DRAFT

Prepared for:
The BNSF Railway Company
Seattle, Washington

Specifications – Schoolyard Excavation Supplement

Skykomish, Washington

FARALLON consulting

DRAFT

Prepared for:
The BNSF Railway Company
Seattle, Washington

Specifications – Schoolyard Excavation Supplement

Skykomish, Washington

Prepared by Richard W. McManus, P.E.

FARALLON consulting

DRAFT

BNSF – 2013 Schoolyard Excavation Supplement
Technical Specifications

TABLE OF CONTENTS

DIVISION 1- GENERAL REQUIREMENTS

DIVISION 2 – SITE WORK

DRAFT

BNSF – 2013 Schoolyard Excavation Supplement
Technical Specifications

DIVISION 16 – ELECTRICAL

SPECIFICATION ATTACHMENTS

Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control Measures, Former Maintenance and Fueling Facility, Skykomish Washington, July 7, 2008

National Pollutant Discharge Elimination System, Waste Discharge Permit No. WA-003212-3, Issued May 4, 2006

PLANS

2010 REMEDIATION FORMER MAINTENANCE AND FUELING FACILITY, SKYKOMISH, WASHINGTON		
SHEET	**SHEET TITLE**	**Rev. Date**
T-100	COVER SHEET	5/30/2011
T-101	LEGEND	5/12/2010
T-102	GENERAL NOTES	5/12/2010
C-210	EXISTING CONDITIONS- SCHOOLYARD AND WEST END OF LEVEE	5/12/2010
C-211	SITE PREPERATION AND EROSION CONTROL DETAILS - SCHOOLYARD AND WEST END OF LEVEE	5/30/2011
C-212	CLEAN OVERBURDEN EXCAVATION PLAN - SCHOOLYARD AND WEST END OF LEVEE	5/30/2011
C-213 (1)	EXCAVATION PLAN - SCHOOLYARD AND WEST END OF LEVEE	5/30/2011
C-213 (2)	EXCAVATION PLAN - SCHOOLYARD AND WEST END OF LEVEE	5/16/2011
C-214	FINAL GRADING PLAN - SCHOOLYARD AND WEST END OF LEVEE	5/12/2010
C-215	RESTORATION PLAN - SCHOOLYARD AND WEST END OF LEVEE	5/30/2011
C-216	EXCAVATION AND RESTORATION CROSS SECTIONS - SCHOOLYARD AND WEST END OF LEVEE	5/30/2011
C-217	CONTROL POINTS - SCHOOLYARD AND WEST END OF LEVEE	5/12/2010
C-218	IRRIGATION SYSTEM - SCHOOLYARD AND COMMUNITY CENTER	5/12/2010
C-300	SITE PREPERATION AND EROSION CONTROL DETAILS	5/12/2010
C-302	BACKFILL DETAILS	5/12/2010
C-303	SETTLEMENT MONITORING POINT DETAILS	5/12/2010
C-304	RESTORATION DETAILS	5/30/2011

BNSF – 2013 Schoolyard Excavation Supplement
Technical Specifications

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01110

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Defined Terms
B. Existing Contract Terms and Conditions
C. Additional Work Scope Summary
D. Work by Others
E. Work Sequence

1.02 DEFINED TERMS

Addendum: A written or graphic document issued to all bidders and identified as an addendum prior to bid opening that modifies or supplements the bid documents and becomes an integral part of the Contract.

Agreement: The Client Services Agreement between the BNSF Railway Company, the Owner, and the selected Contractor which will be used as the contract for the Work.

Application for Payment: The form, set forth in the Bidding Documents and accepted by the Owner and the Engineer, that is used by the Contractor to request a progress or final payment and that is accompanied by supporting documentation as required by the Contract Document.

APWA: American Public Works Association.

AREMA: The American Railway Engineering and Maintenance-of-Way Association.

Award: A formal decision by the Owner and Engineer to accept a responsible and responsive bidder for the work.

Bid: The offer of a bidder on a properly completed proposal form to perform the contract.

Bid Form: The form provided within the general contract document and including Schedules A through G thereto that are an integral part of the Contract.

Bid Item: An element of work, a component of the contract work, with title, unit of measure, quantity, and the Contractor's proposed unit price described in the Contract Plans and Specifications.

Bidder: An individual, partnership, firm, corporation, or joint venture, submitting a proposal or bid. When required by the Owner, prequalification shall be enacted.

Bid Documents: The component parts of the proposed contract which may include, but not limited to, the proposal form, the proposed contract provisions, the proposed contract plans, specifications, addenda, and subsurface boring logs (if any).

CAP: Cleanup Action Plan. Appendix B of the Consent Decree. Available on-line:

http://www.ecy.wa.gov/programs/tcp/sites/bnsf_sky/bnsf_sky_new/Legal_Information.htm#Final%20Consent%20Decree

CDL: Construction and Demolition Landfill.

Change Order: A legal instrument, authorized by the principals of the contract, created to change contract item quantities or other alteration to the work. Such a change does not invalidate the contract or release the surety. The Contractor agrees to perform the work as altered. Such a change may include deletion of any part of the work, increasing or decreasing material quantities; altering specifications, design, or both; altering the way the work is to be done, adding new work, altering facilities, equipment, materials, services, or sites, provided by the Owner; directing the Contractor to speed up or delay the work.

Confirmation Sample: Sample of soil obtained from floor or wall of an excavation, or water from dewatering or decontamination, which will be sent to an outside or on-site analytical laboratory to determine if the sample meets applicable requirements.

Consent Decree: Washington State Department of Ecology v. BNSF Railway Company, King County Superior Court Case No. 07-2-33672-9 SEA. Available on-line:

http://www.ecy.wa.gov/programs/tcp/sites/bnsf_sky/bnsf_sky_new/Legal_Information.htm#Final%20Consent%20Decree

Contract: A written, legal, binding agreement between an Owner and a Contractor, describing, among other things, work to be done and by whom; who provides labor, equipment, and materials; and how compensation will be made. The Contract includes the contract (general agreement) form, the bidder's completed proposal form, contract provisions and specifications, standard specifications, standard plans, addenda, various certifications and affidavits, supplemental agreements change orders, and subsurface boring reports (if any).

Contract Documents: The Contract Documents include the Agreement, Bid Form, the Proposal, Schedules A through G, the Project Plans and Specifications, any properly executed Change Order and Work Change Directive or Addendum pertaining to Work set forth in the Specifications or Change Orders.

Contractor: The person, firm, or corporation with whom the Owner has entered into a legal agreement for performance and compensation of the work described in the Plans and Specifications.

Contract Price: The amount payable to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement.

Contract Time: The time period stated in the Contract Document for completing the Work described by the Plans and Specifications.

Daily Construction Report: The Contractor's Daily Construction Report described in Specification Section 01325 Progress Schedules and Reports.

Decontamination Zone: A transition area between the Exclusion Zone(s) and the Support Zone(s) or other non-exclusion areas of the Secured Zone(s) wherein impacted soil and other undesirable materials can be cleaned from personnel and equipment.

BNSF – 2013 Schoolyard Excavation Supplement

Disturbed Areas: Areas disrupted or otherwise changed from their preconstruction condition by the construction activity.

Downtime: Contractor's downtime during the construction period will be paid based on the equipment and personnel present at the site and the downtime rates as presented by the Contractor in Schedules E and G of the Specifications.

Engineer: Farallon engineer authorized by the Owner, The BNSF Railway Company, to monitor the Contractor's Work for conformance with the Plans and Specifications. The terms Engineer and Farallon are used interchangeably in these Plans and Specifications.

Engineer's HASP: The Site Specific Health and Safety Plan prepared by the Engineer.

Exclusion Zone: A delineated area, containing impacted materials and other potential threats to human health and safety, with controlled access within the secure zone.

Farallon Consulting, Inc. (Farallon): designated Engineer, selected by the BNSF Railway Company, Owner, to coordinate the project design, remediation activity, and construction management of the remediation project.

Form: A legal form provided by the Owner and Engineer requiring the signatures of the legal representatives of the Contractor and the Owner in order to affect the formal execution of a contract.

Force Account Work: In the event work is made necessary by changes and alteration to plans or other reasons, or any other work which is performed which is not specified by these Plans and Specifications, such work shall be designated "Force Account Work". The Contractor shall perform such force account work in accordance with these Specifications and as directed by the Engineer. No such force account work shall be undertaken by the Contractor until a written order has been issued by the Engineer to perform the Work on a "Force Account" basis. Used interchangeably with Time and Materials work in these Specifications.

HASP: The Site Specific Health and Safety Plan prepared by the Contractor described in Specification Section 01150 Health and Safety.

HAZWOPER: Hazardous Waste Operations and Emergency Response as defined in 29 CFR 1910.120.

HDPE: High Density Polyethylene.

Health and Safety Officer: The Contractor's Health and Safety Officer described in Specifications Section 01150 Health and Safety.

Impacted: A geographic area, an object, or a material that is, or that has been in contact with, or that contains a substance at concentrations exceeding applicable health standards and guidelines for that substance.

Impacted Soil or Water: Sediment, soil, or water determined to contain chemical constituents at concentrations exceeding applicable health standards and regulatory guidelines.

Invitation to Bid: Notice soliciting proposals or bids for work stating, among other things, the time, place, and date for receiving and opening the bids.

BNSF – 2013 Schoolyard Excavation Supplement

Issuing Office: The office of Farallon from which the Bidding Documents are issued and where the bidding procedures are to be administered as identified herein:

Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027
Attn: Mr. Jeff Hamlin, P.E.
Phone: (425) 295-0800

Laws and Regulations: The Contractor shall always comply with all Federal, State, County, Tribal, local laws, ordinances, and regulations that affect work under contract. The Contractor shall indemnify, defend, and save harmless the Owner, agents of the Owner, the State, County, Town officers and agents against any claims that may arise because the Contractor (or any employee of the Contractor, subcontractor, or material person) violated a legal requirement.

MTCA: Model Toxics Control Act.

NMFS: National Marine Fisheries Service.

Notice of Non-Conformance: A written advisory that directs the contractor to repair or correct a deficient contract item of work or material.

Normal Work Hours: The hours during which the Contractor may perform the physical work of the Contract as authorized in the Specifications.

NWDZ: Northwest Developed Zone as defined by the Consent Decree. The entire excavation area is within the NWDZ.

Owner: The BNSF Railway Company (BNSF).

Plans: The Plans show the scope, extent, location, dimensions, and character of the work including layouts, profiles, cross-sections, and other details, to be furnished and performed under this Contract and which have been prepared and approved by the Engineer and are included within or are referenced in the Contract Documents. Shop Drawings are not so defined.

Project: The environmental remediation of the spill in Skykomish, Washington, described by these Plans and Specifications.

Project Records: The documentation described in Specification Section 01325 Progress Schedules and Reports, verifying the Project Work and Compensation required for a formal audit.

Progress Schedule: The time based depiction of all the Project Construction Activity and Tasks listed logically to show the beginning and ending of the Project Work and as noted in Section 01325 Progress Schedules and Reports.

Project Superintendent: The Contractor's supervisor described in Specifications Section 01310 Project Management and Coordination; a person of wide experience and knowledge of construction methods and measures and authorized by the Contractor Owner to fully decide construction issues for the Company.

PSCAA: Puget Sound Clean Air Agency.

BNSF – 2013 Schoolyard Excavation Supplement

Remediation: Activity described by these Plans and Specifications, approved by the Washington State Department of Ecology and BNSF, and performed by the selected Contractor to remove or mitigate hazardous and non-hazardous substances in the site soil, sediment and groundwater.

Request for Information (RFI): Formal request for information prepared by the Contractor to document and receive clarification, direction, or further explanation from the Engineer regarding the Contract Plans and Specifications and work.

Samples: Small physical examples of materials, equipment, or workmanship that are representative of a portion of the work and which, along with other factors, establish the standard by which such portion of the work is evaluated.

Schedule of Quantities and Prices: The Schedule of Quantities and Prices as defined in paragraph 1.02 (A) of Section 01290 Payment Procedures of the Specifications.

Schedule of Values: A listing of the contract items of work, the appropriate quantities, along with the individual unit and total price.

Secured Zone: The area(s) where the Contractor shall perform the Work and wherein the Contractor has primary responsibility for the operation, security, and safety of materials, equipment, and project personnel.

Site Construction Manager: The assigned representative of the Engineer tasked with construction oversight of a portion or the complete Project.

Specifications: The portion of the Contract Document that denotes the technical descriptions of materials, equipment, standards, workmanship, measurement and payment as applied to the work, material, proposal, and Contract Items.

SSHO: The Contractor's Site Safety and Health Officer.

Sub-Contractor: An individual, partnership, firm, corporation, or joint venture who is sublet part of the contract by the Contractor.

Submittals: Formal information related to material, subletting, contract work details, provided by the Contractor to the Engineer for review for approval for the Contract. Further description is located in the Specifications including, but not limited to, Section 01330 Submittal Procedures.

Substantial Completion: Substantial Completion will be declared by the Engineer when all on-site Project work is complete except for demobilization and contract closeout.

Successful Bidder: The Bidder to whom the Owner (on the basis of the Engineer's evaluation as herein provided) awards the contract for the Work.

Supplier: A manufacturer, fabricator, supplier, distributor, material person or vendor having a direct contract with Contractor or with any Sub-Contractor to furnish materials or equipment to be incorporated in the Work by the Contractor or any Sub-Contractor.

Support Zone: Designated area within the Secured Zone that contains no impacted materials or hazards.

Technical Execution Plan: A written work plan that describes methods, materials, and sequences of specific work items submitted by the Bidder in accordance with the requirements of

the Bidding Documents, reviewed by the Engineer, and subsequently modified by the Contractor in accordance with the Contract Documents.

Temporary Activity Zone: A marked area within the Exclusion Zone where an activity occurs or structure may exist that warrants separation or demarcation from other activities or areas.

Time and Materials: Used interchangeably with Force Account Work in these Specifications.

Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, catch basins, vaults, tanks, tunnels, or other such utilities or attachments, and any encasements containing such facilities that have been installed underground.

Weekly Progress Meetings: The Weekly Progress Meeting referred to in Specifications Section 01325 Progress Schedules and Reports.

Work: The completion of tasks described by the Plans, Specifications, and Proposal herein by furnishing labor, equipment, & materials in conformance with the Contract Documents.

Work Change: The Work Change Directive, described in Section 01250 Contract Modification Procedures, generated to add, subtract, modify, or authorize work for a heretofore, unforeseen condition, material, or requirement. This allows expeditious progress in contract work while waiting to accumulate several work items in a formal change order.

Work Zones: Areas of the site where work is segregated by HAZWOPER classification of work conducted. Work zones include but are not limited to the Decontamination Zone, Exclusion Zone, Secured Zone, Support Zone, and Temporary Activity Zone.

WISHA: Washington Industrial Safety and Health Act

WSDOE (or Ecology): Washington State Department of Ecology.

WSDOT: Washington State Department of Transportation.

1.03 WORK SCOPE SUMMARY

A. The scope of work described in these plans and specifications was originally part of the BNSF Skykomish 2010 remediation project work. This work was described in the construction drawings titled, "2010 Remediation, Former Maintenance and Fueling Facility, Skykomish, Washington", and prepared by AECOM. The excavation work within the schoolyard was not completed as part of that contract.

   A portion of the schoolyard excavation described in the 2010 drawings will be performed in 2013 and is described in the "2013 School Yard Supplement, Former Maintenance and Fueling Facility, Skykomish, Washington" drawings.

   Applicable sheets of the 2010 drawings have been provided as part of the project drawings. Amendments and additions to these drawings are described in the "2013 School Yard Supplement, Former Maintenance and Fueling Facility" drawings.

B. The scope of work for the 2013 Skykomish remediation includes excavation, backfill, and restoration of a portion of the Skykomish school property. This work is shown on the 2013 Schoolyard Supplement plans. The Contractor shall complete this work in

accordance with the project schedule developed by the Contractor and approved by the Engineer.

C. Excavation on the school property is tied to an access agreement that BNSF currently has or is negotiating. It is anticipated that the Contractor will be provided access to the school property on June 12, 2013. The deadline to complete construction activities on the school property is August 30, 2013.

D. The general scope for the remediation work components in 2013 includes the following activities:

1. Preparation, submittal, and implementation of a Technical Execution Plan (TEP) for the work to be performed in 2013. The TEP for the 2013 shall describe work activities, project controls, and procedures;
2. Preparation, submittal, and implementation of a project health and safety plan for the work;
3. Construction of temporary erosion and sediment control devices for the work;
4. Installation of temporary construction fencing to facilitate safeguarding the site, and implement pedestrians and traffic plans for the work;
5. Coordinating with the utility companies;
6. Establishment of temporary stockpiling areas within the soil handling area;
7. Excavation, stockpiling and backfilling of clean overburden removed from the defined excavation boundaries identified in various remediation areas;
8. Excavation, segregation, and stockpiling of TPH-impacted soils, and metal-impacted soils removed from the defined excavation boundaries; recovery and disposal of oil from the excavation areas;
9. Provide access and assist the Engineer in collecting overburden samples within the excavation areas, and confirmation samples from excavation sides and bottoms;
10. Perform additional excavation as required by the Engineer where confirmation samples did not pass, or where obvious signs of impacts suggest that confirmation samples will not pass;
11. Loading TPH-impacted soils, and metal-impacted soils onto rail cars provided by the Owner;
12. Importing and stockpiling clean backfill materials;
13. Backfilling and compaction of excavated areas with clean overburden and imported backfill materials;
14. Connecting teacherage and school septic systems to town sanitary sewer system;
15. Maintaining utility service to the school and teacherage during construction;

16. Final restoration and landscaping of disturbed areas;

17. Preparation and submittal of as-built drawings, certifications and material requirements, schedules, record plans, quality control documentation and other submittals as identified in various sections of the 2013 Specifications.

E. The sections below provide additional details for work in specific areas identified in the 2013 Plans:

F. The Contractor shall recognize that the access agreement is currently being negotiated with the Skykomish School. Additional conditions may be set forth in the access agreement that the Contractor may have to comply with during and as part of the project work. The Engineer will provide more information on these conditions when available and if necessary as a separate addendum. The Contractor shall agree to abide by the terms of access agreement.

G. The Contractor is required to notify Farallon if a monitoring well is encountered in planned or unplanned excavations. Farallon will take appropriate measures to decommission the well. In the event that the Contractor damages or destroys a monitoring well during any of the work activities, it shall be the Contractor's responsibility to have it repaired or replaced by a licensed well driller as required by the State of Washington regulations.

H. The additional work components are being implemented in accordance with the Washington Administration Code (WAC) 173-340-400 – Implementation of the Cleanup Action. The primary governing agency is the Department of Ecology, Northwest Region Office in Bellevue, Washington. Federal agencies, Washington state agencies, King County, and Town of Skykomish are additional agencies that have jurisdiction over certain aspects of the anticipated activity.

1.04 WORK BY OTHERS

A. The Engineer will collect and analyze soil and water samples as described in the Specifications. The Contractor shall aid in collection of samples as described in the Specifications.

B. The Engineer will perform air monitoring required for worker health and safety requirements of Farallon employees and for the general public during the additional work. The Engineer will not perform air monitoring required for worker health and safety requirements for the Contractor's employees and sub-contractors.

C. The Engineer will be responsible for any sampling and analysis required for the off-site disposal of contaminated excavated soil and debris. The Contractor shall be responsible for all other testing related to offsite disposal of debris or water.

D. The Owner will pay for transport and disposal of impacted soil and debris once loaded into railcars.

E. The Owner will provide for laboratory analytical services at an offsite laboratory. In general, laboratory testing results will be available in 36 to 72 hours after the sample is submitted to the laboratory.

F. Power service to the school provided by Puget Sound Energy lies within the excavation area. The Contractor shall coordinate with the Puget Sound Energy to facilitate temporary relocation of the power service and re-installation of the power service as required to complete the work.

1.05 WORK SEQUENCE

A. The Contractor shall determine detailed sequencing of the Work in accordance with the Plans, Specifications and Addenda, and the Construction Milestones set forth in Bid Form Schedule F. This schedule shall be subject to review and approval by the Engineer prior to starting any Project site activity.

B. The Contractor shall describe the construction sequence in their Technical Execution Plan for the additional work and approved by the Engineer. The TEP shall be prepared as described in the Specifications Section 01330 Submittal Procedures, paragraph 1.05.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used

END OF SECTION 01110

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01140

WORK RESTRICTIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Use of Premises
B. Access Roads
C. Parking
D. Work Hours
E. Railroad Safety Requirements
F. Restrictions on Air Emissions of Toxic Chemicals
G. Protection of Existing Utilities

1.02 USE OF PREMISES

A. The Contractor shall confine all operations, including storage of material and equipment, to the pre-approved areas of the Project site as approved in writing by BNSF and the Engineer. All the excavated material and imported backfill material shall be temporarily stockpiled in the Soil Handling Area within the BNSF rail yard. The Contractor shall be completely responsible for use of any stockpiling areas off-site and not designated on the Plan including coordination and fees for such an arrangement. BNSF and the Engineer's prior written approval shall be required for use of any BNSF or public right-of-way for a staging or stockpiling area. The Contractor shall not trespass or encroach upon any right-of-ways or any areas where access is not available during the work activities and shall be completely responsible for any damages or liabilities that may result due to access of such right-of-ways and areas.

B. Access to the school property is tied to an access agreement that BNSF currently has or is negotiating. Contractor access to and use of school property shall meet all provisions of this access agreement.

C. The Contractor shall be completely responsible for the security and safety of Contractor's equipment, materials, and facilities. Neither BNSF nor the Engineer will be liable for loss or damage of Contractor's tools, vehicles, equipment, or materials, regardless of the cause. The Contractor shall retain sole and complete responsibility for the Project work and materials as described in the Plans and Specifications until BNSF issues the Final Acceptance Notice.

D. The Contractor shall be completely and solely responsible for any damage to roadways, facilities, utilities, trees, project structures, school property, and private properties that results from negligence, carelessness, actions, errors or omissions by the Contractor.

1.03 ACCESS ROADS

A. Contractor vehicles shall enter and exit the work-site and Project only at locations designated on the Plans or as otherwise approved in writing by the Engineer.

B. The Contractor shall provide all traffic control flagging staff, temporary signals, and signage as necessary to maintain pedestrian and traffic control as depicted on the

approved updated Traffic Control Plan, to be provided by the Contractor, and as required by applicable King County and Town of Skykomish ordinances, and as deemed necessary by the Engineer for safe traffic flow on public streets and/or for street closures required to conduct the Project work.

C. The Contractor shall provide all barricades, temporary signals, and signage for streets that are closed or rerouted during the execution of the work. The Contractor shall submit an updated Traffic Control Plan to the Engineer for approval prior to starting the additional Project work. The updated Traffic Control Plan shall be developed by a Traffic Control Supervisor (TCS) retained by the Contractor with sufficient experience and expertise, including work near rail tracks, to provide a safe work environment for the Town and for the Project. No Project street work will be permitted until approval is granted for the Traffic Control Plan. All traffic control work including signage and traffic markings shall conform to the United States Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD) as well as applicable King County and Town of Skykomish ordinances.

D. Emergency vehicles shall be allowed ready access at all times during the Project.

E. The Contractor's TCS shall communicate and coordinate, with the School District, Emergency Vehicles, the Fire and Sheriff Departments, and with BNSF. Original copies of the daily TCS report, describing all traffic control activity and communication, shall be furnished to the Engineer weekly.

1.04 PARKING

A. The Contractor shall park construction vehicles and construction equipment only in areas designated for such purpose as approved in writing by the Engineer. Construction vehicles and construction equipment shall not be parked in the Support Zone.

B. Contractor employees shall park personal vehicles only in the designated employee parking area of the Support Zone, as shown on the Plans or as otherwise approved in writing by the Engineer.

C. Vehicles shall not be parked in any locations where they impede traffic or access to areas where work is underway.

D. Contractor vehicles and Contractor employee vehicles shall not be parked on Sixth Street.

E. There shall be no parking on BNSF right-of-way. The ONLY exception is that area fenced off and holding the Project field office trailers south of the railroad tracks.

1.05 WORK HOURS

A. Project work hours shall be 7:00 a.m. to 7:00 p.m. Monday through Friday and 9:00 a.m. to 7:00 p.m. on Saturday. Working on Saturdays shall be requested by the Contractor and approved in writing by the Engineer. Holidays are excluded except as approved in advance by the Engineer. Excessive noise, such as banging dump truck tail-gates while unloading, sliding steel sheets across pavement, jack-hammers, hydraulic hammers, concrete saws, pipe saws, etc., may require altering work hours or adjusting use of noise generating machinery. The Engineer will review to make a determination of excessive noise restrictions for the Project. The Contractor shall comply with the noise control ordinance issued by the Town of Skykomish and King County.

B. Contractor's maintenance on project-related equipment may be done outside Project work hours with adherence to safety and noise constraints at no extra cost to BNSF or the Engineer.

C. Any deviation from the published Project work hours, whether proposed for weekends or holidays or for work at night, will be subject to prior approval by the Engineer. The Contractor shall submit a request to the Engineer no less than 48 hours, i.e., two work days, prior to requesting any necessary variation from the normal work hours, in order to allow sufficient review and coordination with staff. Any such Contractor request to the Engineer shall include work activities to be conducted outside of normal working hours, the hours, traffic control and safety issues addressed, and days needed for the activity. Any such approval by BNSF and the Engineer will solely be for the convenience of the Contractor and no further compensation, except for Contract Items, will be made including but not limited to acceleration. If BNSF and the Engineer determine that acceleration is needed, such effort will be amended to the Contract via a negotiated change order.

1.06 RAILROAD SAFETY REQUIREMENTS

A. All personnel, including, but not limited to, operators, laborers, traffic control staff, contractor staff visitors, working on the Project within the railyard shall take and pass the BNSF rail safety course (http://www.contractororientation.com/) as well as the e-SAFE Homeland Security program (http://www.e-railsafe.com/). Information is available on the above websites. This requirement will be strictly enforced. Project safety and Homeland Security measures are absolute requirements.

B. In accordance with BNSF right-of-way rules, all Project staff shall wear appropriate safety gear, including a clean, reflective vest, steel-toed boots (safety boots) in accordance with ANSI Z41.1, safety glasses w/side guards, and hard-hat at all times while on the Project. The sole exception to this absolute requirement shall be when in the field office or in an enclosed vehicle. Non-conformance to this requirement shall subject the violator to dismissal from the Project.

1.07 RESTRICTIONS ON AIR EMISSIONS OF TOXIC CHEMICALS

A. The Contractor shall responsibly perform all Project work concerning airborne emission of toxic chemicals in accordance with all related laws and regulations and these Plans and Specifications.

B. The Contractor shall perform all work in accordance with the requirements of the Washington State Department of Ecology and Puget Sound Clean Air Agency Regulations and as described by these Plans and Specifications.

C. The Engineer shall have authority to direct the Contractor to stop work or to modify work methods or activities as necessary to comply with Ecology's Action Levels for airborne emissions of toxic chemicals. If the Engineer determines that modifications of work methods or activities affect the contract work, and that the airborne emission is not caused by easily changeable work activities, force account procedures, as fairly negotiated by the Construction Manager and Contractor Superintendent, will be implemented until the Action Levels safe zone is restored.

BNSF – 2013 Schoolyard Excavation Supplement

1.08 PROTECTION OF EXISTING UTILITIES

A. The Contractor shall protect all overhead and underground private and public utilities, including the BNSF railyard properties, from damage resulting from Project work. Among others, these utilities include, but are not limited to: telephone, communication lines, power lines, sewer and water lines, railroad tracks and equipment, and street lighting and signage.

B. If there is a discrepancy in the proposed work related to existing utilities, the Contractor shall notify the Engineer in writing and resolve it before proceeding with the work.

C. Chapter 19.122 of the Revised Code of Washington (RCW) relates to underground utilities. In accordance with this RCW, the Contractor shall call the One-Number Locator Service, i.e., 1-800-424-5555, for field location of utilities. The Contractor shall call the BNSF Call Before You Dig number (800-533-2891) for field location of utilities on the railyard. If no locator service is available for the area, notice shall be provided individually to those owners of utilities known to, or suspected of, having underground facilities within the area of the proposed excavation.

D. The Contractor shall cooperate with any utility activity to move, relocate, repair, or connect their equipment.

E. In some cases, the Plans may not show all underground facilities. Should the work require these to be moved, the Engineer will provide for other to move them or issue a change order requiring the Contractor to do so pursuant to these Contract Documents and Standard Specifications, unless it is otherwise noted elsewhere in the Plans and Specifications.

F. All costs associated with coordinating, cooperating, and scheduling with utilities shall be included as incidental to the various other Contract Bid Items.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used

END OF SECTION 01140

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01150

HEALTH AND SAFETY REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. References
C. Contractor's Responsibility for Health and Safety
D. Submittals
E. Notifications
F. Equipment and Facilities
G. Personal Protective Equipment
H. Other Health and Safety Equipment
I. Training
J. Work Planning and Meetings
K. Engineering Controls
L. Monitoring
M. Evaluation of Performance
N. EHS Incident Report Form
O. EHS Opportunity or Near Miss Report Form
P. Hot Work Permit Form
Q. Job Safety Analysis Form
R. Safety Task Analysis Review (STAR) Form
S. Guidelines for BEST Observation and Feedback Process

1.02 SUMMARY

A. This section includes requirements for Health and Safety during performance of Work, including identification of applicable Laws and Regulations, Submittals, notification requirements, and Health and Safety execution Specifications.

1.03 REFERENCES

A. Applicable regulations and publications include, but are not limited to, the following:

1. ACGIH, Threshold Limit Values and Biological Exposure Indices (most recent version).

2. ANSI, Emergency Eyewash and Shower Equipment, Z358.1, 1981.

3. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1, 1979.

4. ANSI, Practices for Respiratory Protection, Z88.2, most recent version.

5. ANSI, Protective Footwear, Z41.1, 1983.

6. ANSI, Respirator Use Physical Qualification for Personnel, Z88.6, 1984.

7. Code of Federal Regulations (CFR): Title 29 CFR Part 1904, Recording and Reporting Occupational Injuries and Illnesses; Title 49 CFR Part 171, General Information, Regulations, and Definitions; and Title 49 CFR Part 172, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements.

8. DHHS, "Manual of Analytical Methods", 3rd edition Volumes I and II, DHHS (NIOSH) Publication 84-100.

9. Federal DOT Standards and Regulations, 49 CFR 171 and 49 CFR 172.

10. Model Toxics Control Act (MTCA), Chapter 173-340 Washington Administrative Code.

11. NFPA, Flammable and Combustible Liquids Code, NFPA 30, most recent revision.

12. NIOSH Pocket Guide to Chemical Hazards, DHHS/PHS/CDC/NIOSH, June, 2000 or most recent.

13. NIOSH/OSHA/USCG/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, DHHS/PHS/CDC/NIOSH, October 1985.

14. OSHA, Title 29 CFR Part 1910, Occupational Safety and Health Standards, and Title 29 CFR Part 1926, Safety and Health Regulations for Construction Sites.

15. Railroad Workplace Safety, 49 CFR 214.

16. USDOT Standards and Regulations, 49 CFR 171 and 49 CFR 172.

17. USEPA, Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA/625/R-96/010b, January 1999.

18. USEPA, Health and Safety Requirements for Personnel Engaged in Field Activities, USEPA Order No. 14402.

19. USEPA, Standard Operating Safety Guidelines, November 1984.

20. WISHA, Chapter 296-800 Washington Administrative Code.

B. Where two or more regulations/documents conflict, the one(s) offering the greatest degree of protection shall apply.

1.04 CONTRACTOR'S RESPONSIBILITY FOR HEALTH AND SAFETY

A. The Contractor shall comply with any and all state, federal, and local ordinances, Laws and Regulations.

B. The Contractor shall be responsible for the Health and Safety of the Contractor's employees, their Subcontractors, Suppliers, agents, inspectors, visitors, the general public, and any others associated with or interacting with the Contractor who provides labor, goods, or other services on the Site.

C. The Contractor shall be responsible for emergency response planning and notification, and for actual response to any and all emergencies that may occur during the course of the Work, including emergencies that may occur when the Contractor is not present at the Site.

D. The Contractor is responsible for communicating daily with the Engineer regarding Health and Safety issues for the Engineer's safe conduct of the Engineer's duties, but such communication shall not imply any duty or responsibility on the part of the Engineer with regard to Health and Safety of the Contractor's employees, its Subcontractors, Suppliers, the general public, or others. The Engineer's responsibility and duty with regard to Health and Safety shall be limited to the Engineer's employees. The Contractor shall have responsibility and duty to the Engineer to communicate Health and Safety issues accurately and in a timely manner to allow the Engineer to take appropriate actions to protect the Engineer's employees and the Owner's employees.

E. The Contractor shall designate a dedicated Contractor's SSHO on the Site during the Work who shall, at a minimum, have at least one (1) year of experience as an SSHO on an uncontrolled hazardous waste site, and have 40-hour OSHA Hazardous Waste Operations training and 8-hour OSHA Supervisor training. The Contractor's SSHO shall be solely dedicated to Health and Safety issues from the start of the site activities through completion. Tenure of Contractor's SSHO shall be subject to approval by the Engineer, such approval will not be unreasonably withheld.

F. The SSHO shall enforce the requirements of safety for all Contractor personnel onsite at all times. The SSHO shall ensure that all Contractor personnel, Subcontractor personnel, and Contractor visitors, follow the applicable site Health and Safety Plan (HASP), including wearing the designated level of Personal Protective Equipment (PPE). If the SSHO elects to require a higher level of protection than that specified in the Engineers HASP, the extra costs associated with such higher level shall be borne by the Contractor, unless such extra costs are approved in advance in writing by the Engineer.

G. Prior to mobilization and continually through the duration of the Work, the SSHO shall inspect the Site and document area-specific and worker-specific protection requirements.

H. After mobilization, the SSHO shall monitor activities and shall document the need for additional worker protection as required, based on activities performed and Action Levels specified in the HASP.

I. The SSHO shall verify that all activities are performed in accordance with the HASP and all federal, state, local, and Health and Safety standards, Laws and Regulations, and guidelines.

J. In the event of a health or safety risk, as determined by the SSHO or by other Contractor personnel or by the Engineer, the Contractor shall not proceed with the Work until a method for handling the risk has been determined in consultation with the Engineer and implemented. Any health or safety risk resulting in a stoppage of Work shall be reported immediately to the Engineer.

K. The Contractor shall be responsible for implementing a behavior-based safety process and providing site training, observation, and feedback for Contractor personnel employed at the Site.

L. All Contractor personnel and subcontractor personnel shall have the authority to stop work if unsafe conditions occur or prevail. This authority will be established in the Contractor HASP and communicated to all personnel present in the Work area.

M. The Contractor shall be responsible for acquiring certification for Contractor employees through Homeland Security's e-railsafe training (http://e-railsafe.com/) in order to work on the BNSF railyard.

N. The Contractor shall be responsible for acquiring certification for Contractor employees through BNSF's „Contractor Orientation Training' (http://contractororientation.com/) in order to work on the BNSF Railyard.

O. The Contractor shall be responsible for stability of excavations and embankments caused by the Contractor's Work. The Contractor shall designate one competent person as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

P. The Engineer will provide the Contractor with a copy of the Engineer's HASP as a reference. The Contractor shall be responsible for preparing their own HASP under which their employees shall work. At a minimum, this HASP shall comply with all the requirements specified in the Engineer's HASP.

1.05 SUBMITTALS

A. The Contractor shall prepare and submit an updated HASP to the Engineer as a part of the Technical Execution Plan. The Contractor shall follow all applicable local, state, and federal Health and Safety standards, Laws and Regulations, and guidelines implemented through, but not limited to, the OSHA, WISHA, NIOSH, ACGIH, and USEPA. Where these are in conflict, the most stringent requirement shall be followed. The following points shall be addressed in the Contractor's HASP:

1. Names of key personnel and alternates, including major Subcontractor personnel, responsible for Health and Safety, including a Contractor Health and Safety Representative and SSHO. The Engineer must approve the SSHO.

2. A Health and Safety risk or Job Safety Analysis (JSA) associated with each portion of the Work (i.e., list potential chemical and physical hazards), including JSAs for all major components of work, such as excavation and backfilling, stockpiling, backfilling, and restoration activities.

3. Hard copies of the certificates of Contractor employees' e-railsafe training and BNSF's Contractor Orientation Training.

4. Employee and Subcontractor training assignments to ensure compliance with 29 CFR 1910.120.

5. A requirement that the Contractor locate Underground Facilities by using "Safe Dig" procedures prior to the start of the Work.

6. Personal protective equipment (PPE) to be used for each of the site tasks and operations being conducted, as required by the PPE program in 29 CFR 1910.120, 29 CFR Subpart I, and 29 CFR 1926.

7. Protocols for work around and in water including, but not limited to special PPE and other equipment to work safely around water.

8. Medical surveillance requirements in accordance with the program in 29 CFR 1910.120.

9. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used by the Contractor, including methods of maintenance and calibration of monitoring and sampling equipment.

10. Corrective actions and upgrading of personnel protection based on monitoring of air, personnel, and environmental sampling, with specific Action Levels identified.

11. Site control measures in accordance with the control program required in 29 CFR 1910.120 and 29 CFR 1926.

12. Decontamination procedures in accordance with 29 CFR 1910.120 and Section 02130- Decontamination.

13. An emergency response plan meeting federal, state, and local requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment. Explanation of potential emergencies and contingency plan of action, including description of the route to the nearest appropriate hospital, hospital route map, and posting of emergency telephone numbers at the Site.

14. If confined space entry is required, include confined space entry procedures in accordance with 29 CFR 1910.146, and a list of all anticipated confined space entries required by the Contractor in the course of the Work.

15. A spill containment program meeting the requirements of all applicable local, state, and federal Health and Safety standards.

16. A list of Health and Safety and emergency equipment available on the Site.

17. A description of engineering controls used to reduce the hazards of equipment operation and exposure to site hazardous chemicals.

18. An air monitoring plan describing the method, type, frequency, locations of air monitoring, laboratories, and type of analysis to be performed at the Work area for the purpose of employee safety.

19. Open trench excavation procedures in accordance with applicable OSHA Regulations.

20. Procedures for earthwork near buried utilities, where hand digging should be performed within 24 inches of known utility lines unless more stringent requirements are specified by Laws or Regulations, or the affected utility.

21. Training for emergency response procedures as outlined in the Engineer's HASP.

22. Heat stress program consistent with the references provided in the Engineer's HASP.

B. Contractor's Daily Construction Report, submitted in accordance with Section 01320-Progress Schedules and Reports, shall include a summary of daily safety issues and a summary of the Contractor's Daily Safety Meeting.

C. The Contractor shall submit monthly safety reports that include:

1. The names of all Contractor and Subcontractor personnel employed at the Site at any time during the month, and the names and duties of key personnel including the Contractor's Project Manager, Project Superintendent, SSHO, and excavation-competent person.

2. A summary of all Health and Safety incidents describing any medical treatment that was provided during the month, the current Work status of any individuals affected, the names of individuals who may have observed the incident, and actions taken by the Contractor to address the unsafe act or unsafe condition.

3. A summary of all Health and Safety near-misses or observations providing an opportunity for shared learning and future hazard avoidance. For any Health or Safety incident or near-miss, list the date, the nature of the incident or near-miss, and the names of individuals involved. A near-miss form for use in submitting near-misses is attached to this Section.

4. The total number of labor hours worked at the Site during that month.

5. Internal Health and Safety audits performed by the Contractor as part of the Contractor's HASP.

D. Prior to initiating Work, the Contractor shall provide the Engineer with documentation of employee and applicable Subcontractor training and medical certifications required by 29 CFR 1910.120 as described in 3.01A of this Section.

E. The Contractor shall submit documentation of training and experience for the designated excavation-competent person.

F. The Contractor shall submit a Hot Work Permit for any welding, torch cutting, or activities that generate sparks. If the Contractor does not have a permit readily available, they may request a permit from the Engineer. In some instances the Engineer's client may require the use of their specific permit and permitting process.

G. The Contractor shall conduct a JSA for significant activities and submit the documentation to the Engineer for review prior to the start of the activities. The Contractor's JSA shall be submitted on the JSA forms attached to this Section, or other forms acceptable to the Engineer.

H. The Contractor shall submit copies of all periodic equipment inspections completed.

1.06 NOTIFICATIONS

A. The Contractor shall immediately (within 30 minutes) verbally report to the Engineer the occurrence of any and all „Near Misses' and/or Health and Safety incidents. An Incident Report form or Near-Miss Report form, as appropriate, which may be requested from the Engineer, shall be submitted within 24 hours of occurrence of the incident or issue.

B. The Contractor shall immediately and fully investigate any such incident or near-miss and conduct a root cause analysis, and shall submit to the Engineer, the Contractor's written corrective action plan for such incident within one day after the incident occurs in accordance with Specifications Section 01330.

C. The Contractor shall notify the Engineer in writing at least five (5) days prior to bringing any hazardous material, equipment, or process to the site, or using the same on the Site. The Contractor shall provide the Engineer with a Material Safety Data Sheet (MSDS) for all chemicals that the Contractor is planning to bring on to the Site.

D. The Contractor shall immediately notify the Engineer in writing of any hazard that the Contractor discovers or observes on the site and corrective measures planned or taken to eliminate or minimize such hazard. Hazard reporting will be completed as a Near Miss Report as described in 1.05C.3 of this Section.

PART 2 – PRODUCTS

2.01 EQUIPMENT AND FACILITIES

A. The Contractor shall provide all equipment, temporary facilities, and personnel required to perform activities onsite safely in accordance with all Laws and Regulations and standards, and with the Contractor's HASP.

2.02 PERSONAL PROTECTIVE EQUIPMENT

A. The appropriate level of PPE shall be determined by the Contractor for specific tasks as described in the Contractor's HASP. If hazards are identified that require a level of protection greater than Level D (defined in paragraph D below), Work shall be suspended and the Engineer notified. The Contractor's SSHO, in consultation with the Engineer, shall determine what actions are required prior to restarting Work. The Contractor shall determine and document the appropriateness of suggested minimum PPE requirements for the Contractor's employees and others at the Site.

B. The Contractor shall furnish and maintain materials and equipment for the Health and Safety of the Contractor employees, its Subcontractors, Suppliers, and visitor personnel. The Contractor shall provide all required Health and Safety equipment, first aid equipment, tools, monitoring equipment, PPE, and ancillary equipment and methods required to ensure workers' Health and Safety and to comply with the Contractor's HASP. The Engineer will furnish PPE and monitoring for the Engineer's employees and the Owner's employees.

C. Work under this contract will take place in open excavations with water levels potentially deep enough to present a hazard to all on-site personnel. Special PPE and precautions are required to maintain a safe work area and to provide a safe work environment for Project workers. Specific measures shall be addressed in the Contractor's HASP.

D. Level D protection will be required at all times while onsite by all personnel and visitors on the site, except in Support Zone areas. Level D PPE consists of:

1. Hard hat
2. Steel-toed boots
3. Safety glasses with permanent side shields
4. Work clothes (long pants, shirts with sleeves)
5. Work gloves
6. High visibility orange reflective safety vests
7. Hearing protection (as needed to prevent exposure exceeding 85 dB level)

Additionally, all Contractor and Subcontractor employees must have their company name clearly displayed on their hard hat, safety vest, or shirt.

E. If additional protection consisting of Level C PPE is required during the Work, Level C PPE shall include protection from dust particulates and entrained heavy metals and consist of Level D protection with the following additions:

1. Air purifying respirator, half-face or full-face (depending on required protection factor) with High Efficiency Particulate Air cartridges meeting NIOSH/Mine Safety and Health Administration Specifications; the presence of chemical

vapors during activities such as painting could trigger the need for additional respiratory protection

2. Disposable poly-coated chemically protective coveralls

3. Disposable chemically resistant outer gloves (nitrile)

4. Disposable chemically resistant inner gloves (nitrile)

5. Chemically resistant, steel-toed, and steel-shanked boots (PVC, neoprene, or nitrile), or outer booties

F. In most cases, Level C will be the maximum allowed level of PPE. Level B may be allowed provided that personnel are properly trained and certified and exposure levels are below immediately dangerous to life and health (IDLH) conditions.

G. In cases where the Engineer's client requires additional PPE, the Engineer shall notify the Contractor of these additional requirements in advance of mobilization so that the Contractor may obtain the necessary equipment.

2.03 OTHER HEALTH AND SAFETY EQUIPMENT

A. The Contractor is required to have the following equipment available on the Site for the Health and Safety of Contractor, Subcontractors, Suppliers, and visitors:

1. First aid kits

2. Fire suppression equipment (appropriate to location and type of flammable materials present). Equipment will be certified ready for use within the previous twelve months and will also have been inspected each month; documentation supporting certification and inspections will be available for review.

3. Emergency eyewash facilities meeting OSHA/WISHA specifications

4. Personnel decontamination facilities and equipment

5. Other equipment or supplies as determined to be necessary or prudent by the Contractor or the Engineer

6. Flammable liquids storage cabinet(s), if necessary

7. Fall protection equipment appropriate for the hazards on the project

8. Heavy Blankets

9. Spill Kits

BNSF – 2013 Schoolyard Excavation Supplement

PART 3 – EXECUTION

3.01 WORKER QUALIFICATION

A. The Contractor shall provide the following training to workers except those who will be restricted to the Support Zone:

1. Initial 40-hour OSHA hazardous waste Health and Safety training and current annual 8-hour refresher training

2. Eight-hour OSHA hazardous waste supervisory training (required for the Contractor's Superintendent and SSHO)

3. Dependant upon the project, 10-hour OSHA Construction training

4. Enrollment in a medical monitoring program, with clearance within the previous 12 months from a licensed physician allowing the worker to participate in field activities and use respiratory protective equipment. The Contractor shall not submit detailed medical information for employees.

5. Current respiratory fit testing certification

6. Current cardiopulmonary resuscitation (CPR) and first aid certification for at least two workers assigned to Work on the site

7. Confined Space Entry Training for workers entering confined spaces

8. For one who is assigned the role of a "competent person," documentation of sufficient and relevant training and experience to perform the assigned duties and responsibilities of that role. As defined in 29 CFR 1926.31, the competent person shall be "one who is capable of identifying existing and predictable hazards, and who has authority to take prompt corrective measures to eliminate them." Relevant training and experience shall be in the same type of Project activities included in the Work under this Contract.

9. Copies of current Contractor Orientation Cards (http://contractororientation.com) and E-railsafe identification cards (http://e-railsafe.com) in order to work on BNSF property and this worksite.

B. The Contractor shall designate one "competent person" as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

3.02 WORK PLANNING AND MEETINGS

A. The Contractor shall conduct a daily Health and Safety meeting, prior to beginning Work for that day, to address Health and Safety issues, changing site conditions, activities and personnel. All Contractor and Subcontractor employees working on the Site on that day shall attend the meeting. All meetings shall be documented and attendees shall sign acknowledgement of their presence at the meeting. Daily meetings shall include an

evaluation of the Work to be conducted, the hazards associated with the work, and control measures being used to reduce exposure.

B. Contractor and Sub-Contractor personnel who are not in attendance for the daily Health and Safety meeting shall be briefed on the meeting notes upon arrival at the Site and prior to commencing their Work activities. All employees shall sign acknowledgement of briefings prior to commencing Work.

C. The Contractor shall hold and document additional safety meetings at the start of each major task and whenever site conditions affecting personnel safety change. Any major task undertaken shall require the completion, or modification, of a JSA as described in this Section.

3.03 ENGINEERING CONTROLS

A. The Contractor shall, at a minimum, provide the following engineering controls to reduce the hazards of equipment operation and exposure to site hazardous chemicals:

1. Roll-over cages for bulldozers, back hoes, loaders, and tractors
2. Back-up alarms for all trucks and moving equipment
3. Wetting of soil and other media or other means to control dust during the Work
4. Temporary Fencing
5. Decontamination of personnel and equipment in accordance with Section 02130-Decontamination
6. Barricades for open trenches and excavations
7. Sloping, benching, shoring, drainage systems, or other controls as necessary to ensure stability of excavations and embankments
8. Others as determined to be necessary or prudent by the Contractor or as directed by the Engineer

B. The Contractor shall post ground-level warning signs every 50-feet below all overhead utilities onsite.

3.04 MONITORING

A. The Contractor shall perform heat exposure and cold exposure monitoring activities as required by weather conditions.

B. The Contractor shall perform all air monitoring activities described in the Contractor's HASP required to provide Health and Safety protection to the Contractor's and Subcontractors' personnel.

C. The Air Monitoring Plan, including personal air monitoring for the Engineers' and Owners' employees and perimeter air monitoring, shall be implemented by the Engineer.

3.05 EVALUATION OF PERFORMANCE

A. The Contractor shall routinely conduct internal safety audits on Subcontract and Sub-subcontract Work sites in accordance with the Contractor's HASP. The focus of these routine audits will be on compliance with OSHA and local occupational safety regulations.

B. The Contractor shall conduct routine behavioral observations and provide immediate feedback during Work activities to promote safe behavior of Contractor employees and Subcontractor employees.

END OF SECTION 01150

1.1 HEALTH AND SAFETY FORMS FOLLOW

Job Safety Analysis

JSA Type: ☐ Investigation ☐ O&M ☐ Office ☐ Construction	☐ New ☐ Revised	**Date**:
Work Activity:		
Personal Protective Equipment (PPE):		

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job Steps[1]	❷ Potential Hazards[2]	❸ Control Measures[3]	STOP Stop Work Criteria
		•	•
		•	•
		•	•
		•	•

1 – Target number of job steps: six to ten

2 – Codes for Potential Hazards:

Caught Between (CBT)	Contacted By (CB)	Caught On (CO)	Fall To Below (FB)	Overexertion (O)	Struck Against (SA)
Caught In (CI)	Contact With (CW)	Exposure (E)	Fall - Same Level (FS)	Release To (R)	Struck By (SB)

3 – Types of Control Measures: Elimination, Engineering Controls, Safe Work Practice/SOP, Administrative Controls, and PPEForm

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01250

CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals
B. Procedures for Changes in the Work
C. Field Order
D. Work Change Directive
E. Change Order
F. Contractor Request for Change in Contract Price or Contract Time
G. Liquidated Damages
H. Correlation of Contractor Submittals
I. Work Change Directive Form

1.02 SUBMITTALS

A. The Contractor shall submit all documentation and correspondence regarding changes in the Work in accordance with the procedures specified in Section 01330 – Submittal Procedure.

1.03 PROCEDURE FOR CHANGE IN THE WORK

A. The Engineer reserves the right to make, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the Project or as directed by the Owner. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the work as altered. Among others, these changes and alterations may include:

1. Deleting any part of the work;
2. Increasing or decreasing quantities;
3. Altering specifications, designs, or both;
4. Altering the way the work is to be done;
5. Adding new work;
6. Altering facilities, equipment, materials, services, or sites, provided by the Owner;
7. Directing the Contractor to speed up or delay the work.

The Engineer will issue a change order for any change unless other sections of this Contract provide otherwise.

B. Field Order: The Engineer may make minor modifications to the work and provide interpretations or clarifications that do not entail any change to the Contract Price or schedule through the issuance of a Field Order. A Field Order will include the date, name

of person issuing it, the relevant Specification or Plan Sheet, and any additional information necessary for proper documentation.

C. Work Change Directive (the form attached to this Section 01250): The Engineer may order an addition, deletion, or revision to the work, or respond to differing or unforeseen physical conditions under which the work is to be performed, such as by adding or modifying quantities under established unit price Bid Items, by issuance of a Work Change Directive. The Work Change Directive shall be signed by the Engineer's project manager or Resident Project Representative, and by the Contractor. The Work Change Directive shall include a description of the change to the work, including reference to the Specification section(s) and Plan sheet, the method for measurement of the work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and Contract schedule.

D. Change Order (the form attached to this Section 01250): A Change Order will be executed for any Force Account Work to authorize any necessary change to the work that the Contractor shall perform on the basis of a unit price or lump sum price for a new work item that is not included on the bid form Schedule A. The Schedule of Values shall be modified by issuance of a Change Order. The Change Order shall be signed by the Engineer's project manager or Chief Engineer, and signed by the Contractor, and will include a description and justification for the change to the Contract work, including reference to the appropriate specification and plan sheet, the negotiated, new unit price, the method of measurement, and an adjustment as warranted to the Contract schedule.

E. If a change in the Contract work involves a deduction from the Work Order amount, not determinable by reference to the Schedule of Values, the Engineer's estimate shall be accepted by Contractor should the Contractor fail to submit an estimate within five (5) working days following notice of such proposed change. The amount of such deduction shall, at the Engineer's option and fair negotiation, be agreed upon by the Engineer and Contractor for the actual cost saved on labor, material, and equipment usage, which would have been necessary for that portion of the work not performed.

F. The amount allowed the Contractor in excess of the Work Order amount for the performance of additional work, unless being accomplished on a Force Account basis or determined upon reference to an applicable unit price shall be fairly negotiated by the two parties.

G. In the event the Contractor performs any work on a Force Account basis, or cost plus a percentage basis, Contractor shall submit sufficient supporting documentation prior to the application for payment.

H. The Contractor agrees that if the Engineer is not satisfied with the price quoted by Contractor, for any change in the work with a value estimated by the Engineer to be more than $25,000, the Engineer reserves the right to engage another contractor to perform the change in the Work.

I. If the Engineer and Contractor are not able to agree on the amount of money or time, to be added or deducted for any change in the Plans, Specifications or requirements for the work or any Work Order, it shall, nevertheless, be the duty of the Contractor, upon written notice from the Engineer, to proceed immediately with the changes and continue the work as directed by the Engineer.

