



Construction Competencies + Skills

Category	Competency	Entry	Full	Expert
Trail Sustainability Principles	<i>Understand and apply principles of trail sustainability to all components of a trail construction project</i>	<ul style="list-style-type: none">• Demonstrate understanding of trail sustainability as it relates to physical durability, resource conservation, user expectations and experience, and ongoing management	<ul style="list-style-type: none">• Apply trail sustainability principles to all components of a trail construction project (i.e. drainage, sheet flow, slope, soil types, users, maintainability)	<ul style="list-style-type: none">• Assess and integrate local conditions and situations into the application of sustainability principles (i.e. trail users types/skill levels, soil type, localized weather trends, resource concerns, management regimes, stewardship capacity, etc.)
Safety/ Site Management	<i>Plan and manage the trail construction site to meet safety and resource protection goals and requirements</i>	<ul style="list-style-type: none">• Demonstrate understanding of and use necessary personal protective equipment (PPE), site and environmental safety precautions, situational awareness, and incident preparedness• Demonstrate understanding of the areas of resource protection that intersect the trail development process• Perform construction tasks that meet resource protection goals with supervision	<ul style="list-style-type: none">• Implement and manage the site safety program• Implement required site activities to protect resources and meet permitting requirements	<ul style="list-style-type: none">• Develop and manage a worksite safety program• Develop and manage the resource protection plan to meet the land management goals, objectives applicable law, and permitting requirements

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Construction Specifications	<i>Understand and apply common construction specifications/trail management objectives such as corridor height/width, tread width, cross/outslope, protrusions, obstacles, and compaction</i>	<ul style="list-style-type: none"> • Demonstrate understanding of and use terminology common to trail construction specifications • Construct trail that meets construction specifications with supervision 	<ul style="list-style-type: none"> • Demonstrate understanding of and use terminology common to trail construction specifications • Construct trail that meets construction specifications independently • Assess trail conformance with the specifications 	<ul style="list-style-type: none"> • Identify appropriate trail specifications for the different types of managed uses and across numerous types of terrain, soils and ground conditions • Assess trail conformance with the trail specifications and if necessary identify measures to bring the trail/system into conformance and/or alter specifications as appropriate
Corridor Clearing/Site Preparation	<p><i>Clear the corridor and prepare the site in preparation for construction using proper pruning techniques</i></p> <p><i>Use pruning and brushing techniques to maximize safety, minimize visual impacts and support healthy trailside vegetation</i></p>	<ul style="list-style-type: none"> • Safely remove rocks, stumps, and debris from identified trail corridor clearing limits, using appropriate hand tools with supervision • Use pruning and brushing techniques to maximize safety, minimize visual impacts and support healthy trailside vegetation with supervision (i.e. avoid damage to growth collar of pruned limbs, cutting saplings flush to ground, deposit clipped limbs cut side away from trail) 	<ul style="list-style-type: none"> • Use hand tools and power tools, to safely and efficiently remove rocks, stumps, debris and deposit appropriately in preparation for construction independently • Use pruning and brushing techniques to maximize safety, minimize visual impacts, and support healthy trailside vegetation independently 	<ul style="list-style-type: none"> • Assess the project corridor clearing needs and select and use the most efficient tools and techniques to safely remove/stage rocks, stumps and debris in preparation for construction • Assess, plan and manage an efficient and safe pruning and brushing operation

