planted with native plants after construction.

J. Clean-up and re-vegetation:

The project includes a planting plan in which 44 native trees and 133 native shrubs will be planted (Sheets 8 and 9).

K. Storm water controls / management:

The purpose of the project is to fix a failed stormwater discharge pipe and create open stream habitat.

L. Source location of any fill used:

Fill will be acquired from a licensed commercial source and will meet specifications noted on the construction plans.

M. Location of any spoil disposal:

Any unusable material will be removed from the site and disposed of at a licensed facility.

7. Action Area

Please describe the action area. The action area means all areas to be affected directly (e.g., earth moving, vegetation removal, construction noise, placement of fill, release of environmental contaminants) and indirectly by the proposed action. (Example: as a direct effect, the action area for pile driving would include the area out to where the noise from the pile driving falls below the level of harm or disturbance for listed species. For vibratory hammer pile driving impacts to killer whales, this level is 120 dB. Action area will include any area where the underwater noise level may exceed 120 dB).

Areas affected by the construction will include 200 feet of ravine. In order to meet water quality standards during removal or placement of the temporary bypass, turbidity cannot extend more than 300 feet downstream and 100 feet upstream (WAC 172-201A-400). As construction will

occur in the dry, turbidity will not occur during construction. Noise from construction will occur from the excavator, which can reach 97 dB LMAX at 50 feet (WSDOT 2016). Ambient conditions in a suburban residential area are typically 45 to 50 dbA (WSDOT 2016). According to the Practical Spreading Loss Model for soft-site (nonpaved) conditions, noise will be louder than ambient levels for a radius of approximately 3,200 feet. More typical noise levels from equipment will be around 78 dbA, which will attenuate to background levels within 1,600 feet. The project will take place within a steep ravine adjacent to Red-Wood Road. Sound will be deflected up and disturbance will be limited to the immediate project area and ravine.

The action area's slope ranges from 0-2% at Red-Wood Road and the birdcage area, 38% at the top of the hill along the ravine, 52% at the new pipe's outlet, and 20% slope along the portion of the stream being restructured into cascades and pools (see Sheet 6).

The action area includes the stream itself and surrounding ravine slopes covered in deciduous/coniferous forest and thick patches of Himalayan blackberry (*Rubus armeniacus*), especially along the lower half of the ravine, growing directly adjacent to the stream and covering nearby slopes. The upper portion of the ravine is eroded down to rock, with undercut soils and exposed tree roots particularly on the north side.

The action area also includes downstream areas potentially affected by contaminant releases. At the base of the ravine, the stream enters the birdcage and flows through about 1,300 linear feet of piping before reaching Sammamish River Slough (see Figure 2).

8. Species Information:

Identify each listed or proposed species, including terrestrial species, as well as designated or proposed critical habitat in the action area. Please include information on which listed species use are expected to be found in the action area and the potential for them to be there during project activities..

To determine what listed or proposed species may occur in the action area, contact NOAA Fisheries at the address listed below and obtain a county list of federally listed/ designated and proposed species and critical habitat from the:

U.S Fish and Wildlife Service at: http://westernwashington.fws.gov/se/SE_List/Endangered_Species.asp

National Marine Fisheries Service at:
510 Desmond Dr., SE # 103
Lacey, WA 98503
(360) 753-9530
<http://www.nwr.noaa.gov>

The following species are listed as of August 11, 2011:

USFWS SPECIES

BIRDS

Marbled murrelet
Northern spotted owl
Short-tailed albatross
Western snowy plover

MAMMALS

Canada lynx
Columbia white-tailed deer
Gray wolf (western WA)
Gray wolf (eastern WA)
Grizzly bear
Woodland caribou
Pygmy rabbit (Columbia Basin DPS)

INSECTS

Oregon silverspot butterfly

PLANTS

Bradshaw's desert parsley
 Marsh sandwort
 Showy stickseed
 Wenatchee Mtns. Checker-mallow
 Golden paintbrush
 Kincaid's lupine
 Nelson's checker-mallow
 Water howellia
 Spalding's catchfly
 Ute ladies'-tresses

FISH

Bull trout, Columbia River
 Bull trout, coastal-Puget Sound
 Dolly varden, coastal-Puget Sound

NMFS SPECIES**FISH**

Chum, Columbia River
 Chum, Hood Canal summer
 Chinook, lower Columbia River
 Chinook, upper Columbia River spring
 Chinook, Puget Sound
 Chinook, Snake River fall

Chinook, Snake River spring-summer
 Chinook, upper Willamette River
 Coho, lower Columbia River
 Sockeye, Ozette Lake
 Sockeye, Snake River
 Steelhead, upper Columbia River
 Steelhead, middle Columbia River
 Steelhead, lower Columbia River
 Steelhead, Snake River
 Steelhead, upper Willamette River
 Steelhead, Puget Sound
 Sturgeon, Green (southern DPS)
 Eulachon, Pacific (southern DPS)
 Bocaccio (Georgia Basin DPS)
 Rockfish, canary (Georgia Basin DPS)
 Rockfish, yelloweye (Georgia Basin DPS)

MARINE MAMMALS

Humpback whale
 Blue whale
 Fin whale
 Sei whale
 Sperm whale
 Southern resident killer whale
 Steller sea lion

REPTILES-AMPHIBIANS

Leatherback sea turtle
 Loggerhead sea turtle
 Green sea turtle
 Olive Ridley sea turtle

None of the proposed species is present in the action area.

No anadromous fish are present upstream of the birdcage in the project area and would need to pass through approximately 1,300 linear feet of culvert to reach the bird cage from the Sammamish River Slough (where anadromous fish are present).

9. Existing Environmental Conditions:

Describe existing environmental conditions for the following:

A. Shoreline riparian vegetation and habitat features

The riparian community along the stream consists of a red alder (*Alnus rubra*), bigleaf maple (*Acer macrophyllum*) and Douglas-fir (*Pseudotsuga menzeisii*) canopy. Shrubs include thick coverage of Himalayan blackberry, especially along the lower half of the ravine, growing directly adjacent to the stream and covering nearby slopes. Also present are Indian plum (*Oemleria cerasiformis*) growing along the eroded areas along the stream (with many dying individuals where erosion has recently occurred), salmonberry (*Rubus spectabilis*), and trailing blackberry (*Rubus ursinus*). One patch of willows (*Salix* sp.) is present on the north slope of the lower half of the ravine. The herb layer was sparse, mostly consisting of sword fern (*Polystichum munitum*) growing right up to the eroded sections along the stream, and small patches of reed canarygrass (*Phalaris arundinaceae*).

- B. Aquatic substrate and vegetation (include information on the amount and type of eelgrass or macroalgae present at the site)

No vegetation is present in the streambed. Substrate is rock and cobble.

- C. Surrounding land/water uses

The area surrounding the project is undeveloped forest on the steep slope between 160th Ave NE and Red-Wood Road, roadways, apartment housing, and single-family housing.

- D. Level of development

The project site's parcel is undeveloped forest. The properties to the west are apartments, the properties to the east are single family residential homes.

- E. Water quality

The unnamed tributary does not occur on the Washington State Department of Ecology's 303(d) water quality impairment lists.

- F. Describe use of the action area by listed salmonid fish species.

No anadromous fish are present upstream of the birdcage in the action area.

WDFW does not map any listed salmonid species as occurring near the action area. The ravine's steep grade, the birdcage, and 1,300 linear feet of piping downstream prevent salmonids from accessing the area.

- G. Is the project located within designated / proposed bull trout or Pacific salmon critical habitat? If so, please address the proposed projects' potential direct and indirect effect to primary constituent elements (Critical habitat templates can be found on the Corps website at: <http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx>, select Forms, Tools and References; Forms and Templates; Critical Habitat Assessment Forms.

The project is not in designated/proposed bull trout or Pacific salmon critical habitat.

- H. Describe use of the action area by other listed fish species (*green sturgeon*, *eulachon*, *bocaccio*, *canary rockfish* and *yelloweye rockfish*).

These species do not occur in the action area, which is a freshwater system.

- I. Is the project located within designated/proposed critical habitat for any of the species listed below? If so please address the proposed projects' potential direct and indirect effect to primary constituent elements. Please see the NOAA-Fisheries and US Fish and Wildlife websites (www.nwr.noaa.gov and www.fws.gov/pacific respectively) for further information.

<i>Southern resident killer whale</i>	<i>Marbled murrelet</i>
<i>Northern spotted owl</i>	<i>Western snowy plover</i>
<i>Green sturgeon</i>	<i>Eulachon</i>

Critical habitat for these species does not occur in the action area.

- J. Describe use of action area by marbled murrelets. How far to the nearest marbled murrelet nest site or critical habitat? Some information is available on the Fish and Wildlife Service website: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08C>.

Murrelets do not use the action area; it does not contain nesting habitat.

- K. Describe use of action area by the spotted owl. How far to the nearest spotted nest site or critical habitat? Some information is available on the Fish and Wildlife Service website: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08B>.

Spotted owls do not use the action area; mature forest suitable for spotted owl nesting is not present in the greater Seattle/Eastside.

- L. **For marine areas only:** Describe use of action area by Southern Resident killer whales. How often have they been seen in the area and during what months of the year? For information on noise impacts on killer whales and other marine mammals, please see the National Marine Fisheries website: <http://www.nwr.noaa.gov/Marine-Mammals/MM-consults.cfm>.

N/A

- M. **For marine areas and Columbia River:** How far is the nearest steller sea lion haulout site from the action area? Describe their use of the action area. See the National Marine Fisheries website: <http://www.nwr.noaa.gov/Marine-Mammals/MM-consults.cfm> for information on the steller sea lion and location of their haulout sites.

N/A

- N. **For marine areas only: Forage Fish Habitat** – only complete this section if the project is in tidal waters.

N/A

Check box if Washington Department of Fish and Wildlife (WDFW) documented habitat is present. Go to the WDFW website for this information: <http://wdfw.wa.gov/fish/forage/forage.htm>, then search for each species under the link to Biology, then the link to Documented Spawning Grounds (if available, please attach a copy of the Hydraulic Project Approval from WDFW):

Surf Smelt: **Pacific Herring:** **Sand Lance:**

Check box if the proposed action will occur in potentially suitable forage fish spawning habitat:

Surf Smelt: **Pacific Herring:** **Sand Lance:**

If no boxes are checked, please explain why site is not suitable as forage fish spawning habitat.

Please describe the type of substrate and elevation and presence of aquatic vegetation at the project area. For example:

At +10 to +5 feet above MLLW, there is no aquatic vegetation, the substrate consists of large cobbles.

At +5 to +1 foot above MLLW, there is eelgrass and the substrate consists of fine sand.

10. Effects Analysis

Describe the direct and indirect effects of the action on the proposed and listed species as well as designated and proposed critical habitat within the action area. Consider the impact to both individuals and the population.

Discuss the short-term, construction-related, impacts as well as the long-term and permanent effects.

Direct Impacts: Project noise will not reach disturbance threshold levels for listed species. Listed species would not be harassed by noise because they are not present in the Action Area. There will be no underwater noise. Minor, temporary turbidity could occur when the stream begins flow again in the fall following construction. This is expected to be temporary and is not expected to affect the Sammamish River when it discharges.

Indirect Impacts: The roughened channel will increase productivity of the stream which will increase drift of aquatic insects that will reach the Sammamish River and increase available food sources for listed species there.

11. Conservation measures:

Conservation measures are measures that would reduce or eliminate adverse impacts of the proposed activity (examples: work done during the recommended work window (to avoid times when species are most likely to be in the area), silt curtain, erosion control best management practices, percent grating on a pier to reduce shading impacts).

Proposed work window: The project will occur when the stream is dry, during the summer. The work window designated in the Hydraulic Project Approval from WDFW will be followed for construction.

Other conservation measures: The disturbed areas surrounding the stream will be stabilized with erosion control blankets and replanted with shrubs or hydroseeded following construction. The project includes installation of streambed materials and boulders that will reduce erosion compared to current conditions.

12. Determination of Effect:

Provide a summary of impacts concluding with statement(s) of effect, by species. Even projects that are intended to benefit the species might have short-term adverse impacts and those must be addressed. Only the following determinations are valid for listed species or designated critical habitat:

No listed species occur in the action area. The project will reduce erosion in a tributary to the Sammamish River and increase productivity of the unnamed tributary, which may be a small benefit for fish using the Sammamish River. Since no listed species are present in the action area, the project will have **no effect** on any listed species.

13. EFH Analysis

Essential Fish Habitat (EFH) is broadly defined by the Act (now called the Magnuson-Stevens Act or the Sustainable Fisheries Act) to include “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”. This language is interpreted or described in the 1997 Interim Final Rule [62 Fed. Reg. 66551, Section 600.10 Definitions] -- Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include historic areas if appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

Additional guidance for EFH analyses can be found at the NOAA Fisheries web site under the Sustainable Fisheries Division.

A. Description of the Proposed Action (may refer to BA project description)

See BA Response numbers 5 and 6

B. Addresses EFH for Appropriate Fisheries Management Plans (FMP)

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) includes a mandate that NOAA Fisheries must identify essential fish habitat (EFH) for federally managed marine fish, and federal agencies must consult with NOAA Fisheries on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. The Pacific Fishery Management Council (PFMC) has designated EFH for the Pacific salmon fishery, federally managed ground fishes, and coastal pelagic fisheries (NOAA Fisheries 1999; PFMC 1999).

