National Forest Foundation

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Request for Proposals

Port Chalmers Cabin Construction

Chugach National Forest, Cordova, Alaska

NFF Background:

The National Forest Foundation (NFF) is a congressionally chartered nonprofit organization with the simple mission of bringing people together to restore and enhance National Forests and Grasslands. The NFF is the leading organization inspiring personal and meaningful connections to our National Forests, the centerpiece of America's public lands. Working on behalf of the American public, the NFF leads forest conservation efforts, increasing wildfire resilience, restoring lands and watersheds, and improving recreation experiences. We believe these lands, and all they provide, are an American treasure and are vital to the health of our communities.

Project Purpose:

This project is a cabin replacement in a new location on Montague Island in Prince William Sound, Alaska. The original Port Chalmers Cabin, located in an area that is susceptible to high winds, was destroyed when winds ripped the roof off the cabin. The previous site was also known for its poor, shallow anchorage. The new location, where the replacement cabin will be sited, is more sheltered from wind and in a bay with better, deeper anchorage. In addition, the location has a wide, evenly graded beach that is accessible by boat in most tides and is great for walking. There are streams near the cabin for water, and easy muskeg access for hiking and hunting.

The project site is adjacent to a gravel beach and is vegetated. The grades range from 15% to 20% in the area where the cabin, site amenities, and outhouse will be located. Behind the cabin site, the ground steepens and rises in elevation by over 20'. Predominant vegetation is spruce and hemlock. The gravel beach is approximately a quarter mile long.

Statement of Work:

This Request for Proposals is for design and construction services related to a boardwalk, puncheon, barrel system outhouse, and cabin foundation; as well as complete construction of the Port Chalmers cabin and associated site amenities, including outdoor seating area, deer hang, and woodshed.

The Port Chalmers Cabin will be constructed as a 16'x20' single story "kit cabin" with an 8'x16' covered deck; similar to a Pan-Abode cedar kit cabin recently constructed at Martin Lake. A conceptual layout and specifications for the Port Chalmers Cabin are provided with the intent for the Contractor to procure cabin design and fabrication

services from a cabin kit manufacturer, such as Pan-Abode. The structure shall meet the following structural requirements listed in the specifications: Section 011000 for ground snow load, floor live load, wind, and seismic. The Contractor will build cabin shelves and furniture. Alaska sourced wood is required for all interior shelving and furniture.

The Contractor shall also be responsible for the cabin foundation, barrel system outhouse, and a ~275 foot puncheon/boardwalk design and construction. A geotechnical investigation was conducted at the Port Chalmers project site, and ground water level is ~2 feet from existing ground surface; however, it is the responsibility of the Contractor to investigate the site and determine the most feasible foundation design for the cabin, outhouse, and boardwalk/puncheon. AK PE Engineer stamped drawings are required for all design elements.

A nearly complete design for a barrel system outhouse is included with this RFP, which Contractor shall use as the basis for design.

The Contractor shall also be responsible for constructing a woodshed, miscellaneous benches and tables, gravel pathway and a deer hang.

The Contractor is responsible for site preparation, including clearing. See Appendix C for the photos. A vegetation screen was at the shoreline may be removed with NFF/USFS approval.

Competitive Price Range:

The expected competitive range for bids to this solicitation is The expected competitive range for bids to this solicitation is $800,000 to $950,000.

Timeline:

This Request for Proposals will close and all proposals will be due on December 11th, 2026 at 5:00pm AKST. Changes in the closing date for this Request for Proposals will be updated on the NFF website at https://www.nationalforests.org/rfp under the link for this project's Request for Proposals. Please check the website for updates to the solicitation prior to submitting your proposal.

NFF and USFS will host a virtual pre-bid meeting to answer relevant questions on Tuesday, November 17th, 2026 at 1 pm AKST. Please email toverby@nationalforests.org to rsvp and receive the meeting link.

The NFF anticipates being able to enter a contract with any selected bidder(s) by January 15, 2027, with a projected contract start date of January 15, 2027 All contract related dates are estimates and subject to change at the NFF's sole discretion.

I. PROJECT OVERVIEW AND REQUIREMENTS

A. Project Overview

1. Description of Work. This Request for Proposals is for design and construction services related to the Port Chalmers Cabin project, located on the Chugach National Forest(s). Work on this project will include design and construction of a boardwalk/puncheon, barrel system outhouse and cabin foundation; selection and complete construction of a 16’ x 20’ cabin kit with covered deck; and construction of interior cabin shelving and furniture, gravel access trail, an accessible ramp, outdoor seating area, deer hang, and woodshed. All delegated design services shall be performed by appropriately licensed design professionals. Project includes potential structural revisions to the cabin kit to accommodate site conditions. The selected Contractor will be responsible for performing the services and providing the deliverables as follows:

    a) Pre-Construction: Design brief for cabin kit (Pan-Abode or similar), and draft plans and specifications for review at 60%, 90%, and 100% for all design elements.
        i. The Cabin design brief shall include the design management approach and any construction concerns or constraints due to schedule, budget, materials, constructability, transport, code, compliance etc.
        ii. 60% Design Deliverables and Review
            1. The selected contractor shall submit concept shop drawings of the cabin kit manufacturer product for USFS/NFF review.
            2. The selected contractor shall submit draft designs for the cabin and outhouse foundations with a calculation package.
                a. Additional geotechnical site investigation is the responsibility of the designer.
                b. A 90% design of a barrel system outhouse is attached for reference only. The contractor is to use this barrel system outhouse design as a starting point for design and shall be responsible for changes as shown on the plans or a required for the loading of the structure.
            3. The selected contractor shall submit concept shop drawings for the boardwalk/puncheon system from the high tide line to the cabin (approximately 275 LF). From high tide line to approximately 95 LF inland will require boardwalk. A standard boardwalk drawing is attached within the drawings. Contractor may have to change foundation type from helical to another option depending on the geotechnical investigation.
            4. Allow USFS 3 weeks to review
            5. Responses from contractor/designer must be submitted to the USFS/NFF once deliverables have been returned.