J. Mark-up for overhead and profit shall be limited to 10%.

1.04 CONTRACTOR REQUEST FOR CHANGE IN CONTRACT PRICE OR CONTRACT TIME

A. The Contractor shall maintain detailed records of work done on the basis of Force Account. The Contractor shall include with the Daily Construction Report itemizing Force Account work for verification and approval by the Engineer each day that Contractor performs work on the basis of Force Account. Included shall be personnel and position, equipment data, materials with invoices, an accurate and concise description of the work performed, location, and time on the task. In order to justify compensation, the extra work must have prior approval from the Engineer. The Force Account work sheets shall be reviewed and signed by both the Contractor superintendent and the Engineer's construction manager, as appropriate, at the end of each day of that work.

B. The Contractor shall document each request for a change in cost or time with sufficient data to allow the Engineer's evaluation of the request. When requested by the Engineer, the Contractor shall provide the following types of additional data for the computation of contract work items and, time and materials, and proposed work:

1. Quantities of products, labor, and equipment;
2. Taxes;
3. Overhead and profit;
4. Justification for any change in contract time.

C. The Contractor shall support each claim for additional cost within 15 calendar days of the claimed event with the following information for verification by the Engineer:

1. Origin and date of claim;
2. Accurate and concise description of the extra work claimed;
3. Dates and times work was performed as well as by whom;
4. Time records for labor and equipment solely applicable to the extra work claimed;
5. Invoices and receipts for products, equipment, and materials.

D. The Contractor shall not perform additional work without the prior written consent of the Owner or the Engineer. Work done without the prior approval of the Owner or the Engineer will not be compensated. Additional work claims shall be identified in writing by the Contractor and submitted to the Engineer for approval a minimum of five working days prior to the commencement of the performance of the additional work.

1.05 LIQUIDATED DAMAGES

A. BNSF and the Contractor mutually acknowledge and agree that a tiered system of liquidated damages based upon fixed Milestone Deadlines is essential to accommodate and balance the potential risk, cost and liability to BNSF.

BNSF – 2013 Schoolyard Excavation Supplement

B. The Contractor shall comply with the Construction Milestones listed in the table below so as not to incur Liquidated Damages specified in the Paragraph below.

	Milestone Activity	**Deadline**
1	Milestone 1, shall be Contractor's submittal of the 2013 Technical Execution Plan (TEP) in accordance with requirements of the Specifications.	14 calendar days after BNSF's issuance of Notice to Proceed (NTP).
1a	Milestone 1a, shall be Contractor's re-submittal of the revised Technical Execution Plan (TEP) incorporating the Engineer's comments to the Milestone 2.	7 calendar days after receiving Engineer's comments on the 2013 Technical Execution Plan (TEP).
2.	Milestone 2, shall be Contractor's start of work on school property.	28 calendar days after BNSF's issuance of Notice to Proceed (NTP) and No Earlier Than 6/12/13.
3.	Milestone 3, shall be Contractor's completion and Engineer's approval of Contractor's completion of all Work on the school property. Note: The milestone date listed is subject to change based on the access agreement is currently being negotiated with the Skykomish School. Additional conditions may be set forth in the access agreement that the Contractor may have to comply with during and as part of the project work. The Engineer will provide more information on these conditions when available and if necessary as a separate addendum. The Contractor shall agree to abide by the terms of access agreement.	100 calendar days after BNSF's issuance of Notice to Proceed (NTP) and No Later Than 8/20/13, whichever occurs first.
4.	Milestone 4, shall be Contractor's Final completion and Engineer's approval of Contractor's completion for all Work listed in Section 01110 Summary of Work including punch list items.	141 calendar days after BNSF's issuance of Notice to Proceed (NTP) and No Later Than 9/30/13.

C. BNSF, the Contractor and its Surety agree that the following per diem amounts for liquidated damages based on the construction milestones listed in the above table will be assessed:

1. In the event that Contractor's submittal of the Technical Execution Plan (TEP) (Milestone 1) is delayed by Inexcusable Delays for any reason whatsoever beyond 14 calendar days after the Notice to Proceed (NTP) and/or Contractor's re-submittal of the TEP (Milestone 1a) is delayed by Inexcusable Delays for any reason whatsoever beyond seven calendar days after receipt of Engineer's comments on the TEP, the Contractor shall be liable for liquidated damages and shall pay to BNSF $1,000 per day for each day Milestone 1 and/or 1a is exceeded.

2. In the event that Contractor is delayed by Inexcusable Delays for any reason whatsoever beyond Milestone 2 the Contractor shall be liable for liquidated damages and shall pay to BNSF $2,000 per day for each day Milestone 2 is exceeded.

3. In the event that Contractor is delayed by Inexcusable Delays for any reason whatsoever beyond Milestone 3 the Contractor shall be liable for liquidated damages and shall pay to BNSF $2,000 per day for each day Milestone 3 is exceeded.

4. In the event that BNSF's issuance of the Engineer's approval of the completion of Milestone 4 is delayed by Inexcusable Delays for any reason whatsoever the Contractor and its Surety shall be liable for liquidated damages and shall pay to BNSF $2,500 per day for each day Milestone 4 is exceeded.

D. In view of the impracticality and extreme difficulty of determining the actual amount of such damage for delay in achieving the Milestones set forth above, it is hereby agreed between BNSF and the Contractor that the per diem damages set forth above are fixed and determined by the Parties as the estimated damages that BNSF will suffer by reason of such delay and not by way of penalty.

E. It is further mutually understood and agreed between BNSF and Contractor that the sums of liquidated damages set forth above are additive for each and every day of delay in the event that the Milestones are exceeded. It is further understood and agreed upon by and between BNSF and Contractor that liquidated damages may be assessed against progress payments or retainage and that BNSF will issue a deductive Change Order for the amounts specified herein and will reduce the Contract Price accordingly.

F. In the event the remaining unpaid Contract Price is insufficient to cover the full amount of assessed liquidated damages, Contractor shall pay the difference to BNSF on demand. This paragraph shall not limit BNSF's ability to seek and obtain additional legal remedies or damages that result from breaches of the Contract Documents by Contractor other than those caused by delay in achieving Liquidated Damages.

PART 2 – PRODUCTS

Not used.

BNSF – 2013 Schoolyard Excavation Supplement

PART 3 – EXECUTION

3.01 CORRELATION OF CONTRACTOR SUBMITTALS

A. The Contractor shall promptly revise the Schedule, Schedule of Values, and Application for Payment forms to record each authorized Work Change Directive or Change Order as a separate line item and adjust the Contract Price prior to the next Request for Payment.

B. The Contractor shall promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit to the Engineer at the next weekly Project Meeting.

C. Contractor shall promptly enter changes onto the Record Drawings.

END OF SECTION 01250

Work Change Directive Form Follows

BNSF – 2013 Schoolyard Excavation Supplement

Change Order Form

DATE OF ISSUANCE:_____ EFFECTIVE DATE:_____

OWNER: The BNSF Railway Company
DESIGN/BUILDER: Farallon Consulting L.L.C.
CONTRACTOR: _____
Contract / Work Order: _____
Name of Project: _____ Farallon Project No. _____

The Contractor is directed to proceed with the following change to the Project work:

Description:

Purpose for Work Change Directive:

Attachments:

If Engineer or the Contractor believe the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Construction Sub agreement Documents:

___ Unit Prices

___ Lump Sum $_____

___ Cost of the Work

Estimated increase/decrease in Contract Price: $_____. Should this change involve a budget increase, the estimated amount shall not be exceeded without prior authorization.	Estimated increase/decrease in Contract Time: Substantial Completion:_____ days; Ready for final payment: _____ days.

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01275

MEASUREMENT AND PAYMENT

PART 1 –GENERAL

1.01 THIS SECTION INCLUDES

A. Quantity Estimates
B. Payment
C. Measurements of Quantity
D. Assessment of Non-Conforming Work
E. Eliminated Items
F. Application for Payment
G. Measurement and Payment of Contract Unit Bid Items

1.02 QUANTITY ESTIMATES

A. For all Unit Bid Price Work, the Contract Price shall include an amount equal to the sum of the unit price for each pay item times the estimated quantity of each item as indicated in the Bid Form. The estimated quantities shown on bid form Schedule A are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price. Quantities and measurements supplied or placed in the Work in accordance with the Specifications and Plans verified by the Engineer will determine payment.

B. The Engineer will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The Engineer will review with the Contractor the Engineer's preliminary determinations before rendering a written decision on an Application for Payment.

C. If the actual Work requires more or fewer units than the estimated units indicated on Bid Form Schedule A, the Contractor shall provide the required units at the unit prices contracted. Under no circumstances may the Contractor exceed stated quantities without prior written approval from the Engineer. The unit price submitted by the Contractor will not be renegotiated due to changes in the number of units.

1.03 PAYMENT

A. Payment includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services, and incidentals: erection, application, or installation of an item of the Work, including overhead and profit. The above plus transportation, insurance and bonding, and overhead and profit.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable to the Engineer;
2. Products determined as unacceptable before or after placement;
3. Products not completely unloaded from the transporting vehicle;

4. Products placed outside the Project limits;

5. Loading, hauling, and disposing of rejected materials;

6. Products remaining on-hand after completion of work;

7. Additional work undertaken solely to expedite Contractor operations;

8. Repair or replacement of monitoring wells (beyond that described in these Plans and Specifications), utilities, or any other facility property located within or adjacent to the work Area (including the soil stockpiling area excavation).

C. Payment will be reviewed for approval by the Engineer for all work related to and actually performed under this Contract during a particular payment period. Retainage will be held from each invoice at the rate of 10%. Payment for lump sum items will be made based on percent completion of the pay item. Upon approval of the Engineer, judgments of the percent complete of lump sum items will be made in reference to the Schedule of Values.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement of Weight:

1. Weigh Scales: Scales shall be provided by the Contractor and certified in accordance with applicable Laws and Regulations for the State of Washington. Certification shall be made within a period of not more than one year to date of use for weighing commodity. Contractor shall submit copy of certificate.

2. The term "ton" will mean the short ton consisting of 2,000 pounds.

3. For shipments to off-site waste management facilities and locations, trucks shall be weighed at the receiving facility for the purpose of measuring the quantity of Unit Bid Item for payment.

B. Measurement by Volume:

1. Materials that are to be measured by the cubic yard, vehicular measure, shall be hauled in vehicles approved by the Engineer and measured at the point of delivery. Vehicles for this purpose may be of any size or standard type and found acceptable by the Engineer, provided the body is of such shape that its capacity and actual contents can be readily and accurately determined. Each load shall be leveled upon its arrival at the point of delivery, if so directed by the Engineer. Deductions will be made in half cubic yard increments on loads that contain less than the vehicle capacity. Each hauling vehicle shall bear a legible identification mark conspicuously located for identification.

2. Volumes that are to be measured as in-place volumes will be determined by survey or other method proposed by Contractor and approved by the Engineer. If surveyed, the Contractor shall retain the services of an independent land surveyor, licensed and registered in the State of Washington, whose determination of in-place volumes shall be authoritative and final for the purpose of measurement and payment. To compute in-place volumes of excavation, the average area end method or other methods acceptable to the Engineer shall be used.

3. Measurement of Oil: Measured by U.S. gallon using a flow meter or other method of documentation.

C. Measurement by Area: Measured by square dimension using length and width or radius.

D. Linear Measurement: Measured by linear dimension at the item centerline or mean chord.

1.05 ASSESSMENT OF NON-CONFORMING WORK

A. The Contractor shall replace work, or portions of the work, that do not conform to the tolerance limits of the Plans and Specifications as determined by the Engineer.

B. Should the Engineer determine that it is not practical to remove and replace the non-conforming item; the Engineer will direct one of the following remedies:

1. The non-conforming item may remain; however, the unit price will be adjusted downward to a new price negotiated by the Engineer and the Contractor.

2. The non-conforming bid item shall be corrected to within acceptable tolerance limits of the Plans and Specifications and the unit price will be adjusted to a new, downwardly negotiated unit bid price by the Engineer and the Contractor.

C. The individual Specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The Engineer's authority to review and assess work not sufficiently conforming to the Plans and Specifications and to assign corrective measures is final.

1.06 ELIMINATED ITEMS

A. Should any items or component of a contract unit bid item contained in the Plans and Specifications be found unnecessary for the completion of the work, the Engineer, with upon receiving concurrence from the Designer, shall provide written direction eliminating this work from the Contract. This action shall in no way invalidate the Contract Agreement.

B. Contractor shall be paid for actual Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

1.07 APPLICATION FOR PAYMENT

A. The Contractor shall submit application for progress payment as specified in Section 01290 – Payment Procedures.

1.08 MEASUREMENT AND PAYMENT OF BID ITEMS

A. Bid Form Schedule A, Schedule of Quantities and Prices, lists the Bid Items and Price Items for the Work. Measurement and payment of the Work covered by the Contract Documents is specified herein below. The Contractor's overhead and profit in each line item in the Bid Form shall be included in each corresponding unit cost.

B. At the direction of the Engineer, Contractor may ask to perform change order work on a time and materials basis. Schedule E – List of Equipment, and Schedule G – List of

Personnel, shall be the basis for measurement and payment of equipment and labor for Time and Materials Work. Hourly prices for equipment and labor listed on Schedule E and Schedule G shall include Contractor's overhead and profit for such Time and Materials Work.

C. The following paragraphs specify measurement and payment of the Bid Items listed on Bid Form Schedule A. The descriptions provided are intended to be general in nature and to encompass the entire Work. Where specification sections are referenced, they are intended to aid in describing the intended work items to be included in the bid item. They are not intended to limit bid item contents. The bidder will also review drawings for all information pertaining to each individual bid item. The bidder is required to include costs in each bid item that relate to the related task, whether specifically stated in the referenced section or not.

Bid Item 1. Mobilization, Demobilization, and Site Preparation

a. Work required to complete Mobilization, Demobilization, and Site Preparation includes, but is not limited to:

i. Movement of personnel, equipment, and materials to the Site, only if such movement is not included in any other Bid Item.

ii. Preparation, submittal, and revision of all required submittals as described in Specification 01330 – Submittal Procedures for the Work.

iii. Removal of all personnel, equipment, and materials from the Site at the completion of the Work.

iv. Site clearing, grubbing, salvage, disposal or storage of vegetation for restoration.

v. Construct temporary access roads as necessary.

vi. Temporary utility relocation and maintenance.

vii. Provide and maintain protection for those wells and storm drain inlets and catch basins, identified in the Plans.

viii. Install fencing and erosion control around various remediation areas as identified in the Plans.

ix. Install all other fencing, concrete barriers, erosion and sediment controls shown on the Plans.

x. Providing equipment and operator(s) as required to support Engineer in collection of soil samples from various remediation areas.

b. Mobilization, Demobilization, and Site Preparation will be measured for payment as one unit, complete as specified.

c. Payment for Mobilization, Demobilization, and Site Preparation Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for "Mobilization,

Demobilization, and Site Preparation" shall constitute full compensation for all labor, supervision, materials, equipment, pre-mobilization submittals, pre construction meetings, incidentals and all other costs necessary to complete Mobilization, Demobilization, and Site Preparation Work, including the transport of all equipment, labor and temporary facilities and materials to and from the Site. No more than 75% of this bid item shall be invoiced after mobilization is complete with the balance invoiced after demobilization from the site.

Bid Item 2. Temporary Construction Facilities and Controls, Erosion Control, Oil Recovery, and Dewatering

a. Work required to complete the Temporary Facilities and Controls includes, but is not limited to:

   i. Implement requirements for environmental protection specified in Specification 01140 – Work Restrictions unless specifically identified as being provided by others.

   ii. Implement health and safety requirements specified in Specification 01150 – Health and Safety Requirements.

   iii. Provide and maintain temporary facilities and controls as shown on Plans and specified in Specification 01500 – Temporary Facilities and Controls unless specifically identified as being provided by others.

   iv. Maintain temporary erosion and sediment controls as shown on Plans and specified in Specification 01575– Temporary Erosion and Sediment Controls unless specifically identified as being provided by others.

   v. Maintain decontamination facilities as shown on Plans and specified in Specification 02130 – Decontamination.

   vi. Provide and maintain all dewatering facilities required for water management as specified in Specification 02240.

   vii. Provide for temporary utilities as required to support utility relocation, including side sewer installation.

   viii. Provide all equipment, materials, and labor required to provide for oil recovery in the excavation area as specified in Specification 02250 (exclusive of oil disposal).

   ix. Maintenance and repair of all temporary facilities and controls including those provided by others during the period when Work is taking place at the Site.

   x. Installation and maintenance of all temporary facilities associated with material stockpiling and loading as specified in Specification 02114

xi. All other one-time and recurring activities required by the Contractor to complete the Project unless included in another pay item or specifically identified as being the responsibility of others.

b. Temporary Construction Facilities and Controls, Erosion Control, Oil Recovery, and Dewatering Work will be measured for payment per calendar day from completion of mobilization to completion of excavation and soils load out as specified.

c. Payment for Temporary Construction Facilities and Controls, Erosion Control, Oil Recovery, and Dewatering Work will be made on a unit price basis for the Bid Item in Schedule A. Payment for "Temporary Construction Facilities and Controls, Erosion Control, Oil Recovery, and Dewatering" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Temporary Construction Facilities and Controls, Erosion Control, Oil Recovery, and Dewatering Work as shown on the Plans and in these specifications.

Bid Item 3. Excavation, Transportation, Stockpile of Clean Overburden

a. Work required to complete Excavation, Transportation, Stockpile of Clean Overburden includes, but is not limited to:

i. Excavate soil and other material from the limits and grades as shown on the Plans and as specified in Specification 02110 – Excavation and Handling of non-impacted and impacted materials, unless specifically included in another pay item.

ii. Any on-site transportation, stockpile, and handling of the excavated clean overburden material.

iii. Perform monitoring of settlement monitoring points in accordance with Section 02150 – Geotechnical Instrumentation and Monitoring.

iv. This Excavation Work does not include the following:

1) Excavation of any utility trenches outside the limits of designated excavation areas.

2) Excavation required to construct or install any temporary facility or controls covered by another pay item.

3) Excavation required to construct or install Water, Irrigation, Sanitary, and Storm lines covered by another pay item.

b. Excavation, Transportation, Stockpile of Clean Overburden will be measured for payment by the in-place cubic yard measured by survey.

c. Payment for this bid item will be made in accordance with the unit price for the Bid Item "Excavation, Transportation, Stockpile of Clean Overburden" listed on Bid Form Schedule A. Payment for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all

other costs necessary to complete the excavation, handling, local transportation and stockpiling work of clean overburden material as shown on the Plans and as specified in Section 02110-Excavation and Handling of Unimpacted and Impacted Materials.

Bid Item 4. Excavation, Transportation, Stockpile of Impacted Material

a. Work required to complete Excavation, Transportation, Stockpile of Impacted Material includes, but is not limited to:

   i. Excavate TPH and metals impacted soil and other material from the limits and grades as shown on the Plans and as specified in Specification 02110 – Excavation and Handling of Non-impacted and Impacted materials, unless specifically included in another pay item.

   ii. Any on-site transportation, stockpile, and handling of the excavated material.

   iii. This Excavation Work does not include the following:

      1) Excavation of any other utility trenches outside the limits of excavation.

      2) Excavation required to construct or install any temporary facility or controls covered by another pay item.

      3) Excavation required to construct or install Water, Irrigation, Sanitary, and Storm lines covered by another pay item.

b. Excavation, Transportation, Stockpile of Impacted Material will be measured by the in place cubic yards as determined by survey.

c. Payment for this bid item will be made in accordance with the unit price for the Bid Item "Excavation, Transportation, Stockpile of Impacted Material" listed on Bid Form Schedule A. Payment for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete the excavation, handling, local transportation and stockpiling work of material as shown on the Plans and as specified in Section 02110-Excavation and Handling of Non-impacted and Impacted Materials.

Bid Item 5: Oil Disposal

a. Work required to complete Oil Disposal includes, but is not limited to:

   i. All labor, equipment, and materials needed to transport and dispose of free product recovered and separated from water as specified in Section 02250- Oil Recovery.

b. Oil Disposal will be measured for payment on a per gallon basis as documented by disposal tickets provided by the disposal facility and accepted by the Engineer.

c. Payment for Oil Disposal will be made in accordance with the unit price for the Bid Item in Schedule A. Payment of the unit price for "Oil Disposal" shall constitute full compensation for all labor, supervision, materials, incidentals, and all other costs necessary to complete work specified in Section 02250- Oil Recovery. Disposal tickets shall be submitted with the applicable application for payment.

Bid Item 6: Loading of Impacted Materials into Railcars for Off Site Disposal

a. Work required for Loading of Impacted Materials into Railcars for Off-site Disposal pay items includes, but is not limited to:

   i. Coordinate and schedule Railcars with Owner.

   ii. Verify Bed Liners are installed in Railcar containers if directed by Engineer. Any Railcars that do not have Bed Liners will be supplied by the Owner. The Contractor installation of Owner supplied Bed Liners shall be paid for under a separate bid item, 14 of the Schedule A (Bid Form).

   iii. Loading impacted materials from the designated stockpile areas onto BNSF Railcars for offsite disposal.

   iv. Provide Bucket Scale to measure weight of material placed in Railcars.

   v. Document Railcar number and Quantity. Provide date, time, railcar number, tonnage quantity, destination on log sheet. Provide the Engineer with a copy of log sheet at the end of each day.

   vi. Note: The Owner is responsible for all off-site Transportation and Disposal costs of the impacted material.

b. Loading of Impacted Materials into Railcars for Off-Site Disposal work will be measured for payment on a per ton basis as documented by approved off-site management facility weight scales and tickets.

c. Payment for this bid item will be made in accordance with the unit price for the Bid item "Loading of Impacted Materials into Railcars for Off-Site Disposal" listed on Bid Form in Schedule A. Payment of the unit price for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete the work as specified in Section 02114 Stockpiling and Loading of Impacted Materials for Disposal.

Bid Item 7. Import and Stockpile Structural Fill

a. Work required for Import and Stockpile Structural Fill pay items includes, but is not limited to:

   i. Provide Structural Fill material from an approved off-site source, in accordance with Specification 02060 – Aggregate Materials, to the Site.

ii. Any on-site staging or stock piling of this Structural Fill Material in the areas indicated on the Plans.

b. Import and Stockpile Structural Fill work will be measured for payment on a per ton basis as documented by stamped, weighted load tickets from a certified scale and scalemaster.

c. Payment for this bid item will be made in accordance with the unit price for the Bid Item "Import and Stockpile Structural Fill" listed on Bid Form in Schedule A. Payment of the unit price for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete the work as specified in Section 02060 - Aggregate Materials.

Bid Item 8. Import and Stockpile Stabilization Aggregate

a. Work required for Import and Stockpile Stabilization Aggregate pay items includes, but is not limited to:

i. Provide Stabilization Aggregate material from an approved off-site source, in accordance with Specification 02060 – Aggregate Materials, to the Site.

ii. Any on-site staging or stock piling of this Stabilization Aggregate Material in the areas indicated on the Plans.

b. Import and Stockpile Stabilization Aggregate Materials work will be measured for payment on a per ton basis as documented by stamped, weighted load tickets from a certified scale and scalemaster.

c. Payment for this bid item will be made in accordance with the unit price for the Bid item "Import and Stockpile Stabilization Aggregate Materials" listed on Bid Form in Schedule A. Payment of the unit price for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete the work as specified in Section 02060 – Aggregate Materials.

Bid Item 9. Backfill, Compaction, Grading of Stabilization Aggregate

a. Work required for Backfill, Compaction, Grading of Stabilization Aggregate pay item includes, but is not limited to:

i. Transporting Stabilization Aggregate from Stabilization Aggregate Stockpile to the location where it shall be placed.

ii. Place, compact, and grade Stabilization Aggregate material in accordance with the Plans and as specified in Section 02310- Backfilling and Grading.

b. Backfill, Compaction and Grading Work of Stabilization Aggregate will be measured on an in-place cubic yard basis, as measured by survey.

c. Payment for this bid item will be made in accordance with the unit price for the Bid item "Backfill, Compaction, Grading of Stabilization Aggregate" shall constitute full compensation of all labor, supervision, equipment, incidentals and all other costs necessary to furnish, place, compact, test and grade all backfill, including using material stockpiled for reuse, and as specified in Section 02310-Backfilling and Grading.

Bid Item 10. Backfill, Compaction, Grading of Clean Overburden and Structural Fill

a. Work Required for Backfill, Compaction and Grading Work of Clean Overburden and Structural Fill pay items includes, but is not limited to:

   i. Transporting Clean Overburden and Structural Fill from Stockpiles to the location where it shall be placed.

   ii. Place, compact, and grade Clean Overburden and Structural fill material as specified in Section 02310 – Backfilling and Grading.

b. Backfill, Compaction and Grading Work of Clean Overburden and Structural Fill will be measured on an in-place cubic yard basis, as measured by survey.

c. Payment for this bid item will be made in accordance with the unit price for the Bid item "Backfill, Compaction, Grading of Clean Overburden and Structural Fill" shall constitute full compensation of all labor, supervision, equipment, incidentals and all other costs necessary to furnish, place, compact, test and grade all backfill.

Bid Item 11. Site Restoration

a. Work required to complete this pay item includes all labor and materials necessary to complete the following items:

   i. Provision, placement, and final grading of topsoil within the horizontal limits and elevations in accordance with Specification 02055 – Topsoil and as depicted in the Plans.

   ii. Provide and install Sod in accordance with Specification 02938 – Sod Restoration.

   iii. Restoration of concrete sidewalks as in accordance with Specification 02601.

   iv. Installation of irrigation system in accordance with Specification 02810.

   v. Restoration of any improvements impacted by construction.

   vi. Provide, install, and maintain of erosion and sedimentation controls as required in these Specifications.

   vii. Maintenance of the restored area until the grass cover is well established.

b. Site Restoration will be measured for payment as one unit, completed as specified.

c. Payment for this bid item will be made in accordance with the lump sum price for Bid Item "Site Restoration" listed on Bid Form in Schedule A. Payment shall be made as a percentage of site restoration completed within the progress period. Payment for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary, to restore the construction site to a pre-construction condition, including incidental items such as topsoil and sod as depicted in these Plans and Specifications, the King County Road Standards 2007, and in the WSDOT Standard Specifications.

Bid Item 12. Geomembrane System Installation

a. Work required to complete this pay item includes all labor and materials necessary to complete the following items:

   i. Provision and placement of the geomembrane system in accordance with Specification 02373 – Geomembrane and as depicted in the Plans.

b. Geomembrane System Installation will be measured for payment on a square foot basis as determined by measurement of liner system installed.

c. Payment for this bid item will be made in accordance with the unit price for Bid Item "Geomembrane System Installation" listed on Bid Form in Schedule A. Payment shall be made as a percentage of site restoration completed within the progress period. Payment for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to supply and install the geomembrane system, including incidental items.

Bid Item 13. Side Sewer Connection

a. Work required to complete the Side Sewer Connection pay item includes, but is not limited to:

   i. Provide all labor, equipment, and materials as required to complete the side sewer connection as shown in Plans C-510 to C-511.

b. Side Sewer Connection will be measured for payment as one unit, complete as specified.

c. Payment for this bid item will be made in accordance with the lump sum price for Bid Item "Side Sewer Connection" listed on Bid Form in Schedule A. Payment shall be made as a percentage of sanitary sewer system completed within the progress period. Payment for this bid item shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary, including trench excavation, pipe bedding, backfill, compaction, piping, septic tanks, field testing to construct the Underground Sanitary Sewer complete as depicted as shown on the Plans and Specifications.

Bid Item 13. Install Owner Supplied Rail Car Bed Liners

a. Install Owner Supplied Rail Car Bed Liners will be measured for payment by the railcar containers that liners are installed in by the Contractor.

b. Payment for Owner Supplied Rail Car Bed Liners will be made on a per container unit price as listed on Bid Form Schedule A. Payment for Installation of Owner Supplied Rail Car Bed Liners shall constitute full compensation for all labor, supervision, equipment, staging, incidentals and all other costs associated to properly install Owner Supplied Rail Car Bed Liners in Rail Car Containers at the direction of the Engineer.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01275

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01290

PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Format
B. Submittal Procedures
C. Applications for Payment
D. Invoices
E. Substantiating Data
F. Payment Terms and Retainage
G. Vendor's Release and Waiver of Lien Form

1.02 FORMAT

A. The Bid Form Schedule A, Schedule of Quantities and Prices, submitted by the Successful Bidder, as modified by any executed Change Orders, will be the basis of the Bid Form. The Engineer may request further breakdown of certain lump sum items to be included in the schedule of values as deemed necessary. The Schedule of Values will serve as the basis for progress payments and shall be incorporated by the Contractor into a form of Application for Payment.

B. The Contractor shall submit to the Owner and the Engineer an Application for Payment, and attach a separate invoice, for the work completed in the calendar month covered by that Application for Payment in a form acceptable to the Engineer.

C. The Contractor shall submit a release and waiver of lien in a format suitable to the Engineer (similar to the form attached to this section) with each invoice.

1.03 SUBMITTAL PROCEDURES

A. The Contractor shall submit the original Application for Payment and invoice covering the work performed in the most recent progress estimate period, for each month for the duration of the Project to the Owner, and one copy, to the Engineer for review.

B. Payment Period: The Contractor shall follow the payment terms specified in the Sample Contract provided with this document.

C. The Contractor shall prepare a final Application for Payment and invoice as specified in Section - 01770 Closeout Procedures.

1.04 APPLICATIONS FOR PAYMENT

A. Applications for Payment shall be executed and certified by signature of an authorized officer of Contractor.

B. The Application for Payment shall be accompanied by a release and waiver of lien in a format similar to the form attached to this specification for the full amount of the application for payment.

C. The Contractor shall list original Work Order amount, and each authorized Change Order and Work Change Directive, listing Change Order or Work Change Directive number and dollar amount.

1.05 INVOICES

A. Each invoice shall be accompanied by the specified Application for Payment form and shall show the following:

1. The date of the execution of the Contract Agreement

2. Purchase Order Number

3. Purchase Order Date

4. The name of the Owner's Representative named on the Purchase Order

5. A description of the work performed. The description of the work shall include in a clear and legible format the precise location with stationing, the item quantity, and the percent of the total item completed for the period in addition adjacent to the original Plan quantity.

B. Invoices that include work performed on a force account basis shall be supported with copies of the force account sheets signed by the construction manager and superintendent the day of the work and copies of the appropriate daily time sheets. In addition, copies of the daily reports shall be attached to the force account. The Contractor shall attach photocopies of receipts for all materials and expenses claimed as backup for the force account work. Lack of proper and complete documentation for force account work will be just cause for non-payment of that work pending submittal of required full and complete item documentation. All documentation shall be submitted and approved prior to invoice submittal, e.g., force account shall be reviewed by the Engineer with the Superintendent prior to starting the work and the Engineer shall sign the force account work sheet daily when force account is used. Under no circumstance are force account sheets to be held for review and signature beyond the next day. Delaying seeking review for signature by the Engineer shall place that work at high risk of non-payment. The Contractor shall submit backup copies of all required paperwork that was previously submitted as a part of a daily or weekly submittal.

1.06 SUBSTANTIATING DATA

A. The Engineer may request substantiating data for any claimed payment when the original request is insufficient or lacking proper information. When the Engineer requires substantiating data, the Contractor shall submit, within 30 days, data justifying the nature, scope, material used quality, and quantity of work as well as the dollar amount of the work at issue. The Engineer may conditionally approve any claimed payment pending submittal of acceptable substantiating data; however, unsubstantiated claims for payment will result in withholding of the unsubstantiated amounts from subsequent payment claims.

B. The Contractor shall submit one copy of substantiating data with a cover letter for each request for substantiating data. Each submittal of substantiating data shall show

Application for Payment number and date, and pay item by number and a complete description including precise location and quantity of the item of work.

1.07 PAYMENT TERMS AND RETAINAGE

A. The Contractor is advised of the invoicing and payment terms outlined in the Sample Contract provided with this document. The Owner shall deduct and retain 10% of each invoice submitted by the Contractor as retainage. Retainage shall be paid to the Contractor upon satisfactory final completion of the project as specified in Section - 01770 Closeout Procedures, and after 90 days have passed since the last day of Project work.

B. Major supplier and subcontractor releases of lien must be provided prior to initiation of final payment.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01290

Vendor's Release and Waiver of Lien Form Follow

BNSF – 2013 Schoolyard Excavation Supplement

VENDOR'S RELEASE AND WAIVER OF LIEN

Name of Prime Contractor: _____
[Name of Contractor: _____ under contract to Prime Contractor dated _____]
Name of Vendor: _____

Project Name: _____
Project No.: _____
Principal: The BNSF Railway Company
Original Contract:

Scope/Authorization Reference Dates: _____

Total Authorized Amounts:

$_____

Less Partial Payments:

$_____

Final Payment:

$_____

Upon receipt by VENDOR of a final payment in the above stated amount, or if paid by check, when said check has been paid by the bank upon which it is drawn, VENDOR does remise, release, and forever discharge Prime Contractor, Contractor and its Sureties and the Principal from any and all actions, causes of actions, liens, bond rights, stop notices, debts, dues, accounts, covenants, agreements, judgments, claims, and demands of whatsoever nature or character which said VENDOR now has or ever has had against the Prime Contractor, Contractor or their Sureties or the Principal, their successors and assigns, which shall have arisen or may arise out of or be incidental to work undertaken or done under or in connection with the Subcontract and related extra work or change orders thereto.

VENDOR certifies and warrants that all charges for labor, materials, supplies, equipment, lands, licenses, and other expenses for which the Prime Contractor, Contractor or the Principal might by sued or for which a lien, stop notice, or bond claim might be filed, have been fully satisfied and paid and VENDOR agrees to defend and save harmless the Prime Contractor, Contractor and the material men or others, filed against the Prime Contractor, Contractor or the Principal or the buildings, structures additions, or improvements constructed under the Original Contract and arising out of the performance of the Subcontract work.

VENDOR hereby agrees that it will take all action necessary to remove all liens filed against or on Prime Contractor, Contractor or Principal or the property of Prime Contractor, Contractor or Principal arising out of the above referenced Project. VENDOR hereby appoints Prime Contractor, or any of Prime Contractor's officers, directors, employees or attorneys or agents to take all actions necessary to remove any liens which SUBCONTRACTOR may have placed on or against Prime Contractor, Contractor or Principal or the property of Prime Contractor, Contractor or Principal arising out of the above referenced Project. VENDOR hereby grants the attorneys appointed above full power and authority to do everything necessary in exercising the powers granted by this instrument as fully as VENDOR might or could do as if personally present.

_____

ATTEST: VENDOR

BNSF – 2013 Schoolyard Excavation Supplement

_____ By_____
Name, Title: Name, Title:

Subscribed and sworn to before me this _____ day of _____, 2010.

_____Notary Public

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01310

PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Contractor's Project Superintendent
B. Submittals
C. Project Meetings
D. Coordination – General
E. Coordination of Contractor's Work with Others
F. Layout of the Work

1.02 CONTRACTOR'S PROJECT SUPERINTENDENT

A. The Contractor shall employ a qualified Project Superintendent for the duration of the Project. The Project Superintendent shall be experienced in excavation of impacted soils, surface and subsurface demolition, excavation dewatering, coordinating rail and truck transportation of soil, and restoration surface features and utilities. The Project Superintendent shall have a minimum of five years of experience as a Project Superintendent on excavation projects of similar scope and comparable size as this Contract. The Contractor shall employ adequate project coordination staff to assist the Project Superintendent in the required control of sub-contractors, obtaining permits and approvals, development of progress schedules, and preparation of submittals.

B. The Contractor shall employ a qualified Project Manager for the duration of the Project. The Project Manager shall have a minimum five years of experience as a project manager on renovation projects of similar scope and comparable size as this Contract.

C. The Contractor shall not change the Project Superintendent without prior written approval from the Engineer. The Contractor shall submit the resume of the superintendent, showing related experience and expertise, to the Engineer.

D. The Contractor's Project Superintendent shall be on the Project site at all times during the work, including any work performed by sub-contractors. Should night shift work be scheduled, the Project Superintendent shall have the option of delegating responsibility to an acting night shift superintendent with prior written approval from the Engineer.

E. The Project Superintendent shall be responsible for the completion of the work in accordance with the Plans and Specifications, as well as for the following specific duties:

1. Coordinate the work of Contractor's labor, equipment, and material as well as that of sub-contractors. The superintendent shall coordinate and interact effectively with the Owner, Engineer, and others responsible for other aspects of the Project.

2. Coordinate the schedule such that the various tasks are completed within the specified construction milestones.

3. Participate in regularly scheduled Project meetings with the Owner and Engineer.

4. Schedule and conduct meetings with sub-contractors and other concerned parities as necessary to maintain the Project schedule, resolve issues in dispute, and efficiently coordinate use of utilities and other Project resources.

5. Ensure that quality control objectives are met and that quality control work is considered in the Project schedule so as to avoid delays in the Work.

6. Comply with Laws, Regulations, and Permit conditions.

1.03 SUBMITTALS

A. The Contractor shall prepare and transmit the following submittals and other submittals described in other sections of the Specifications, in accordance with the procedures of Section 01330 – Submittal Procedures:

1. The Contractor's Project Superintendent shall submit Contractor's Daily Construction Reports by noon the following working day.

2. The Contractor shall submit Applications for Payment as specified in Section 01290 – Payment Procedures.

3. The Contractor shall submit quality control reports, shop drawings, samples, certifications, information, and data as specified in other sections of these Specifications.

4. The Contractor shall develop, submit, and review weekly revisions and updates to the Project CPM Schedule and Technical Execution Plan at the weekly Project meeting as required by this Specifications Section 01325- Progress Schedules and Reports.

5. Contractor shall submit weekly health and safety reports, as specified in Section 01150 – Health and Safety.

1.04 PROJECT MEETINGS

A. General:

1. The Engineer will schedule and provide meeting locations for all project coordination meetings throughout the progress of the Project work. The Engineer will prepare a meeting agenda in cooperation with the Owner and the Contractor, and distribute the agenda with written notice of each meeting to all parties. The Engineer will conduct the meetings. The Engineer will record minutes to include significant proceedings, decisions, and resolutions and reproduce and distribute copies of the minutes.

2. Representatives of Farallon, the Contractor Project Superintendent and project manager, and sub-contractors, as appropriate, shall attend all weekly project coordination meetings. Others who are responsible for portions of the Project shall attend meetings as needed.

B. Weekly Progress Meetings:

1. The Contractor shall attend scheduled weekly progress meetings at the Project site in order to review work progress with the Owner and Engineer, resolve construction issues, describe the Project schedule, submittal status and delivery schedule, review contract modifications, health and safety, as well as other Project issues.

2. Attendees will include:

   a. The Engineer

   b. The Contractor's Project Engineer/Manager

   c. The Contractor Project Superintendent

   d. Sub-contractors, and suppliers, as appropriate and as needed

   e. The Owner as determined appropriate

   f. Others as appropriate.

C. Other meetings will be scheduled in accordance with the Specifications and as required by the Engineer in order to resolve Project issues.

D. Pre-installation Conferences:

1. When required in individual Specification Sections and/or as requested, convene pre-installation conference at work Site prior to commencing work of Section.

2. Require attendance of parties directly affecting, or affected by, work of specific Section.

3. Notify the Engineer four days in advance of meeting date.

4. Prepare agenda, preside at conference, record minutes, and distribute copies within two days after conference to participants.

5. Review conditions of installation, preparation and installation procedures, and coordination with related work.

BNSF – 2013 Schoolyard Excavation Supplement

1.05 COORDINATION – GENERAL

A. The Contractor shall coordinate scheduling, timely submittals, and the work of the various Sections of the Specifications, where feasible, to assure an efficient and orderly sequence of construction elements.

B. The Contractor shall coordinate and schedule Project work in full cooperation with the Engineer and the Town of Skykomish at the Project site.

C. The Contractor shall direct communications regarding Project work to the Engineer's designated Construction Manager. The Contractor shall neither discuss Project work nor take direction from any other contractor, consultant, public official, the media, Town of Skykomish staff, agency staff, or any other person without prior written approval by the Engineer.

D. The Engineer will designate a Project Construction Manager to carry out the duties of the Engineer at the Project site.

E. The Owner may designate a representative to monitor Project activity.

F. The Contractor's obligation to perform and complete the work depicted in these Plans and Specifications in accordance with the Contract Documents shall be binding and in accordance with these Specifications. The following actions will not constitute acceptance of work that is not in accordance with the Plans and Specifications nor will it constitute a release of Contractor's obligation to perform the work in accordance with these Contract Documents:

1. Observation by the Engineer
2. Recommendation of any progress payment or final payment by the Engineer
3. Use or occupancy of the work or any part thereof by the Engineer or others
4. Any acceptance by the Engineer, or failure to do so
5. Any review and approval of a submittal by the Engineer
6. Any inspection, test, or approval by others
7. Any correction of non-conforming work performed by the Engineer or others

G. Hazard Communication Program: The Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site. The Contractor shall compile and properly file MSDS for all materials furnished by the Contractor or their sub-contractors and suppliers.

1.06 COORDINATION OF CONTRACTOR PROJECT WORK WITH OTHERS

A. The Contractor shall be responsible for the individual tasks as well as the overall coordination of the work in accordance with the Construction Milestones set forth in Bid Form Schedule F. The Contractor shall obtain a schedule similar to the Contractor Progress Schedule from each of their sub-contractors and shall be responsible for sub-

contractors maintaining these schedules and for coordinating any required schedule modifications.

B. The Contractor shall coordinate haul routes, any limitation on use of public streets, and obtain any needed permits or approvals for the use of the Town of Skykomish public roads.

C. The Contractor shall coordinate Project work with various utility companies serving the Project site and shall secure any required permits and approvals. The Contractor shall be solely and fully responsible for notifying utility companies (via One Call) per RCW Chapter 19.122, prior to commencing any work, and for response to any emergency that may arise on the Project during the course of the work. Certain active and inactive utilities may currently be present at the Project site, the exact location and type, which shall be determined by the Contractor without reliance on information provided by the Engineer. Several utilities may currently serve the Project site or adjacent properties including, but not limited to, the following:

1. BNSF
2. Electric
3. TV Cable
4. Water
5. Storm sewer
6. Sanitary sewer
7. Telephone or other communication

1.07 LAYOUT OF THE WORK

A. The Contractor shall be solely responsible for laying out the Work, including lines and grades, and for their correctness and accuracy.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01310

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01325

PROGRESS SCHEDULES AND REPORTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals
B. Construction Milestones
C. Progress Schedule
D. Daily Construction Report
E. Health and Safety Reports
F. Record Documents
G. Progress Schedule Reviews, Acceptance, Updates and Revisions

1.02 SUBMITTALS

A. Work and progress payments shall not start until an initial Progress Schedule is submitted by the Contractor, reviewed and approved by the Engineer. The Contractor shall submit a preliminary Baseline Schedule within fifteen (15) days after issuance of Notice to Proceed. Weekly updates of the Progress Schedule through the construction phase shall be submitted in accordance with the Submittal Procedures specified in Section 01330. The Project name and date of Submittal shall be on each sheet.

1.03 CONSTRUCTION MILESTONES

A. Specific requirements for phasing of the work are set forth in the Bid Form Schedule F, Construction Milestones. The initial Schedule shall be based on progress and completion of the work within the Construction Milestones and Contract Times listed in Bid Form Schedule F. In addition, the initial schedule shall reflect the various submittals required prior to the Notice to Proceed (NTP).

1.04 PROGRESS SCHEDULE

A. The Progress Schedule shall be a Gantt chart showing the proposed order of work, the expected beginning and completion times for the salient work features, predecessor(s) for each item, and the duration for each item. The Progress Schedule shall show each activity and, as a minimum, each activity description shall contain:

1. Activity name and identifying number
2. Predecessor(s)
3. Successor task(s)
4. Activity duration (in calendar days)
5. Percent complete
6. Float for each activity, where float is the amount of time that an activity can be delayed without delaying the start of the next activity

B. The Contractor's Progress Schedule shall be developed using the critical path method (CPM), Microsoft Project or equivalent software.

C. Activities

1. The Progress Schedule shall identify all major construction activities.

2. The Progress Schedule shall show all significant design, testing, submittals, manufacturing, shipping, construction, installation, commissioning and training activities, milestones for start of work, completion of construction phases, substantial completion, punch-list completion, physical completion, and final acceptance.

3. Any utility service interruptions necessary to perform the work shall be identified.

4. Provide a separate activity for each occasion where work is to be performed by others.

5. The Progress Schedule shall identify permits and approvals that are the responsibility of the Contractor.

6. The Progress Schedule shall identify and reflect all sub-contractor work.

7. The Progress Schedule shall identify draft invoice and final invoice submittal dates in accordance with the monthly closing dates established by the Engineer.

D. Explain any additional information or coding used.

E. The Contractor shall consider the normal calendar year, holidays, weather delays, long lead items, review times, Project phasing, Project site conditions and space availability in preparing the Progress Schedule.

F. The milestone completion dates required by the specifications, listed in the Bid Form Schedule F, Construction Milestones, shall be clearly identified on the Progress Schedule. The critical path shall be clearly indicated.

G. The Progress Schedule shall be updated and submitted weekly at the time of the weekly Progress Meeting and reviewed for the participants by the Contractor's project manager during the weekly Progress Meeting. In addition to the overall progress schedule, the Contractor shall prepare a two-week look-ahead schedule to be discussed in the weekly construction meetings. This look-ahead working schedule, in addition to providing the Engineer with information for Project coordination, shall also be used to inform Town officials, emergency responders, the school district, citizens, and media of construction impact. Copies shall be available to all meeting participants during the Weekly Progress Meeting.

1.05 DAILY CONSTRUCTION REPORT

A. The Contractor shall prepare a written Daily Construction Report in a format acceptable to the Engineer. An electronic copy of the Daily Construction Report in Microsoft Word or Excel format shall be provided at the Engineer's request. The Daily Construction

Report shall be prepared for each day Contractor is on the Project Site and submitted to the Engineer no later than noon of the following working day.

B. Daily Construction Reports shall include:

1. Accidents, safety, and security issues
2. Number of workers for each trade and the names of the workers
3. Names of sub-contractors and their on-site foreman and employees
4. Hours of work for each trade or type of equipment
5. Equipment on the Project site and materials furnished
6. Names of Project visitors and agency or supplier they represent
7. Major work activities performed, and progress thereof, including estimated amounts of specialty work, excavation, stockpiling, loading, and backfilling work completed
8. Description of major construction issues should they be encountered including station, time, nature of impact, potential resolution
9. Weather conditions and temperature
10. Unforeseen subsurface conditions
11. A list of Submittals transmitted to or received from the Engineer
12. Meetings attended
13. Tests and inspections performed and the results of tests and inspections
14. Reason for construction delays should there be any
15. Units and description of force account work, subject to prior approval daily by the Engineer
16. Daily Trucking Logs as specified in Section 02110
17. Vehicle Inspection Logs as specified in Section 02130
18. Description of Temporary Erosion and Sediment Control daily maintenance and inspection

C. The Daily Construction Reports may be used to substantiate any claim for delay, impact, or change, and shall contain sufficient information to document each potential impact.

D. The Daily Construction Report may be used as a partial basis for documentation of force account work. The elements of any force account work reported by the Contractor's Project Superintendent shall be reviewed daily by the Engineer and are subject to prior review for approval by the Engineer; such review for approval shall be expedited by the Engineer to cause no delay to a time-sensitive operation. The Contractor's Project

Superintendent shall promptly make any changes required by the Engineer, to the units of the force account work recorded on the Daily Construction Report.

1.06 HEALTH AND SAFETY REPORTS

A. The Contractor's Daily Construction Report shall include a summary of daily health and safety meetings, conferences, issues, incidents, near-misses, and actions taken to address and resolve health and safety issues.

B. Additional reporting requirements are provided in Specifications Section 01150 – Health and Safety.

1.07 RECORD DOCUMENTS

A. The Contractor shall maintain, in a secure place at the Project Site, one copy of all weigh tickets, approved details, plans and specifications, addenda, change orders, field orders, work change directives, submittals, laboratory data, survey data and written interpretations and clarifications, in good order and annotated to show all changes made during construction. These record documents shall be immediately available to the Engineer or BNSF upon request for inspection or review.

B. During the course of the work, the Contractor shall maintain the following records up-to-date at the Project Site at all times, and shall submit the following documents to the Engineer prior to final Application for payment:

C. General Records:

1. Contractor's Daily Construction Reports
2. Daily Safety Meeting minutes or notes
3. Health and Safety Incident (Accident) reports and Near-Miss Reports
4. Hot Work Permits
5. Minutes of all other Contractor meetings
6. Progress survey data for Excavation work including cross-sections and volume calculations

D. Test and Analytical Results: One copy of all test and analytical results

E. Bills of Lading: One Copy of all bills of lading for materials received

1.08 PROGRESS SCHEDULE REVIEWS, ACCEPTANCE, UPDATES AND REVISIONS

A. The initial Progress Schedule and all updates submitted by Contractor will be reviewed by the Engineer and shall be adjusted and resubmitted should the Engineer's review determine further information is needed for approval. The schedule will be reviewed for:

1. Proper application of CPM methodology and logic

2. A sequence of work that satisfies the requirements of the Contract Documents and is reasonable and logical

3. Activity durations that are within an expected range or that can be justified by the Contractor to the satisfaction of the Engineer

B. The Engineer's review and critique shall not be construed as an assignment of responsibility of performance to the Engineer.

C. The Contractor shall make all necessary revisions to the initial Progress Schedule based on the Engineer's review and resubmit within two days.

1. After the Engineer's review, the Contractor shall use the Progress Schedule for planning, organizing, and directing the Project work and for reporting progress.

   The Contractor shall bear sole responsibility for ensuring completion of the Project work within the allotted Contract Time. Failure to complete the Project within the Contract time shall result in the assignment of liquidated damages at amounts previously specified in Section 01250, Contract Modification Procedures.

2. The Engineer's acceptance of any Progress Schedule shall not transfer any of the Contractor's responsibilities to the Engineer. The Contractor alone shall be responsible for adjusting Contractor resources, forces, labor, equipment, and schedules to ensure completion of the Project work within the allotted time specified in the Contract Document.

D. Updates:

1. The Contractor shall keep the Progress Schedule current during the Project construction phase so that it is an accurate indication of Project progress and in order to visually see construction activity completion within the allotted Contract time. Updates shall include any field orders, work change directives, change orders, and delays and unresolved issues.

2. Activity descriptions shall not be changed.

3. Any changes in milestone dates must be approved in writing by the Engineer prior to such reflection. Changes in milestone dates will not be allowed where such a change will cause an extension of the project completion date without the execution of a formal change order.

E. Revisions:

1. In addition to weekly Progress Schedule submittals, the Contractor shall revise the Progress Schedule when additional work, delays, or accumulations of causes indicate the Contract Time needs to be exceeded. Contractor shall submit a written statement accurately and completely describing the cause(s) of the delay. This written statement shall also describe with sufficient back-up justification the additional Contract time or effort needed to successfully complete the Project.

2. The Contractor shall submit a revised Progress Schedule when it is apparent that the Contractor's schedule does not substantially match the actual progress and order of the Project work as measured by:

   a. Accumulated delays that exceed more than five percent of the allotted Contract Time or 15 calendar days, whichever is less.

   b. Critical path activity that is excessively restrained.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used

END OF SECTION 01325

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittal Procedures
B. Requests for Information
C. Startup Submittals
D. Outline of Contractor's Technical Execution Plan

1.02 SUBMITTAL PROCEDURES

A. The Contractor shall transmit each Submittal to the Engineer's representative at the Project site.

B. The Contractor shall provide each Submittal in electronic form (Adobe pdf format) to the Engineer.

C. The Contractor shall transmit each Submittal with a cover letter signed by the Contractor's Project Superintendent. The Contractor shall, by signing each Submittal, certify that the Contractor has reviewed the Submittal, and that the submitted information conforms to the requirements of the Work and these specifications.

D. The Contractor shall sequentially number the transmittals (e.g., Submittal No. 001). The Contractor shall number revised Submittals with original number and a sequential alphabetic suffix (e.g., Submittal No. 001a).

E. Each Submittal shall include Project title, Contractor, Sub-Contractor or Supplier, title of Submittal, applicable Specification Section number and paragraph and, if applicable, Plans sheet number.

F. Submittals that do not conform to the requirements of the Specifications will be returned with a notation of deficiencies. The Contractor shall revise to correct noted deficiencies and resubmit. When revised for resubmission, the Contractor shall identify all changes made since previous submission.

G. Submittals not required by the Specifications will not be recognized or processed.

H. Submittals must be submitted at least 14 calendar days prior to the work for which they apply is scheduled.

I. Shop Drawings:

1. Quality: Prepare shop drawings accurately to scale sufficiently large to indicate pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the Work. Calculations associated with shop drawing design shall also be submitted.

2. Documents submitted to the Engineer or Architect and not returned to the Contractor, shall be retained by the Engineer or Architect.

J. Manufacturer's Literature:

1. Product data, catalog cuts, or brochures shall show the type, size ratings, style, color, manufacturer and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. Submit catalog data in an orderly form. Specific items shall be clearly marked. General catalogs or partial lists will not be accepted.

K. Samples:

1. The sample submitted shall be the exact or precise article proposed to be furnished.

2. Submit three (3) samples of each article proposed.

1.03 REQUESTS FOR INFORMATION

A. The Contractor shall submit all requests for information to the Engineer in writing. Requests for information shall be numbered sequentially and shall include the related Specification Section number or Plans sheet number.

B. The Engineer will provide any revisions to the Specifications or Plans in writing.

C. The Contractor shall request written confirmation of any interpretations or clarifications provided verbally by the Engineer.

