

SOIL MANAGEMENT PLAN
FOR THE EAST PORTION OF THE
FORMER NATIONAL ZINC SMELTER SITE
CHERRYVALE, KANSAS

March 2011

TABLE OF CONTENTS

Section

TABLE OF CONTENTS	i
1.0 INTRODUCTION	1
2.0 PURPOSE AND OBJECTIVES	1
3.0 RESPONSIBLE PARTY	1
4.0 SOIL MANAGEMENT PLAN	2
4.1 Background.....	2
4.2 Objectives	2
4.3 East Portion Characteristics	2
5.0 EAST PORTION MANAGEMENT	3
5.1 Consistency with Environmental Use Controls	3
5.2 Consistency with Existing Operations and Maintenance	3
5.3 Soil Management	3
6.0 SOIL MANAGEMENT STANDARD OPERATING PROCEDURES	4
6.1 Notices and Approvals.....	4
6.2 Permits	4
6.3 Health & Safety	5
6.4 Training.....	5
6.5 Potential Hazards	5
6.6 Utility Clearance and Setback.....	6
6.7 Materials Management	6
6.8 Stockpiles and Excavations	7
6.9 Sampling.....	7
6.10 Cover Material	7
6.11 Storm water Management.....	8
6.12 Surveying	8
7.0 RECORDS	8

ATTACHMENTS

- Attachment 1 – East Portion of the Former National Zinc Site Location Map
- Attachment 2 – KDHE Field Activities Notification Form

1.0 INTRODUCTION

On behalf of the Site owner, currently the City of Cherryvale, Kansas (City), this Soil Management Plan (SMP) has been prepared to describe soil management activities for the East Portion of the Former National Zinc Smelter Site (Site or East Portion), which are consistent with the Environmental Use Controls (EUCs) established for the Site between the Kansas Department of Health and Environment-Bureau of Environmental Remediation (KDHE) and the City. A map showing the East Portion is attached hereto as Attachment 1.

2.0 PURPOSE AND OBJECTIVES

This SMP has been prepared to provide guidance and procedures for soil management to facilitate reuse of portions of the Site. Soil management protocols are required to outline appropriate handling procedures for areas of the Site where metals are present above unrestricted levels, as well as to protect the integrity of the remedial action described in Part 4 below.

This SMP is consistent with the limitations specified in the EUCs and will ensure that no intrusive activities that are inconsistent with the EUCs are conducted without prior notification and approval from KDHE, and that the future land use within the area remains non-residential.

The primary focus of the SMP is to provide for the appropriate soil handling procedures needed for worker safety and environmental protection, drainage and control.

The activities that this SMP addresses include the following:

- Worker safety for soil and sediment in construction areas on the Site;
- Proper handling, stockpiling and disposal of any soils in the construction area;
- Maintenance of Site grades and drainage; and
- Documentation and reporting.

3.0 RESPONSIBLE PARTY

The Site owner has the responsibility to see that the provisions of this SMP are carried out. Parties operating under this SMP are purchasers, lessees or developers of portion(s) of the Site, or utilities or contractors working on the Site, and are referred to generally herein as the "User". The User is the party performing the actual work on the Site under this SMP.

4.0 SOIL MANAGEMENT PLAN

4.1 Background

The Former National Zinc Smelter Site (Smelter Site) consists of an East Portion and a West Portion which are separated physically by an active railroad right-of-way and natural gas pipeline corridor. The Smelter Site is physically located in the East ½ of Section 8, Township 32 South, Range 17 East at the northwestern limits of the city of Cherryvale. The Smelter operated from 1898 to 1976 with most operations ceasing in the 1930s. Over the years of operation, slag, construction debris and impacted soil was deposited on the Smelter Site in various locations. In 1999 KDHE's Brownfields Target Assessment (BTA) identified various areas of the Smelter Site that were impacted with metals above both the KDHE residential and non-residential risk levels for lead, cadmium and arsenic. Subsequent investigations outlined areas of concern where impacted soils containing arsenic, lead and cadmium above these limits were identified. Remedial actions to address the identified areas of concern were conducted in 2007. The remedial objective was to remove and contain soil with metals above the KDHE non-residential risk-based (NRRSK) levels. This left impacted soils on the Site containing lead, cadmium and arsenic that are below the non-residential risk levels but above the residential, unrestricted use levels.

