SOIL MAP UNITS WITHIN THE PERMIT BOUNDARY		
Symbol	**Map Unit Name**	**Acres**
AD-AB	Arnegard - Clay Loam (A and B slopes)	72.7
AR-AB	Amor - Loam (A and B slopes)	21.4
AR-CD	Amor - Loam (C and D slopes)	22.1
CB-AB	Cabba - Silt Loam (A and B slopes)	82.8
CB-C	Cabba - Silt Loam (C slopes)	58.0
CB-DE	Cabba - Loam (D and E slopes)	104.3
CHAN	River Channels	60.3
DH-A	Dogtooth - Silty Clay Loam (A slopes)	68.6
DH-B	Dogtooth - Silty Clay Loam (B slopes)	54.5
DM-AB	Daglum - Silty Clay Loam (A and B slopes)	66.0
EH-A	Entic Haplustolls - Silt Loams and Silty Clay Loams (A slopes)	53.5
EH-A s/s	Entic Haplustolls (saline/sodic substratum) - Silt Loams and Silty Clay Loams (A slopes)	47.0
FR-BC	Flasher - Sandy Loam (B and C slopes)	17.3
FR-DE	Flasher - Sandy Loam (D and E slopes)	36.7
FV-A	Fluvents - Silt Loams and Silty Clay Loams (A slopes)	103.5
FV-A s/s	Fluvents (saline/sodic substratum) - Silt Loams and Silty Clay Loams (A slopes)	81.4
GL-A	Grail - Silty Clay Loam (A slopes)	43.6
HL-A	Havrelon - Silt Loam (A slopes)	60.9
HL-A ch	Havrelon (channeled) - Silt Loam (A slopes)	17.7
HL-A s/s	Havrelon (saline/sodic substratum) - Silt Loam (A slopes)	172.9
JG-AB	Janesburg - Silty Clay (A and B slopes)	21.1
LE-A	Lallie - Silty Clay (A slopes)	26.2
LR-A	Lawther - Silty Clay (A slopes)	487.3
LR-B	Lawther - Silty Clay (B slopes)	185.6
MG-AB	Manning - Sandy Loam (A and B slopes)	106.9
MN-A	Morton - Loam (A slopes)	131.7
MN-BC	Morton - Loam (B and C slopes)	33.7
MU-A	Moreau - Silty Clay Loam (A slopes)	93.3
MU-B	Moreau - Silty Clay Loam (B slopes)	363.6
PL-BC	Parshall - Sandy Loam (B and C slopes)	5.5
PL-DEF	Parshall - Sandy Loam (D, E and F slopes)	1.1
RR-B	Reeder - Loam (B slopes)	30.7
RS-A	Rhoades - Silty Clay (A slopes)	153.9
RS-B	Rhoades - Silty Clay (B slopes)	93.0
RT-AB	Regent - Silty Clay Loam (A and B slopes)	197.6
RT-CD	Regent - Silty Clay Loam (C and D slopes)	61.7
SE-A	Savage - Silty Clay Loam (A slopes)	283.4
SE-B	Savage - Silty Clay Loam (B slopes)	217.2
SN-AB	Sen - Silt Loam (A and B slopes)	77.0
SO-A s/s	Shambo (saline/sodic substratum) - Loam (A slopes)	24.9
SO-ABC	Shambo - Loam (A, B and C slopes)	47.5
TY-ABC	Tally - Sandy Loam (A, B and C slopes)	31.8
VR-ABC	Vebar - Loam (A, B, and C slopes)	17.2
Wet Saline	Saline - Silty Clay Loam	22.5
WN-A	Wayden - Silty Clay (A slopes)	57.7
WN-B	Wayden - Silty Clay (B slopes)	319.0
WN-CDE	Wayden - Silty Clay (C, D, and E slopes)	12.3
Miscellaneous Areas		
DIST	Disturbed	37.8
FMSTD	Farmstead	60.8
ROW	Right-of-Way	109.7
WAT	Water	24.2
	Total:	**4,581.4**

LEGEND

OBSERVATION POINTS

- Recorded Only
- Sampled - Labeled with Unique Site ID (070515-S39)
- Permit Boundary

SOIL MAP UNITS

Soil Boundaries

- Map Units - Labeled with Symbol and Lift 1 / Lift 2 Salvage Thicknesses in inches (DH-A 5/4)

Miscellaneous Areas

Salvage All Soil (both thicknesses) as Lift 2

- Farmsteads
- Rights-of-Way and Lanes

No Soil Salvage Within These Areas

- Water and Permanently Wet Areas
- Other Disturbed Areas

- Study Area
- Match Line
- Drainage Way
- Township and Range
- Section
- Index Contour - 20 Foot Interval
- Contour - 5 Foot Interval

NOTES

Slope Ranges:
A = 0 to 3 percent;
B = 3 to 6 percent;
C = 6 to 9 percent;
D = 9 to 15 percent;
E = 15 to 25 percent; and
F = greater than 25 percent.

REFERENCE

Permit Boundary: IEI, 11/12/2009.
Study Area: Golder, 4/27/2007.
Township, Range, and Sections: ND HUB, 6/20/2006.
Roads, Railroad, Drainage Ways: Digitized from aerial photography, 6/19/2006.
Contours: Generated from aerial photography stereo pairs, 6/19/2006.
Projection: StatePlane, North Dakota South, NAD27, Feet.

500 250 0 500 FEET
SCALE 1:6,000 1 IN = 500 FT
IF PRINTED AT 34 IN X 44 IN

REV	DATE	DES	REVISION DESCRIPTION	GIS	CHK	RVW
1	06/07/10	JS	Sample Sites	JS	JS	TS

PROJECT
SOUTH HEART COAL LLC
SOUTH HEART LIGNITE MINE
SOUTH HEART, NORTH DAKOTA

TITLE
SOIL SURVEY MAP (SHEET 2 OF 3)

CATENA Consulting LLC Billings, Montana

PROJECT NO.	063-2212A	FILE	SH_Soil_Figure_2-4-2.mxd		
DESIGN	AJR	06/16/2007	SCALE	AS SHOWN	REV. 1
GIS	JS	06/07/2010			
CHECK	JS	06/07/2010			
REVIEW	TS	06/07/2010			

FIG 2.4-2B