# Mine Waste Mitigation Plan

The applicant is working with Mr. Jeff Schoenbacher, PCMC's Environmental Coordinator, and has provided the information requested in Mr. Schoenbacher's February 4, 2005 and December 15, 2005 letters as shown below. The fourth bullet in the February letter and the third and fifth bullets in the December letter must await final design and final building timeline. This will be addressed during the building permit process.

The general principle is to keep on site the mineralized mine waste identified in the December 15, 2005 Letter at the Northwest Adit site, Southeast Adit site, Creole Mine (Shaft) site, and Creole Adit site and reclaimed these sites per the PCMC Soils Ordinance. In particular the Northwest Adit, Southeast Adit, and Creole Shaft mineralized area will be treated in place with a mineral stabilizing additive to prevent metal leaching, covered with topsoil held in place with a geo-grid, and hydro-seeded with a native grasses and flowers seed mixture acceptable to PCMC. The mineralized mine waste at the Creole Adit site will remain in the development area and placed in a sealed liner and covered with a concrete cap or at least 10 feet of clean fill material.

Attachments:
1. February 4, 2005 Letter from Mr. Jeff Schoenbacher, Environmental Coordinator
2. December 15, 2005 Letter from Mr. Jeff Schoenbacher, Environmental Coordinator Letter with attachment
3. January 27, 2006 Letter from Mr. Rob McMahon P.E., Alliance Engineering, Inc.

**Building Department • City Engineer • Planning and Zoning**

February 4, 2005

Sweeny Land Development Company
P.O. Box 2429
Park City, Utah 84060

Attention: Mike Sweeny

Subject: Treasure Hill Development

Dear Mr. Sweeny:

The purpose of this correspondence is to thank you for meeting with Ron Ivie and me, February 3rd and providing Park City Municipal Corporation (PCMC) with an overview of previous environmental assessments that have been completed within the Treasure Hill Development parcel.

As discussed during our meeting, last year USEPA and UDEQ approved PCMC Environmental Management System (EMS) as the program to oversee the management of historic environmental mining impacts. A component of that program is areas that are planned for development and are known to have mining impacts will be assessed to determine environmental and human health risks. In the event there is discovery, PCMC has agreed to integrate these properties into the "Landscaping and Maintenance of Soil Cover Ordinance" found within the building code under Chapter 11-15. As agreed upon at the conclusion of our meeting, PCMC request the following information for the Treasure Hill proposed developed areas:

- Identification of areas or structures that have historic hard rock mining impacts.
- Identification of mine workings, tailings, or other suspected waste types.
- Estimated volumes discovered.
- Sample results for discovered waste that reflect the "total" concentration for lead analyzed under lab Method 160.3 SW-846 6010.
- Proposed location that will contain material exhibiting elevated lead levels when excavated.

For your convenience, I have enclosed a copy of the ordinance for your reference. Should you have any question please do not hesitate to contact me at 435-615-5058 or email jschoenbacher@parkcity.org. Until then, I thank you for your time and consideration.

Sincerely,

Jeff Schoenbacher
Environmental Coordinator

CC: Ron Ivie
Pat Putt
Kirsten Whetstone

JTS:

PARK CITY
1884

**Building Department • City Engineer • Planning and Zoning**

December 15, 2005

MPE, Inc.
P.O. Box 2429
Park City, Utah 84060

Attention: Pat Sweeney

Subject: Treasure Hill Development Phase I Environmental Assessment

Dear Mr. Sweeney:

The purpose of this correspondence is to provide you with formal comment related to the AGEC Phase I Environmental Assessment for the Treasure Hill Subdivision, Phase 4. Based on our previous conversations, it is my understanding that MPE, Inc. will be requesting that the Treasure Hill Subdivision, Phase 4 be brought into the soils ordinance boundary defined within Park City Building Code Chapter 11-15.

As a result, these comments are based on the premise that the "Landscaping and Maintenance of Soil Cover Ordinance" will be the applicable institutional control for his site. Park City Municipal Corporation (PCMC) would like to reiterate that MPE, Inc. also has the option of entering the Voluntary Clean-up Program administered by the Utah Department of Environmental Quality (UDEQ) in the event the soils ordinance is deemed too prescriptive. Regarding the AGEC report dated November 14th 2005, four areas were identified (Southeast Adit, Northwest Adit, Creole Shaft, Creole Adit) having been impacted from historic mining activity. The report summarized the results for 8 discrete samples (SS1 – SS8) from each mine dump that reside at each identified location.

