Withington Salvage Sale
Post-harvest Monitoring
Rieffenberger, Deschaine, Gallogly
Butsick, Sundberg
2005-2006

Ground Cover % Average (Plant, litter, rock) Coarse Woody Debris
Unit 1 80.6% (three 100-foot transects) 2.2 tons/acre
Unit 3 (entire transect was along a skid trail) 64% 2.5 tons/acre
Unit 9 65.5% (seven 100-foot transects)

Areal extent of disturbance from skid trails using GPS
Unit 1: 4.5 percent
Unit 3: 6.5 percent
Unit 4: 8 percent
Unit 5: 4 percent
Unit 9: 2.5 percent

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Withington Salvage Unit 9 Date 10/3/05 By Whom Rieffenberger, Deschamps Forest s/c District s/c
County _____ State _____
Location: Sec. ___ T. ___ R. ___ Meridian _____ Latitude _____ Longitude _____ UTM _____ GPS _____
Filename _____
Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection _____ LTA _____ Landtype/soil/EUI unit _____
Bedrock _____ Landform/Topography _____
Parent Material _____ Soil Classification (family) _____ Habitat/Community Type _____
Acreage ____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) _____

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1)General Assessment for Planning 2)Forest Plan Level Monitoring 3)Project Level Monitoring

Assessment Method (Circle most intensive method used)

Observed: Estimates on soil health were made from visual observations only
Traversed: On-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure "ORGANIC HORIZON NOT displaced"	Moderate/strong granular or single grained X	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate IN SKID TRAIL	No compaction is evident in the activity area X	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds X	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks X	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features X	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated X	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than ½ of the natural ground cover and erosion rates are within the range for natural conditions X	More than ½ of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles X	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive X	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type X	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils N/A - 2 years old fire	Litter remains on the soil surface	All liter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community X	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory X	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading X

- fire effects, logging

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)	Transect 1	[redacted]	Transect 2	[redacted]	Transect 3	[redacted]
Gravel/rock >3/4 inch	NONE	卌 卌 ||||	NONE			
Litter/wood debris	卌 卌 卌 卌 卌	卌 卌 卌 卌	卌 卌 卌 卌 卌 卌	卌 卌 |||	卌 卌 卌 卌 卌 卌	卌 卌 卌 |
Plant living	卌 |		卌 卌 卌 ||		卌 卌 卌 卌 |	
Total Effective Ground Cover (sum above)	70%		67%		67%	
Bare Soil rock <3/4 inch	卌 卌 卌 卌 卌	卌	卌 卌 卌 卌 卌 卌 ||||		卌 卌 卌 卌 卌 卌 ||||	

Soil Description

Brief Pedon Description							
Depth (cm)	**Horizon**	**Texture**	**% Clay**	**Color**	**Structure**	**pH**	**Comments**

Other Observations

	Coarse Woody Debris Diameter: Number:	**Bulk Density** g/cc:	**Penetration Resistance** Depth cm:	**Infiltration Rate** cm/hr:	**Modeled Soil Loss** Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	**Other**
1						
2	2					
3						

Photos

Picture Number	Photo Point Number	Subject	Comments

Comments or Remarks:

Transect outside cutting unit, but inside fire area to estimate post-fire vegetative recovery & change in cover w/ tractor yarding.

Gravel/Rock >3/4: |

Litter: 卌 卌 卌 卌 卌 卌 \|\|

Plants: 卌 卌 卌 卌 卌 卌 卌 卌 卌 \|\|

81% Effective Ground Cover

Bare Soil: 卌 卌 卌 \|\|\|\|

Coarse Woody

2

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name SALVAGE withington SALE	Plot ID	Date 10/3/05	By Whom Rief. Deschaine	Forest S/C	District S/C
County	State	Location: Sec. T. R.	Meridian	Latitude	Longitude
UTM 12T 0276841 4992107		GPS Filename			
Slope%	Aspect deg.	Elevation ft m	Subsection ID	LTA ID	Landtype/soil/EUI unit ID
Bedrock	Landform/Topography				
Parent Material	Soil Classification (family)	Habitat/Community Type			
Acreage	Watershed ID name or HUC				

