



The Birth of a Trail

***We often hear the saying, “roads are made by travellers.”
But in today’s country parks, is this still true?***

Some old rural paths were indeed created by villagers who travelled those routes over many years, and that much is true. However, today’s country park trail network tells a different story. These trails are meticulously designed and well-structured, constructed with natural materials, and maintained in good conditions. This clearly reflects the result of careful planning and management. These extensive trail network represent the dedicated efforts of numerous trail construction and maintenance teams, showcasing that these paths are not simply created by foot traffic.



Robin’s Nest Country Trail



Our “Trail Building@Country Parks” Newsletter Issue 1 delves into the planning and design process of constructing a country park trail, including various challenges during preparation. Yet, these are just the beginning. The hands-on construction process—building the trail, section by section, out in the wild—is often the most complex, demanding, and time-consuming part of the journey.

The trail construction teams are made up of staff members from country park management centres, including experienced trail building masters (stated as “AFCD masters” below) who have taken part in building various recreational facilities over the years. They are all unsung heroes of country park trail construction and maintenance works behind the scenes to ensure that our trails are safe, and enjoyable for everyone.



Field Investigation

Given the complexities in the natural environment that cannot be fully captured in maps and data, or that are completely unexpected, Field Officer of each management centre conduct thorough inspections of the proposed routes with their team and identify the most suitable construction method before work begins.

During these assessments, they evaluate various factors, including trail gradients and variations across different sections, the soil type (such as pebbly, clayey, or sandy), and the types of vegetation present (like woodland, shrubland, grassland, or barren terrain). Each of these factors can influence the final alignment, gradient, and length of the trail.

If the route is generally flat, it can typically be developed into a level trail. However, if trail is situated on a steep slope, it becomes crucial to incorporate ramps or steps to ensure safe and easy passage for users. In areas with rolling terrain featuring varying gradients, different construction methods may need to be employed for different sections to maintain safety and accessibility.



Preparations

Once the trail route and construction method are set, the trail building team prepares the necessary building materials and suitable tools. When choosing materials, locally available natural materials are most preferred, as they harmonise with the natural environment and save both manpower and resources. The team conducts a thorough search on-site for suitable natural materials. In some cases, it may be necessary to transport outsourced materials to the construction sites, including masonry and wood logs collected from other locations or materials purchased elsewhere. In such cases, Field Officers have to draw up the safest and most efficient handling solution to facilitate the delivery and use of these materials at the construction site, sometimes even involving helicopters for the most remote locations.



Additionally, Field Officers should estimate the required manpower and create a work schedule of the trail construction project. If staff members involved in the project are unable to balance daily duties with trail works, it becomes essential to identify alternative solutions to secure additional manpower.

Construction Process

The first step in trail construction is to clear the selected route boundary, removing all gravels, tree stumps, branches, shrubs and other obstacles from the ground surface. This initial clearing is crucial to create sufficient space for two hikers to pass side by side.

If the trail to be constructed is a dirt trail, the trail tread need to be smoothened and compacted with simple tools, while excess soil, tree trunks and dead branches are placed downhill, away from the trail. However, if the soil is loose or wet and prone to erosion, the team will search for and select natural masonry of suitable sizes and shapes to pave the dirt track after leveling trail surface and removing any uneven rocks.

In areas characterised by undulating terrain or severe soil erosion, it is essential to build steps to enhance user safety and comfort. AFCD masters will determine the number of steps needed based on the actual landscape terrain. Steps are chiselled into shape with a digging spade or pickaxe, and then reinforced with natural rock and logs. In some cases, a small amount of cement may be used between the rocks to ensure good bonding and create stable steps.

Depending on the actual site conditions, AFCD masters will leverage their experience to identify the ideal locations for drainage channels to ensure that rainwater and surface runoff can be quickly discharged from the trail to prevent erosion, formation of rills and gullies, and damages to the trail surface caused by excessive water accumulation and downcutting along the route.

Robin's Nest Country Park officially became Hong Kong's 25th country park on 1 March 2024. It features two hiking trails for hikers, namely, Robin's Nest Country Trail and Lin Ma Hang Country Trail.



Ancillary Facilities

At this stage, the trail is basically in shape, yet it is still not ready for public use in the country park. Why?

Trails are built for people, so they must include some facilities to support the hikers and other trail users.

The trail building team installs route maps and waymarks to provides information at the entrance, exit and junctions along the route. Distance posts are erected every 500 meters on long-distance hiking trails and country trails to help hikers identify their current location. Warning signs are added at potentially dangerous locations, and fences or railings may be placed beside steep slopes, cliffs and large water pits for added safety during hiking activities. The trail building team also installs water filling stations, information boards, viewing points, benches, pavilions and other facilities at appropriate locations along the trails.