iii. 90% Deliverables and Review
    1. Submit all shops drawings for the cabin, boardwalk/puncheon and outhouse (structures and foundations) as well as calculation packages.
    2. Shop drawings showing assembly information, type/dimension of lumber, color, connection detail and all other information required construction of the project.
    3. Allow USFS 2 weeks to review.
    4. Responses from contractor/designer must be submitted to the USFS/NFF once deliverables have been returned.

iv. 100% Deliverables and Review
    1. Submit all drawings stamped by an Alaska licensed engineer.
        a. Stamp is required for all foundations, cabin & outhouse structures, and the boardwalk within the surge zone.
    2. 100% designs and manufactures' specifications must be provided in both pdf and original format (AutoCAD/Word).
    3. Purchase of the cabin kit manufacturer product may commence once the USFS has accepted stamped drawings.

v. Submittals prior to Mobilization (1 month prior to mobilization)
    1. Submit for review and approval all submittals listed in the specifications in regards to Contractor's operations (camping, quality control, access, etc.).

vi. Submittals Prior to Construction (1 month prior to start of construction activities)
    1. Site and Cabin layout will need to be approved by NFF and relevant USFS staff before construction. If there are elements of the design that can begin prior to 100% final construction drawings and specifications approval, it will require written approval by NFF and USFS.
    2. The selected contractor shall stake the corners of the cabin, deck, outhouse, gravel pad, gravel trail, and centerline of the boardwalks and puncheons. Once contractor has staked these elements the USFS will meet with contractor and verify the layout meets all standards and make any layout adjustments as needed. Contractor shall have a general concept of foundation requirements/need and stake the foundation elements (piles/piers, etc) once layout of above grade features has been accepted by the USFS.

b) Construction and Site Work: Contractor will complete site work and will construct the new Port Chalmers Cabin, cabin furnishings and shelving, barrel system outhouse, boardwalk/puncheon, foundations, deer hang, and outdoor seating area.

    i. Prior to commencing any work on construction and site work, the

Contractor Representative shall meet with NFF and USFS in a pre-work meeting to review the construction drawings and specifications, work plans, and submittals. Construction may commence upon approval of the work plan and procedures.

ii. Contractor shall be responsible for procuring and transporting all building materials to the project site.

iii. Contractor shall be responsible for excavation work, fill and foundation work.

iv. Contractor shall be responsible for constructing and installing interior shelving and cabin furniture.

v. Contractor will be responsible for Cabin perimeter (excavation, embankment, wasting, base course, drainage, surface course, finishing, etc.). Contractor will install clean free draining gravel below the cabin perimeter to allow surface flow to sheet off and drain downhill or to a location where surface water will transmit as far as practicable from the cabin structure.

vi. Contractor will clear and grub all areas below and beneath the cabin perimeter as well as below boardwalk/puncheon. Additional clearing may be needed to provide scenic view of beach from the cabin. Contractor is to leave as many trees as feasible. Remove and dead trees or hazard trees in the general vicinity of cabin or locations where a tree may damage any portion of the installed finished work items.

vii. Construction or installation of pathways from the cabin and the outhouse to the beach for routine servicing by the government, and all other site amenities (outlined in the Appendices) which will include a deer hang, woodshed, and an outdoor seating area.

c) Post Construction:

i. Contractor will be responsible for cleaning the construction site of all construction materials and waste. Any waste material generated is to be disposed of in an orderly manner and out of sight of both the cabin, puncheon, boardwalk, outhouse, and out of sight from the beach.

ii. Submittals to be maintained and submitted after construction

1. Maintain a full set of construction drawings and specifications on site and annotate with red line changes in the field to reflect as-built conditions.