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) 2 yrs POST-fire Same season: livestock grazing – below UNIT 9 in Salvage Sale (LOFE)

Soil Condition Assessment

Purpose(s) of Assessment (circle or check one or more): 1)General Assessment for Planning ☐ 2)Forest Plan Level Monitoring ☐ 3)Project Level Monitoring ☒

Assessment Method (Circle or Check most intensive method used)

Observed: Estimates on soil health were made from visual observations only ☐

Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion ☒

Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions ☐

Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information ☐

Hydrologic and Physical Soil Condition Rating (circle or check one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure Comments:	Moderate/strong granular or single grained ☒	Massive or platy ☐	
Compaction Estimate Comments: compaction from livestock	No compaction is evident in the activity area ☐	Compaction is evident but limited in extent and does not significantly effect root growth ☒	Compaction limits root growth and occurs throughout the activity area ☐
Hydrophobicity (natural or post fire) Comments:	None or Slight, Bead of water infiltrates in less than 10 seconds ☒	Moderate, bead of water infiltrates on mineral soil 10-40 seconds ☐	High, bead of water does not infiltrate on mineral soil within 40 seconds ☐
Surface Erosion Sheet Comments:	No pedestaling of plants or rocks ☒	Pedestals present but on mature plants only, no roots exposed ☐	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks ☐
Surface Erosion – NO Rill erosion Rills and Gullies ONE channel Comments: downcut	Absent or with blunted features ☐	Small, embryonic and not connected to dendritic pattern ☒	Well defined, actively expanding, dendritic pattern established ☐
Active erosion Comments:	None, recent depositional material is vegetated ☒	Some recent depositional material is non-vegetated ☐	All recent depositional material is non-vegetated ☐
Effective Ground Cover Comments:	Sufficient ground cover exists to limit soil erosion to natural erosion rates ☐	More than ½ of the natural ground cover and erosion rates are within the range for natural conditions ☒	More than ½ of the ground cover has been removed and erosion rate are above natural rates ☐
Soil Displacement – hummocks Comments: in wet area adjacent to stream	Minimal or no soil displacement, no hummocks or displacement evident ☐	Soil has displacement effects, small hummocks present, puddles ☒	Soil displacement is common, hummocks evident, soil material moved, puddles ☐
Soil Deposition Comments:	Not unusual or excessive ☒	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations ☐	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite ☐

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems Comments:	Meets or exceeds FP Minimums for the Ecological Type ☒	Does not meet FP minimums for the Ecological Type ☐	
Grassland and Shrubland Debris Comments: in areas of livestock concentration	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type ☐	Organic matter is absent or does not meet minimum FP direction for the Ecological Type ☒	
Severely Burned Soils Comments: N/A	Litter remains on the soil surface ☐	All liter is consumed but ash and dead needle fall provides some erosion protection ☐	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred ☐
Vegetative Community Composition Comments: – weedy species in livestock concentration areas	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community ☐	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants ☒	The perennial forb and/or graminoid vegetative layers are absent or sparse ☐

Summation (circle or check one for each)

Your soil health rating for this activity area	Satisfactory ☐	Impaired ☒	Unsatisfactory ☐

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	~~Transect 2~~	Transect 3 2	~~Transect 4~~	Transect 5 3	Average %
Gravel/rock >3/4 inch						
Litter/wood debris, includes cow pies						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover	56%		46%		69%	

Soil Description

Pedon ID **Field Classification:**

Brief Pedon Description								
Depth (cm)	**Horizon**	**Texture/ Clay %**	**% Rock Fragments**	**Color**	**Structure**	**pH/Efferv.**	**Boundary**	**Comments**

