Florida Trail Association

Trail Manual

Florida Trail Association, Inc

October 1st, 2024

This Trail Manual is dedicated to the Volunteers of the Florida Trail Association who have given their time and energy to build and maintain over 1,500 miles of the Florida Trail for over 50 years

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October 2024

TABLE OF CONTENTS
FTA Trail Manual

GLOSSARY OF TERMS

Challenge Cost Share Agreement Program of Work (CCSA Program of Work): Annual agreement between the USDA Forest Service (USDA-FS aka USFS) and FTA that sets program priorities and budgets for funding allocations.

Chapter Trail Coordinator: The FTA chapter member approved by the FTA Board of Directors to monitor and coordinate trail maintenance and related activities in their assigned FTA Chapter area. See Chapter 102 for the description of duties.

Clearing Limits. The area over and beside the trail tread that is cleared of trees, limbs, and other obstructions (refers to tread, height and width). Clearing limits vary with trail class and design parameters. See Chapter 201 for a complete list of classes and parameters.

Design Parameters: Technical guidelines for the survey, design, construction, maintenance, and assessment of a trail, based on its Designed Use and Trail Class.

Designed Use: The Managed Use of a trail that requires the most demanding design, construction, and maintenance parameters and that, in conjunction with the applicable Trail Class, determines which Design Parameters will apply to a trail.

Florida National Scenic Trail (FNST): The continuous corridor of the thru trail from the North terminus in Gulf Islands National Seashore (FTA Map Data Point 1-5) to the South terminus in Big Cypress National Preserve (FTA Map Data Point 42-1). The corridor includes the Eastern and Western routes (between FTA Map Data Points 19-3 and 33-5) and a circular route around Lake Okeechobee. It includes both certified and non-certified trail segments. For use in this document the Florida Trail and the FNST are interchangeable.

Florida National Scenic Trail Comprehensive Plan (1986): Developed by the USDA-FS in cooperation with the FNST Advisory Council, the FTA, and affected state and federal agencies. This plan provides general guidance on routing, development, protection, and management of the FNST to cooperating public agencies and private landowners.

Florida Trail Association (FTA): The FTA is a volunteer, membership-based 501(c)(3) Florida not-for-profit corporation. The FTA's primary purpose is to develop, maintain, promote, and protect the FNST.

Florida Trail System (FTS): Trails officially adopted by the FTA that are not part of the FNST. These trails may include loop trails, connecting trails, side trails, and cross trails which are maintained by individual FTA Chapters throughout the State of Florida.

FNST Administrator: USDA Forest Service position responsible for administering the agency's oversight duties for the Florida National Scenic Trail pursuant to the National Trails System Act of 1968 (P.L. 90-543) and Amendment Act of March 28, 1983 (97 Stat. 42, 16 U.S.C. 1244a).

FNST Certification Agreements: Written agreements between the USDA-FS and either landowners or land management units for the purpose of certifying segments of the FNST as meeting the requirements of the National Trails System Act and the Florida National Scenic Trail Comprehensive Plan.

FNST Planning Corridor: Refers to the 20-mile wide FNST planning corridor represented as the 'Trail Corridor Selection Area' on page 22 of the Florida National Scenic Trail Comprehensive Plan (1986).

FNST Trail Standards: Blazing, signage, development, construction and maintenance standards that are applied equally to the Florida Trail System and the Florida National Scenic Trail. Sample puncheon and boardwalk designs are contained in Section 300, Appendices 306 - 310.

FNST Side Trails: Side trails that are officially designated by the USDA-FS. This currently includes a combination of Blackwater River State Forest trails (South terminus at FTA Map Data Point 2-2 and North terminus at the Florida / Alabama State Line at Map Data Point N-3).

FNST Spur Trails: Side trails, connector trails and alternative routes to camping, access points, water, etc. Any that are shown on the interactive ARCGIS (shown in blue) are designated FNST spurs and are included when calculating the total 1,500 miles of the FNST.

Grubbing: Pulling out shrubs, small trees, or seedlings along with their roots.

Managed Use/Managed Use Type: For USDA-FS trails, the managed use types are Hiker/Pedestrian, Cross-Country Ski, Pack and Saddle, Snowshoe, Bicycle, Snowmobile, Motorcycle, Motorized Watercraft, All Terrain Vehicle, Non-Motorized Watercraft, and Four-Wheel Drive Vehicle.

Optimal Location Review: The process of determining the best or optimal location for the FNST that best serves to achieve the identified criteria set forth in the Florida National Scenic Trail Comprehensive Plan.

Regional Trail Program Manager (RTM): The FTA employee primarily responsible for oversight and coordination for FNST planning, construction and other related activities in their assigned region. See Chapter 106 for the description of duties.

Section Leader: The FTA chapter member approved by the FTA Board of Directors to monitor and coordinate trail maintenance and other related activities in their assigned trail section. See Chapter 102 for the description of duties.

Trail Builder: An individual who participates in the design, layout and/or construction of trails.

Trail Centerline: The spatial data line marking the midline of the trail tread. During construction, the center line is usually marked by placing a row of flags or stakes.

Trail Class: The prescribed scale of development for a trail, representing its intended design and management standards.

Trail Construction: Physical building of a trail along the continuum of the trail corridor. Generally follows the trail development phase.

Trail Corridor: The trail corridor includes the trail's tread and the area above and to the sides of the tread. trail standards typically define the edges of the trail corridor as the *clearing limits.* Vegetation is trimmed back and obstacles, such as boulders and fallen trees, are removed from the trail corridor to make it possible to ride or walk on the tread. The USFS strives to secure a ½ mile wide protected trail corridor for the FNST.

Trail Development: Coordination, planning, trail design and layout and other preparation taking place during and prior to trail construction and involving FTA staff, USDA-FS, volunteers, land managing units, governmental agencies and private landowners.

Trail Maintainer: An individual who participates in the upkeep of trails.

Trail Relocation: Any movement or change in the location of the trail corridor.

Trail Shoulder: The ground on both sides of the tread or treadway (concept is the same as a highway or road shoulder).

Tread or treadway: The surface portion of a trail upon which users travel.

USDA-FS: United States Department of Agriculture Forest Service.

USFS: U.S. Forest Service.

Volunteer Work Party: All organized FTA functions on the FNST or FTS that involve trail maintenance, trail construction and/or trail development activities.

Volunteer Profile: Individual FTA profile necessary to record and assign volunteer hours to a volunteer.

Volunteer Hours Reporting System: FTA's on-line system of recording and reporting FNST and FTA volunteer hours.

101: FLORIDA NATIONAL SCENIC TRAIL

FTA Trail Manual

This manual serves as a guide to Florida Trail Association (FTA) volunteers and staff while engaged in trail development, planning, trail construction, and trail maintenance related activities for the Florida National Scenic Trail (FNST) and the Florida Trail System (FTS).

Florida National Scenic Trail (FNST)

The continuous corridor of the thru trail from the North terminus at Fort Pickens in Gulf Islands National Seashore to the South terminus at the Oasis Visitor Center in Big Cypress National Preserve. The corridor includes the Eastern and Western routes (between FTA Map Data Points 19-3 and 33-5) and a circular route around Lake Okeechobee.

The Florida Trail Association Mission

The Florida Trail Association builds, maintains, protects and promotes the Florida National Scenic Trail (Florida Trail) and a network of hiking trails throughout the State of Florida.

Joint Vision for the Trail

Excerpt from the 2020 MOU between the FTA and U.S. Forest Service (page 4):
"As an organization uniquely interested in the FNST, FTA envisions the trail as primarily a natural-surface footpath through the wild and natural landscapes. FTA envisions visitors to the FNST will feel as if they're traversing Florida's original landscapes, encountering the natural fauna and flora. Road walks, other paved surfaces, etc., are only part of the FNST where necessary, and their use and intent is either as an interim solution or as a unique scenic feature that still maximizes the natural intent stated above."

Trail Advocacy

It is often said that the Florida National Scenic Trail is the best kept secret in Florida. While this isn't true, it is true that it is in our mission to change that perception. The FNST isn't a secret pathway nor is the FTA a secret society. FTA members are the prime promoters and advocates for both the Trail and FTA. Simply put: Individuals make a difference and if not us, who? If not now, when?

The Trail's Most Valuable Resource: Volunteers!

From Big Cypress to Fort Pickens the trail can vary tremendously. In places it is a very primitive single track footpath while elsewhere it is on a dike or wide pavement. In too many locations the path remains on road shoulders. Yes, much has been accomplished in fifty plus years but much is left to do! The trail is a work in the process of closing gaps and finding optimal locations. While closing current gaps is, and will continue to be, a priority, searching for the optimal location for all trail segments should never cease.

Advocating for the trail, identifying new routing opportunities and influencing doors to open are vital functions for FTA volunteers and staff. Local volunteers working on the trail are wonderful, but those who work with an eye to the future of the trail are GOLDEN! Volunteering for the trail includes being at the local, state and federal tables when long-term and local management plans are being

developed. If FTA members are not there to advocate for a woodlands trail, then those with very different visions will prevail.

FTA volunteers and staff are building and maintaining a legacy that is the trail, but individually we can only secure a small piece of that legacy. We share it with those very committed FTA volunteers and staff who came before us and we build on their accomplishments.

Trail work is important but recruiting and developing like-minded individuals to carry that legacy into the future is golden.

102: VOLUNTEER LEADER ROLES AND TRAILS RELATED COMMITTEES

Chapter Trail Coordinator (See Nomination Form on FTA Website) [floridatrail.org/nomination-trail]

1. Responsible for planning, development, and maintenance of FNST and FTS segments assigned to their Chapters.
2. Coordinates and collaborates with:
   a. FTA Regional Trail Program Managers (RTMs), Section Leaders, and land managers on matters relating to the FNST.
   b. Section Leaders, land managers and the Trails Development and Planning Committee (TDPC) on matters relating to the FTS.
3. Demonstrates a working knowledge of FTA Trail Crew Leader basic skill sets (see Chapter 103).
4. Implements, and manages adherence to, FNST Trail Standards, volunteer safety, and other practices as specified in the FTA Trail Manual.
5. Responsible to the TDPC for coordinating the planning, development, and maintenance of FNST segments assigned to their chapter.
6. Facilitates requests for information and communications between FTA staff, TDPC and Section Leaders.
7. Coordinates preparation/submission of:
   a. Work plans, when requested by land managers and required by trail agreements.
   b. Equipment/material requests.
8. Manages adherence to the FTA Volunteer Hours Reporting System.
9. Serves as a voting member of the Trails Committee.
10. Provides recommendations to RTMs on trail corridor proposals.
11. Ensures that RTMs are provided with approved map and *Data Book* changes to the trail corridor.
12. Reports to the chapter concerning trail issues and the status of trails within their area.
13. Recruits, trains, and makes nominations for Section Leaders positions to the TDPC.
14. Assumes responsibility in the event of a Section Leader vacancy until a new Section Leader is approved.
15. Maintains a FTA Volunteer Profile.

Section Leader (See Nomination Form on FTA Website) [floridatrail.org/nomination-trail]

1. Responsible for collaborating, coordinating, planning, development, and maintenance of FNST and FTS sections assigned to them.
2. Coordinates and collaborates with:
   a. FTA RTMs on matters relating to the FNST infrastructure and trail relocations.
   b. Chapter Trail Coordinator, land managers and RTMs on matters relating to the FNST maintenance.
   c. Chapter Trail Coordinator and land managers on matters relating to the FTS.
3. Demonstrates working knowledge of FTA Trail Crew Leader basic skill sets (see Chapter 103).
4. Implements and manages FNST Trail Standards, volunteer safety, and other practices as specified in the FTA Trail Manual.
5. Is responsible to the TDPC, through the Chapter Trail Coordinator, for the development and maintenance of a section of the FNST or FTS.
6. Coordinates with RTMs and land managers on trail maintenance planning and work parties.
7. Maintains supplies and equipment as required for Section maintenance.

8. Establishes and maintains personal contact with Section landowners and land managers.
9. Ensures that the trail segments under their supervision are fully inspected semi-annually for condition.
10. Prepares and submits Notices to Hikers and approved map changes to the RTMs as necessary.
11. Provides volunteer hours reports for posting to the FTA Volunteer Hours Reporting System.
12. Maintains an FTA Volunteer Profile.

Trail Crew Leader (See Chapter 103)

Trails Development and Planning Committee

The Trails Development and Planning Committee of the Florida Trail Association conducts and coordinates the Board of Directors' trails oversight responsibilities. The Committee monitors planning, development, collaboration, and evaluation of FTA's policies and programs for the Florida National Scenic Trail (FNST) and Florida Trails System (FTS).

See Appendix 304 – Charter - Trails Development and Planning Committee for a full listing of the Committee's task and responsibilities.

Trails Committee

The Trails Committee is composed of the 19 Chapter Trail Coordinators. The members provide chapter level feedback and serve as an advisory committee to the TDPC and FTA Trail Staff. The Committee meets as needed but no less than once per calendar year.

1. Provides a statewide overview of the FNST and the FTS.
2. Disseminates trail related information that has system wide implications.
3. Recommends policies and procedures concerning development and maintenance of trails.
4. Reviews and implements standards for trail building and maintenance.
5. Reviews recommendations and changes to the FTA Trail Manual.
6. Establishes ad-hoc committees, as needed, to review trail-related issues.

Trails Committee membership shall consist of:

1. Voting:
    a. Chapter Trail Coordinators
2. Non-voting:
    a. Chair, FTA Board of Directors
    b. Chair, TDPC (unless the TDPC Chair is also a Chapter Trail Coordinator).
    c. FTA Trail Program Director
    d. FTA Executive Director
    e. USDA-FS/FNST Administrator, U.S. Forest Service, Southern Region

103: FLORIDA TRAIL ASSOCIATION TRAIL CREW LEADER

Trail Crew Leader

An FTA Crew Leader is any FTA volunteer or staff member who organizes and leads an FTA-sponsored trail work activity. The skill sets listed below are those desirable for FTA Activity Leaders who lead trail work activities. It is recognized that crew leading is an ongoing learning and development process. As crew leaders gain experience they will expand their knowledge base and refine both their organizational and leadership capacities.

Basic Trail Crew Leader Skill Sets. Trail Crew Leaders must possess basic technical, managerial, and leadership skills.

Technical Skills:

1. Has a working knowledge of trail hand tools, power equipment and personal protective equipment (PPE).
2. Performs tailgate safety briefings prior to work activities.
3. Has a working knowledge of blazing, clearing, signage, treadway development standards, application of treadway grubbing (plant removal), and proper brushing techniques.
4. Acquires the ability to examine the trail from the perspective of a trail builder and trail maintainer as to what needs doing.
5. Recognizes minor issues before they become major issues or replicate themselves as bad practices.
6. Is aware of the Trail Class and Design Parameters for each trail segment where work is to be performed (see Chapter 201: Trail Standards for Design, Clearing and Maintenance). For Trail Classes on the FNST see: USDA-FS/FNST ArcGIS [floridatrail.org/maps].
7. Has a basic knowledge of trail design methodology and terminology (see Chapter 203: Trail Design and Layout).
8. Is knowledgeable about sustainable trail fundamentals and implements practices that will reduce future trail reconstruction and maintenance.

Management Skills:

1. Coordinates the work party plan and location with the land manager, RTM, Trail Coordinator, and Section Leader prior to the work party.
2. Identifies tasks and estimates time and crew size to complete trail work.
3. Determines tools, supplies, and materials required and their availability.
4. Coordinates transportation of volunteers, material, tools, and supplies to and from work sites.
5. Has a backup/alternative work plan and work site if the primary site is unavailable.
6. Monitors weather and other factors impacting access and crew safety.
7. Ensures that the emergency action plan, communications plan, and all other documents in the FTA crew leader packet are completed before work is started (see Crew Leader Packet [floridatrail.org/crew-leader-corner] and Chapter 208: Tailgate Safety Session/ Volunteer Profile).
8. Verifies all volunteers are formally signed in.

9. Makes crew assignments based on each individual's volunteer experience and skill level.
10. Records and reports work party details and accomplishments.

Leadership Skills:

1. Welcomes volunteers and communicates work party objectives, crew assignments, meal plans, and time frame.
2. Motivates volunteers to accomplish the shared goal with quality performance.
3. Demonstrates an emphasis on volunteer safety and a safe work environment.
4. Trains volunteers in safe tool usage and trail standards.
5. Engage in conflict resolution as needed.
6. Recognizes individual and crew achievement.
7. Makes on-site (in the field) decisions concerning safety, logistics and volunteers as required.
8. Speaks up when something isn't right.
9. Strives to ensure that every participant is included in the team and feels a sense of camaraderie and accomplishment.
10. Communicates end of work party accomplishments and extends thanks to volunteers.

Advanced Trail Crew Leader Skills. Advanced Trail Crew Leader skills relate to trail corridor selection and trail design. Advanced crew leaders will possess and apply skills in the following areas:

1. Trail corridor planning with RTMs, land manager, partners, and other stakeholders.
2. Conducting Optimal Location Reviews (see Chapter 210: Trail Relocations/ FNST Optimal Location Review).
3. Mapping and on-line tools available for trail corridor selection.
4. Positive and negative control points.
5. Basic fauna, flora, and plant growth characteristics.
6. Trail corridor flagging and trail corridor pin flagging.
7. Long-term maintenance, infrastructure, and overall costs.
8. Topography/hillside hydrology and their impact on water erosion (fall lines, trail grade, and out-slope).
9. Grade reversals, curvilinear design principles, water bars, check dams.
10. Wetlands trail corridor selection, minor infrastructure types and designs.
11. Hillside trail corridor selection, erosion management types and designs.
12. Management for major trail relocations and major infrastructure construction work parties.

104: FLORIDA TRAIL ASSOCIATION CHAPTER MAINTENANCE RESPONSIBILITIES FOR THE FLORIDA NATIONAL SCENIC TRAIL

Big Cypress Chapter maintains the FNST from the South Terminus at the Oasis Visitor Center in Big Cypress National Preserve (BCNP) (FTA Map/Data Point 42-1) north to Oak Hill Campsite (Map/Data Point 41-1).

Alligator Amblers Chapter maintains the FNST from Oak Hill Campsite (Map/Data Point 41-1) north to I- 75 (Map/Data Point 41-3).

Happy Hoofers Chapter maintains the FNST from I-75 (Map/Data Point 41-3) north to John Stretch Park at Lake Okeechobee (Map/Data Point 40-5).

Loxahatchee Chapter maintains the FNST from John Stretch Park at Lake Okeechobee (Map/Data Point 40-5) along the east side of Lake Okeechobee to the junction with the Kissimmee River confluence at Map Data Point 37-7. In the FTS, the Chapter maintains the Ocean-to-Lake Hiking Trail from Hobe Sound to Lake Okeechobee (Map Data Point E-1 thru W-10).

Fisheating Creek Chapter maintains the FNST from John Stretch Park at Lake Okeechobee (Map/Data Point 40-5) along the west side of Lake Okeechobee to the junction with the Kissimmee River confluence at Map Data Point 37-7.

Tropical Trekkers Chapter maintains the FNST from the Kissimmee River confluence with Lake Okeechobee (Map/Data Point 37-7) north to the north boundary of Kissimmee Prairie Preserve State Park at Water Management District (WMD) gate at WMD S65A lock on the Kissimmee River (Map/Data Point 34-7).

Heartland Chapter maintains the FNST's Eastern Corridor from the WMD gate at WMD S65A lock on the Kissimmee River (Map/Data Point 34-7) north to the Three Lakes Wildlife Management Area (WMA) access road (Map/Data Point 34-12), and the Western Corridor from the Polk/Osceola County line north to SR 471 in Green Swamp (Map/Data Point 29-2).

Indian River Chapter maintains the FNST's Eastern Corridor from the Three Lakes WMA access road (Map/ Data Point 34-12) north to State Road (SR) 50 north of Tosohatchee State Preserve (south of Map/Data Point 23-7), and sections of the Central Florida Gap reroute south of SR528 including Triple N and Holopaw Conservation Area.

Central Florida Chapter maintains the FNST's Eastern Corridor from SR 50 north of Tosohatchee State Preserve (south of Map/Data Point 23-7) north to Blackwater Creek in Seminole State Forest (south of Map/Data Point 21-4), and the Western Corridor in Orange County from the junction of the Eastern and Western Corridors in Three Lakes WMA (Map/Data Point 33-5) north to the Osceola/Polk County line. They also maintain sections of the Central Florida Gap reroute north of SR528 including Split Oak, Moss Park, Crosby Island Marsh, Pine Lily, Hal Scott, Lake Lizzie Preserve and Savage Christmas Creek.

Highlanders Chapter maintains the FNST's Eastern Corridor from Blackwater Creek in Seminole State Forest (south of Map/Data Point 21-4) north to SR 40 in the Ocala National Forest (east of Map/Data Point 20-6).

Black Bear Chapter maintains the FNST's Eastern Corridor from SR 40 in the Ocala National Forest (east of Map/Data Point 20-6) north to Etoniah Creek State Forest at Coral Farms Road (Map/Data Point 18- 8), and the Western Corridor in the Ocala National Forest between County Road (CR) 314 (Map/Data Point 25-2) and CR 316 (Map/Data Point 19-3).

Suncoast Chapter maintains the FNST's Western Corridor from SR 471 entering Green Swamp West (Map/Data Point 29-2) north to the Citrus/Marion County line south of Dunnellon (between Map/Data Points 26-1 and 26-2).

Sandhill Chapter maintains the FNST from SR 100 (Map/Data Point 16-6) to the Osceola Experimental Forest (Map/Data Point 16-8), from the entrance of Stephen Foster State Park in White Springs (Map/Data Point 15-8 to (Map/Data Point 14-8) at Gibson Park and the Western Corridor from the Citrus/Marion County line south of Dunnellon (between Map/Point 26-1 and 26-2) north through the Florida Greenway and CR 314 to where the FNST enter Ocala National Forest (Map/Point 25-2).

North Florida Trailblazers Chapter maintains the FNST from the Tinsley Road Trailhead (Map/ Data Point 18-8) in Etoniah State Forest to the start of Lake Butler Forest (Map/Data Point 16-6) and from the Osceola Experimental Forest (Map/Data Point 16-8) west to the entrance of Stephen Foster State Park in White Springs (Map/Data Point 15-8).

Suwannee Chapter maintains the FNST from CR 751 in Hamilton County (Map/Data Point 14-8) to the intersection of C-14 (CR 14) in Taylor County (Map/Data Point 12-7).

Apalachee Chapter maintains the FNST from the intersection of C-14 (CR 14) in Taylor County (Map/Data Point 12-7) west to the Apalachicola River on SR 20 (Map/Data Point 8-2)

Panhandle Chapter maintains the FNST from the Apalachicola River (Map /Data Point 8-2) west to the Choctawhatchee River (between Map/Data Points 5-1 and 6-6).

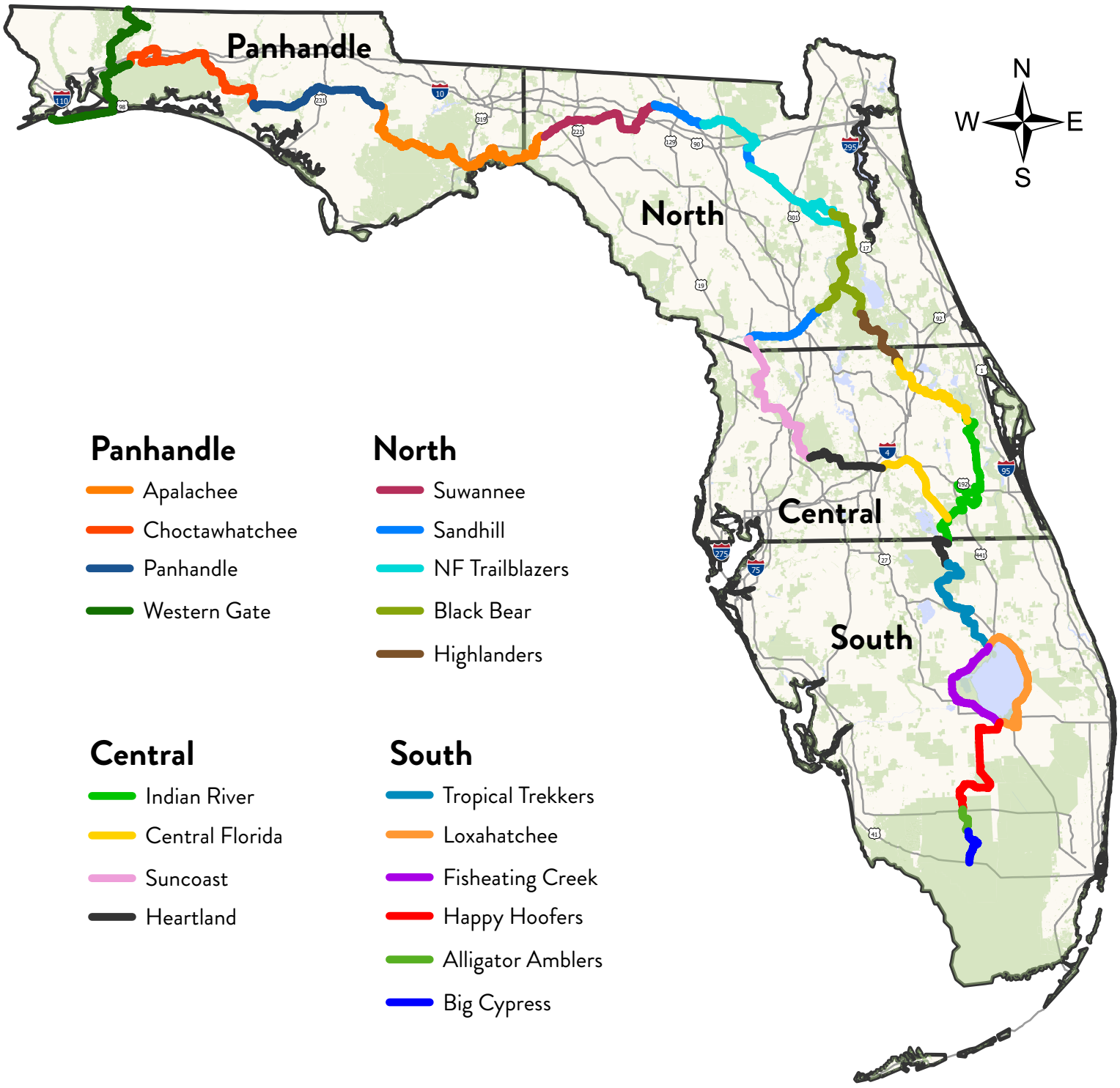
Choctawhatchee Chapter maintains the FNST from the Choctawhatchee River Bridge on SR 20 (between Map/Data Points 5-1 and 6-6 in Walton County) to Map/Data Point 3-6 on Yellow River Log Lake Road in Okaloosa County.

Western Gate Chapter maintains the FNST from Map Data Point 3-6 on Yellow River Log Lake Road in Okaloosa County west to the North Terminus of the FNST at Fort Pickens in Gulf Islands National Seashore (Map/Data Point 1-5), and the FNST side trail from the FNST(Map/Data Point 2-2) north to Alabama/ Florida State line (Map/Data Point N-3).

Note: Map/Data Points from 2022 FTA / FNST map revision.

The **Florida National Scenic Trail Chapter Responsibilities Map** (next page) provides a general statewide overview of each FTA Chapter's assigned area(s) of trail maintenance responsibilities. Due to the map scale it should not be used to determine the exact dividing line between Chapters. The foregoing narrative together with the FTA / FNST Map series should be used to determine the dividing points. While the map is divided into four regions it *does not depict* the FTA Regional Trail Program Manager's assigned areas of responsibility.

Florida National Scenic Trail
Chapter Maintenance Responsibilities



Panhandle
- Apalachee
- Choctawhatchee
- Panhandle
- Western Gate

North
- Suwannee
- Sandhill
- NF Trailblazers
- Black Bear
- Highlanders

Central
- Indian River
- Central Florida
- Suncoast
- Heartland

South
- Tropical Trekkers
- Loxahatchee
- Fisheating Creek
- Happy Hoofers
- Alligator Amblers
- Big Cypress

0 20 40 80 120 160 Miles

Scale: 1:3,700,189

105: SCHEDULING, MARKETING AND ADVERTISING FOR TRAIL WORK PARTIES

This chapter addresses the scheduling, marketing, and advertising of trail work parties for both FTA volunteers and staff. It covers how the average volunteer (long-timer and/or first-timer) learns a work party is scheduled, where it will be, the work to be performed, and suggests some post-work party follow-ups that thank volunteers and encourage them to return. The logistical planning for a trail work activity is multifaceted and is covered elsewhere: crew leader skill sets in Chapter 103, Trail Standards in Chapter 201, Trail Design in Chapter 203, Trail Construction and Maintenance in Chapter 204, etc.

Maintenance Cycle

Trail work on the Florida National Scenic Trail and the Florida Trail System goes on all year but the majority of maintenance and construction is accomplished from September through April.

Trail Work is Priority One

FTA volunteers and staff should strive to plan ahead of the FTA and chapter activity scheduling cycle so that trail work dates are selected, and trail work activities are scheduled long before leisure activities are considered. Securing priority scheduling over leisure activities is best accomplished with long-term planning. FTA members from other Chapters and members of the public are all potential participants, so broadly publicize work parties and communicate all opportunities with other Chapters and groups.

Transparency is Key

Transparency and inclusiveness are the keys to marketing one-day and multi-day work activities. Both increase volunteer participation and encourage new volunteer recruitment. Schedule and advertise all trail work activities as early and widely as possible. Multi-day work activities should be advertised well in advance (six months or more).

Coordination and Collaboration

The level of coordination and collaboration needed is dependent upon the task; but it is most important, if not essential, for multi-day trail work parties for the following reasons:

- Identifying dates that accommodate the desired level of volunteer, FTA staff, public, and land manager participation;
- Determining the availability of work and camping locations;
- Identifying secondary work and camping locations;
- Ascertaining land manager plans that may impact the work party location or camping;
- Deciding on the number of volunteers required and their critical trail-related skill levels;
- Identifying and soliciting trail crew leaders;
- Ensuring the availability of equipment and materials;
- Ensuring the availability of FTA staff;
- Seeking/obtaining funding;
- Soliciting FTA member involvement;
- Advertising in public media;
- Avoiding scheduling conflicts with other major FTA activities.

Fundamentals of Long-Term Trail Work Scheduling and Marketing

In late spring to early summer, finalize the trail maintenance and construction work plan for the upcoming trail work season. The work plan should target the highest priorities early in the maintenance cycle.

Transparency avoids confusion and misunderstandings. Coordinate and collaborate with RTMs, other chapter trail leaders, land managers, and surrounding FTA Chapters when developing work plans and scheduling.

