LIMITING SOIL CHARACTERISTICS LEGEND

Map Symbol	Soil Name	Cutbanks Cave	Corrosive to Concrete/ Steel	Droughty	Easily Erodible	Flooding	Depth to Saturated Zone/ Seaonal High Water Table	Hydric / Hydric Inclusions	Low Strength / Landslide Prone	Slow Percolation	Piping	Poor Source of Topsoil	Frost Action	Shrink - Swell	Potential Sinkhole	Ponding	Wetness	Min. Depth to Bedrock	pH
AaB2	Albrights channery loam, 3 to 8 percent slopes moderately eroded	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
AbA	Albrights silt loam, 0 to 3 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
AbB2	Albrights silt loam 3 to 8 percent slopes moderately eroded	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
AcB	Albrights very stony loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
AdB2	Allenwood gravelly loam and silt loam, 3 to 8 percent slopes, moderately eroded	X	C/S					X	X	X	X	X	X					X	X
AfB	Allenwood silt loam, 3 to 8 percent slopes	X	C/S					X	X	X	X	X	X						X
Ag	Alluvial land	X	C/S			X	X	X		X	X	X	X		X		X	X	
AlB	Alton gravelly loam, 3 to 8 percent slopes	X	C	X						X		X	X					X	
AmC3	Allenwood gravelly silty clay loam, 8 to 15 percent slopes, severely eroded	X	C/S					X	X	X	X	X	X					X	X
AnA	Andover-Buchanan gravelly loams, 0 to 3 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
AnB	Alvira gravelly silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
AoB	Andover-Buchanan gravelly loams, 0 to 8 percent slopes, extremely stony	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
ArB	Arnot-Rock outcrop complex, 0 to 8 percent slopes	X	C	X	X				X	X		X	X					X	X
ArD	Arnot-Rock outcrop complex, 8 to 25 percent slopes	X	C	X	X				X	X		X	X					X	X
AsA	Alvira and Shelmadine silt loams, 0 to 3 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
ASF	Arnot-Rock outcrop complex, steep	X	C	X	X				X	X		X	X					X	X
At	Atherton silt loam, gray subsoil variant	X	S				X	X	X	X	X	X	X			X	X	X	
AtB	Alvira and Shelmadine very stony silt loams, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
BfB	Bedington-Berks complex, 3 to 8 percent slopes	X	C	X	X			X		X		X	X					X	X
BhD	Buchanan very stony loam, 8 to 25 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
BkA	Berks-Weikert complex, 0 to 3 percent slopes	X	C	X	X			X		X	X	X						X	
BkB	Berks-Weikert complex, 3 to 8 percent slopes	X	C	X	X			X		X	X	X						X	X
BkC	Berks-Weikert complex, 8 to 15 percent slopes	X	C	X	X			X		X	X	X						X	X
BkD	Berks-Weikert complex, 15 to 25 percent slopes	X	C	X	X			X		X	X	X						X	X
BkF	Berks-Weikert complex, 25 to 60 percent slopes	X	C	X	X			X		X	X	X						X	X
BrB	Braceville gravelly loam, 3 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
BrC	Braceville gravelly loam, 8 to 15 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
BtA	Brinkerton-Comly silt loams, 0 to 3 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X	X			X	X	
BtB	Brinkerton-Comly silt loams, 3 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X	X			X	X	
BuB	Buchanan gravelly loam, 3 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
BvB	Buchanan gravelly loam, 0 to 8 percent slopes, extremely stony	X	C/S	X	X		X	X	X	X	X	X	X				X	X	X
CaB	Califon loam, 3 to 8 percent slopes	X	C/S				X		X	X			X				X	X	
CbB	Califon loam, 0 to 8 percent slopes, extremely stony	X	C/S				X		X	X			X				X	X	
CF	Cut and fill land	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
ChB	Chenango gravelly loam, 3 to 8 percent slopes	X	C	X		X	X	X		X	X	X	X					X	X
ChC	Chenango gravelly loam, 8 to 15 percent slopes	X	C	X		X	X	X		X	X	X	X					X	X
ClA	Chippewa silt loam, 0 to 3 percent slopes	X	C/S	X	X		X	X	X	X	X		X	X		X		X	
ClB	Clarksburg silt loam, 3 to 8 percent slopes	X	C/S		X		X	X	X	X	X	X	X	X	X		X	X	
CmB	Clarksburg silt loam, 3 to 8 percent slopes	X	C/S		X		X	X	X	X	X	X	X	X	X		X		
CmB2	Comly silt loam, 3 to 8 percent slopes, moderately eroded	X	C/S	X	X		X	X			X	X	X					X	X
