

## SAM Quarter 1 Jan.-Mar. 2023 Report

**Project Title:** Evaluation of Long-Term Bioretention Soil Infiltration Rate Related to Vegetation, Maintenance, Soil Media and Geotechnical Site Parameters

Contract Agreement Number: C2300003

Organization: City of Olympia

Project Manager: Jesse Barham

Project Timeline: 1/31/2024

Date this Form Completed: 6/12/2023

Brief Description of Achievements for January 1 –March 31, 2023

### Task 1: Project Management

Percent of Task Completed: 10%

Deliverable: 1.2 Quarterly Status Reports

Description of Achievements:

Completed progress reports with invoices. Meetings with the consultant to review schedules, deliverables, and invoicing.

### Task 2: Study Design Communication, QAPP Update and Site Selection

Percent of Task Completed: 64%

Deliverable(s): 2.1 Summary of Study Kick Off Meeting, 2.2 Draft QAPP, 2.3 Final QAPP, 2.4 Site Selection Criteria Checklist, 2.5 Site Selection Technical Memorandum

Description of Achievements:

Completed Kick Off Meeting January 5, 2023, draft QAPP on February 24, 2023, and began communications with potential partners.

### Task 3: Field Assessment, Data Collection and Analysis

Percent of Task Completed: 0%

Deliverable(s): 3.1 Hydrologic Review, 3.2 Geotechnical and Hydrogeologic Data/Report, 3.3 Vegetation and Maintenance Data/Report

Description of Achievements:

Not started

### Task 4: Summary Analysis and Report

Percent of Task Completed: 0%

Deliverable(s): 4.1 Preliminary Results Meeting (Olympia PM, Ecology staff, SWG), 4.2 Draft Final Report, 4.3 Comment Response Meeting Summary, 4.4 Final Report

Description of Achievements:

Not Started

**Tasks/Milestones not achieved and why:**

Final QAPP was delayed due to internal formatting and submitted June 2, 2023.

**Potential Future Challenges to Performance (time delays, staff changes, etc.):**

We anticipate that Task 3 deliverables will be delayed due to a slow start to site selection. We appreciate the assistance of SAM and the Stormwater Group with getting the word about regarding the study. We did not anticipate the resistance from a number of school districts (early adopters of bioretention) but we expect to identify 50 sites regardless.

**General Comments:**

None.

## SAM Quarter 2 Apr.-Jun. 2023 Report

**Project Title:** Evaluation of Long-Term Bioretention Soil Infiltration Rate Related to Vegetation, Maintenance, Soil Media and Geotechnical Site Parameters

Contract Agreement Number: C2300003

Organization: City of Olympia

Project Manager: Jesse Barham

Project Timeline: 1/31/2024

Date this Form Completed: 6/30/2023

Brief Description of Achievements for April 1 –June 30, 2023

### Task 1: Project Management

Percent of Task Completed: 18%

Deliverable: 1.2 Quarterly Status Reports

Description of Achievements:

Completed progress reports with invoices. Meetings with the consultant to review schedules, deliverables, and invoicing.

### Task 2: Study Design Communication, QAPP Update and Site Selection

Percent of Task Completed: 93%

Deliverable(s): 2.1 Summary of Study Kick Off Meeting, 2.2 Draft QAPP, 2.3 Final QAPP, 2.4 Site Selection Criteria Checklist, 2.5 Site Selection Technical Memorandum

Description of Achievements:

Completed Final QAPP on June 2, 2023. Completed 2.4 Site Selection Criteria Checklist and Round 1 of 2.5 Site Selection Technical Memorandum on May 9, 2023. Round 2 of 2.5 Site Selection anticipated mid-July.

Approximately 35 - 40 eligible bioretention sites have been identified from largely public but also a few residential and one private commercial site. Additional outreach is in progress to add the final candidate sites. An alternative for identification of the targeted fifty cells is to conduct tests and vegetation surveys at more than one cell at a given site, which is already being conducted at a select number of sites. Sites where more than one cell is being tested are selected where the cell environmental conditions are different at the site, or where sites were previously tested in earlier phases.