Scheduling specific days of the week or month has proven to work well for maintenance activities. (*Example: First and third Saturdays and/or Sundays of each month during the maintenance cycle).* It's also helpful to hold multi-day and multi-chapter work activities at the same time each year*. (Example: The first week in October, the last weekend in November.)*

As soon as the dates are reserved, prepare and submit a Project Proposal Form [floridatrail.org/crew-leader-corner] for posting on the FTA website Volunteer Opportunities page and in other media as appropriate (chapter website, chapter Meetup, chapter newsletters, etc.). Early descriptions should, at a minimum, identify the work to be performed (maintenance or construction), the trail section, and time duration. It is common for the full details of the work (camping, meals, degree of difficulty) and volunteer requirements may not be fully known early on. Update the Volunteer Opportunities page and other media with additional details as they become known.

Identify and contact non-FTA stakeholders who could provide volunteer, funding, or marketing support.

Advertising Tips

To avoid the need for multiple identical postings. Identify one primary site / location for initial post, updates, comments, and RSVPs. Link all other informational postings to the primary site. If possible post information on the FTA website with a link to the chapter social platforms . Use the chapter social platforms for RSVPs, questions, and updates for volunteers.

Delay open sign-up to no more than 60-90 days prior to the start date; publish an announcement when the work party is opened for sign-up. Periodically query those that signed up to update their availability status. As volunteers sign up, identify their skill sets and work preferences.

Where to Advertise

- Print and radio media: Community calendars
- FTA website
- FTA The Friday Waypoint (published weekly)
- Chapter websites
- Chapter social media platforms
- Community bulletin boards
- Trailhead and campsite kiosks
- Like-minded organizations

After the Trail Work Activity

Trail volunteers appreciate recognition and want to feel a sense of accomplishment. At a minimum

they should receive a thank you together with a brief summary of what they and others accomplished (miles of trail maintained or constructed, bridge built, etc.). They should be told that they are welcome to come back for subsequent activities. They should be invited to participate in future FTA activities. If they are not FTA members they should be encouraged to become a member.

Be transparent to ensure that the *'what,' 'where,'* and *'when'* of the trail work completed is communicated, so subsequent trail crews will pick up where the last crew stopped. Record work performed and volunteer participation in the Volunteer Hours Reporting System.

106: FLORIDA TRAIL ASSOCIATION TRAIL STAFF ROLES

Our Florida Trail Association (FTA) Trail Staff are tasked with enhancing volunteer stewardship and support for the Florida National Scenic Trail (FNST). One of their prime functions is to promote and support both *volunteer participation* and *volunteer leaders*. Volunteer-led work activities remain the primary source of FNST trail maintenance. While Regional Trail Program Managers (RTMs) often lead work activities, the primary job of the RTM is supporting and enhancing volunteer work events and volunteer stewardship. RTMs are the primary point of contact (POC) with land managers for coordinating trail infrastructure and policy issues.

FTA trail leaders and staff share and often have parallel responsibilities. Much of this revolves around annual trail maintenance. The key to success is when two or more individuals share responsibility, is coordination and frequent straightforward communication. Transparency is essential! Planning, scheduling, coordinating, and advertising of trail work activities are addressed in Chapter 105.

Trail Program Director (TPD)

Position Summary. The TPD is responsible for developing a Trail Operations Program focused on volunteer engagement, construction, protection, and maintenance of the FNST. The TPD collaborates with the FTA Executive Director (ED) and the FNST Administrator to set program goals. The TPD coordinates with the FNST Administrator on setting overall program direction, and supervises the day-to-day management of Trail Operations Program staff and interns.

Primary Duties:

1. Develops, coordinates, and manages trail operations on the FNST including trail building, maintenance, training, and volunteer programs.
2. Works with the FTA ED and USFS-FS to develop an annual Challenge Cost Share Agreement and associated staff programs of work (POW). Manages the Cost Share budget, tracks trail program expenses, and prepares quarterly POW updates and an annual financial report. Manages Trail Operations assets and prepares an annual inventory report.
3. Responsible for hiring and supervision of RTMs, Community Outreach Manager, Gateway Community Coordinator, and their associated programs.
4. Serves as Liaison to the USDA-FS and builds relationships with federal, state, and local agencies and non-governmental organizations, as well as private landowners. Represents FTA at conferences, public meetings, and outreach events.
5. Works with USDA-FS to ensure standards are met regarding FNST. Ensures necessary agreements are in place, identifies and responds to threats and opportunities to the trail, and works to improve consistency in trail management and protection.
6. Works with the FTA ED to leverage USFS cost-share funds by securing grants and corporate donations. Manages trail program grants and ensures accurate reporting.
7. Participates in advocacy efforts including Hike the Hill and state-level outreach, and provides letters of support or public comments as necessary.
8. Works with FTA staff and USDA-FS to develop an annual plan for field work and infrastructure projects. Assists USDA-FS with project planning, permitting, design, and compliance/review processes.
9. Prepares updates on accomplishments for FTA Board and compiles a yearly *Trail Operations Report* and *Congressional Report.*
10. Works with the FTA Board's Trails Development and Planning Committee and the Trails Committee on FNST and FTA related issues.

Community Outreach Manager (COM)

Position Summary. The COM works to support and expand the FTA's state-wide volunteer program on the FNST. The COM works to increase public awareness and use of the FNST, develop innovative ways of engaging with partners and volunteers, share opportunities to volunteer, and improve volunteer retention.

Primary Duties:

1. Supervises the volunteer program and finds innovative ways of building and improving stewardship events and training on the FNST.
2. Increase inclusion and outreach to underrepresented communities and demographics.
3. Develops and implements an integrated communications plan for print, digital and social media outreach, including the monthly E-Blaze email newsletter and quarterly Footprint magazine.
4. Recognizes and tracks volunteer certifications, skills, and hours.
5. Assists RTM with implementation of volunteer programs as needed.
6. Engages volunteers in applicable program areas and associated committees.
7. Travels to volunteer stewardship projects throughout Florida to work alongside volunteers.
8. Assists with reporting volunteer contributions and accomplishments.
9. Coordinates and updates regional stewardship projects yearly on the FTA website.
10. Facilitates communication and works to empower and engage volunteers.
11. Works to improve retention rates and volunteer experiences on the FNST.
12. Compiles annual volunteer report for inclusion into the *Trail Operations Report* and conducts annual volunteer surveys.
13. Serves as point of contact for volunteers requesting information on regional work parties.
14. Oversees the FTA's Next Generation Coalition.

Regional Trail Program Managers (RTMs)

Position Summary. The RTMs focus on coordinating successful trail management, protection, and volunteer work on the FNST within their respective region. Each RTM works with diverse groups of volunteers in order to build sustainable trail stewardship programs. They are responsible for building collaborative partnerships with volunteers and agency personnel within the region. RTMs work closely and communicate proactively with land management agencies and volunteers on a regular basis. They identify, engage, and respond to external planning efforts that could have an effect on the trail corridor. RTMs gather information on the physical trail, local features, and work to ensure optimal routing of the FNST in perpetuity. They carry out tangible work intended to permanently protect the FNST in accordance with the values outlined in the National Trails System Act and the Comprehensive Management Plan.

Primary Duties:

1. Develops regional trail programs focused on protection, preservation, and promotion of the FNST and the volunteer programs that support it.
2. Builds and expands volunteer stewardship opportunities on the FNST by developing partnerships between the Florida Trail Association (FTA), volunteers, and agency partners.
3. Monitors, evaluates, and responds to activities that could affect the trail corridor.
4. Serve as a technical resource to agencies in the areas of trail protection, volunteer coordination, and project management.

5. Increases the amount of well-trained volunteers regularly working on the trail.
6. Ensures volunteers have access to appropriate training, certification, safety gear, tools, and equipment.
7. Develops work plans for FTA's seasonal staff and field crews working in the region.
8. Coordinates the planning, replacement, and construction of trail infrastructure.
9. Serves as the primary POC with land managers for coordinating trail infrastructure and policy issues.
10. Facilitates proactive communication and meets with volunteers and agency partners as needed to coordinate trail protection and maintenance efforts.
11. Responds to public requests about trail information.
12. Verifies trail conditions as much as possible and notifies the public about access issues, safety concerns, threats, and changes to the trail.

Gateway Community Coordinator (GCC)

Position Summary. The Florida Trail Gateway Communities- Program (GC) creates partnerships with designated towns in close proximity to the Florida Trail that offer accommodations, restaurants, grocery stores, activities, and other resources for hikers and recreationalists. This program works by connecting Florida Trail hikers to local businesses within the community, and making visitors to the community aware of the Florida Trail. The GCC focuses identifying, recruiting, and maintaining relationships with communities in this program.

Primary Duties:

1. Identifies and adds communities to the program, establishing new MOUs, local partnerships, and FNST passport locations.
2. Conducts regular outreach to all program partners, including aiding local businesses in supporting the hiking community.
3. Spreads awareness of the GC program via articles, social media content, attending meetings, and participating in other outreach opportunities.
4. Installs kiosks and signage in GCs, and distributes brochures and other outreach materials at community events.
5. Assists RTMs with trailhead and infrastructure assessments and needs as they relate to the GCs.

GIS Specialist

Position Summary. The GIS Specialist works to develop and maintain the Geospatial Program for the FTA and USFS in support of the FNST. They are responsible for maintaining the authoritative FNST GIS dataset, providing maps and data analysis for the trail program, and assisting with accurate field data collection.

Primary Duties:

1. Develops, maintains, and publishes spatial trail data. This includes processing FNST map updates and facilitating data sharing with partners.
2. Supports the work of FTA staff; produces mapping products, completes GIS and routing analysis, assists with permitting and review processes, contributes to FTA publications, and manages web content.
3. Develops and maintains mobile GIS data applications to support FTA field work.
4. Provides GIS training to FTA staff, volunteers, and partners. Leads the FTA GIS Working Group.

201: TRAIL STANDARDS FOR DESIGN, CLEARING AND MAINTENANCE

The Florida National Scenic Trail (FNST) was built and maintained by FTA volunteers. Routine maintenance consumes the majority of a trail maintainer's time and energy and is the core asset or value of the Florida Trail Association (FTA). Very few individuals arrive at their first trail work party and know what to expect or what a well maintained trail looks like. In any business new employees are trained, supervised and often mentored; trail crews and individual volunteers are no different. Trail standards and the application thereof are the tools by which we instruct and measure trail condition and maintenance. Trail standards are multifaceted, but at the core are clearing limits.

The FNST corridor ranges from narrow, primitive and remote to wide, paved and urban. This mixture makes it impractical to have a single standard for clearing limits. Site and area specific land manager requirements only add more standardization challenges. From terminus to terminus, the FNST is an assortment of trail classes and experiences.

To accommodate as many of the differences as possible, the U.S. Forest Service and the FTA have adopted a modified version of the National Trail Class Matrix and Design Parameters (see links below). The modified version has five Trail Classes (very primitive to very developed) and parameters or specifications for each Trail Class. From a land manager's and a trail builder's/maintainer's perspective these provide quantifiable standards that can be conveyed to trail workers. For any trail work activity the trail crew leaders should be aware of the class and parameters. These should be communicated to crew members, along with clearing limits information, before the work party begins. First time trail workers are especially vulnerable to no instructions and/or misinformation about what trail work entails and what is expected. The average trail worker/volunteer does not have to know the trail class, but they need to know what is expected (clearing limits and blazing standards).

Florida National Scenic Trail/Trail Standards/Trail Specification

Example of Design Parameters:

Design Parameters for a Pedestrian	Class 3
Tread Width (non-wilderness – single lane) = minimum to maximum tread width.	18" – 36"
Surface:	
Type	natural
Protrusions	≤ 3"
Obstacles	≤ 10"
Grade is elevation change.	3% – 10%
Cross Slope is the maximum cross slope.	5% – 10%
Clearing:	
Width	36" – 60"
Height	8'
Trail shoulder clearance	12" – 18"
Turns are the turning radius.	4' – 8'

Note: See links below for Trail Class Matrix and FNST Design Parameters. FNST Trail Classes can be found at: USDA-FS FNST ArcGIS (Trail Class layer).

Skills Training: What You Don't Know

Knowledge of standards for trail clearing and blazing are essential, but they are only the first step. Equally important are best practices, techniques, and skills required to apply them. For most volunteers these are not acquired in a classroom. There are plenty of judgment calls and there is no substitute for in-the-field training and working with experienced staff and volunteers.

Land Manager Resources for FNST Coalition

A Land Managers Guide to: Minimum Trail Standards and Guidelines for the Florida National Scenic Trail. [http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3805919.pdf]

Addendum: Minimum Standards and Guidelines for the Florida National Scenic Trail. [http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3803485.doc]

Note: Additional details on trail standards and techniques are found in Chapter 211: Basic Trail Maintenance.

FNST Trail Class Matrix pdf:
fseprd848223.pdf (usda.gov) [floridatrail.org/fnst-trail-class-matrix]
Also see Appendix 312

FNST Trail Design Parameters pdf:
fseprd848259.pdf (usda.gov) [floridatrail.org/fnst-trail design-parameters]
Also see Appendix 313.

FNST Trail Classes 1-5 pdf:
FNST Trail Classes (usda.gov) [floridatrail.org/fnst-trail-classes]

202: TRAIL SIGNAGE AND BLAZING

Signage

Trail signs for the Florida National Scenic Trail (FNST) are typically used to inform the motoring public and/or trail users that they are approaching, or are on, the FNST. When blazes are not sufficient to inform the user of location specific information then directional, interpretive or regulatory signage may be necessary. Examples include directions to water sources, campsites, trailheads, land use restrictions, location signage, trail junctions, etc. Signage frequency and purpose should be consistent with the trail class matrix for the trail segment (Chapter 201). Trailside signage should be placed at the level of blazes, visible to trail users, and far enough off the trail centerline to not interfere with the passage of users. Be conservative with the quantity of both signage and blazes. Over blazing and signing has a negative impact on the trail experience.

The number, type, and frequency of signs or blazes depend primarily on the trail user's skill level and the trail's designed use and trail class. Low-challenge trails (Class 4 and 5) typically will be signed with destinations and distances. Usually, the trail will be so obvious that blazing is minimal or necessary only at points where users might be confused. As the desired opportunity for challenge rises (Class 1-3), the amount of information given by signs usually drops to trail identification and direction.

Regional Trail Program Managers (RTMs) are responsible for working directly with FNST land management partners in evaluating FNST shield and sign requirements and approving their location and placement. FTA RTMs have primary responsibility for signage coordination, selection, and placement with land managers. FTA volunteers are encouraged to assist the RTMs with FNST signage planning and placement.

The USFS FNST Shield is the official service mark of the Florida Trail and should be used according to authorized uses only. If there is any question about the appropriate use please contact the FNST Administrator or the FTA TPD.

FNST Shield Sign. The purpose of the FNST Shield Sign is to identify the location of the FNST at trailheads and road crossings. The sign should be placed so it can be readily seen from an approaching vehicle. Its use is intended only as a symbol associated with the trail, the words are not intended to be read by motorists at highway speeds. The placement of the signs on right-of-way requires approval of appropriate State or County authorities. FNST Shield Signs are provided to land managers by RTMs. Section Leaders and managing agencies should give high priority to timely repair and/or replacement of missing, deteriorated, or damaged signs.

24-inch Shield. These signs are intended for locations along high speed federal or state highways. These will be determined in a case-by-case review, and are generally reserved for areas with speeds of 65 mph or higher.

18-inch Shield. These signs are intended for locations where the FNST crosses a road where speeds are 40 mph or higher.

9-inch Shield. These signs are intended for locations where the FNST crosses secondary roads where speeds are 35 mph or lower.

At trailheads or developed recreation sites associated with the trail, 9-inch signs may be mounted on the base of the site identification sign or on a separate post in a prominent location. Sign location should be determined in consultation with the appropriate land manager.

9-inch signs may also be used for locations where the FNST crosses minor logging or forest roads, gates, fencelines, access junctions, or other features where land use activities may make the trail location uncertain to hikers.

Hiking Trail Symbol Sign. This sign is used to identify the FNST or FTS trail locations to the public.

Blazing

In the recreational trails community painted blazes are one form of *reassurance markers***.** On the FNST these are painted orange blazes that are typically placed on trees or wood posts. The purpose of reassurance markers is to help users identify the trail corridor. They are most useful when the trail corridor is indistinct, confused by multiple trails or otherwise obscured.

Uniformity and Standardization. The importance of *uniform and standardized* blazing cannot be overstated. The task of blazing should be assigned to experienced volunteers who have demonstrated an understanding of the importance and methodology of blazing. Blaze placement and frequency are decisions best left to seasoned trail volunteers. New or inexperienced volunteers seldom have the trail skills to understand blazing significance or impact on the trail user.

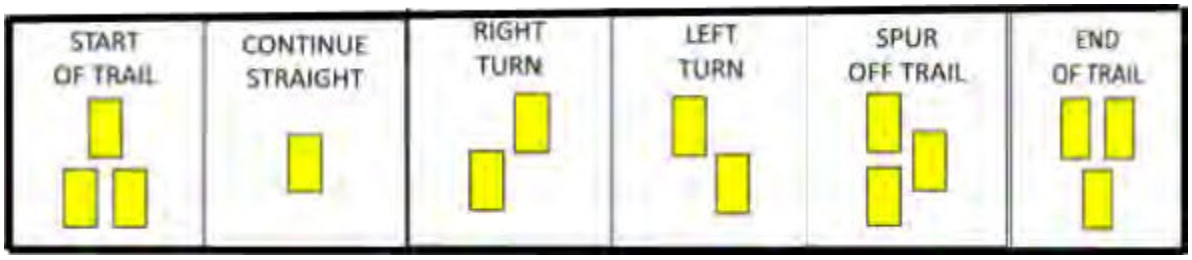
Frequency of Blazes. The *frequency* of blazes depends primarily on visibility. Visibility is heavily dependent upon trail design, layout, the anticipated user's skill level, and the Trail Class. Trails designed with minimal abrupt turns allow for increased visibility and therefore fewer blazes. Over-blazing diminishes the user experience and adds unnecessary work for trail maintainers. Under-blazing can result in lost hikers.

A properly blazed trail will permit users to enjoy the woods while not being continuously concerned about losing the trail. Blazes should be frequent enough to assure the hiker that they are on the trail. Normally, this is accomplished by placing the blazes so that when the hiker is passing one blaze the next quickly comes into view. Terrain and other factors often dictate the frequency of blazes. Road walk connectors are to be blazed. The blazing on road walks should be close enough so the hiker is regularly reassured. Blazing every other telephone pole is sufficient along paved roads.

Painting the Blazes. To ensure that blazes are appropriately located, it is recommended that the trail be walked in both directions, blazing in one direction at a time. What you notice in one direction may not be obvious from the other. If equally visible from either direction, blazes may be painted on opposite sides of trees or posts. Select live trees or other objects (such as fence posts and poles) that

catch the eye. Obtain permission to use fence posts and poles, especially power poles. Brush back (remove) vegetation that may obscure the blaze visibility. Working in teams of two or three people helps determine blaze visibility from a distance.

Blazes should be painted five-and-one-half feet above the ground with the top six feet above ground level. The blaze should be two inches wide and six inches long (approximately the size of a dollar bill), preferably on trees wide enough to provide a contrast for the paint. An offset double blaze is used when a trail makes an abrupt change in direction (more than a gentle curve), with the top blaze offset in the direction of the turn. Note: Double blazes (one directly over the other) can be used when the blazing surface doesn't allow for offset blazes or when alerting the user to a trail change other than a turn. In very limited circumstances the blazes for START, SPUR, and END (shown below) may be appropriate. These three should be used sparingly.



Blaze Colors. Orange is the official blaze color for the FNST. Only the FNST is to be blazed orange. The blaze colors of other trails maintained by FTA volunteers (including side and/or connector trails) should **not** include orange. Otherwise, the blaze color and rules for these trails are at the discretion of the land manager.

The FNST blazing color guide:

- Orange is for the Florida National Scenic Trail (FNST) through trail.
- Blue blazes mark side, spur and connector trails to camping, access points, or places of interest.
- White blazes are used for loop or alternate routes when they are connected to the FNST.
- Yellow blazes are used for trails that intersect other trails already blazed in orange, blue or white.

FNST Blaze Paints. The historic brand for FNST blaze paint was Coronado RUST SCAT, acrylic water-base, high-gloss enamel. This water-based paint was durable and mixed at the factory. This paint has been discontinued. For color matching purposes the Coronado RUST SCAT Orange and Blue are displayed in Appendices 301 and 302 of this Manual.

FNST Blaze paint recommendations for Orange and Blue are in Appendices 301 and 302.

It is recognized that 301 and 302 are not comprehensive lists and options will increase. Paint lines and sometimes brands are discontinued. Should you identify a comparable paint line or brand please pass the information to the Trails Development and Planning Committee and/or the Regional Trail Program Manager. It is recommended all blaze paints be a high quality acrylic water-base with high-gloss sheens or enamels.

Note: Additional information on blazing standards and techniques is in Chapter 211: Basic Trail Maintenance.

203: TRAIL DESIGN AND LAYOUT

There is an art to trail design and layout. Through study and experience, a person locating the trail corridor and laying out the trail centerline will develop an eye for it, and the results will be sustainable trails that are easy to maintain and a delight to hike.

Trail design and layout requires consideration of many factors: geology, hydrology, botany, and aesthetics—just to name a few. Observe how use, weather conditions, water flow, and regrowth of vegetation affect a trail over time. Utilize professionals (FTA staff) and experienced volunteers *with design and layout experience* as mentors. They've spent years acquiring relevant knowledge and experience. These skills are not complex but they are also not intuitive without exposure to training—both classroom and on-the-job. *Training is the first step and it starts with the individual accepting that there are things they can learn about trail design and layout.*

There are several very good books and manuals written on the subject of recreational trail design and layout (see the end of this Chapter). Professionals and long-time volunteers spend years acquiring the relevant knowledge and experience. Below are some of the most relevant components.

Central to any design and layout discussion are Trail Fundamentals. These five concepts are the cornerstones of USDA-FS trail management:

- Trail Type (terra firma, water, etc…)
- Trail Class (1-5; see Chapter 201)
- Managed Use (hiker, bicycle or other)
- Designed Use (level of development for managed usages)
- Design Parameters (see Chapter 201)

Trail design and layout are much more than the application of FNST Design Parameters for a Trail Class. The Trail Class and parameters are specifications, while design and layout are techniques and skills. Design and layout merge sustainability, esthetics, flow, and how the trail fits into the setting. Trail design is an important factor in ensuring that the trail offers optimum scenic, geologic, historic, cultural and biological sites to provide a variety of diverse habitats for the trail user to experience. Trail design is the critical connection to make the trail sustainable, to reduce impacts to the natural environment, and to minimize future trail maintenance.

Sustainability

In the trail development and construction community the term “sustainable” is often used. In trail jargon this is a trail that *accommodates its intended objectives while requiring minimal long-term maintenance.* A sustainable trail is often not the easiest to plan or construct. It frequently requires much more work to clear the trail corridor and establish a stable tread.

Trail design and layout is about fitting a sustainable trail to the land. Before starting the design and layout process there is an assumption that the selected trail corridor is in the best or optimal location(see Chapter 210). Most of the FNST is designed and managed for the pedestrian/hiker. The managed use for any FNST segment is the decision of the landowner or land manager.

Trail Corridor Reconnaissance

Whether it is a new trail, a minor relocation or a major relocation, trail corridor reconnaissance is paramount. The reconnaissance process includes the identification and evaluation of alternative corridors, which will lead to the selection of the best possible location. Application of sound principles of trail location, corridor selection, and trail grade will minimize construction cost and future maintenance. Trail corridor reconnaissance and selection is a shared volunteer and FTA staff responsibility. The cost of construction as well as the long-term maintenance requirements are not decisive but are influencing factors in trail corridor selection.

The process starts with the examination of contour maps and aerial imagery to identify terrain features, drainage patterns, vegetation, and structures. Inquire about current and future land use and management plans that might influence both the trail location and the user experience. Discussions with managers and volunteers familiar with the area are essential to identifying control points. Control points can be positive (things to route toward) or negative (areas to avoid).

There is no substitute for on-the-ground examination of potential trail corridors. Walk each feasible corridor and record the proposed centerline. Identify the alternative trail corridors on the ground with different temporary markers (flagging) that can be easily recognized and moved. Record all pertinent data on physical conditions and key features that are to be regarded as principal items for consideration in corridor selection. Examine control points closely.

Positive Control Points: Favor areas with the following features:

1. Natural stream crossings
2. Natural ridges
3. Natural openings
4. Open timber
5. Light stands of brush
6. Scenic vistas
7. Observation opportunities with special features
8. Access to water and areas protected from the weather
9. Natural drainages offered by sloped locations
10. Well-drained soils
11. Differing seasonal experiences and conditions
12. Natural contours in topography
13. Safe and quick crossing of roads and railroads
14. Reasonable access to other transportation modes
15. Good trailhead access
16. Available campsites
17. Location of potential blazing trees

Negative Control Points: Carefully consider the conditions of various trail corridors and avoid the following as much as possible:

1. Wet and flat areas with difficult drainage
2. Stream bottoms subject to periodic floods
3. Unstable, fragile soils
4. Steep slopes and abrupt elevation changes
5. Frequent stream crossings where fording is difficult or bridging impractical

6. Locations requiring bridges or culverts
7. Heavy vegetation requiring clearing and more-than-annual maintenance
8. Fragile vegetation areas
9. Cultural sites, except where featured as a trail objective
10. Road or railroad crossings with limited sight distances
11. Known habitats of threatened or endangered species of plants or animals—see
12. *Notes on Florida's Endangered and Threatened Plants* [floridatrail.org/fl-endangered-plants]
13. Private land requiring a right-of-way
14. Timbered areas prone to blowdown
15. Adverse effects on other resources such as wildlife
16. Fences, cables, and anchoring wires

Trail Layout

Ideally, trail layout should follow the contours of the land and consist of a series of gently sweeping long curves. Long straight stretches and sharp angular turns should be avoided as much as possible. Layout should take advantage of natural drainage to minimize the need for drainage modifications.

Flat land

Land is seldom truly flat--the elevation differences over long stretches south of Orlando can often be measured in inches. Trail builders generally prefer the highest ground possible for trails on flat terrain. The higher ground may be only inches above the surrounding terrain but is often recognizable by the type of vegetation. While it is always possible to elevate and harden the tread it is seldom cost effective for long trail segments. Sandy soils generally drain quicker than those primarily of organic matter. Discussions on elevating the tread are contained in *USDA FS Wetland Trail Design and Construction.*

Trail Grade

Florida has an overabundance of sandy soils that are highly erodible. The ideal grade is 3% or less in sandy soils. Grade is usually a controlling factor for a hillside trail location. Avoid closely spaced undulate grades and downhill grade/fall-lines where water will funnel. A slight downhill grade is necessary for crossing drainages and to provide grade undulations (grade reversals) for drainage.

Hillside and Fall-lines

Locating the trail directly up/down a slope results in little opportunity to drain water off the tread. Florida is *not* all flat, and elevation changes of 50 feet or more are not uncommon. North Florida and the Panhandle have plenty of hills and erosion-prone grades. This is about *moving water* in, and crossing the trail tread. Even small elevation changes can create fall-line/erosion-prone trail segments in sandy soils.

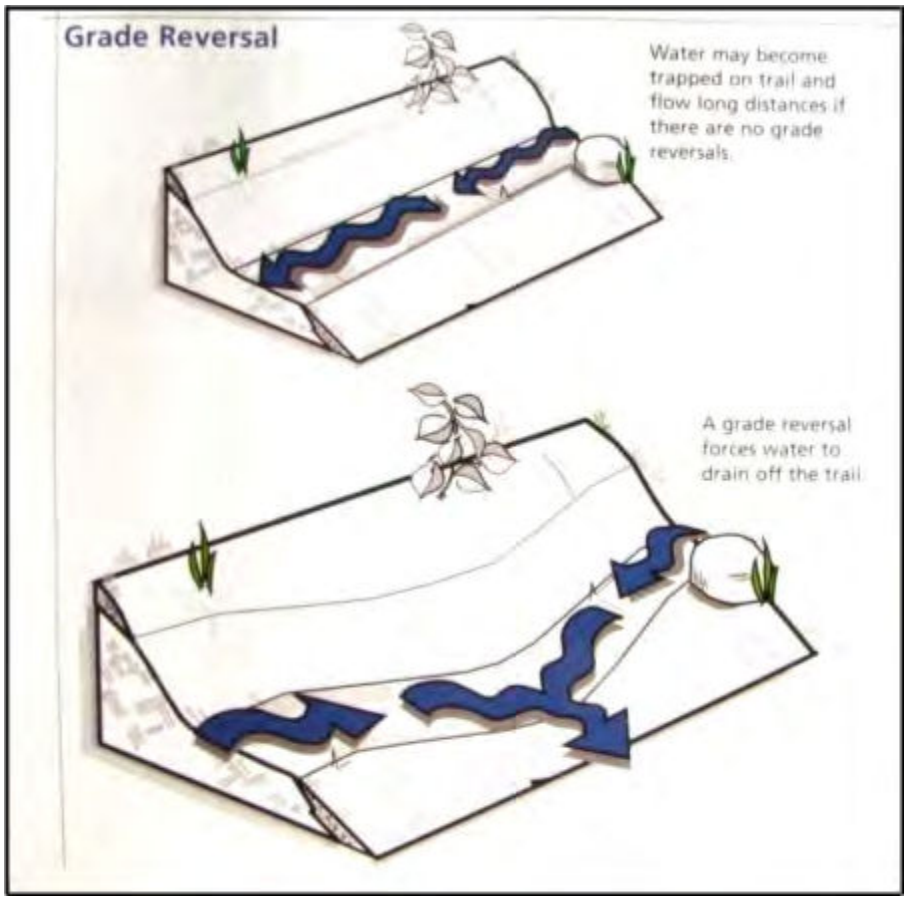
With user impact a sand-based tread becomes compacted and a small trench forms. On a grade, water will run downhill until it encounters a way out. Ideally you want to vent the water off the trail every 20- 30 feet. Water running in the tread for any distances will erode and destroy the tread.

Assume that *any* grade change is *erosion prone*. When grade changes are encountered the first solution is to find a more sustainable trail corridor to avoid or reduce the grade. If that isn't feasible, hillside trail construction techniques need to be applied. These can include use of natural terrain dips,

grade reversals, tread out-sloping, and switchbacks. If design and layout do not fully address erosion, trail repair measures such as water bars and check dams may be necessary.

The Half Rule

The half rule says that the trail grade should be no more than half the side slope grade. This rule really helps when putting trails on gentle side slopes. For example, if you're working on a hill with a 6 percent side slope, your trail grade should be no more than 3 percent. If the trail is any steeper, it will be a fall- line trail.