2. Incorporate red line changes upon construction completion to produce accurate as-built record drawings.

2. Specifications. Project work shall be accomplished in accordance with the following specifications:

a) All applicable building codes.
b) All designs will be based on information provided in appendices/attachments and discussions with NFF and USFS. Attachments are listed in the flowdowns sections below.
c) All final designs will be in AutoCAD, file format .dwg, and Adobe pdf. They must be stamped by a licensed engineer and/or architect as appropriate.
d) All designs must meet the most current International Building Codes requirements.
e) The Architectural Barriers Act Accessibility Standards (ABAAS), as published by the United States Access Board, July 23, 2004.
f) Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG).
g) Forest Service Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects.
h) Standard Specification for Construction of Roads and Bridges on Federal Highway Projects (FP-14), and Forest Service Supplemental Specifications (FSSS)..
i) US Forest Service Best Management Practices (BMPs)
j) Sign and Poster Guidelines for the Forest Service, EM7100-15.
k) Design drawings shall bear the stamp of Alaska registered Architect or Professional Engineer. Calculations shall be prepared and stamped by a Professional Engineer licensed in the State of Alaska.
l) Project work shall also be accomplished in accordance with the following:
    i. Attachment A: Port Chalmers Drawing
    ii. Attachment B: Port Chalmers Specifications
    iii. Attachment C: Current Photos
    iv. Attachment D: Barrel System Outhouse Concept Design
    v. Appendix 1 – 5 are in reference to the General Specifications
        1. Appendix 1: RFI Form
        2. Appendix 2: Submittal Transmittal Form
        3. Appendix 3: Schedule of Submittal Registry
        4. Appendix 4: Environmental Summary
        5. Appendix 5: Plans Outline

3. Project Location.

a) Project Location: Valdez-Cordova Census area, Alaska

Port Chalmers: The selected Port Chalmers cabin site is located on the northwest shore of Montague Island in Prince William Sound of the Chugach Census Area, roughly 65 nautical miles from both Cordova and Whittier, Alaska. The coordinates of the site are: 60.27437, -147.18963 WGS84. Cell Service is not on site. Appendix C shows current photos of the location. Appendix 4 provides an environmental summary of the location.

b) Utilities/Site Conditions: In many locations there will be no or limited sanitation, water, electrical or housing services available. Bidders shall consider all relevant factors when submitting proposals for this work. Proposals should account for the need of the selected contractor to make its

own arrangements for temporary facilities if required. The work location and conditions for this project are as follows:

i. There are no utilities or facilities at the work site .
ii. To coordinate communication in the field, the selected contractor will be required to maintain a 2-way voice communication device, and the ability to send bi-weekly photos as there is not cell service.

4. Preserving Existing Infrastructure – ATV use is not allowed; contractor may use tracked equipment for construction or wheeled equipment with a ground pressure rating that will not cause irreparable damage. If minor damage does occur, seeding is listed below and mulch shall be native vegetated material that is removed during clearing and grubbing efforts. Seed mix is commercially available at Anchorage Mill and Feed stores.

Species	Variety	Percent of mix %		Total/AC
Deschamsia cespitosa	'Nortran'	60		24lbs
Elymus trachycaulus	'Wainwright'	20		8lbs
Festuca rubra	'Arctared'	20		8lbs

5. Work Schedule. No vegetation work, including clearing or grubbing is to be performed May 1 – July 15. Construction should be complete no later than November 30, 2027.

B. Other Requirements

1. Minimum Insurance. In accordance with the terms of the Services Agreement, prior to the start of any work, the successful Bidder (the "Contractor") will be required to maintain, and ensure that its subcontractors performing work described in the proposal (Subcontractors) maintain, the minimum coverages and comply with the insurance requirements indicated below.

a) Coverage Requirements

i. Commercial General Liability Insurance ("CGL"). Commercial general liability insurance, including bodily injury, property damage, personal injury, advertising injury, products and completed operations and contractual liability in the amount no less than:
- $1,000,000 each occurrence;
- $1,000,000 products/completed operations limit;
- $1,000,000 advertising injury and personal injury limit; and
- $2,000,000 general aggregate.

ii. Business Automobile Liability Insurance. If using motor vehicles (owned, hired, or borrowed) to deliver or perform the work described in the proposal, business automobile liability insurance with a minimum limit of $1,000,000 combined single limit each accident for bodily injury and property damage for all owned, rented leased or hired vehicles used in

conjunction with the performance of the services.

iii. Workers' Compensation Insurance. Statutory workers' compensation insurance in accordance with all state and local requirements of the state(s) in which services will be performed.

iv. Professional Liability/Errors and Omissions Insurance. Professional or errors and omissions liability insurance with combined single limits of $1,000,000 per occurrence and $1,000,000 aggregate, per year, covering the performance of the successful bidder and any of its Subcontractors under the Services Agreement.

b) Waiver of Subrogation. All insurance policies shall include a waiver of any and all rights of subrogation or recovery of the insurers thereunder against, inter alia, the NFF, and its assigns, successors, undertakings and their subsidiaries, affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.

c) Primary and non-contributory. With the exception of Workers' Compensation and Professional Liability insurance (if applicable), all insurance required to be maintained by Contractor shall be primary with respect to all claims arising out of Contractor's performance and/or activities under this Agreement, and any insurance or self-insurance maintained by the NFF shall be excess only and not be required to contribute with it.

d) "Claims Made" Coverage. Any liability insurance purchased on a "claims made" basis must be continuously maintained for a period equal to the applicable statute of repose, but in any case, not less than 3 years, following final performance or termination of Services, either through the continued purchase of insurance or the purchase of an extended reporting period. The retroactive date applicable to such "claims made" insurance, if any, must precede the first date on which Services are to be performed.

e) Verification of Coverage. Contractor will have furnished to the NFF original certificates of insurance and amendatory endorsements or copies of the applicable policy language effecting coverage required herein prior to or at the time of execution of the Agreement, and shall further provide evidence that the foregoing is in place and will not be cancelled or reduced during the term of the agreement. Contractor's and any Subcontractors' certificates of insurance will list "The National Forest Foundation" as an Additional Insured on its or their commercial general liability policy and business automobile liability policy (as applicable). Contractor will submit updated certificates of insurance upon expiration of the required policies.