### Task 3: Field Assessment, Data Collection and Analysis

Percent of Task Completed: 14%

Deliverable(s): 3.1 Hydrologic Review, 3.2 Geotechnical and Hydrogeologic Data/Report, 3.3 Vegetation and Maintenance Data/Report

Evaluation of Long-Term Bioretention Soil Infiltration Rate Related to Vegetation, Maintenance, Soil Media and Geotechnical Site Parameters

**Description of Achievements:**

Field work for 3.2 and 3.3. To date, 11 infiltration tests and 13 vegetation assessments have been completed.

Data compilation for these completed sites is underway and is targeted for data entry completion by Friday June 30. Most water sources for infiltration testing have been hydrants allowing for full pool testing. Infiltration tests with “hose-bid” water sources (generally lower flow rates) were run to increase surface area coverage. For vegetation, the cool spring and summer so far has allowed sites to remain well vegetated for ease of plant identification. Sites are surveyed by a single common biologist for consistency, and the few unknown plants are photographed for later identification with other office experts.

**Task 4: Summary Analysis and Report**

Percent of Task Completed: <1%

Deliverable(s): 4.1 Preliminary Results Meeting (Olympia PM, Ecology staff, SWG), 4.2 Draft Final Report, 4.3 Comment Response Meeting Summary, 4.4 Final Report

**Description of Achievements:**

None

**Tasks/Milestones not achieved and why:**

2.5 Site Selection Technical Memorandum was divided into two parts so that Task 3 could begin.

**Potential Future Challenges to Performance (time delays, staff changes, etc.):**

We anticipate that Task 3 deliverables will be delayed due to a slow start to site selection. We expect to have Round 2 of 2.5 Site Selection completed by mid-July. The delay in field work for Task 3 may cause a shift in Task 4, 5 and 6 deliverables by up to 3 months.

**General Comments:**

None.



associated  
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June 30, 2023  
Project No. 20150387H008

City of Olympia  
P.O. Box 1967  
Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) *“Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.”* A master invoice from Associated Earth Sciences, Inc. (AES) is attached and one subconsultant invoice is included for this progress report.

## **PROGRESS REPORT 05**

### **The following work was conducted in June 2023:**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 2: Study Design Communication, QAPP Update and Site Selection
  - Task 2.2 Submit revised QAPP (sent June 2, 2023)
  - Task 2.3 and Task 2.4 – Continue to communicate with site partners to identify 100 sites, develop site selection criteria checklist and select 50 sites;
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.2 and Task 3.3: begin site visits and data collection; other direct charges include well point materials, field supplies (dataloggers)
- Task 4: Summary Analysis and Report
  - Review literature related to biofiltration soils

### **Work planned for the next invoicing period (July 2023):**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 2: Study Design Communication, QAPP Update and Site Selection
  - Task 2.3 and Task 2.4: identify second set of 25 sites;
  - Deliverable 2.5: Site Selection Process, Results of Site Evaluation and List of Final Sites
    - Round 2 set of sites for Deliverable 2.5

- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.2 and Task 3.3: continue site visits and data collection

**Budget Summary**

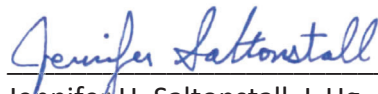
Below is a summary of the budget expenditures by task through June 23, 2023.

<b>Task and Description</b>	<b>Budget</b>	<b>Previously Invoiced</b>	<b>Current Invoice</b>	<b>Budget Remaining</b>
Task 1-Project Management	22,380	3,280	717.50	18,382.50
Task 2-Study Design, QAPP Update and Selection	58,180	51,122.84	3,081.42	3,975.74
Task 3-Field Assessment, Data Collection and Analysis	457,829	27,067.15	36,652.61	394,109.24
Task 4-Summary Analysis and Report	43,922	282.90	0	43,639.10
Task 5-Distribution of Findings	13,869	0	0	13,869
Contingency	17,979	0		17,979
<b>Total</b>	<b>\$614,159</b>	<b>\$78,472.89</b>	<b>\$40,451.53</b>	<b>\$491,954.58</b>

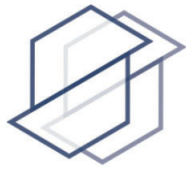
**CLOSURE**

We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
 Kirkland, Washington

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice and Subconsultant Invoice



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September 14, 2023  
Project No. 20150387H008

City of Olympia  
P.O. Box 1967  
Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) *“Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.”* A master invoice from Associated Earth Sciences, Inc. (AES) is attached and one subconsultant invoice is included for this progress report.

