



December 19, 2013

Curt Stovall, P.E.
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

**RE: Field Investigation Work Plan Financial Assurance Cost Estimate
OU2 Landfill Zone, Lowry Vista Redevelopment Project, Denver, Colorado**

Dear Mr. Stovall,

Walsh Environmental Scientists and Engineers, LLC (Walsh) is transmitting on behalf of IRG Redevelopment I, LLC (IRGI) the enclosed financial assurance cost estimate for the implementation of the *Field Investigation Work Plan, Operable Unit 2 (OU2) Landfill Zone, Lowry Vista Redevelopment Project, Denver, Colorado* (Work Plan). The Work Plan is being implemented as part of the Lowry Vista redevelopment project.

This cost estimate has been prepared consistent with the parameters we discussed at our October 18, 2013 working session whereas the financial assurance cost estimate was to include costs for the analysis and off-site disposal of investigation-derived waste (IDW), repairing and restoring areas of the cap damaged by investigation equipment or personnel, preparation of a closure certification report, and CDPHE review of that report. The RS Means Heavy Construction Cost Date 2013, 27th Annual Edition was used for construction cost estimating and our professional experience was used for the environmental consulting cost estimating.

Cost Estimate Basis

The cost estimate is for an assumed worst case scenario where IRGI completes the fieldwork but all of the boring cuttings generated as part of the investigation were left on site in 55-gallon drums. Additionally, it is assumed that the field investigation was performed during wet periods and significant vegetation damage and rutting occurred. Cost estimate consists of the following cost items and assumptions:

- **Procurement and Planning**
 - It is assumed that CDPHE would hire an environmental consulting firm to manage the IDW disposal and cap restoration. Their scope would consist of work plan preparation, field implementation, and Construction Quality Assurance (CQA) certification report preparation.
 - CDPHE will procure the consultant and review their work plan at a cost of \$125/hr. It is assumed that 40 labor hours will be expended to procure the consultant.
- **IDW Management**
 - IRGI will drill 38 hollow stem auger (HSA) borings to a depth of 12 feet below ground surface (bgs). The diameter of the HSA borings is four inches. The total depth of the HSA borings is 456 feet.
 - IRGI will perform 299 (268 soil investigation and 31 gas probes) direct push technology (DPT) borings into the cap. 1.25 inch diameter core samples will be obtained from these borings. The

total depth of the DPT borings is 2,636 feet. The total depth was obtained by totaling the "Planned Boring Depth" column of the spreadsheet titled "Boring Depth Summary" prepared to supplement the Work Plan and submitted under separate cover to CDPHE via email on November 14, 2013.

- Each drum will cost \$350 to dispose including transportation. Each profile analysis will cost \$1,000. It was assumed two will be needed. These costs are based on a quote from AET Environmental dated November 11, 2013 (attached).
- **Site Restoration**
 - It is conservatively assumed that five acres of cover were damaged and will require smooth-grading and revegetation. Revegetation will consist of seeding and mulching.
- **Construction Completion**
 - It is assumed that the environmental consultant will have a field engineer/scientist at \$70/hour who will spend 30 hours total to coordinate and oversee the loading of drums for off-site disposal, oversee the site restoration, and to help prepare the certification report.
 - The environmental consultant will also have a CQA Engineer/project manager who will oversee the entire project and sign the CQA certification report. It is assumed that the CQA Engineer will need 10 hours total on the project at \$150/hour.
 - No as-built survey will be needed as the grader is only smoothing tire ruts.
 - CDPHE will visit the site once and review and approve the CQA Report at a cost of \$125/hour (assumed 8 hours needed).
- **Total Cost Estimate**
 - The total estimated cost was rounded to the nearest \$1,000.
 - **The total estimated cost is \$23,000.** A detailed cost estimates is attached as Table 1.

Required Financial Assurance

Prior to beginning field investigation activities, IRGI will submit a financial assurance instrument suitable to CDPHE to cover the cost estimate described above.

Closing

Please feel free to contact me at (303) 573-5545 or jwallace@walshenv.com if you have any questions. You can also contact Brad Coleman, P.E. at (303) 362-2335 or bacoleman@burnsmcd.com or John Yerton at (303) 304-2933 or jyerton@irgco.com with any questions.

