DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No. 14-126007-LO

Project Name/Address: Kelsey Creek Sewer Stablization

Planner: Heidi M. Bedwell

Phone Number: 425-452-4862/hbedwell@bellevuewa.gov

Minimum Comment Period: May 1, 2014

Materials included in this Notice:

- ☒ Blue Bulletin
- ☒ Checklist
- ☒ Vicinity Map
- ☐ □□□Plans
- ☐ □□□Other:

OTHERS TO RECEIVE THIS DOCUMENT:

- ☒ State Department of Fish and Wildlife / Sterwart.Reinbold@dfw.gov; Christa.Heller@dfw.wa.gov;
- ☒ State Department of Ecology, Shoreline Planner N.W. Region / Jobu461@ecy.wa.gov; sepaunit@ecy.wa.gov
- ☐ Army Corps of Engineers Susan.M.Powell@nws02.usace.army.mil
- ☐ Attorney General ecyolyef@atg.wa.gov
- ☒ Muckleshoot Indian Tribe Karen.Walter@muckleshoot.nsn.us; Fisheries.fileroom@muckleshoot.nsn.us

Environmental Checklist
Reviewed by Heidi M. Bedwell
(HMB) 4/08/2014

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

Kelsey Creek Sewer Stabilization

2. Name of applicant:

City of Bellevue, Utilities Engineering Department

3. Address and phone number of applicant and contact person:

Bruce Jensen
City of Bellevue, Utilities Engineering Department
450 110th Ave. NE / P.O. Box 90012
Bellevue, WA 98009
(425) 452-6932
BJensen@bellevuewa.gov

4. Date checklist prepared:

January 2014

5. Agency requesting checklist:

City of Bellevue

6. Proposed timing or schedule (including phasing, if applicable):

Summer 2014. Construction will take up to 4 weeks.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

There are no plans for further activity related to this proposal.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

JARPA (Northwest Environmental Consulting, 2014)
Biological Evaluation for Kelsey Creek Sewer Stabilization ((Northwest Environmental Consulting, 2014)
Critical Areas Report for Kelsey Creek Sewer Stabilization ((Northwest Environmental Consulting, 2014)

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no other applications pending that directly affect the subject property.

10. List any government approvals or permits that will be needed for your proposal, if known.

Hydraulic Project Approval, Washington Dept. of Fish and Wildlife
Section 404 permit, U.S. Army Corps of Engineers
City of Bellevue, Critical Areas Permit
City of Bellevue, Grading Permit

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11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The City of Bellevue is proposing to stabilize streambank erosion that has taken place along Kelsey Creek. The erosion has caused failure of a sanitary side sewer and streambank, and has jeopardized an existing manhole structure on the bank of Kelsey Creek. (See Photo section attached) In addition, downcutting of the stream has exposed the top of the existing sewer line in the bed of the stream. Unabated streambank erosion and downcutting have the potential to destabilize these sewer facilities through ongoing bank erosion and scour.

The project proposes to stabilize the eroding bank by placing toe logs and root wads along approximately 50 feet of the left bank of the stream along the OHWM. A coir log will be placed on top of the toe logs and planted with live stakes. Erosion control blankets will be used to stabilize the streambank and excavated areas of the stream. A roughened channel will be installed, using embedded boulders, to reduce erosional downcutting and to prevent future exposure of the sewer line by maintaining the original stream contours present when the sewer was installed. River weights (used to counteract the buoyancy of the pipe) will be used on the sewer line to hold it in place. Exposed areas will be planted with native shrubs or backfilled with stream gravels. Temporary construction access to the work site will be removed and restored following construction.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The project is located in King County, on land privately owned by the Bellevue Christian Reformed Church at 1221 148th Ave NE in the city of Bellevue. The site is in the southeast corner of Section 27, Township 25N, Range 5E. A vicinity map is attached as Sheet 1.

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B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other .

The site is a wooded ravine. The ravine slopes range from 35 to 60 percent.

b. What is the steepest slope on the site (approximate percent slope)?

60 percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

According to the National Resource Conservation Service (NRCS) mapping, the soil is Alderwood Gravelly Sandy Loam.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Channel erosion has exposed a sewer pipe adjacent to the creek, and further erosion may undermine the sewer line to the point of failure. The project purpose is to stabilize the channel and prevent further damage to the sewer line.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Approximately 45 cubic yards will be excavated at the toe of the slope to install the toe logs and rootwads. The same material will be used to backfill along the toe of the slope around the toe logs and rootwads or removed from the site. Approximately 94 cubic yards of stream gravel will be used to replace eroded material. The river weights will require about eight cubic yards of material excavation, and will require an additional three cubic yards of material to fill in around the sanitary sewer. The source of fill will be washed stream gravels from a licensed commercial source.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur during construction when soils are exposed during a rain event before the area is stabilized.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

None of the site will be covered with impervious surfaces.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The project is an erosion control project and should prevent future erosion of the stream bank. During construction erosion will be prevented by diverting the stream channel so all work is completed in the dry. All access areas will be stabilized during use and restored after completion of the project.

Erosion control per BCC 23.76

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2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Normal emissions from construction equipment are anticipated. If dust is an issue during construction, BMPs will be used to suppress the dust to reduce air born emissions.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

There are no off-site sources of emissions or odor that could affect this proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Machines will not be left idling when not in use. If dust is observed on the construction access road, water will be sprayed to keep it settled.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Kelsey Creek is an 8.6-mile-long year-round stream. It drains the Lake Hills Greenbelt, flowing into Mercer Slough, which empties into Lake Washington.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The project will require work in the stream channel and the adjacent stream bank. The creek will be diverted past the work area as shown in the attached drawings.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Approximately 45 cubic yards will be excavated at the toe of the slope to install the toe logs and rootwads. The same material will be used to backfill along the toe of the slope around the toe logs and rootwads or removed from the site. Approximately 94 cubic yards of stream gravel will be used to replace eroded material. The river weights will require about eight cubic yards of material excavation, and will require an additional three cubic yards of material to fill in around the sanitary sewer. The source of fill will be washed stream gravels from a licensed commercial source.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

The creek will be diverted during construction and restored to the normal channel after work is completed. Work will be done during the dry season when creek flows are at lower summer flows.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

According to the City of Bellevue's FEMA map, all proposed work within the stream lies within the 100-year floodplain of Kelsey Creek.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No waste materials will be discharged to surface waters. The project's primary purpose is to protect existing sewer infrastructure and prevent the release of waste into Kelsey Creek.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Ground water will not be discharged, nor will water be discharged to ground water.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The project will not affect stormwater flows. No new impervious surface will be created from the project.

2) Could waste materials enter ground or surface waters? If so, generally describe.

There is no potential for waste materials to enter ground or surface waters.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

TESC plans are shown in the attached drawings. Flow will not be restored to the channel until the channel is stable.

Impacts will be minimized per BCC 23.76

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4. Plants

a. Check or circle types of vegetation found on the site:

- X deciduous tree: alder, maple, aspen, other
- X evergreen tree: fir, cedar, pine, other
- X shrubs
- X grass (zone 3 construction access)
- pasture
- crop or grain
- wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- water plants: water lily, eelgrass, milfoil, other
- other types of vegetation

The property is in a wooded residential area. Riparian vegetation consists of deciduous and evergreen trees dominated by alder and big leaf maple. A shrub understory consists of salmonberry, sword fern, Himalayan blackberry, and English Ivy.

b. What kind and amount of vegetation will be removed or altered?

Vegetation disturbance will be minimal. Some riparian shrubs to access the stream and lawn between the Bellevue Christian Reformed Church and the riparian corridor will be removed in the temporary construction access corridor.

c. List threatened or endangered species known to be on or near the site.

The Washington DNR Natural Heritage Program database was consulted and no rare plant species were found to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

All disturbed upland riparian areas will be restored after construction with native trees and shrubs as shown in the attached drawings. The temporary access to the riparian corridor across existing lawn will be hydroseeded.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- X birds: hawk, heron, eagle, songbirds, other:
- X mammals: deer, bear, elk, beaver, other (raccoons):
- X fish: bass, salmon, trout, herring, shellfish, other:

Chinook, coho and sockeye salmon are present in Kelsey Creek, as well as resident trout, sculpins, lampreys and suckers.

b. List any threatened or endangered species known to be on or near the site.

Puget Sound Chinook salmon

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c. Is the site part of a migration route? If so, explain.

Kelsey Creek is home to several anadramous fish species. The site is also part of the Pacific Flyway.

d. Proposed measures to preserve or enhance wildlife, if any:

The project will be completed during the allowable inwater work period and completed in the dry. The work area will be screened for fish before dewatering to prevent stranding. The design uses fish friendly engineering to stabilize the streambanks while creating aquatic habitat features and maintains fish passage through the site. All disturbed areas will restored, and native trees and shrubs will be planted in the ravine.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The completed project will not use energy.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project will not affect potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

No additional energy needs are anticipated; therefore no control measures are proposed.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

The project purpose is to prevent the chances of future releases of raw sewage into Kelsey Creek. No environmental health hazards are expected to occur because of the project. Spills from construction equipment could occur during construction. A spill kit will be on site to contain and clean up any spills that might occur.

1) Describe special emergency services that might be required.

Emergency spill containment will be required. Primary containment equipment will be available on the site.

2) Proposed measures to reduce or control environmental health hazards, if any:

Hazmat emergency numbers will be kept on site during construction. Primary spill containment gear will be available on site.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The area is residential and there is minor traffic noise. This noise will not affect the proposal.

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2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction equipment may make noise between 7:00 AM and 7:00 PM, in accordance with the local noise ordinance, which permits construction noise until 10:00 PM on weekdays.

3) Proposed measures to reduce or control noise impacts, if any:

Noise will be limited to hours prescribed in the City of Bellevue Noise Ordinance.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The site is in a forested ravine behind the Bellevue Reformed Christian Church on the east side of the project site. Residential properties are present on the west side of the project site.

b. Has the site been used for agriculture? If so, describe.

The site has not been used for agriculture.

c. Describe any structures on the site.

There are two sanitary sewer manhole structures along the work site.

d. Will any structures be demolished? If so, what?

No structures will be demolished.

e. What is the current zoning classification of the site?

R-2.5

f. What is the current comprehensive plan designation of the site?

Single Family, Medium Density (SF-M).

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

The site is a fish-bearing stream and is designated a “Chinook distribution area” on the King County iMap interactive mapper. It is a critical area per the City of Bellevue.

i. Approximately how many people would reside or work in the completed project?

No one will reside or work in the completed project.

j. Approximately how many people would the completed project displace?

No one will be displaced by the completed project.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No displacement impacts are anticipated; therefore, no control measures are proposed.

Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project is a maintenance project for an existing utility. No changes to the existing or projected land use will occur because of the project.

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9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be provided.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated.

c. Proposed measures to reduce or control housing impacts, if any:

No housing impacts are anticipated; therefore, no control measures are proposed.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

No structures are proposed.

b. What views in the immediate vicinity would be altered or obstructed?

No views will be altered or obstructed.

c. Proposed measures to reduce or control aesthetic impacts, if any:

No aesthetic impacts are anticipated; therefore, no control measures are proposed.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The project will not produce light or glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No, the project will not produce light or glare.

c. What existing off-site sources of light or glare may affect your proposal?

There are no existing sources of light or glare that could affect this proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

No light and glare impacts are anticipated; therefore, no control measures are proposed.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The Claridge Neighborhood Park, Crossroads Shopping Center, and Bellevue Skate Park are within a mile of the site.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The project will not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No recreational impacts are anticipated; therefore, no control measures are proposed.

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13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

The nearest historical site is the Twin Valley Dairy in Kelsey Creek Park, nearly a mile from the site.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Not applicable.

c. Proposed measures to reduce or control impacts, if any:

There will be no impacts to historic or cultural resources; therefore, no control measures are proposed.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The site is served by 148th Street, which is a major arterial.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The site is served by transit. It is just a few blocks from the Sound Transit Rapid Ride B Line.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The project does not affect the church's parking lot.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Temporary construction access will be needed; no new roads or improvements will be needed.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project does not occur in the immediate vicinity of water, rail, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

The project will not generate any vehicular trips.

g. Proposed measures to reduce or control transportation impacts, if any:

No transportation impacts are anticipated; therefore, no control measures are proposed.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The project will not result in an increased need for public services.

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b. Proposed measures to reduce or control direct impacts on public services, if any.

