

WASTE SITE RECLASSIFICATION FORM

Operable Unit: 100-NR-1

Control No.: 2012-088

Waste Site Code(s)/Subsite Code(s): 1908-NE, HGP Outfall, 1908-NE Building, HGP-SWMU # 7

Reclassification Category: Interim Final
Reclassification Status: Closed Out No Action Rejected
 RCRA Postclosure Consolidated None
Approvals Needed: DOE Ecology EPA
Description of current waste site condition:

The 1908-NE, HGP Outfall, 1908-NE Building, HGP-SWMU #7 waste site was a hexagonal-shaped, open-topped, multi-compartmentalized, reinforced concrete outfall structure located in the 100-NR-1 Operable Unit. The structure measured 23 m (76 ft) wide by 31 m (102 ft) long by 15 m (49 ft) tall. Coolant water from the Hanford Generating Plant (HGP) entered the outfall structure and was discharged via a 3.4-m (11-ft)-diameter pipe for 319 m (1,050 ft) into the Columbia River's main channel. In addition, clarified wastewater overflow from the 100-N-1 HGP Settling Pond, which collected runoff from the HGP building roof, floor drains, and other exterior areas, was routed to the 1908-NE outfall.

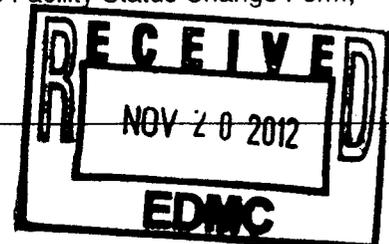
The outfall was interim closed in 2004; however, no remedial or demolition activities were performed at the outfall and an institutional control to preclude unauthorized human entry into the structure was applied. Subsequently, decontamination, demolition, and disposal was performed in 2011 through 2012 that included removal of contaminated sediment and demolition and removal of the upper portion of the outfall structure to a depth of 0.9 m (3 ft) below grade. The remaining structure was then backfilled to grade with clean fill material. Sediment and concrete removed from the structure was disposed at the Environmental Restoration and Disposal Facility (ERDF).

Sampling of the sediment within the structure and the concrete walls of the structure was performed in accordance with *Sampling and Analysis Plan for the Disposition of the 181-N, 181-NE, and 1908-NE River Structures* (WCH-446, Rev. 0, Washington Closure Hanford, Richland, Washington) to support demolition and in situ burial of the concrete portion of the below-grade structure remaining after demolition. The sediment sample results led to a decision to remove the sediment for disposal to the ERDF. The concrete sample results supported a decision to demolish and remove the outfall to a depth of 0.9 m (3 ft) below grade, with subsequent backfill of the structure with clean fill material. The removal action was performed in accordance with the *Removal Action Work Plan for 100-N Area Ancillary Facilities* (RAWP), DOE-RL-2002-70, Rev. 3, U.S. Department of Energy, Richland Operations Office, Richland, Washington, and included removal and disposal of contaminated materials at the ERDF. Additional information concerning removal of the 1908-NE Outfall is provided in the Facility Status Change Form, Control # D4-100N-0039. Based on information presented in the Facility Status Change Form, the 1908-NE Outfall is proposed for reclassification as Interim Closed Out with no institutional controls.

Basis for reclassification:

The 1908-NE outfall was previously interim closed under Waste Site Reclassification Form 2004-060, which was provided in the Cleanup Verification Package for the Hanford Generating Plant SWMUs #5, #6, #7, #8, #9, and #10), Rev. 0, prepared by Energy Northwest for the U.S. Department of Energy, Richland Operations Office and Washington State Department of Ecology, Richland, Washington, with an institutional control to preclude human entry. However, removal of contaminated materials, including sediment, from the 1908-NE outfall was subsequently performed as specified in the RAWP (DOE-RL-2002-70, Rev. 3). The results of this removal action, including visual inspection of the remaining portion of the 1908-NE outfall structure identified for in situ burial, support the previously interim closed decision for the 1908-NE outfall. The removal action also allows for removal of the institutional control since unauthorized human entry into the structure is no longer possible due to backfill of the remaining below-grade structure with clean fill material. The basis for reclassification is described in detail in the Facility Status Change Form, Control # D4-100N-0039, for the 1908-NE Outfall Facility.

Attached to: 1217887



WASTE SITE RECLASSIFICATION FORM

Operable Unit: 100-NR-1

Control No.: 2012-088

Waste Site Code(s)/Subsite Code(s): 1908-NE, HGP Outfall, 1908-NE Building, HGP-SWMU # 7

Regulator comments:

Waste Site Controls:

Engineered Controls: Yes No Institutional Controls: Yes No O&M Requirements: Yes No

If any of the Waste Site Controls are checked Yes, specify control requirements including reference to the Record of Decision, TSD Closure Letter, or other relevant documents:

J. P. Neath

DOE Federal Project Director (printed)

Signature

10/31/12

Date

N. Menard

Ecology Project Manager (printed)

Signature

11/5/12

Date

N/A

EPA Project Manager (printed)

Signature

Date

**1908-NE, HGP OUTFALL, 1908-NE BUILDING, HGP-SWMU #7
FACILITY STATUS CHANGE FORM**

Attachment to Waste Site Reclassification Form 2012-088

November 2012

FACILITY STATUS CHANGE FORM

Date Submitted: September 10, 2012 Originator: David Warren Phone: (509) 539-6040	Area: 100-N Facility ID: 181-N, -NA, -NB, -NE, and 1908-NE Action Memorandum: 100-N Ancillary Facilities	Control #: D4-100N-0039
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This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.

Section 1: Facility Status

- All D4 operations required by action memo complete.
- D4 operations required by action memo partially complete, remaining operations deferred.

Description of Completed Activities and Current Conditions:

Some of the activities described below are unique to demolition of facilities located on the shoreline of and partially within the waters of the Columbia river. The activities are generally listed in the order that they occurred.

Deactivation: Utility isolation was performed on the 181-N, -NA, -NB, -NE, and 1908-NE Facilities prior to beginning facility decontamination.

Decontamination and Decommissioning: The following hazardous materials, if present, were removed prior to facility demolition: batteries, light bulbs, oils, greases, asbestos-containing material (ACM), mercury, refrigerant and polychlorinated biphenyls. Hazardous material removal and waste disposition was performed in accordance with *Removal Action Work Plan for 100-N Ancillary Facilities*, DOE/RL-2002-70, Revision 3 (RAWP). Hazardous material removal for these structures included the removal of contaminated sediment that was discovered within the interior chambers of the structures (See sediment removal below). Analysis of the sediment samples is addressed in WCH-446, *Sampling and Analysis Plan for Disposition of the 181-N, 181-NE, and 1908-NE River Structures Rev. 0*, (available in Tri Party Agreement Administrative Record, Document #11-AMRC-0196).

Component Removal: Large components such as the traveling screens deep well pumps were removed from the river pumphouses and sent to the ERDF for disposal. The three electric motors that powered the deep well pumps of the 181-NE were recycled. Removal of these structures allowed access to the interior of the structures for demolition preparation activities.

Demolition method study, proposal, and selection: Several independent organizations were contracted for developing 30% design studies for identifying methods applicable to demolition of structures located within the Columbia River. Based on the information presented in the studies, it was determined that the most viable option was the installation of earthen benches to isolate the structures from the river and allow demolition by conventional means.

Haul Road Construction: A haul road for transportation of the fill material required to construct the benches was installed in December/January of 2010/2011.

Stop log installation: Sluice gate panels ("stop logs") were installed in the front faces of both the 181-N and 181-NE river pumphouses in January 2011 to isolate the interiors of the pumphouses from the river so divers could enter and vacuum the sediment from the interior pump wells. The 1908-NE outfall had previously been isolated with the installation of a concrete plug.

Characterization of materials specific to facilities located within the Columbia River: Samples of sediment from within and just outside the structures, concrete from the structures, and soil samples from the river shoreline adjacent the structures were collected and analyzed in accordance with WCH-446, *Sampling and Analysis Plan for Disposition of the 181-N, 181-NE, and 1908-NE River Structures*, Rev. 0, (available in Tri Party Agreement Administrative Record, Document #11-AMRC-0196). This Sampling and Analysis Plan (SAP) describes the rationale and strategy used to evaluate the 100-N River Structures to support demolition and in-situ burial of the concrete portions of the below grade

FACILITY STATUS CHANGE FORM

structures remaining after demolition. It summarizes the data that supports the conclusion that the proposed demolition method (isolation by installation of earthen benches) and in-situ burial of the remaining below grade concrete portions of the structures would be protective of human health and the environment and not preclude any future remedial actions. The SAP also addresses the removal of contaminated sediment that was found within the interior of the facilities (see Sediment Removal below).

Consultation with Applicable Relevant and Appropriate Requirements (ARARs) agencies: Consultation with Agencies having jurisdiction over ARARs for work within and adjacent the Columbia River took place in late 2010 and the first three quarters of 2011. These agencies included, but were not limited to: Washington Department of Ecology Hanford Office, Washington Department of Ecology Water Quality Division (Yakima), National Marine Fisheries Service (NMFS), United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USF&W), and Washington Department of Fish and Wildlife (WDFW). Through this process, it was determined that in-water work activities, such as introduction of fill material to the river for construction of the benches, could be completed only within specific in-water work windows timed to minimize adverse impacts to migratory fish populations. The in-water work window selected for installation of the benches was the summer window from August 1 through October 15, 2011.

Sediment Removal: Utilizing a vacuum apparatus connected to a pump feeding a water filtration system, contaminated sediment within the structures was removed by divers from July through August of 2011. In consultation with the Department of Ecology, and as outlined in WCH-446, divers made two vacuuming passes through each of the structures with a minimum of 12 hours settling time between each pass. The filtration system, composed of various components including a Geotube[®] sediment bag, paper filter media, sand filters, and granular activated charcoal (GAC) filters, was designed to remove 95% or more of the sediment from the water. The sediment laden water from each facility was passed through the filtration system and fed back to the interior of the structures from which it came. In September 2011 (See Attachment 5, CCN 161465), Ecology concurred that, based on visual inspection of the interior of the structures by divers, the amount of sediment removed from each structure was acceptable and fill of the interior of the structures with sand to the level of the bench could commence. The sediment captured from the facilities and the filtration media from the filtration system were disposed of at the ERDF.

Bench Installation: Installation of the earthen benches to isolate the structures from the river started in August and was completed in September of 2011. The benches were composed primarily of fill material from the 100-N borrow pit and basalt rock rip-rap material from an off-site quarry. Turbidity monitoring was performed in accordance with an approved monitoring plan (See Attachment 9). Completion of the benches isolated 181-N, -NA, -NB, -NE, and 1908-NE facilities from the Columbia River and made it possible to use conventional demolition equipment to demolish the facilities outside of the specified in-water work windows.

Sand fill of interior of structures: The interior of the structures were filled with borrow sand material from the ERDF. The sand displaced the water from the 181-N and 181-NE pumphouses through the stop logs and benches but the plug in the 1908-NE caused the facility to hold its water and approximately 260,000 gallons of water remained trapped inside the structure at the completion of backfill. The water did not evaporate readily and in March of 2012, with approval from DOE and Ecology, the structure was demolished in a controlled manner that allowed the water to soak into the surrounding soils/bench.

Demolition: The facilities were demolished using conventional heavy equipment. Demolition of the above-grade of the 181-NA guard tower began in January of 2012 when it was pulled over from the main 181-N structure. Demolition of the 181-NB began shortly thereafter and was followed by demolition of the 181-N main structure from February through April. Demolition of the above grade of the 181-NE and 1908-NE began in January and March of 2012, respectively. Removal of the below grade portions of the 181-N, 181-NE, and 1908-NE occurred in May through June of 2012, as allowed by unusually high river water flows/levels for that time of the year. Size reduction of demolition debris and loadout activities spanned the entire time period. Demolition debris was disposed of at the ERDF. There were no contaminants of concern for demolition as the facilities were not contaminated. There were no anomalies encountered during demolition of the 100-N River Structures.

Description of Deferral (as applicable):

All actions that remain for D4 is the re-sloping of the benches to a 4:1 grade from the Ordinary High Water Mark (OHWM) to the Ordinary Low Water Mark (OLWM) to create shallow water habitat consistent with direction resulting from consultation with NMFS.

FACILITY STATUS CHANGE FORM

Section 2: Underlying Soil Status

- No waste site(s) present. No additional actions anticipated.
- Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.
- Potential waste site discovered during D4 operations. Waste site identification number <to be> assigned.
Cleanup and closeout to be addressed under Record of Decision.

Description of Current/As-Left Conditions:

The 181-NA and -NB were completely demolished and removed as they were constructed on top of the 181-N. The 181-N, 181-NE, and 1908-NE, consistent with agreements and consultation with Ecology and ARARs agencies, were demolished to a level 3 feet below the grade of the existing riverbank and the benches installed to facilitate demolition of the structures. The remainder of the structures remain buried three feet below the grade of the riverbank and benches. The excavations that resulted from demolition operations were backfilled with fill material from the 100-N borrow pit.

The Sampling Determination Form (Attachment 10) is part of a process implemented by the *Removal Action Work Plan for 100-N Area Ancillary Facilities*, DOE/RL-2002-70, Revision 3. The Sampling Determination Form for the 181-N, -NA, -NB, -NE, and 1908-NE Facilities (SDF-100N-021) represents a regulatory agreement between DOE and the Lead Regulator (Ecology), and indicates that the requirements of the Action Memorandum have been met with respect to demonstrating that cleanup criteria, MTCA Method B for Chemical Constituents and 15 mRem above Hanford Site background for Radiological Constituents, have been achieved for soils and structures remaining after removal of the facilities. Further action will not be required by the D4 organization to demonstrate that cleanup criteria have been met for the 181-N, -NA, -NB, -NE, and 1908-NE Facilities.

Prior to installation of the bench, nine informational samples of river/shoreline sediment were collected at locations selected by Ecology where the bench was to be installed and fill material was to be placed along the shoreline in support of bench installation. The samples were collected to provide information in support of the final Record of Decision (ROD). The samples are addressed in WCH-446, Sampling and Analysis Plan for Disposition of the 181-N, 181-NE, and 1908-NE River Structures Rev. 0, (available in Tri Party Agreement Administrative Record, Document #11-AMRC-0196). The results of this sampling did not affect any decision associated with demolition of the river structures as the benches do not preclude any future remediation of sites to be addressed in the final ROD.

Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):

Several WIDS sites are in the general proximity of the 181-N, -NA, -NB, -NE, and 1908-NE Facilities. A description of each site is provided below. Unless specified otherwise the sites listed below are accepted waste sites and will be addressed under the 100-NR-1/100-NR-2 OU Interim Action ROD.

100-N-61:1 is a network of underground pipelines associated with water treatment and storage facilities that existed in the 100-N Area, primarily south of 109-N, but adjacent to the 181-N as well. Sections of this line in the vicinity of the 181-N were removed by Field Remediation (FR) in May of 2011, prior to D4 removing the facility. This site was not affected by D4 activities.

100-N-84:1 is a network of raw water pipelines that exists throughout the 100-N Area. With regards to 181-N and 181-NE, the fish return pipes were coded with this classification. All above grade portions of the lines were removed by D4 to a level 3 feet below the grade of the benches installed to facilitate demolition of the structures.

100-N-84:2 is a network of fuel and foam pipelines that exists throughout the 100-N Area. Sections of this line in the vicinity of the 181-N were removed by FR in May of 2011, prior to D4 removing the facility. This site was not affected by D4 activities.

100-N-84:3 is a network of filtered and potable water pipelines that exist throughout the 100-N Area. Sections of these lines in the vicinity of the 181-N were removed by FR in May of 2011, prior to D4 removing the facility. Sections of these lines in the vicinity of the 181-NE were not removed by FR. This site was not affected by D4 activities.

100-N-84:5 is a network of sanitary pipelines that exists throughout the 100-N Area. Sections of these lines in the

FACILITY STATUS CHANGE FORM

vicinity of the 181-N were removed by FR in May of 2011 in conjunction with removal of 100-N-61:1 piping. This site was not affected by D4 activities.

100-N-84:6 is a network of chemical and process sewer pipelines located throughout the 100-N Area. Sections of these lines in the vicinity of the 181-N were removed by FR in conjunction with removal of 100-N-61:1 piping. Sections of these lines in the vicinity of the 181-NE were not removed by FR. This site was not affected by D4 activities.

100-N-1 was also known as the HGP Settling Pond. This site has been removed and interim closed out. This site was not affected by D4 activities.

100-N-80 is one steel pipeline, extending from the face of 1908-NE into the main channel of the Columbia River. The pipeline extends 1,028-feet from the outfall face to its' discharge point in the Columbia River. 100-N-80 received single pass raw water which had passed through the HGP condensers, as well as waste water from the 100-N-1 Settling Basin. This site was not affected by D4 activities and will be addressed under the final Record of Decision (ROD).

Section 3: List of Attachments

1. Facility Information - Building History and Characterization
2. Pre- and Post-Demolition Photographs
3. WIDS Sites General Location Map
4. Pre- and Post-Demolition GPS Surveys
5. CCN 161465, Ecology approval of sediment removal as being complete as supported by visual inspections
6. CCN 165554, Ecology approval of D4 request to not perform GPERS surveys of the 100-N river structures
7. CCN 167269, Visual Inspection of staging pile area above 181-NE. Includes Ecology approval to operate Staging Pile.
8. Global Positioning Environmental Radiological Surveyor Surveys for Haul Road and Bench construction activities
9. Turbidity Monitoring Plan, Revision 1. Fowler General Construction 100-N River Structures Haul Road and Bench Design and Construction.
10. Sampling Determination Form for the 181-N, -NA, -NB, -NE, and 1908-NE Facilities (SDF-100N-021).

Rudy Guercia

DOE-RL

Date

Nina Menard

Lead Regulator

EPA

Ecology

Date

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Document Control, H0-30

Administrative Record, H6-08 (100-NR-2)

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Sample Design/Cleanup Verification: Megan Proctor, H4-22

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FR EPL: Dan Saueressig, N3-30

100-N D4 Project Facility Completion Form

Attachment 1: Facility Information (3 pages)

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Introduction

This document provides information regarding the 181-N, -NA, -NB, -NE, and 1908-NE (River Structures) facilities history, characterization and final status at the completion of deactivation, decontamination, decommissioning, and demolition (D4) activities.

Site Information

181-N River Pumphouse was a rectangular building partially situated in the Columbia River with a total outside foot print of 111-ft by 108-ft. The structure was constructed of reinforced concrete, masonry in fill walls, a flat concrete roof, and concrete wall foundation. The building contained two low-lift, diesel engine driven and four remotely operated, vertical, deep-well pumps with submerged bowls and impellers. 4 deep-well pumps with a design rating of 105,000 gpm each at 112-ft of head supplied the circulating raw water cooling system for the N-Reactor. Pumps 1 and 2 discharged into a 102-in distribution header, and pumps 3 and 4 discharged into a second distribution header of equal size. The facility had six traveling "trash" screens and supporting equipment.

The 181-NA Pump House Guard Tower was attached to the 181-N, and was used to provide housing and protection for security personnel to observe access to N-Reactor facility from the riverside. It was constructed of a steel frame 60-ft high, 8-ft wide, and 17-ft long with an enclosure at the top. The enclosure was made of heavy steel and bullet resistant glass with several gun turrets located around the perimeter of the enclosure just above the floor level.

The 181-NB #3 Diesel Enclosure was a structure added to the deck of the 181-N and provided additional emergency pumping capacity for cooling the N-Reactor. It was a small, pre-engineered metal building with metal siding and reinforced concrete roof.

The 181-NE HGP (Hanford Generating Plant) River Pump House was used to pump river water to the HGP's main condensers and auxiliary cooling water systems and provide service water. The 181-NE was constructed in the mid-1960's as part of the N Reactor complex, it was a 11,700-square-foot, rectangular, reinforced concrete structure, with footings approximately 25-feet below average river level and the operating deck 50-feet above. The building housed four electrically driven deep well pumps, rated at 141,000-gallons/minute each. A cinderblock building at the southwest corner of the deck housed a diesel powered pump for the HGP fire water system and two electrically driven back-up pumps. A pre-fabricated metal building on the southeast side of the operating deck housed pumps for the vacuum system and the pumps for priming the main water pumps. The facility had an overhead bridge crane, six traveling "trash" screens, a trash sump with return line, two electrical substations, and supporting equipment.

The 1908-NE HGP (Hanford Generating Plant) Outfall Structure was used to receive coolant water from the HGP and waste water discharged from the 100-N-1 (HGP Settling Pond), and discharge this waste/effluent water, approximately 1000-feet, into the Columbia River via an 11-foot diameter steel pipe. The 1908-NE was constructed in the mid-1960's as a reinforced concrete structure, partially situated in the Columbia River. The dimensions for the 1908-NE Building were cited at 76-feet wide, 102-feet long, and 49-feet tall, with concrete walls and

100-N D4 Project Facility Completion Form

floors up to 2-feet thick. The 1908-NE did not have any structures on its' operating deck except for a chain-link safety fence, some light stanchions, and an overhead bridge crane.

See Attachment 2 for pre- and post-demolition photos.

Radiological Scoping and Industrial Hygiene Baseline Surveys

Radiological scoping surveys were performed on the 181-N (includes 181-NA and -NB) and the 181-NE River Structures prior to demolition. None of the surveys identified contamination, the results are summarized in Table 1 below.

Industrial Hygiene Baseline surveys were conducted for 181-N (includes 181-NA and -NB) and 181-NE, the surveys included sampling for beryllium and other metals (lead, cadmium and chromium), as well as a general assessment for Industrial Hygiene issues. The baselines did not identify any potential concerns and a Beryllium Facility Assessment (BFA) form was completed that classified the facilities as "Beryllium Clean Facilities."

No radiological scoping surveys were conducted for the 1908-NE facility. The WIDS General Summary Report for the 1908-NE cites unspecified amounts of radiological contamination and hydrocarbons from waste-water were received via the 100-N-1 Settling Pond, however, the 1908-NE WIDS had previously been addressed in a Cleanup Verification Package and interim closed out with institutional controls with a Waste Site Reclassification Form. No IH Baseline survey was required, and this structure was not on the Hanford Site Beryllium List. Given the process knowledge of this facility, there was no credible pathway or source for beryllium contamination.

Table 1. Summary of Scoping Surveys

Type	Quantity	Method Detection Limits	Results
Radiological Scoping Surveys	Multiple. Each surveyed area included multiple sample locations and consisted of technical smears and direct readings.	In General- Alpha – 20 removable / 100 fixed (dpm/100cm ²) Beta-gamma – 1,000 removable / 5,000 fixed (dpm/100cm ²)	Survey results were below method detection limits.

Facility & Waste Characterization Sampling

Two certified asbestos inspections were conducted for the 181-N (Includes 181-NA and -NB) building. During the inspection 13 samples were taken, three of which contained greater than 1% Asbestos and were considered Asbestos Containing Material (ACM). Two certified asbestos inspections were conducted for the 181-NE building. During the inspection 26 samples were taken, 15 of which contained greater than 1% Asbestos and were considered ACM. One certified asbestos inspection was conducted for the 1908-NE. No potential asbestos containing material was identified or sampled. All Regulated Asbestos Containing Material (RACM) was, or had previously been, removed/abated prior to demolition of the structures.

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In addition to the samples analyzed in WCH-446, samples were taken of the river structures materials for waste characterization/designation purposes. The samples identified in Table 2 below were used for waste characterization/designation purposes.

Table 2. Waste Characterization Samples

Sample Number	Building	Sample Date	Sample logbook	Page	Material
J1C122	181N	18-Aug-2010	EL-1516-16	61	gasket
J1DXD7	181N	3-Feb-2011	EL-1516-17	20	biological
J01HK8	181-N	14-May-04	EL-1516-2	80	oil
J01J54	181-N	14-May-04	EL-1516-2	80	oil
J19714	181-N	15-Sep-2009	EL-1516-15	90-91	water
J19714	181-N	15-Sep-2009	EL-1516-15	90-91	water
J1NL03	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL04	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL05	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL06	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL11	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL12	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL13	1908-NE	29-Feb-2012	EL-1516-19	65	Water
J1NL14	1908-NE	29-Feb-2012	EL-1516-19	65	Water

Demolition

Demolition of the 181-N began with the pulling over of the 181-NA Guard Tower in January of 2012. Demolition of remainder of the structure, to include removal of the below grade components to a level 3 feet below the grade of the benches was completed in May of 2012. Demolition of the 181-NE, to include removal of the below grade components to a level 3 feet below the grade of the benches, began in January of 2012 and was completed in May of 2012. Demolition of the 1908-NE, to include removal of the below grade components to a level 3 feet below the grade of the benches, began in March of 2012 and was completed in May of 2012. Demolition debris was disposed of at the Environmental Restoration Disposal Facility (ERDF).

Post Demolition Radiological Surveys

In accordance with an agreement with Ecology, post demolition radiological surveys were not performed over the footprints of these facilities following demolition (See Attachment 6).

100-N D4 Project Facility Completion Form

Civil Survey Information

Pre- and post-demolition, as well as post backfill Global Positioning System (GPS) survey(s) were performed at all of the sites at various times throughout the various stages of the project. The surveys are included in Attachment 4.

Anomalies

There were no anomalies encountered during demolition of the 181-N, -NA, -NB, -NE, and 1908-NE facilities.

