

PLOTTED: 05/13/11 02:54:11 PM FILENAME: F:\proj\17647\_50\_51 - Summerhaven\17650 Summerhaven Collection\3.0 Design\3.2 Drawings\17650-4113.dwg USER: chris.mcdaniel

**LEGEND**

-  VALLEYLAND WITHIN 120m OF PROJECT LOCATION
-  WETLAND
-  WOODLAND
-  OVERHEAD CABLE
-  UNDERGROUND DRILLED COLLECTOR LINE (1m DISTURBANCE AREA MAX.)
-  10m MACHINE EXCLUSION AREA / NATURAL FEATURE BUFFER
-  DRILLING ENTRY / EXIT POINT



Peak Power Engineering, Inc.



P.O. Box 340 | Golden, Colorado 80402 | (303) 462-1100

COPYRIGHT © PEAK POWER ENGINEERING, INC.  
 THIS DRAWING IS A COPYRIGHTED INSTRUMENT OF SERVICE OF PEAK POWER ENGINEERING, INC., A WHOLLY OWNED SUBSIDIARY OF UNIVERSALPEGASUS INTERNATIONAL, INC., AS OF THE DATE SHOWN ON THIS DRAWING. ANY RE-USE OR COPYING OF ANY PORTION OF THIS DRAWING WITHOUT WRITTEN PERMISSION FROM AN AUTHORIZED EMPLOYEE OF PEAK POWER IS STRICTLY PROHIBITED. ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND CONTAINING AN ORIGINAL P.E. STAMP AND SIGNATURE SHALL BE USED FOR CONSTRUCTION. ANY MEDIA TRANSMITTED ELECTRONICALLY SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.

