Chapter 19 - "Site Preparation"

When a block is site prepped, or scarified, it means that after the logging activities are finished, there is some sort of additional mechanical or chemical activity done to prepare the site for seedlings to be planted. The main reason that blocks are site prepped is to enhance the likelihood of survival of seedlings, and to attempt to optimize their long-term growth. A by-product of this activity is that it often makes it easier for planters to plant the trees, although in some cases, site prepping a block can actually make planting more difficult, depending on the planting specs.

What does "scarification" mean? Basically, to "scar" the land, or disturb it.

There are a lot of different types of site prep, such as mounding, trenching, windrows, and drag scarification. Most of these broad categories have several varieties of treatment that planters may eventually encounter.

Incidentally, when a planter screefs a spot for a tree, this is basically a type of localized site preparation. Some foresters refer to screefing as hand scarification or manual scarification. Don't confuse manual (hand) scarification with mechanical (equipment) scarification.

Untreated Ground

Ground that has not had any site preparation work done can be referred to by quite a few different terms: untreated, unprepared, unprepped, unscarified, raw, straight plant, or plant-as-is. Foresters tend to use the term untreated, while planters tend to say raw or straight plant. Occasionally, planters will see disturbances on the ground that were made by the tracks of skidders or other logging machinery. This can be confusing, but it isn't actually an official type of site preparation.

Figure 19.01
Untreated Ground.

This type of ground is known as untreated, raw, unprepped, or plant-as-is ground. There has been no site preparation work on it prior to the commencement of planting activities.

If a section of a block has been treated, it's usually fairly obvious, and easy to differentiate from raw ground. However, there are exceptions, which we'll see in a few minutes.

For raw ground, a forester will often specify that they want trees planted on high spots (to take advantage of warmer temperatures), or in low spots (to take advantage of moisture retention). A lot of foresters in Northern BC and Northern Alberta insist that trees be planted in high spots, while foresters in the southern parts of both provinces (where the climate is much hotter) insist on low spots. This inconsistency confuses some first-year planters, but it makes sense from an ecological perspective. A common phrase that you might hear in northern BC or Alberta is to seek out "Humps, Bumps, and Stumps," ie. any relatively high spot, or directly beside an existing stump.

Stump side processing happens when cut trees are processed where they are cut, which leaves slash widely dispersed around the block. Roadside processing means that trees are dragged to the roads before being processed. Slash along the roads is then piled and burned. Roadside processing usually results in cleaner blocks than stump side processing.

Figure 19.02
Slash Piles.

Sometimes the slash piles are a mix of whatever was found throughout the block. Other times, the piles will look like they have been "sorted" into coniferous slash vs. deciduous slash.

Underplanting & Selective Harvesting

During the process of harvesting a block, a large number of mature residuals may purposefully be left standing, scattered throughout a block. These trees are usually retained in order to provide seed

throughout the block, to enhance any natural regen that may come in. Selective harvesting refers to any type of logging that doesn't remove all of the trees in an area (ie. the block is not a clear-cut). A block with lots of mature residuals looks better than a clearcut, and is better for wildlife. If planters are asked to plant such a block, an advantage is that there is more shade on a hot day, but the disadvantage is that it's often a bit more confusing to follow planted trees. If you care about the environment, you'll probably prefer underplanting to working on an open clearcut.

Figure 19.03
Block With Many Residuals.

Sometimes when people say "residuals" they refer to individual mature trees that were left behind after logging. At other times, the term is slang for "residual patches" where larger groups of mature trees are left behind.

In some types of select harvests, machines will remove perhaps half of the trees in an area, and leave the rest in an even pattern of distribution. Sometimes, long corridors will be cut through an area, to provide alternating strips of open ground and mature wood. It's also possible for coniferous trees to be harvested but deciduous trees to be left standing in some mixed-wood stands, so planters may end up doing an under-plant below mature aspen trees, rather than under multiple species. Finally, it's important to know that selective harvesting isn't always done with machines. It's possible for people to go in and do hand-falling of trees, and to pull the timber out with horses, to minimize damage to the remaining standing timber.