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Corridor Clearing/Site Preparation	<i>Felling, brushing, bucking and limbing logs of various sizes safely using proper, well-maintained equipment</i>	<ul style="list-style-type: none"> • Use proper PPE and work safe distance from felling zone • Perform brushing, bucking and limbing logs of various sizes in minimally complex situations. • Work with a close supervision on felling in minimally complex situations 	<ul style="list-style-type: none"> • Demonstrate industry standards of safety, PPE use, and implementation for all chainsaw and crosscut activities for non-complex felling and bucking 	<ul style="list-style-type: none"> • Use industry standards to safely assess a highly complex or hazardous felling/bucking situation, creating and efficiently executing the plan
	<i>Materials and debris removal from corridor using low impact techniques, according to project and resource protection requirements</i>	<ul style="list-style-type: none"> • Deposit materials and debris removed from corridor using low impact techniques, according to project permits or other resource protection requirements, with supervision • Demonstrate understanding of low impact techniques related to material and debris management, including reuse of suitable excavated mineral soil and rock for tread building 	<ul style="list-style-type: none"> • Deposit materials from corridor using low impact techniques that do not alter natural hydrologic flow • Distinguish natural materials to be used for construction and stage for future use accordingly 	<ul style="list-style-type: none"> • Deposit debris from corridor clearing using low impact techniques, taking into account impacts due to erosion, visual impacts, and natural hydrologic flow • Efficiently select natural materials from those being cleared and stage for maximum construction efficiency and minimum impact

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Hand-Built Trail Construction	<i>Using hand tools, construct a trail with a full bench, raised tread, and/or combination that meets the construction specifications and minimizes off trail impacts</i>	<ul style="list-style-type: none"> • Demonstrate understanding of the concepts of full bench, partial bench, and raised tread trail • Safely use hand tools to construct trail in various stages and incorporate sustainability principles, with active direct supervision 	<ul style="list-style-type: none"> • Safely use hand tools to construct a trail with a full bench, raised tread, and/or combination that meets the construction specifications and trail sustainability principles independently across multiple types of terrain, soils and ground conditions 	<ul style="list-style-type: none"> • Efficiently and effectively use hand tools to construct a trail, drawing from a variety of techniques to create a full bench, raised tread or combination trail that meets construction specifications and sustainability principles across numerous types of terrain, soils and ground conditions including difficult and challenging types
Mechanized Trail Construction	<i>Safely use and maintain mechanized trail construction equipment (e.g., mini-excavators, skid steers, trail dozers, compactors) to construct trail that meets construction specifications and minimizes off trail impacts</i>	<ul style="list-style-type: none"> • Safely work around mechanized trailbuilding equipment/crews • Operate basic mechanized equipment (e.g. mechanized wheelbarrow, plate compactor, tracked dumper), with supervision • Perform basic maintenance on equipment • Minimize unintended impacts on and off trail, and use techniques to repair unintended impacts with supervision 	<ul style="list-style-type: none"> • Safely use and maintain mechanized trail construction equipment to construct full sections of trail that meet construction specifications independently across multiple types of terrain, soils and ground conditions • Successfully minimize and remediate unintended impacts on and off trail 	<ul style="list-style-type: none"> • Utilize a suite of mechanized equipment and techniques to efficiently and effectively construct trail that meet the construction specifications across numerous types of terrain, soils and ground conditions including difficult and challenging types. • Perform equipment fleet or assemblage safety and maintenance, including field repairs • Demonstrate precision and accuracy with equipment tasks and/or organization without any unintended off trail impacts

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Trail Finishwork	<p><i>Use tools, often mechanical (i.e. excavators, harrow rakes, compact utility loaders, compactors), to meet specifications for final tread surface and backslope preparation and compaction, construction spoils management, and erosion control stabilization</i></p>	<ul style="list-style-type: none"> • Use hand tools for final shaping of tread, backslope, construction spoils, and other features with supervision • Use plate compactor for compaction if required with supervision 	<ul style="list-style-type: none"> • Use a variety of hand or mechanical tools and techniques to meet specifications for final tread surface, shaping, backslope and compaction independently across multiple types of terrain, soils and ground conditions 	<ul style="list-style-type: none"> • Plan the trail finishwork to use a variety of hand and/or mechanical tools and techniques • Ensure that the product meets specifications for final tread surface, refine shaping, and complete backslope finishing and compaction
<p>Water Management/ Drainage Features</p>	<p><i>Construct drainage features that decrease erosion and increase sheet flow, including grade reversals, rolling grade dips, berms, ditches, and sheet drains</i></p>	<ul style="list-style-type: none"> • Demonstrate understanding of basic natural and stormwater induced drainage effects on trails • Construct all types of drainage features with supervision 	<ul style="list-style-type: none"> • Understand the application of different drainage features for managing water volumes and velocities • Identify locations and appropriate drainage feature • Construct the full suite of drainage features independently and/or with a team across multiple types of terrain, soils and ground conditions 	<ul style="list-style-type: none"> • Implement a comprehensive drainage plan for a trail and/or trail system across numerous types of terrain, soils and ground conditions including difficult and challenging types