No public service impacts are anticipated; therefore, no control measures are proposed.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

The neighborhood has access to all utilities; the sewer line extends under Kelsey Creek.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The project is a sanitary sewer maintenance project.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Date Submitted: 3/3/2014

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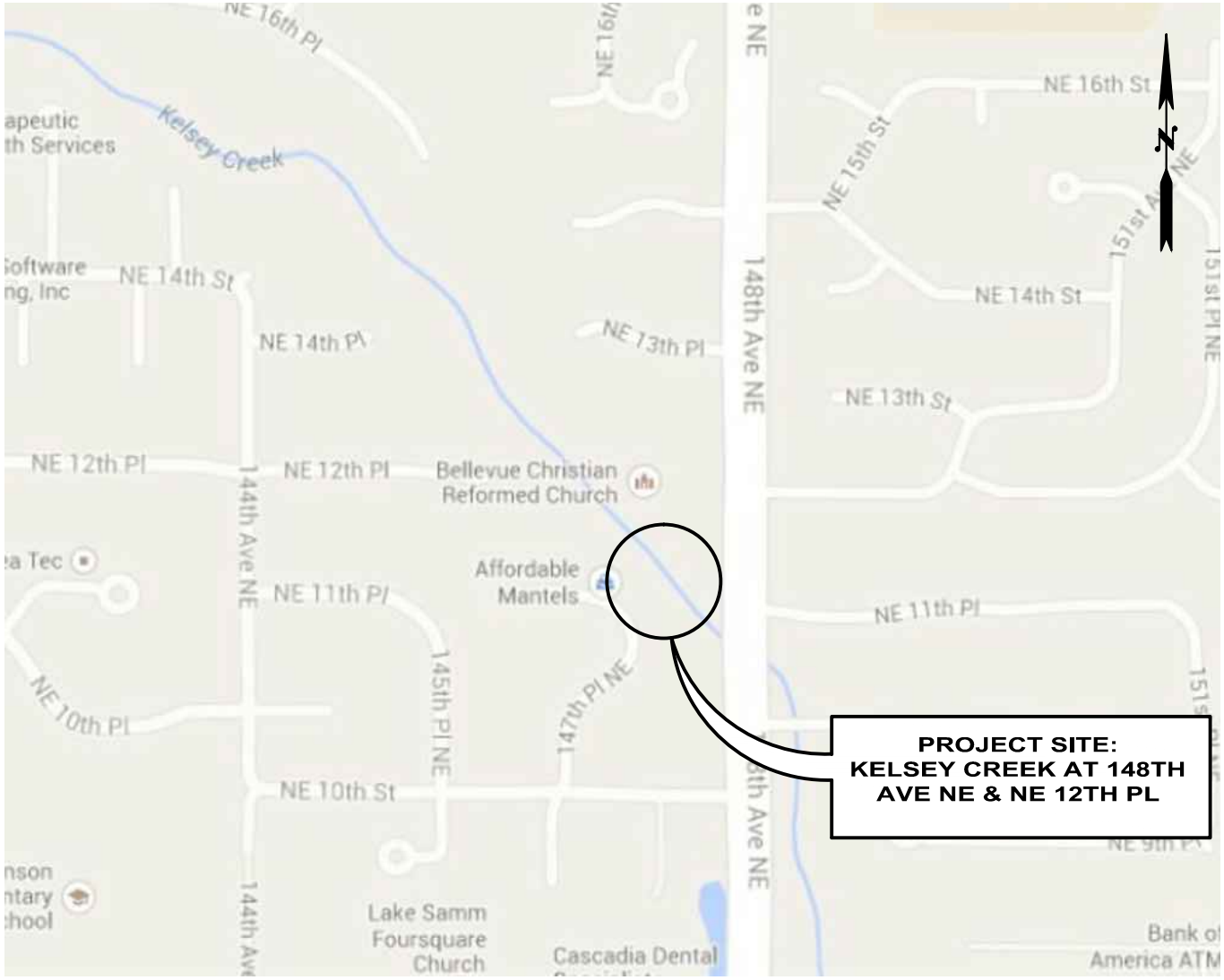
Figures

VICINITY MAP



SHEET INDEX

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5	PLAN AND PROFILE
6	TYPICAL SECTIONS AND DETAILS
7	PLANTING PLAN
8	PLANT LIST AND DETAILS

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

LAT/LONG: *47.62104N / -122.14484W*

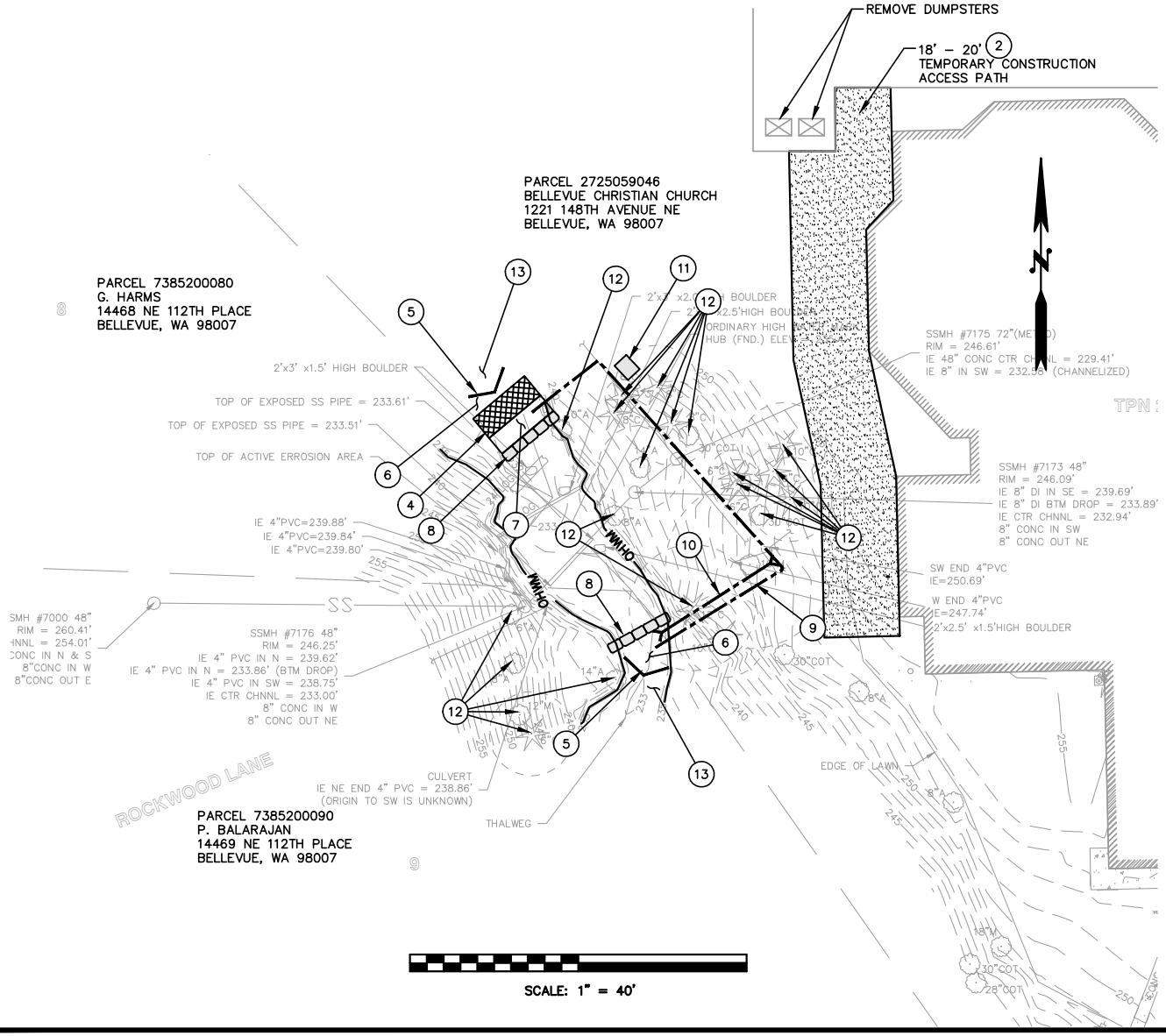
PAGE *1* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM

IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

BYPASS, TESC, AND FISH REMOVAL PLAN



GENERAL NOTES:

1. NATIVE WOODY DEBRIS SHALL BE PROTECTED IN PLACE OR RELOCATED ON-SITE.

(##) TEMPORARY STREAM BYPASS AND TESC KEYED NOTES:

1. MARK PROJECT LIMITS IN ACCORDANCE WITH ECOLOGY BMP C103: HIGH VISIBILITY PLASTIC FENCE. CLEAR AND GRUB, AS NEEDED, WITHIN PROJECT LIMITS.
2. VEHICLE ACCESS ONTO UNPAVED EASEMENT AREAS MUST BE APPROVED BY THE ENGINEER. INSTALL ECOLOGY BMP C105: STABILIZED CONSTRUCTION ENTRANCE PRIOR TO VEHICLE ACCESS.
3. INSTALL ECOLOGY BMP C220: STORM DRAIN INLET PROTECTION. IN SITE ACCESS AND STAGING AREAS (PARKING LOT).
4. INSTALL SEDIMENT MAT PER DETAIL ON PAGE 4.
5. INSTALL FISH SCREEN PER DETAIL ON PAGE 3.
6. CAPTURE AND REMOVE ALL FISH BETWEEN THE FISH SCREENS IN ACCORDANCE WITH THE CONTRACT PROVISIONS AND THE HPA. FISH CAPTURE SHALL BE PERFORMED UNDER THE SUPERVISION OF AN EXPERIENCED FISHERY BIOLOGIST.
7. INSTALL TEMPORARY PLASTIC LINER TO PREVENT EROSION AT BYPASS OUTFALL. SEE TEMPORARY STREAM BYPASS PUMP INTAKE AND BYPASS OUTLET PER DETAIL ON PAGE 4.
8. INSTALL GRAVEL BAG BERM. SEE DETAIL ON PAGE 3.
9. INSTALL TEMPORARY STREAM BYPASS. ADJUST LOCATION OF BYPASS PIPE AS NEEDED TO PERFORM WORK. SEE TEMPORARY STREAM BYPASS DETAIL ON SHEET 3.
10. INSTALL TEMPORARY STORMDRAIN BYPASS.
11. FILTER BAG FOR DEWATERING AND SEDIMENT REMOVAL. SEE DETAIL ON PAGE 3.
12. EXISTING TREE/VEGETATION TO REMAIN. PROTECT DURING CONSTRUCTION PER ECOLOGY BMP C101: PRESERVING NATURAL VEGETATION. TREE LIMBS MAY BE TRIMMED WITH APPROVAL FROM THE CITY'S ARBORIST.
13. TURBIDITY MONITORING STATION. SEE CONTRACT SPECIFICATIONS FOR MONITORING REQUIREMENTS.

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

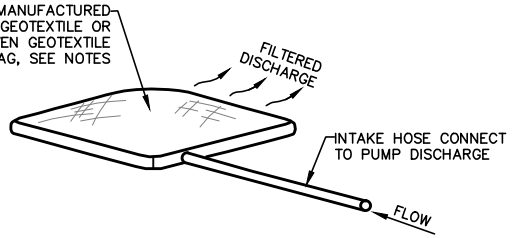
LAT/LONG: *47.62104N / -122.14484W*

PAGE *2* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM
IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

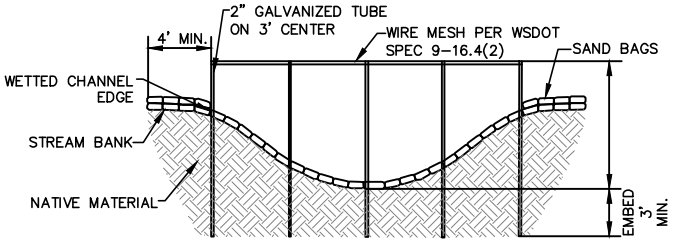
FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

BYPASS, TESC, AND FISH REMOVAL DETAILS

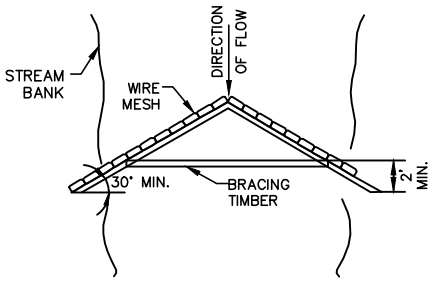


NOTES:
1. FILTER BAG SHALL BE MINIMUM 10' X 15' AND REPLACED AS NEEDED TO ACCOMODATE ACTUAL SEDIMENT LOAD CONDITIONS (I.E. VOLUME, TYPE OF SEDIMENT, ETC.)
2. DRAIN FILTER BAG TO APPROVED (GRASSY, UPLAND) RECEIVING AREA, MONITOR SYSTEM FREQUENTLY TO VERIFY ADEQUATE PERFORMANCE AND CONDITION OF FACILITIES.