Other Observations

	Coarse Woody Debris Diameter: Number:	**Bulk Density** g/cc:	**Penetration Resistance** Depth cm:	**Infiltration Rate** cm/hr:	**Modeled Soil Loss** Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	**Other**
T1	NONE					
T2	TWO					
T3	NONE					

Photos

Picture Number	**Photo Point Number**	**Subject**	**Comments**	**Filename**

General Vegetation Data (Habitat Type or Cover Type:

(record presence below by life form)

Tree Species	**Shrub Species**	**Grass Species**	**Forb Species**
Douglas Fir	Ribes,	unknown	Mullein, dandelion, yarrow

Comments or Remarks:

DEFINITIONS

Erosion. Erosion is the detachment and transport of individual soil particles, or aggregates of particles, by wind, water, or gravity. Management practices may increase the erosion hazard when they remove ground cover and detach soil particles. Soils are considered detrimentally exposed to erosion when excessive amounts of ground cover are removed.

a. Surface or particulate erosion occurs as the loss of soil by gravity (dry ravel), by wind, or by gravity and water, both raindrop splash and overland flow (rill and/or sheet erosion).

b. Mass wasting occurs when large masses of soil and/or rock fall, slide, or flow down a slope.

Ground Cover. Ground cover consists of vegetation, litter and rock fragments larger than three-fourths inch in diameter in contact with the soil. It also includes perennial canopy cover that is within three feet of the ground. This material includes leaves and branches that persist for more than a year, thus excluding ephemeral forbs and leaves. Minimum amounts of ground cover necessary to protect the soil from erosion are a function of soil properties, slope gradient and length, and erosivity (precipitation factor) and must be determined locally. Rock fragments, litter, and canopy might be treated independently, depending on the model utilized to estimate erosion hazard ratings.

Large or Coarse Woody Debris. Organic materials such as plant stems and branches with diameter greater than three inches. Included are both natural materials and management induced post-harvest slash.

Litter. The surface layer (O-horizon) of fresh and decomposed plant parts, mainly leaves and twigs (branches greater than three inches thick). Decomposed plant material (Oe and Oa horizon) is sometimes called "duff".

Soil Displacement. Soil displacement is the movement of soil from one place to another by mechanical forces such as a blade, wheel slippage, and dragging logs. Animal and human activities may cause soil displacement.

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Withington Date 6/6/06 By Whom K. Gallagher Forest S-C District Salmon
County_____ State_____
Location: Sec.___ T.___ R.___ Meridian_____ Latitude_____ Longitude_____ UTM_____GPS
Filename_____
Slope%_____ Aspect deg._____ Elevation_____ ft m Subsection_____ LTA_____ Landtype/soil/EUI unit_____
Bedrock_____ Landform/Topography_____
Parent Material_____ Soil Classification (family)_____ Habitat/Community Type_____
Acreage ____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) Unit 3: Salvage harvest of burned timber. Area was previously harvested in unburned forest

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1)General Assessment for Planning 2)Forest Plan Level Monitoring (3)Project Level Monitoring

Landing is 1/4 acre

Assessment Method (Circle most intensive method used)

Observed: Estimates on soil health were made from visual observations only

Traversed: On-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion

(Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions

Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

These observations apply strictly to the skid trail

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	(Massive or platy)
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	(Compaction limits root growth and occurs throughout the activity area)
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than ½ of the natural ground cover and erosion rates are within the range for natural conditions	More than ½ of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All liter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)			
Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):_____

Calculation of Effective Ground Cover (use appropriate technique: nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Percent T1	Transect 2	Percent T2	Transect 3	Percent T3
Gravel/rock >3/4 inch				2		
Litter/wood debris		23		25		19
Plant living		50		27		46
Total Effective Ground Cover (sum above)		73%		54%		65%
Bare Soil rock <3/4 inch		27%		46%		25%

Soil Description

Brief Pedon Description							
Depth (cm)	Horizon	Texture	% Clay	Color	Structure	pH	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other
1 6in diam	2 6" diameter = 2.5 tons/acre				
1 6in diam					