CnB	Chippewa very stony silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X		X	X		X		X	X
CoB	Cokesbury-Califon channery silt loams, 0 to 8 percent slopes, very stony	X					X			X	X		X					X	X
CpA	Comly silt loam, 0 to 3 percent slopes	X	C/S	X	X		X	X			X	X	X					X	
CpB	Comly silt loam, 3 to 8 percent slopes	X	C/S	X	X		X	X			X	X	X					X	
CrB	Comly silt loam, 0 to 8 percent slopes, extremely stony	X	C/S	X	X		X	X			X	X	X					X	X
CtA	Conotton gravelly loam, 0 to 3 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	
DaA	Delaware fine sandy loam, 0 to 3 percent slopes	X	C			X		X		X			X						
DaB	Delaware fine sandy loam, 3 to 8 percent slopes	X	C			X		X		X			X						
DdB	Dekalb extremely stony sandy loam, 0 to 8 percent slopes	X	C	X					X	X	X	X	X					X	X
DdD	Dekalb extremely stony sandy loam, 8 to 25 percent slopes	X	C	X					X	X	X	X	X					X	X
DeD	Dekalb very stony loam, 8 to 25 percent slopes	X	C	X					X	X	X	X	X					X	X
DEF	Dekalb extremely stony sandy loam, steep	X	C	X					X	X	X	X	X					X	X
DeF	Dekalb very stony loam, 25 to 100 percent slopes	X	C	X					X	X	X	X	X					X	X
DgC	Duffield-Ryder silt loams, 8 to 15 percent slopes	X	C/S		X			X	X	X	X	X		X	X		X	X	
DrA	Drifton loam, 0 to 3 percent slopes	X	C/S		X		X	X	X	X		X	X					X	X
DrB2	Drifton loam, 3 to 8 percent slopes, moderately eroded	X	C/S		X		X	X	X	X		X	X					X	X
DsB	Drifton very stony loam, 0 to 8 percent slopes	X	C/S		X		X	X	X	X		X	X					X	X
DuA	Duffield silt loam, 0 to 3 percent slopes	X	C/S		X			X	X	X	X	X		X	X		X	X	
DuB	Duffield silt loam, 3 to 8 percent slopes	X	C/S		X			X	X	X	X	X		X	X		X	X	
DxB	Dekalb extremely stony loam, 0 to 8 percent slopes	X	C	X					X	X	X	X	X					X	X
DxE	Dekalb extremely stony loam, 25 to 80 percent slopes	X	C	X					X	X	X	X	X					X	X
Fl	Fluvaquents	X	C/S	X	X	X	X	X	X		X		X						
FtC2	Fleetwood sandy loam, 8 to 15 percent slopes, moderately eroded	X	C	X					X			X					X	X	X
FvD	Fleetwood very stony loam, shallow, 8 to 25 percent slopes	X	C	X					X			X					X	X	X
FvF	Fleetwood very stony loam, shallow, 25 to 100 percent slopes	X	C	X					X			X					X	X	X
FwB	Fleetwood very stony sandy loam, 0 to 8 percent slopes	X	C	X					X			X					X	X	X
FwD	Fleetwood very stony sandy loam, 8 to 25 percent slopes	X	C	X					X			X					X	X	X
Gb	Gibraltar silt loam	X	C/S		X	X	X	X	X	X	X		X					X	
GlB	Gladstone gravelly loam, 3 to 8 percent slopes	X	C		X			X		X			X	X				X	
GlC	Gladstone gravelly loam, 8 to 15 percent slopes	X	C		X			X		X			X	X				X	
GmD	Gladstone gravelly loam, 8 to 25 percent slopes, very bouldery	X	C		X			X		X			X	X				X	X
GmF	Gladstone gravelly loam, 25 to 55 percent slopes, very bouldery	X	C		X			X		X			X	X				X	X
GnD	Gladstone-Parker gravelly loams, 15 to 25 percent slopes	X	C		X			X		X			X	X				X	
GP	Gravel pits	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
GrB	Glenville silt loam, 3 to 8 percent slopes	X	C/S				X	X	X	X	X	X	X				X	X	
HaA	Hartleton channery silt loam, 0 to 3 percent slopes	X	C	X					X	X	X	X	X					X	X
HaB2	Hartleton channery silt loam, 3 to 8 percent slopes, moderately eroded	X	C	X					X	X	X	X	X					X	X
HaC2	Hartleton channery silt loam, 8 to 15 percent slopes, moderately eroded	X	C	X					X	X	X	X	X					X	X
HaC3	Hartleton channery silt loam, 8 to 15 percent slopes, severely eroded	X	C	X					X	X	X	X	X					X	X
HeB	Hazleton very channery loam, 0 to 8 percent slopes, extremely stony	X	C	X	X			X	X	X	X	X	X					X	X
HeD	Hazleton very channery loam, 8 to 25 percent slopes, extremely stony	X	C	X	X			X	X	X	X	X	X					X	X
HgF	Hazleton-Rubble land complex, 25 to 60 percent slopes	X	C	X	X			X	X	X	X	X	X					X	X
Ho	Holly silt loam	X	C/S			X	X	X	X	X	X	X	X			X	X	X	
HtA	Hazleton loam, 0 to 3 percent slopes	X	C	X	X			X	X	X	X	X	X					X	X
HtB	Hazleton loam, 3 to 8 percent slopes	X	C	X	X			X	X	X	X	X	X					X	X
HtB2	Hazleton loam, 3 to 8 percent slopes, moderately eroded	X	C	X	X			X	X	X	X	X	X					X	X