Final Building Status

The RCC contractor has demolished and removed all above grade portions, and the below grade portions to a level three feet below the grade of the existing river shoreline and the benches installed to facilitate demolition of the 181-N, -NA, -NB, -NE, and 1908-NE Facilities. The below grade portions of the facilities had previously been filled with sand and the excavations required to remove the structures to 3 feet below grade were backfilled with borrow material from the 100-N borrow pit. Work remaining to be performed is the re-sloping of the benches to 4:1 consistent with direction resulting from consultation with NMFS.

100-N D4 Project Facility Completion Form

Attachment 2. Project Photographs (2 Pages)

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Figure 1. 181-N River Pumphouse

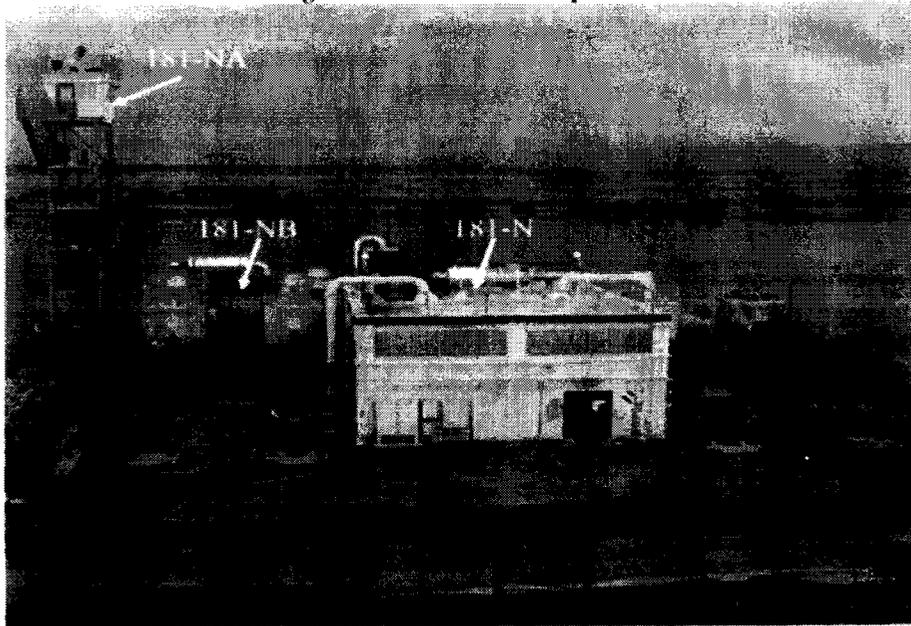
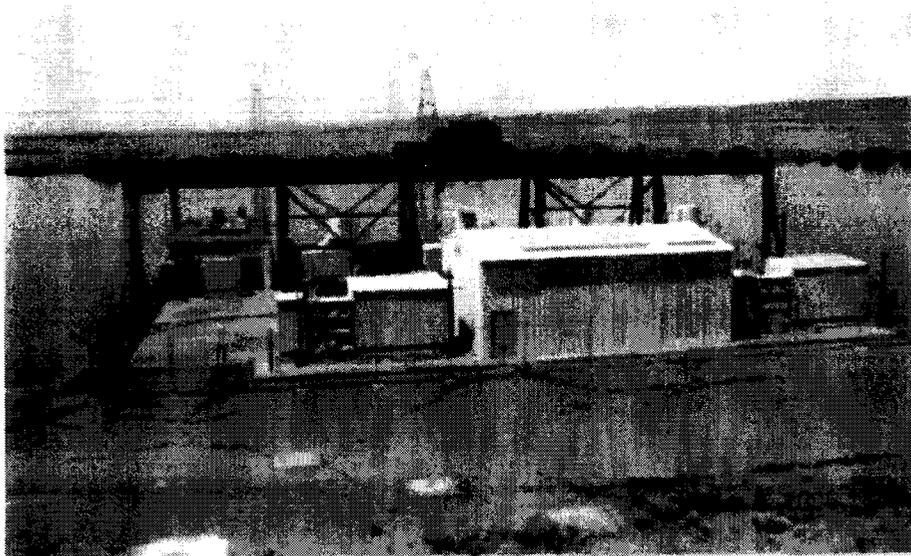


Figure 2. 181-NE HGP River Pumphouse



181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Figure 3. 1908-NE HGP Outfall

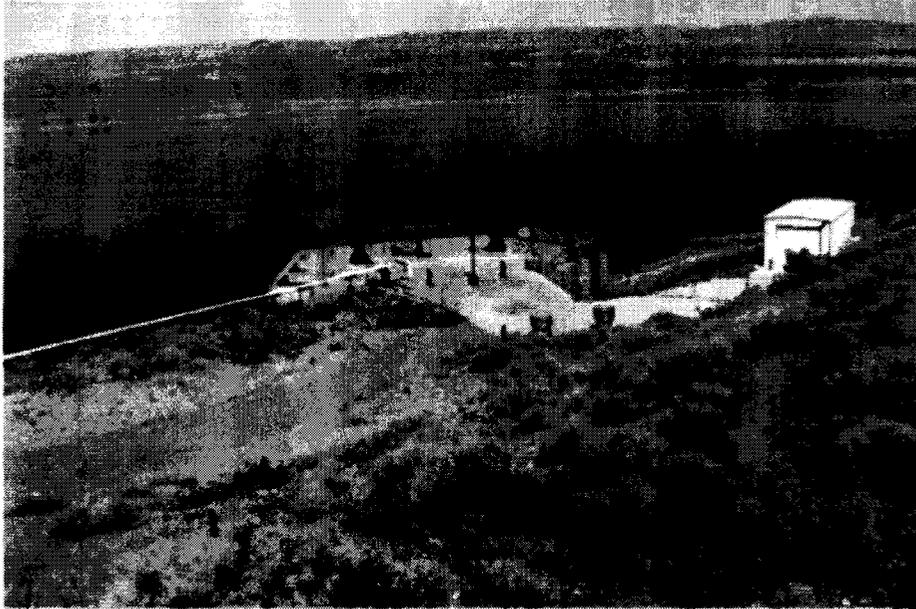
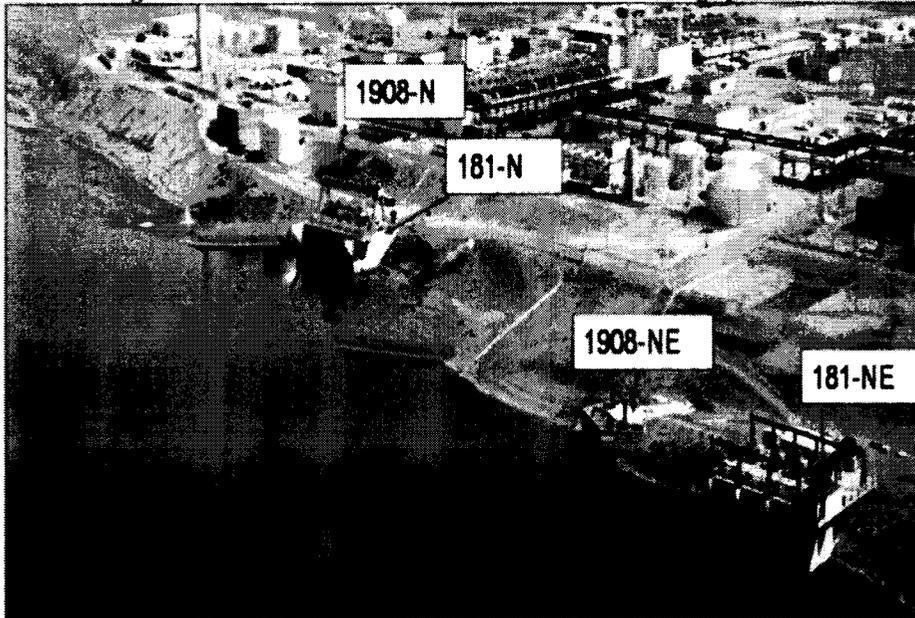


Figure 4. Aerial Photo of 100-N River Structures During operations



181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Figure 5. Aerial Photograph of 100-N River Structures following Haul Road construction (Cranes in place for installation of stop logs)

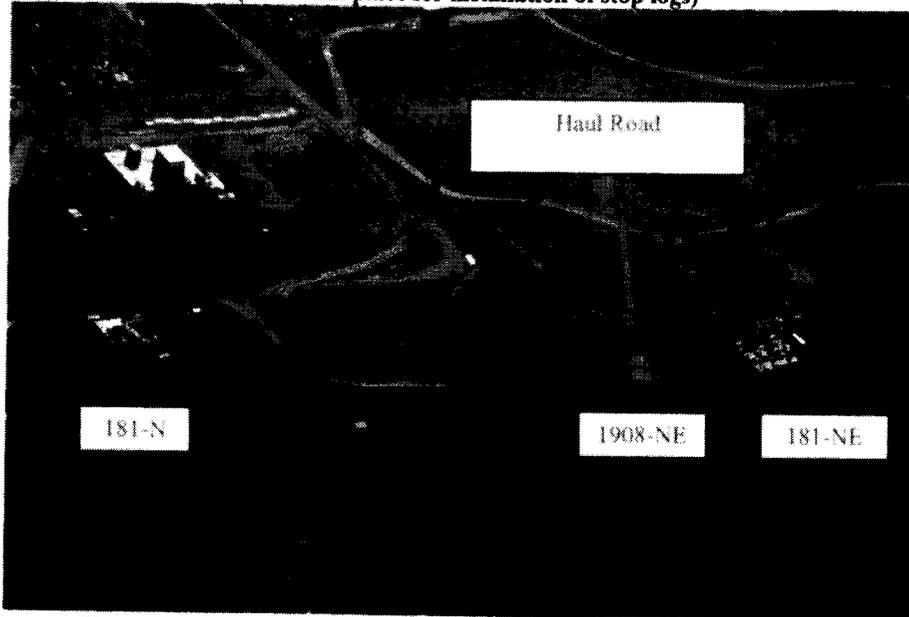


Figure 6. Aerial Photograph of 181-NE during sediment removal process



181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Figure 7. Aerial Photograph of 100-N River Structures following construction of benches

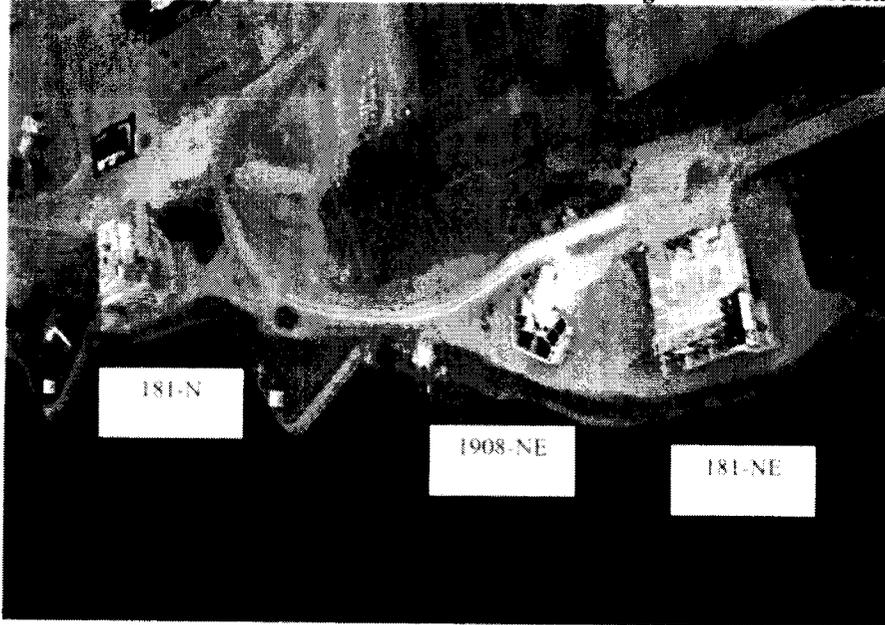


Figure 8. Photograph of 181-NE during sand fill operations



181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Figure 9. Photograph of 181-N post demolition

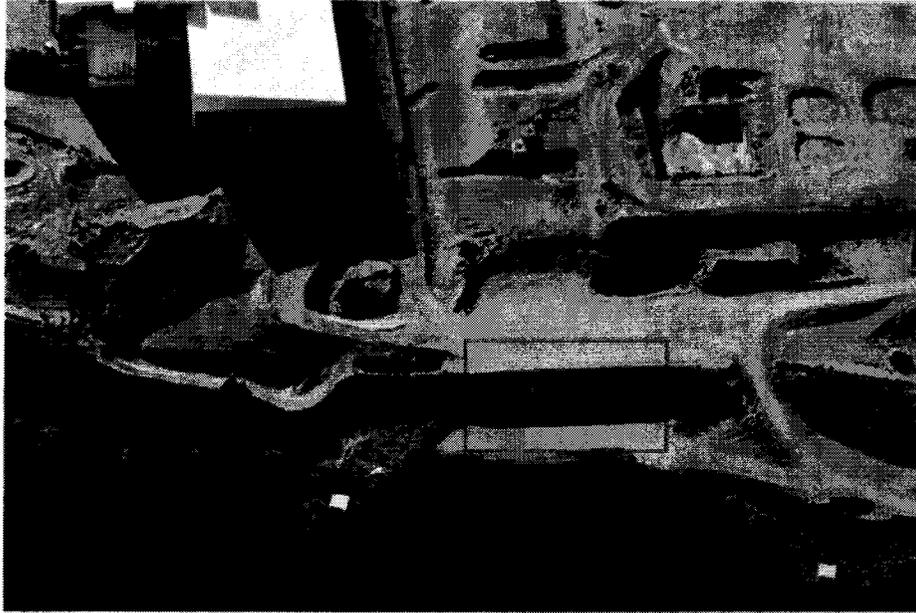
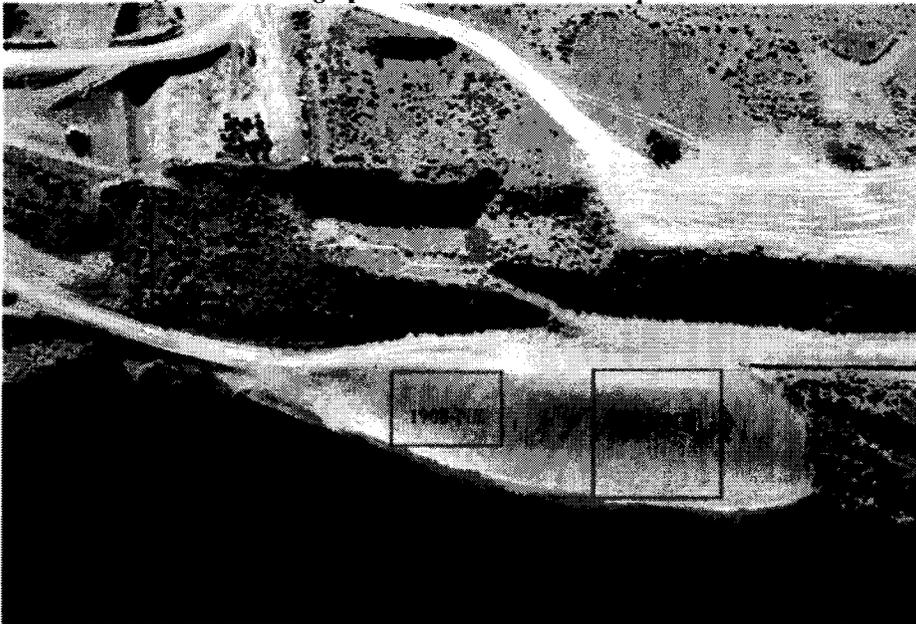


Figure 10. Photograph of 181-NE and 1908-NE post demolition



181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

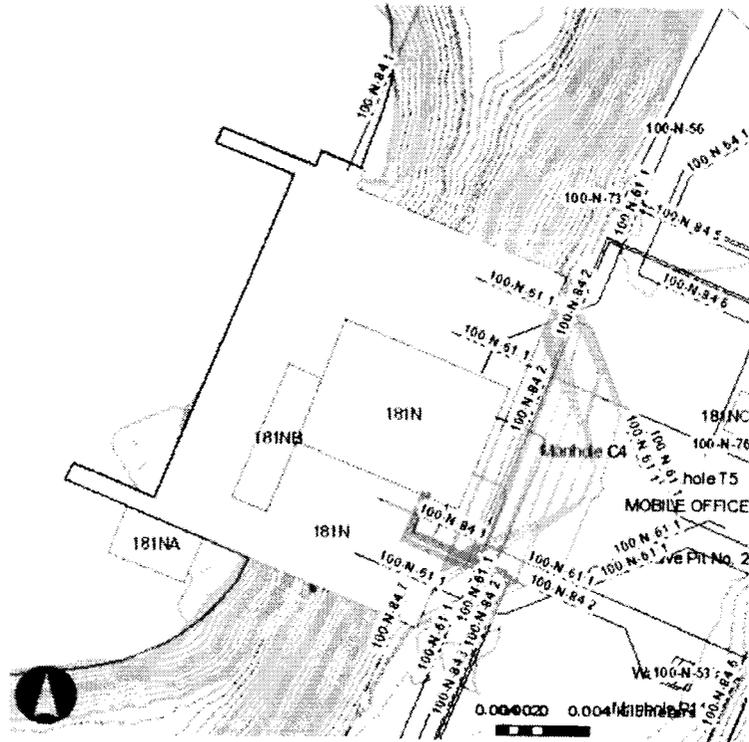
100-N D4 Project Facility Completion Form

Attachment 3. WIDS sites general location maps (2 pages)

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Map



181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N D4 Project Facility Completion Form

Attachment 4. Pre- and Post-Demolition GPS Surveys (30 Pages)

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

0635834

GPS Pre-Demo Survey for 181N Building

Project : 181Npredemo

User name	maaye	Date & Time	7:48:06 AM 6/25/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAD83	Geoid Model	GEOID96 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name:	Pre-Demo Survey for 181N
Date:	8/19/2009
Equipment:	5800
Survey Purpose:	Map building corners and foundation
Requested By:	100N
Location:	100N
Charge Code:	
Field Surveyor:	Margo Aye
Survey Software Used:	Trimble Survey Controller, and Geomatics Office V.11
Survey Equipment Used:	5800
Control Monuments Used:	N-2
Survey Method:	RTK
Horizontal Precision:	.020m
Vertical Precision:	.050m
Fieldwork Start Date:	3/06, 10/06, 12/11
Fieldwork Completion Date:	12/16/11
Notes:	Points with over 2000 were surveyed 12/16/11

Point-ID	Feat_Code	Description	Northing	Easting	Elevation	Elevation_ft
520	mh		149456.716	571012.379	127.995	419.952
521			149457.761	571014.434	127.995	419.952
522	corner-block		149448.611	571016.298	127.723	419.059
523	corner-block		149450.853	571017.204	127.738	419.108
524	corner-block		149452.161	571014.096	127.742	419.122
525	corner-block		149449.886	571013.172	127.737	419.105
526	corner-block		149454.207	571015.950	127.959	419.833
527	corner-block		149456.806	571016.941	128.039	420.096
528	corner-block		149453.272	571018.253	127.960	419.837
529	corner-block		149455.588	571019.273	128.004	419.981
530	corner-block		149467.696	571024.390	128.034	420.080
531	corner-block		149470.064	571025.399	128.003	419.978
532	corner-block		149471.039	571023.093	128.017	420.024
533	corner-block		149473.443	571024.042	128.021	420.037
534	corner-block		149472.480	571026.377	127.981	419.906
535	corner-block		149474.807	571027.335	128.027	420.057
536	corner-block		149475.814	571025.024	128.020	420.034
537	bldg-corner-offset		149469.385	571022.218	127.709	419.013
538	bldg-corner-offset		149467.089	571023.591	127.648	418.813
539	bldg-corner-offset		149456.137	571020.410	127.692	418.957
540	bldg-corner-offset		149455.207	571016.167	127.696	418.971
541	bldg-corner-offset		149482.390	571010.762	128.312	420.992
542	bldg-corner-offset		149476.233	571001.397	129.457	424.748
1661	corner-bldg		149462.634	571003.447	129.229	424.000

1662	corner-bldg		149474.216	571007.203	129.268	424.128
1709	corner-bldg		149457.108	571016.730	129.341	424.368
1710	corner-bldg		149468.065	571021.358	129.269	424.132
2035	181N-topo-pt		149450.118	571008.835	129.328	424.325
2036	181N-topo-pt		149475.333	571028.796	129.310	424.266
2046	Surface-topo		149477.646	571026.356	129.127	423.666
2047	Surface-topo		149446.540	571013.799	129.283	424.178
2048	Surface-topo		149452.439	570984.482	120.784	396.292
2049	Surface-topo		149467.087	570990.086	120.649	395.849
2050	Surface-topo		149484.452	570996.298	120.588	395.649
2051	Surface-topo		149491.735	571003.115	120.601	395.692
2052	Surface-topo		149487.464	571013.659	120.675	395.935
2053	corner+ topo		149491.034	571001.508	120.579	395.620
2054	corner+ topo		149488.945	570998.677	120.594	395.669
2055	corner+ topo		149487.898	570998.238	120.558	395.551
2056	corner+ topo		149485.457	570999.146	120.590	395.656
2057	conc-edge		149476.907	570997.489	120.618	395.748
2058	conc-edge		149483.580	571000.139	120.791	396.315
2059	conc-edge		149465.859	570992.833	120.637	395.810
2060	corner+ topo		149462.379	570989.343	120.587	395.646
2061	corner+ topo		149460.085	570985.679	120.589	395.653
2062	corner+ topo		149459.914	570983.138	120.587	395.646
2063	corner+ topo		149454.871	570986.303	120.714	396.063
2064	Surface-topo		149447.955	570999.738	121.243	397.798
2065	Surface-topo		149451.635	571001.707	121.334	398.097
2121	corner	Offset	149487.216	570999.891	0.000	0.000
2122	corner	Offset	149488.262	571000.334	0.000	0.000
2123	corner	Offset	149486.591	571001.409	0.000	0.000
2124	corner	Offset	149458.428	570989.698	0.000	0.000
2125	corner	Offset	149459.119	570988.023	0.000	0.000
2126	corner	Offset	149458.075	570987.601	0.000	0.000

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GPS Post Demo Survey Report for 181N

Project : River-struct-post

User name	maaye	Date & Time	4:48:31 PM 6/25/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAVD88	Geoid Model	GEOID99 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: 181N Post Demo Survey
 Date: 6/25/2012
 Equipment: 5800
 Survey Purpose: Map surface elevations
 Requested By: Mark Allen
 Location: 100N
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 4/18/12
 Fieldwork Completion Date: 5/21/12
 Notes:

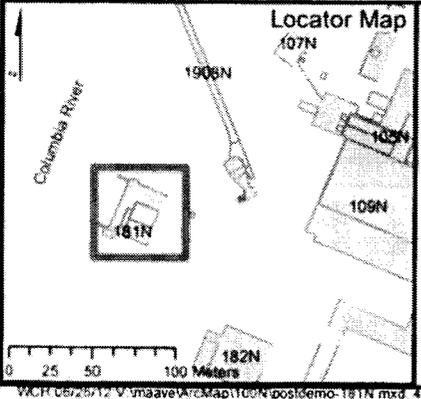
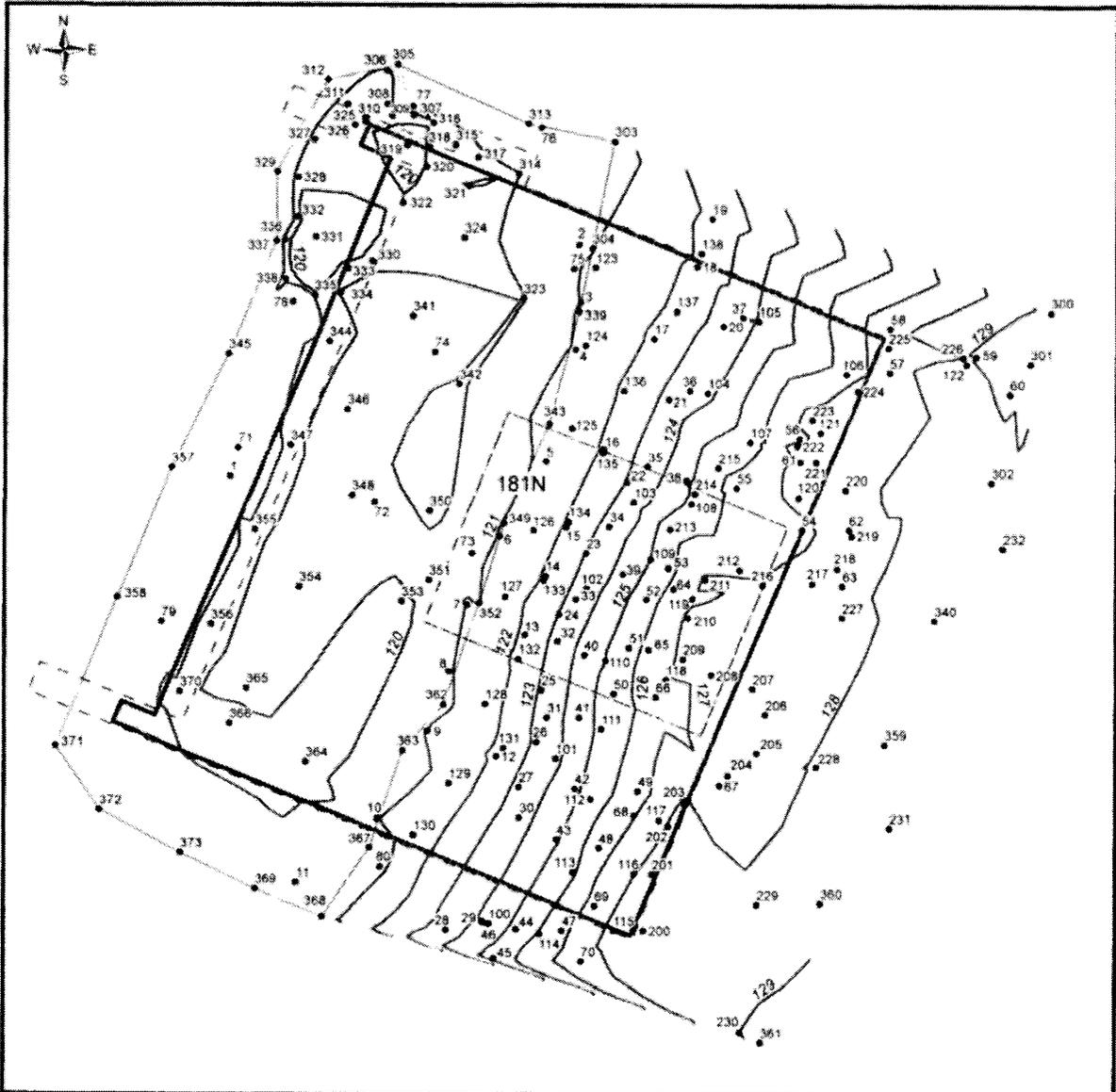
Name	Northing	Easting	Elevation	Feature Code	Description:
1	149470.511m	570993.425m	120.696m	cp	
2	149482.240m	571010.874m	120.917m		
3	149479.319m	571010.986m	121.023m		
4	149476.950m	571010.711m	121.099m		
5	149471.293m	571009.259m	121.213m		
6	149467.534m	571006.954m	121.032m	toe	
7	149464.069m	571005.352m	121.039m	toe	
8	149460.695m	571004.445m	120.927m	toe	
9	149457.647m	571003.369m	121.058m	toe	
10	149453.233m	571000.864m	120.969m	toe	
11	149449.996m	570996.830m	120.875m	toe	
12	149456.416m	571006.800m	122.164m	topo	
13	149462.535m	571008.222m	122.157m	topo	
14	149465.528m	571009.244m	122.095m	topo	
15	149467.992m	571010.281m	122.094m	topo	
16	149471.936m	571012.171m	122.131m	topo	
17	149477.500m	571014.666m	122.142m	topo	
18	149481.132m	571016.843m	122.187m	topo	
19	149483.524m	571017.619m	122.200m	topo	
20	149478.132m	571018.186m	123.485m	topo	
21	149474.444m	571015.432m	123.266m	topo	
22	149470.243m	571013.322m	123.040m	topo	
23	149466.655m	571011.308m	123.048m	topo	
24	149463.580m	571009.946m	123.048m	topo	
25	149459.747m	571009.067m	123.110m	topo	
26	149457.136m	571008.837m	123.147m	topo	
27	149454.868m	571007.940m	123.207m	topo	
28	149447.626m	571004.347m	123.469m	topo	
29	149448.084m	571006.144m	124.148m	topo	
30	149453.299m	571007.982m	123.603m	topo	
31	149458.344m	571009.358m	123.436m	topo	
32	149462.220m	571009.882m	123.317m	topo	
33	149464.362m	571010.800m	123.335m	topo	
34	149468.012m	571012.478m	123.339m	topo	
35	149471.033m	571014.366m	123.463m	topo	
36	149474.854m	571016.498m	123.602m	topo	

37	149478.572m	571019.173m	123.955m	topo
38	149470.337m	571016.343m	124.751m	topo
39	149465.637m	571013.168m	124.320m	topo
40	149461.535m	571011.240m	124.379m	topo
41	149458.363m	571010.968m	124.519m	topo
42	149454.770m	571010.762m	124.762m	topo
43	149452.202m	571009.863m	124.905m	topo
44	149447.662m	571007.840m	125.294m	topo
45	149446.194m	571006.713m	125.427m	topo
46	149448.014m	571006.203m	124.295m	t9stormh20-drnpipe
47	149447.594m	571010.146m	126.772m	topo
48	149451.766m	571012.009m	126.580m	topo
49	149454.639m	571013.947m	126.611m	topo
50	149459.552m	571012.729m	125.644m	topo
51	149461.900m	571013.478m	125.661m	topo
52	149464.369m	571014.332m	125.610m	topo
53	149465.926m	571015.430m	125.684m	topo
54	149467.842m	571022.204m	126.721m	topo
55	149469.975m	571018.891m	126.278m	topo
56	149472.462m	571022.063m	126.770m	topo
57	149475.794m	571026.649m	127.665m	topo
58	149478.035m	571026.681m	127.700m	topo
59	149476.618m	571031.026m	129.132m	topo
60	149474.723m	571032.693m	129.213m	topo
61	149471.265m	571022.119m	127.246m	topo
62	149467.853m	571024.595m	127.801m	topo
63	149465.046m	571024.262m	127.797m	topo
64	149464.871m	571015.696m	126.245m	topo
65	149461.797m	571014.449m	126.246m	topo
66	149459.404m	571014.817m	126.465m	topo
67	149454.922m	571018.088m	127.355m	topo
68	149453.423m	571013.758m	126.951m	topo
69	149448.817m	571011.782m	127.382m	topo
70	149446.039m	571011.116m	127.740m	topo
71	149471.966m	570993.808m	120.632m	topo
72	149469.239m	571000.688m	120.740m	topo
73	149466.657m	571005.571m	120.793m	topo
74	149476.814m	571003.657m	120.750m	topo
75	149481.026m	571010.628m	120.970m	toe
76	149488.100m	571008.979m	120.756m	topo
77	149489.179m	571002.524m	120.588m	topo
78	149479.328m	570996.559m	120.632m	topo
79	149463.163m	570990.042m	120.637m	topo
80	149450.772m	571001.003m	120.783m	toe
100	149447.935m	571006.457m	124.268m	topo
101	149456.290m	571009.788m	123.777m	topo
102	149464.891m	571011.319m	123.488m	topo
103	149469.254m	571013.674m	123.550m	topo
104	149474.736m	571017.414m	123.789m	topo
105	149478.384m	571019.979m	124.068m	topo
106	149475.723m	571024.436m	126.376m	topo
107	149472.283m	571019.579m	125.629m	topo
108	149469.161m	571016.616m	125.225m	topo
109	149466.350m	571014.533m	125.009m	topo
110	149461.255m	571012.298m	125.002m	topo
111	149457.777m	571012.107m	125.239m	topo
112	149454.220m	571011.568m	125.492m	topo
113	149450.530m	571010.681m	125.862m	topo
114	149447.436m	571009.006m	126.074m	topo
115	149447.588m	571012.742m	128.269m	topo
116	149450.468m	571013.765m	127.980m	topo
117	149453.161m	571015.008m	127.765m	topo
118	149460.286m	571015.343m	126.934m	topo
119	149464.384m	571016.690m	126.902m	topo
120	149469.478m	571022.034m	127.267m	topo
121	149472.757m	571023.136m	127.268m	topo
122	149476.220m	571030.518m	128.764m	topo
123	149481.068m	571011.716m	121.072m	topo
124	149477.140m	571011.235m	121.211m	topo
125	149472.967m	571010.569m	121.339m	topo
126	149467.826m	571008.655m	121.436m	topo

127	149464.468m	571007.231m	121.430m	topo
128	149459.052m	571006.243m	121.454m	topo
129	149455.045m	571004.466m	121.291m	topo
130	149452.414m	571002.685m	121.327m	topo
131	149456.836m	571007.170m	122.253m	topo
132	149461.335m	571007.905m	122.167m	topo
133	149465.325m	571009.166m	122.112m	topo
134	149468.238m	571010.408m	122.083m	topo
135	149471.734m	571012.125m	122.098m	topo
136	149474.869m	571013.161m	122.116m	topo
137	149478.869m	571015.822m	122.163m	topo
138	149481.793m	571017.061m	122.086m	topo
200	149447.596m	571014.236m	128.536m	top
201	149450.427m	571014.663m	128.267m	top
202	149452.884m	571015.478m	128.066m	top
203	149454.049m	571016.283m	128.109m	top
204	149455.436m	571018.489m	127.671m	top
205	149456.571m	571019.950m	127.672m	top
206	149458.508m	571020.392m	127.557m	top
207	149459.818m	571019.733m	127.495m	top
208	149460.514m	571017.630m	127.317m	top
209	149461.328m	571016.201m	127.207m	top
210	149463.394m	571016.444m	127.149m	top
211	149465.341m	571017.301m	127.127m	top
212	149465.821m	571019.067m	126.883m	top
213	149467.871m	571015.523m	125.584m	top
214	149469.665m	571016.777m	125.523m	top
215	149470.975m	571017.970m	125.825m	top
216	149465.071m	571020.217m	127.114m	top
217	149465.144m	571022.731m	127.501m	top
218	149465.895m	571024.003m	127.768m	top
219	149467.521m	571024.735m	127.715m	top
220	149469.881m	571024.423m	127.836m	top
221	149471.261m	571022.891m	127.643m	top
222	149472.098m	571021.951m	127.448m	top
223	149473.412m	571022.708m	127.413m	top
224	149474.871m	571025.018m	127.632m	top
225	149477.040m	571026.586m	127.660m	top
226	149476.562m	571030.357m	127.979m	top
227	149463.429m	571024.250m	127.718m	top
228	149455.892m	571022.967m	128.060m	top
229	149448.899m	571019.999m	128.267m	top
230	149442.439m	571019.160m	129.003m	top
231	149452.797m	571026.686m	128.534m	top
232	149466.915m	571032.389m	128.655m	top
300	149478.835m	571034.738m	129.324m	top
301	149476.262m	571033.712m	129.305m	top
302	149470.254m	571031.785m	128.511m	top
303	149487.421m	571012.689m	120.587m	toe
304	149482.049m	571011.564m	120.983m	toe
305	149491.297m	571001.746m	120.502m	daylight
306	149491.005m	571001.221m	119.830m	edge-bottom
307	149488.738m	571002.580m	119.735m	elev-ck
308	149489.296m	571001.255m	119.856m	elev-ck
309	149488.711m	571001.469m	119.735m	elev-ck
310	149488.605m	571000.154m	119.726m	
311	149489.267m	570999.246m	119.813m	edge-bottom
312	149490.534m	570998.261m	120.396m	daylight
313	149488.310m	571008.316m	120.502m	daylight
314	149485.808m	571007.830m	119.993m	elev-ck
315	149487.257m	571004.677m	119.842m	elev-ck
316	149488.340m	571003.541m	119.867m	elev-ck
317	149486.654m	571005.813m	119.925m	elev-ck
318	149487.137m	571003.362m	119.897m	elev-ck
319	149487.221m	571002.254m	120.590m	topo-conc
320	149486.162m	571003.220m	119.953m	edge-bottom
321	149485.212m	571005.351m	120.008m	elev-ck
322	149484.345m	571002.045m	119.897m	edge-bottom
323	149479.524m	571008.090m	119.971m	topo
324	149482.595m	571005.132m	119.617m	topo
325	149488.381m	571000.157m	119.668m	elev-ck

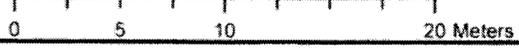
326	149488.230m	570999.624m	119.705m	
327	149487.483m	570997.616m	119.851m	edge-bottom
328	149485.602m	570996.818m	119.887m	edge-bottom
329	149485.881m	570995.759m	120.408m	daylight
330	149481.415m	571000.489m	119.912m	edge-bottom
331	149482.615m	570997.680m	120.416m	topo
332	149483.624m	570996.758m	119.882m	edge-bottom
333	149481.033m	570999.307m	119.906m	topo
334	149479.822m	570998.947m	120.013m	edge-bottom
335	149479.636m	570997.656m	119.968m	edge-bottom
336	149482.466m	570996.133m	119.897m	edge-bottom
337	149482.397m	570995.731m	120.432m	daylight
338	149480.471m	570996.181m	119.892m	edge-bottom
339	149478.866m	571010.907m	121.093m	toe
340	149463.280m	571028.938m	128.419m	topo
341	149478.630m	571002.573m	120.391m	topo
342	149475.221m	571004.910m	119.889m	topo
343	149473.201m	571009.410m	121.294m	toe
344	149477.353m	570998.391m	119.810m	topo
345	149476.702m	570993.327m	120.571m	daylight
346	149473.920m	570999.298m	120.330m	topo
347	149472.122m	570996.473m	119.888m	topo
348	149469.570m	570999.535m	120.397m	topo
349	149468.171m	571007.162m	121.045m	toe
350	149468.796m	571003.438m	119.724m	topo
351	149465.310m	571003.413m	120.756m	top
352	149464.171m	571005.947m	120.984m	toe
353	149464.236m	571002.052m	119.745m	topo
354	149464.964m	570996.947m	120.473m	topo
355	149467.825m	570994.689m	119.867m	topo
356	149463.063m	570992.511m	119.778m	topo
357	149470.957m	570990.525m	120.556m	daylight
358	149464.398m	570987.775m	120.592m	daylight
359	149457.029m	571026.436m	128.419m	top
360	149448.962m	571023.192m	128.578m	top
361	149441.935m	571020.202m	129.299m	top
362	149459.009m	571004.172m	120.848m	toe
363	149456.705m	571002.137m	120.542m	toe
364	149456.110m	570997.283m	119.560m	topo
365	149459.809m	570994.289m	120.304m	topo
366	149458.032m	570993.450m	119.594m	topo
367	149451.754m	571000.479m	120.532m	toe
368	149448.270m	570998.131m	120.599m	toe
369	149449.661m	570994.744m	120.556m	daylight
370	149459.643m	570990.976m	119.860m	topo
371	149456.881m	570984.760m	120.605m	daylight
372	149453.630m	570986.935m	120.738m	daylight
373	149451.491m	570991.032m	120.667m	daylight

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181N Post Demolition GPS Survey

- GPS Survey Points
See Survey Report For Point Details
- Major Contour 1 m
- Minor Contour 2 m
- Excavation Toe Area
- Building Footprint (Pre Demo)
- - - Building Outline (Pre Demo)



W:\CP\0528\12 V:\naave\ArcMap\100n postdemo-181N.mxd 4:45:40 PM

GPS Post Demo Back Fill Survey Report for 181N

Project : 100N-053012

User name	maaye	Date & Time	3:33:27 PM 6/21/2012
Coordinate System	US State Plane 1983 (WGS 84)	Zone	Washington South 4602
Project Datum	NAVD88	Geoid Model	Not selected
Vertical Datum	NAVD88		
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: Post Demo Survey for the 181N
 Date: 5/31/2012
 Equipment: 5800
 Survey Purpose: Map the remaining features for 181N
 Requested By: Mark Allen
 Location: 100N
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 5/30/12
 Fieldwork Completion Date: 5/30/12
 Notes:

Name	Northing	Easting	Elevation	Feature Code	Description:
2017	149421.370m	571010.401m	129.825m	topo	
2000	149427.860m	571001.414m	129.467m	top	
2016	149433.782m	571016.264m	129.447m	topo	
2001	149432.050m	571003.850m	129.446m	top	
2002	149436.161m	571005.994m	129.250m	top	
2015	149450.497m	571023.215m	129.188m	topo	
2014	149464.347m	571028.541m	129.184m	topo	
2010	149475.786m	571024.542m	129.171m	top	
2004	149444.866m	571010.477m	129.162m	top	
2003	149440.862m	571008.399m	129.160m	top	
2013	149477.570m	571034.594m	129.098m	topo	
2008	149464.648m	571019.558m	129.058m	top	
2005	149450.155m	571012.711m	129.058m	top	
2011	149481.238m	571026.638m	129.028m	top	
2007	149459.515m	571017.251m	129.009m	top	
2009	149470.491m	571022.058m	129.002m	top	
2006	149455.108m	571014.875m	128.947m	top	
2012	149486.127m	571029.579m	128.833m	top	
1038	149433.760m	570999.353m	125.859m	mid-slope	
1033	149485.087m	571021.851m	125.745m	mid-slope	
1034	149482.278m	571020.196m	125.593m	mid-slope	
1032	149485.387m	571021.182m	125.381m	mid-slope	
1039	149440.888m	571002.232m	125.375m	mid-slope	
1050	149480.656m	571019.052m	125.375m	mid-slope	
1048	149471.421m	571015.193m	125.334m	mid-slope	
1049	149477.545m	571017.470m	125.045m	mid-slope	
1047	149469.040m	571013.744m	125.013m	mid-slope	
1036	149472.971m	571015.081m	124.835m	mid-slope	
1035	149476.890m	571016.712m	124.694m	mid-slope	
1046	149464.919m	571011.524m	124.660m	mid-slope	
1037	149457.541m	571008.269m	124.570m	mid-slope	
1040	149445.845m	571003.246m	124.564m	mid-slope	
1045	149462.019m	571009.991m	124.420m	mid-slope	
1041	149450.632m	571005.078m	124.236m	mid-slope	
1044	149458.081m	571007.841m	124.161m	mid-slope	
1042	149453.762m	571006.040m	124.153m	mid-slope	

1043	149456.616m	571007.190m	124.140m	mid-stope
1051	149438.015m	570993.586m	121.883m	toe
2018	149437.091m	570993.301m	121.872m	toe
1052	149452.016m	571001.348m	121.852m	toe
2025	149481.164m	571013.802m	121.651m	toe
2026	149488.290m	571015.865m	121.602m	toe
2024	149473.745m	571010.058m	121.558m	toe
2019	149443.197m	570996.360m	121.532m	toe
2020	149450.073m	570999.598m	121.507m	toe
2021	149455.663m	571002.097m	121.484m	toe
2042	149489.704m	571016.255m	121.447m	toe
2023	149467.361m	571007.144m	121.434m	toe
2022	149461.817m	571004.610m	121.388m	toe
2041	149496.323m	571016.079m	121.133m	topo
2031	149445.729m	570990.506m	121.110m	topo
2030	149457.401m	570995.316m	121.077m	topo
2028	149479.945m	571003.702m	121.065m	topo
2029	149469.648m	570999.720m	121.032m	topo
2043	149445.867m	570979.727m	120.974m	topo
2040	149497.689m	571014.817m	120.974m	topo
2039	149501.413m	571013.635m	120.869m	topo
2027	149488.512m	571007.694m	120.809m	topo
2032	149450.994m	570982.989m	120.791m	topo
2033	149477.325m	570996.388m	120.702m	topo
2036	149488.976m	571000.698m	120.693m	topo
2034	149468.820m	570991.494m	120.685m	topo
2033	149460.082m	570987.183m	120.657m	topo
2044	149463.319m	570992.112m	120.654m	cp6
2038	149503.037m	571010.352m	120.653m	topo
2037	149501.327m	571006.408m	120.604m	topo

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0635849

GPS Pre-Demo Survey for 181NE Building

Project : 181Npredemo

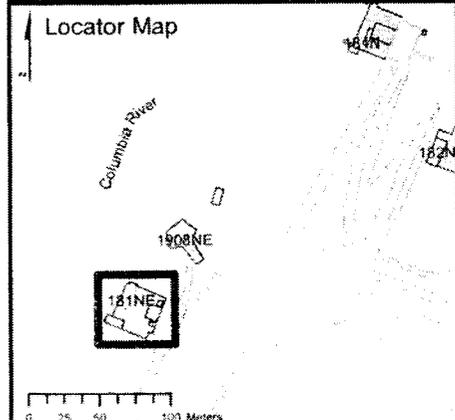
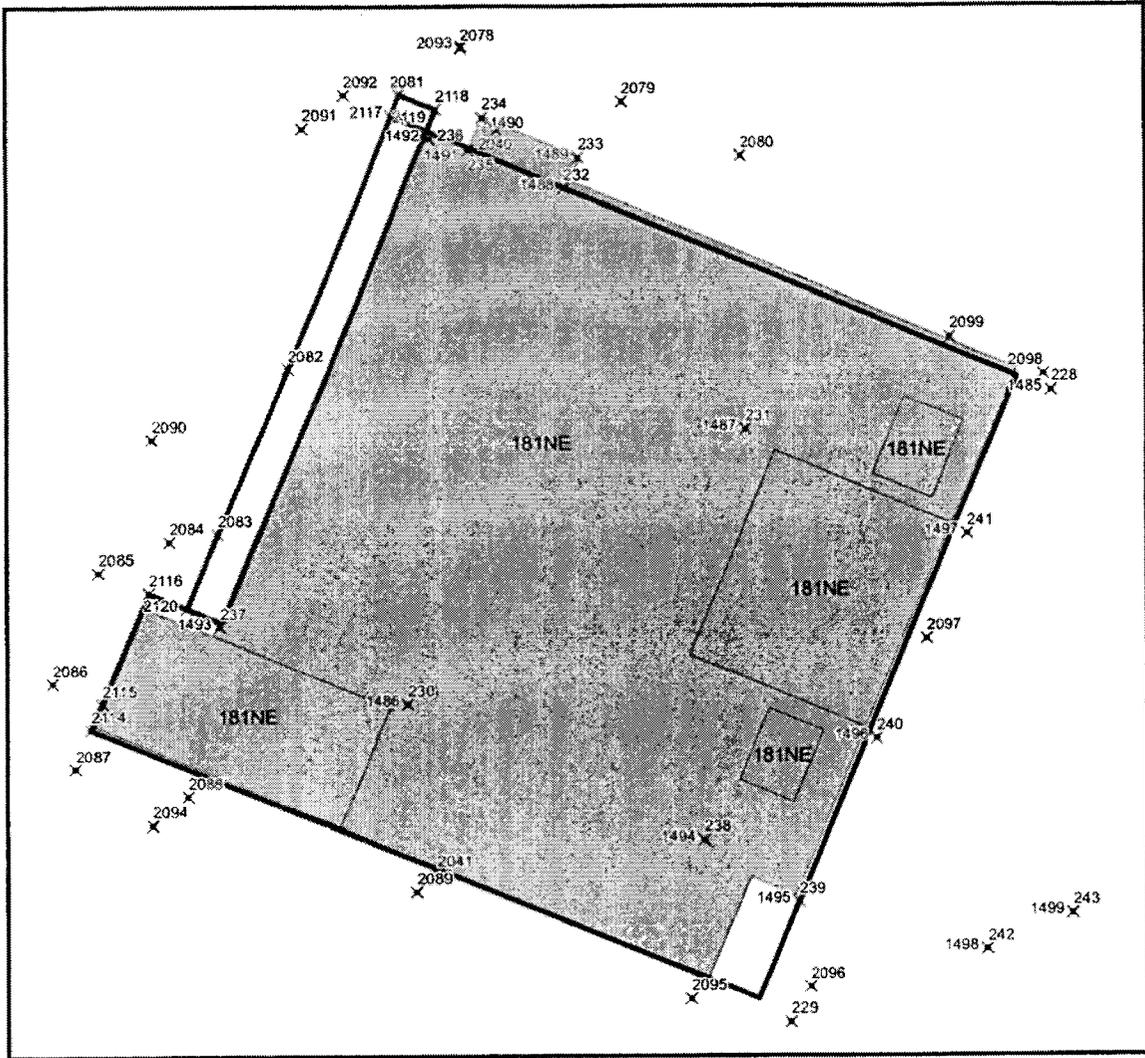
User name	maaye	Date & Time	7:48:06 AM 6/25/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAD83	Geoid Model	GEOID96 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: Pre-Demo Survey for 181NE
 Date: 8/19/2009
 Equipment: 5800
 Survey Purpose: Map building corners and foundation
 Requested By: 100N
 Location: 100N
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 3/06, 10/06, 12/11
 Fieldwork Completion Date: 12/16/11
 Notes: Points with over 2000 were surveyed 12/16/11

name_id	Feat_Code	Desc_	Northing	Easting	Elevation	Elev_ft
228	corner-bldg		149274.408	570859.350	129.274	424.148
229	corner-bldg		149243.991	570846.748	129.359	424.427
230	corner-bldg		149259.376	570828.580	129.336	424.351
231	corner-bldg		149272.597	570844.652	127.926	419.725
232	corner-bldg		149284.107	570836.088	129.489	424.853
233	corner-bldg		149285.568	570836.775	129.489	424.853
234	corner-bldg		149287.485	570832.191	129.477	424.814
235	corner-bldg		149285.942	570831.506	129.485	424.840
236	corner-bldg		149286.493	570829.678	129.606	425.237
237	corner-bldg		149263.120	570819.682	129.842	426.012
238	transformer		149252.805	570842.623	129.543	425.031
239	transformer		149249.784	570847.151	129.348	424.391
240	transformer		149257.645	570850.952	129.312	424.273
241	transformer		149267.511	570855.344	129.363	424.440
242	mh-power		149247.486	570856.232	129.289	424.197
243	mh-power		149249.194	570860.280	129.267	424.125
1485	corner-bldg-fence		149274.408	570859.350	129.273	424.145
1486	corner-bldg		149259.376	570828.580	129.335	424.348
1487	corner-bldg-offset		149272.597	570844.652	127.925	419.722
1488	corner-bldg-fence		149284.107	570836.088	129.488	424.850
1489	corner-bldg-fence		149285.568	570836.775	129.488	424.850
1490	corner-bldg-fence		149287.485	570832.191	129.476	424.811
1491	corner-bldg-fence		149285.942	570831.506	129.484	424.837
1492	corner-bldg-fence		149286.493	570829.678	129.605	425.234