Sincerely,

WALSH ENVIRONMENTAL ENGINEERS AND SCIENTISTS, LLC



Jon Wallace, P.E.
Project Engineer

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Mr. Curt Stovall, P.E.
Colorado Dept. of Public Health and Environment
December 19, 2013

Attachments:

Table 1 – Field Investigation Financial Assurance Cost Estimate
AET Environmental quote dated November 11, 2013

cc: Brad Coleman, Burns and McDonnell Engineering Co., Inc.
John Yerton, IRG Redevelopment I, LLC

Table 1
Financial Assurance Cost Estimate
Field Investigation Drum Disposal and Site Reclamation
Lowry Vista Redevelopment
IRG Redevelopment I, LLC

Item Description	Quantity	Unit	Unit Cost	Unit Cost Reference	Cost	Remarks
Base Quantities						
Hollow Stem Auger (HSA) Diameter:	0.33	feet				= 4 inches
Total HSA Boring Length:	456	feet				= 38 borings x 12 ft/boring
HSA Invest. Derived Waste (IDW) Volume:	39.8	cubic feet				= (pi)(diameter/2) ² x (length)
Direct Push Tech. (DPT) Diameter:	0.104	feet				= 1.25 inches
Total DPT Boring Depth:	2,636	feet				from "Boring Depth Summary" spreadsheet
DPT IDW Volume:	22.5	cubic feet				= (pi)(diameter/2) ² x (length)
Total IDW Volume:	9	drums				= (HSA IDW + DPT IDW) x 7.48/55, answer is rounded up
Procurement and Planning						
CDPHE Procurement and WP Review	30	hours	\$125	CDPHE review cost/hour	\$3,750	base assumption
Consultant Work Plan	1	lump sum	\$4,000	professional experience	\$4,000	also includes site visit and contractor procurement
				Subtotal	\$7,750	
IDW Management						
IDW Profile Analyses	2	each	\$1,000	AET Quote	\$2,000	see attached AET quote, assumes two types of IDW in drums
IDW Drum Disposal	9	each	\$350	AET Quote	\$3,150	see attached AET quote
				Subtotal	\$5,150	
Site Restoration						
Fine grading	5.0	acre	\$1,666	2013 RSMeans, 31 22 13.20 0280	\$8,331	Cost per 100,000 sf is \$3825
Seeding	5.0	acre	\$1,043	2014 RSMeans, 32 92 19.13 0020	\$5,215	Assumes no soil amendments needed
				Subtotal	\$5,215	
Construction Completion						
CQA Engineer/Project Manager	10	hours	\$150	professional experience	\$1,500	project mgmt and report finalization/certification
Field Engineer/Scientist	30	hours	\$70	professional experience	\$2,100	field coordination, oversight, and report preparation.
CDPHE Observation	8	hours	\$125	CDPHE review cost/hour	\$1,000	field visit and report review
				Subtotal	\$4,600	
Total Cost Estimate					\$23,000	



14 Lakeside Lane Denver, Colorado
80212 (303) 333- 8521 Fax: (303) 333-
8517

November 11, 2013
John Wallace
Environmental Chemist
Walsh Environmental Scientists and Engineers
820 16th Street #400
Denver CO, 80202

Bid by e-mail: jwallace@walshenviro.com

Dear Mr. Wallace;
It was a pleasure speaking with you! Per our discussion, AET is pleased to quote your waste treatment requirements as follows:

<u>Description</u>	<u>Quantity</u>	<u>Price</u>
Hazardous Waste Solid	One (1) 55 gallon drum	\$350.00
Waste Analysis		\$1000.00

10% fuel surcharge

NOTE: The cost for disposal and analysis is based solely on a best guess estimate. Either cost could be more or less depending upon additional facts.

The above pricing includes transportation and disposal and all applicable state fees. Waste profiling and manifesting services will be provided at no additional charge. Pricing is valid for 90 days after above date.

We appreciate your interest in AET Environmental and look forward to servicing your waste treatment and disposal needs. If you have any questions, please call me at (303) 333-8521.

Sincerely,

John W. Barrette
Account Executive