HvB	Hazleton very stony loam, 0 to 8 percent slopes	X	C	X	X			X	X	X	X	X	X					X	X
HvD	Hazleton very stony loam, 8 to 25 percent slopes	X	C	X	X			X	X	X	X	X	X					X	X
Hy	Holly silt loam	X	C/S			X	X	X	X	X	X	X	X			X	X	X	
KcB2	Klinesville channery silt loam, 3 to 8 percent slopes, moderately eroded	X	C/S	X	X			X		X		X	X					X	X
KcC2	Klinesville channery silt loam, 8 to 15 percent slopes, moderately eroded	X	C/S	X	X			X		X		X	X					X	X
KcC3	Klinesville channery silt loam, 8 to 15 percent slopes, severely eroded	X	C/S	X	X			X		X		X	X					X	X
KcD2	Klinesville channery silt loam, 15 to 25 percent slopes, moderately eroded	X	C/S	X	X			X		X		X	X					X	X
KcD3	Klinesville channery silt loam, 15 to 25 percent slopes, severely eroded	X	C/S	X	X			X		X		X	X					X	X
KcE2	Klinesville channery silt loam, 25 to 35 percent slopes, moderately eroded	X	C/S	X	X			X		X		X	X					X	X
KcE3	Klinesville channery silt loam, 25 to 35 percent slopes, severely eroded	X	C/S	X	X			X		X		X	X					X	X
KcF	Klinesville channery silt loam, 35 to 80 percent slopes	X	C/S	X	X			X		X		X	X					X	X
KvF	Klinesville very stony silt loam, 25 to 80 percent slopes	X	C/S	X	X			X		X		X	X					X	X
LaB	Lackawanna channery silt loam, 3 to 8 percent slopes	X	C	X			X	X	X			X	X				X	X	X
LaC	Lackawanna channery silt loam, 8 to 15 percent slopes	X	C	X			X	X	X			X	X				X	X	X
LaD	Lackawanna channery silt loam, 15 to 25 percent slopes	X	C	X			X	X	X			X	X				X	X	X
LbB	Laidig very gravelly loam, 0 to 8 percent slopes, extremely stony	X	C/S	X	X		X	X	X	X	X	X	X					X	X
LbD	Laidig very gravelly loam, 8 to 25 percent slopes, extremely stony	X	C/S	X	X		X	X	X	X	X	X	X					X	X
LbF	Laidig very gravelly loam, 25 to 65 percent slopes, extremely stony	X	C/S	X	X		X	X	X	X	X	X	X					X	X
LcB	Lackawanna very stony silt loam, 3 to 8 percent slopes	X	C	X			X	X	X			X	X				X	X	X
LcD	Lackawanna very stony silt loam, 8 to 25 percent slopes	X	C	X			X	X	X			X	X				X	X	X
LdB	Laidig very stony loam, 3 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	X
LdD	Laidig very stony loam, 8 to 25 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	X
LeA	Leck kill channery silt loam, 0 to 3 percent slopes	X	C						X	X	X	X	X				X	X	X
LeB2	Leck kill channery silt loam, 3 to 8 percent slopes, moderately eroded	X	C						X	X	X	X	X				X	X	X
LeC2	Leck kill channery silt loam, 8 to 15 percent slopes, moderately eroded	X	C						X	X	X	X	X				X	X	X
LeC3	Leck kill channery silt loam, 8 to 15 percent slopes, severely eroded	X	C						X	X	X	X	X				X	X	X
LeD3	Leck kill channery silt loam, 15 to 25 percent slopes, severely eroded	X	C						X	X	X	X	X				X	X	X
LEF	Lackawanna and Bath very stony silt loams, steep	X	C	X			X	X	X			X	X				X	X	X
LkB	Leck kill very stony loam, 0 to 8 percent slopes	X	C						X	X	X	X	X				X	X	X
LkD	Leck kill very stony loam, 8 to 25 percent slopes	X	C						X	X	X	X	X				X	X	X
LkF	Leck kill very stony loam, 25 to 100 percent slopes	X	C						X	X	X	X	X				X	X	X
Ln	Linden soils	X	C			X	X	X	X	X	X		X					X	
LtA	Lickdale and Tughill very stony loams, 0 to 8 percent slopes	X	C/S		X		X	X	X	X		X	X	X				X	X
LvD	Lordstown very stony silt loam, 8 to 25 percent slopes	X	C	X	X				X	X	X		X					X	X
LvF	Lordstown very stony silt loam, 25 to 80 percent slopes	X	C	X	X				X	X	X		X					X	
MaB	Mardin channery silt loam, 3 to 8 percent slopes	X	S	X	X		X	X	X	X	X		X				X	X	
Mb	Middlebury silt loam	X	S			X	X	X		X	X		X	X				X	
MbA	Meckesville channery loam, 0 to 3 percent slopes	X	C/S				X		X	X	X	X	X				X	X	X
MbB2	Meckesville channery loam, 3 to 8 percent slopes, moderately eroded	X	C/S				X		X	X	X	X	X				X	X	X
MbC2	Meckesville channery loam, 8 to 15 percent slopes, moderately eroded	X	C/S				X		X	X	X	X	X				X	X	X
McB	Mardin very stony silt loam, 3 to 8 percent slopes	X	S	X	X		X	X	X	X	X		X				X	X	X
McD	Mardin very stony silt loam, 8 to 25 percent slopes	X	S	X	X		X	X	X	X	X		X				X	X	