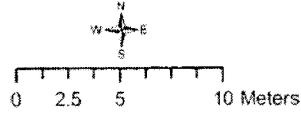
1493	corner-bldg		149263.120	570819.682	129.841	426.008
1494	transformer?		149252.805	570842.623	129.542	425.027
1495	corner-bldg-fence		149249.784	570847.151	129.347	424.388
1496	corner-bldg		149257.645	570850.952	129.311	424.269
1497	corner-bldg		149267.511	570855.344	129.362	424.437
1498	mh-power		149247.486	570856.232	129.288	424.194
1499	mh-power		149249.194	570860.280	129.266	424.122
2040	181NE-topo-pt		149286.925	570832.855	129.329	424.328
2041	181NE-topo-pt		149251.165	570829.899	129.331	424.335
2078	Surface-topo		149290.795	570831.192	120.634	395.800
2079	Surface-topo		149288.207	570838.865	120.698	396.010
2080	Surface-topo		149285.629	570844.463	120.852	396.515
2081	conc-edge		149288.579	570828.281	120.635	395.803
2082	conc-edge		149275.530	570822.926	120.577	395.613
2083	conc-edge		149267.587	570819.588	120.617	395.744
2084	corner+ topo		149267.232	570817.289	120.681	395.954
2085	corner+ topo		149265.734	570813.944	120.572	395.597
2086	corner+ topo		149260.397	570811.771	120.688	395.977
2087	corner+ topo		149256.291	570812.823	120.670	395.918
2088	Surface-topo		149254.942	570818.133	121.104	397.342
2089	Surface-topo		149250.317	570828.960	123.800	406.188
2090	Surface-topo		149272.154	570816.454	120.611	395.725
2091	Surface-topo		149286.988	570823.650	120.607	395.712
2092	corner+ topo		149288.564	570825.583	120.654	395.866
2093	corner+ topo		149290.911	570831.222	120.581	395.626
2094	corner+ topo		149253.564	570816.445	120.973	396.912
2095	Surface-topo		149245.121	570841.976	129.152	423.748
2096	Surface-topo		149245.673	570847.692	129.494	424.870
2097	Surface-topo		149262.461	570853.396	129.502	424.896
2098	Surface-topo		149275.179	570858.991	129.227	423.994
2099	Surface-topo		149276.980	570854.546	128.278	420.880
2114	corner	COGO generated	149258.155	570813.583	0.000	0.000
2115	corner	COGO generated	149259.402	570814.093	0.000	0.000
2116	corner	COGO generated	149264.770	570816.284	0.000	0.000
2117	corner	COGO generated	149287.601	570827.880	0.000	0.000
2118	corner	COGO generated	149287.875	570829.988	0.000	0.000
2119	corner	COGO generated	149286.898	570829.555	0.000	0.000
2120	corner	COGO generated	149264.024	570818.091	0.000	0.000

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Pre-Demolition Survey For the 181NE Building

- × GPS Point Locations
See Survey Report for Point Details
- Building Footprint
- ▨ 181NE Building Pre-Demolition



0635850

GPS Post Demo Survey Report for 181NE

Project : River-struc-post

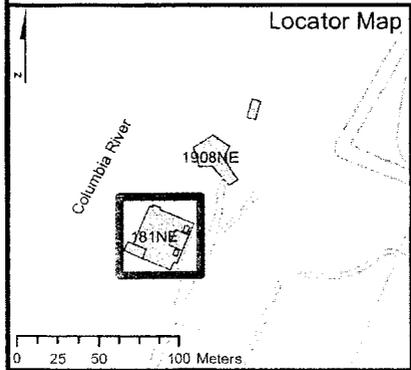
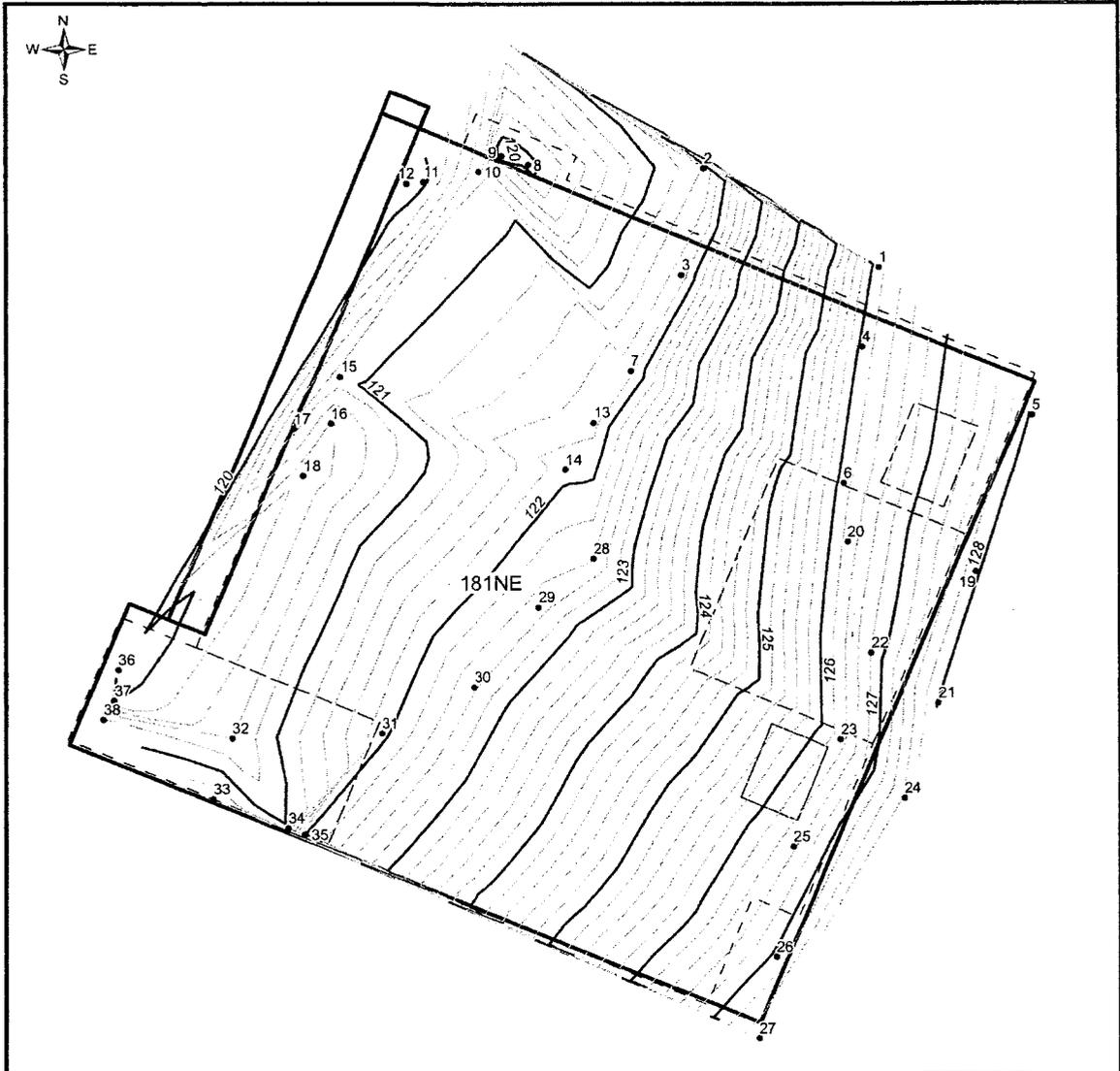
User name	maaye	Date & Time	5:45:53 PM 6/27/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: 181NE Post Demo Survey
 Date: 6/25/2012
 Equipment: 5800
 Survey Purpose: Map surface elevations
 Requested By: Mark Allen
 Location: 100N
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 4/18/12
 Fieldwork Completion Date: 5/21/12
 Notes:

Name	Northing	Easting	Elevation	Feature Code	Description:
1	149280.431m	570850.730m	126.138m	slope	
2	149285.018m	570842.643m	121.414m	toe	
3	149280.095m	570841.621m	121.693m	toe	
4	149276.753m	570849.962m	126.075m	slope	
5	149273.556m	570857.589m	128.035m	top	
6	149270.399m	570849.099m	126.107m	slope	
7	149275.649m	570839.323m	121.737m	toe	
8	149285.191m	570834.627m	119.901m	pothole	
9	149285.598m	570833.376m	119.838m	pothole	
10	149284.874m	570832.327m	120.765m	top-elev	
11	149284.402m	570829.753m	119.944m	test	
12	149284.336m	570828.981m	119.826m	test	
13	149273.221m	570837.615m	121.725m	toe	
14	149271.036m	570836.322m	121.927m	toe	
15	149275.381m	570825.931m	120.920m	outside-hole	
16	149273.182m	570825.491m	120.374m	pothole	
17	149272.932m	570823.841m	120.875m	cpi	
18	149270.749m	570824.270m	120.227m	pothole	
19	149266.216m	570855.078m	127.928m	top	
20	149267.644m	570849.292m	126.282m	slope	
21	149260.079m	570853.384m	128.020m	top	
22	149262.429m	570850.359m	126.816m	slope	
23	149258.393m	570848.936m	126.302m	slope	
24	149255.657m	570851.831m	127.635m	top	
25	149253.401m	570846.752m	126.567m	slope	
26	149248.208m	570845.965m	127.061m	slope	
27	149244.385m	570845.160m	127.572m	slope	
28	149266.862m	570837.600m	122.388m	toe	
29	149264.582m	570835.049m	122.503m	toe	
30	149260.836m	570832.063m	122.574m	toe	
31	149258.683m	570827.820m	121.926m	toe	
32	149258.462m	570821.004m	120.598m	pothole	
33	149255.620m	570820.157m	121.333m	outside-hole	
34	149254.267m	570823.588m	121.022m	pothole	
35	149253.965m	570824.356m	122.007m	elev-ck	
36	149261.657m	570815.795m	119.844m	outside-hole	

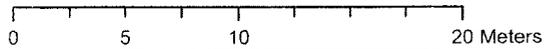
37	149260.213m	570815.620m	120.037m	pot-hole
38	149259.322m	570815.133m	120.826m	outside-hole

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181NE Post Demolition GPS Survey

- GPS Survey Points
See Survey Report For Point Details
- Major Contour 1 m
- Minor Contour .2 m
- Building Footprint (Pre Demo)
- - - Building Outline (Pre Demo)



0635852

GPS Post Demo Survey Report for 1908NE

Project : River-struct-post

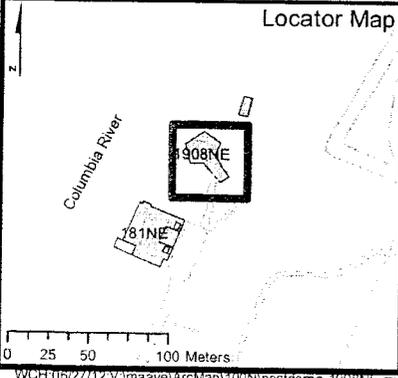
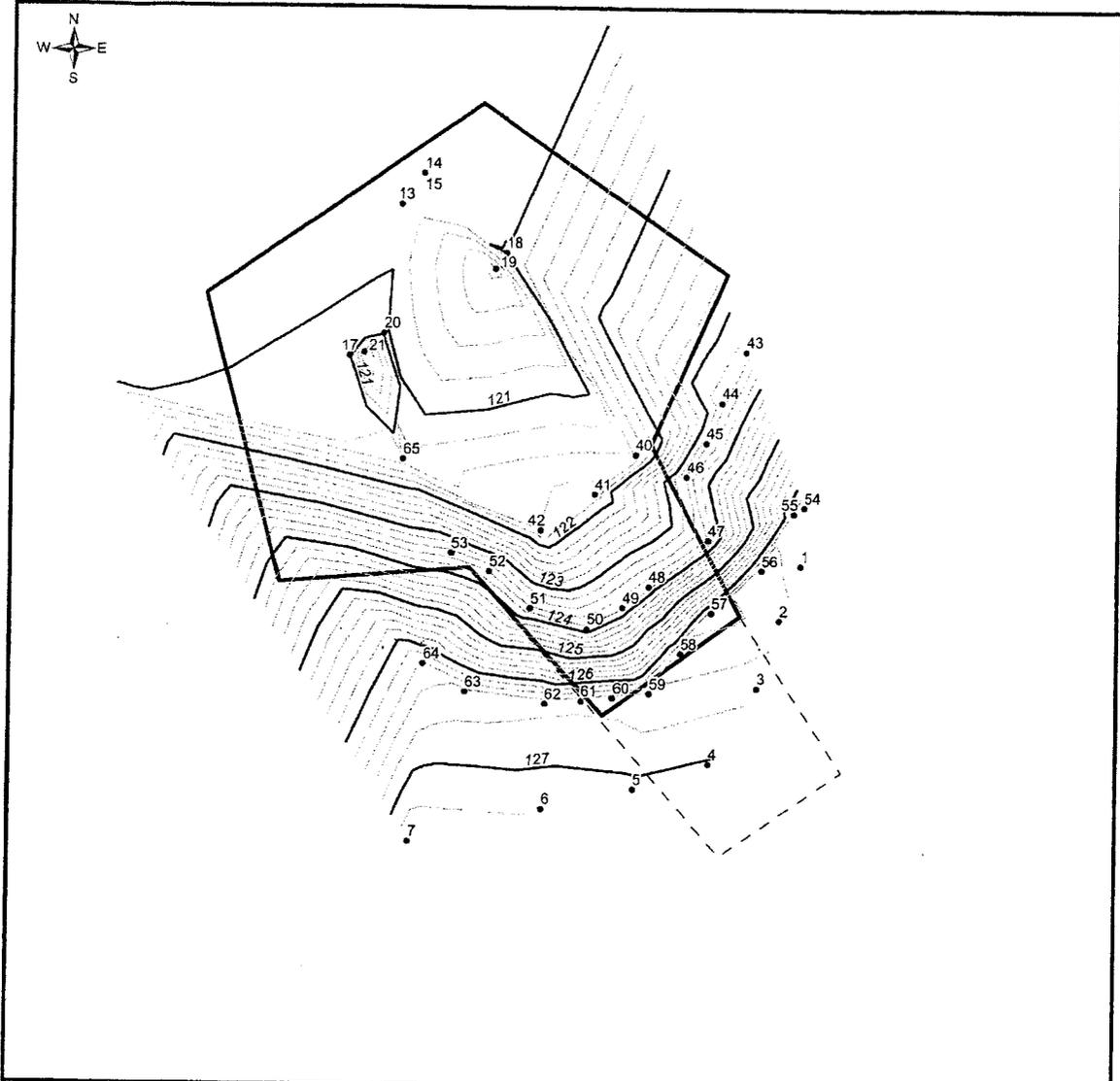
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Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: 1908NE Post Demo Survey
 Date: 6/25/2012
 Equipment: 5800
 Survey Purpose: Map surface elevations
 Requested By: Mark Allen
 Location: 100N
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 4/18/12
 Fieldwork Completion Date: 5/21/12
 Notes:

Name	Northing	Easting	Elevation	Feature Code	Description:
1	149312.349m	570883.029m	126.283m	top	
2	149309.978m	570882.132m	126.490m	top	
3	149307.042m	570881.160m	126.740m	top	
4	149303.769m	570879.099m	127.024m	top	
5	149302.674m	570875.877m	127.057m	top	
6	149301.790m	570871.998m	127.167m	top	
7	149300.328m	570866.288m	127.361m	top	
13	149327.782m	570865.755m	120.964m	cpl	
14	149329.119m	570866.715m	120.890m	cpl	
15	149329.116m	570866.717m	120.883m	cpl	
17	149321.296m	570863.558m	121.039m	elev-ck	
18	149325.758m	570870.266m	121.008m	elev-ck	
19	149325.070m	570869.780m	120.143m	pothole	
20	149322.275m	570865.021m	121.035m	elev-ck	
21	149321.455m	570864.172m	120.153m	pothole	
40	149317.132m	570875.870m	121.419m	cp	
41	149315.408m	570874.169m	121.695m	toe	
42	149313.845m	570871.894m	121.613m	toe	
43	149321.578m	570880.582m	123.287m	side-slope	
44	149319.373m	570879.544m	123.322m	side-slope	
45	149317.644m	570878.898m	123.363m	side-slope	
46	149316.199m	570878.083m	123.423m	side-slope	
47	149313.440m	570879.024m	123.619m	wall	
48	149311.429m	570876.506m	123.745m	wall	
49	149310.517m	570875.366m	123.761m	wall	
50	149309.580m	570873.876m	123.882m	wall	
51	149310.462m	570871.454m	123.658m	side-slope	
52	149312.054m	570869.643m	123.609m	side-slope	
53	149312.823m	570868.005m	123.488m	side-slope	
54	149314.882m	570883.172m	126.378m	top	
55	149314.610m	570882.727m	126.254m	top	
56	149312.153m	570881.342m	126.531m	top	
57	149310.300m	570879.181m	126.310m	top	
58	149308.526m	570877.878m	126.474m	top	
59	149306.794m	570876.547m	126.630m	top	
60	149306.596m	570874.999m	126.722m	top	

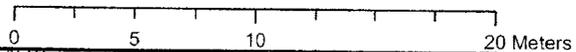
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62	149306.328m	570872.119m	126.746m	top
63	149306.809m	570868.640m	126.665m	top
64	149308.017m	570866.872m	126.448m	top
65	149316.862m	570865.916m	121.262m	toe

[Back to top](#)



1908NE Post Demolition GPS Survey

- GPS Survey Points
See Survey Report For Point Details
- Major Contour 1 m
- - - Minor Contour .2 m
- Building Footprint (Pre Demo)
- - - Building Outline (Pre Demo)



GPS Post Backfill Survey Report for 181NE and 1908NE

Project : 100N-061912

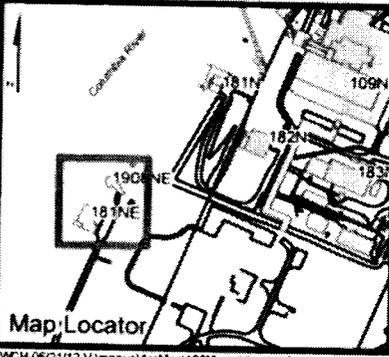
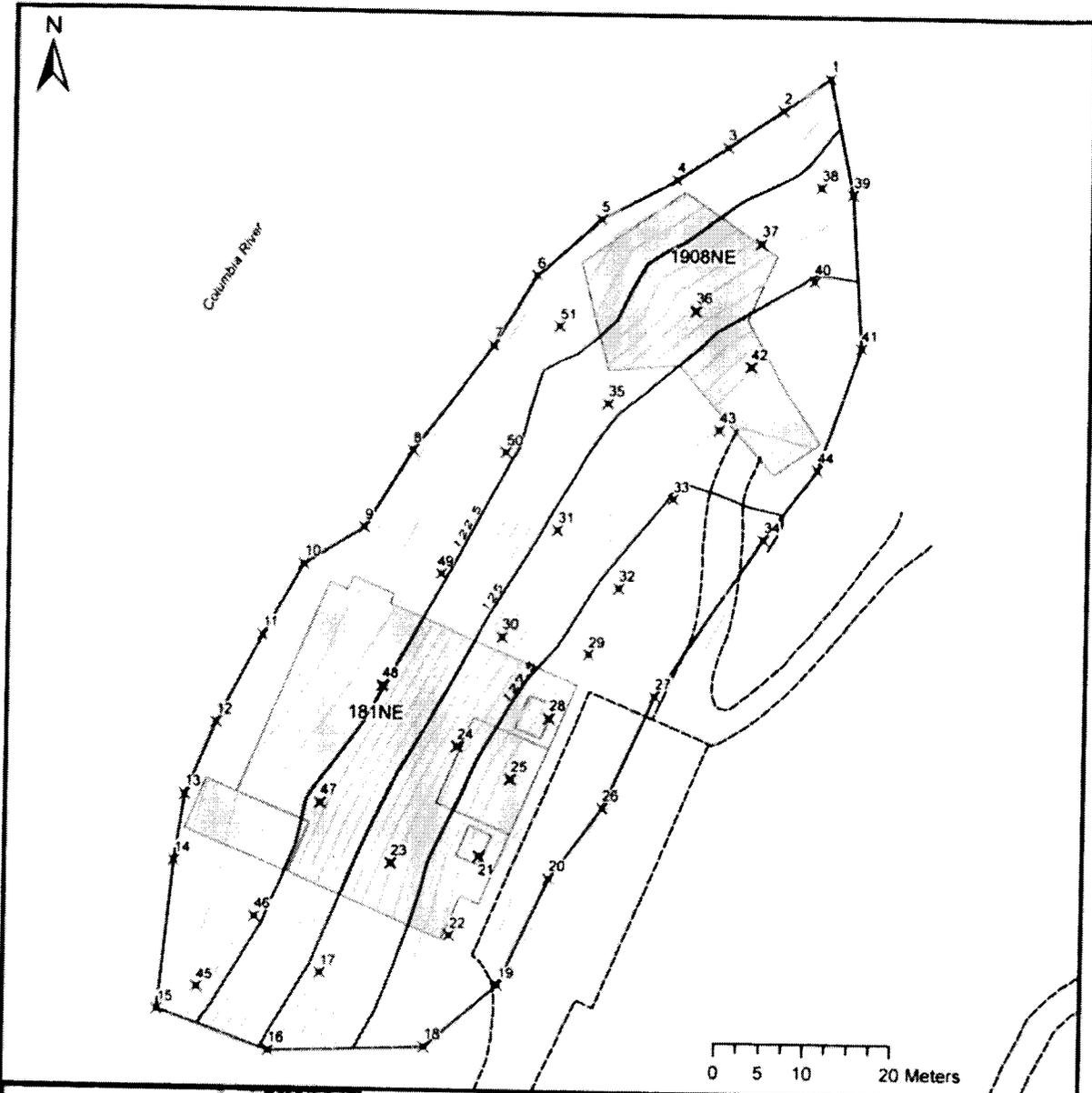
User name	maaye	Date & Time	11:56:21 AM 6/21/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: Post Demo backfill survey for river structures 1908NE and 181NE
 Date: 6/21/2012
 Equipment: 5800
 Survey Purpose: Map backfill grade
 Requested By: Mark Allen
 Location: 100N
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 061912
 Fieldwork Completion Date: 061912
 Notes:

Name	Northing	Easting	Elevation	Feature Code	Description:
1	149345.314m	570885.451m	121.609m	toe	
2	149341.562m	570880.159m	121.215m	toe	
3	149337.277m	570874.010m	121.087m	toe	
4	149333.472m	570868.216m	121.043m	toe	
5	149328.853m	570859.678m	120.986m	toe	
6	149322.335m	570852.474m	120.910m	topo	
7	149314.240m	570847.720m	120.916m	topo	
8	149302.087m	570838.655m	120.856m	topo	
9	149293.194m	570833.346m	120.813m	topo	
10	149288.931m	570826.568m	120.715m	topo	
11	149280.698m	570822.000m	120.565m	topo	
12	149270.608m	570816.912m	120.697m	topo	
13	149262.257m	570813.455m	120.735m	topo	
14	149254.616m	570812.348m	120.833m	topo	
15	149237.523m	570810.634m	120.849m	topo	
16	149232.989m	570823.409m	125.357m	sl-slope	
17	149241.993m	570829.096m	125.525m	sl-slope	
18	149233.643m	570841.015m	129.292m	top	
19	149240.838m	570849.230m	129.153m	top	
20	149253.155m	570854.776m	129.154m	top	
21	149255.591m	570846.879m	128.939m	top	
22	149246.468m	570843.642m	128.728m	top	
23	149254.663m	570836.910m	126.423m	slope	
24	149268.169m	570844.202m	126.671m	slope	
25	149264.479m	570850.371m	128.878m	top	
26	149261.336m	570860.812m	129.061m	top	
27	149274.183m	570866.456m	128.632m	top	
28	149271.557m	570854.514m	128.868m	top	
29	149278.938m	570858.963m	128.431m	top	
30	149280.851m	570849.164m	125.980m	slope	
31	149293.143m	570855.182m	125.548m	slope	
32	149286.574m	570862.265m	128.101m	slope	
33	149296.871m	570868.273m	127.630m	slope	
34	149292.317m	570878.546m	127.676m	slope	
35	149307.771m	570860.761m	124.616m	slope	

36	149318.500m	570870.578m	124.137m	slope
37	149326.330m	570877.889m	123.686m	slope
38	149332.763m	570884.599m	123.069m	slope
39	149332.008m	570888.219m	123.699m	top
40	149322.003m	570883.912m	125.117m	top
41	149314.444m	570889.352m	126.016m	top
42	149312.134m	570876.911m	126.427m	top
43	149304.893m	570873.432m	127.085m	top
44	149300.379m	570884.549m	127.193m	top
45	149240.168m	570815.176m	121.653m	toe
46	149248.366m	570821.568m	122.122m	toe
47	149261.544m	570828.854m	122.718m	toe
48	149275.065m	570835.642m	122.404m	toe
49	149287.979m	570842.692m	122.227m	toe
50	149301.953m	570849.287m	122.153m	toe
51	149316.545m	570855.090m	121.311m	toe
N-2	149644.179m	571811.158m	144.762m	

[Back to top](#)