## **PROGRESS REPORT 06**

### **The following work was conducted in August 2023:**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 2: Study Design Communication, QAPP Update and Site Selection
  - Task 2.3 and Task 2.4: several substitutions occurred in August as participants opted out or as we received design plans it was clear that the systems were not bioretention. We are now back at 50 sites having revisited a few that we previously set aside.
  - Internal draft of deliverable 2.5: Site Selection Process, Results of Site Evaluation and List of Final Sites updated with latest changes
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.2 and Task 3.3: conduct maintenance interview surveys and continue vegetative and geotechnical/infiltration data collection; other direct charges include water/hydrant charges, hose rental, laboratory testing (grain size distribution and organic content);

### **Work planned for the next invoicing period (September 2023):**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 2: Study Design Communication, QAPP Update and Site Selection
  - Deliverable 2.5: Site Selection Process, Results of Site Evaluation and List of Final Sites
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.2 and Task 3.3: continue maintenance interview surveys and continue vegetative and geotechnical/infiltration data collection; conduct summary reporting;

- Task 3.1: meet with Doug Beyerlein, begin hydrologic review of assembled design documents and initial findings from Task 3.2 and Task 3.3
- Draft Deliverable 3.3 Vegetation Assessment and Maintenance Survey Summary Technical Memorandum
- Task 4: Summary Analysis and Report
  - Describe context for bioretention design prior to 2012

**Budget Summary**

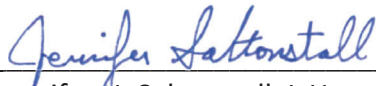
Below is a summary of the budget expenditures by task through August 31, 2023.

<b>Task and Description</b>	<b>Budget</b>	<b>Previously Invoiced</b>	<b>Current Invoice</b>	<b>Budget Remaining</b>
Task 1-Project Management	22,380.00	5,535.00	922.50	15,922.50
Task 2-Study Design, QAPP Update and Selection	58,180.00	61,748.26	-	(3,568.26)
Task 3-Field Assessment, Data Collection and Analysis	457,829.00	126,343.80	80,127.85	251,357.35
Task 4-Summary Analysis and Report	43,922.00	754.40	-	43,167.60
Task 5-Distribution of Findings	13,869.00	-	-	13,869.00
Contingency	17,979.00	-	-	17,979.00
Subtotal	\$614,159.00	\$194,381.46	\$81,050.35	\$338,727.19

**CLOSURE**

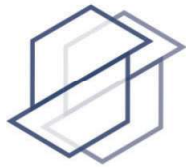
We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
**Kirkland, Washington**

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice and Subconsultant Invoice





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October 6, 2023  
Project No. 20150387H008

City of Olympia  
P.O. Box 1967  
Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) *“Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.”* A master invoice from Associated Earth Sciences, Inc. (AES) is attached along with two subconsultant invoices and other direct cost backup.

## **PROGRESS REPORT 07**

### **The following work was conducted in September 2023:**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: meeting and Clear Creek Solutions documented context for bioretention design infiltration rates prior to 2012
  - Task 3.2 and Task 3.3: continue maintenance interview surveys and continue vegetative and geotechnical/infiltration data collection; conduct summary reporting;
  - Internal Draft Deliverable 3.3 Vegetation Assessment and Maintenance Survey Summary Technical Memorandum
- Task 5: Distribution of Findings
  - Raedeke (Bill Taylor) Prepare and give presentation on the overall project and maintenance survey results to APWA

### **Work planned for the next invoicing period (October 2023):**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic review of assembled design documents
  - Task 3.2: continue geotechnical/infiltration data collection (final infiltration test scheduled for October 11); conduct summary reporting; provide internal draft Deliverable 3.2 Technical Memorandum

- Task 3.3: Provide Draft Deliverable 3.3 Vegetation Assessment and Maintenance Survey Summary Technical Memorandum to Olympia; respond to comments; provide Final Deliverable for Ecology review;
- Task 4: Summary Analysis and Report
  - Schedule meeting with City of Olympia, interested Stormwater Work Group members and Ecology staff to discuss results of site assessment, adequacy of data set and next steps for analysis.
  - Data analyses

**Budget Summary**

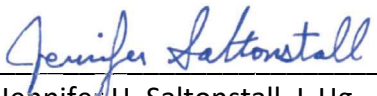
Below is a summary of the budget expenditures by task through September 30, 2023.