FILTER BAG DETAIL
NOT TO SCALE



FRONT VIEW

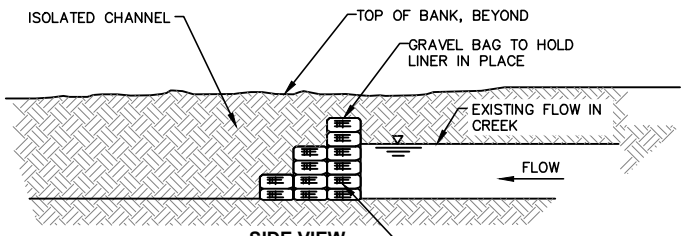


PLAN VIEW

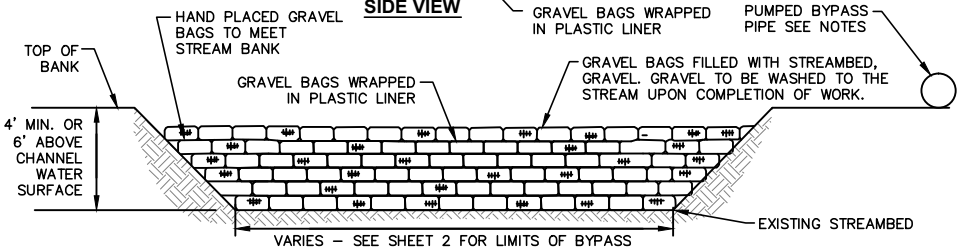
CONSTRUCTION SEQUENCE

1. INSTALL 2" GALVANIZED TUBES ON 3' CENTERS.
2. SECURE WIRE MESH TO 2" GALVANIZED TUBES WITH WIRE FASTENER.
3. SECURE 1/4" MAX. FISH NYLON NET TO UPSTREAM SIDE OF WIRE MESH WITH WIRE FASTENER.
4. SECURE NYLON FISH NET TO STREAM BOTTOM WITH SAND BAGS.
5. EXTEND SAND BAGS 4' MIN. INTO STREAM BANKS.
6. ADD BRACING TIMBER AS NEEDED TO SUPPORT THE SCREEN
7. REMOVAL OF DEBRIS FROM THE UPSTREAM SIDE OF THE FENCE IS NECESSARY OTHERWISE THE SCREEN WILL BECOME CLOGGED AND WATER MAY TOPPLE OR BREACH THE SCREEN.

FISH SCREEN DETAIL
NOT TO SCALE



SIDE VIEW



FRONT VIEW

NOTES:
1. TYPICAL SUMMER FLOW ≤ 20CFS. STORM FLOWS ARE SIGNIFICANTLY HIGHER 2-YR STORM = 64 CFS AND 10-YR STORM = 102 CFS).
2. BYPASS PUMP INTAKE SHALL BE SCREENED TO PREVENT FISH FROM ENTERING BYPASS SYSTEM. SEE SECTION 8-03 OF THE CONTRACT PROVISIONS AND THE HPA FOR ADDITIONAL INFORMATION ON TEMPORARY STREAM BYPASS.
3. CONTRACTOR SHALL HAVE ON SITE, EMERGENCY BACKUP PUMPS, PIPE, AND APPURTENANCES IN THE EVENT OF HIGH FLOWS.

TEMPORARY STREAM BYPASS DETAIL
NOT TO SCALE

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

LAT/LONG: *47.62104N / -122.14484W*

PAGE *3* **OF** *8*

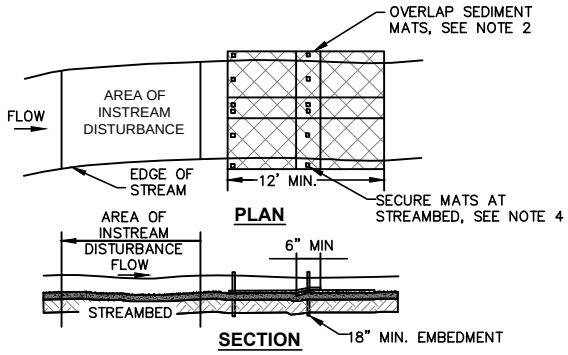
DATE: *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM

IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

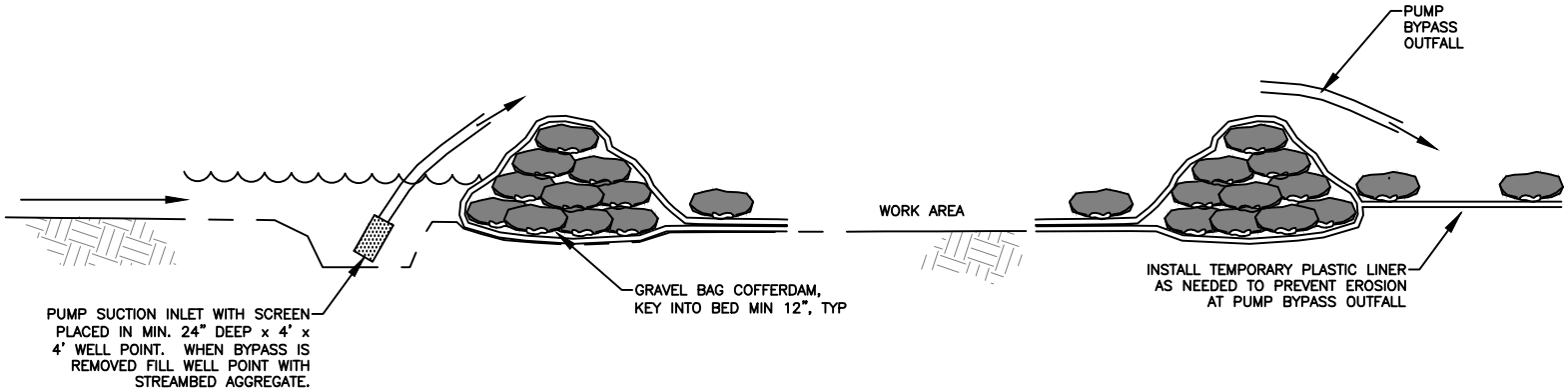
BYPASS, TESC, AND FISH REMOVAL DETAILS



NOTES:
1. INSTALL MATS FLAT ON THE STREAM BOTTOM AT DOWNSTREAM EDGE OF DISTURBED AREA IMMEDIATELY PRIOR TO INSTREAM DISTURBANCE AND REMOVE IMMEDIATELY AFTER INSTREAM ACTIVITIES ARE COMPLETED.
2. OVERLAP THE TRAILING EDGE OF UPSTEAM MATS OVER THE LEADING EDGE OF DOWNSTREAM MATS BY AT LEAST 6". OVERLAP SIDES A MINIMUM OF 6".
3. HOLD THE LEADING EDGE OF THE MATS TIGHTLY TO STREAMBED CONTOURS WITH ROCKS OR OTHER WEIGHTS.
4. SECURE UPSTREAM CORNERS AND CENTERS OF MATS IN THE STREAMBED WITH 2" X 2" X 2' LONG WOOD STAKES.
5. IF STREAM VELOCITY IS HIGH, ENGINEER MAY REQUIRE ADDITIONAL LENGTH OF SEDIMENT MAT.

SEDIMENT MAT DETAIL

NOT TO SCALE



STREAM BYPASS PUMP INTAKE AND BYPASS OUTLET DETAIL

NOT TO SCALE

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

LAT/LONG: *47.62104N / -122.14484W*

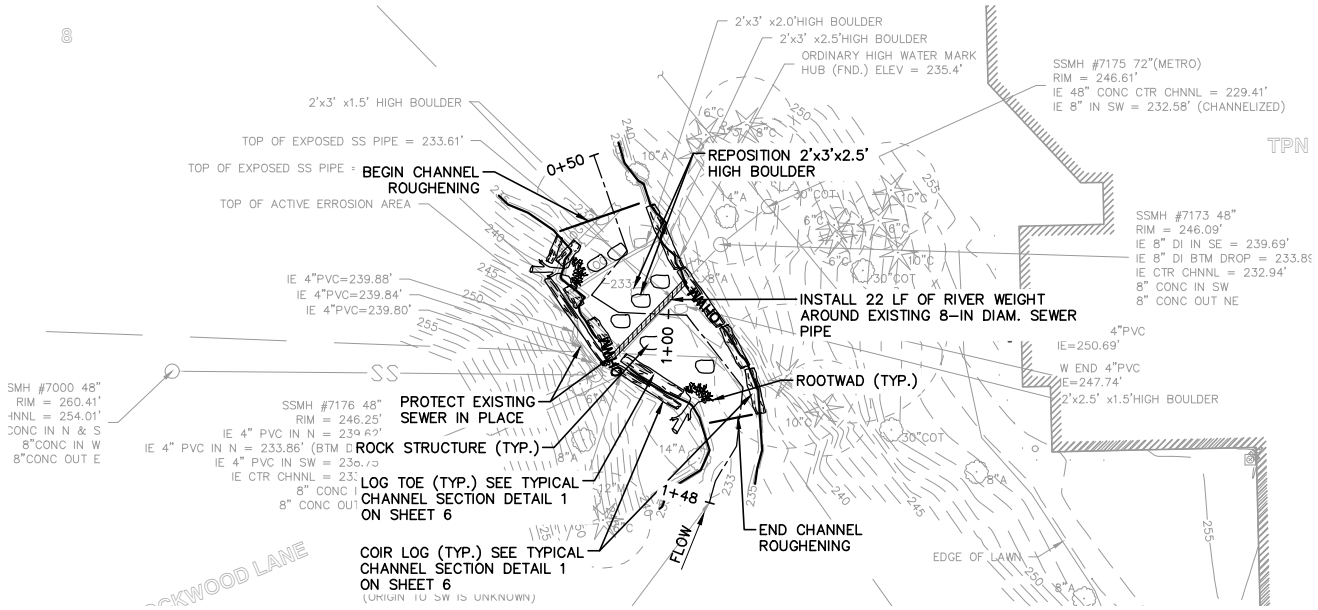
PAGE *4* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM

IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

PLAN & PROFILE



N

SCALE: 1" = 40'

GENERAL NOTES:

1. NATIVE WOODY DEBRIS SHALL BE PROTECTED IN PLACE OR RELOCATED ON-SITE.

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

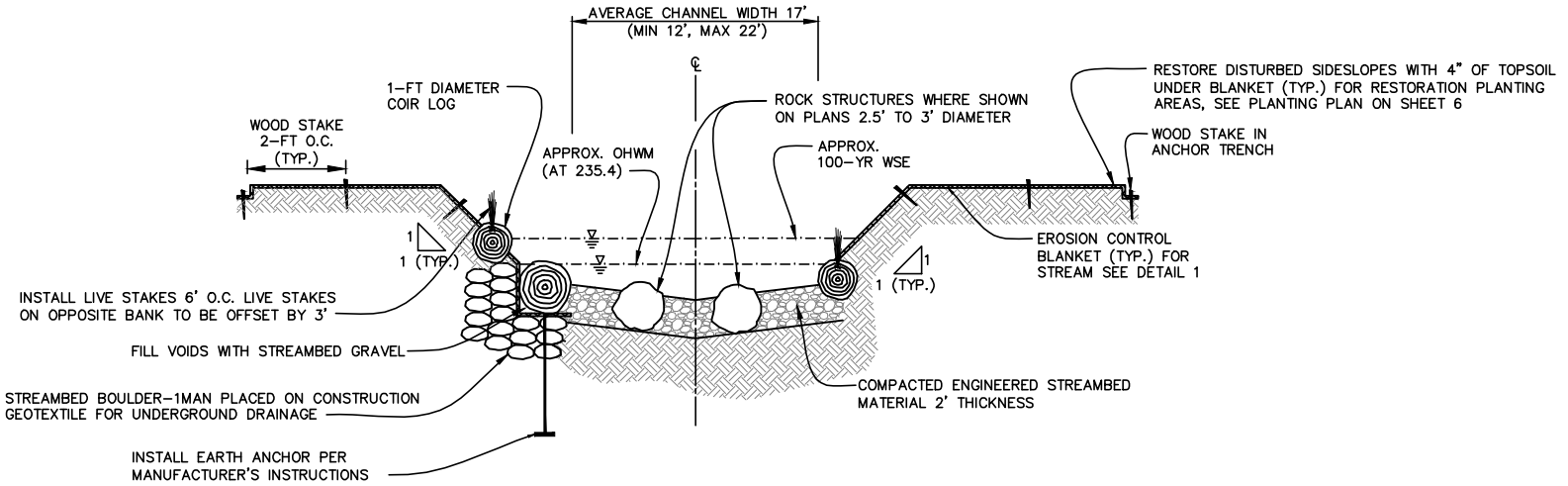
LAT/LONG: *47.62104N / -122.14484W*

PAGE *5* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM
IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