MdB	Middlebury silt loam, 3 to 8 percent slopes	X	S			X	X	X		X	X		X	X				X	
MeC	Meckesville gravelly loam, 8 to 15 percent slopes	X	C/S				X		X	X	X	X	X				X	X	X
MfC	Meckesville very stony loam, 8 to 25 percent slopes	X	C/S				X		X	X	X	X	X				X	X	X
Mg	Mine dump	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	
Mh	Mine dump, burned	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	
Mm	Mine wash	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X
MoB	Morris channery silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X		X	X				X	X	
MoB2	Montevallo channery silt loam, 3 to 8 percent slopes, moderately eroded		C/S	X				X	X			X	X					X	X
MoC2	Montevallo channery silt loam, 8 to 15 percent slopes, moderately eroded		C/S	X				X	X			X	X					X	X
MoD2	Montevallo channery silt loam, 15 to 25 percent slopes, moderately eroded		C/S	X				X	X			X	X					X	X
MoD3	Montevallo channery silt loam, 15 to 25 percent slopes, severely eroded		C/S	X				X	X			X	X					X	X
MoE2	Montevallo channery silt loam, 25 to 35 percent slopes, moderately eroded		C/S	X				X	X			X	X					X	X
MoF2	Montevallo channery silt loam, 35 to 100 percent slopes, eroded		C/S	X				X	X			X	X					X	X
MrB	Morris very stony silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X		X	X				X	X	
MsB	Morris very stony silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X		X	X				X	X	
MsC	Morris very stony silt loam, 8 to 15 percent slopes	X	C/S	X	X		X	X	X	X		X	X				X	X	
Mu	Muck		S			X	X	X			X					X	X	X	
NvB	Norwich very stony loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X		X	X			X	X	X	X
OlB	Oquaga and Lordstown channery silt loams, 3 to 8 percent slopes	X	C	X	X			X		X			X					X	X
OlC	Oquaga and Lordstown channery silt loams, 8 to 15 percent slopes	X	C	X	X			X		X			X					X	X
OlD	Oquaga and Lordstown channery silt loams, 15 to 25 percent slopes	X	C	X	X			X		X			X					X	X
OpB	Oquaga and Lordstown extremely stony silt loams, 3 to 8 percent slopes	X	C	X	X			X		X			X					X	X
OpD	Oquaga and Lordstown extremely stony silt loams, 8 to 25 percent slopes	X	C	X	X			X		X			X					X	X
OXF	Oquaga and Lordstown extremely stony silt loams steep	X	C	X	X			X		X			X					X	X
Pa	Papakating silty clay loam	X	C/S			X	X	X	X	X	X	X	X			X	X	X	
Pr	Pits, quarry	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Ps	Pope soils	X	C/S		X	X		X	X	X	X	X	X					X	
RdB	Rexford loam, 3 to 8 percent slopes	X	C/S	X		X	X	X	X	X	X	X	X				X	X	X
RyB	Ryder-Duffield silt loams, 3 to 8 percent slopes	X	C/S						X	X	X		X		X			X	
RzF	Ryder-Rock outcrop complex, 25 to 75 percent slopes	X	C/S						X	X	X		X		X			X	
ShA	Shelmadine silt loam, 0 to 3 percent slopes	X	C/S	X			X	X	X	X	X	X	X					X	X
Sm	Strip mine	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
SmB	Shelmadine very stony silt loam, 0 to 8 percent slopes	X	C/S	X			X	X	X	X	X	X	X					X	X
SwB	Swartswood very stony loam, 0 to 8 percent slopes	X	C	X	X		X		X	X	X	X						X	X
SwD	Swartswood very stony loam, 8 to 25 percent slopes	X	C	X	X		X		X	X	X	X						X	X
Tg	Tioga silt loam	X	C		X	X	X	X		X								X	
TmB	Tioga and Middlebury very stony loams, 0 to 8 percent slopes	X	C		X	X	X	X		X								X	
TuB	Tunkhannock gravelly loam, 3 to 8 percent slopes	X	C	X				X		X		X						X	X
TuC	Tunkhannock gravelly loam, 8 to 15 percent slopes	X	C	X				X		X		X						X	X
UbB	Udorthents, limestone, 0 to 8 percent slopes	X	C/S	X	X				X	X		X	X					X	
UgD	Udorthents, schist and gneiss, 8 to 25 percent slopes	X	C/S	X	X				X	X		X	X					X	X
UhD	Udorthents, shale and sandstone, 8 to 25 percent slopes	X	C/S	X	X				X	X		X	X					X	X
UlD	Urban land-Berks complex, 8 to 25 percent slopes	X	C	X	X			X		X	X	X						X	X
UkaB	Urban land, 0 to 8 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	X
UoB	Urban land-Duffield complex, 0 to 8 percent slopes	X	C/S		X			X	X	X	X	X		X	X		X	X	
UpB	Urban land-Gladstone complex, 0 to 8 percent slopes	X	C		X			X		X			X	X				X	