2. Additional Insurance Requirements. In addition to the minimum insurances set-forth above, the NFF reserves the right to request additional coverage as reasonably necessary based on the scope, nature, and risks associated with the services to be performed, including, but not limited to:

a) If aircraft operations are required to deliver materials to the project site, Aviation/Aircraft Liability Insurance covering bodily injury or property damage caused by aircraft operations.
b) If Contractor will store large quantities of fuel onsite to operate heavy machinery, Commercial/Contractor's Pollution Liability Insurance covering clean-up costs, legal fees, and third-party damages from environmental contamination.
c) Umbrella/Excess Liability Insurance raising the limit on existing primary policies if the primary insurance limits are reasonably considered insufficient.

3. Payment/Performance Security. This RFP is for construction work and is subject to the Miller Act (40 U.S.C. §§ 3131–3134). If selected to contract with the NFF, the Bidder(s) shall therefore furnish both of the following, each in the full amount of the Agreement and in a form acceptable to the NFF, in its sole determination:

   a) Payment bond – to ensure payment of all amounts lawfully due to all persons supplying labor, laborers, materials, rental machinery, tools, or equipment used to perform the work, including those furnishing the Bidder's subcontractors; and
   b) Performance bond – to ensure completion of the work required under the Agreement.

   Bidders may incorporate the associated costs into mobilization costs or other approved expenses.

   The NFF will not provide blanket waivers of payment/performance security requirements though reserves the right to negotiate payment and performance security terms and conditions with selected contractors based upon legal requirements and organizational needs and policies.

4. Prevailing Wage. Work performed under this RFP and any resulting contract is subject to prevailing wage regulations under the Federal Davis-Bacon Act or other State legislation. All contractors and subcontractors bidding on this project must factor prevailing wage rates, including mandatory fringe benefits, and the maintenance of certified payroll into their cost proposals.

5. Prohibited Telecommunications Services and Equipment. If selected, Bidder(s) are responsible for compliance with the prohibition on certain telecommunications and video surveillance services or equipment identified in 2 CFR 200.216.

6. Flowdown Provisions. NFF funding for projects may vary but will frequently include public funds. As such, any Agreement associated with this RFP may be subject to flowdown requirements under associated federal or state funding agreements, which are included and made part of by this reference. Flowdown requirements are not negotiable and will not be removed or edited. While flowdown provisions may change depending on funding, the NFF has identified the following flowdown provisions as currently being required for any Work performed under this RFP and any resulting contract:

   - Attachment E: Federal Flowdowns

II. PROPOSAL REQUIREMENTS

A. Technical Proposal.

1. Minimum Requirements. Bidders shall submit a technical proposal for the work described in this RFP. Bidders shall consider all relevant factors when submitting proposals for this work. Bidders shall identify in their proposals what they can supply in terms of materials, labor, equipment, supplies, supervision, quality control, and incidentals required to complete the work as described. Proposals should account for the need of the selected contractor to make its own arrangements for temporary utilities and facilities, if required. Proposals shall be sufficient to guarantee that the selected contractor shall be able to perform all work in a safe and conscientious manner and in accordance with all industry standards. At a minimum, each proposal must include the following:
   a) An overview and description of the services provided by the Bidder that align with the requests in this RFP.
   b) A description of the project management or administration approach that will be followed by the Bidder to ensure that the identified work is completed on time and within budget.
   c) A project work plan and schedule that lists in detail the stages of work expected to be completed in this project, all identifiable deliverables, transportation and equipment to utilize and the dates on which the Bidder would anticipate being able to complete delivery of the work.
   d) A project personnel overview identifying key personnel to be utilized if selected to perform the work described in this RFP and any relevant or required credentials or certifications held by the key personnel.
2. Optional Requirements. Bidders may also include the following items in proposals as applicable:
   a) Any change or risk management approaches utilized by the Bidder when completing projects of the type described in this RFP.

B. Bidder Qualifications. Bidders shall submit a statement of their qualifications for the work described in this RFP. The statement should include the following items in narrative format:

1. Experience.
   a) Please provide a brief explanation of previous work experience with land management agencies, noting specifically any work performed on National Forests or Grasslands.
   b) Please provide a listing of relevant projects of similar size, scope, and total value performed by the Bidder within the past 5 years.
2. References.
   a) Please provide three professional references, identifying as applicable any government or conservation nonprofit references.

b) Provide the name, email address, and telephone number for each reference, as well as the dates of the projects during which the Bidder worked with each reference.

3. UEI. Successful bidders will be required to provide a Unique Entity Identifier (UEI). If you have a UEI, please provide it in your proposal or quote.
4. Federal Exclusion Verification. Bidder(s) will be required to affirm that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

C. Failed Projects or Legal Actions. Bidders shall identify any past failed projects and the reasoning behind the failure or incompletion. Bidders shall also identify any and all current or pending legal matters in which the Bidder or any of its principals is involved.

D. Pricing Schedule. Bidders shall price work according to the schedule below. If Bidders believe that an alternative method of pricing is more applicable, they may also provide an alternative pricing schedule in addition to the format requested below.

The NFF, in its sole discretion, reserves the right to utilize any alternative pricing schedule proposed by any Bidders.