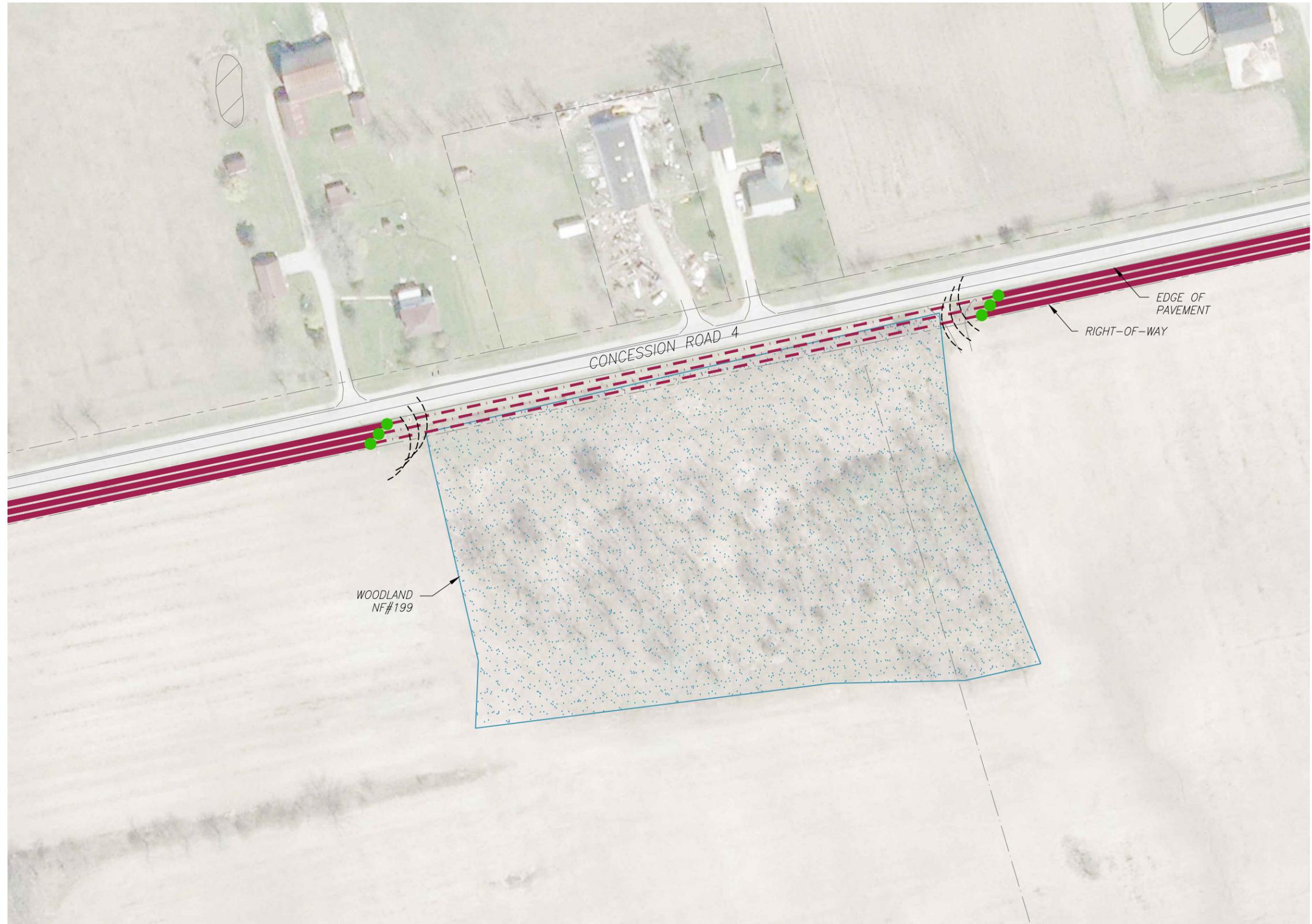


REV	DESCRIPTION	ENG	DWN	CHK	DATE	ENG: P. FJELD
A	FOR REVIEW	PSF	BJP	PSF	05/12/11	DWN: B. PITT
B	REVISED PER CLIENT COMMENTS	PSF	TAZ	PSF	05/12/11	CHK:
						APP:
						DATE:

SUMMERHAVEN WIND ENERGY CENTER COLLECTOR SYSTEM DESIGN & NATURAL HERITAGE DETAILS NATURAL FEATURE EXHIBIT NF#198A			
SCALE	NONE	DRAWING	REV
		17650-4113	B

**LEGEND**

-  VALLEYLAND WITHIN 120m OF PROJECT LOCATION
-  WETLAND
-  WOODLAND
-  OVERHEAD CABLE
-  UNDERGROUND DRILLED COLLECTOR LINE (1m DISTURBANCE AREA MAX.)
-  10m MACHINE EXCLUSION AREA / NATURAL FEATURE BUFFER
-  DRILLING ENTRY / EXIT POINT



PLOTTED: 05/13/11 12:28:00 PM FILENAME: F:\proj\17647\_50\_51 - Summerhaven\17650 Summerhaven Collection\3.0 Design\3.2 Drawings\17650-4114.dwg USER: chris.mcdaniel

  
 P.O. Box 340 | Golden, Colorado 80402 | (303) 462-1100

COPYRIGHT © PEAK POWER ENGINEERING, INC.  
 THIS DRAWING IS A COPYRIGHTED INSTRUMENT OF SERVICE OF PEAK POWER ENGINEERING, INC., A WHOLLY OWNED SUBSIDIARY OF UNIVERSALPEGASUS INTERNATIONAL, INC., AS OF THE DATE SHOWN ON THIS DRAWING. ANY RE-USE OR COPYING OF ANY PORTION OF THIS DRAWING WITHOUT WRITTEN PERMISSION FROM AN AUTHORIZED EMPLOYEE OF PEAK POWER IS STRICTLY PROHIBITED. ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND CONTAINING AN ORIGINAL P.E. STAMP AND SIGNATURE SHALL BE USED FOR CONSTRUCTION. ANY MEDIA TRANSMITTED ELECTRONICALLY SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.  
 ST:    REC:    EXP:



REV	DESCRIPTION	ENG	DWN	CHK	DATE	ENG: P. FJELD
A	FOR REVIEW	PSF	BJP	PSF	05/12/11	DWN: B. PITT
B	REVISED PER CLIENT COMMENTS	PSF	TAZ	PSF	05/12/11	CHK:
						APP:
						DATE:

SUMMERHAVEN WIND ENERGY CENTER COLLECTOR SYSTEM DESIGN & NATURAL HERITAGE DETAILS			
NATURAL FEATURE EXHIBIT NF#199			
SCALE	NONE	DRAWING	REV
		17650-4114	B

**LEGEND**

-  VALLEYLAND WITHIN 120m OF PROJECT LOCATION
-  WETLAND
-  WOODLAND
-  OVERHEAD CABLE
-  UNDERGROUND DRILLED COLLECTOR LINE (1m DISTURBANCE AREA MAX.)
-  10m MACHINE EXCLUSION AREA / NATURAL FEATURE BUFFER
-  DRILLING ENTRY / EXIT POINT



PLOTTED: 05/13/11 12:24:42 PM FILENAME: C:\DOCUMENTS\LOCALS\1\LOCALS\1\Temp\AcPublish\_7128\17650-4115.dwg USER: chris.mcdaniel

Peak Power Engineering, Inc.