SOIL LIMITATIONS NARRATIVE

THE SOILS IMPACTED BY THE PROJECT CAN BE SEEN IN THE LIMITING SOIL CHARACTERISTICS TABLE. AS A RESULT OF THE LIMITING CHARACTERISTICS OF THE SOILS, MANY EROSION AND SEDIMENT CONTROLS WERE IMPLEMENTED. THE FOLLOWING IS A LIST OF PRECAUTIONS TAKEN TO PREVENT NEGATIVE EFFECTS FROM OCCURRING:

1. THE GRADING OF THE CUT AND FILL SLOPES WERE LIMITED TO NOT EXCEED 2H:1V SLOPES.
2. EROSION CONTROL MATTING IS PROPOSED FOR ALL SLOPES GREATER THAN 3H:1V.
3. ANY TRENCHING WILL FOLLOW OSHA APPROVED GUIDELINES FOR TRENCHING.
4. OVERALL SITE HAS BEEN DESIGNED AND GRADED TO SAFELY CONVEY STORM WATER RUNOFF FROM THE CONSTRUCTION PROJECT AREA.

LIMITING SOIL CHARACTERISTICS LEGEND

Map Symbol	Soil Name	Cutbanks Cave	Corrosive to Concrete/ Steel	Droughty	Easily Erodible	Flooding	Depth to Saturated Zone/ Seaonal High Water Table	Hydric / Hydric Inclusions	Low Strength / Landslide Prone	Slow Percolation	Piping	Poor Source of Topsoil	Frost Action	Shrink - Swell	Potential Sinkhole	Ponding	Wetness	Min. Depth to Bedrock	pH
UudB	Urban land-Udorthents, limestone complex, 0 to 8 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	
UudD	Urban land-Udorthents, limestone complex, 8 to 25 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	
UupB	Urban land-Udorthents, schist and gneiss complex, 0 to 8 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	X
UupD	Urban land-Udorthents, schist and gneiss complex, 8 to 25 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	X
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	
VeF	Very stony land, 25 to 120 percent slopes	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	X	X
VoB	Volusia channery silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	
VsB	Volusia very stony loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	X
VrB	Volusia very stony silt loam, 0 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	X
VrC	Volusia very stony silt loam, 8 to 15 percent slopes	X	C/S	X	X		X	X	X	X	X	X	X					X	X
WaA	Washington silt loam, 0 to 3 percent slopes	X	S				X	X	X	X	X		X	X	X			X	
WaD	Washington silt loam, 15 to 25 percent slopes	X	S				X	X	X	X	X		X	X	X			X	
WaB	Washington silt loam, 3 to 8 percent slopes	X	S				X	X	X	X	X		X	X	X			X	
WaC	Washington silt loam, 8 to 15 percent slopes	X	S				X	X	X	X	X		X	X	X			X	
WsB2	Watson silt loam, 3 to 8 percent slopes, moderately eroded	X	C/S	X			X	X	X	X	X		X	X				X	X
W	Water	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Wa	Wayland silt loam	X	S		X	X	X	X	X	X	X	X	X			X	X	X	
WeB	Weikert and Klinesville channery silt loams, 3 to 8 percent slopes	X	C/S	X				X	X	X	X	X	X					X	X
WkD	Weikert-Berks complex, 15 to 25 percent slopes	X	C/S	X				X	X	X	X	X	X					X	X
WkB	Weikert-Berks complex, 3 to 8 percent slopes	X	C/S	X				X	X	X	X	X	X					X	X
WkC	Weikert-Berks complex, 8 to 15 percent slopes	X	C/S	X				X	X	X	X	X	X					X	X
WKE	Weikert and Klinesville soils, steep	X	C/S	X				X	X	X	X	X	X					X	X
WlD	Wellsboro channery silt loam, 15 to 25 percent slopes	X	C/S	X	X		X	X	X	X	X		X				X	X	X
WlB	Wellsboro channery silt loam, 3 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X		X				X	X	X
WlC	Wellsboro channery silt loam, 8 to 15 percent slopes	X	C/S	X	X		X	X	X	X	X		X				X	X	X
WmB	Wellsboro very stony silt loam, 3 to 8 percent slopes	X	C/S	X	X		X	X	X	X	X		X				X	X	X
WmD	Wellsboro very stony silt loam, 8 to 25 percent slopes	X	C/S	X	X		X	X	X	X	X		X				X	X	X
WrD	Wurtsboro channery loam, 15 to 25 percent slopes	X	C/S				X	X		X		X	X					X	X
WrB	Wurtsboro channery loam, 3 to 8 percent slopes	X	C/S				X	X		X		X	X					X	X
WrC	Wurtsboro channery loam, 8 to 15 percent slopes	X	C/S				X	X		X		X	X					X	X
WtB	Wurtsboro extremely stony loam, 3 to 8 percent slopes	X	C/S				X	X		X		X	X					X	X
WtD	Wurtsboro extremely stony loam, 8 to 25 percent slopes	X	C/S				X	X		X		X	X					X	X
WvB	Wurtsboro very stony loam, 0 to 8 percent slopes	X	C/S				X	X		X		X	X					X	X
WyD	Wyoming gravelly loam, 15 to 25 percent slopes	X	C	X				X		X		X						X	X
WyF	Wyoming gravelly loam, 25 to 60 percent slopes	X	C	X				X		X		X						X	X