Quite often, when a block is harvested (even a full clear-cut) the harvesting staff may leave what's called a "visual buffer" along the side of the road. This is a thin strip of trees, perhaps 10 or 20 meters deep, so that people driving by on the road can't see the open clear-cut as easily. The main purpose of a visual buffer is to make logging activities appear less visually destructive to casual passers-by. Sometimes, a forester will ask for very high density to be planted when working very close to the road edges, so the newly planted trees will eventually grow up into a visual buffer that is quite a bit thicker than the rest of the block's interior.

Trenching

If you're trying to envision a trench, don't think of large trenches that soldiers could hide in. Think of small ditches. A very close analogy would be the furrows that a farmer might dig to grow vegetables. In fact, trenches are sometimes called furrows. There are also other names for trenching, such as disc-trenching, or rips. Each name generally refers to a slightly different type of trenching.

Although the term trenching is used more commonly than furrowing, it would be more accurate to refer to most trenches as furrows.

Figure 19.04
Trenching on a Cut Block.

The shadows in this photo make it easier to see the trenches, and to see that they don't always follow in perfectly straight rows. The front half of this block is fairly straightfoward, but the trenches in the back half are a bit of a mess.

For disc-trenching, a rotating disc with tines or blades is used to rip up dirt and throw it off to the side, creating a one-sided trench. New planters will be given some training in assessing which side of the trench is the "cut" side, and which is the "flip" side. The difference is not always obvious, but it's usually important for a planter to be able to assess which side of the trench is which. Most of the time, trenching machinery will have two discs on the back, and they each flip dirt to the "outside" as they drive across a block, so you'll see the flip side of the trench alternating in every second trench. However, it's possible to have machinery which creates three trenches with each pass, so sometimes you'll see a 2-and-1 pattern in the flip side, or even all flips on the same side. This is further complicated by the direction that the trencher was driving at the time.

Figure 19.05
A Trenching Machine.

Trenching attachments can be mounted on various skidders, bulldozers, and other types of heavy equipment.

Figure 19.06
Close-Up of the Trenching Discs.

As the machine travels across the block, these discs spin around, digging up the ground and throwing it off to the side in a motion that essentially flips a layer of sod and dirt.

You may see with some trenching that the sod and grass roots that were flipped off to the side will have mineral soil at the top, but as you dig down into it, you'll run into the upside-down sod laying on the surface. The depth of this layer of dirt in the flipped-over part of the trench is quite important to some foresters.

Figure 19.07
Disc Trenches with Obvious Flip Sides.

In this photo, it's fairly easy to see that the dirt was "flipped" up to the left side of the left trench, and to the right side of the right trench. The machine must have driven right down the middle of this photo.

Ripper plows are another type of trenching. Rips are usually made by a large sharp metal tooth digging down into the ground, and cutting a groove through the surface of the ground. The size of that tooth can vary. Ripper plowing is generally advantageous on very wet sites that require winter harvesting of frozen ground. When the ground freezes, some types of machinery and scarification implements become unusable because they cannot penetrate the frozen ground. A ripper plow is usually attached to a heavy bulldozer which can press the tooth into the frozen ground. It's also possible to have a triangular blade, which throws the dirt better than a tooth does. Such a plow is very similar in appearance to disc-trenching, although the trenches will have symmetrical flips on both sides.

Figure 19.08
Bulldozer for Ripping.

This type of machine might be used in the winter to make rips. You can see a large tooth poking up in the air behind this bulldozer. If you can imagine a piece of equipment that might be similar to that, but facing down into the ground, you'll have an idea of how a rip can be created.