Photos

Picture Number	Photo Point Number	Subject	Comments

Comments or Remarks: photos 26-30 are of Unit 3

Skid trails occupy 6.5% of land area

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name *Withington* Date *6/6/06* By Whom *K. Gallagher* Forest *S-C* District______________
County__________ State____
Location: Sec.___ T.___ R.___ Meridian____________ Latitude____________ Longitude____________ UTM__________________GPS
Filename____________
Slope%______ Aspect deg.______ Elevation______ ft m Subsection____________ LTA________ Landtype/soil/EUI unit__________
Bedrock____________________ Landform/Topography________________________
Parent Material____________________ Soil Classification (family)____________________ Habitat/Community Type____________
Acreage____
Unit 1 = 21 acres

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Timber Salvage in burned forest

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1)General Assessment for Planning 2)Forest Plan Level Monitoring 3)Project Level Monitoring (circled)

Assessment Method (Circle most intensive method used)
Observed: Estimates on soil health were made from visual observations only
~~**Traversed:** On-site walk~~ through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
Transected, low intensity: (circled) On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information
Sample in skid trail

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)			
Soil Health Indicator	**Satisfactory**	**Impaired**	**Unsatisfactory**
Soil Structure	Moderate/strong granular or single grained (circled)	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth (circled)	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks (circled)	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features (circled)	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated (circled)	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates (circled)	More than ½ of the natural ground cover and erosion rates are within the range for natural conditions	More than ½ of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement *[illegible] + displacement [illegible]*	Minimal or no soil displacement, no hummocks or displacement evident *skid trails* ↔	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive (circled)	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)			
Soil Health Indicator	**Satisfactory**	**Impaired**	**Unsatisfactory**
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All liter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)			
Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):_____

Calculation of Effective Ground Cover (use appropriate technique: nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Percent T1	Transect 2	Percent T2	Transect 3	Percent T3
Gravel/rock >3/4 inch						
Litter/wood debris		19		30		35
Plant living		61		48		42
Total Effective Ground Cover (sum above)		80%		78%		77%
Bare Soil rock <3/4 inch		20%		22%		23%

Soil Description

Brief Pedon Description							
Depth (cm)	**Horizon**	**Texture**	**% Clay**	**Color**	**Structure**	**pH**	**Comments**

Other Observations

Coarse Woody Debris Diameter: Number:	**Bulk Density** g/cc:	**Penetration Resistance** Depth cm:	**Infiltration Rate** cm/hr:	**Modeled Soil Loss** Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	**Other**
1 woody, 6 in diameter	1.3				
1 3in diameter	.9				
1 4in diam	.6				
	2.2				

2.2 2.2 tons/acre

Photos

Picture Number	Photo Point Number	Subject	Comments

Comments or Remarks: Skid trails were the only ones measured using GPS. Acres of skid trails = .95 acre

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Withington Date 6/7/06 By Whom B Butnick K Sundberg Forest S-C District

County State

Location: Sec T R Meridian Latitude Longitude UTM GPS

Filename

Slope% Aspect deg Elevation ft m Subsection LTA Landtype/soil/BUI unit

Bedrock Landform/Topography

Parent Material Soil Classification (family) Habitat/Community Type

Acreage Unit 4: 20 acres

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) Timber Salvage in burned forest

see notes

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1)General Assessment for Planning 2)Forest Plan Level Monitoring 3)Project Level Monitoring

Assessment Method (Circle most intensive method used)

Observed: Estimates on soil health were made from visual observations only

Traversed: On-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion

Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions

Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than ½ of the natural ground cover and erosion rates are within the range for natural conditions	More than ½ of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All liter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed chocker plot):

Calculation of Effective Ground Cover (use appropriate technique: nested frequency, 100 foot transects, 10 points on each, etc.).						
	Transect 1	Percent T1	Transect 2	Percent T2	Transect 3	Percent T3
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Total Effective Ground Cover (sum above)						
Bare Soil rock <3/4 inch						