The project takes place in habitat unsuitable for the Pacific salmon fishery. The slopes in the ravine are too steep for salmonid passage. Salmonids also do not have access to the stream due to the birdcage and about 1,300 linear feet of culvert separating the birdcage from the nearest downstream area (Sammamish River Slough). Waters downstream (Sammamish River Slough) are suitable habitat.

C. Effects of the Proposed Action

i. Effects on EFH (groundfish, coastal pelagic, and salmon EFH should be discussed separately)

Only Pacific salmon EFH is found downstream of the project site in Sammamish River Slough. No EFH is present at or near the project site. Effects to Sammamish River Slough are minimal; the project will decrease the current erosion taking place over 1,300 upstream from the slough in the ravine, and stream roughening may result in increased productivity in the ravine and therefore increased delivery of nutrients to downstream waters. No temporary sedimentation effects are expected, because the work will be performed in the dry, and BMPs are in place (described in BA Section 6) to avoid or minimize this effect.

- ii. Effects on Managed Species (unless effects to an individual species are unique, it is not necessary to discuss adverse effects on a species-by species basis)

Effects to Pacific salmon species are minimal and discountable.

- iii. Effects on Associated Species, Including Prey Species

There are no effects known to associated species. The project's stream roughening may result in increased productivity in the ravine and therefore increased delivery of nutrients to downstream waters.

- iv. Cumulative Effects

The project will not induce any new development; it is a maintenance project for an existing structure and will not have any cumulative effects.

D. Proposed Conservation Measures

Work will be performed when the stream is dry, during the summer.

All disturbed areas will be stabilized with coir mats and planted with native vegetation and restored.

About 90 linear feet of stream will be roughened with streambed materials to increase stream productivity.

E. Conclusions by EFH (taking into account proposed conservation measures)

This project will have minimal and discountable effects to fish and will maintain or improve existing conditions in the stream for fish. Because of conservation measures to avoid and minimize effects, it is determined that this project will have no adverse effect on Essential Fish Habitat.

14. References:

Include any studies or papers that support statements made in this form (example: reference the source for the listed species that are covered).

Washington State Department of Transportation (WSDOT). 2016. Biological Assessment Preparation, Advanced Training Manual Version 2015. Olympia, WA.

15. Appendices:

As needed include mitigation, revegetation plans, monitoring plans, results of studies, water quality information, etc.

Figures



Outfall of System to Sammamish River

Red-Wood Road (HWY 202)

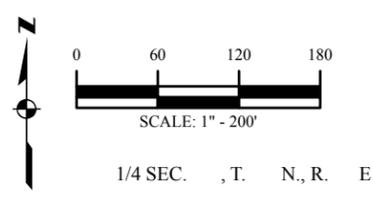
NE 98th St

Pipe Repair and Roughened Channel

Piped Downstream System

STORMWATER SYSTEM MAP

Redmond MH		Valve		LEGEND		Redmond Underdrain		Pump	
Redmond CB	●	Cleanout	○	Redmond Pipe	→	Non-Redmond Underdrain	→	City Limits	↔
Redmond MH CS	○	Redmond Pipe	→	Non-Redmond Pipe	→	Redmond Vault	■	Ponds	■
Redmond CB CS	□	Non-Redmond Pipe	→	Non-Redmond Culvert	→	Non-Redmond Vault	■	Streams	—
Redmond Unknown	×	Non-Redmond Culvert	→	Redmond Culvert	→	Redmond Bioswale	—	Contours	—
Redmond Inlet/Area Drain	●	Redmond Culvert	→	Non-Redmond Culvert	→	Non-Redmond Bioswale	—		
Non-Redmond Chambers	●	SW SideSewer	→						



DATE **4/29/2016**

FOR INFORMATION ONLY
THIS MAP AND RELATED DATA IS INTENDED TO ASSIST IN FIELD LOCATIONS AND IS NOT GUARANTEED TO BE ACCURATE. FIELD VERIFICATION IS REQUIRED FOR ALL DEVELOPMENT OR CONSTRUCTION PLANS.

CITY OF REDMOND

RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST

TASK ORDER 15-06

PERMIT SUBMITTAL - NOT FOR CONSTRUCTION

PROJECT NUMBER 20021514

UTILITY COORDINATION CONTACTS:
UTILITIES:

PUGET SOUND ENERGY, POWER & GAS
EMERGENCY: 1-888-CALL-PSE
GAS: JEANNE COLEMAN (425) 463-6550
ELECTRIC: ERIK GUERRA (425) 748-6318

FRONTIER COMMUNICATIONS
JAY SCHWAB (425) 263-4019

COMCAST
RAYMOND PILKENTON (425) 263-5332

CITY OF REDMOND:

PROJECT MANAGER
ERIC LaFRANCE (425) 556-2722

UTILITIES
REBECCA BORKER (425) 556-2706

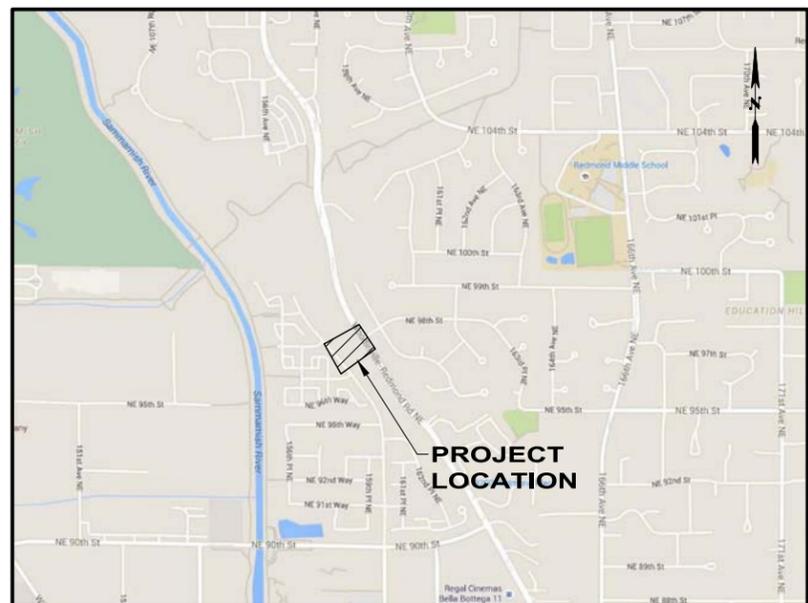
TRAFFIC SIGNAL
TRAFFIC SIGNAL TECHNICIANS (425) 556-2830

SURVEYOR:

AXIS SURVEY AND MAPPING
ZANE NALL, PLS
15241 NE 90TH ST.
REDMOND, WA 98052
(425) 823-5700
1-800-933-AXIS

ENGINEERING:

OSBORN CONSULTING, INC.
LAURA RUPPERT, PE
1800 112TH AVE. NE, SUITE 220E
BELLEVUE, WA 98004
(425) 451-4009



VICINITY MAP
N.T.S.

SHEET INDEX

SHEET #	SHEET TITLE
1	COVER SHEET
2	NOTES AND LEGEND
3	EXISTING CONDITIONS
4	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN (TESC)
5	OVERALL SITE PLAN AND PROFILE
6	STREAM SECTION AND DETAILS
7	SPECIAL CHAMBER PLAN AND PROFILE
8	STANDARD DETAILS
9	PLANTING PLAN AND DETAILS

APPROVED FOR CONSTRUCTION

DAVID M. PAUL, P.E. _____ DATE
CITY ENGINEER



Know what's below.
Call before you dig.



DESIGNED BY AGR	<p>OSBORN CONSULTING, INC. 1800 112th Ave. NE, Suite 220E Ph (425) 451-4009 Bellevue, WA. 98004 Fax (425) 451-4901</p>					<p>RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST CITY OF REDMOND COVER SHEET</p>	JOB# / DWG 15-06	DATE JULY 2016
DRAWN BY TNF		NO.	DATE	REVISION	BY		SCALE H: N/A v: N/A	SHEET 1 of 9
CHECKED BY LCR								

FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 RAVINE\3 CADD\SHEETS\10-120043-15-06_CVR.DWG
 PLOT TIME: 8/16/2016 9:01 AM
 USER NAME: TRAVIS FRANKLIN

GENERAL NOTES:

- CALL FOR UTILITY LOCATES @ 1-800-424-5555.
- SUBMIT A TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL PER CITY OF REDMOND STANDARD SPECIFICATIONS.
- APPLICANT IS REQUIRED TO SEND OUT "CONSTRUCTION NOTICES" TO RESIDENTS 5 DAYS PRIOR TO START OF WORK.
- EXISTING UTILITIES WITHIN PROPOSED EXCAVATION LIMITS ARE REQUIRED TO BE "POTHOLED" PRIOR TO CONSTRUCTION. ALL OPEN-CUT STREET SURFACES AND HARD SURFACE AREAS SHALL BE BACKFILLED PER CITY OF REDMOND STANDARD SPECIFICATIONS & STANDARD DETAIL DRAWING. MIXED DESIGNS SHALL BE SUBMITTED FOR REVIEW & APPROVAL.
- ALL CITY UTILITIES HAVE PRIORITY. REFERENCE PLACEMENT VERTICALLY AND HORIZONTALLY.
- FRANCHISE UTILITIES ARE REQUIRED TO BE PLACED BENEATH CITY WATER MAINS AND SERVICES WITH 1' MINIMUM VERTICAL SEPARATION. HORIZONTAL SEPARATION REQUIRES A 5' MINIMUM BEHIND FIRE HYDRANTS AND WHEN PARALLELING CITY-OWNED UTILITIES. THERE IS A 10' MINIMUM REQUIREMENT WHEN ADJACENT TO POWER VAULTS.
- TRENCH SHORING IS TO MEET MINIMUM SAFETY STANDARDS SET BY THE STATE OF WASHINGTON DEPARTMENT OF LABOR AND INDUSTRIES. [CHAPTER 296-155 WAC.]
- REQUIREMENTS FOR TYPE AND PLACEMENT OF STEEL SHEETS: MINIMUM SIZE IS 1" THICK BY 8' WIDE BY 20' LONG WITH SKID PROOF SURFACE. SHEETS ARE TO BE PINNED AND COLD MIX PLACED ON EDGES. AREA IS TO BE KEPT CLEAN AT ALL TIMES. "STEEL PLATES AHEAD" WARNING SIGNS REQUIRED.
- RESTORATION OF OPEN-CUT PAVEMENT SECTIONS SHALL MEET THE REQUIREMENTS OF CITY OF REDMOND STANDARD SPECIFICATIONS & STANDARD DETAIL DRAWING & AS DIRECTED BY CITY INSPECTION.
- SILT AND EROSION CONTROL SHALL MEET THE REQUIREMENTS OF THE REDMOND COMMUNITY DEVELOPMENT GUIDE CODE. CONTRACTOR IS REQUIRED TO PROVIDE PROTECTION OF THE CITY STORM DRAIN SYSTEM. CONCRETE TRUCKS ARE REQUIRED TO USE A DESIGNATED WASHOUT AREA.
- RESTORATION SHALL MEET THE REQUIREMENT OF CITY OF REDMOND STANDARD SPECIFICATIONS. ROADWAY RESTORATION SHALL INCLUDE STREETS, SIDEWALKS, DRIVEWAYS, CURB & GUTTER, TRAFFIC SIGNS AND MARKINGS, LANDSCAPING, AND IRRIGATION SYSTEMS (FOR PARKS DEPT SYSTEMS CONTACT SCOTT VAN DE VANTER @ 425-556-2354). CITY OF REDMOND MAY REQUIRE WIDTH OR HALF-STREET GRIND & OVERLAY.
- FINAL INSPECTION AND APPROVAL PER CITY OF REDMOND STANDARD SPECIFICATIONS.
- RECORD DRAWINGS PER CITY OF REDMOND STANDARD SPECIFICATIONS.
- HOURS OF WORK PER CITY OF REDMOND STANDARD SPECIFICATIONS. CERTAIN STREETS REQUIRE LIMITED HOURS FOR CONSTRUCTION.
- NOISE CONTROL PER CITY OF REDMOND STANDARD SPECIFICATIONS & ORDINANCE #2006.
- TREE PROTECTION & REPLACEMENT PER ORDINANCE #1998.
- OVERTIME HOURS WILL BE BILLED TO THE APPLICANT PER CITY OF REDMOND STANDARD SPECIFICATIONS.
- CITY OF REDMOND BUSINESS LICENSES ARE REQUIRED OF ALL CONTRACTORS & SUBCONTRACTORS PER CITY OF REDMOND STANDARD SPECIFICATIONS. SUPPLIERS ARE EXEMPT.
- A COPY OF THE CITY OF REDMOND STANDARD SPECIFICATIONS ARE REQUIRED TO BE ON SITE AT ALL TIMES.
- THE DETAILS AND SEQUENCING SHOWN IN THESE PLANS ARE INTENDED TO SHOW ONE POSSIBLE METHOD FOR CONSTRUCTION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE, SUBMIT FOR APPROVAL, IMPLEMENT AND MAINTAIN A WORK ACCESS PLAN, DEWATERING AND TEMPORARY BYPASS PLAN, AND TRAFFIC CONTROL PLAN BASED ON CONSTRUCTION ACCESS, SEQUENCING AND SITE CONDITIONS ENCOUNTERED AS WORK PROGRESSES.