<b>Task and Description</b>	<b>Budget</b>	<b>Previously Invoiced</b>	<b>Current Invoice</b>	<b>Budget Remaining</b>
Task 1-Project Management	22,380.00	6,457.50	1,896.25	14,026.25
Task 2-Study Design, QAPP Update and Selection	58,180.00	61,748.26	0.00	(3,568.26)
Task 3-Field Assessment, Data Collection and Analysis	457,829.00	206,471.65	88,898.06	162,459.29
Task 4-Summary Analysis and Report	43,922.00	754.40	0.00	43,167.60
Task 5-Distribution of Findings	13,869.00	0.00	943.00	12,926.00
Contingency	17,979.00	0.00		17,979.00
Subtotal	<b>614,159.00</b>	<b>275,431.81</b>	<b>91,737.31</b>	<b>246,989.88</b>

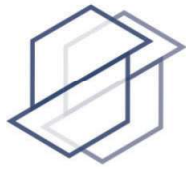
**CLOSURE**

We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
**Kirkland, Washington**

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice, Subconsultant Invoices and other direct cost documentation



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November 14, 2023  
Project No. 20150387H008

City of Olympia  
P.O. Box 1967  
Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) *“Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.”* A master invoice from Associated Earth Sciences, Inc. (AES) is attached along with subconsultant invoices and other direct cost backup.

## **PROGRESS REPORT 08**

### **The following work was conducted in October 2023:**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic design documents assembly and check for completeness
  - Task 3.2: continue geotechnical/infiltration data collection, final infiltration test completed; laboratory testing; and conduct summary reporting;
  - Task 3.3: vegetation data analysis and planting plan comparison, provide Draft Deliverable 3.3 Vegetation Assessment and Maintenance Survey Summary Technical Memorandum to Olympia; respond to comments; provide Final Deliverable for Ecology review;
- Task 4: Summary Analysis and Report
  - Literature research and review related to final report;

### **Work planned for the next invoicing period (November 2023):**

- Task 1. Project Management
  - Quarterly progress report
  - Monthly progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic review of assembled design documents
  - Task 3.2: continue summary reporting; provide internal draft Deliverable 3.2 Technical Memorandum
  - Task 3.3: Respond to comments; provide Final Deliverable for Ecology review;

- Task 4: Summary Analysis and Report
  - Schedule meeting with City of Olympia, interested Stormwater Work Group members and Ecology staff to discuss results of site assessment, adequacy of data set and next steps for analysis.
  - Data analyses

**Budget Summary**

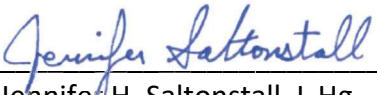
Below is a summary of the budget expenditures by task through October 31, 2023.

<b>Task and Description</b>	<b>Budget</b>	<b>Previously Invoiced</b>	<b>Current Invoice</b>	<b>Budget Remaining</b>
Task 1-Project Management	22,380.00	8,353.75	820.00	13,206.25
Task 2-Study Design, QAPP Update and Selection	58,180.00	61,748.26	-	(3,568.26)
Task 3-Field Assessment, Data Collection and Analysis	457,829.00	295,369.71	51,676.63	110,782.66
Task 4-Summary Analysis and Report	43,922.00	754.40	1,555.95	41,611.65
Task 5-Distribution of Findings	13,869.00	943.00	-	12,926.00
Contingency	17,979.00	-		17,979.00
Subtotal	<b>614,159.00</b>	<b>367,169.12</b>	<b>54,052.58</b>	<b>192,937.30</b>

**CLOSURE**

We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
**Kirkland, Washington**

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice, Subconsultant Invoices and other direct cost documentation



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December 7, 2023  
Project No. 20150387H008

City of Olympia  
P.O. Box 1967  
Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) *“Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.”* A master invoice from Associated Earth Sciences, Inc. (AES) is attached along with subconsultant invoices and other direct cost backup.

## **PROGRESS REPORT 09**

### **The following work was conducted in November 2023:**

- Task 1. Project Management
  - Monthly progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic review of assembled design documents; the amount of reports increased but still less than 50 percent
  - Task 3.2: compiled laboratory testing data with field data, continue summary reporting; internal draft results for Deliverable 3.2 Technical Memorandum compiled; received majority of subcontractor invoices for water supply
  - Task 3.3: Literature review, review vegetation results spreadsheet for further data presentation, compare infiltration rate results with vegetation results, and review on draft vegetation memorandum;
- Task 4: Summary Analysis and Report
  - Literature research and review related to final report

### **Work planned for the next invoicing period (December 2023):**

- Task 1. Project Management
  - Quarterly progress report
  - Monthly progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic review of assembled design documents
  - Task 3.2: continue reporting; provide internal draft Deliverable 3.2 Technical Memorandum

- Task 3.3: Respond to comments; provide Final Deliverable for Ecology review;
- Task 4: Summary Analysis and Report
  - Schedule meeting with City of Olympia, interested Stormwater Work Group members and Ecology staff to discuss results of site assessment, adequacy of data set and next steps for analysis.
  - Data analyses

**Budget Summary**

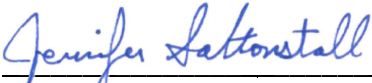
Below is a summary of the budget expenditures by task through November 30, 2023.

<b>Task and Description</b>	<b>Budget</b>	<b>Previously Invoiced</b>	<b>Current Invoice</b>	<b>Budget Remaining</b>
Task 1-Project Management	22,380.00	9,173.75	1,845.00	11,361.25
Task 2-Study Design, QAPP Update and Selection	58,180.00	61,748.26	-	(3,568.26)
Task 3-Field Assessment, Data Collection and Analysis	457,829.00	347,046.34	28,933.80	81,848.86
Task 4-Summary Analysis and Report	43,922.00	2,310.35	2,451.80	39,159.85
Task 5-Distribution of Findings	13,869.00	943.00	-	12,926.00
Contingency	17,979.00	-		17,979.00
Subtotal	<b>614,159.00</b>	<b>421,221.70</b>	<b>33,230.60</b>	<b>159,706.70</b>

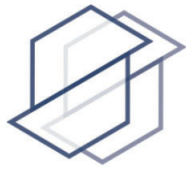
**CLOSURE**

We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
**Kirkland, Washington**

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice, Subconsultant Invoices and other direct cost documentation



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earth sciences  
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February 13, 2024  
Project No. 20150387H008

City of Olympia  
P.O. Box 1967  
Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) *“Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.”* A master invoice from Associated Earth Sciences, Inc. (AES) is attached along with subconsultant invoices and other direct cost backup.

## **PROGRESS REPORT 10**

### **The following work was conducted in December 2023:**

- Task 1. Project Management
  - Monthly progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic review of assembled design documents and preparation of modeling method memorandum;
  - Task 3.2: compiled laboratory testing data with field data, continue summary reporting; for Deliverable 3.2 Technical Memorandum; and
  - Task 3.3: review infiltration data results from AESI for comparison to vegetation results, review vegetation results spreadsheet for further data presentation, and project coordination and correspondence
- Task 4: Summary Analysis and Report
  - Literature research and review related to final report and report preparation

### **Work planned for the next invoicing period (January 2024):**

- Task 1. Project Management
  - Quarterly progress report
  - Monthly progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Task 3.1: hydrologic review of assembled design documents
  - Task 3.2: continue reporting; provide internal draft Deliverable 3.2 Technical Memorandum
  - Task 3.3: Respond to comments; provide Final Deliverable for Ecology review;

- Task 4: Summary Analysis and Report
  - Schedule meeting with City of Olympia, interested Stormwater Work Group members and Ecology staff to discuss results of site assessment, adequacy of data set and next steps for analysis.
  - Data analyses
- Task 5: Distribution of Findings
  - Coordination for presentations
  - Discuss/begin preparation of PowerPoint presentations

## Budget Summary

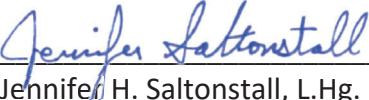
Below is a summary of the budget expenditures by task through December 30, 2023.

Task and Description	Budget	Previously Invoiced	Current Invoice	Budget Remaining
Task 1-Project Management	22,380.00	11,018.75	1,640.00	9,721.25
Task 2-Study Design, QAPP Update and Selection	58,180.00	61,748.26	-	(3,568.26)
Task 3-Field Assessment, Data Collection and Analysis	457,829.00	375,980.14	33,513.20	48,335.66
Task 4-Summary Analysis and Report	43,922.00	4,762.15	2,451.80	36,708.05
Task 5-Distribution of Findings	13,869.00	943.00	-	12,926.00
Contingency	17,979.00	-		17,979.00
Subtotal	<b>614,159.00</b>	<b>454,452.30</b>	<b>37,605.00</b>	<b>122,101.70</b>

## CLOSURE

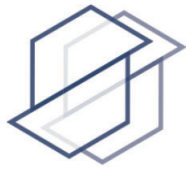
We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
 Kirkland, Washington

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice, Subconsultant Invoices and other direct cost documentation





associated  
earth sciences  
incorporated

April 18, 2024

Project No. 20150387H008

City of Olympia

P.O. Box 1967

Olympia, Washington 98507

Attention: Mr. Jesse Barham

Subject: Bioretention Hydrologic Performance Study III Progress Report and Invoice

Dear Mr. Barham:

This letter serves as a Progress Report in support of the Bioretention Hydrologic Performance Study (III) "*Evaluation of the long-term bioretention soil infiltration rate related to vegetation, maintenance, soil media and geotechnical site parameters.*" A master invoice from Associated Earth Sciences, Inc. (AES) is attached along with subconsultant invoices and other direct cost backup.

## **PROGRESS REPORT 11**

### **The following work was conducted in First Quarter 2024:**

- Task 1. Project Management
  - Progress report and invoice, contract management and subconsultant coordination
- Task 3: Field Assessment, Data Collection and Analysis
  - Distributed Technical Memoranda for Task 3.1 Bioretention Modeling Method; Taks 3.2 Geotechnical and Hydrogeologic Data/Report, and Task 3.3 Revised Bioretention Vegetation Monitoring
- Task 4: Summary Analysis and Report
  - Literature research and review related to final report and report preparation
  - Report content coordination among design team members and coordination meeting with Ecology staff (March 4, 2024)
  - Schedule meeting with City of Olympia, interested Stormwater Work Group members and Ecology staff to discuss results of site assessment, adequacy of data set and next steps for analysis.
- Task 5: Distribution of Findings
  - Coordination for presentations
  - Provide presentations on February 6 and 15, 2024, and March 15, 20, 21, 29, 2024

### **Work planned for the next invoicing period (April 2024):**

- Task 1. Project Management
  - Quarterly progress report
  - Monthly progress report and invoice, contract management and subconsultant coordination

- Task 4: Summary Analysis and Report
  - Distribute Draft Summary Report
  - Meet with Stormwater Work Group
  - Review Ecology comments and finalize report

**Budget Summary**

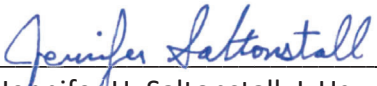
Below is a summary of the budget expenditures by task through March 30, 2024.

<b>Task and Description</b>	<b>Budget</b>	<b>Previously Invoiced</b>	<b>Current Invoice</b>	<b>Budget Remaining</b>
Task 1-Project Management	22,380.00	12,658.75	4,561.25	5,160.00
Task 2-Study Design, QAPP Update and Selection	58,180.00	61,748.26	-	(3,568.26)
Task 3-Field Assessment, Data Collection and Analysis	457,829.00	409,493.34	48,335.66	-
Task 4-Summary Analysis and Report	43,922.00	7,213.95	31,892.92	4,815.13
Task 5-Distribution of Findings	13,869.00	943.00	12,926.00	-
Contingency	17,979.00	-	-	17,979.00
	614,159.00	492,057.30	97,715.83	24,385.87

**CLOSURE**

We appreciate the opportunity to work with you on this project. If you should have any questions, please do not hesitate to call.

Sincerely,  
**ASSOCIATED EARTH SCIENCES, INC.**  
**Kirkland, Washington**

  
 \_\_\_\_\_  
 Jennifer H. Saltonstall, L.Hg.  
 Principal Hydrogeologist

Attachments: AESI Invoice, Subconsultant Invoices and other direct cost documentation