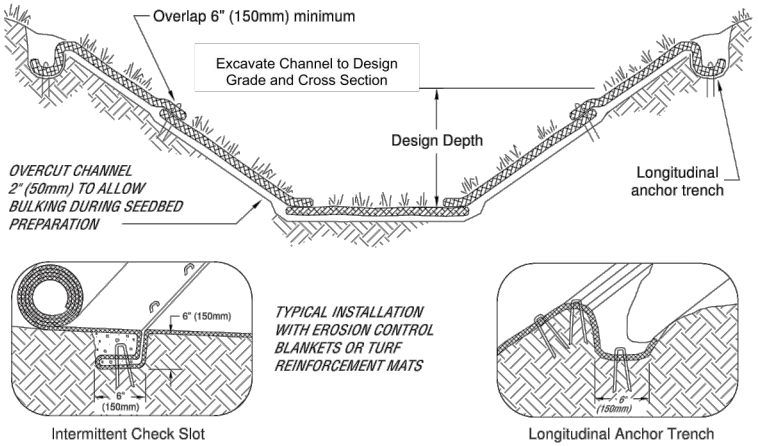
FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

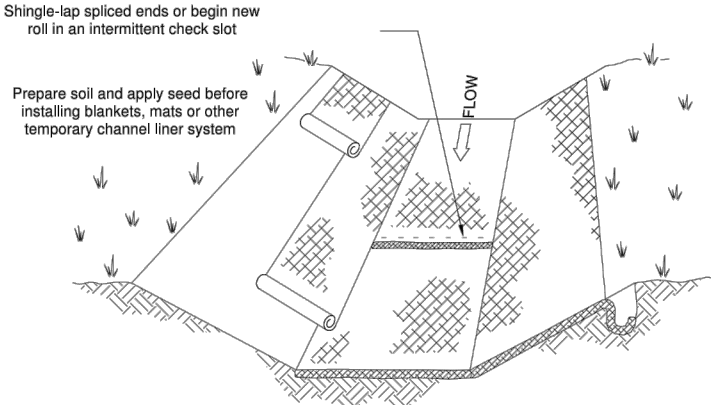
TYPICAL SECTIONS AND DETAILS



1 TYPICAL CHANNEL SECTION

NOT TO SCALE





NOTES:

1. DESIGN VELOCITIES EXCEEDING 2 FT/SEC (0.5M/SEC) REQUIRE TEMPORARY BLANKETS, MATS OR SIMILAR LINERS TO PROTECT SEED AND SOIL UNTIL VEGETATION BECOMES ESTABLISHED.
2. GRASS-LINED CHANNELS WITH DESIGN VELOCITIES EXCEEDING 6 FT/SEC (2M/SEC) SHOULD INCLUDE TURF REINFORCEMENT MATS.
3. BLANKET INSTALLATION SHALL INCORPORATE EROSION CONTROL BLANKET MANUFACTURES INSTALLATION RECOMMENDATIONS.

EROSION CONTROL BLANKET

NOT TO SCALE

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:

1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

LAT/LONG: *47.62104N / -122.14484W*

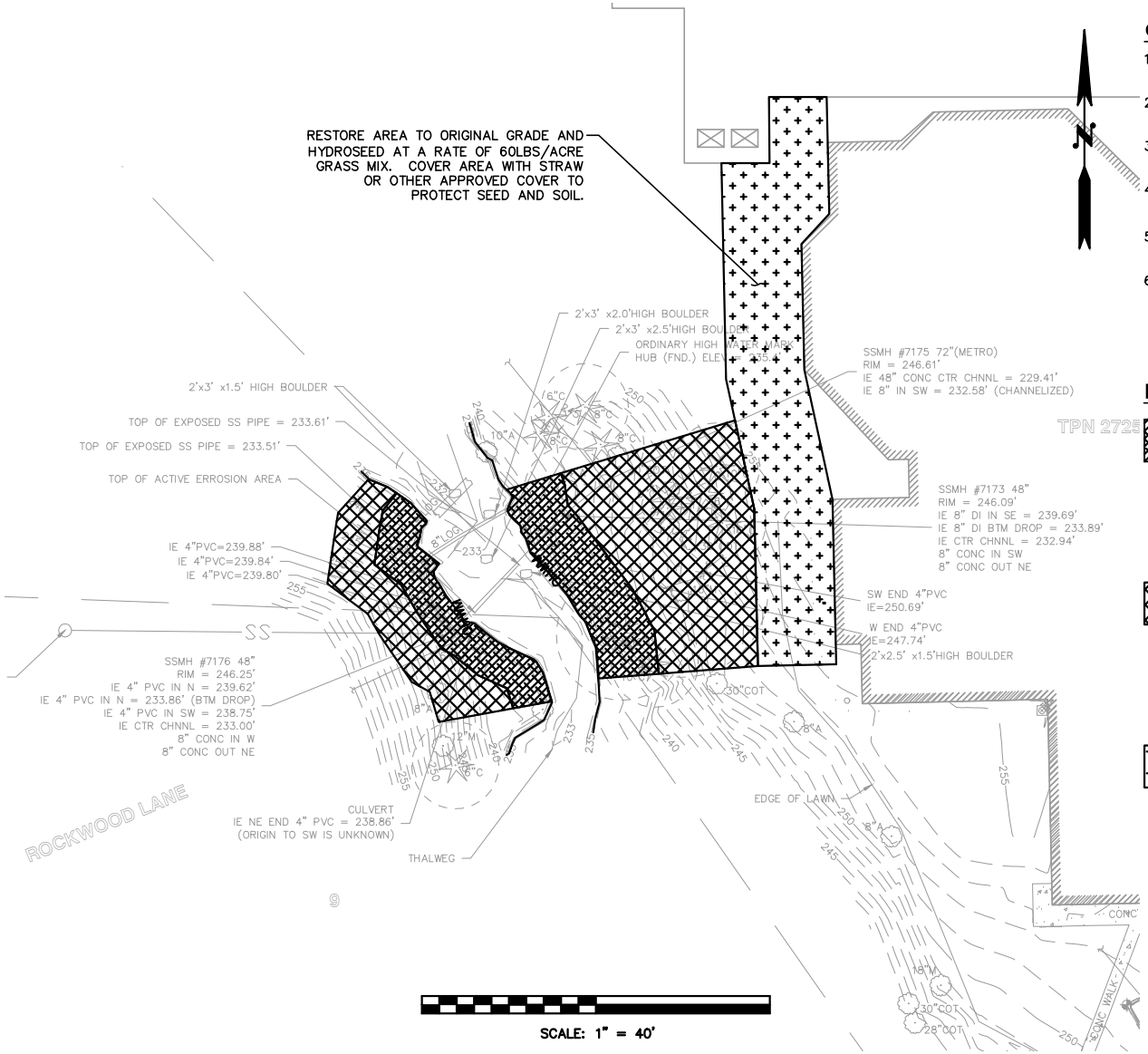
PAGE *6* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM

IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

PLANTING PLAN



SCALE: 1" = 40'

GENERAL NOTES:

1. PLANTING AREA INCLUDES ENTIRE GROUND SURFACE REGARDLESS OF SURFACE COVER BETWEEN PLANTS.
2. VERIFY IN-WATER WORK RESTRICTIONS WITH THE CITY OF BELLEVUE PRIOR TO PLANTING.
3. PLACE ALL PLANTS IRREGULARLY AT THE DESIGNATED LOCATIONS AND SPACING. INTERMIX SPECIES GROUPS FOR NATURAL APPEARANCE.
4. PLANT MATERIAL SHALL CONFORM TO AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z601-2004) FOR PLANT SIZE AND CONDITION FOR SPECIFIED MATERIAL.
5. PLANT MATERIAL SHALL BE LOCALLY GROWN (PUGET SOUND REGION) AND SHALL BE IN HEALTHY AND VIGOROUS GROWING CONDITION.
6. SEE PAGE 8 FOR PLANTING LIST AND DETAILS.

PLANT NOTES:

ZONE 1 = 1,457 SQ FT
PLANT THE FOLLOWING TREES AND SHRUBS AT 4' O.C. FOR SIZES AND SPACING SEE PLANT LIST AND DETAILS ON SHEET 8.

SHRUBS
BLACK TWINBERRY
SALMONBERRY
REDOSIER DOGWOOD

ZONE 2 = 2,463 SQ FT
PLANT THE FOLLOWING TREES AND SHRUBS AT 4' O.C. FOR SIZES AND SPACING SEE PLANT LIST AND DETAILS ON SHEET 8.

TREES
SITKA SPRUCE
RED ALDER

SHRUBS
SNOWBERRY
INDIAN PLUM
VINE MAPLE
SWORD FERN

ZONE 3 = 2,390 SQ FT
HYDROSEED (GRASS MIX)

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
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LOCATION: *1221 148TH AVE NE / 2725059046*

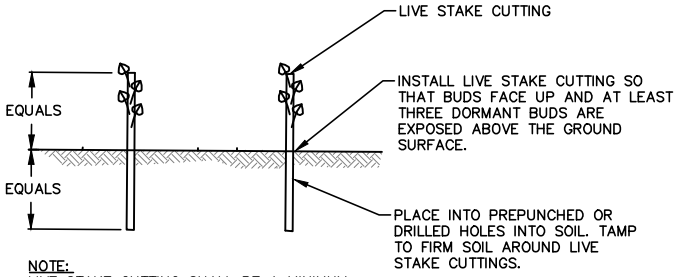
LAT/LONG: *47.62104N / -122.14484W*

PAGE *7* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM
IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

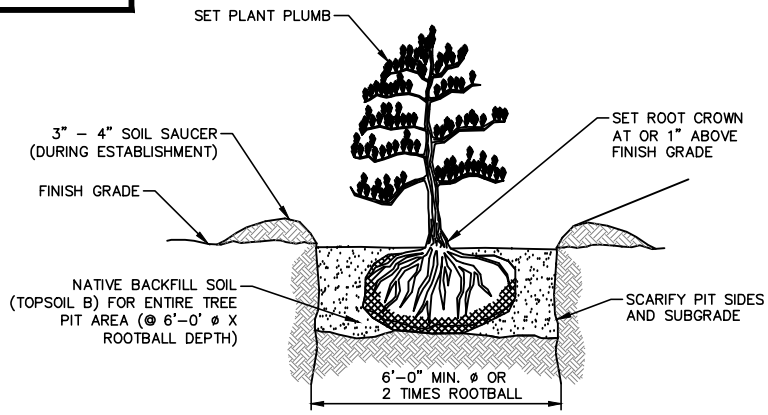
FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

PLANT LIST AND DETAILS



LIVE STAKE INSTALLATION DETAIL

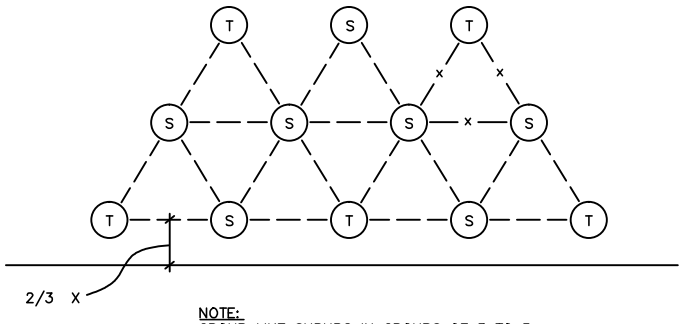
N.T.S.



NOTE:
DECIDUOUS AND EVERGREEN TREES SHALL BE A MINIMUM 12" TALL.