Soil Description

Brief Pedon Description

Depth (cm)	Horizon	Texture	% Clay	Color	Structure	pH	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments
31			
32			
33			
34			
35			

Comments or Remarks: Unit 4: Skidder trail 0.9 miles. Part of skidder trail was a prebuilt 4X4 road

landing = .08 acres

Good ground cover

1.6 acres of skidder track = 8% of unit area

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Withington Date 6/1/06 By Whom B Butrick K Swedberg Forest S-C District
County State
Location: Sec T R Meridian Latitude Longitude UTM GPS
Filename
Slope% Aspect deg Elevation ft m Subsection LTA Landtype/soil/EUI unit
Bedrock Landform/Topography
Parent Material Soil Classification (family) Habitat/Community Type
Acreage Unit 5= 17 acres

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) Timber Salvage in burned forest

Soil Condition Assessment See Notes

Purpose(s) of Assessment (circle one or more): 1)General Assessment for Planning 2)Forest Plan Level Monitoring 3)Project Level Monitoring

Assessment Method (Circle most intensive method used)
Observed: Estimates on soil health were made from visual observations only
Traversed: On-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than ½ of the natural ground cover and erosion rates are within the range for natural conditions	More than ½ of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All liter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):

Calculation of Effective Ground Cover (use appropriate technique: nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Percent T1	Transect 2	Percent T2	Transect 3	Percent T3
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Total Effective Ground Cover (sum above)						
Bare Soil rock <3/4 inch						

Soil Description

Brief Pedon Description

Depth (cm)	Horizon	Texture	% Clay	Color	Structure	pH	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments
36			

Comments or Remarks: 0.4 miles of skidder trail
Landing = .03 acres
0.7 acres of skidder track = 4% of total area

Unit 9 = 0.2 miles of skidder trail, 14.5 acres
Landing = .16 acres
.36 acres of skidder trail = 2.5% of total area