GRADE REVERSAL:

Reverse the grade for drainage, about every 20-30 ft.

Looks like a natural dip in trail.

Marking the Trail Corridor

The trail corridor should be marked with flagging tape hung on bushes and tree branches. Once the final corridor is selected the corridor should be pin flagged. Pin flags mark the corridor for trail construction. Flags can be placed on the uphill side, the right side, the left side, or on the least desirable option—the tread's centerline. Centerline pinning is least desirable because the pins often will be in the way and interfere with clearing the corridor. What is most important is that the trail crew clearing the trail corridor be fully aware of the pin flags orientation (left, right, or center) before work begins. Pin flags are set at frequent intervals to clearly define the trail corridor and clearing limits. Flagging should be placed above the pin flags where they are obscured in grasses or other vegetation. The pin flags should remain in place until the trail is blazed.

The person marking the trail corridor is not always present during every aspect of trail development or construction. The pin flags serve to clearly show the exact trail corridor, tread and clearing limits for those evaluating the trail corridor and for the construction crews during the building process.

Structures such as bridges and puncheons should be clearly marked and identified on the ground and recorded in detail. Dangerous trees should be marked for removal. Roads and utility easements should be crossed at right angles.

Trail Design and Layout Resource Material

American Trails [americantrails.org] / Trails Planning and Design Hub

AMC's Complete Guide to Trail Building and Maintenance. 5th ed.

Appalachian Trail Design, Construction, and Maintenance.

Lightly on the Land: The SCA Trail Building and Maintenance Manual. 2nd ed.

Trail Solutions: IMBA's Guide to Building Sweet Singletrack.

USDA FS Trail Construction and Maintenance Notebook

USDA FS Wetland Trail Design and Construction

204: TRAIL CONSTRUCTION AND MAINTENANCE

The seasonal cycle, water, elevation change, vegetation, and trail users all impact trail work. Construction and maintenance are our methods for dealing with these impacts.

Regional Trail Program Managers (RTMs), Section Leaders, and volunteer trail crew leaders are the primary leaders of trail construction and maintenance activities. RTMs and Chapter leaders should make every effort to involve the land managers, the public, youth groups, interested stake-holders and other FTA Chapters in trail maintenance. Prior to the beginning of the hiking season, Section Leaders should coordinate with land managers and prepare a trail maintenance work plan and tentative schedule of activities. Just prior to trail work activities, the land manager should be contacted again to ensure the work location is open and safe for trail workers.

Trail Standards

Trail standards are the same for both construction and maintenance, although construction is normally a more intense activity. Trail and blazing standards for the Florida National Scenic Trail (FNST) are found in Chapters 201, 202 and 211. The trail standards outlined in Chapters 201 and 202 also apply to the Florida Trail System. Trail relocations and new infrastructure construction are to follow the coordination and approval sequence set forth in Chapter 210.

Safety

All work parties start with a Tailgate Safety Session. The safe use of tools with no injuries is *priority one*! See Chapter 208 for information on the Tailgate Safety Session.

Clothing

In addition to required Personal Protective Equipment (PPE), required clothing for trail workers includes sturdy shoes or boots and long pants. Long sleeve shirts are recommended.

Routine Trail Maintenance and Trail Construction

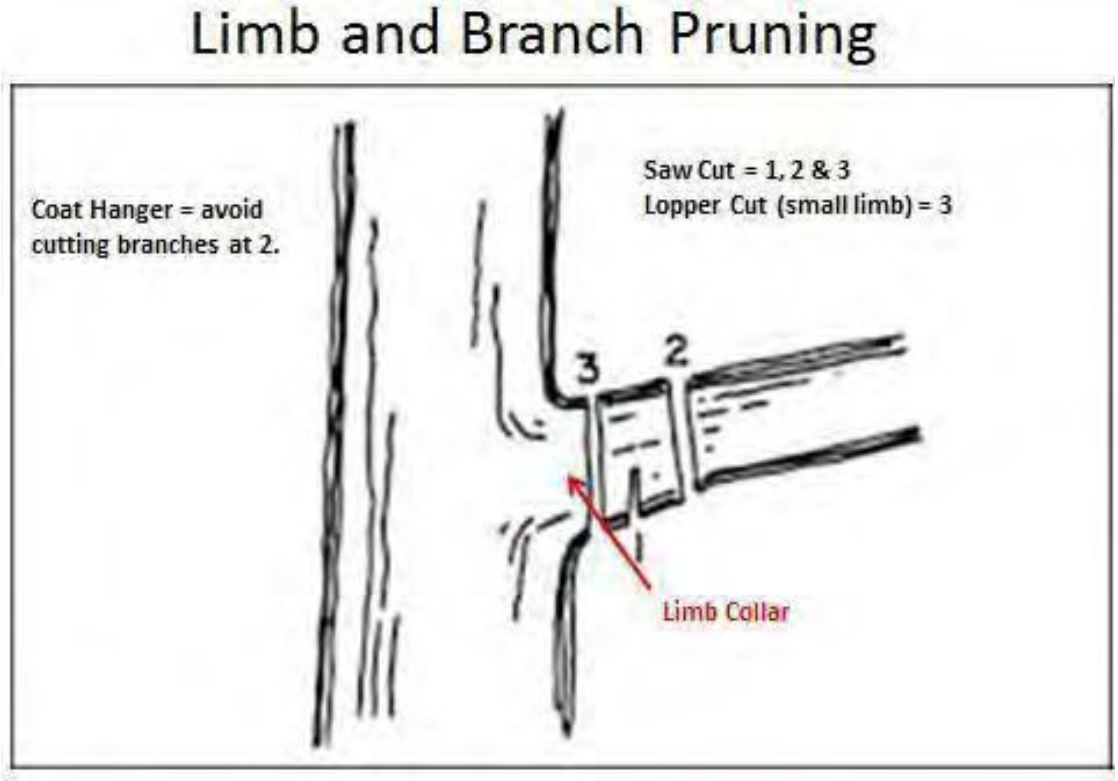
Clearing and Brushing (aka lopping and mowing). Plants grow fast in Florida, often closing off a trail corridor in less than a year. Brushing generally needs to be very aggressive. Mow and lop back vegetation to the clearing limits. Cut brush at ground level, even if the plant is outside the clearing limits. Never just cut off the tips of branches; it is a waste of time. Prune back brush to encourage growth away from the trail. Ideally, remove branches and limbs at the base (trunk or primary limb).

Vegetation grows back vigorously; it may be necessary to brush more often than once per year using chainsaws and/or brushcutters. Both are moderately dangerous tools and not suitable for volunteers without training. An alternative is to grub out shrubs using Pulaskis, cutter mattocks, or other grubbing tools. All sapling stumps must be cut as flush as practical with the ground to prevent tripping hazards and avoid interference with mowers. Within the trail tread, completely pulling up seedlings and small saplings to remove their roots is acceptable and a more permanent solution.

Trail mowers and brush cutters can be used to aggressively clear the trail shoulder. Attempting to maintain the clearing limits with loppers or other hand tools is time and labor intensive.

Prune trees and brush limbs close to the trunk or main stem. For a clean cut, make a shallow undercut

first, then follow with the top cut. This prevents the limb from peeling bark off the tree as it falls. Do not use an ax for pruning. If more than half of the tree needs pruning, it is usually better to cut it down. Cut vegetation off at ground level and do not leave pointed stobs or other tripping hazards.



Logging Out. Logging out means cutting away trees that have fallen into or across the trail corridor. This work can be hazardous. The size of the trees, restrictions on motorized equipment, and your skill and training determine whether chainsaws, crosscut saws, bow saws, or axes are used. **Safety first!**

Volunteers are required to receive USDA-FS certification prior to operating a chainsaw or crosscut saw. Training, experience, and level of certification can allow volunteers to buck and limb trees that are already on the ground. Felling any standing tree is hazardous. Only individuals with felling certification are to undertake felling trees. Chainsaw operator skill levels and use restrictions are outlined in Chapter 207. FTA has adopted the USDA-FS requirements and procedures for chainsaw safety, training, uses and operations as outlined in Section 22.48, Chainsaw Operations of the USDA-FS, FSH 6709.11, Health and Safety Code Handbook .

Cut (buck) and remove fallen trees 4-5 feet back from the trail's center line (remove a total of 8-10 feet). Bucking and limbing is considered a routine part of trail maintenance. Tree removal and/or felling should be pre-approved by the land manager.

Leaners are trees that have not fallen but are leaning across the trail. If a leaner is within the trail clearing limits, it should be removed. Beyond that, it is a matter of discretion whether a leaner needs to be cut.

*S*mall hand saws are capable of cutting blowdowns up to six inches in diameter and can make a great start on clearing a trail. If a chainsaw logout crew will follow, there may not be a need to try to cut larger logs. Logs are often easily dragged off the trail if they are neither too heavy nor attached at the base.

Routine Trail Maintenance and Construction USFS resource material

Trail Construction and Maintenance Notebook: 2007 Edition (usda.gov)
Wetland Trail Design and Construction 2007 Edition (usda.gov)

Marking and Signing

For information on blazing and trail signs standards, see Chapters 202 (Trail Signage and Blazing) and 211 (Basic Trail Maintenance).

Trail signs are typically used to inform users they are on the FNST and provide informational, directional, interpretive, and regulatory information. Additional guidance on FNST signage and blazing is contained in the Land Manager Resources for FNST Coalition Members: A Land Managers Guide to: Minimum Trail Standards and Guidelines for the Florida National Scenic Trail, and Addendum: Minimum Standards and Guidelines for the Florida National Scenic Trail.

Trail Facilities

Campsites and Camping Zones. RTMs are to collaborate with Section Leaders and land managers for site selection. RTMs are responsible for obtaining approval and assistance from land managers for campsite development. Campsites should be provided on all sections of the FNST. Campsites should be located a reasonable distance off the trail. Designated sites should be frequent enough to allow reasonable accommodation for hikers of varying abilities. Campsites are recommended to be located six to eight miles apart based on the expected use of the trail and site, but in all cases are to be no more than one hiking day (eight to ten miles) apart. Some landowners may prohibit camping on their land. In selecting and locating a campsite, the following criteria should be considered:

- Select a reasonably level and clear wooded site that is near, but not on, the Trail.
- Avoid placing a campsite near dead or dying trees or areas subject to flooding.
- When possible, locate a campsite near a suitable water supply.
- Campsites should accommodate a minimum of six to eight small tents.
- They should be reasonably close to an area that will accommodate the disposal of human waste.
- A campsite should be in a remote location at least one mile away from highways, public recreation areas, and residences.
- Vehicles should not be permitted, and their access to campsites should be restricted.

Bridges and Boardwalks. Installation or removal of any type of trail infrastructure requires USFS and land manager approval. RTMs are responsible for coordinating with USFS and land managers to obtain approvals, construction materials and assistance with bridge, puncheon and/or boardwalk construction. State and Federal regulations often require assessments and/or permits to construct bridges and boardwalks in wetland areas and over streams. If required, permits must be obtained prior to construction by the managing authority. Before constructing a bridge, puncheon or boardwalk, attempt to find a suitable alternative corridor that eliminates or minimizes the construction, maintenance, and replacement of these costly structures. Appendices 306 thru 310 contain puncheon and boardwalk designs. More complicated structures and bridges often require site specific designs.

Trailheads. *Major* trailheads are generally located near primary highways while *mino*r trailheads are on secondary roads. Major trailheads will normally offer a higher level of infrastructure then minor trailheads. Trailhead infrastructures should at a minimum include a vehicle parking area and an

informational kiosk or bulletin board. Coordinate with RTMs for kiosk design, consistent FNST branding messages and site specific FNST panels. Kiosk information should include at a minimum:

- Local area trail map
- Land manager identification, requirements, and restrictions
- Clear identification of the FNST (or other trail as applicable)

The Trail Crew and Leave No Trace

Trail work has an impact on the land, but is meant to reduce *overall* impact. It's a tool to help manage use. It is successful if it quickly becomes invisible to the average trail user.

There are ways to bring Leave No Trace (LNT) ethics into all the work completed on the trail, including how we conduct work parties, where we choose to camp and take breaks, and how a crew behaves in relation to visitors and wildlife. It is important that we foster a LNT ethic, since our members are models for trail users. How we perform and the end result of our work influences others' behavior.

- Be respectful of other visitors: minimize visual impacts, hide brush whenever possible, store tools and take breaks off the trail, and never leave stobs (a.k.a. stobs, punji sticks) when brushing.
- Travel and take breaks on durable surfaces: keep off-trail disturbance to a minimum.
- Dispose of all waste properly: pack out garbage you find or create, and dispose of (bury) human waste well away from the trail or campsites.
- Everyone should strive to use the best LNT practices for the ecosystem they are visiting.

Closing a Trail

Trail closures and relocations are common. Both require RTMs coordination to obtain USFS approval. When obliterating blazes due to relocation remove ***all*** the old blazes, not just the one where the old trail deviates from the new trail. The old blazes should be lightly scraped and obliterated with a gray or brown paint. The closed trail should be blocked with debris and/or signage to direct users onto the new pathway.

Temporary Corridor Markers

Orange surveyor tape (flagging) should be used as temporary/emergency markers. The tape should be removed when the new trail corridor is blazed or the old corridor re-opened.

205: NOTICE TO HIKERS

Notice to Hikers Procedure

This procedure is for the purpose of publishing and tracking *Notice to Hikers* (NTHs) submissions. Information for *Notice to Hikers* can originate from the Regional Trail Program Managers (RTMs), Chapter Trail Coordinators, Section Leaders, or land managers. Volunteers and land managers submit NTH information directly to the appropriate RTM. All NTH require RTM approval prior to posting on the FTA website.

NTHs are important for providing current trail information to hikers. Special urgency should be given to those NTHs that impact hiker safety.

NTH Process and Content:

1. All NTH submissions and cancellations are to be coordinated with, and approved by the relevant RTM and land manager.
2. NTH information should contain:
   a. Submitters: Name, title, phone number and email address.
   b. Region, temporary or permanent, effective and ending dates, narrative description and map if available.
3. Permanent trail corridor changes should be followed by the submission of GIS data for updating maps.
4. RTMs are responsible for preparation, submission and removal of NTHs.
5. When appropriate, a copy of the NTH should be posted on the trail in a location visible to trail users.

Outdated Notices. Outdated NTHs remaining on the FTA web site often result in trail user confusion. NTHs are to be removed from the FTA website posting when they are no longer relevant. FTA RTMs, Chapter Trail Coordinators, Section Leaders, and land managers should review posted NTHs no less than semi-annually and remove any NTHs that are outdated or no longer relevant.

206: TRAIL MAPS AND DATA BOOK

Florida Trail Maps and *Data Book*

The location and description of the Florida National Scenic Trail (FNST) is documented in the Florida Trail map 1:100,000 series and *The Florida Trail Data Book*. Trail maps are periodically updated by FTA and the USDA Forest Service. Trail corridor and *Data Book* information are compiled by FTA trail staff with input from Regional Trail Program Managers (RTMs), FTA volunteers, and Section Leaders.

FTA publishes and sells both the maps and *The Florida Trail Data Book*. The *Data Book* lists trail data and mileages from south-to-north and north-to-south. **The official Florida Trail maps are copyrighted and are not to be copied for distribution.** FTA sells these maps to offset expenses related to updating the map series and the *Data Book*. For the FTS, the maps and *Data Book* include the Ocean-to Lake Hiking Trail.

FTA Map/Data Points are reference locations along the continuous FNST trail corridor. These data points are reflected on both the maps and in the *Florida Trail Data Book*. They are used in Chapter 104, to designate chapter maintenance responsibilities.

The primary purpose of the FTA trail maps and *Data Book* is to provide trail users with accurate and up-to-date information. This is not possible without an accurate record of the trail's centerline and features. Without current and accurate trail centerline data both the FTA maps and the *Data Book* are flawed. The procedure outlined below provides a format and guideline as to what and how changes to the trail's centerline and features should be recorded and submitted to FTA. Revisions of both the maps and the *Data Book* must be coordinated to ensure they reflect the same information.

Florida Trail Maps and *Data Book* Change Procedure

The procedure shown below is established in order to accurately publish map and *Data Book* updates. Map change requests should originate from Chapter Trail Coordinators and Section Leaders and be submitted directly to RTMs within 30 days of a trail centerline or data change. Trail centerline changes or *Data Book* description changes should be submitted using the Map Changes Procedure. Trail centerline changes may also require the submission of a Notice to Hikers (Chapter 205).

Map Changes Procedure.

1. Requests for changes to maps or *Data Book* text must be submitted and approved by the RTMs. RTMs are to coordinate map changes with Chapter Trail Coordinators and/or Section Leaders.
2. To maintain an accurate database of the trail's centerline, any lateral movements of 50 feet or more should be recorded.
3. GPS track data of the trail's centerline and data points should be submitted to FTA in GPX file format. GPX is the preferred file format intended to transfer point and line information to and from GPS receivers. Most mapping software products are able to read and write files using this format.
4. In addition to the trail's centerline data, submissions should record and identify trailheads, trail kiosks, parking areas, campsites, side trails, water sources, bridges, roads, highways, fence gates, fence crossings, property boundary, trail signage, trail junctions, resupply facilities, and other features or information of interest to users.
5. Regardless of who does the field work necessitating map and *Data Book* changes, it is the responsibility of the RTMs, Chapter Trail Coordinators and the Section Leaders to verify the

correctness of changes.

6. Important reminder: all proposed routing changes, major or minor, must first be submitted to RTMs, who will share and discuss the proposal with the USFS Administrator and land managers. See Chapter 210.

The FTA has a limited number of portable GPS units available for loan to Chapters to record map and Data Book changes. Contact RTMs for details.

Chapter Trail Maps and Brochures

Chapters may publish, at their own expense, trail information and maps specifically targeted to trails in their immediate area. Any such maps or brochures should state who produced the document and the last revision date. It is expected that any maps published will not diminish the need for trail users to purchase official Florida Trail maps and Data Book. Any independently developed maps which show part of the FNST or the Florida Trail System and/or makes mention of the FTA should be accompanied by the official FTA disclaimer:

"The Florida Trail Association, Inc., its officers, directors, staff and members proclaim the information included has not been independently verified by the FTA. The FTA assumes no liability arising from the use of the information herein. Persons using the information do so at their own risk."

207: TOOLS, POWER EQUIPMENT AND MATERIALS

Hand Tools

There are a large variety of hand tools available for use in trail construction and maintenance, ranging from small screwdrivers and bark scrapers to larger tools such as Pulaskis and shovels. Regardless of the size or type of tool, proper use and care of it will ensure a safer and longer life for both the tool and the operator.

Prior to using any tool, inspect its condition. Check that handles are attached securely, and are not prone to slipping. If the tool has an edge, make sure it is properly sharpened. Repair or replace any tool that is not in safe working condition.

When using any tool, be sure the surrounding area is free of other workers and potential hazards. This is often referred to as a person's "dime"—a ten-foot radius of awareness when using any tool. Individuals performing trail maintenance are required to read and sign the General Trail Maintenance JHA / FTA-2018-JHA.pdf [floridatrail.org/general-jha] prior to performing any trail maintenance task.

For a listing of commonly used hand tools, refer to *Handtools for Trail Work.* Missoula, MT: USDA Forest Service, Technology and Development Program, 2005.

Power Tools

Power tools are an efficient way to build and maintain the trail. However, power tools can present hazards to users and bystanders. To help ensure safe operation of power tools:

1. Operators of power tools must wear appropriate Personal Protective Equipment (PPE), training and supervision. Experienced crew leaders in the field must provide a safety briefing before tools are distributed. If possible, team experienced users with new users.
2. Read, understand, and follow the manufacturer's safety and maintenance rules. If necessary make several copies of each owner's manual and bring a copy of the manual to the field.
3. Work in groups. Do not have anyone operating a power tool out of sight of the group.
4. People working with or near power tools must wear proper PPE as specified in the appropriate JHA.
5. Be alert for fatigue. Require rest breaks for both hand and power tool operators. If possible, periodically change operators. Be sure each person has adequate hydration available.
6. Immediately stop and correct unsafe behavior.
7. Keep all tools properly maintained, oiled, and sharpened.
8. Maintain a safe distance from others when power tools are in use. Follow the safe distance guidelines in the operator's manual.

Chainsaw. Chainsaws are effective tools for heavy-duty trail clearing and especially for removing downed trees. During operation adhere to the safe distance requirements and directions provided in the manufacturer's operator manual. The following notes supplement the operator's manual. Safe use of a chainsaw should be of the utmost concern.

Operator Training and certification. Prior to operating a chainsaw, FTA volunteers and staff are required to successfully complete formal classroom and hands-on field training. Chainsaw operators must receive certification based on skill level, and be able to perform specific chainsaw operations. The skill levels include: "A" apprentice sawyer, "B" intermediate sawyer, and "C" advanced sawyer. Operation restrictions include, but are not limited to, felling, bucking, brushing, and limbing. The

restrictions are listed on the Certification Card issued to those who successfully complete the training. The certification period is limited to three years and operators must have concurrent First Aid and CPR certification. The chainsaw work performed by FTA staff and volunteers consists almost exclusively of clearing downed trees—i.e., bucking and limbing. The majority of FTA volunteers are only certified for bucking and limbing and are restricted to those operations. Felling is cutting down trees and few FTA sawyers have received this training. **Only sawyers with felling certification are to undertake cutting down trees.** Sawyers and those working in the work area are required to read and sign the Chainsaw JHA / FNST-FTA-Chainsaw-Operation-JHA-signed-11Oct2023.pdf [floridatrail.org/chainsaw-jha] prior to performing any chainsaw related task.

Chainsaw required PPE consists of the following:

- USFS approved hardhat - six point suspension
- Chainsaw chaps that cover the top of footwear by 2”
- Eye protection - ANSI Z87 requirement
- Appropriate gloves
- Sturdy footwear with rugged soles, ankle support
- Hearing protection
- Chainsaw General Equipment Kit

Brushcutter (a.k.a. Brush Saw). Like chainsaws, brushcutters are effective tools for heavy duty trail clearing when constructing new trails and maintaining existing trails. Operators of brushcutters should first and foremost read and follow the directions provided in the brushcutter operator’s manual prior to operation of the equipment. For safety, anyone not directly assisting the brushcutter operator should be at least 50 feet from the work area. Operators and those working in the general area are required to read and sign the Mower and Brushcutter JHA / FTA-JHAs_Mower-and-Brushcutter_REV-Feb.-2019.pdf [floridatrail.org/mower-brushcutter-jha] prior to performing any brushcutter related task.

The following tools and spare parts of appropriate size and model should be furnished with the brushcutter and carried in the field: a star-bit spark plug wrench, Allen wrenches, screwdrivers, pliers, friction washer, extra gasoline-oil mixture of the specified ratio, and rags.

Hedge Trimmer. A gas powered or heavy duty electric hedge trimmer is more effective than having multiple crew members lopping. With a reach of up to 30” and the ability to lift it over the operator’s shoulders, the tool is capable of eliminating even the thickest patches of vines and limbs up to ½ inch in short order. Operators of hedge trimmers should first and foremost follow the directions provided in the operator’s manual prior to operation. Operators and those working in the general area are required to read and sign the Mower and Brushcutter, Job Hazard Analysis prior to performing trail mowing or related task: FTA-JHAs_Mower-and-Brushcutter_REV-Feb.-2019.pdf [floridatrail.org/mower-brushcutter-jha]

The biggest hazard associated with hedge trimming is user fatigue. Unlike a brush cutter which is designed to hang from a harness, a hedge trimmer relies on repetitive lifting which is very physically demanding. Operators must wear chainsaw chaps. When not in use, the sheath should be placed over the hedge trimmer blade.

The following tools and spare parts of appropriate size and model should be furnished with the hedge trimmer and carried in the field: a star bit spark plug wrench, and extra gasoline-oil mixture of the specified ratio.

Trail Mowers. The trail mower is a valuable labor-saving tool for both trail construction and trail maintenance. These mowers rank high on the list of hazardous equipment. Operators of trail mowers should first and foremost follow the directions provided in the operator's manual prior to operation. Operators and those working in the general area are required to read and sign the Mower and Brushcutter JHA / FTA-JHAs_Mower-and-Brushcutter_REV-Feb.-2019.pdf [floridatrail.org/mower-brushcutter-jha] prior to performing trail mowing or related tasks.

There are several hazards: the blade, the rotating belts, chains, pulleys, and objects flying from under the mower deck. All personnel should wear USDA-FS approved PPE including hardhats, work gloves, safety glasses, hearing protection, and long pants. Long sleeve shirts are highly recommended. Whenever a mower requires lifting over roots, logs, fences, water, etc. the motor must be turned off. If it becomes necessary to clear the blade, first remove the wire from the spark plug.

Prior to any use the operator must check the oil level

After each 25 hours of operation, it is recommended that the following maintenance be performed:

1. Clean debris and dust accumulations with a hose or blower. Be sure the area around the oil filler is clean.
2. Remove and clean or replace the air filter.
3. Drain oil and replace with the recommended oil specified in the operator's manual.
4. Sharpen blade and balance. Replace bent or cracked blades.
5. Grease all lubrication points.
6. Clean debris wound around axles and top/bottom of blade shaft.
7. Clean cooling fins by blowing out debris; use a narrow wire as a pick if needed.
8. Inspect the entire mower for cracked welds, bent or broken parts, loose wheel bearings, worn belt, etc.
9. Check tire pressure.
10. Spray carburetor linkage and flexible throttle cable with lubricant (WD-40).

Maintenance, Storage and Inventory of Trail Tools and Equipment

Each Chapter is responsible for the maintenance, inventory, and secure storage of all tools and equipment assigned to their Section Leaders and/or Chapter.

Section Leaders are responsible for maintaining an inventory of the trail tools and equipment assigned to them, including where they are stored. The Chapter Trail Coordinator is responsible for annually inventorying all tools and equipment assigned to the Chapter and its Section Leaders. Equipment inventories are to be completed and submitted annually to the appropriate Regional Trail Program Manager (RTM). Updated equipment inventories are also to be included with all equipment and tool requests submitted by Chapter Trail Coordinators or Section Leaders. The inventory spreadsheet can be obtained from the RTMs.

Acquisition and Disposition of Tools, Power Equipment and Materials

Requests for acquisition and/or disposal of tools and power equipment are to be submitted directly to the appropriate RTM (also see Chapter 209).

208: TAILGATE SAFETY SESSION/VOLUNTEER PROFILE

Tailgate Safety Sessions

Safety is the number one priority for those working on the Florida National Scenic Trail (FNST). FTA has a culture of safety that encompasses all trail maintenance and construction activities. On all trail work related activities at least one volunteer should have First Aid and CPR certification. The Florida Trail Association has adopted safety requirements based on the USFS Health and Safety Code Handbook .

Workers should always be conscious of the dangers of sharp tools, rough vegetation and terrain, excess heat, cold, fatigue, insects, and poisonous snakes. All tools, including chainsaws, brushcutters, hedge trimmers, and mowers can be hazardous if not used properly. Be sure there is sufficient room between workers using these tools. The safety equipment required for all trail maintenance and construction activities and tools are: USFS approved hard hat, work gloves, safety glasses, non-skid boots, and hearing protection (when working with power tools). In some cases, long trousers, and sturdy leather boots may be required. Workers should avoid overexertion and be sure to drink plenty of water.

A Tailgate Safety Session is conducted prior to the start of any trail construction or maintenance activity. The session should include details of the activity, any potential hazards, and all required safety equipment. Operators of power and hand tools must have appropriate Personal Protective Equipment (PPE), training and supervision. Trail crew leaders in the field must provide a safety briefing before tools are distributed for use. When possible, team up experienced users with new users. The session can also be used to ensure that all volunteers have enough water, are equipped with the proper clothing and footwear, and have signed all necessary documents. Those with specialized training (first aid, CPR, chainsaw certification, etc.) should be identified.

Trail crew leaders are responsible for the safety of volunteers. As an aid to the crew leader, the Project Paperwork Summary (see below) details the safety related tasks required at the Tailgate Safety Session. All of these forms can be found on the FTA website: Crew Leader Packet Forms [floridatrail.org/crew-leader-full-packet].

Volunteers are required to wear appropriate PPE while working on the FNST and FTS. The Job Hazard Analysis Forms detailing PPE requirements are referenced in Chapter 207 and downloadable from the FTA website.

Volunteer Profile

The Volunteer Profile is used in recording trail work. Maintenance along the 1500 miles of the FNST is a massive task performed by 19 FTA Chapters spread from Naples to Pensacola. To coordinate and record work performed, a centralized online system is in place to track task, location, and individual volunteer hours and mileage. This information is initially recorded and input at the Chapter level. To assign hours worked to an individual, an FTA Volunteer Profile is required. A profile can be created via the FTA Volunteer Hours Entry System [floridatrail.org/portal]. Membership in FTA is encouraged, but there is no requirement that a volunteer working on the FNST be a FTA member. Encourage volunteers to create an online Volunteer Profile before the work party.

Florida Trail Association

Project Paperwork Summary

Below is a list of forms required to be completed for FTA trail work projects. Crew Leaders are responsible for making sure the paperwork has been completed and the work is recorded in the volunteer hour entry system or is sent to the appropriate chapter official once the project ends. If you have any questions please contact the Community Outreach Manager in Gainesville.

Form Name	Purpose	Procedure
Volunteer Profile	Tracks individual volunteer hours and certifications	Crew Leader: Make sure all volunteers fill out a profile online before your project **OR** have them fill one out on site. If filled out onsite, you will need to fill out a profile for them online or send the hard copy to FTA.
Trailhead Communications Plan (TCP)	Provides important logistical information in the event of an emergency.	Crew Leader: Make two copies of this sheet, one for the Communications Lead and one for the Situation Manager. Update and re-use for future projects at the same location.
Volunteer Sign-In Sheet/ Assumption of Risk	Releases FTA of liability.	Crew Leader: Make sure each volunteer signs in at the trailhead. Mail to FTA.
Emergency Action Plan (EAP)	Delegates leadership roles in the event of an emergency	Crew Leader: Assign First Aid Lead, Communications Lead, and Situation Manger. Recycle once the project is completed.
Tailgate Safety Session (TSS)	Provides a checklist of important topics to cover with your crew	Crew Leader: Use the checklist to cover all pertinent project information for your crew. Recycle once the project is completed.
Job Hazard Analysis (JHA)	Ensures volunteers receive the information on tasks to be performed, possible hazards related to tasks, and abatement actions. Will include one or more of the following: - Trail Maintenance - Mower and Brushcutter - Chain Saw Use - Crosscut Saw Use - Rigging - Canycom	Crew Leader: Make sure each participant has signed the appropriate JHA. Mail to FTA once the project is completed.
Project Report Form	Provides FTA with volunteer hours and project accomplishments.	Crew Leader: Fill out the hard copy and enter into Volunteer Hours Reporting System data-base **OR** send to designated chapter admin. to report **OR** mail form to FTA Volunteer Program Coordinator in Tallahassee ASAP (can be submitted as an electronic Excel or PDF file via email).