DECIDUOUS AND EVERGREEN TREE AND SHRUB PLANTING

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 PLANT MATERIAL LIST)

S = SHRUB

T = TREE

PLANT MATERIAL LIST

COMMON NAME	SCIENTIFIC NAME	TYPE	SPACING	ZONE 1	ZONE 2	TOTAL
TREES						
SITKA SPRUCE	*PICEA SITCHENSIS*	CONTAINER	4'		15	**15**
RED ALDER	*ALNUS RUBRA*	CONTAINER	4'		15	**15**
SHRUBS						
BLACK TWINBERRY	*LONICERA INVOLUCRATA*	CONTAINER	4'	50		**50**
SALMONBERRY	*RUBUS SPECTABILIS*	CONTAINER	4'	25		**25**
RED OSIER DOGWOOD	*CORNUS SERICEA*	CONTAINER	4'	15		**15**
SNOWBERRY	*SYMPHORICARPOS ALBUS*	CONTAINER	4'		30	**30**
INDIAN PLUM	*OEMLERIA CERASIFORMIS*	CONTAINER	4'		25	**25**
VINE MAPLE	*ACER CIRCINATUM*	CONTAINER	4'		20	**20**
SWORD FERN	*POLYSTICHUM MUNITUM*	CONTAINER	4'		50	**50**
			TOTAL	**90**	**155**	**245**

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
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PAGE *8* **OF** *8* **DATE:** *JAN. 2014*

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Photos

Photo 1 - Site looking downstream

Photo 2 - Right bank sanitary sewer man-hole.

Photo 3 - Left bank sanitary sewer man-hole cover and exposed side sewer from bank failure.

Photo 4 - Left bank looking downstream.

Kelsey Creek Sewer Stabilization
Critical Areas Report

Prepared for

The City of Bellevue
450 110th Ave. NE / P.O. Box 90012
Bellevue, WA 98009

Prepared by

Northwest
Environmental Consulting, LLC

3639 Palatine Ave N
Seattle, WA 98103
206-234-2520

February 2014

Table of Contents

Introduction

The City of Bellevue is proposing to stabilize streambank erosion that has taken place along Kelsey Creek. The erosion has caused failure of a side sewer and streambank, and has jeopardized an existing manhole structure on the bank of Kelsey Creek. In addition, downcutting of the stream has exposed the top of the existing sewer line in the bed of the stream.

The project is a maintenance project and certain elements are exempt from Critical Areas Reporting requirements per City of Bellevue Land Use Code Title 20, Part 20.25H.055, footnote 1 & 2. All work above the Ordinary High Water Mark is allowed for maintenance and minor stream work would also be allowed. However, the channel modification required to protect the existing infrastructure is not an exempt activity. This Critical Areas Report was completed to meet the requirements of Section 20.25H.250 of the City of Bellevue Code.

Project Proposal

The project proposes to stabilize the eroding bank by placing toe logs and root wads along approximately 50 feet of the left bank of the stream. A coir log will be placed on top of the toe logs and planted with live stakes. A roughened channel will be installed in the channel to reduce erosional downcutting and to prevent future exposure of the sewer line by maintaining the original stream contours present when the sewer was installed. A roughened channel is a technique that uses embedded boulders to control the stream grade. River weights (used to counteract the buoyancy of the pipe) will be used on the sewer line to hold it in place. Exposed areas will be planted with native shrubs or backfilled with stream gravels. Temporary construction access to the work site will be removed and restored.

Habitat Assessment

Existing Environmentally Critical Areas

The project area is in a forested ravine with Kelsey Creek flowing in the bottom. The surrounding area is a neighborhood with single-family residences and the Bellevue Christian Reformed Church.

Riparian vegetation consists of deciduous trees dominated by red alder and big leaf maple, along with an understory of native shrubs and English ivy. Some naturally occurring large wood debris (LWD) is present in the stream. Substrate in Kelsey Creek is gravelly with some sand. Riffle and shallow pools are present in this reach of Kelsey Creek. A few boulders are present in the stream.

Water quality is good near the project area. As Kelsey Creek approaches Mercer Slough downstream, it reaches Category 5 (polluted) on the 2008 303(d) list for fecal coliform and urban lawn chemical pollutants.

Priority Species Use

The possible presence in and use of Kelsey Creek by federally listed species was evaluated by reviewing data received from the Washington State Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database. The PHS database indicates that Kelsey Creek is used by winter steelhead and fall Chinook salmon, as well as Coho salmon, resident cutthroat trout, and sockeye salmon. Kelsey Creek is not listed as Critical Habitat for Chinook salmon. However, Lake Washington is designated as Critical Habitat for Chinook salmon. Lake Washington is 5 to 6 miles downstream from the project.

Tributaries of Lake Washington, including Kelsey Creek, are not thought to be suitable for bull trout during any season, especially higher up the stream where this project takes place (6 miles). Bull trout have not been documented to occur in Kelsey Creek during summer; temperatures are generally too high and would deter bull trout from entering the stream while construction activities are underway. Lake Washington is considered the closest suitable habitat for bull trout. No other priority species are listed within 1 mile of the project.

The Washington State Department of Natural Resources does not have any records of rare habitats or plants in the project area.

Impacts

The project will temporarily bypass stream flows, excavate stream gravels, and clear riparian vegetation to create a temporary bypass.

Direct Impacts

Noise during construction will not reach the disturbance threshold for listed species. There will be no underwater noise. Minor turbidity could occur when the temporary stream diversion is installed and removed and the area is re-watered. Approximately 0.09 acres of riparian understory will be cleared for temporary access. No trees over 4" in diameter are expected to be removed.

Indirect Impacts

The project will reduce the chances of erosion along the stream channel. The project will also reduce the chances of future sewer failures that would release raw sewage into Kelsey Creek. The roughened channel will be designed to be fish passable for all life stages of salmonids and will not affect fish passage. Restoring the streambank with native vegetation and reducing long-term erosion potential will improve food chain support of stream functions from riparian inputs.

Impact to Stream functions and values

Kelsey Creek provides hydrologic, geomorphic, biological and water quality functions and values. Hydrologic functions provided by Kelsey Creek include surface water storage and conveyance and sub-surface transfer and flow variation. Geomorphic functions include sediment continuity and substrate mobility. Biological functions include biodiversity maintenance, habitat creation (aquatic and riparian), and trophic structure maintenance. Water quality functions include nutrient cycling, chemical regulation, and thermal regulation.

The project will temporarily disrupt these functions by bypassing and dewatering about 50 linear feet, excavating substrates, and clearing riparian undergrowth to create temporary access.

Mitigation Strategy

Avoidance and Minimization

The project is a maintenance project. The existing infrastructure would require being relocated which would cause additional disturbance to the stream, and the sewer line would still need to cross over or under Kelsey Creek in some other location, so avoiding impacts all together is not feasible.

Project impacts will be minimized by installing a temporary stream diversion to isolate the main channel of Kelsey Creek from the work area and performing work during the window permitted for fish-bearing tributaries to Lake Washington. The amount of disturbance will be minimized to the project area. The project design follows Integrated Streambank Protection Guidelines so the project does not significantly degrade Kelsey Creek.

In order to meet water quality standards during removal of the temporary bypass, turbidity cannot extend more than 300 feet downstream and 100 feet upstream (WAC 172-201A-400). Water from behind the temporary berm will be gradually released, allowing water levels to ramp down so no surge is created.

Mitigation Approach

Methods to mitigate for project impacts include using soft engineering techniques to stabilize the streambank by installing toe logs and rootwads to stabilize the toe of the slope, using a roughened channel to restore the streambed to original contours, and filling in around new features with specified stream gravels. The bank stabilization will include revegetation, log toes, and rootwads that will prevent bank failure and reduce the amount of fines that enter the stream. All disturbed upland areas will be restored with native shrubs and trees.

Stream Function and Values Improvements

The completed project will not negatively affect hydrologic or geomorphic stream functions and values. The project will add a roughened channel that will stabilize the channel, will allow fish passage, and maintain sediment continuity and substrate mobility. The stabilization will prevent rapid downcutting that can occur in streams surrounded by urban development with flashy flows. The addition of deeper gravel substrates from the roughened channel may increase transfer of ground and surface water between the stream and groundwater.

The project will improve stream biological functions by restoring 0.09 acre of riparian habitat. The dense plantings will provide allochthonous food sources for the aquatic organisms. The addition of rootwads and log toes will create substrates for aquatic invertebrates to attach to increasing the abundance of instream food sources. The roughened channel will maintain fish passage for all life stages of salmonids in the stream.

The project will preserve water quality functions and values by reducing the chances of future releases of raw sewage into Kelsey Creek. The addition of dense riparian plantings will help with filtering surface runoff from adjacent lawns and provide additional shading enhancing thermal regulation of the stream.

Proposed Mitigation

Mitigation goals

Mitigation goals will include the following:

- Restore 0.09 acre of riparian buffer
- Prevent future erosion of streambanks within the project footprint

Performance standards

Riparian buffer plantings shall maintain a 100% survival for the first year and achieve 80% survival in years 2 and 3.

Bank stabilizing structures will remain in place for 3 years of monitoring and erosion of stream banks will not occur for the 3 year monitoring period.

Planting plan

Trees and shrubs will be containerized and placed on 4 foot centers. Quantities are shown in Table 1 Planting Schedule. Limits of Zone 1 and 2 are shown on page 7 of the project drawings.

Table 1. Planting Schedule

Plant	Scientific name	Type	Spacing	Zone 1	Zone 2	Total
Trees						
Sitka Spruce	*Picea sitchensis*	container	4'		15	**15**
Red Alder	*Alnus rubra*	container	4'		15	**15**
Shrubs						
Black Twinberry	*Lonicera involucrata*	container	4'	50		**50**
Salmonberry	*Rubus spectabilis*	container	4'	25		**25**
Red Osier Dogwood	*Cornus sericea*	container	4'	15		**15**
Snowberry	*Symphoricarpos albus*	container	4'		30	**30**
Indian plum	*Oemleria cerasiformis*	container	4'		25	**25**
Vine maple	*Acer circinatum*	container	4'		20	**20**
Sword fern	*Polystichum munitum*	container	4'		50	**50**
Total				**90**	**155**	**245**

Schedule and Maintenance

Plantings shall be installed after completion of the stream work. Watering will be required during the first year after planting if drought conditions occur.

Monitoring and Contingency

To ensure that the performance standards are met, plantings will be counted in August or September for survival for the first year. All dead plantings will be replaced so that 100% survival is reached for the first year. Sub sampling can be completed to assure that the 100% survival is reached.

A qualified engineer will check annually instream structures for compromised anchoring, unusual erosion, movement by impact, or other problems that may occur. Any problems that may result in substantial streambank erosion or threaten any structures on the property will be properly resolved to remedy the situation.

Reporting

Monitoring reports shall be prepared and submitted to City of Bellevue annually on years 1-3

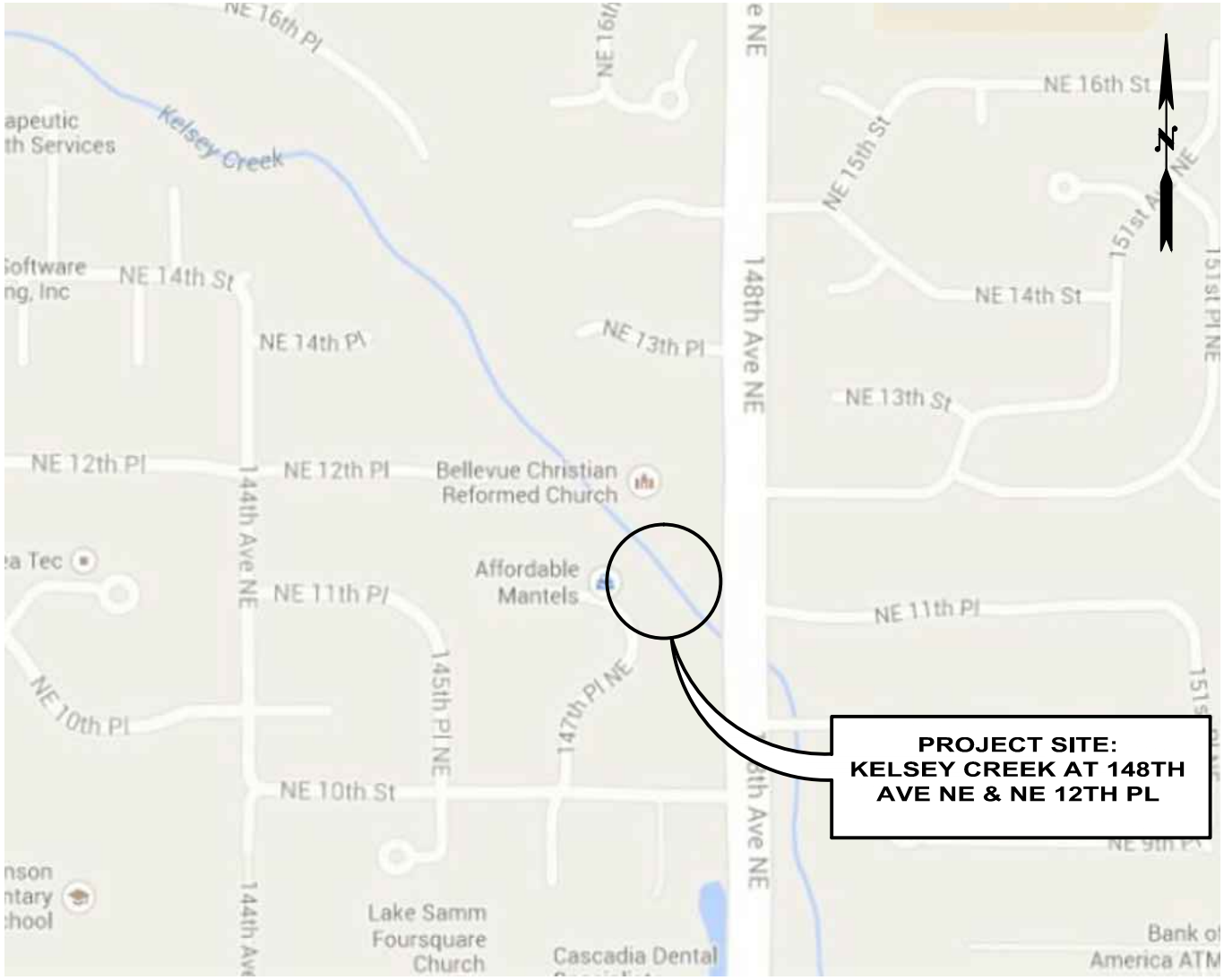
References

King County iMap. 2013. Interactive property and critical areas mapping tool. http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx. Queried September 28, 2013.