Typically, disc trenching creates a high side on just one side of the furrow, and ripper plow (rips) create equal high sides on both sides. This isn't entirely universal though, and you may not need to get to caught up too much into worrying about memorizing the various types of trenching. I've seen both one-sided and two-sided trenches that were anywhere from a few inches deep and a foot wide, to giant trenches that were more than four feet deep and four feet wide. The main thing is to understand where the forester wants the trees to be planted, and by this I mean the "height" within the trench. This isn't consistent either.

Some foresters will ask for trees to be planted on the absolute tops of the trenches, no matter how much or how little dirt there is compared to organics and litter. Some foresters will ask for trees to be planted on the highest point of the trench where the plug is still able to be planted firmly in moist and squeezable dirt and decayed organics. Some foresters will ask for trees to be planted at the "hinge," which is the point between the cut-out part of the trench, and the flipped over sod. In this case, the forester probably wants the plug to be in 100% dirt. Finally, rarely, some foresters will ask for the trees to be planted in the bottom of the trench. Foresters will almost never want you to plant trees on the cut side of the trench, because then you wouldn't be taking advantage of the dirt that has been flipped over or exposed.

Figure 19.09
Tree On Top of Trench.

If the forester on this contract is asking for trees to be planted on the very highest spots in the trenches, this will be a great tree.

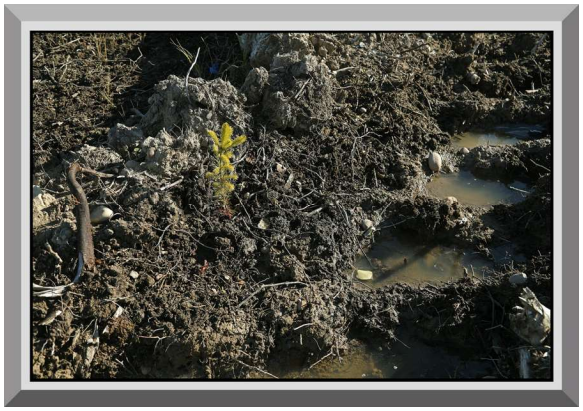

Figure 19.10
Tree On Hinge of Trench.

If the forester on this contract is asking for trees to be planted on the hinges of the trenches, this will be a great tree.

Why do foresters have so many different opinions on the best place to put the trees? It relates to the characteristics of the region and of the block itself. If a forester wants the trees planted high, he or she is probably trying to let the seedlings get a few degrees of extra warmth from the soil in a colder site, or to provide better drainage for the roots in a wet site. If the forester is aiming for trees to be planted on the hinge, he or she is probably focusing on eliminating the need for the planters to screef down to mineral soil. If the forester is asking for trees in the bottoms of the trenches, it's probably either because the site is really dry and they're trying to maximize moisture for the roots, or because there are cattle at large on the site and they're trying to protect the trees from getting walked on. Cattle don't usually walk in the bottoms of trenches.

Figure 19.11
Tree on the Wrong Side of the Trench.

This tree should be on the other side of this trench, because that is the "flip" side.

Figure 19.12
Tree Between Trenches.

The forester would normally frown on a tree planted in the raw ground between trenches. However, it might become necessary and desirable to plant the occasional tree between trenches in order to hit target density.

Trenches are fairly common throughout some parts of British Columbia, although the machines generally can't work on anything other than flat ground or minor slopes. Unless your block is almost completely flat, expect there to be patches of unprepped ground on hillsides and in gullies. Trenched blocks are usually priced fairly low, because they can be quite easy to plant in.

Hopefully, the site prep operator created the trenches running in lines perpendicularly away from the roadways through the block, rather than parallel to the roads. As a planter, you'll want to be able to plant up and down the lengths of the trenches, rather than having to plant across them. Piece management is very important in trenched areas, to minimize the time spent crossing trenches. When you get to your first trenched section, ask your crew leader or trainer for guidance on the best way to work your piece. You may find in areas where trees are planted in the bottoms or on the hinges that it can be difficult to follow trees properly, since they're somewhat hidden from view.