209: ACQUISITION OF TRAIL TOOLS, MATERIAL AND SERVICES / DISPOSITION OF TOOLS

Acquisition of Hand Tools, Power Equipment, Material and Services

Florida Trail Association (FTA) Chapters and Regional Trail Program Managers (RTMs) are responsible for determining the type of tools and equipment necessary to maintain their assigned trail sections and for maintaining and replacing those tools. Volunteer-donated and FTA chapter-purchased tools, power equipment, material, and other items are welcome and encouraged. Such items are to be inventoried.

The following table outlines which level of the FTA has the primary responsibility for funding tools, equipment, and services for FNST-related expenditures **only**.

Trail tools, equipment, servicing, and or purchase responsibility:	**FTA**	**Chapter**	**Volunteer**
Safety equipment: Hardhat, gloves, safety glasses, ear protection, orange vests	YES	NO	NO
Power tools and equipment: Brushcutter, chainsaw, mower, generator, drill, etc.	YES	NO	NO
Hand tools: Lopper, rake, ax, saw, paint brush, scraper, etc.	YES	NO	NO
Supplies and materials: Gasoline and lubricants for power equipment, blaze paint, food and related items for FTA- sponsored FNST work parties	YES	NO	NO
Personal expenses: Volunteer-incurred tolls, meals, mileage, parking fees, etc.	NO	YES*	YES*

* Chapters are encouraged to reimburse volunteer expenses.

Acquisition and Reimbursement Requirements for FNST Related Expenditures

Funding for items listed in the table above is subject to budget limitations. FTA does not guarantee, nor is FTA obligated to reimburse, expenditures where written pre-approval was not obtained. FTA pre-approval is required if: (1) the cost of any one item or grouping of items exceeds $200 for a 30-day period and/or (2) the anticipated expenditure is for power tools, hand tools, and/or volunteer training.

Reimbursement Submission Requirements and Procedure

1. For qualifying expenditures, chapter designees (i.e., Trail Coordinators, Section Leaders, Trail Crew Leaders) pay the vendor or service provider from personal or Chapter funds and then submit a request for reimbursement to FTA.
2. Chapters are to submit completed reimbursement forms to their RTMs once per month.
3. Each expenditure must be directly associated with FNST trail work that has been reported in the online Volunteer Hours Reporting System database.
4. Reimbursement requests must be submitted to RTMs within 60 calendar days of vendor payment.
5. Reimbursement requests are to be submitted using FTA Chapter Reimbursement Form (form available from RTMs), with expenditures listed in chronological order. Scanned or photographed copies of all receipts must be included. Email submissions are preferred.
6. Reimbursement payments/checks will be issued in Chapter names *only* and forwarded to FTA Chapter Treasurers. Chapters are responsible for reimbursing volunteers for expenditures made with personal funds.

Reimbursement for Volunteer Training

All volunteer training where reimbursement is anticipated requires written pre-approval from the relevant RTM.

Annual Request for FTA Assistance in Purchasing and Servicing Power Equipment

FTA funding is limited by the annual Challenge Cost Share Agreement Program of Work (CCSA Program of Work) budget allocations. Due to this, it is not always possible to accommodate requests. To prioritize equipment purchasing and/or servicing expenditures, the following factors will be considered:

- CCSA Program of Work funding
- Availability of FTA Chapter funding
- Availability of FNST partner funding
- Current equipment availability and chapter trail maintenance responsibilities

Requests for FTA assistance in purchasing and/or servicing power equipment should be discussed with and submitted to the appropriate RTM.

Funding Sources for Florida Trail System Expenditures

- Land Management Unit
- FTA Chapter treasury
- Donations from FTA members
- Chapter fundraising
- Grants and other donations
- FTA – Budgeted for FTS

Disposal of Excess and Unserviceable Tools and Equipment

The disposal of excess and unserviceable tools and equipment depends upon in which of those two categories they fall and/or whether they have a serial number.

Serviceable tools and equipment that are no longer needed. The Section Leader or Chapter Trail Coordinator should notify the RTM so that the tools and equipment can be redistributed.

Hand tools that are no longer serviceable or economically serviceable. These may be disposed of via landfill or other methods at the discretion of the Chapter. *Under no circumstances are these tools to be sold.*

Equipment, with serial numbers, that is no longer serviceable or economically serviceable. Equipment disposal of CCSA purchased equipment requires notification to the USFS. Trail Coordinators and Section Leaders are to notify the relevant RTM that equipment is no longer serviceable. RTM's are to prepare a Request for Cannibalization, Modification and Deregistration of Forest Service Owned Property; USDA Forest Service; FS-3100-09. RTM's will forward the form to the FNST Administrator. Cannibalized equipment can be retained until retention is no longer viable.

After final disposal of hand tools and/or equipment they are to be removed from the Chapter's equipment inventory.

210: TRAIL RELOCATIONS

USDA Forest Service (USDA-FS) has primary administrative and management responsibility for the Florida National Scenic Trail (FNST). USDA-FS responsibilities include FNST certification agreements with land management units, oversight of FNST relocations and maintaining an accurate record of the FNST's location.

An *FNST relocation or reroute* is broadly defined as any movement or change in the location of the trail corridor. Relocations are further categorized as major and minor.

Major FNST Relocation: A trail corridor relocation of a trail segment that is one-quarter mile or more in length and/or one-quarter mile or more in lateral movement from its existing location.

Minor FNST Relocation: A trail corridor relocation of a trail segment that is less than one-quarter mile in length and less than one-quarter mile in lateral movement from its existing location.

Relocations of the Florida National Scenic Trail

The Florida Trail Association (FTA) Trail Program Director (TPD) and Regional Trail Program Managers (RTMs) have primary responsibility for coordinating, developing, and submitting *major* and *minor* relocation proposals and notifications to the FNST Administrator. Proposals that originate at the Chapter level should first be shared with the Chapter Trail Coordinator, who will then forward the request to the appropriate RTM.

Components of a FNST Relocation

The procedure for submitting a proposed trail relocation is the same for both major and minor relocations. In both cases Trail Coordinators should submit the proposed change to their RTM *before any field work begins*. The RTMs and TPD are then responsible for submitting proposals to USFS and coordinating with the relevant stakeholders, including the local land manager, volunteer leaders, and the Trail Development and Planning Committee.

In most cases, minor relocations are quickly reviewed and decisions are shared with volunteer leaders by the RTMs so that implementation can begin. RTMs will also coordinate with volunteers on developing a Notice to Hiker (*see Chapter 205*), obtaining new GPS tracks and Data Book information (*see Chapter 206*), and submitting map updates for FTA's paper maps.

Proposed major relocations may require a more formal written proposal and well as an in-depth review process and consideration of alternatives. This may include conducting an Optimal Location Review (OLR). Again, RTMs will draft these proposals, coordinate with volunteer leaders throughout the process, and inform them when and if implementation may proceed.

With the concurrence of the FNST Administrator, both major and minor FNST relocations intended for future FNST certification may be constructed prior to formal FNST certification.

Optimal Location Review (OLR)

The primary objective of an OLR is to identify the best location for the FNST. Relocations may require an OLR. Implementation of an OLR is at the discretion and responsibility of the FNST Administrator and the impacted land management unit(s). FTA participation in the conduct of an OLR will be

coordinated by Trail Program Director (TPD) and RTMs. Link to OLR: [http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3826770.pdf].

FNST Planning Corridor, Certification Requirements, and Routing Standards

The Planning Corridor, Certification Requirements, and Routing Standards for the FNST are broadly defined in the Florida National Scenic Trail Comprehensive Plan (1986) [floridatrail.org/fnst-comprehensive-plan]. The USDA-FS has the flexibility to move the FNST to any location within the twenty-mile planning corridor. The USFS strives to secure a ½ mile wide protected trail corridor for the FNST.

Certifying Florida National Scenic Trail Segments

FNST certification agreements are formal contracts between the USDA-FS, public land management units and/or private landowners. The FTA TPD, RTM's and volunteers are not normally involved in negotiating FNST certification agreements.

FNST Projected Length, Certified and Uncertified Segments and Gaps

When completed, the *projected length* of the FNST will be approximately 1,500 miles. This includes the entire FNST together with a variety of trails connected to the FNST trail corridor. Within the FNST projected length there are three categories of trail: certified FNST, non-certified portion of the current route (including gaps and roadwalks), and various spur and connecting trails.

Adding Florida Trail System Segments

FTA volunteers help maintain non-FNST recreational trails in Florida. Periodically, requests for the construction of new trails are received from outside organizations and government entities. Trails generally require many hours to maintain, and poorly maintained trail segments reflect badly on FTA. It is imperative that each chapter carefully evaluate its overall construction and maintenance capabilities before embarking on new trail obligations.

When a chapter submits a trail for inclusion in the Florida Trail System (FTS) they acknowledge and accept future obligations for that trail. In addition to volunteer trail maintenance, these obligations often include financial and volunteer support for trail maps, map revisions, and signage.

With the foregoing in mind, each chapter shall adhere to the following procedure when undertaking the development of new recreational trails:

1. Chapter receives formal request for development of a trail. Each proposal shall include:
   a. Type of trail (hiking, shared-use, nature, etc.)
   b. Location
   c. Approximate length
   d. Landowner or land manager written approval or request and notice of consent to build
   e. Name and contact Information for the requesting entity
   f. Any assistance to be provided (equipment, materials, etc.) by land manager
   g. Description of terrain and reasonable evidence that the terrain will allow for a viable trail
   h. Identification of the approximate trail corridor

2. Chapter Trail Coordinator reviews request in terms of:

a. The chapter's interest in developing and maintaining the trail

b. The chapter's ability to undertake the project in light of its current trail building resources and its ongoing/primary maintenance responsibilities for the FNST

c. Any other factors deemed relevant or material

3. For trails to be part of the FTS, the Chapter may consider the proposal and recommend approval or denial. *Chapters may help build trails that are not part of the FTS as a community service.*

4. For trails to be part of the FTS, the Chapter's recommendation and proposal are submitted by the Trail Coordinator to the Trails Development and Planning Committee for review and approval. The Trails Development and Planning Committee may, at their discretion, request additional information and/or clarification of the proposal.

5. At the Committee's discretion they may accept or reject the request based on an evaluation of the submitting Chapter's ability to undertake the project and/or long term commitment.

6. If the request is approved, the Committee Chair will present the request for final approval by the Board of Directors at a regularly scheduled board meeting.

October 2024

211: BASIC TRAIL MAINTENANCE

For The Florida Trail

A "How To" Guide

For New Trail Maintainers

Fourth Edition

Introduction

Volunteers of The Florida Trail Association (FTA) are responsible for building and maintaining the 1500-mile Florida Trail a.k.a. Florida National Scenic Trail (FNST). For the purpose of trail maintenance, the FNST is divided into Sections which average about 25 miles in length. Each Section is overseen by a volunteer Section Leader.

Most trail construction and maintenance work days are scheduled at the chapter level and can be found on individual chapter websites and Meetup sites. Major trail work parties and multi-day activities are listed on the FTA Website [floridatrail.org/portal].

FTA and local Chapters generally provide the hand tools and motorized equipment required for trail maintenance. Volunteers are issued safety equipment and are required to use it during trail maintenance and construction activities. Heavy-duty mowers, loppers, pruning saws, paint brushes, and Pulaskis are our basic trail maintenance tools.

This document is part of the FTA Trail Manual but can also be used alone as a "how to" guide for beginning maintainers. Except where noted, the trail maintenance standards and specifications contained in this document equally apply to all trails maintained by FTA Chapters.

Volunteer Profile/Recording Trail Work

Maintenance along the 1500-miles of the FNST is a massive task performed by 19 FTA Chapters spread from Naples to Pensacola. To coordinate and record work performed a centralized online system is in place to track task, location, individual volunteer hours and mileage. Input of this information is initially recorded and input at the Chapter level. To assign hours worked, and miles driven, to an individual volunteer an FTA Volunteer Profile or User Registration | Florida Trail Association (galaxydigital.com) is required. A profile can be created on the FTA website at [floridatrail.org/portal]. A hardcopy may also be available from the FTA trail crew leader. Membership in FTA is encouraged, but there is no requirement that a volunteer working on the FNST be an FTA member.

Safety

There are inherent hazards in most activities and trail work is no different. Overhead limbs and debris on the treadway are present. Most workers get into difficulty from things they know but failed to plan for. Not having enough water and not anticipating the weather conditions are the most common mistakes. Snakes and animals need to be considered but they rarely present any real danger. The best advice is to be aware of your surroundings. Let the FTA trail crew leader or First Aid Lead know of any allergies and health issues. What to wear/bring: backpack, long sleeved shirts, long pants, sturdy boots, raingear, insect repellant, personal first aid kit, sunscreen and plenty of water. During hunting seasons, wear an orange safety vest.

All trail maintenance work is preceded by a Tailgate Safety Session. These sessions address overall and location-specific safety issues. All volunteers will sign an FTA Assumption of Risk form and appropriate Job Hazard Analysis Forms. For all trail work activities, volunteers are required to wear some form of Personal Protective Equipment (PPE). This is generally a hard hat, eye protection, and gloves. Make sure the hard hat and gloves fit. For power tools, some form of hearing protection is required. For chainsaw and crosscut saw use, there is specific safety equipment.

Blazing

Painted blazes are reassurance markers and the objective is to provide a blaze often enough to guide the trail user and keep the trail distinguishable. Maintainers should avoid over-blazing, but consideration should be given to the typical trail user for each specific piece of trail.

Blazing methods and specifications can be taught but techniques and skills are learned by working with experienced trail maintainers/blazers. New volunteers can assist in blazing but should never be assigned as blazers until properly trained. FTA trail maintainers are responsible for ensuring that the FNST is adequately marked, is easy to follow, and all signage is accurate and in good condition. No trail maintenance task is more important than blazing and the lack of proper blazing consistently causes more complaints and “lost” hikers than any other consideration. It doesn’t matter how beautiful your trail is or how well you have cleared it, if hikers can’t follow it.

Maintainers are tasked with keeping blazes in good condition and painting new blazes as required. Blazes consist of neatly painted rectangles and should meet the general standards as outlined below to maintain consistency. The blaze paint used on the FNST is approved by (and provided by) FTA.

General Standards for blazing:

- Blazes are 2" X 6" painted vertical rectangles.
- Place blazes at adult eye-level on live trees—5.5 feet to 6 feet above ground level.
- Where blazes of different colors are used on the same treadway (two trails running jointly), the two blazes should be placed one above the other.
- A double blaze of the same color means “Heads Up!” and generally indicates an upcoming abrupt turn. Double offset blazes are used to indicate an upcoming turn. The top blaze is offset in the direction of the turn. Gradual turns do not need double blazes, just place the blazes a little closer together.
- Double blazes should be placed BEFORE a turn, not AT or AFTER a turn.
- A single blaze should be visible immediately after a turn.
- A blaze should be visible across an intersection with another trail, a stream, an easement, or a road.
- No other form of paint marking (painted arrows, etc.) is approved. If users require more information than can be conveyed by a single or double blaze, then a sign should be used.
- When no trees are available, install wooden posts. Pressure treated 4x4s are the preferred blaze posts.
- Once an area re-vegetates (after a fire, timber harvest, etc.), blaze posts should be removed and reused elsewhere.
- The FNST is blazed with FTA orange paint.
- Spur or side trails (to campsites, trailheads, water sources, etc.) are blazed with FTA blue paint.
- When intersecting trails occur, and other colors are needed, consult the Section Leader.

Techniques for blazing:

- From one blaze (or within the next few paces) you should be able to see the next blaze.
- Find where 5.5 feet is on your body (chin, nose, hairline, etc.) and use that point as the bottom of the blaze.
- A hand or other object can be used to gauge and ensure consistent blaze size (2” x 6”).
- When standing at one blaze, sight down the trail and pick the most prominent tree up ahead at the end of your sight-line. Walk to it and blaze it. If no suitable tree exists, install a post.
- Blazing should be done when leaves are on the trees.
- Select blaze trees which are 6” or more in diameter and prominent when foliage is on.
- Blaze trees on the outside of turns.
- Avoid blazing stumps or dead trees. They may not be there next year!
- Never blaze trail structures (shelters, picnic tables, land manager kiosks, etc.).
- Paint neatly; avoid using too much paint (it will run down the tree).
- Remove vegetation or protruding branches to clear the blaze area. Remove branches on small trees that are obstructing blaze visibility.
- Avoid scraping tree bark too deep (down to the cambium layer).
- Scrape a 3" X 7" rectangle on thick-barked trees.
- Rub moss and lichen off a 3" X 7" rectangle on thin-barked trees.
- Re-blaze every two to three years to keep blazes visible and to replace missing or enlarged blazes. Carefully remove excess blazing and trim down blazes which have “grown.”
- Blaze in only one direction at a time. A prominent tree in one direction may look very different from the opposite direction.
- Try to space blazes at fairly constant intervals.
- All road walks should be blazed. Space blazes closer together as you join or leave a road. After that, a reassurance blaze every few hundred feet should be enough (every other electrical pole).

- When blazing roads, try to blaze the side of the road which is safest for pedestrians, i.e., the side with the widest shoulder, least traffic, or fewest obstructions.
- Try to avoid painting blazes on both sides of the same tree.

Tools for blazing:

- Draw knife for thick-barked trees (carbide is sharper and stays sharp longer)
- Paint scraper/rough kitchen scrub pad for thin-barked trees
- 1.5-inch paint brush
- Rag or paper towels
- Aluminum foil, plastic wrap, or plastic zip bag to hold wet brushes until cleaned
- Container for holding small amounts of paint
- Brush cleaner and hand cleaner for afterwards
- A small bucket, caddy, or gallon milk jug to carry tools

Note: Additional information on blazing and signage can be found in Chapter 202: Trail Signage and Blazing.

Vegetation Control:

Clearing vegetation is the most time-consuming task for a trail maintainer. Maintainers will usually spend most of their time using mowers to cut high grass and weeds, and loppers to trim branches, palmettos, and woody vegetation that have grown into the trail corridor.

Clearing Limits Standards for the trail corridor are shown below. Maintainers are to be aggressive in applying the clearing limits. At times small trees and brush will have to be removed or cut to ground level to achieve and maintain the clearing limits. Wherever possible the trail shoulder clearance should be maintained with mowers and brushcutters. On a 2-3 year cycle, maintainers are encouraged to cut beyond the clearing limits in dense growth.

Overgrowth of problem vegetation (briars, poison ivy, stinging nettles, and high weeds) is directly related to tread degradation and erosion problems, since hikers will avoid these areas and create an easier path. This results in “braided” tread. Control of vegetation is essential in order to avoid the labor intensive work of repairing an eroded trail and restoring multiple social trails.

Heavy-duty mowers and brushcutters are the primary tools for cutting high grass, vines and weeds on all non-wilderness sections of the FNST. Maintainers will want to clear aggressively, especially if limited to a single trail clearing visit per season. Plants will be harder to control if left to thrive over one or more growth cycles.

Clearing Limits Standards (Class 3 non-wilderness):

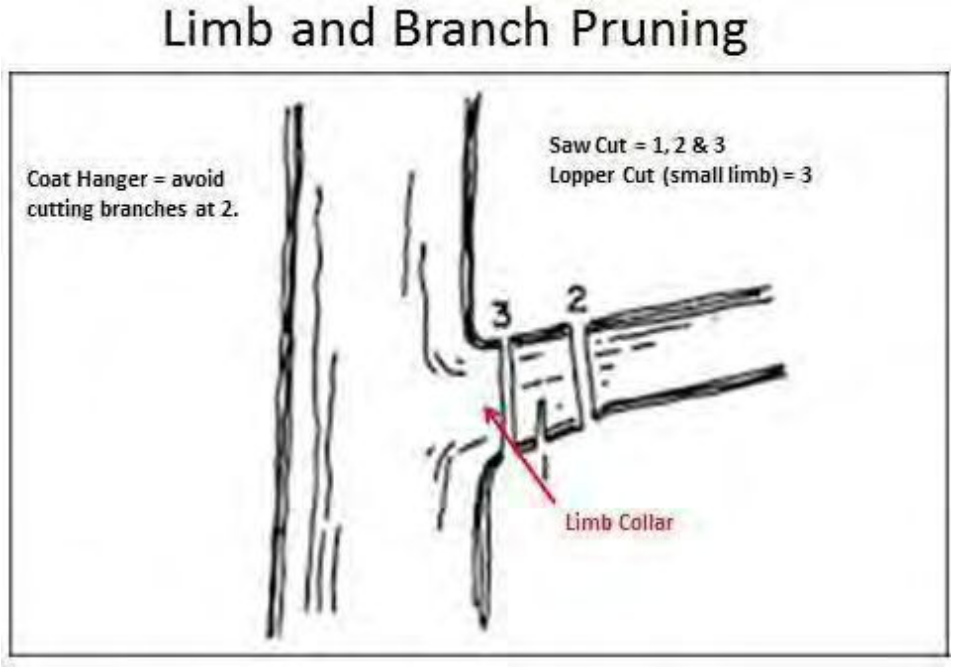
- **Tread width** should be maintained at 18” to 36”. Remove tripping hazards in tread by grubbing.
- **Total horizontal clearance** width should be 36” to 60”. Shrubs and trees should be removed or cut flush with the ground to provide sufficient ground clearance for mowers.
- **Vertical clearance** should be maintained at 8 feet.

|____SHOULDER ____|_____TREAD 18”-36” _____|____SHOULDER ____|
TOTAL 36”-60”

Note: Additional details on Clearing Limits are in Chapter 201: Trail Standards of Design, Clearing and Maintenance.

Clearing Methods and Techniques (0% to 3% grade or slope):

- Areas in front of blazes should be kept open to allow maximum visibility of blazes.
- Areas at road crossings with little or no shoulder should be cleared to provide hikers and motorists with unobstructed views.
- Low shrubs and young trees (on the trail shoulder) should be cut flush with the ground to prevent tripping and to reduce sprouting from the stump and roots. Limit grubbing or removal of trailside plants (on the trail shoulder); these plants and root systems help stabilize the soil.
- Cut branches and limbs at the collar to prevent ”coat hanger” effect and tree injury.



- Branches growing towards the trail should be cut back to the next limb growing away from the trail (to encourage growth away from the trail).
- It is better to remove all lateral branches than to remove the tree top since removal of the terminal bud will encourage lateral growth across the trail.
- Grubbing with a mattock or Pulaski may be necessary to clear the trail tread; remove roots and vegetation necessary to eliminate tripping hazards.
- Disburse plant cuttings 10-20 feet away from the trail with the cut ends not visible.

Note: Hillsides and areas with a grade or slope exceeding 5% may require erosion control techniques.

Note: High usage areas may require a higher level of clearing. These should be scouted often and findings reported to the Section Leader.

Equipment:

- Loppers
- Brush mowers
- Hand weeders (swing blades)
- Bow, pruning, and folding saws

- Pulaskis and mattocks (for grubbing out vegetation in the trail tread)
- Power weeders and brushcutters

Removal of Fallen Trees and Obstacles

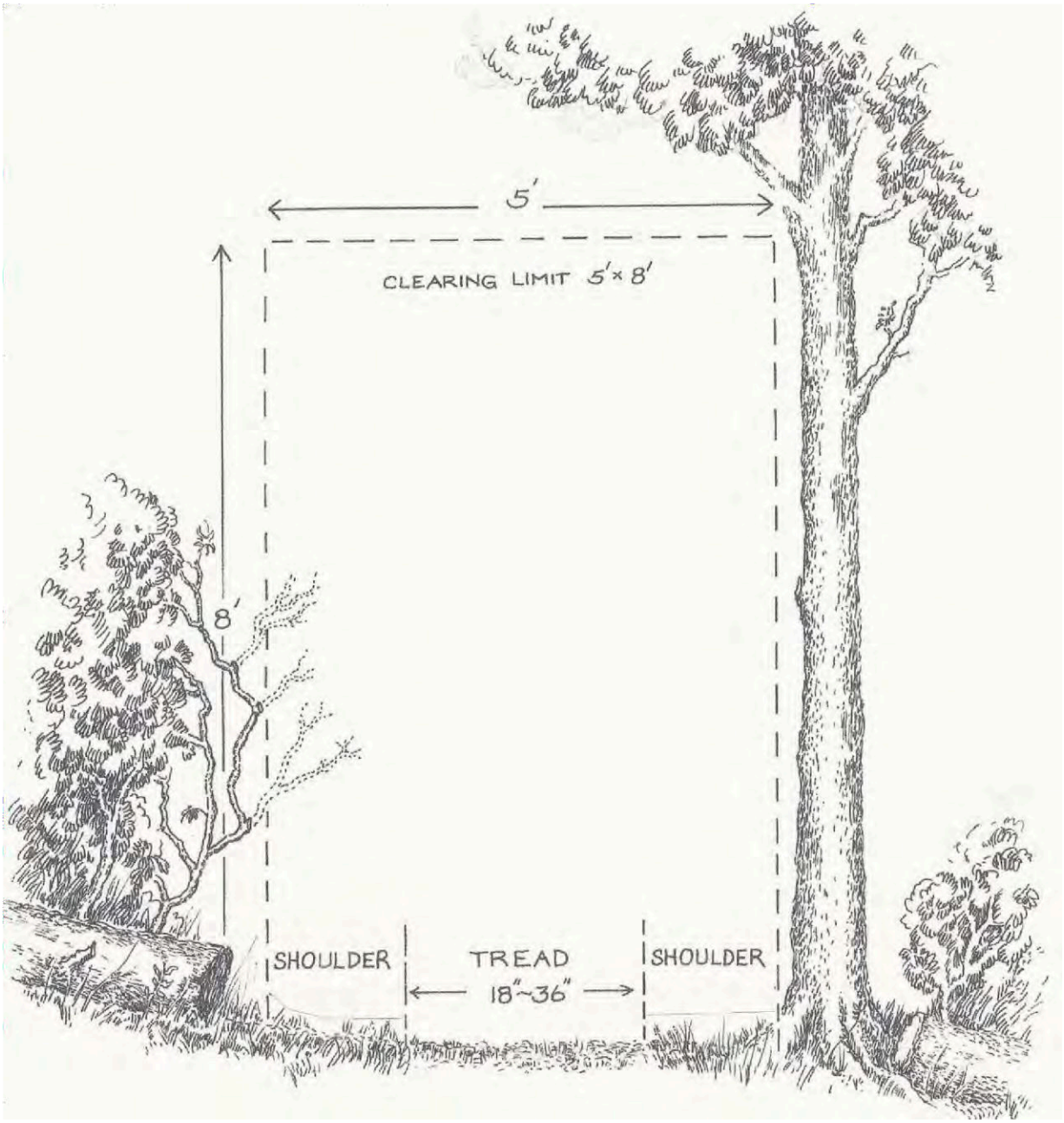
Trail maintainers are expected to remove any obstacle that can be tackled safely. Obstacles (fallen trees, etc.) causing hikers to leave the tread are a high priority for removal, while easy step-overs (or walk-unders) may be left in place. Maintainers should carry a folding pruning saw on routine maintenance trips to handle small blowdowns. The trail should be scouted after major weather events. These events often drop trees and limbs in the trail corridor.

Maintainers are not to attempt removing trees that are still standing, blowdowns under tension (trees that are wedged in other trees), very large obstacles, widow-makers, and other obstacles that might pose a safety risk. These should be reported as soon as possible to the Section Leader. Chainsaws may only be used by certified sawyers. FTA offers chainsaw classes each year. Training opportunities are available to active trail maintainers.

Guidelines:

- Safety is the primary consideration. Do not attempt to remove large or "hung-up" trees alone. Do not exceed the capability of your equipment, your skills or your current physical abilities.
- Clear logs to 4-5 feet on both sides of the trail center line (8-10 feet).
- Trees not removed should lie flat on the ground and not impede the passage of a mower.
- All obstructions should be removed as soon as possible to prevent danger to users and discourage users from creating their own trails.
- If removal of an obstacle exceeds the capability of the trail crew, notify the trail crew leader and the Section Leader.

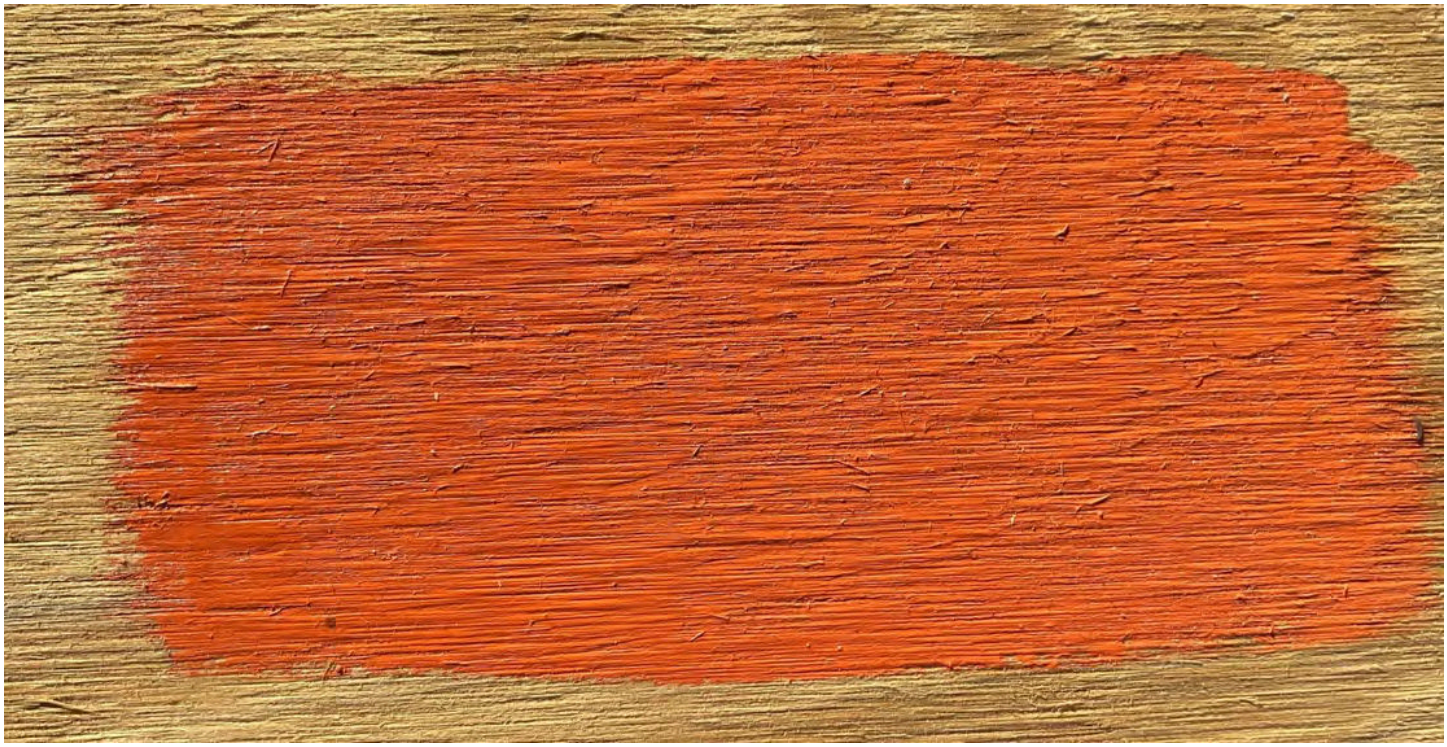
Florida Trail Clearing Limits Class 3 (non-wilderness) Parameters



Acknowledgements:
The original document was edited by Deb Blick in 2008.
2023 contributors/revisers: FTA -Trails Development and Planning Committee.