THE SOIL LIMITATIONS SHALL BE ADDRESSED AS FOLLOWS:

LIMITATIONS AND RESOLUTIONS:

LIMITATION: CUTBANKS CAVE, LOW STRENGTH - CUTBANKS HAVE POTENTIAL TO CAVE AND MANY SOILS ARE LOW STRENGTH.
RESOLUTION: CONTRACTOR SHALL BE AWARE OF POTENTIAL ISSUES AND FOLLOW OSHA GUIDELINES FOR OPEN TRENCHING. LOW SOIL STRENGTH IS NOT A CONCERN DUE TO THE NATURE OF THE PROPOSED PROJECT. UTILITY TRENCHING WILL NOT BE ADVERSELY EFFECTED BY POOR SOIL STRENGTH.

LIMITATION: CORROSIVE TO STEEL - SOILS CORROSIVE TO STEEL.
RESOLUTION: IF STEEL PIPE IS USED RUST PROTECTION BY COATINGS AND/OR USE OF CATHODIC PROTECTION IS RECOMMENDED

LIMITATION: DROUGHTY - SOILS EXHIBITING A POOR MOISTURE-HOLDING CAPACITY, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.
RESOLUTION: FOR DROUGHTY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. DROUGHTY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

LIMITATION: EASILY ERODIBLE
RESOLUTION: SPECIAL ATTENTION SHALL BE GIVEN TO MAINTAINING EXISTING VEGETATION IN EASILY ERODIBLE SOILS, TO THE EXTENT POSSIBLE. EASILY ERODIBLE SOILS WITHIN 50 FEET OF A SURFACE WATER SHOULD BE BLANKETED. WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT A SUFFICIENT VEGETATIVE FILTER STRIP BETWEEN THE WATERBAR AND A RECEIVING SURFACE WATER, THE WATERBAR SHOULD BE PROVIDED WITH A TEMPORARY PROTECTIVE LINER.

LIMITATION: FLOODING - ANY SOIL SUBJECT TO INUNDATION DURING A 2-YEAR/24HR STORM EVENT.
RESOLUTION: (SEE WET SOILS)

LIMITATION: HIGH WATER TABLE, POTENTIALLY HYDRIC - HIGH WATER TABLE IS TO BE EXPECTED AND MANY OF THE SOILS ARE POTENTIALLY HYDRIC.
RESOLUTION: FOLLOW E&S PLAN WITH REGARD TO PUMPING AND DEWATERING. DISCHARGE OF SEDIMENT LADEN WATER IS PROHIBITED UNLESS WITHOUT FIRST PASSING THRU A "PUMPED WATER FILTER BAG".

LIMITATION: HYDRIC / HYDRIC INCLUSIONS - A SOIL THAT IS SATURATED, FLOODED, OR PONDED LONG ENOUGH DURING THE GROWING SEASON TO DEVELOP ANAEROBIC-CONDITIONS. WHEN SUCH A SOIL IS LOCATED IN AN AREA THAT HAS HYDROPHYTIC VEGETATION AND WETLAND HYDROLOGY, A WETLAND IS PRESENT.
RESOLUTION: HYDRIC SOILS THAT ARE DELINEATED WETLANDS, SHOULD BE AVOIDED TO THE EXTENT POSSIBLE. STAGING AREAS SHOULD BE LOCATED 50 FEET FROM THE EDGE OF WETLAND. MOVEMENT OF VEHICLES ACROSS WETLAND MUST BE MINIMIZED. WHERE VEHICLES NEED TO CROSS WETLANDS, THE USE OF TEMPORARY TIMBER MATS SHALL BE USED DUE TO THE POTENTIAL FOR RUTTING. TRENCH PLUGS SHALL BE INSTALLED TO PREVENT THE TRENCH FROM DRAINING THE WETLANDS OR CHANGING THE HYDROLOGY.

LIMITATION: LOW STRENGTH / LANDSLIDE PRONE - SOILS WITH LOW STRENGTH HAVE A LESSER ABILITY TO RESIST SLOPE FAILURE, SUCH AS SLUMPING, FLOWING, ETC. MATERIALS WITH LOW SHEAR STRENGTH ARE MORE SUSCEPTIBLE TO LANDSLIDES AND EMBANKMENT FAILURES.
RESOLUTION: PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 OF THE, "PADEP - EROSION AND SEDIMENT CONTROL PROGRAM MANUAL," UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH.