Washington Department of Fish and Wildlife. 2013. SalmonScape interactive mapping tool. http://fortress.wa.gov/dfw/gispublic/apps/salmonscape/default.htm. Queried September 28, 2013.

Figures

VICINITY MAP



SHEET INDEX

SHEET #	SHEET TITLE
1	VICINITY MAP
2	BYPASS, TESC, AND FISH REMOVAL PLAN
3	BYPASS, TESC, AND FISH REMOVAL DETAILS
4	BYPASS, TESC, AND FISH REMOVAL DETAILS
5	PLAN AND PROFILE
6	TYPICAL SECTIONS AND DETAILS
7	PLANTING PLAN
8	PLANT LIST AND DETAILS

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
1. *G. HARMS / 7385200080*
2. *P. BALARAJAN / 7385200090*

LOCATION: *1221 148TH AVE NE / 2725059046*

LAT/LONG: *47.62104N / -122.14484W*

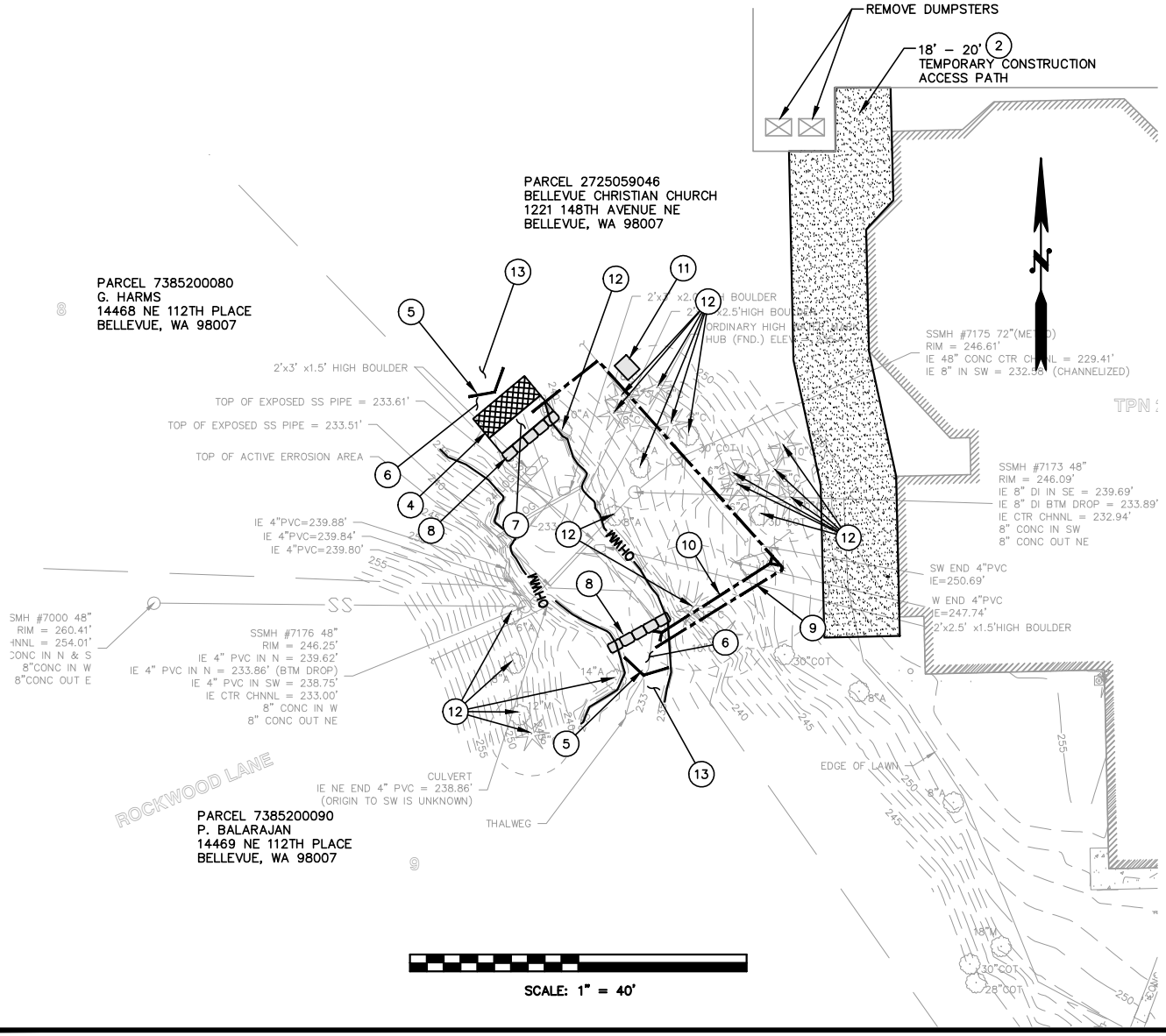
PAGE *1* **OF** *8* **DATE:** *JAN. 2014*

PROPOSED PROJECT:
STABILIZE THE BANK AND BED OF KELSEY CREEK AND PROTECT THE CITY'S SEWER SYSTEM

IN: *KELSEY CREEK*
NEAR/AT: *BELLEVUE*
COUNTY: *KING*
STATE: *WA*

FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

BYPASS, TESC, AND FISH REMOVAL PLAN



GENERAL NOTES:

1. NATIVE WOODY DEBRIS SHALL BE PROTECTED IN PLACE OR RELOCATED ON-SITE.

(##) TEMPORARY STREAM BYPASS AND TESC KEYED NOTES:

1. MARK PROJECT LIMITS IN ACCORDANCE WITH ECOLOGY BMP C103: HIGH VISIBILITY PLASTIC FENCE. CLEAR AND GRUB, AS NEEDED, WITHIN PROJECT LIMITS.
2. VEHICLE ACCESS ONTO UNPAVED EASEMENT AREAS MUST BE APPROVED BY THE ENGINEER. INSTALL ECOLOGY BMP C105: STABILIZED CONSTRUCTION ENTRANCE PRIOR TO VEHICLE ACCESS.
3. INSTALL ECOLOGY BMP C220: STORM DRAIN INLET PROTECTION. IN SITE ACCESS AND STAGING AREAS (PARKING LOT).
4. INSTALL SEDIMENT MAT PER DETAIL ON PAGE 4.
5. INSTALL FISH SCREEN PER DETAIL ON PAGE 3.
6. CAPTURE AND REMOVE ALL FISH BETWEEN THE FISH SCREENS IN ACCORDANCE WITH THE CONTRACT PROVISIONS AND THE HPA. FISH CAPTURE SHALL BE PERFORMED UNDER THE SUPERVISION OF AN EXPERIENCED FISHERY BIOLOGIST.
7. INSTALL TEMPORARY PLASTIC LINER TO PREVENT EROSION AT BYPASS OUTFALL. SEE TEMPORARY STREAM BYPASS PUMP INTAKE AND BYPASS OUTLET PER DETAIL ON PAGE 4.
8. INSTALL GRAVEL BAG BERM. SEE DETAIL ON PAGE 3.
9. INSTALL TEMPORARY STREAM BYPASS. ADJUST LOCATION OF BYPASS PIPE AS NEEDED TO PERFORM WORK. SEE TEMPORARY STREAM BYPASS DETAIL ON SHEET 3.
10. INSTALL TEMPORARY STORMDRAIN BYPASS.
11. FILTER BAG FOR DEWATERING AND SEDIMENT REMOVAL. SEE DETAIL ON PAGE 3.
12. EXISTING TREE/VEGETATION TO REMAIN. PROTECT DURING CONSTRUCTION PER ECOLOGY BMP C101: PRESERVING NATURAL VEGETATION. TREE LIMBS MAY BE TRIMMED WITH APPROVAL FROM THE CITY'S ARBORIST.
13. TURBIDITY MONITORING STATION. SEE CONTRACT SPECIFICATIONS FOR MONITORING REQUIREMENTS.

REFERENCE: *(USACE will provide)*

APPLICANT: *CITY OF BELLEVUE, WA*
KELSEY CREEK AT 148TH & NE 12 PL

ADJACENT PROPERTY OWNERS:
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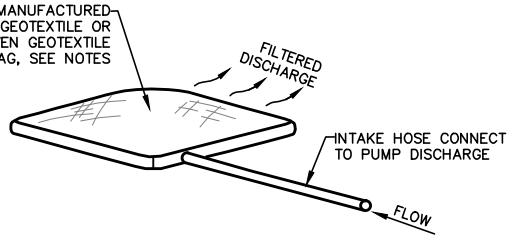
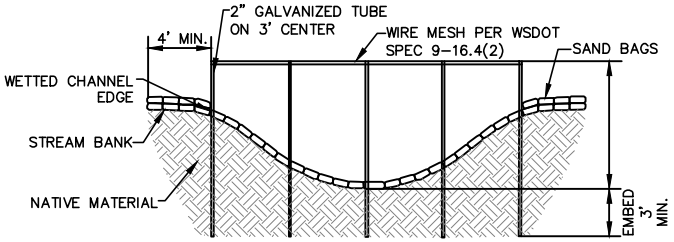
FILE NAME: O:\PROJECTS\10-130044 KELSEY CREEK SEWER STABILIZATION\3 CADD\FIGURES\JARPA\P_10-130044_JARPA.DWG

BYPASS, TESC, AND FISH REMOVAL DETAILS

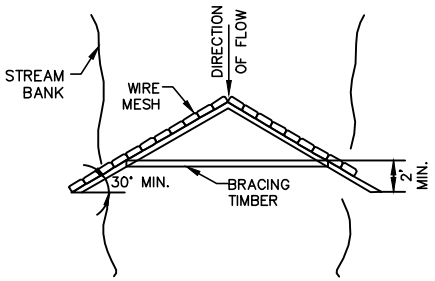


NOTES:
1. FILTER BAG SHALL BE MINIMUM 10' X 15' AND REPLACED AS NEEDED TO ACCOMODATE ACTUAL SEDIMENT LOAD CONDITIONS (I.E. VOLUME, TYPE OF SEDIMENT, ETC.)
2. DRAIN FILTER BAG TO APPROVED (GRASSY, UPLAND) RECEIVING AREA, MONITOR SYSTEM FREQUENTLY TO VERIFY ADEQUATE PERFORMANCE AND CONDITION OF FACILITIES.

FILTER BAG DETAIL
NOT TO SCALE



FRONT VIEW

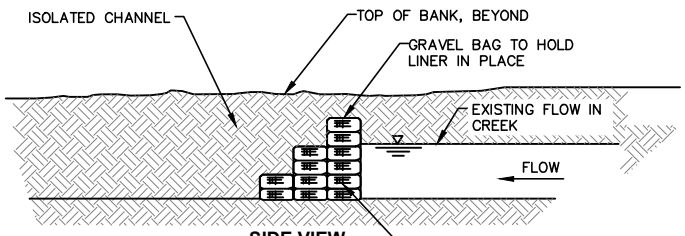


PLAN VIEW

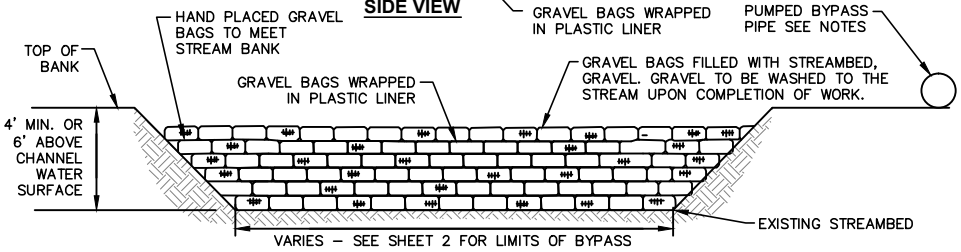
CONSTRUCTION SEQUENCE

1. INSTALL 2" GALVANIZED TUBES ON 3' CENTERS.
2. SECURE WIRE MESH TO 2" GALVANIZED TUBES WITH WIRE FASTENER.
3. SECURE 1/4" MAX. FISH NYLON NET TO UPSTREAM SIDE OF WIRE MESH WITH WIRE FASTENER.
4. SECURE NYLON FISH NET TO STREAM BOTTOM WITH SAND BAGS.
5. EXTEND SAND BAGS 4' MIN. INTO STREAM BANKS.
6. ADD BRACING TIMBER AS NEEDED TO SUPPORT THE SCREEN
7. REMOVAL OF DEBRIS FROM THE UPSTREAM SIDE OF THE FENCE IS NECESSARY OTHERWISE THE SCREEN WILL BECOME CLOGGED AND WATER MAY TOPPLE OR BREACH THE SCREEN.

FISH SCREEN DETAIL
NOT TO SCALE



SIDE VIEW



FRONT VIEW

NOTES:
1. TYPICAL SUMMER FLOW ≤ 20CFS. STORM FLOWS ARE SIGNIFICANTLY HIGHER 2-YR STORM = 64 CFS AND 10-YR STORM = 102 CFS).
2. BYPASS PUMP INTAKE SHALL BE SCREENED TO PREVENT FISH FROM ENTERING BYPASS SYSTEM. SEE SECTION 8-03 OF THE CONTRACT PROVISIONS AND THE HPA FOR ADDITIONAL INFORMATION ON TEMPORARY STREAM BYPASS.
3. CONTRACTOR SHALL HAVE ON SITE, EMERGENCY BACKUP PUMPS, PIPE, AND APPURTENANCES IN THE EVENT OF HIGH FLOWS.

TEMPORARY STREAM BYPASS DETAIL
NOT TO SCALE

REFERENCE: *(USACE will provide)*

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PAGE *3* **OF** *8*

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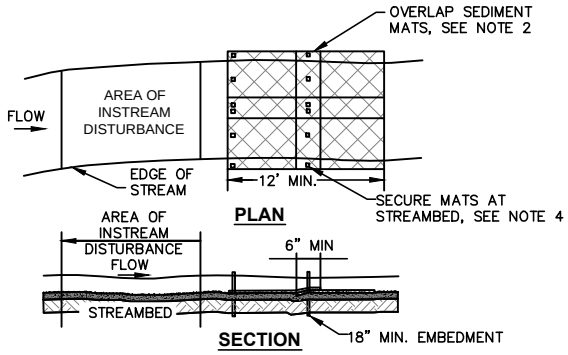
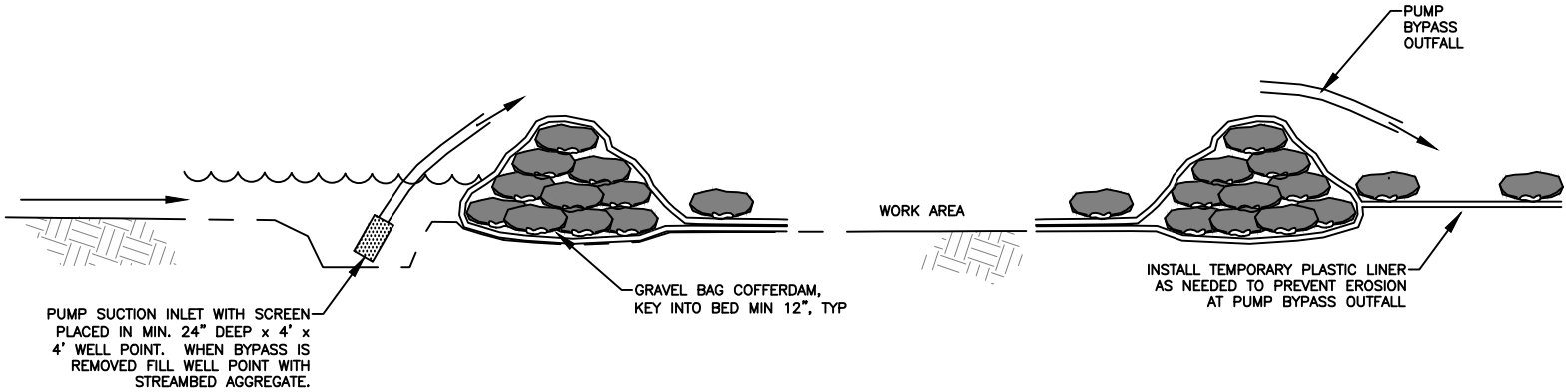
BYPASS, TESC, AND FISH REMOVAL DETAILS



NOTES:
1. INSTALL MATS FLAT ON THE STREAM BOTTOM AT DOWNSTREAM EDGE OF DISTURBED AREA IMMEDIATELY PRIOR TO INSTREAM DISTURBANCE AND REMOVE IMMEDIATELY AFTER INSTREAM ACTIVITIES ARE COMPLETED.
2. OVERLAP THE TRAILING EDGE OF UPSTEAM MATS OVER THE LEADING EDGE OF DOWNSTREAM MATS BY AT LEAST 6". OVERLAP SIDES A MINIMUM OF 6".
3. HOLD THE LEADING EDGE OF THE MATS TIGHTLY TO STREAMBED CONTOURS WITH ROCKS OR OTHER WEIGHTS.
4. SECURE UPSTREAM CORNERS AND CENTERS OF MATS IN THE STREAMBED WITH 2" X 2" X 2' LONG WOOD STAKES.
5. IF STREAM VELOCITY IS HIGH, ENGINEER MAY REQUIRE ADDITIONAL LENGTH OF SEDIMENT MAT.

SEDIMENT MAT DETAIL

NOT TO SCALE



STREAM BYPASS PUMP INTAKE AND BYPASS OUTLET DETAIL

NOT TO SCALE

REFERENCE: *(USACE will provide)*

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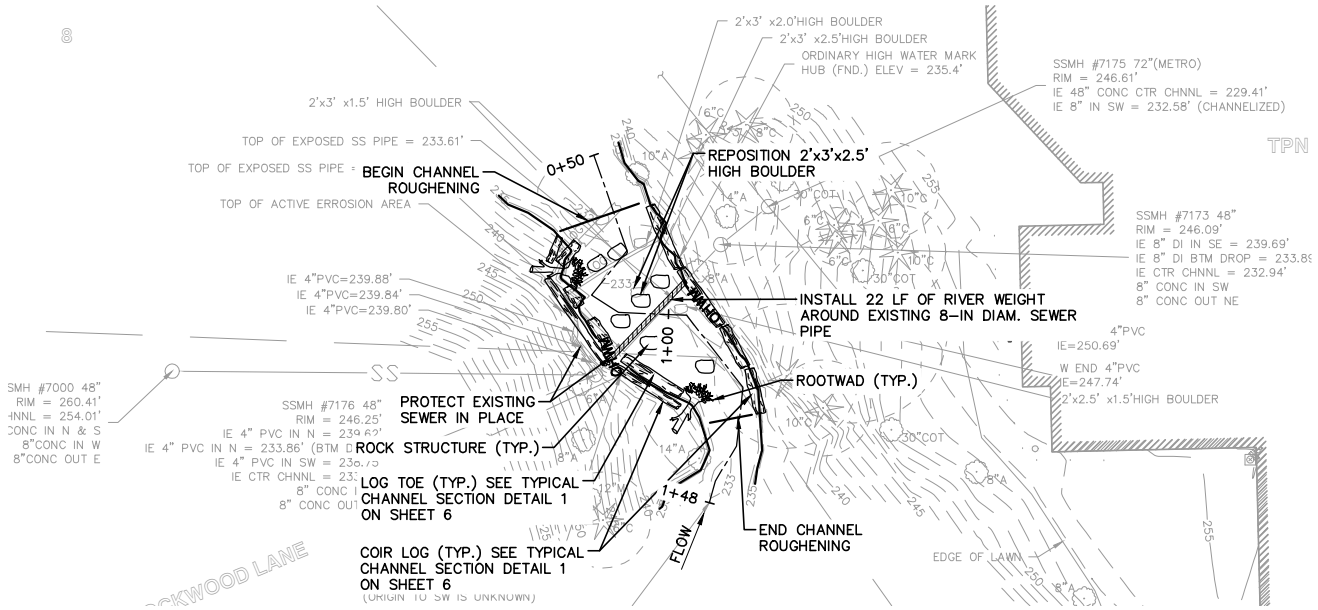
PLAN & PROFILE



N

SCALE: 1" = 40'

GENERAL NOTES:

1. NATIVE WOODY DEBRIS SHALL BE PROTECTED IN PLACE OR RELOCATED ON-SITE.

REFERENCE: *(USACE will provide)*

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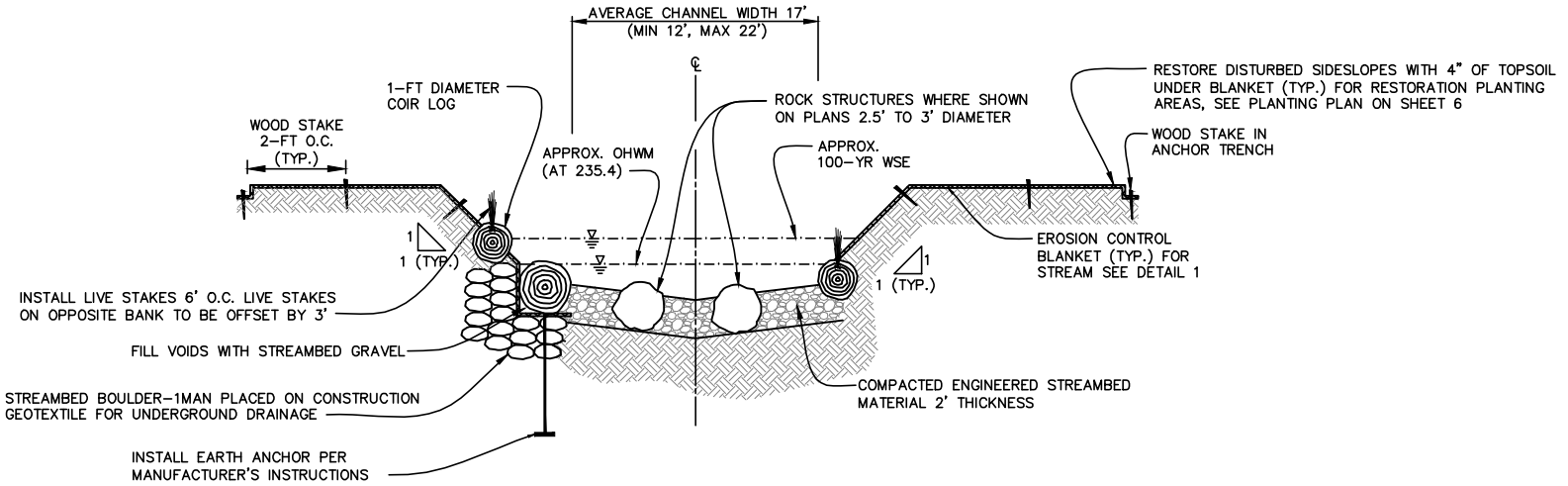
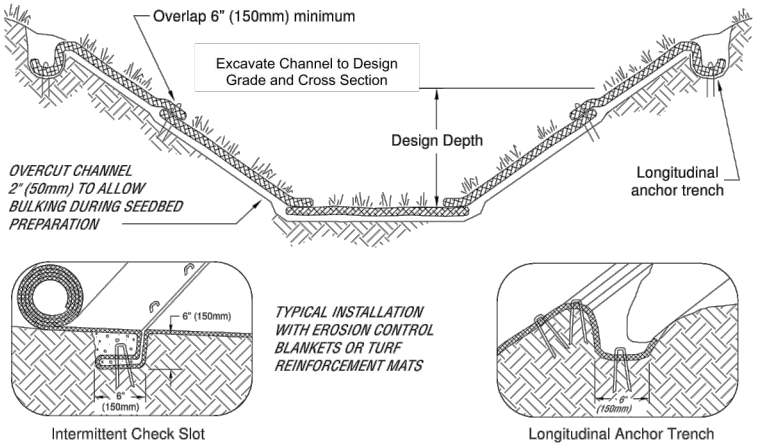
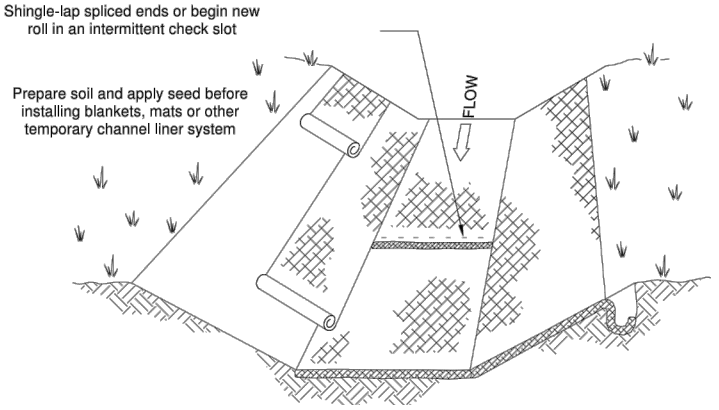
TYPICAL SECTIONS AND DETAILS