STANDARD CLEARING, GRADING AND TEMPORARY EROSION CONTROL PLAN NOTES:

- ALL WORK AND MATERIALS TO BE PER CITY OF REDMOND STANDARDS.
- KEEP OFF-SITE STREETS CLEAN AT ALL TIMES. FLUSHING STREETS SHALL NOT BE ALLOWED. ALL STREETS SHOULD BE SWEEPED.
- ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY CITY INSPECTOR.
- WHEN WORK IS STOPPED/COMPLETED IN AN AREA, THE CITY INSPECTOR MAY REQUIRE POST-CONSTRUCTION EROSION CONTROL INCLUDING SEEDING OR OTHER MEASURES.
- LOCATIONS SHOWN OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE CORRECT LOCATIONS TO AVOID DAMAGE OR DISTURBANCE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED PERMITS PRIOR TO ANY CONSTRUCTION.

- ALL GROUND COVER IS TO REMAIN UNDISTURBED OUTSIDE OF CLEARING AREAS.
- THE TEMPORARY EROSION/SEDIMENT CONTROLS SHALL BE INSTALLED, INSPECTED, AND OPERATING BEFORE ANY GRADING OR EXTENSIVE LAND CLEARING. THESE CONTROLS MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING ARE COMPLETE.
- TIE IMPERVIOUS SURFACES (ROOF, STREETS, DRIVEWAYS, ETC.) TO COMPLETED DRAINAGE SYSTEM AS SOON AS POSSIBLE.
- A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION DIVISION AND ALL PERMITS MUST BE COMPLETED BEFORE START OF CONSTRUCTION.
- CLEARING LIMITS SHALL BE LOCATED BY A LICENSED CIVIL ENGINEER OR LAND SURVEYOR.
- APPROVAL OF THIS TEMPORARY EROSION/SEDIMENTATION CONTROL (TESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN.
- THIS APPROVAL FOR TESC IS VALID FOR CONSTRUCTION BETWEEN MAY 1 AND SEPTEMBER 30. THIS APPROVAL FOR TESC IS NOT VALID FOR THE RAINY SEASON (OCTOBER 1 THROUGH APRIL 30).
- REMOVE ALL TESC MEASURES ONCE ALL WORK IS COMPLETED AND SITE IS PERMANENTLY STABILIZED.

SURVEY NOTES

DATUM/BASIS OF BEARINGS

HELD A BEARING OF NORTH 16°31'23" WEST BETWEEN CITY OF REDMOND HORIZONTAL CONTROL POINTS GPS90-3E2 AND GPS90-3E4.

HORIZONTAL DATUM:
 NAD '83/'91 PER CITY OF REDMOND

ORIGINATING BENCHMARK:
 CITY OF REDMOND VERTICAL CONTROL POINT COR 9166.
 VERTICAL DATUM: NAVD '88 PER CITY OF REDMOND
 ELEVATION: 33.67'

TEMPORARY BENCHMARK:
 TBM 'A'
 TOP OF MONUMENT IN CASE AT THE PC OF 160TH AVE NE.
 ELEVATION: 38.77'

TBM 'B'
 SET MAG NAIL IN TOP SEAM OF WHEELCHAIR RAMP AT THE SOUTHERLY QUADRANT INTERSECTION OF REDMOND-WOODINVILLE ROAD AND NE 98TH ST.
 ELEVATION: 124.27'

NOTES

NO EASEMENTS, RESTRICTIONS, OR RESERVATIONS OF RECORD WHICH WOULD BE DISCLOSED BY TITLE REPORT ARE SHOWN.

PRIMARY CONTROL POINTS AND ACCESSIBLE MONUMENT POSITIONS WERE FIELD MEASURED UTILIZING GLOBAL POSITIONING SYSTEM (GPS) SURVEY TECHNIQUES USING LEICA SYSTEM 1200 EQUIPMENT. MONUMENT POSITIONS THAT WERE NOT DIRECTLY OBSERVED USING GPS SURVEY TECHNIQUES WERE TIED INTO THE CONTROL POINTS UTILIZING LEICA ELECTRONIC 1201 TOTAL STATIONS FOR THE MEASUREMENT OF BOTH ANGLES AND DISTANCES. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS SET BY WACS 332-130-080/090.

UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON ASBUILT FIELD LOCATION OF EXISTING STRUCTURES. FIELD LOCATION OF UTILITIES BASED ON LOCATOR PAINT MARKINGS AND LOCATIONS BASED ON UTILITY MAPS FROM CITY AND UTILITY PURVEYOR'S DRAWINGS.

REFERENCES

CITY OF REDMOND SHORT PLAT SPL-00-001 RECORING NUMBER 20001017900010.

PLAT OF VALLEY VISTA DIVISION 4 VOL.100 / PGS.42-43.

LEGEND

PROPOSED

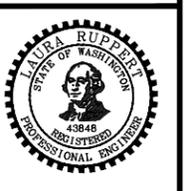
- HVF HIGH VISIBILITY FENCE
- * SILT FENCE
- INLET PROTECTION INSERT
- TREE REMOVED
- TREE TO REMAIN AND BE PROTECTED
- PROJECT LIMITS
- REMOVED TREE LAID ON TOP OF BANK
- STORM DRAIN BYPASS
- TRENCHLESS REPAIR EX. STORM DRAIN
- SAWCUT
- CONSTRUCTION ENTRANCE
- CEMENT CONCRETE DRIVEWAY
- POOL ZONE
- CASCADE ZONE

EXISTING

- POWER JUNCTION BOX
- POWER METER
- POWER VAULT
- TELECOMMUNICATIONS MANHOLE
- CATCH BASIN
- STORM DRAIN MANHOLE
- CULVERT
- IRRIGATION CONTROL VALVE
- WATER VALVE
- WETLAND FLAG
- SANITARY SEWER MANHOLE
- MONITOR WELL
- TELECOMMUNICATIONS VAULT
- GAS VALVE
- SIGN
- STREET LIGHT
- FIRE HYDRANT
- BUILDINGS
- GRAVEL SURFACE
- CONCRETE PAVING
- ASPHALT PAVING
- 12" A ALDER
- 12" COT COTTONWOOD
- 12" D DECIDUOUS
- 12" M MAPLE
- 12" O OAK
- 12" C CEDAR
- 12" F FIR
- SET BENCHMARK
- FOUND MONUMENT IN CASE
- EXISTING RETAINING WALL
- ROCKERY
- RETAINING WALL PILE
- P POWER LINE
- T TELECOMMUNICATIONS LINE
- G GAS LINE
- X CHAIN LINK FENCE LINE
- OP OVERHEAD POWER LINE

POSSIBLE CONSTRUCTION SEQUENCE

- PREPARE WORK ACCESS PLAN THAT WILL INCLUDE THE BYPASS AND DEWATERING PLAN AND THE TRAFFIC CONTROL PLAN. SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL.
- CONSTRUCTION OF PROJECT WILL START FROM THE UPSTREAM END ON REDMOND-WOODINVILLE ROAD AND CONTINUE DOWNSTREAM TOWARDS THE BIRD CAGE. EARTHWORK (BACKFILL) AND PIPE INSTALLATION WORK ON THE SLOPE SIDE MAY OCCUR CONCURRENTLY WITH THE PIPE REPLACEMENT/REPAIR WORK ON REDMOND-WOODINVILLE ROAD. THE ROUGHENED CHANNEL WORK CANNOT BE INITIATED UNTIL THE PIPE WORK IS COMPLETE. ENGINEER SHALL APPROVE ANY NECESSARY CHANGES REQUIRED TO ACCOMMODATE UNFORESEEN OBSTACLES THAT COULD BE ENCOUNTERED SUCH AS SPECIAL CHAMBER CONDITIONS, MOVEMENT IN THE SOLIDER PILE WALL, AND PRESERVATION OF TREES.
- INITIATE APPROVED TRAFFIC CONTROL PLAN ON REDMOND-WOODINVILLE ROAD.
- INSTALL STORM DRAIN INLET PROTECTION AS SHOWN ON THE PLANS.
- INSTALL STORMWATER BYPASS ON REDMOND-WOODINVILLE ROAD.
- INSTALL HIGH VISIBILITY FENCE TO DELINEATE CONSTRUCTION LIMITS, TREES AND VEGETATION THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION LIMITS.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE.
- SPECIAL CHAMBER.
 - RELINE EXISTING PIPE AND CONNECT TO STRUCTURE.
 - INSTALL NEW PIPE IN SPECIAL CHAMBER AND CONNECT TO PIPE AND STRUCTURE.
 - ABANDON SPECIAL CHAMBER IN PLACE.
- SLOPE SIDE: BACKFILL AND PIPE.
 - PREPARE WORK AREA FOR BACKFILLING AND PIPE INSTALLATION FOR NEW PIPE SECTION ONLY.
 - BACKFILL SCoured AREA.
 - RELINE EXISTING PIPE AND CONNECT TO STRUCTURE.
 - INSTALL NEW PIPE TO PROPOSED OUTFALL AND CONNECT TO PIPE AND STRUCTURE.
- SLOPE SIDE: ROUGHENED CHANNEL.
 - PREPARE WORK AREA FOR ROUGHENED CHANNEL SECTION, INCLUDING TREE REMOVAL.
 - PLACE ANGULAR BACKFILL BELOW CHANNEL SECTION.
 - INSTALL ROUGHENED CHANNEL.
 - INSTALL PLANTINGS.
 - PLACE TREES.
- RESTORE PROJECT AREA.



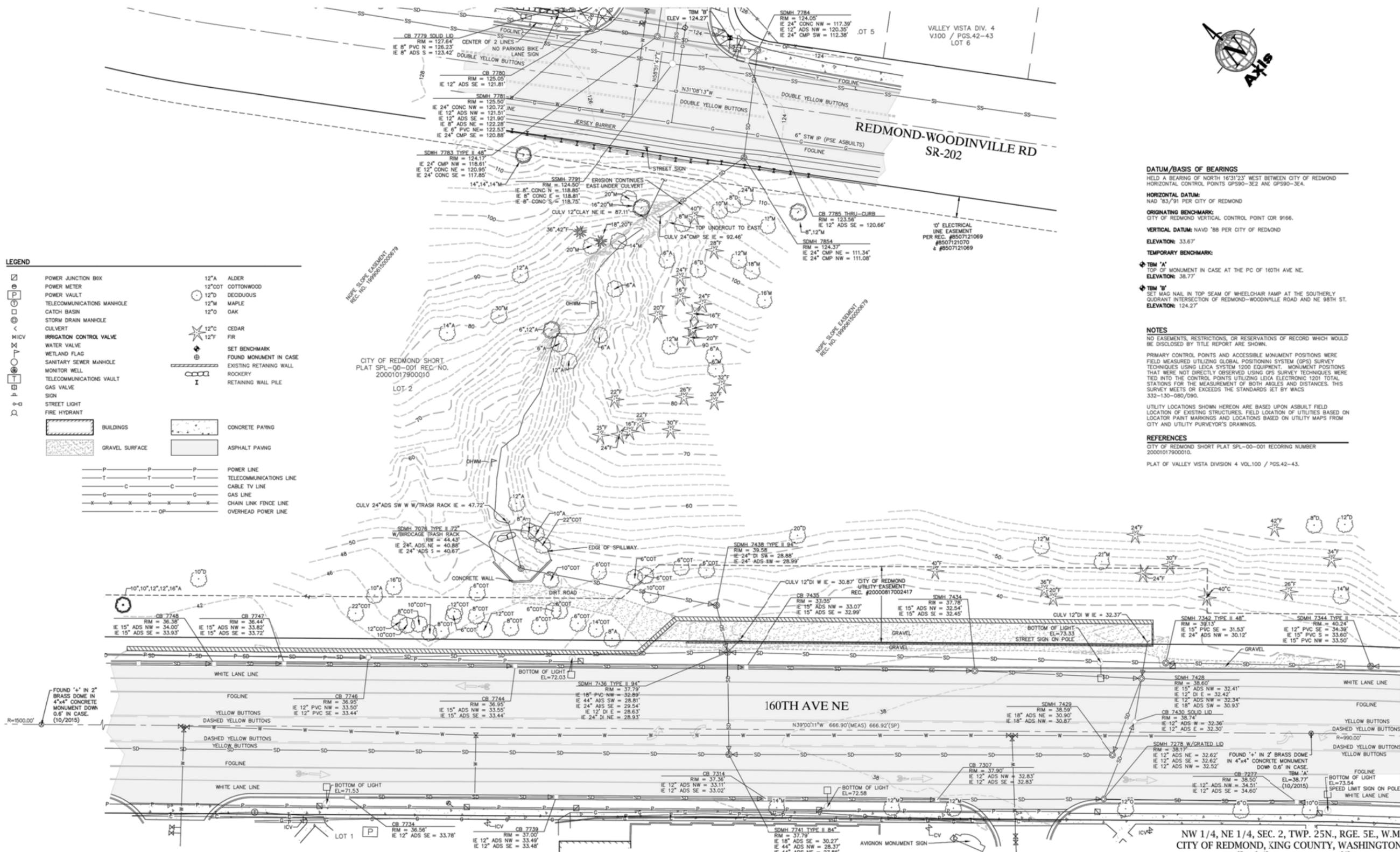
PERMIT SUBMITTAL - NOT FOR CONSTRUCTION

DESIGNED BY AGR		OSBORN CONSULTING, INC. 1800 112th Ave. NE, Suite 220E Ph (425) 451-4009 Bellevue, WA. 98004 Fax (425) 451-4901						RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST CITY OF REDMOND NOTES AND LEGEND	JOB# / DWG 15-06	DATE JULY 2016
DRAWN BY TNF			SCALE	H: N/A	V: N/A	SHEET				
CHECKED BY LCR						2 of 9				

FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 BELLEVUE\3 CADD\SHEETS\10-120043-15-06_CVR.DWG
 PLOT TIME: 8/16/2016 9:01 AM
 USER NAME: TRAVIS FRANKLIN

LEGEND

	POWER JUNCTION BOX		12\"/>		ALDER
	POWER METER		12\"/>		COTTONWOOD
	POWER VAULT		12\"/>		DECIDUOUS
	TELECOMMUNICATIONS MANHOLE		12\"/>		MAPLE
	CATCH BASIN		12\"/>		OAK
	STORM DRAIN MANHOLE		12\"/>		CEDAR
	CULVERT		12\"/>		FIR
	IRRIGATION CONTROL VALVE		12\"/>		SET BENCHMARK
	WATER VALVE		12\"/>		FOUND MONUMENT IN CASE
	WETLAND FLAG		12\"/>		EXISTING RETAINING WALL
	SANITARY SEWER MANHOLE		12\"/>		ROCKERY
	MONITOR WELL		12\"/>		RETAINING WALL PILE
	TELECOMMUNICATIONS VAULT		12\"/>		CONCRETE PAVING
	GAS VALVE		12\"/>		ASPHALT PAVING
	SIGN		12\"/>		TELECOMMUNICATIONS LINE
	STREET LIGHT		12\"/>		GAS LINE
	FIRE HYDRANT		12\"/>		OVERHEAD POWER LINE



DATUM/BASIS OF BEARINGS
 HELD A BEARING OF NORTH 16°31'23\"/>

HORIZONTAL DATUM:
 NAD 83/91 PER CITY OF REDMOND

ORIGINATING BENCHMARK:
 CITY OF REDMOND VERTICAL CONTROL POINT COR 9166.

