

## Technical Memorandum

To:	<u>Pebbles Clark</u>	From:	<u>Dave Hallman, Jeff Nuttall</u>
Company:	<u>MT DEQ</u>	Date:	<u>February 28, 2013</u>
Re:	<u>Red Lodge – Baseline Home Inspection Work Plan</u>	Project No.:	<u>114-560392</u>

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### 1.0 INTRODUCTION

Tetra Tech, Inc. was authorized by the Montana Department of Environmental Quality (DEQ) Task Order No. 65, issued pursuant to DEQ Contract No. 407036 to prepare a Subsurface Investigation Work Plan, prepare a Home Inspection Plan, prepare a Monitoring Plan, update the current ArcGIS database of underground mine maps and mining related features, and provide technical support to DEQ. The purpose of this work is to determine if settlement in the areas of 505 Platt Avenue South and 501 Broadway Avenue South in Red Lodge, Carbon County, Montana (“Site”) is a result of historic mining or mining related activities.

This Technical Memorandum presents a Baseline Home Inspection Work Plan (BHI Work Plan) to be performed prior to the investigation work.

### 2.0 PURPOSE

The purpose of conducting baseline home inspections is to document the current condition of all structures that may be affected by subsurface field investigation activities. Although unlikely, drilling through the overburden into any quasi-stable old mine workings could potentially trigger ground movements. Therefore, Tetra Tech has previously recommended that some sort of mechanism should be in place to protect the interests of all stakeholders (DEQ, the property owner, engineer, and drilling contractor) prior to conducting the field work. It was recommended that this include detailed inspections and documentation of the condition of all structures and facilities in the near vicinity of the proposed drill sites.

The goal of the baseline home inspections is to produce a report that provides pre subsurface field investigation written and photographic documentation of all defects and/or damage associated with such structures so that if damage occurs as a result of field subsurface investigation activities such damage can be clearly documented. The BHI Work Plan must be sufficient to document the methods and procedures that will be used to perform baseline home inspections. These baseline home inspections will be performed prior to conducting any field subsurface investigation activities.

### 3.0 SCOPE OF WORK

This section describes procedures used to complete a BHI of properties located within 100 ft of proposed boring locations and/or geophysical lines. Prior to initiating a baseline inspection, an access agreement shall be signed by the property owner and DEQ representative. The scope of work will detail the qualifications for the inspectors performing the BHI’s, property features to be inspected, and the minimum requirements for the Final Baseline Home Inspection Report.

### **3.1 Qualifications for Performing Baseline Inspections**

All Baseline Property Inspections shall be completed by qualified individuals. Currently the State of Montana does not have a licensing requirement for home inspectors. For the home inspections related to mine subsidence investigations in Red Lodge, qualified individuals shall include structural or geotechnical engineers familiar with the construction practices used for single family homes.

### **3.2 Property Features to be Evaluated**

The BHI of the conditions at a subject property shall include homes (basements, foundations, living areas, architectural detail), flatwork, retaining walls, fences, stand-alone structures (garages or other utility buildings), or any other site improvement at the request of the property owner.

### **3.3 Baseline Home Inspection Report Minimum Requirements**

The baseline condition of the features referenced above shall be quantified by providing:

1. A general description of the property.
2. A detailed 8.5 inch by 11 inch map of every planar surface on the property indicating observed damage. The map shall be scaled to the size of the surface and indicated damage shall be drawn clearly with pertinent measurements. All cracks shall be accurately mapped and measured, squareness, plumb and distortion of openings, walls, etc. shall also be noted on the maps.
3. Photographic documentation showing detailed damage as well as representation of the overall condition of the property. The Inspector shall avoid losing detail by considering proper depth of field, lighting conditions, proper use of flash and color contrasting. Included photographs must adequately show details.
4. Completed Property Inspection Field Report (see Attachment A).

More specifically the BHI Final Report shall include the following:

1. Date of the Inspection
2. Property Details
  - a. Property Address
  - b. Owner
  - c. Length of Time Owned / Occupied
  - d. Contact Info
  - e. Dates and descriptions summarizing all contact with the property owner.
  - f. Occupant
  - g. Individuals Present during the Inspection

3. Background Information
  - a. Type of Structure
  - b. Structure Faces
  - c. Year Built
  - d. Exterior Features
  - e. Foundation Type and Materials
  - f. Source of Information (i.e. owner and or observations)
  - g. Previous Repairs (Location, Type, and Year)
4. General Condition of Exterior
5. Basement Condition
6. Interior Condition
7. Areas Not Accessible
8. Storm Water Control
9. Conditions of Other Structures
10. Mining and Geological Data
  - a. Description of Mine Maps Available
  - b. Depth of Alluvium
  - c. Depth to Uppermost Mine Workings
11. General Notes

A Baseline Home Inspection Form Template is attached as Attachment A.

### 3.4 Home Inspection Costs

Costs associated with individual home inspections are highly variable due to the size of the home, age of the home, and existing conditions of the home. In order to provide a basis for comparison and budgeting purposes, the approximate costs presented in the following table were estimated for a 1,500 square foot home.

Monitoring Component	Units	Estimated Quantity	Unit Rate	Approximate Cost
On-Site Inspection	Hour	8	\$115.00	\$920.00
Home Inspection Reporting	Hour	20	\$115.00	\$2,300.00
Inspection Equipment/Supplies	Lump Sum	1	\$250.00	\$250.00
<b>Total Estimated Home Inspection Cost per Residence</b>				<b>\$3,470.00</b>

## Inspection Form

Property Address:  
Property Owner:  
Inspection Date:

Inspection Date:  
New Inspection:  
Updated Inspection:

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## Baseline Home Inspection Form

### **I. Property Details**

Property Address:

Owner:

Length of Time Owned / Occupied:

Contact Phone No.:

Occupant:

Individuals Present During Inspection:

Owner:

Inspector(s):

Location (Lat/Long):

### **II. Background Information**

Type of Structure:

Structure Faces: Year Built:

Exterior Features:

Foundation Type and Materials:

Person Furnishing information:

Previous Repairs (Location, Type & Year):

### **III. General Condition of Exterior**

### **IV. Basement Condition**

### **V. Interior Condition**

Property Address:  
Property Owner:  
Inspection Date:

Inspection Date:  
New Inspection:  
Updated Inspection:

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**VI. Areas Not Accessible**

**VII. Storm water Control**

**VIII. Condition of Other Structures**

**IX. Notes**

**X. Mining, Geological & Mitigation Data**

*Mining Data:*

Coal Seam:  
Mine Name:  
Date Mined:  
Type of mining:

*Geological Data:*

Depth to mine floor: \_  
Seam thickness: \_  
Consolidated overburden thickness (bedrock):  
Alluvium thickness:  
Height of rubble above mine floor:  
Depth to top of rubble:  
Void height:  
Depth to Water:  
Source of data:

**XI. Claim History**

*Claim Filed, Yes/No, date:*  
*Claim Paid, Yes/No, date:*

INSPECTION DATE:

REPORT PREPARED BY: \_\_\_\_\_