COPYRIGHT © PEAK POWER ENGINEERING, INC.  
 THIS DRAWING IS A COPYRIGHTED INSTRUMENT OF SERVICE OF PEAK POWER ENGINEERING, INC., A WHOLLY OWNED SUBSIDIARY OF UNIVERSAL PEGASUS INTERNATIONAL, INC. AS OF THE DATE SHOWN ON THIS DRAWING. ANY RE-USE OR COPYING OF ANY PORTION OF THIS DRAWING WITHOUT WRITTEN PERMISSION FROM AN AUTHORIZED EMPLOYEE OF PEAK POWER IS STRICTLY PROHIBITED. ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND CONTAINING AN ORIGINAL P.E. STAMP AND SIGNATURE SHALL BE USED FOR CONSTRUCTION. ANY MEDIA TRANSMITTED ELECTRONICALLY SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.  
 ST:    REC:    EXP:



REV	DESCRIPTION	ENG	DWN	CHK	DATE	ENG: P. FJELD
A	FOR REVIEW	PSF	BJP	PSF	05/12/11	DWN: B. PITT
B	REVISED PER CLIENT COMMENTS	PSF	TAZ	PSF	05/12/11	CHK:
						APP:
						DATE:

SUMMERHAVEN WIND ENERGY CENTER COLLECTOR SYSTEM DESIGN & NATURAL HERITAGE DETAILS			
NATURAL FEATURE EXHIBIT NF#241 AND NF#242			
SCALE	NONE	DRAWING	REV
		17650-4115	B

PLOTTED: 05/13/11 01:31:33 PM FILENAME: F:\proj\17647,50,51 - Summerhaven\17650 Summerhaven Collection\3.0 Design\3.2 Drawings\17650-4116.dwg USER: chris.mcdaniel

**LEGEND**

	VALLEYLAND WITHIN 120m OF PROJECT LOCATION
	WETLAND
	WOODLAND
	OVERHEAD CABLE
	UNDERGROUND DRILLED COLLECTOR LINE (1m DISTURBANCE AREA MAX.)
	10m MACHINE EXCLUSION AREA / NATURAL FEATURE BUFFER
	DRILLING ENTRY / EXIT POINT



Peak Power Engineering, Inc.



© COPYRIGHT © PEAK POWER ENGINEERING, INC.  
THIS DRAWING IS A COPYRIGHTED INSTRUMENT OF SERVICE OF PEAK POWER ENGINEERING, INC., A WHOLLY OWNED SUBSIDIARY OF UNIVERSALPEGASUS INTERNATIONAL, INC. AS OF THE DATE SHOWN ON THIS DRAWING. ANY RE-USE OR COPYING OF ANY PORTION OF THIS DRAWING WITHOUT WRITTEN PERMISSION FROM AN AUTHORIZED EMPLOYEE OF PEAK POWER IS STRICTLY PROHIBITED. ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND CONTAINING AN ORIGINAL P.E. STAMP AND SIGNATURE SHALL BE USED FOR CONSTRUCTION. ANY MEDIA TRANSMITTED ELECTRONICALLY SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.