Figure 19.13
Long Lines of Trenches.

Although it might be easier to see in the online version of this photo than this version in the book, you should be able to see that the trenches are running away from the camera in long lines. This photo was taken while standing on the edge of the road, where a cache would be placed.

When you get to a new trenched block, it's important to clarify with your crew boss what the specs are, so the forester doesn't fault you for putting the trees in the wrong place.

Figure 19.14
Double-Sided Trenches.

These trenches were made with a different type of machine that uses a furrow ridger attachment, which creates a real disc-trench that has flips on both sides of the trench. I don't see this type of trenching nearly as frequently as single-sided flip trenching.

Figure 19.15
Nice Trenching.

If only all trenching looked this beautiful. And even better, they were perpendicular to the roads within the block.

Mounding

Mounds are created when a machine scoops some dirt out of the ground and makes a pile beside the hole. When this is done, the dirt coming out of the hole is almost always flipped upside down into a pile, just like the side of a trench is flipped upside down and outward. Therefore, most mounds are not completely made up of mineral soil. If you dig down into them, you'll eventually find an upside-down layer of sod resting on another layer of sod. Remember that for every mound on a block, there should be a corresponding hole.

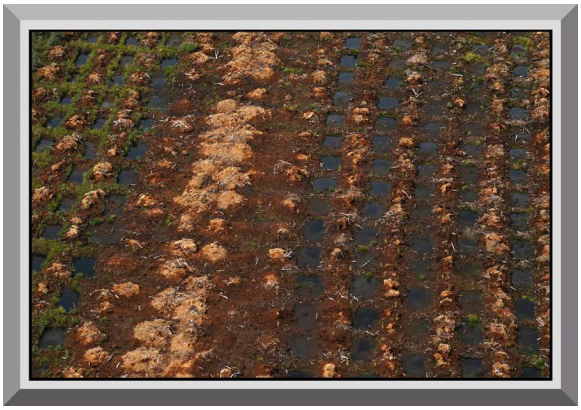

Figure 19.16
Aerial Photo of Mounding.

In this photo, it's fairly easy to see the holes that were dug to create the mounds, as they're all full of water. Mounding is often a great site prep decision in wet or marshy areas. Trees need water, but they don't want too much water.

As with trenching, there are a lot of different terms for mounding, and several of these types are distinct varieties of mounds. Some examples would be Bräcke, excavator, donaren, and hoe mounds.

Excavator mounds are created by an excavator. Hoe mounds are the same thing. These mounds are not created in any sort of grid-like or regular pattern; they're just a random jumble of holes and mounds. Excavator mounds vary in size, but most are at least three feet across and a foot high, and I've occasionally seen much larger mounds which were six feet across and three feet high. Usually, when an excavator is making these mounds, it will park in one spot and make six or eight mounds in a semi-circle around itself, then move over about twenty feet to make the next set.

Figure 19.17
Excavator Mounds.

These mounds are easy to distinguish thanks to the shadows. You might also be able to see that these mounds are a mix of mineral soil and gravel. They are made one at a time by an excavator machine, and are laid out in a random pattern.

Figure 19.18
More Excavator Mounds.

It's harder to see these mounds due to the lack of shadows, but with the shovel in the photo, you can at least get some perspective of the size of each mound. These mounds have a bit more sand and less gravel than the mounds in the previous photo.

Figure 19.19
Giant Excavator Mounds.

The size of these excavator mounds is somewhat ridiculous. The planters ended up needing to plant two or three trees on the side of each mound, in order to achieve the required density.

Donaren mounds are usually made by a machine such as a skidder, or by a tracked machine like a bulldozer or something similar. They're very similar to disc-trenches in that they usually run in straight lines, and two rows of small mounds are made with each pass of the machine.

Figure 19.20
Donaren Mounding Machine.

The attachments for making donaren mounds can be mounted onto several different types of heavy equipment.