1.04 STARTUP SUBMITTALS

A. This paragraph specifies Submittals that the Contractor shall prepare and transmit prior to commencing the Work at the Project site.

1. The Contractor shall submit the initial Progress Schedule as specified in Section 01325 – Progress Schedules and Reports.

2. The Contractor shall submit the Contractor's updated HASP as specified in Section 01150 – Health and Safety, including documentation of workers' OSHA training and medical monitoring and BNSF e-rail safe and contractor orientation training certifications.

3. The Contractor shall submit documentation of the proposed backfill materials and source of supply as specified in Section 02310 – Backfilling and Grading.

4. Certain parts of the Work are performance-based, requiring the Contractor to provide detailed written information for review, comment, and approval by the Engineer, regarding the means and methods proposed by the Contractor to execute the Work. The Contractor shall submit a draft Technical Execution Plan for the Work conforming to the outline specified in Paragraph 1.05, for the Engineer's review and comment within two (2) week of the notice to proceed. The Contractor shall revise the draft Technical Execution Plan as requested by

the Engineer and submit a final draft Technical Execution Plan, subject to the Engineer's review, approval, and acceptance, one (1) week after receiving the Engineer's comments.

1.05 OUTLINE OF CONTRACTOR'S TECHNICAL EXECUTION PLAN

The TEP shall work activities, project controls, and procedures. The Technical Execution Plan shall include the following sections:

A. Section A: Project Coordination.

1. Resume of Project Superintendent(s).

2. Identification of key personnel.

3. Emergency and after hours calling list including Contractor, Engineer, Owner and local municipal contacts.

4. Detailed project staffing plan showing staffing levels for each task and phase of Work, along with any plans for shift work.

5. List of Major Equipment, Systems, and Material, other than listed in Bid Form Schedule E.

6. List of Permits and Approvals to be obtained by Contractor, including contact names, titles and phone numbers.

B. Section B: Progress Schedule

1. Contractor's initial progress schedule, based on the Construction Milestones listed in Bid Form Schedule F.

2. Table of estimated production rates and equipment necessary for Contractor to meet the required Construction Milestones.

C. Section C: Construction Facilities and Temporary Controls

1. A drawing that shows the layout of the construction facilities and temporary controls, including work zones (i.e., Support Zone, Exclusion Zone, and Decontamination Zone), water storage tanks, stockpile areas, haul roads, trailer locations, parking areas for construction equipment and personal vehicles, and other pertinent features.

2. Dust Control Plan as specified in Section 01580- Environmental Control

3. Proposed Design of Decontamination Stations

4. Traffic & Trucking Plan as specified in Section 01500 Temporary Facilities and Controls

5. Decontamination Methods and Equipment as specified in Section 02130- Decontamination

a. Procedures to prevent contamination of clean areas

b. Vehicle decontamination and inspection procedures

c. Procedures for collection, treatment, and disposal or discharge of decontamination residuals and used PPE

d. Waste minimization procedures.

D. Section D: Site Preparation

1. Detailed description of clearing and grubbing, demolition of surface and subsurface structures, and description of construction equipment and methods associated with these activities.

2. Provide spill response subcontractor information; spill response procedures.

E. Section E: Excavation

1. Detailed description of excavation equipment and methods for surface and subsurface excavations including specific description for working on and removing materials below standing water within trenches and the remedial area including method for determining excavation floor limits and method for assisting Engineer gather samples for contamination determinations during the excavation operations in various areas.

2. Excavation production rates in the form of a table of excavation volumes per week for each week of the Project schedule.

3. Proposed stockpile locations and construction; methods and facilities for managing stormwater run-on, runoff from stockpile areas, and excavation areas.

4. Coordination of excavation, stockpiling, loading, and coordination and load-out onto railcars.

5. Coordination of backfilling and grading.

F. Section F: Oil Recovery

1. Materials and methods for recovery of oil.

G. Section G: Utility Work

1. Materials and methods for utility installation.

H. Section H: Restoration

1. Description of restoration construction activities, including sidewalk, and landscaped areas restoration.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01330

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01410

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Permits and Approvals
B. Laws and Regulations

1.02 PERMITS AND APPROVALS

A. Unless otherwise specifically provided in paragraph 1.02.B of this Section, the Contractor shall obtain and pay for all the construction permits, licenses, governmental charges, and inspection fees necessary for the performance of the Project work. The Engineer will assist Contractor, when necessary, in obtaining such permits and approvals.

B. The Engineer will complete and submit permit applications, demonstrate meeting substantive requirements, and pay the fees for the following permits and approvals if applicable:

1. Washington State Permits

    a. Environmental Policy Act (SEPA): Washington State Environmental Policy Act (SEPA) provides a way to identify and mitigate probable environmental impacts that may result from governmental decisions. Ecology is the lead SEPA agency and has issued a Final Environmental Impact Statement for the project.

2. General Construction Stormwater Permit: General construction stormwater permit is required by Ecology for discharge of stormwater to a surface water body (i.e., South Fork Skykomish River) and/or storm drains that discharge to a surface water body. Because this project is under a Consent Decree, no formal permit is required, but the substantive requirements of the permit must be met. The NPDES permit issued for this project encompasses the General Construction Stormwater Permit and requires the preparation and implementation of a Stormwater Pollution Protection Plan (SWPPP). A copy of the SWPPP was included with the Specifications.

3. Town of Skykomish Permits

    a. Zoning and Land Use Permits: Because this work is being conducted under a Consent Decree with Ecology, no formal Zoning or Land Use Permits are required, but the substantive land use and zoning requirements of the Town of Skykomish must be met.

    b. Critical Area Ordinance (CAO): The Town of Skykomish developed the CAO to designate and classify environmentally sensitive and hazardous areas and to protect these areas and their values. The Town will review the proposed work, determine whether it will adversely affect critical areas as

outlined in the CAO, and recommend mitigation measures to Ecology based on the Town's existing substantive requirements in its CAO. Ecology will determine whether the proposed work complies with the substantive requirements of the CAO and other local land use and development standards.

c. Clearing and Grading Permit: Clearing and Grading Permit is reviewed under the Town of Skykomish Ordinance Number 267. The Town will also review the proposed work and recommend mitigation measures to Ecology based on the Town's existing substantive requirements in Ordinance No. 267. Ecology will determine whether the proposed work complies with the substantive requirements of Ordinance No. 267 Floodplain Work Approval: The project is located in a mapped 100-year floodplain (A or V zone), the local government (Skykomish) requires that a permit be obtained prior to development. Because this work is under an administrative order or a Consent Decree with Ecology, no formal permit is required, but the substantive requirements of the permit must be met.

C. The Contractor shall complete and submit permit applications that meet the substantive requirements of following permits and approvals:

1. Permit for the excavation support system (i.e., shoring), if necessary, from the Town of Skykomish per International Building Code.

2. Disposal Facility Waste Profile Approval pertaining to disposal of decontamination water from the Project site at an appropriately licensed facility.

3. Electrical permits from the Washington State Department of Labor and Industries (L&I). All electrical work will be completed in compliance with L&I regulations. Copies of all L&I permits shall be submitted to the Engineer.

D. Coordination of Permit Notifications and Inspections

1. The Engineer will provide the Contractor with a list of permit notification and inspection requirements associated with the items listed in B above.

2. The Contractor shall be responsible for coordinating required notifications and inspections in items B and C (above) with the Engineer and the permitting authority so that there is no delay in the work. Permit notification and inspection times shall be considered by the Contractor in developing the schedule of work. No additional time on the schedule or relief from liquidated damages will be granted to the Contractor for the time required for permit inspections by any agency.

1.03 LAWS AND REGULATIONS

A. Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither the Owner nor the Engineer, will be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Project work knowing or having reason to know that it is contrary to Laws and Regulations, it shall be the Contractor's primary responsibility to make certain that the Plans and Specifications are in accordance with Laws and Regulations.

C. Set forth below and Section 1.02 are some of the laws and regulations applicable to this Project. The listing of specific laws and regulations in this section is for information only. The fact that a law or regulation is not listed does not relieve the Contractor of responsibility for compliance.

D. Where two or more regulations/documents conflict, the one(s) offering the greater or greatest degree of protection will be applied. The on-site Contractor(s) will comply with any and all state and local ordinances and regulations.

1. Town of Skykomish Codes and policies

    a. Noise Ordinance

    b. Building Permit (shoring)

    c. Stormwater, Grading and Drainage Control Code

2. State laws, regulations, and policies

    a. The Puget Sound Clean Air Agency Regulations for Air Quality Control include provisions restricting emissions of fugitive dust. Fugitive dust is defined as "solid airborne particulate matter emitted from any source other than through a stack, vent, or chimney."

    b. Washington Industrial Safety and Health Act rules for workplace safety and health regulations.

    c. State of Washington Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC.

    d. Title 296—Department of Labor & Industries, Chapter 296-155 WAC specifies health and safety standards for responding to releases or substantial threats of releases of hazardous substances at hazardous waste sites.

3. Federal laws and regulations

    a. Resource Conservation and Recovery Act (42 USC 6901 et.seq.) - This statute governs the generation, transportation, storage, and final disposal of hazardous waste. Soils containing constituents that are defined as RCRA hazardous wastes must be disposed of at RCRA-licensed facilities and must be appropriately manifested.

    b. Hazardous Waste Regulations (40 CFR 260 - 280) - These regulations provide specific requirements for handling, transporting, and disposing of hazardous waste.

c. Carriage by Public Highway (49 CFR 177) - These regulations prescribe requirements that are applicable to the acceptance and transportation of hazardous materials by various carriers in motor vehicles.

d. OSHA Standards for Hazardous Waste Site Operations and General Construction Activities (29 CFR 1910.120, 1926) - These regulations protect the health and safety of onsite workers at construction sites.

e. National Fire Protection Association (NFPA), Flammable and Combustible Liquids Code, NFPA 30, most recent revision.

f. American National Standards Institute (ANSI), Practices for Respiratory Protection, Z88.2, most recent version.

g. ANSI, Emergency Eyewash and Shower Equipment, Z358.1, most recent version.

h. ANSI, Protective Footwear Z41.1, most recent version.

i. ANSI, Respirator Use Physical Qualification for Personnel, Z88.6, 1984.

j. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1, most recent version.

k. Departments of Transportation (DOT) Standards and Regulations, 49 CFR 171 and 49 CFR 172.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used

END OF SECTION 01410

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01450

QUALITY CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Permits and Approvals
B. Quality Control Organization
C. Contractor Responsibilities
D. The Engineer's Responsibilities
E. Storage and Protection
F. Materials and Equipment
G. Product Options
H. Substitutions
I. Laboratory and Testing Requirements

1.02 PERMITS AND APPROVALS

A. The Contractor shall submit one copy of all testing results, quality control reports, and other quality control documentation to the Engineer. The documentation submitted shall be clearly marked as to whether or not the test results meet the requirements of the Specifications.

B. Contractor's Daily Construction Report, as required by Section 01325 – Progress Schedules and Reports, shall include daily reporting of quality control information and issues.

1.03 QUALITY CONTROL ORGANIZATION

A. The Contractor's Project Superintendent shall be responsible for coordinating all quality control tests performed by Contractor during the work, including testing of work or materials of Contractors and Suppliers.

B. The Contractor's Project Superintendent shall report directly to the Engineer with regard to quality control issues.

C. Corrective action shall be undertaken by the Contractor for all work and test results that do not meet Specifications. Testing shall be repeated at Contractor's cost until satisfactory results are obtained or the Contractor shall correct the work. The Engineer will determine when results satisfactorily meet the Plans and Specifications. All results shall be made available to the Engineer for review.

1.04 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall provide for the services of an independent qualified laboratory or testing services provider to perform the following testing and sampling:

1. Field sampling and density testing to verify and document compaction of backfilling and grading work including trench work.

2. Geotechnical and chemical testing of soil materials as required in Sections 02310 – Backfilling and Grading and 02060 – Aggregate Materials.

B. The Contractor shall complete all other testing required by the Specifications or Change Orders, or to complete all Contractor work in accordance with applicable codes and permits.

C. The Contractor's Project Superintendent shall control the Project work to the extent necessary to achieve specified quality and ensure conformance with the Contract Documents.

D. The Contractor's Project Superintendent shall receive testing results and shall ensure that appropriate corrections, including rework if necessary, are made by Contractor. All test results shall be forwarded to the Engineer immediately upon receipt. In the case of field compaction testing results, the Engineer shall be made aware of testing results that do not meet the specified requirements within four hours of the field testing that shows the deficiency.

E. The Contractor's Project Superintendent shall ensure that emissions of dust do not exceed the applicable levels during performance of the work, and shall take immediate corrective measures, including stopping work, whenever emissions are observed.

F. The Contractor's Project Superintendent shall ensure that all materials meet the requirements of the applicable Specifications.

G. The Contractor is responsible for analytical testing of decontamination water for profiling and disposal purposes.

H. The Contractor is responsible for ensuring that impacted soil and debris is placed in the impacted disposal stockpiles and not placed in the overburden (un-impacted) stockpiles or imported material stockpiles. The Contractor is responsible for removing any contaminated soils placed in the clean soil stockpile at the direction of the Engineer.

1.05 THE ENGINEER'S RESPONSIBILITIES

A. The Engineer's control of the work will include authority for on the spot stopping or slowing of work if it does not conform to quality control or Specification tolerances. The Engineer's judicial exercise of stop-work directives will only be through Contractor's Project Superintendent. Such directives shall not be reason for additional compensation.

B. The Engineer will have authority to instruct the Contractor to immediately stop work if dust emissions or excessive hazardous emissions are detected at any time and are at risk of exceeding ecological standards or if, in the Engineer's opinion, an imminent threat to the health or safety of any person exists. The Engineer's authority to consult with the Contractor superintendent to stop the work shall not relieve Contractor of the sole responsibility for observation and control of emissions and for the health and safety of Project personnel. The Engineer will exercise this authority only in consultation with the Contractor's superintendent and only when an imminent risk of violation of ecological standards exists.

C. The Engineer will be responsible for reviewing all quality control data generated by the Contractor. The Engineer's review of data does not relieve Contractor of the responsibility to ensure that all work conforms to the Specifications.

D. The Engineer will be responsible for Confirmation Sampling of excavation floors and sidewalls with the aid of the Contractor's labor and equipment, and evaluation of the results of Confirmation Sampling.

E. The Engineer will be responsible for any sampling and analysis required for off-site disposal of excavated impacted soil and debris.

F. The Engineer will be responsible for in-situ profiling of overburden material. The Contractor shall assist the Engineer in procuring the samples as described in Section 02118 – Stockpiling Overburden Material of the Specifications.

G. The Engineer will be responsible for analysis and quality assurance of perimeter air monitoring samples. The Contractor shall ensure that dust emissions shall not exceed 5 mg/m^3 at any point during the course of work activity at the Project site. In the event perimeter air monitoring readings exceed 5 mg/m^3, the Engineer will direct the Contractor superintendent to stop work immediately and apply corrective measures for control of dust emissions without any additional cost to Owner. Sufficient dust control continually applied shall be used to avoid such shut-downs.

1.06 STORAGE AND PROTECTION

A. Contractor shall:

1. Store and protect products and materials in accordance with manufacturers' instructions. Store, secure, and protect from environmental damage and unauthorized usage.

2. Fuel storage and dispensing shall be per Section 01500- Temporary Facilities and Controls. Take precaution to avoid fuel spillage. In the event of an inadvertent spill, clean-up immediately and thoroughly.

3. All equipment shall have a spill-kit on-board. Operators shall be trained and experienced in the proper use of spill kits.

4. Equipment shall be maintained continually to not spill fuel, brake, or hydraulic fluid. Any inadvertent spill shall be cause for excavation operation shutdown and immediate clean-up of the spill. The machine with the broken hydraulic line or brake line shall be removed from the excavation site or repaired immediately. Hydraulic lines shall be inspected prior to delivery to the Project and replacements made where needed in order to avoid hydraulic line breaks during operation on the Project. This shall apply to track-hoe excavators, backhoes, front-end loaders, dozers, dump trucks, compactors, and water wagons delivered for Project work. The time and cost of any spillage caused by a hydraulic line break shall be tracked via time and materials method and deducted from the Progress Estimate for that month.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. The Contractor shall provide all materials and equipment necessary for the work unless otherwise specified.

B. Material shall be provided in accordance with these Plans and Specifications

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or descriptions may be proposed for this Project.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications; no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions or Equal Products: Submit a written request for substitution for any manufacturer not named in accordance with the following article.

2.03 SUBSTITUTIONS

A. Contractor shall document each request for substitution with complete data substantiating compliance of proposed substitution with the requirements of the Contract Documents.

B. Substitution Submittal Procedure:

1. Submit an electronic copy in Adobe pdf format of the request for substitution. Each request shall be limited to one proposed substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof shall be on the Contractor.

3. The Engineer will notify the Contractor in writing within 15 days of receipt of the proposed change of the decision to accept or reject the substitution request.

PART 3 – EXECUTION

3.01 LABORATORY AND TESTING REQUIREMENTS:

A. The materials laboratory company proposed by the Contractor for acceptance on this Project shall meet the following requirements:

1. American Association for Laboratory Accreditation.

2. Washington Association of Building Officials certification.

3. Qualifications Reviewed and Accepted by the Engineer prior to performing any Project work.

4. An organization independent from the Contractor and all sub-contractors, unless prior written approval is received from the Engineer.

END OF SECTION 01450

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals
B. Electric Service
C. Lighting
D. Temporary Heating, Cooling and Ventilating of Relocation Structures
E. Temporary Sanitary Facilities
F. Facility Support Items
G. Work Zones
H. Enclosures and Fencing
I. Protection of the Work
J. Temporary Erosion and Sediment Controls
K. Repair of Soil Handling Facility
L. Haul Roads and Access Roads
M. Traffic and Trucking Plan
N. Parking
O. Progress Cleaning and Waste Removal
P. Stockpile Areas
Q. Field Office and Sheds
R. Onsite Laboratory Utilities
S. Removal and Restoration of Utilities, Facilities, and Controls
T. Fuel Storage and Dispensing
U. Security

1.02 SUBMITTALS

A. The Contractor shall prepare and submit a Technical Execution Plan in accordance with Section 01330 – Submittal Procedures, including a section on construction facilities and temporary controls.

B. Contractor's Technical Execution Plan shall include a drawing that shows the layout of the construction facilities and temporary controls, including work zones (i.e., Support Zone, Exclusion Zone, and Decontamination Zone), water treatment equipment, stockpile areas, haul roads, trailer locations, parking areas for construction equipment and personal vehicles, and other pertinent features. Note that other technical execution plan requirements are listed elsewhere in these Specifications, and this section is not intended to be a full list of requirements.

1.03 ELECTRIC SERVICE

A. A licensed electrician retained by the Contractor shall perform all electrical work required for the Project.

B. The Contractor shall provide electrical power service for the Project or furnish and install electrical service from nearest appropriate transformer location. The Contractor shall

furnish and install main service disconnect and over-current protection. The Contractor shall furnish and install electrical connections from main service disconnect to Contractor's facilities and equipment, to the Contractor's field office trailers including the Engineer's office trailer. The Contractor shall be responsible for providing power to the Engineer's office trailer for the duration of the project.

C. The Contractor shall pay all electric usage costs necessary for the Work.

D. All electrical connections shall meet appropriate National Electrical Manufacturers Association (NEMA) ratings consistent with the intended service.

E. The Contractor shall coordinate with local electric utility and obtain any necessary permits.

1.04 LIGHTING

A. The Contractor shall provide and maintain portable high-intensity lighting plants with generators for illumination of the work area when Project work is performed before sunrise or after sunset.

1.05 TEMPORARY SANITARY FACILITIES

A. The Contractor shall provide and maintain temporary portable chemical toilet facilities. The facilities shall be provided at time of Project mobilization and maintained in clean and sanitary condition at all times during the Project until Substantial Completion. The Contractor shall provide a sufficient number of portable toilets for Contractor and Sub-Contractor work crews, the Engineer, Owner, and visitors in accordance with usage ratings, or as otherwise directed by the Engineer. This will require that portable toilets are located by the construction trailers and by the excavation.

B. The Contractor shall provide and maintain in clean, good working order, a water hand washing facility for personal decontamination.

C. The Contractor shall provide and maintain in clean, good working order, an emergency decontamination and eye wash station.

D. The Contractor shall provide and maintain, in clean, good working order, any other personal decontamination facilities, as directed by the Engineer and required by the HASP.

1.06 FACILITY SUPPORT ITEMS

A. The Contractor shall provide equipment decontamination area(s) as required for the work, as discussed in Section 02130 - Decontamination.

1.07 WORK ZONES

A. The Contractor shall establish a Support Zone, Exclusion Zone, and Decontamination Zone, as defined herein.

1. The Contractor shall lay out the work zones and establish boundaries, barriers, facilities and controls to ensure that all personnel and equipment exiting the

Exclusion Zone pass through the Decontamination Zone before entering the Support Zone and before exiting the Project site.

2. Support Zone:

   The Contractor shall establish a Support Zone for field offices, storage, sanitary facilities, hand washing facilities, and non-construction vehicle parking.

3. The Support Zone shall be an area free of physical and chemical hazards.

4. The Contractor shall maintain the Support Zone in a safe, clean, orderly, and sanitary manner at all times.

B. Exclusion Zone:

The Contractor shall establish an Exclusion Zone using the following criteria and other criteria deemed necessary by the Engineer:

1. Open excavation areas shall be included in the Exclusion Zone.

2. Consideration of meteorological conditions and the potential for contaminants or other materials to be blown or washed from the area.

3. OSHA regulations and other applicable Laws and Regulations.

C. Temporary Activity Zones within Exclusion Zone:

The Contractor shall establish Temporary Activity Zones within the Exclusion Zone using high-visibility warning tape fastened to metal posts or weighted barrels to delineate areas where specific types of Work tasks will take place. Temporary Activity Zones shall be revised as necessary and as the Work progresses. Temporary Activity Zones shall be established to include the following tasks:

1. Excavation: Excavation areas shall be marked with orange construction fence at all times.

2. Material Screening: Screening equipment and operation, if necessary, shall be established and maintained as Temporary Activity Zones.

3. Stockpiling: Stockpile areas shall be established as Temporary Activity Zones and signs installed to indicate the type of material stockpiled in each stockpile area. Signs may consist of high-visibility spray paint on the plastic membrane stockpile cover.

4. Storage: Storage areas for materials or equipment shall be established and maintained as Temporary Activity Zones.

5. Decontamination: Any temporary decontamination areas shall be marked as Temporary Activity Zones.

D. Decontamination Zone:

The Contractor shall establish a Decontamination Zone between the Support Zone and the Exclusion Zone.

1. The Contractor shall provide suitable facilities for personnel decontamination in the Decontamination Zone, including emergency eyewash, and hand washing facilities.

2. The Contractor shall construct a vehicle and equipment decontamination facilities as required to prevent the spread of contaminated material beyond the Decontamination Zone.

3. The Contractor shall inspect and document inspection of each rail car and/or truck bound for landfill disposal of impacted soil and debris. The Contractor shall be responsible to ensure that each rail or truck container bound for landfill disposal of impacted soil and debris is free of holes, tears, punctures, gaps or other similar outlet that could allow for the inadvertent release of impacted soil and debris. If the floor or walls of a rail or truck container is found to have an opening in it, the Contractor shall take measures to adequately cover the opening with plywood, sand bags or other adequate means to prevent material from inadvertently leaking out of the container. Repair of any holes in the floor or sides of the railcars shall be accomplished on a time and materials basis.

4. The Contractor shall inspect all vehicles and equipment that have been in Exclusion Zone prior to exiting the Exclusion Zone. The Contractor shall remove loose mud and debris from all rail cars and vehicles that have been in Exclusion Zone prior to movement of equipment between Exclusion Zone and non-Exclusion Zone areas of the Site.

5. The Contractor shall provide splash protection around the vehicle decontamination facility. Splash protection shall minimize potential contamination from splatter and mist during the vehicle and equipment decontamination process. Splash protection shall be temporary, but stable, and capable of being dismantled in the event of high winds.

6. The Contractor shall provide a drainage and collection systems for water generated during decontamination procedures as required.

1.08 ENCLOSURES AND FENCING

A. The Contractor shall furnish, install and maintain temporary fencing around all stockpile areas, excavation areas, process areas, work zones, and other areas as indicated on the Plans. The Contractor shall constantly secure barriers and enclosures in a manner to prevent unauthorized entry into construction areas.

B. The Contractor shall install temporary fence along the perimeter of the Project Area (per the construction phasing plan) as specified on the Plans.

C. The Contractor shall furnish and post signs at every entrance and gate and at least every 50 feet along the fence warning the general public that the Project site contains physical and chemical hazards and that access is forbidden to unauthorized persons.

D. The Contractor shall furnish and post a professionally lettered sign, minimum size 4 feet by 4 feet, at each entrance, or gate to the site with the following text, or other similar text approved by the Engineer.

"All Personnel and Visitors Beyond This Point Must Wear Hard Hat, Safety Glasses, High-Visibility Vest and Steel Toe Boots"

1.09 PROTECTION OF THE WORK

A. The Contractor shall protect installed Work and provide special protection with regard to preventing the spread of contaminants to areas outside the Exclusion Zone. The Contractor shall be responsible for all costs associated with removal and/or cleanup of soil or impacted materials tracked or spilled outside the Exclusion Zone.

B. The Contractor shall conduct a pre-construction video survey of the school property and submit to the Engineer prior to mobilization. This survey shall include both the school building and the teacherage. This video shall contain a time and date stamp.

C. The Contractor shall protect the existing catch basins and subsurface facilities by such means as determined by Contractor to be adequate for such protection, unless such facilities are designated on the Plans for removal. Damaged facilities shall be repaired or replaced at the Contractors expense as determined by the Engineer.

1.10 TEMPORARY EROSION AND SEDIMENT CONTROLS

A. The Contractor shall furnish, install, and maintain temporary erosion and sedimentation controls as specified in Section 01575 – Temporary Erosion and Sediment Controls.

B. The Contractor shall remove all soil, mud and residuals from vehicle wheels, tires, fenders, tailgates and other surfaces before exiting to public streets to prevent impacted soil from being tracked or spilled onto public streets. If soil or impacted materials are tracked onto a public road surface, the Contractor shall clean the road thoroughly at the end of each day or more frequently as directed by the Engineer. Contractor shall have a dedicated street cleaner with a vacuum removal system on the site at all times. This street cleaner shall be operated during work hours when construction traffic is on City streets.

1.11 REPAIR OF SOIL HANDLING FACILITY

A. A soil handling area exists at the Site for stockpile usage. The existing area consists of a base course (sand), a 40-mil high density polyethylene (HDPE) liner, and a 3-inch thick Asphalt Treated Base surface layer.

1. Contractor shall conduct an inspection of the existing soil handling facility to determine what repairs must be completed to ensure the asphalt pad meets the performance requirements.

2. Contractor shall repair the existing asphalt pad as necessary and repair berms prior to excavation and stockpiling activities. The Contractor is responsible for constructing the perimeter berms to ensure that rainfall falling within the pad drains to the sump for infiltration of the water. No water within the pad will be permitted to run-off from the soil handling facility or any stockpile area.

BNSF – 2013 Schoolyard Excavation Supplement

1.12 HAUL ROADS AND ACCESS ROADS

A. The Contractor shall establish site entrance gates at the locations shown on the Plans or established in the Engineer-approved Technical Execution Plan to provide safe and efficient traffic flow to be used under normal circumstances by all personnel and construction vehicles.

B. The Contractor shall layout, construct, and maintain, subject to approval by the Engineer, on-site temporary haul roads for the efficient transport of excavated materials and backfill.

1.13 TRAFFIC AND TRUCKING PLAN

A. The Contractor shall develop a Traffic and Trucking Plan for inclusion in the Technical Execution Plan that:

1. Maintains emergency services access throughout the Site;

2. Maintains public access to all parts of town that are outside of the active remediation area;

3. Uses traffic and pedestrian traffic controls and signage. Information on the proposed temporary traffic and pedestrian control signal equipment shall be included;

4. Ensures that road closures and detours are posted on signage;

5. Ensures traffic control and public safety;

6. Maintains emergency ingress and egress to public facilities, residences, and businesses.

1.14 PARKING

A. The Contractor shall designate a parking area on BNSF property to accommodate the personal vehicles of Contractor employees, the Engineer, Owner, and visitors. The Contractor employees shall not park their personal vehicles adjacent to school property, in front of town buildings or businesses at any time. Construction vehicles shall not be allowed in the areas designated for parking personal vehicles.

B. The Contractor shall designate an area of the Site to be used for parking and maintenance of construction vehicles and equipment.

1.15 PROGRESS CLEANING AND WASTE REMOVAL

A. The Contractor shall maintain all Work areas free of waste materials, debris, and rubbish, maintain the Work site in a clean and orderly condition, and collect and remove waste materials, debris, and rubbish from the Work site weekly and dispose off-site.

BNSF – 2013 Schoolyard Excavation Supplement

1.16 STOCKPILE AREAS

A. The Contractor shall establish stockpile areas as indicated on the Plans for coordination of excavation and transportation to approved off-site disposal facilities.

1.17 FIELD OFFICES AND SHEDS

A. General requirements for all sheds and offices shall be as follows:

1. Structurally sound, weather tight, with floors raised above ground, with tie-down straps.

2. Thermal insulation compatible with occupancy and storage requirements.

B. The Contractor shall furnish and maintain a field office for the use of Contractor at the Project site, at a location approved by the Engineer during the entire period of work, and a separate field office for use by the Engineer immediately adjacent to the Contractor's trailer.

1. The Contractor's and Engineer's field offices shall be located on BNSF property in an area designated by BNSF.

2. The Contractor's and Engineer's field offices shall be of a size (minimum 10' x 36'), construction and outfitted in a manner customary to such facilities at similar construction sites.

3. The Contractor's and Engineer's field offices shall be furnished with appropriate fire extinguishers, first aid supplies, furniture, photocopier, and office supplies. The Engineer's field office shall have a meeting table, 8 fold-up chairs for project meetings, drinking water service, a minimum of two desks with lamps, cushioned desk chairs, phones, and a white board (minimum 8 ft long and 4 ft high) along one wall. Four sets of keys for the Engineer's personnel shall be provided to the Engineer. The Contractor shall supply and pay for power and high speed Internet service for all field offices for the duration of the project.

4. At a minimum, the Engineer's field office shall have a printer, scanner and copier, capable of producing/reproducing 8.5 x 11 inch and 11x17 inch documents. The scanner shall be capable of producing Portable Document Format (PDF) files. The equipment can be an all-in-one type unit or separate units, all capable and setup for wireless use. All print cartridges and drinking water shall be supplied by the Contractor. Support services and/or technical assistance necessary to operate or troubleshoot the field office equipment shall be provided by the Contractor.

C. Mobilization shall include office site preparation, Labor & Industry (L&I) electrical inspection costs, power and telephone & internet monthly service costs, access road construction, and maintenance of the site access with 2"- 4" spall rock and fabric.

1. The Contractor's and Engineer's field offices shall be supplied and serviced with appropriate power, phone, fax and high speed internet connections, and sanitary service.

1.19 REMOVAL AND RESTORATION OF UTILITIES, FACILITIES, AND CONTROLS

A. The Contractor shall remove temporary utilities, equipment, construction facilities and materials placed or constructed by Contractor during the work, prior to submitting final Application for Payment.

B. The Contractor shall remove from the Work site all materials, equipment, vehicles, construction facilities, temporary controls, rubbish, debris, and wastes.

C. The Contractor shall dismantle and remove from the Project site, as directed by the Engineer, all temporary fencing provided by Contractor.

1.20 FUEL STORAGE AND DISPENSING

A. The Contractor shall store fuel on site only in approved containers that meet all relevant fire codes.

B. Fueling of construction equipment shall occur only during normal working hours.

C. The Contractor shall not perform fueling operations within 50 feet of storm drains.

D. The Contractor shall construct berms and spill protection and collection devices at all fixed fueling facilities on the site.

E. The Contractor shall take measures to prevent spills during fueling.

F. The Contractor shall provide materials, personnel, and equipment to promptly mitigate any spills caused during vehicle and equipment fueling activities.

G. The Contractor shall not commingle waste materials caused by fueling or vehicle maintenance activities with excavated contaminated soil or with impacted water generated by the work.

H. The Contractor shall be responsible for all costs associated with the disposal of waste materials caused by spills.

I. Contractor shall have adequate spill and fire suppression equipment readily available for proper handling of fuel.

1.21 SECURITY

A. Provide facilities to protect the buildings and Work from unauthorized entry, vandalism, or theft while buildings are being moved, relocated, and held in storage.

B. The construction site shall be closed to the public at all times. Construction site is defined as the temporary facilities and work areas inside partitions, enclosures, and cones and tape.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used

END OF SECTION 01500

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01575

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals
B. Performance Requirements
C. Geotextile Fabric Silt Fence
D. Surface Water Run-on/Run-off Control
E. Tree Protection
F. Inspection and Maintenance

1.02 SUBMITTALS

A. The Contractor shall prepare and submit a daily inspection and maintenance log in accordance with Section 01330 – Submittal Procedures. This daily log shall accompany the required daily report and be presented no later than noon of the following day.

1.03 PERFORMANCE REQUIREMENTS

A. Permits and Approvals: The Engineer will obtain all necessary Permits and approvals for erosion and sediment control. The Contractor shall comply with all the conditions of the Permits and approvals. The current NPDES permit (which includes the General Construction Stormwater Permit) is attached to these Specifications for reference. The Master Stormwater Pollution Prevention Plan (SWPPP) is also attached to these Specifications for reference.

B. Compliance: The Contractor shall be responsible for compliance with Permit conditions including best management practices as outlined in the SWPPP.

C. The Contractor shall employ the following general procedures, or other procedures as required by the approved Soil Erosion and Sediment Control Plan:

1. Run-On/Run-Off Controls: Contractor shall use ditches, berms, pumps and other methods necessary to divert and drain off site surface water away from excavations and other work areas.

2. Sediment Controls: Contractor shall take necessary precautions and implement best management practices to prevent sediment from entering roadways, storm sewers, or catch basins.

D. Contractor shall construct stockpiles in accordance with Section 02114 Stockpiling and Loading of Impacted Soil for Disposal and Section 02118 Stockpiling Overburden Materials.

E. Street Cleanliness: Where construction vehicle access routes intersect public roads, the Contractor shall take action to prevent the transport of sediment (mud, soil, or dust) onto public streets. The Contractor shall construct haul roads, including tire washes, with

necessary controls to prevent sediment transport to public streets. If sediment or mud is transported onto a road surface, the Contractor shall clean the road thoroughly at the time that sediment impacts the roadway. The Contractor shall remove sediment from the roads by vacuum sweeping. Such sweepings shall be transported to the on-site stockpile area. Street washing shall be allowed only after sediment removal and in conjunction with the use of vacuum sweepers. The Contractor shall maintain a fully-operable vacuum street sweeper on the site at all times during the time that transport of sediment occurs. The vacuum street sweeper shall be sized to quickly and efficiently sweep the public streets in the town.

F. Control of Pollutants Other than Sediment:

1. All pollutants that occur on the Project site during construction shall be handled and disposed of in a manner that does not impact stormwater runoff.

2. Fueling Contractor equipment shall be performed at least 50 feet from storm drain inlets and catch basins.

3. Extreme care shall be taken to prevent fuel spills. Spill prevention and clean-up procedures shall be followed during the fueling operation. The Contractor shall notify the Engineer, the local Fire Department, and other authorities in the event of a spill. The Contractor shall be solely responsible for responding to fuel spills, including all costs of removing, decontaminating, and disposing materials impacted by spills.

4. The Contractor shall provide and maintain absorbent materials, shovels, and containers for proper spill response and clean-up. Clean-up materials and methods shall be consistent with standard, approved methods for the type of fuels, oils, and other materials used.

PART 2 – PRODUCTS

2.01 GEOTEXTILE FABRIC SILT FENCE

A. Silt fence materials and supports shall be heavy-duty and pre-assembled, conforming to the requirements of the Plans and Specifications.

PART 3 – EXECUTION

3.01 SURFACE WATER RUNON/RUNOFF CONTROL

A. All stormwater runoff from within the work areas shall be kept within are work areas and adjoining properties shall be protected from surface drainage caused by the construction operations. Implement temporary measures such as dikes, ditches, curb walls, pipes, sumps, or other approved best management practices as required.

B. The geotextile fabric silt fence shall conform with the following:

1. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6-inch overlap, and both ends securely fastened to the post.

2. Posts shall be spaced a maximum of 6 ft apart and driven securely into the ground a minimum of 12 inches (where physically possible).

3. A trench shall be excavated along the line of posts and upslope from the barrier. The trench shall be constructed to follow the contour.

4. When slit film filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch long, tie wires, or hog rings. The wire shall extend into the trench a minimum of 4 inches and shall not extend more than 36 inches above the original ground surface.

5. Slit film filter fabric shall be wired to the fence, and 20 inches of the fabric shall extend into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees. Other types of fabric may be stapled to the fence.

6. When extra-strength monofilament fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of 'E' above applying. Extra care should be used when joining or overlapping these stiffer fabrics.

7. The Contractor may use properly compacted native material for backfilling. If gravel is used instead, the trench shall be backfilled with ¾-inch minimum diameter washed gravel. Care shall be taken when using gravel to ensure good contact between the fabric and the trench bottom to prevent undercutting.

8. Filter fabric fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized. Retained sediment must be properly removed. Slopes shall be mulched and seeded.

3.02 INSPECTION AND MAINTENANCE

A. Contractor Inspections must be completed by a certified erosion and sediment control lead (CESCL). The CESCL must be certified through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology.

B. The Contractor shall inspect and repair or replace damaged components of temporary erosion and sediment controls daily or more frequently as directed by the Engineer. Inspect immediately after rain or flooding events, and inspect daily during prolonged rain events. Written records shall be kept of weekly reviews of the ESC facilities.

C. The Contractor shall remove sediment deposits and place them in designated stockpile areas. Sediments shall not be allowed to migrate off site. Any sediment that has been in contact with contaminated material shall be incorporated into material to be transported for treatment or disposal.

D. Contractor equipment and vehicles are prohibited from operating outside the right-of-way and easement for construction and shall operate only within the public right-of-way and construction easements.

E. Damage to erosion and sediment control systems caused by construction operations, weather, or negligence shall be repaired immediately at no additional cost to the Owner or the Engineer.

END OF SECTION 01575

Permit No. WA-003212-3
Issuance Date: May 4, 2006
Effective Date: June 1, 2006
Expiration Date: May 4, 2011
Modification Date: August 15, 2006

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT No. WA-003212-3

State of Washington
DEPARTMENT OF ECOLOGY
Olympia, Washington 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

BNSF RAILWAY COMPANY

2454 Occidental Avenue South, Suite 1A

Seattle, WA 98134

Facility Location: BNSF Skykomish Cleanup Site South Bank South Fork of the Skykomish River Skykomish, WA	Receiving Water: South Fork of the Skykomish River
Water Body I.D. No.: 1215779478143	Discharge Location: Latitude: 47° 42' 37" N Longitude: 121° 21' 44" W
Industry Type: Contaminated Soil Remediation	

is authorized to discharge in accordance with the Special and General Conditions which follow.

Tim L. Nord, Manager
Land and Aquatic Lands Cleanup Section
Toxics Cleanup Program
Washington State Department of Ecology

TABLE OF CONTENTS

GENERAL CONDITIONS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S3.A	Discharge Monitoring Report	Monthly	August 15, 2006
S3.E	Noncompliance Notification	As necessary	
S4.A	Operations and Maintenance Manual	1/permit cycle	
S4.A	Operations and Maintenance Manual Update or Review Confirmation Letter	Annually	
S4.A	Treatment System Operating Plan		
S4.B	Reporting Bypasses	As necessary	
S10.	Application for Permit Renewal	1/permit cycle	November 4, 2010
S6.C	Solid Waste Control Plan	1/permit cycle, updates submitted as necessary	July 15, 2006
S7.	Spill Plan	1/permit cycle, updates submitted as necessary	30 days prior to construction or discharge
S9.B1	Stormwater Pollution Prevention Plan	1/permit cycle	30 days prior to construction or discharge
S9.B2	Stormwater Pollution Prevention Plan Modifications	As necessary	
S9.C2	Notification of Unpermitted Non-stormwater to *Stormwater Drainage System*	As necessary	
G1.	Notice of Change in Authorization	As necessary	
G4.	Permit Application for Substantive Changes to the Discharge	As necessary	
G5.	Engineering Report for Construction or Modification Activities	As necessary	
G8.	Notice of Permit Transfer	As necessary	
G21.	Reporting Anticipated Noncompliance	As necessary	
G22.	Reporting Other Information	As necessary	

SPECIAL CONDITIONS

S1. DISCHARGE LIMITATIONS

A. Authorized Discharges

This permit authorizes the discharge of treated stormwater and dewatering water associated with cleanup activities, to the South Fork of the Skykomish River from the BNSF Railway Company soil remediation project.

B. Discharge Prohibitions

Discharges of industrial stormwater and dewatering water including stormwater runoff from sand and gravel stockpiles, leachate from stockpiles of contaminated soils, and any water resulting from soil remediation activities, to the former and existing Maloney Creek, are prohibited.

Discharge of process wastewater, and domestic wastewater to surface water and ground water is prohibited. Prohibited process wastewater discharges include, but are not limited to: truck wash water, tire bath waste water, wheel wash water, and equipment wash water, and chemical wastes.

Visible track-out on public roads is prohibited.

This permit does not authorize illicit discharges, including spills of oils or hazardous substances, nor does it relieve entities from obligations under state and federal laws and regulations pertaining to those discharges.

C. Industrial Stormwater and Construction Dewatering Discharges Associated With Cleanup Zones (Figure 3)

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit.

The discharge of any of the following pollutants more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.

Beginning on the effective date of this permit and lasting through the expiration date, the Permittee is authorized to discharge excavation dewatering water and industrial stormwater resulting from contaminated soil and sediment remediation to the South Fork of the Skykomish River, subject to complying with the following limitations:

EFFLUENT LIMITATIONS FOR ALL CLEANUP ZONES: OUTFALL # 001	
Parameter	**Maximum Daily[a]**
Flow (Treatment Train No. 1)	500 gpm
Flow (Treatment Train No. 2)	500 gpm
Chitosan Acetate[c]	0.1 mg/L
pH (s.u.)	Between 6.5 and 8.5 standard units
Dissolved Oxygen	Minimum 8 mg/L
Turbidity	5 NTU above background[d]
Oily Sheen	No visible sheen
Benzene	1.2 µg/L
BTEX	100 µg/L
Total Petroleum Hydrocarbon (TPH)	208 µg/L
Total Recoverable Lead	17.5 µg/L
Total Recoverable Arsenic	360 µg/L
Anthracene	2,400 µg/L
Fluorene	640 µg/L
Naphthalene	160 µg/L
Pyrene	480 µg/L
Benzo(a)anthracene[b]	0.0028 µg/L (0.01 µg/L)
Benzo(b)fluoranthene[b]	0.0028 µg/L (0.01 µg/L)
Benzo(k)fluoranthene[b]	0.0028 µg/L (0.01 µg/L)
Benzo(a)pyrene[b]	0.0002 µg/L (0.01 µg/L)
Chrysene[b]	0.0028 µg/L (0.01 µg/L)
Dibenzo(a,h)anthracene[b]	0.0028 µg/L (0.01 µg/L)
Indeno(1,2,3-cd)pyrene[b]	0.0028 µg/L (0.01 µg/L)
Acenaphthene	643 µg/L
Fluoranthene	90.2 µg/L

[a] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day.

[b] The method detection level (MDL) for these PAH compounds is above the effluent limits using the approved analytical test method EPA 8270C-HVI. The reporting level (RL) for these compounds has been reported as 0.01 µg/L. Therefore, these RLs will be used for assessment of compliance with these effluent limits. These RLs will be referred to as enforcement limits in this permit.

[c] Turbidity of the influent to the second tank (T-2A) shall not be greater than 600 NTU. The Permittee shall adhere to the Chitosan dosage rates and requirements set forth in Special Condition S5 of the permit.

[d] Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

D. Contaminated Water Within the Temporary River Exclusion Wall (Cofferdam)

The Permittee shall maintain a negative hydraulic gradient between the interior of the cofferdam and the river. If an oily sheen is observed beyond the inner cofferdam, corrective measures must be implemented immediately to remedy the problem before excavation is to be continued. There shall be no oily sheen beyond the boom containment area.

E. Untreated Overflow

There shall be no untreated overflow or runoff from any excavation pits or any containment tanks on-site to surface waters of the state. When the water in an excavation pit or a containment tank reaches 90 percent storage capacity, the Permittee is required to implement a contingency plan to prevent overflow from occurring.

F. Untreated Stormwater Discharge

There shall be no untreated stormwater discharge from the excavation area to surface waters of the state.

G. Outfall Location

The Permittee shall not discharge to a dry river bed area. The discharge outfall consisting of the discharge pipe and the energy dissipation structure shall be positioned in the river such that the river flow rate is greater than the discharge flow rate.

H. Industrial Stormwater Discharges Associated With Railyard Operations

Industrial stormwater discharges associated with railyard operations (not related to cleanup activities) are regulated under the General Stormwater NPDES Permit No. S03003658 except for those cases in which contaminated water from railyard operations passes through the cleanup site.

I. Compliance With Standards

The Permittee shall comply with State of Washington Surface Water Quality Standards (Chapter 173-201A WAC), Sediment Management Standards (Chapter 173-204 WAC), Ground Water Quality Standards (Chapter 173-200 WAC), and human health-based criteria in the National Toxics Rule (Federal Register, Vol. 57, No. 246, December 22, 1992, pages 60848-60923).

When not in compliance with these standards, the Permittee shall take immediate action(s) to achieve compliance by implementing additional best management practices (BMPs), and/or improved compliance with existing BMPs, and file a noncompliance notification, as required under Condition S3.E.

Facilities that discharge either directly or indirectly by means of a stormwater conveyance system to waters listed as impaired by the State under Section 303(d) of the Clean Water Act must comply with the State's Surface Water Quality Standards.

S2. MONITORING REQUIREMENTS

The Permittee shall monitor in accordance with the following schedule:

A. Monitoring Schedule for All Cleanup Zones (shown on Figure 3)

Samples shall be collected after Granular Activated Carbon treatment and prior to discharge to surface waters.

Parameter	Units	Minimum Sampling Frequency	Sample Type	Test Method
Flow (Treatment Train No. 1)	gpm	Continuous	Metered	N/A
Flow (Treatment Train No. 2)	gpm	Continuous	Metered	N/A
Chitosan Acetate	mg/L	Daily	Grab	Chitosan Field Screening Test
Oily Sheen	N/A	Daily	Observed	Visual
pH (s.u.)	Standard Units	Weekly	Grab	EPA 150.1
Dissolved Oxygen	mg/L	Weekly (for a period of five weeks)	Grab	Field Metering
Turbidity	NTU	Weekly	Grab	EPA 180.1 or equivalent
Benzene	µg/L	Weekly	Grab	SW8260B
BTEX	µg/L	Weekly	Grab	SW8260B
Total Petroleum Hydrocarbon (TPH)[a]	µg/L	Weekly (Two samples: One before and one after GAC treatment)	Grab	NWTPH-D_x
Total Recoverable Lead	µg/L	Weekly	Grab	EPA 200.8
Total Recoverable Arsenic	µg/L	Weekly	Grab	EPA 200.8
Anthracene[b]	µg/L	Weekly	Grab	SW8270-SIM
Fluorene[b]	µg/L	Weekly	Grab	SW8270-SIM
Naphthalene[b]	µg/L	Weekly	Grab	SW8270-SIM
Pyrene[b]	µg/L	Weekly	Grab	SW8270-SIM
Benzo(a)anthracene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Benzo(b)fluoranthene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Benzo(k)fluoranthene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Benzo(a)pyrene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Chrysene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Dibenzo(a,h)anthracene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Indeno(1,2,3-cd)pyrene[b]	µg/L	Weekly	Grab	EPA 8270C-HVI
Acenaphthene[b]	µg/L	Weekly	Grab	SW8270-SIM
Fluoranthene[b]	µg/L	Weekly	Grab	SW8270-SIM

[a] For each sampling event, the Permittee shall collect one sample before and after the first Granular Activated Carbon (GAC) column for TPH analysis. Results from samples collected before the GAC treatment will be used to evaluate the performance and removal efficiency of the GAC columns (See S4, O&M of the permit for details). The Permittee shall change out the GAC column as often as necessary to ensure compliance with the effluent limits.

[b] The sampling frequency for the PAH compounds will be reduced from weekly to monthly, if the monitoring data collected during the first phase of remediation (i.e. levee remediation) clearly support TPH as a surrogate for PAH.

B. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored parameters, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.

The detection limits achieved for those analytical test methods specified in S2.A shall be lower than the effluent limits (or enforcement limits for PAH compounds) listed in S1.C of the permit.

C. Flow Measurement

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows. The devices shall be installed, calibrated, and maintained to ensure the accuracy of the measurements is consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with manufacturer's recommendations and at a minimum frequency of at least one calibration per year. Calibration records shall be maintained for at least three years.

D. Laboratory Accreditation

All monitoring data required by the Department shall be prepared by a laboratory registered or accredited under the provisions of *Accreditation of Environmental Laboratories*, Chapter 173-50 WAC. Flow, pH, turbidity, and internal process control parameters are exempt from this requirement.

S3. REPORTING AND RECORD KEEPING REQUIREMENTS

The Permittee shall monitor and report in accordance with the following conditions. The falsification of information submitted to the Department shall constitute a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins on the effective date of the permit. Monitoring results shall be submitted monthly. Monitoring data obtained during each monitoring period shall be summarized, reported, and submitted on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by the Department. DMR forms shall be postmarked or received no later than the 15th day of the month following the completed monitoring period, unless otherwise specified in this permit. The report(s) shall be sent to the Department of Ecology Water Quality Program, 3190 - 160th Avenue SE, Bellevue, WA 98008-5452.

All laboratory reports providing data for organic and metal parameters shall include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. Analytical results from samples sent to a contract laboratory must have information on the chain of custody, the analytical method, QA/QC results, and documentation of accreditation for the parameter.

Discharge Monitoring Report forms must be submitted monthly whether or not the facility was discharging. If there was no discharge during a given monitoring period, the Permittee is required to submit the form as required with the words "no discharge" entered in place of the monitoring results.

If there was no discharge during a given monitoring period, the Permittee is required to submit the form applicable to that period as required with the words “no discharge” entered in the place of the monitoring results.

B. Records Retention

The Permittee shall retain records of all monitoring information for a minimum of three years. Such information shall include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the Director.

C. Recording of Results

For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place, method, and time of sampling or measurement; (2) the individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) the individual who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Condition S2 of this permit, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Noncompliance Notification

In the event the Permittee is unable to comply with any of the terms and conditions of this permit due to any cause, the Permittee shall:

1. Immediately take action to stop, contain, and clean up unauthorized discharges or otherwise stop the noncompliance, correct the problem and, if applicable, repeat sampling and analysis of any non-complying discharges immediately and submit the results to the Department within five (5) days after becoming aware of the violation.

2. Immediately notify the Department of the failure to comply.

3. Submit a detailed, written report to the Department within five (5) days. The report shall contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or any resulting liability for failure to comply.

F. Other Noncompliance Reporting

The Permittee must report all instances of noncompliance, not required to be reported within 24 hours, at the time that monitoring reports for S3.A ("Reporting") are submitted. The reports must contain the information listed in paragraph E, above, ("Twenty-four Hour Notice of Noncompliance Reporting"). Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

G. Maintaining a Copy of This Permit

A copy of this permit must be kept at the facility and be made available upon request to Department of Ecology inspectors.

S4. OPERATIONS AND MAINTENANCE

The Permittee shall, at all times, properly operate and maintain all systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Operations and Maintenance Manual

An Operations and Maintenance (O&M) Manual shall be prepared by the Permittee in accordance with WAC 173-240-150 and be submitted to the Department for approval within thirty (30) days after permit issuance date. The O&M Manual shall be reviewed by the Permittee at least annually and the Permittee shall confirm this review by letter to the Department. Substantial changes or updates to the O&M Manual shall be submitted to the Department whenever they are incorporated into the manual.

The approved Operations and Maintenance Manual shall be kept available at the permitted facility, and all operators shall follow the instructions and procedures of this manual.

In addition to the requirements of WAC 173-240-150(1) and (2), the O&M Manual shall include:

1. Emergency procedures for plant shutdown and cleanup in event of wastewater system upset or failure.

2. Wastewater system maintenance procedures that contribute to the generation of process wastewater.

3. Any directions to maintenance staff when cleaning, or maintaining other equipment or performing other tasks which are necessary to protect the operation of the wastewater system (for example, defining maximum allowable discharge rate for draining a tank, blocking all floor drains before beginning the overhaul of a stationary engine).

4. The treatment plant process control monitoring schedule.

5. The change-out frequency of the Granular Activated Carbon columns shall be based on internal process control results.

6. The automatic shutoff of the discharge pump(s) when back wash or the sand filtration units are not working.

7. The contingency plan for unanticipated failure of the sand filtration units (for example, backwash, etc.).

The following information shall be summarized in the initial chapter of the O&M Manual. This chapter shall be entitled the "Treatment System Operating Plan." For the purposes of this NPDES permit, a Treatment System Operating Plan (TSOP) is a concise summary of specifically defined elements of the O&M Manual. The TSOP shall not conflict with the O&M Manual and shall include the following information:

1. A baseline operating condition, which describes the operating parameters and procedures, used to meet the effluent limitations of S1 at the production levels used in developing these limitations.

