

Technical Memorandum

TO: Mr. Bryce Robbert, Avista Corporation
FROM: Ryan Reich, LG, and Tom Briggs, PE
DATE: November 22, 2019
RE: **2019 Annual O&M Site Inspection
Hamilton Street Bridge Site
Spokane, Washington
Project No. 0236042.060**

Introduction

On behalf of the Avista Corporation (Avista) and The Burlington Northern and Santa Fe Railway Company (BNSF), Landau Associates, Inc. (LAI) has prepared this technical memorandum summarizing the operation and maintenance/cap inspection (O&M) activities completed for 2019 at the Hamilton Street Bridge site (site) at 111 North Erie Street in Spokane, Washington (Figure 1). Avista and BNSF entered into Consent Decree No. 02205445-0 (Consent Decree) with the Washington State Department of Ecology (Ecology) to complete a cleanup action at the site in accordance with Ecology's final cleanup action plan (FCAP; Ecology 2001). An Operations and Maintenance Plan (O&M Plan) was prepared for the site to meet the requirements of the Consent Decree and requirements of the Model Toxics Control Act (MTCA). The O&M Plan describes the requirements and procedures associated with maintenance of the remedial facilities described below by ensuring ongoing performance and maintenance of the intended design function (LAI 2004a). In accordance with the Consent Decree, the remedial facilities require an annual O&M site inspection to identify problems or areas of concern, evaluate the appropriate mitigation measures, and coordinate repairs. The purpose of this technical memorandum is to document the results of the 2019 annual site inspection. The site boundary is shown on Figure 2.

Site Cleanup Action

In 2004, a cleanup action was completed in accordance with the requirements of the Consent Decree and the FCAP to address soil contaminated with polycyclic aromatic hydrocarbons (PAHs). The cleanup construction components were presented in the site Engineering Design Report (EDR; LAI 2003) and the cleanup action construction activities, completed in accordance with methods and procedures specified in the Plans and Specifications (LAI 2004b), are summarized in LAI's Cleanup Action Completion Report (LAI 2006). The primary remedial actions developed during the course of the cleanup action included the following:

- **Soil Cap.** A soil cap was placed site-wide over left-in-place PAH-contaminated soil to prevent direct contact and control infiltration. The soil cap includes a minimum 6 inches of crushed rock at the surface to promote surface water runoff away from contaminated areas.
- **Stormwater Facilities.** Stormwater detention basins were constructed at the north, east, and west ends of the site (see Figure 2). The overall site grade was developed to direct surface water runoff toward these three unlined infiltration basins. The north detention

basin includes two Type A drywells. As described below, under Site Improvements (2016-2018), the east detention basin has been replaced with a lined evaporation pond.

- **Shoreline Bioengineering System.** The site bioengineering system included reconstruction of a riprap face with planted vegetation to control shoreline erosion at the Spokane River. A transition zone consisting of non-woven textile and sandy gravel and cobbles separates the site's crushed gravel cover from the shoreline riprap face. The early growth of planted vegetation in the riprap, such as willow trees and cottonwood trees, was enhanced with an irrigation system. After healthy and mature vegetation was established, the irrigation system was removed.
- **Monitoring Wells.** The site includes 14 monitoring wells (MW2-20, MW2-40, MW2-100, MW4-20, MW4-40, MW4-100, MW8-20, MW8-40, MW8-90, MW9-20, MW9-40, MW9-100, MW7-90, and ATC7-20). Monitoring wells MW2-20, MW2-40, MW4-20, MW8-20, MW8-90, MW9-20, MW9-100, MW7-90, and ATC7-20, shown on Figure 2, are used for measuring groundwater levels and collecting groundwater samples during semiannual compliance monitoring.
- **Fencing.** A chain link fence was installed at the east site boundary, along North Erie Street, to help prevent direct contact by limiting access by the general public.

Site Improvements (2016 – 2018)

Starting in 2016, after acquiring an easement, the City of Spokane (City) began Phase 2A road construction on the east-west Martin Luther King Jr. Way (MLK Jr Way) thoroughfare across the south portion of the site with Ecology's approval and oversight. Fill soil was imported to the west end of the site to accommodate the designed road grade and the central and east onsite portions were constructed at the approximate existing site grade. In preparation for road construction, the casing and monuments for site monitoring wells MW8-20 and MW8-90, located in the shoulder of MLK Jr Way, were raised to accommodate road fill. The adjusted top of PVC well casing elevations were surveyed with respect to site monitoring well MW8-20 top-of-PVC casing by the City using a licensed surveyor.