| Location | Lead Result ppm | Arsenic Result ppm | Sample ID |
|---|---|---|---|
| **Southeast Adit** | 30,000 | 6,200 | SS1 |
| | 380,000 | 8,800 | SS2 |
| **Northwest Adit** | 290 | 27 | SS3 |
| | 350 | 36 | SS4 |
| **Creole Shaft** | 2,200 | 290 | SS5 |
| | 1,500 | 200 | SS6 |
| **Creole Adit** | 11,000 | 1,700 | SS7 |
| | 11,000 | 1,800 | SS8 |

The report documented the Southeast Adit, Creole Shaft, and Creole Adit having exceedingly high concentrations of lead and arsenic that exceed USEPA Health Based Risk Standards for both residential and industrial. Furthermore, the report infers that these results coincide with "naturally occurring" background levels; this is not the case as naturally background levels have been established at 30 to 700 ppm for lead and 16 to 100 ppm for arsenic (USGS 1984). Nonetheless, PCMC does recognize that the origin of these metals is from naturally occurring deposits. In the event the ordinance boundary is expanded to encompass this development, these three areas will need to be remediated in a manner that

complies with the ordinance standards. It should also be noted that the residential lots within this area will be required to comply with the ordinance standard of 6" of clean topsoil substrate (<200 ppm lead) and the establishment of acceptable cover. At the conclusion of the meeting between yourself and Mike, I conveyed the need for a work plan that identifies the following:

- Provide the City with GPS coordinates representing the boundaries of the four areas identified as being impacted.
- Provide the City with approximate volumes that will either be capped in place or removed from off-location.
- In the event mine waste is proposed to be moved and capped else where on site provide the City with the location.
- Provide a legal description of the parcel. This information is needed in the event the ordinance is revised. The attached map represents the anticipated boundary revision and would actually be a separate polygon from the original and expanded ordinance boundary.
- Work plan defining the proposed remediation strategy, storm water controls, and the proposed time line.

Mentioned in the report was following statement "These mine dumps should be capped in place with clean soil or excavated and capped elsewhere on site in a manner consistent with the guidelines set by PCMC building code". As depicted on the attached map the Treasure Hill Subdivision is situated within PCMC Water Department - Spiro Drinking Water Source Protection Zone. This area is identified within the City's Drinking Water Source Protection Plan which has been adopted and is intended to protect Park City's drinking water sources. The impacted areas identified in the AGEC report have been georeferenced into the City's GIS system and the Creole Mine has been found to be within the zone and the Creole Adit partially within the protection zone. Since the City is required to protect these zones, PCMC will not accept the current contamination associated with mine waste to be left within the protection zone. The Spiro Drinking Water Source Protection recharge Zone has been classified as "vulnerable" due to the numerous faults, drainage channels, aquifer surface exposure, and existing mine shafts and adits. Therefore, leaving the mine waste within this zone is not consistent with the City's goal in protecting this area. As mentioned above, PCMC will await the work plan that defines the chosen strategy for remediating the areas identified within the Phase I report.