2. In the event of production rates, which are below the baseline levels used to establish these limitations, the plan shall describe the operating procedures and conditions needed to maintain design treatment efficiency. The monitoring and reporting shall be described in the plan.

3. In the event of an upset, due to plant maintenance activities, severe stormwater events, start ups or shut downs, or other causes, the plan shall describe the operating procedures and conditions employed to mitigate the upset. The monitoring and reporting shall be described in the plan.

4. A description of any regularly scheduled maintenance or repair activities at the facility which would affect the volume or character of the wastes discharged to the wastewater treatment system and a plan for monitoring and treating/controlling the discharge of maintenance-related materials (such as cleaners, degreasers, solvents, etc.).

B. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited, and the Department may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, or 3) is applicable.

1. Bypass for Essential Maintenance Without the Potential to Cause Violation of Permit Limits or Conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by the Department prior to the bypass. The Permittee shall submit prior notice, if possible, at least ten days before the date of the bypass.

2. Bypass Which is Unavoidable, Unanticipated, and Results in Noncompliance of this Permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

   c. The Department is properly notified of the bypass as required in Condition S3.E of this permit.

3. Bypass which is Anticipated and has the Potential to Result in Noncompliance of this Permit.

   The Permittee shall notify the Department at least thirty (30) days before the planned date of bypass. The notice shall contain: (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of

bypass initiation; (7) a statement of compliance with SEPA; (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

The Department will consider the following prior to issuing an administrative order for this type of bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, the Department will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by the Department under RCW 90.48.120.

C. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

S5. CHITOSAN DOSAGE RATE AND OPERATION

The Department has approved two chemical flocculant products: Liqui-Floc chitosan enhanced sand filtration produced by Natural Site Solutions, and Floc-Clear chitosan enhanced sand filtration produced by Clear Creek Systems, Inc. The Permittee is required to follow the Maintenance of Safety Margin (dosage rate) and Safety Margin Checklist as listed in Appendix I and II of the permit, for whichever approved product the Permittee chooses to use.

Both products contain different weight percentages of chitosan acetate. The dosage rate and the safety margin checklists for each product as referenced-above are not the same. Chitosan acetate can be employed to effectively treat stormwater turbidity up to 600 NTU without using chitosan acetate concentrations above 1.06 mg/L. Application at concentrations in excess of this level may result in toxicity in the effluent.

S6. SOLID WASTE DISPOSAL

A. Solid Waste Handling

The Permittee shall handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water.

B. Leachate

The Permittee shall not allow leachate from its solid waste material to enter state waters without providing all known available and reasonable methods of treatment, nor allow such leachate to cause violations of the state surface water quality standards, Chapter 173-201A WAC, or the state ground water quality standards, Chapter 173-200 WAC. The Permittee shall apply for a permit or permit modification as may be required for such discharges to state ground or surface waters.

C. Solid Waste Control Plan

The Permittee shall submit a solid waste control plan to the Department no later than July 15, 2006. This plan shall include all solid wastes with the exception of those solid wastes regulated by Chapter 173-303 WAC (Dangerous Waste Regulations). The plan shall include, at a minimum, a description, source, generation rate, and disposal methods of these solid wastes. This plan shall not be at variance with any approved local solid waste management plan. Any proposed revision or modification of the solid waste handling plan must be submitted to the Department within fourteen (14) days of adoption. The Permittee shall comply with the plan and any modifications thereof. The Permittee shall submit an update of the solid waste control plan with the application for permit renewal one hundred eighty (180) days prior to the expiration date of the permit.

S7. SPILL PLAN

At least thirty (30) days prior to the start of construction or discharge, the Permittee shall submit to the Department a spill control plan for the prevention, containment, and control of spills or unplanned discharges of: 1) oil and petroleum products, 2) materials, which when spilled, or otherwise released into the environment, are designated dangerous waste (DW) or extremely hazardous waste (EHW) by the procedures set forth in WAC 173-303-070, or 3) other materials which may become pollutants or cause pollution upon reaching state's waters. The Permittee shall review and update the spill plan, as needed, at least annually. Changes to the plan shall be sent to the Department within fourteen (14) days of adoption. The plan and any supplements shall be followed throughout the term of the permit.

The updated spill control plan shall include the following:

- A description of the reporting system, which will be used to alert responsible managers and legal authorities (including Snohomish County Public Works) in the event of a spill.

  Candice Soine, Environmental Review Coordinator
  Snohomish County Public Works
  2930 Wetmore, 4th Floor
  Everett, WA 98201
  (425) 388-3488 Ext. 4259
  Candice.soine@co.snohomish.wa.us

- A description of preventive measures and facilities (including an overall facility plot showing drainage patterns) which prevent, contain, or treat spills of these materials.

- A list of all oil and chemicals used, processed, or stored at the facility which may be spilled into state waters.

For the purpose of meeting this requirement, plans and manuals, or portions thereof, required by 33 CFR 154, 40 CFR 109, 40 CFR 110, 40 CFR Part 112, the Federal Oil Pollution Act of 1990, Chapter 173-181, and contingency plans required by Chapter 173-303 WAC may be submitted.

S8. BEST MANAGEMENT PRACTICES

1. The oil/water separators shall be inspected on a weekly basis at minimum and maintained as needed to ensure satisfactory performance. Oil sludges shall be disposed of in a manner that will not cause water quality degradation to state waters. A record of inspection, maintenance, and disposal shall be kept on file and available for review by the Department's inspector(s).

2. In the event of an accidental discharge of oil, chemicals, toxic, or hazardous materials into waters of the state or onto land with a potential for entry into state waters, including ground water, representatives of the Northwest Regional Office Spill Response Team shall be notified immediately (within 24 hours) at (425) 649-7000. A written spill report shall be submitted to the Department of Ecology, Water Quality Program, within five (5) days of the time the Permittee becomes aware of the circumstances, unless the Department waives or extends this requirement on a case-by-case basis.

3. Sludges, scales, and sediments from tanks shall be disposed of in an approved manner other than to waters of the state, and other than to the sanitary sewer system.

4. All barrels, drums, or similar containers containing toxic or deleterious materials, including, but not limited to petroleum products, organic solvents, strong acids and bases, shall be stored in an upright position, in a bermed, covered area sufficient to prevent discharge into state ground or surface waters in the event of leakage or rupture.

5. Empty barrels shall be stored with all openings plugged, in an upright position, and at least 20 feet from storm drains.

6. The Permittee shall inspect the outfall line including the energy dissipation structure to document its integrity and continued function, daily during the operational period. If conditions allow for a photographic verification, it shall be included in the report. The report shall be made available to the Department's inspector(s) on-site.

S9. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR INDIVIDUAL CLEANUP ZONE CONSTRUCTION ACTIVITIES (Each Zone is Listed Under Background Information in the Fact Sheet)

A SWPPP for construction activity, including construction dewatering, shall be prepared, implemented, and updated to reflect current stage of construction activity. The Permittee shall submit the SWPPP to the Department at least thirty (30) days prior to the start of construction. The SWPPP for each new phase of construction shall be kept current, updated as necessary, and submitted to the Department. At a minimum, the SWPPP shall be submitted to the Department annually. The SWPPP will cover the current and next year's anticipated activities. The phased construction activities include clearing, grading, filling, earth work, excavation, and hauling activities.

A. General Requirements

1. The SWPPP and all of its modifications shall be signed in accordance with General Condition G.1.B. In addition, the SWPPP shall be stamped by a Professional Engineer certified by the State of Washington.

2. The SWPPP shall be retained on-site or within reasonable access to the site and be made available upon request.

3. The Permittee shall be responsible for the implementation of the SWPPP. The Erosion and Sediment Control Plan shall be attached to bid packages when seeking contractors to allow the contractor sufficient time and resources to plan implementation. At construction sites for which a lease, easement, or other use agreement has been obtained by the Permittee, the Permittee shall be responsible for the implementation of the SWPPP.

4. The Permittee shall implement procedures for reviewing the SWPPP with contractors and subcontractors prior to initiating construction activities. The Permittee shall implement procedures for addressing changes in plans and construction activities and resolving disagreements on the interpretation of the SWPPP.

5. The Permittee shall designate a contact person who will be available 24 hours a day to respond to emergencies, and to inquiries or directives from the Department. The contact person shall have authority over the SWPPP implementation. A qualified construction pollution control officer, as approved by Ecology, shall be established to advise on and determine compliance with the SWPPP and the applicable water quality standards. The name of the pollution control officer shall be listed in the

SWPPP. While the Permittee is ultimately responsible for the implementation of the SWPPP, both the Permittee and the contractor/subcontractor may be held liable for violations of the permit conditions and/or the water quality standards.

6. The Permittee shall retain the SWPPP and copies of inspection reports and all other reports required by this permit for at least three (3) years after the date of final stabilization of the construction site. The Permittee shall make these documents available upon request.

7. Reports on incidents, such as discharge of spills and other noncompliance notification, shall be included in the records.

8. A rain gauge shall be installed and maintained at the project with rainfall data logged daily.

9. Modifications:

   a. The Department may notify the Permittee when the SWPPP does not meet one or more of the requirements of this special condition. Upon notification by the Department, the Permittee shall take appropriate action(s) to come into compliance with this special condition. These SWPPP modifications shall be submitted to the Department for review, within thirty (30) days.

   b. The Permittee shall implement SWPPP and BMP modifications as directed by the Department if compliance with State of Washington Surface Water Quality Standards (Chapter 173-201A WAC), Sediment Management Standards (Chapter 173-204 WAC), Ground Water Quality Standards (Chapter 173-200 WAC), and human health-based criteria in the National Toxics Rule (Federal Register, Vol. 57, No. 246, Dec. 22, 1992, pages 60848-60923) is not being achieved.

   c. The Permittee shall modify the SWPPP whenever there is a change in design, construction, operation, or maintenance of any BMP which cause(s) the SWPPP to be less effective in controlling pollutants.

   d. Whenever a self-inspection reveals that the description of pollutant sources or the BMPs identified in the SWPPP are inadequate due to the actual discharge of, or potential to discharge, a significant amount of any pollutant, the SWPPP shall be modified as appropriate. The Permittee shall provide for implementation of any modifications to the SWPPP within fourteen (14) days.

10. BMPs shall be selected from Ecology's August 2001 *Stormwater Management Manual for Western Washington* (*SWMM*) or equivalent.

11. The Permittee may request in writing that the Department approve the use of an experimental BMP. The request shall be submitted to the Department at least thirty (30) days prior to the proposed use of the experimental BMP. The request shall include, but need not be limited to, a description of:

a. The experimental BMP.

b. Why the experimental BMP is being requested.

c. Why the BMPs in the *SWMM* are not adequate.

d. Applicable construction techniques.

e. The characteristics of the site or sites at which use of the experimental BMP is proposed.

f. Design criteria for the experimental BMP and the expected results.

g. Maintenance procedures.

h. Cost estimates.

i. Monitoring procedures and duration.

j. If appropriate, an approved BMP that could be used if the experimental BMP fails.

12. Chemical Treatment

a. Chemical treatment of stormwater, other than by means of treatment with chitosan solution as authorized in this permit, must be approved in writing by Ecology.

b. Chemicals may only be used to stabilize soils if the storm water from the chemical application area is routed to and treated by a stormwater detention pond. In addition, chemical treatment/soil stabilization shall be consistent with Ecology's Stormwater Management Manuals.

c. Spill prevention, control, and contingencies in the SWPPP should include specifics for all chemicals used.

B. SWPPP Contents and Requirements

The SWPPP shall consist of and include provisions for the following:

1. An Erosion and Sediment Control Plan:

The Erosion and Sediment Control Plan shall describe stabilization and structural practices, both of which shall be implemented to minimize erosion and the transport of sediments.

a. Stabilization Practices

The Erosion and Sediment Control Plan shall include a description of stabilization BMPs, including site-specific scheduling of the implementation of the practices. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, commercially available soil stabilization products, and other appropriate measures. A record of the dates when major

grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the plan. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.

The plan shall ensure that the following requirements are satisfied:

i) All exposed and unworked soils shall be stabilized by suitable and timely application of BMPs.

From October 1 to April 30:	No soils shall remain unstabilized for more than two (2) days.
From May 1 to September 30:	No soils shall remain unstabilized for more than seven (7) days.

ii) Existing vegetation should be preserved whenever possible. Areas which are not to be disturbed, including setbacks, sensitive/critical areas and their buffers, trees and drainage courses, shall be fenced or flagged on-site before construction activities are initiated. These areas should not be harmed when measures under the SWPPP and/or construction activities are undertaken.

iii) Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes shall be stabilized in accordance with the requirements of this subsection.

iv) Stabilization adequate to prevent erosion of outlets and adjacent stream banks shall be provided at the outlets of all conveyance systems.

v) All storm drain inlets made operable during construction shall be provided with adequate inlet protection and be properly maintained.

vi) Any and all use of polyacrylamides (PAM) for soil erosion protection shall be consistent with BMP C126 in Chapter 4, Volume II, of Ecology's *SWMM*.

vii) Wherever construction vehicle access routes intersect paved roads, provisions must be made to minimize the transport of sediment (mud) onto the paved road. If sediment is transported onto a road surface, the roads adjacent to the construction site shall be cleaned on a regular basis. Street washing shall be allowed only after other methods to prevent the transport or removal of the sediments are unsuccessful. Street wash water may not be discharged to surface waters.

b. Structural Practices

In addition to stabilization practices, the Erosion and Sediment Control Plan shall include a description of structural BMPs to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and sediment basins. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the Federal Clean Water Act.

The plan shall ensure that the following requirements are satisfied:

i) Prior to leaving the site, stormwater runoff shall pass through a sediment pond or sediment trap, or other appropriate BMPs.

ii) Properties adjacent to the project site shall be protected from sediment deposition.

iii) Sediment ponds and traps, perimeter dikes, sediment barriers, and other BMPs intended to trap sediment on-site shall be constructed as a first step in grading. These BMPs shall be functional before other land disturbing activities take place. Earthen structures used for sediment control such as dams, dikes, and diversions shall be stabilized as soon as possible.

iv) Properties and waterways downstream from the construction site shall be protected from erosion due to increases in volume, velocity, and peak flow of stormwater runoff from the project site. The stormwater discharge rate for the area affected by construction shall not exceed 50 percent of the predevelopment peak flow rate for the two-year, 24-hour storm.

v) All temporary erosion and sediment control BMPs shall be removed within thirty (30) days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on-site. Disturbed soil areas resulting from removal shall be permanently stabilized.

c. Inspection and Maintenance

All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. All on-site erosion and sediment control measures shall be inspected daily when construction is occurring and within 24 hours after any storm event of greater than 0.25 inches of rain per 24-hour period.

d. Record Keeping

Reports summarizing the scope of inspections, the personnel conducting the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and actions taken as a result of these inspections shall be prepared and retained as part of the SWPPP.

e. Format

The Erosion and Sediment Control Plan shall consist of two parts: a narrative and a set of site plans. The Permittee may refer to Chapter 3, Volume II, of Ecology's *SWMM* for guidance on the content and format.

2. Control of Pollutants Other Than Sediment on Construction Sites

All pollutants that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of storm water or ground water. A Spill Prevention and Emergency Cleanup Plan shall be included as a section in the SWPPP. BMPs for Spills of Oil and Hazardous Substances in Chapter 2 of Volume IV of Ecology's *SWMM* shall be used for guidance in developing this plan.

Solid chemicals, chemical solutions, paints, petroleum products, solvents, acids, caustic solutions and waste materials, including used batteries, shall be stored in a manner which will prevent the inadvertent entry of these materials into waters of the state, including ground water. Storage shall be in a manner that will prevent spills due to overfilling, tipping, or rupture. In addition, the following practices shall be used:

a. All liquid products and wastes shall be stored on durable impervious surfaces and within bermed containment capable of containing 110 percent of the largest single container in the storage area. Reasonable steps shall be taken to prevent releases of liquid products from malicious tampering or vandalism.

b. All waste shall be stored under cover, such as tarpaulins or roofed structures. All waste storage areas, whether for waste oil or hazardous waste, shall be clearly designated as such and kept segregated from new product storage.

4. Coordination with Local Requirements

This permit does not relieve the Permittee of compliance with any more stringent requirements of local government.

S10. APPLICATION FOR PERMIT RENEWAL

The Permittee shall submit an application for renewal of this permit by November 4, 2010, to the Department of Ecology for permit renewal.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Department shall be signed and certified.

A. All permit applications shall be signed by either a responsible corporate officer of at least the level of vice president of a corporation, a general partner of a partnership, or the proprietor of a sole proprietorship.

B. All reports required by this permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Department.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2, above, is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2, above, must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> *"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee shall allow an authorized representative of the Department, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.

B. To have access to and copy - at reasonable times and at reasonable cost - any records required to be kept under the terms and conditions of this permit.

C. To inspect - at reasonable times - any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor - at reasonable times - any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon the Department's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.

2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.

3. A material change in quantity or type of waste disposal.

4. A determination that the permitted activity endangers human health or the environment or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination [40 CFR Part 122.64(3)].

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any discharge or sludge use or disposal practice controlled by the permit [40 CFR Part 122.64(4)].

6. Nonpayment of fees assessed pursuant to RCW 90.48.465.

7. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.

6. The Department has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. Cause exists for termination for reasons listed in A1 through A7, of this section, and the Department determines that modification or revocation and reissuance is appropriate.

2. The Department has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. REPORTING PLANNED CHANGES

The Permittee shall, as soon as possible, but no later than sixty (60) days prior to the proposed changes, give notice to the Department of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in: 1) the permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b); 2) a significant change in the nature or an increase in quantity of pollutants discharged; or 3) a significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to the Department for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications shall be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities shall be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Department.

A. Transfers by Modification

Except as provided in paragraph B, below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies the Department at least thirty (30) days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new Permittee's containing a specific date transfer of permit responsibility, coverage, and liability between them.

3. The Department does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under the subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G8. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, shall control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. DUTY TO PROVIDE INFORMATION

The Permittee shall submit to the Department, within a reasonable time, all information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also submit to the Department upon request, copies of records required to be kept by this permit.

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G12. ADDITIONAL MONITORING

The Department may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G13. PAYMENT OF FEES

The Permittee shall submit payment of fees associated with this permit as assessed by the Department.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G15. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:
1) an upset occurred and that the Permittee can identify the cause(s) of the upset;
2) the permitted facility was being properly operated at the time of the upset;
3) the Permittee submitted notice of the upset as required in Condition S3.E; and
4) the Permittee complied with any remedial measures required under S4.C of this permit.

In any enforcement proceedings the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two (2) years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G20. REPORTING ANTICIPATED NONCOMPLIANCE

The Permittee shall give advance notice to the Department by submission of a new application or supplement thereto at least one hundred eighty (180) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during noncritical water quality periods and carried out in a manner approved by the Department.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

G22. REPORTING REQUIREMENTS APPLICABLE TO EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL DISCHARGERS

The Permittee belonging to the categories of existing manufacturing, commercial, mining, or silviculture must notify the Department as soon as they know or have reason to believe:

A. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following "notification levels":

1. One hundred micrograms per liter (100 μg/L).

2. Two hundred micrograms per liter (200 μg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 μg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony.

3. Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

B. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following "notification levels":

1. Five hundred micrograms per liter (500 μg/L).

2. One milligram per liter (1 mg/L) for antimony.

3. Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

G23. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

APPENDIX I

LIQUID-FLOC CHITOSAN ENHANCED SAND FILTRATION (Natural Site Solutions)

Maintenance of Safety Margin

Chitosan acetate can effectively treat stormwater turbidity up to 600 NTU without using a concentration above 1.06 mg/L. 1.06 mg/L chitosan is below its toxic threshold of 1.21 mg/L in clear water. In addition, chitosan will be removed from solution by binding to solids and by being withheld in the sand filter. The safety margin will certainly be maintained if the treatment concentration is kept to 1.06 mg/L or below. Any mechanical failure of the positive displacement metering pump will immediately cause a reduction in Liqui-Floc dosing, so pump failure is only a problem for treatment effectiveness and not safety margin maintenance.

The following dose rate table shall be used to ensure both treatment plant effectiveness and a chitosan concentration below 1.06 mg/L prior to sand filtration.

Dose Rate Table for Liqui-Floc (1% Chitosan Acetate) Based on Flow and Turbidity

Turbidity	Stormwater Flow Rate	Liqui-Floc Dose Rate	Chitosan Concentration
50 - 200 NTU	200 gpm	20 ml/min or 0.32 gph	0.26 mg/L
	300 gpm	30 ml/min or 0.48 gph	
	400 gpm	40 ml/min or 0.64 gph	
	500 gpm	50 ml/min or 0.8 gph	
	600 gpm	60 ml/min or 0.96 gph	
	700 gpm	70 ml/min or 1.11 gph	
200 - 400 NTU	200 gpm	40 ml/min or 0.64 gph	0.53 mg/L
	300 gpm	60 ml/min or 0.96 gph	
	400 gpm	80 ml/min or 1.27 gph	
	500 gpm	100 ml/min or 1.6 gph	
	600 gpm	120 ml/min or 1.91 gph	
	700 gpm	140 ml/min or 2.23 gph	
400 - 600 NTU	200 gpm	80 ml/min or 1.27 gph	1.06 mg/L
	300 gpm	120 ml/min or 1.91 gph	
	400 gpm	160 ml/min or 2.54 gph	
	500 gpm	200 ml/min or 3.17 gph	
	600 gpm	240 ml/min or 3.81 gph	
	700 gpm	280 ml/min or 4.45 gph	

Checking formula:
chitosan concentration in mg/L = (ml/min Liqui-Floc x 0.01 x 1 g/ml x 1000 mg/g)/system flow rate in liters/min
liters/min = gpm x 3.78 liters/gal

Safety Margin Checklist

- Only Storm Klear Liqui-Floc™ containing 1 percent chitosan acetate shall be used.
- The metering pump shall be calibrated using a calibration cylinder at startup and every time that the Liqui-Floc dose rate needs changed. The calibration shall be recorded in the log. The stroke frequency shall be set as high as possible, and the stroke length adjusted to provide the correct dosing.

- The system flow rate and the turbidity of both influent and effluent shall be measured hourly and recorded in the log.
- No chitosan-treated water shall be discharged to surface water without first being sand-filtered.
- Secondary containment for the Liqui-Floc storage container and the metering pump shall be at least equal to the volume of the storage container.
- Spill adsorbent material shall be readily available to immobilize any spill of Liqui-Floc during handling.
- If the treatment system is located less than 50 feet from surface water, a 1-foot high earthen berm shall be constructed and maintained down-gradient as additional spill containment.
- Only discharges to streams are allowed at this time.
- The occasional use of the Residual Chitosan Field Screening Test to confirm a discharge concentration below 0.1 is encouraged in order to further build confidence in CESF system safety.

APPENDIX II

FLOC-CLEAR CHITOSAN ENHANCED SAND FILTRATION
(Clear Creek Systems, Inc.)

Maintenance of Safety Margin

Chitosan acetate can effectively treat storm water up to 600 NTU without using a concentration above 1.06 mg/L. 1.06 mg/L chitosan from FlocClear™ is below its toxic threshold of 2.5 mg/L in clear water. The chitosan concentration will decrease after dosing due to binding to solids and the sand filter. If the metering pump fails, the anti-siphon valve will prevent FlocClear™ from being siphoned into the system. If the metering pump is incorrectly calibrated and the storm water is overdosed, treated water will not coagulate well enough to be clarified and the turbidimeter will trigger the return of effluent to the detention structure instead of discharge.

The following dose rate table shall be used to ensure both treatment plant effectiveness and a chitosan concentration below 1.06 mg/L prior to sand filtration.

Influent Turbidity (NTU)	Influent Flow Rate (gpm)	FlocClear™ 2% Solution Dose Rate		chitosan (mg/L)	Influent Turbidity (NTU)	Influent Flow Rate (gpm)	FlocClear™ 2% Solution Dose Rate		chitosan (mg/L)
		ml/min	gph				ml/min	gph	
50 - 150	100	5	0.08	***0.265***	**150 - 300**	100	10	0.16	***0.529***
	200	10	0.16			200	20	0.32	
	300	15	0.24			300	30	0.48	
	400	20	0.32			400	40	0.63	
	500	25	0.40			500	50	0.79	
	600	30	0.48			600	60	0.95	
	700	35	0.56			700	70	1.11	
	800	40	0.64			800	80	1.27	
	900	45	0.72			900	90	1.43	
	1000	50	0.79			1000	100	1.59	
300 - 450	100	15	0.24	***0.794***	**450 - 600**	100	20	0.32	***1.058***
	200	30	0.48			200	40	0.63	
	300	45	0.71			300	60	0.95	
	400	60	0.95			400	80	1.27	
	500	75	1.19			500	100	1.59	
	600	90	1.43			600	120	1.90	
	700	105	1.67			700	140	2.22	
	800	120	1.91			800	160	2.54	
	900	135	2.14			900	180	2.86	
	1000	150	2.38			1000	200	3.17	

Checking formula:
chitosan concentration in mg/L = (ml/min FlocClear™ x 0.02 x 1 g/ml x 1000 mg/g)/system flow rate in liters/min
liters/min = gpm x 3.78 liters/gal

Safety Margin Checklist

- Only FlocClear™ containing 2 percent chitosan acetate shall be used and discharges shall only be to streams.
- No chitosan-treated water shall be discharged without first receiving sand-filtration.

- Secondary containment for the FlocClear™ tote and metering pump shall be at least equal to the tote volume.
- FlocClear™ shall be stored at least 50 feet away from all natural drainages, conveyances, and storm drain inlets or a 1-foot high earthen berm shall be constructed and maintained down-gradient as additional containment.
- Spill absorbent material shall be readily available to immobilize any spill during handling.
- The FlocClear™ metering pump shall be positive displacement and provided with an anti-siphon valve which shall be inspected and the inspection recorded at the beginning of each treatment shift.
- The metering pump shall be calibrated using a calibration cylinder at the beginning of each treatment shift and every time that the FlocClear™ dose rate changes. The calibration shall be recorded in the log. The stroke frequency shall be set as high as possible, and the stroke length/speed adjusted to provide correct dosing.
- Flow rate, turbidity, and pH of influent and effluent shall be recorded at startup and every 2 hours thereafter.
- Bench/jar testing shall be done at startup and when influent turbidity changes more than 50 NTU. If the results of the jar tests indicate that the dose needs to be adjusted, the jar testing results and the indicated dose rate change shall be documented in the daily operating log.
- The volume of chitosan in the tote shall be recorded at the beginning and end of the treatment period. The volume used shall be determined and compared to the volume of water treated to further validate dose rate.
- The Residual Chitosan Field Screening Test shall be used twice per day during CESF operation at 1 hour and 2 hours after startup to confirm a discharge concentration below 0.1. If any chitosan is detected in the discharge, the operator shall shut down the CESF until the malfunction has been found and fixed.
- All inspections, calibrations, tests, measurements, dose rate changes, and equipment adjustments shall be recorded in a daily operating log which must be kept available for at least the duration of the treatment project.

Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control Measures (Includes Spill Control Plan)

Former Maintenance and Fueling Facility

Skykomish, Washington

Prepared by:

The ENSR Corporation Inc (ENSR)
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162

ENSR Project Number: 01140-204-0260

Prepared for:

The BNSF Railway Company
2454 Occidental Street, Suite 1A
Seattle, Washington 98134

July 7, 2008

Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control Measures (Includes Spill Control Plan)

Former Maintenance and Fueling Facility
Skykomish, Washington

Prepared by:

ENSR
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162

ENSR Project Number: 01140-204-0260

Prepared for:

The BNSF Railway Company
2454 Occidental Street, Suite 1A
Seattle, Washington 98134

July 7, 2008

Table of Contents

Table of Contents

List of Figures

List of Appendices

Professional Certification

Stormwater Pollution Prevention Plan and Temporary Erosion and Sediment Control Measures 2008-2012 Skykomish Remediation Activities
Former Maintenance and Fueling Facility
Skykomish, Washington

01140-204-0260
July 7, 2008

This plan has been prepared by ENSR under the professional supervision of the person whose seal and signature appear hereon.

Halah M. Voges
Senior Program Manager
State of Washington Registered Professional Engineer #30352

Signatures (General Condition G.1)

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: B A Sheppard Date: July 8 2008

Printed Name: Bruce A Sheppard

Record of Amendments

Date	Change Number	Summary of Amendment	Amended By (initials)

Note: Permittee shall modify the SWPPP when there is a change in design, construction, operation, or maintenance of any BMP which causes the SWPPP to be less effective in controlling pollutants.

1 Introduction

1.1 Project Overview

This Stormwater Pollution Prevention Plan (SWPPP) and Temporary Erosion and Sediment Control Measures has been prepared for 2008-2012 remediation activities being conducted at the former BNSF Railway Company (BNSF) maintenance and fueling facility (site) located in the east King County town of Skykomish (town). The site is currently owned and operated by BNSF as a track maintenance base. The location of Skykomish and the site are shown on Figure 1. Historical activities conducted at the site since it opened in the late 1890s have included refueling and maintaining steam-driven locomotives and operating an electrical substation for diesel-electric locomotives. These activities have resulted in the release of contaminants to the surrounding environment. BNSF is currently completing remediation activities at the site to address impacts resulting from these releases, consistent with the Model Toxics Control Act (MTCA).

1.2 SWPPP Scope

This SWPPP addresses remediation activities and was prepared pursuant to the requirements in National Pollutant Discharge Elimination System (NPDES) Permit Number WA-003212-3 and in accordance with the *Stormwater Management Manual for Western Washington* (Washington State Department of Ecology, 2005). This SWPPP provides an overview of the measures that will be taken to ensure the protection of public waterways during the remediation activities described in the 2008 Engineering Design Report EDR. Updates to the SWPPP will be issued as needed to address the specific work that will be completed in that calendar year, as described in annual EDRs.

1.3 SWPPP Objectives

The objectives of this SWPPP are to:

- implement Best Management Practice (BMPs) to prevent erosion and sedimentation from construction activities;
- prevent exceedences of surface water quality criteria; and
- control peak volumetric flow rates and velocities of stormwater discharges.

2 Construction Activities

2.1 Project Description

This SWPPP covers remediation activities occurring in 2008, as described in the 2008 EDR. The activities covered by this SWPPP will take place in the Northwest Developed Zone (NWDZ), the Northeast Developed Zone (NEDZ), and the Railyard Zone (RYZ), all of which are shown in Figure 2. The remediation activities in these zones will consist of the following.

Railyard Zone

- Depot Relocation: The existing Railyard Depot Building will be temporarily relocated from the NWDZ to facilitate excavation and construction of the HCC system. Following completion of the HCC the depot will either be placed back in its original location or placed at another location acceptable to the Town and BNSF.

- Utility Crossing Construction: A new utility crossing of the mainline tracks will be constructed to provide a conduit for remediation systems – this second crossing will be used by the remediation systems and controls only and is not available for other utilities.

- Hydraulic Control and Containment (HCC) System: An HCC system consisting of a redundant groundwater barrier and a groundwater interception trench will be constructed near the north RYZ boundary with Railroad Avenue.

- HCC Water Treatment System: An HCC water treatment system will be constructed to treat groundwater recovered via the HCC system. A remediation utility corridor will be constructed in the RYZ. A conduit will be installed within the corridor underneath the railroad tracks in anticipation of installing conveyance piping for transferring HCC water to the treatment system and from the treatment system to permitted surface discharge points, injection wells, surface waters, and/or the Town stormwater system.

- HCC System Treated Groundwater Injection: Treated groundwater from the HCC system will be reintroduced into the railyard subsurface at appropriate locations and by appropriate means in order to flush petroleum contamination toward the HCC system.

- HCC Treated Groundwater Discharge: Treated groundwater from the HCC system may be 1) discharged to surface water; and/or 2) discharged to the Town storm water system consistent with applicable state and local substantive requirements and with applicable permits.

- Construction Water Treatment: A temporary system will be constructed in the RYZ to treat water generated from construction activities.

- Treated Construction Water Discharge: Treated construction water may be 1) discharged to surface water; and/or 2) discharged to the Town storm water system consistent with applicable state and local substantive requirements and with applicable permits.

- Air Sparging (AS) System Construction: An AS system, including sparging wells, underground piping, and blowers will be installed to treat impacted soil and groundwater in the NEDZ. Sparging wells and underground piping will be installed in the NEDZ. A mechanical building will be constructed in the RYZ to house AS system blowers and controls. AS system piping will be installed in trenches in the NEDZ and in the conduit installed in the remediation utility corridor to supply pressurized air from the blowers to the sparging wells.

- Remediation Equipment Building Construction: One or more mechanical building(s) will be constructed in the RYZ to house equipment and controls for the HCC, water treatment, and AS systems.

- Demolition of Operations Building: The existing Operations Building on the railyard may be demolished to allow construction of a new operations Building.

- New Operations Building Construction: A new Operations Building may be constructed on the railyard to replace the office space currently provided by the Depot.

- Groundwater Well Installation: Groundwater monitoring wells will be installed to support monitoring of the HCC system. Details will be provided in the HCC Special Design Report.

- Compliance Monitoring: The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the Compliance Monitoring Plan (CMP).

    - Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.

    - Performance monitoring to assess whether or not the cleanup action has attained the designated Cleanup Levels (CULs), RLs, and other performance standards.

- Municipal Wastewater Treatment System Construction: Infrastructure to connect to the community wastewater collection system will be constructed at the McEvoy house and the Whistling Post Tavern

properties if, as anticipated, access is granted to these properties. Similar infrastructure may also be constructed at the depot, depending on its final location.

- Right-of-Way (ROW) Restoration – ROWs that are excavated as part of remediation activities will be restored to meet current applicable King County standards as adopted by the Town, or as agreed by BNSF and the Town.

- Utilities Construction and Restoration – Electrical and telecommunications services may be reconfigured as necessary to maintain these services to residences and businesses that remain inhabitable/operational during remediation activities. New permanent electrical, communications, and potable water utilities that are removed as part of remediation activities will be restored in-kind, or redeveloped as agreed by BNSF, property owners and the Town.

- Soil Handling Facility Structure – A soil handling facility (SHF) structure could be constructed in the soil handling area in the RYZ.

NWDZ

- The following cleanup activities are planned for the NWDZ:

- Building Relocation: The McEvoy house and the Whistling Post Tavern will be temporarily relocated to facilitate excavation of impacted soil. Building relocation will be contingent upon obtaining access from the owners.

- Excavation: Free product and soil with concentrations of lead exceeding 250 mg/kg and arsenic exceeding 20 mg/kg, and all free product and/or soil with concentrations of petroleum hydrocarbons exceeding 3,400 mg/kg NWTPH-Dx. The proposed excavation extents have been determined based on investigation results. Actual extents could vary and will be verified based on field observations and performance monitoring.

- Containment Structures: Excavation of impacted soil may not occur under some buildings if access is denied or if temporary relocation of the building is not feasible. Containment structures will be constructed on adjacent excavated properties as necessary to prevent recontamination. Design of these containment structures will be addressed on a case-by-case basis in consultation with Ecology and affected property owners. Containment structure design for buildings to which BNSF is denied access by owners within the 2008 excavation area will be described in the 2009 EDR, however, at this time BNSF does not expect that any such containment structures will be required.

- Temporary Containment Structures: A temporary barrier wall will be installed at the north and west 2008 excavation limits to delineate the

limits of the excavation and prevent clean backfill from contacting LNAPL and impacted soils that will be remediated in subsequent years.

- Compliance Monitoring: The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the CMP.

- Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.

- Performance monitoring to assess whether or not the cleanup action has attained the designated CULs, RLs, and other performance standards.

- Municipal Wastewater Treatment System Construction: Infrastructure to connect to the community wastewater collection system will be constructed at the McEvoy house and the Whistling Post Tavern properties if, as anticipated, access is granted to these properties.

- Right-of-Way Restoration: ROWs that are excavated as part of remediation activities will be restored to meet current applicable King County standards as adopted by the Town, or as agreed by BNSF and the Town.

- Utilities Construction and Restoration: Electrical and telecommunications services will be reconfigured as necessary to maintain these services to residences and businesses that remain inhabitable/operational during remediation activities. New permanent electrical, communications, and potable water utilities that are removed as part of remediation activities will be restored in-kind, or constructed as agreed by BNSF and the Town.

- Vapor Mitigation: It is anticipated that vapor mitigation will not be required in the RYZ because no buildings or structures will remain in place or will be built over petroleum contamination exceeding 3,400 mg/kg NWTPH-Dx.

NEDZ

- The following cleanup activities are planned for the NEDZ:

- Excavation: Free product and soil with petroleum concentrations exceeding 30,000 mg/kg NWTPH-Dx, as identified during previous investigations, will be removed from the area shown on Construction Plans and Specs Drawing C-6 (not included). Shallow soils on the Johnson property and/or Church property will be sampled more extensively to determine the need for and extents of excavation to remove soil within 2 feet of the surface with concentrations of lead exceeding 250 mg/kg and/or arsenic exceeding 20 mg/kg. Soil

sampling and possible excavation will not require temporary relocation of buildings located on the Johnson and/or Church property.

- Air Sparging (AS) System Construction: An AS system will be installed and operated in the area where petroleum concentrations remain above 3,400 mg/kg NWTPH-Dx following excavation, as identified during previous investigations.

- Compliance Monitoring: The following compliance monitoring activities will be conducted during and after remediation activities. These activities will be described in the CMP.

  - Protection monitoring to confirm that human health and the environment are adequately protected during remediation activities.

  - Performance monitoring to assess whether or not the cleanup action has attained the designated CULs, RLs, and other performance standards.

- Vapor Mitigation: Protective measures will be designed and implemented for buildings, structures, and enclosed spaces that remain in place or are built over petroleum contamination exceeding 3,400 mg/kg NWTPH-Dx if the concentration of total petroleum hydrocarbons in indoor air exceeds the cleanup level of 1,346 µg/m3.

- Right-of-Way Restoration: ROWs that are excavated as part of remediation activities will be restored to meet current applicable King County standards as adopted by the Town, or as agreed by BNSF and the Town.

- Utilities Construction and Restoration – Electrical and telecommunications services may be reconfigured as necessary to maintain these services to residences and businesses that remain inhabitable/operational during remediation activities. New permanent electrical, communications, and potable water utilities that are removed as part of remediation activities will be restored in-kind, or constructed as agreed by BNSF and the Town.

2.2 Pre-Construction/Post-Construction Site Conditions

Remediation activities will include excavating and restoring the site to near pre-construction conditions. Excavation activities in the NEDZ, NWDZ, and RYZ will require disturbing impervious surfaces including roads, sidewalks, and buildings. Roads and sidewalks will be restored and buildings will be returned to their original properties (with the possible exception of the Depot) after excavation activities have been completed such that there are no significant net losses or gains to impervious or pervious surface area within each zone. Excavation activities within these zones will also require removal

of some catch basins and stormwater conveyance piping. New upgraded catch basins and/or conveyance piping will be installed to replace equipment that is removed. All new equipment will meet current King County municipal codes. Catch basins that are not removed, but that will be affected by each phase of construction, will be protected as outlined in Section 10 of this SWPPP. A treatment system will be implemented to treat water generated by excavation dewatering.

3 Monitoring Requirements (Condition S2)

BNSF will conduct monitoring as required by NPDES permit Condition S2. Monitoring requirements are described in the permit.

4 Reporting and Record Keeping Requirements (Condition S3)

The summary table provided below shows inspections, reports, and records required by the permit.

Report/Inspection Documentation	Reporting Frequency	Send to Ecology Y or N	Permit Condition
Flow measurement calibration	At least once a year and in conformance with manufacturer's requirements	N	S2.C
Discharge Monitoring Report	Monthly	Y	S3.A
Calibration/maintenance of continuous monitoring devices	As needed	N	S3.B
Recordings of continuous monitoring devices	Continuous	N	S3.B
Noncompliance Notification	Notify Ecology as soon as practicable, but within 24 hours by telephone in instances described in S3.E; a written report must be submitted within 5 days following the telephone notification	Y	S3.E
Noncompliance Notification	If noncompliance is not as described in S3.E, notify Ecology as soon as practicable, but within 24 hours by telephone, then include a report with the DMR	Y	S3.F
Essential Maintenance Bypass	Submit report 10 days prior to any treatment system bypass for essential maintenance without the potential to cause violation of permit limits or conditions	Y	S4.B.1
Anticipated Bypass	Submit report 30 days prior to any anticipated bypass that has the potential to result in noncompliance of Permit	Y	S4.B.3
Chitosan metering pump log	Daily	N	S2A
Treatment system flow rate and turbidity of influent/effluent	Daily	N	S2.A
Spill Plan updates	Update at least annually and submit to Ecology within 14 days of adoption	Y	S7
Oil/Water Separator inspection and maintenance	Weekly	N	S8.1
Disposal of oil sludges from oil/water separator	As needed	N	S8.1
Accidental Releases of oil, chemicals, toxic or hazardous materials to waters	Notify Ecology as soon as practicable, but within 24 hours by telephone, in addition a written report must be submitted within 5 days following the telephone notification	Y	S8.2
Outfall inspection	Daily	N	S8.6

Report/Inspection Documentation	Reporting Frequency	Send to Ecology Y or N	Permit Condition
SWPPP updates	Update as needed and record amendments, submit SWPPP at least annually to Ecology	Y	S9
Rain gauge	Daily	N	S9.A.8
Experimental BMP use request	Submit written request 30 days prior to the propose use of experimental BMP	Y	S9.A.11
BMP inspections, maintenance, and repairs	As needed	N	S9.B.1(c)
Erosion and sediment control measures inspection	Daily, when construction is occurring Within 24 hours after any storm event of greater than 0.25 inches of rain per 24-hour period	N	S9.B.1(c)

4.1 Reporting

The first monitoring period begins in the same month as the effective date of the permit. Monitoring data will be documented in the Discharge Monitoring Report (DMR) and submitted to Ecology no later than the 15th day of the month after the completed monitoring period month. If there is no discharge for the monitoring period, then a DMR stating that there was no discharge will be submitted. The DMRs will include laboratory reports of analyses conducted on stormwater samples collected to fulfill monitoring requirements.

Laboratory reports will include:

- Sample data
- Sample location
- Date of analysis
- Parameter name
- CAS number
- Analytical method/number
- Method detection limit (MDL)
- Laboratory practical quantitation limit (PQL)
- Reporting units
- Concentration detected
- Chain of custody
- QA/QC results
- Documentation of accreditation for the parameter.

4.2 Records Retention

Monitoring records will be kept for a minimum of three years, consistent with Permit requirement S3.B, Record Retention.

4.3 Recording of Results

For each sample or measurement taken, the following information will be recorded.

1) Date, exact place, method, and time of sampling or measurement
2) Name of person taking sample or measurement
3) Dates analyses were performed
4) Name of the person who performed the analyses
5) Analytical techniques or methods used
6) Results of all analyses

4.4 Notice of Noncompliance Reporting

Ecology will be notified of noncompliances (if any) by telephone at (425) 649-7000. As required by Condition S3.E, the call to Ecology will be made as soon as practicable, but within 24 hours from the time BNSF becomes aware of the following circumstances:

- Any noncompliance that may endanger health or the environment;
- Any unanticipated bypass that exceeds any effluent limitation in the permit (detailed in Condition S4.B);
- Any upset that exceeds any effluent limitation in the permit (detailed in G.16);
- Any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Condition S1.A; or
- Any overflow prior to the water treatment system, whether or not such an overflow endangers health or the environment or exceeds any effluent limitation in the permit.

In addition, a report must be written and submitted to Ecology within five (5) days of the time that BNSF becomes aware of the event that was reported to Ecology by telephone. The report must include:

- A description of the noncompliance and its cause;
- The period of noncompliance, including exact dates and times;
- The estimated time noncompliance is expected to continue if it has not been corrected;
- Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and
- If the noncompliance involves an overflow prior to the treatment system, an estimate of the quantity (in gallons) of untreated flow.

4.5 Maintaining a Copy of the Permit

A copy of the Permit will be kept at the ENSR field office and made available upon request to Department of Ecology inspectors.

5 Operations and Maintenance (Condition S4)

Operations and Maintenance will be addressed in the annual SWPPP updates, which will include information specific to each calendar year's remediation activities. Per the requirements in Condition S4, this document will include the Operations and Maintenance Manual, Bypass Procedures, and Duty to Mitigate.

6 Chitosan Dosage Rate and Operation (Condition S5)

Chitosan dosage rates, operations, and storage according to the Permit specifications in Condition S5. The chitosan dosage rates corresponding to a 2 percent solution are listed in the following table.

Dose Rate Table for Chitosan Solution (2 % Chitosan Acetate) Based on Flow and Turbidity

Turbidity	Stormwater Flow Rate	Chitosan Solution Dose Rate	Chitosan Concentration
50 - 200 NTU	200 gpm	20 ml/min or 0.32 gph	0.26 mg/L
"	300 gpm	30 ml/min or 0.48 gph	"
"	400 gpm	40 ml/min or 0.64 gph	"
"	500 gpm	50 ml/min or 0.8 gph	"
"	600 gpm	60 ml/min or 0.96 gph	"
"	700 gpm	70 ml/min or 1.11 gph	"
200 - 400 NTU	200 gpm	40 ml/min or 0.64 gph	0.53 mg/L
"	300 gpm	60 ml/min or 0.96 gph	"
"	400 gpm	80 ml/min or 1.27 gph	"
"	500 gpm	100 ml/min or 1.6 gph	"
"	600 gpm	120 ml/min or 1.91 gph	"
"	700 gpm	140 ml/min or 2.23 gph	"
400 - 600 NTU	200 gpm	80 ml/min or 1.27 gph	1.06 mg/L
"	300 gpm	120 ml/min or 1.91 gph	"
"	400 gpm	160 ml/min or 2.54 gph	"
"	500 gpm	200 ml/min or 3.17 gph	"
"	600 gpm	240 ml/min or 3.81 gph	"
"	700 gpm	280 ml/min or 4.45 gph	"

Checking Formula:
Chitosan concentration in mg/L = (ml/min chitosan solution x 0.01 x 1 g/mL x 1,000 mg/g)/system flow rate in liters/min
liters/min = gpm x 3.78 liters/gal

6.1 Chitosan Best Management Practices

Per the requirements of Condition S5, chitosan acetate and the associated equipment must meet the best management practices listed below.

1) The metering pump must be calibrated using a calibration cylinder at startup and each time the chitosan solution needs to be changed. The date and calibration will be recorded in the log. An example log is presented in Appendix B. In addition, the stroke frequency should be set as high as possible and the stroke length adjusted to provide for correct dosing.

2) The system flow rate and the turbidity of the influent and effluent will be mearsured at least hourly and recorded.

3) No chitosan-treated water will be discharged to surface water unless it has been sand filtered first and meets the chitosan acetate limit of 0.1 mg/L.

4) Secondary containment for the chitosan solution storage container and the metering pump must be at least equal to the volume of the storage container.

5) Spill absorbent material must be readily available to immobilze any spill of chitosan solution during handling.

The logbook will be available for inspectors as necessary.

7 Solid Waste Control Plan (Condition S6)

7.1 Introduction

The Solid Waste Control Plan includes descriptions, sources, and disposal methods of the solid wastes that will be generated during 2008 remediation activities taking place in Skykomish, Washington. Generation rates will be included in the annual SWPPP updates. Solid waste generated by BNSF Railway Company in Skykomish that will result in operation of the water treatment system and discharge to the South Fork of the Skykomish River will be addressed by plan revision. Additionally, an update of this solid waste control plan will be submitted with the application for NPDES permit renewal one hundred eighty (180) days prior to the expiration date of the permit. This plan includes all solid wastes with the exception of those solid wastes regulated by Washington Administrative Code (WAC) 173-303 (Dangerous Waste Regulations).

7.2 Solid Waste

Solid wastes that will be generated during the 2008 activities, their sources, and disposal methods are listed in the table below. This table will be revised in upcoming SWPPPs to include quantities generated.

Waste Stream	Source	Disposal Methods
Excavated soils	Excavation of upland soils	Material will be taken to a Subtitle D disposal facility
Granular activated carbon	Water treatment system	Material will be taken to a Subtitle D disposal facility
Sand from sand filters	Water treatment system	Material will be taken to a Subtitle D disposal facility
Construction debris including building foundations, well casings, well tubing	Excavation in residential areas, well decommissioning	Impacted material will be taken to a Subtitle D disposal facility, un-impacted material to a construction debris facility
Personal protective equipment- including Tyvek suits, chemical-resistant gloves,	Worker protection	Impacted material will be taken to a Subtitle D disposal facility, un-impacted material to a permitted solid waste facility
Sampling equipment- including resealable bags	Soil, sediment, and water sampling	Impacted material will be taken to a Subtitle D disposal facility, un-impacted material to a permitted solid waste facility
HDPE and PVC liners	stockpile area liner	Impacted material will be taken to a Subtitle D

Waste Stream	Source	Disposal Methods
		disposal facility, un-impacted material to a permitted solid waste facility
Polyethylene sheeting	Stockpile covers, dust control	Impacted material will be taken to a Subtitle D disposal facility, un-impacted material to a permitted solid waste facility
Asphalt	Current and temporary road demolition	Asphalt recycling
Silt fencing, orange safety fence, catch basin socks	Temporary Erosion and Sediment Control Measures	Impacted material will be taken to a Subtitle D disposal facility, un-impacted material to a permitted solid waste facility
Non-aqueous Phase Liquid (NAPL)	Product recovery operations	Recovered NAPL will be properly contained and taken to an off-site permitted disposal or recycling facility
Septic Tank and Septage	Septic tank abandonment	Septage will be removed by a county approved pumper and will be treated in accordance with applicable regulations, empty tanks will be taken to a Subtitle D disposal facility

8 Operational Best Management Practices (BMPs) (Condition S8)

Operational Best Management Practices (BMPs) will meet the requirements in Condition S8, which are as follows.

1) Oil/water separators will be inspected weekly and maintained as needed. Records of inspections will be recorded on the form in Appendix B and kept on site. Oil sludges will be disposed of at a permitted disposal facility. Records of inspection, maintenance, and disposal will be kept onsite.

2) In the event of an accidental release of oil, chemical, toxic, or hazardous materials into the waters of the state or onto land with a potential for entry into state waters, including groundwater, BNSF will notify the Northwest Regional Office Spill Response Team, as soon as practicable, but within 24 hours at (425) 649-7000. In addition, a written report will be submitted to Ecology's Water Quality Program within five days of the time BNSF becomes aware of the circumstances of the release, unless Ecology waives or extends this requirement.

3) Sludges, scales, and sediments collected from tanks will be disposed of properly in a manner that does not violate federal, state, or local statues, ordinances or regulations.

4) All barrels, drums, or similar containers containing toxic or deleterious materials, which may include petroleum products, organic solvents, strong acids and bases will be stored in an upright position, in a bermed, covered area sufficient to prevent discharge into state ground or surface waters in the event of leakage or rupture.

5) Empty barrels will be stored with all openings plugged, in an upright position, and at least 20 feet from storm drains.

6) A daily outfall inspection will be conducted when the water treatment system is discharging to the stormwater sewer system.

7) Chitosan (if used) will be controlled according to manufacturer instructions, as well as the requirements in Condition S5.

9 General Requirements (Condition S9.A)

9.1 Project Contacts

Project contact information is provided below. This information will be reviewed on an annual basis and will be revised, as needed, in the annual updates to the SWPPP. BNSF and Ecology contacts will remain the same.

Title	Name	Telephone Number
BNSF Railway Company Duly Authorized Representative	Bruce Sheppard	Office: (206) 625-6035 Cell: (206) 790-0696
ENSR Project Engineer (24 hr contact)	Mike Byers	Cell: (206) 660-9945 Office: (206) 624-9349
Ecology Site Manager	Brian Sato	Office: (425) 649-7265

9.2 SWPPP Implementation, Review, and Modifications

This SWPPP will be kept on site at the ENSR field office and updated as needed to convey changes in construction activities, pollution sources, pollutant types/quantities, and personnel. Amendments will be made as necessary and documented on the Record of Amendments page. The SWPPP will be modified if site observations and practices reveal that the description of pollutant sources or BMPs identified in the SWPPP are inadequate.

Updates to the SWPPP will be submitted to Ecology annually.

Copies of this SWPPP, inspection reports, and other required reports, will be retained by ENSR for three years after the date of final stabilization of the site and will be available upon request.

9.3 Rain Gauge

BNSF will obtain and record rainfall data daily during active construction.

10 Erosion and Sediment Control Plan (Condition S9.B.1)

This section presents general methods and Best Management Practices (BMPs) for soil erosion and sediment control. These BMPs are referenced in the text below by the numbers assigned in the *Stormwater Management Manual for Western Washington.* The purpose of these general methods and BMPs is to control erosion of soil by wind and water and to minimize the migration of soil and sediments due to construction operations. These control measures and BMPs will be implemented by the construction contractor in all construction-affected areas.

10.1 General Methods

In general, methods used to control soil erosion and sediment migration may include, but may not be limited to, the following.

- Slope stabilization
- Construction sequencing
- Control of vehicular traffic
- Interception of stormwater runoff and delivery to a stable area
- Sediment filtration
- Control of soil loss from driveway entrances and exits, streams, natural and man-made drainage ways, and large cleared areas subject to wind and water erosion
- Limiting disturbed areas of soils
- Temporary stabilization of disturbed areas
- Dust suppression

Control features may include, but are not limited to, silt fences, berms, temporary drainage facilities, vegetative cover and dust monitoring and control as needed. Control features will be maintained in a functional condition and adjusted as necessary for the duration of the construction activities to ensure that applicable standards are met.

10.2 Stabilization Practices

Stabilization practices may include, but are not limited to, the following BMPs to meet the requirements outlined in Condition S9.B.1(a) of NPDES permit WA-003212-3.