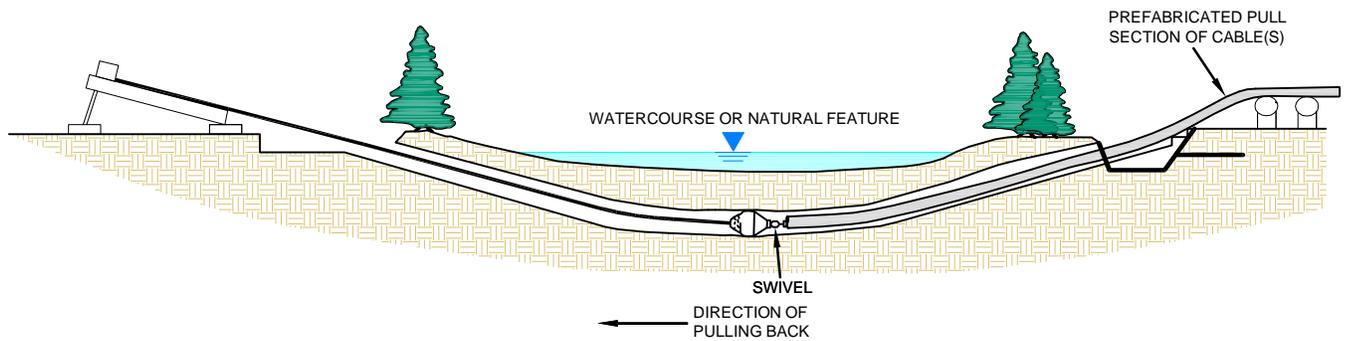
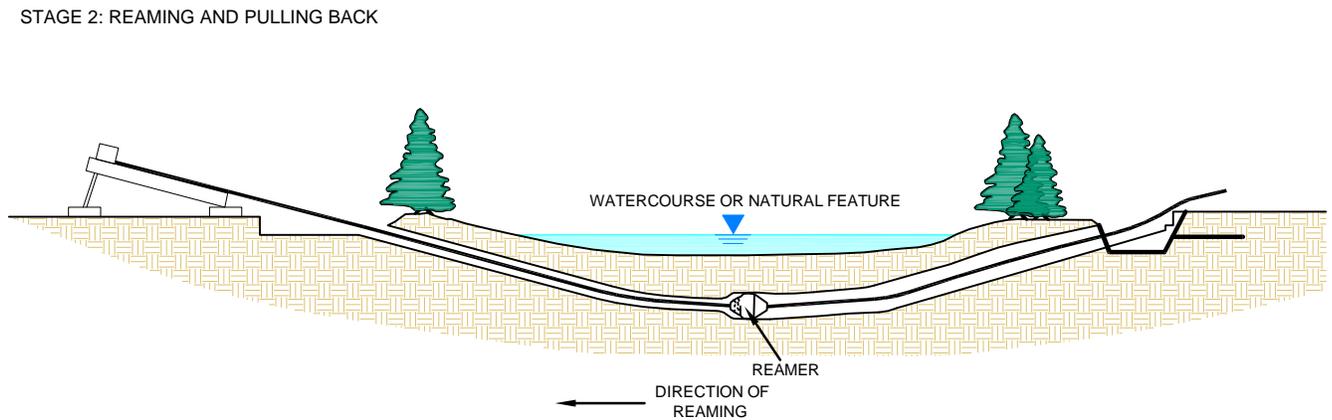
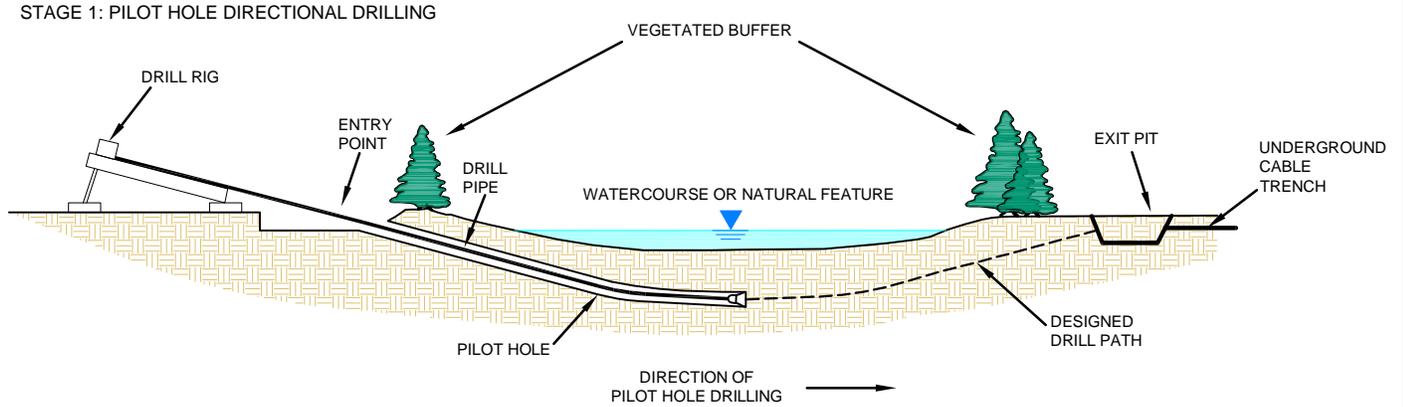
ST:    REC:    EXP:



REV	DESCRIPTION	ENG	DWN	CHK	DATE	ENG: P. FJELD
A	FOR REVIEW	PSF	BJP	PSF	05/12/11	DWN: B. PITT
B	REVISED PER CLIENT COMMENTS	PSF	BJP	PSF	05/13/11	CHK:
						APP:
						DATE:

SUMMERHAVEN WIND ENERGY CENTER COLLECTOR SYSTEM DESIGN & NATURAL HERITAGE DETAILS			
NATURAL FEATURE EXHIBIT NF#216			
SCALE	NONE	DRAWING	REV
		17650-4116	B

PLOT DATE: May 13, 2011  
 FILENAME: T:\Projects\2010\10-1151-0035 (NECU, Nanticoke)\-BA-Natural Heritage Assessment\1011510035A0F1.dwg



**SCHEMATIC ONLY, NOT TO SCALE**

**IMPLEMENTATION NOTES:**

1. CONFIRM GEOTECHNICAL DATA, AS APPROPRIATE, PRIOR TO INITIATING DRILLING.
2. FOLLOW ENVIRONMENTAL PROTECTION MEASURES.
3. INSTALL SUITABLE DRILLING FLUID TANKS AND SUMPS.
4. INSTALL BERMS DOWNSLOPE FROM THE DRILL ENTRY AND EXIT POINTS TO CONTAIN DRILLING FLUID.
5. ENSURE THAT ONLY BENTONITE-BASED DRILLING FLUID IS USED.
6. SURVEY THE DRILL HEAD LOCATION DURING PILOT HOLE DRILLING TO ENSURE THE DESIGNED DRILL PATH IS FOLLOWED.
7. DISPOSE OF DRILLING FLUID IN ACCORDANCE WITH ERCB GUIDELINES.