4.2 Objectives

The remedial action at the Site was designed to be protective of human health and the environment and to facilitate reuse of the property for commercial development. This SMP addresses soil excavation activities contemplated for development of the East Portion. This SMP applies only to the East Portion, and does not apply to other areas of the Smelter Site or the railroad right-of-way and natural gas pipeline corridor.

The SMP is designed to outline necessary tasks that will be required to manage soil and sediment on the East Portion that is above the KDHE residential risk level, and to maintain drainage facilities and grades required for proper drainage of the East Portion.

4.3 East Portion Characteristics

On the East Portion, impacted smelter-related material above NRRSK levels was removed and deposited in the 23-acre on-site disposal area located on the West Portion of the Smelter Site. This excavation area was then covered with at least six inches of imported, clean fill material. The East Portion was graded to allow storm water to flow in a northwesterly direction to an inlet that discharges the storm water into the drainage system on the West Portion of the Smelter Site. The East Portion was graded to drain, seeded and vegetated to prevent erosion and to maintain vegetative cover. Soil remaining on the East Portion contains metals below the NRRSK but above the residential limits and therefore the site is maintained for commercial/industrial use only.

The current NRRSK and residential risk criteria for metals referenced above are as follows:

Compound	NRRSK (Commercial / Industrial) Limit mg/kg	Residential Limit mg/kg
Arsenic	38	11.3
Lead	1000	400
Cadmium	965	39

5.0 EAST PORTION MANAGEMENT

5.1 Consistency with Environmental Use Controls

All work must be consistent with the EUCs for the East Portion. The EUCs specify the restrictions which apply to and must be considered for any activities on the Site.

5.2 Consistency with Existing Operations and Maintenance

Use and activities by any user must also be consistent with current Operation and Maintenance (O&M) Activities. The User must coordinate construction and soil handling activities with KDHE and the Site owner which is responsible for O&M at the Site. O&M involves regular inspection and maintenance of the following activities, which are typically minimally invasive:

- Erosion;
- Subsidence;
- Ponding;
- Storm water drainage;
- Access roads;
- Vegetative cover;
- Wet spots, or
- Soft sub-grade.

5.3 Soil Management

Soil management involves the procedures and processes needed to manage activities in areas where soil may be encountered that is above the residential risk standards. These activities include but are not limited to the following:

- Excavation
- Drilling
- Digging
- Grading
- Utility installation or removal
- Drainage improvements

- Road construction
- Foundation and building construction

6.0 SOIL MANAGEMENT STANDARD OPERATING PROCEDURES

These Soil Management Standard Operating Procedures (SOPs) are guidelines to be followed when developing work plans and specifications for work that may disturb soils on the East Portion.

6.1 Notices and Approvals

KDHE and the City must be given notice prior to any investigation, invasive activity, construction, excavation, removal action, or other activity that may disturb soil or result in changes in slope, grade or drainage. Information in the notice should include the following items:

- Work plan and timeline
- Design drawings and construction plans
- Fate of disturbed soils, slope, grade or drainage.
- Health and safety plan
- Zoning and land use information
- Construction permits
- Storm water permits
- Insurance and bonds
- Professional certifications

If any activity covered in the Notice is inconsistent with the requirements of the EUCs or this SMP, then advance approval by KDHE and the Site owner shall also be required before any activities pursuant to the Notice may be initiated. KDHE and the Site Owner may require additional items depending on the nature of the planned activity at the Site.

Notice may be given using the KDHE Field Activities Notification Form, attached hereto as Attachment 2.

6.2 Permits

Permits for construction, excavation, construction, storm water and occupancy may be required by federal, state, or local agencies. The User is charged with identifying the necessary permits that may be applicable. No work may be performed by the User until applicable permits, clearances and approvals are received from applicable regulatory agencies.