VERTICAL DATUM: NAVD 88 PER CITY OF REDMOND

ELEVATION: 33.67'

TEMPORARY BENCHMARK:
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 TOP OF MONUMENT IN CASE AT THE PC OF 160TH AVE NE.
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 SET MAG NAIL IN TOP SEAM OF WHEELCHAIR RAMP AT THE SOUTHERLY QUADRANT INTERSECTION OF REDMOND-WOODINVILLE ROAD AND NE 98TH ST.
 ELEVATION: 124.27'

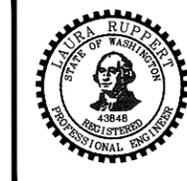
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 NO EASEMENTS, RESTRICTIONS, OR RESERVATIONS OF RECORD WHICH WOULD BE DISCLOSED BY TITLE REPORT ARE SHOWN.

PRIMARY CONTROL POINTS AND ACCESSIBLE MONUMENT POSITIONS WERE FIELD MEASURED UTILIZING GLOBAL POSITIONING SYSTEM (GPS) SURVEY TECHNIQUES USING LEICA SYSTEM 1200 EQUIPMENT. MONUMENT POSITIONS THAT WERE NOT DIRECTLY OBSERVED USING GPS SURVEY TECHNIQUES WERE TIED INTO THE CONTROL POINTS UTILIZING LEICA ELECTRONIC 1201 TOTAL STATIONS FOR THE MEASUREMENT OF BOTH ANGLES AND DISTANCES. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS SET BY WACS 332-130-080/090.

UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON ASBUILT FIELD LOCATION OF EXISTING STRUCTURES. FIELD LOCATION OF UTILITIES BASED ON LOCATOR PAINT MARKINGS AND LOCATIONS BASED ON UTILITY MAPS FROM CITY AND UTILITY PURVEYOR'S DRAWINGS.

REFERENCES
 CITY OF REDMOND SHORT PLAT SPL-00-001 RECORDING NUMBER 20001017900010.
 PLAT OF VALLEY VISTA DIVISION 4 VOL.100 / PGS.42-43.

NW 1/4, NE 1/4, SEC. 2, TWP. 25N, RGE. 5E, W.M. CITY OF REDMOND, KING COUNTY, WASHINGTON

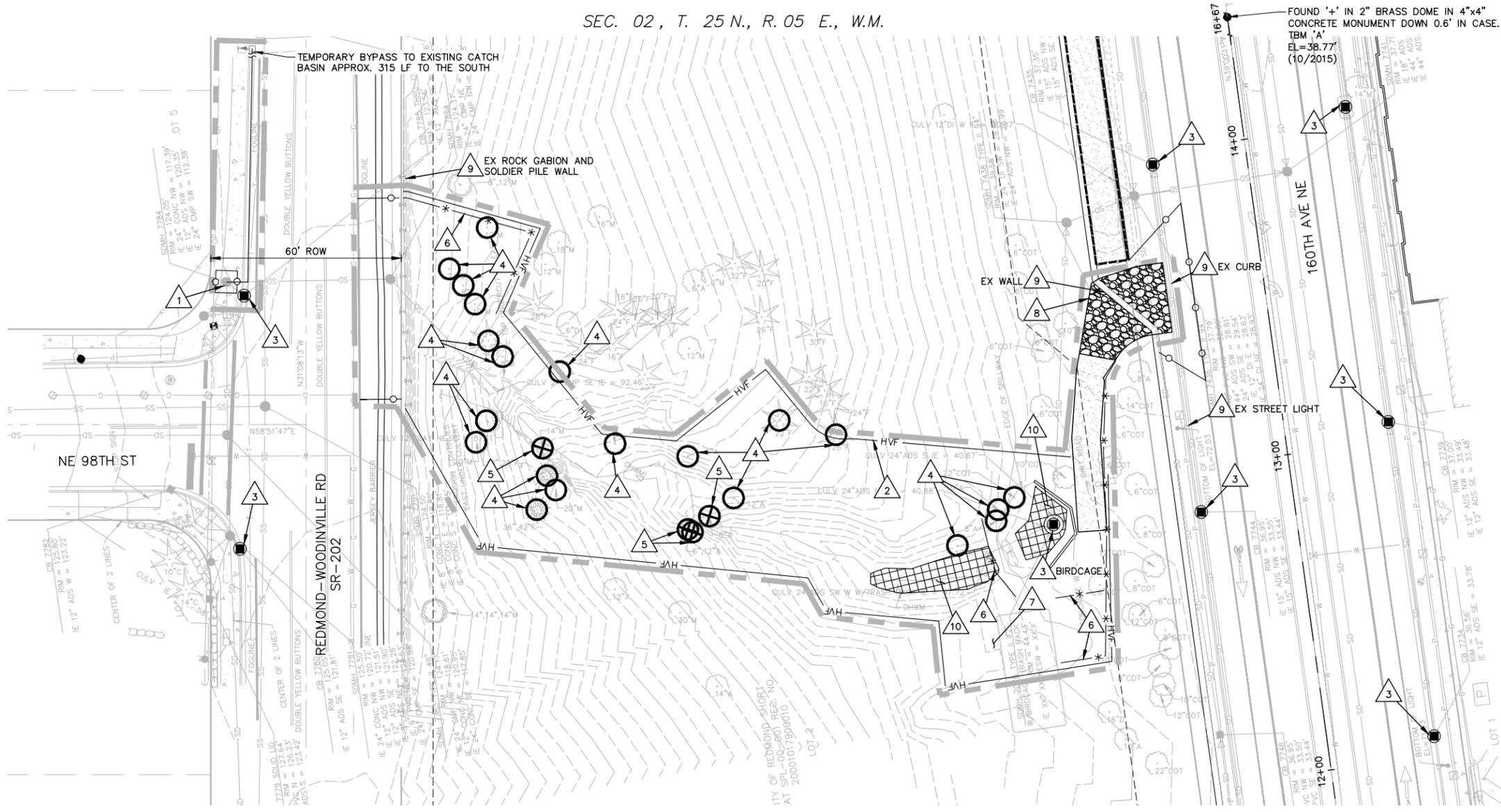


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DESIGNED BY AGR		OSBORN CONSULTING, INC. 1800 112th Ave. NE, Suite 220E Ph (425) 451-4009 Bellevue, WA. 98004 Fax (425) 451-4901	NO.	DATE	REVISION	BY	
DRAWN BY TNF							
CHECKED BY LCR							
RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST CITY OF REDMOND EXISTING CONDITIONS		JOB# / DWG 15-06	DATE JULY 2016				
SCALE H: N/A V: N/A		SHEET 3 of 9					



SEC. 02, T. 25 N., R. 05 E., W.M.



GENERAL NOTES:

- REFER TO THE TECHNICAL SPECIFICATIONS FOR LEGAL DESCRIPTIONS, EASEMENT EXHIBITS, AND CCTV REPORTS.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL THE WORK ACCESS PLAN. THE WORK ACCESS PLAN SHALL ADDRESS METHODS TO COMPLETE THE TRENCHLESS PIPE REPAIR AND REPLACEMENT WORK ON REDMOND-WOODINVILLE ROAD, THE TRENCHLESS PIPE REPAIR AND REPLACEMENT WORK ON THE STEEP SLOPE, AND THE ROUGHENED CHANNEL. THE WORK ACCESS PLAN SHALL INCLUDE THE BYPASS AND DEWATERING PLAN THAT ADDRESSES METHODS OF CONTROLLING WATER DURING CONSTRUCTION AND THE TRAFFIC CONTROL PLAN. ALL WORK REQUIRED TO COMPLETE THE PIPE REPLACEMENT AND REPAIRS BELOW REDMOND-WOODINVILLE ROAD SHALL BE LIMITED TO THE SHOULDER OF THE ROAD.

TESC NOTES:

- INSTALL STORMWATER BYPASS PUMP AND DISCHARGE TO LOCATION INDICATED ON PLAN.
- MARK PROJECT LIMITS IN ACCORDANCE WITH WSDOT STANDARD PLAN 1-10.10-01 HIGH VISIBILITY FENCE.
- INSTALL INLET PROTECTION PER WSDOT STANDARD PLAN 1-40.20-00 STORM DRAIN INLET PROTECTION.
- EXISTING TREE/VEGETATION TO REMAIN PER REDMOND ZONING CODE RCZ 21.72.070. TREE LIMBS LESS THAN 1-INCH DIAMETER CAN BE REMOVED WITH APPROVAL FROM THE CITY OF REDMOND. TREE BRANCHES TRIMMED AS NEEDED.
- REMOVE TREE AND SALVAGE FOR USE ALONG ROUGHENED CHANNEL. SEE SHEET 5 FOR PLACEMENT LOCATIONS.
- INSTALL FILTER FENCE PER CITY OF REDMOND STANDARD DETAIL 502 FILTER FABRIC FENCE.
- APPROXIMATE LOCATION FOR MATERIALS STAGING. EXISTING SPOILS PILE TO BE REMOVED PRIOR TO STAGING.
- INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE PER CITY OF REDMOND STANDARD DETAIL 503.
- PROTECT EXISTING UTILITY, STRUCTURE, OR WALL. PROTECT CURB, GUTTER, AND SIDEWALK. RESTORE ANY PANELS CRACKED OR DAMAGED PER CITY OF REDMOND STANDARD DETAIL 303. STREET LIGHTS MUST REMAIN IN OPERATION AT ALL TIMES OR A TEMPORARY LIGHTING PLAN PROPOSED.
- DREDGE POOL AREA AS PART OF EROSION CONTROL MEASURES AS DIRECTED IN THE FIELD BY CITY OF REDMOND REPRESENTATIVE.

FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 RAVINE\3 CADD\SHEETS\10-120043-15-06_TESC.DWG
 PLOT TIME: 8/16/2016 9:02 AM
 USER NAME: TRAVIS FRANKLIN

DESIGNED BY
AGR

DRAWN BY
TNF

CHECKED BY
LCR



OSBORN CONSULTING, INC.