Withington Salvage

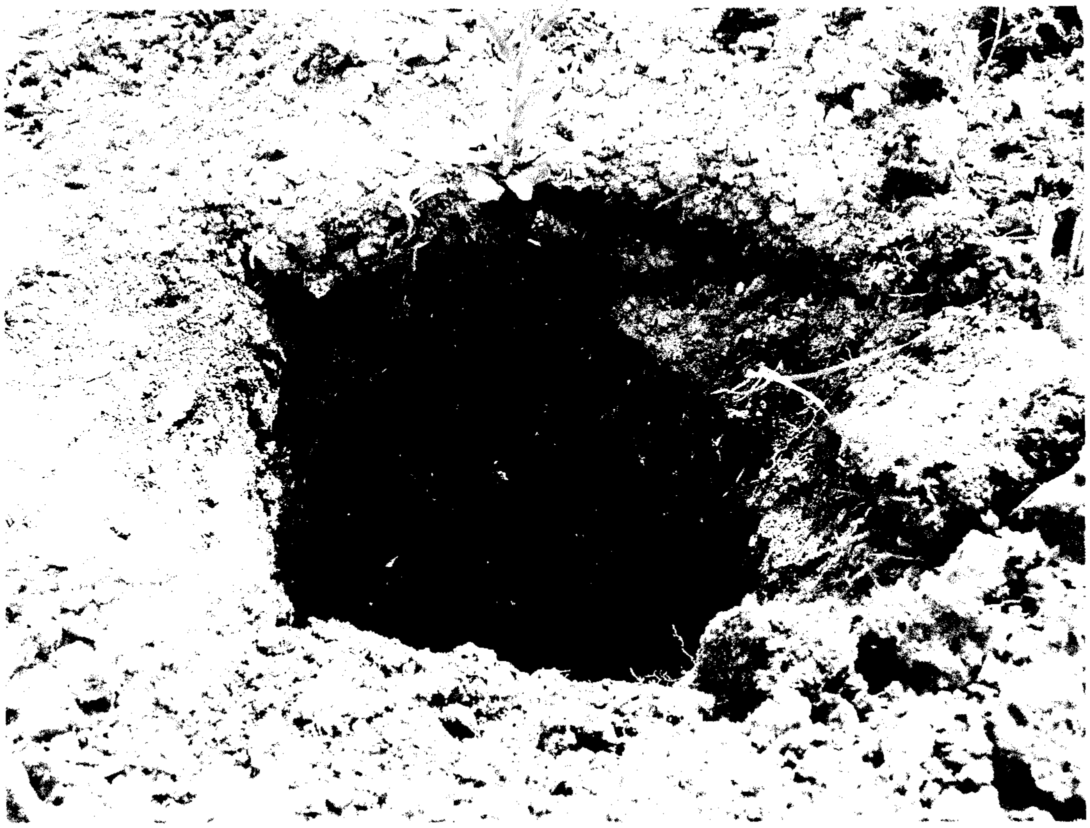
Unit 1

Unit 1

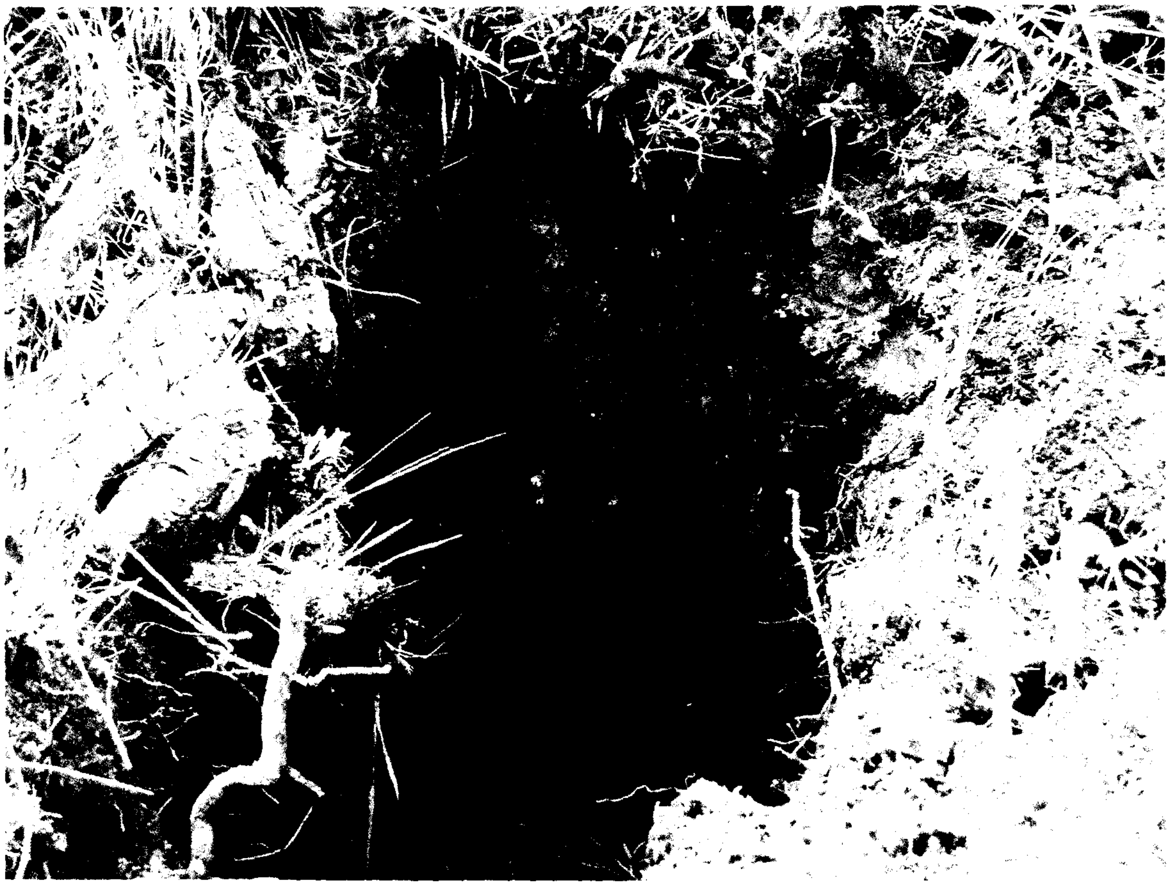
unit
1

unit
1

Withiedon Salvage



Unit 1
platy structure



Unit 1

unit
3

unit
3

Withington Salvage

unit 3