6.3 Health & Safety

Metals in soil and particulate dust present a potential hazard. Exposure prevention strategies, monitoring requirements, and other pertinent safety information may need to be prepared by the User in a Site-specific Health and Safety Plan (HASP). HASPs should include procedures as needed to protect workers and the public from soils impacted with lead, arsenic or cadmium. All field work shall be conducted in accordance with the HASP. Worker personal protective equipment (PPE) is expected to be a minimum of Level D. Level C, which may include half-face negative pressure respiratory protection, may be required if the time-weighted average concentration of metal impacted dust in the air is above applicable OSHA worker safety levels. If conditions warrant a change in PPE, work will be stopped and conditions or changes assessed. Users may be required to receive training in on site-specific hazards as determined by their Site Safety Officer (SSO). Users must fully comply with all applicable federal, state and local requirements. Users will be expected to provide their own PPE.

6.4 Training

All personnel involved in intrusive activities at the Site may need trained in accordance with OSHA regulations found at 29 CFR 1910.120 covering Hazardous Waste Operations and Emergency Response (HAZWOPR). Consistent with 29 CFR 1910.120, paragraph (e) (4), individuals designated as site supervisors (including the SSO) may require an additional eight hours of specialized training on managing site operations.

6.5 Potential Hazards

The potential hazards at the Site include impacted soils and particulates (dust), which may contain metals, primarily arsenic, cadmium, and lead above residential risk levels. It shall be the responsibility of the User to conduct appropriate monitoring of the work area. Action levels for lead, arsenic and cadmium are specified in OSHA requirements which are set forth in 29 CFR 1910.

Dust is a concern due to the potential for inhalation of constituents of concern above applicable OSHA requirements. The User may need to monitor for dust and provide adequate baseline analysis to determine that respiratory protection is not required for workers that are potentially exposed to metals above applicable regulatory requirements. Water shall be used to minimize airborne dust during excavations, though alternate means may be employed. The User's HASP may need to include monitoring of dust levels for particulate matter and for metals according to OSHA standards.

Potential hazards also include rail, natural gas and other utilities in the right-of-way corridor. (See Part 6.6 below).

6.6 Utility Clearance and Setback

Utility clearances are required before any digging or excavation can be performed at the Site. Utility clearances must be obtained from (www.call811.com) Kansas One Call 811 or 1-800-344-7233 (www.kansasonecall.com) prior to any invasive work done on the Site and confirmation of these clearances acknowledged in writing by the Site Owner.

Known utility issues include a high-pressure natural gas pipeline which is present adjoining the east side of the rail line on the west side of the East Portion. There shall be no digging, excavating or soil disturbing activities done within fifteen (15) feet of the east boundary of the natural gas line easement except where/when necessary by the authorized utility user. In addition to the rail line, which is located west of the natural gas pipeline, there may be sewer, electric, phone, fiber optic, or other utility lines present and all such utility lines must be appropriately identified and located prior to work.

Procedure

- No soil removal activity will be performed before utility clearances are completed.
- A site visit will be conducted one week prior to commencement of work to conduct a visual inspection of the area and to initiate coordination of utility clearances.
- The User will contact the Kansas One-Call Service (dial 811; www.call811.com) to locate public underground utilities near the planned investigation areas.
- Prior to the work, a utility locator will be subcontracted to identify and mark out subsurface utilities and conduct a utility clearance at any potential excavation location and along any right of way where heavy equipment may be operated or where construction activity will take place.
- The applicable railroad and natural gas pipeline contacts should be notified in the event that any work will approach the specified fifteen (15) foot set-back safety zone east of the east boundary of the natural gas pipeline easement.

6.7 Materials Management

During intrusive activities, the User will be required to manage excavation spoils in a manner consistent with the EUCs. Because residual soil may be above residential risk levels for metals, soil must be appropriately managed. While general excavation safety guidelines (e.g. – clearances prior to excavation, confined space entry procedures, safe working distances for personnel, warning systems, etc.) are not discussed herein, the User is expected to employ and implement such safety guidelines.