In 2017, MLK Jr Way was extended east, just short of Erie Street, and capped with asphalt pavement, concrete curbing, and adjacent lined bioswales. Runoff captured by the swales is conveyed east toward a lined evaporation pond at the southeast corner of the site. The evaporation pond replaced the previously described east detention basin. All excess accumulation in the evaporation pond spills over to the City sewer service.

Starting in 2018, the City, under Ecology's approval and oversight, began Phase 2B construction by extending MLK Jr Way to the east beyond the site boundary and to the northeast toward Trent Avenue. This portion of MLK Jr Way was also paved with asphalt and finished with concrete curbing and adjacent lined bioswales that convey road surface runoff to the City sewer service.

Development of the Ben Burr Trail, east-west, along the site's Spokane River shoreline, was completed concurrently in 2018 within City easements, with Ecology's approval and oversight. The final grade for

the asphalt-paved trail sits slightly above the established surrounding site grade and was completed with minimal disturbance to the soil cap. To accommodate trail construction, site monitoring wells MW2-20, MW2-40, MW2-100, MW4-20, and MW7-90 were lowered and refitted with flush-surface monuments. In October 2018, the adjusted top-of-PVC casing elevations were resurveyed with respect to site monitoring well MW8-20 top of PVC casing by the City using a licensed surveyor.

Site Improvements (2019)

In continuation of the City's site development, onsite and offsite Phase 2B work was completed in 2019 by connecting MLK Jr Way from the west to North Erie Street, and paving North Erie Street. North Erie Street, northeast of the site, changes to MLK Jr Way. North Erie Street was completed with curbside landscaping and bioswales (lined). The bioswales convey runoff from North Erie Street to the City sewer service. Ben Burr Trail, near the northeast site boundary, was also extended from the Spokane River shoreline to North Erie Street. The trail was completed with asphalt concrete pavement and a culvert was installed beneath to allow potential site runoff to flow north toward the north detention basin.

2019 O&M Site Inspection

Consistent with procedures outlined in the site O&M Plan (LAI 2004a), LAI personnel conducted site visits on October 18, October 24, 2019, and November 19, 2019 to document the conditions of the remedial action components and perform minor corrective actions. Observations and repairs were recorded on a field checklist form (Attachment 1) and documented with photographs (Attachment 2). Site conditions and repairs are summarized as follows:

- **Soil Cap.** The soil cap was observed to be in good overall condition with no settlement or erosion. A single animal burrow was identified west of the James Keefe overpass (coordinates: latitude 47.65899983, longitude -117.39674965). The burrow was filled in with clean crushed rock on October 24, 2019.
- **Stormwater Facilities.**
 - Detention Basins. At the time of the October 18, 2019 site visit, the north and west detention basins, were observed to be in good overall condition, with no vandalism or erosion; however, the northeast end of the north detention basin was extended approximately 35 feet northeastward, onto City property, and basalt boulders and a stockpile of cement concrete structural members, from an unknown source, were placed at the southwest end of the north detention basin. The two drywells within the north detention basin were also inspected and appeared to be functional and in good condition. A minor amount of sloughed soil was observed at the inlet of the newly installed culvert under Ben Burr Trail. By the November 20, 2019, site visit, the boulders and concrete members were removed, and the northwest end of the basin

was backfilled and returned to its original condition. Soil was also removed by LAI from the culvert inlet.

- Evaporation Pond. The City's evaporation pond was dry, contained healthy growing vegetation, and appeared to be in good condition.
- **Shoreline Bioengineering System**. The shoreline riprap face, transition zone, and vegetative cover along the Spokane River appeared to be in good condition. No erosion, ponding, or loose boulders were observed, and mature trees growing from the bank appeared stable and healthy. Some refuse from abandoned transient camps was observed along the shoreline west of James Keefe Bridge.
- **Monitoring Wells**. All monitoring wells were secure and observed to be in good condition. The parking lot containing monitoring wells MW9-20, MW9-40, and MW9-100, east of North Erie Street, was repaved in 2019; however, the wells and their monuments did not appear to be affected.
- **Fencing**. A portion of fencing near the east site boundary, where Ben Burr Trail meets North Erie Street, was permanently removed in 2019. Ben Burr Trail, at its intersection with North Erie Street, has bollards to restrict onsite vehicle access. A gate with a lock, for limited onsite vehicle access, was installed near the intersection of MLK Jr Way and North Erie Street.

Summary and Recommendations

In general, the above-described facilities were observed to be in good condition and operating in accordance with the design requirements. Site improvements by the City appeared to have neared completion; however, any additional site activities by the City or other parties should be closely monitored.