1800 112th Ave. NE, Suite 220E Ph (425) 451-4009
 Bellevue, WA. 98004 Fax (425) 451-4901

NO.	DATE	REVISION	BY

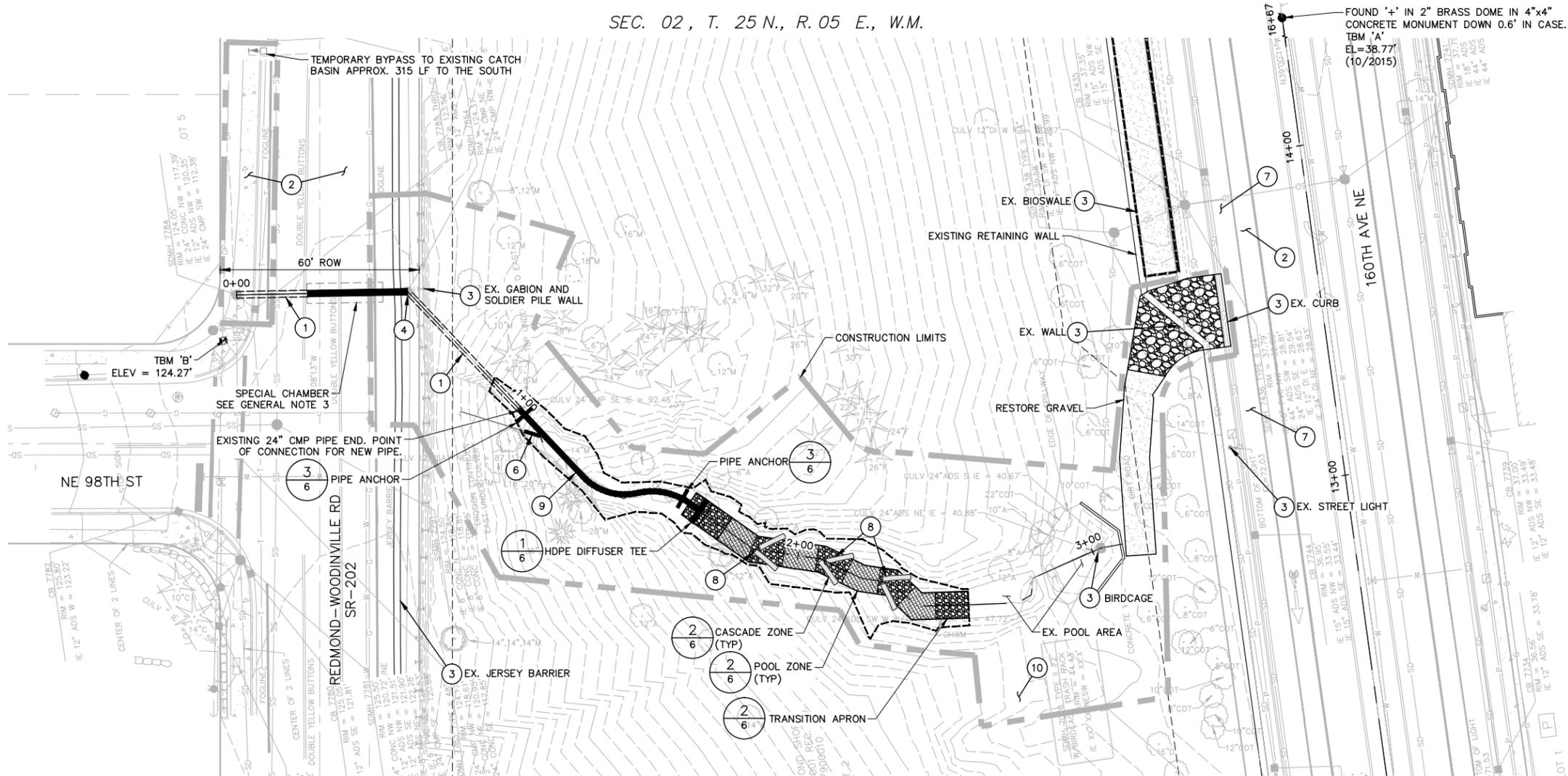


RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST
 CITY OF REDMOND
 TEMPORARY EROSION AND SEDIMENT CONTROL PLAN (TESC)

JOB# / DWG	15-06	DATE	JULY 2016
SCALE	H: 1"=20' V: 1"=20'	SHEET	4 of 9



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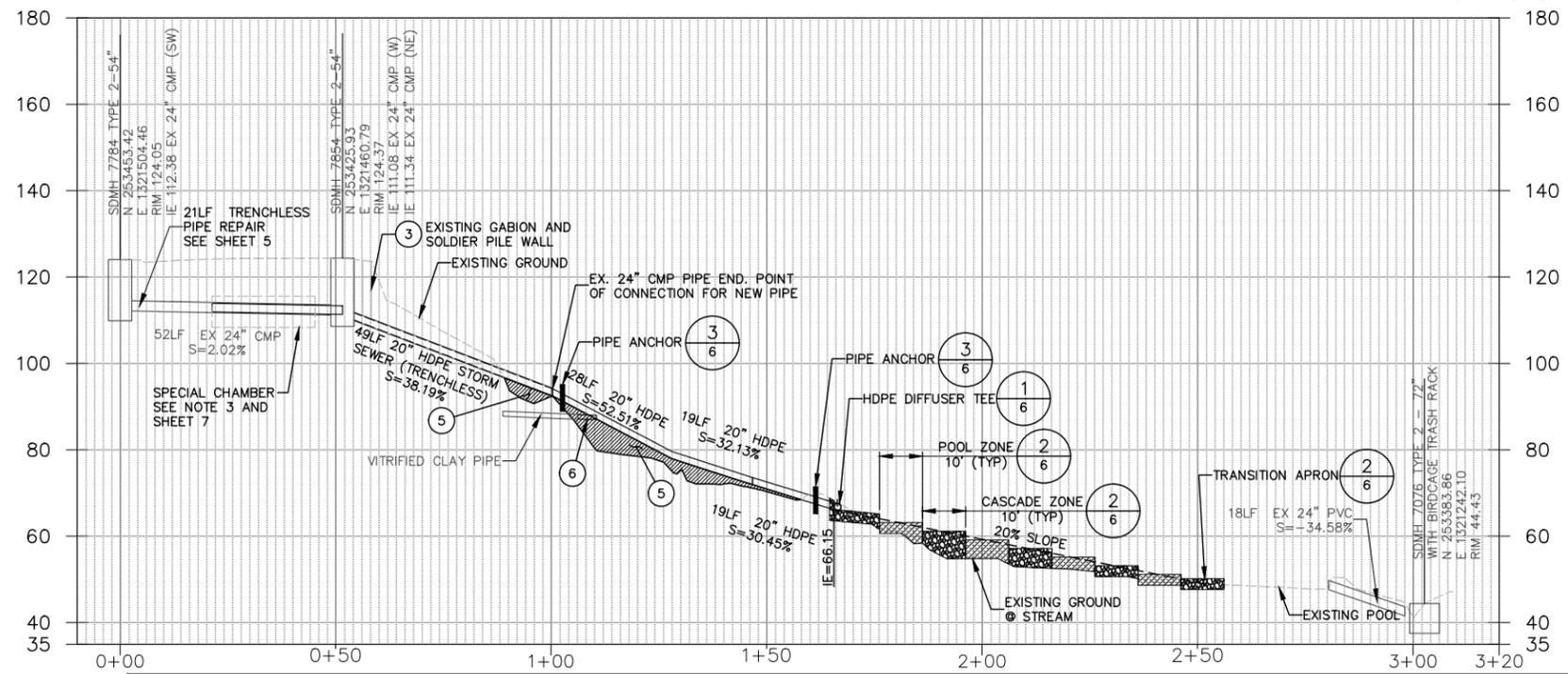


GENERAL NOTES:

- REFER TO THE TECHNICAL SPECIFICATIONS FOR LEGAL DESCRIPTIONS, EASEMENT EXHIBITS, AND CCTV REPORTS.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL THE WORK ACCESS PLAN. THE WORK ACCESS PLAN SHALL ADDRESS METHODS TO COMPLETE THE TRENCHLESS PIPE REPAIR AND REPLACEMENT WORK ON REDMOND-WOODINVILLE ROAD, THE TRENCHLESS PIPE REPAIR AND REPLACEMENT WORK ON THE STEEP SLOPE, AND THE ROUGHENED CHANNEL. THE WORK ACCESS PLAN SHALL INCLUDE THE BYPASS AND DEWATERING PLAN THAT ADDRESSES METHODS OF CONTROLLING WATER DURING CONSTRUCTION AND THE TRAFFIC CONTROL PLAN. ALL WORK REQUIRED TO COMPLETE THE PIPE REPLACEMENT AND REPAIRS BELOW REDMOND-WOODINVILLE ROAD SHALL BE LIMITED TO THE SHOULDER OF THE ROAD.
- LOCATE EXISTING SPECIAL CHAMBER AND VERIFY THAT STORM PIPING MAY BE INSTALLED IN COMPLIANCE WITH ORIGINAL DESIGN AND INVERTS. SEE SHEET 7 FOR DESIGN.
- REMOVE AND SALVAGE OR DISPOSE EXISTING STORM DRAIN PIPE WHERE NEW PIPE IS PROPOSED. WITH ENGINEER'S APPROVAL, CONTRACTOR MAY ABANDON THE EXISTING COLLAPSED PIPE WITHIN THE SPECIAL CHAMBER PROVIDED THAT THE EXISTING ALIGNMENT AND INVERTS REMAIN APPROXIMATELY THE SAME. BRACING BLOCKS SHALL BE USED TO PREVENT FLOTATION OR DISPLACEMENT.

CONSTRUCTION NOTES:

- ALL PIPE REPAIR AND REPLACEMENT WORK SHALL BE COMPLETED USING TRENCHLESS METHOD(S) PER THE WORK ACCESS PLAN PROVIDED BY THE CONTRACTOR.
- PROVIDE CONTINUOUS PEDESTRIAN, BIKE LANE, AND TRAFFIC ACCESS ALONG CORRIDOR. BIKE LANE, SIDEWALK, AND ONE TRAVEL LANE IN EACH DIRECTION SHALL REMAIN OPEN AT ALL TIMES.
- PROTECT EXISTING UTILITY, STRUCTURE, OR WALL. PROTECT CURB, GUTTER, AND SIDEWALK. RESTORE ANY PANELS CRACKED OR DAMAGED PER CITY OF REDMOND STANDARD DETAIL 303. STREET LIGHTS MUST REMAIN IN OPERATION AT ALL TIMES OR A TEMPORARY LIGHTING PLAN PROPOSED.
- CONNECT TO EXISTING STRUCTURE.
- COMPACT SUB-ANGULAR ROCK BACKFILL PER GEOTECHNICAL REPORT RECOMMENDATIONS.
- LOCATE AND EXTEND THE EXISTING VITRIFIED CLAY PIPE WITH AND DISCHARGE TO THE APPROXIMATE LOCATION SHOWN. PIPE TO DAYLIGHT ABOVE THE ANGULAR BACKFILL.
- TEMPORARILY RESTRICT STREET PARKING IN LOCATION SHOWN.
- PLACE REMOVED TREES.
- ADDITIONAL PIPE ANCHOR LOCATIONS PER MANUFACTURER RECOMMENDATIONS.
- SPOILS TO BE REMOVED PRIOR TO SETTING UP STAGING AREA.



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PLOT TIME: 8/16/2016 9:02 AM
USER NAME: TRAVIS FRANKLIN

DESIGNED BY AGR
DRAWN BY TNF
CHECKED BY LCR

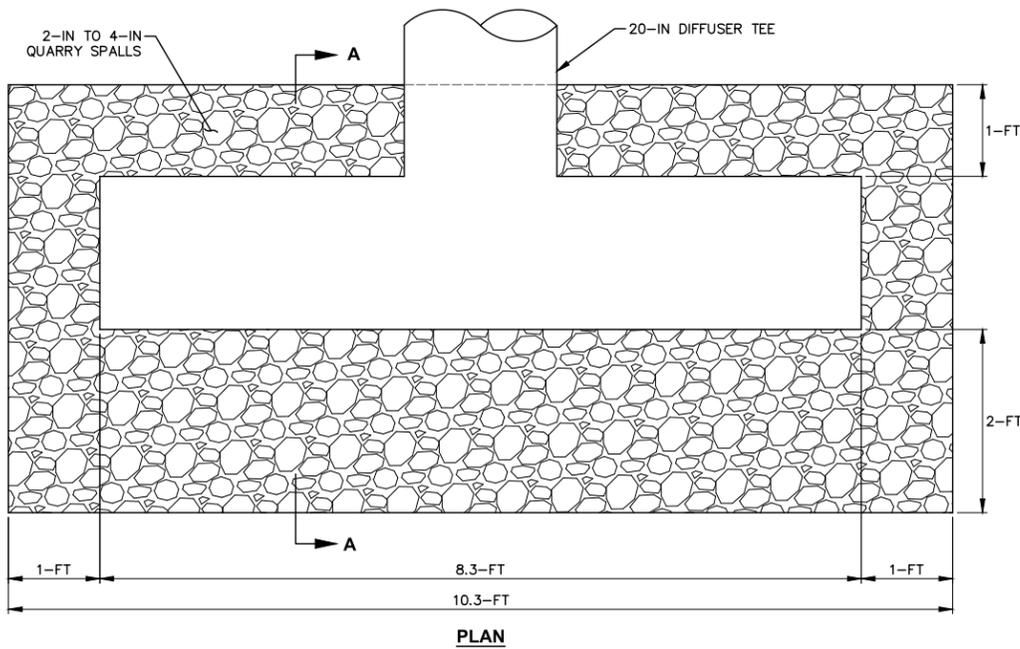
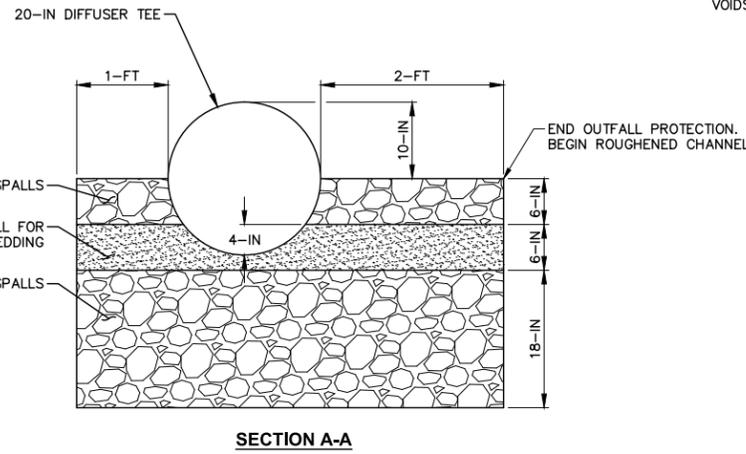
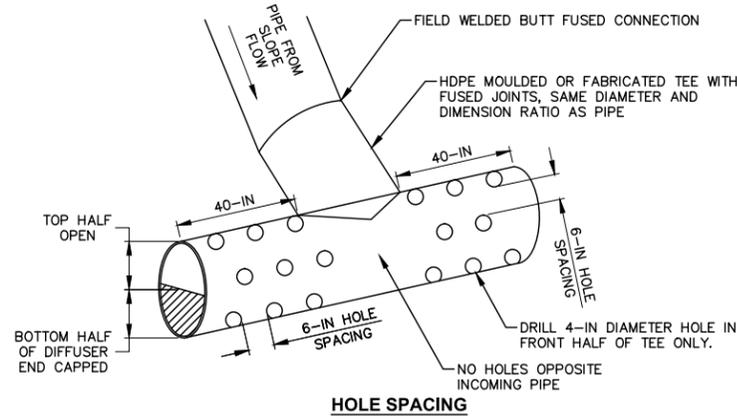
OSBORN CONSULTING, INC.
1800 112th Ave. NE, Suite 220E Ph (425) 451-4009
Bellevue, WA. 98004 Fax (425) 451-4901