Post Back Fill Survey for 181NE and 1908NE

- × GPS Survey Point Locations
- Major Contour Interval 2.5m
- Minor Contour Interval 1.5
- Building Locations (Pre-Demo)
- - - Roads

See Survey Report for Point Details
 US State Plane 1983, Zone Washington South 4602,
 NAD83, NAVD88, Units are in Meters

WP14 (6/27/12) U:\mapwork\ArcMap10\Mapwork\back-181NE.mxd 12:01:02 PM

0631576

GPS Survey for Elevation Shots around the 181N River Structures

Project : 181N's-topo

Job 1179

User name	maaye	Date & Time	10:42:27 AM 1/30/2012
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: 181N River Structures, showing current grade around buildings
 Date: 12/7/2011
 Equipment: 5800
 Survey Purpose: Elevation verification
 Requested By: Mike Flannery
 Location: 100N
 Charge Code: R100XXY000
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: N-4
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 12/6/11
 Fieldwork Completion Date: 12/6/11

Notes:

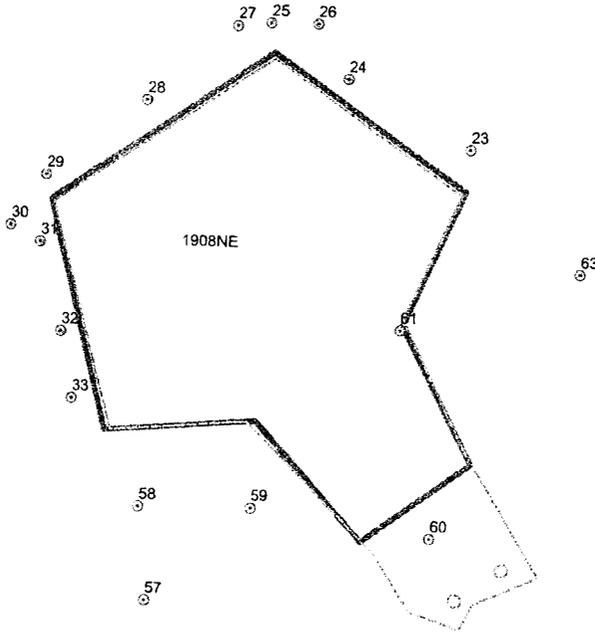
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2	149494.941m	571060.948m	130.609m	surface-topo	
3	149477.646m	571026.356m	129.127m	surface-topo	
4	149446.540m	571013.799m	129.283m	surface-topo	
5	149452.439m	570984.482m	120.784m	surface-topo	
6	149467.087m	570990.086m	120.649m	surface-topo	
7	149484.452m	570996.298m	120.588m	surface-topo	
8	149491.735m	571003.115m	120.601m	surface-topo	
9	149487.464m	571013.659m	120.675m	surface-topo	
10	149491.034m	571001.508m	120.579m	corn-offset	
11	149488.945m	570998.677m	120.594m	corn-offset	
12	149487.898m	570998.238m	120.558m	corn-offset	
13	149485.457m	570999.146m	120.590m	corn-offset	
14	149476.907m	570997.489m	120.618m	conc-edge	
15	149483.580m	571000.139m	120.791m	conc-edge	
16	149465.859m	570992.833m	120.637m	conc-edge	
17	149462.379m	570989.343m	120.587m	corn-offset	
18	149460.085m	570985.679m	120.589m	corn-offset	
19	149459.914m	570983.138m	120.587m	corn-offset	
20	149454.871m	570986.303m	120.714m	corn-offset	
21	149447.955m	570999.738m	121.243m	surface-topo	
22	149451.635m	571001.707m	121.334m	surface-topo	
23	149327.180m	570879.920m	121.971m	topo	
24	149330.811m	570873.216m	120.990m	topo	
25	149333.696m	570869.003m	120.645m	topo	
26	149333.721m	570871.480m	120.785m	corn-offset	
27	149333.508m	570867.213m	120.708m	corn-offset	
28	149329.387m	570862.490m	120.655m	topo	
29	149325.187m	570857.183m	120.673m	corner-offset	
30	149322.425m	570855.364m	120.659m	corner-offset	
31	149321.560m	570856.978m	120.704m	topo	
32	149316.759m	570858.247m	120.898m	topo	

33	149313.161m	570858.939m	122.089m	topo
34	149301.819m	570836.061m	120.635m	topo
35	149290.795m	570831.192m	120.634m	topo
36	149288.207m	570838.865m	120.698m	topo
37	149285.629m	570844.463m	120.852m	topo
38	149288.579m	570828.281m	120.635m	conc
39	149275.530m	570822.926m	120.577m	conc
40	149267.587m	570819.588m	120.617m	conc-edge
41	149267.232m	570817.289m	120.681m	corn-offset
42	149265.734m	570813.944m	120.572m	corn-offset
43	149260.397m	570811.771m	120.688m	corn-offset
44	149256.291m	570812.823m	120.670m	corn-offset
45	149254.942m	570818.133m	121.104m	topo
46	149250.317m	570828.960m	123.800m	topo
47	149272.154m	570816.454m	120.611m	topo
48	149286.988m	570823.650m	120.607m	topo
49	149288.564m	570825.583m	120.654m	corn-offset
50	149290.911m	570831.222m	120.581m	corn-offset
51	149253.564m	570816.445m	120.973m	corn-offset
52	149245.121m	570841.976m	129.152m	topo-top
53	149245.673m	570847.692m	129.494m	topo-top
54	149262.461m	570853.396m	129.502m	topo-top
55	149275.179m	570858.991m	129.227m	topo-top
56	149276.980m	570854.546m	128.278m	topo-top
57	149302.375m	570863.141m	126.339m	corn-offset
58	149307.437m	570862.679m	125.435m	topo-top
59	149307.499m	570868.651m	126.589m	topo-top
60	149306.113m	570878.313m	126.803m	topo-top
61	149317.312m	570876.421m	126.348m	corn-offset
62	149310.181m	570880.405m	126.583m	corner
63	149320.588m	570885.969m	125.304m	-offset
100N-4	149855.334m	571306.673m	140.552m	

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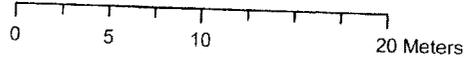
1908NE

- ⊙ GPS Point Locations
- ▭ Building Footprint
- Building Foundation



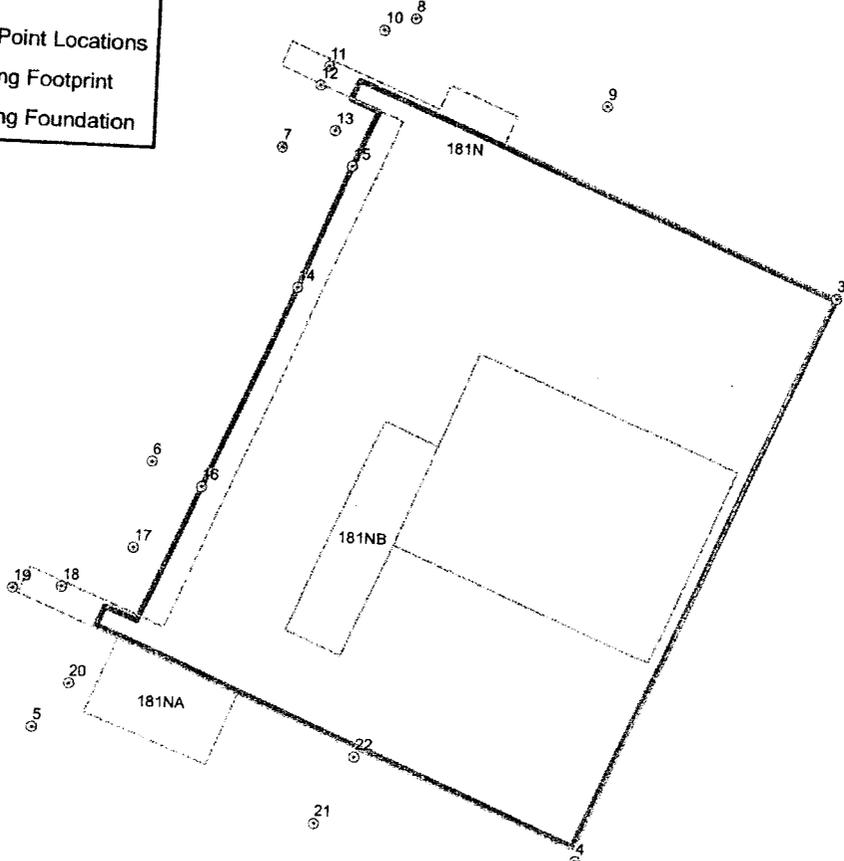
FID	Northing	Easting	Elevation	Feature_Na
23	149327.18	570879.92	121.971	surface topo
24	149330.81	570873.21	120.99	surface topo
25	149333.69	570869.00	120.645	surface topo
26	149333.72	570871.48	120.785	surface topo
27	149333.50	570867.21	120.708	surface topo
28	149329.38	570862.49	120.655	surface topo
29	149325.18	570857.18	120.673	surface topo
30	149322.42	570855.36	120.659	surface topo
31	149321.56	570856.97	120.704	surface topo
32	149316.75	570858.24	120.898	surface topo
33	149313.16	570858.93	122.089	surface topo
57	149302.37	570863.14	126.339	surface topo
58	149307.43	570862.67	125.435	surface topo
59	149307.49	570868.65	126.589	surface topo
60	149306.11	570878.31	126.803	surface topo
61	149317.31	570876.42	126.348	surface topo
63	149320.58	570885.96	125.304	surface topo

US State Plane 1983
 Zone: Washington South 4602;
 NAD83, NAVD88; Units are in Meters



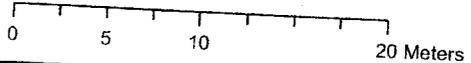
181N

- ⊙ GPS Point Locations
- ▭ Building Footprint
- ▬ Building Foundation



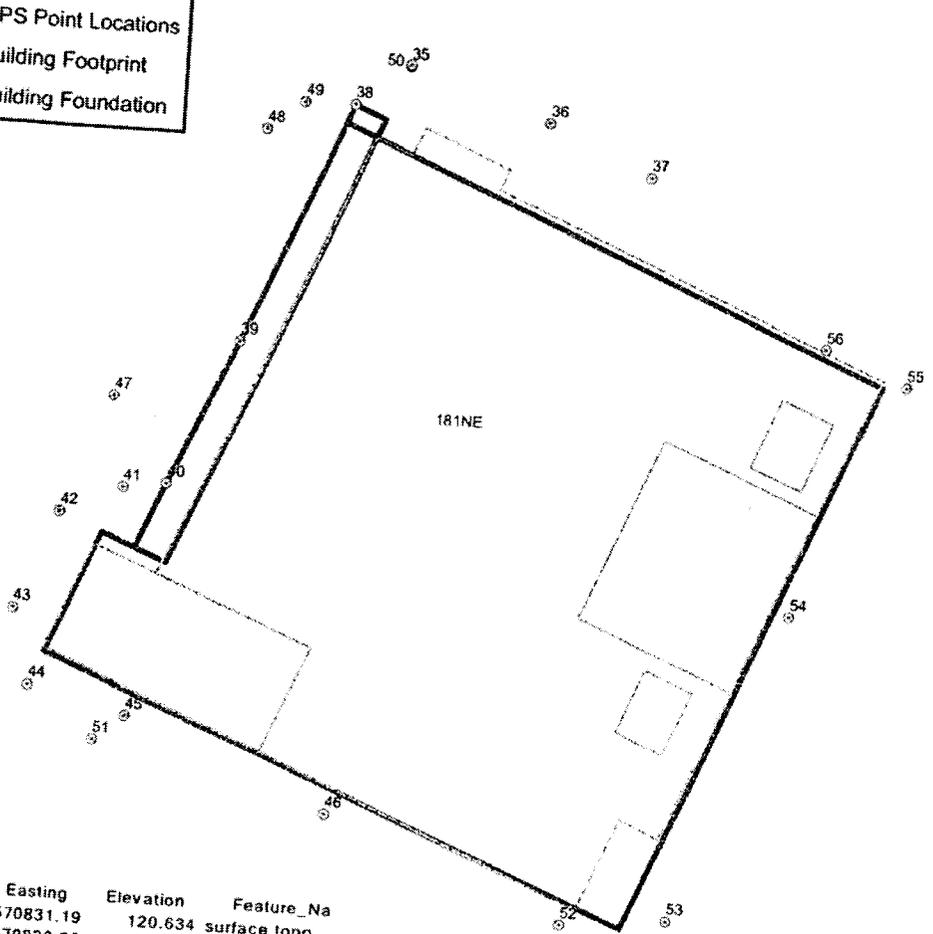
FID	Northing	Easting	Elevation	Feature_Na
3	149477.64	571026.35	129.127	surface topo
4	149446.54	571013.79	129.283	surface topo
5	149452.43	570984.48	120.784	surface topo
6	149467.08	570990.08	120.649	surface topo
7	149484.45	570996.29	120.588	surface topo
8	149491.73	571003.11	120.601	surface topo
9	149487.46	571013.65	120.675	surface topo
10	149491.03	571001.50	120.579	surface topo
11	149488.94	570998.67	120.594	surface topo
12	149487.89	570998.23	120.558	surface topo
13	149485.45	570999.14	120.59	surface topo
14	149476.90	570997.48	120.618	concrete edge
15	149483.58	571000.13	120.791	concrete edge
16	149465.85	570992.83	120.637	concrete edge
17	149462.37	570989.34	120.587	surface topo
18	149460.08	570985.67	120.589	surface topo
19	149459.91	570983.13	120.587	surface topo
20	149454.87	570986.30	120.714	surface topo
21	149447.95	570999.73	121.243	surface topo
22	149451.63	571001.70	121.334	surface topo

US State Plane 1983
 Zone: Washington South 4602;
 NAD83, NAVD88; Units are in Meters



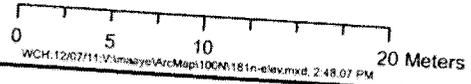
181NE

-  GPS Point Locations
-  Building Footprint
-  Building Foundation

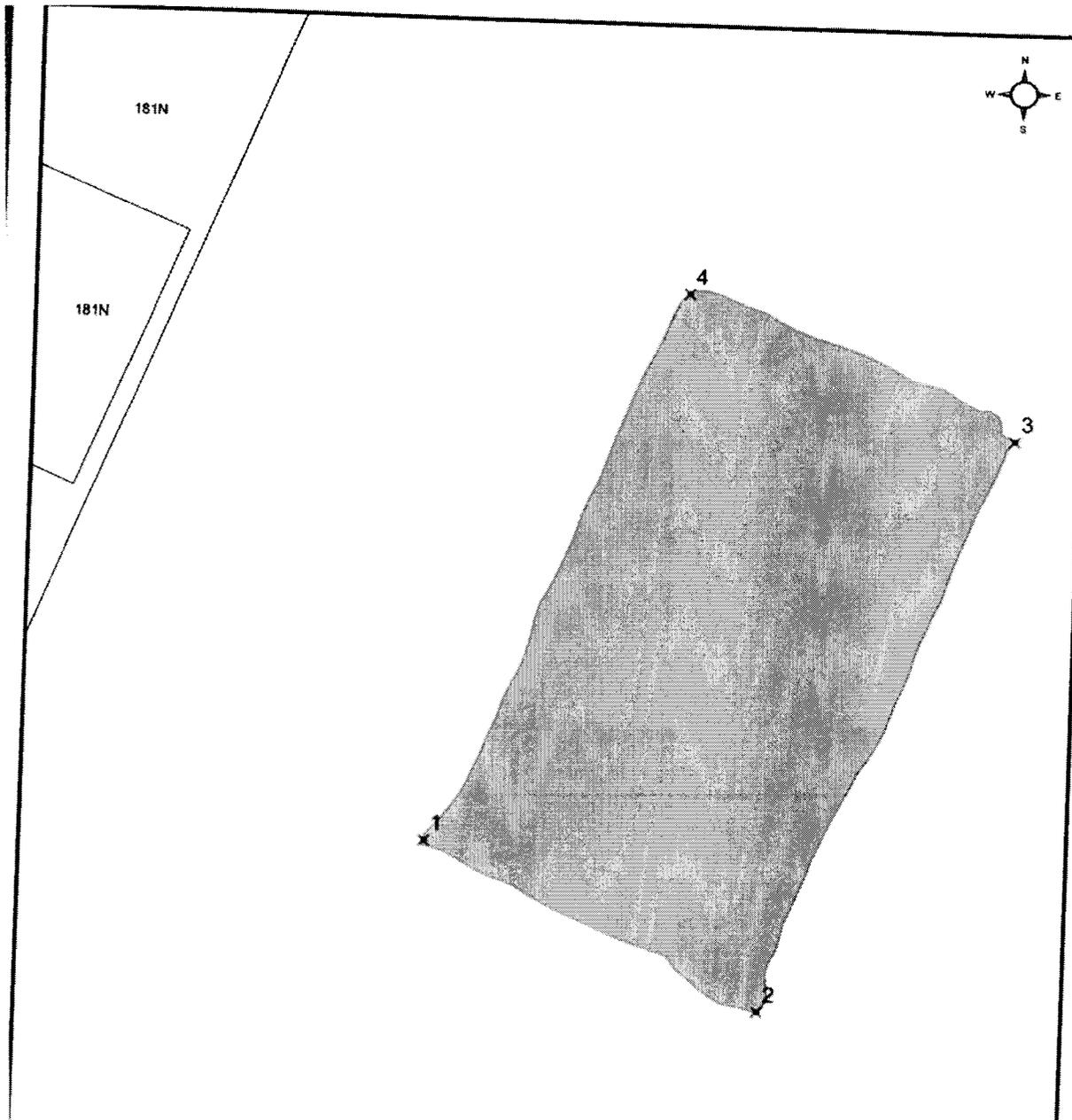


FID	Northing	Easting	Elevation	Feature_Na
35	149290.79	570831.19	120.634	surface topo
36	149288.20	570838.86	120.698	surface topo
37	149285.62	570844.46	120.852	surface topo
38	149288.57	570828.28	120.635	concrete edge
39	149275.53	570822.92	120.577	concrete edge
40	149267.58	570819.58	120.617	concrete edge
41	149267.23	570817.28	120.681	surface topo
42	149265.73	570813.94	120.572	surface topo
43	149260.39	570811.77	120.688	surface topo
44	149256.29	570812.82	120.67	surface topo
45	149254.94	570818.13	121.104	surface topo
46	149250.31	570828.96	123.8	surface topo
47	149272.15	570816.45	120.611	surface topo
48	149286.98	570823.65	120.607	surface topo
49	149288.56	570825.58	120.654	surface topo
50	149290.91	570831.22	120.581	surface topo
51	149253.56	570816.44	120.973	surface topo
52	149245.12	570841.97	129.152	surface topo
53	149245.67	570847.69	129.494	surface topo
54	149262.46	570853.39	129.502	surface topo
55	149275.17	570858.99	129.227	surface topo
56	149276.98	570854.54	128.278	surface topo

US State Plane 1983
 Zone: Washington South 4602;
 NAD83, NAVD88; Units are in Meters



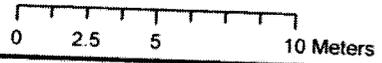
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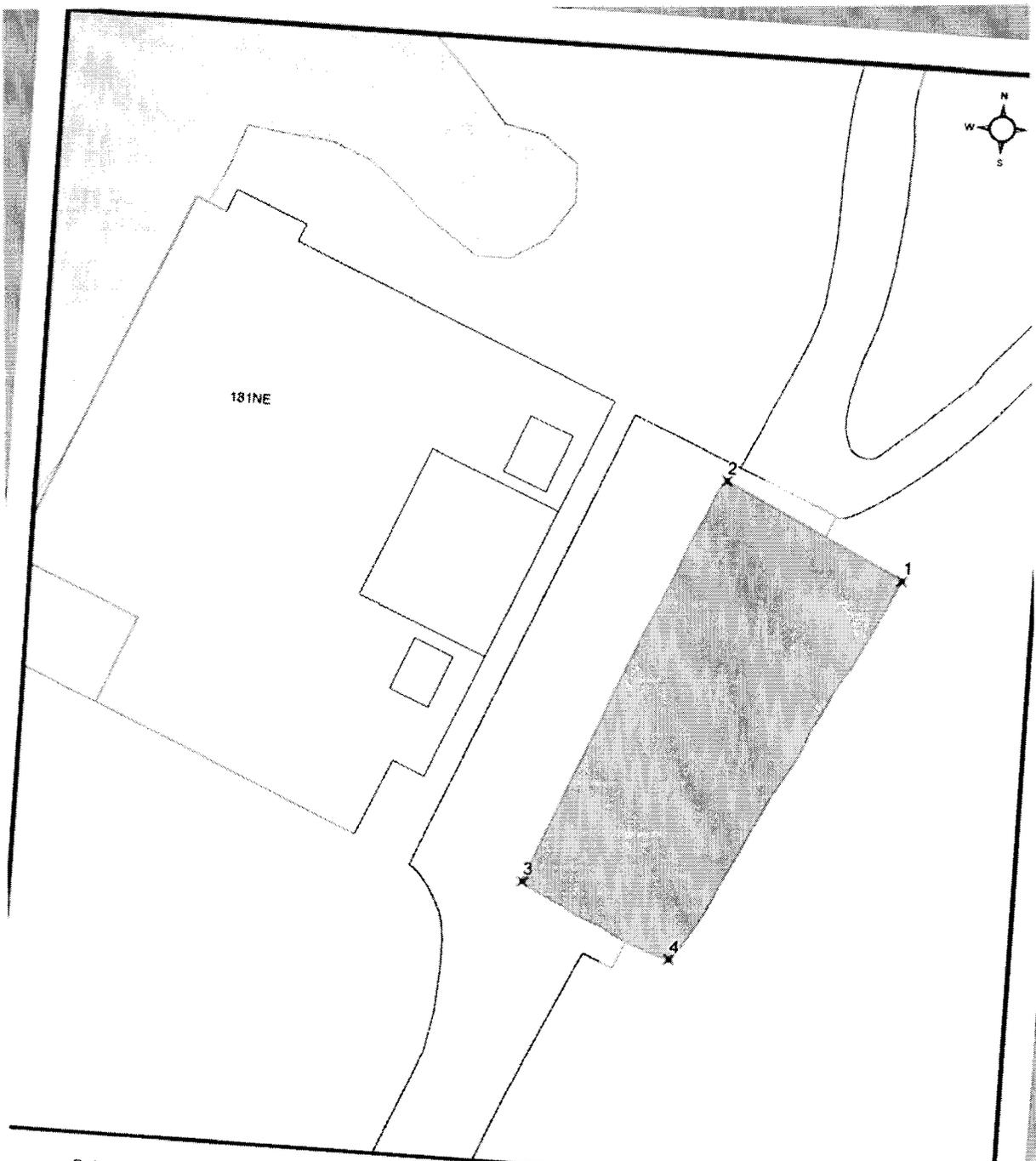


181N Sediment Liner Location

Point_ID	Northing	Easting	Comment
1	149443.29	571031.75	corner
2	149436.66	571045.50	corner
3	149460.39	571055.24	corner
4	149466.02	571041.84	corner

US State Plane 1983
 Zone: Washington South 4602;
 NAD83, Units are in Meters



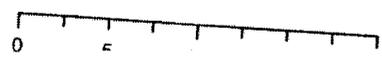


Point_ID	Northing	Easting	Comment
1	149264.94	570877.35	corner1
2	149270.73	570865.45	corner2
3	149243.64	570853.83	corner3
4	149239.16	570863.70	corner4

181NE Sediment Liner Location

 Sediment Liner

State Plane 1983; Zone: Washington South 4602; NAD83.
 Units are in Meters



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100-N D4 Project Facility Completion Form

Attachment 5. CCN 161465, Ecology approval of sediment removal as being complete as supported by visual inspections (2 Pages)

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

161465

^WCH Document Control

From: McCurley, Clay D
Sent: Monday, October 03, 2011 3:17 PM
To: ^WCH Document Control
Subject: FW: 100-N River Structures (181-N, 181-NE, 1908-NE) Visual Surveys of Sediment Removal
Folks. Please chron this email as proof that Ecology is satisfied with the visual inspections performed to document sediment removal at the 100-N river structures (181-N, 181-NE and 1908-NE). Contact me if you have any questions. Thanks. Clay

From: McCurley, Clay D
Sent: Monday, October 03, 2011 9:07 AM
To: Varljen, Robin
Cc: Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Yamamoto, Thomas T; Warren, David J; Landon, Roger J
Subject: 100-N River Structures (181-N, 181-NE, 1908-NE) Visual Surveys of Sediment Removal

We're glad we were able to satisfy Ecology's needs. Thanks for coming out. Thomas is on a well deserved vacation this week but we're in the process of putting the information together (for your file) and should have it to you soon. Clay

From: Varljen, Robin (ECY) [mailto:RVAR461@ecy.wa.gov]
Sent: Friday, September 30, 2011 9:50 AM
To: McCurley, Clay D
Subject: RE: ERDF Sand Surge Pile for 181-NE

Clay,

Thanks to you, Dennis and Thomas for the information regarding visual inspection yesterday. Based on what you have provided or will provide, the limited video, diver before and after visual surveys and accumulated waste volume of sediment from each facility, I am satisfied you have completed a visual inspection of the floors of the 181-NE, 1908-NE and 181-N. I will await further documentation as discussed yesterday for the file.