unit 3

Unit
3

Unit
3

Unit 4 - Withington

Unit 4 - Withington

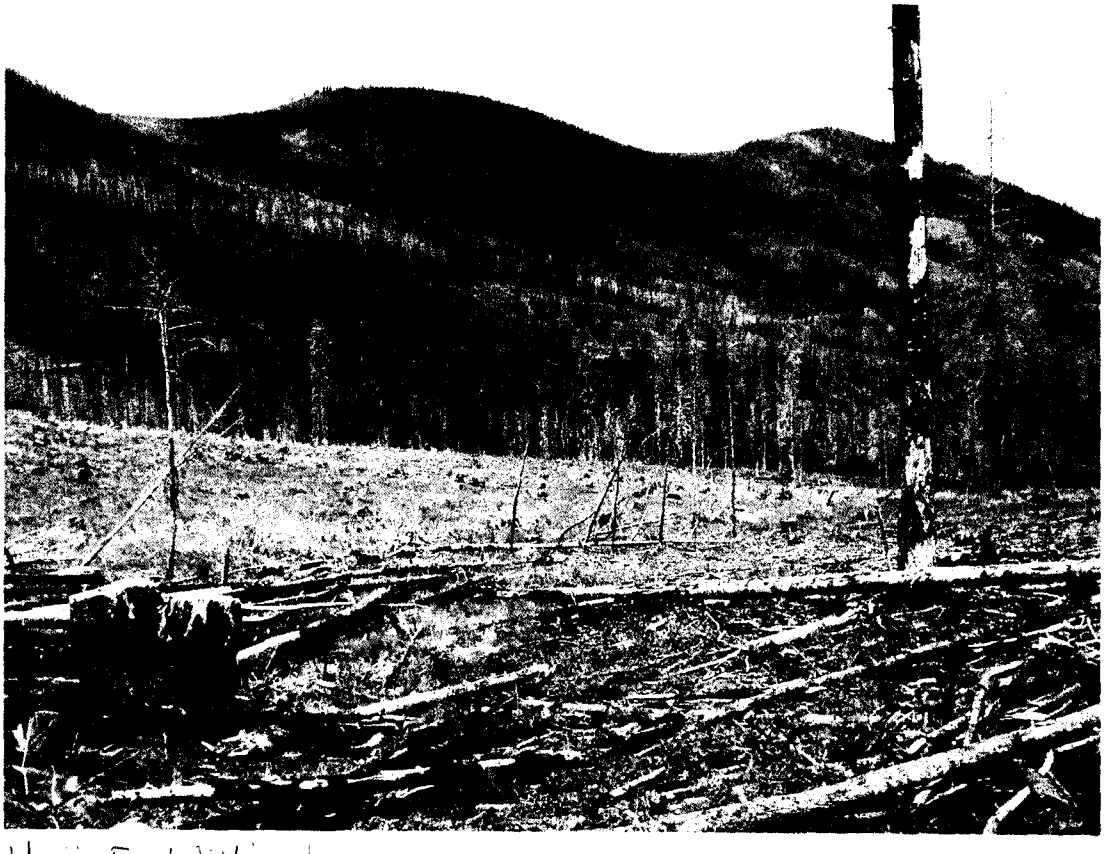
Unit 4- Withington

Unit 4- Withington

Unit 5- Withington

Unit 5- Withington

Unit 5 - Withington



Unit 5- Withington

Unit 12