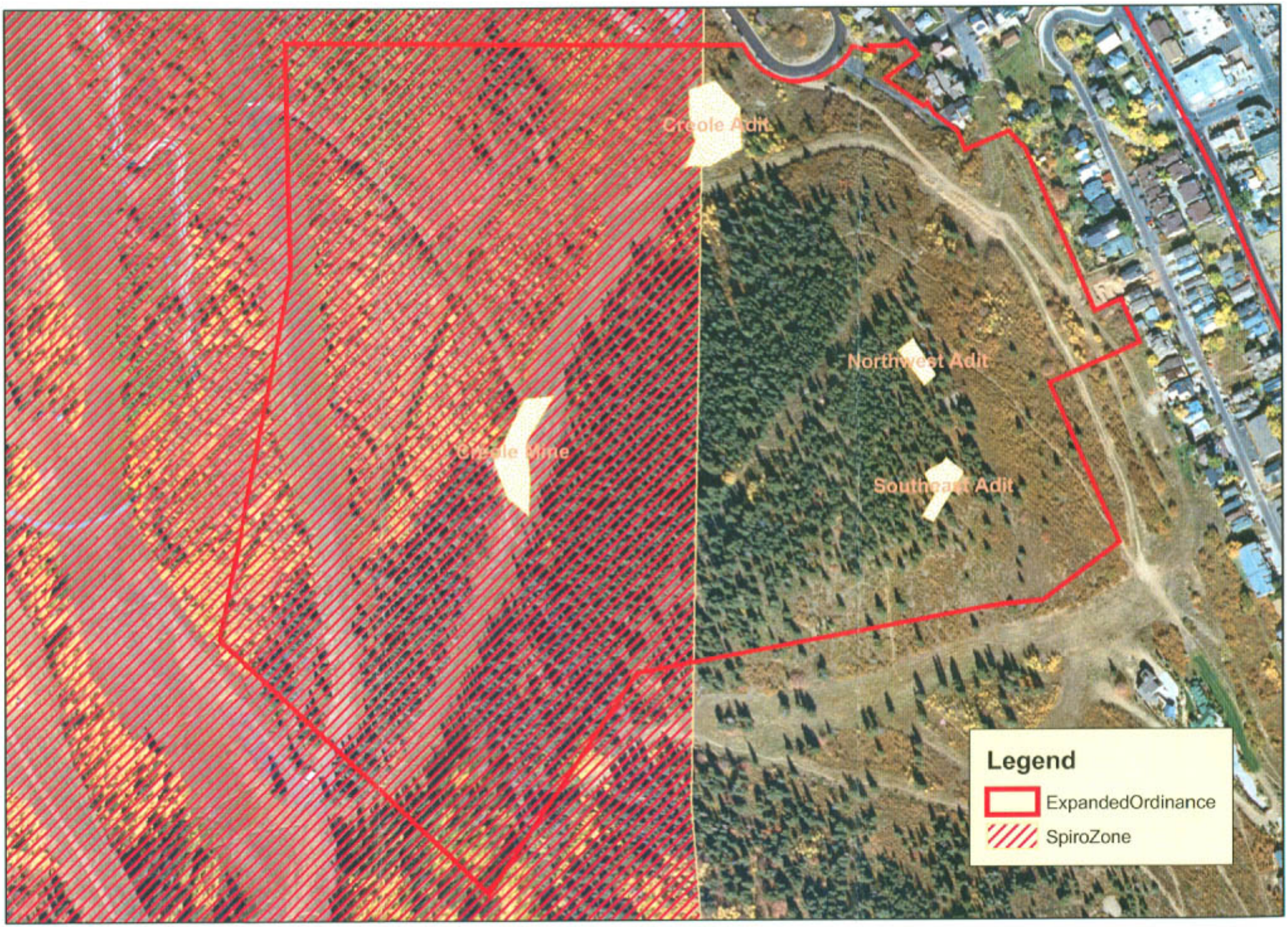
With that said, I thank your for your time and consideration and should you have any question please do not hesitate to contact me at 435-615-5058 or email jschoenbacher@parkcity.org.

Sincerely,

Jeff Schoenbacher
Environmental Coordinator

CC: Tom Bakaly
Ron Ivie
Jerry Gibbs
Kathy Dunks
Eric Dehaan
Pat Putt
Kirsten Whetstone

JTS:




This drawing is neither a legally recorded map or a survey and is not intended to be used as such. The information displayed is a compilation of records information and data obtained from various sources, including the Park City Municipal Corporation which is not responsible for its accuracy or timeliness. Park City Municipal Corporation advises that anyone requiring survey quality positions, such as for, but not limited to, construction or boundary work, should consult with a competent licensed surveyor.

# Treasure Hill Subdivion, Phase 4

500 Feet

N

Alliance Engineering Inc.

CONSULTING ENGINEERS LAND PLANNERS SURVEYORS

January 27, 2006

Mr. Thomas Atkinson
Applied Geotechnical Engineering Consultants, P.C.
600 West Sandy Parkway
Sandy, UT 84070

**RE: Phase 1 Environmental Site Assessment**
**Treasure Hill Subdivision, Phase 3**

Dear Tom:

This letter is to provide you with the locations and the estimated quantities of the overburden waste rock dumps you studied in your Phase 1 Environmental Site Assessment for the above referenced project.

| | Location | Estimated Quantity |
|---|---|---|
| Creole Shaft | Lat: 40° 38' 38.4" N<br>Long: 111° 30' 12.6" W | 1,880 CY |
| Creole Adit | Lat: 40° 38' 45.5" N<br>Long: 111° 30' 07.1" W | 1,225 CY |
| South East Adit | Lat: 40° 38' 37.6" N<br>Long: 111° 29' 59.7" W | 200 CY |
| North West Adit | Lat: 40° 38' 39.5" N<br>Long: 111° 29' 59.8" W | 35 CY |

Attached are cross sections of the overburden sites showing the quantity calculations.

Sincerely,

Rob McMahon P.E.
Alliance Engineering, Inc.

Copy: Pat Sweeney; Sweeney Land Co.
Jeff Schoenbacher; Park City Municipal Corp.

323 Main Street P.O. Box 2664 Park City, Utah 84060 435-649-9467 FAX 435-649-9475