Robin

From: Varljen, Robin (ECY)
Sent: Monday, September 19, 2011 8:53 AM
To: 'McCurley, Clay D'
Subject: RE: ERDF Sand Surge Pile for 181-NE

You need to make sure you have met your commitment to do visual inspection to Ecology satisfaction prior to fill. I have not seen photos that satisfy that requirement just yet.

Robin

From: McCurley, Clay D [mailto:cdmccurl@wch-rcc.com]
Sent: Monday, September 19, 2011 5:43 AM
To: Varljen, Robin (ECY)
Subject: RE: ERDF Sand Surge Pile for 181-NE

10/4/2011

I think we're going to start taking sand deliveries in about 2 weeks.

161465

From: Varljen, Robin (ECY) [mailto:RVAR461@ecy.wa.gov]
Sent: Sunday, September 18, 2011 7:36 PM
To: McCurley, Clay D
Subject: RE: ERDF Sand Surge Pile for 181-NE

Clay,

When are you all planning this work?

Robin

From: McCurley, Clay D [cdmccurl@wch-rcc.com]
Sent: Wednesday, September 14, 2011 3:44 PM
To: Varljen, Robin (ECY)
Subject: FW: ERDF Sand Surge Pile for 181-NE

FYI. Let me know if you have any second thoughts about this. Thanks. Clay

Michael (Mike) D
September 14, 2011 3:26 PM
y D; Reese, Dennis E; Schilperoort, Daryl L
Warren, David J
ERDF Sand Surge Pile for 181-NE

Dryl
Please have Fowler lay down some plastic sheeting to load the sand on.

Michael D Flannery
Deputy Area Manager
CH2MHILL/WCH
Washington Closure Hanford
D4 / 100 Areas
Cell # 509-438-2494

Clay D
September 14, 2011 3:18 PM
hael (Mike) D; Reese, Dennis E; Schilperoort, Daryl L
Warren, David J
Sand Surge Pile for 181-NE

Folks. I informed Robin Varljen that we intended to fill the river structures with ERDF sand and that we would need to create a surge pile of sand where the 181-NE/1908-NE sediment removal liner had been. Since the sediment had constituents that exceed soil RAGS, I informed Robin we would be placing down a liner under the surge pile (to mitigate the potential for cross contamination). Robin expressed no concerns with this plan. Therefore, I recommend we use a liner for the surge pile. Clay

10/4/2011

100-N D4 Project Facility Completion Form

Attachment 6. CCN 165554, Ecology Approval of D4 Request to not perform GPERS surveys of the river structures (2 Pages)

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

165554

^WCH Document Control

From: Warren, David J
Sent: Wednesday, May 02, 2012 3:51 PM
To: ^WCH Document Control
Cc: McCurley, Clay D
Subject: FW: GPERS surveys for River Structures

Please CHRON this e-mail as it represents a Regulatory Agreement. Subject: Ecology Approval of D4 Request to not perform GPERS surveys of the 100-N River Structures. Contact me if there are any questions. Thanks.

David Warren
100-N EPL
539-6040

From: Elliott, Wanda (ECY) [mailto:well461@ECY.WA.GOV]
Sent: Wednesday, May 02, 2012 3:44 PM
To: Warren, David J
Cc: Boyd, Alicia; McCurley, Clay D
Subject: RE: GPERS surveys for River Structures

We concur.

Wanda Elliott
(509) 372-7904
Environmental Scientist
Nuclear Waste Program
Washington State Department of Ecology

From: Warren, David J [mailto:djwarren@wch-rcc.com]
Sent: Wednesday, May 02, 2012 3:20 PM
To: Elliott, Wanda (ECY)
Cc: Boyd, Alicia (ECY); McCurley, Clay D
Subject: GPERS surveys for River Structures

Wanda,

At the WCH D4/Ecology Regulator Interface meeting on 4/18, WCH (on behalf of DOE) proposed that Global Positioning Environmental Radiological Surveyor (GPERS) surveys need not be performed as part of the final field surveys on the surface(s) remaining following demolition/removal of the 100-N River structures (181-N, 181-NE, and 1908-NE). The rationale for not performing the surveys lie primarily in the fact that:

- The structures were not radiologically contaminated and only clean equipment was used for demolition.
- The disposition of the River Structures is addressed in the *Sampling and Analysis Plan for Disposition of the 181-N, 181-NE, and 1908-NE River Structures* (WCH-446). WCH-446 provides rationale and support for the demolition methods and burial of the below grade portions of the river structures.
- Ecology and ARARs agencies were consulted to determine an acceptable end-state for the structures and river shoreline. In accordance with the agreements, the benches around the

structures were constructed with clean borrow pit material obtained from nearby borrow pits. The interior of the structures were filled with a combination of clean sand from the ERDF and clean borrow pit material.

- GPERS surveys of these areas would be surveys of the clean fill material imported from the ERDF and nearby borrow pits. There is no need to survey this clean material.

WCH is asking for Ecology concurrence that GPERS surveys need not be required for completion of the 181-N, 181-N, and 1908-NE structures. Please respond in concurrence to this e-mail if you agree. Thanks.

David Warren
100-N D4 Environmental Project Lead
WCH
539-6040

100-N D4 Project Facility Completion Form

**Attachment 7. CCN 167269, Visual Inspection of Staging Pile area above 181-NE.
Includes Ecology Approval to operate Staging Pile (11 Pages)**

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

167269

^WCH Document Control

From: Warren, David J
Sent: Monday, August 27, 2012 8:00 AM
To: ^WCH Document Control
Subject: FW: Visual inspection of Staging Pile area above 181-NE

Attachments: CCN 164787 Ecology Approval of 181-NE staging pile.pdf; 181-NE Staging Pile Area Visual Inspection.doc; ESRFRM110158BC.pdf; ESRFRM110158GC.pdf; ESRFRM120117C.pdf

Please CHRON this e-mail and attached files as visual inspection of the staging pile area above the 181-NE. Please notify me of the CHRON number assigned once completed. Thanks.

Dave Warren
100-N EPL
539-6040

From: Warren, David J
Sent: Monday, August 27, 2012 7:56 AM
To: Allen, Mark E
Cc: McCurley, Clay D
Subject: Visual inspection of Staging Pile area above 181-NE

All,

At approximately 0800 hours on 7/10/12, the staging pile area above the 181-NE was visually inspected for signs of staining or anomalous items. The staging pile area was used for staging of non-hazardous/non-contaminated building demolition debris from demolition of the 181-N, 1908-N, 181-NE, and 1908-NE river structures. The area was observed to be free of any stained soils or anomalies that would be indicative of chemical or petroleum contamination. The GPERS surveys, both pre and post (Performed 7/12/11 and 7/26/12), didn't identify contamination, nor was any expected since the river structures were not radiologically contaminated. Please see the attached PDF file (CCN 164787) for Ecology approval of the use of the area for staging debris, as well as the word file for photographs that were taken during the visual inspection, and PDF files of the GPERS surveys. I'll CHRON this e-mail and attachments for future use as reference for closure documentation. Feel free to contact me if you have any questions. Thanks.

David Warren
100-N D4 Environmental Project Lead
WCH
539-6040



CCN 164787
ology Approval o



181-NE Staging
Pile Area Visua...



ESRFRM110158
BC.pdf (835 KB)



ESRFRM110158
GC.pdf (875 KB)



ESRFRM120117
C.pdf (855 KB)

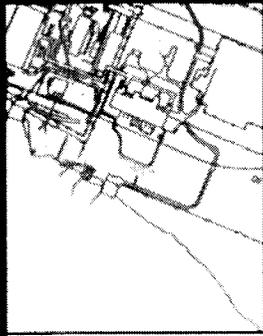
Visual Inspection of Staging Pile Area above 181-NE



181-NE Staging Pile Area Looking North



181-NE Staging Pile Area Looking South



Site View

X
|
Bkg Location
362 cpm



Copy

Each Survey Point
is 100 cm²

Legend

NET CPM

- X <543
- 543 - 5000
- 5000 - 10000
- 10000 - 25000
- 25000

Summary Statistics

Coverage File: N193A
 Number of Data Pnts: 219
 Type of Survey: beta
 Max GCPM: 734
 Avg Bkg CPM: 362
 Survey Date: 7/12/2011
 Area Surveyed: 2535 m²
 Project File: ESRFRM1101588
 Pdf File: ESRFRM1101588C

100N D4

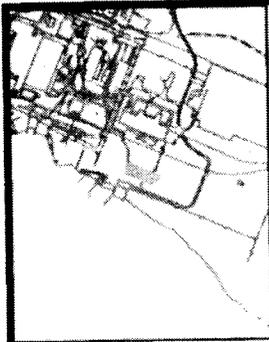
**181-NE Overlook
 GPERs Radiological Survey
 Beta Survey Point Map**

0 5 10 15 20 25
Meters



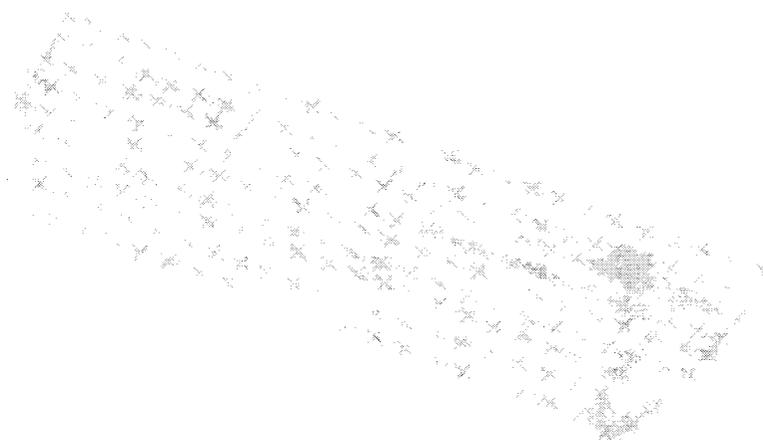
**EBERLINE
 SERVICES**
 HANFORD, INDIANA

Survey Map Prepared By Bruce Cooper, ESI



Site View

Bkg Location
1344 cpm



Copy

Summary Statistics
 Coverage File: N193A
 Number of Data Pnts: 3957
 Type of Survey: gamma
 Max GCPM: 3087
 Avg Bkg CPM: 1344
 Survey Date: 7/12/2011
 Area Surveyed: 2535 m²
 Project File: ESRFRM110158C
 Pdf File: ESRFRM110158CC

Legend
 NET CPM
 X <2016
 ● 2016 - 5000
 ● 5000 - 10000
 ● 10000 - 25000
 ● 25000

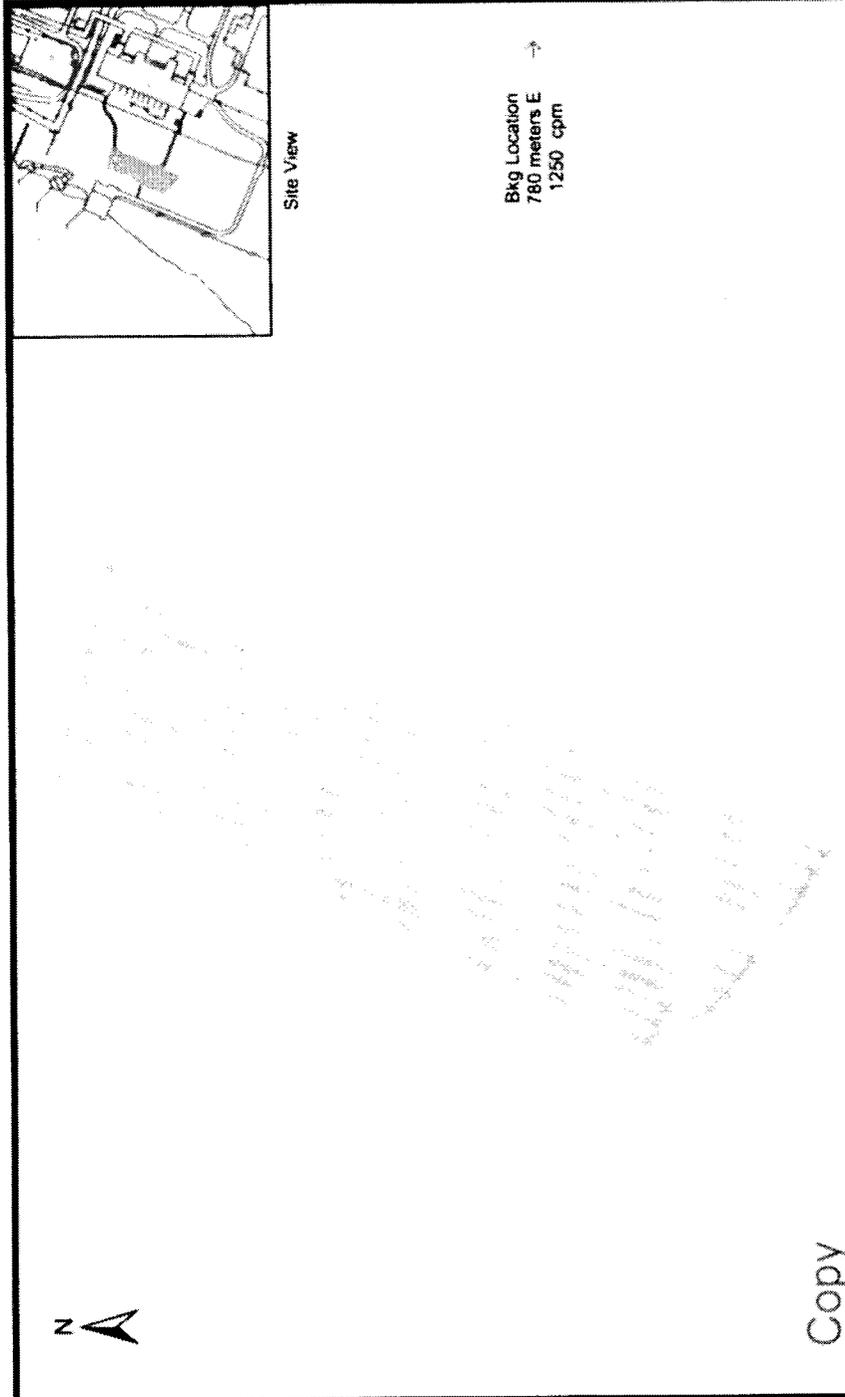
**100N D4
 181-NE Overlook
 GPERs Radiological Survey
 Gamma Track Map**

0 5 10 15 20 25 Meters



**EBERLINE
 SERVICES**
 HARTFORD, INC.

Survey Map Prepared By: Bruce Colman, ESI



0 5 10 15 20 25 Meters

EBERLINE SERVICES
ESTABLISHED 1981
1744 N. 7th Street, Lincoln, NE 68502
Survey Map Prepared By Bruce Gorman, CSI

100N D4
181-NE Overlook Area
GPERS Radiological Survey
Gamma Track Map

Legend		Summary Statistics	
X	<1875	Coverage File:	NZ00A
●	1875 - 5000	Number of Data Points:	1810
●	5000 - 10000	Type of Survey:	gamma
●	10000 - 25000	Max GCPM:	1881
●	25000	Avg Bkg CPM:	1250
		Survey Date:	7/26/2012
		Area Surveyed:	3,077 m ²
		Project File:	ESRFM120117
		PDF File:	ESRFM120117C

164787

^WCH Document Control

From: Warren, David J
Sent: Monday, March 26, 2012 11:45 AM
To: ^WCH Document Control
Subject: Document CHRON: Ecology Approval for 100-N D4 to operate staging pile above 181-NE

Attachments: RE: Request for Ecology Concurrence to stage river structure sediment outside of 100-N AOC; 181-NE Overlook Sediment Staging Area.pdf

Please CHRON the attached documents per the subject line as they represent a regulatory agreement. Contact me if you have any questions. Thanks.

David Warren
100-N D4 Environmental Project Lead
WCH
539-6040



RE: Request for Ecology Concur...



181-NE Overlook Sediment Stagi...

^WCH Document Control

From: Boyd, Alicia
Sent: Monday, March 19, 2012 9:58 AM
To: Warren, David J
Cc: Elliott, Wanda; Faust, Toni L
Subject: RE: Request for Ecology Concurrence to stage river structure sediment outside of 100-N AOC

Dave,
Ecology concurs with continued use of this area as a staging pile as described below.

Alicia L. Boyd
Washington State Department of Ecology
3100 Port of Benton Blvd
Richland, WA 99352
509-372-7934

From: Warren, David J [mailto:djwarren@wch-rcc.com]
Sent: Thursday, March 15, 2012 12:15 PM
To: Boyd, Alicia (ECY)
Cc: Elliott, Wanda (ECY); Faust, Toni L
Subject: FW: Request for Ecology Concurrence to stage river structure sediment outside of 100-N AOC

Alicia,

Here is Robin's original approval to stage river sediment near the 181-NE. We would like to use the area to stage demolition debris/soil beginning tomorrow. The staging pile area will be managed in accordance with Section 4.2.3.2 (Staging Piles) of the Ancillary Facilities RAWP (DOE/RL-2002-70 Rev 3). The sketch from the original e-mail shows a liner but no liner will be used. Use of the staging pile is not anticipated to be required after 12/31/12. Please concur with this e-mail. Thanks.

David Warren
100-N EPL
539-6040

From: Varljen, Robin (ECY) [mailto:RVAR461@ecy.wa.gov]
Sent: Wednesday, August 03, 2011 8:05 PM
To: McCurley, Clay D
Cc: Warren, David J; Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Faust, Toni L; 'Rudy Guercia (Rudolph F Rudy Guercia@rl.gov)'; Menard, Nina

Subject: RE: Request for Ecology Concurrence to stage river structure sediment outside of 100-N AOC

Clay,

I assume the entire area, inside points 1, 2, 3 and 4 is outside your AOC, please confirm that assumption. If that is indeed the case all the "work area" would be subject to the closure requirements of the Work Plan and SAP. If that is agreeable, you may consider this reply my concurrence to stage sediment in the area defined in your 181-NE Overlook Map. As this site

3/26/2012

does not have its own waste site number we can close it out in conjunction with the AOC but it will be treated as its own decision unit and will be guided by the requirements for close out in DOE/RL-2005-92, current Rev. No additional staging, stockpiling or material handling activities may take place in this area until that activity is approved by Ecology for that area or close out documentation has met with Ecology concurrence.

Ensure you are managing this staging area in compliance with 4.2.3.1 of your work plan by, at a minimum, complying with 40 CFR 264.554, paragraphs (d) through (k) including installation of 6 inch berm surrounding the staging area, using dust control and employing the staging area for no longer than 12 months.

Please let me know if you have questions regarding my guidance on this matter.

You may chron this e-mail and the two maps for inclusion in the next UMM.

Robin Varljen

Washington Department of Ecology
Nuclear Waste Program - Cleanup Section
(509) 372-7930

From: McCurley, Clay D
Sent: Wednesday, August 03, 2011 3:22 PM
To: McCurley, Clay D
Cc: Flannery, Michael (Mike) D; Reese, Dennis E; Warren, David J; Allen, Mark E; Faust, Toni L
Subject: RE: Request for Ecology Concurrence to stage river structure sediment outside of 100-N AOC

Robin. Thanks for stopping by today. Wanted to let you know that I have the coordinates for the sediment staging area, and the work area around it (copy attached). The sediment staging area is between points 5, 6, 7, and 8. The work area is the gray area enclosed within points 1, 2, 3, and 4. We will be closing out these areas with the AOC and per the *100-N Area Sampling and Analysis Plan for CERCLA Waste Sites* (DOE/RL-2005-92). Let me know if you need additional information. Thanks. Clay

<< File: 181-NE Overlook Sediment Staging Area.pdf >>

From: McCurley, Clay D
Sent: Tuesday, August 02, 2011 3:22 PM
To: Varljen, Robin
Cc: Warren, David J; Reese, Dennis E; Flannery, Michael (Mike) D; Allen, Mark E; Faust, Toni L
Subject: Request for Ecology Concurrence to stage river structure sediment outside of 100-N AOC

Robin.

In accordance with the *Removal Action Work Plan for 100-N Area Ancillary Facilities* (DOE/RL-2002-70, Rev.2), this is to request Ecology approval to stage river structure sediment at the location shown in the attachment until it has dried sufficiently for transport and disposal at the ERDF. The sediment will be staged/deposited on an impervious bermed liner. Standard site dust suppression, including the use of fixatives, will be used as necessary

3/26/2012

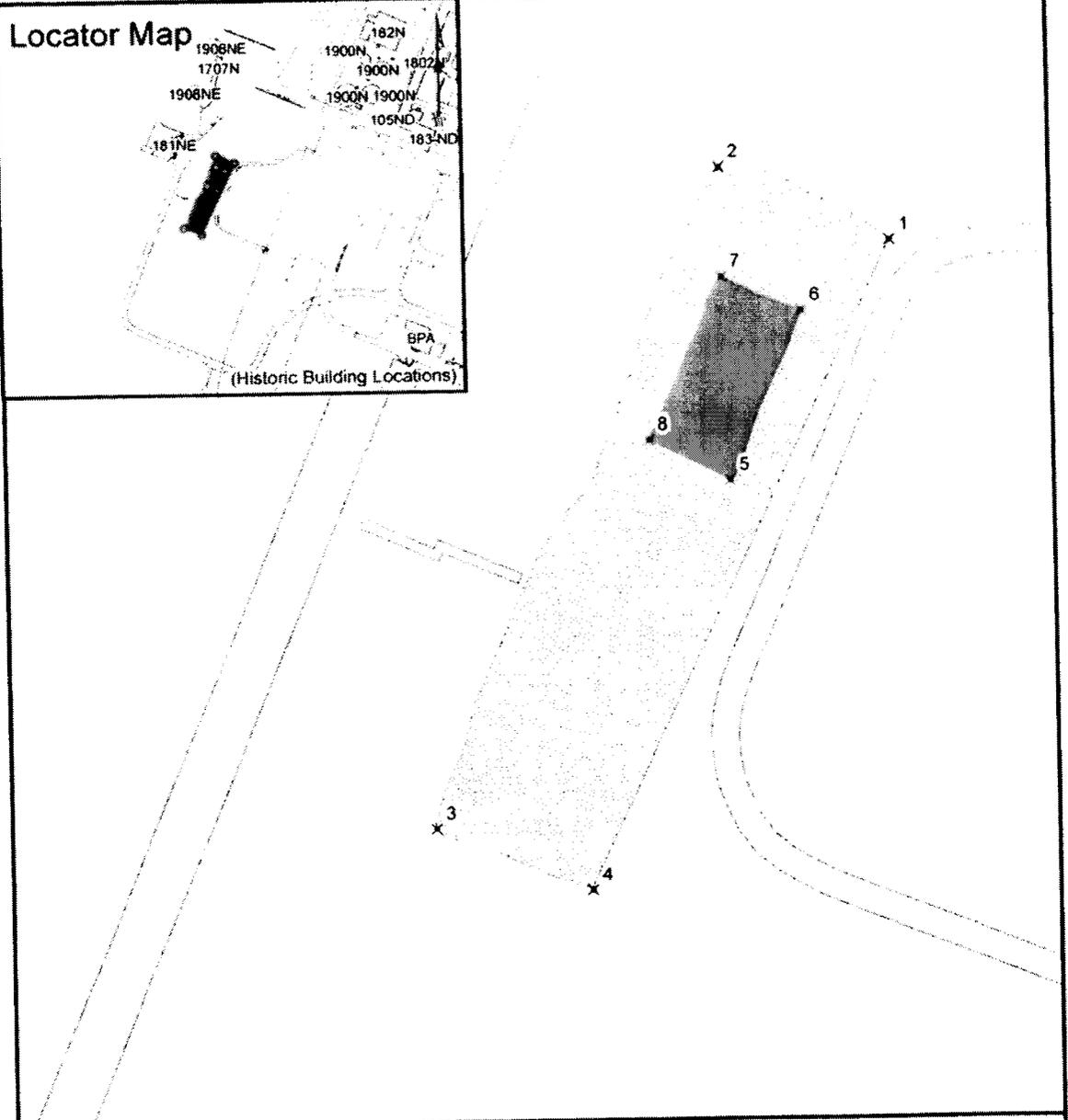
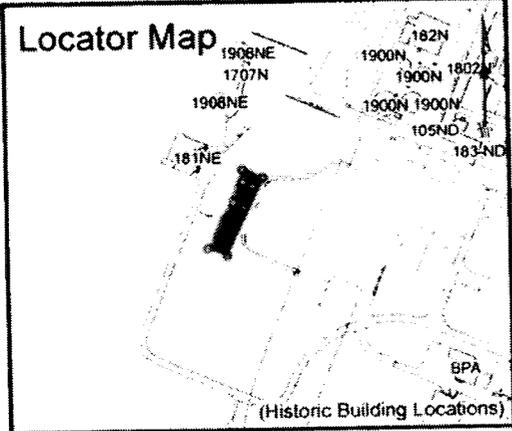
to prevent the sediment from drying and becoming wind blown. Once the sediment has been transported to the ERDF, the soil under and around the liner will be sampled and analyzed for the COPCs identified in the recently approved SAP for the river structures.

Contact me if you have any questions.