6.8 Stockpiles and Excavations

The potential for exposure to impacted soils containing metals at the surface and subsurface remains at the Site. The EUCs are designed to prevent direct exposure, inhalation and ingestion of soils to workers and members of the public. Stockpiles and excavations must be controlled to prevent dust, excessive runoff and exposure to unrestricted areas and to maintain the integrity of the remedial action described in Part 4 above.

Procedure

- All soils must be contained in a controlled manner such that excessive dust and erosion are limited.
- All excavations will be conducted so to minimize the amount of soil excavated and the area of vegetation that is removed or destroyed.
- Worker exposure may require monitoring per the Site-specific HASP as prepared by the User.
- Stockpiled soils subject to erosion by wind or weather must be managed in accordance with the following engineering controls:
 - a. Stockpiled soils shall be covered with clean soil, covered with protective plastic or erosion control blankets.
 - b. Stockpiled soil must have berms, silt fence or other barriers to prevent erosion at the base.
 - c. Stockpiled soil may be placed back in areas excavated by the User on the Site. Alternatively, excess soil may be spread in a manner consistent with surrounding grade within the Site.
 - d. Excavated material may also be disposed off-Site in an appropriate manner (i.e., approved landfill/disposal facility), and to the extent necessary replaced with clean, approved fill.
 - e. The User should make all reasonable attempts to manage materials on-Site.
 - f. Excess soil may not be disposed of, sold, bartered or distributed to any persons not approved by KDHE to receive such material.
 - g. All areas affected by excavation shall be returned to a state consistent with its original state (e.g., – grade, vegetation), and all drainage pathways, ditches, swales or conveyances must be restored to full and unrestricted pre-construction operation.

6.9 Sampling

The User shall conduct such sampling and analysis of impacted soils and/or dust as is required to comply with applicable OSHA health and safety regulations. Further, if excavated soils are to be disposed of off-Site, the User shall conduct such sampling and analysis of the soils to be disposed as is required by the operator of the approved landfill/disposal facility and obtain a special waste authorization permit from KDHE as needed.

6.10 Cover Material

If new cover material is brought onto the Site by the User, the soil shall be a natural soil, Unified Soil Classification System (USCS) types “CL” or “CH”, as demonstrated by applicable CQA testing and classification, and comply with the following KDHE Policy: *BER-RS-048 Consideration and Selection of Borrow Sites*. Vegetation shall then be appropriately established, and as previously stated, grading must then be re-established to maintain original drainage and lines of flow.

6.11 Storm water Management

General storm water permits or other requirements may be applicable. The User is responsible for obtaining storm water permits applicable to its activities at the Site.

Procedure

- Users shall take all precautions to minimize water accumulation in any excavated area, using diversion ditches, dikes, or other drainage mechanisms.
- Storm water which flows into the on-Site drainage must not become degraded or clogged with silt as a result of User’s activities.
- Water breaks, silt fence, settling ponds or other engineering controls may be required depending on the activity.

6.12 Surveying

Surveying may be required prior to and following soil removal to ensure established grades and surface water flow is maintained.

Procedure

- The work must be performed by a surveyor licensed in the State of Kansas. Locations will be surveyed to establish State Plane Coordinate locations and National Geodetic Vertical Elevations.
- The State Plane Coordinate locations will be within a tenth of a foot (0.10 foot) for surveyed locations. The surveyed locations will be referenced to known benchmarks.
- Drawings shall be prepared showing the details of work and location of areas where work has been performed, including any necessary comments noted.
- Restoration of grades and all drainage facilities or pathways in all areas where work has been performed shall be recorded.
- Updates to the EUCs or O&M Plan may contain additional survey or record requirements as prescribed by KDHE.