NO.	DATE	REVISION	BY

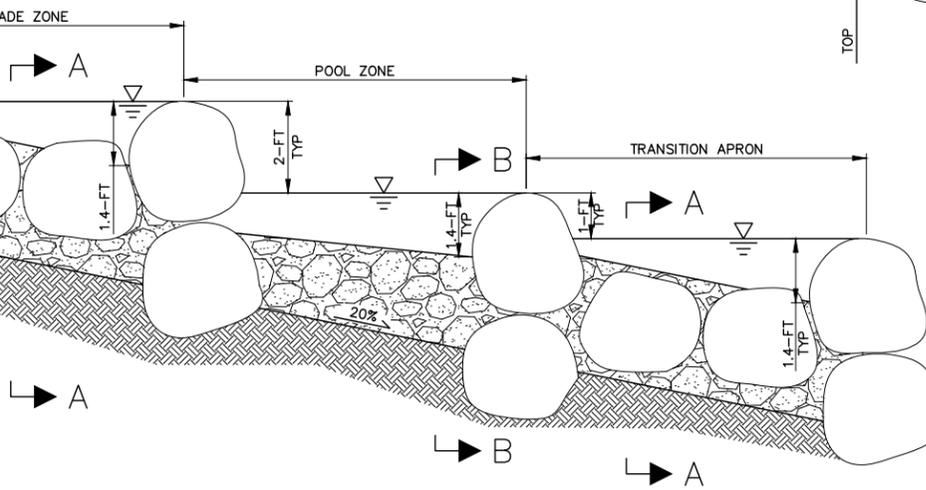
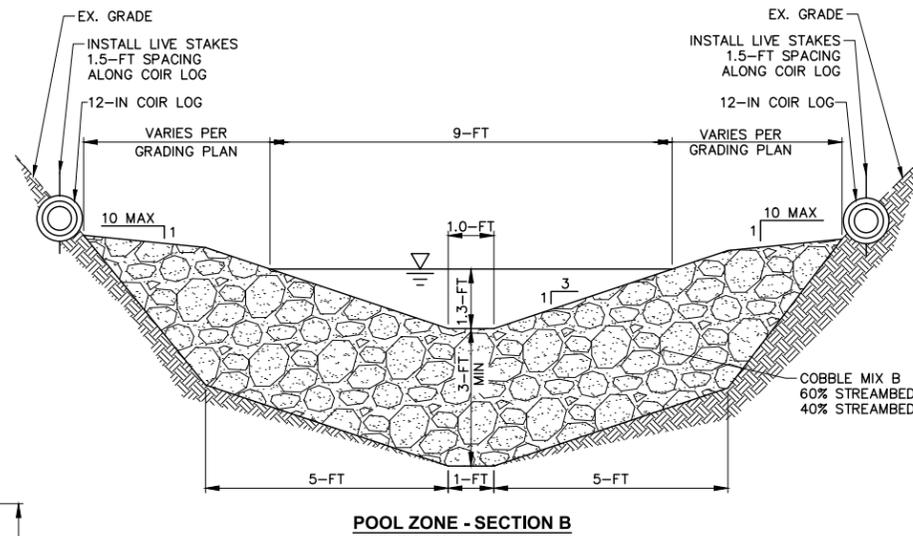
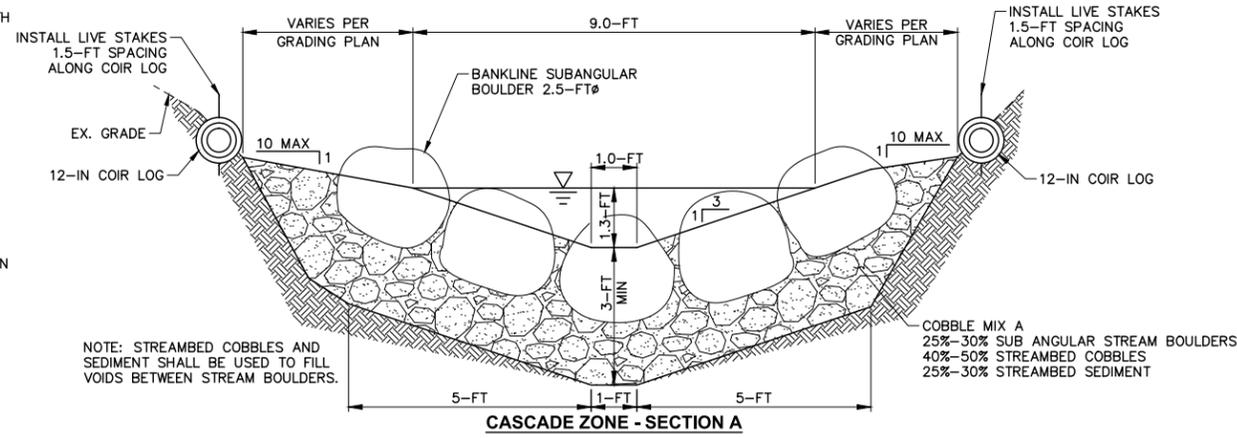


RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST
CITY OF REDMOND
OVERALL SITE PLAN AND PROFILE

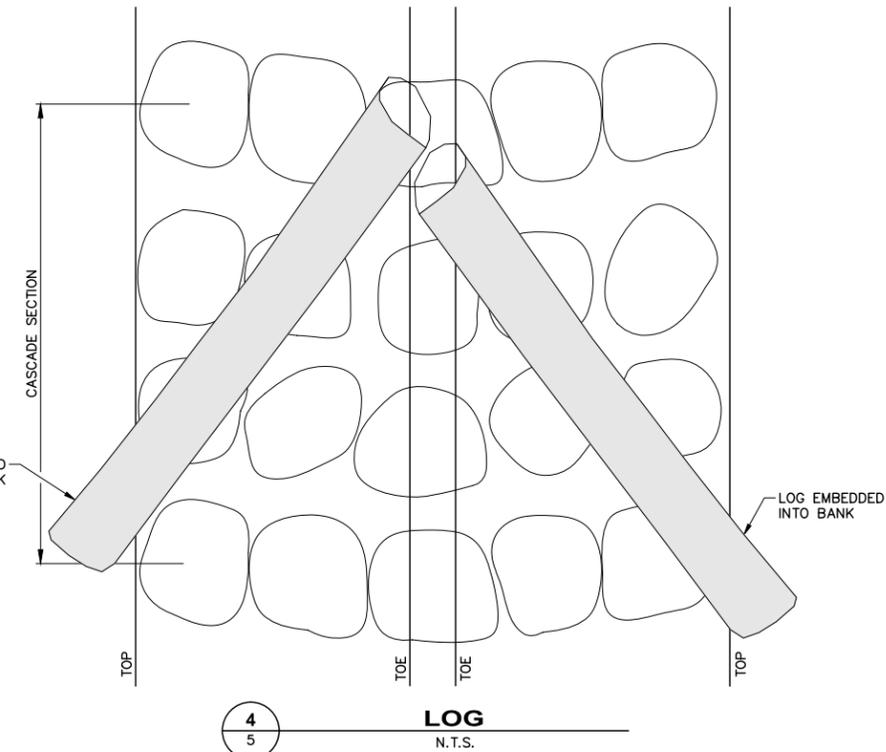
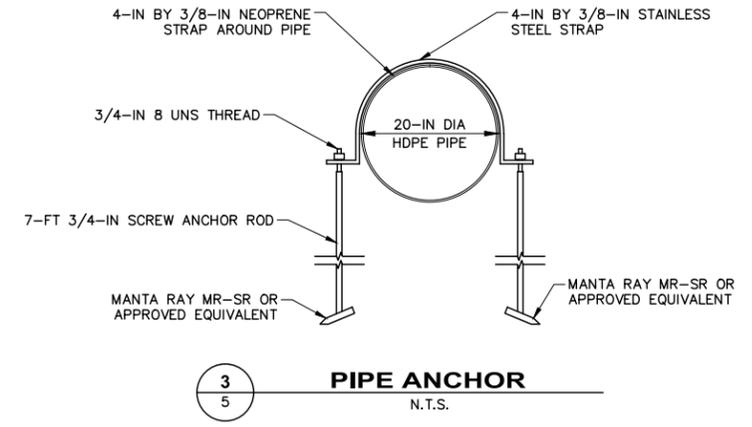
JOB# / DWG	15-06	DATE	JULY 2016
SCALE	H: 1"=20' V: 1"=20'	SHEET	5 of 9



1
5
DIFFUSER TEE
N.T.S.



2
5
ROUGHENED CHANNEL DETAIL
N.T.S.



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FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 RAVINE\3 CADD\SHEETS\10-120043-15-06-DTL.DWG
 PLOT TIME: 8/16/2016 9:02 AM
 USER NAME: TRAVIS FRANKLIN

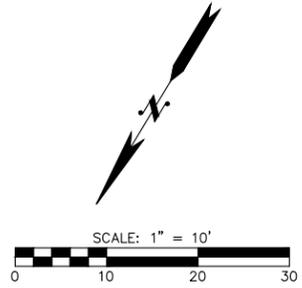
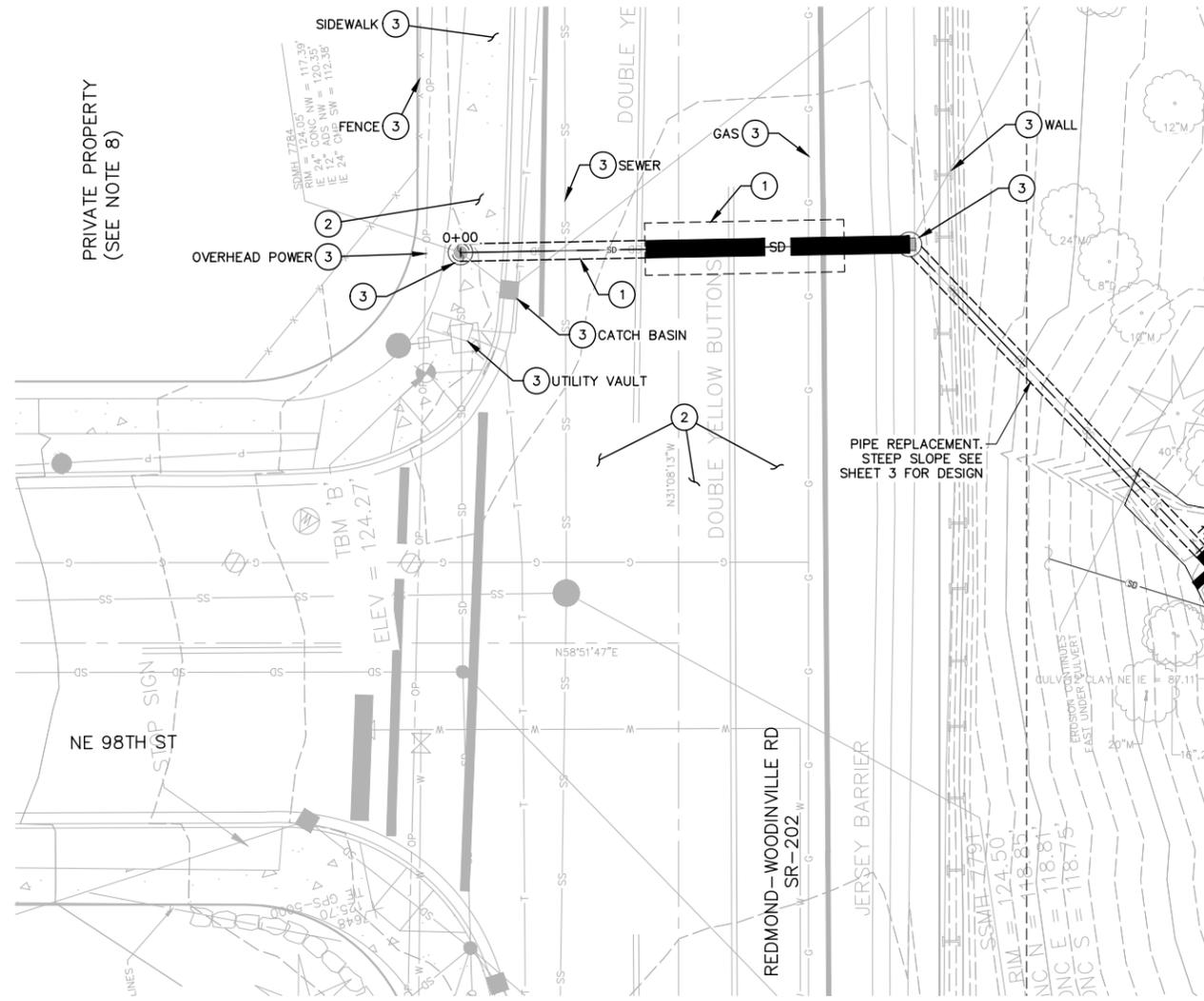
DESIGNED BY: AGR
 DRAWN BY: TNF
 CHECKED BY: LCR
OSBORN CONSULTING INCORPORATED
OSBORN CONSULTING, INC.
 1800 112th Ave. NE, Suite 220E Ph (425) 451-4009
 Bellevue, WA. 98004 Fax (425) 451-4901

