

Adak Petroleum Diesel Spill

Helmet Creek Sediment Sampling Plan

Soil samples collected in areas that will be disturbed by restoration activity around the barrels will be analyzed prior to ground-disturbing activities. Soil samples will be collected from within and around the barrels at each of the following work locations (see Figure 1) using methods described here:

- 1) Barrel Location #1;
- 2) Barrel Location #2; and
- 3) Barrel Locations #3 and #4.

Soil samples will be collected in a stratified manner at each of the three locations and then composited into a single sample representing that location. A total of three samples (representing the three sites) will be delivered for contamination testing as described in the Helmet Creek Restoration & Monitoring Work Plan.

Equipment needed:

- 1 - stainless steel bowl and 1 - stainless steel scoop
- Nitrile gloves
- Alcohol wipes and clean towels
- 3 - 12 oz sample jars, cooler, blue ice, and labels (will come from ALS Global)
- Sampling data sheets and chain-of-custody forms
- Small/hand shovel or trowel to move vegetation where necessary
- Clipboard, notebook, pencil and Sharpie
- GPS and Camera

Samples should stay cold. Use frozen blue ice in the cooler when collecting samples and when shipping. Samples can be stored in a refrigerator while awaiting shipping.

It is recommended to begin at the downstream location (Barrel Location #1) to avoid turbidity from upstream activity of sampling. At each location the following protocol will be followed:

1. Thoroughly clean the bowl and spoon before sampling at each site. The bowl and spoon should be rinsed between sample sites with ambient stream water and then wiped with a clean alcohol wipe after rinsing.
2. Survey the site from several yards away. Decide where the grab samples will be taken. Proceed in a way so that you do not walk on the grab locations before collecting sediment.
3. The sampler should put on fresh nitrile gloves at this point and dedicate their efforts exclusively to collecting sediment. The second team member will take notes, photos, etc.
4. Using the scoop, collect six to eight (6-8) grab samples of equal size (approximately 1 cup each) from all around each barrel location, and within some of the barrels if possible. Collect the samples from below the surface after first scraping an inch or two of soil off the top. It may be necessary to remove a small patch of vegetation first at some locations. Use the small shovel to cut out a 6"x6" patch of vegetation and set aside. Replace after collecting the substrate sample. Subsurface sampling is recommended in an attempt to retrieve soils that have been present for a long time and not material that may have recently washed

- downstream or eroded from the streambank or other terrestrial locations. Deposit each grab sample into the mixing bowl to create a composite sample.
5. Document sample with photographs and a sketch of the site marking the sketch with approximate grab locations.
 6. When all samples have been collected into the bowl, stir the material with the spoon to create a homogeneous mix.
 7. Fill a 12 oz sample jar with the composited grab samples and discard the remaining sediment on the upper bank.
 8. Label the jar and lid with the Barrel Location # and date.
 9. Seal jar with evidence tape and sign across the tape.
 10. Fill out sample / custody form and labels completely.
 11. When all samples have been collected, package carefully with fresh-frozen blue ice and ship using the container and address that will be provided.



Figure 1: Upper Helmet Creek showing barrel sampling locations and access across tank farm.

GPS locations for each site (from Google Earth using WGS84 datum)

Location	Lat	Lon	Proposed Action
Barrel Location #1	51.857°	-176.663°	Remove 11 barrels from along streambank
Barrel Location #2	51.854°	-176.671°	Remove 20 barrels from stream channel
Barrel Location #3/#4	51.852°	-176.671°	Remove 1 barrel from along streambank

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Helmet Creek Sediment Sampling Field Sheet BARREL LOCATION #1

