

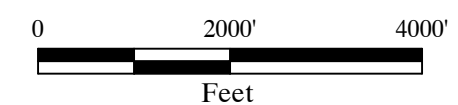
**LEGEND**

- ▬ SEDIMENT POND
- ▬▬▬▬ STUDY AREA
- - - - - PERMIT BOUNDARY
- ▬▬▬▬ DIVERSION
- - - - - MINE DITCH
- ▬▬▬▬ PIT BOUNDARY
- - - - - DISTURBANCE BOUNDARY
- ▬▬▬▬ STREAM CHANNEL
- ▬▬▬▬ DISTURBANCE STREAM BUFFER
- ▬▬▬▬ WETLAND BUFFER
- ▬▬▬▬ STREAM BUFFER
- ▬▬▬▬ SPGM STOCKPILE
- ▬▬▬▬ OVB STOCKPILE
- ▬▬▬▬ SOVB STOCKPILE
- ▬▬▬▬ CULVERT
- ▬▬▬▬ CONCRETE ARCH BRIDGE
- ▬▬▬▬ HAUL ROAD
- ▬▬▬▬ ACCESS ROAD
- ▬▬▬▬ ROAD
- ▬▬▬▬ FACILITY AREA
- 23 SECTION
- ▬▬▬▬ TOPOGRAPHY (5 FT. INTERVALS)

**CULVERT DESIGN SUMMARY**

Area	Culvert Name	Contributing Watershed (ac)	Storm	Peak Flow (cfs)	No. Culverts	Culvert Dimensions (ft)	H/W/D
Pond 1	CC#1	178.324	10-24	61.15	1	5	0.75
Pond 1	CC#2	98.156	10-24	80.19	1	5	0.8
Pond 1	CC#3	33.159	10-24	24.42	1	3	1
Pond 1	CC#6	8.743	10-24	11.63	1	3	0.8
Facilities Area Culvert below E Entry Rd above Sump	CC#7	4.31	10-24	8.6	1	2	0.875
Pond 2	CC#4	67.43	10-24	42.96	1	3.75	0.933333
Pond 2	CC#5	472.16	10-24	181.9	1	6	1
E Explosives Storage Cvt	CC#8	40.596	10-24	56.33	1	4	0.9
W Explosive Storage Cvt	CC#9	113.44	10-24	148.49	1	5.5	1.0
West Branch	CVT 55+75	1286	100-6	706.41	1 or 2	(2) 7' or (1) 7.25' x 11.5' Arched or (1) 12' Round CMP	1.15
West Branch Diversion	CVT 70+51	1175	100-6	707	1	1(12')	1.2

SEE FIGURE 3.5-13 & 3.5-14 FOR BRIDGE DETAILS



**REFERENCE**  
 T139N R98W  
 Permit Boundary: IEI, 11/12/2009.  
 Mine Pit Boundary: Norwest, 01/20/2010.  
 Township, Range and Section: ND HUB, 6/20/2006.  
 Drainage Ways: Digitized from aerial photography, 6/19/2007.  
 Contours: Generated from aerial photography stereo pairs, 6/19/2007.  
 Projection: StatePlane, North Dakota South, NAD27, Feet.  
 Contours are set at 5' intervals, unless otherwise specified.

△						
△						
△						
△	09/21/10	CWB		COMPLETENESS COMMENT	JLS	CWB
△	REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK
△					JRH	RW

PROJECT

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

TITLE

**CULVERT & BRIDGE LOCATIONS**

PROJECT No.	23-428403	FILE No.	Ponds & Ditches.dwg
DESIGN	APO	2/15/10	SCALE AS SHOWN
CADD	JLS	2/15/10	REV. 1
CHECK	JRH	2/15/10	
REVIEW	JRH	2/15/10	

**Figure 3.5-12**