Clay

<< File: Proposed Liner Location Above 181-NE.doc >>

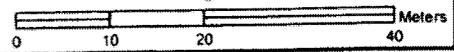
3/26/2012



ID	Comment	Northing	Easting
1	corner	149242.88	570909.81
2	corner	149251.46	570890.22
3	corner	149175.39	570856.67
4	corner	149168.11	570874.49
5	corner	149215.37	570890.99
6	corner	149234.89	570899.48
7	corner	149238.88	570890.30
8	corner	149220.16	570881.64

- x GPS Points
- Containment Area
- ▨ Working Area

181-NE Overlook

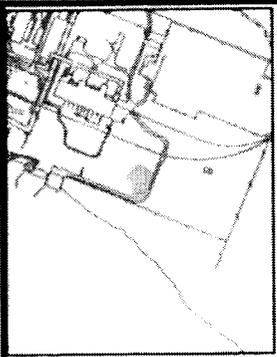


US State Plane 1983 Zone : Washington South 4602; NAD83, NAVD88
 Units are in Meters

100-N D4 Project Facility Completion Form

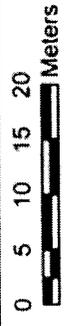
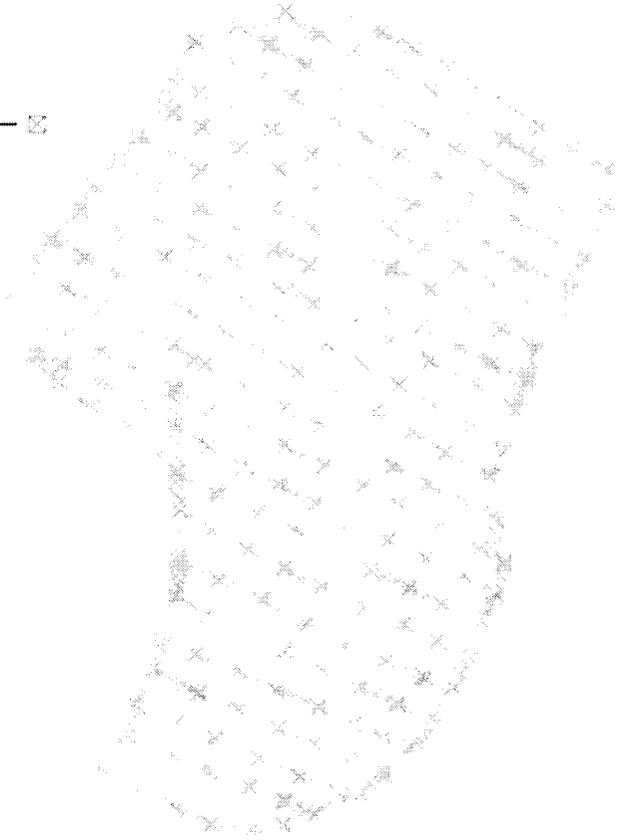
**Attachment 8. Global Positioning Environmental Radiological Surveyor (GPERS) surveys
for Haul Road and Bench construction activities (3 Pages)**

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion



Site View

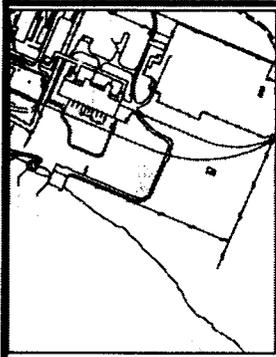
Bkg Location
1161 cpm



Survey Map Prepared By Bruce Colomer, ESI

100N D4 Haul Road Entrance GPERS Radiological Survey Gamma Track Map

Legend		Summary Statistics	
NET CPM		Coverage File	N194 A
X	<1741	Number of Data Pnts	3377
●	1741 - 5000	Type of Survey	gamma
●	5000 - 10000	Max GCPM	2160
●	10000 - 25000	Avg Bkg CPM	1161
●	25000	Survey Date	7/13/2011
		Area Surveyed	2645 m ²
		Project File	ESRFRM110159G
		Plot File	ESRFRM110159G



Site View

Bkg Location
401 cpm



Survey Points
are 100 cm²



Copy

Legend		Summary Statistics	
NET CPM		Coverage File: N194.A	
X	<601	Number of Data Pnts: 217	
●	601 - 5000	Type of Survey: beta	
●	5000 - 10000	Max GCPI: 625	
●	10000 - 25000	Avg Bkg CPM: 401	
●	25000	Survey Date: 7/13/2011	
		Area Surveyed: 2645 m ²	
		Project File: ESRFRM110159B	
		Pdf File: ESRFRM110159BC	

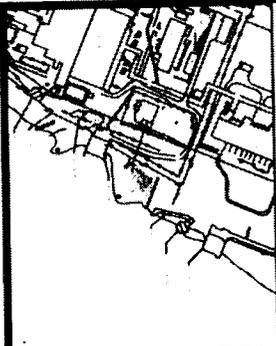
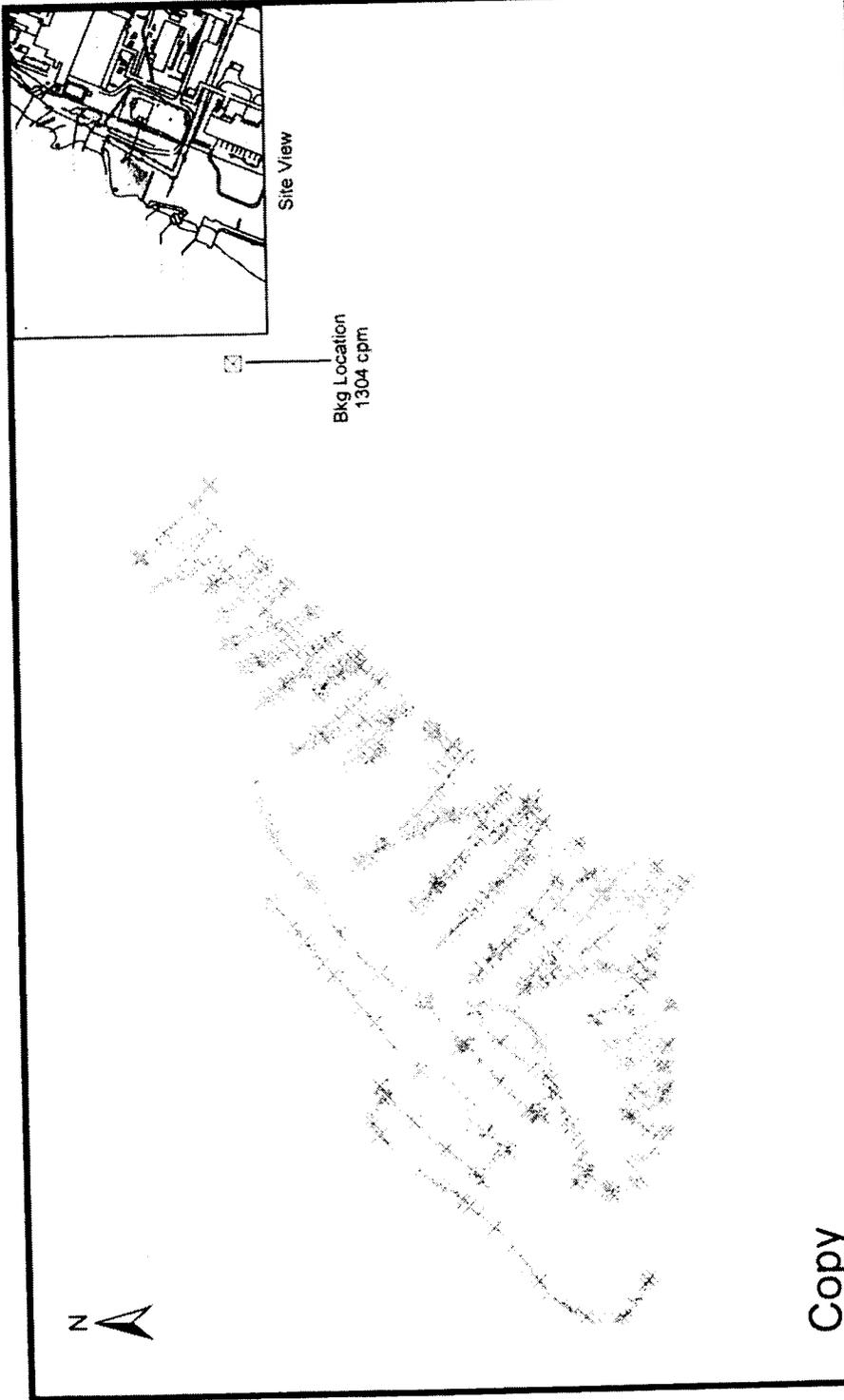
100N D4 Haul Road Entrance GPERS Radiological Survey Beta Survey Point Map

0 5 10 15 20

Meters

EBERLINE SERVICES
HANFORD, INC

Survey Map Prepared By Bruce Coomer, ES



Site View

Bkg Location
1304 cpm

Copy

100N D4
181-N Overlook
GPERS Radiological Survey
Gamma Track Map

0 2 4 6 8 10 Meters

EBERLINE SERVICES
HANFORD, IN

Survey Map Prepared By: Bruce Coomer, ESI

Legend		Summary Statistics	
NET CPM		Coverage File: N196	
X	<1956	Number of Data Pnts: 2375	
●	1956 - 5000	Type of Survey: gamma	
●	5000 - 10000	Max GCPM: 2881	
●	10000 - 25000	Avg Bkg CPM: 1304	
●	25000	Survey Date: 7/15/2011	
		Area Surveyed: 823 m ²	
		Project File: ESRFRM110161	
		Pdf File: ESRFRM110161.C	

100-N D4 Project Facility Completion Form

Attachment 9. Turbidity Monitoring Plan, Revision 1. Fowler General Construction 100-N River Structures Haul Road and Bench Design and Construction (8 Pages).

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

Fowler General Construction
100-N River Structures Haul Road and Bench Design and Construction

Turbidity Monitoring Plan, Revision 1

Turbidity monitoring will be conducted during bench installation to ensure activities are conducted in compliance with regulatory requirements. This revision incorporates conditions of Order No. 8738 that Ecology issued to DOE on September 7, 2011 (EXHIBIT A). Order No. 8738 is a short-term water quality standards modification that increases the project's turbidity limit from 5 NTU (nephelometric turbidity units) to 30 NTU above background 300 feet downstream of the work area and allows use of mixing zone criteria contained in WAC 173-201A-400(7). The mixing zone criteria allows using the average of multiple turbidity measurements as long as the zone does not utilize greater than twenty-five percent of the flow or occupy greater than twenty-five percent of the width of the river. Multiple measurements, when used determine the downstream turbidity, must be spaced equidistant across zone.

Turbidity monitoring will consist of visual observations for turbidity and measurements made with a Hanna Instruments HI 98703 Turbidity Meter (EXHIBIT B), or equivalent, calibrated and maintained per manufacturer's recommendations. Measurements will be taken at 100 feet upstream and 300 feet downstream of the work area. The results the measurements will be recorded on the *Turbidity Monitoring Form* (EXHIBIT C) and consist of:

- Date
- Time
- Upstream Turbidity
- Downstream Turbidity
- Turbidity Difference (downstream measurement minus upstream measurement)
- Initials (of the person making measurements)
- Notes

As shown in Figure 1, if fill is not being placed in the water, then turbidity monitoring will not be required. Only the placement of fill material in the water will trigger turbidity monitoring.

Turbidity measurements will commence approximately one hour after fill placement starts and will be spaced approximately one hour apart. Care will be taken to ensure the upstream measurement location is outside of the influence of jobsite activities. The downstream measurement will target the location where turbidity is visibly highest or, if no turbidity is visible, would be expected to be highest. If the difference between the upstream and downstream locations exceeds the limit (30 NTU), then additional measurements, perpendicular to the shoreline and spaced equidistant from the shoreline to no more than 300 feet offshore (less than on-quarter the distance across the river), will be collected and averaged to represent the downstream turbidity. If the average of these measurements, minus the upstream turbidity measurement, exceeds 30 NTU, then Ecology will be notified and the fill rate will be reduced. If the limit is exceeded three consecutive times, fill placement will be suspended and Ecology will be consulted. If Ecology cannot allow fill placement to continue at the required rate, then DOE will be consulted.

If, after three consecutive measurements, the limit is not exceeded, then the monitoring frequency will be reduced to twice per day provided there is no change in the fill rate or change to borrow pit material. A measurement will be made while fill is being added during the morning and another measurement will be made while fill is being added after noon. Significant increases to the fill rate (e.g., addition of another dozer to push fill in the water) or a switch to borrow pit material will trigger another series of measurements as specified in Figure 1. A return to again placing rip rap in the water will not trigger another series of measurements provided the previous measurements showed the activity caused no exceedances at the rate it was placed the water.

Turbidity Monitoring Forms will be made available to DOE and Ecology upon request.

Figure 1 Turbidity Monitoring Flow Diagram

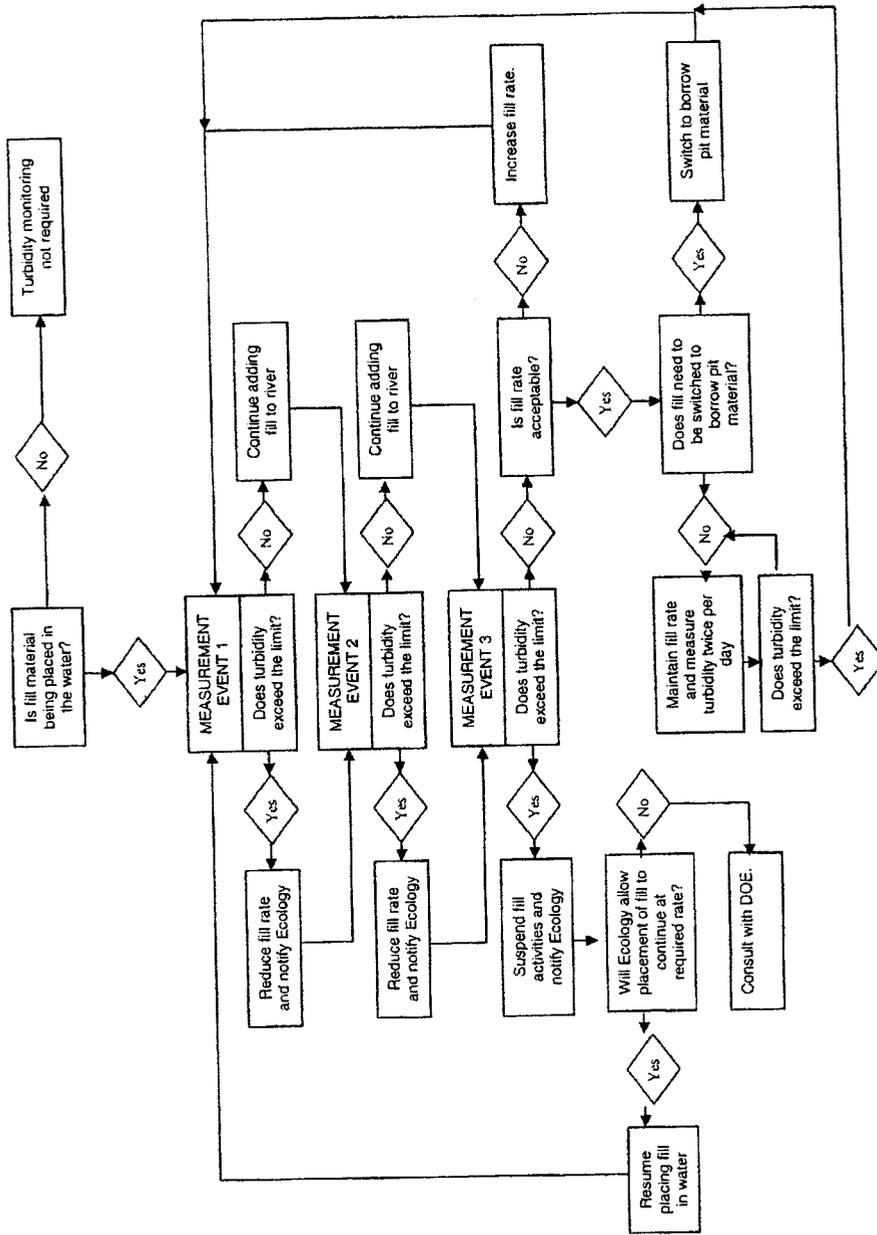


EXHIBIT A

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE REQUEST BY)
THE DEPARTMENT OF ENERGY)
FOR TEMPORARY MODIFICATION OF THE)
SURFACE WATER QUALITY STANDARDS)
FOR THE BENCH INSTALLATION AND)
INTAKE STRUCTURE REMOVAL AT 100-N)

ORDER NO. 8738

To: Mark French, Federal Project Director
Richland Operations Office
United States Department of Energy
P.O. Box 550, MSIN: A3-04
Richland, Washington 99352

The Department of Energy submitted a request to the Department of Ecology (Ecology) for temporary modification of the state's Surface Water Quality Standards for the purpose of installing a bench in the Columbia River to facilitate removal of the intake structures at 100-N.

This Order/Permit is a short-term water quality standards modification, and allows a mixing zone that only covers the actual discharge of Turbidity in the water column of the Columbia River.

This Order/Permit does not cover any property owned or built by the Department of Energy.

This Order is intended to allow the short term modification of the turbidity standard from 5 Nephelometric Turbidity Units (NTU) over Background at 300ft downstream from the discharge to 30 NTU at 300ft downstream from the discharge. This Order also allows the mixing zone criteria contained in WAC 173-201A-400 (7).

Monitoring through the use of a portable turbidimeter will be conducted to ensure that the Short Term Modification is being adhered to.

This Order is issued under the provisions of Chapter 90.48.120 Revised Code of Washington (RCW) and Washington Administrative Code (WAC) 173-201A-410 (2006 rev.).

At the site, the contractor must have this order in his or her possession during the timeframe of the in water work. The contractor shall comply with the following SPECIFIC CONDITIONS which will outline the Short Term Modification.

CONDITIONS:

1. Turbidity will not exceed 30 NTU at 300ft from any point of discharge into the Columbia River.
2. The maximum size of the Mixing Zone will comply with the following criteria contained within WAC 173-201A-400 (7),
 - a. In rivers and streams, mixing zones, singularly or in combination with other mixing zones, shall comply with the most restrictive combination of the following (this size limitation may be applied to estuaries having flow characteristics that resemble rivers):
 - i. Not extend in a downstream direction for a distance from the discharge port(s) greater than three hundred feet plus the depth of water over the discharge port(s), or extend upstream for a distance of over one hundred feet;
 - ii. Not utilize greater than twenty-five percent of the flow; and
 - iii. Not occupy greater than twenty-five percent of the width of the water body.

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

You have a right to appeal this Order. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.
- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:

The Pollution Control Hearings Board
PO Box 40903
Olympia WA 98504-0903

OR

Deliver your appeal in person to:

The Pollution Control Hearings Board
4224 - 6th Ave SE Rowe Six, Bldg 2
Lacey WA 98503

Order No. 8738
September 7, 2011
Page 4

2. To serve your appeal on the Department of Ecology

Mail appeal to:		Deliver your appeal in person to:
The Department of Ecology Appeals & Application for Relief Coordinator PO Box 47608 Olympia, WA 98504-7608	OR	The Department of Ecology Appeals & Application for Relief Coordinator 300 Desmond Dr SE Lacey, WA 98503

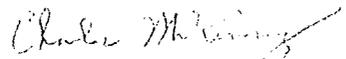
3. And send a copy of your appeal to:

Bryan Ncet
Department of Ecology
Central Regional Office
15 W Yakima Ave, STE200
Yakima, WA 98902

*For additional information visit the Environmental Hearings Office Website: <http://www.eho.wa.gov>
To find laws and agency rules visit the Washington State Legislature Website: <http://www.leg.wa.gov/CodeReviser>*

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Ch. 43.21B RCW.

DATED this 7th day of September, 2011 at Yakima, Washington.



Charles McKinney
Section Manager
Water Quality Program

EXHIBIT B

United States | Choose Your Country >

(800)426-6287 liv



AB

Home About Downloads Distributors Products By Industry

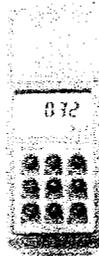
Search By Accuracy

Parameter: Accuracy:
- select -

Home > Turbidity > Turbidity Meters - Portable

Products By Category

- Checker HC
- Chemical Test Kits
- pH Meters
- pH/ORP Meters
- Ion Selective
- Conductivity/TDS
- Digital Refractometers
- Dissolved Oxygen
- Multiparameter
- Fertigation Systems
- Titration Systems
- Chemical Oxygen Demand
- Photometers
- Turbidity
- Temperature
- Relative Humidity
- Magnetic Stirrers
- Mini Panel Controllers
- Process Instrumentation
- Dosing Pumps
- Lux Meters
- Reagents
- Solutions
- Accessories
- Hanna Sanitation Systems



HI 98703

Turbidity Meter
with Fast Tracker™ Technology, EPA
Compliant

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[Get a Quote](#)

- High accuracy at low ranges (below 0.05 NTU)
- Two, three or four point calibration
- USB and RS232 PC connectivity
- Log up to 200 records
- GLP Features
- User friendly, backlit display with guidance codes
- Battery % on startup
- Continuous current time on display

The HI 98703 meets and exceeds the requirements of the USEPA Method 180.1 for wastewater and Standard Method 2130 B for drinking water. The instrument has a compliance reading mode which rounds readings to meet EPA reporting requirements. Users will appreciate the accuracy and sensitivity of this instrument, particularly at low turbidity levels.

This instrument incorporates complete GLP (Good Laboratory Practice) functions that allow traceability of the calibration conditions. The last calibration points, time and date can be checked at the touch of a button.

With its logging function, up to 200 measurements along with its tagged locations can be stored in internal memory and consulted at any time. Data can be later transferred to a PC via RS232 or USB interface and HANNA HI 92000 software (optional).

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For advanced field applications, the HI 98703 is equipped with Fast Tracker™—Tag Identification System (T.I.S.) that makes data collecting and management simpler ever. Fast Tracker™ allows users to record the time and location of a specific measurement or series of measurements.

Order Information:

HI 98703-01 (115V), HI 98703-02 (230V) and HI 98703-03 (AUS plug) are supplied with sample cuvettes and caps (5), HI 98703-11 calibration cuvettes, HI 93703-58 silicone cuvette cleaning cloth, batteries, AC adapter, instruction manual and rugged carry case.

[Specifications](#) | [Accessories](#) | [Downloads](#)

Range	0.00 to 9.99; 10.0 to 99.9 and 100 to 1000 NTU
Range Selection	automatic
Resolution	0.01 NTU from 0.00 to 9.99 NTU; 0.1 NTU from 10.0 to 99.9 NTU; 1 NTU from 100 to 1000 NTU
Accuracy @25°C	±2% of reading plus 0.02 NTU
Repeatability	±1% of reading or 0.02 NTU, whichever is greater
Stray Light	< 0.02 NTU
Light Detector	silicon photocell
Light Source	tungsten filament lamp
Lamp Life	greater than 100,000 readings
Method	Ratio Nephelometric Method (90°), ratio of scattered and transmitted light; Adaptation of the USEPA Method 180.1 and Standard Method 2130 B
Measuring Mode	normal, average, continuous
Turbidity Standards	<0.1, 15, 100 and 750 NTU
Calibration	two, three or four-point calibration
Log Memory	200 records
PC Connectivity	USB or RS232
Environment	up to 50°C (122°F); RH max 95% non-condensing
Power Supply	1.5V AA alkaline batteries (4) or AC adapter; auto-off after 15 minutes of non-use
Dimensions / Weight	224 x 87 x 77 mm (8.8 x 3.4 x 3.0") / 512 g (18 oz.)

100-N D4 Project Facility Completion Form

**Attachment 10. Sampling Determination Form for the 181-N, -NA, -NB, -NE, and 1908-NE
Facilities (SDF-100N-021) (8 Pages)**

181-N, -NA, -NB, -NE, and 1908-NE Facility Completion

100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

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A. INSTRUCTIONS

This form must be completed to: 1) document existing data in order to determine if current data is suitable to prove completion of 100-N Ancillary Facilities, or 2) document that site-specific sampling and analyses are needed to provide completion for 100-N Ancillary Facilities.

B. GENERAL INFORMATION

River Pumphouse, Guard Tower, No. 3 Diesel	181-N, 181-NA, 181-NB, 181-
Building Name: Pumphouse, Hanford Generating Plant (HGP)	Building Number: NE, and 1908-NE (WIDS Site
River Pumphouse, and HGP Outfall	1908-NE)

WIDS Sites Associated or Adjacent:

Associated:

100-N-53 (Accepted), 100-N-56 (Rejected), 100-N-61 (Accepted), 100-N-61:1 (Accepted), 100-N-80 (Accepted), 100-N-84:1, 2, 3, 6, & 7 (Accepted, colon 7 was reclassified as No Action), and 1908-NE (Interim Closed Out)

-Note: Verification samples were taken for 100-N-53. Consult sample (HEIS) numbers J1CY09, J1CY10, J1CY11, J1CY12, J1CY13, J1CY14

Adjacent:

100-N-1 (Interim Closed Out), 100-N-73 (Not Accepted), 100-N-76 (Rejected), and 100-N-84:5 (Accepted)

Other:

181-N: This facility was constructed of reinforced concrete and contained diesel-driven and remotely operated deep-well pumps. It supplied raw Columbia River water to the 183-N and 105-N facilities (CCN 125287 pgs. 1-2; DOE/RL-90-22 pgs. 2-4, 2-28, and 2-55; DOE/RL-97-22 pg. 2-11; and BHI-00221 pg. 3-64). Demolition of the facility began in January of 2012 (SIS Facility Summary Report for 181-N pg. 1).