7.0 RECORDS

Records of all activities (including drawings, as applicable), with respect to work performed by the User must be compiled and maintained as part of the project documentation, and copies furnished to

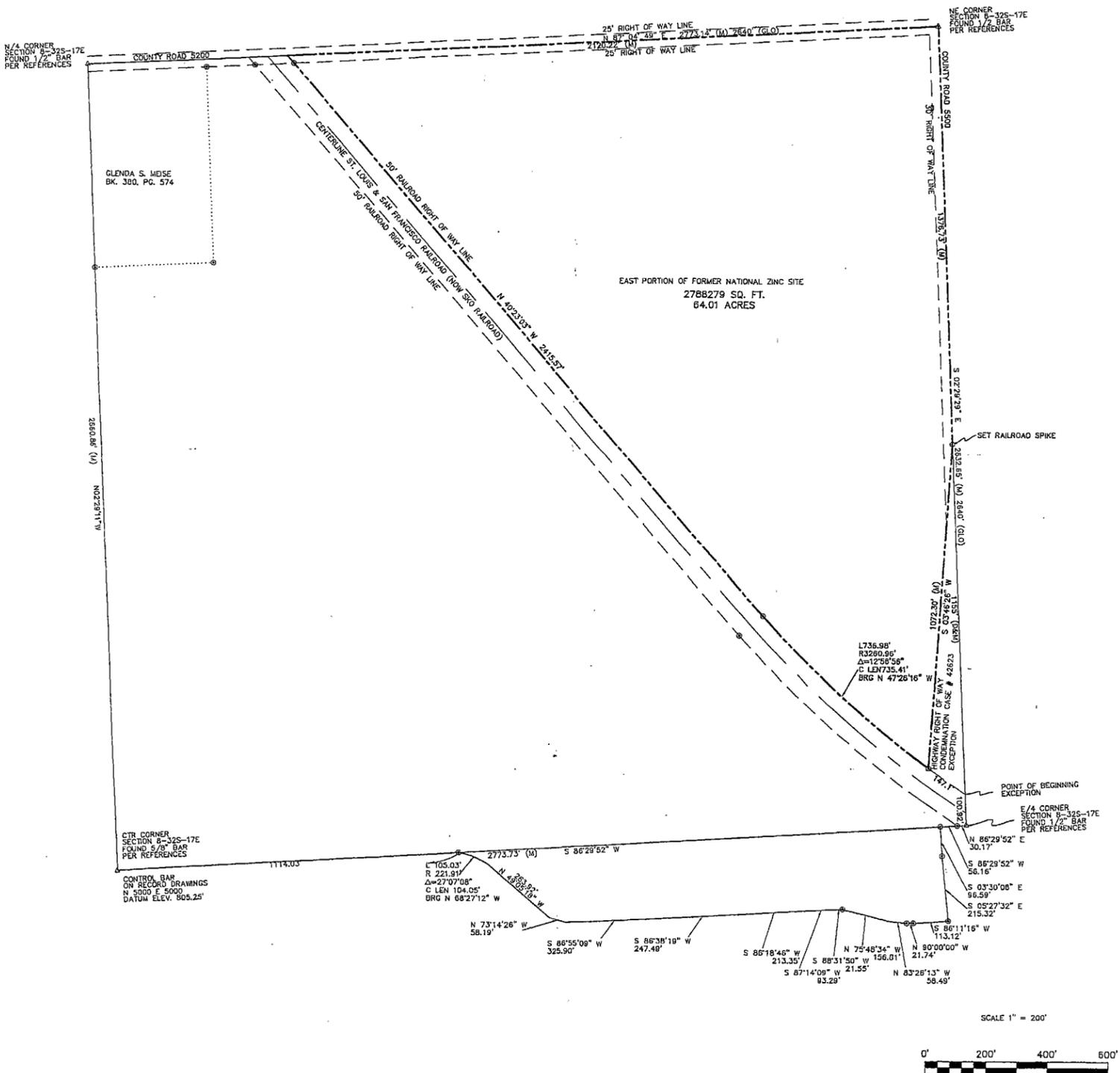
KDHE and the City as necessary.

Procedure

- As built records of all work, analytical results, worker records and other plans must be submitted to the City and KDHE upon completion of work.
- Records must be maintained for a minimum of five (5) years.
- The User shall also determine whether any documents related to the work need to be prepared for filing or recording with the Recorder of Deeds for Montgomery County, Kansas, and if so, to comply with such requirements. Any land use, occupancy or zoning requirements of the City shall also be followed.