All quantities and measurements identified in this RFP are based upon the best knowledge available to the NFF and are subject to change.

Due to the dynamic and changing nature of NFF funding, the NFF reserves the right to negotiate an increased cost with the selected Bidder in the event that prevailing wages become required for the work described in this RFP.

If the opportunity to add additional funding to the work described in this RFP arises, the NFF may increase the quantities of work to be performed as part of this project, as agreed upon by the NFF and the selected Bidder.

	Task/Item Description	**Unit of measure**	**# of Units**	**Unit Cost**	**Extended Cost**
(a)	Design for cabin foundation, outhouse (including foundation), boardwalk/puncheon, and shop drawings.	LUMP SUM	1		
(b)	Mobilization	LUMP SUM	1		
(c)	Cabin Structure, complete (materials and install)	LUMP SUM	1		

(d)	Cabin furniture, shelving, stoves, and cabin interior items amenities. Materials and installation.	LUMP SUM	1		
(e)	Boardwalk/puncheon, trails, woodshed, deer hang, stairs, and other exterior amenities. Materials and installation.	LUMP SUM	1		
(f)	Outhouse materials and installation.	LUMP SUM	1		
				Total Bid	

E. Payment Schedule. Bidders shall submit a proposed payment schedule consistent with their proposed pricing structure. Lump sum proposals should identify invoicing milestones tied to deliverables or project phases, while time-and-materials proposals should identify the anticipated invoicing frequency, cost of materials/supplies, and the applicable rates for invoicing. Proposed payment schedules are for evaluation purposes only. The final payment structure and invoicing terms will be negotiated with the selected Bidder and incorporated into the executed agreement.

Invoice Number	**Milestone/Deliverable**	**Corresponding Cost**
1.		
2.		
3.		
4.		
5.		
	Agreement Total	

F. Insurance Information. Bidders must identify the insurance coverage currently in place. If available, please attach sample certificates of insurance.

III. SUBMISSION, EVALUATION, AND CONTACTS

A. Bidder Selection Process

1. Bid Submission. Bidders shall submit proposals containing all of the required information described above via email at the address specified below by the stated deadline:

   a) **Submission Address:** toverby@nationalforests.org
   b) **Submission Deadline:** 5:00 pm AST on December 11, 2026

   Proposals submitted after this RFP closes will not be considered unless approved by the NFF. The NFF will review all proposals determined to be responsive using the evaluation factors listed below. Proposals may be deemed non-responsive for failure to submit any required information or for failure to comply with any terms of this RFP. Non-responsive proposals may be disqualified from evaluation in the sole discretion of the NFF.

2. Notification. If a proposal is selected by the NFF to advance to the contracting stage, the NFF will notify the successful Bidder via email by December 23rd, 2026. Once the selected Bidder has been notified, the NFF project representative will coordinate the drafting and negotiation of an NFF agreement outlining the terms and conditions of the work to be performed.

   Unsuccessful Bidders will be notified via email as soon as possible after the closing date of this RFP. Please Note: The NFF **will not** share any information about the organizations submitting proposals nor any information regarding the proposals submitted by other organizations. If a Bidder has questions about its proposal, the Bidder may ask the NFF Point of Contact identified below. If an answer can be provided, the NFF will respond via email as soon as it is able to do so.

3. Request for Proposals Only. This is a request for proposals only and bids furnished do not bind the NFF in any way. Selection of a bid will result in the opportunity to contract with the NFF but will not guarantee a resulting contract or any amount of work. The NFF reserves the right to disqualify any incomplete or improper proposal submitted as non-responsive. The NFF may also decide not to select any proposals submitted to this RFP for advancement to contract negotiations. This request does not commit the National Forest Foundation to pay any costs incurred in the preparation or submission of the proposal or to contract for supplies or services.

B. Evaluation Factors and Scoring

The following factors will be used to evaluate any responsive submitted proposals. The factors, as listed, are ordered from highest priority (Level 3) to lowest priority (Level 1). Each factor can receive a score from 1 point to 3 points. The number of points awarded will be multiplied by the priority level to determine the total score for each factor. (Example: If Price/Cost (level 3) is awarded 2 points, the total score for price would be 6 points.)

Level 3 Criteria	Level 2 Criteria	Level 1 Criteria
• Price / cost • Equipment and contractor capability • Timing of when contractor can begin and/or finish the project • Past performance, references, and USFS feedback	• Technical proposal / proposed approach to project • Overall strategic benefits to meeting NFF goals and grant needs, requirements, and timelines	• Benefits to the local community • Relationship to local community • <<Additional selection criteria, as applicable>>

C. Point of Contact

Any questions about this Request for Proposals shall be submitted in writing to the NFF contact identified below. Questions determined to be of importance to all potential Bidders will be posted as an attachment to an updated version of this RFP at https://www.nationalforests.org/rfp.

Telsche Overby
National Forest Foundation Alaska Program Manager
toverby@nationalforests.org

D. Bid Submission

Submit bids via email to toverby@nationalforests.org by December 11, 2026

E. Equal Opportunity Provider

In accordance with Federal law and U.S. Department of Agriculture policy, the National Forest Foundation is prohibited from discriminating on the basis of race, color, national origin, sex, age, religion, political beliefs, or disability.