181-NA: This facility was an enclosure constructed of steel and bulletproof glass atop a 60 foot steel framed tower located within the 181-N facility footprint. It provided a vantage and protection for personnel guarding the shoreline of the 100-N Area (CCN 125287 pg. 1, DOE/RL-97-22 pg. 2-11, and BHI-00221 pg. 3-65). The facility was demolished on January 11, 2012 (SIS Facility Summary Report for 181-NA pg. 1).

181-NB: This facility was a metal structure that contained an auxiliary diesel engine used to support electric motors in the 181-N facility. It was located on the concrete slab of the 181-N facility (CCN 125287 pg. 1, CCN 130563 pg. 1, DOE/RL-97-22 pg. 2-11, and BHI-00221 pg. 3-66). Demolition of the facility began in January of 2012 (SIS Facility Summary Report for 181-NB pg. 1).

181-NE: This facility was constructed of reinforced concrete and contained diesel-driven and remotely operated deep-well pumps. It supplied raw Columbia River water to the HGP (CCN 130563 pg. 1; DOE/RL-90-22 pgs. 2-7, 2-55, and 3-36; and DOE/RL-97-22 pgs. 2-15 & 2-16). The facility also contained trash screens and a trash pump, a diesel fuel tank, and two electrical substations (CCN 130563 pg. 1). Demolition of the facility began in February of 2012 (SIS Facility Summary Report for 181-NE pg. 1).

1908-NE: This facility was an open-topped reinforced concrete structure that received liquid from WIDS site 100-N-1 and the HGP sump. It discharged liquid to the Columbia River via an effluent pipeline, which was designated as WIDS site 100-N-80 (DOE/RL-90-22 pgs. 2-7, 2-58, and 3-36; DOE/RL-97-22 pg. 2-9; and WIDS General Summary Report for 1908-NE). Demolition of the facility began in March of 2012.

The 181-NA and 181-NB structures were completely removed. The interior voids of the 181-N, 181-NE, and 1908-NE were filled with clean borrow sand from the Environmental Restoration Disposal Facility (ERDF) (CCN 165554 pg. 2) to an elevation equal to that of the adjacent bench. They were demolished to a level 3 feet below that of the grade of the adjacent slope and the benches installed to facilitate demolition, and backfilled/contoured to match the surrounding grade. The portions of the structures that remain below grade are isolated from the adjacent Columbia River by benches composed of clean borrow pit soil (CCN 165554 pg. 2).

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C. INFORMATION SOURCES

Available Information (list document number for each if applicable):

<p>Historical Site Assessment: <ul style="list-style-type: none"> • Historical Site Assessment for 181N River Pump House and Associated Facilities: CCN 125287 • Historical Site Assessment for 181-NE and 1908-NE: CCN 130563 </p>	<p>Site Walkdown: N/A</p>
<p>IH Characterization Report: N/A</p>	<p>Radiological Survey: <ul style="list-style-type: none"> • RSR-100SMT-06-0272 • RSR-100SMT-06-0287 • RSR-IFSM-05-0364 </p>
<p>IHC/FHC Document: Form for D4 of the 1908-NE Facility: IHC-2011-0013</p>	<p>WIDS/SIS: <ul style="list-style-type: none"> • Waste Information Data System (WIDS) General Summary Report for 1908-NE • RCC Stewardship Information System (SIS) Facility Summary Reports for 181-N, 181-NA, 181-NB, 181-NE, and 1908-NE </p>
<p>PDSR: N/A</p>	<p>Facility Inspection: 100N River Structures (181-N, 181-NE, 1908-NE) Visual Surveys of Sediment Removal: CCN 161465</p>
<p>Waste Characterization Checklist: N/A</p>	<p>Summary Report: N/A</p>

Other:

- 100 Area River Effluent Pipeline Site Visit Notes: CCN 112489
- Asbestos Inspection & Sampling Report for the 181-NE and 1908-NE (Revision 1): CCN 129093
- Cleanup Verification Package for the Hanford Generating Plant 100-N-4 Tile Field (SWMU #5); 100-N-1 Settling Pond (SWMU #6); 1908-NE Outfall (SWMU #7); 1716-NE Maintenance Garage (SWMU #8) and 100-N-52 Underground Storage Tank; 100-N-3 Maintenance Garage French Drain, 100-N-41 Gate House Septic Tank, and 100-N-45 Office Building Septic Tank (SWMU #9); 100-N-5 Bone Yard (SWMU #10); and 100-N-46 Underground Storage Tank, Rev. 0: HGP-CVP-SWMUs 5, 6, 7, 8, 9, & 10
- Differing Site Condition Regarding Sediment at 181-N: CCN 155797
- Ecology Approval of D4 Request to Not Perform GPERs Surveys of the 100N River Structures: CCN 165554
- Engineering Evaluation/Cost Analysis for the 100-N Area Ancillary Facilities and Integration Plan, Rev. 1: DOE/RL-97-22
- Engineering Report of the Hanford Generating Plant Radiation Contamination Survey, Rev. 0: WHC-SD-NR-ER-100
- Interim Remedial Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units
- Notice of Differing Site Conditions, 181-N, 181-NE, 1908-NE River Structures: CCN 156198
- "Pre-Existing" Conditions Survey of Hanford Site Facilities Phase II, Rev. 0: BHI-00221
- RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-NR-1 Operable Unit, Rev. 0: DOE/RL-90-22
- Reissuance of National Pollutant Discharge Elimination System (NPDES): CCN 068571
- Sampling and Analysis Plan for Disposition of the 181-N, 181-NE, and 1908-NE River Structures, Rev. 0: WCH-446
- Work Package "Class 1 Asbestos Removal 181NE, Rev. 0": 100-08-07-28-001 D
- Work Package "Hazardous Material Removal 181N, 181NA, 181NB, and 181NE, Rev. 0": 100-08-07-15-002 A
- Facility Photographs Pre-Demolition, Time-Stamped: SIS Facility Summary Report for 181-N pg. 3 (11/3/2005), SIS Facility Summary Report for 181-NE pgs. 4 & 6 (6/6/2006), and SIS Facility Summary Report for 1908-NE pgs. 5 & 6 (2/7/2005)
- Facility Photographs Pre-Demolition, No Time Stamp: SIS Facility Summary Report for 181-N pgs. 4-9, SIS Facility Summary Report for 181-NA pgs. 4 & 7, SIS Facility Summary Report for 181-NE pg. 5, SIS Facility Summary Report for 1908-NE pg. 4, CCN 155797 pg. 3, CCN 156198 Attachment 5, and WCH-446 pgs. 1-2 & 1-32

100-N ANCILLARY FACILITIES REMOVAL ACTION SAMPLING DETERMINATION FORM

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D. HAZARDOUS SUBSTANCES:

Check all that apply:

- None
 Asbestos containing material
 Lead
 PCBs/PCB Articles
 Oils/Greases
 Chemicals
 Elevated levels of various inductively-coupled plasma (ICP) metals and polycyclic aromatic hydrocarbons (PAHs) were detected in sediment samples from the 181-N, 181-NE, and 1908-NE facilities (CCN 155797 pg. 4, CCN 156198 Attachments 1-4, and WCH-446 Appendix B). In addition, elevated levels of pH and various ICP metals were detected in concrete samples from the 181-N, 181-NE, and 1908-NE facilities (WCH-446 Appendix B). See part G of this form for a complete list of samples collected at these facilities. Antifreeze was present at the 181-NE facility prior to hazardous material removal (100-08-07-15-002 A Attachment 3).
 Radiological Contamination
 Mercury/Mercury Devices
 Other: Capillary tubes were present in the 181-N, 181-NB, and 181-NE facilities (100-08-07-15-002 A Attachment 3).

References/Comments:

- Asbestos containing material: Asbestos was present at the 181-NB and 181-NE facilities (CCN 129093 Attachments 2 & 3, DOE/RL-97-22 pgs. 2-25 & 2-26, and BHI-00221 pg. 3-66). There was potential for asbestos to be present at the 181-N and 181-NA facilities (DOE/RL-97-22 pgs. 2-25 & 2-26).
- Lead: Incandescent bulbs and lead caulking were present in the 181-NE and 1908-NE facilities (CCN 130563 pg. 4). Lead fuses were present in the 181-NB and 181-NE facilities (100-08-07-15-002 A Attachment 3). There was potential for lead flashing and lead-based paint to be present at all five facilities (CCN 125287 pg. 3 & CCN 130563 pg. 4).
- PCBs/PCB Articles: PCBs were detected in sediment from the 1908-NE facility in concentration above the PCB remedial action goals (RAGs) (CCN 156198 Attachment 3 and WCH-446 Appendix B). The 181-NE and 1908-NE facilities contained multiple transformers that could have historically contained PCBs (CCN 130563 pgs. 1 & 4). There was potential for PCBs to be present in door actuators and fluorescent light fixtures within the 181-NE and 1908-NE facilities (CCN 130563 pg. 4 & 100-08-07-15-002 A Attachment 3). Additionally, there was potential for PCBs to be present in residual oils, residual greases, door actuators, and fluorescent light ballasts within the 181-N, 181-NA, and 181-NB facilities (CCN 125287 pg. 3 & 100-08-07-15-002 A Attachment 3).
- Oils/Greases: Oils, greases, and/or fuels were presumed to be present in all five facilities (CCN 130563 pg. 5, 100-08-07-15-002 A Attachment 3, and DOE/RL-97-22 pgs. 2-25 & 2-27). Oils and greases were detected in sediment from the 181-NE and 1908-NE facilities in concentrations above the corresponding RAGs (CCN 156198 Attachments 2 & 3 and WCH-446 Appendix B). The pumps in the 181-N, 181-NB, and 181-NE facilities leaked unknown amounts of petroleum product, resulting in residual contamination (CCN 130563 pg. 2 & DOE/RL-97-22 pgs. 2-11 through 2-16). The 181-N and 181-NE facilities contained a waste oil tank and a diesel fuel tank, respectively (CCN 130563 pg. 1, DOE/RL-90-22 pg. 3-16, and BHI-00221 pg. 3-64). The tank at the 181-N facility was reportedly never used (DOE/RL-90-22 pg. 3-16).
- Radiological Contamination: Consistent with a documented potential for elevated radiological levels at the 1908-NE facility, sediment sampled from the 1908-NE facility exceeded the U-233/234 RAG (DOE/RL-97-22 pg. 2-24 & WCH-446 Appendix B). The COPCs for the 181-N, 181-NE, and 1908-NE facilities included multiple radiological constituents (WCH-446 Table 1 and WIDS General Summary Report for 1908-NE pg. 1). Mud dauber intrusion was reported at the 181-N and 181-NE facilities, and might also have occurred at the 1908-NE facility (RSR-100SMT-06-0287, CCN 125287 pg. 2, and CCN 130563 pg. 5).
- Mercury/Mercury Devices: Mercury was detected in sediment from the 181-N facility in concentration above the mercury RAGs (CCN 156198 Attachment 1 and WCH-446 Appendix B). Mercury switches and possibly mercury vapor lights were present in the 181-N, 181-NE, and 1908-NE facilities (CCN 130563 pg. 4 & 100-08-07-15-002 A Attachment 3).

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Liquids: Yes No

If yes, describe source and nature of liquids:

As described in part B of this form, the 181-N and 181-NE facilities draw water from the Columbia River and the 1908-N facility discharged water to the Columbia River. Accordingly, the processing of water processing was an integral part of operations at these facilities.

1908-NE effluent was discharged to the Columbia River via Outfall 005, a National Pollutant Discharge Elimination System (NPDES) point source (CCN 068571 pg. 1 & SIS Facility Summary Report for 1908-NE pg. 2). Outfall 005 was removed from the NPDES permit in 1999 (CCN 068571 pg. 1).

The 181-N facility discharged inlet screen backwash water to the Columbia River via Outfall 007, a NPDES point source (WCH-446 pg. 1-15 & DOE/RL-90-22 pgs. 2-62 & 3-16). Outfall 007 was removed from the NPDES permit in 1999 (CCN 068571 pg. 1).

Were the hazardous substances removed from the facility prior to demolition? Yes No

As verified by what documentation:

All hazardous substances identified within the 181-N, 181-NA, 181-NB, and 181-NE facilities were removed prior to demolition (100-08-07-15-002 A Attachments 4 & 5).

- Asbestos removal was completed at the 181-N and 181-NB facilities in 2005 (CCN 125287 pg. 2). All Class 1 asbestos was removed from the 181-NE facility (100-08-07-28-002 D pg. 3).
- Diesel oil and lubricating greases were drained from the motors and pump bearings in the 181-N and 181-NB facilities prior to demolition (CCN 125287 pg. 2).

Chemically contaminated sediment was removed from the 181-N, 181-NE, and 1908-NE facilities prior to demolition (CCN 161465 pg. 1). The interior voids of the above facilities were filled with clean borrow sand from the ERDF (CCN 165554 pg. 2) to an elevation equal to that of the adjacent bench.

Was there potential for hazardous substances to be introduced into the soils during facility operations or demolition? Yes No N/A

References/Comments:

The 181-N, 181-NA, 181-NB, 181-NE and 1908-NE facilities were potentially contaminated by site operations and processes (CCN 125287 pg. 1 & CCN 130563 pg. 1). Accordingly, there was potential for hazardous substances to be introduced into the underlying and adjacent soils.

It is believed that piping between the HGP and the 181-NE and 1908-NE facilities was grouted prior to demolition (CCN 130563 pg. 2).

List any hazardous materials left in the building for demolition:
None.

Does review of historical records and process knowledge indicate a potential for radiological or chemical contamination to be present in the facility?
General:

Sediment from within the 181-N, 181-NE, and 1908-NE facilities was sampled and determined to exceed soil cleanup levels for multiple constituents (CCN 161465 pg. 2 & WCH-446 pgs. 1-23 & 1-24). As a result, the contaminated sediment was removed from the facilities prior to demolition (CCN 161465 pg. 1).

Concrete from the 181-N, 181-NE, and 1908-NE facilities was sampled and analyzed (WCH-446 Appendix B). Based on multiple elevated constituent levels detected in the samples, it was determined that concrete rubble generated during demolition could not be buried in-situ in accordance with the original disposal plan (WCH-446 pg. 1-24 & Appendix B). Accordingly, the disposal plan was altered to require disposal of the rubble at the ERDF (WCH-446 pgs. 1-22 & 1-24). However, it was determined that the concrete portions of these facilities that would remain intact following facility demolition could be left in place without additional sampling (WCH-446 pg. 1-24).

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Radiological:

The 181-N, 181-NA, 181-NB, 181-NE, and 1908-NE facilities were determined to not be radiologically contaminated (CCN 165554 pg. 1). Accordingly, Global Positioning Environmental Radiological Surveyor (GPERS) surveys were determined to be unnecessary for the footprints of these facilities (CCN 165554 pg. 1).

- Based on process knowledge, there is no known source of radiological contamination for the 181-N, 181-NA, or 181-NB facilities (CCN 125287 pg. 2 & WCH-446 pg. 1-23). Radiological surveys were performed at the 181-NE facility and did not detect radiological contamination (RSR-100SMT-06-0272 & RSR-100SMT-06-0287). A radiological survey was performed at the 181-N and 181-NB facilities and did not detect radiological contamination (RSR-IFSM-05-0364).
- The 1908-NE facility received liquid from WIDS site 100-N-1, which was associated with the HGP, a chemically and radiologically contaminated facility (CCN 130563 pg. 1, DOE/RL-97-22 pg. 2-9, WCH-446 pgs. 1-22 & 1-23, and SIS Facility Summary Report for 1908-NE). 1908-NE water and sediment samples were analyzed for radiological contaminants and a radiological survey of the facility walls was performed (IHC-2011-0013 pg. 1 & HGP-CVP-SWMUs 5, 6, 7, 8, 9, & 10 pg. 10). Neither the samples nor the survey identified radiological contamination (IHC-2011-0013 pg. 1 & HGP-CVP-SWMUs 5, 6, 7, 8, 9, & 10 pg. 10).
- A subsequent sample of 1908-NE sediment was found to exceed the human health RAG for U-233/234 (WCH-446 Appendix B). However, this sediment was removed prior to demolition (CCN 161465 pg. 1).

Chemical:

Oil stains were present on concrete at the 181-N, 181-NB, and 181-NE facilities (CCN 125287 pg. 2 & WCH-446 pg. 1-21). Historical documentation for these facilities does not mention any significant spill or release, however it is noted that unknown amounts of petroleum product had leaked from the pumps of these facilities, resulting in residual contamination (CCN 125287 pg. 2, CCN 130563 pg. 2, and DOE/RL-97-22 pgs. 2-11 through 2-16). The stained concrete was removed during demolition of the upper deck of the pumphouse structures.

Comments:

Pertinent design drawings include H-1-45007, Sheets 24 and 31. The SIS Facility Summary Report for 181-NE references 19 design drawings.

Samples were taken from the riverbed and river shoreline within the planned demolition bench footprints (WCH-446 pgs. 1-21 & 1-24). The sampled areas were subsequently covered by benches to support the removal of the river structures. The benches were composed of clean borrow pit soil (CCN 165554 pg. 2). Any residual contamination underneath the benches will be addressed as part of the final ROD (WCH-446 pgs. 1-21 & 1-24).

E. FIELD OBSERVATIONS**Visual Inspection**

Were any stained soils/anomalies discovered during or after demolition of the facility? Yes No

References/Comments:

Documentation for these facilities does not identify any stained soils or anomalies following demolition commencement. As addressed in part D of this form, stains were identified at some of these facilities, but were removed during demolition.

Were samples taken of the stained soils/anomalies? Yes No N/A

References/Comments:

This question is not applicable as neither stained soils nor anomalies were present following demolition. Nevertheless, sediment from the 181-N, 181-NE, and 1908-NE facilities was sampled prior to demolition (WCH-446 pg. 1-24 & Appendix B). The sediment was removed prior to demolition of the structures.

Do results of the samples indicate that chemical contamination exists? Yes No N/A

References/Comments:

N/A

Is the area potentially a discovery site? Yes No

References/Comments:

This question is not applicable as neither stained soils nor anomalies were present following demolition.

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Radiological Surveys

 Did radiological surveys (GPERS or equivalent) identify contamination? Yes No

References/Comments:

No reviewed radiological survey performed at any of these facilities detected radiological contamination (RSR-IFSM-05-0364, RSR-100SMT-06-0272, and RSR-100SMT-06-0287). GPERS surveys were deemed to be unnecessary for the footprints of these facilities as the facilities were determined to not be radiologically contaminated (CCN 165554 pg. 1).

 Were samples taken of the radiologically contaminated soils? Yes No N/A

References/Comments:

This question is not applicable as no reviewed radiological survey identified contamination at any of these facilities. Nevertheless, sediment from the 181-N, 181-NE, and 1908-NE facilities was sampled prior to demolition (WCH-446 pg. 1-24 & Appendix B).

 Is the area potentially a discovery site? Yes No

References/Comments:

No reviewed radiological survey identified contamination at any of these facilities.

 Were the contaminated materials removed? Yes No N/A

References/Comments:

This question is not applicable as no reviewed radiological survey identified contamination at any of these facilities. Nevertheless, contaminated sediment was discovered within, and removed from, the 181-N, 181-NE, and 1908-NE facilities prior to demolition (CCN 161465 pg. 1).

F. WIDS SITES

 Were there any WIDS sites affected by D4 activities? Yes No

 If yes, list the WIDS sites:
1908-NE

 Were the WIDS site(s) completely removed? Yes No

References/Comments:

With demolition and loadout of the 1908-NE facility complete, it is believed that no contamination remains within the 1908-NE WIDS site boundary. The interior voids of the structure were filled with clean borrow sand from the ERDF (CCN 165554 pg. 2) to an elevation equal to that of the adjacent bench. It was demolished to a level 3 feet below that of the grade of the adjacent slope and the bench installed to facilitate demolition, and backfilled/contoured to match the surrounding grade.

 Will the Ancillary Facility Footprint be deferred to FR to be closed out with a co-located Waste Site? Yes No

References/Comments:

The 1908-NE facility footprint has been designated as WIDS site 1908-NE, which is listed in the Interim Remedial Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units (pg. B-vii). Accordingly, the FR organization is responsible for final closeout of the footprint of the 1908-NE facility and deferral will not be necessary. However, final closeout of the 181-N, 181-NA, 181-NB, and 181-NE facility footprints is neither the responsibility of the FR organization nor will this responsibility be deferred to the FR organization.

G. COPCs FOR SOILS AND STRUCTURES REMAINING AFTER DEMOLITION

What are the potential contaminants of concern for the remaining below-grade soil?

 None SVOC VOC Metals TPH Rad PCBs

 Other (Specify): N/A

Comments:

All contamination is believed to have been removed during D4 activities at these facilities.

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Summary of in-process soil sampling requirements:

N/A

Constituents detected / concentrations / rationale

Sediment samples from the 181-N facility exceeded the RAGs for mercury, various ICP metals, and PAHs (CCN 155797 pg. 4, CCN 156198 Attachment 1, and WCH-446 Appendix B). Sediment samples from the 181-NE facility exceeded the RAGs for oil and grease, various ICP metals, and PAHs (CCN 156198 Attachment 2 & WCH-446 Appendix B).

Sediment samples from the 1908-NE facility exceeded the RAGs for oil and grease, various ICP metals, PAHs, and U-233/234 (CCN 156198 Attachment 3 & WCH-446 Appendix B). Also, PCBs were detected in two sediment samples from the 1908-NE facility (CCN 156198 Attachment 3).

Concrete samples from the 181-N facility exhibited elevated pH levels and exceeded the RAGs for various ICP metals (CCN 156198 Attachment 4 & WCH-446 Appendix B). Concrete samples from the 181-NE facility exhibited elevated pH levels and exceeded the RAGs for various ICP metals, PCBs, and PAHs (CCN 156198 Attachment 4 & WCH-446 Appendix B). Concrete samples from the 1908-NE facility exhibited elevated pH levels and exceeded the RAGs for various ICP metals and one 1908-NE concrete sample exceeded the RAG for a PAH (CCN 156198 Attachment 4 & WCH-446 Appendix B).

Five samples from the 181-NE facility were determined to contain asbestos (CCN 129093 Attachment 2).

Sample Collection Summary

181-N:

- Pump shaft crust: Sample (HEIS) Number J1C381 (WCH-466 Appendix B)
- Concrete: Sample (HEIS) Numbers J1D566 & J1D567 (WCH-466 Appendix B)
- Concrete: Sample (HEIS) Numbers J1D573, J1D574, J1D5R7, and J1D5R8 (CCN 156198 Attachment 4)
- Sediment: Sample (HEIS) Numbers J1CFP8, J1CFP9, and J1CNN5 (CCN 155797 pg. 4, CCN 156198 Attachment 1, and WCH-466 Appendix B)

181-NE:

- Concrete: Sample (HEIS) Numbers J1D570 & J1D571 (WCH-466 Appendix B)
- Concrete: Sample (HEIS) Numbers J1D577, J1D578, J1D5R9, and J1D5T0 (CCN 156198 Attachment 4)
- Sediment: Sample (HEIS) Numbers J1CNY2 & J1CNY3 (CCN 156198 Attachment 2 & WCH-466 Appendix B)
- Suspected asbestos containing material: Sample (HEIS) Numbers J12PP9, J12PP0, J12PP1, J12PP2, J12PP3, J12PP4, J12PP5, J12PP6, and J12PP7 (CCN 129093 Attachments 2 & 3).

1908-NE:

- Concrete: Sample (HEIS) Numbers J1CNT3, J1D568, and J1D569 (WCH-466 Appendix B)
- Concrete: Sample (HEIS) Numbers J1CNT2, J1D575, J1D576, and J1D5T1 (CCN 156198 Attachment 4)
- Sediment: Sample (HEIS) Numbers J1CNM6, J1CNM7, and J1CNM8 (CCN 156198 Attachment 3 & WCH-466 Appendix B)

Beneath the River Benches:

- Riverbed sediment: Sample (HEIS) Numbers J1CM89, J1CM90, J1CM91, and J1CXT4 (WCH-466 Appendix B)
- Shoreline sediment: Sample (HEIS) Numbers J1DWM5, J1DWM6, J1DWM7, J1DWM8, J1DWM9, J1DWN0, J1DWN1, and J1DWN2 (WCH-466 Appendix B)

H. NOTES / ADDITIONAL INFORMATION

Check here if additional information / data / maps / sketches are attached to this form.

If checked, list the attachment(s):

N/A

I. SAMPLING

Are soil samples required to demonstrate that remaining structure or below-grade soils meet cleanup standards?

Yes No

**100-N ANCILLARY FACILITIES REMOVAL ACTION
SAMPLING DETERMINATION FORM**

Determination Number
SDF-100N-021

Based on the above information it was determined that sampling: will will not be required in order to demonstrate that cleanup criteria have been met.

The individual below acknowledges that the review of this facility has been completed. He or she also commits to provide to the Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) any available information that could alter the sampling decision established in this form.

Information Reviewer Signature <i>David Warren</i>	Printed Name David Warren	Date 7/11/12
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The regulatory representative below agrees with the decision outlined in section I of this form for the indicated facility and supports implementation of that decision based on the information currently available.

DOE Signature <i>[Signature]</i>	Printed Name RF GUERRA	Date 7/9/2012
Ecology Signature <i>Nina M. Menard</i>	Printed Name NINA M. MENARD	Date 7/10/12