NO.	DATE	REVISION	BY



RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST
 CITY OF REDMOND
 STREAM SECTION AND DETAILS

JOB# / DWG	15-06	DATE	JULY 2016
SCALE	H: 1"=20' V: N/A	SHEET	6 of 9

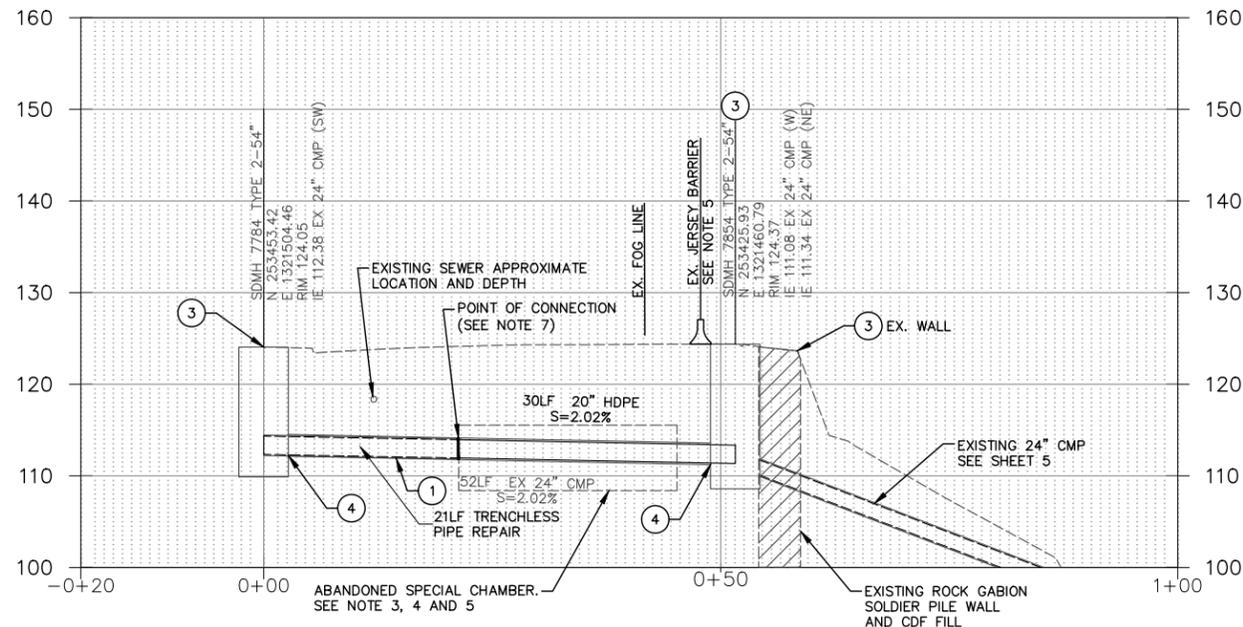


GENERAL NOTES:

- REFER TO THE TECHNICAL SPECIFICATIONS FOR LEGAL DESCRIPTIONS, EASEMENT EXHIBITS, AND CCTV REPORTS.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL THE WORK ACCESS PLAN. THE WORK ACCESS PLAN SHALL ADDRESS METHODS TO COMPLETE THE TRENCHLESS PIPE REPAIR AND REPLACEMENT WORK ON REDMOND-WOODINVILLE ROAD. THE TRENCHLESS PIPE REPAIR AND REPLACEMENT WORK ON THE STEEP SLOPE, AND THE ROUGHENED CHANNEL. THE WORK ACCESS PLAN SHALL INCLUDE THE BYPASS AND DEWATERING PLAN THAT ADDRESSES METHODS OF CONTROLLING WATER DURING CONSTRUCTION AND THE TRAFFIC CONTROL PLAN. ALL WORK REQUIRED TO COMPLETE THE PIPE REPLACEMENT AND REPAIRS BELOW REDMOND-WOODINVILLE ROAD SHALL BE LIMITED TO THE SHOULDER OF THE ROAD.
- LOCATE EXISTING SPECIAL CHAMBER AND VERIFY THAT STORM PIPING MAY BE INSTALLED IN COMPLIANCE WITH ORIGINAL DESIGN AND INVERTS.
- REMOVE AND SALVAGE OR DISPOSE EXISTING STORM DRAIN PIPE WHERE NEW PIPE IS PROPOSED. WITH ENGINEER'S APPROVAL, CONTRACTOR MAY ABANDON THE EXISTING COLLAPSED PIPE WITHIN THE SPECIAL CHAMBER PROVIDED THAT THE EXISTING ALIGNMENT AND INVERTS REMAIN APPROXIMATELY THE SAME. BRACING BLOCKS SHALL BE USED TO PREVENT FLOTATION OR DISPLACEMENT DURING FILLING ACTIVITIES. FILL VOID IN SPECIAL CHAMBER WITH CDF.
- UPON COMPLETION OF PIPE INSTALLATION CONTRACTOR SHALL PROVIDE CCTV OF NEW PIPE TO ENGINEER. PRIOR TO AND AFTER FILLING ACTIVITIES TO CONFIRM PIPE ALIGNMENT AND WATER TIGHTNESS.
- ALL PIPE REPAIR AND REPLACEMENT WORK ON REDMOND-WOODINVILLE ROAD SHALL BE LIMITED TO THE SHOULDER OF THE ROAD. EXISTING CONCRETE BARRIER MAY BE RELOCATED TO THE SHOULDER LIMITS AS NEEDED FOR CONSTRUCTION AND STAGING.
- CONTRACTOR SHALL PROVIDE CONTINUOUS PIPE SIZE AND MATERIAL AT POINT OF CONNECTION.
- NO WORK SHALL BE PERFORMED ON PRIVATE PROPERTY.

CONSTRUCTION NOTES:

- ALL PIPE REPAIR AND REPLACEMENT WORK SHALL BE COMPLETED USING TRENCHLESS METHOD(S) PER THE WORK ACCESS PLAN PROVIDED BY THE CONTRACTOR.
- PROVIDE CONTINUOUS PEDESTRIAN, BIKE LANE, AND TRAFFIC ACCESS ALONG CORRIDOR.
- PROTECT EXISTING UTILITY, STRUCTURE, OR WALL.
- CONNECT TO EXISTING STRUCTURE.



Know what's below.
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PERMIT SUBMITTAL - NOT FOR CONSTRUCTION

FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 RAVINE\3 CADD\SHEETS\10-120043-15-06_SCPP.DWG
PLOT TIME: 8/16/2016 9:03 AM
USER NAME: TRAVIS FRANKLIN

DESIGNED BY: AGR
DRAWN BY: TNF
CHECKED BY: LCR

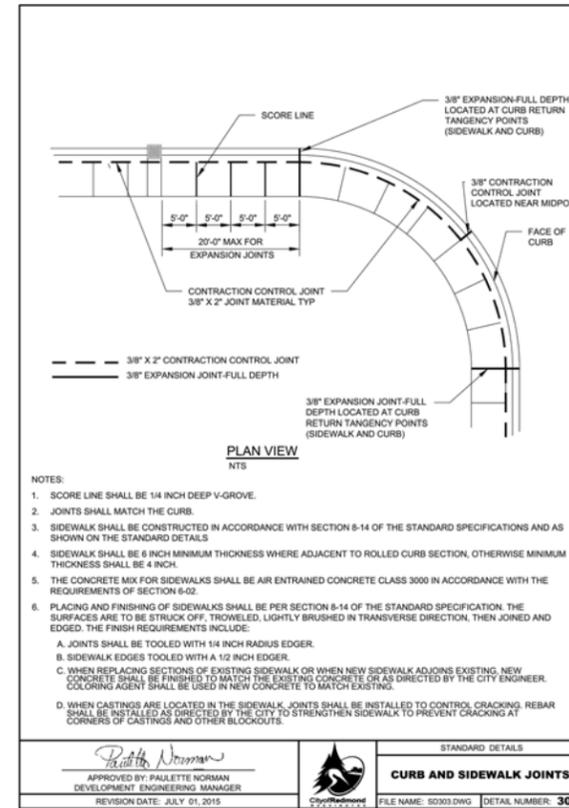
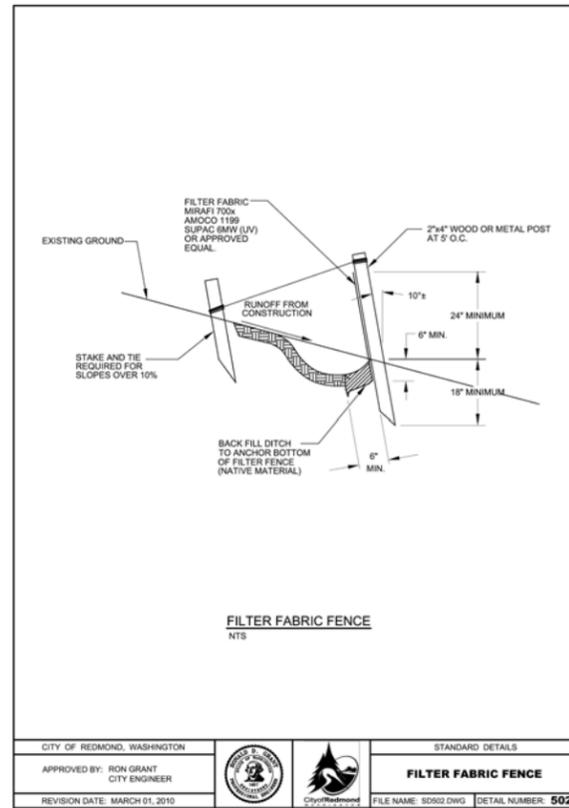
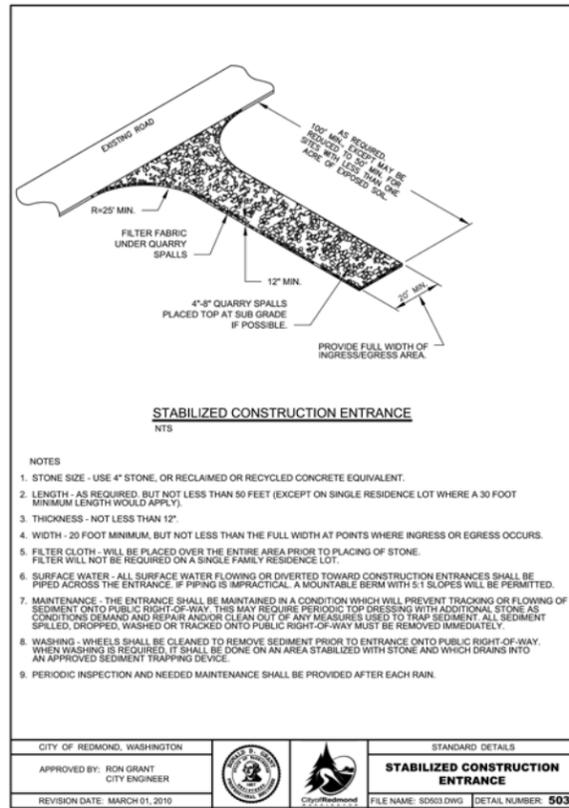
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RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST
CITY OF REDMOND
SPECIAL CHAMBER PLAN AND PROFILE

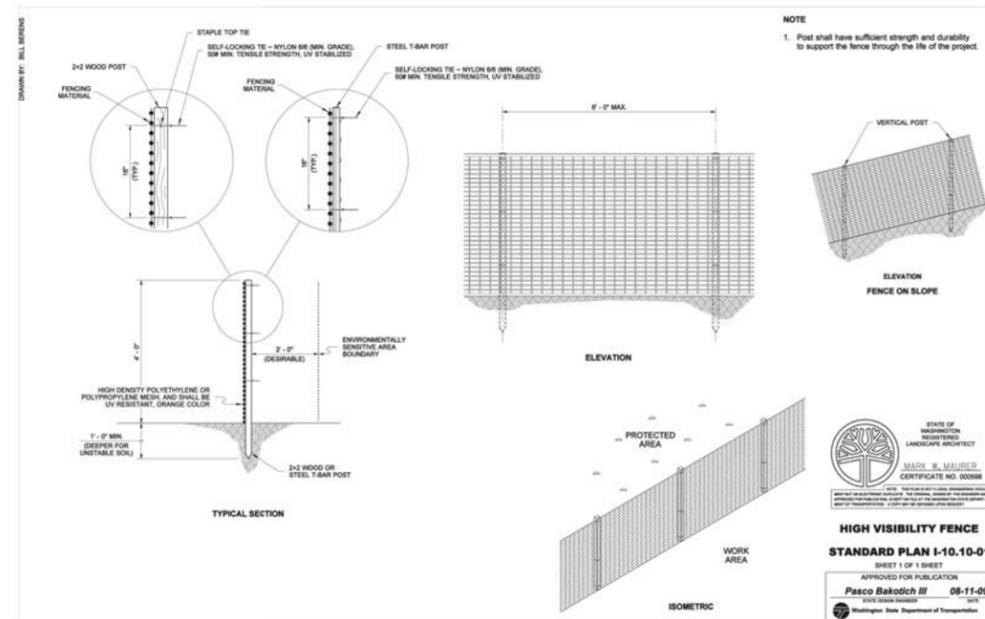
JOB# / DWG	15-06	DATE	JULY 2016
SCALE	H: 1"=10' V: 1"=10'	SHEET	7 of 9