With all these ancillary facilities in place, the new trail officially becomes part of the country park network. Trail information is then published on the AFCD's website and social media, allowing the public to plan their journeys and enjoy hiking in nature safely and comfortably.



What's in the Name of a Country Park Trail?

Country park trails, much like people, each have their own names that serve not only for identification and management purposes but also help visitors easily determine their location. Trail names are an indispensable part of country park information. By understanding the logic and stories behind the naming of these trails, we can uncover their origins and gain deeper insights into the countryside, making hiking a more enjoyable and enriching experience.

For instances, Hok Tau Country Trail is located in Hok Tau; Pak Tam Chung Nature Trail can be found in Pak Tam Chung... These names are straightforward and literally self-explanatory. But we all know that Lung Mun Country Trail doesn't actually lead to a soccer goal ("Lung Mun" is also known as soccer goal in Chinese), and also what is the story behind the Chinese name of the Peak Trail? The most common trail naming format combines a place name with the type of trail. Examples include Shing Mun Jogging Trail, Pineapple Dam Nature Trail, Lion Rock War Relics Trail, Cheung Sheung Country Trail and Clearwater Bay Tree Walk.

The place name is stated in the first part of the trail name. It can refer to the area where the trail is located, such as Lion Rock, Shing Mun, Chi Ma Wan and Aberdeen, or it may indicate the starting or ending point, as seen in names like Cheung Sheung, Pineapple Dam and Tai Tan. With this in mind, it is not hard to grasp the idea behind Lung Mun Country Trail and Hong Pak Country Trail. The former starts at Chuen *Lung* and ends at Shing *Mun*, while the latter starts at Kornhill (Cantonese romanisation of Kornhill is *Hong Shan*) and ends at Mount Parker Road

(Cantonese romanisation of Mount Parker is *Pak Ka Shan*).

The second part of the trail name reflects the special features and purposes of the trails, such as a Family Walk suitable for all ages, a relatively rugged and Long-Distance Country Trail, an educational Tree Walk and Nature Trail, a War Relics Trail featuring historical sights, and a Jogging Trail or Fitness Trail designed to promote exercise and wellness.

Another trail naming format is rooted in allusions or reflect historical events and past lifestyles. The Peak Trail (also known as "Red Incense Burner Summit") on Hong Kong Island starts at Braemar Hill (also known as "Red Incense Burner Hill"). According to ancient legend, a red incense burner drifted to Hong Kong Island, and believed to be a manifestation of Tin Hau Goddess. This led to the naming of the bay and the highest peak on the island as "Red Incense Burner Harbour" and "Incense Burner Peak," respectively.



Peak Trail (High West Section)

The Pinewood Battery Heritage Trail, located at the hilltop of Lung Fu Shan Country Park, provides an ideal route for exploring relics of Pinewood Battery with a short walk of several hundred metres. Built in the 1900s, the battery was originally situated in a pine forest and later converted into an air defense position. During the Battle of Hong Kong in 1941, Pinewood Battery was destroyed by Japanese bombing. Walking on this heritage trail, visitors can relive the history of the fierce battle to defend Hong Kong.

As for Yuen Tsuen Ancient Trail in West New Territories, *Yuen* and *Tsuen* in the trail name are taken from the first letter of Yuen Long and Tsuen Wan, as it served as a link between these two districts. In the old days, villagers from Yuen Long Shap Pat Heung would walk this trail to Tsuen Wan to barter for daily supplies with their farm produce. Similarly, Kap Lung Ancient Trail preserves the original characters of the area. It is associated with Kap Lung Village, an old village that dates back around 200 years. This ancient trail connected the village with Tsuen Kam Au and was the only way for Pat Heung and Shek Kong farmers to travel to and from Tsuen Wan Market.

Additionally, some trail names are commemorative. For instance, the two long-distance hiking trails, MacLehose Trail and the Wilson Trail, are named after former Governors of Hong Kong who advocated for their construction.



Apart from the origins mentioned above, we can find hill paths in country parks that do not have official names. Instead, they are known by widely-accepted old names, such as Wild Boar Trail in Tai Tam Country Park. As these names have been in use for a long time, it is easier to use them for expression and communication.



Pinewood Battery Heritage Trail

In today's world of advanced technology, specific locations in country parks can be accurately identified based on environmental features, photographs or Global Positioning System (GPS) data. However, trail names with special meanings still hold irreplaceable value. They transform these crisscrossing countryside routes into familiar companions, accompanying hikers on their carefree exploration of beautiful landscapes.



Principles for Constructing a Country Park Trail

The countryside is a place where people enjoy nature. All countryside activities, including hiking, must adhere to the principle of nature conservation, which is a key objective of our country parks. That means the choice of materials, building tools, construction methods and even the handling process must be in harmony with the natural environment. Put simply, we aim to provide and manage facilities for recreation while preserving the original state of the site as much as possible. In the most successful cases, there are almost no visible traces of trail construction.