Attachment A: Port Chalmers Drawing

U.S. DEPARTMENT OF AGRICULTURE

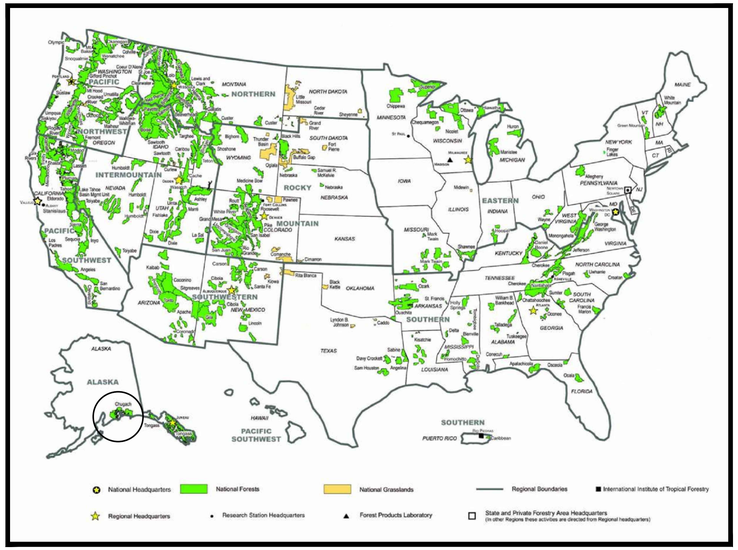
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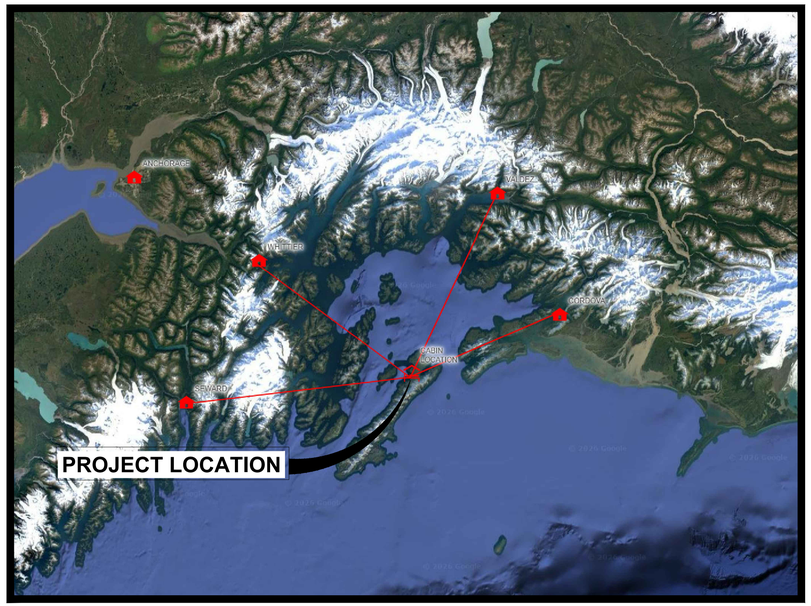
PLANS FOR **CABIN CONSTRUCTION**

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST
CORDOVA RANGER DISTRICT
CORDOVA CENSUS AREA



FOREST LOCATION



VICINITY MAP

LOCATION DESC.:CABIN LOCATION: 60.27437, -147.18963 WGS84
DISTANCE TO THE FOLLOWING:
WHITTIER: 62 MILES (HAS A PORT)
SEWARD: 75 MILES (HAS A PORT)
CORDOVA: 52 MILES (HAS A PORT)
VALDEZ: 67 MILES (HAS A PORT)

Alaska DIGLINE 811

Sheet List Table	
Sheet Number	Sheet Title
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3	V01 - PORT CHALMERS SURVEY
4	C01 - SITE PLAN
5	C02- OUTHOUSE SECTION
6	A1 - FLOOR PLAN & SECTION
7	A2 - ELEVATION VIEWS
8	A3 - RAMP & STAIRS
9	A4 - INTERIOR LAYOUT
10	S01 - CONCEPTUAL FOUNDATION PLAN
11	A5 - BUNK SECTIONS
12	A6 - SHELF ELEVATION & PLAN
13	A7 - TABLE VIEWS
14	A8 - BENCH VIEWS
15	A9 - WOOD HOOKS
15.1	A9A - DEER HANG (1960s)
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18	G01 TIMBER BOARDWALK
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20	G02 - BOARDWALK 2 OF 2
21	EXISTING CONDITION IMAGES 1 OF 2
22	EXISTING CONDITION IMAGES 2 OF 2

RECOMMENDED BY:

RECOMMENDED BY:

STEVEN NAMITZ — Digitally signed by STEVEN NAMITZ Date: 2026.04.23 10:42:46 -08'00'
DISTRICT RANGER