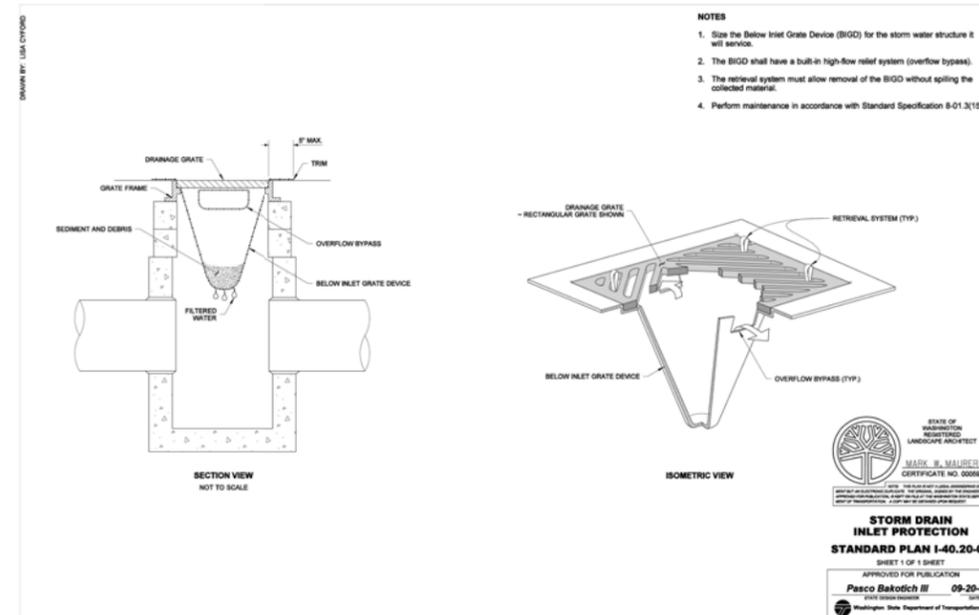
1
4
STABILIZED CONSTRUCTION ENTRANCE
N.T.S.

2
4
FILTER FABRIC FENCE
N.T.S.

5
4
CURB AND SIDEWALK JOINTS
N.T.S.

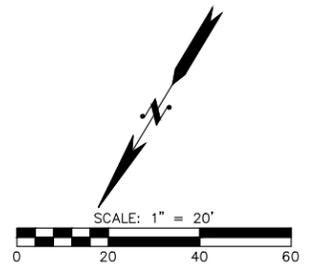
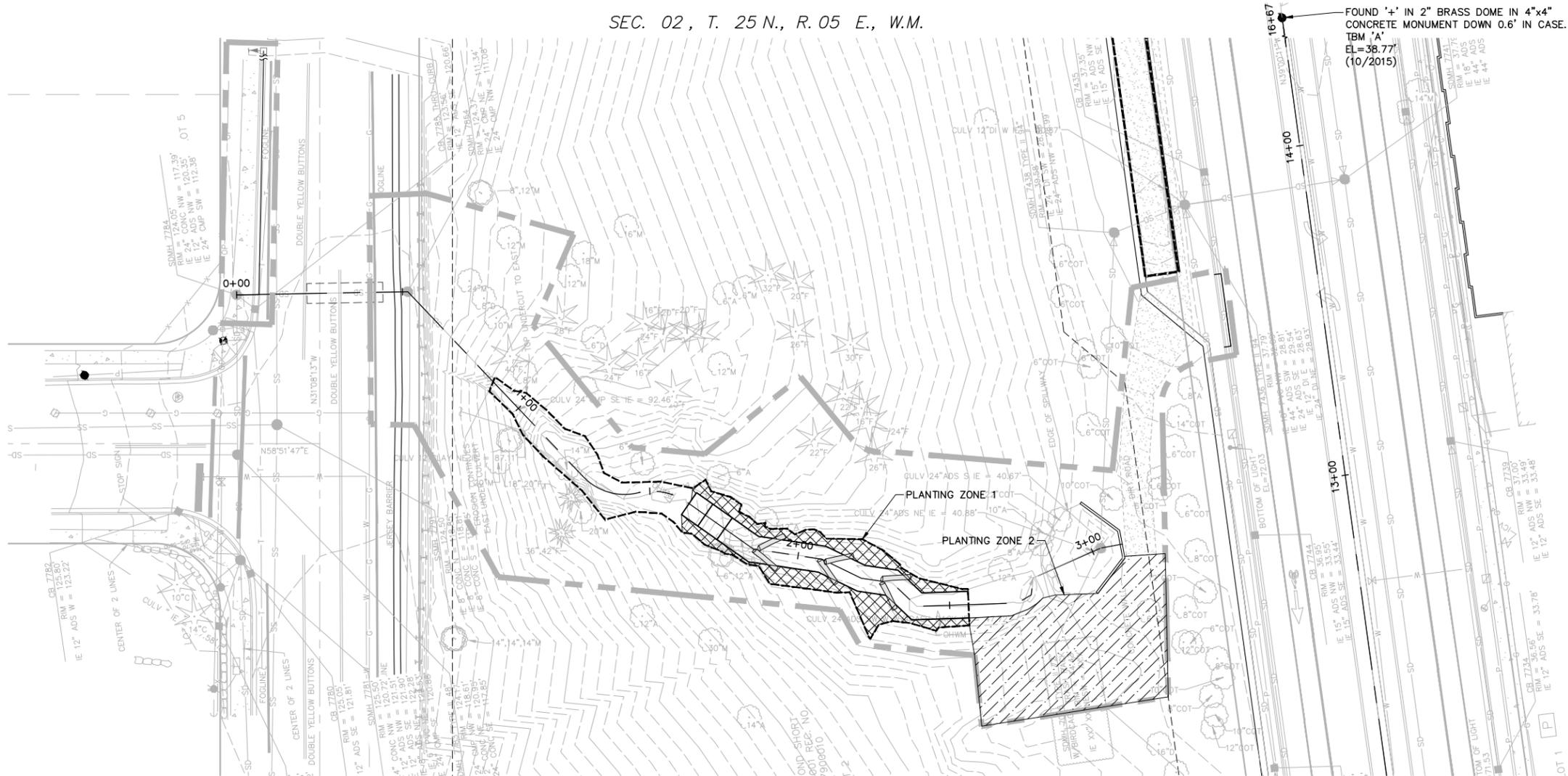


3
4
HIGH VISIBILITY FENCE
N.T.S.



4
4
STORM DRAIN INLET PROTECTION
N.T.S.

FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 RAVINE\3 CADD\SHEETS\10-120043-15-06-DTL.DWG
PLOT TIME: 8/16/2016 9:03 AM
USER NAME: TRAVIS FRANKLIN



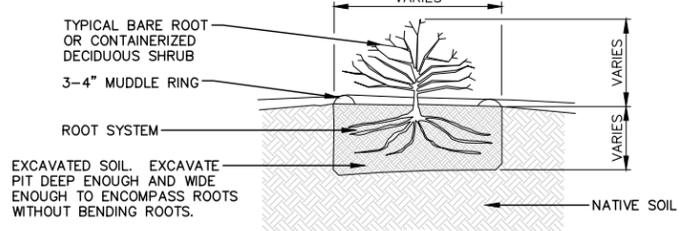
GENERAL NOTES:

1. PLANTS LOCATED ON PLAN ARE SCHEMATIC AND MAY NEED ADJUSTMENT TO MEET ACTUAL FIELD CONDITIONS. WHEN A CONFLICT WITH FIELD CONDITION IS APPARENT, CONSULT WITH THE BIOLOGIST.
2. REMOVE ENGLISH IVY, HIMALAYAN BLACKBERRY, YELLOW IRIS, HOLLY, AND OTHER NON-NATIVE VEGETATION FROM PLANTING ZONES.
3. PLANT SPECIES PER PLANTING SCHEDULE. OFFSETTING PLANTS FROM EXISTING VEGETATION IS APPROPRIATE PRIORITIZING IN AREAS THAT HAD INVASIVE REMOVED.

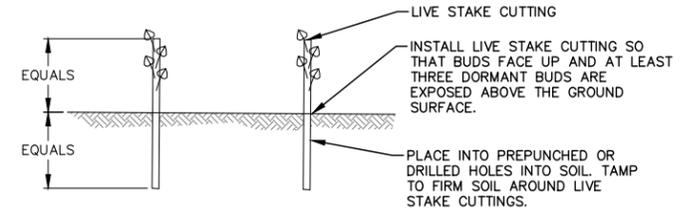
- ZONE 1
AREA: 675 SQ FT
- ZONE 2
AREA: 2,120 SQ FT

PLANTING MATERIAL LIST

PLANT	SCIENTIFIC NAME	MINIMUM HEIGHT	SPACING	ZONE	
				1	2
TREES					
RED ALDER	ALNUS RUBRA	18"	4'		11
DOUGLAS FIR	PSEUDOTSUGA MENZIESII	18"	4'		11
WESTERN RED CEDAR	THUJA PLICATA	18"	4'		11
PACIFIC WILLOW	SALIX LUCIDA	36"	4'	6	
SCOULER'S WILLOW	SALIX SCOULERIANA	36"	4'	5	
TOTAL				11	33
SHRUBS					
BLACK TWINBERRY	LONICERA INVOLUCRATA	12"	4'	11	
SALMONBERRY	RUBUS SPECTABILIS	12"	4'	11	
REDOSIER DOGWOOD	CORNUS SERICEA	12"	4'	11	
SNOWBERRY	SYMPHORICARPOS ALBUS	12"	4'		25
INDIAN PLUM	OEMLERIA CERASIFORMIS	12"	4'		25
VINE MAPLE	ACER CIRCINATUM	12"	4'		25
SWORD FERN	POLYSTICHUM MUNITUM	12"	4'		25
TOTAL				33	100
TOTAL				44	133

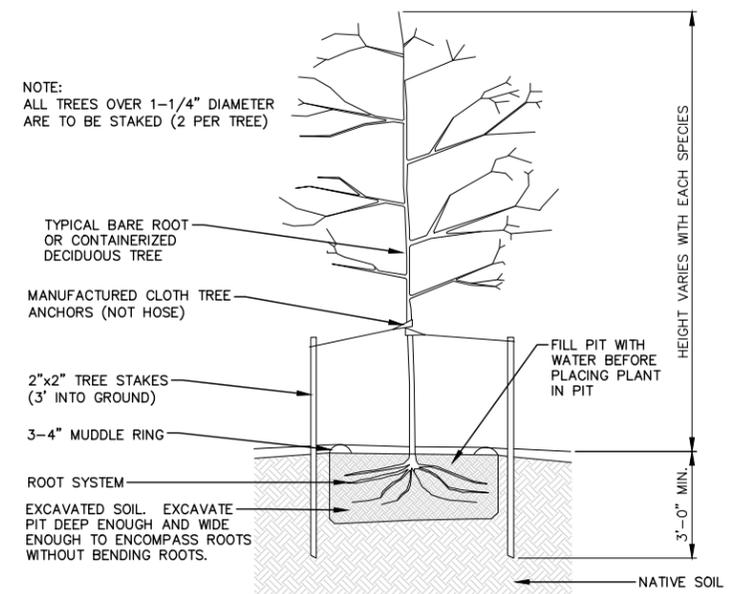


BARE ROOT OR CONTAINERIZED SHRUB DETAIL
N.T.S.

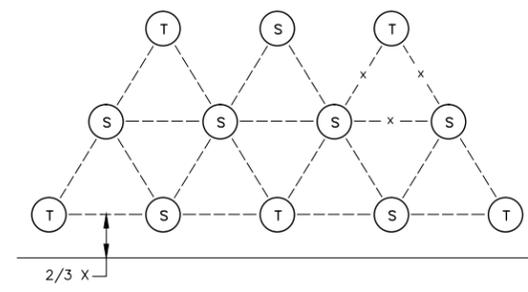


LIVE STAKE INSTALLATION
N.T.S.

NOTE:
ALL TREES OVER 1-1/4" DIAMETER ARE TO BE STAKED (2 PER TREE)



BARE ROOT OR CONTAINERIZED TREE DETAIL
N.T.S.



NOTE:
GROUP LIKE SHRUBS IN GROUPS OF 3 TO 5. TREES SHOULD NOT BE PLACED NEXT TO EACH OTHER.

TYPICAL PLANT SPACING

X = PLANT SPACING (SEE PLANTING PLAN)
S = SHRUB
T = TREE

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FILE NAME: P:\10-120043 REDMOND ON-CALL 2013-2015\TASK ORDER #15-06 9800 RAVINE\3 CADD\SHEETS\10-120043-15-06_PLNT.DWG
PLOT TIME: 8/16/2016 9:04 AM
USER NAME: TRAVIS FRANKLIN

DESIGNED BY AGR
DRAWN BY TNF
CHECKED BY LCR

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RED-WOOD RD CHANNEL STABILIZATION AND CULVERT REPAIR AT NE 98TH ST
CITY OF REDMOND
PLANTING PLAN AND DETAILS

JOB# / DWG	15-06	DATE	JULY 2016
SCALE	H: 1"=20' V: 1"=20'	SHEET	9 of 9