2015347v1

**BOUNDARY SURVEY of the East portion of the Former National Zinc Site, being
a portion of the Northeast Quarter of Section 8,
TOWNSHIP 32 SOUTH, RANGE 17 EAST of the 6th PRINCIPAL MERIDIAN,
MONTGOMERY COUNTY, KANSAS
prepared for Entact Environmental**



SURVEYOR'S NOTES

- The bearings shown hereon are based upon the Kansas South Zone State Plane Coordinate System.
- This survey does not reflect a comprehensive title search of easements, rights-of-way, or other instruments of record which may encumber this property per agreement with client.
- Underground or above ground utilities, nor improvements were located or shown on this survey.
- All distances are measured on the State Plane Grid unless otherwise noted, with a Combined Adjustment Factor of .9999465.
- The descriptions prepared hereon are part of an on-going survey of Section 8 in which Section Corners were recovered and fixed in the beginning phase, with additional survey from project control.

BOUNDARY DESCRIPTION - Written by the signing surveyor

All that portion of the Northeast Quarter of Section 8, Township 32 South, Range 17 East, lying North and East of the right of way of the SKO Railroad (formerly the St. Louis and San Francisco Railroad);

Except:

A tract of land condemned for state highway purposes in the District Court, Montgomery County, Kansas, Case No. 42823, described as beginning at the intersection of the northeasterly right of way line of the St. Louis & San Francisco Railroad and the East line of the quarter section; then Northwesteily along said railroad right of way line 147.7 feet; thence Northerly to a point on the East line 1155 feet North of the place of beginning; thence South along the East line to the place of beginning, containing 0.84 acres, more or less, and

SURVEY REVIEW

This survey has been reviewed and approved for filing, pursuant to K.S.A. 58-2005 for content only and is in compliance with this Act. No other warranties are extended or implied.

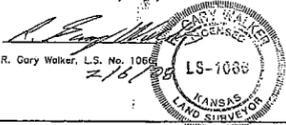
James D. Schmitz, P.L.S. No. 727

LEGEND

- Boundary Line
- - - Section Line
- △ Section Corner
- ⊙ Set 1/2" x 24" Iron Rod/Cap
- ⊙ Existing Survey Monument
- ◆ 3-O Control Bar
- County Road R/W Line
- (M) Measured Dimension
- (D) Deeded Dimension
- (P) Platted Dimension
- (C) Calculated Dimension
- (GLO) General Land Office Dimension

SURVEYOR'S CERTIFICATION:

I, R. Gary Walker, a duly licensed Land Surveyor in the State of Kansas, do hereby certify that this plot was prepared from the notes of an actual on the ground field survey done by me or under my direct supervision from June 2007 through December, 2007 and that the information shown hereon is true and correct and meets or exceeds current Kansas Minimum Standards for Boundary Surveys.



CORNERSTONE REGIONAL SURVEYING, L.L.C.
1921 North Penn
Independence, KS 67301
Ph: 620-331-6767

DRAWN BY: RGW	DATE: Dec. 20, 2007
CHECKED BY: WAB	DRAWING NO.: 0705168F_1
JOB NO.: 1-0705168K	SHEET 1 OF 1

KDHE-BER Remedial Section Field Activities Notification Form

This is a new notification

*Project Name:

*KDHE Project Manager: -Select-

Location of work:

*County: -Select-

City (or nearest city):

Anticipated dates and duration of work:

*Start Date (mm/dd/yy):

*Duration of work (days):

Check this box if work is expected to occur on any weekend or holiday days.

Primary Field Contact:

*Name:

*Affiliation/Company:

*Primary Phone Number:

Alternate Phone Number(s):

Email Address:

Alternate Contact:

*Name:

*Affiliation/Company:

*Primary Phone Number:

Alternate Phone Number(s):

Email Address:

***Brief Description of Work to Be Performed**

(Include persons, nature of activities, general location information, and anticipated schedule of activities):

If you have any problems using this form, please call 785-296-1673

* Indicates a required field.

ATTACHMENT 2