USE OF THIS TECHNICAL MEMORANDUM

This Technical Memorandum has been prepared for the exclusive use of Avista Corporation for specific application to the Hamilton Street Bridge Site project. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

This document has been prepared under the supervision and direction of the following key staff.

LANDAU ASSOCIATES, INC.



Ryan Reich, LG



Tom Briggs, PE Title

RRR/TDB/tam

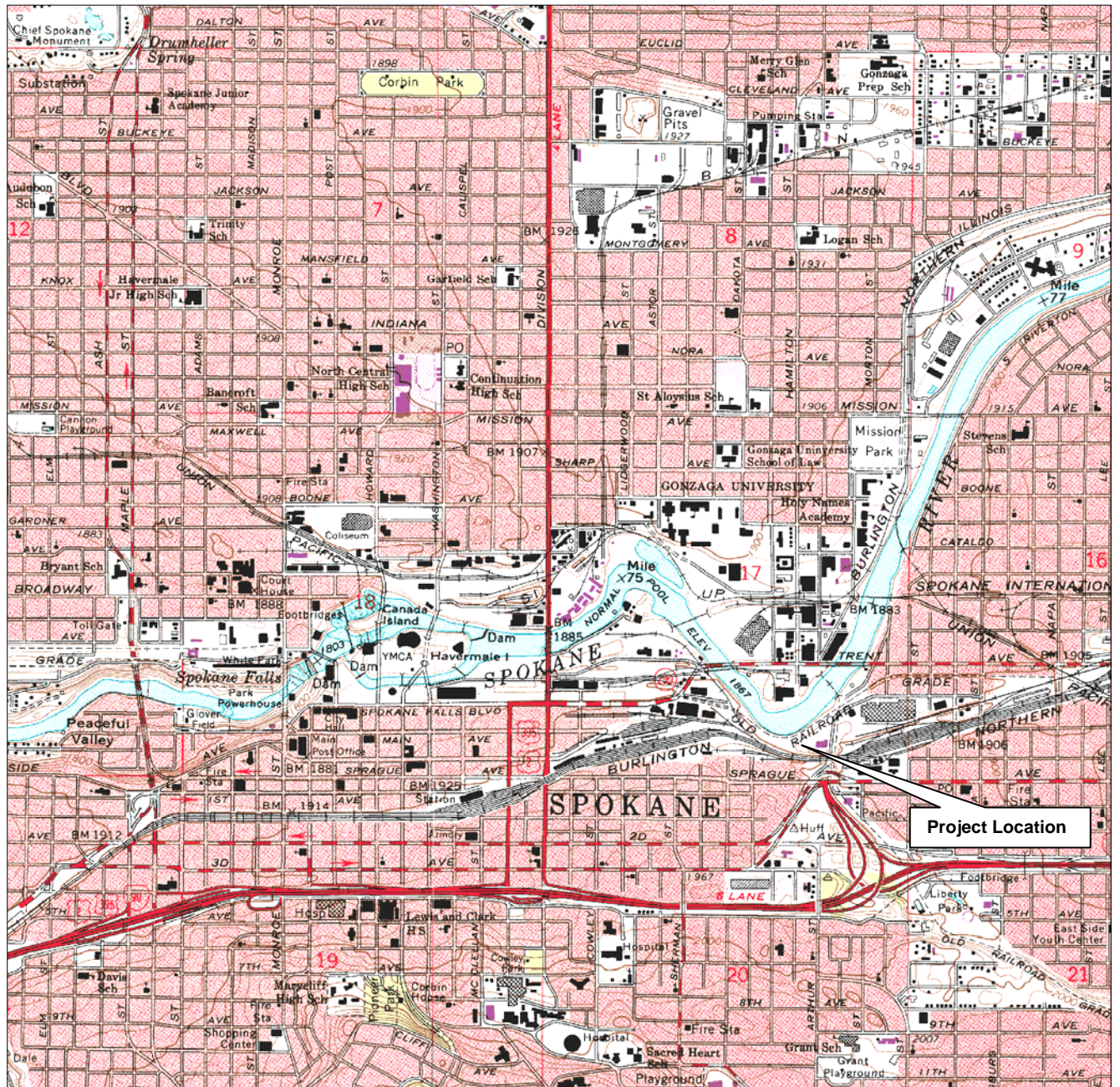
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References