The trail should blend into the natural environment harmoniously, with minimal disturbances to the environment.



Identify the causes of trail degradation and address the issues with the appropriate solutions.



Adapt to local environment and use natural materials available at the site.



Select appropriate tools and perform manual operations to maintain each section of the trail.



Effective planning for trail maintenance that accommodates seasonal weather conditions and allows for flexible manpower arrangements.



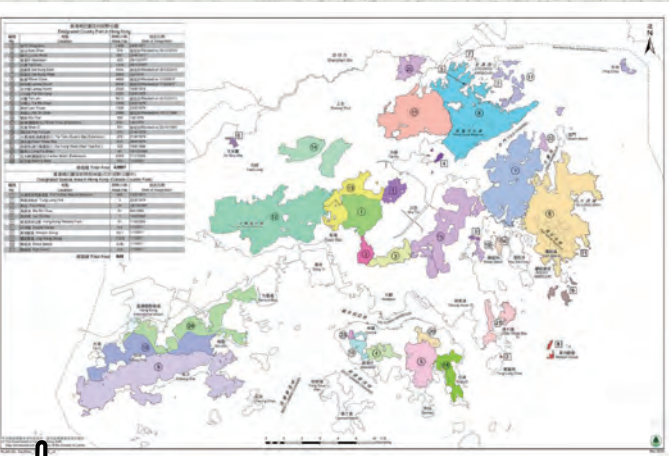
Prioritise occupational safety and health of the trail building team and ensure the safety of hikers near the construction site.

Trail Classroom:

Five Key Elements in Trail Building



“Man”, “Machine/Tool”, “Material”, “Methodology” and “Environment” are five elements of risk assessment for occupational safety and health (OSH). They serve as important references for the safe operation of country park trail building teams. In this *Trail Classroom*, we will use these five elements to give an overview of trail construction and maintenance works (“trail works”) in Hong Kong’s country parks.



Country Parks and Special Areas Distribution Map



Human Resources

Trail works involve staff members from 20 country park management centres. Each staff has daily tasks and duties, such as cleaning, tree planting, wildfire prevention, and the construction and maintenance of picnic areas and facilities. Therefore, Field Officers of the management centres have to estimate the required manpower and work schedule of the trail works in advance in order to balance the various demands of these different tasks.

Typically, every trail work project is executed by a team of Artisans and Workmen under the leadership of a Field Assistant. If human resources are limited, AFCD may hire contract staff or outsourced workers to assist in completing trail construction and maintenance projects.



Hand Tools

The construction and maintenance of hiking trails in country parks mainly utilise hand tools instead of machinery. Three types of tools are required for trail works: surveying tools, moving tools and building tools. Since 2016, AFCD has launched a public engagement scheme named "Repair Your Own Trails", which recruits volunteers to participate in trail maintenance activities. To ensure the safety of participants, management centres provide some simple hand tools like handsaws, trowels, garden rakes, bamboo baskets and lifting nets for trail works. These tools have since been regularly utilised by trail building team for routine trail maintenance. As the saying goes, "To do a good job, one must first sharpen their tools." Therefore, proper management and maintenance of these tools are essential tasks for the staff at management centres.

Surveying tools:



Spirit level



Leather Measuring Tape



Retractable Measuring Tape

Moving tools:



Bamboo Basket

These light-weight and permeable baskets come in different sizes are used to move tools and store materials temporarily. However, they break easily and are not suitable for carrying heavy loads.



Heavy-duty Plastic Container

These hardy and durable basins are designed for moving tools and materials. While they are robust, their weight makes them less flexible and more difficult to handle.



Bamboo/Wooden Carrying Poles and Manila Rope

These flexible tools are designed for moving heavy objects over short distances. They can be operated by one, two, or four people. However, they can be difficult to control, making them less suitable for beginners.

Building tools:



Vertical Pickaxe

A DIY tool made by AFCD masters and features a mattock head welded to a metal tube. It is designed to shift rocks and other heavy objects using leverage, making it an effective option for heavy lifting.



Pickaxe

This tool is used for loosening soil and rocks. Its sharp head allows it to penetrate hard ground surfaces and reach into narrow spaces, making it particularly effective for breaking up compacted soil or removing obstacles.



Mattock

It is used for loosening soil and rocks as well. Its broad head allows it to open up wide areas of soil.



Chinese Hoe and Bow Rake

This tool is used for loosening soil and levelling or compacting soil surface.



Digging Spade

This spade is designed for removing large blocks of soil. Its sharp head allows it to cut through soil effectively and break apart tree roots that may block the way.



12/14lb Sledge Hammer

It is used for removing protruding parts of rock, shaping steps and hammering wooden piles or metal bars into the ground.