Sampling Date: _____ Sampling Time: Start _____ Finish _____

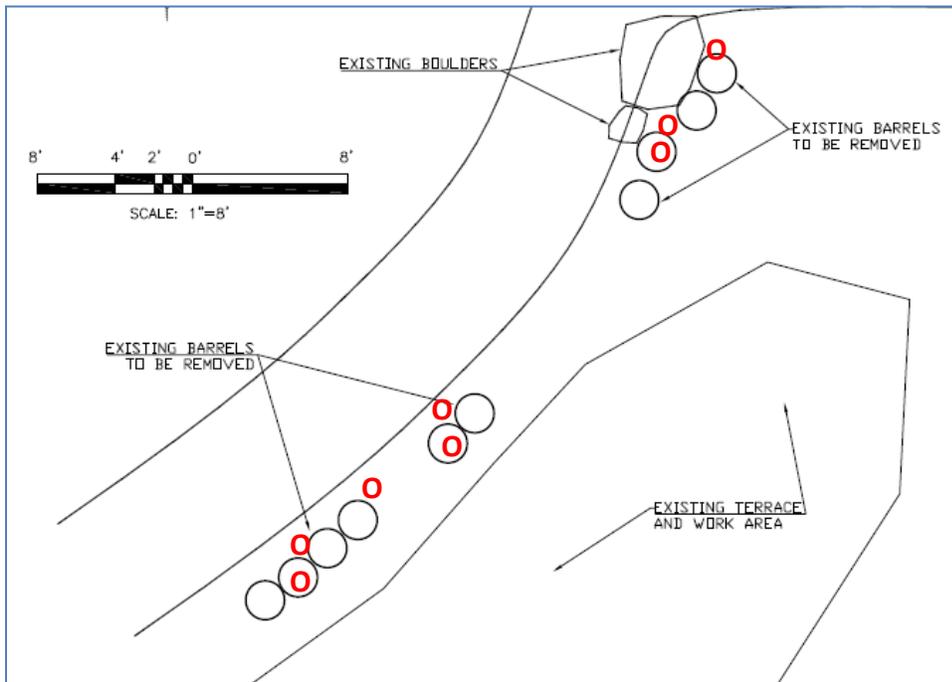
Sampler Name/Affiliation: _____

Note Taker Name/Affiliation: _____

GPS coordinates near center of site: Lat _____ Long _____ (Confirm with Table on Page 2)

Task list – check each task as completed

- Collect six to eight (6-8) grab samples of equal size ; Mark on drawing (below) approximately where each sample was collected (e.g. S1, S2, S3, etc.).
- Take photos showing each sampling location; Mark on drawing with photo number approximately where each photo was taken and direction of view (e.g. P1 →).
- Add notes below regarding any changes from the standard protocol, difficulties that were encountered, or anything unusual. Use back of sheet if needed.



Suggested sampling locations shown by "O". Please mark where actual samples taken.

Comments:

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Helmet Creek Sediment Sampling Field Sheet BARREL LOCATION #2

Sampling Date: _____ Sampling Time: Start _____ Finish _____

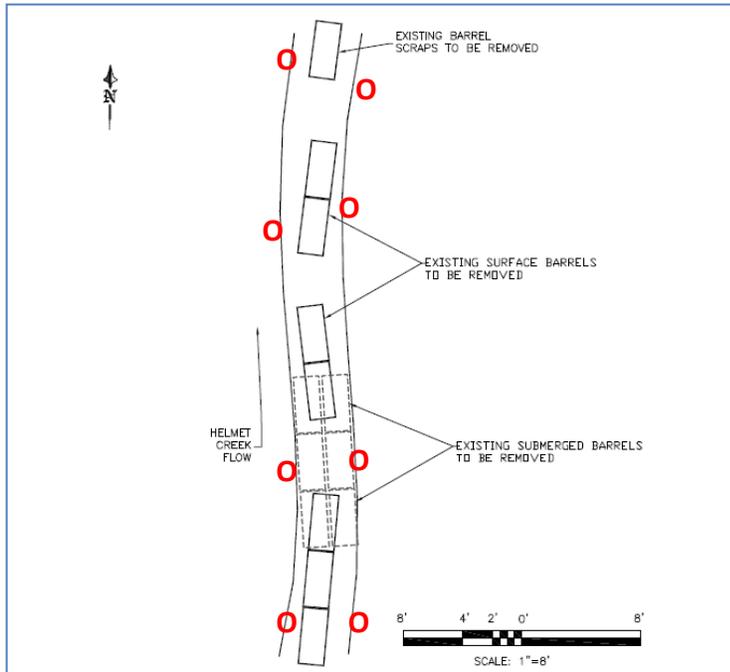
Sampler Name/Affiliation: _____

Note Taker Name/Affiliation: _____

GPS coordinates near center of site: Lat _____ Long _____ (Confirm with Table on Page 2)