1 TYPICAL CHANNEL SECTION

NOT TO SCALE





NOTES:

1. DESIGN VELOCITIES EXCEEDING 2 FT/SEC (0.5M/SEC) REQUIRE TEMPORARY BLANKETS, MATS OR SIMILAR LINERS TO PROTECT SEED AND SOIL UNTIL VEGETATION BECOMES ESTABLISHED.
2. GRASS-LINED CHANNELS WITH DESIGN VELOCITIES EXCEEDING 6 FT/SEC (2M/SEC) SHOULD INCLUDE TURF REINFORCEMENT MATS.
3. BLANKET INSTALLATION SHALL INCORPORATE EROSION CONTROL BLANKET MANUFACTURES INSTALLATION RECOMMENDATIONS.

EROSION CONTROL BLANKET

NOT TO SCALE

REFERENCE: *(USACE will provide)*

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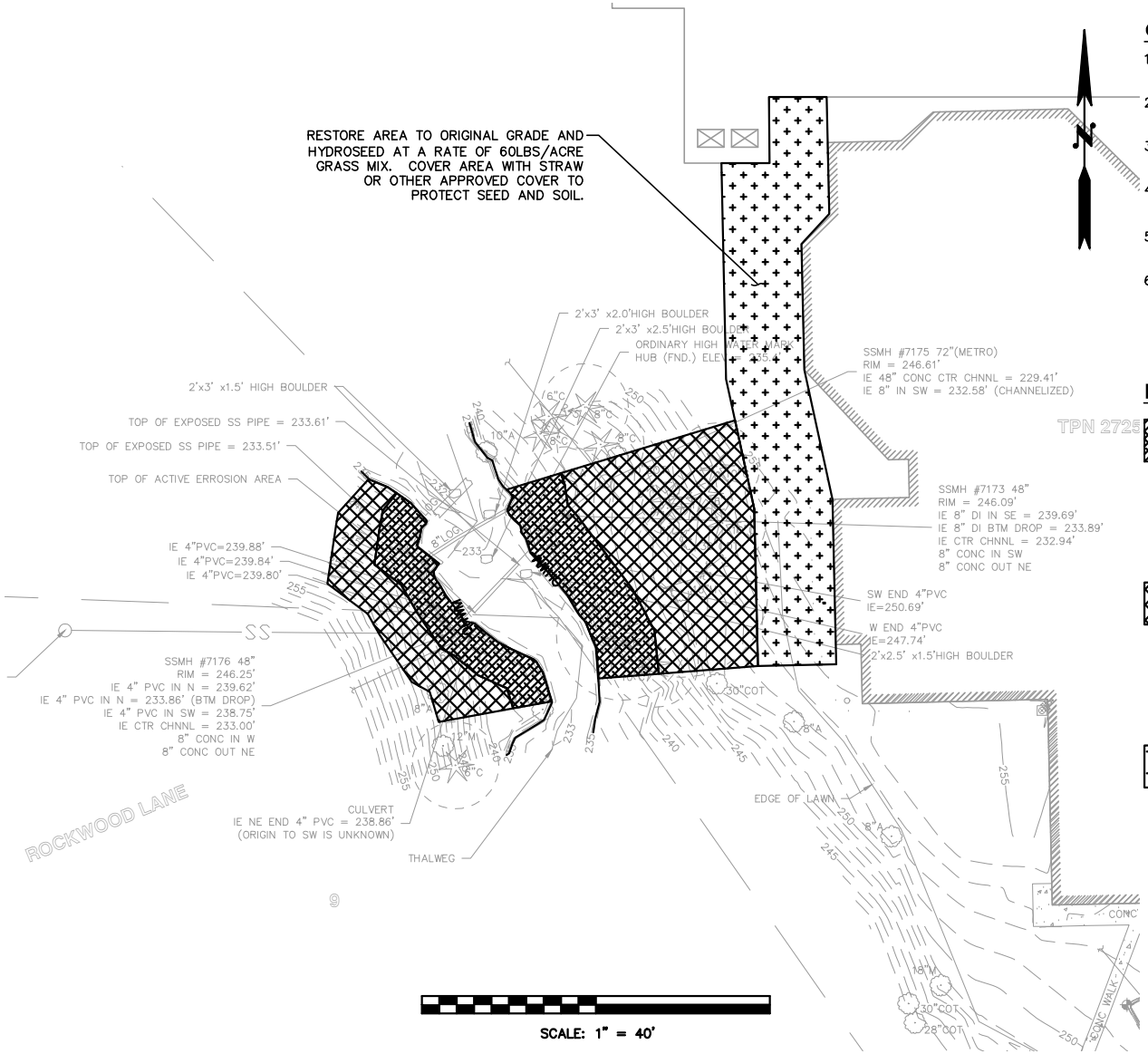
PLANTING PLAN



SCALE: 1" = 40'

GENERAL NOTES:

1. PLANTING AREA INCLUDES ENTIRE GROUND SURFACE REGARDLESS OF SURFACE COVER BETWEEN PLANTS.
2. VERIFY IN-WATER WORK RESTRICTIONS WITH THE CITY OF BELLEVUE PRIOR TO PLANTING.
3. PLACE ALL PLANTS IRREGULARLY AT THE DESIGNATED LOCATIONS AND SPACING. INTERMIX SPECIES GROUPS FOR NATURAL APPEARANCE.
4. PLANT MATERIAL SHALL CONFORM TO AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z601-2004) FOR PLANT SIZE AND CONDITION FOR SPECIFIED MATERIAL.
5. PLANT MATERIAL SHALL BE LOCALLY GROWN (PUGET SOUND REGION) AND SHALL BE IN HEALTHY AND VIGOROUS GROWING CONDITION.
6. SEE PAGE 8 FOR PLANTING LIST AND DETAILS.

PLANT NOTES:

ZONE 1 = 1,457 SQ FT
PLANT THE FOLLOWING TREES AND SHRUBS AT 4' O.C. FOR SIZES AND SPACING SEE PLANT LIST AND DETAILS ON SHEET 8.

SHRUBS
BLACK TWINBERRY
SALMONBERRY
REDOSIER DOGWOOD

ZONE 2 = 2,463 SQ FT
PLANT THE FOLLOWING TREES AND SHRUBS AT 4' O.C. FOR SIZES AND SPACING SEE PLANT LIST AND DETAILS ON SHEET 8.

TREES
SITKA SPRUCE
RED ALDER

SHRUBS
SNOWBERRY
INDIAN PLUM
VINE MAPLE
SWORD FERN

ZONE 3 = 2,390 SQ FT
HYDROSEED (GRASS MIX)

REFERENCE: *(USACE will provide)*

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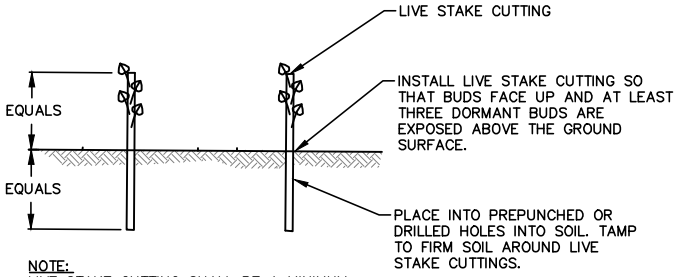
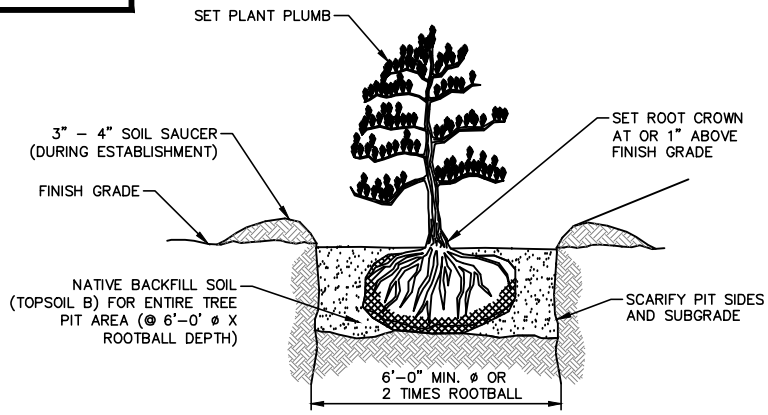
PLANT LIST AND DETAILS



LIVE STAKE INSTALLATION DETAIL

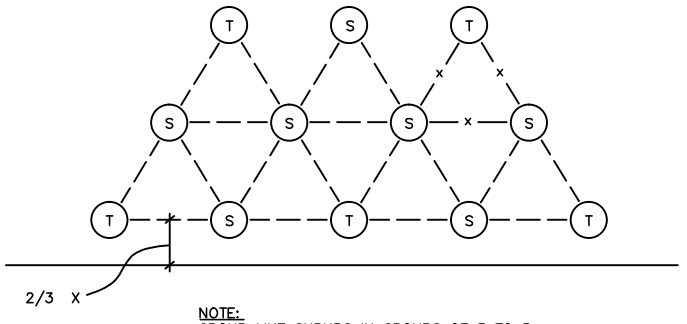
N.T.S.



NOTE:
DECIDUOUS AND EVERGREEN TREES SHALL BE A MINIMUM 12" TALL.

DECIDUOUS AND EVERGREEN TREE AND SHRUB PLANTING

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 PLANT MATERIAL LIST)

S = SHRUB

T = TREE

PLANT MATERIAL LIST

COMMON NAME	SCIENTIFIC NAME	TYPE	SPACING	ZONE 1	ZONE 2	TOTAL
TREES						
SITKA SPRUCE	*PICEA SITCHENSIS*	CONTAINER	4'		15	**15**
RED ALDER	*ALNUS RUBRA*	CONTAINER	4'		15	**15**
SHRUBS						
BLACK TWINBERRY	*LONICERA INVOLUCRATA*	CONTAINER	4'	50		**50**
SALMONBERRY	*RUBUS SPECTABILIS*	CONTAINER	4'	25		**25**
RED OSIER DOGWOOD	*CORNUS SERICEA*	CONTAINER	4'	15		**15**
SNOWBERRY	*SYMPHORICARPOS ALBUS*	CONTAINER	4'		30	**30**
INDIAN PLUM	*OEMLERIA CERASIFORMIS*	CONTAINER	4'		25	**25**
VINE MAPLE	*ACER CIRCINATUM*	CONTAINER	4'		20	**20**
SWORD FERN	*POLYSTICHUM MUNITUM*	CONTAINER	4'		50	**50**
			TOTAL	**90**	**155**	**245**

REFERENCE: *(USACE will provide)*

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Photos

Photo 1 - Site looking downstream

Photo 2 - Right bank sanitary sewer man-hole.

Photo 3 - Left bank sanitary sewer man-hole cover and exposed side sewer from bank failure.

Photo 4 - Left bank looking downstream.