Figure 19.21
Donaren-Making Attachments.

Here's a closer shot of the two attachments that make the mounds behind the machine. The machine simply drives around the block the same way that a trencher does, and the triangular scoops create rows of mounds behind it.

Donaren mounds are usually only around two feet wide, and a foot high. These mounds look very consistent and their layout is much more patterned than excavator mounds, since they're made in straight rows. Donaren mounds are sometimes referred to as mini mounds.

Figure 19.22
Rows of Donaren Mounds on a Grassy Block.

The grass on this block makes it easy to see the structure of the rows of donaren mounds, even though you can't see individual mounds. Donaren mounds are very organized in comparison to excavator mounds.

Figure 19.23
Rows of Donaren Mounds.

In this photo, you're able to see some of the individual mounds in each row. They're broken up right now, but after they have time to settle over the winter, they'll be easier to plant in.

Bräcke mounds are very rare in BC nowadays. They're like huge donaren mounds. They were moderately common in the 1990's, but foresters ran into a lot of frost heaving issues due to large clay caps. They were usually about four times the size of a donaren mound, and they ran in straight lines. These mounds are still common in other parts of Canada.

Most foresters want you to plant your seedlings on the very top center of the mound, or the highest point of the mound. This maximizes soil temperature, and if the mounds were created to help with soil drainage, planting the tree on the top is the best way to keep the plugs from being over-saturated. However, in some areas, you might occasionally have a forester who asks you to plant the trees on the edges of the mounds, perhaps because the tops of the mounds get too dry, cracked, or crumbly in the late summer and fall. Planting on the top is better if a goal is to keep the seedling away from competing vegetation.

Figure 19.24
Close-Up of a Donaren Mound.

Individual donaren mounds are generally a bit smaller than the average excavator mounds. Donaren mounds are usually about the same size, no matter where you find them, whereas excavator mounds can vary in size.

Mounds are less common than trenches throughout BC, mostly due to financial considerations, and it's quite rare to see an entire block that has been mounded. Usually, a forester will make mounds in isolated swampy or wet sections within a block, where the soils are normally too wet for the trees to survive. You're more likely to encounter a lot of water in a mounded area than in a trenched area.

Mounded areas are usually a bit faster to plant than unprepped ground, but definitely not as fast as good trenching. If your piece is full of donaren mounds, it might be advantageous to think about your piece management the same way that you'd approach trenches, although it's a lot easier to

"cross rows" of donaren mounds efficiently than it is to cross trenches. It's also easier to follow trees on mounds because they're more visible.

Scrapes

Scrapes are also made by excavators. The machine usually just uses the tip of its bucket, or an attachment that looks similar to a rake, to pull back the sod and expose a rectangle of dirt that isn't dug into the ground. This is intended to avoid issues with water pooling in the scrapes, or frost pockets. The planter is usually expected to either plant one tree in the middle of each scrape, or two trees at opposite corners of a scape.

Figure 19.25
An Excavator, Used to Make Scrapes.

The long arm of the excavator can reach out and scrape a few inches of the surface of the ground back toward the machine, exposing a large rectangle of mineral soil.

Figure 19.26
Scrape-Making Attachment.

Whereas excavator mounds are made with buckets that scoop down into the ground, scrapes are made by "claw" attachments with teeth, and they try not to dig more than a few inches down into the ground. It's sometimes hard to tell whether a block is mounded or scraped.

Scrapes don't seem to be a very cost-effective type of site prep. If the main point of the scrape is simply to expose mineral soil for the planter, it would be cheaper to use a trencher, which costs far less to operate and which is much faster than an excavator. However, the advantage of using an excavator to make scrapes is that an excavator can work on steeper slopes than a trencher can, and for small and extremely steep hillsides, the arm of the excavator can even reach up or down to make the prep without the machine having to park on the steepest part of the slope.