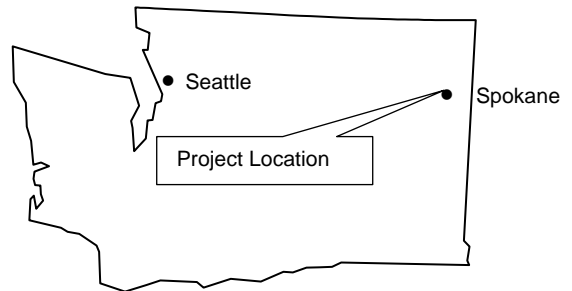
- Ecology. 2001. Final Cleanup Action Plan. Hamilton Street Bridge Site, Spokane, Washington. Washington State Department of Ecology. August 10.
- LAI. 2003. Engineering Design Report, Hamilton Street Bridge Site, Spokane, Washington. Landau Associates, Inc. May 28.
- LAI. 2004a. Operation and Maintenance Plan, Hamilton Street Bridge Site, Spokane, Washington. Landau Associates, Inc. January 8.
- LAI. 2004b. Plans and Specifications for Hamilton Street Bridge Site Cleanup Action, Spokane, Washington. Landau Associates, Inc. January 8.
- LAI. 2006. Cleanup Action Completion Report, Hamilton Street Bridge Site, Spokane, Washington. Landau Associates, Inc. February 2.

Attachments

- Figure 1. Site Location Map
- Figure 2. Site Map
- Attachment 1. 2019 Inspection Log
- Attachment 2. Site Inspection Photographs