Task list – check each task as completed

- Collect six to eight (6-8) grab samples of equal size ; Mark on drawing (below) approximately where each sample was collected (e.g. S1, S2, S3, etc.).
- Take photos showing each sampling location; Mark on drawing with photo number approximately where each photo was taken and direction of view (e.g. P1 →).
- Add notes below regarding any changes from the standard protocol, difficulties that were encountered, or anything unusual. Use back of sheet if needed.



Suggested sampling locations shown by "O". Please mark where actual samples taken.

Comments:

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Helmet Creek Sediment Sampling Field Sheet BARREL LOCATION #3/#4

Sampling Date: _____ Sampling Time: Start _____ Finish _____

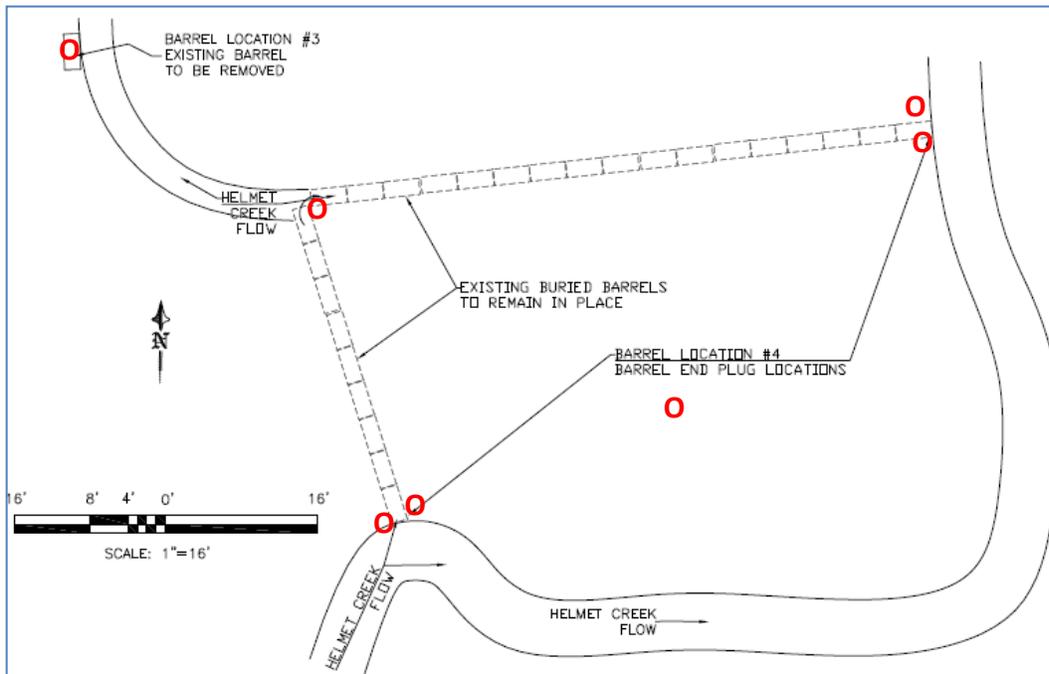
Sampler Name/Affiliation: _____

Note Taker Name/Affiliation: _____

GPS coordinates near center of site: Lat _____ Long _____ (Confirm with Table on Page 2)

Task list – check each task as completed

- Collect six to eight (6-8) grab samples of equal size ; Mark on drawing (below) approximately where each sample was collected (e.g. S1, S2, S3, etc.).
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Suggested sampling locations shown by "O". Please mark where actual samples taken.

Comments:
