

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE ADMINISTRATOR OF THE DEPARTMENT OF PUBLIC WORKS TO AWARD CONTRACT NO. E-09-015-301 TO ARCADIS U.S., INC., WETLAND MITIGATION MONITORING FOR THE SIA ROAD SERVING VOLKSWAGEN FROM HIGHWAY 58, FOR A TOTAL AMOUNT NOT TO EXCEED ONE HUNDRED NINETEEN THOUSAND SEVEN HUNDRED FORTY DOLLARS (\$119,740.00), WITH THE CITY'S PORTION IN THE AMOUNT OF FIFTY-NINE THOUSAND EIGHT HUNDRED SEVENTY DOLLARS (\$59,870.00), AND HAMILTON COUNTY'S PORTION IN THE AMOUNT OF FIFTY-NINE THOUSAND EIGHT HUNDRED SEVENTY DOLLARS (\$59,870.00).

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CHATTANOOGA, TENNESSEE, that the Administrator of the Department of Public Works is hereby authorized to award Contract No. E-09-015-301 to Arcadis U.S., Inc., Wetland Mitigation Monitoring for the SIA Road serving Volkswagen from Highway 58, for a total amount not to exceed \$119,740.00, with the City's portion in the amount of \$59,870.00, and Hamilton County's portion in the amount of \$59,870.00.

ADOPTED: _____, 2014

/mem

City of Chattanooga



hand delivered
10/16/14

Resolution/Ordinance Request Form

Date Prepared: October 10, 2014

Preparer: Bill Payne

Department: Public Works

Brief Description of Purpose for Resolution/Ordinance: _____ Res./Ord. # _____ Council District # 6

A City Council resolution is requested to award Contract No. E-09-015-301, Wetland Mitigation Monitoring for the SIA Road serving Volkswagen from Highway 58, to Arcadis U.S., Inc., in the amount not-to exceed \$119,740.00.

Name of Vendor/Contractor/Grant, etc.	<u>Arcadis U.S., Inc.</u>	New Contract/Project? (Yes or No)	<u>Yes</u>
Total project cost \$	<u>119,740.00</u>	Funds Budgeted? (YES or NO)	<u>Yes</u>
Total City of Chattanooga Portion \$	<u>59,870.00</u>	Provide Fund	<u>4016</u>
City Amount Funded \$	<u>119,740.00</u>	Provide Cost Center	<u>K17307</u>
New City Funding Required \$	_____	Proposed Funding Source if not budgeted	_____
City's Match Percentage %	<u>50%</u>	Grant Period (if applicable)	_____

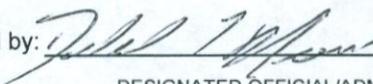
List all other funding sources and amount for each contributor.

Amount(s)	Grantor(s)
<u>\$59,870.00</u>	<u>City of Chattanooga</u>
<u>\$59,870.00</u>	<u>Hamilton County</u>
_____	_____

Agency Grant Number _____

CFDA Number if known _____

Other comments: (Include contingency amount, contractor, and other information useful in preparing resolution)

Approved by: 
DESIGNATED OFFICIAL/ADMINISTRATOR

Reviewed by: FINANCE OFFICE

Please submit completed form to @budget, City Attorney and City Finance Officer

Revised: 1/26/09



Infrastructure · Water · Environment · Buildings

Mr. Bill Payne, PE
City of Chattanooga
1250 Market Street
Public Works Dept.No. 2080
Chattanooga, TN 37402

ARCADIS U.S., Inc.
1210 Premier Drive
Suite 200
Chattanooga
Tennessee 37421
Tel 423.756.7193
Fax 423.756.7197
www.arcadis-us.com

Subject:

Wetland Mitigation Monitoring for SIA Serving Volkswagen Group of America
Termini: From VW Supplier Park to SR58
County: Hamilton

INFRASTRUCTURE

Dear Mr. Payne:

Date:
September 24, 2014

As requested, ARCADIS is pleased to submit a cost estimate to perform the required 7-year wetland mitigation monitoring for the subject project. The wetland restoration and buffer areas are approximately 1.5 and 2.3 acres in size, respectively. These areas were constructed as part of the permit requirements associated with impacts to the adjacent Known Exceptional Tennessee Wetland from the construction of the State Industrial Access (SIA) serving Volkswagen.

Contact:
Jeff Hoilman

Jeff Hoilman Phone:
423.954.8772

As you are aware, ARCADIS engineers and biologists/ecologists designed, permitted and provided construction engineering and inspection services on the construction of the wetland and buffer restoration areas. As such, ARCADIS personnel are very familiar with the project site conditions, permitting requirements and have established communication lines between the regulatory agencies, including Tennessee Department of Environment and Conservation (TDEC), U.S. Army Corps of Engineers (USACE), and Tennessee Valley Authority (TVA).

Email:
jeff.hoilman@arcadis-us.com

ARCADIS will complete the 7-year mitigation monitoring for \$119,740. As noted in the scope of work attached to the estimate, it is our understanding that the scope for this project consists only of the monitoring and will not involve the removal of invasive species or re-planting of trees or vegetation.

If you have any questions or would like to discuss further, please do not hesitate to contact me.

Sincerely,

ARCADIS U.S., Inc.

Jeffery T. Hoilman, P.E.
Project Manager

Attachment(s)

Imagine the result

**Scope of Work
Wetland Mitigation Monitoring
for SIA Serving Volkswagen Group of America
City of Chattanooga
September 24, 2014**

This scope of work summarizes the items that will be completed by ARCADIS on behalf of the City of Chattanooga in order to fulfill the mitigation monitoring requirements specified in the environmental water quality permits associated with the project. Any items not included in this this scope of work will require a supplemental agreement.

I. Permit Requirements – The following tables summarize the mitigation monitoring requirements and procedures as outlined in the special conditions of the environmental water quality permits for the temporary wetland impacts, the constructed wetland restoration area and the adjacent buffer.

Table 1 - Mitigation Monitoring Requirements

DESCRIPTION	REGULATORY REQUIREMENT		COMMENTS
	TDEC	USACE	
Number of years to be monitored.	5	7	
Hydrological Monitoring	YES	YES	Requires the installation of two groundwater monitoring wells within the wetland restoration area. Three wells are already installed in the existing adjacent wetland (WTL-1.3).
Tree Survival Rate	80%	80%	A combination of trees and shrubs totaling 209 plants that is to be monitored. 80% = 168 plants
PFOIA criteria for forested areas	85%	85%	Required aerial coverage of hydrophytic vegetation FAC or wetter at the end of 5 years
Aerial coverage of invasive exotic species	<5%	No % identified	No chemical or biological treatment will be permitted to deter invasive species or to enhance native species. Complete removal from the site will be done by hand.
Records Retention	5 years	None provided	

Table 2 - Mitigation Monitoring Procedures

TASK	DESCRIPTION	TDEC	USACE	COMMENTS
1	Post Mitigation Construction Verification Report	Yes	Yes	To be submitted within 30 days following completion of the wetland restoration construction. Estimated due date is between November 14 and 30, 2014.
2	Hydrological Monitoring (2014-2021)	Yes	Yes	Data collection of five groundwater monitoring wells within the wetland restoration area and the existing adjacent wetland (WTL-1.3).
3	Temporary wetland impacts. No of years to be monitored.	2	N/A	Will be submitted with semi-annual reports in 2015 and 2016
4	Year 1 (2015)	Semi Annual Monitoring	Semi Annual Monitoring	Due by June 2015 and October 2015.
5	Year 2 (2016)	Semi Annual Monitoring	Semi Annual Monitoring	Due by June 2016 and October 2016.
6	Year 3 (2017)	Annual Monitoring	Annual Monitoring	Due by Oct. 31, 2017.
7	Year 4 (2018)	Annual Monitoring	Annual Monitoring	Due by Oct. 31, 2018.
8	Year 5 (2019)	Annual Monitoring	Annual Monitoring	Due by Oct. 31, 2019.
9	Year 6 (2020)	Skip	Skip	No vegetation monitoring required this year.
10	Year 7 (2021)	Annual Monitoring (Vegetation Only)	Annual Monitoring (Vegetation Only)	Due by Oct. 31, 2021
11	Final Meeting (2021 or 2022)	Yes	Yes	To be conducted in the fall of 2021 or summer of 2022.

II. Task Descriptions – Following is a brief summary of the work required for each task in Table 2.

1. 2014 Post Mitigation Construction Verification Report: Prepare a "Post Mitigation Construction Verification Report" (within 30 days following completion) detailing the construction activities, seeding, tree planting, monitor installations, wetland restoration and buffer boundaries, photographs, timeline, etc. Includes time to conduct a post-construction site visit to collect data and time to coordinate with the regulatory authorities.
2. 2014-2021 Hydrological Monitoring:
 - a. Obtain and install two groundwater monitoring wells with data loggers within the wetland restoration area to collect groundwater data. There are currently three groundwater monitors located within the existing adjacent wetland WTL-1.3.
 - b. Collect groundwater data on a quarterly basis (four times yearly) over the 7-year monitoring period. Data collected will be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in tabular format and graphed. Information collected will be used in the monitoring reports.
3. 2015-2016 Temporary Wetland Impacts (2 years): Monitor the temporary impacts associated with the roadway construction to wetlands 1.2 and 1.4 and prepare supporting documentation report. Site visit will be conducted in conjunction with the 2015 and 2016 June or October visits for the wetland restoration area. This task includes time to document site conditions, submit the report to TDEC and provide agency coordination.
4. Year 1 (2015) Semi Annual Monitoring:
 - a. Establish the Wetland Restoration Area Sampling Plots. Review the as-built survey information and divide the restoration area into six transects. Determine the location of each of the nine representative sampling plots (10 feet in diameter) to be established throughout the wetland restoration area. Transects and sampling plots will be placed in CADD and uploaded to a GIS unit for future monitoring efforts.
 - b. Monitor the Wetland Restoration Area Semi-Annually (twice yearly). Reports are due by June and October of the monitoring year. Task includes time to perform site visit, collect monitoring data in the nine individual plots, prepare monitoring reports and provide agency coordination. Monitoring data includes:
 - i. Tree/Vegetation – Complete inventory of the survival rate of each planted tree specimen, a listing of herbaceous species observed in each of the nine sampling plots with their associated wetland indicator status (updated annually), and a listing of new species observed. New species should be listed in bold font.
 - ii. Soils – Soil test pits are to be dug in each of the nine sampling plots and soil pits should be assessed for hydric indicators as provided in the National Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils.

- c. Coordinate with the City of Chattanooga and Hamilton County Parks and Recreation (PCE Holder). Provide coordination regarding the following:
 - i. The need to eradicate invasive species if determined necessary. Aerial coverage of invasive exotic species must be less than (<) 5 percent.
 - ii. Tree survival rate (minimum 80%) and the need to re-plant tree species.
 - iii. The aerial coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and re-application of wetland seeds if needed.

5. Year 2 (2016) Semi Annual Monitoring:

- a. Monitor the wetland restoration area semi-annually (twice yearly). Reports are due by June and October of the monitoring year. Task includes time to perform site visit, collect monitoring data in the nine individual plots, prepare monitoring reports and provide agency coordination. Monitoring data includes:
 - i. Tree/Vegetation – Complete inventory of the survival rate of each planted tree specimen, a list of herbaceous species observed in each of the nine sampling plots with their associated wetland indicator status (updated annually), and a listing of new species observed. New species should be listed in bold font.
 - ii. Soils – Soil test pits are to be dug in each of the nine sampling plots and soil pits should be assessed for hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.
- b. Coordinate with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding:
 - i. The need to eradicate invasive species if determined necessary. Aerial coverage of invasive exotic species must be less than (<) 5 percent.
 - ii. Tree survival rate (minimum 80%) and the need to re-plant tree species.
 - iii. The aerial coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and re-application of wetland seeds if needed.

6. Year 3 (2017) Annual Monitoring:

- a. Monitor the wetland restoration area annually (once yearly). Report is due by October 31st of the monitoring year. Includes time to perform site visit, collect monitoring data in the nine individual plots, prepare monitoring reports and provide agency coordination. Monitoring data includes:
 - i. Tree/Vegetation – Complete inventory of the survival rate of each planted tree specimen, a listing of herbaceous species observed in each of the nine sampling plots with their associated wetland indicator status (updated annually), and a listing of new species observed. New species should be listed in bold font.

- ii. Soils – Soil test pits are to be dug in each of the nine sampling plots and soil pits should be assessed for hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.
- b. Coordinate with the City of Chattanooga and Hamilton County Parks and Recreation (PCE Holder) regarding:
 - i. The need to eradicate invasive species if determined necessary. Aerial coverage of invasive exotic species must be less than (<) 5 percent.
 - ii. Tree survival rate (minimum 80%) and the need to re-plant tree species.
 - iii. The aerial coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and re-application of wetland seeds if needed.

7. Year 4 (2018) Annual Monitoring:

- a. Monitor the wetland restoration area annually (once yearly). Report is due by October 31st of the monitoring year. Task includes time to perform site visit, collect monitoring data in the nine individual plots, prepare monitoring reports and provide agency coordination. Monitoring data includes:
 - i. Tree/Vegetation – Complete inventory of the survival rate of each planted tree specimen, a listing of herbaceous species observed in each of the nine sampling plots with their associated wetland indicator status (updated annually) and a listing of new species observed. New species should be listed in bold font.
 - ii. Soils – Soil test pits are to be dug in each of the nine sampling plots and soil pits should be assessed for hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.
- b. Coordinate with the City of Chattanooga and Hamilton County Parks and Recreation (PCE Holder) regarding:
 - i. The need to eradicate invasive species if determined necessary. Aerial coverage of invasive exotic species must be less than (<) 5 percent.
 - ii. Tree survival rate (minimum 80%) and the need to re-plant tree species.
 - iii. The aerial coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and re-application of wetland seeds if needed.

8. Year 5 (2019) Annual Monitoring:

- a. Monitor the wetland restoration area annually (once yearly). Report is due by October 31st of the monitoring year. Task includes time to perform site visit, collect monitoring data in the nine individual plots, prepare monitoring reports and coordinate with TDEC. Monitoring data includes:

- i. Tree/Vegetation – Complete inventory of the survival rate of each planted tree specimen, a listing of herbaceous species observed in each of the nine sampling plots with their associated wetland indicator status (updated annually) and listing of new species observed. New species should be listed in bold font.
 - ii. Soils – Soil test pits are to be dug in each of the nine sampling plots and soil pits should be assessed for hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.
 - b. Coordinate with the City of Chattanooga and Hamilton County Parks and Recreation (PCE Holder) regarding:
-

- i. The need to eradicate invasive species if determined necessary. Aerial coverage of invasive exotic species must be less than (<) 5 percent.
- ii. Tree survival rate (minimum 80%) and the need to re-plant tree species.
- iii. The aerial coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and re-application of wetland seeds if needed.

9. Year 6 (2020) Annual Monitoring: No vegetation monitoring required this year.

10. Year 7 (2021) Annual Monitoring (Vegetation Only).

- a. Monitor the wetland restoration area annually (once yearly). Report is due by October 31st of the monitoring year. Includes time to perform site visit, collect monitoring data in the nine individual plots, prepare monitoring reports and provide agency coordination. Monitoring data includes:
 - i. Tree/Vegetation – Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot with their associated wetland indicator status (updated annually), and a listing of new species observed. New species should be listed in bold font.

11. 2021 or 2022 Final Meeting: Coordinate and conduct a final meeting with the regulatory authorities in October 2021 or summer of 2022 to provide concurrence of wetland succession.

III. On-Call (as needed) – Be available as needed to address issues and/or concerns and answer questions from regulatory agencies, City of Chattanooga, and VW during the monitoring period based upon monitoring results. Estimated eight events at 4 hours/event.

IV. Project Management and Administration – Prepare invoices, progress reports, and necessary forms. Estimated at 36 months.

CITY OF CHATTANOOGA

MAN-HOUR ESTIMATE AND FEE ESTIMATE FOR

County:	HAMILTON
Route/Alignment:	SIA SERVING VOLKSWAGEN GROUP OF AMERICA
Termini:	FROM VW SUPPLIER PARK TO SR-58
Length of Project:	1.4 MILES
P.E. Number:	33960-350I-04
PIN:	114048.00
TX Number:	

Project Type:	SIA
Assigned Task(s):	STREAM/WETLAND MONITORING SAMPLE COLLECTION AND ANALYSIS

Consultant & Office Address: **ARCADIS**
1210 Premier Drive, Suite 200, Chattanooga, TN 37421
Phone: 423-756-7193
Fax: 423-756-7197
Email: jeff.hoilman@arcadis-us.com

Project Manager: Jeff Hoilman

Date Prepared: September 24, 2014

Requested WO Start Date: November 1, 2014

Consultant Payment Remittance Address: **ARCADIS U.S., Inc.**, 62638 Collections Center Drive, Chicago, IL 60693-0626



**** The CONSULTANT shall not submit this estimate with subcontractors for any of the services performed under this estimate without obtaining prior written approval, for each, from this office.

CONSULTING SERVICES FEE ESTIMATE

Project: SIA Serving Volkswagen Group of America

Termini From VW Supplier Park to SR-58

PIN: 114048.00

Client: City of Chattanooga

Task: Stream/Wetland Monitoring

MAN-HOURS

Time Period	Task	Description	Employee Classification and Man-hours						Total
			PM	SB	ECO	ET	CT	S	
2014	1	Prepare a "Post Mitigation Construction Verification Report" (within 30 days following completion) detailing the construction activities, seeding, tree planting, monitor installations, wetland restoration and buffer boundaries, photographs, timeline, etc. Includes time to conduct a post construction site visit to collect data and time to coordinate with the regulatory authorities.	2	20	16		6	2	46
	2	Obtain and install 2 monitoring wells with data loggers within the wetland restoration area to collect groundwater data. There are 3 existing groundwater monitors located within the existing wetland. Data collected over the 7 year monitoring period will be used to demonstrate there is a hydraulic connection between the existing wetland area and the wetland restoration area.		2	8	16			26
	3	Perform a site visit to download the groundwater monitors by the end of 2014 and upload the data to a groundwater database.		2	6	6			14
2015 (Monitoring Year 1)	4	Monitor (year 1 of the required 2 years) the temporary impacts to Wetlands 1.2 and 1.4 and prepare supporting documentation report. Site visit will be conducted in conjunction with the June or October visit for the wetland restoration area. Includes time to document site conditions, submit report to TDEC and coordination.		6	3				9
	5	Wetland Restoration Area Sampling Plots. Review the as-built survey information and divide the restoration area into 6 transects. Determine location of the 9 individual representative sampling plots (10-feet in diameter) to be selected throughout the wetland restoration area. Transects and sampling plots will be placed in CADD and uploaded to a GIS unit for future monitoring efforts.	1	4			6		11
	5	Monitor the wetland restoration area semi-annually (two times). Reports are due by June and October of the monitoring year. Includes time to perform site visit, collect monitoring data in the 9 individual plots, prepare monitoring reports and agency coordination. Monitoring data includes: 1.) Tree/Vegetation - Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot (9) with their associated wetland indicator status (updated annually); and new species observed will be listed in bold, 2.) Soils - Soil test pits are to be dug in each sampling plot (9); and assess soils pits as to whether the display hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.	4	24	36	16	4	2	86
	6	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring reports.		2	32	24			58
	7	Coordination with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding: 1.) the need eradicate invasive species if determined to be needed. Aerial coverage of invasive exotic species must be less than (<) 5%; 2.) the tree survival rate (minimum 80%) and the need to re-plant tree species; and 3.) the areal coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and the need to re-apply wetland seeds if needed.		4					4

Time Period	Task	Description	Employee Classification and Man-hours						Total
			PM	SB	ECO	ET	CT	S	
2016 (Monitoring Year 2)	7	Per the TDEC Special Permit Conditions, monitor (year 2 of the required 2 years) the temporary impacts to Wetlands 1.2 and 1.4 and prepare supporting documentation report. Site visit will be conducted in conjunction with the June or October visit for the wetland restoration area. Includes time to document site conditions, submit report to TDEC and coordination.		6	3				9
	8	Monitor the wetland restoration area semi-annually (two times). Reports are due by June and October of the monitoring year. Includes time to perform site visit, collect monitoring data in the 9 individual plots, prepare monitoring reports and agency coordination. Monitoring data includes: 1.) Tree/Vegetation - Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot (9) with their associated wetland indicator status (updated annually); and new species observed will be listed in bold, 2.) Soils - Soil test pits are to be dug in each sampling plot (9); and assess soils pits as to whether the display hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.	4	24	36	16	4	2	86
	9	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring reports.		2	32	24			58
	10	Coordination with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding: 1.) the need eradicate invasive species if determined to be needed. Aerial coverage of invasive exotic species must be less than (<) 5%; 2.) the tree survival rate (minimum 80%) and the need to re-plant tree species; and 3.) the areal coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and the need to re-apply wetland seeds if needed.		4					4
2017 (Monitoring Year 3)	11	Monitor the wetland restoration area annually (one time). Report is due by October 31st of the monitoring year. Includes time to perform site visit, collect monitoring data in the 9 individual plots, prepare monitoring reports and agency coordination. Monitoring data includes: 1.) Tree/Vegetation - Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot (9) with their associated wetland indicator status (updated annually); and new species observed will be listed in bold, 2.) Soils - Soil test pits are to be dug in each sampling plot (9); and assess soils pits as to whether the display hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.	1	16	24	12	2	1	56
	12	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring report.		2	32	24			58
	13	Coordination with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding: 1.) the need eradicate invasive species if determined to be needed. Aerial coverage of invasive exotic species must be less than (<) 5%; 2.) the tree survival rate (minimum 80%) and the need to re-plant tree species; and 3.) the areal coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and the need to re-apply wetland seeds if needed.		4					4

Time Period	Task	Description	Employee Classification and Man-hours						Total
			PM	SB	ECO	ET	CT	S	
2018 (Monitoring - Year 4)	14	Monitor the wetland restoration area annually (one time). Report is due by October 31st of the monitoring year. Includes time to perform site visit, collect monitoring data in the 9 individual plots, prepare monitoring reports and agency coordination. Monitoring data includes: 1.) Tree/Vegetation - Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot (9) with their associated wetland indicator status (updated annually); and new species observed will be listed in bold, 2.) Soils - Soil test pits are to be dug in each sampling plot (9); and assess soils pits as to whether the display hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.	1	16	24	12	2	1	56
	15	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring report.		2	32	24			58
	16	Coordination with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding: 1.) the need eradicate invasive species if determined to be needed. Aerial coverage of invasive exotic species must be less than (<) 5%; 2.) the tree survival rate (minimum 80%) and the need to re-plant tree species; and 3.) the areal coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and the need to re-apply wetland seeds if needed.		4					4
2019 (Monitoring - Year 5)	17	Monitor the wetland restoration area annually (one time). Report is due by October 31st of the monitoring year. Includes time to perform site visit, collect monitoring data in the 9 individual plots, prepare monitoring reports and agency coordination. Monitoring data includes: 1.) Tree/Vegetation - Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot (9) with their associated wetland indicator status (updated annually); and new species observed will be listed in bold, 2.) Soils - Soil test pits are to be dug in each sampling plot (9); and assess soils pits as to whether the display hydric indicators as provided in the NTCHS Field Indicators of Hydric Soils.	1	16	24	12	2	1	56
	18	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring report.		2	32	24			58
	19	Coordination with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding: 1.) the need eradicate invasive species if determined to be needed. Aerial coverage of invasive exotic species must be less than (<) 5%; 2.) the tree survival rate (minimum 80%) and the need to re-plant tree species; and 3.) the areal coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and the need to re-apply wetland seeds if needed.		4					4
2020 (Monitoring - Year 5)	20	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring reports.		2	32	24			58

Time Period	Task	Description	Employee Classification and Man-hours						Total
			PM	SB	ECO	ET	CT	S	
6 (Monitoring)	21	Coordination with the City of Chattanooga and Hamilton County Parks and Recreation (PCE holder) regarding: 1.) the need eradicate invasive species if determined to be needed. Aerial coverage of invasive exotic species must be less than (<) 5%; 2.) the tree survival rate (minimum 80%) and the need to re-plant tree species; and 3.) the areal coverage of hydrophytic vegetation FAC or wetter (minimum 85%) and the need to re-apply wetland seeds if needed.		4					4
	22	Monitor the wetland restoration area annually (one time). Report is due by October 31st of the monitoring year. Includes time to perform site visit, collect monitoring data in the 9 individual plots, prepare monitoring reports and agency coordination. Monitoring data includes: Tree/Vegetation - Complete inventory of the survival rate of each planted tree specimen; list of herbaceous species observed in each sampling plot (9) with their associated wetland indicator status (updated annually); and new species observed will be listed in bold.	1	16	24	12	2	1	56
	23	Wetland/Hydrology - Collect the groundwater monitoring data quarterly (4 times/year). Data to be reviewed to determine if wetland is inundated within 12 inches of the ground surface at least 14 consecutive days during the normal growing season; minimum of 5 out of 10 years; and average daily data will be placed in a table and graphed. Information collected will be used in the monitoring reports.		2	32	24			58
7 (Monitoring)	24	Coordinate and conduct a final meeting with the regulatory authorities in October 2021 or Summer of 2022 to provide concurrence of wetland succession.	2	8	6				16
	25	Be on-call (as needed) to address issues and/or concerns, answer questions, etc. from the regulatory agencies, City of Chattanooga, VV, etc. during the monitoring period based upon monitoring results. Est. 8 events @ 4 hours/event	8		32				40
	26	Administration (invoicing, progress reports, etc.) Estimated 36 months.	36					72	108
Total Man-hours			61	198	466	270	28	82	1105