Source: USGS Spokane NW, WA Quad, 1974; PR 1986. Scale 1:24,000

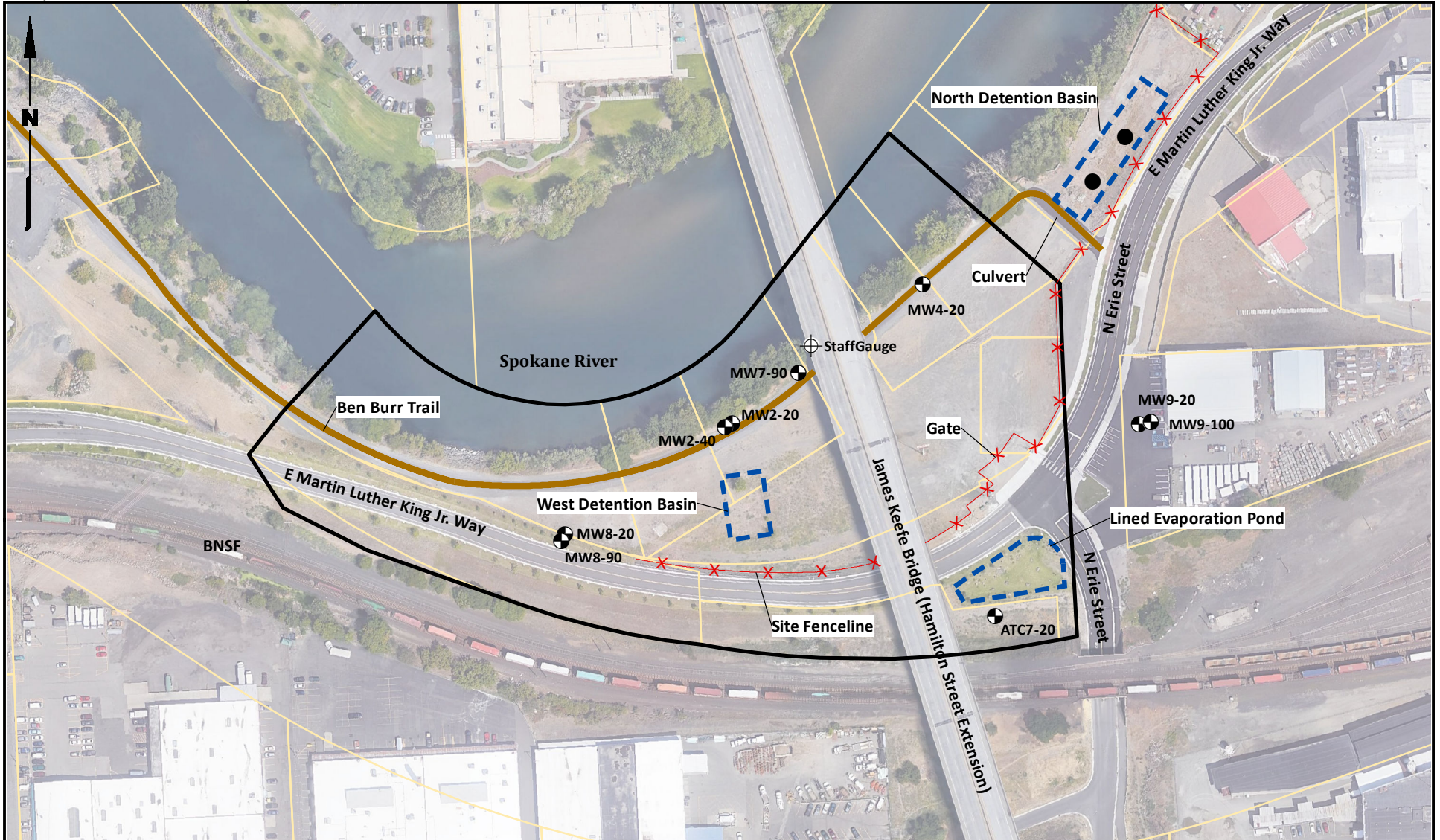


Hamilton Street Bridge Site
Spokane, Washington

Site Location Map

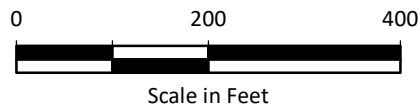
Figure

1



Legend

-  Current Monitoring Well
-  Drywell
-  Staff Gauge
-  Hamilton Street Bridge Site
-  Tax Parcels



Source: Google Earth Pro, July 2019; Spokane County GIS

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



Hamilton Street Bridge Site
Spokane, Washington

Site Map

Figure
2

ATTACHMENT 1

2019 Inspection Log

ANNUAL INSPECTION LOG

Project: Avista/BNSF Hamilton Street Bridge Site North Erie Street at MLK Jr. Way		Project Number: 0236042
Staff Participating: Ayan Reich Bryce Robbitt		Date: 10-18-19
Prepared by: R. Reich	Temperature: 47F	Arrival: 11:55
Weather Conditions: clear, breezy		Departure: 12:50

SITE COMPONENT	Yes	No	Comments/Conditions	Recommended Action
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Soil Cap				
Excavations		<input checked="" type="checkbox"/>		
Settlement		<input checked="" type="checkbox"/>		
Soil/Gravel Erosion		<input checked="" type="checkbox"/>	Some dead trees on Riverbank/edge of cap N 225' NE of bridge.	dead trees could be removed
Poor Drainage/Puddles		<input checked="" type="checkbox"/>		
Animal Burrows	<input checked="" type="checkbox"/>		Burrow at (LAT 47.6589, LONG -117.3967) was filled in with clean crushed rock.	RC 10-24-19
Refuse	<input checked="" type="checkbox"/>		Refuse and homeless on mps along shoreline west of James Keete Bridge	

Stormwater Facilities

Vandalism		<input checked="" type="checkbox"/>		
Ponding/Erosion		<input checked="" type="checkbox"/>	North Basin has new culvert to allow runoff from site under newly extended Ben Burr Trail	
Lined Evaporation Pond Retention Basin			Pond is in good condition w/ healthy vegetation	
Drywell Structures			North Basin drywells are clear, no debris, from culvert inlet at North Basin	RC 11-20-19

Bioengineering System

Riprap/Transition Zone				
Slope Stability				
Vegetation Stress		<input checked="" type="checkbox"/>	Trees appear healthy	

ANNUAL INSPECTION LOG
(Continued)

SITE COMPONENT	Yes	No	Comments/Conditions	Recommended Action
Fence				
Damage		X	An opening was constructed in fence line where Ben Burr Trail meets milk way	
Monitoring Wells				
Secure	X			
Vandalism		X		
Casing/Monument Decay		X	Parking lot containing MW9-20, MW9-100 has new pavement. wells are unaffected.	
Settling/Subsidence		X		

Notes:

Ben Burr Trail was extended from Spokane Riverbank to milk way, at southwest end of North Detention Basin.

The northeast end of ^{North} Detention Basin was extended 35 ft to the northeast.

The southwest end of North Detention Basin has basalt boulders and a stockpile of cement concrete members. The source of concrete stockpile is unknown.

Signed: Ryherder Date: 10-18-19

Site Inspection Photographs



1. View of Ben Burr Trail near western site boundary (looking southwest).



2. View of Ben Burr Trail near western site boundary (looking northwest).



3. View of lined evaporation pond at southeast corner of site (looking east).



4. View of new sidewalk and east fence line, where Ben Burr Trail meets North Erie Street (looking southwest).



5. New section of Ben Burr Trail near northeast site boundary (looking southeast, toward North Erie Street).



6. View of new section of Ben Burr Trail near northeast site boundary (looking northwest, toward Spokane River).



7. Culvert under new section of Ben Burr Trail, near northeast site boundary (looking northeast).



8. View of east portion of site (looking northeast).



9. View of filled-in animal burrow near Ben Burr Trail, west of James Keefe Bridge (looking north).



10. New asphalt pavement surrounding monitoring wells MW9-20, MW9-40, and MW9-100 (looking east).