Carpenter Hammer

A tool to hammer small stones into the cracks between steps to make them more stable, or use it to hammer materials for fine-tuning or minor adjustment.



Bow Saw

This tool is used for adjusting the length of wooden piles and saw off obstructing plants and branches.



Handsaw, Trowel and Garden Rake

These small tools are designed for ease of handling, making them ideal for precise tasks and detailed work.



Building Materials



Readily available masonry and wood logs collected at the site



Collect suitable masonry at landfills and quarries



Taking into account the local terrain and available resources, the trail building team collects natural materials, including boulders, pebbles, gravel, and wood from the surrounding area to construct the trail in harmony with the environment. Utilising these local materials not only helps lower the overall cost of trail works but also minimises the environmental impacts, reduces the load on handling staff, and lessens the disruption for hikers along the trail.

However, not all construction sites can meet the conditions for using local materials. Sometimes, trail building team may need to source or purchase materials from other locations. In some trail projects, AFCD has worked with other government departments to collect suitable masonry at landfills and quarries, as well as wood logs from fallen trees or obtained during forest thinning exercises for plantation enhancement projects.

In unavoidable situations, such as severe soil erosion, high flooding risk, or treacherous terrain, where constructing a safe trail solely with natural materials is not feasible, the use of cement may be considered. When trails constructed with cement are used, special attention must be given to drainage design because these surfaces have low permeability. Trail drainage facilities should be strategically placed at suitable locations to divert rainwater away from the trail to avoid the formation of gullies and mitigate soil erosion on the trail treads.



Construction and Material Transportation Methods

Simple manual construction is the most common method used for building country park trails. The team selects the appropriate construction techniques and tools based on site conditions and available resources.

If it is feasible to use natural materials on site, short-haul handling is mainly done manually with simple moving tools. However, in cases where trail work requires outsourced materials and long-haul handling, vehicles or other means of transport are used to deliver the materials and tools to the road junction nearest to the construction site. Where concrete paths available, materials and tools are moved with farmer's carts, trollies or wheelbarrows (single-wheeled dump trucks) to the nearest point, after which they are carried uphill manually. In recent years, helicopter lifting has become increasingly utilised, for the transportation of bulky or heavy materials to remote locations. This method not only enhances overall operational efficiency but also reduces the physical strain on workers, minimising the risk of injuries during the transportation process.



Manual hauling



Human Chain Transportation

Bulks of not overly heavy materials can be efficiently handled using a human chain, a method that is both less strenuous and safer. This approach allows participants to pass materials along the chain without having to walk back and forth on uneven paths while carrying heavy loads. However, "human chain transportation" is best suited for trail workshops with a larger number of participants, as it requires sufficient team members to maintain an effective flow of materials.



Site Conditions and Weather

Trail works are typically conducted on weekdays to ensure smoother construction processes and minimises obstruction for visitors. Unless the trail section is severely damaged or an alternative route is available, trails are rarely closed for repair works. Hikers can still pass safely when trail works are in progress. During such times, "trail repair in progress" warning signs are posted at the entrance and exit of the work area to remind hikers to exercise caution for their safety. The AFCD masters in charge of the project stays alert and suspends work if necessary to allow hikers pass safely, ensuring the construction site is safe and tools are placed properly.

Trail work sites can often be remote, open, or located in high areas, and often lack shaded resting spots. Unless the trail poses an immediate danger to users or requires urgent repairs, trail works are usually scheduled for the autumn and winter months to avoid adverse weather conditions, such as extreme heat, thunderstorm and heavy rain, which may cause delays and increase work-related risks.

However, in the current era of global climate change, abnormal weather conditions may arise even in autumn and winter. Therefore, officers in charge must strictly adhere to work guidelines issued by the Labour Department and AFCD when deploying manpower for trail works. The trail building teams should equip with adequate safety equipment and stay informed about the latest weather conditions as announced by the Hong Kong Observatory so as to adjust work arrangements accordingly.



Trollies

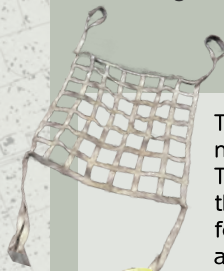


Farmer's cart



Helicopter lifting

Apart from the transportation methods mentioned above, new handling methods have been introduced in recent years to accommodate the physical capabilities of trail workshop participants and accommodate relatively long-haul handling. Some of these innovative methods are original creation developed by management centre staff or trail building team:



Lifting Net

This tool is designed for moving stones or logs. The net can be carried on the shoulders by two or four people, sometimes aided by bamboo poles.

DIY Shoulder Sack

Jute rope with plastic casing is attached to the sacks to move gravel and other materials by one or two workers.

DIY Sling

Jute rope is reinforced with plastic casing for carrying wood logs. This innovative design helps distribute the weight more evenly, alleviating strain on the shoulders of the user.



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