LIMITATION: SLOW PERCOLATION - PERMEABILITY RATE LESS THAN OR EQUAL TO 0.2 INCHES/HR.
RESOLUTION: BMPS TO BE INSPECTED AFTER RUNOFF EVENTS, MAKE SURE THERE IS AN ADEQUATE AREA FOR PUMPED WATER DISCHARGE.

LIMITATION: PIPING
RESOLUTION: PIPING POTENTIAL IN THE SOIL WILL BE MINIMIZED BY THE USE OF TRENCH PLUGS. FURTHERMORE, ANY PLANNED EMBANKMENTS OR PERMANENT IMPOUNDMENTS SUSCEPTIBLE TO PIPING SHALL UTILIZE ANTI-SEEP COLLARS OR FILTER DIAPHRAMS ON OUTLET BARRELS.

LIMITATION: LIMITED AVAILABLE TOPSOIL
RESOLUTION: ANY EXCAVATED TOPSOIL WILL BE STOCKPILED AND REUSED. IF NECESSARY, ADDITIONAL TOPSOIL WILL BE BROUGHT ON-SITE.

LIMITATION: FROST ACTION - THE LIKELIHOOD OF UPWARD OR LATERAL EXPANSION OF THE SOIL CAUSED BY THE FORMATION OF SEGREGATED ICE LENSES, OR FROST HEAVE, AND THE SUBSEQUENT COLLAPSE OF THE SOIL AND LOSS OF STRENGTH ON THAWING, WHICH CAN DAMAGE ROADS, BUILDINGS, AND OTHER STRUCTURES AS WELL AS PLANT ROOTS.
RESOLUTION: PRECAUTIONS ARE NEEDED TO PREVENT DAMAGE TO ROADWAYS.

LIMITATION: WET SOILS - SOME SOILS MAY EXHIBIT A HIGH WATER TABLE OR PONDING.
RESOLUTION: IF HIGH WATER TABLE IS ENCOUNTERED, TRENCH DEWATERING WILL BE EMPLOYED.

LIMITATION: MIN. DEPTH TO BEDROCK - SOME SOILS HAVE A MIN DEPTH OF BEDROCK LESS THAN THE THE TYPICAL TRENCH DEPTH OF 7 FT (ASSUMES 3 FT OF COVER, PIPE DIAMETER, AND BEDDING DEPTH OF 1 FT).
RESOLUTION: CONTRACTOR TO PLAN FOR ROCK REMOVAL DURING TRENCHING OPERATIONS. FOR SEDIMENT BARRIERS REQUIRING STAKING (E.G. SILT FENCES, ETC.), DEPTH TO BEDROCK LESS THAN 2 FT CAN IMPACT ABILITY TO DRIVE STAKE AND/OR POLE (FOR SUPER SILT FENCE). IN THESE AREAS, COMPOST FILTER SOCK OR OTHER APPLICABLE BMP NOT REQUIRING STAKING MAY BE CONSIDERED.

LIMITATION: pH - SOME SOILS HAVE pH VALUES LESS THAN 5.5, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.
RESOLUTION: AS IS TYPICAL FOR THESE TYPE OF SOILS, LIME WILL BE ADDED AS NEEDED TO PRODUCE VEGETATIVE STABILITY.

LIMITATION: LOW FERTILITY
RESOLUTION: IF NECESSARY TO PRODUCE VEGETATIVE STABILITY OF THE SOIL, FERTILIZER OR NUTRIENT SUPPLEMENTS WILL BE ADDED TO THE SOIL TO PRODUCE VEGETATIVE STABILITY. FOR LOW FERTILITY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. LOW FERTILITY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

PROFILE

THE LOCATION OF TRENCH PLUGS AND WATERBARS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
>100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.

WATERSHED LEGEND

SYM	DESCRIPTION
CWF	COLD WATER FISHERY
EV	EXCEPTIONAL VALUE
HQ	HIGH QUALITY
TSF	TROUT STOCKING FISHERY
WWF	WARM WATER FISHERY
MF	MIGRATORY FISHERY

WATERBODY CROSSING METHOD LEGEND

BX = CONVENTIONAL BORE CROSSING
CD = COFFERDAM CROSSING; SEE FIG. 24, 24A, 24B, & 24C
DPX = DAM-AND-PUMP CROSSING; SEE FIG. 20
DX-NF = DRY CROSSING IF NO FLOW
FX = FLUME CROSSING; SEE FIG. 19
HDD = HDD CROSSING; SEE FIG. 27A & 27B

THE WATERBODY CROSSING BAND ON THE ALIGNMENT SHEETS INDICATES THE PRIMARY, SECONDARY, AND TERTIARY CROSSING METHODS FOR EACH WATERBODY. "I" INDICATES PRIMARY CROSSING METHOD, "II" INDICATES SECONDARY CROSSING METHOD, AND "III" INDICATES TERTIARY CROSSING METHOD.