301: Orange Blaze Paint Recommendations

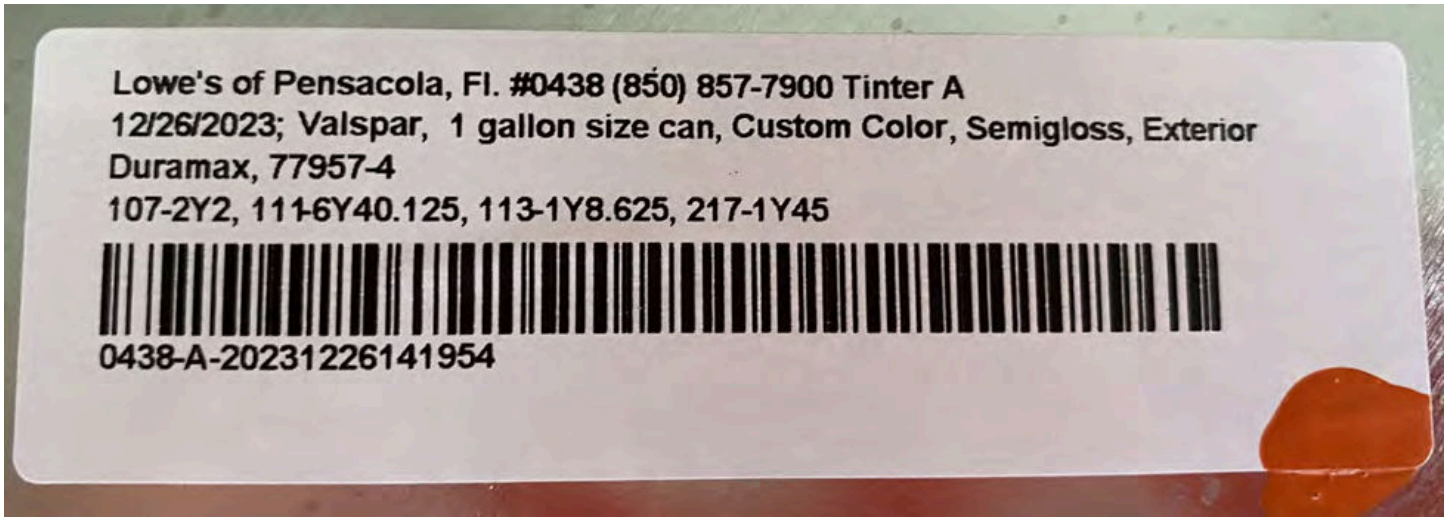
Coronado Rust Scat 80-139, OSHA Orange
With colorants: R-Y; T-Y; M-40; F-8; B-1 Discontinued / Displayed for color matching only.



Sherwin Williams – Latitude

DURAMAX – Lowe's

Base 4



BEHR / The Home Depot

302: Blue Blaze Paint Recommendations

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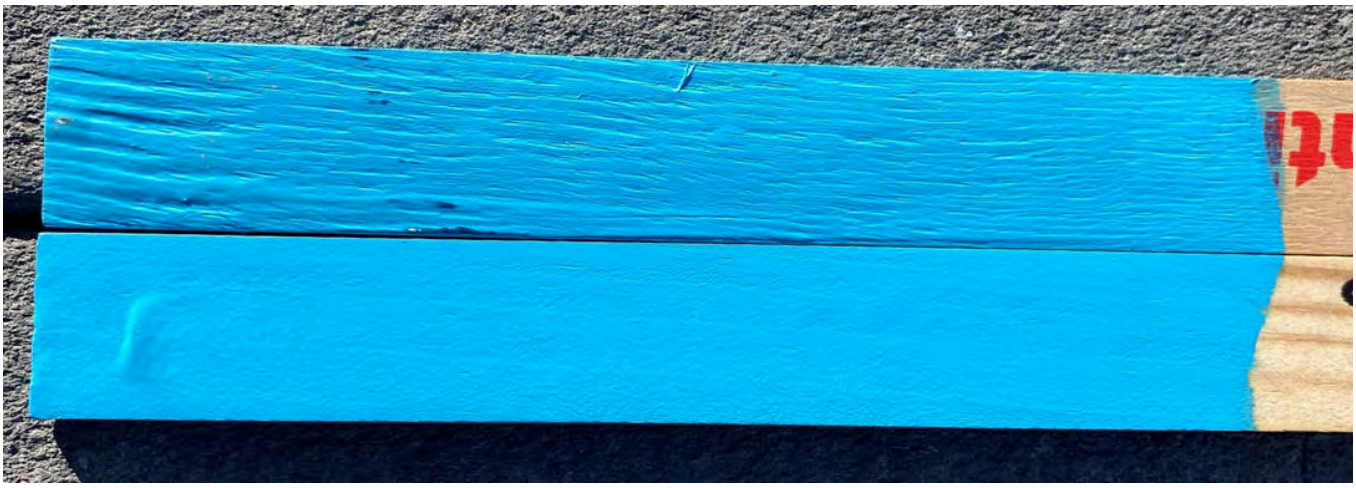

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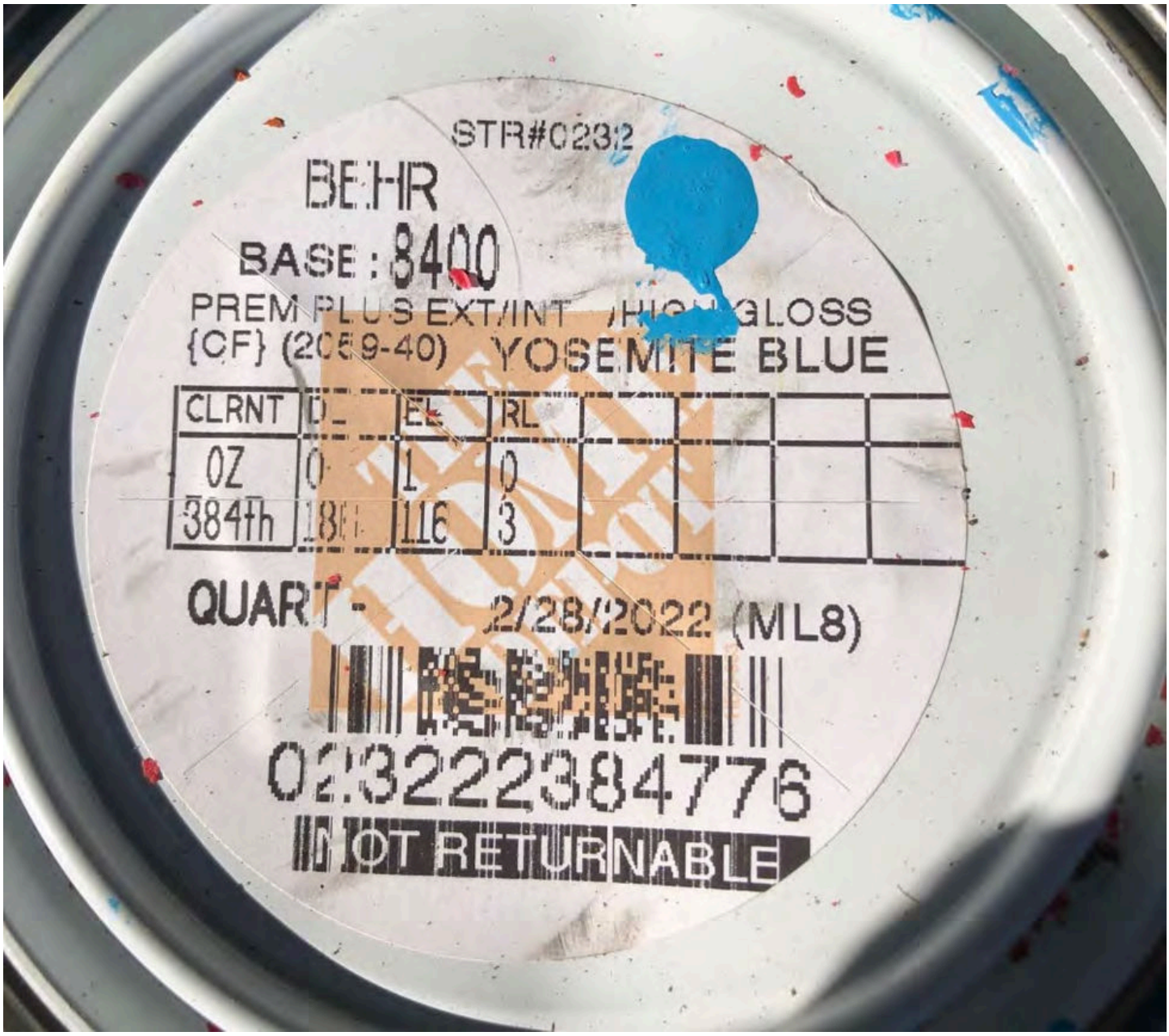
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303: Yellow Blaze Paint Recommendations

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304: Charter for the Trails Development and Planning Committee (FTA-BOD)

PURPOSE

The Trails Development and Planning Committee ("Committee") of the Florida Trail Association Inc. ("FTA") conducts and coordinates the FTA Board of Directors' trails oversight responsibilities. The Committee shall monitor for the planning, development, collaboration, and evaluation of FTA's policies and programs for the Florida National Scenic Trail (FNST) and Florida Trails System (FTS).

MEMBERSHIP

The Chair of the FTA Board of Directors shall appoint a Trails Development and Planning Committee consisting of no fewer than three (3) members, inclusive of the Committee Chair plus at least two other Directors. The Board Chair, Executive Director and the FTA Trail Program Director shall serve as ex-officio, non-voting members of the Committee. The Committee may include other non-Director FTA members, approved by the full Board, whose experience in trail leadership, trail maintenance and other relevant skills may assist the Committee and the Board in the performance of their oversight responsibilities. A majority of the Committee members, present and voting, shall constitute a quorum. However, at all times a majority of the Committee, and a majority of a quorum, shall consist of Board members.

The Committee reports to the Board.

The Committee shall meet no fewer than six times per year, at the call of the Committee Chair, Board Chair, or the Executive Director. The Committee shall maintain minutes/notes of all meetings, which shall be regularly approved by the Committee and made available for distribution to the Board.

RESPONSIBILITIES

The Committee will:

1. Monitor planning, development, maintenance, protection and make recommendations for the Florida National Scenic Trail (FNST) and Florida Trail System (FTS).

2. Monitor recruitment, training, safety and management of volunteers for maintenance, and stewardship of the FNST and the FTS.

3. Coordinate and collaborate with the Florida Trail Association (FTA) trail staff and United States Forest Service (USFS) FNST Administrator on matters relating to the FNST.

4. Make recommendations to the FTA Board of Directors (BOD) on new FTS trail proposals and removal of trails from the FTS as required.

5. Direct involvement in planning and development of proposed FTS segments in coordination with the FTA staff.

6, Monitor and provide guidance for FNST and FTS infrastructure and/or trail relocation requests in coordination with the FTA trail staff and trail partners as appropriate.

7. Assign trail construction and maintenance responsibilities to FTA Chapters for the FNST and FTS.

8. Review and recommend approval or disapproval of Chapter Trail Coordinator and Section Leader nominations to the FTA BOD Chair.

9. Share responsibility for the planning and conduct of Trails Committee Meetings with FTA trail staff.

10. Collaborate with FTA trail staff and the USFS FNST Administrator on revisions to the FTA Trail Manual.

11. Makes final FTA decisions for changes in the FTA Trail Manual. Recommend approval of changes to the BOD.

12. Collaborate with the FTA Executive Director (ED) on matters related to FTA / USFS Memorandum of Understanding and other trails related governing agreements and documents.

13. Coordinate with the FTA ED monitor State of Florida governmental committees and agencies for potential FNST and/or FTS impact and opportunities.

14. Assist the FTA ED and trail staff with resolution of other trail-related issues as appropriate.

15. Discuss and vote on the recommendations/action items from the FTA Trails Committee and move FTA BOD for approval.

16. Monitor grant proposals and make recommendations for the FNST and FTS.

The Committee shall strive to coordinate and collaborate with the Board, Executive Director, the FNST Administrator, FTA Trail Staff and FTA volunteer leaders on all trail development and sustainability issues.

Approved by the Trails Development and Planning Committee: November 16, 2022
Approved by the FTA, Board of Directors: January 21, 2023

305: FNST / Chapter Trail Maintenance Responsibilities Regional Maps

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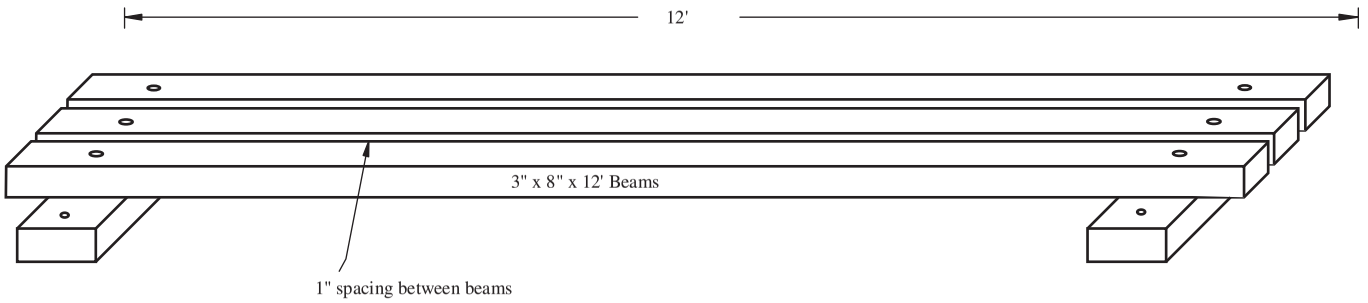
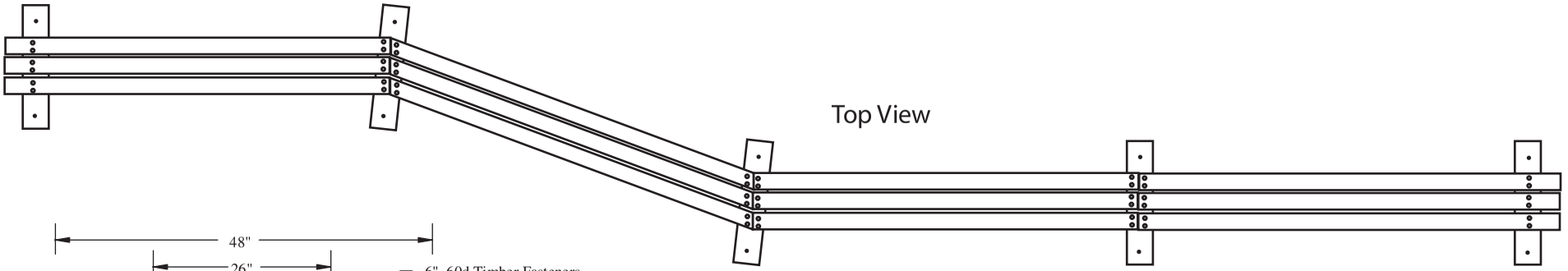
306: FNST Puncheon / Boardwalk Design with 12-foot rough cut stringers

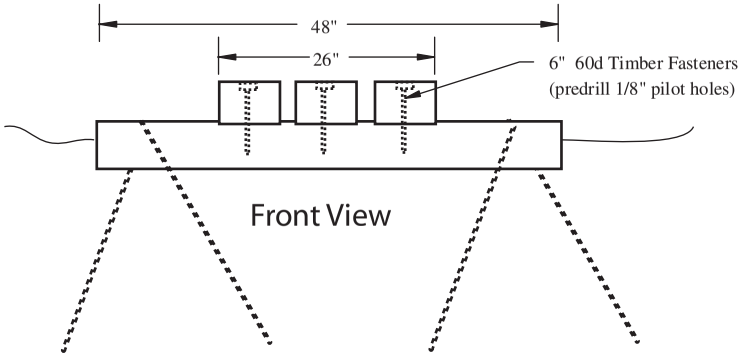
Puncheon Boardwalk 12-foot spans

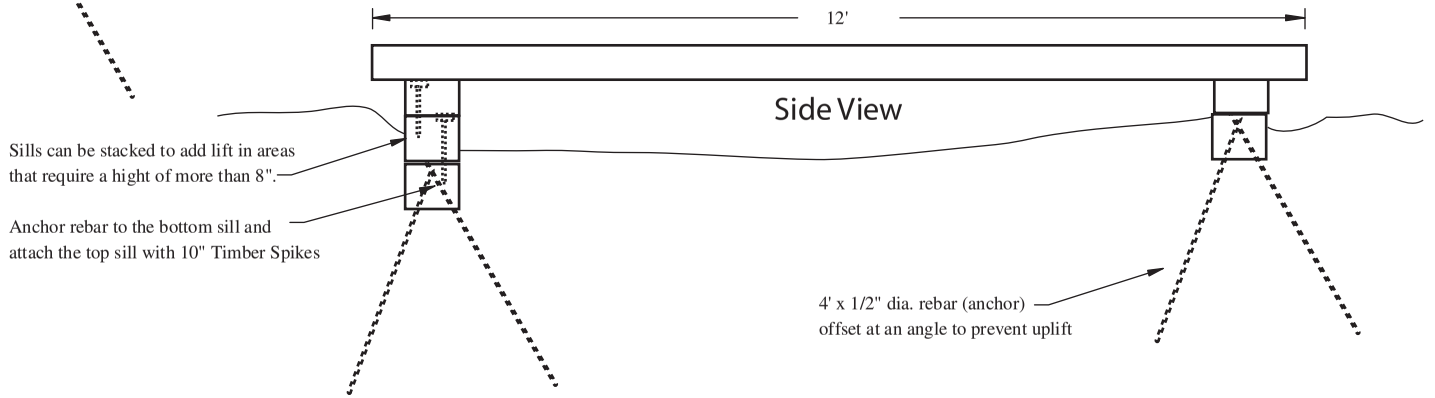
Materials List for one 12-foot span:
Three 3" x 8" x 12' rough-cut pressure treated (beams)
two 8" x 8" x 4' rough-cut pressure treated (sills)
four 4' x 1/2" dia. rebar (anchors)
twelve 6" 60d spiral galvanized timber fasteners
two 10" timber spikes galvanized (for securing stacked sills)

Tools List:
1/2" dia. auger bit
1/8" dia. drill bit
Rebar caps
Drill
3 lb. Sledge hammer
10 lb. Sledge hammer
Shovel or pulaski to level ground
Blue Ox (to transport lumber)
All appropriate safety equipment









307: USFS Puncheon / Boardwalk Design log or sawn timber stringers

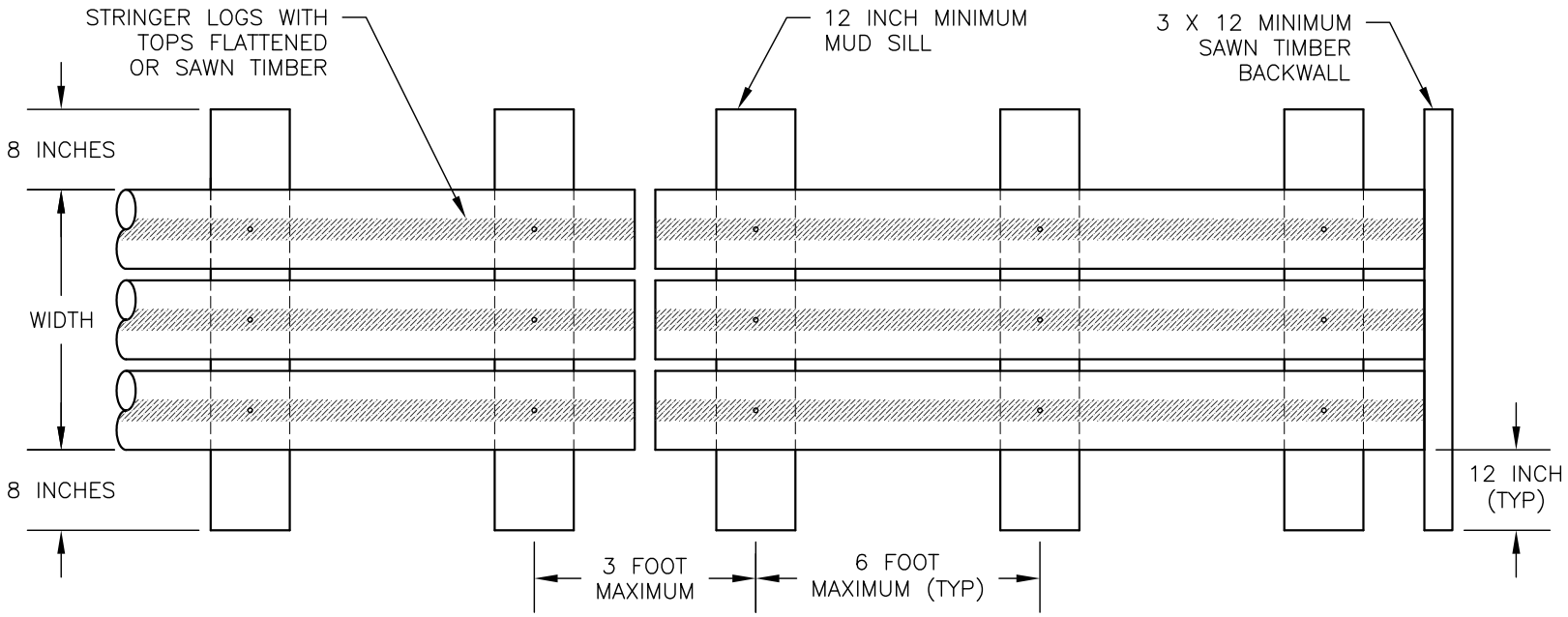
PUNCHEON WITHOUT DECKING

		MUD SILL		STRINGER			BACKWALL		
TYPICAL ID	WIDTH	SPECIES	PRESERV. TYPE	TYPE	SIZE	PRESERV. TYPE	SIZE	PRESERV. TYPE	COMMENTS
NDP–1			P					P	

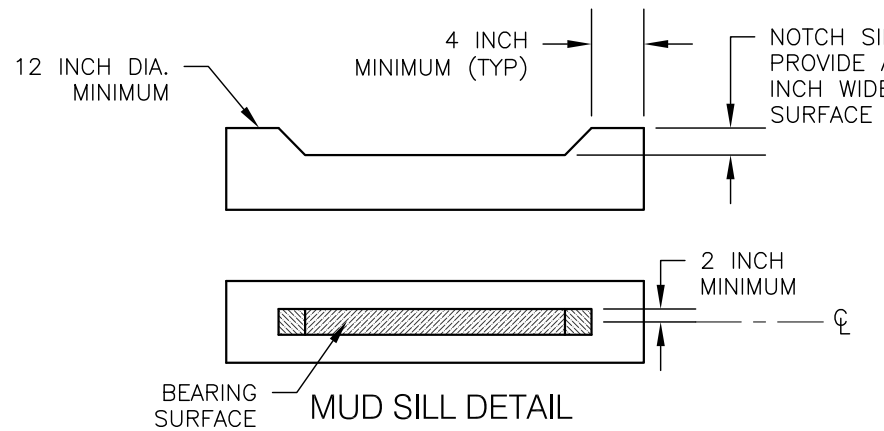
N/A WHEN NOT APPLICABLE

NOTES:

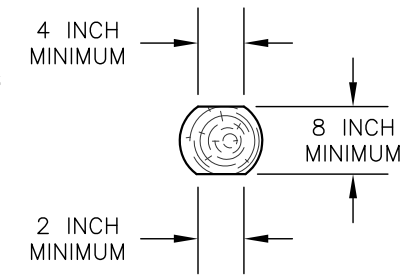
1. PRE–DRILL HOLES FOR FASTENERS TO PREVENT SPLITTING OF LOGS OR SAWN TIMBERS.
2. RECESS END OF REBAR 1/2 INCH BELOW TOP OF STRINGERS.
3. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
4. ALL FIELD DRILLED HOLES AND CUTS SHALL BE FIELD TREATED.
5. FINAL DECK ELEVATION FOR RUNNING PLANKS OR DECKING SHALL BE NO MORE THAN 1/2 INCH DIFFERENCE IN ELEVATION.



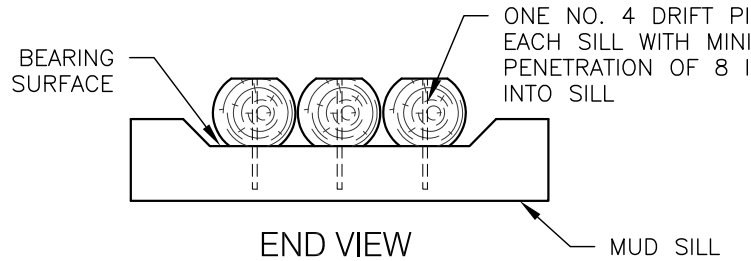
PLAN VIEW



MUD SILL DETAIL

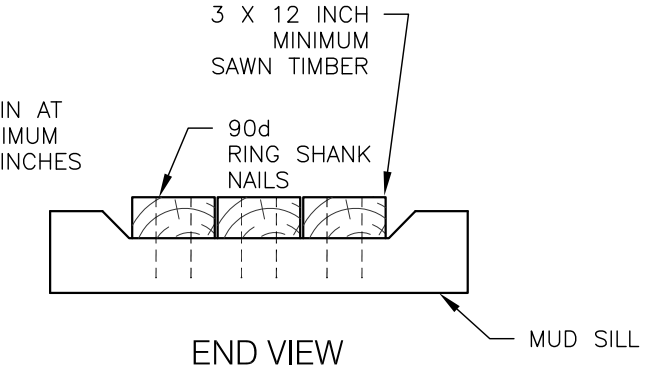


LOG STRINGER DETAIL



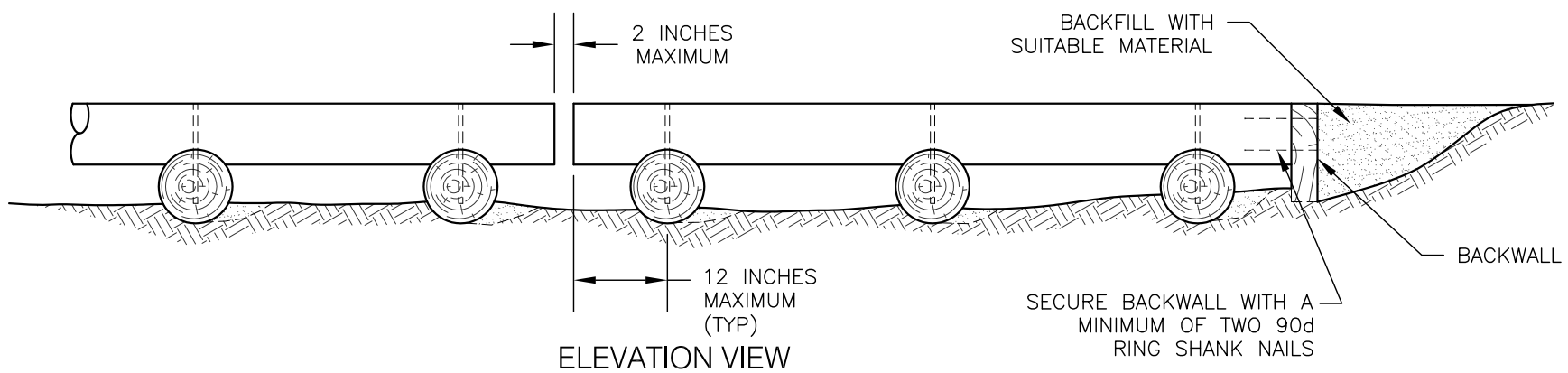
END VIEW
LOG STRINGER

PLACE ROUND LOG STRINGERS AS CLOSE AS POSSIBLE WITH NO GAPS GREATER THAN 2 INCHES



END VIEW
SAWN TIMBER STRINGER

PLACE SAWN TIMBER STRINGERS WITH A MAXIMUM GAP OF 3/8 INCH



ELEVATION VIEW

PRESERVATIVE TREATMENT – (REFER TO AWPA USE CATEGORY SYSTEM)			
PRESERVATIVE TYPE	TREATMENT TYPE	USE CATEGORY	COMMENTS
P1	WB	UC4A	
P2	WB	UC3B	
P3			