10.2.1 BMP C162 Scheduling

Scheduling phases of a large construction project reduces the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking. Staging excavation activities will limit the volume of stockpiled impacted soil at any given time, and limit the volume of any open excavations which may collect water. Staging construction equipment will limit the areas where equipment will be driven. Development of a construction equipment roadway (asphalt or equivalent) on site will limit erosion of soil caused by traffic. Rainy periods will be avoided to the extent allowed by the other scheduling constraints. Additionally, backfilling and grading will be completed as soon as possible following the completion of the excavation.

Each annual SWPPP update will include a description of stabilization BMPs, including site-specific scheduling of the implementation of the practices. A record of the dates when major grading activities occur, or when construction activities temporarily or permanently cease, and when stabilization measures are initiated will be included in the plan.

10.2.2 Seasonal Work Limitations

From October 1 through April 30, no soils will remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils will remain exposed and unworked for more than 7 days. This condition applies to all soils on site. These time limits may be adjusted by the local permitting authority if it can be shown that the average time between storm events justifies a different standard.

Soils shall be stabilized prior to a holiday or weekend based on local weather forecasts. Stabilizing soils includes but is not limited to covering with plastic.

10.2.3 Preserve Vegetation/Mark Clearing Limits

Prior to the start of construction each year, the following controls will be put in place.

- Installation of high visibility plastic or metal fencing to mark the clearing limits of the construction and establish construction access

- Vegetation, including trees, shrubs, and grass that are removed from private residential and commercial properties will be replaced in-kind or with other vegetation as agreed by BNSF and the individual property owners.

10.2.4 BMP C103 High Visibility Plastic or Metal Fencing

High visibility fencing will be installed around all excavation areas and work zones to mark the limits for clearing and grubbing, the limits of the work area and staging/stockpile areas and to control construction access. Fence locations will be detailed in the annual SWPPP updates. Fences shall be at least 3 feet tall and highly visible. Fence layout and installation will be completed according to manufacturer's specifications.

10.2.5 BMP C101 Preserving Natural Vegetation

Preserving natural vegetation is the single most effective method for reducing erosion. Rain falling on trees can be taken up by the tree or evaporates, preventing the water from reaching the ground. Vegetation within the project area will be removed, as necessary. After excavation backfilling and topsoiling (see Section 10.2.6), removed vegetation will be replaced in-kind or with other vegetation as agreed by BNSF and the individual property owners.

10.2.6 BMP C125 Topsoiling

Topsoiling provides a suitable growth medium for final site stabilization with vegetation. Yards and other areas disturbed by the construction will be replaced and a layer of topsoil will be placed in the yards as well.

10.2.7 BMP C120 Temporary and Permanent Seeding

Permanent seeding is intended to reduce erosion by stabilizing exposed soil when land disturbing activities are complete in an area. Temporary seeding may be put in place following the completion of construction when it is expected that additional land disturbing activities will be required in an area at a later time. If seeding occurs between October 1 and March 30 a mulch or plastic cover will be used until the grass cover is established. The seedbed will be firm and rough.

10.2.8 BMP C220 Protect Drain Inlets

Storm drain inlet protection (BMP C220) will be installed to protect those catch basins that are not being removed and the new catch basins as they are installed if the grading is not yet complete. Inserts or socks designed to retain oil and sediment will be placed in the existing catch basins during site preparation. Regular inspections will be made of the catch basins, particularly following heavy rain, and maintenance will be conducted as needed, such as removal of oil and sediment or sock replacement. Socks will be replaced once they are one-third full or per the manufacturer's directions.

10.2.9 BMP C123 Plastic Covering

Plastic covering will be used to protect stockpiles of soil and other granular material on the site. Per the permit, discharges of industrial stormwater and dewatering water including stormwater runoff from uncovered or exposed

sand, gravel and soil stockpiles, leachate from stockpiles of contaminated soils, and any water resulting from soil remediation activities, to waters of the state, are prohibited. Stockpile leachate and stormwater that comes into contact with contaminated soil in the stockpile area will be collected in one or more sumps. This water will be removed from the sumps by vacuum truck and transferred offsite for disposal.

Stockpile bottom liners will be used for contaminated material stockpiles constructed in areas where the underlying material will not be removed during 2007-2012 remediation activities. Liner material will be a minimum of 40 mil and will consist of HDPE that is resistant to weathering and degradation due to contact with impacted materials for the duration of the work. Plastic sheeting used as a cover will have a minimum thickness of 6 mils. Sand bags or other ballast will be placed to hold the stockpile cover in position.

10.2.10 BMP C140 Dust Control

Dust control prevents wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters. Activities which create large amounts of dust will use dust control techniques to limit transport of airborne pollutants. However, water or slurry used to control dust will be filtered to prevent sediment from entering the water courses or stormwater conveyance systems. Using untreated water for dust control is prohibited.

Blowing dust will be controlled by using the following methods:

1) Irrigation by water sprinkling. Water will be sprinkled on the site until the surface is wet and repeated as needed.

2) Operation of a mechanical street sweeper at least once a day when hauling activities occur.

3) Covering and lining of haul trucks carrying soil from the excavation area to the stockpile area if needed.

Dust control methods will be implemented immediately whenever dust can be observed blowing on the project site and/or particulate monitoring results exceed limits specified in the annual *2008 Skykomish Air & Noise Monitoring Plan*.

10.2.11 Establish Construction Access

Construction access will be established using fencing. Access roadways will be stabilized to reduce the tracking of sediments onto public right-of-ways. Construction access plans will be detailed in annual SWPPP updates.

10.2.12 BMP C106 Wheel Wash/Decontamination Pad

When necessary, equipment and machinery will be decontaminated at a designated wheel wash/decontamination area prior to exiting the construction

area. The wheel wash/decontamination area will include in a temporary lined basin to hold used wash water. The collected washwater will evaporate, and/or be pumped to an on-site water storage unit, potentially reused, and then taken to a licensed facility for treatment or disposal.

10.2.13 Street Cleaning

Streets will be kept clean of construction debris and mud carried by construction vehicles and equipment. In lieu of stabilized construction exits, the pavement will be shoveled or swept to the extent necessary to keep the street clean. Shoveled or swept debris will be collected and disposed of appropriately. Washing and/or moving debris and mud off of the street into adjacent areas is not allowed.

10.3 Structural Practices

Structural BMPs divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. The following structural BMPs will be implemented to limit runoff from exposed areas, where necessary,

10.3.1 BMP C233 Silt Fences

Silt fences will be installed and maintained in order to reduce the transport of coarse sediment from the construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow. Silt fences will have a minimum height of 24 inches and a maximum height of 30 inches above the ground surfaces. The geotextile fabric at the bottom of the fences will be buried in a trench to a minimum depth of 4 inches below the ground surface. When joints in the silt fences are necessary, the adjoining sections will overlap a minimum of 6 inches and seal securely.

Only wood, steel, or equivalent fence posts approved by the Engineer shall be used. Posts shall be spaced no more than 6 feet apart, unless prohibited by existing structures. Posts should be driven a minimum of 12 inches or adequately secured by bracing or guying to prevent overturning of the fence due to sediment loading.

Soil and debris that accumulates on silt fences and/or straw bale dikes will be removed when it becomes approximately 6 inches thick. Soil and debris will be disposed at the designated spoil site for the project and/or spread evenly throughout the site, compacted and stabilized. Soil and debris will not be allowed to flush into any drainage way. If soil and/or debris have been contaminated, they will be disposed of in accordance with existing federal, state, and local rules and regulations.

If any signs of damage or ultraviolet breakdown of the silt fence is observed, the silt fence fabric will be repaired or replaced immediately.

10.3.2 BMP C250 Construction Stormwater Chemical Treatment

Water that collects in open excavations will be removed from the excavation as necessary for construction, and will be sent to the NPDES-permitted water treatment system for treatment prior to discharge to the South Fork Skykomish River.

10.3.3 Control Flow Rates

During construction, flow rates will be controlled by allowing sheet flow into the excavation and restricting flow off-site. Properties and waterways downstream from the site will be protected from erosion due to increases in the velocity and peak volumetric flow rate of stormwater runoff because during construction activities there will be less impervious area, increasing the amount of stormwater infiltrating at the site.

Post-construction site conditions are expected to closely resemble pre-construction conditions and any increase in the velocity or peak volumetric flow rate of stormwater runoff is expected to be managed by a replacement stormwater system. Any changes to the hydrologic character of the site due to an increase in impervious area from the widening of roads, the construction of sidewalks or any other change will be analyzed in each annual update to the SWPPP.

10.3.4 Control De-watering

De-watering activities will be completed on an as-needed basis. Water that is removed from the excavation will be treated using the NPDES permitted water treatment facility as outlined above.

10.3.5 Discharge to Natural Location

Pre-construction drainage patterns will remain the same to the maximum extent practicable.

10.4 Inspections and Maintenance

The prime contractor selected for this phase of the remediation will be responsible for the following inspections.

- Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, erosion and/or runoff.

- Erosion and sediment control measures identified in this SWPPP will be observed to ensure that they are operating correctly.

- Locations where vehicles enter or exit the construction area will be inspected for evidence of off-site sediment tracking.

- Silt fences will be inspected within 24 hours after a storm event of 0.25 inch or more, daily during periods of prolonged rainfall, and at a minimum of once per week. Repair or replacement of damaged sections will be completed immediately and sediment deposits will be removed when silt reaches a depth of approximately 6 inches.

During active construction, the above inspections will be conducted by the responsible person at least once every seven calendar-days and within 24 hours after a storm of 0.25 inch of precipitation or greater. During inactive construction (after environmental remediation, but prior to site restoration), the area will be inspected only within 24 hours after a storm of 0.5 inch of precipitation or greater.

Deficiencies identified during the inspection will be corrected before the next rainfall event whenever practicable.

Inspection logs summarizing the scope of the inspection, major observations and actions taken in accordance with the inspection duties listed above, will be completed and retained as part of the SWPPP for at least 3 years from the date that construction is complete.

All temporary and permanent erosion and sediment control BMPs will be maintained and repaired as needed to assure continued performance of their intended function. Temporary erosion and sediment control BMPs will be removed within 30 days after final site stabilization is achieved. The *Levee Planting Plan and Monitoring Program* (Grette, 2006) outlines maintenance requirements for the vegetation planted along the levee.

10.4.1BMP C160 Certified Erosion and Sediment Control Lead

Upon commencement of each phase of soil disturbing activities during 2008 remediation, a certified erosion and sediment control lead (CESCL) will be on site if one acre or more that discharges stormwater to surface waters of the state will be disturbed. The CESCL will be certified through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology, and will be appointed by the contractor.

The CESCL has the authority to act on the behalf of the contractor and must be available 24 hours per day throughout the project. The CESCL is responsible for updating drawings, identifying points of stormwater runoff from the project site, identifying the location where sheet flow collects, and implementing BMPs requirements and associated activities.

Additionally, the CESCL will maintain a permit file that includes the SWPPP and Erosion and Sediment Control Plan included as Section 10.0 of this SWPPP.

11 Control of Pollutants Other than Sediment on Construction Sites (Condition S9.B.2)

All onsite pollutants will be handled and properly disposed. In addition, the following Spill Prevention and Emergency Cleanup Plan (Spill Plan) will be followed to address pollutants other than sediment.

11.1 Spill Prevention and Emergency Cleanup Plan

This section satisfies Conditions S7 and S9.B.2 and outlines the important practices, procedures, and BMPs for spill prevention, containment, and control at the site. The objective of this plan is to prevent materials from entering the waters of the state.

11.1.1 Facility Information

The site is a former railway maintenance and fueling facility owned by BNSF and is located in Skykomish, Washington. This SWPPP, and subsequently this Spill Plan, are specifically for construction and remediation activities described in detail in Section 2 of this SWPPP.

11.1.2 Inventory for Pollution Prevention Plan

Dangerous and/or hazardous substances expected to be stored and used onsite during remediation include petroleum-based fuels and lubricants, chitosan acetate solution, lime, sand filter media (glass), carbon, de-emulsifiers, and other water treatment plant products. These substances will be present in small quantities only. MSDS sheets will be maintained, as required, with the operational site records. Procedures for the storage and handling of these substances will prevent contamination of storm or ground water. Any other materials stored on site will be managed in the same manner.

11.1.3 Control Pollutants

Pollutants will be controlled by inspecting equipment, managing waste, implementing good housekeeping practices, and properly storing materials on-site. Additionally, all chemicals will be stored under cover in a centralized impervious containment area. Any spills and waste in this area will be collected and disposed of properly.

11.1.4 Equipment Inspection

Prior to use on site, all equipment and machinery will be inspected for leaks and tested to ensure proper operational conditions are met. While on site, equipment will be parked, serviced and fueled within designated areas, as

detailed in the annual SWPPP updates. Equipment and vehicles will be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and construction areas. Damage caused by construction traffic to erosion and sediment control systems will be repaired immediately by the Contractor.

Periodic inspections of equipment and control procedures will be implemented. All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

11.1.5 Equipment Fueling

Selected equipment may be fueled in place using fuel trucks. Where needed, equipment will be brought to the edge of the exclusion zone and serviced there, or decontaminated and removed from the exclusion zone when major equipment repairs are needed.

11.1.6 Waste Disposal

The Contractor will be responsible for collecting, storing, hauling, and disposing of excavation spoils and waste materials in compliance with applicable federal, state, and local rules and regulations. Areas will be provided with adequate waste disposal receptacles for liquid as well as solid waste.

11.1.7 Sanitary Waste

The contractor will provide portable lavatory units. Sanitary waste will be regularly collected by a licensed sanitary waste management contractor and disposed of in an approved manner.

11.1.8 Good Housekeeping

The good housekeeping practices listed below will be followed on site during construction:

- An effort will be made to store only enough product required for task completion
- All materials stored on site will be stored in a neat and orderly manner in appropriate containers and, where possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used before disposing of the container

- Manufacturer's recommendations for proper use and disposal will be followed

- The Contractor superintendent will inspect the area daily to ensure proper use and disposal of materials.

11.1.9 Hazardous Materials

These practices will be used to reduce the risks associated with hazardous materials, if hazardous materials are used:

- Products will be kept in original containers unless they are not re-sealable.

- Original labels and material safety data sheets will be retained.

If surplus product must be disposed of, disposal will be in accordance with applicable regulations and procedures.

11.1.10 Spill Prevention and Countermeasures

In addition to the good housekeeping and material management practices, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be trained in the procedures and the location of the information and cleanup supplies.

- Materials and equipment necessary for spill cleanup (Spill Kit) will be kept in an onsite material storage area. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, and plastic absorbent materials and metal trash containers specifically for this purpose.

- All spills will be cleaned up immediately after discovery.

- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, in accordance with appropriate regulations.

The contractor will be responsible for designating a superintendent responsible for the day-to-day operations. This superintendent will also be the spill prevention and cleanup coordinator. She/he will designate at least three other personnel (Spill Team) who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer.

The construction contractor will report all spills immediately to the ENSR representative on site/on-call. Additionally, the contractor will be responsible for calling 911 if deemed appropriate.

11.1.11 Spill Notification Procedures

Should a spill occur, the contractor's designated spill prevention and cleanup coordinator as well as other spill prevention and cleanup team personnel should be notified.

Immediately Upon Detection of a Spill

Measures to be taken immediately upon detection of a spill:

1. Stop the Product Flow – Take immediate action (secure pumps, close valves, etc.) to stop the release at the source.

2. Warn Other Personnel – Enforce safety and security measures.

3. Shut Off Ignition Sources – All electrical circuits or motors, etc.

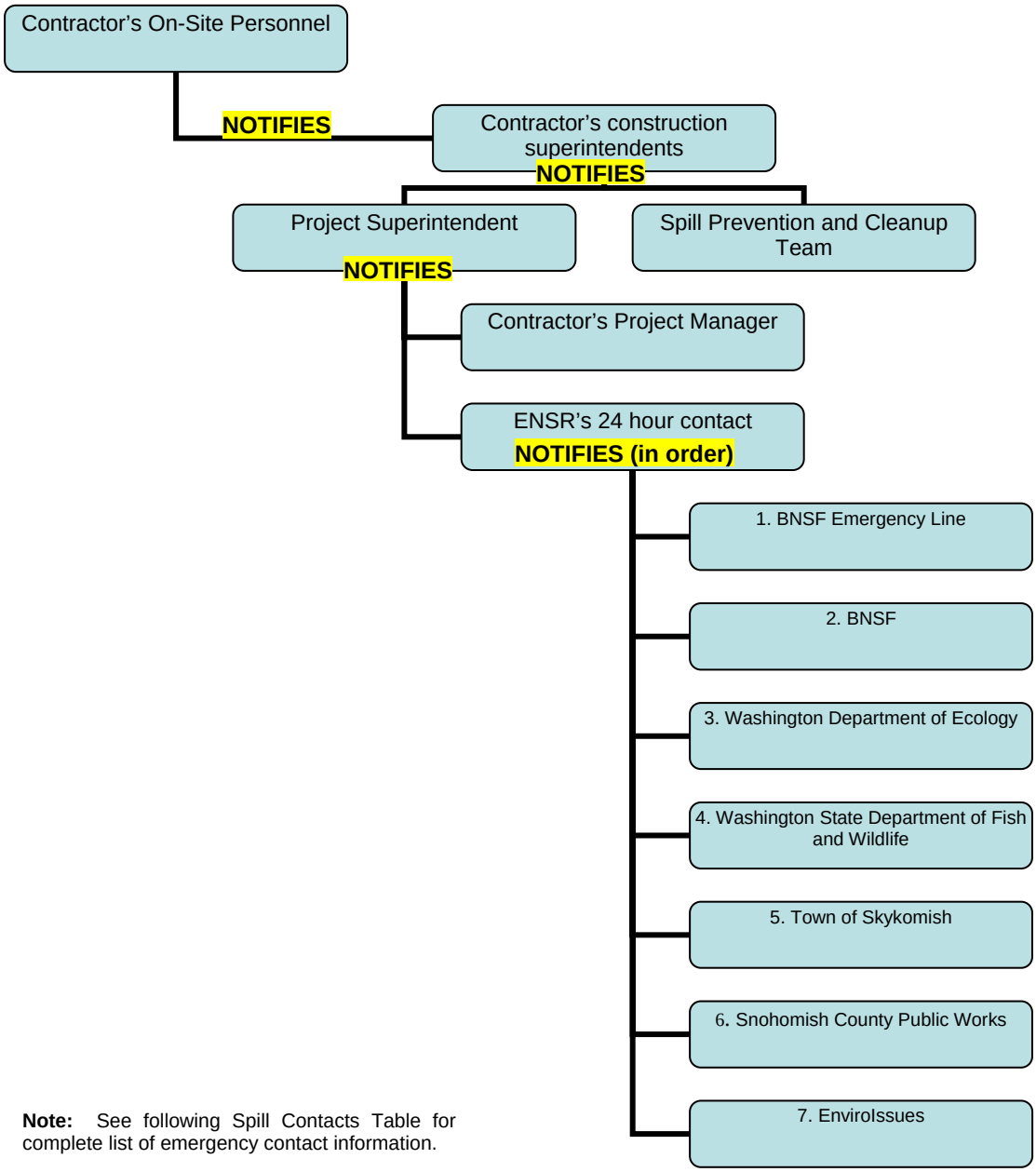
4. Initiate Containment – At storm drains and/or near the source.

5. Contact the contractor's construction superintendent

6. Notify ENSR's on site/on-call personnel

ENSR's on site/on-call personnel will be responsible for notifying Ecology and the appropriate project managers and legal authorities. Ecology must be notified immediately, by telephone at (425) 649-7000, if a spill reaches sanitary or storm sewers, ground water, or surface water.

Operational Chain of Command



Note: See following Spill Contacts Table for complete list of emergency contact information.

Spill Contacts

Organization	Name	Contact Information
ENSR's 24hr Contact	Mike Byers	Cell: (206) 660-9945 Office (206) 624-9349
BNSF Emergency Response		(800) 832-5452
BNSF Railway Company	Bruce Sheppard	Office: (206) 625-6035 Cell: (206) 790-0696
Ecology	Brian Sato	Office: (425) 649-7265
Ecology – if spill reaches storm sewers, ground water, or surface water.		(425) 649-7000
Washington Department of Fish and Wildlife – if spill reaches Skykomish River (Agreed Order, Exhibit H.1)		(360) 534-8233
Town of Skykomish	Charlotte Mackner	Office: (360) 677-2388
Snohomish County Public Works	Candice Soine	Office: (425) 388-3488 Ext. 4259 E-mail: Candice.soine@co.snohomish.was.us Address: 2930 Wetmore, 4th Floor Everett, WA 98201
EnviroIssues	Hillary Johnson	Office: (206) 269-5041 Pager: 1-800-228-1849

11.1.12 BMP C153 Material Delivery, Storage and Containment

Material delivery, storage, and containment will be managed to prevent discharge of pollutants to the stormwater system by minimizing the types and volumes of hazardous materials stored on site, placing materials in secondary containment if needed, and maintaining a spill kit in the material storage area.

Additional storage requirements include the following.

- All materials will be stored in a way as to prevent spills due to overfilling, tipping, or rupture.

- All liquid products and wastes will be stored on durable impervious surfaces and within bermed containment capable of containing 110% of the largest single container in the storage area. In addition, reasonable steps will be taken to prevent releases of liquid products from malicious tampering or vandalism.

- During the wet weather season (approximately Oct 1 – April 30), all waste will be stored under cover. The waste storage areas, whether for waste oil or hazardous waste, will be clearly designated as such and kept separate from the new product storage area.

- A spill kit will be kept in close proximity to waste storage areas to allow for quick clean-up response.

11.1.13 Employee Training

On-site workers will receive SWPPP training. Operators and workers will be made aware of the structural and operational BMPs that are in place to prevent pollution to stormwater, where the structural BMPs are located, and how the BMPs function to prevent stormwater pollution.

Topics such as good housekeeping, pollutant control, and the spill plan will be discussed in their training.

11.1.14 Recordkeeping

Records of inspections and spills will be kept for three (3) years.

11.1.15 Plan Updates

The Spill Plan will be reviewed and updated annually.

Interim changes made to this plan will be sent to Ecology within 14 days of adoption. Interim updates to the Spill Plan may include changes to the following.

- The reporting system used to alert relevant personnel and agencies in the event of a spill

- Preventative measures and facilities that prevent, contain, or treat spills. An overall facility plot illustrating drainage patterns will be included in this section

- A list of all oil and chemicals used, processed, or stored at the facility that could be spilled into state waters.

12 Coordination with Local Requirements (Condition S9.B.4)

BNSF will comply with any more stringent requirements of local governments.

13 References

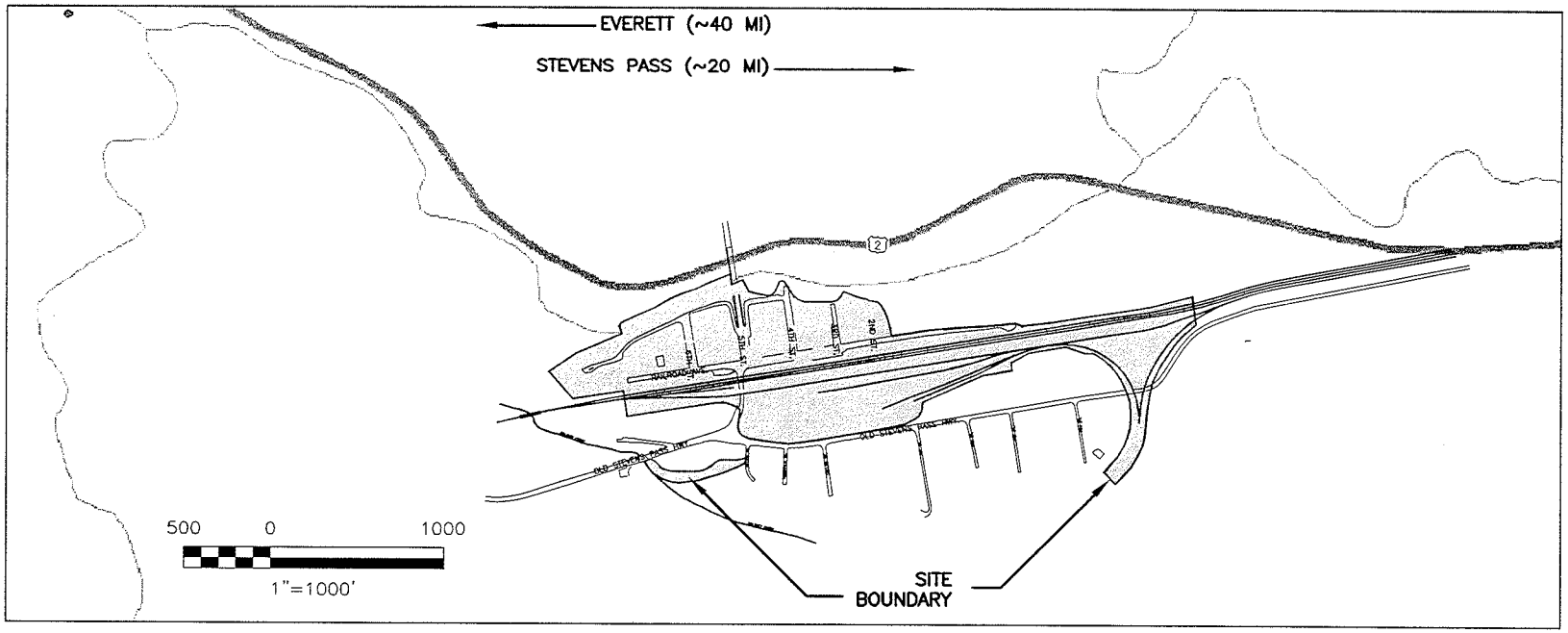
Argus Pacific, 2008. *BNSF Skykomish Air & Noise Monitoring Plan*. Prepared for ENSR on behalf of BNSF Railway Company. Seattle. May 31.

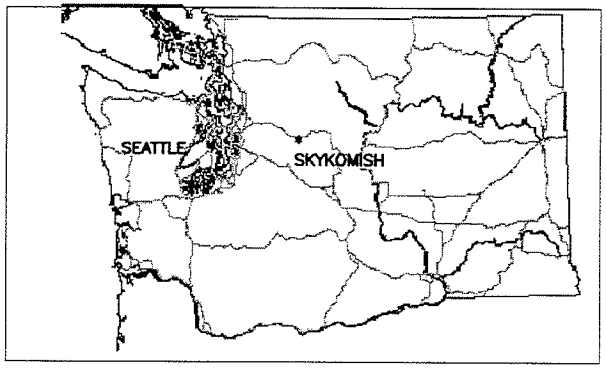
ENSR, 2006. National Pollutant Discharge Elimination System. Waste Discharge Permit WA-003212-3. Prepared for BNSF Railway Company. Seattle. May 4. Modification #2, June 30, 2008.

Washington State Department of Ecology – Water Quality Program, 2005. *Stormwater Management Manual for Western Washington*. February.

Figures

File: H:\16423\ECOLOGY\6-4-07\FIG_1-SITE_LOCATION.dwg Layout: FIG 1 User: emarshall Plotted: Jun 04, 2007 - 4:28pm Xref's:



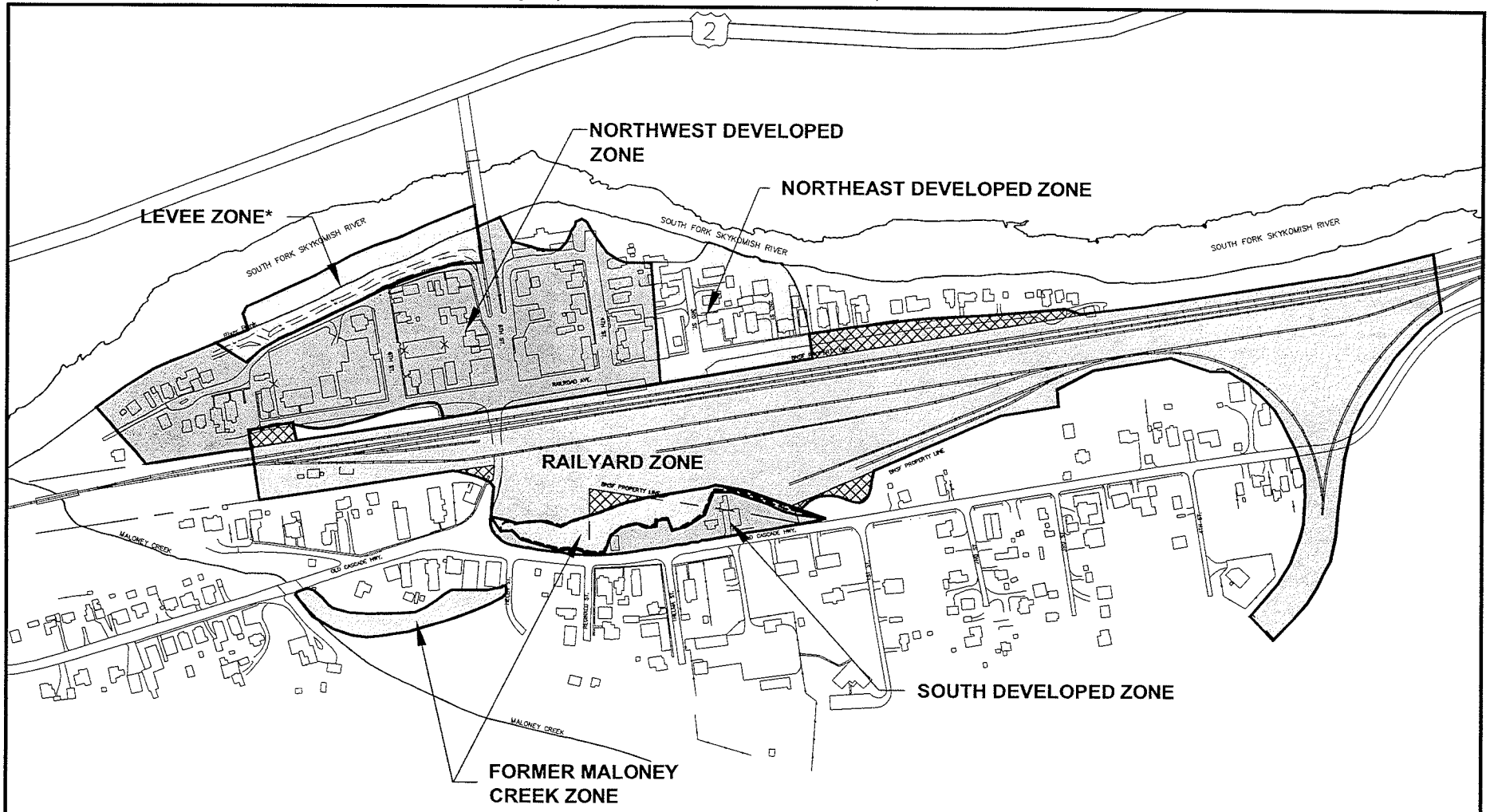


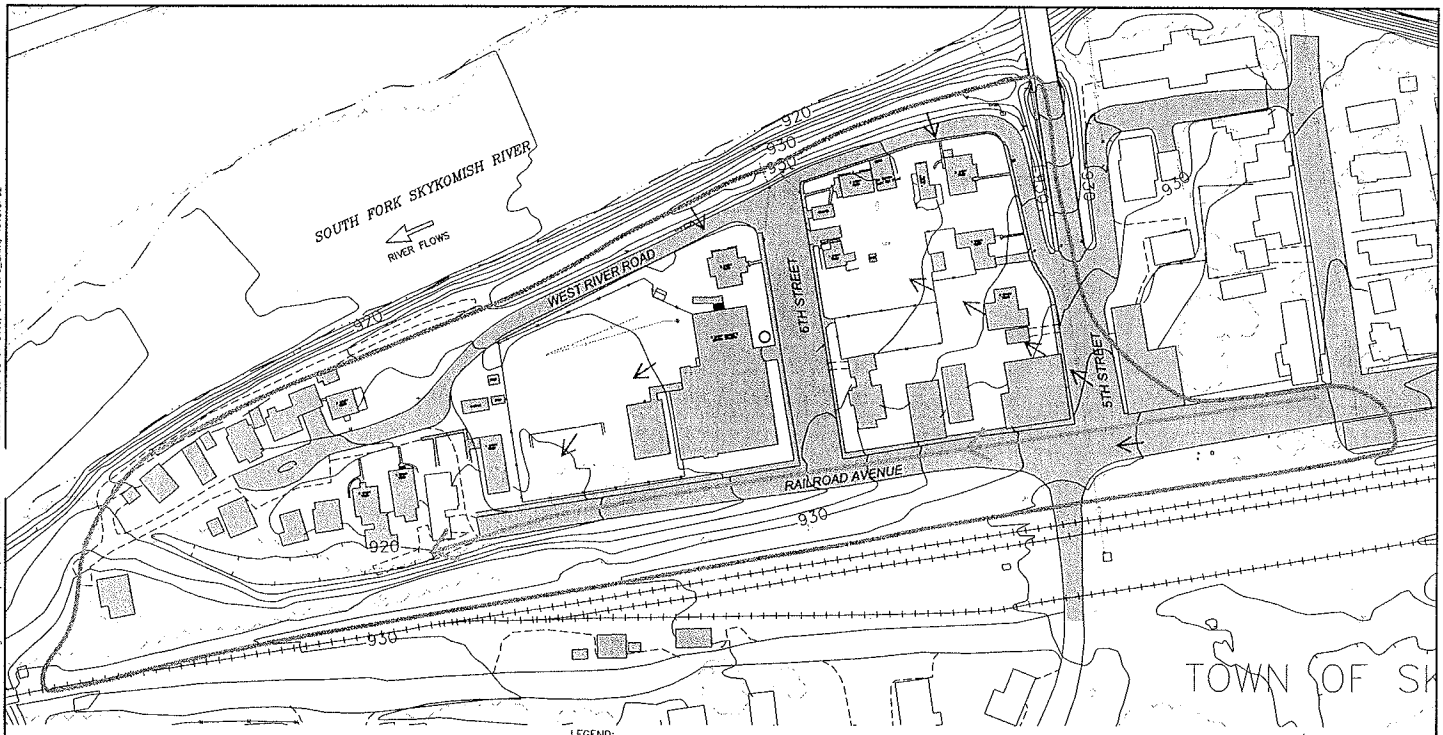
WASHINGTON STATE DEPARTMENT OF ECOLOGY

N

BNSF RAILWAY SITE SKYKOMISH, WA			SITE LOCATION MAP
DATE: 6/5/07	DRWN:		FIGURE 1

File: P:\CAUU\BNSF-Skykomish\ECOLOGY\10-11-07\FIG_5-SITE_ZONES.dwg Layout: FIG 5 User: emarsnall Plotted: Oct 16, 2007 - 10:07am Xref's:





RETEC

THE BNSF RAILWAY COMPANY SKYKOMISH, WASHINGTON BN050-16423-521	DRAINAGE MAP
DATE: 04/25/06 DRWN: A.S./SEA	FIGURE 1

Appendix A

Summary of Existing Conditions

Summary of Existing Conditions

This section describes the existing site conditions, including topography, runoff, soils, ground cover, critical areas, and sensitive areas such as wetlands or vegetated buffers. Figure 1 shows site topography and location of the site.

For the purposes of this SWPPP, the site is considered to be the areas shown in Figure 2 previously described as the NEDZ, NWDZ, BZ, FMCZ, SDV and RYZ. The total area to be disturbed during phases occurring between 2007 and 2012 is roughly 21 acres with approximately half of that area consisting of impervious surfaces like asphalt pavement, driveways, sidewalks, and buildings such as single family homes and public buildings. The slope of the existing land surface is typically 2 percent except at the levee where it is approximately a 50 percent slope to the crest of the levee. The existing ground cover at the site consists of lawns and gardens, brushy areas, and gravel pavement.

The surficial soil at the site consists of a thin layer of topsoil and/or fill underlain by glaciofluvial sediments, mainly sand and gravel.[1] The only exception to this is in the levee zone which was remediated and backfilled with rock fills late in 2006. That area is underlain with stabilization rock and structural fill material which is covered with a layer of topsoil. According to the Soil Survey Report of Snoqualmie Pass Area, Parts of King and Pierce Counties, published by the Soil Conservation Services, the surficial soils at the site consist of Arents (Soil Map Unit No. 9).[2] The permeability of the Arents soil is moderate to moderately rapid, with low available water capacity, slow runoff, and slight water erosion potential. The Final Feasibility Study details the underlying geology. The native soils consist primarily of sand and gravel, with shallow discontinuous lenses of silt and clay. The ratio of sand to gravel and the grain size of the material are highly variable throughout Skykomish.

The stormwater runoff in the streets is collected by catch basins located along Railroad Ave., 5th and 6th Streets. Storm water collected in these basins is piped to the river. In non-paved open areas, little surface runoff occurs due to the moderate permeability of the soils. Surface runoff that does not immediately infiltrate into the site soils is collected by the catch basins and conveyed through the levee or runs down Railroad Avenue and collects in a marshy area north of the railyard. Water which falls on the levee runs off directly into the South Fork Skykomish River or infiltrates.

Post-construction site conditions are expected to closely resemble pre-construction conditions and any increase in the velocity or peak volumetric flow rate of stormwater runoff is expected to be managed by a replacement stormwater system. Any changes to the hydrologic character of the site due to an increase in impervious

[1] ENSR, 2005. *Final Feasibility Study- Skykomish, Washington.* Prepared for BNSF Railway Company. Seattle, March 15.

[2] U.S. Department of Agriculture, 1992. *Soil Survey report of Snoqualmie Pass Area, Parts of King and Pierce Counties.*

area from the widening of roads, the construction of sidewalks or any other change will be analyzed in each year's SWPPP.

A temporary asphalt pad was constructed in the railyard during the summer of 2006 to stockpile soils which were removed during the levee zone remediation. The location of the soil handling area's asphalt pad can be seen in Figure 2. The topography of the pad is such that rainwater falling on the pad runs toward a low lying sump located on a southwestern edge. During the levee zone remediation, the sump collected the rainwater which was then removed by a vacuum truck and delivered to the NPDES permitted water treatment plant for discharge to the south fork of the Skykomish River. Currently the sump has been perforated and rainwater falling on the pad flows westward towards the sump where it leaves the pad and infiltrates into the nearby ground. Before construction of the soil handling area begins, either the sump will be repaired so that water can be collected and disposed of or a suitable BMP will be designed and installed which will prevent sediment laden stormwater from leaving the pad without adequate treatment.

Appendix B

Logs and Inspection Forms

EXAMPLE CHITOSAN METERING PUMP LOG

Date	Calibration*	Calibrated By:	Notes

* Metering pump must be calibrated using a calibration cylinder at startup and each time the chitosan solution needs to be changed.

EXAMPLE WEEKLY OIL/WATER SEPARATOR INSPECTION FORM

Date: _____ Inspected by: _____ Location: _____ Weather Conditions: _____

Inspector's signature: _____

Structure/Unit ID/Location	Condition	Repair Needed? (Y or N)	Cleaning Needed? (Y or N)	Repair or Cleaning Completed (Fill in Date, What was Done)	Comments/Other Action Needed/ Adjustments to SWPPP

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01580

ENVIRONMENTAL CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Dust Control
B. Air Emission and Odor Control
C. Odor and Dust Control Plan
D. Noise Control
E. Puget Sound Clean Air Agency Emission Standards
F. Odor/Vapor Control Products

1.02 DUST CONTROL

A. Dust Control: Dust particles, aerosols and gaseous by-products from construction activities, and processing and preparation of materials shall be controlled at all times including weekends, holidays and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, buildings, and other work areas within or outside the work area free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or nuisance. Sprinkling chemical treatment of an approved type will be permitted to control particulates in the work area. The Contractor shall have sufficient, appropriate equipment and experienced personnel available to accomplish these tasks.

B. The Contractor shall provide all labor, materials, and equipment, including water trucks and dust suppressant, needed to limit visible dust generation during on-site excavation and on-site haul and other work activities.

C. The Contractor shall provide dust control measures required by all applicable regulatory requirements that include the following:

1. Wetting agents shall be used as needed.

2. Trucks carrying soil from the excavation area to the stockpile area shall be covered should the Engineer determine that dust is being generated from the load.

3. Truck beds carrying impacted material from the excavation site to the stockpile site shall be fully sealed so that no leakage from the trucks occurs during the transfer. The sediment/soil is expected to be wet – the truck sealing mechanism shall maintain a tight seal against leakage. Note that muck locks on a standard dump truck bed are not considered water tight as defined herein.

4. Soil stockpiles shall be located away from pedestrian areas and completely covered daily when not in use during times when dust is being produced.

5. Regular and continual cleaning of sidewalk and adjacent streets shall be provided.

6. A vehicle and equipment decontamination facility that includes wheel wash station shall be provided in accordance with Section 01500 Temporary Facilities and Controls.

7. A fully-operable and well maintained vacuum street cleaning truck shall be onsite at all times and shall be operated continually to maintain the adjacent streets and haul streets free of debris whenever the excavation and hauling or railcar load-out operations are under way. Soil or sediments or mud spilled on the streets shall be immediately removed by Contractor.

8. Block out and/or cover HVAC ducts, enclosures, voids and the like on relocated structures to ensure no dust or fume accumulation.

1.03 AIR EMISSION AND ODOR CONTROL

A. Odor and Vapor Suppressant Barrier

1. The Contractor shall completely and securely cover all stockpiles on the Project site with 6-mil polyethylene sheeting as directed by the Engineer at times when odor or dust is being produced, or when precipitation will adversely affect the stockpile.

1.04 NOISE CONTROL

A. The Contractor shall conduct all Project work in accordance with the Laws and Regulations concerning noise and sound levels.

B. The Engineer will have authority to direct the Contractor to stop Work or modify Work methods or activities as necessary.

C. The following construction site decibel level limits shall be adhered to during work hours for impact type construction equipment:

1. Equivalent Sound Level (Leq) ninety dB(A) continuously;

2. Leq ninety-three dB(A) for thirty minutes;

3. Leq ninety-six dB(A) for fifteen minutes.

D. Equipment used on the site must meet the requirements of Skykomish Municipal Code which specifies a maximum permissible sound of 80 db(A) at the property boundary or 50 feet from the equipment (whichever is greater) for equipment used on construction sites in residential areas with residential receivers.

E. Contractor equipment shall be outfitted with mufflers and other sound attenuating equipment so that sound levels do not exceed the above limits when measured at a property line or a distance of 50 feet from any vehicle or equipment. Equipment engines shall not be started prior to 7:00 a.m.., Monday through Friday, or 9:00 a.m. Saturday or Sunday if weekend work is approved by the Engineer.

F. Truck idling in Town must be minimized when trucks are queuing for loading or dumping.

1.05 PUGET SOUND CLEAN AIR AGENCY EMISSION STANDARDS

A. The Contractor shall be responsible for implementing specific provisions of the PSCAA Air Quality Control Regulations that include the following:

1. All persons responsible for any operation, process, handling, transportation or storage at a facility which may result in fugitive dust shall take all reasonable precautions to prevent such dust from becoming airborne. Some reasonable precautions which could be taken to prevent dust from becoming airborne include, but are not limited to, the following:

   a. Use of water or chemicals – where possible, control equipment and enclosures for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;

   b. Application of asphalt, water, or suitable chemicals on dirt roads, materials, stockpiles, and other surfaces which can give rise to airborne dusts;

   c. Treating construction sites with water or chemical stabilizers, reducing vehicle speeds, and cleaning vehicle wheels and undercarriages before exiting site to prevent the track-out of mud or dirt onto paved public roadways;

   d. Covering or wetting truck loads or allowing adequate freeboard to prevent spillage or the escape of dust-bearing materials.

2. The project shall follow guidelines set out by the Association of General Contractors of Washington (AGCW) in the brochure Guide to Handling Fugitive Dust from Construction Projects to reduce construction dust.

3. Construction machinery engines shall be maintained in good mechanical condition to minimize exhaust emissions.

1.06 TURBIDITY CONTROL

A. Prevention and Response Strategy for Turbidity Exceedances

1. The Contractor shall provide a detailed description of methods for prevention of and responses to turbidity impacts to the South Fork Skykomish River. These could include, but are not limited to: (a) Controlled backfilling with low permeability fill or backfilling in smaller lifts; (b) localized excavation dewatering; (c) installation of temporary barriers, such as steel plates, to reduce mobilization of fine-grained soils; and/or, (d) other measures as deemed appropriate by the Contractor and approved by the Engineer.

2. The Contractor shall provide equipment and materials that will be on-site to control turbidity.

BNSF – 2013 Schoolyard Excavation Supplement

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01580

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01722

CONSTRUCTION SURVEYING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals
B. Examination
C. Survey Reference Points
D. Survey Requirements

1.02 SUBMITTALS

A. Submit field notes, computations, data logger information, and all other survey records for the purposes of layout of the Work to the Engineer on a weekly basis. The data and records shall include, but not be limited to, all subsurface conduits, at-grade and above-grade utility features, above-grade and below-grade structures, storm sewer, sanitary sewer, and water supply systems layout; utility crossing layout; remediation areas before and after excavation plan view and cross-sections with volume calculation; fence control and layout; street light base layout, elevations and layouts of all existing and newly installed utilities, pavement marking stop-bar and crosswalk layout, right-of-ways; property corners; to the Engineer on a weekly basis or as the control for the work is accomplished.

B. Submit the Record Plans, prepared and stamped by a surveyor licensed in the State of Washington, to the Engineer at the completion of the Project.

C. Provide survey data electronically in AutoCAD 2007, or later version, and in tabulated formats. All control points shall have all horizontal and vertical data and reference point name as appropriate. The Engineer will provide data formatting requirements.

D. The Contractor shall maintain all survey data and survey drawings as Record Documents as specified in the Section 01325 – Progress Schedules and Reports and submit Record Documents as specified.

E. The Contractor may utilize survey-grade Geographic Positioning System (GPS) to control construction in the work areas. Should this be the case, the Contractor must submit the equipment type, experience using this equipment, the qualifications of the proposed equipment operators, and demonstrate the accuracy of such equipment in Skykomish to the satisfaction of the Engineer.

1.03 EXAMINATION

A. Verify locations of survey controls and baseline prior to starting project work.

B. Notify the Engineer promptly of any discrepancies found.

BNSF – 2013 Schoolyard Excavation Supplement

1.04 SURVEY REFERENCE POINTS

A. The Contractor's surveyor shall establish temporary benchmark(s) and horizontal control for the project work using the baseline control datum referenced on the Plans.

B. Locate and protect survey control and reference points, including right-of-way and property corners, during construction.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 SURVEY REQUIREMENTS

A. The Contractor shall provide, coordinate, and schedule a professional surveyor licensed in the State of Washington, in order to provide construction support and establish and maintain control lines, grades, slopes, cross-sections, re-establish section corners and right-of-way and property corners lost in the construction activity. The Contractor shall bear full responsibility for detailed dimensions, elevations, slopes, temporary control points, record plans measured from the baseline control.

B. The Engineer will provide the Surveyor with an electronic survey base map that is available for the project site at the start of Project Work for informational purposes only. The Contractor's Surveyor is entirely responsible for verifying the information in the base map.

C. The surveyor shall be trained in accordance with OSHA/WISHA standards and other health and safety training requirements, including BNSF's contractor orientation (http://www.contractororientation.com/) and the Department of Homeland Security required training for work on the railyard (http://www.e-railsafe.com/), in these Specifications to enter exclusion zone work areas. The Contractor shall provide the Engineer with copies of these training certifications for the surveying personnel prior to commencing project work.

D. The Contractor shall conduct an initial survey and verify Project baseline control, site boundaries, individual parcel boundaries within all the Work areas, limits of excavation as shown on the Plans.

E. All survey work for the Project shall be conducted by a land surveyor licensed in the State of Washington and shall utilize recognized engineering survey standard practices appropriate for roadway and remedial site construction in accordance with these Plans, Specifications, and Specifications addenda.

F. The Contractor shall preserve project survey staking during the various construction operations and shall be fully responsible for maintenance and replacement of survey control staking that is destroyed or lost regardless of the reason for loss. Any replacement staking shall be generated from the same datum used by the original survey staking.

G. The Contractor is solely responsible for checking and verifying the property/parcel boundaries using the survey base map provided by the Engineer and/or any other means. If any discrepancies are noted between the survey base map and the site conditions, the Contractor shall inform the Engineer and resolve the issue before continuing with the work. The Contractor shall inform the Engineer of any encroachment issues prior to relocating the structures to their original locations.

H. During the course of excavation work, the Contractor shall record final elevation of excavation floors once the excavation is complete in each area. This may require surveying the excavation floor from a boat in standing water.

I. The Contractor shall assist the Engineer in laying out a 25 ft by 25 ft sampling grid at the estimated limits of excavation. The Contractor shall survey the corners of the grids by either a licensed surveyor or by survey-grade GPS survey (with prior approval of the Engineer) and mark the perimeter corners with stakes, and mark the interior corners with construction spray paint. All grids will be designated with an alphanumeric designator.

J. Upon completion of excavation in an area (determined by the Contractor demonstrating that they have achieved the required excavation depth within the grid), the Engineer, with the cooperation and assistance of the Contractor, will collect confirmation samples from floors and sidewalls of the excavation and establish sample locations on the ground with flags for sample locations which are not below standing water. The Contractor shall then survey elevations of these sample locations indicated by the flags prior to starting the backfill operation of the remedial excavation. The Contractor shall preserve the flags until the surveying of the sample locations is completed. In areas with standing water, the Contractor shall survey the final excavation bottom and sides (once approval has been given by the Engineer to backfill) using standard surveying equipment or survey-grade GPS equipment. The Contractor can use GPS for survey control on the site only after demonstrating the accuracy and the ability to use such equipment on the site to the Engineer.

K. During the course of backfilling and site restoration work, Contractor personnel shall establish and record elevations to document that site restoration is complete in accordance with documented finish grade contours.

L. The Contractor shall promptly replace and report to the Engineer the loss or destruction of any original mainline reference point or relocation required because of changes in grades or other construction issues. The Contractor shall replace dislocated reference points based on original survey control. The Contractor shall make no changes without prior written notice to the Engineer.

M. The layout shall be executed in conformance with the lines and grades shown on the Plans unless otherwise approved by the Engineer.

N. The Contractor shall establish survey construction control staking for all site preparation and site restoration items of the project work.

O. The Engineer shall have access to the Project area for the purpose of verifying the Contractor's survey control staking for the remedial excavation and other work. Should it become apparent the Contractor has over-excavated a certain area, work in that area shall be temporarily discontinued at no extra cost to the Owner or the Engineer.

P. Provide the Engineer with pre-excavation survey cross-section map prior to beginning the actual excavation. When the Engineer determines the remedial excavation is complete, the Contractor's surveyor will measure and prepare a second cross-section map showing the final elevations of the remedial excavation site. The licensed surveyor will then determine the volume of the excavation on which payment for the excavation will be based. The Contractor shall provide the Engineer with copies (both electronically in Adobe pdf and AutoCAD 2007) of the pre-excavation and post-excavation survey so the Engineer may review and cross-check the cross-sections and computation. The survey cross-section map shall be prepared by a Washington State licensed professional surveyor retained by the Contractor. The contractor's surveyor shall establish and maintain temporary horizontal and vertical control for the work.

Q. The Contractor supplied survey construction support shall consist of providing control for remedial excavation, documenting site features, replacement of lost property corners resulting from excavation and backfilling, as-built/record plans, and other work supporting the successful completion of this Project.

R. The surveyor shall use a 25-ft maximum grid pattern. Provide the As-Built/Record Drawings and topographic survey map to Engineer for review and approval. The site survey As-Built and topographic map shall be prepared and stamped by the Contractor's Registered Land Surveyor, and shall be supplied in both hard copy and electronic copy (Adobe pdf and AutoCAD 2007).

S. The Contractor shall be solely responsible for any encroachment issues that may be identified after the final restoration.

T. At the end of construction, the Contractor's surveyor shall prepare Record Plans, showing horizontal and vertical limits of pre and post remedial excavation; any changes in locations of storm drainage, final grades and elevations and other significant site feature at variance from the Plan. Provide topographic map with grade contours at 1-ft intervals. The Contractor shall submit the Record Plans with the final billing request. Record Plans shall include red-lined plans of changes in the original plan, cross-sections, and profiles as necessary to accurately represent added work and actual locations.

END OF SECTION 01722

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals
B. Final Cleanup – Project Site
C. Restoration
D. Contract Closeout Procedure

1.02 SUBMITTALS

A. The Contractor shall submit the following items in accordance with Section 01330 – Submittal Procedures:

1. The Contractor shall submit a written request to the Engineer for a Final Inspection after determining that all aspects of the Project are complete.

2. The Contractor shall submit the Project record documents described in Section 01325 – Progress Schedules and Reports.

3. The Contractor shall submit a final Application for Payment, less retainage.

4. The Contractor shall submit a Closeout Report after formal Final Acceptance of the Project by the Engineer. The Closeout Report shall consist of the Record Drawings/As-Built survey of the Project site and all the material weight tickets. The Contractor shall submit the Closeout Report within two weeks of the Final Acceptance of the Project by the Engineer.

5. The Contractor shall submit an Application for Payment of Retainage accompanied by Contractor's Affidavit of Release of Liens and Contractor Affidavit of Payment of Debts and Claims.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 FINAL CLEAN UP – PROJECT SITE

A. Upon completion of the Project work and prior to the requested final inspection, the Contractor shall clean and dress the entire Project of all rubbish, surplus, and discarded materials, temporary facilities and controls, equipment, and debris. The entire Project site shall be dressed in a clean and neat condition for the Final Inspection by the Engineer for the turn-over.