CONSULTING SERVICES FEE ESTIMATE

Project: Roane/Morgan: SR-29 (US-27)

Termini: From VW Supplier Park to SR-58

PIN: 114048

Client: City of Chattanooga

Task: Stream/Wetland Monitoring

DIRECT EXPENSES

Item	Description	Quantity		Units	Unit Cost	Expense
A	Subcontractor					
A-1				Each		
A-2				Each		
A-3				Each		
A-4				Each		
B	Travel, Per Diem and Field Equipment					
B-1	Lodging			Each		
B-2	Meals			Person-Day		
B-3	Groundwater Monitoring Well	1		Each	\$975.00	\$975.00
B-4	Mileage (20 miles per round-trip) 1 post-construction site visit + 8 monitoring events + 30 groundwater data collection events + 1 final site visit with regulatory authorities + 8 on-call site visits = 48 trips) 48 trips @ 20 miles/round trip = 960 miles	960		Each	\$0.56	\$537.60
B-5	Batteries for groundwater monitors (5). Replace yearly = 7 years X 5 monitors = 35 battery replacements	35		Each	\$10.00	\$350.00
B-6	Ice for packaging			Each		
C	Contract Plotting	Sheets	Sets			
	<i>specify</i>			Each		
D	Contract Printing	Sheets	Sets			
D-1	Contract Printing (8½" x 11" B/W)			Each		
D-2	Contract Printing (11" x 17" B/W)			Each		
D-3	Contract Printing (8½" x 11" Color)			Each		
D-4	Contract Printing (11" x 17" Color)			Each		
D-5	Contract Printing (24" x 36" Xerox Bond)			Each		
D-6	Contract Printing (30" x 42" Xerox Bond)			Each		
E	Binding	No. In Set	Sets			
E-1	Binders and Covers			Each		
E-2	3-Ring Binders (½")			Each		
E-3	3-Ring Binders (1")			Each		
E-4	3-Ring Binders (2")			Each		
E-5	3-Ring Binders (3")			Each		
E-6	Tabs			Each		
F	Postage & Delivery Service					
F-1	Postage (Letter)			Each	\$1.00	
F-2	Overnight Delivery			Each		
F-3	Other - <i>specify</i>			Each		
Total Expenses=						\$1,870.00

CONSULTING SERVICES FEE ESTIMATE

County: Hamilton
Project: SIA Serving Volkswagen Group of America
Termini: From VW Supplier Park to SR-58

PIN: 114048.00

Client: City of Chattanooga

Client Project Manager: Bill Payne

Firm Project Manager: Jeffery T. Hoilman

Agreement Date:

Agreement No.:

FEE ESTIMATE SUMMARY

Task: Stream/Wetland Monitoring

Abbreviation	Personnel Classification	Man-hours	Rate	Amount
PM	Project Manager	61	\$180.00	\$ 10,980.00
SB	Senior Biologist/Ecologist	198	\$120.00	\$ 23,760.00
ECO	Ecologist	466	\$105.00	\$ 48,930.00
ET	Environmental Technician	270	\$90.00	\$ 24,300.00
CT	CADD Technician	28	\$90.00	\$ 2,520.00
S	Secretary	82	\$90.00	\$ 7,380.00
	Totals	1105		\$ 117,870.00

Subtotal \$ 117,870.00

Direct Expenses \$ 1,870.00

TOTAL ESTIMATED FEE

\$ 119,740.00