TREATMENT TYPE

WB = WATERBORNE
OT = OIL–BORNE

USE CATEGORY

UC3B = ABOVE GROUND – EXPOSED
UC4A = GROUND CONTACT – GENERAL USE
UC4B = GROUND CONTACT – HEAVY DUTY

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME
PUNCHEON WITHOUT DECKING

SECTION
934 - PUNCHEONS

TYPICAL ID
NDP

REVISION DATE
XX/XX/XX

NO SCALE

DRAWING NO.
STD_934-20-01

SHEET
OF

308: FNST Boardwalk Design without railings

FLORIDA NATIONAL TRAIL
GENERIC BOARD WALK
OVER WATER w/2x8 JOISTS

Sheet Index

Florida Trail

National Scenic Trail

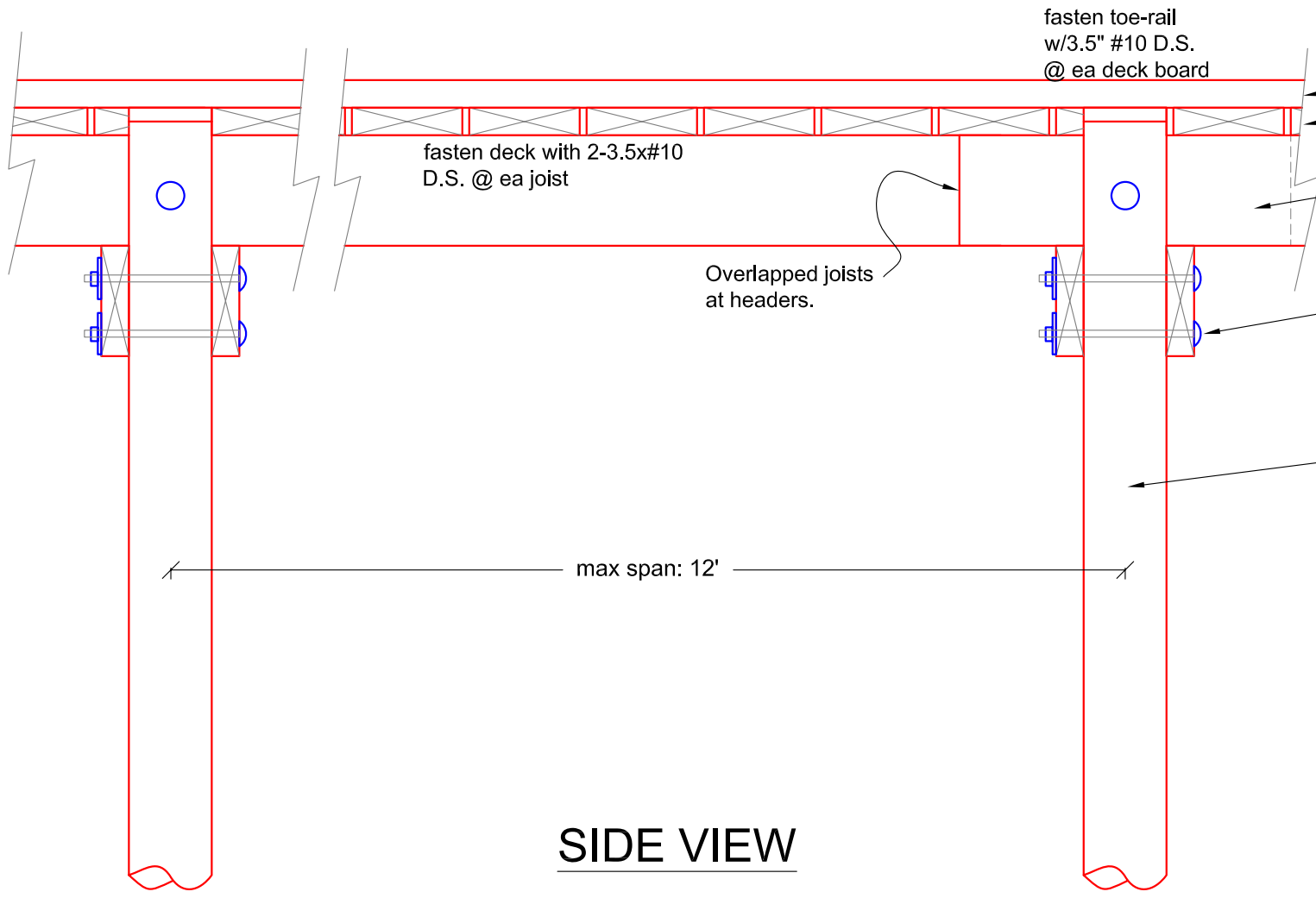
Florida Trail
Generic Board Walk

Cover Sheet

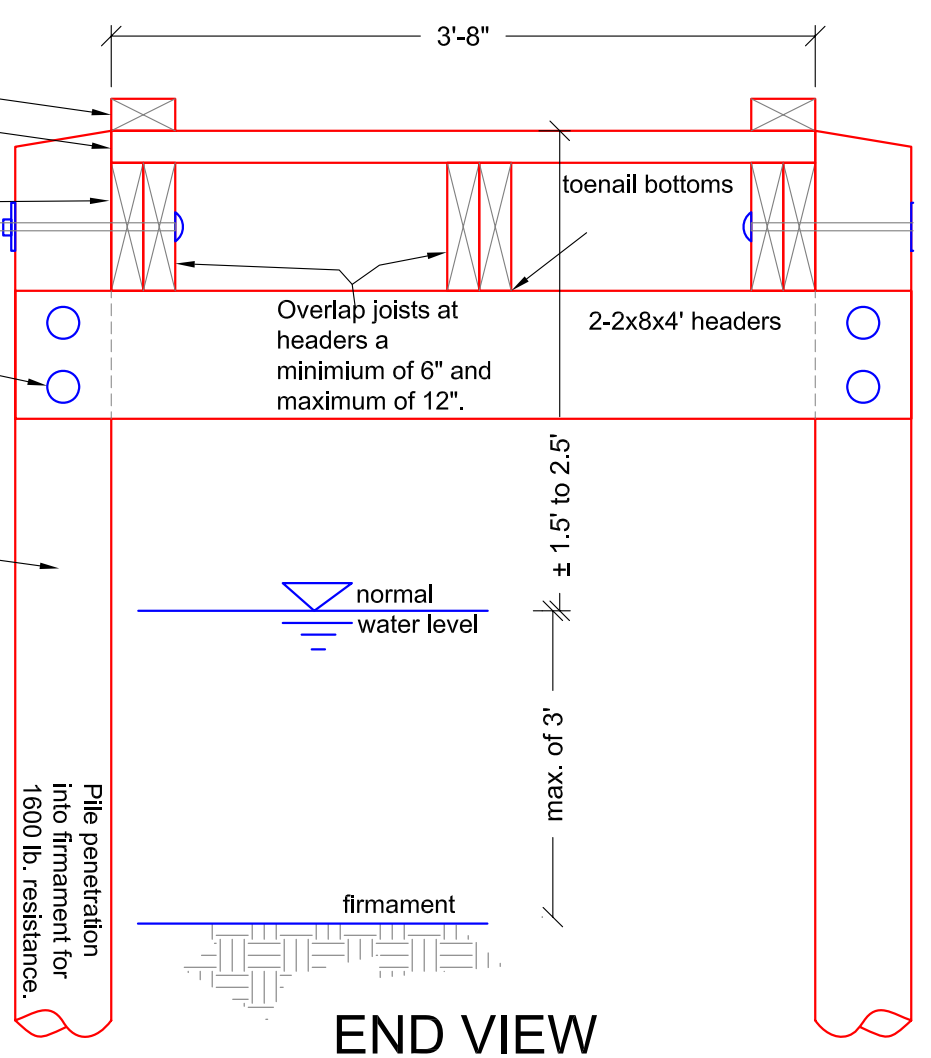
SCALE:

DATE: 4/8/2016

SHEET NUMBER: 1 of 3



SIDE VIEW



END VIEW

BOARDWALK DETAILS

scale: 1" =1'

Specifications and Notes:

Design Loads: superstructure: Pedestrian, 85 psf
All lumber is Southern Pine #1, non-dense graded by SPIB, full sawn, and treated with water borne preservatives to 0.8 pcf and per AWPA UC4C.
All preservative treated lumber will be certified by an independent, certified tester to comply with AWPA T1-06, including retension and penetration. Certification will be provided and certified.
All drilled holes and cuts shall be field treated with three coats of copper napthanate.
All steel hardware products are hot dipped galvanized after fabrication per ASTM A153, Class C.
The Owner is responsible for compliance with these plans and specifications.
Soil analysis and length of pile by others. . Piling shown for connection details only.

T.B. = timber bolt
D.S. = deck screw
M.W. = mallable washers

Framing Our Community

Generic Board Walk

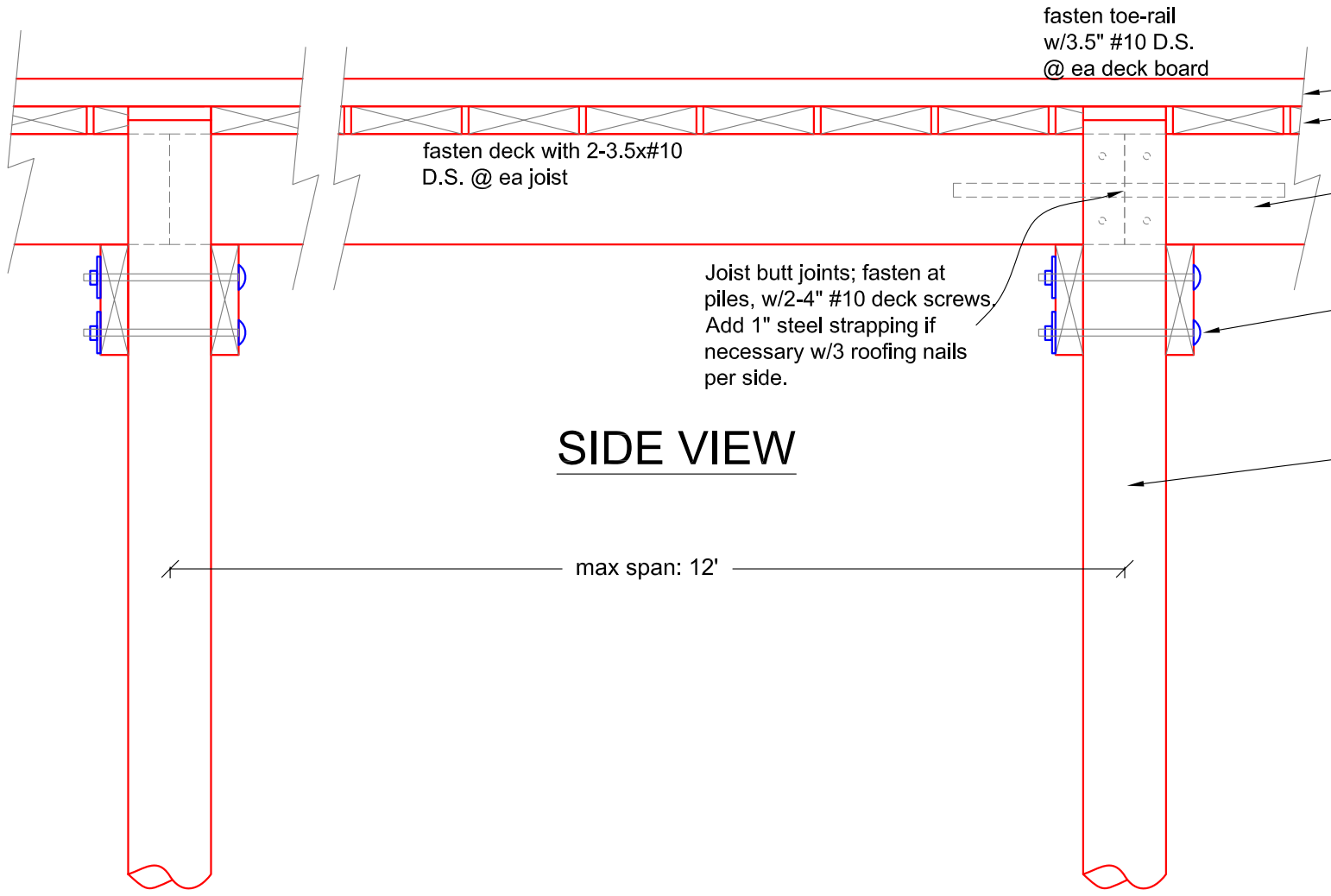
DESIGN: Art Johnston, P.E.
DRAWN: Art Johnston
CHECKED: .
DATE: April 8, 2016

SHEET TITLE
Details
Generic Board Walk
Florida National Scenic Trail

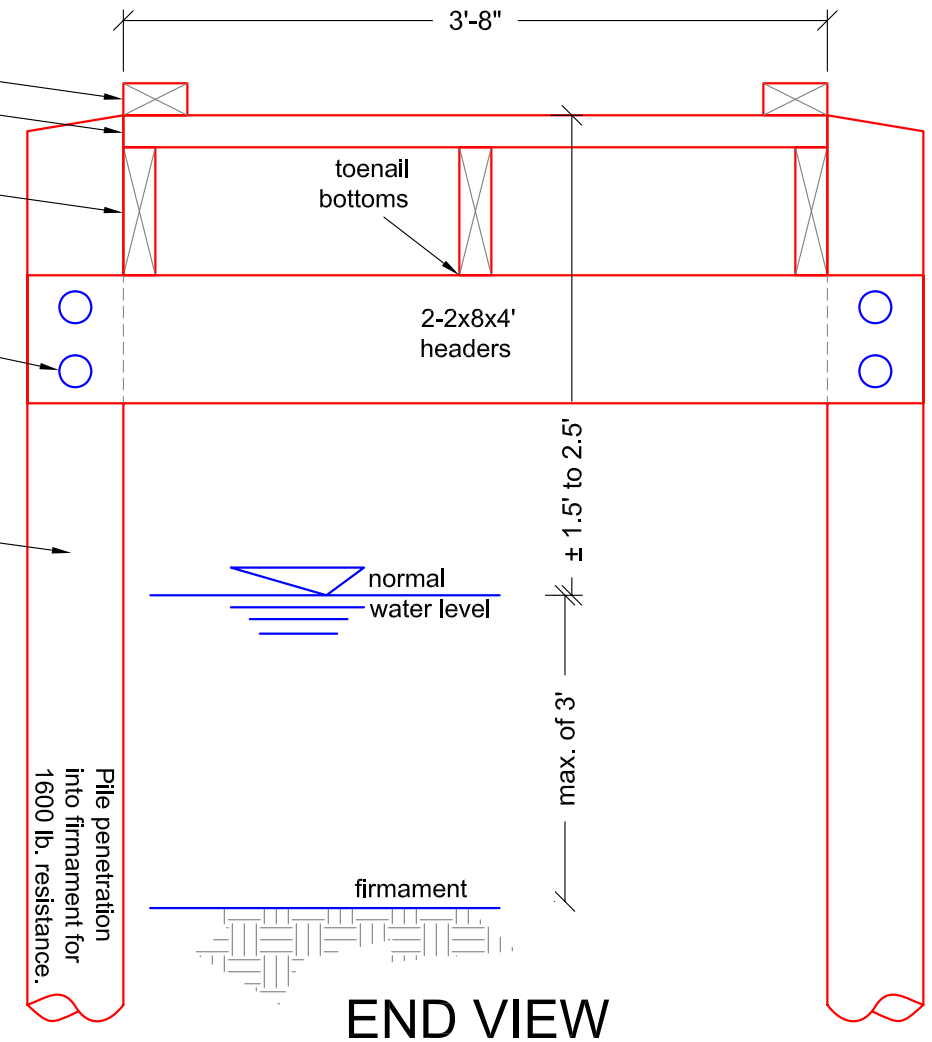
Print 11x17
1"

PROJECT NO:

SHEET 2 OF 3



SIDE VIEW



END VIEW

BOARDWALK DETAILS

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Framing Our Community	Generic Board Walk	DESIGN: Art Johnston, P.E. DRAWN: Art Johnston CHECKED: . DATE: April 8, 2016	SHEET TITLE Details2, Alternate Generic Board Walk Florida National Scenic Trail	Print 11x17 1"	PROJECT NO: SHEET 3 OF 3

309: FNST Boardwalk Design with railings

FLORIDA NATIONAL TRAIL
GENERIC BOARD WALK
OVER WATER w/2x8 JOISTS

Sheet Index

Florida Trail

National Scenic Trail

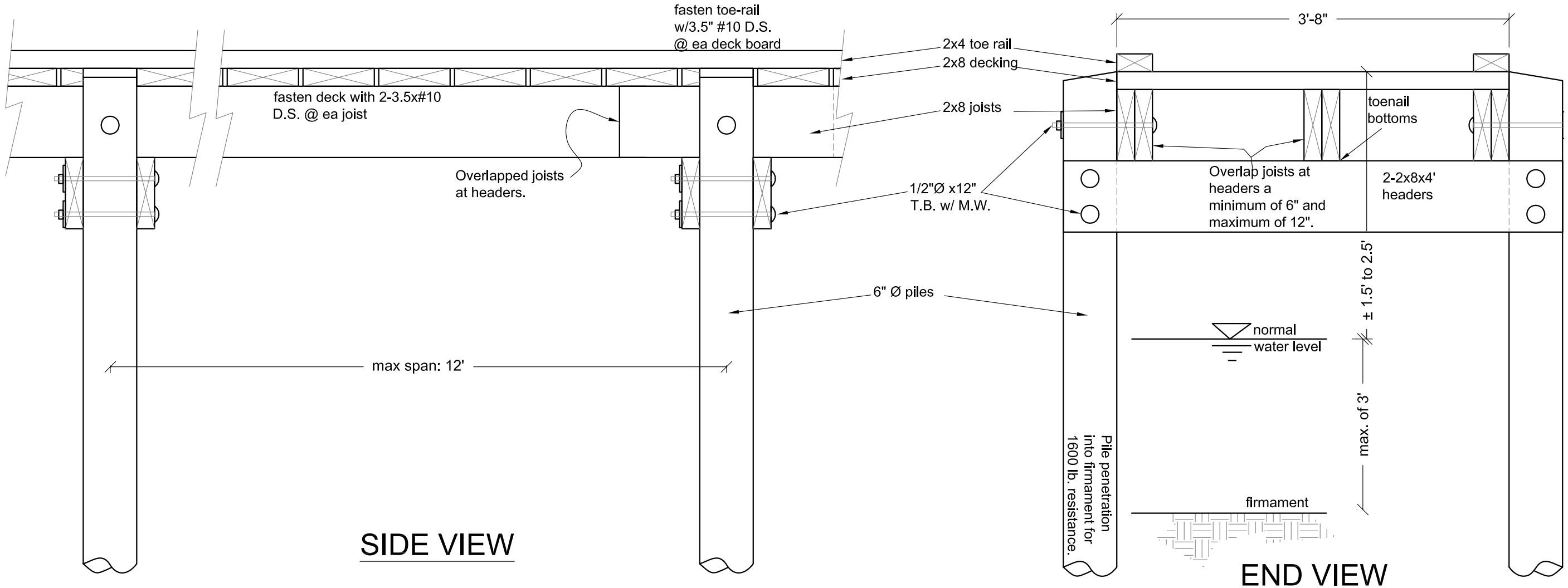
Florida Trail
Generic Board Walk

Cover Sheet

SCALE:

DATE: 4/8/2016

SHEET NUMBER: 1 of 5



SIDE VIEW

END VIEW

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75

Framing Our Community

Generic Board Walk

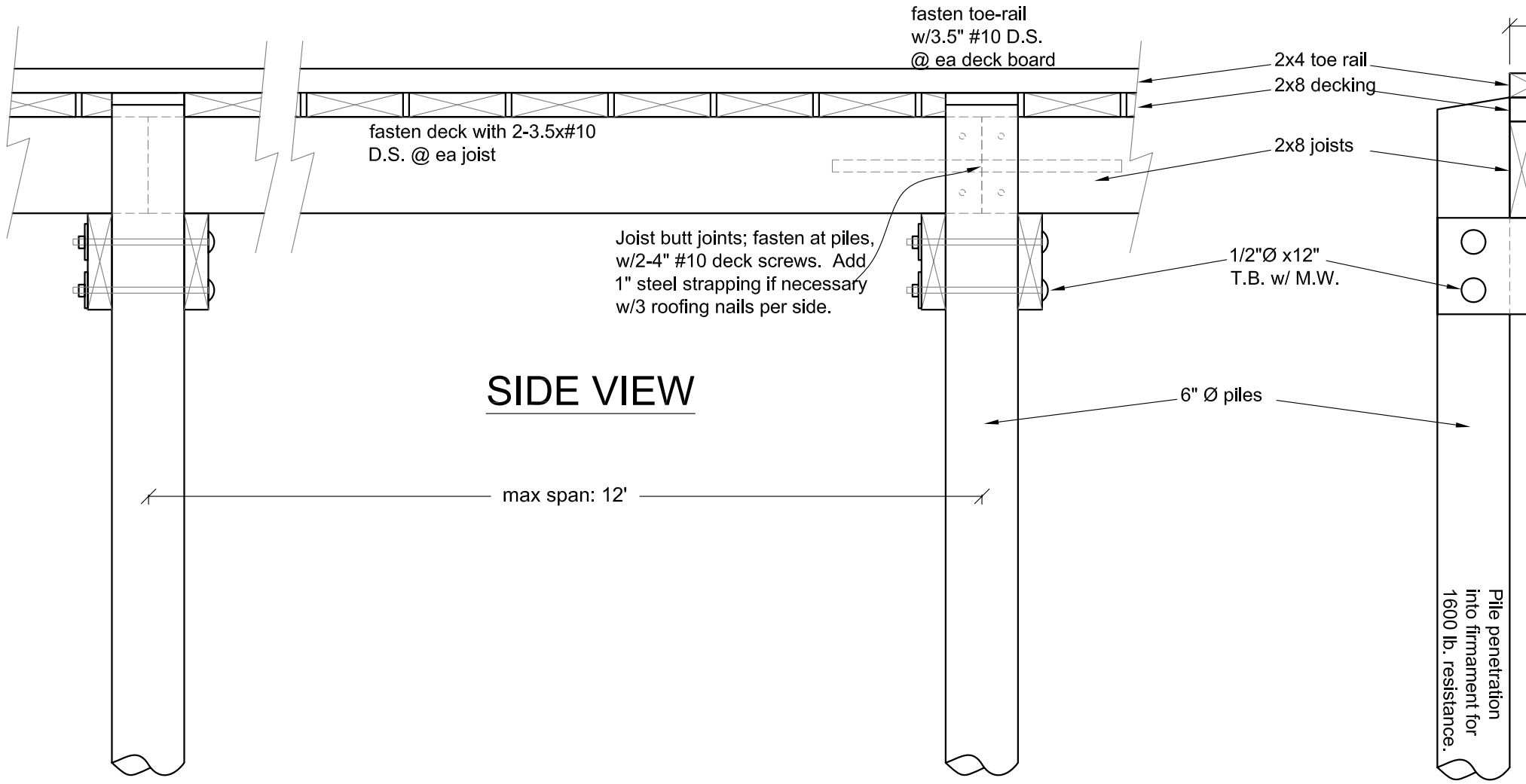
DESIGN: Art Johnston, P.E.
DRAWN: Art Johnston
CHECKED: .
DATE: April 8, 2016

SHEET TITLE
Details
Generic Board Walk
Florida National Scenic Trail

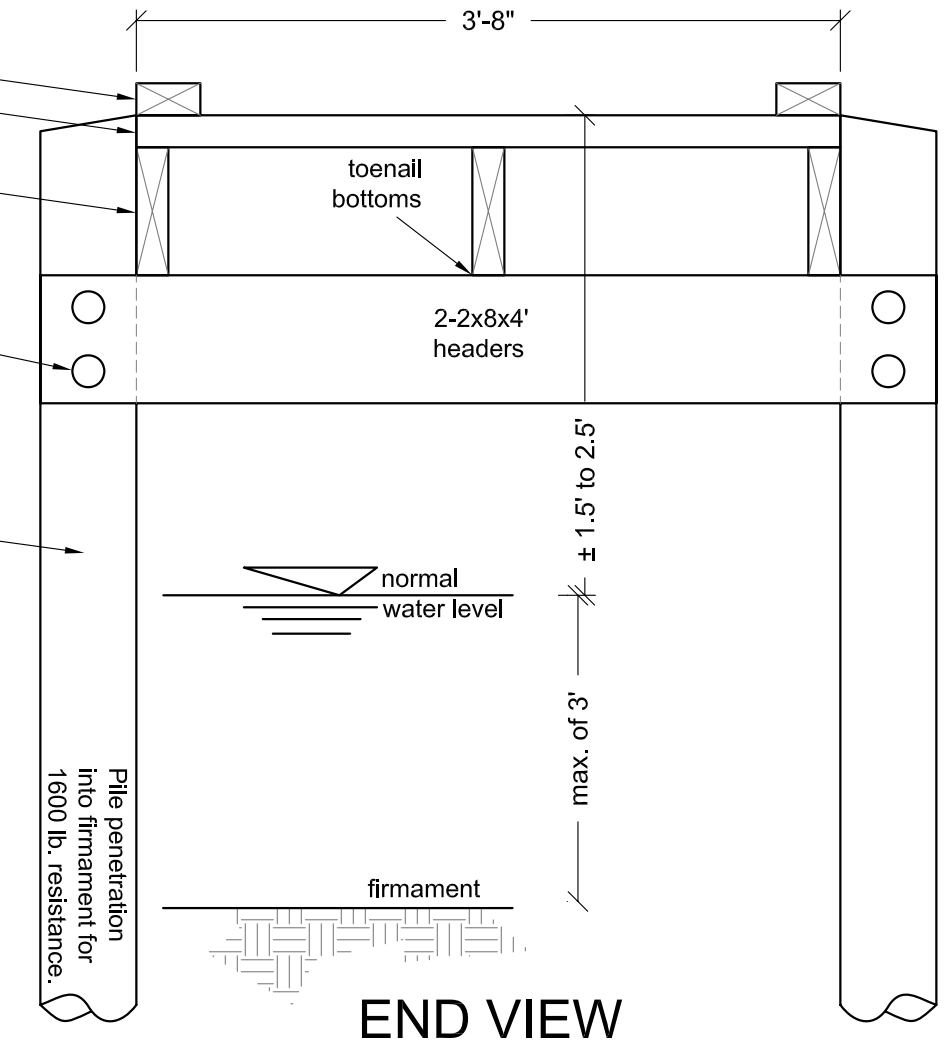
Print 11x17
1"

PROJECT NO:

SHEET 2 OF 5



SIDE VIEW



END VIEW

BOARDWALK DETAILS

scale: 1" =1'

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76

Framing Our Community

Generic Board Walk

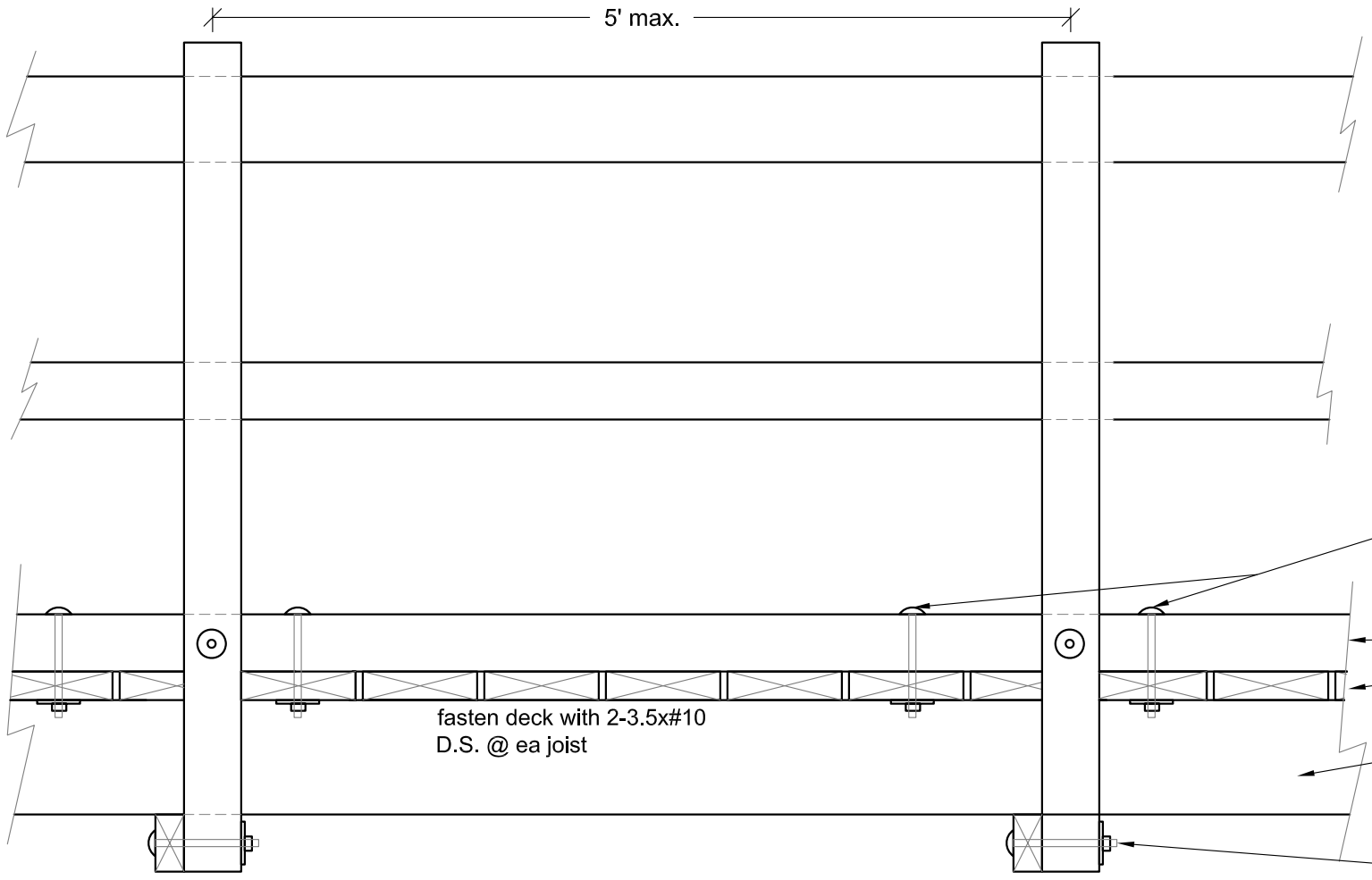
DESIGN: Art Johnston, P.E.
DRAWN: Art Johnston
CHECKED: .
DATE: April 8, 2016