3.02 RESTORATION

A. Prior to initiating the contract closeout procedure the Contractor must complete all site restoration including, but not limited to, restoration as outlined in Section 02938 Sod Restoration.

3.03 CONTRACT CLOSEOUT PROCEDURE

A. The Contract closeout procedure shall take place in the following order:

1. The Engineer will perform the Final Inspection after receiving the written request from the Contractor.

2. The Engineer will prepare a Punch-List of Contract items for needed corrective action by the Contractor.

3. The Contractor shall correct all Punch-List items expeditiously and satisfactorily.

4. The Contractor shall submit the Final Application for Payment to the Owner and Engineer and therein identify the total adjusted Contract price, previous payments, sales tax, and amount remaining adjusted for retainage.

5. The Contractor shall submit the Application for Payment of Retainage along with the required, supporting affidavits.

END OF SECTION 01770

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02055

TOPSOIL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Project Conditions
D. Topsoil
E. Source Quality Control
F. Topsoil Placement

1.02 SUMMARY

A. This Section includes providing, placement, and grading of topsoil in the work areas identified on the Plans.

1.03 SUBMITTALS

A. The Contractor shall submit, in accordance with procedures of Section 01330 – Submittal Procedures of the Specifications, results of recent sieve analysis and required soil tests of samples of the topsoil proposed for the Work as specified herein. A supplier ticket with date, quantity, and truck number shall be provided for each load of topsoil delivered and placed at the work site.

1.04 PROJECT CONDITIONS

A. Materials to be furnished: Topsoil, as specified herein, shall be loaded, furnished, transported to the work site, and placed and graded by the Contractor.

B. Scope of Soil Materials Work: This work includes furnishing, transporting, placing and grading topsoil to the work site and therein incorporated into the Project as shown on the Plans and Specifications.

PART 2 – PRODUCTS

2.01 TOPSOIL – SCHOOL YARD

A. Imported topsoil shall be a gravelly silt loam to silt loam, mixed with an organic amendment comprised of a well decomposed, humus-like material derived from the decomposition of grass clippings, leaves, branches, wood, or other natural organic materials.

B. Topsoil shall have an organic content of 15% ± 5%.

C. The organic amendment shall be produced at a permitted solid waste composting facility.

D. The topsoil and organic amendment mixture shall be free of debris and rocks larger than two (2) inches. Gravel content shall not exceed 5%.

E. Plant topsoil shall not be used when frozen or in a muddy, non-friable condition.

F. Topsoil shall be evenly spread over the specified areas to the depth shown in the Plans or as otherwise ordered by the Engineer. After the topsoil has been spread, all large clods, hard lumps, and rocks 2 inches in diameter and larger, and litter shall be raked up, removed, and disposed by the contractor.

G. Topsoil shall not be placed when the ground or topsoil is frozen, excessively wet, or in the opinion of the Engineer, in a condition detrimental to the work.

H. The topsoil shall pass a standard cress test for seed germination (90% germination compared to standard). Alternatively, compost shall score a number 5 or above on the Solvita Compost Maturity Test.

I. The topsoil shall be certified by the Environmental Protection Agency's Process to Further Reduce Pathogens (PFRP) guideline for hot composting.

J. The Contractor shall provide documentation to the Engineer from a certified laboratory and from a landscape architect that verifies the Topsoil meets the above criteria.

Table of Required Topsoil Properties

Parameter	Requirements
Sieve Analysis	100% of material passing a ¾" sieve.
pH	5.5-7.5
Electrical Conductivity	< 3.0 mhos/cm
Carbon to Nitrogen Ratio	< 15:1
Process to Further Reduce Pathogens Certified for Hot Composting at Compost Facility as outlined in WAC 173-350-220	Yes
Manufactured Inerts	< 1 percent
Sharps	0
Arsenic	< 20 mg/kg
Cadmium	< 10 mg/kg
Copper	< 750 mg/kg
Lead	< 150 mg/kg
Mercury	< 8 mg/kg
Molybdenum[1]	< 9 mg/kg
Nickel	< 210 mg/kg
Selenium[1]	< 18 mg/kg
Zinc	< 1,400 mg/kg
NWTPH-Dx	< 1,870 mg/kg

[1] If required under WAC 173-350-220

2.02 SOURCE QUALITY CONTROL

A. The Contractor shall submit one representative sample of the topsoil specified herein to the Engineer for analysis prior to importing it to the Project. The Engineer's acceptance of any topsoil proposed for the Project by the Contractor shall be subject to consideration of the chemical substances identified in 40 CFR 300 and the Risk Reduction Standards approved for this Site.

B. The Contractor shall provide materials of each type from the same approved source throughout the Project. The Contractor shall notify the Engineer in writing prior to changing material sources, unless otherwise directed by the Engineer, submit samples with sufficient time (i.e., at least 14 calendar days) for analysis, and receive written approval from the Engineer prior to transporting materials to the site for placement. No compensation will be made for materials that were not approved prior to delivery and placement or for material that does not meet the descriptions above.

PART 3 – EXECUTION

3.01 TOPSOIL PLACEMENT –SCHOOL YARD

A. Public Right-of-Way and Private Property Landscape Areas:

1. Grade and remove rock and debris as described above.
2. Place topsoil over the graded backfill to a depth specified in the Plans.
3. Grade the topsoil surface to conform to the lines and grades as shown on the Plans.
4. Topsoil shall be worked into the underlying layer for a depth of at least 6-inches.
5. Topsoil on private properties shall be 12-inches deep or as indicated on the Plans.
6. Topsoil placement areas shall be compacted by rolling in two directions. The second rolling shall be done at right angles to the first. The roller shall be standard, water-filled type applying 150 to 300 pounds per square foot (psf) ground pressure.

END OF SECTION 02055

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02060

AGGREGATE MATERIAL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. References
C. Submittals
D. Project Conditions
E. Source Quality Control
F. Structural Fill and Trench Backfill
G. Stabilization Fill
H. Aggregate Materials
I. Stockpiling

1.02 SUMMARY

A. This section includes materials proposed for import as Aggregate Materials to be used in various work areas of this Project.

1.03 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications - 2012, Division 9, MATERIALS.

B. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO M147 – Standard Specification for Aggregate and Soil-Aggregate Sub-Base, Base, and Surface Courses.

2. AASHTO TP61 – Determining the Percentage of Fracture in Coarse Aggregate.

C. American Society of Testing and Materials (ASTM):

1. ASTM C117 – Standard Test Method for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.

2. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

3. ASTM D75 – Standard Practice for Sampling Aggregates.

4. ASTM D3740 – Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock Used in Engineering Design and Construction.

5. ASTM D422 – Standard Test Method for Particle Size Analysis of Soils.

D. United States Department of Agriculture

1. Soil Taxonomy, A Basic System of Soil Classification for Making and Interpreting Soil Surveys

1.04 SUBMITTALS

A. The Contractor shall submit, pursuant to Specification Section 01330 – Submittal Procedures, recent results of test analysis of sieve and proctor for materials proposed for this Project as specified herein.

B. Submit written certification for all proposed backfill, materials for road base construction, pipe bedding signed by the material supplier, stating that the material meets the appropriate subsection of WSDOT Section 9-03. Submit this information to the Engineer for review for acceptance a minimum of fourteen (14) calendar days prior to proposed delivery of the specified material to the Site.

C. Submit sieve analysis and proctor test results for all imported gravel borrow backfill, road base construction, pipe bedding material to the Engineer. Submit at least one set of test results for each material source as outlined below. If a submitted sample does not meet the Project Specification, additional testing shall be required by the Contractor and material supplier.

D. Submit name, address, and qualifications of a certified, independent materials testing laboratory proposed to perform quality control tests including on-site compaction tests for the imported aggregate and backfill. Obtain the Engineer's approval of the proposed materials laboratory prior to the submittal of proposed material sources or sampling.

1. The Contractor's materials laboratory shall be a certified, independent testing company or agency meeting the requirements specified in ASTM D3740.

2. The Contractor's materials laboratory shall submit a certified test report to the Contractor and Engineer no later than fourteen (14) calendar days for each test performed.

1.05 PROJECT CONDITIONS

A. Materials to be furnished: Aggregate materials including excavation gravel borrow backfill, crushed surfacing aggregates, pipe bedding and trench backfill, cement concrete aggregate.

B. Scope of Aggregate Materials Work: This includes furnishing (from either an on-site or off-site source), transporting the specified aggregate materials for use on the Project. The unit bid price per ton includes furnishing and placement of the specified aggregate materials as described in Products.

1.06 SOURCE QUALITY CONTROL

A. Notify the Engineer:

1. Prior to import of material to the Project.

2. Whenever the material appears to deviate from requirements of these Specifications or from previously obtained/supplied material.

3. When availability of on-site source materials, when utilized, becomes limited for the Project as shown on the Plans.

B. Frequency of Testing and Test Standards at Source:

1. Testing frequency for each individual aggregate material is covered in the following subsections or in the January, 2013 WSDOT Construction Manual. Any deviation must be approved by the Engineer prior to incorporation.

C. All costs associated with the Contractor's certified materials laboratory support, including all sampling and all testing and report submittals, shall be included in the various contract bid items and no additional compensation will be made.

PART 2 – PRODUCTS

2.01 STRUCTURAL FILL AND TRENCH BACKFILL –SCHOOL YARD

A. Structural Fill and Trench Backfill material shall be used in the identified areas for general backfilling, storm drainage trenches, and utility trenches. This material shall meet the requirements specified in this subsection.

B. Structural Fill must only be placed above the water table. Given that the excavations will not be fully dewatered, backfill placed below the water table will need to be relatively clean (little to no fines) granular material that goes in place relatively compact, and is relatively easy to compact in a thick layer when compaction equipment is placed on the fill once it extends above the water surface elevation. The water surface elevation is expected to fluctuate throughout the construction season as the water table elevation typically decreases in the summer. Typical water surface elevations in various remediation areas are depicted on the Plans. Given that the material will be placed below the water table, compaction testing below standing water will not be possible. A large compaction effort will be required on the backfill at the point where it protrudes above the water level.

C. Structural fill, i.e., gravel borrow, for backfill shall be obtained only from a commercial borrow source approved by the Engineer prior to import. Lack of approval by the Engineer prior to material placement shall be reason for non-payment of that unit bid item as determined by the Engineer.

D. Backfill materials shall contain no hazardous substances that exceed the concentrations provided in this subsection. Prior to Project import, the Contractor shall provide a certified laboratory report verifying this requirement for backfill material has been met.

E. Structural fill, i.e., gravel borrow material for the remediation excavation site shall consist of clean, granular material, either naturally occurring or processed, and shall meet the specified requirements for grading and quality below.

F. Testing of Structural Fill and Trench Backfill Materials (To be conducted by the Contractor's QC Firm):

1. WSDOT Standard Specification, 2012 Section 9-03.14(1) Gravel Borrow

2. Grain Size Testing Requirements:

U.S Standard Sieve Size	Allowable Percent Passing
5-inch square	100
2-inch square	75-100
No. 4	50-80
No. 40	30 max.
No. 200	7.0 max.
Sand Equivalent	50 min.

All percentages are by weight. Note that the quantity of fines (material passing the No. 200 sieve) could be decreased to a maximum of 5 percent if the fill is to be placed during wet weather conditions.

3. Chemical Testing: Contractor shall collect and analyze the proposed Structural Fill and Trench Backfill materials for the potential contaminants identified in the following table. One test for hazardous substances for the structural fill, i.e., gravel borrow source, must be completed prior to delivery of any structural fill/gravel borrow material to the Project. Following the initial testing, one test is required for every 5,000 tons of material delivered to the Site, or, if the coloration or odor of the imported material suggests that there may be, in the opinion of the Engineer, impacts in the imported gravel borrow structural fill, then further testing will be required. A minimum of one test for the listed chemicals for each visible change in material and at least one test for the listed chemicals for every borrow source shall be required:

Hazardous Substance	Maximum Concentration
Arsenic	20 mg/kg
Cadmium	2 mg/kg
Chromium VI	19 mg/kg
Chromium III	2,000 mg/kg
Lead	250 mg/kg
Mercury	2 mg/kg
NWTPH-Dx	1,870 mg/kg

2.02 STABILIZATION FILL –SCHOOL YARD

A. The Stabilization Fill shall be used for general backfill areas and utility trenches that are below the water table. This material shall meet the requirements specified in this subsection. The Stabilization Fill shall only be placed below the water table.

B. Stabilization Fill shall be obtained only from a commercial borrow source approved by Engineer prior to import. Lack of prior approval by the Engineer shall be reason for non-payment of that unit bid item as determined by the Engineer.

C. Stabilization Fill shall contain no hazardous substances that exceed concentrations listed below. Prior to Project import, the Contractor shall provide a laboratory report verifying this requirement for backfill material.

D. Stabilization Fill shall consist of clean, granular material, either naturally occurring or processed, and shall meet the gradation requirements below.

E. Testing of Stabilization Fill (To be conducted by the Contractor's QC Firm):

1. WSDOT Standard Specification, 2012, Section 9-03.9(2) Permeable Ballast

2. Grain Size Testing Requirements:

Sieve Size	Percent Passing
2 ½ square	100
2 square	65-100
¾ square	40-80
U.S. No. 4	5 (max.)
U.S. No. 100	0-2
% Fracture	75 (min.)

All percentages are by weight.

3. Chemical Testing: Contractor shall collect and analyze the proposed Stabilization Fill material for potential contaminants identified in the appropriate table in Part 2.01(F)(3) of this Section. One test for hazardous substances for the stabilization fill source must be completed prior to delivery of any structural fill/gravel borrow material to the Project. Following the initial testing, one test is required for every 5,000 tons of material delivered to the Site, or, if the coloration or odor of the imported material suggests that there may be, in the opinion of the Engineer, impacts in the imported material, then further testing will be required. A minimum of one test for chemicals for each visible change in material and at least one test for chemicals for every borrow source shall be required.

2.03 AGGREGATES FOR PORTLAND CEMENT CONCRETE

A. Aggregates shall meet the requirements of WSDOT Standard Specifications, 2012, Section 9-03.1

2.04 AGGREGATE FOR CRUSHED SURFACING TOP/BASE COURSE

A. Aggregate for crushed surfacing top/base course shall meet the requirements of WSDOT Standard Specifications, 2012, 9-03.9(3).

B. Testing of aggregate and backfill material by the Contractor's quality control firm shall be in accordance with WSDOT Standard Specifications, Division 9

2.05 GRAVEL BACKFILL FOR PIPE BEDDING

A. Backfill for pipe zone bedding shall meet the requirements of WSDOT Standard Specifications, 2012, Section 9-03.12(3).

B. The Contract unit price for aggregate, crushed surfacing material, gravel backfill for pipe bedding, structural fill/gravel borrow for remediation excavation embankment

construction shall be by ton or cubic yard or incidental to pipe measurement as described in each appropriate section.

2.06 SAND BACKFILL FOR PIPE BEDDING

A. Sand Backfill for Pipe Zone Bedding Material shall be clean non-cohesive natural, unwashed sand that meets the following sieve gradation, or as approved by the Engineer:

Sieve Size	Percent Passing
No. 6	95-100
No. 8	85-95
No. 50	15-30
No. 200	0-2

B. All sand fill material beneath the pipe shall be spread and compacted to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It will be permissible to slightly disturb the finished sub grade surface by the withdrawal of pipe slings or other lifting tackle.

PART 3 – EXECUTION

3.01 STOCKPILING

A. Reference Sections 01500 – Temporary Facilities and Controls, Section 01575 – Temporary Erosion and Sediment Control, and Section 02114 – Screening, Stockpiling, Amendments, and Loading of Impacted Soil for Disposal requirements related to management of material stockpiles.

B. Store materials only in work areas designated for stockpiling as shown on the Plans or as approved by the Engineer. Stockpiled material shall not obstruct or encumber other Project construction activity.

C. Stockpiles of any impacted material shall be placed on protective plastic flooring and the edges shall be controlled and protected by rolling the plastic covering over the berm to not allow any material or runoff water from escaping the stockpile area.

D. All costs associated with daily maintaining the stockpile floor and berm fabric shall be included in the Contract Unit Bid Price for the stockpile floor material and no further compensation will be made.

END OF SECTION 02060

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02110

EXCAVATION AND HANDLING OF NON-IMPACTED AND IMPACTED MATERIALS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Permits and Approvals
B. Submittals
C. Quality Control
D. Project Conditions
E. Coordination and Scheduling
F. Excavation Segments
G. Preparation
H. Excavation – General
I. Excavation of Impacted Material
J. Materials Handling
K. Confirmation Sampling

1.02 PERMITS AND APPROVALS

A. This section includes Excavation and Handling of Non-impacted and Impacted Materials on public and private properties, including that for utility trenching, residential and commercial properties excavation, roadway excavation, and foundation construction on the Project, and the hauling and stockpiling of excavated materials, to areas shown on the Plans.

B. Related Sections:

1. Section 01140 – Work Restrictions
2. Section 01500 – Temporary Facilities and Controls
3. Section 01575 – Temporary Erosion and Sediment Control
4. Section 01580 – Environmental Controls
5. Section 01722 – Construction Surveying
6. Section 02114 –Stockpiling and Loading of Impacted Soil for Disposal
7. Section 02118 – Stockpiling Overburden Material
8. Section 02120 – Transportation
9. Section 02240 - Dewatering
10. Section 02260 – Excavation Support and Protection Shoring

11. Section 02310 – Backfilling and Grading

12. Section 02317 - Trenching for Site Utilities

1.03 SUBMITTALS

A. The Contractor shall establish and maintain Daily Trucking Logs for contract item excavation and haul as separate items of work. Trucking Logs shall include the Contract Item designation, date, name of the driver, and number of the truck for each load shipped from the site. The Contractor shall bear sole responsibility for properly documenting and daily submission of the correct Contract Item. Insufficient documentation shall be grounds for nonpayment of that load. The Daily Trucking Logs shall be submitted to the Engineer on a daily basis as described in Section 01330 – Submittal Procedures.

1.04 QUALITY CONTROL

A. The Contractor's Registered Land Surveyor shall stake excavation boundaries denoted on the Plans and shall perform the initial survey as specified in Section 01722-Construction Surveying.

B. Contractor personnel shall perform surveying to establish and record elevations during the course of the excavation work for the purpose of determining depth, horizontal dimensions, and the volume.

C. The Engineer shall be allowed access to excavation areas to perform surveying if determined to be necessary by the Engineer.

D. Verification of final excavation horizontal limits and depths shall be accomplished by survey and in a table format with an accuracy acceptable to the Engineer. The Contractor's surveyor shall provide this information electronically as well as on paper. During the progress of the work, the Contractor shall provide survey data as the excavation progresses that consist of the following:

1. Horizontal limits of completed excavation in sufficient detail to allow accurate computation of the volume.

2. Vertical limits of excavation in sufficient detail to verify elevations. Survey support shall be sufficiently complete to establish the progress of the completed work.

1.05 PROJECT CONDITIONS

A. The Contractor is solely responsible for the stability of the excavation slope. Excavation work shall be in compliance with applicable OSHA, WISHA and Town of Skykomish regulations.

B. The Contractor shall prepare an excavation shoring detail and installation method as part of the contract work, if shoring is deemed necessary by the Contractor. The shoring design and installation method shall be reviewed by the Engineer prior to start of excavation work. Contractor shall be responsible for obtaining all applicable permits pertaining to the shoring prior to beginning excavation.

C. Work shall not disturb or damage existing structures, utilities, or other facilities not indicated to be removed, unless the removal of such items is shown on the Plans or is previously approved by the Engineer. Damaged facilities shall be repaired or replaced at the Contractor's expense as determined by the Engineer.

D. The Contractor shall take every effort necessary to prevent cross-contamination and re-contamination of clean areas. If a previously cleaned area is cross-contaminated by the Contractor's operations, the Contractor shall, at the Engineer's direction, excavate and dispose of, and replace any cross-contaminated material at Contractor's expense.

E. Tracking of debris and excavated materials from the main work site or from any trenching operation on this Project onto the streets or private properties is strictly forbidden. Should any street or private property receive any contaminated material from the excavation operation, it shall be immediately and completely cleaned and hauled by the Contractor to a suitable disposal site.

F. Work shall involve the handling of materials, including soil, groundwater, and excavation water, containing substances that are potentially harmful to the health and safety of construction personnel. All Project work is to be performed in compliance with applicable OSHA and WISHA regulations and pursuant to the Contractor's Site-Specific Health and Safety Plan.

G. Dust control and odor control measures during the excavation operation shall be in accordance with the requirements of Section 01580 – Environmental Controls.

H. Upon the issue of the Notice to Proceed, Project work shall proceed unabated unless directed by the Engineer to stop or slow down production.

I. The Contractor is advised of the potential for encountering a water table within the remediation excavation elevation and the subsequent necessity of excavating and backfilling under water. While mass excavation dewatering is not anticipated to occur, the Contractor is advised to sufficiently plan for excavation dewatering with sufficient pumps and backup. Limited dewatering may be required for site features.

J. The Contractor is advised of the potential of encountering large boulders and cobbles within the remedial and trench excavation areas. The Contractor shall plan sufficiently for removal or breaking via hydraulic methods any large boulders encountered. All costs associated with removal or breaking of large boulders shall be considered incidental to the Contract Bid Item for Remediation Excavation per cubic yard. No further compensation will be made.

K. The Contractor is advised that free product could be encountered during the excavation operations. See Section 02250 – Oil Recovery for requirements.

L. The Contractor is advised of the probability of bird entry into the active work site. See Part 3 - EXECUTION for requirements for discouraging birds and other wildlife from entering the work site.

M. The Contractor is required to notify the Engineer if a monitoring well is encountered in planned or unplanned excavations. The Engineer will take appropriate measures to decommission the well. In the event that the Contractor damages or destroys a monitoring

well during any of the work activities, it shall be the Contractor's responsibility to have it repaired or replaced by a licensed well driller as required by the State of Washington regulations.

1.06 COORDINATION AND SCHEDULING

A. Coordinate excavation work with stockpiling, hauling, and loading the excavated materials onto railcars and/or trucks for off-site disposal.

B. The Contractor shall coordinate with the Engineer and with utility companies for protection and/or relocation of their facilities prior to commencement of excavation.

C. Samples will be secured and submitted to the laboratory for rush analysis. The Contractor shall assume that sample turnaround time for non-dedicated laboratory personnel and equipment testing is 72 hours.

D. The Contractor shall provide the Engineer a two week "look-ahead" working schedule at each weekly Project meeting. This look-ahead working schedule, in addition to providing the Engineer with information for Project coordination, shall also be used to inform Town officials, emergency responders, the school district, citizens, and media of construction impact. The Contractor shall coordinate and time load-out of contaminated materials with BNSF railcar scheduling so that railcars are loaded as soon as made available.

E. Excavation work shall be performed pursuant to the approved progress schedule.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 EXCAVATION SEGMENTS

A. The Plans show the approximate limits and elevations of the remedial excavation areas. Soil removal shall be to the horizontal and vertical limits shown on the Plan and Profile Sheets. Contractor shall extend the limits of the excavation beyond those shown on the Plans only at the specific direction of the Engineer. The final excavation limits (except trench excavations for the sewer lines and incidental underground utilities) will be established by confirmation sampling that will take place after the initial excavation reaches the excavation limits shown on the Plans and Profile sheets.

B. Excavation will include removing soil as necessary to reach the estimated areal and vertical extents of impacted soil shown on the Plans. The depths of excavation in the various zones are identified in the Plans. No water, debris, or mud from the excavation areas will be allowed to contaminate the streets.

C. All non-impacted overburden excavated material shall be hauled using tight containment vehicles to the area indicated on the Plans or as specified by the Engineer. Impacted materials shall be transported to the designated railyard stockpile area for later loading onto railroad cars. Town streets and the State highway shall be continuously monitored for debris and immediately cleaned upon discovery. Failure to immediately clean any

Project spill from public streets shall incur a contract penalty based upon force account methods for the actual clean-up should the Engineer need to direct such work be done by others.

D. Vertical Delineation Limit (VDL). An Excavation VDL has been shown on the Plans to approximate the delineation between clean overburden and impacted material.

E. Backfilling and grading shall be completed as specified in these Specifications (Section 02310- Backfilling and Grading).

F. Excavation shall be coordinated with excavation support and environmental controls as specified in these Specifications (Sections 01580- Environmental Control and 02260- Excavation Support and Protection Shoring).

G. Free Product should be recovered and disposed of as specified in Section 02250 – Oil Recovery.

H. The Contractor shall devise, install, and maintain a non-harmful method for preventing birds and other wildlife from entering the Remediation Excavation Site and from the impacted material stockpile site effective before, during, and after Project work hours. The Contractor shall submit a plan for bird control at the work site for review and approval by the Engineer prior to start of the excavation operation. At a minimum, this plan shall include mylar tape hanging from cross bars and predator bird decoys every 200 feet around the open and active excavation.

I. All costs associated with installing and maintaining a bird-free excavation site and stockpiling zone and for the method of separating free-product from excavation materials shall be included in the Contract Unit Prices for Remediation Excavation, Construction Water Treatment Facility, and Temporary Construction Facilities.

J. Coordinate the excavation to minimize impact to school utilities. The Contractor shall arrange for septic tank pumping services to serve the school and teacherage during excavation so as to provide uninterrupted sewer service to the both. The Contractor shall coordinate excavation proximate to the Puget Sound Energy service connection to the school building so as to minimize disruption of power to the school.

3.02 PREPARATION

A. Prior to beginning excavations, the Contractor's Registered Land Surveyor shall stake excavation limits indicated on the Plans and in the Survey Control Table. Protect and preserve the survey stakes during the excavation and backfill work. Replacement of survey control staking shall be the sole responsibility of the Contractor.

B. Comply with the requirements of the various utility companies for protection of underground utilities as necessary.

C. Erect and maintain erosion control filter fabric fences, construction limit orange fencing, catch basin silt bags, straw bales, other erosion sediment control features, traffic barriers and control devices, detour signing, and security fences around excavations and provide other necessary site controls and safety measures as specified in Section 01500 – Temporary Facilities and Section 01580 – Environmental Control.

3.03 EXCAVATION – GENERAL

A. Excavation shall proceed generally in accordance with the work sequence described in Section 01110 – Summary of Work or as directed by the Engineer.

B. Excavation slopes and benches shall conform to OSHA/WISHA/Town of Skykomish requirements at all times.

C. Contractor shall be responsible for determining proper sloping of excavation walls based on the evaluation of actual soil conditions by the Contractor's competent person. The Contractor's competent person shall meet the requirements of WAC 296-155 Part N. The Contractor shall note that some excavation may be completed below standing water. No contaminated material or debris or water shall be allowed onto the public streets or private properties.

D. The Contractor's competent person shall inspect excavations daily to verify stability of slopes and benches, including excavation support system (i.e., shoring).

E. In the various remediation zones, overlying clean overburden, above the Excavation VDL, will be pre-characterized as specified in Section 02118 - Stockpiling Overburden Material. Once approved by the Engineer for designation as overburden, the material shall be excavated to the limits defined in the field by the Engineer. Clean overburden soils shall be stockpiled separately from impacted soil at the area shown on the Plans for clean soil stockpile.

F. In the remediation zones, impacted materials, below the excavation VDL, shall be excavated within the horizontal and vertical limits indicated on the Plans and as determined by field and laboratory measurement of contamination.

G. During the excavation operation, the Contractor shall allow reasonable access for the Engineer to observe and shall assist the Engineer in collection of soil confirmation samples. The Engineer may direct further excavation beyond the limits shown on the Plans if warranted by subsurface condition determination. The excavation beyond the lines and grades shown on the Plans will be paid for using the bid item 16 of Schedule A of the Bid documents.

H. If the Contractor places soil backfill material into an excavation prior to receiving the Engineer's approval to proceed and the confirmation results exceed the cleanup goal, the backfill material shall be removed from that excavation, disposed of at an appropriate off site facility, and replaced with clean backfill after approval from the Engineer at the Contractor's expense.

I. The Contractor shall be responsible for demonstrating that at a minimum, the excavated areas meet the limits shown on the Plans as specified in Section 01722 – Construction Surveying.

J. If the Engineer determines that Contractor has excavated areas beyond those shown on the Plans or beyond what was directed by the Engineer, the Contractor shall be responsible for the cost of all activities associated with the over-excavated areas, including disposal costs of extra material excavated and the cost of backfill replacement material.

K. Excavated materials shall be stockpiled as specified in these Specifications (Section 02114 - Stockpiling and Loading of Impacted Soil for Disposal).

3.04 EXCAVATION OF IMPACTED MATERIAL

A. Excavation areas within the limits identified in Plans are expected to contain TPH-impacted material and metal-impacted material.

B. The Contractor shall excavate the contaminated materials from the areas indicated on the Plans. The extent of excavation may vary depending upon the field conditions during the excavation operations. Debris encountered during excavation will be characterized by the Engineer prior to off-site disposal by the Contractor. Portions of the excavation will be completed below the anticipated water level and may require special excavation techniques to complete effectively. No contaminated debris, mud, or water will be allowed to be spilled onto public street right-of-ways. Any such spillage shall immediately be cleaned and hauled by the Contractor to the stockpile area for containment and storage. Should the Contractor delay with the clean-up, the Engineer will direct others to perform the clean-up immediately and the Contractor will be back-charged based on force account methods for that work by others.

C. Free product is likely to be encountered from the excavation areas during the excavation activities. The Contractor shall provide and utilize a satisfactory method for removing oil from the excavation area resulting from excavation below the water table, product released from excavation operations, and seepage from the walls of excavation. Free product removal requirements are specified in Section 02250 – Oil Recovery.

D. The Contractor shall provide project surveying support in accordance with Section 01722 – Construction Surveying.

E. Work must comply with restrictions specified in Section 01140 – Work Restrictions.

F. The Contractor shall excavate impacted material at the locations within the horizontal and vertical limits indicated on the Plans, with allowances for additional areas required for the sloping back of excavation walls to meet the OSHA/WISHA and Town of Skykomish standards and as shown on the Plans.

G. The Contractor shall allow and provide safe access to the Engineer for observation and collection of confirmation samples during the excavation operation and assist the Engineer in collecting confirmation samples from the sidewalls and bottom of excavation areas whenever site conditions warrant assistance for such sampling activity.

H. The Contractor shall excavate additional impacted materials beyond the Plan horizontal and/or vertical limit, if field determinations indicate impacted soils at the limits of excavation exceed the cleanup goal. The Contractor shall perform this additional excavation only as directed by the Engineer.

3.05 EXCAVATION OF NON-IMPACTED OVERBURDEN MATERIALS

A. Clean overburden material shall be excavated to the depths and locations indicated on the Plans. The vertical and horizontal extents of the clean overburden may vary from those indicated on the Plans. With the aid of the Contractor, the Engineer wi**ll perform pre-**

excavation sampling of the soil above the VDL to provide the final characterization of the overburden material. The Contractor shall excavate the clean overburden as directed by the Engineer and temporarily stockpile the material on site in the area designated on the Plans as clean soil stockpile areas.

3.06 MATERIALS HANDLING

A. Impacted material excavation shall be segregated, as necessary, and stockpiled on-site within the designated staging area(s) as indicated on the Plans and as specified in Section 02114 and Section 02120.

B. Metal-impacted material and TPH-impacted material shall be handled and stockpiled separately on-site within the designated staging area(s) as indicated on the Plans.

C. Material designated as non-impacted and intended for re-use on the site as backfill shall be stockpiled in areas designated as clean soil stockpiles once the pre-excavation sampling has determined that the material is suitable for reuse.

3.07 CONFIRMATIONAL SAMPLING

A. Upon achieving the Plan limits of the remedial excavation, verified by survey, the Contractor shall notify the Engineer. The Contractor will survey a 25 feet by 25 feet grid that covers the entire excavation bottom. Upon this notification, verification of the limits of excavation, and verification of the grid, the Engineer will collect confirmation samples from the bottom and sidewalls of the excavation. The samples will be tested and evaluated by either a dedicated or non-dedicated Owner-provided laboratory and as specified by the Engineer.

B. Confirmation sampling results will be provided in writing to the Contractor for backfilling at different times depending on whether dedicated or non-dedicated laboratory personnel and equipment are used for testing. Results from soil samples collected will be supplied within 72 hours (excluding weekends and holidays) after submittal of the confirmation samples. The Contractor shall include time for sampling and laboratory testing and re-excavation into the Project schedule. No additional compensation for re-excavation beyond the Plan limit of excavation will be allowed except when extra excavation is directed by the Engineer as a result of finding contaminants outside the Plan limits. Extra excavation, when directed by the Engineer, will be paid for as extra cubic yards of excavation measured by survey cross-section. An extension of Contract time will be considered by the Engineer if any directed extra excavation impacts the schedule.

C. An isolated excavation area (also referred to as the „bulls-eye' area) is located around sample location 5-B-3 in the excavation prism for the School yard. Test pitting and conformational sampling will be required in this isolated area prior to excavation. Contractor shall perform test pitting in this area as directed by the Engineer in conjunction with excavation to verify extent of excavation required in this area. The Contractor shall assist the Engineer in confirmation sampling area.

END OF SECTION 02110

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02114

STOCKPILING AND LOADING OF IMPACTED SOIL FOR DISPOSAL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Permits and Approvals
B. Reference
C. Materials
D. Stockpiling – General
E. Stockpile Construction
F. Stockpile Management
G. Stockpile Inspection
H. Stockpile Water Management
I. Loading
J. Stockpile Modification
K. Temporary Stockpile Removal

1.02 PERMITS AND APPROVALS

A. This section includes on-site temporary stockpiling in an area provided by the Owner, screening, amending, and loading excavated, impacted materials for transportation and off-site management.

B. Related Sections:

1. Section 01575 – Temporary Erosion and Sediment Control
2. Section 01580 – Environmental Controls
3. Section 02110 – Excavation and Handling of Non-impacted and Impacted Materials
4. Section 02118 – Stockpiling Overburden Material
5. Section 02120 – Transportation
6. Section 02130 – Decontamination
7. Section 02240 - Dewatering

1.03 SUBMITTALS

A. Prior to initiation of loading, provide the Engineer with the details of the onboard scale setup to be used on the equipment that will be loading the railcars. Demonstrate that the equipment is calibrated and accurate and that the equipment operators understand how to operate the equipment.

B. Provide a list of containers loaded and the amount of soil placed in each container based on the onboard scales of the loading equipment on a weekly basis to the Engineer.

1.04 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications, 2012.

B. ASTM C977 – Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization

C. ASTM D 1505 – Standard Test Method for Density of Plastics by the Density-Gradient Technique or

D. ASTM D 1238 – Condition E Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials, equipment, and labor required for the construction and maintenance of stockpiles on BNSF property and in accordance with WSDOT Standard Specifications, Section 3-02. All costs involved in preparing, constructing, isolating, covering, protecting, and maintenance of the stockpiles shall be included in the unit prices for the excavated or demolished impacted or non-impacted materials being stockpiled.

B. Stockpile bottom liners, if required by the Engineer, shall have a minimum thickness of 40 mils and shall consist of high-density polyethylene (HDPE) and shall be resistant to weathering and degradation due to contact with impacted materials for the duration of the Project work. The liner shall be furnished with prefabricated shop welded seams or seams welded in accordance with the manufacturers recommendations. Dimensions may be maximized to provide the largest manageable sheet.

The HDPE liner for the stockpiles shall be manufactured of polyethylene resins and shall be compounded and manufactured specifically for the intended purpose. The resin manufacturer shall certify each lot for the following properties.

Property	Test Method	HDPE Requirements
Density, g/cc	ASTM D 1505 or ASTM D 792	0.935 – 0.940
Melt Index, g/10 min.	ASTM D 1238 Condition E	< 0.4

The geomembrane shall be a minimum 23 feet seamless width, or as approved by the Engineer. Carbon black shall be added to the resin if the resin is not compounded for ultra-violet resistance.

The surface of the smooth geomembrane shall not have striations, roughness, pinholes, or bubbles.

The geomembrane shall be supplied in rolls. Labels on each roll shall identify the thickness of the material, the length and width of the roll, lot and roll numbers, and name of manufacturer.

Once the liners are in place and the stockpile area ready to receive, store material, the Contractor shall leave a floor of material on the bottom six to twelve inches in thickness to protect the liner from tear or puncture by the loader during the stockpiling or loading operation. Should the liner be torn, the Contractor will immediately repair the tear and not allow impacted material or run-off to escape the stockpile.

Stockpile covers shall be 6-mil (minimum thickness) polyethylene sheeting. The stockpile cover sheets shall be of sufficient length and width to completely and fully cover all of each stockpile with no more than two sheets.

C. Stockpile covers and liners shall be free of holes or tears. Defective material shall be immediately repaired or replaced and not allow leakage or escape of material from the stockpile area, as determined by the Engineer.

D. Furnish sand bags or other devices as approved by the Engineer of sufficient quantity and weight and with sufficiently close spacing to completely and fully hold the stockpile cover in position. Only clean, uncontaminated material shall be used to weigh down the covering; stockpile material shall not be used for cover weight. In particular, the edges of the stockpile covering shall be adequately anchored to completely trap the material within.

PART 3 – EXECUTION

3.01 STOCKPILING – GENERAL

A. Coordinate stockpiling and stockpile maintenance work with excavation work as specified in Section 02110 - Excavation and Handling of Non-Impacted and Impacted Materials.

B. Establish separate stockpiles as necessary for management of excavated materials prior to transport of excavated materials for on-site use as backfill or off-site disposal. The Contractor shall stockpile excavated clean overburden separate from impacted soil stockpiles in areas pre-approved by the Engineer.

C. Allow the Engineer reasonable access to sample stockpiles as required for waste disposal profiling purposes. The frequency of material sampling will depend upon the requirements by the disposal landfill facility. The Contractor shall allow five (5) working days between the time the Engineer collects the sample and the test result is available.

D. Stockpiling shall be allowed only in areas designated on the Plans and shall not be allowed in areas requiring excavation.

E. The Contractor shall be responsible for constructing and maintaining all stockpiles, furnishing all waste containers (with the exception of the rail car containers), and for the inspection, maintenance, modification, and repair of stockpiles and waste containers required for this Project work.

F. Line impacted material stockpiles as indicated on the Plans. Provide stormwater run-on control, manage all liquids that drain from stockpiles, prevent rain, stormwater, and surface water from contacting impacted and non-impacted material contained in the

stockpiles. Cover stockpiles during lengthy periods of inactivity, during periods of precipitation, and as necessary to control dust and odors.

G. Locate and construct separate stockpiles for impacted material and non-impacted material as approved by the Engineer.

H. Stockpile side slopes shall not exceed a slope of 1 horizontal to 1 vertical (1H:1V).

I. The edges of the stockpiles shall be located no closer than 1 foot from the designated Project perimeter and maintained in a covered and sealed condition at the end of each work day.

3.03 STOCKPILE CONSTRUCTION

A. A soil handling facility (identified as the Soil Handling Area on the Plans) exists at the Site for stockpile usage which must be repaired as specified in Section 01500- Temporary Facilities and Controls.

B. Should additional stockpile areas be necessary, prepare the designated area for stockpile construction as directed by the Engineer and with Engineer's approval:

1. Clean and remove debris from the stockpile footprint, repair the existing ground surface, install drainage to control stockpile run-off, place the bottom liner, place the floor protective material evenly across the fabric, maintain the stockpile and floor covering and pile covering fabric continually during the stockpiling operation.

2. Install bottom liner to fully cover the ground surface for each stockpile without field seams or overlaps and as recommended by the manufacturer. Anchor the liner adequately to prevent displacement. Monitor and maintain fabric integrity. Immediately repair tears or punctures where damaged by equipment.

C. Install stockpile cover in a manner that minimizes wrinkles and provides for a straight placement. All seams shall be taped or weighted down full length and there shall be at least 4 feet of overlap of all seams. Seams should then be rolled and staked or tied. Place sandbags or other pre-approved clean weighted objects on the cover at sufficiently close spacing to prevent uplift from wind. The toe of slopes shall be tightly secured and covered by the sheeting. Maintain complete and full covering over night and over weekends.

D. Protect the cover from damage. Remove and replace damaged polyethylene sheeting as needed and directed by the Engineer.

3.05 STOCKPILE MANAGEMENT

A. Impacted materials shall be placed only in properly constructed and maintained stockpiles. Do not place any designated non-impacted materials in the stockpiles designated for impacted materials.

B. The impacted soil stockpile shall be constructed so that it can retain the maximum amount of material possible in the event that rail car transit is interrupted for any reason.

C. Continually prevent impacted soil dust from becoming airborne. Place and anchor stockpile covers during periods of rain or wind. Cover the stockpiles whenever the stockpiles are not being used and at end of each work day.

D. Provide run-on controls to divert storm water away from stockpiles. Collect accumulated leachate from lined stockpile areas and manage the water as necessary for treatment or appropriate disposal as directed by the Engineer.

E. Install and maintain legible signs at conspicuous locations immediately adjacent to all stockpiled materials clearly indicating the nature of stockpiled materials, e.g., hazardous materials, non-hazardous impacted materials, backfill materials, etc.

F. The Contractor shall minimize vehicular traffic on pile covers and liners.

G. Stockpiles shall be managed to prevent the emission of dust, vapors, and odors in accordance with Section 01580- Environmental Control.

H. Stockpiles shall be managed to prevent soil erosion or sedimentation in accordance with Section 01575- Temporary Erosion and Sediment Control.

3.06 STOCKPILE INSPECTION

A. The Engineer will inspect impacted material stockpiles to affirm the integrity and maintenance of the stockpile liner and cover system.

B. All deficiencies noted by the Engineer and conveyed to the Contractor shall be immediately corrected by the Contractor to the satisfaction of the Engineer.

C. Contractor shall inspect each stockpile daily for damage and repair the damage immediately.

3.08 STOCKPILE WATER MANAGEMENT

A. It is anticipated that some water will be developed in the stockpile area as a result of gravity drainage of the wet impacted material. This drainage water shall be contained and pumped from the Contractor maintained sump area on a regular basis and scheduled by the rate of settlement of pile drainage water and handled as specified in Section – Section 02240 Dewatering.

3.09 LOADING

A. The Contractor shall provide equipment and labor to load all rail containers (or trucks should they be employed) for transport and disposal of materials excavated from the Project as specified in the Specifications.

B. The Contractor shall be prepared to load containers six (6) days per week in accordance with the Owner's schedule and waste disposal company's delivery schedule.

C. Coordinate with the waste disposal facility for railcar container loading of impacted materials for the project site as required.

D. Visually inspect and decontaminate the exterior of all rail cars and containers in compliance with all applicable regulations and Section 02130-Decontamination. Note and record the rail cars loaded including the car and container identifying numbers. Inspect the interior of the containers for holes in the bottom or sides of the containers. Notify the Engineer of any containers that would allow impacted material to fall out of the container onto the rails. Do not load containers that may allow impacted material to fall out of the container onto the rails.

E. The Contractor shall bear full responsibility for coordinating with the disposal facility the number of rail containers, trucks, loading operations, and hours for loading. Note that the Contractor shall load out railcars at the maximum rate possible during the project. Should the Engineer determine that the Contractor is not loading out the maximum number of rail cars possible, no extensions will be granted on construction dates (including liquidated damages dates) for this reason.

F. The Contractor shall load each container (two containers per rail car) with 28 tons to 32 tons per container. The Contractor shall provide, maintain, and operate a scale indicator on the loading equipment to verify the weight on the rail car to be within the specified weight limits. Such weighing equipment shall be certified for accuracy by an acceptable company noted for standardizing scales and documented to the Engineer prior to any loading of impacted material. Certification shall be required any time during the Project work that equipment is changed or modified as well as at the request of the Engineer. A log shall be maintained by the Contractor of all containers loaded, the date of loading and the amount of soil placed in the container in accordance with the onboard scales of the equipment.

G. The Contractor shall be fully and completely responsible for all expenses incurred due to containers that weigh greater than 34 tons per container and those that weigh less than 28 tons per container. Such expenses include off-loading the overloaded containers along the rail corridor, transferring the overloaded materials to trucks for trucking, or fees imposed by the disposal firm for under- or over-loaded containers.

H. The Contractor shall closely and adequately coordinate and schedule transportation work with excavation work in order to maintain efficient excavation, stockpile, and load-out production rates for completion of the Project in accordance with the listed Construction schedule milestones. Slowing or stopping excavation work by the Contractor for reason of lack of transportation or availability of shipping containers will not be considered a reason to extend the construction milestones, including those tied to liquidated damages. A waste disposal facility delay is the only exception to this rule. The Contractor shall stockpile soil in accordance with this Section and prosecute Project work efficiently and expeditiously.

I. The Contractor shall carefully prepare and coordinate excavation, demolition, stockpiling, loading, and transportation, subject to prior approval by the Engineer, in order to efficiently utilize combined resources. The Contractor's operations shall be coordinated to minimize standby time and minimize rail cars waiting time and to maximize excavation production and hauling production. Containers on rail cars shall be provided with liners and loaded as soon as they are available for load-out. Loading delays resulting in monetary impacts to the Owner, and determined by the Engineer to be caused by the Contractor shall result in a monetary impact passed to the Contractor by a

deductive change order. The Contractor shall be responsible for the costs of delay to the Owner and as determined solely by the Engineer should the Contractor not load containers and prosecute the work in an expeditious and timely manner.

J. All rail cars containers shall be adequately lined and loaded carefully in order to prevent spills. If trucks are used for hauling, stage trucks within the remediation area so that spills shall be contained within the area and easily removed. If required by the Engineer, spread polyethylene sheeting over an area sufficient for truck loading in order to avoid contaminating the loading site. Spilled material shall be immediately picked up and deposited in the appropriate stockpile area. The trucks shall be properly lined prior to their use for hauling impacted material.

K. The Contractor shall be fully and completely responsible for proper loading and adhering to load and weight limits of all rail cars and trucks leaving the Project. All fines, taxes, penalties, or judgments resulting from overweight or improperly loaded vehicles shall be the full and complete responsibility of the Contractor.

L. Track-mounted equipment shall be decontaminated per Section 02130-Decontamination prior to leaving the Exclusion Zone.

M. The Contractor shall be responsible for ensuring that all material loaded for off-site disposal meets paint filter criteria in accordance with applicable transportation laws and regulations as well as the requirements of the receiving off-site disposal facility. At the sole expense of the Contractor, should the Engineer determine Contractor fault in not adequately covering loads or stockpiles, or in unacceptable modification of excavation and material handling methods, including inappropriately handling waste or contaminated water; repair of such work shall be the full and complete responsibility of the Contractor.

N. The Contractor shall recognize that handling and disposal requirements for material impacted with TPH and metals may be different based on the characterization results. Therefore, the Contractor shall be ready and equipped to handle and stockpile the material separately and load it separately for appropriate off-site disposal meeting the transportation and disposal requirements of Washington State.

3.10 STOCKPILE MODIFICATION

A. After the completion of the excavation there may be excavated impacted material that is stockpiled in the soil handling facility prior to load-out. At the direction of the Engineer, the soil handling facility may be modified to allow for a portion of the soil handling facility to be bermed for stockpiles. At that time, the remainder of the soil handling facility will be decontaminated with the berm breached as outlined below.

3.11 TEMPORARY STOCKPILE REMOVAL

A. After the completion of the excavation, stockpiling, and disposing of the Project materials, the Contractor shall remove the geomembrane bottom liner and top cover of any temporary stockpile areas and dispose at the designated off-site disposal facility with the impacted soil and debris.

B. After the completion of the excavation, stockpiling, and disposing of the Project materials, the Contractor shall decontaminate the asphalt pad and all other affected site

features in the soil handling facility and breach the berms to allow free drainage off the asphalt pad.

END OF SECTION 02114

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02118

STOCKPILING OVERBURDEN MATERIAL

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Overburden Characterization
C. Stockpiling – General
D. Stockpile of Overburden Material
E. Stockpile Construction
F. Stockpile Management
G. Stockpile Inspection
H. Stockpile Modification

1.02 SUMMARY

A. This section includes on-site temporary stockpiling of overburden material (material excavated from above the excavation vertical delineation limit [VDL]) in an area provided by the Owner, BNSF.

B. Related Sections:

1. Section 01575 – Temporary Erosion and Sediment Control
2. Section 01580 – Environmental Control
3. Section 02110 –Excavation and Handling of Non-Impacted and Impacted Materials
4. Section 02114 –Stockpiling and Loading of Impacted Soil for Disposal
5. Section 02120 –Transportation
6. Section 02130 – Decontamination

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials, equipment, and labor required for the construction and maintenance of overburden stockpiles in designated areas and in accordance with these Specifications. All costs involved in assisting with sampling, preparing, constructing, isolating, covering, protecting, and maintenance of the stockpiles shall be included in the unit prices for the excavated non-impacted materials being stockpiled.

B. Stockpile covers shall be free of holes or tears. Defective material shall be immediately repaired or replaced and not allow leakage or escape of material from the stockpile area, as determined by the Engineer. Material which can be used for stockpile cover must be kept on-site for use at the direction of the Engineer.

C. Furnish sand bags or other devices as approved by the Engineer of sufficient quantity and weight and with sufficiently close spacing to completely and fully hold the stockpile cover in position when covering of the stockpile is requested by the Engineer. Only clean, uncontaminated material shall be used to weigh down the covering; stockpile material shall not be used for cover weight. In particular, the edges of the stockpile covering shall be adequately anchored to completely trap the material within.

PART 3 – EXECUTION

3.01 OVERBURDEN CHARACTERIZATION

A. In order to characterize the overburden material, the Contractor shall lay out the 25 feet by 25 feet sampling grid. The grid will be reproducible, that is to say that the Contractor will be able to replicate the grid after overburden sampling and excavation, and all other Project activities are concluded.

B. The Contractor shall provide labor and equipment to assist the Engineer in collecting a sample approximately four and a half (4.5) feet below ground surface in each grid at the Engineer's direction.

C. Results of the laboratory analytical testing will be used to determine the appropriate handling of the overburden material. If the Engineer determines that the material is uncontaminated, it shall be used for on-site backfill material if within optimum moisture tolerance. If the Engineer determines that the material is impacted it shall be handled in accordance with Section 02114 - Stockpiling and Loading of Impacted Soil for Disposal.

3.02 STOCKPILING – GENERAL

A. Coordinate stockpiling and stockpile maintenance work with excavation work as specified in Section 02110 - Excavation and Handling of Non-Impacted and Impacted Materials and impacted material stockpiling as specified in Section 02114 - Stockpiling and Loading of Impacted Soil for Disposal.

B. Establish separate stockpiles as necessary for management of excavated materials prior to transport of excavated materials for on-site use as backfill. The Contractor shall stockpile excavated clean overburden separate from impacted soil stockpiles in areas pre-approved by the Engineer.

C. Stockpiling shall be allowed only in areas designated on the Plans and shall not be allowed in areas requiring excavation.

D. Locate and construct separate stockpiles for impacted material and non-impacted material as approved by the Engineer.

E. Stockpile side slopes shall not exceed a slope of 1 horizontal to 1 vertical (1H:1V).

F. The edges of the stockpiles shall be located no closer than 1 foot from the designated Project perimeter.

3.03 STOCKPILE CONSTRUCTION

A. The soil handling facility that currently exists at the Site should be used for impacted material stockpiling only. Overburden stockpiles may not be placed within the soil handling facility without the consent of the Engineer.

B. The overburden stockpile area shall be prepared in accordance with these Specifications:

1. Clear and grub the area directed by the Engineer for the stockpiling of overburden material. Remove all debris from the lot, and surface the property with crushed rock.

2. The ground surface shall be relatively leveled and compacted to non-yielding condition.

3. The stockpile area site preparation and related Temporary Erosion and Sediment Control measures shall be inspected by the Engineer before use.

C. Install stockpile cover, if requested by the Engineer, in a manner that minimizes wrinkles and provides for a straight placement. All seams shall be taped or weighted down full length and there shall be at least 4 feet of overlap of all seams. Seams should then be rolled and staked or tied. Place sandbags or other pre-approved clean weighted objects on the cover at sufficiently close spacing to prevent uplift from wind. The toe of slopes shall be tightly secured and covered by the sheeting. Maintain complete and full covering over night and over weekends.

D. Protect the cover from damage. Remove and replace damaged polyethylene sheeting as needed and directed by the Engineer.

3.04 STOCKPILE MANAGEMENT

A. Overburden materials shall be placed only in properly constructed and maintained stockpiles. Do not place any designated non-impacted overburden materials in the stockpiles designated for impacted materials without specific direction from the Engineer.

B. Continually prevent soil dust from becoming airborne. Place and anchor stockpile covers as needed at the completion of each workday and during periods of rain or wind. Cover the stockpiles whenever the stockpiles are not being used and at end of each work day.

C. Provide run-on controls to divert storm water away from stockpiles.

D. Install and maintain legible signs at conspicuous locations immediately adjacent to all stockpiled materials clearly indicating the nature of stockpiled materials, e.g., overburden materials, backfill materials, etc.

E. The Contractor shall minimize vehicular traffic on pile covers.

F. Stockpiles shall be managed to prevent the emission of dust, vapors, and odors in accordance with Section 01580- Environmental Control.

G. Stockpiles shall be managed to prevent soil erosion or sedimentation in accordance with Section 01575 - Temporary Erosion and Sediment Control.

H. Only materials approved by the Engineer may be placed in the overburden and imported aggregate materials stockpile. In the event that the Contractor places any unapproved materials into the overburden or imported aggregate material stockpiles and the unapproved materials are impacted, the Contractor shall be responsible for loading all the unapproved and cross-contaminated impacted materials, disposing of all impacted materials, and importing replacement material for any contaminated clean overburden or imported aggregate material at no cost to the Owner.