Scrapes aren't very common in BC. Scrapes can also sometimes be mistaken for small mounds, if the scrapes get dug out too deeply and the resulting pile of sod and litter and dirt increases in size. Make

sure that your crew leader or trainer explains to you exactly where the forester wants the trees within the scrape.

Stumping

In one of the appendices, we cover tree diseases. One common problem is Armillaria Root Root. This disease attaches itself to root systems, and it needs to remain moist in order to survive. If a plantation is logged, the Armillaria can continue to survive for some time even if the host tree has been logged above the surface. This fungus can then spread to a future plantation. The solution to this problem is to pull up all the stumps.

Pulling the stumps (and usually tipping them up on their side, or upside down) exposes the roots (and Armillaria) to the air, where it eventually dries out and dies. The primary purpose of this treatment then is to mitigate the fungus, not to prep the ground specifically for the planters. However, pulling the stumps out of the ground certainly exposes more dirt, and it also creates holes.

Figure 19.27
Stumping Treatment.

In this photo, it's possible to see five large stumps around the center of the photo, each of which has been pulled out of the ground and turned upside down.

In some areas, a stumped block is approached by planters in much the same way that a raw block is, with the bonus that there is a bit more exposed soil, which usually makes the job easier. In many areas of the Southern Interior, foresters want their trees to be planted deep, instead of on high spots, to take advantage of maximum moisture in the ground. In these regions, it is quite common for foresters to ask the heavy equipment operators to make sure that stumps aren't put back into their holes once they've been removed and flipped upside down. The foresters are then able to ask planters to try to plant some of their trees in the stump holes, to give the seedlings that extra bit of moisture.

It is uncommon for there to be as many stumps removed from a plot as there are target spots in the plot. If you're planting 1600 density (8 trees per plot), you might only see anywhere from two to six stump holes per plot. In other words, even if you're being asked to hit each stump hole, it is quite likely that you'll have to plant some raw trees between the stump holes in order to hit your target density.

Windrows

Windrows are basically long rows of slash and other logging debris, like an elongated slash pile. A block may have dozens of windrows, each of which is almost the length of the block. Typically, these are created when a bulldozer goes through a block and pushes all of the slash up into long rows, so the area between the windrows is much cleaner. This process of pushing the slash into piles is sometimes referred to as blading. Blading helps to temporarily remove competing vegetation from planting spots. It also exposes soil to natural seed release, and increases the soil temperature by exposing the soil to more sunlight.

Figure 19.28
Windrows.

Windrows are basically very long piles of slash. The area between the piles has been raked clean, to allow for trees to grow in an area with minimal competition. Sometimes, the windrows are burned, although they usually have so much dirt mixed in with them that they don't burn.

In some areas, the windrows are eventually burned, but in other areas, they are simply left to decay and rot over time. Blocks with windrows are usually relatively easy to plant on, since most of the slash has been moved out of the way of the planters. However, windrows can be awkward. Proper piece management is necessary, so you aren't forced to climb over a windrow to get into the next section of plantable ground. Climbing over a windrow wastes time and could be a potential safety hazard, and it's also not very efficient.

Drag Scarification

Dragging is usually accomplished by having machines drag large metal cylinders around a block. These cylinders can be a couple feet wide, eight or ten feet long, and quite heavy. Quite often, they're also covered with a bunch of steel teeth, which are sometimes referred to as shark fins. When a skidder or dozer drags these around the block, they break up quite a bit of the slash on the block, flattening it and making it easier for planters to walk around. Dragging can also be accomplished with blankets of heavy steel chains.

Figure 19.29
Chain Drag Machinery.

To chain drag a block, some heavy steel attachments are usually hooked onto a piece of heavy equipment such as a bulldozer. The machine then drives around the block, breaking most of the slash up into smaller pieces and flattening it to the ground.

Figure 19.30
Chain Drag Attachments.

This is a close up of one type of chain drag attachment system.