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Water Crossing Structures	<i>Develop a water crossing structure (e.g., boardwalk, puncheon, turnpike, bridge, ford) to span drainageways or wetland areas and raise the trail above the high water line while maintaining uninterrupted hydrology beneath the constructed feature</i>	<ul style="list-style-type: none"> • Demonstrate understanding of basic physical signs of water flow and/or inundation • Identify different types of water crossing structures and their appropriation application • Perform tasks to further the construction of a water crossing structure (i.e. install decking, measure and cut lumber, haul materials) with supervision 	<ul style="list-style-type: none"> • Construct a variety of water crossing structures to meet the hydrologic conditions and construction specifications/ engineering plans 	<ul style="list-style-type: none"> • Work with engineering plans, drawings, etc. to construct structures according to specifications • Identify the appropriate water crossing structure if not specified -Implement appropriate tools and techniques to efficiently and effectively construct water crossing features • Plan to transport and stockpile the appropriate materials for efficient and safe implementation
Retaining Walls	<i>Construct stone or wood retaining walls to bolster unconsolidated soils, gain elevation, or transition tread from rocks/natural barriers</i>	<ul style="list-style-type: none"> • Demonstrate understanding of basic retaining wall construction technique (material preparation, stacking, joinery, and fill) • Safely perform tasks to further the construction of a stone or wood retaining wall with supervision • Stabilize (set) stone or wood materials with supervision 	<ul style="list-style-type: none"> • Safely work to construct a stone or wood retaining wall in an identified location, to construction specifications independently 	<ul style="list-style-type: none"> • Provide layout and planning, identifying and/or applying identified construction specifications to retaining wall construction • Interpret construction specification to be site specific, and plan accordingly (rise/run, batter, core material, etc.)

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Tread Hardening and Surfacing	<i>Install the appropriate treadway hardening technique for a trail given the slopes, soils, available material (e.g., wood, rock, gravel) and designed use, including advanced hardening techniques including aggregate addition, various types of rock armoring, turnpiking, rock culverts, boulder causeway, rock drains and chemical additives</i>	<ul style="list-style-type: none"> • Demonstrate understanding of a variety of tread hardening treatments and the trail issues each technique addresses and when hardening is or is not needed • Safely perform a variety of tasks to further basic tread hardening construction projects, such as materials quarrying, staging, and application with supervision • Stabilize (set) rocks and wood and perform basic carpentry and rockwork with supervision 	<ul style="list-style-type: none"> • Implement construction specifications for all types of tread hardening structures in identified location independently • Manage crew safety and efficiency when hardening or surfacing trail 	<ul style="list-style-type: none"> • Interpret construction specification to be site specific (if provided) • Identify and implement the appropriate tools and techniques to efficiently and effectively harden trail tread, ranging from basic to complex techniques
Decommissioning Trails	<i>Demonstrated ability to plan and implement the closure, reclamation, and revegetation of a trail segment</i>	<ul style="list-style-type: none"> • Demonstrate understanding of the basic techniques of trail decommissioning including stabilizing and revegetating • Perform material management, staging, tread stabilization including recontouring old trail to original slope as appropriate, and revegetation with supervision 	<ul style="list-style-type: none"> • Perform material management, staging, tread stabilization including recontouring old trail to original slope as appropriate, independently 	<ul style="list-style-type: none"> • Assess and plan the closure, reclamation, and revegetation toward natural hydrology, slope, and vegetation, along with planning management techniques to minimize further use • Interpret construction specification to be site specific, and plan accordingly (rise/run, batter, core material, etc.)