3.05 STOCKPILE INSPECTION

A. The Engineer will inspect material stockpiles to affirm the integrity and maintenance of the stockpile cover system when recovered.

B. All deficiencies noted by the Engineer and conveyed to the Contractor shall be immediately corrected to the satisfaction of the Engineer.

C. Contractor shall inspect each stockpile daily for damage and repair the damage immediately.

3.06 STOCKPILE WATER MANAGEMENT

A. In the event that water is developed in the stockpile area as a result of gravity drainage of the overburden, this drainage water shall be contained and pumped from the Contractor maintained sump area on a regular basis and scheduled by the rate of settlement of pile drainage water and transferred to the construction water treatment system constructed for this Project.

3.07 LOADING

A. The Contractor shall provide equipment, labor, and containers for loading and transporting the material back to the excavation area for backfilling purposes or to the impacted materials stockpile area for disposal.

END OF SECTION 02118

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02120

TRANSPORTATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Hauling of Demolition Debris, Impacted Decontamination Water, and Non-Hazardous Materials
D. Manifests
E. Transportation

1.02 SUMMARY

A. This section includes loading and transportation of clearing and grubbing materials, demolition debris, impacted decontamination water, and other non-hazardous materials to a licensed and previously approved facility for the Project.

B. Non-Hazardous impacted soils from the excavations will be transported by waste haulers retained and contracted by the Owner, BNSF. The Contractor shall be responsible for identifying prospective waste haulers, and coordinating loading and haul out with the waste haulers for the entire duration of the Project. The Contractor shall be fully and completely responsible for the proper loading of the waste containers and for abiding by the load and weight limits for all vehicles leaving the Project, in addition to being responsible for any fine, tax, penalty or judgment resulting from overweight or improperly loaded rail or trucking vehicle leaving the Project with excavated material.

C. Cleared and grubbed vegetation, construction debris, impacted decontamination water, and other non-hazardous materials shall be transported by waste haulers retained and contracted by the Contractor and approved by the Engineer.

D. Related Sections:

1. Section 01150 – Health and Safety
2. Section 01325 – Progress Schedules and Reports
3. Section 01330 – Submittal Procedures
4. Section 02110 –Excavation and Handling of Non-Impacted and Impacted Materials
5. Section 02114 –Stockpiling and Loading Impacted Soil for Disposal
6. Section 02130 – Decontamination.

BNSF – 2013 Schoolyard Excavation Supplement

1.03 SUBMITTALS

A. Provide the Engineer a list of proposed waste haulers (except for the impacted materials transport which will be provided by the Owner) for the work described in this section for review and approval. Submit copies of all necessary permits and certifications of listed waste haulers to the Engineer for approval at least five (5) working days prior to the scheduled start of the Work.

B. Provide the Engineer a list of proposed disposal facilities for the work described in this section for review and approval. Submit copies of all necessary permits and certifications to the Engineer for approval at least five (5) working days prior to the scheduled start of the Work.

C. The Contractor shall submit written certification of the proper transport of demolition debris and impacted decontamination water to the Engineer within one (1) working day after receipt of the documentation. Submit copies of all waste manifests, weight tickets, and bills of lading to the Engineer.

D. The Contractor's Daily Construction Report shall include detailed documentation of all loading and transport activities as specified in Section 01325- Progress Schedules and Reports.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 HAULING DEMOLITION DEBRIS, IMPACTED DECONTAMINATION WATER, AND NON-HAZARDOUS MATERIALS

A. The Contractor shall be responsible for furnishing and operation of all vehicles and containers for transportation of impacted decontamination water, demolition debris, and other non-hazardous materials from the Project site. The Owner will furnish containers for transportation of impacted non-hazardous soil.

B. The Contractor shall haul and store impacted decontamination water or liquids recovered during demolition in suitable water-tight containment system for Contractor disposal at an appropriate licensed facility.

C. The Contractor shall haul and store any recovered free product in suitable tight containers for Contractor's disposal to an appropriate waste oil treatment facility. No free product oil will be allowed to spill onto the public right-of-way or onto private property. It shall be transported in a water-tight containment system. Should any free product oil, nevertheless, be spilled onto a public street or onto private property, it shall be immediately cleaned of all contamination to the satisfaction of the Department of Ecology and the Engineer.

D. Transportation of all categories of demolition debris, impacted decontamination water, and other fluids encountered during demolition shall be in compliance with all appropriate regulations.

E. Each truck bound for an off-site landfill shall be covered with a heavy-duty tarpaulin secured to the top or sides of the container or transfer facility.

F. The Contractor shall provide flaggers as necessary when haul trucks enter and exit the public right-of-way to protect pedestrian and motoring safety.

G. The Contractor shall visually inspect each truck bound for an off-site landfill before it leaves the site to ensure that the tailgate and tarpaulin are secure and completely clean of debris. Decontaminate each vehicle as specified in Section 02130-Decontamination as needed. If directed by the Engineer, verify that covers and tarpaulin are secured to the necessary parts of the truck bed. Bed lined trucks are not required for transport of materials and shall be used only as directed by the Engineer.

H. The Contractor shall promptly clean-up any spills of Project excavated material on public haul routes, should they occur, with suitable equipment at no cost to this Project.

I. Keep and maintain public haul routes and public right-of-way free of any site materials from this Project due to the Contractor's operations. To this end, all Contractor truck loads shall be covered when operating in the public right-of-way, and all vehicles shall be carefully loaded to a level safely beneath the freeboard to prevent spillage and to prevent site materials from coming in contact with the exterior truck surfaces. Any material deposited on an outside truck surface shall be cleaned-off prior to leaving the Project load-out area.

J. The load weight shall be documented by the landfill or off-site disposal facility certified scale and certified scalemaster stamp. Copies of the scale certification and the scalemaster's certification shall be submitted to the Engineer during the start-up phase of the Project. The Contractor shall submit copies of all landfill or off-site disposal facility scale weight tickets to the Engineer. Weight tickets without the scalemaster's stamp will be subject to rejection.

K. Truck drivers shall be required to remain inside the truck cab with the windows and doors closed during the loading operation and at all times when inside the Exclusion Zone. Drivers shall be instructed to proceed after loading through a decontamination area to a designated area outside the Exclusion Zone where they shall be permitted to exit the truck cab to secure the tarpaulin over the load.

L. The Contractor shall address vehicular accidents and the possible release of transported materials in the HASP.

M. Material impacted with TPH and metals may require special handling and transportation separate from the TPH impacted material. If so, the Contractor shall provide appropriate containers for loading and hauling the metals impacted material to the appropriate licensed facility with approval of the Engineer.

3.02 MANIFESTS

A. The Engineer will prepare and sign manifests on behalf of the Owner, BNSF, as well as prepare necessary documentation for transportation and disposal of non-hazardous impacted decontamination water/materials.

B. Non-hazardous waste manifests or other tracking documents will be provided by the Engineer for each individual load. Each manifest will be signed by designated authorized

agent of the Owner as a shipper, the truck driver as a transporter, and by the landfill and/or other designated off-site facility operator.

The Contractor will not be paid for shipments with unsigned manifests or bills of lading.

3.03 TRANSPORTATION

A. Obtain all required transportation permits for shipment of non-hazardous impacted decontamination water/materials and demolition debris.

B. Transportation of non-hazardous impacted decontamination water/materials and demolition debris shall be in accordance with applicable state, USDOT, and other applicable regulations.

END OF SECTION 02120

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02130

DECONTAMINATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Decontamination Facilities
D. Decontamination of Vehicles and Equipment
E. Personnel Decontamination
F. Management of Decontamination Residuals

1.02 SUMMARY

A. This section covers the decontamination of personnel and equipment transitioning from the Exclusion or Work Zones into the Support Zones of the remediation site.

B. Related Sections:

1. Section 01150 – Health and Safety
2. Section 01500 – Temporary Facilities and Controls
3. Section 02120 – Transportation

1.03 SUBMITTALS

A. Submit prior to mobilization, for the Engineer's review, decontamination procedures as part of the Contractor's HASP specified in Section 01150. Provide the following information:

1. Decontamination methods and equipment
2. Procedures to prevent cross-contamination of clean areas

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 DECONTAMINATION OF VEHICLES AND EQUIPMENT

A. Prior to exiting the Exclusion Zone, the Contractor shall inspect and decontaminate all vehicles as needed to satisfaction of the engineer.

B. Decontamination work shall include removal of soil and residues from the chassis (which includes undercarriage, suspension, tires and wheels, tracks, loader buckets, excavator

buckets) and other parts of the vehicle known to have contamination or visually appearing to be contaminated.

C. Inspect and decontaminate haul trucks after loading and before the haul trucks exit the Exclusion Zone each time.

3.03 PERSONNEL DECONTAMINATION

A. Ensure that personnel who have entered the Exclusion Zone perform decontamination as required in Section 01150 - Health and Safety prior to exiting the Decontamination Zone.

3.05 MANAGEMENT OF DECONTAMINATION RESIDUALS

A. Dewater and collect decontamination solids. Maintain dewatered decontamination solids with impacted soil for landfill disposal, as specified in Section 02120- Transportation.

END OF SECTION 02130

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02150

GEOTECHNICAL INSTRUMENTATION AND MONITORING

PART 1 -- GENERAL

1.01 SUMMARY

A. This Section specifies instrumentation and settlement monitoring required to monitor earth, utilities, structures, and improvements during excavations within the 2013 remediation areas.

1.02 QUALITY ASSURANCE

A. Referenced Standards: Not Used.

B. Qualifications:

1. Surveyor**:** Section 01722

1.03 SUBMITTALS

A. Procedures: Section 01330.

B. Qualifications.

C. Pre-construction survey of the surrounding buildings and structures.

D. Instrumentation Installation and Plan, including a layout for the vibration monitoring equipment and a schedule for vibration monitoring.

E. Within 5 working days after approval of each instrument type, one set of operating manuals for each type of instrument, including read-out devices and appurtenant equipment required for a complete installation.

F. Baseline values for each appropriate instrument posted electronically to the Instrumentation Data Management System.

G. Data obtained during the monitoring as required in the Contract Drawings posted electronically to the Instrumentation Data Management System.

H. As-built drawings.

I. Corrective Action Plan.

J. Monitoring data memo.

1.04 DEFINITIONS

A. Optical Survey Monitoring: Precise field measurements using survey techniques for determination of elevations, coordinates, and distances for performing geotechnical instrumentation monitoring.

B. Settlement Points:
1. Fixed markers placed on unimproved ground, structures, pavements, and curbs for the purpose of monitoring changes in elevations of existing ground, new and existing structures, and existing utilities.
2. Monitored by optical survey methods to determine vertical or horizontal displacements.

C. Instrument Reference Elevation Points:
1. Fixed markers installed integral to and permanently marked on all instruments, including inclinometer casings.
2. Intended for monitoring of instrument installation surface elevations.

D. Action Level: Specified amount of measured movement at which point action shall be taken to the excavation and construction operations.

1.05 PRE-CONSTRUCTION SURVEY

A. Details of data to be collected during the pre-construction survey of existing structures within 100 feet of a remediation excavation.

1.06 INSTRUMENTATION INSTALLATION AND PLAN

A. Schedule and outline of procedures and timing for instrument installation and performance of monitoring:
1. Schedule to include summary table for all instrument installations by number and location and to include detailed monitoring timetable as follows:
a. Timing of each instrument installation.
b. Initial baseline monitoring schedule.
c. Timing of monitoring commencement and schedule of monitoring for each settlement point and piece of geotechnical instrumentation.
2. Procedure to confirm that instruments are working correctly following installation.
3. Data review process for comparison to indicated Action Levels.

B. Specifications and installation procedures for each type of settlement point and geotechnical instrumentation.

C. Detailed plan of instrumentation locations, including: proposed instrumentation locations, locations of data loggers or computers, cable routing to data loggers or computers, and communication systems (if used).

D. Details including casing, covers, and materials for grout backfill.

E. Certification: Manufacturer's certification that products, materials, and equipment furnished meets the specified requirements.

F. Documentation and initial factory calibration certificates for all geotechnical instruments and readout instruments to be used.

G. Sample data forms and instrumentation data, including sample instrument calibration data, and construction information (i.e. Easting and Northing coordinates, offset from track centerline, etc.) for each settlement point and geotechnical instrument.

H. Description of Instrumentation Data Management System (IDMS), including:
1. General description of the system.
2. How data is posted to IDMS.
3. How data is viewed in IDMS.
4. Reports generated in IDMS.
5. Alarms and notification through IDMS.
6. How access is controlled by IDMS and by whom.

1.07 AS-BUILT DRAWINGS

A. Settlement points and Instrument Reference Elevation Points on a maximum scale of 1-inch equals 20-feet; include elevation and Easting and Northing coordinates.

1.08 MONITORING DATA

A. Obtain data and readings in accordance with schedule indicated on the Drawings.

B. Upload monitoring data and readings, as applicable, to the IDMS on a daily basis or as shown on the Drawings.

C. Prepare data plots, review reports and plots for accuracy and completeness, and submit paper copies of data reports and plots from monitoring points within twenty-four hours of taking the monitoring data and readings for monitoring data and readings not uploaded to the IDMS.

1.09 CORRECTIVE ACTION PLAN

A. Details of actions to be taken in the case of settlement exceeding the Action Levels indicated on the Drawings.

B. Details of actions to be taken in the case of movement exceeding the limit of movement indicated.

C. Include operational changes to reduce the rate of soil movement, settlement, or heave.

1.10 DESIGN CRITERIA

A. Tolerances:
   1. Establish the initial elevations of settlement points to 0.01 foot.
   2. Record the subsequent elevations of settlement points to 0.01 foot.
   3. Achieve level circuit closure with an error of closure of 0.017N-feet or less, where N is the circuit distance in miles.
   4. Establish the initial horizontal coordinates of settlement points to 0.01 foot.
   5. Install instrument casings within two percent of vertical for the entire length and to the specified depth.

1.11 AVAILABILITY OF DATA

A. Do not disclose data reports and all other unprocessed data, readings, and observations to third parties.

B. Data obtained by the Contractor shall be submitted to the Engineer within 24 hours of the instrumentation reading.

1.12 RIGHT OF ENTRY

A. Right of entry to BNSF property as indicated for the installation and monitoring of settlement points to be provided by BNSF.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Provide instrumentation reading devices, fixtures, cables, and necessary software for the various monitoring systems.

B. Grout mix for inclinometer installations shall be a mixture of 94 pounds of Portland Cement, 25 pounds of Bentonite, and 30 gallons of water. Mix cement with water first, then mix in bentonite. Quantity of bentonite in mix shall be adjusted as needed.

C. Bentonite:
1. Premium grade Wyoming sodium montmorillonite manufactured in accordance with API Standard 13A.
2. Bentonite pellets: Compressed Wyoming bentonite of pellet size 3/8 inch to ½ inch.

D. Water: Fresh and potable water.

E. Epoxy Mortar: Two-component, 100 percent solids, 100 percent reactive compound suitable for use on dry or damp surfaces. Use Sikadur 32 Hi-Mod produced by Sika Chemical Corp., or approved equal.

F. Access covers for settlement points:
1. Frame: Heavy duty steel or cast iron construction.
2. Lid:
   a. Solid.
   b. Steel or cast iron.
   c. Locking (requiring a flush surface entry).
   d. Gasketed.
3. Dimensions: Appropriate to instrumentation requirements.

2.02 VERTICAL IN-PLACE INCLINOMETERS

A. Vertical In-place Inclinometer Sensors
1. Slope Indicator Co. (Sinco) Biaxial, Multiplexed Sensors, Model 56804522 or approved equal.
2. Measurement Requirements:
   a. Resolution: 0.0004 foot per feet
   b. Accuracy: within 0.025 foot per 100 feet
   c. Range: within 10 degrees from vertical
   d. Repeatability: ± 22 arc second
   e. Wheels to fit 2.75-inch casing
   f. 1 meter (3.28 feet) gauge length

B. Gauge Tubing
1. Provide 1 meter (3.28 feet) gauge tubing.

C. Jumper Cable
1. Slope Indicator Co. Model 56804510 or approved equal.

D. Provide One Copy of Inclinometer Software
1. Computer software for uploading casing information to readout device, downloading instrument readings to computer, data reduction, and plotting. Use software that is compatible with the specified probe and readout device.
2. Software capable of plotting:

a. Multiple profiles of the same casing on the same plot calculated from the bottom up or the top down.
b. Real-Time-Displacement at sensor depths.

E. Ancillary equipment: Provide Suspension Kits (for 2.75-inch casing), Placement Kits (for 2.75-inch casing) and other accessories as necessary for a complete and functional system.

F. Casing
1. Slope Indicator Co. Models 51150210, or approved equal.
2. Material: Acrylonitrile/butadiene/styrene (ABS) with internal grooves at 90 degree intervals.
3. Diameter: 2.75-inch Outer Diameter, 2.32-inch Inner Diameter.
4. Spiral / misalignment: no more than 0.033 degree per foot.
5. Couplings: as provided by casing manufacturer.
6. Casing cement (if used):As recommended by manufacturer for temperature and humidity conditions at the site.
7. End cap: Top and Bottom caps as provided by casing manufacturer.
8. Ancillary equipment: Pop rivets, rivet gun, joint tape, pipe clamps, and other equipment as recommended by casing manufacturer for a complete and functional system.

G. Tremie Tube
1. Continuous polyethylene or approved equal.
2. Minimum ID: ¾ inch.
3. Wall thickness sufficient to withstand external hydrostatic pressure and internal grout pressure.

H. Backfill: Grout mix specified herein.

I. Protective Enclosure: As specified herein for vertical inclinometers.

J. Grout sock for inclinometer installation:
1. Non-woven geotextile.
2. Maximum grab strength of 100 lbs.
3. Minimum elongation at ultimate failure of 50%.
4. Diameter of 2 inches greater than nominal diameter of borehole.

2.03 SURVEY SYSTEM

A. Structure Settlement Points: Adhesive-backed targets, Leica Models #635-317 (20 mm square), #635-318 (40 mm square), or #635-319 (60 mm square) or approved equal.

B. Surface Settlement Points: As shown on the Contract Drawings or approved equal.

C. Protective Enclosures: As specified herein.

D. System Accuracy Requirements
1. The accuracy requirements established in this Section apply to the final data, including the composite effects of reflectors, readout instruments, measurement methods, temperature, operator variability, and other contributing factors.
2. All accuracies in this Section have an associated confidence level of 90 percent.
3. Survey points used for monitoring ground surface settlement (Surface Settlement Points):
   a. Within 0.01 foot vertical
   b. Within 0.01 foot horizontal
4. Reflectors installed on temporary or permanent structures (Structure Settlement Points):
   a. Within 0.01 foot vertical
   b. Within 0.01 foot horizontal
5. Optical monitoring lines: 0.01 foot perpendicular to the line.

2.04 DATALOGGER

A. Capable of reading all sensors associated with instruments described in this Section.

B. Campbell Scientific Model CR1000 Datalogger or approved equal for monitoring multiple instruments.

C. Complete with input, output, signal conditioning, communications, and other hardware for a complete and functional system, including but not limited to:
1. Multiplexers
2. Local input/output connection for laptop computer
3. Telephone modem

D. Mount the datalogger in a protective enclosure as specified herein that will accommodate each manufacturer's enclosures for components of the system.

E. Provide mounting posts, concrete, and other materials / equipment for the protective enclosure as required for complete, reliable, and durable system over the life of the Contract.

F. Provide a continuous, adequate power source free of voltage transient surges/sags for the datalogger in accordance with the manufacturer's recommendations.

2.05 INSTRUMENTATION DATA MANAGEMENT SYSTEM

A. Capable of comparing the output of each sensor, in engineering units, against user-selected alarm limits, and electronically relaying hourly logged readings to the Contractor's and Engineer's offices.

B. Capable of storing and disseminating all data from sensors associated with instruments described in this Section.

C. Automated processing of the instrumentation data to convert readings into meaningful engineering units.

D. Displays graphs of instrumentation data.

E. Generates reports of instrumentation data.

F. Access to the information is controlled.

G. iSite system by Geocomp, Argus system provided by Sinco, or approved equal.

2.06 PROTECTIVE ENCLOSURES

A. Provide protective enclosures with the following features, as indicated on the Contract Drawings:
   1. Bolted lids.
   2. Painted or otherwise protected from weather, and waterproof to prevent the ingress of water into the enclosure.
   3. With flanges, brackets, or other equipment appropriate for the associated type of mounting. Weld or otherwise attach mounting equipment to the enclosure and do not penetrate the protective enclosure (i.e. no bolt holes).
   4. A minimum of 3-inch clearance all around the enclosed instrument, or as indicated on the Contract Drawings, or as specified for specific instruments.

B. Ensure conduit for signal cable penetrates the wall of the enclosure using standard fittings to provide continuous protection for the cable.

C. Ensure signal cables not enclosed in conduit penetrate the wall of the enclosure through standard weather-proof flexible compression (grommet) fittings.

D. For enclosures subjected to vehicular traffic, mount the enclosure flush with the ground surface, and design for H-20 AASHTO loading.

2.07 AUTOMATED TOTAL STATION

A. Automated Total Station

1. Leica Model TM30 or approved equal.
2. Measurement Requirements:
   a. Range: 250 feet minimum
   b. Accuracy: 2 mm
3. System Reporting: Readings from the designated Structure Settlement Points shown on the Drawings shall be reported to the Instrumentation Data Management System.
4. Ancillary equipment: Parts needed for a complete and functional system.
5. Protective Enclosures: As specified herein.

PART 3 – EXECUTION

3.01 GENERAL

A. Install settlement points and geotechnical instrumentation as indicated and as close as practicable to the locations indicated on the Drawings. Adjust for the actual conditions in the field.

B. Exact locations of settlement points and geotechnical instrumentation shall be field-determined and shall be approved by the Engineer prior to installation.

C. Verify location of buried utilities before installation of instrumentation.

D. Install access covers to protect installed settlement points as identified on the Drawings.

E. Provide as-builts and surveyed location of each instrument within five days of installation.

3.02 INSTRUMENT INSTALLATION

A. Unless otherwise specified, install all instruments in accordance with the manufacturer's recommendations and requirements. Manufacturer's recommendations are included as a part of these Specifications by reference, and are applicable, regardless of whether a particular recommendation is explicitly stated in this Section or not.

B. Surface/structure settlement monitoring points:
   1. Locate structure settlement monitoring points to minimize damage to façade and facilitate repair after removal.
   2. Points installed in pavements shall be installed to minimize traffic disturbance.
   3. In a traffic area, the top of the access cover shall be depressed so that it is flush with the surrounding pavement surface.

4. Any other chipping shall be filled with epoxy grout, as approved by the Engineer, so that no depression is evident beyond the shoulders of the monitoring point.

C. Vertical In-Place Inclinometers

1. Only install inclinometer casings and vertical in-place inclinometers with a representative of the Engineer present, unless otherwise approved.
2. Install inclinometer casings to the depths or lengths listed on the Drawings.
3. Install vertical in-place inclinometers such that the bottom of casing is within 2 degrees of vertical, referenced to the top of the casing at the ground surface.
4. For cemented casing, join casing using casing cement followed by installation of pipe rivets at 90-degree intervals around casing for each pipe section (total of eight rivets). Join other types of casing as recommended by casing manufacturer.
5. Tape all joints and install end cap to prevent grout entry.
6. Attach tremie tube to outside of casing using wire or tape. Align end of the tube to be even with end of casing to allow filling of borehole starting from the terminus.
7. Place grout sock over both casing and tremie tube for the full length of the casing.
8. Orient vertical inclinometer casings so that the orthogonal grooves are positioned parallel and perpendicular to the closest remediation excavation. Temporarily cap inclinometer casings after installation to prevent entry of foreign material.
9. Fill casing with water and anchor casing as required to prevent it from floating out of the borehole during installation.
10. Do not install protective cap or otherwise disturb inclinometer for a minimum of 24 hours after installation, or until grout has set, as approved by the Engineer.
11. For vertical inclinometers, install protective enclosures concentric with inclinometer casing to a depth of at least 3 feet below ground surface. Center inclinometer casing inside steel casing, and fill annulus with grout to 12 inches below top of inclinometer casing. Backfill around outside of casing to ground surface with concrete to ensure that casing will remain in position.

D. Crack Gauges

1. Install crack gauges in accordance with the manufacturer's recommendations.

E. Automated Total Station

1. Install automated total station in accordance with the manufacturer's recommendations.

2. Install protective enclosures to prevent theft, tampering, and damage to the automated total station.
3. Install reference survey targets outside of the project area so that the automated total station can periodically re-calibrate its position.
4. Install and route any necessary power or data cables in such a manner so that they will not be damaged by construction activities or vehicular traffic.

F. Portable readout units may be used for testing instrument function prior to connection with datalogger, and at other times as necessary. However, implement fully automated (datalogger) reading function prior to the start of construction of the associated remediation excavation.

G. Verify baseline readings agree to within the accuracy of the instrument.

3.03 PROTECTION AND MAINTENANCE

A. Keep protective access covers in place at all times other than during manual monitoring and maintenance.

B. Maintenance of instruments to be performed monthly:
1. Keep access cover enclosures free of water.
2. Clean electrical connections and reference head attachment.
3. Check and test circuitry and power supply.
4. Check datalogger for operation.

C. Replacement settlement points shall be available within 24 hours for repair and replacement of existing installed settlement points.

D. Replacement instruments, components, and readout units shall be available within 24 hours for repair and replacement of existing installed instrumentation.

E. Repair or replace damaged or missing instrument components or entire instruments as required for operation within 48 hours of detection of damage where re-installation is required or within 24 hours of detection where readily accessible parts are to be replaced or repaired.

F. Repair or replace damaged or missing settlement points as required for operation within 24 hours of detection of damage.

G. In the event of noted abnormal monitoring data or instrument damage, repair or replace the affected instrument or components within 48 hours of detection.

3.03 INSTRUMENTATION MONITORING

A. Monitor and report all settlement points and geotechnical instruments as indicated on the Drawings.

B. Make initial readings on all settlement points and monitoring instruments:
   1. Three complete sets of baseline measurements and readings shall be taken at all of the settlement points and instrumentation indicated on the Drawings.
   2. Baseline readings shall be comparable and equal within the rated instrument accuracy.

C. Readings on all instruments shall be as indicated on the Drawings; frequency of readings shall increase where Action Levels are reached as described herein or as directed by the Engineer.

D. Action Levels are as indicated on the Drawings.

E. Instrument calibration:
   1. Calibrate all instruments prior to installation.
   2. The instrumentation systems shall at all times during the monitoring program meet the manufacturer's minimum calibration requirements.
   3. Recalibrate inclinometers, survey instruments, readout units, and other equipment that is used for monitoring on an on-going basis at the manufacturer's recommended intervals, or whenever, in the opinion of the Engineer or the Contractor, there is reason to suspect that the associated data is being affected by calibration changes or errors.
   4. Perform all calibration in accordance with the instrument manufacturer's recommended methods.
   5. Correlate readings from any new replacement instrumentation with the previously acceptable data:
      a. Develop continuous plots of instrumentation data using an arrow and note indicating the date of replacement on each instrument plot and data table within the database.
   6. Instrument and settlement points shall be measured relative to survey bench marks.

3.04 INSTRUMENTATION MONITORING LIMITS AND ACTION LEVELS

A. Conduct all work in a manner such that ground movement and settlements do not exceed the maximum allowable limits indicated on the Drawings.

B. Conduct all work in a manner such that ground heave movement does not exceed one inch.

C. Action Levels:

BNSF – 2013 Schoolyard Excavation Supplement

1. Trigger Level for each settlement point and geotechnical instrument as indicated on the Drawings:
   a. Identify the cause of movement.
   b. Implement the Corrective Action Plan within two hours of trigger level exceedance or notification.
   c. Make modifications to construction procedures and means and methods as required by corrective actions:
      1) For settlement: Adjust excavation parameters and operation measures and reduce progress rates as required to reduce settlement reoccurrence.
      2) For heave: Adjust excavation parameters as required to prevent additional heave and mitigate future occurrence of heave.
   d. Notify the Engineer in writing of the level of movement and settlement and the corrective actions being taken.
   e. Increase the frequency of settlement point monitoring by two until the relative incremental change of movement has returned to the pre-action trigger level rate of change, as determined by the Engineer.

2. Second Level for each settlement point and geotechnical instrument as indicated on the Drawings:
   a. Review all monitoring, excavation, and soils data in the area to establish cause of increased rate of movement as measured.
   b. Notify and meet with the Engineer and jointly review the monitoring data and discuss the effectiveness of adjustments made to the excavation process.
   c. Modify the Corrective Action Plan within one hour of the Second Level exceedance or notification and submit to the Engineer.
   d. Implement modified corrective actions.
   e. Increase frequency of settlement point monitoring by two, unless otherwise directed by the Engineer.
   f. Verify success of corrective actions and report to Engineer.
   g. If corrective actions are not successful, modify all related operations and repeat process listed above.
   h. Modify construction procedures required by corrective actions.

3. Maximum Allowable Limit
   a. Make immediate operational changes to mode of excavation. This may require stoppage of construction activity.
   b. Coordinate with the Engineer to develop a plan of modified corrective measures to be carried out as a means to proceed with construction operations to reduce the risk of additional excessive ground movement.
   c. Coordinate corrective measures with the Engineer.

3.05 REMOVAL OF GEOTECHNICAL INSTRUMENTATION

A. The timing of the removal of settlement points and geotechnical instrumentation shall be following the completion of monitoring and as approved by the Engineer.

B. Restore disturbed or damaged surfaces to the conditions existing before installation of any instrumentation or settlement points.

END OF SECTION 02150

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02240

DEWATERING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Dewatering Equipment
D. Dewatering – General
E. Quality Control

1.02 SUMMARY

A. This Section describes the collection and pumping of impacted water during the course of the excavation Project.

1. Excavation Dewatering: Dewatering from open excavations and/or trenches may be required. Other dewatering activities may also be required during the course of the project. The intent of this Specification is not to require dewatering in order to maintain a dry excavation.

2. Soils Handling Facility Runoff: Runoff from the Soils Handling Facility will require collection, treatment, and management in accordance with this section.

3. Excavation and stormwater treatment: Construction water generated from excavation dewatering and stormwater management shall be treated and discharged to one of the two permitted outfalls (3rd and 6th Street) in compliance with the NPDES discharge permit issued to BNSF (NDPES Permit WA-0030864).

B. Related Sections

1. Section 01575 – Temporary Erosion and Sediment Control

2. Section 02110 – Excavation and Handling of Non-Impacted and Impacted Materials

3. Section 02114 – Stockpiling and Loading of Impacted Soil for Disposal

4. Section 02120 – Transportation of Construction Debris, Impacted Decontamination Water, and Non-Hazardous Materials

5. Section 02250 – Oil Recovery

6. Section 02310 – Backfilling and Grading.

1.03 SUBMITTALS

A. As part of the Technical Execution Plan, the Contractor shall provide a dewatering plan that describes the method, equipment, and operation to collect, store, and treat water from

disturbed areas, and the Soils Handling Facility. The plan shall be submitted to the Engineer with sufficient time to allow for review and comment and adjustment of plan prior to start of Project excavation.

PART 2 - PRODUCTS

2.01 DEWATERING EQUIPMENT

A. The Contractor shall furnish, install and operate, and maintain in continuous good working order dewatering equipment of sufficient capacity to meet the requirements for the removal of impacted water in disturbed areas and the Soils Handling Facility.

B. The Contractor shall provide and set-up on ready standby additional pumps and power generators of sufficient capacity, and provide replacement should the main pump breakdown or to help dewater the work area should flooding occur.

C. The Contractor shall provide sufficient suction and discharge hose or piping for transferring the pumped liquid without running the impacted liquid directly on the ground and causing erosion, sedimentation, or other adverse consequences. The impacted liquid shall travel to the temporary holding facility only through the water-tight hose or pipe.

D. The equipment for dewatering may be new or used but it shall be suitable, nonleaking, clean, and well maintained for this work.

E. All dewatering equipment shall remain the property of Contractor and shall be removed from the Project site at the completion of the work.

2.02 WATER TREATMENT EQUIPMENT

A. The Contractor shall design, furnish, install, operate, and maintain in continuous good working order water treatment equipment of sufficient capacity to meet the requirements for the removal of impacted water in disturbed areas and the Soils Handling Facility.

B. The recommended minimum capacity of the treatment equipment shall be 100 gpm. However, the Contractor may increase or decrease the proposed minimum capacity of the treatment facility as determined to be appropriate to effectively manage construction water resulting from the Contractors sequence of work and schedule. The treatment system unit process elements described in this specification can be duplicated in parallel to increase the treatment facility capacity in 100 gpm increments. If the contractor proposes to provide a treatment facility of lesser capacity, or alternative unit process elements, the proposed alternative system will require review and approval by the Engineer to confirm the proposed facility will meet or exceed the treatment efficiency of the equipment specified. Any proposed alternatives to the water treatment system will require a minimum of 45 days for Engineer and regulatory review and approval.

C. The water treatment equipment shall be operated to meet the discharge requirements specified in NPDES WA-0030864 appended to this section.

D. At a minimum, the water treatment equipment shall consist of the following:

1. Oil-water Separator/Sedimentation - An 18,000 gallon nominal capacity weir tank, or equal, configured to provide for oil-water separation and sedimentation.

The tank, or tanks, shall be configured to meet the King County Minimum Standards for Rectangular Sedimentation Tank Design.

2. Sand Filtration – Automatic backwashing sand filtration system with a minimum capacity of 100 gpm and capable of removing particulate contamination larger than approximately 50 to 90 microns in size.

3. Bag/Cartridge Filtration – Bag/cartridge filter system with a minimum capacity of 100 gpm capable of removing particulate contamination larger than 5 microns.

4. Flocculent Injection (Optional) – Chitosan flocculent injection system to add Chitosan flocculent as required to reduce effluent settleable solids and turbidity and meet NPDES discharge permit requirements.

5. Granular Activated Carbon Filtration – Dual aqueous phase granular activated carbon units piped in series in a manner that will allow switching lead and lag units. The granular activated carbon filtration units shall be sized in accordance with manufacturer recommendations to meet NPDES discharge permit requirements and provide for treatment at 100 gpm. This may require downgrading the flow capacity of standard units to provide for adequate treatment.

PART 3 – EXECUTION

3.01 DEWATERING – GENERAL

A. The Contractor shall furnish, at a minimum, all labor, materials and equipment, and perform all operations required to maintain the dewatering equipment, water storage systems, and water treatment systems as required to collect, store, and treat water from excavation dewatering and stormwater, and meet the requirements of the NPDES discharge permit. Water management shall prevent discharge of any impacted water onto the surface or street. Contractor shall demobilize and decontaminate all dewatering equipment and materials after completing the excavation and backfilling Work.

B. The Contractor shall set-up site controls in order, as needed, to divert and collect water from disturbed areas of the site so that remediation activity is uninterrupted.

C. The Contractor shall install, operate, and remove the dewatering systems in accordance with applicable federal, state, county laws, ordinances, and regulations as well as accepted industry standards.

D. Safety of personnel and protection of designated on-site facilities during dewatering shall be solely the Contractor's responsibility.

E. The Contractor shall bear responsibility for preventing impacted stormwater from leaving the site.

F. The Contractor shall divert surface water away from stockpiles.

G. Excavation areas are not expected to be dewatered to maintain a dry work area during the period the excavation remains open. Excavation dewatering may be required during trenching operations and placement of impermeable liners.

H. Contractor shall grade the excavation area and use graded slopes, berms, and sumps in conjunction with dewatering systems to move water away from the immediate work area to minimize dewatering. Pumping water within contiguous open excavation areas is allowable provided that there is no floating product on the water. Any floating product must be contained and removed to prevent impacts to adjacent soils.

I. The Contractor shall monitor the weather and site conditions 24 hours per day, 7 days per week and perform dewatering as necessary to prevent impacted water runoff from leaving the site.

J. The Contractor shall minimize the silt content of water pumped from the excavation area to the water treatment plant through the use of best management practices within the excavation and at the pump intake.

3.02 QUALITY CONTROL

A. The Contractor shall establish, maintain, and document quality control and compliance with the project NPDES permit, in a form acceptable to the Engineer, for all groundwater and surface water control systems, including monitoring equipment and practice. Quality control documentation by the Contractor is required to assure compliance with regulatory requirements and reporting procedures. Detailed records of quality control shall be kept by the Contractor for all dewatering operations including, but not limited to, the following:

1. Design, fabrication, installation, testing, and operation of the dewatering, storage, and treatment system.

2. Measuring and recording pumping rates.

3. Treated water quality data documenting compliance with the NPDES permit.

END OF SECTION 02240

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02250

OIL RECOVERY IN EXCAVATION AREA

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Oil Recovery Equipment
D. Oil Recovery – General
E. Quality Control

1.02 SUMMARY

A. This Section describes the free product containment and recovery and the separation of free product oil and water in the excavation area.

B. Related Sections

1. Section 02110 – Excavation and Handling of Non-Impacted and Impacted Materials

2. Section 02114 – Stockpiling and Loading of Impacted Soil for Disposal

3. Section 02120 – Transportation of Construction Debris, Impacted Decontamination Water and Non-Hazardous Materials

4. Section 02310 – Backfilling and Grading.

1.03 SUBMITTALS

A. The Contractor shall designate an Oil Recovery Supervisor who will develop an oil collection plan, directly oversee oil collection in the field, document oil collection efforts and demonstrate compliance with this section. The Oil Recovery Supervisor person shall have at least five (5) years of oil collection experience that is directly related to oil collection efforts similar to what is anticipated under this contract. This person shall be familiar with specification of, operations of, and maintenance of oil collection equipment. This person, although they may have other duties on the site, shall be dedicated to the task of oil collection.

B. As part of the Technical Execution Plan, the Contractor shall provide an Oil Recovery Plan. The plan shall be submitted to the Engineer as specified in Section 01330 – Submittal Procedures and at least 30 calendar days prior to anticipated excavation work to allow for review and comment and adjustment of plan prior to start of Project excavation. The plan must at a minimum include:

1. The oil-water separation method;

2. The method(s) of oil collection and storage during excavation;

3. The method(s) of oil control, collection and storage during backfilling;

4. Maintenance of the system;

5. Clean-up protocol should an inadvertent spillage occur.

C. Provide the Engineer a list of proposed disposal facilities as outlined in Section 02120-Transportation of Construction Debris, Impacted Decontamination Water, and Non-Hazardous Materials

PART 2 – PRODUCTS

2.01 OIL RECOVERY EQUIPMENT

A. The Contractor shall furnish, install and operate, and maintain in continuous good working order oil collection and recovery equipment of sufficient capacity to meet the requirements for the removal of oil in excavated areas.

B. The equipment for oil recovery may be new or used but it shall be suitable, non-leaking, clean, and well maintained for this work.

C. All oil recovery equipment shall remain the property of Contractor and shall be removed from the Project site at the completion of the work.

PART 3 – EXECUTION

3.01 OIL RECOVERY – GENERAL

A. The Contractor shall furnish all labor, materials and equipment, and perform all operations required to maintain the oil recovery equipment and storage systems to collect, store, and dispose the oil recovered from the excavation area for off-site disposal. The Contractor shall prevent discharge of any oil or oily water onto the surface or street. The Contractor shall demobilize and decontaminate all oil recovery equipment and materials after completing the excavation and backfilling Work.

B. The Contractor shall provide personnel and equipment dedicated to the oil recovery work.

C. The Contractor shall set-up site controls in order, as needed, to divert and collect oil from the excavation so that remediation activity is not interrupted.

D. The Contractor shall install, operate, and remove the oil recovery systems in accordance with applicable federal, state, county laws, ordinances, and regulations as well as accepted industry standards.

E. Free product oil shall be removed continually from the Remediation Excavation and any excavated trenches within the Project area. Oil released during the excavation shall not be allowed to stand or accumulate more than two hours prior to removal. Free product on the surface of the water moves about quickly and freely. The Contractor may use rope-mop skimmers that have worked well to control and contain oil on similar projects, or

other skimmer types that are deemed appropriate by skimmer manufacturers for this type of heavy viscous oil. Oil removal equipment shall minimize the amount of water that is removed with the oil.

F. Clean backfill must be protected from being contaminated with oil using booms, absorbent pads, water jets, pompom booms, or similar equipment. No backfilling is allowed in areas where free oil is floating on the water surface.

G. The Contractor shall devise and utilize a suitable method for separating free product oil from water. The separated water shall be sufficiently clean of free product as to efficiently run through the water treatment facility. Free Product must be handled as indicated in Section 02120- Transportation. Safety of personnel and protection of designated on-site facilities during oil recovery shall be solely the Contractor's responsibility.

H. The Contractor shall bear responsibility for preventing oil and oily water from leaving the site.

I. If, in the Engineer's opinion, the Contractor is not adequately controlling oil on the excavation water surface, the Contractor shall bring in more equipment/personnel at no additional cost to meet the Specifications.

J. If after additional equipment/personnel are brought in, oil is not being adequately controlled during excavating or backfilling activities in the Engineer's sole opinion, the Engineer will be able to call in an oil removal contractor at no additional cost to the Contract.

3.02 QUALITY CONTROL

A. The Contractor shall establish, maintain, and document quality control, in a form acceptable to the Engineer, for the oil recovery system. Quality control documentation by the Contractor is required to assure compliance with regulatory requirements and reporting procedures. Detailed records of quality control shall be kept by the Contractor for all oil recovery operations including, but not limited to, the following:

1. Design, fabrication, installation, testing, and operation of the oil recovery and storage system.

B. Oil recovery performance shall meet the following requirements:

1. No oil should be allowed to accumulate more than two hours prior to removal.

2. All the oil produced by the excavation activities during a shift shall be removed from the free water surface that day.

3. Backfill material may not be placed through oil.

END OF SECTION 02250

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02260

EXCAVATION SUPPORT AND PROTECTION SHORING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Project Conditions
B. Submittals
C. Sequencing and Scheduling
D. Excavation Materials
E. Design and Specifications
F. Materials
G. Sloping and Benching

1.02 PROJECT CONDITIONS

A. This section describes work to provide temporary excavation support and engineering controls in support of the excavation activity. Excavation areas requiring support shall be identified by the Contractor.

B. The Contractor shall have a competent person, as required by WAC 296-155-650 (2 f), on the site at all times to properly evaluate sloping/shoring requirement of excavations. This person shall be identified in the shoring submittal and shall have the required training to be a competent person.

C. The Contractor shall design, provide materials, and install all necessary controls required for stability of the remediation excavation and storm and utility trenching and to protect adjacent roadways and structures.

D. The Contractor shall locate and protect all underground utilities and structures not designated for removal in these Plans.

1.03 SUBMITTALS

A. The Contractor shall prepare and submit an Excavation Support and Shoring Plan as part of the Technical Execution Plan in accordance with the procedures set forth in Specifications Section 01330 - Submittal Procedures. The Contractor's Technical Execution Plan shall include a detailed proposal for design and construction of the remedial excavation support and utility trenches as noted on the Plans. Specific requirements for excavation monitoring during shoring construction and excavation activities shall be included in the design documents. These requirements shall be in conformance with applicable RCW and Town and King County ordinances.

B. The Contractor shall prepare and submit to the Engineer for approval Shop Drawings sealed by a Professional Engineer registered in the State of Washington, pursuant to WAC 296-155-650, for shoring design and construction, temporary excavation support, and slope stability related to remedial excavation and the storm and utility trenches for any excavation deeper than four feet with steeper slopes or alternate slope support from

that shown on the Plans. The submittal shall include all backup calculations and recommendations as to the applicability of the shoring design for the alignments shown on the Plans.

1.04 SEQUENCING AND SCHEDULING

A. The Contractor shall conduct excavation in accordance with the milestones set forth in Bid Form Schedule.

B. The Contractor shall conduct excavation support installation activity in coordination with excavation work specified in Specifications Section 02110 - Excavation and Handling of Non-Impacted and Impacted Materials.

C. The Contractor shall coordinate the installation of excavation supports and controls with the installation and operation of excavation dewatering systems described in Specifications Section 02240 - Dewatering.

D. The Contractor shall complete excavation, demolition of subsurface structures, and backfilling in accordance with the sequence shown on the Plans and described in these Specifications.

1.05 EXCAVATION MONITORING

A. The Contractor shall monitor excavation activity in accordance with the excavation requirements specified on the approved excavation drawings.

B. The Contractor shall not begin excavation work until approved to do so in writing by the Engineer.

C. It is the Contractor's sole responsibility to ensure proper application of trench shoring features, means and methods in accordance with State and Federal regulations.

PART 2 – PRODUCTS

2.01 DESIGN AND SPECIFICATIONS

A. Should the Contractor elect to use sheet piling for remedial excavation support, the Contractor shall prepare sheet pile shoring design with calculations as a submittal to the Engineer for review and comment prior to the start of any Project excavation.

2.02 MATERIALS

A. Shoring for remedial excavation support and the storm and utility trenches may also include shoring jacks, shoring boxes or shields, angle of repose where Ordinance and space allow; shoring jacks, other Industry Standard methods for this Region. The Shoring Plan must be submitted for review and comment at least one (1) week prior to the start of any Project excavation.

BNSF – 2013 Schoolyard Excavation Supplement

PART 3 – EXECUTION

3.01 SLOPING AND BENCHING

A. Excavation slopes and benches shall conform to OSHA/WISHA requirements at all times.

B. Sloping or benching for excavations greater than four (4) feet deep shall be in accordance with the Plans or approved drawings, unless flatter slopes are deemed appropriate due to site conditions as determined by the competent person. Generally, King County Road Standards (accepted by the Town of Skykomish) do not permit sloping to the angle of repose within the R/W on traveled roadways. Safety is of primary importance in making adjustments to the approved plans.

C. The Contractor shall be responsible for determining proper sloping of excavation walls based on the evaluation of actual soil conditions by Contractor's competent person.

D. The Contractor shall provide written documentation in Contractor's Daily Report for sloping and benching, including acceptable grades and dimensions, soil types, and soil conditions.

E. The Contractor shall inspect excavations continually to assure stability of slope and benches, and adequacy of shoring methods.

END OF SECTION 02260

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02310

BACKFILLING AND GRADING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. References
C. Submittals
D. Project Conditions
E. Source Quality Control
F. Backfill Material
G. Field Quality Control
H. Preparation
I. Placement of Backfill
J. Site Grading and Restoration
K. Maintenance

1.02 SUMMARY

A. This Section includes placement and compaction of backfill material in excavations and final grading for Site restoration.

B. Related Sections:

1. Section 01575 – Temporary Erosion and Sediment Control
2. Section 02060 – Aggregate Materials
3. Section 02110 – Excavation and Handling of Unimpacted and Impacted Materials

1.03 REFERENCES

A. WSDOT Standard Specifications, 2012, Divisions 2 and 7.

B. King County Road Standards, 2007

1.04 SUBMITTALS

A. Submit the compaction test reports within 24 hours of taking the tests as outlined below.

B. Submit as-built topographic survey map of completed backfilling and grading as specified. Submit as-built survey within fourteen (14) calendar days after completion of all Site grading and restoration work.

C. Within one (1) day after the imported backfill materials are delivered and placed for the Project, the Contractor shall submit documentation of the imported backfill materials including the backfill ticket for each truck load of material from a commercial borrow source with certified scales and certified scalemaster stamped weight ticket. The ticket

shall bear the stamp and name of the certified scalemaster and date, driver name, truck number, tare, gross, and net weight, and item number of the material delivered. The Contractor shall submit the original tickets to the Engineer. Unsigned scale weight or tickets without the certified scalemaster stamp will be rejected and no compensation will be made for material without proper documentation. Prior to any delivery of backfill materials to the site, the Contractor shall submit copies of recent scale certification and of the scalemaster certification from each source intended for this Project.

1.05 PROJECT CONDITIONS

A. Work shall be performed in a manner that does not harm existing utilities, structures, or other facilities that are not indicated to be removed within the project limits.

B. Work shall be coordinated with excavation and confirmation sampling before commencement of backfilling.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

A. The Contractor shall retain the services of a licensed material testing firm to verify and control backfilling operations so that the backfill meets the requirements in these Specifications. Field density testing shall be completed at the rate determined by the testing firm in order to ensure that the backfill is placed in accordance with the Specification, but at the minimum, the Contractor shall perform the following:

Three (3) tests per lift. The Contractor shall submit the testing results to the Engineer within 24 hours of taking the tests including any re-tests for areas that failed the compaction criteria.

B. Surveying shall be performed to record the final surface elevation of completed backfilling and grading as specified in Section 01722- Construction Surveying.

3.02 PREPARATION

A. Backfilling of excavation shall not proceed until Engineer has approved the completion of excavation in each area of the Project. The Engineer will provide written approval to the Contractor for backfilling the excavation areas.

3.03 PLACEMENT OF BACKFILL

A. Areas where remediation has been completed, as determined by Engineer, shall be backfilled as specified in the following paragraphs.

B. Backfill Vertical Delineation Limit (VDL). A Backfill VDL is shown on the Plans to approximate the delineation between the compacted backfill materials below the standing water, and the compacted backfill materials above the standing water. The Backfill VDL shown on the Plans is the typical mean high water elevation for June to September.

Should standing water elevations vary substantially from the Backfill VDL shown on the Plans, the Contractor may request a VDL adjustment for approval by the Engineer. The VDL adjustment must be made at the start of backfill activities and shall not be changed once backfill operations begin. The VDL is intended to simplify measurement and payment and to eliminate the need for interim surveying. The Contractor should recognize that at times backfill operations below the VDL may take place in the dry and therefore will require appropriate compaction; conversely, backfill above the VDL may take place in standing water requiring the appropriate placement and handling techniques. Should these conditions occur, no change will be made in measurement and payment as these conditions should amount to a small percentage of the overall volume for payment at the specified bid unit rate. All material placed above the Backfill VDL will be paid for at the above-VDL bid unit rate and all material placed below the Backfill VDL will be paid for at the below-VDL bid unit rate regardless of the actual standing water elevation at the time of placement.

C. Backfill shall be placed in uniform horizontal layers not exceeding 10 inches loose lift thickness and compacted using appropriately sized equipment specifically designed for compaction to the requirements specified herein.

D. Backfill placed in the remediation area shall be conducted as follows:

1. Backfill placed within various remediation areas below standing water at the time of backfilling shall be Stabilization Aggregate Material as indicated on the Plans and as specified in Section 02060- Aggregate Materials, or as otherwise. The fill shall be placed in lifts no thicker than two (2) feet and compacted to the maximum extent practical by using the bucket of the excavator. Every attempt shall be made by the Contractor to level the fill out below water and, using the excavator bucket, compact the fill in place. Once the fill level extends above the water surface, the Contractor shall compact the exposed fill surface of the stabilization material with a vibratory roller until the surface of the stabilization material is firm and non-yielding. Structural fill can be placed over the surface once this performance is achieved.

2. Backfill placed in all remediation areas above the water table (above the Backfill VDL) shall be Structural Fill or clean overburden as indicated on the Plans and shall be placed in maximum loose lifts of one foot and compacted at least to the following:

    a. At least 95 percent maximum dry density as determined by ASTM D-1557. Moisture conditioning may need to be added to clean overburden material to achieve the density requirements.

E. Overburden material excavated from the Site which the Engineer approves for re-use may be placed and compacted to the required standard above the Backfill VDL to ground surface in the upland remediation areas.

F. The Contractor shall retain and provide the services of a licensed certified material testing firm, pre-approved by the Engineer, to verify and document the backfilling operation as meeting the requirements in this Section.

G. Field density testing shall be completed at the rate determined by the Contractor's testing firm in order to ensure that the backfill is placed in accordance with the requirements, but at a minimum, the Contractor shall perform the number of tests prescribed in this specification. The Contractor shall submit the testing results in written format to the Engineer within 24 hours of taking the tests including any re-tests for areas that failed the compaction criteria.

H. Place and compact backfill into the excavations up to final grade shown on the Plans. In the roadway prism, backfill to the base of the Roadway Typical Section and complete the Section in accordance with the Roadway Typical Section.

I. Upon completion of backfilling operation and the construction of the roadway, the Contractor's material testing firm shall submit a statement certifying by a professional engineer registered in the state of Washington that the construction was completed in compliance with these Specifications.

J. Any hard surfaces that are damaged as part of this remediation effort shall be replaced in-kind when excavation and backfill is completed at the Contractor's expense.

K. Surveying shall be performed to record the final surface elevation of completed backfilling and grading.

L. At the completion of the Project, provide an As-Built/Record Drawing topographic survey map completed to a one-foot contour interval to Engineer for review for approval. The survey map shall be prepared and stamped by the Contractor's registered surveyor.

M. The areas of the relocated buildings within the limits of Work shall be backfilled, prepared and dressed to the final grade elevations shown on the Plans.

3.04 CERTIFICATION OF BACKFILL

A. Upon completion of backfilling operation, Contractor's material testing firm shall submit a statement certifying by a professional engineer registered in the state of Washington that indicates backfilling operations were completed in compliance with these project Specifications.

3.05 SITE GRADING AND RESTORATION

A. After backfilling of excavations, grade the Site as specified in this subsection.

B. Grade areas to the contours indicated on the Plans. Shape the soil surface to provide a smooth transition to existing grade at the limits of all disturbed areas.

C. Shape and compact fill with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

D. Smooth the finished surfaces for general site grading within tolerance of two inches above or below the required elevation and per the direction of the Engineer.

3.06 MAINTENANCE

A. Protect newly graded areas from traffic and erosion. The work shall be sequenced to minimize disturbance of completed areas.

B. Where completed areas are disturbed by subsequent project operations or adverse weather, fill and reshape the eroded areas for acceptance of the work.