Breaking up the slash is helpful because it allows the slash to decompose more quickly over time. However, the primary reason for dragging is to spread the cones across the block more evenly, and to break them open to release seeds for natural regeneration. It is common for foresters to prescribe lower planting densities on ground that has been dragged than on nearby unprepped ground, under the presumption that natural regeneration will augment the density of the planted trees.

Sometimes, dragging is accomplished by simply having a bulldozer driving around a block, crushing slash with its weight, and sometimes dragging a single tooth along behind it. This is called "drag tooth scarification" and results in dragged areas with occasional small tooth marks cut through them. The groove from the tooth might look like a very tiny trench, only a couple inches wide.

It can sometimes be hard to tell that a block has been dragged, until you get out and start walking around it. At that point, you may notice that the slash is fairly low to the ground and is much more broken up than usual. Planters will often mistake dragged ground for unprepped ground, even though dragged ground is usually slightly easier to plant than raw ground.

Figure 19.31
A Chain Dragged Block.

This block has been chain dragged. You can perhaps see that most of the slash has been flattened very low to the ground.

Chemical Scarification

Insecticides and pesticides are often applied to seedlings being grown in nurseries. However, herbicides are sometimes applied directly to blocks. These herbicides are designed to target certain species of plants that may cause competition for the planted seedlings and naturals. Herbicides may target grasses, brush, and other broad-leaf vegetation, but don't necessarily harm the coniferous trees if applied in the proper concentrations. Herbicides can be applied manually, by workers walking through the blocks and hand spraying from backpacks, or can be applied by aerial means, such as bush planes or helicopters.

Herbicides are sometimes applied before a block is planted, and sometimes after planting is complete. Herbicides are more common on blocks where large amounts of grass and vegetation are present. If a block is herbicided before planting commences, the planters will probably notice large areas of dead grass and vegetation, which makes the planting easier.

Figure 19.32
A Very Green Block.

Planters had just planted this block. It probably should have been herbicided the previous fall, so the grass and vegetation competition would have been eliminated. Now, there's a good chance that the grass will choke out the new seedlings.

It is common on herbicided blocks for planters to encounter green strips where no herbicide was applied. This often happens along the edge of the blocks, because the herbicide applicators don't want to accidentally herbicide outside the block boundaries. It's also common for strips along creeks and ephemeral streams not to be herbicided, to prevent the herbicide from going directly into the

water. Of course, chemicals always get washed off the blocks and into streams eventually, but most herbicides are designed to do their work in the first couple hours and then become chemically inert.

Figure 19.33
Planting The Edge of a Herbicided Block.

No matter whether a block is herbicided with aerial spray or backpack methods, a 10m buffer is commonly left along the block edge, to ensure that none of the herbicide is sprayed outside of the block boundaries. That's why the edges of a herbicided block are usually still so green.

If you're planting on a block that needed to be herbicided before it was planted, you can probably assume that it was rather nasty to start off, and may still have some ugly, grassy, and green strips to deal with. There is more information about herbiciding in the "Other Silviculture Work" chapter.

Prescribed Burning

Broadcast burning is another way of treating a block, although it is done through oxidation rather than chemical burning. Intentional broadcast burns are almost non-existent nowadays, although they were common in the 1980's. When burning was popular, foresters would light a block on fire after logging was done, to attempt to burn off most of the dried slash, and to make it easier for planters to get at the soil. However, the industry has recognized that creating air pollution and releasing carbon is not an environmentally sound approach to forestry, and also that decaying slash is beneficial for a block in the long term. Planters rarely work on burns anymore, unless they were created naturally by wildfires, or inadvertently due to man-made causes such as an "escape" burn while burning piles in the fall.

Figure 19.34
Planting on a Broadcast Burn.

Broadcast burns are rare these days, due to public concerns about air pollution. However, if you end up planting on one, you'll probably be pleased about how little slash there is to deal with. Hopefully the fire burned hot enough to burn off the duff layer too.