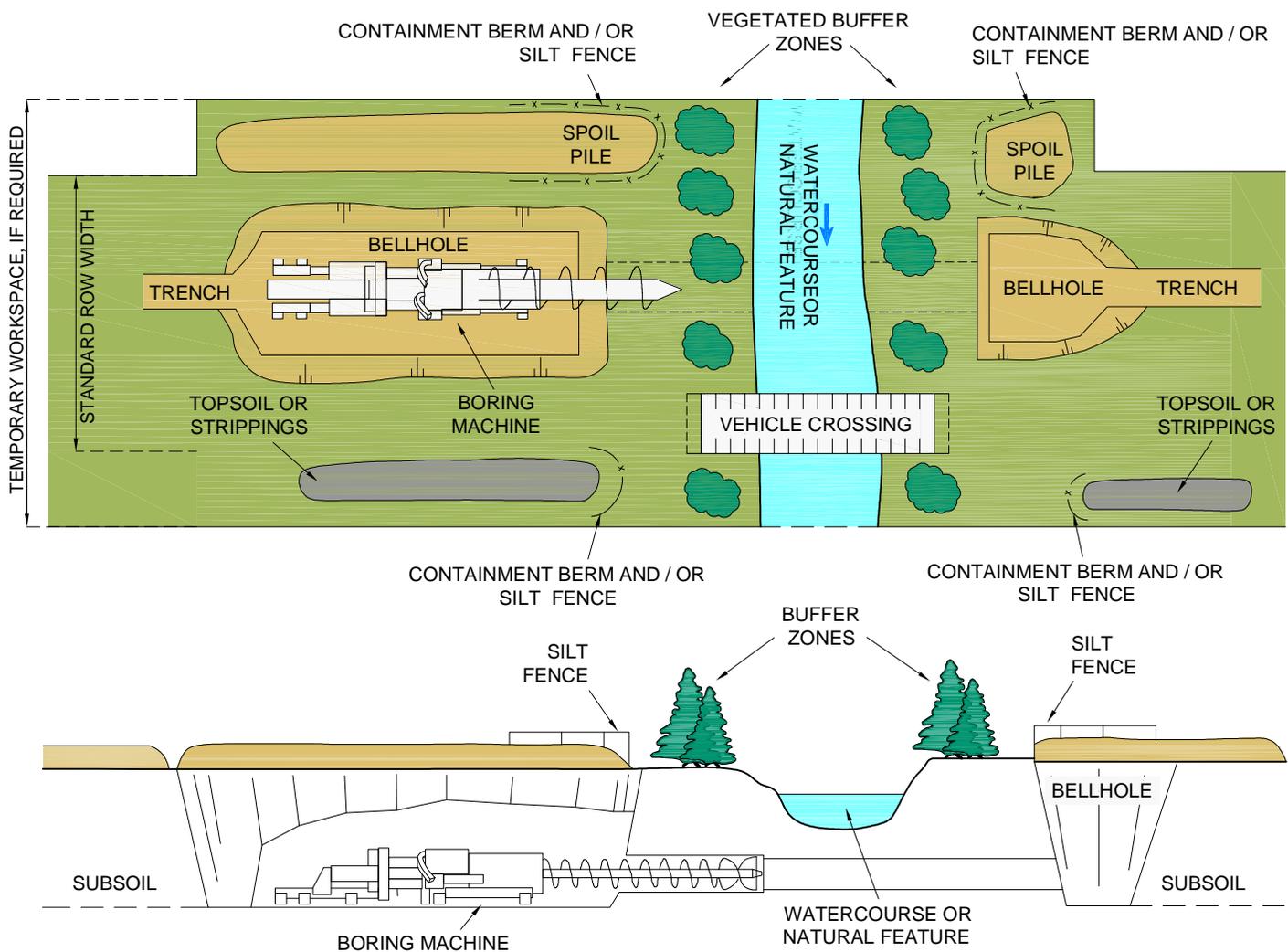
**CAUTIONARY NOTES:**

1. DRAWING IS NOT TO SCALE.
2. DRAWING IS A GRAPHIC REPRESENTATION ONLY.
3. DRAWING SHOULD NOT BE USED FOR SURVEYING.

PROJECT			
SUMMERHAVEN WIND ENERGY CENTRE			
TITLE			
<b>TYPICAL HORIZONTAL DIRECTIONAL DRILL INSTALLATION OF UNDERGROUND CABLE IN OR ADJACENT TO WATERCOURSE OR NATURAL FEATURE</b>			
PROJECT No.		10-1151-0035	FILE No. 1011510035A0F1.dwg
DESIGN			SCALE N.T.S. REV. A
CAD	JJB/DD	May 13, 2011	FIGURE No.
CHECK	JW	May 13, 2011	<b>Appendix F-1</b>
REVIEW			



PLOT DATE: May 13, 2011  
 FILENAME: T:\Projects\2010\10-1151-0035 (NECU, Nanticoke)\-BA-Natural Heritage Assessment\1011510035AA0F2.dwg



**IMPLEMENTATION NOTES:**

1. USED TO PREVENT SEDIMENTATION OF WATERCOURSE, INTERRUPTION OF STREAM FLOW, AND ALTERATION OF STREAM SUBSTRATE.
2. INSTALL TEMPORARY VEHICLE CROSSING.
3. EXCAVATE BELLHOLES, STORE SPOIL ON STORAGE SIDE OF RIGHT-OF-WAY.
4. COMPLETE BORING AND TIE-IN TO MAINLINE.
5. PUMP BELLHOLE DRY IF SEEPAGE BECOMES A PROBLEM.
6. BACKFILL AND COMPACT. LEAVE A CROWN TO ALLOW FOR SUBSIDENCE.
7. RESEED AS APPROPRIATE.

**IMPLEMENTATION NOTES:**

1. BELLHOLE WALLS ARE UNSTABLE, PARTICULARLY IF GROUNDWATER SEEPS ARE ENCOUNTERED.
2. BELLHOLE WALLS SHOULD BE SLOPED BACK TO AT LEAST A 0.6H:1V (60°) ANGLE TO MINIMIZE WALL COLLAPSE.
3. NO PERSONNEL SHOULD ENTER THE BELLHOLE UNLESS PROPER SHORING IS PROVIDED.
4. INSTALL TEMPORARY FENCING AROUND THE BELLHOLE IF LEFT OPEN OVERNIGHT.

**CAUTIONARY NOTES:**

1. DRAWING IS NOT TO SCALE.
2. DRAWING IS A GRAPHIC REPRESENTATION ONLY.
3. DRAWING SHOULD NOT BE USED FOR SURVEYING.

PROJECT			
SUMMERHAVEN WIND ENERGY CENTRE			
TITLE			
TYPICAL PUNCH AND BORE INSTALLATION OF UNDERGROUND CABLE IN OR ADJACENT TO WATERCOURSE OR NATURAL FEATURE			
PROJECT No.	10-1151-0035	FILE No.	1011510035AA0F2.dwg
DESIGN		SCALE	N.T.S. REV. A
CAD	JJB/DD May 13, 2011	FIGURE No.	
CHECK	JW May 13, 2011	<b>Appendix F-2</b>	
REVIEW			