LINETYPE LEGENDS

PROPOSED

PLAN VIEW

- PROPOSED PIPELINE
- POINT OF INFLECTION
- M.P. 4.0R2 — MILEPOST MARKER
- PROPOSED PERMANENT EASEMENT
- FACILITY LOCATION (REFER TO FACILITY EROSION SEDIMENT CONTROL PLANS)
- LIMITS OF DISTURBANCE
- ESCGP — ESCGP PERMIT BOUNDARY
- ACCESS ROAD
- TRENCH PLUG; SEE FIG. 12 & 13
- PERMANENT WATERBAR (WITH SUMP AND COMPOST FILTER SOCK END TREATMENT) SEE FIG. 9 & 10
- TEMPORARY WATERBAR (WITH SUMP AND COMPOST FILTER SOCK END TREATMENT) SEE FIG. 9 & 10
- 12" COMPOST FILTER SOCK; 18" COMPOST FILTER SOCK; 24" COMPOST FILTER SOCK; 32" COMPOST FILTER SOCK; 32" COMPOST FILTER SOCK (DURASOXX) — SEE FIG. 5A, 5B, & 5C
- DIVERSION SOCK ; SEE FIG. 34A
- TEMPORARY CLEAN WATER SLOPE PIPE; SEE FIG. 34B
- EROSION CONTROL MATTING; SEE FIG. 14A, 14B, &15

PLAN VIEW

- ROCK CONSTRUCTION ENTRANCE; SEE FIG. 1
- TIMBER MAT; SEE FIG. 26
- APPROXIMATE LOCATION OF BORE PIT
- TEMPORARY EQUIPMENT BRIDGE; SEE FIG. 22 & 23
- BROAD-BASED DIP; SEE FIG. 2A & 2B
- ROCK FILTER OUTLET; SEE FIG. 8
- SAFETY FENCE; SEE FIG. 5E
- HABITAT EXCLUSION FENCING; SEE FIG. 5D
- HYDROSTATIC DEWATERING STRUCTURE; SEE FIG. 28A & 28B

PROFILE

- PERMANENT WATERBAR (WITH SUMP AND COMPOST FILTER SOCK END TREATMENT) SEE FIG. 9 & 10
- TEMPORARY WATERBAR (WITH SUMP AND COMPOST FILTER SOCK END TREATMENT) SEE FIG. 9 & 10
- TRENCH PLUG; SEE FIG. 12 & 13
- APPROXIMATE LOCATION OF BORE PIT

WATERBODY 102315_WA_1001_P_MA (1) - 2

IN INSTANCES WHERE A WATERCOURSE OR WETLAND IS CROSSED BY THE PROPOSED PIPELINE OR WORKSPACE MULTIPLE TIMES, CROSSING NUMBER (E.G. "-1", "-2") HAVE BEEN ADDED TO THE WATERCOURSE OR WETLAND ID. THE PURPOSE OF SHOWING THESE CALLOUTS IS TO BETTER REPRESENT IMPACTS SHOWN ON THE WATER OBSTRUCTION AND ENCROACHMENT PERMIT APPLICATION SITE-SPECIFIC DRAWINGS.

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- 1260' — EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOUR
- APPROXIMATE 100 YEAR FLOODWAY
- RIPARIAN ZONE
- EXISTING PIPELINE
- W — EXISTING WATER PIPELINE
- OH — EXISTING OVERHEAD LINE
- RAILROAD CENTERLINE
- ROAD CENTERLINE
- ROAD EDGE
- TRAIL CENTERLINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- EXISTING FENCE
- E — ELECTRIC LINE
- ROCK WALL
- PE-LU-001.000 — LINE LIST NUMBER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)
- WATERCOURSE THROUGH EXISTING CULVERT
- EXISTING FOREIGN EASEMENT
- ChB — NRCS SOILS BOUNDARY

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER MICHAEL DENICHILO PE086513

10/25/2019

TOWNSHIP/ COUNTY LINE SOURCE: PENNDOT PENNSYLVANIA MUNICIPALITY BOUNDARIES, DATED 01/2017 AND PENNDOT PENNSYLVANIA COUNTY BOUNDARIES, DATED 07/2018. AVAILABLE AT WWW.PASDA.PSU.EDU

811 Know what's below. Call before you dig.

REVISIONS

	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/2018	JL (MM)	AJD (MM)	MDN (MM)
B	ISSUED FOR PADEP	10/2019	AJD (MM)	JB (MM)	MDN (MM)

PREPARED FOR

PennEast PIPELINE

PENNEAST PIPELINE PROJECT

SOIL EROSION & SEDIMENT CONTROL PLAN LEGENDS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-01-01-002	B

G:\PENNEAST\353754_PENNEAST_PIPELINE_EPCM\DATAPROD_STATE_PERMIT\WORK\PA\DRAFTING\EROSION_SEDIMENT_CONTROL_PLAN01_COVER_SHEET_&_LEGEND\000-01-01-002_LEGENDS.DWG2019/10/23 DUM64749