END OF SECTION 02310

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02317

TRENCHING FOR SITE UTILITIES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Quality assurance
C. References
D. Submittals
E. Project conditions
F. Fill materials
G. Examination
H. Trenching
I. Preparation for utility placement
J. Backfilling
K. Tolerances
L. Field quality control
M. Clean-up

1.02 SUMMARY

A. This section includes construction trenching, backfilling, and compacting sewer lines, and power conduit.

B. Related Sections:

1. Section 01150 – Health and Safety

2. Section 02110 – Excavation and Handling of Non-Impacted and Impacted Material

3. Section 02318 – Trench Safety Systems

1.03 QUALITY ASSURANCE

A. Construction of storm drains, water mains and services, sanitary sewer, and telephone, power, Town telecommunications conduit shall be performed in accordance with the WSDOT Standard Specifications, 2012, Division 7 and Section 1-07.17 and applicable PSE standards.

1.04 REFERENCE

A. WSDOT Standard Specifications, 2012

1.05 SUBMITTALS

A. All submittal review and approval shall be completed prior to start of the actual work in accordance with Specifications Section 01330 - Submittal Procedures.

BNSF – 2013 Schoolyard Excavation Supplement

1.06 GENERAL

A. Provide sufficient quantities of approved backfill to meet the Project schedule and requirements. As necessary, stockpile materials on-site in advance of the actual need.

B. If approved backfill material is stockpiled on-site, locate and construct the stockpiles so there is no interference with other Project construction activity.

1. Separate differing materials with dividers or stockpile separately to prevent intermixing.

2. Prevent contamination.

3. Protect stockpiles from erosion and deterioration of materials; cover and maintain with plastic sheeting when stockpile is not being used.

C. Verify survey control marks for the Project work are in-place and are clear and understood.

D. Protect survey control points and stakes, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Coordinate trenching for utilities on the railyard with BNSF.

PART 2 – PRODUCTS

2.01 FILL MATERIALS

A. All fill materials shall be as specified in Section 02060 – Aggregate Material

PART 3 – EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities.

C. Where conflict exists, notify utility company and coordinate and cooperate to remove and relocate the utility.

3.02 TRENCHING

A. Notify the Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

B. Comply with the requirements of Section 02318 - Trench Safety Systems.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored, except within the roadway right-of-way, sloping to angle of repose shall not be allowed and shoring boxes or other suitable means of trench safety shall be required.

D. Do not interfere with soil in the zone that supports the foundations of any structures.

E. Cut trench width and depth in accordance with the Plans and Specifications. Cooperate in allowing inspection of installed utilities.

F. Do not pile excavated material within two (2) feet of the edge of the trench. Remove loose matter from the trench edges.

G. Remove large stones and other hard matter which could damage piping or impede consistent backfilling or compaction.

H. Remove any excavated material that is unsuitable for re-use from the site.

I. Clean excavated material designated by the Engineer for re-use shall be stockpiled in an area approved for stockpiling clean, excavated material in accordance with these Specifications. At all times keep non-impacted material segregated from impacted material.

3.03 PREPARATION FOR UTILITY PLACEMENT

A. Over-excavation: Excavate soft, pumping areas of the grade that do not meet compaction requirements or support traffic.

B. Compact subgrade by mechanical means to 95 % of maximum density as determined by compaction control test, Section 02-03.3(14)D of the WSDOT Standard Specifications.

C. Do not open more trench in one day than will be backfilled prior to leaving Project for that day's shift. At the end of each work day completely secure the trenching operation for pedestrian and vehicular traffic.

3.04 BACKFILLING

A. Correct areas that are over-excavated: use appropriate and acceptable backfill compacted to minimum 95% percent of maximum density determined by compaction control test, Section 02-03.3(14)D of the WSDOT Standard Specifications.

B. Pipe bedding: Place and compact gravel bedding material in six (6) inch lifts. Work the bedding beneath the pipe haunches and compact thoroughly to 95% of maximum density determined by compaction control test, Section 02-03.3(14)D. of the WSDOT Standard Specifications.

C. Pipe zone backfill: Place and mechanically compact material in six (6) inch lifts; compact to 95% of maximum density determined by compaction control test, Section 02-03.3(14)D of the WSDOT Standard Specifications.

D. Coordinate construction to avoid conflict with other aspects of the construction Project. Do not allow pipe construction to conflict with other phases of the construction.

E. Complete the backfilling operation the same day the excavation was made and in accordance with Section 02310 – Backfilling and Grading. Do not leave open, unprotected, unsecured trenches overnight or over the weekend.

3.05 TOLERANCES

A. See the WSDOT Construction Manual, Sections 1-6 and 9-5.6, for the list of acceptable course and material tolerances. Pipe grades shall have a tolerance of 0.02' or as approved by the Engineer.

3.06 FIELD QUALITY CONTROL

A. See Section 01450 – Quality Control, for general requirements for field inspection and testing.

B. Perform trench and roadway compaction density testing on compacted fill and on roadway bases in accordance with the WSDOT Standard Specifications and the WSDOT Construction Manual.

3.07 CLEAN-UP

A. Remove unused stockpiled materials. Grade stockpile area so that surface run-off is picked up by the drainage system in order to prevent standing surface water. Clean and dress the Project in preparation for final inspection and formal Owner acceptance.

END OF SECTION 02317

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02318

TRENCH SAFETY SYSTEMS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. References
C. System Description
D. Project/Site Conditions
E. Quality Assurance
F. Construction

1.02 SUMMARY

A. Section includes providing trench safety systems.

B. Related Sections:

1. Section 01150 – Health and Safety
2. Section 02110 – Excavation and Handling of Non-Impacted and Impacted Materials

1.03 REFERENCES

A. Comply with the requirements of Section 01410 – Regulatory Requirements, and as listed herein. The following is a list of standards referenced in this Section:

1 RCW Chapter 39.04.180 Public Works / Trench Excavations – Safety Systems Required.

2. RCW Chapter 49.17, Washington Industrial Safety and Health Act
3. WAC 296-155 Safety Standards for Construction Work
4. WAC 296-155-660
5. WSDOT Standard Specifications, 2012, Section 7-08.3(1)B.

1.04 SYSTEM DESCRIPTION

A. Meet safety requirements for trenching activities to be used in earthwork excavation activities on the Project.

1. Include trench safety systems for earthwork activities.
2. Include trench safety systems for the following systems, including but not limited to:

a. Sanitary sewer main and services.

b. Electrical sections requiring trenching.

BNSF – 2013 Schoolyard Excavation Supplement

1.05 PROJECT/SITE CONDITIONS

A. Work of this Section is to be designed specifically to meet the unique conditions of the Project.

1. Perform investigative analysis as appropriate to determine safety systems designed to meet the regulations that are sufficient to protect workers and property.

1.06 QUALITY ASSURANCE

A. Regulatory Requirements: See referenced codes, regulations in Section 01410 – Regulatory Requirements.

B. A qualified experienced person familiar with the regulations and standards is required to design excavation safety systems.

C. Compliance with the regulations is the responsibility solely of the Contractor. The Contractor shall be responsible for worker safety and the Owner and Engineer assume no such responsibility. Damages resulting from improper shoring or failure to shore shall be the responsibility of the Contractor.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Protect all excavation in excess of four (4) foot depth with a safety system conforming to the referenced requirements.

B. Excavation not otherwise required to be protected with excavation safety systems must also meet the WISHA safety regulations and the requirements of the following Sections:

1. 02110 – Excavation and Handling of Non-Impacted and Impacted Materials
2. 02310 – Backfilling and Grading
3. 02317 – Trenching For Site Utilities
4. 02318 – Trench Safety Systems

END OF SECTION 02318

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02373

GEOMEMBRANE

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Quality Assurance
C. Materials
D. Placement
E. Cover

1.02 SUMMARY

A. This section includes furnishing and permanent installation of a 30-mil geomembrane liner and nonwoven geotextile around the school yard area as indicated by the Engineer.

B. The purpose of the liner and geotextile is to prevent direct contact of the impacted material that will be left in place with the non-impacted backfill material and groundwater.

C. The geotextile shall be placed under and over the geomembrane in accordance with the manufacturer's recommendations.

D. Related Sections:

1.	Section 01330 –	Submittal Procedures.
2.	Section 02110 –	Excavation and Handling of Non-Impacted/Impacted Materials.
3.	Section 02260 –	Excavation Support and Protection
4.	Section 02310 –	Backfilling and Grading

E. References:

1.	ASTM D413	Standard Test Methods for Rubber Property – Adhesion to Flexible Substrate
2.	ASTM D751	Standard Test Methods for Coated Fabrics.
3.	ASTM D2136	Standard Test Method for Coated Fabrics - Low Temperature Bend Test
4.	ASTM D1204	Standard Test Method for Linear Dimensional Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature

5.	ASTM D3786	Standard Test Method for Bursting Strength of Textile Fabrics – Diaphragm Bursting Strength Tester Method
6.	ASTM D4355	Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
7.	ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
8.	ASTM D4632	Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
9.	ASTM D4533	Standard Test Method for Trapezoid Tearing Strength of Geotextiles
10.	ASTM D4751	Standard Test Method for Determining Apparent Opening Size of a Geotextile
11.	ASTM D4833	Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
12.	ASTM D5261	Standard Test Method for Measuring Mass per Unit Area of Geotextiles
13.	ASTM D5872	Standard Guide for Use of Casing Advancement Drilling Methods for Geoenvironmental Exploration and Installation of Subsurface Water Quality Monitoring Device
14.	ASTM D3389	Standard Test Method for Coated Fabrics Abrasion Resistance(Rotary Platform Abrader)

1.03 SUBMITTALS

A. Submit the following to the Engineer for review and approval at least two weeks prior to shipment of the geomembrane products:

1. Documentation of manufacturer's qualifications as specified in this section.

2. Manufacturer's Quality Control program manual or descriptive documentation.

3. A material properties sheet, including all properties specified in this section and recommended by the manufacturer including the test methods used.

4. Sample of the material and products.

5. Documentation of Installer's qualifications, as specified in this section.

6. Material warranty and liner installation warranty.

B. Shop Drawings

1. Submit copies of shop drawings at least two weeks prior to geomembrane installation. Shop drawings shall show the proposed panel layout identifying seams and details. Seams should generally follow direction of the slope. Butt seams or roll-end seams should not occur on a slope unless approved by the Engineer. Butt seams on a slope, if allowed, shall be staggered.

2. Geomembrane installation will not be allowed unless Engineer has reviewed and approved the shop drawings.

1.04 QUALITY CONTROL AND ASSURANCE

A. Manufacturer's Qualifications: The manufacturer of geomembrane of the type specified or similar product shall have at least five years experience in the manufacture of such geomembrane. In addition, the geomembrane manufacturer shall have manufactured at least 1,000,000 square meters (sq. m) of the specified type of geomembrane or similar product during the last five years.

B. Installer's Qualifications: The geomembrane and geotextile installer shall be manufacturer approved, or a subcontractor approved by the Engineer. The geomembrane installer shall have at least three years experience in the installation of specified geomembrane or similar. The geomembrane installer shall have installed at least ten projects involving a total of 500,000 sq. m. of the specified type of geomembrane or similar during the last three years.

C. Installation shall be performed under the direction of a field installation supervisor who shall be responsible throughout the geomembrane installation, for geomembrane panel layout, seaming, patching, testing, repairs, and all other activities of the installer. Field installation supervisor shall have installed or supervised at least ten projects involving a total of 500,000 sq. m. of the specified type of geomembrane or similar.

D. Seaming shall be performed under the direction of a Master Seamer who has seamed a minimum of 300,000 sq. m. of geomembrane of the type specified or similar product, using the same type of seaming apparatus to be used in this project. The field installation supervisor and/or the Master Seamer shall be present whenever seaming is performed.

E. All seaming, patching, other welding operations, and testing shall be performed by qualified technicians employed by the geomembrane installer.

1.05 DELIVERY STORAGE AND HANDLING

A. Each roll of geomembrane delivered to the Site shall be labeled by the manufacturer. The label shall be firmly affixed and shall clearly state the manufacturer's name, product identification, material thickness, roll number, roll dimensions and roll weight.

B. Geomembrane shall be protected from mud, dirt, dust, puncture, cutting or any other damaging or deleterious conditions.

C. Rolls shall be stored away from high traffic areas. Continuously and uniformly support rolls on a smooth, level prepared surface.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish materials in accordance with the Plans and this section.

B. Geomembrane shall be XR-5, at least 30-mil reinforced geomembrane. A geomembrane recommended for the project is NWL FR-30 (manufactured by Northwest Linings and Geotextile Products, Inc. based out of Kent, Washington) or approved equal. The geomembrane shall at least have the properties listed in the table below:

Geomembrane Material Properties

Property	Test Method	Suggested Values
Base Fabric Type	ASTM D 751	Polyester
Thickness (mil minimum) (inches minimum)	ASTM D 751	30 ± 2 0.030 to 0.034
Weight (oz./sq. yd.)	ASTM D 751	6.5 ± 2
Tear Strength (pounds, minimum)	ASTM D 751	45/55
Breaking Strength (pounds, minimum)	ASTM D 751 Grab Tensile	550/550
Bursting Strength (pounds, minimum)	ASTM D 751 Ball Tip	650
Low Temperature, F	ASTM D 2136 4 hrs, 1/8" mandrel	-30
Dimensional Stability (each direction, % change maximum)	ASTM D 1204 212 F., 1 hr.	1.5% Max.
Hydrostatic Resistance (pounds/sq. in. maximum)	ASTM D 751 Method A	800
Blocking Resistance (180 F. maximum rating #)	Method 2872 Federal Standard 191a	#2
Adhesion – Ply. (pounds/in. of width)	ASTM D 413 2 inches per minute	15

Property	Test Method	Suggested Values
Abrasion Resistance (Tabor Method)	Method D3389 H-18 wheel 1000 gm. Load	
1. Cycles before fabric exposure 2. Maximum Weight Loss/100 cycles (mg.)		2000 50
Weathering Resistance (# hr. w/ no appreciate changes, stiffening or cracking of coating)	Carbon-Arc Atlas Weather –O-Meter	10000
Water Absorption (max. % gain at 70F;, @212 F)	ASTM D 471 7 days	5, 12
Wicking (inches, maximum)	ASTM D751	1/8
Puncture Resistance (pounds)	FTSMS 101B Method 2031	250
Factory Seam Requirements		
Adhesion – Heat Sealed Seam (pounds/in. min.)	ASTM D751	10
Dead Load Seam Shear Strength (pounds/in. min)	(mil-T-43211 [GL] Para. 4.4.4. (4 hrs) 2 inches overlap seam	
1. @70F 2. @160F		210 105

C. Geotextile Fabric: The geotextile fabric that shall be used to cover the geomembrane on either side, shall be needle-punched nonwoven geotextile made of 100 percent (%) polypropylene staple fibers, which are formed into a random network for dimensional stability. The geotextile shall resist ultraviolet deterioration, rotting, biological degradation, naturally encountered basics and acids. A geotextile recommended for the project is SKAPS GT-160 (manufactured by Northwest Linings and Geotextile Products, Inc. based out of Kent, Washington) or approved equal. The geotextile fabric shall conform to the properties listed in the table below:

Geotextile Material Properties

Property	Test Method	Minimum Average Roll Value
Weight (Typical)	ASTM D5261	6.0 oz/yd^2
Grab Tensile	ASTM D4632	160 lbs.

Property	Test Method	Minimum Average Roll Value
Grab Elongation	ASTM D4632	50 %
Trapezoid Tear Strength	ASTM D4533	65 lbs.
Puncture Resistance	ASTM D4833	90 lbs.
Mullen Burst	ASTM D3786	315 psi
Permittivity*	ASTM D4491	1.6/sec
Water Flow*	ASTM D4491	10 gpm/ft^2
A.O.S*	ASTM D4751	70 US Sieve
U.V. Resistance	ASTM D4355	70 %

* At the time of manufacturing. Handling, storage, and shipping may change these properties.

PART 3 – EXECUTION

3.01 SUBGRADE PREPARATION

A. The subgrade shall be uniform and free of sharp or angular objects that may damage the geomembrane prior to installation of the geomembrane and geotextile.

B. The geomembrane installer and Engineer shall inspect the surface to be covered with the geomembrane on each day's operations prior to placement to verify suitability.

C. All subgrade damaged by construction equipment and deemed unsuitable for geomembrane deployment shall be repaired prior to placement of geomembrane.

3.02 PLACEMENT

A. All placements of the geomembrane and geotextile shall be to the limits shown on the Plans and as per manufacturer's directions

B. Overlapping: The panels shall be overlapped at least two feet prior to seaming.

C. In general, seams shall be oriented parallel to the line of maximum slope. In corners and odd shaped geometric locations, the total length of field seams shall be minimized. Seams shall not be located at low points in the subgrade unless geometry requires seaming at such locations and only if approved by the Engineer.

D. Place the geotextile fabric over backfill and along the trench, as shown on the Plan Detail.

E. Overlap edges at least 18 inches, with the upslope edge overlying the downslope edge.

F. Place geotextile evenly and carefully to minimize wrinkles and to attain complete coverage. Do not tear the fabric. Place geotextile panels in one consistent operation to preclude disturbance or displacement of backfill.

3.03 SEAMING PROCEDURES

A. All seaming of the geomembrane shall be done in accordance with the manufacturer's instructions. If the geomembrane installer proposes an alternative method, the installer shall submit a detailed procedure for their proposed alternate method to the Engineer at least two weeks before the geomembrane installation.

B. All seams shall be tested by the installer in accordance with manufacturer's instructions. All defects found during testing shall be repaired, retested and remarked to indicate acceptable completion of repair. Testing shall be performed by experienced technicians familiar with specified test methods.

END OF SECTION 02373

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02520

WELLS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Condition of Wells
B. Project Record Documents
C. Qualifications
D. Piezometers and Groundwater Monitoring Wells
E. Well Protection
F. Well Repair and Replacement

1.02 CONDITION OF WELLS

A. Certain groundwater monitoring wells or other wells have been identified at the project Site. Monitoring well locations and designations are shown in the Plans.

B. The groundwater monitoring wells will be abandoned by others as necessary prior to start of excavation activities.

C. Contractor shall protect the groundwater monitoring wells that are not abandoned to ensure that the above and below ground portions of the wells are left unharmed as a result of the Work.

D. Contractor shall not inject or place any objects in the wells.

E. The Contractor shall be required to notify the Farallon Site Inspector or Manager if monitoring wells are encountered in planned and unplanned excavations. Farallon will take appropriate measures to decommission the wells. In the event that the Contractor damages or destroys a monitoring well, it shall be the Contractor's responsibility to have it repaired or replaced by a licensed driller as required by the State of Washington regulations.

1.03 PROJECT RECORD DOCUMENTS

A. Submit start cards in accordance with Chapter 173-160 WAC requirements.

B. Accurately record actual well locations and completion depths, subsurface strata, product and levels, and drilling difficulties encountered.

C. Submit signed copy of driller's log book statements.

1.04 QUALIFICATIONS

A. Drilling Firm: Company specializing in performing the work of this Section with minimum 10 years documented experience.

B. Submit proof of Washington license to perform this required work.

BNSF – 2013 Schoolyard Excavation Supplement

PART 2 – PRODUCTS

2.01 PIEZOMETER AND GROUNDWATER MONITORING WELL MATERIALS

A. Well Riser: 2-inch diameter, Schedule 40, PVC.

B. Well Screen: 2-inch diameter, 0.010 -inch slot, Schedule 40 PVC.

C. Sand Pack: No. 10-20 Silica sand.

D. Bentonite Seal: Bentonite chips hydrated in place.

E. Grout: Portland cement, bentonite, potable water mixture to following ratios: 94 lbs Portland cement, 3 to 5 lbs bentonite powder and 6.5 gallons of potable water.

PART 3 – EXECUTION

3.01 PREPARATION

A. Verify location is correct and clear of underground and aboveground utilities.

B. Verify that site conditions will support equipment for performing drilling operations.

C. The Engineer will mark well/piezometer locations.

3.02 WELL PROTECTION

A. Contractor shall be responsible for the protection of all wells shown on the Plans.

B. Contractor shall determine appropriate construction methods and means of well protection, which may include hand excavation in areas immediately adjacent to wells.

C. Contractor may convert any aboveground wells which are at risk of damage to flush-mount wells. Flush mount construction shall include a steel valve cover box with a cover secured by bolts, installed in a two-foot by two-foot concrete pad. The well pipe shall be capped by a lockable expanding well cap. Contractor shall establish and survey a new reference elevation for the top of the well casing, based on the local elevation reference system for the site.

3.03 WELL REPAIR AND REPLACEMENT

A. If any well, designated to be protected becomes damaged, as determined by the Engineer, as a result of the Work, Contractor shall repair the damaged well to the original construction standards at the Contractor's expense.

B. Any well repair or replacement shall be completed in conformance with Washington State Department of Ecology Chapter 173-160 WAC regulations.

3.04 WELL ABANDONMENT

A. Certain wells are designated to be abandoned by others in accordance with requirements of Washington State Department of Ecology Chapter 173-160 WAC regulations.

END OF SECTION 02520

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02601

CEMENT CONCRETE SIDEWALKS AND APPROACHES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. References
C. Quality Assurance
D. Materials
E. Installers
F. Examination
G. Preparation
H. Construction
I. Repair/Restoration
J. Adjusting
K. Protection

1.02 SUMMARY

A. Section includes the following:

1. Cement Concrete Sidewalks.

B. Related Sections:

1. 02310 – Backfilling and Grading

1.03 REFERENCES

A. WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, 2012 M41-10.

B. King County Road Standards, 2007.

1.04 QUALITY ASSURANCE

A. Subcontractor Qualifications:

1. Workers Qualifications: To be qualified and competent.

B. Regulatory Requirements: In accordance with Section 01410 - Regulatory Requirements.

C. Work under this section shall conform to King County Road Standards, WSDOT Standard Specifications 8-06 and 8-14, and these specifications.

BNSF – 2013 Schoolyard Excavation Supplement

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials: in accordance with WSDOT Standard Specifications, King County Road Standards and items noted in the Plans.

1. Concrete for sidewalks shall be Class 3000. Concrete for driveway approaches shall be Class 4000. Cold and hot weather precautions as set forth in WSDOT Standard Specifications Sections 5-05.3(14) and 6-02.3(6) A shall apply.

2. All sidewalks adjacent to Cement Concrete Curb and Gutter or Vertical Curbs shall be 4-inches thick unless otherwise noted in the Plans.

3. All driveway approaches adjacent to Mountable Curb and Gutter or Depressed Cement Concrete Curb and Gutter as illustrated in the Plans shall be 5 inches thick.

PART 3 – EXECUTION

3.01 INSTALLERS

A. Installer is required to be experienced in work of the scope and quality indicated, with a record of successful in-service performance.

3.02 EXAMINATION

A. Verify conditions are satisfactory to receive work of this Section. Do not commence work until unsatisfactory conditions have been corrected.

B. Beginning work constitutes acceptance of conditions.

3.03 PREPARATION

A. Field Measurements: Verify on job before beginning work.

B. Protect surrounding areas and surfaces from damage prior to beginning work of this Section.

3.04 CONSTRUCTION

A. Construct cement concrete sidewalks and driveway approaches per WSDOT Standard Specifications, King County Road Standards, and as illustrated on the Plans.

3.05 REPAIR/RESTORATION

A. Repair or restore any sidewalk or approach to remain which is damaged during construction, including cracking or excessive settlement. The Engineer shall note all locations that are damaged and require repair.

1. Remove the damaged section.

    a. Remove to an adjacent expansion joint, or saw cut a neat line.

2. Replace with new Work conforming to the requirements of this Section and matching the adjacent Work.

3. Remove and replace segments such that adjacent joints are no closer than seven (7) feet, or matching existing conditions if less than seven (7) feet.

3.06 ADJUSTING

A. Where new work will abut existing work, adjust work to match existing at the transition.

3.07 PROTECTION

A. Protect work of this Section from damage and deterioration until completion and acceptance by Owner.

END OF SECTION 02601

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02741

ON-SITE SEWAGE PUMPING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Pumping Septic Tanks

1.02 SUMMARY

A. This section describes the handling of the existing septic systems within the Work areas that may require pumping of septage.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.01 PUMPING SEPTIC TANKS

A. The Contractor shall employ the services of a licensed septic tank hauler for pumping and disposal of septage.

B. Contractor shall uncover access to all tanks.

C. All septic tanks and existing pump chambers shall be pumped.

D. Disposal of septage shall be at licensed site for the disposal of septage.

E. The Contractor shall submit the disposal tickets to the Engineer in accordance with Section 01330 - Submittal Procedures.

F. Contractor shall maintain septic service for the school and teachers' cottage at all times during construction. This may require multiple pumping events of the school septic tanks and/ or the teachers' cottage.

END OF SECTION 02741

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02810

IRRIGATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Related Sections
C. Performance Requirements
D. Submittals
E. Quality Assurance
F. Pre-Installation Conference
G. One-Year Warranty and Maintenance
H. Products – General
I. Brass Pipe
J. PVC and Fittings
K. Irrigation Heads
L. Valves
M. Double Check Valve Assembly
N. Valve Boxes
O. Control Wire
P. Execution – General
Q. Installation
R. Inspection and Testing
S. Systems Operation Orientation
T. Record Drawings
U. Warranty

1.02 SUMMARY

A. This Section includes details and specifications of fully functioning automatic irrigation systems to provide irrigation to areas shown on the Skykomish School Yard, including one-year warranty and maintenance during the project period.

B. Scope of irrigation systems:

The work shall consist of installation of all materials necessary for complete irrigation coverage including, but not limited to, furnishing and installing pipe sleeves, irrigation piping and fittings, automatic controller and wiring, backflow prevention, control valves, sprinkler heads, quick coupling valves and related items necessary for complete automatic electric underground irrigation system.

C. Coordinate work of this section with civil, mechanical and electrical subcontractors.

D. Provide a point of connection to the public water system, as shown on plans or as directed by the Engineer.

E. Prepare and provide construction records, equipment catalog information, and operation and maintenance manual.

BNSF – 2013 Schoolyard Excavation Supplement

1.03 RELATED SECTIONS

A. Coordinate related work specified, including but not limited to the following: WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, 2012 Section8-03 IRRIGATION SYSTEMS and Section 9-15 IRRIGATION SYSTEM.

1.04 PERFORMANCE REQUIREMENTS

A. Furnish, set and mark all line and location stakes, including offsets and general construction staking. Preserve all benchmarks and stakes. Replace any that are displaced or missing.

B. It is the Contractor's responsibility to review records relative to the existing underground utilities and locate all utilities prior to the irrigation system work. Damage to these facilities shall be restored by the Contractor at no additional expense to the Owner.

C. Notify the Engineer immediately if underground utilities not shown on Plans are encountered.

1.05 SUBMITTALS

A. Descriptive literature/information as to all operating characteristics including operating pressures, pressure losses, materials used in product, test certificates, special features, etc., for those products not specified or those submitted for approval as equal, prior to installation for approval of the Engineer. Only the Engineer can approve an item as "equal." Approval must be in writing.

B. Submit three (3) complete operations manuals bound in hardback covers containing the following information for all equipment utilized in the irrigation system: guarantee/warranty certificates, operations and maintenance instructions, parts lists, and list of authorized distributors/service representatives.

C. At the time of final inspection of the completed installation provide As Built plans in accordance with WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, 20122Section 8-03.3(10).

1.06 QUALITY ASSURANCE

A. Irrigation contractor/installer: Is required to be a company specializing in work of irrigation systems, with minimum of 5 years documented experience in irrigation installation of a similar nature.

B. Qualifications: Provide at least one person who shall be present at all times during execution of this portion of the work, who shall be familiar with the type of materials being installed and the proper materials and methods for their installation, and who shall direct all work performed under this section.

1.07 PRE-INSTALLATION CONFERENCE

A. Prior to commencement of the work by the irrigation subcontractor, the Engineer, the Contractor and irrigation subcontractor shall meet on site to review the following:

1. Existing condition of subgrade to receive topsoil, rototilling, and suitability for irrigation installation. Subcontractor shall accept, in writing, the condition of subgrades prior to topsoil placement, rototilling and irrigation trenching.
2. Irrigation and planting schedule.
3. Quality control and maintenance.

1.08 ONE-YEAR WARRANTY AND MAINTENANCE

A. Warranty: Work of this section shall be warranted for one year from the date of final acceptance against all defects of materials and workmanship. Irrigation equipment damaged by vandalism or resulting from Owner's occupancy of the site will not be required to be replaced under this warranty, unless improper installation is a contributing factor in the damage, i.e. heads at improper elevation, irrigation piping at improper depths etc.

B. Maintenance:

1. General: Concurrent with the one-year warranty period for irrigation, monitor and maintain the new irrigation systems in an operational, water efficient condition with balanced precipitation rates, no excessively wet or dry areas, properly functioning equipment including controller, backflow prevention, valves and heads.

C. Maintenance schedule: Provide a schedule of proposed maintenance, for the Engineer's approval, which will be included in the submittals and which is relevant to the scope of the specified irrigation systems. Examples of requirements would include:

1. Start up and winterization of the system.
2. Monitoring and adjusting automatic control clock scheduling.
3. Checking and adjusting elevation of valve boxes and irrigation heads.
4. Checking and correcting for any settling of trench backfill.

PART 2 – PRODUCTS

2.01 GENERAL

A. Materials to be incorporated in this system shall be new and without flaws or defects and of quality and performance as specified and meeting the requirements of the system. Pipe damaged or rejected because of defects shall be removed from the Site at the time of rejection.

2.02 BRASS PIPE

A. Brass pipe and fittings to conform to industry standards and in conformance with all applicable ASTM or ANSI standards.

2.03 PVC PIPE AND FITTINGS

A. PVC pipe and fittings shall comply with the requirements of WSDOT Standard

Specifications for Road, Bridge, and Municipal Construction, 2012 Section 9-15.1(2)

B. All pipe and fittings shall have a guaranteed working pressure of 150 pounds per square inch (PSI) continuously applied.

C. All pipes shall have the same schedule fitting as the pipe it connects to.

D. Pipe for sleeves under paved areas shall be Schedule 40 polyvinyl chloride (PVC).

2.04 IRRIGATION HEADS

A. Sprinkler heads: pop-up spray heads, impact heads, and bubblers shall be as shown on the Plans.

B. Spray heads shall be constructed of stainless steel or commercial grade plastic. RainBird 1806-SAM-PRS models with VPC (vandal proof caps) or approved equal.

C. Provide additional spare heads, of each model, equal to 10 percent (%) of the quantity installed.

D. All heads of a particular type and for a particular function in the system shall be of the same manufacturer and shall be marked with the manufacturer's name and identification, in such a position that they can be identified without being removed from the system.

E. Piping connections to sprinkler heads shall include prefabricated triple swing joint assemblies. Swing joints to consist of street ells, ells, and nipples for full adjustability. Fittings shall have "O" ring seals Lasco-manufactured, or approved equal.

2.05 VALVES

A. Automatic Control Valves

1. Control valves shall comply with the requirements of WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, 2012 Section 9-15.7(2) Automatic Control Valves.

2. Gate and ball valves 2-inch and smaller diameter shall be iron body, brass trimmed.

3. Gate valves shall have double disc wedge, and integral taper seats with non-rising stem and square actuator. All gate and ball valves shall be a minimum 150 PSI. The gate and ball valves shall be 300 WOG or approved equal.

4. Gate and ball valves shall be of the type and size as shown on the Plans and/or the following: Kennedy, Mueller, or Hammond.

C. Quick Coupling Valves

1. Quick coupling valves shall be all brass, two-piece body. Provide two operating keys and hose swivel with project materials to Engineer.

2. Quick coupling valves shall be RainBird 44LRC or approved equal.

2.06 DOUBLE CHECK VALVE ASSEMBLY

A. Double check valve assembly shall be of type and size as shown on Plans.

BNSF – 2013 Schoolyard Excavation Supplement

2.07 VALVE BOXES

A. All remote control valves and gate valves shall be installed in a valve access box. Access boxes shall be plastic complete with bolt down or locking lids. They shall be sized to allow room for testing and maintenance of equipment.

B. Valve boxes shall be of the type, manufacturer and size as noted below or approved equal:

1. Valve boxes for automatic control valve with extensions as necessary and bypass assemblies shall be Series 1419E by Carson, Model 141 9E-1 2B or approved equal.

2. Valve boxes for quick couplers shall be Series 610 by Carson or approved equal.

C. Main DVCA and Meter Vaults: Precast concrete with hinged locking metal lid as manufactured by Utility Vault, Model 25-TA or approved equal.

2.08 CONTROL WIRE

A. Control wire must be insulated copper type UF No. 14 single strand, UL approved for 24-50 volts.

B. Copper conductor must meet or exceed ASTM B-3 specifications.

C. Color Code for valve wires as follows: Extra Control Wires–Orange; Ground Wire–White; Lead-in Wire–Red

PART 3 – EXECUTION

3.01 GENERAL

A. Locate and flag the exact locations of all new and existing utilities on Site prior to excavation. Repair any utilities and related paving or planting damaged in the course of this work.

3.02 INSTALLATION

A. General

1. Comply with manufacturer's installation instructions and/or recommendations.

B. Trenches

1. Excavation: Excavate minimum 6 inches wide trenches with straight runs, bottoms smooth and free of stones over 1-inch in diameter.

2. Depth: Main line shall be minimum 24 inches deep with cover over pipe. Laterals shall be minimum 18 inches deep with cover over pipe (unless otherwise indicated on the Plans).

3. Trenches for sprinkler lines shall be excavated of sufficient depth and width to permit proper handling and installation of the pipe and fittings. No backfilling is permitted other than at the centers of pipe lengths until pressure testing is completed. Backfill shall be thoroughly compacted and evened off with the adjacent soil level. Selected fill dirt or sand shall be used if soil conditions are unsuitable or rocky. In unsuitable/rocky areas the trenching depth shall be 2 inches below normal trench depth to allow for this bedding. The fill dirt or sand shall be used in filling 4 inches above the pipe. The remainder of the backfill shall contain no lumps or rocks larger than 2 inches. The top 6–inch layer of backfill shall be free of rocks over 1-inch, subsoil or trash.

4. Compaction: Landscape areas – 90 percent (%) maximum density. Roads and Walkways – 95 percent (%) maximum density.

5. The trench shall be kept free from water until pipe is laid and backfilled. All surface water shall be diverted so as not to enter the trench. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth below the elevation of bottom of pipe. All loose and excess excavated materials are to be removed and disposed of appropriately with other material excavated from the Site.

C. PVC Pipe Installation

1. Pipe shall be laid side by side in trench and shall be separated by 2 inches of clean fill. No stacking of pipe in a trench is allowed.

2. All plastic-to-plastic joints shall be solvent-weld joints. Only the solvent recommended by the pipe manufacturer shall be used. All plastic pipe and fittings shall be installed as per manufacturer's recommendations and field assistance. All solvent is to be kept in original can with expiration date legible.

3. All plastic to metal joints shall be made with plastic male adapters.

4. Follow manufacturer’s instruction for gluing of joints. Allow PVC joints at least 24 hours to set up between gluing and application of water pressure.

5. Sleeves shall be placed under all pavement areas where pipe is crossing, and shall extend 12 inches beyond the curb line. Empty sleeves shall be capped.

D. Riser Assemblies

1. Provide prefabricated triple swing joints per the Plans. Risers are to be capped after installation in preparation for pressure testing.

E. Sprinkler Head Installation

1. All sprinklers heads shall be pop-ups, except stream bubblers. Provide all required fittings and materials for complete pop-up or bubbler riser packages.

2. Sprinkler heads shall be staggered in location as shown on the Plans. Laterals shall be laid across prevailing slopes as nearly level as possible. Set pop-up heads and bubbler risers perpendicular to finish grade unless noted otherwise. Pop-up heads shall be set flush to finish grade. Provide 4 inches of clearance from all walks, walls and other pavements. Bubbler risers shall be flush with finish grade

of tree wells and positioned so that water stream will be in direct contact with adjacent tree root ball.

F. Automatic Control Valves

1. Install as shown on Plans and details.

2. Thoroughly flush main line prior to installation.

3. All control valves shall be enclosed in valve boxes with valve box extensions as required. One valve box shall be provided per control valve.

G. Valve Box Installation

1. All valve access boxes shall be installed on a suitable base of gravel for proper foundation of base and easy leveling of box to proper grades and also to provide proper drainage of the access box. Provide a minimum of 3 cubic feet of washed gravel for valve box under valve.

2. All valve access boxes shall be provided with proper length and size extensions, wherever required, to bring the valve boxes level with the finish grade.

H. Connection to the Public Water Supply System and Startup

1. Contractor shall be responsible for connecting the irrigation systems to the Town of Skykomish water supply system at locations shown on the Plans or as identified in the field by the Engineer.

2. Contractor shall coordinate the connection of the systems with the Engineer and the Town of Skykomish. Contractor shall provide inform the Engineer at least 72 hours prior to when the connection to the water supply line is scheduled.

3.03 INSPECTIONS AND TESTING

A. General

1. To be valid, tests must be performed under the direction of the Engineer. Give 72 hours notice to the Engineer when inspection is desired. The location, inspection and testing provisions for these specifications will be strictly adhered to. If, for any reason, part of the irrigation system is backfilled before location, testing or inspection, it must be completely uncovered and exposed until approved for backfilling by the Engineer.

2. The Engineer reserves the right to direct the removal and replacement of items which, in the Engineer's opinion, does not present an orderly, reasonably neat or workmanlike appearance, provided such items can be properly installed in such an orderly way by the usual methods in such work. Such removal and replacement shall be done, when directed in writing, at the Contractor's own expense without additional cost to the Owner or the Engineer.

3. Gauges used in the testing of water pressures shall be certified correct by an independent testing laboratory immediately prior to use on the project. Gauges shall be retested when directed by the Engineer, at no additional cost to the Owner or the Engineer.

B. Preliminary Inspection/Pressure Testing:

1. Prior to requesting inspections by the Engineer, accomplish the following:

   a. Conduct a preliminary test and make adjustments required. Request tests for mains only after mains have been installed and tested.

   b. Assure all pipe and valves (including quick coupling valves) and other equipment, except sprinkler heads, are in place.

   c. Cap sprinkler risers, except first riser from valve, on each lateral (one uncapped riser per lateral), typical.

   d. Purge air from main lines.

2. Test mains and valves as follows: With valves in place and closed, test at 150 PSI minimum for 30 minutes without introduction of additional service or pumping pressure. Testing shall be done with one pressure gage installed on the line where directed by the Engineer. Lines which show loss of pressure exceeding 5 PSI at the end of specified test periods shall be rejected. Correct installations that are rejected and retesting will be performed as specified herein.

3. Test laterals as follows: Purge air from laterals and cap risers. Open valves and bring system to line pressure. Lateral lines will be inspected visually. Lines which evidence visible leakage shall be rejected.

4. Rejected systems: Rejected systems or portions of systems require repair and retesting in manner specified.

C. Final Inspection/Operation and Coverage Check

1. Prior to requesting final inspection or arrival of Engineer,

2. Final Inspection: Complete work including balancing, adjusting the system (pressure reducing valves, flow adjustment keys, nozzles, etc.) to provide optimum coverage without fogging. Backfill all except valve boxes.

3. Coverage Check: Operate each zone of the system for the Engineer's inspection.

3.04 SYSTEMS OPERATION ORIENTATION

A. At the time of, and as part of the final inspection, conduct a training and orientation session for the property owner, covering the operation, adjustment, and maintenance of the irrigation systems. The "as built" plans and operations manual shall be reviewed and features explained. Notify the Engineer in writing 2 weeks prior to the training and orientation session. The date and time of the session shall be subject to approval of the Engineer.

3.05 RECORD DRAWINGS

A. Record all changes that have been made during actual installation of the irrigation system. Clearly indicate any such changes on a record set of drawings immediately upon installation of any piping, valves, wiring, sprinkler heads, etc., in locations other than shown on the original drawings, or of sizes other than indicated. Submit record set of drawings, sealed and stamped by a licensed Professional Surveyor

registered in the State of Washington, to the Engineer upon completion of work.

3.06 WARRANTY

A. Insure and warranty complete irrigation coverage of all landscape areas shown on the Plans. Warranty the satisfactory operation of the entire systems and the workmanship and restoration of the area. Warranty the irrigation systems for one year from the date of Project Acceptance. Contractor hereby agrees to repair or replace any such defects occurring within that year, free of expense to the Owner, the Engineer, and the Property owners.

B. Completion shall be one year from start of warranty period.

END OF SECTION 02810

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 02938

SOD RESTORATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Quality Control
D. Delivery, Storage, and Handling
E. Project Conditions
F. Installation
G. Water
H. Placement
I. Monitoring Program

1.02 SUMMARY

A. Provide Sod Restoration at all areas where lawns or playfields have been disturbed. The work includes: soil preparation, topsoils installation, lime application, fertilization, maintenance (including water, weeding and mowing), inspections and acceptance.

1.03 SUBMITTALS

A. Submit sod certification for grass species and location of sod source.

B. Submit sieve analysis for soil in which sod was grown.

C. Submit Playfield Soil Mix (1-pound bag) with current soil analysis test. Soil analysis tests shall be current (no more than 30 days old), shall be performed by a local (Puget Sound Region) testing lab and shall be done for the final soil mix, not individual components.

1.04 QUALITY CONTROL

A. Sod producer shall be a company specializing in sod production and harvesting with a minimum of five (5) years of experience producing sod.

B. Sod shall be grown between six (6) to twelve (12) months with root development that will support its own weight, without tearing, when suspended vertically by holding the upper two corners.

C. Sand based soil grown sod especially for athletic field applications shall be used.

D. Sod shall not include plastic netting.

E. Soil mixes shall meet or exceed specifications prior to delivery to the job site and shall not require substantial chemical alteration after delivery.

BNSF – 2013 Schoolyard Excavation Supplement

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver sod on pallets or in rolls. Protect exposed roots from dehydration.

B. Do not deliver more sod than can be laid within twelve (12 hours).

1.06 PROJECT CONDITIONS

A. Restrict traffic from lawn areas until grass is established, Erect signs and barriers as required.

B. Provide hose and lawn watering equipment as required.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Sod shall be composed of the following:

50%	Turf-Type Perennial Rye Grass
30%-45%	Kentucky Bluegrass
5%-20%	Fine Fescue

B. Sod shall be dense with grass having been cut one inch or less in mowing height prior to its being lifted from the field. Sod shall be vigorous, dark green in color and free from disease and harmful insects. Plastic mesh imbedded in the sod is not acceptable.

C. Approved Varieties

1. Turf-Type Perennial Rye Grass:
   Grass Seed Mix shall consist of two or more varieties listed below:

Brightstar SLT	Hawkeye	Nighthawk	Catalina II
Brightstar II	SR4420	Elfkin	Pizzazz
Admire	SR 4220	All Star II	Amazing
Charger II	Pentlum	Manhattan 4	Inspire
Promise	Gator 3	Applaud	Repell III
Seville II	Grand Slam	Line Drive	Cathedral II
Kokomo	Mach I	Pennant II	Terradyne

   Or, approved equals.

2. Kentucky Bluegrass:
   Blend must consist of two or more varieties listed below:

Julius	Julia	Cheri	Merit
Rogale	Bristol	Brooklawn	Chateau
Midnight	Blacksberg	Blueridge	Champagne
Coventry	Fairfax	Shamrock	Blackstone
Asset	Washington	Bariris	Estate
Majestic	Or, approved equals.		

3. Fine Fescues:
   At least one variety shall be selected from the following list:

Salsa	Flyer	Cindy	Salem
Jasper	Longfellow	Proformer	Victory
Weekend	Seabreeze	Dawson E+	Napoli
Barskol	Barcrown	Marker	Tiffany
Bridgeport	Bargreen	Shadow II	Tamara
Shadow w/Endo	Jamestown II	Treazure E	Enjoy

D. Planting Soil Mix (Imported –for Landscape Planting Areas):
The Planting Soil Mix shall consist of 67% sandy loam and 33% composted organic material.

The Sandy Loam or Loamy Sand component shall consist largely of sand, but with enough silt and clay present to give it a small amount of stability. Individual sand grains can be seen and felt readily. On squiring in the hand when dry, it shall form a cast that will not only hold its shape when the pressure is release, but shall withstand careful handling without breaking.

The mixed loam shall meet the following:

Screen Size	Percent Passing
½ inch	100
¼ inch	95-100
#10	85-95
#30	60-75
#60	50-60
#100	20-30
#200	5-15

Shall have pH range of 5.5-7.5 with dolomite lime, sulfur or other amendments, added prior to delivery, as necessary to attain this range.
The Organic Amendment component shall consist of composted yard debris or organic waste material, and shall consist of 100% recycled materials. In addition the organic material shall have the following physical characteristics:

1. Shall have carbon to nitrogen ratio of between 20:1 and 40:1. If C/N ratio is greater than 40:1, a lab recommended rate of Nitroform (38-0-0) shall be followed at the time of soil preparation.
2. Shall be certified by the Process to Further Reduce Pathogens (PFRP) guideline for hot composting as established by the United States Environmental Protection Agency.
3. Shall be fully mature and stable before usage.
4. Shall be screened using a sieve no finer than ¼-inch and no greater than ½-inch. Based on dry weight of total organic amendment sample: Must comply with the following percent by weight passing:

Sieve Size	Maximum %	Minimum %
12.7mm (1/2")	0	100
6.35mm (1/4")	100	95
4.76mm	100	90
2.38mm	100	75
1.00mm	45	70
500micron	30	0

5. Shall have heavy metal concentrations below the WSDA per year load limits as follows:

Metal	WA State – Max. lb/ac/yr
ARSENIC	0.297
CADMIUM	0.079
COBALT	0.594
LEAD	1.981
MERCURY	0.019
MOLYBDENUM	0.079
NICKEL	0.713
SELENIUM	0.055
ZINC	7.329

E. Fertilizers and Soil Amendments: Materials shall be as follows:

1. Dolomite Lime: As required by soil testing to meet pH specified.
2. Lawn Installation / Starter Fertilizer:
   Analysis: (10-20-20) – Starter Fertilizer

Total Nitrogen (N)	10.0%
10.0% Ammoniacal Nitrogen	
Available Phosphate (P205)	20.0%
Soluble Potash (K20)	20.0%
Sulfur (S)	7.0%

   Derived from: Ammonium Sulfate, Potassium Chloride, and Monoammonium Phosphate
3. Lawn Maintenance / Follow-up Fertilizer:
   Analysis: (16-16-16) – Maintenance Fertilizer

Total Nitrogen (N)	16.0%
8.5% Ammoniacal Nitrogen	
7.5% Urea	
Available Phosphate (P205)	16.0%
Soluble Potash (K20)	16.0%
Sulfur (S)	7.6%

   Derived from: Ammonium Sulfate, Potassium Chloride, and Monoammonium Phosphate

BNSF – 2013 Schoolyard Excavation Supplement

PART 3 – EXECUTION

3.01 INSPECTION: EXAMINE FINISH SURFACES. DO NOT START SODDING WORK UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

3.02 SOIL PREPARATION: PREPARATION OF SUB-GRADE

A. Rip, disc, or scarify sub-grade soils to a minimum depth of 12 inches. Sub-grade elevations shall be as follows:

B. For Lawn Areas – Sub-grade elevation ***4 inches*** below finished grade.

3.03 PLACING AMENDMENTS

A. Lawn Areas: Place 4 inches of Playfield Soil and rototill soil thoroughly into top 6 inches of prepared sub-grade as specified in Section 02055.

3.04 FINE GRADING

A. Perform fine grading to attain finish grades as shown on the Plans.

B. Rake out all rocks, roots, sticks and other debris larger than 1-inch diameter or sticks longer than 3 inches long. Leave surface even and readily able to accommodate lawn or planting installation. Compaction level shall be between 85 to 95 percent density.

3.05 FERTILIZING

A. Incorporate fifty (50) pounds of Dolomite Lime per 1,000 square feet by raking into the top two (2) inches of specified soil, if required by soil tests.

B. Incorporate Lawn Installation / Starter Fertilizer, by raking into the top two (2) inches of specified soil at the rate of one (1) pound Nitrogen per 1,000 square feet.

C. Incorporate Lawn Maintenance / Follow-up Fertilizer, after the first mowing or approximately 30 days after the initial installation, by broadcasting onto the top of the sodded areas at the rate of one (1) pound of Nitrogen per 1,000 square feet.

3.06 SOD INSTALLATION

A. Moisten prepared surface immediately prior to laying sod.

B. Do not install sod on saturated or frozen soil.

C. Lay sod immediately upon delivery to site, to prevent deterioration or drying.

D. Lay sod tight with no open joints visible and no overlapping. Stagger end joints twelve (12) inches (300mm) minimum. Do not stretch sod pieces, and spread playfield soil or fertile mulch over any exposed edges. Keep edges moistened as required or as directed.

E. When piecing sod, use pieces no smaller than one (1) square foot.

F. Install sod with top flush with adjacent curbs, sidewalks, drains and seeded areas.

G. Water sod thoroughly with a fine spray immediately after laying.

H. Roll with light lawn roller to ensure contact with sub-grade on slopes 5:1 or less.

3.07 MAINTENANCE

A. Maintain sodded areas immediately after placement for at least two (2) mowing.

B. Sodded areas shall not be allowed to grow to more than four (4) inches in height before mowing is required. Mow at approximately two (2) inches.

C. Maintenance shall include but not be limited to protection, dressing edges, water and mowing as required and/ or directed to establish a dense uniform stand of grass.

D. After the first mowing, sod shall be fertilized with maintenance / follow-up fertilizer at the rate of one (1) pound of nitrogen per 1,000 square feet.

E. Grass clippings shall be removed from site.

3.08 INSPECTIONS AND ACCEPTANCE

A. Inspection to determine acceptance of sodded areas shall be made by the engineer. Provide notification at least seven (7) days before requested inspection date.

1. Sodded areas shall be accepted provided all requirements, including maintenance, have been compiled with and sod is well established in a healthy, vigorous growing condition.

B. Upon acceptance, the owner shall assume all lawn maintenance responsibilities.

3.09 CLEAN UP

Perform cleaning both during installation and upon competition of the work. Remove from the site all excess materials, soil, debris and equipment. Repair any damage resulting from sodding operations as directed by the engineer.

END OF SECTION 02938

BNSF – 2013 Schoolyard Excavation Supplement

SECTION 16050

BASIC ELECTRICAL MATERIALS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Summary
B. Submittals
C. Conduit
D. Miscellaneous Electrical Equipment
E. Conduit Installation
F. Protection
G. Workmanship

1.02 SUMMARY

A. This Section specifies the basic materials for electrical installations.

B. The Work included in this Section consists of furnishing all labor, materials, and all appurtenant Work in connection with basic installation of electrical conduit specified in Plans and herein.

1.03 SUBMITTALS

A. Upon completion of the Work, submit complete as-built Drawing(s) for all electrical conduit.

PART 2 – PRODUCTS

2.01 CONDUIT

A. Each length of conduit shall bear the UL label and be rated for the wire size with a minimum size of ¾ inch, unless noted otherwise. Elbows shall be standard radius sweeps meeting the requirements of the National Electrical Code (NEC).

B. Buried, submerged, and exposed locations:

1. Rigid galvanized steel conduit shall be used in all locations.

2. Conduit shall be Schedule 40 full weight, pipe size, finished inside and out by hot dipped galvanizing, and shall conform to ANSI C80.1 and UL.

3. Couplings and bushings shall be galvanized steel.

4. Pipe sealant required at all threaded joints.

5. Conduit shall be buried at least one foot (12”) below ground surface, unless greater depths are required by local code.

6. Refer to Plans for bedding and cover requirements; do not cover conduit with stones greater than 1 inch.

7. Provide warning tape no less than six inches (6″) above the highest of the buried conduits.

8. Running threads are not acceptable.

PART 3 – EXECUTION

3.01 CONDUIT INSTALLATION

A. General

1. Unless noted otherwise, buried conduit shall be installed with a minimum of twelve inches (12″) cover. Buried conduit shall be installed using NEC-approved plastic cradles, properly supported/anchored and of sufficient numbers to prevent movement during construction and backfill operations.

2. Exposed conduit shall be supported with unistrut supports at a maximum spacing of 8 feet and within 18 inches of couplings, boxes, etc., unless otherwise shown.

3. All conduits shall be tightly sealed during construction by use of conduit plugs or "pennies" set under bushings.

4. All conduits in which moisture or any foreign matter has collected before pulling conductors shall be cleaned to the satisfaction of the Engineer.

5. All conduit reamed smooth before installation.

6. Prior to installation of conductors in underground conduits, a testing mandrel not less than six (6) inches long and with a diameter 1/4 inch less than the conduit diameter shall be drawn through, after which a stiff bristle brush of the proper size for the conduits shall be drawn through until the conduits are free of all sand and gravel.

3.02 PROTECTION

A. Conduits, junction boxes, outlet boxes, and other openings shall be kept closed to prevent entry of foreign matter. Fixtures, equipment, and apparatus shall be covered and protected against dirt, paint, water, chemical or mechanical damage, before and during the construction period.

B. Damaged fixtures, apparatus, or equipment shall be restored to original condition prior to final acceptance, including restoration of damaged shop coats of paint. Brightly finished surfaces and similar items shall be protected until in service. No rust or damage will be permitted.

3.03 WORKMANSHIP

A. Preparation, handling, and installation shall be in accordance with manufacturer's written instructions and technical data particular to the product specified and/or approved, except as otherwise specified.

B. Work shall be furnished and placed in coordination and cooperation with other trades.

C. Work shall conform to the National Electrical Contractor's Association Standard of Installation for general installation practice.

D. Work areas shall be kept clean and free of debris at the end of each workday.

END OF SECTION 16050