SHEET TITLE
Details2, Alternate
Generic Board Walk
Florida National Scenic Trail

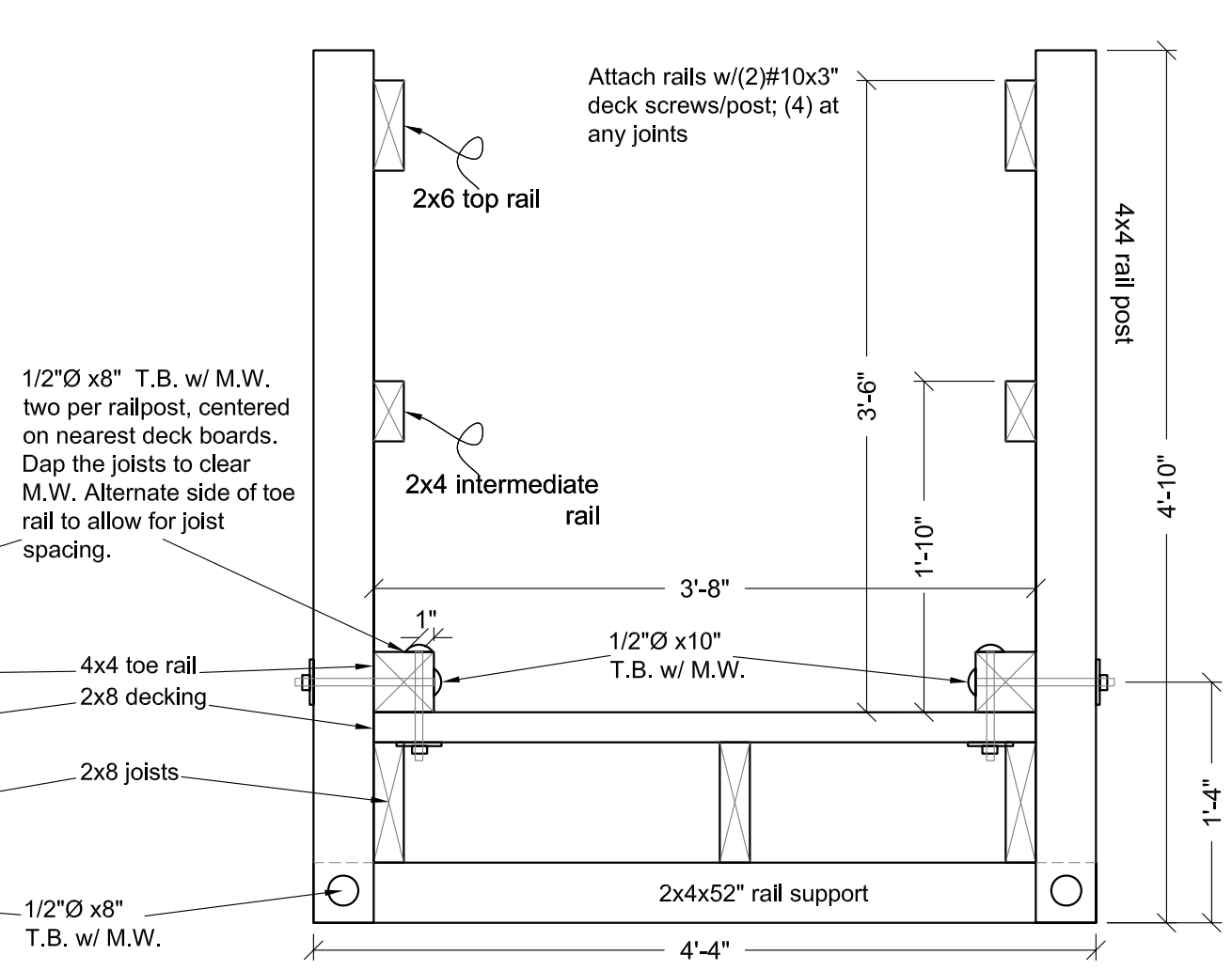
Print 11x17
1"

PROJECT NO:

SHEET 3 OF 5



SIDE VIEW

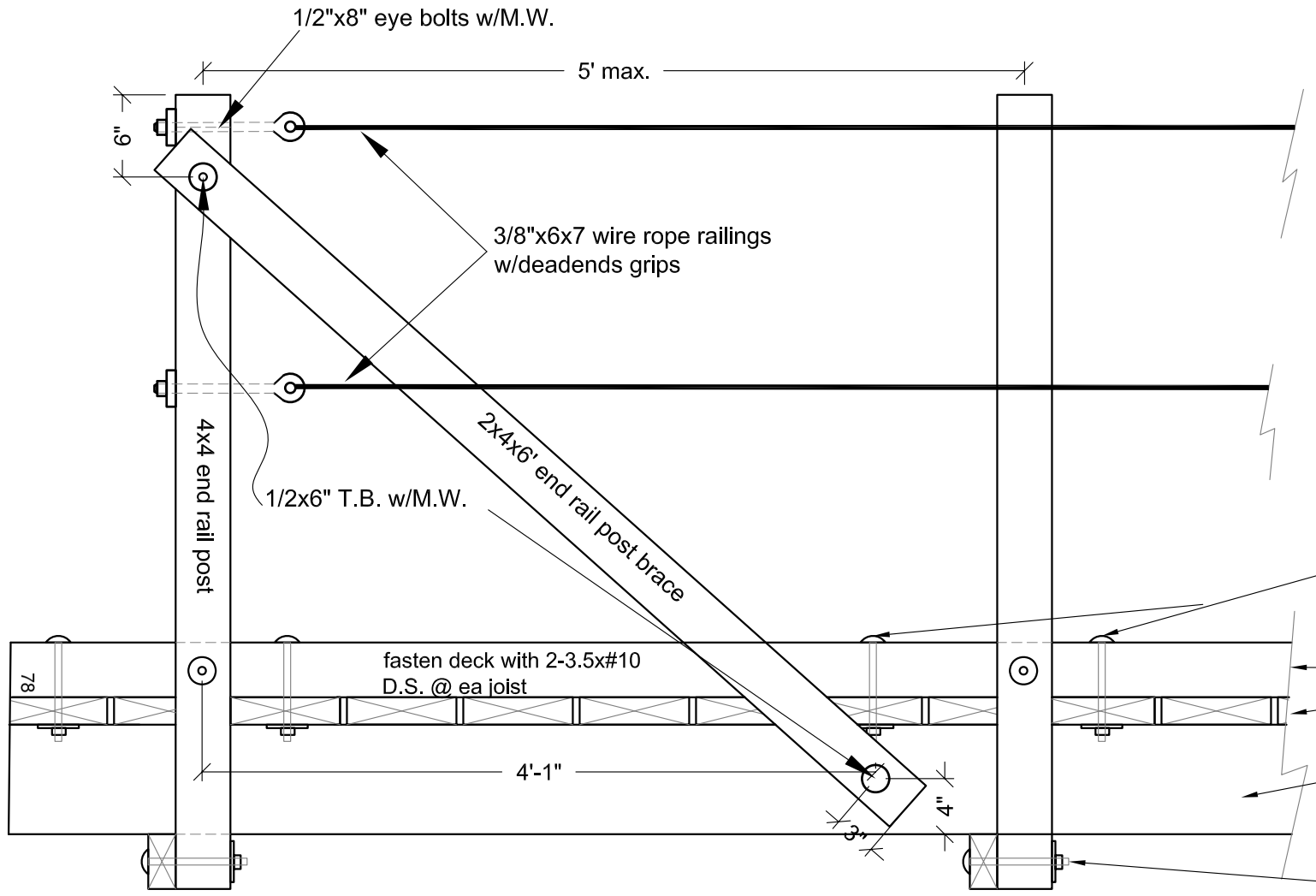


END VIEW

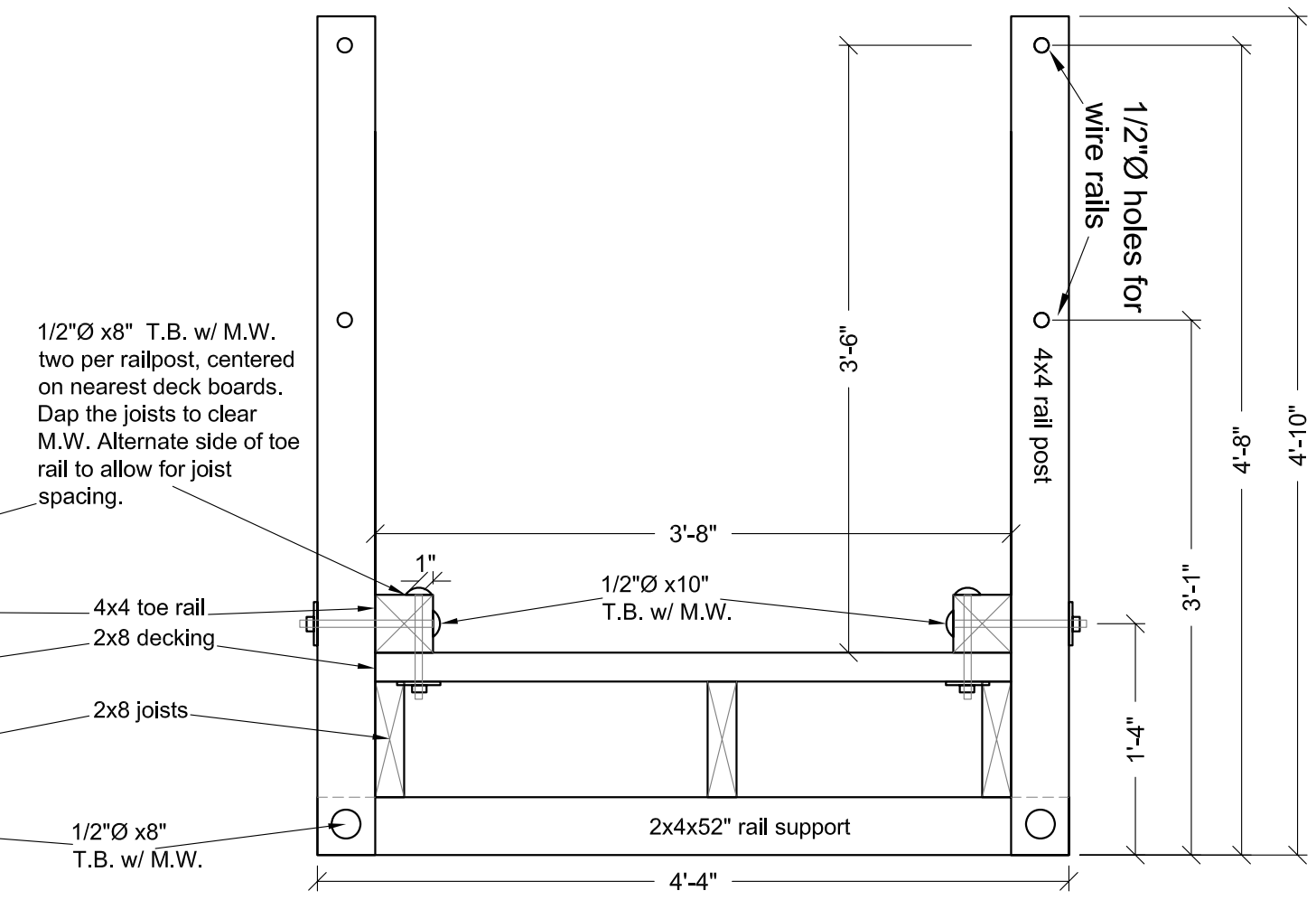
BOARDWALK OPTIONAL RAIL DETAILS

scale: 1" =1' rails per FSH 7709.56b 82.4 (3) low use trails

Framing Our Community	Generic Board Walk	DESIGN: Art Johnston, P.E. DRAWN: Art Johnston CHECKED: . DATE: April 8, 2016	SHEET TITLE Details2, Alternate Board Rails Generic Board Walk Florida National Scenic Trail	Print 11x17 1"	PROJECT NO: SHEET 4 OF 5



SIDE VIEW



END VIEW

BOARDWALK OPTIONAL WIRE RAIL DETAILS

scale: 1" =1' rails per FSH 7709.56b 82.4 (3) low use trails

Framing Our Community

Generic Board Walk

DESIGN: Art Johnston, P.E.
DRAWN: Art Johnston
CHECKED: .
DATE: April 8, 2016

SHEET TITLE
Details2, Alternate Wire Rails
Generic Board Walk
Florida National Scenic Trail

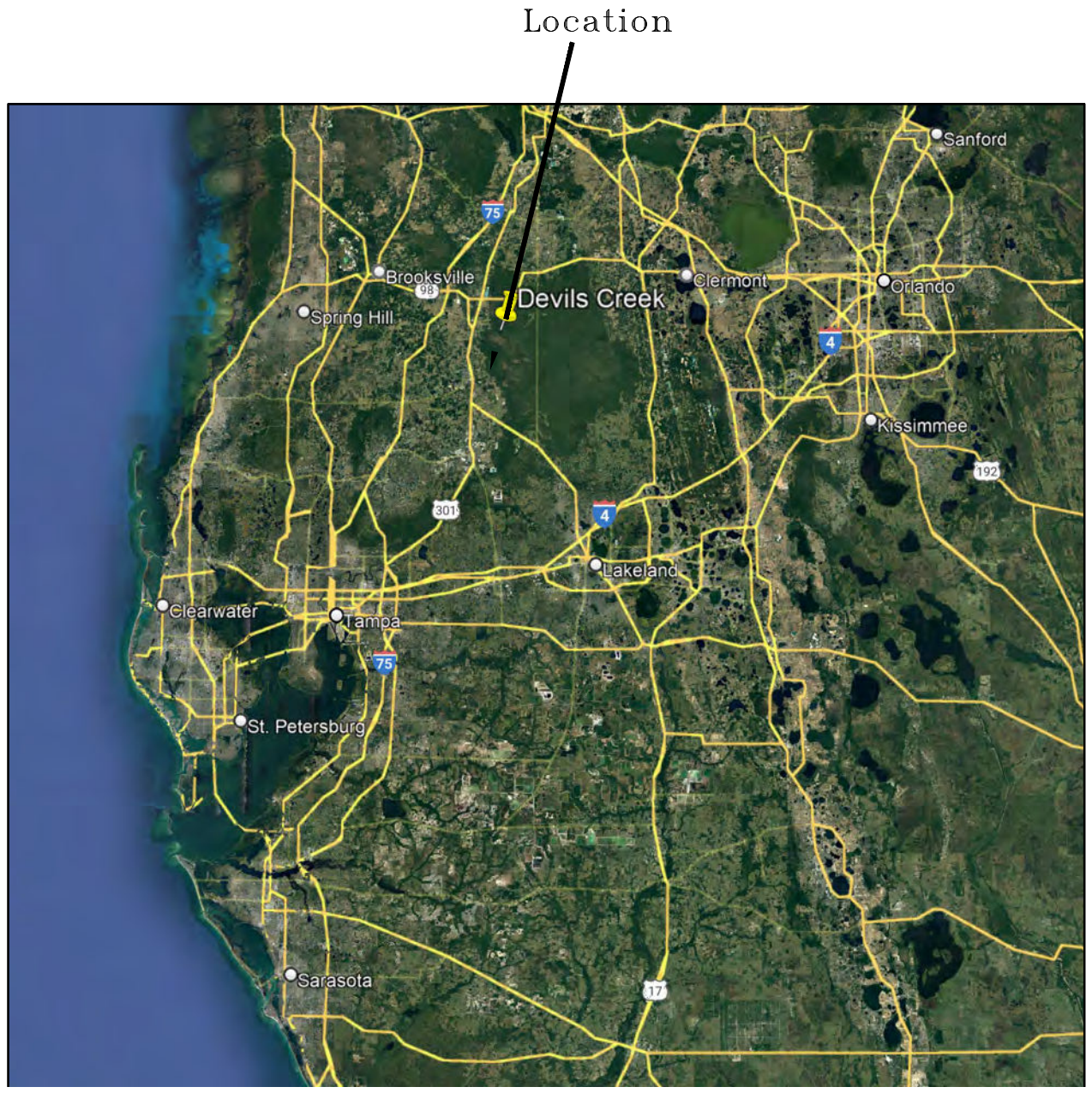
Print 11x17
1"

PROJECT NO:

SHEET 5 OF 5

310: Devils Creek Bridge / Boardwalk Plans

FLORIDA NATIONAL TRAIL
DEVILS CREEK BRIDGE
N28°27.02', W82°07.77'



SHEET INDEX

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

PREPARED BY:

Catalano Engineering, Inc.
CIVIL – STRUCTURAL – MARINE
120 SOUTH EDISON AVE.
TAMPA, FL 33606
(813) 254-1265
CERTIFICATE NO. 6828

PREPARED FOR:

FLORIDA TRAIL ASSOCIATION
1022 NW 2nd Steet
Gainesville, FL 32601

	NAME	DATE
DESIGNED BY:	JR	
DRAWN BY:	CM	
CHECKED BY:	JC	
SUPERVISED BY:	JC	

APPROVED BY:

JAMES CATALANO, PE
PE No. 42507

FLORIDA TRAIL OVER DEVILS CREEK BRIDGE

COVER SHEET

CEI PROJECT NO. 22-004.08

SHEET NO. S1

DESIGN DATA

PEDESTRIAN LIVE LOAD = 65 PSF

DEAD LOAD = 15 PSF

LATERAL LOADS:

STRENGTH DESIGN WIND VELOCITY (Vult): 141 MPH (3 SECOND GUST)
NOMINAL DESIGN WIND VELOCITY (Vasd): 109 MPH (3 SECOND GUST)
WIND IMPORTANCE FACTOR: 1.00
RISK CATEGORY: II (ASCE 7-10, TABLE 1.5-1)
EXPOSURE CATEGORY: OPEN
WIND EXPOSURE CATEGORY: D (FBC 1609.4.3)
INTERNAL PRESSURE COEFFICIENTS (GCpi): N/A
ROOFING SYSTEM: METAL ROOF ON SHEATHING
ROOF MATERIAL WIND RESISTANCE RATING: 141 MPH
COMPONENTS & CLADDING (GCp) (WALLS): N/A

NOTE:
REFERENCE IS MADE TO ASCE 7-10 CHAPTER 27

GUARD/HANDRAIL LOADING:

a. LOAD CASE I: 200 LBS. APPLIED AT ANY POINT AND IN ANY DIRECTION

b. LOAD CASE II: 50 PLF APPLIED HORIZONTALLY ALONG TOP GUARDRAIL AND A SIMULTANEOUS LOAD OF 100 PLF APPLIED VERTICALLY DOWNWARD ALONG TOP GUARDRAIL

SOILS CLASSIFICATION: SC-CM
ASSUMED LOAD BEARING CAPACITY = 2000 PSF

SEASONAL HIGH WATER ELEVATION = __.__ NAVD

WOOD FRAMING & DECKING

ALL REFERENCES HEREIN MADE TO "DECKING" SPECIFIES 2x8 RADIUS EDGED #2 SYP.

EXCEPT AS NOTED OTHERWISE, ALL DECKING SHALL BE FASTENED TO FRAMING MEMBERS USING (2) #10 x 2-1/2" 304 GRADE STAINLESS STEEL SCREWS.

SCREWS SHALL BE INSTALLED FLUSH WITH DECK SURFACE AND SHALL NOT BE COUNTERSUNK.

ALL STRUCTURAL LUMBER SHALL BE #2 (MINIMUM) SPF OR SYP.

FASTEN _____ TO _____ USING (2) 4" x 0.276" SIMPSON STRONG-DRIVE SDWH TIMBER-HEX HDG SCREWS (HOT DIPPED GALVANIZED) OR EQUAL - SUBJECT TO ENGINEER'S APPROVAL.

FRAMING TIMBER TO PILE CONNECTIONS SHALL TO BE 1/2"ø GALVANIZED THRU-BOLTS WITH MALLEABLE WASHERS (TB-MW)

GENERAL NOTES

ALL DRILLED HOLES, CUTS, ETC. ARE TO BE FIELD-TREATED WITH THREE (3) COATS OF COPPER NAPTHANATE, 8% COPPER CONCENTRATE.

ALL STEEL FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A153, CLASS C.

CHANGES AND MODIFICATIONS

CONFORM TO INFORMATION/REQUIREMENTS GIVEN IN THE CONTRACT DRAWINGS AND TO CHANGES APPROVED IN WRITING BY THE ENGINEER.

SUBMIT WRITTEN REQUEST TO THE ENGINEER FOR APPROVAL OF ANY PROPOSED CHANGE TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS.

SPLICING, CUTTING, NOTCHING AND OTHER ALTERATIONS TO STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT ENGINEER'S WRITTEN AUTHORIZATION.

EROSION AND ENVIRONMENTAL CONTROL:
THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENT CONTROL PLAN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL ERECT SILT FENCES AND TURBIDITY BARRIERS (SILT CURTAINS) PRIOR TO COMMENCING ANY GROUND DISTURBANCES.

REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT BY THE CONTRACTOR IN COMPLIANCE WITH THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) AND THE LAND MANAGER. THE CONTRACTOR SHALL INSPECT EROSION CONTROL DEVICES PRIOR TO STARTING DAILY OPERATIONS. ALL MAINTENANCE SHALL BE PERFORMED BY THE CONTRACTOR WITHIN 24 HOURS OF INSPECTION.

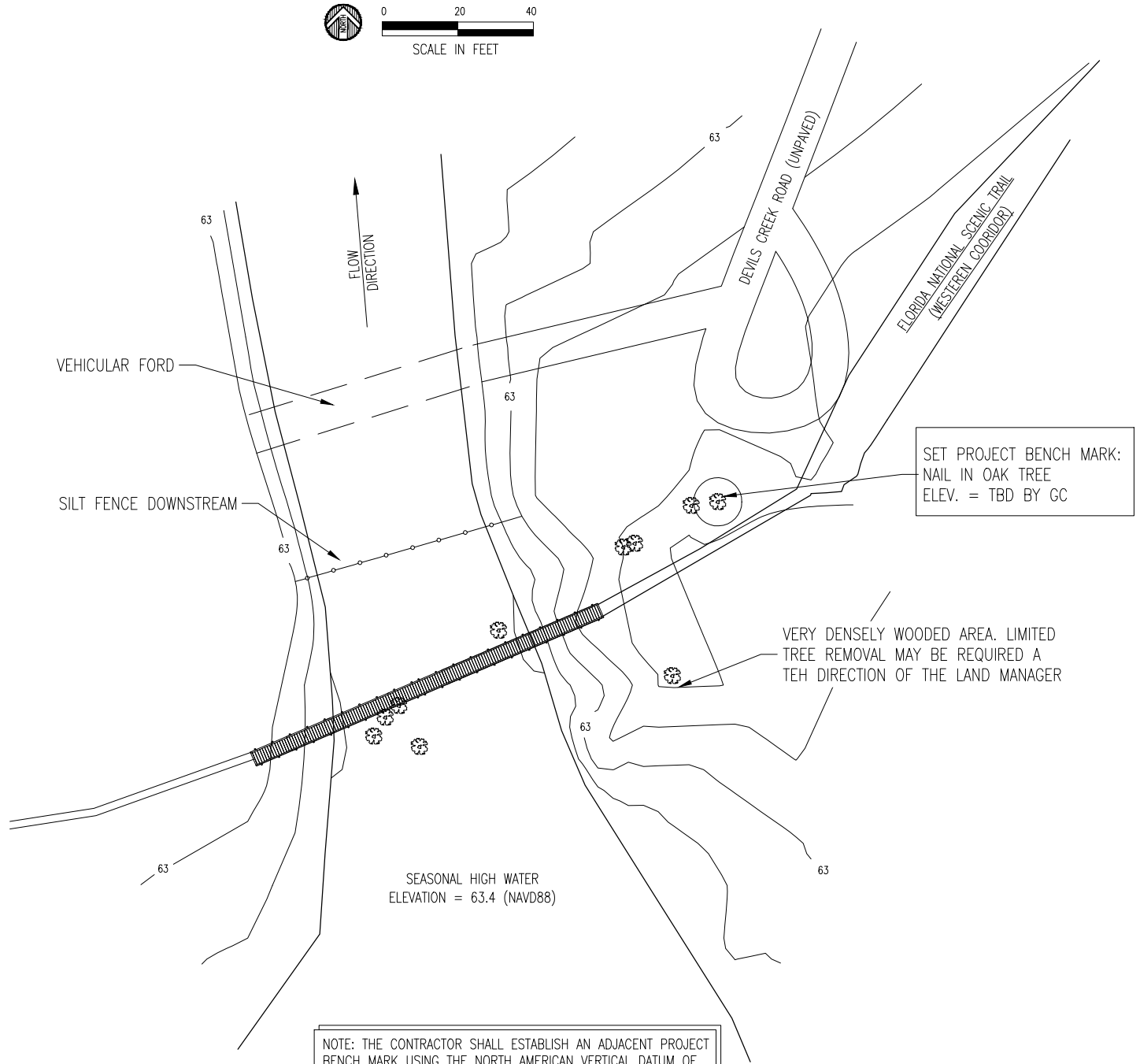
ALL PRACTICAL AND NECESSARY EFFORTS SHALL BE TAKEN TO CONTROL AND PREVENT EROSION AND TRANSPORTATION OF SEDIMENT MATERIALS INTO INLETS, WETLANDS AND MASH AREAS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RESTORATION EFFORTS THAT MAY BE INDICATED BY THE LAND MANAGER.

THE CONTRACTOR SHALL MAINTAIN TURBIDITY BARRIERS (SILT CURTAINS) WHERE INDICATED UNTIL COMPLETION AND ACCEPTANCE OF THE PROJECT.

EROSION AND SEDIMENT CONTROL MEASURES SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMP) FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES LISTED IN 62-330.405(11), F.A.C.

EROSION AND SEDIMENT CONTROL DEVICES (I.E. SILT FENCES AND TURBIDITY BARRIERS) ARE DEPICTED IN APPROXIMATE LOCATIONS AND SHALL BE ADJUSTED AS NECESSARY WITH THE DIRECTION OF THE LAND MANAGER.



NOTE: THE CONTRACTOR SHALL ESTABLISH AN ADJACENT PROJECT BENCH MARK USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) BASED ON EXISTING DATUM AS PROVIDED THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD)

18

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

PREPARED BY:
Catalano Engineering, Inc.
CIVIL - STRUCTURAL - MARINE
120 SOUTH EDISON AVE.
TAMPA, FL 33606
(813) 254-1265
CERTIFICATE NO. 6828

PREPARED FOR:
FLORIDA TRAIL ASSOCIATION
1022 NW 2nd Steet
Gainesville, FL 32601

	NAME	DATE
DESIGNED BY:	JR	
DRAWN BY:	CM	
CHECKED BY:	JC	
SUPERVISED BY:	JC	

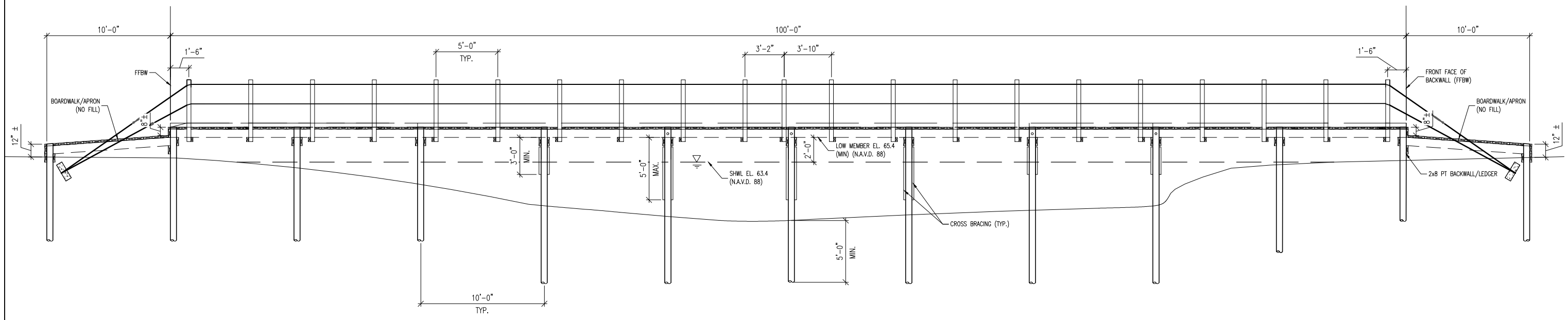
APPROVED BY:
JAMES CATALANO, PE
PE No. 42507

FLORIDA TRAIL OVER DEVILS CREEK BRIDGE

SPECIFICATIONS & LOCATION PLAN

CEI PROJECT NO.: 22-004.08

SHEET NO.: S2



BRIDGE ELEVATION VIEW

SCALE: 1/8" = 1FT

TIMBER PILE NOTES

☒ DENOTES 6x6 (OR 6"ø) TIMBER PILE.

PILE CUT-OFF ELEVATION = 66.6 (NAVD) – UNLESS NOTED OTHERWISE.

MINIMUM EMBEDMENT = 6 FT BELOW STREAM BOTTOM ELEVATION

REFERENCE STANDARDS:

AMERICAN WOOD PRESERVERS' ASSOCIATION (AWPA) C3 – PILES/PRESERVATIVE TREATMENT BY PRESSURE PROCESSES.

SUBMITTALS:
CONTRACTOR SHALL MAINTAIN A PILE DRIVING RECORD INCLUDING VERTICAL LINEAR FOOT ADVANCED DURING PILE DRIVING AND TOTAL PILE EMBEDMENT FOR EACH STREAM PILE AND SUBMIT IT TO THE ENGINEER OF RECORD UPON COMPLETION OF PILE DRIVING. THE RECORD SHALL INDICATE, FOR EACH PILE DRIVEN, THE INFORMATION SPECIFIED ABOVE, AND TYPE AND RATING OF DRIVING EQUIPMENT, AND ANY UNUSUAL CONDITIONS ENCOUNTERED DURING PILE DRIVING.

MATERIALS – TIMBER PILES:

PILES SHALL BE 6x6 (MIN) DIMENSIONAL LUMBER OF SOUTHERN PINE OR DOUGLASS FIR AND SHALL CONFORM TO ASTM D25, UNUSED, CLEAN, STRAIGHT AND ONE PIECE FROM TIP TO BUTT.

PRESSURE TREATMENT SHALL BE IN ACCORDANCE WITH AWPA C3 – FOUNDATION PILES.

PRESERVATIVES AND RETENTION:
USE CATEGORY = FOUNDATION PILES
SOUTHERN PINE = 2.5 CCA
DOUGLAS FIR = 2.5 ACZA

EXECUTION:
PILES SHALL BE IMPACT OR VIBRO DRIVEN TO THE REQUIRED MINIMUM EMBEDMENT. JETTING SHALL BE BY APPROVED IN ADVANCE OF CONSTRUCTION BY THE ENGINEER.