Reclamation vs Deactivation

Let's look at the difference between reclamation and deactivation? This is a terminology issue which has bothered me for years. Many planters, management, and foresters use the words reclamation and deactivation interchangeably when it comes to describing treatments that can be done to prevent users from travelling on former roads. Although the main purpose of these activities is to prevent use of the roads, reclamation has a secondary purpose of making a road more suitable for replanting, since it's hard to plant in a hard-packed road surface (also, the compressed soil increases the mortality rate for the seedlings).

Deactivated roads are roads where some sort of treatment has been made so that activate travel is made difficult. This can be through methods such as putting waterbars across the road (to aid water drainage so the broader surfaces of the roads aren't accidentally eroded) that are too large for vehicles to traverse properly, or perhaps by putting a tank trap (a large deactivation ditch, essentially a giant waterbar) across the entrance to a road or road system, to prevent access. It is also possible to deactivate a road by placing several large boulders at the entrance, so long as the boulders are heavy enough that people don't pull them out of the way with a truck and a tow-rope.

Figure 19.35
Deactivation Ditch at Front of Road.

This ditch prevents the public from using the road, but still allows for the road to be brought into a usable state quite quickly later, if the need arises. Although it's hard to see them in the background, there are two additional ditches a few hundred meters down the road.

In contrast, roads that have been reclaimed have usually been torn up with excavators or other machinery, and may also have had large amounts of debris (slash, stumps, additional dirt) pulled onto them, to "reclaim" them to a state similar to what would have been in place before the road was built.

Figure 19.36
Road Reclamation.

Here, the reclamation crew has done a fastastic job of erasing almost all traces of the former truck road, and destroying any hope that a quad will ever be able to use this road to deliver trees. Now the forester will probably have to budget for a helicopter to move trees into the block.

I suppose that one could say that reclamation is a type of extreme deactivation, of every part of the road. Deactivation is not, however, the same as reclamation. A deactivation is simply a very small patch of reclamation, just enough to make the road impassible.

If a ditch is dug at the front of a road to deactivate it, a minimal amount of work with a piece of piece of heavy equipment can remove the deactivation, and the road becomes usable again. When a road has been properly reclaimed, turning it back into a usable road would require almost as much effort as had been used to create the original road in the first place.

Incidentally, pay attention to the spelling. Reclamation (without a letter "i" before the "m") is the proper spelling of the noun. The first "i" is only present in "reclaiming" (a verb) or "reclaimed" (an adjective). The verb "to reclaim" has its roots from the French, meaning "to protest." I often protest when foresters reclaim their roads before we plant the blocks, making these roads more dangerous for our quads.

On the subject of the dangers of ATV'ing on reclaimed roads, and thanks in large part to efforts at education by the WFCA, it has become far more common in the past two or three years for foresters to tell the reclamation crews that they must leave quad trails on reclaimed roads. This allows the planters to get into the blocks and complete their portion of the reforestation cycle without unnecessary additional danger. In some cases, these quad trails are then reclaimed after the planters have finished, and in other cases, the trails are left for public use. The main concern is to ensure that heavier vehicles have restricted access to areas other than the main logging roads. It is very reassuring that the harvesting and reclamation side of the industry understands this danger and is helping to mitigate the hazard. There have been a number of serious accidents over the past decade relating to ATV rollovers while people were trying to deliver trees on reclaimed roads, and it's a miracle that there hasn't been a fatality yet.

Figure 19.37
Reclaimed Road with Quad Trail.

This is beautiful. The forester has asked that the reclamation crew leave a quad trail on the road. Trucks can no longer drive on this road, but the planting company will still be able to move trees into the block on ATV's. After the block is planted, the quad trail can be quickly eliminated.

For more photo and video resources associated with this chapter of the book, including videos showing the making of trenches, mounds, and scrapes, visit:
www.replant.ca/training/siteprep