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

PREPARED BY:
Catalano Engineering, Inc.
CIVIL – STRUCTURAL – MARINE
120 SOUTH EDISON AVE.
TAMPA, FL 33606
(813) 254-1265
CERTIFICATE NO. 6828

PREPARED FOR:
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1022 NW 2nd Steet
Gainesville, FL 32601

	NAME	DATE
DESIGNED BY:	JR	
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SUPERVISED BY:	JC	

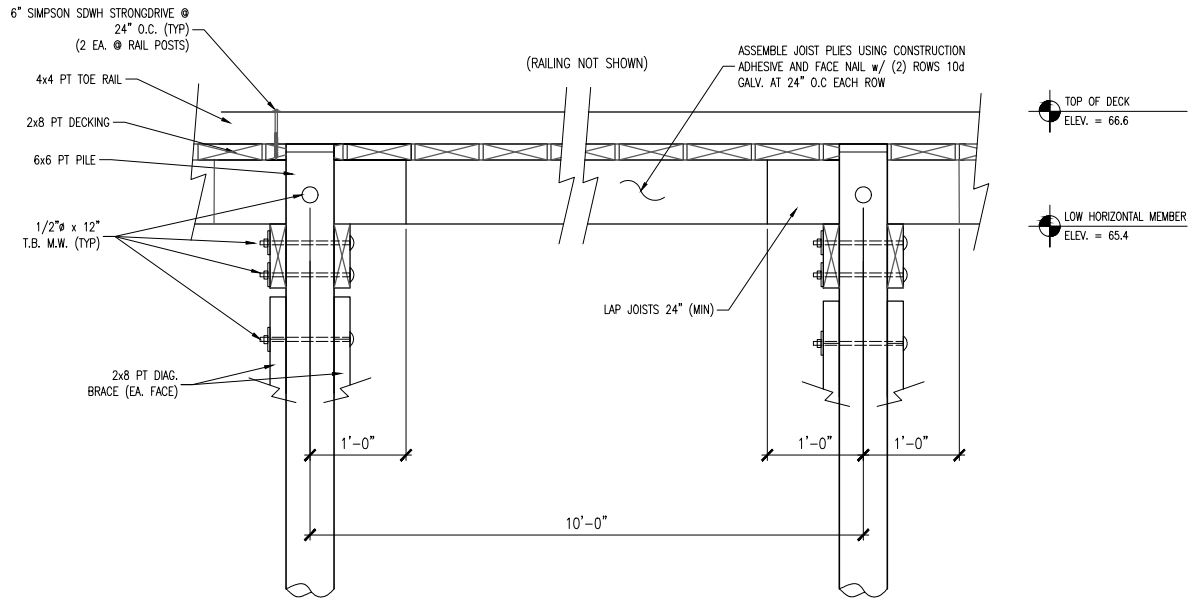
APPROVED BY:
JAMES CATALANO, PE
PE No. 42507

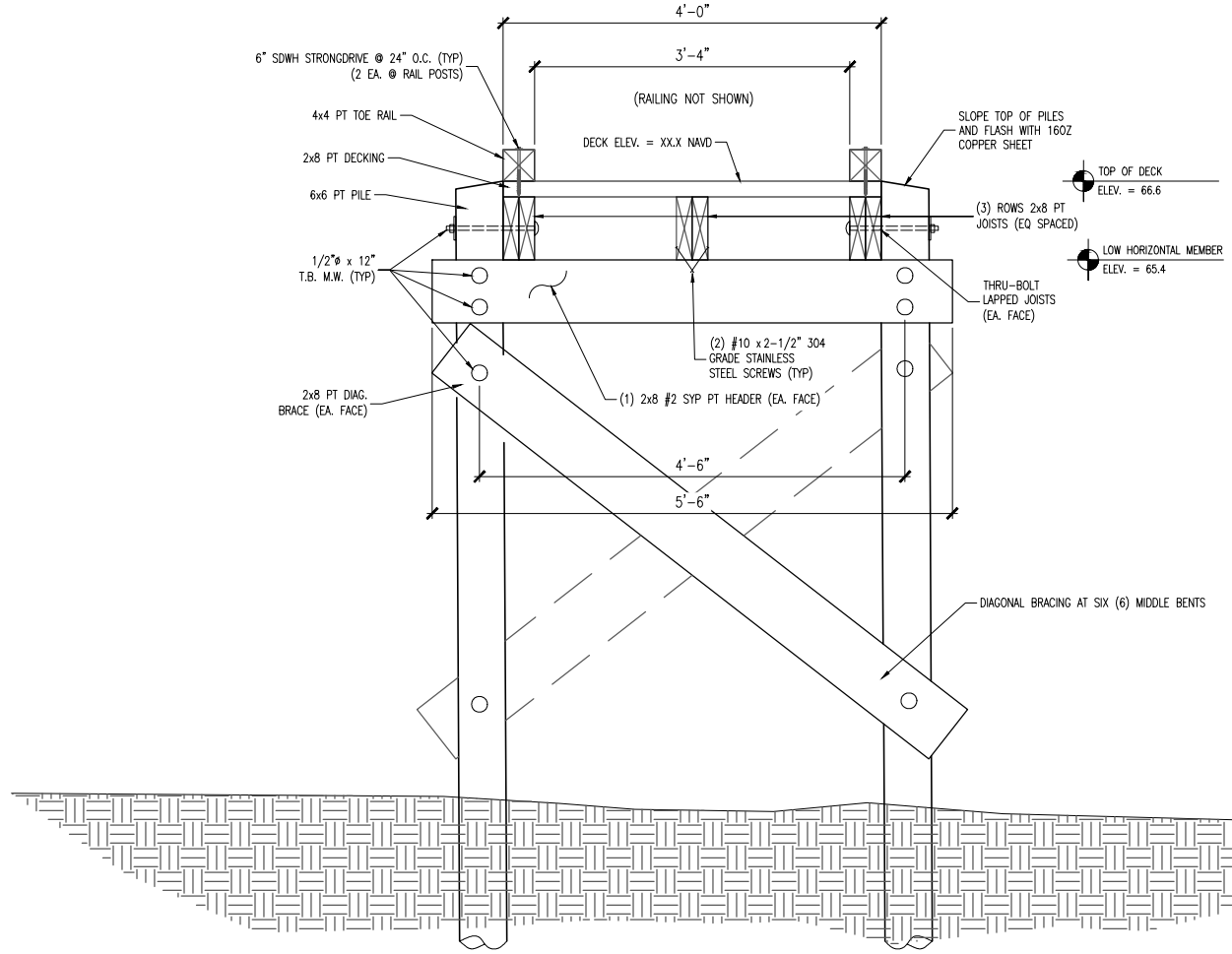
FLORIDA TRAIL OVER DEVILS CREEK BRIDGE

BRIDGE ELEVATION

CEI PROJECT NO. 22-004.08

SHEET NO. S3





ELEVATION VIEW

CROSS SECTION VIEW

INTERMEDIATE BENT DETAILS

SCALE: 1/2" = 1FT

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

PREPARED BY:

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CIVIL - STRUCTURAL - MARINE
120 SOUTH EDISON AVE.
TAMPA, FL 33606
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CERTIFICATE NO. 6828

PREPARED FOR:

FLORIDA TRAIL ASSOCIATION
1022 NW 2nd Steet
Gainesville, FL 32601

	NAME	DATE
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SUPERVISED BY:	JC	

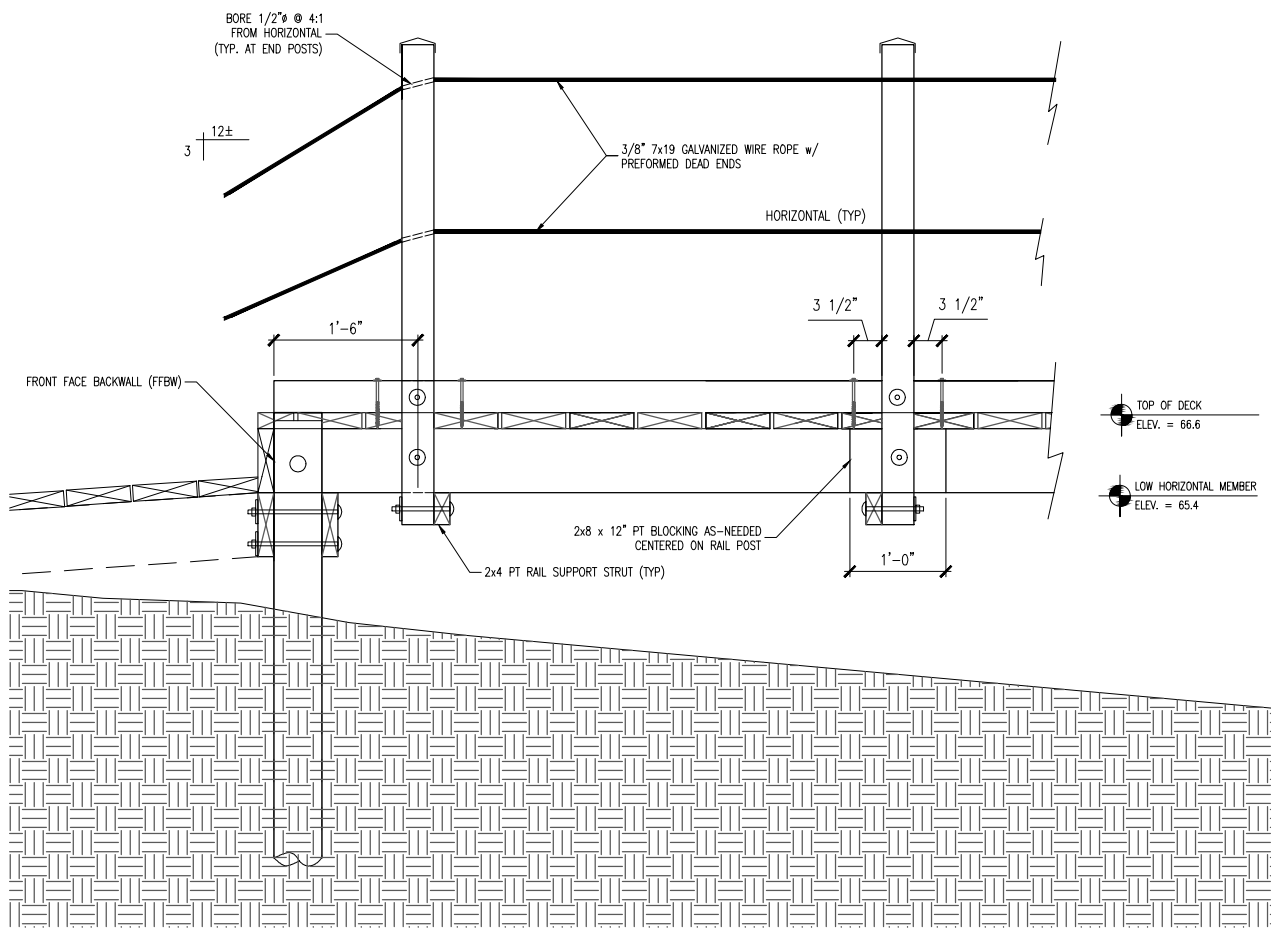
APPROVED BY:

JAMES CATALANO, PE
PE No. 42507

FLORIDA TRAIL OVER DEVILS CREEK BRIDGE

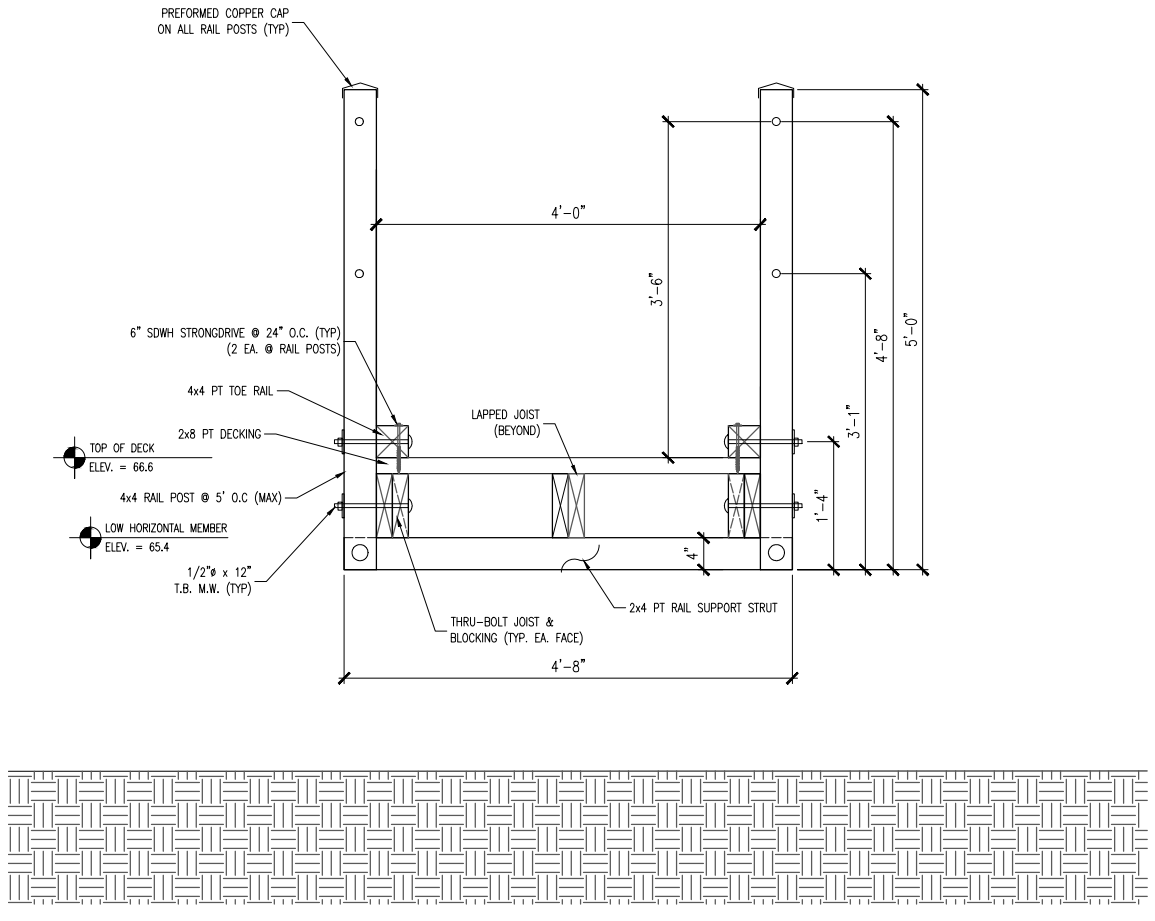
BRIDGE BENT DETAILS

CEI PROJECT NO.	SHEET NO.
22-004.08	S4



BRIDGE THRESHOLD DETAIL

SCALE: 1/2" = 1FT



BRIDGE DECK CROSS SECTION

SCALE: 1/2" = 1FT

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

PREPARED BY:

Catalano Engineering, Inc.
CIVIL - STRUCTURAL - MARINE
120 SOUTH EDISON AVE.
TAMPA, FL 33606
(813) 254-1265
CERTIFICATE NO. 6828

PREPARED FOR:

FLORIDA TRAIL ASSOCIATION
1022 NW 2nd Steet
Gainesville, FL 32601

	NAME	DATE
DESIGNED BY:	JR	
DRAWN BY:	CM	
CHECKED BY:	JC	
SUPERVISED BY:	JC	

APPROVED BY:

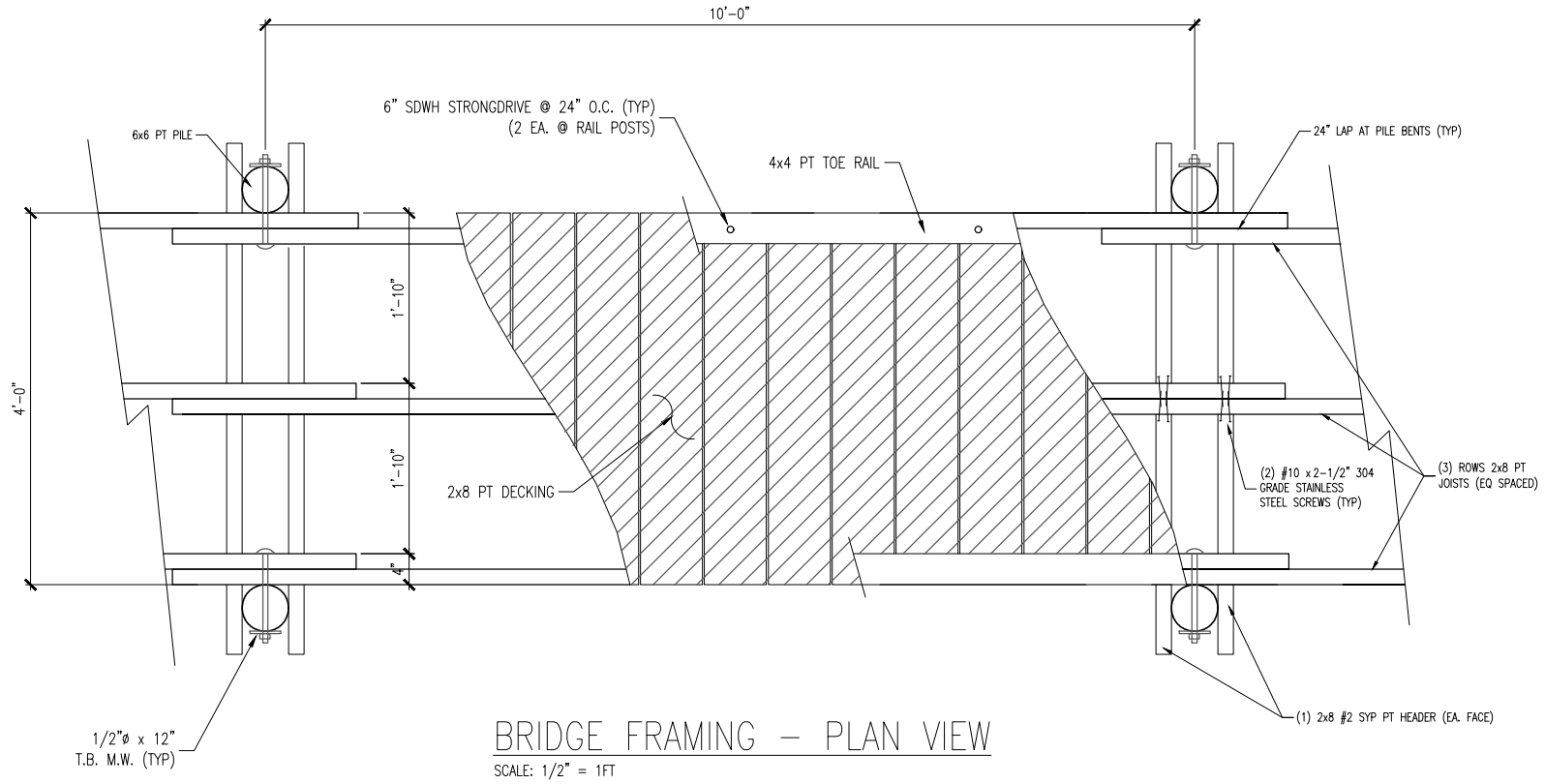
JAMES CATALANO, PE
PE No. 42507

FLORIDA TRAIL OVER DEVILS CREEK
BRIDGE

BRIDGE BENT DETAILS

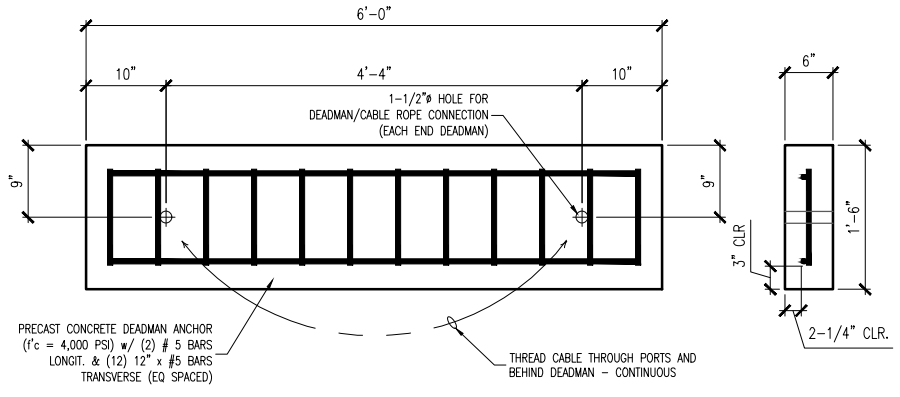
CEI PROJECT NO.: 22-004.08

SHEET NO.: S5



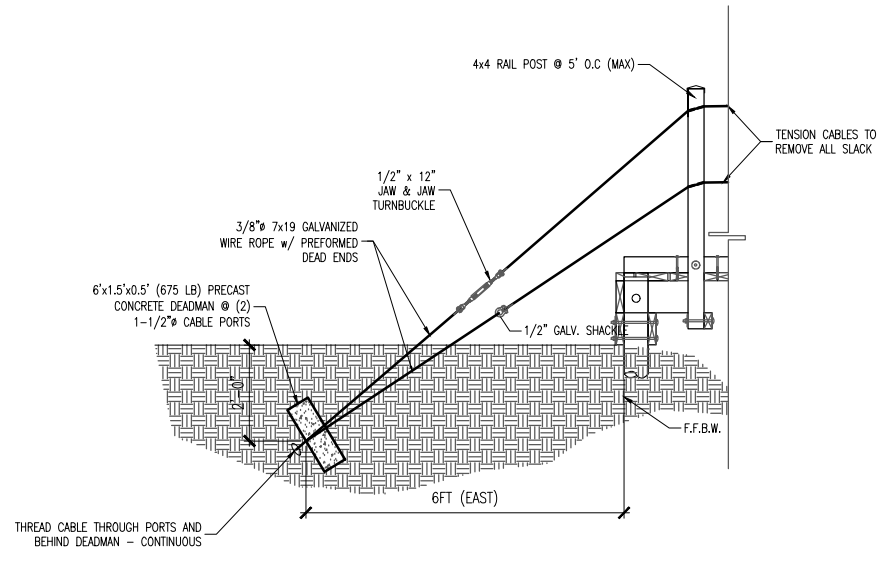
BRIDGE FRAMING – PLAN VIEW

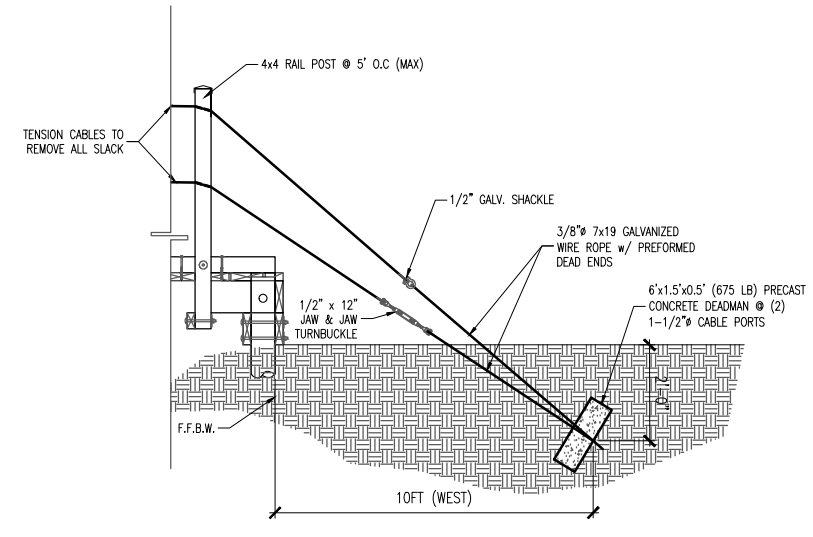
SCALE: 1/2" = 1FT



DEADMAN ANCHOR DETAIL

SCALE: 1/2" = 1FT





BRIDGE DECK RAIL TERMINAL/ANCHOR DETAIL

SCALE: 1/4" = 1FT

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED

PREPARED BY:

Catalano Engineering, Inc.
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PREPARED FOR:

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	NAME	DATE
DESIGNED BY:	JR	
DRAWN BY:	CM	
CHECKED BY:	JC	
SUPERVISED BY:	JC	

APPROVED BY:

JAMES CATALANO, PE
PE No. 42507

FLORIDA TRAIL OVER DEVILS CREEK BRIDGE

DECK & ANCHORAGE DETAILS

CEI PROJECT NO.: 22-004.08

SHEET NO.: S6

311: Reserved

312: USFS Trail Class Matrix

Trail Class Matrix (FSH 2353, Section 14.2, Exhibit 01)

Trail Classes are general categories reflecting trail development scale, arranged along a continuum. The Trail Class identified for a National Forest System (NFS) trail prescribes its development scale, representing its intended design and management standards.[1] Local deviations from any Trail Class descriptor may be established based on trail-specific conditions, topography, or other factors, provided that the deviations do not undermine the general intent of the applicable Trail Class.

Identify the appropriate Trail Class for each National Forest System trail or trail segment based on the management intent in the applicable land management plan, travel management direction, trail-specific decisions, and other related direction. Apply the Trail Class that most closely matches the management intent for the trail or trail segment, which may or may not reflect the current condition of the trail.

Trail Attributes	Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Class 5 Fully Developed
Tread & Traffic Flow	• Tread intermittent and often indistinct • May require route finding • Single lane with no allowances constructed for passing • Predominantly native materials	• Tread continuous and discernible, but narrow and rough • Single lane with minor allowances constructed for passing • Typically native materials	• Tread continuous and obvious • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Native or imported materials	• Tread wide and relatively smooth with few irregularities • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Double lane where traffic volumes are high and passing is frequent • Native or imported materials • May be hardened	• Tread wide, firm, stable, and generally uniform • Single lane, with frequent turnouts where traffic volumes are low to moderate • Double lane where traffic volumes are moderate to high • Commonly hardened with asphalt or other imported material
Obstacles	• Obstacles common, naturally occurring, often substantial and intended to provide increased challenge • Narrow passages; brush, steep grades, rocks and logs present	• Obstacles may be common, substantial, and intended to provide increased challenge • Blockages cleared to define route and protect resources • Vegetation may encroach into trailway	• Obstacles may be common, but not substantial or intended to provide challenge • Vegetation cleared outside of trailway	• Obstacles infrequent and insubstantial • Vegetation cleared outside of trailway	• Obstacles not present • Grades typically < 8%

Trail Attributes	Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Class 5 Fully Developed
Constructed Features & Trail Elements	• Structures minimal to non-existent • Drainage typically accomplished without structures • Natural fords • Typically no bridges	• Structures of limited size, scale, and quantity; typically constructed of native materials • Structures adequate to protect trail infrastructure and resources • Natural fords • Bridges as needed for resource protection and appropriate access	• Structures may be common and substantial; constructed of imported or native materials • Natural or constructed fords • Bridges as needed for resource protection and appropriate access	• Structures frequent and substantial; typically constructed of imported materials • Constructed or natural fords • Bridges as needed for resource protection and user convenience • Trailside amenities may be present	• Structures frequent or continuous; typically constructed of imported materials • May include bridges, boardwalks, curbs, handrails, trailside amenities, and similar features
Signs[2]	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulatory and resource protection signing infrequent • Destination signing, unless required, generally not present • Information and interpretive signing generally not present	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulatory and resource protection signing infrequent • Destination signing typically infrequent outside of wilderness; generally not present in wilderness • Information and interpretive signing not common	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing may be common • Destination signing likely outside of wilderness; generally not present in wilderness • Information and interpretive signs may be present outside of wilderness	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common outside of wilderness; generally not present in wilderness • Information and interpretive signs may be common outside of wilderness • Accessibility information likely displayed at trailhead	• Route identification signing at junctions and for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common • Information and interpretive signs common • Accessibility information likely displayed at trailhead
Typical Recreation Environs & Experience[3]	• Natural, unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Primitive to Semi-Primitive	• Natural, essentially unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Primitive to Semi-Primitive	• Natural, primarily unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Semi-Primitive to Transition	• May be modified • ROS: Typically Semi-Primitive to Rural • WROS: Typically Portal or Transition	• May be highly modified • Commonly associated with visitor centers or high-use recreation sites • ROS: Typically Roaded Natural to Urban • Generally not present in wilderness

[1] For National Quality Standards for Trails, Potential Appropriateness of Trail Classes for Managed Uses, Design Parameters, and other related guidance, refer to FSM 2353, FSH 2309.18, and other applicable agency references.

[2] For standards and guidelines for the use of signs and posters along trails, refer to the Sign and Poster Guidelines for the Forest Service (EM-7100-15).

[3] The Trail Class Matrix shows the combinations of Trail Class and Recreation Opportunity Spectrum (ROS) or Wilderness Recreation Opportunity Spectrum (WROS) settings that commonly occur, although trails in all Trail Classes may and do occur in all settings. For guidance on the application of the ROS and WROS, refer to FSM 2310 and 2353 and FSH 2309.18.

313: USFS Trail Design Parameters for Hiker / Pedestrian

Trail Design Parameters

Hiker/Pedestrian (FSH 2309.18, Section 23.11, Exhibit 01)

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent.[1] Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use HIKER/PEDESTRIAN		Trail Class 1	Trail Class 2	Trail Class 3[2]	Trail Class 4[2]	Trail Class 5[2]
Design Tread Width	**Wilderness** (Single Lane)	0″ – 12″	6″ – 18″	12″ – 24″ Exception: may be 36″ – 48″ at steep side slopes	18″ – 24″ Exception: may be 36″ – 48″ at steep side slopes	Not applicable
	Non-Wilderness (Single Lane)	0″ – 12″	6″ – 18″	18″ – 36″	24″ – 60″	36″ – 72″
	Non-Wilderness (Double Lane)	36″	36″	36″ – 60″	48″ – 72″	72″ – 120″
	Structures (Minimum Width)	18″	18″	18″	36″	36″
Design Surface[3]	**Type**	Native, ungraded May be continuously rough	Native, limited grading May be continuously rough	Native, with some onsite borrow or imported material where needed for stabilization and occasional grading Intermittently rough	Native with improved sections of borrow or imported material, and routine grading Minor roughness	Likely imported material, and routine grading Uniform, firm, and stable
	Protrusions	≤ 24″ Likely common and continuous	≤ 6″ May be common and continuous	≤ 3″ May be common, not continuous	≤ 3″ Uncommon, not continuous	No protrusions
	Obstacles (Maximum Height)	24″	14″	10″	8″	No obstacles
Design Grade[3]	**Target Grade**	5% – 25%	5% – 18%	3% – 12%	2% – 10%	2% – 5%
	Short Pitch Maximum	40%	35%	25%	15%	5% FSTAG: 5% – 12%[2]
	Maximum Pitch Density	20% – 40% of trail	20% – 30% of trail	10% – 20% of trail	5% – 20% of trail	0% – 5% of trail

Designed Use HIKER/PEDESTRIAN		Trail Class 1	Trail Class 2	Trail Class 3[2]	Trail Class 4[2]	Trail Class 5[2]
Design Cross Slope	**Target Cross Slope**	Natural side slope	5% – 20%	5% – 10%	3% – 7%	2% – 3% (or crowned)
	Maximum Cross Slope	Natural side slope	25%	15%	10%	3%
Design Clearing	**Height**	6′	6′ – 7′	7′ – 8′	8′ – 10′	8′ – 10′
	Width	≥ 24″ Some vegetation may encroach into clearing area	24″ – 48″ Some light vegetation may encroach into clearing area	36″ – 60″	48″ – 72″	60″ – 72″
	Shoulder Clearance	3″ – 6″	6″ – 12″	12″ – 18″	12″ – 18″	12″ – 24″
Design Turn	**Radius**	No minimum	2′ – 3′	3′ – 6′	4′ – 8′	6′ – 8′

[1] For definitions of Design Parameter attributes (for example, Design Tread Width and Short Pitch Maximum) see FSH 2309.18, Section 05.

[2] Trail Classes 3, 4, and 5, in particular, have the potential to provide accessible passage. If assessing or designing trails for accessibility, refer to the Forest Service Trail Accessibility Guidelines (FSTAG) for more specific technical provisions and tolerances (FSM 2350).

[3] The determination of trail-specific Design Grade, Design Surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.