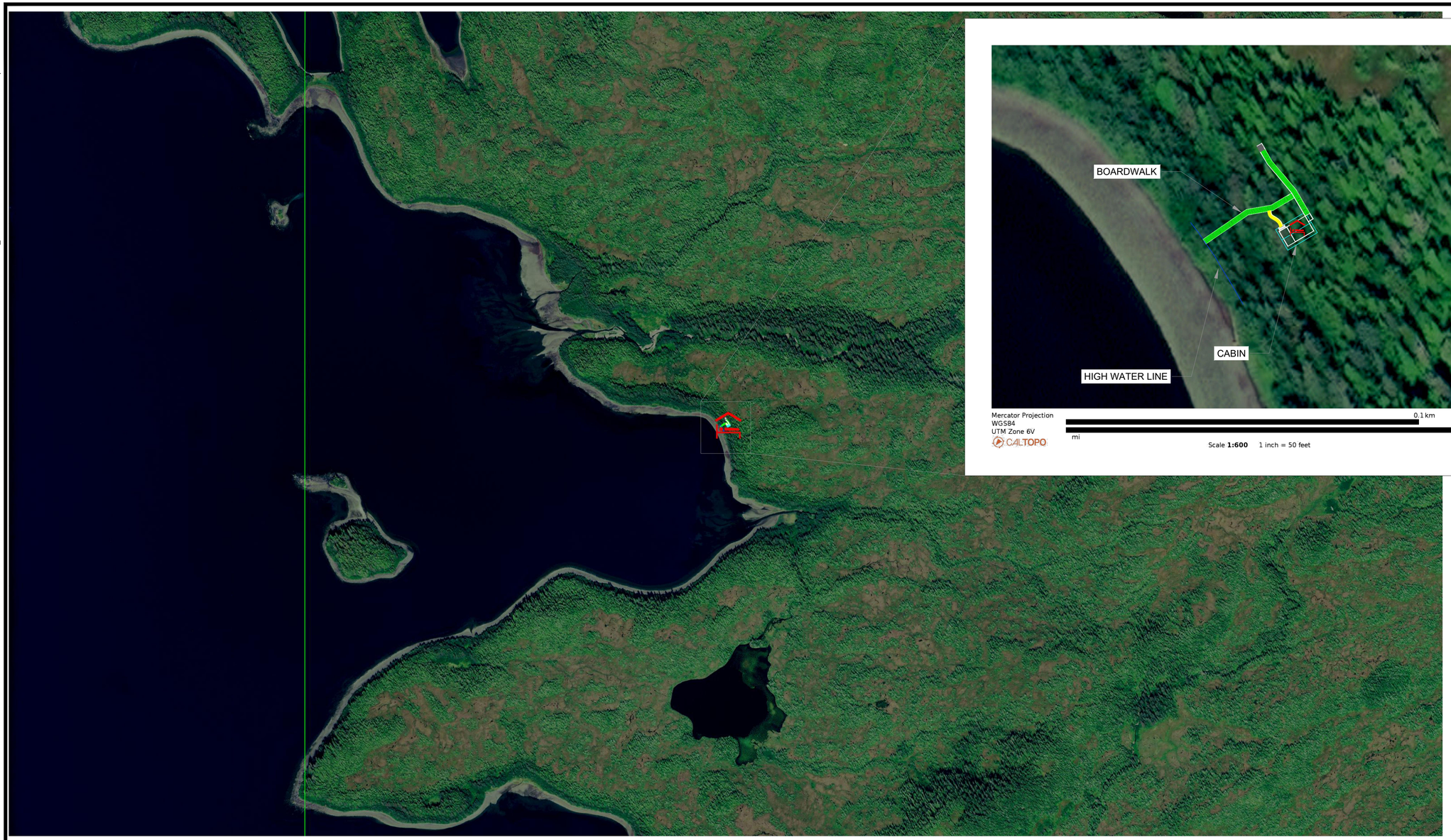
TYLER GLENN — Digitally signed by TYLER GLENN Date: 2026.04.23 13:21:19 -08'00'
PUBLIC SERVICES STAFF OFFICER

GRIFFITH BERG — Digitally signed by GRIFFITH BERG Date: 2026.04.22 15:19:45 -08'00'
TECHNICAL SERVICES STAFF OFFICER

APPROVED:

Digitally signed by JENNIFER YOUNGBLOOD Date: 2026.04.27 09:13:15 -08'00'
FOREST SUPERVISOR

JORDAN HALL — Digitally signed by JORDAN HALL Date: 2026.05.12 09:41:49 -08'00'
REGIONAL DIRECTOR OF ENGINEERING



USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

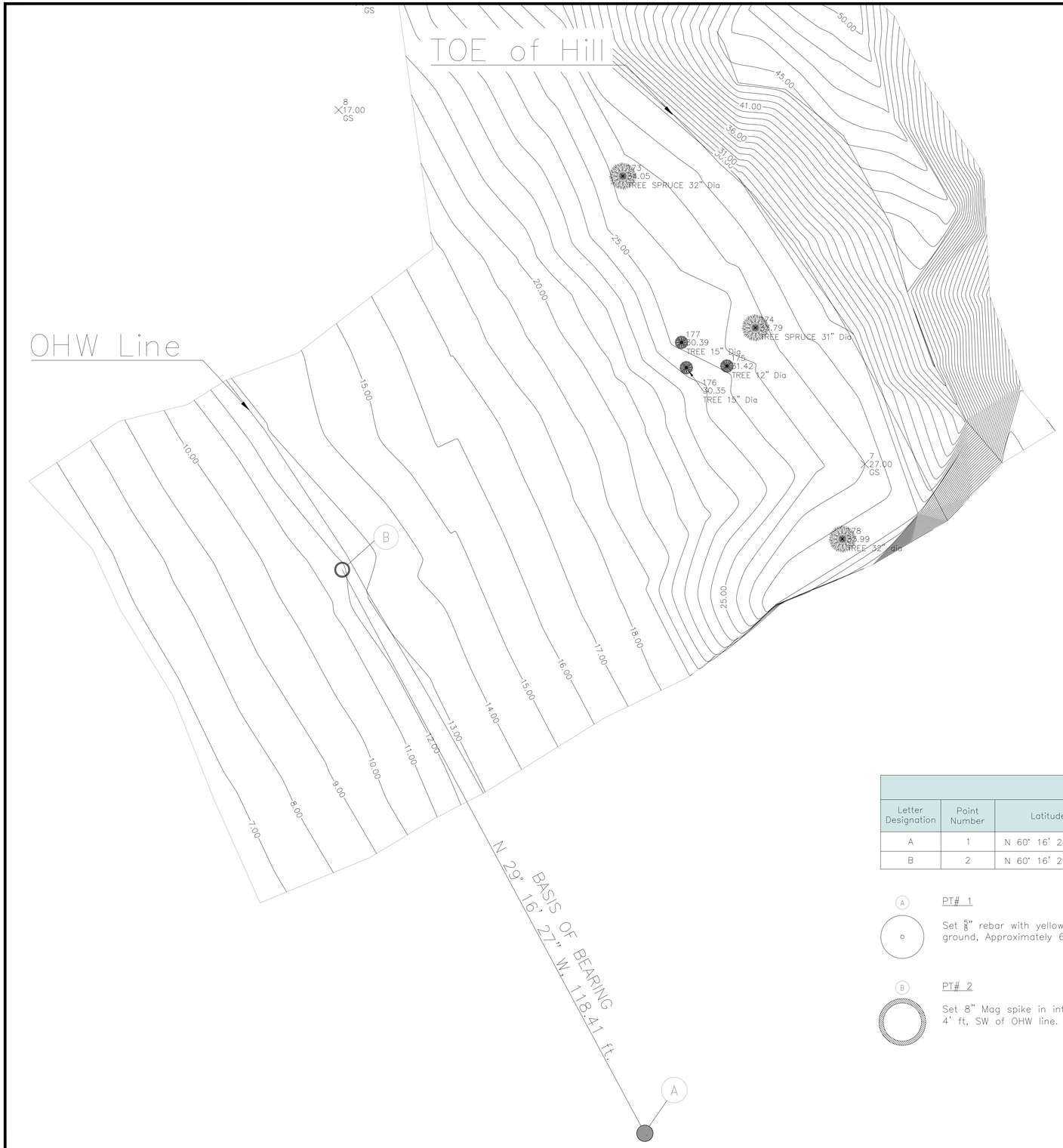
G01 OVERVIEW MAP

DATE
02/03/26

ARCHIVE NO.

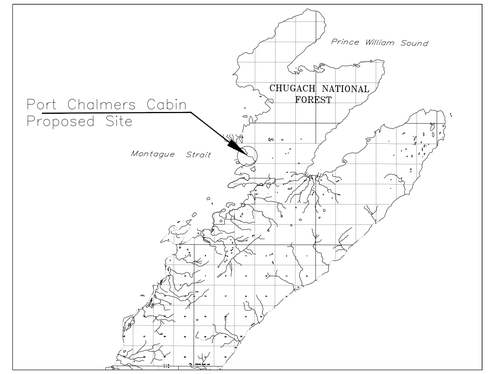
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CHECKED: USFS	
PROJECT NO.: 1	SHEET 2 OF 22

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Source: NOAA Magnetic Declination Calculation for 8-10-2022



Compilation of Seward (A-2) & Blying Sound (D-1 & D-2), Alaska – 1990 PBS Quad – and Chugach National Forest GIS Data Base

Notes:

1. The purpose of this survey was to collect topographic and site feature information for future planning and design of a new cabin know as the Port Chalmers new cabin site on Montague Island in Prince William Sound.

2. All distances and elevations on this plat are shown in US Survey Feet. All bearings are true unless otherwise noted.

3. The contour interval shown is 1.0 US Survey Foot.

4. The Geographic Position for PT #1 was determined using high precision GNSS RTK survey methods based on a solution computed by the NGS OPUS utility for PT #1 and are referenced to NAD83 (2011) (EPOCH: 2010.0000)

Geographic Position for PT#1
Lat 60° 16' 28.572" N
Long 149° 11' 26.996" W (NAD83) (2011)

5. All elevations shown hereon are expressed as orthometric heights in US Survey Feet and are referenced to NAVD88. Site contours, road, stream and feature elevations are relative to the computed height (elevation) of 13.97 ft. at PT #1 based on the NGS OPUS utility solution as noted above. Orthometric heights were determined by applying the geoidal height from NGS model GEOID12B (Alaska).

6. The Basis of Bearing is the geodetic True Bearing of N 29° 16' 27" W between PT #1 and PT #2 computed from GNSS static and RTK observations.

7. Grid Coordinate values shown hereon are US State Plane, Zone 3, NAD83 (2011), US Survey Feet. The ground scale factor computed at Point #1 is 0.99995318.

Control Points

Letter Designation	Point Number	Latitude	Longitude	Elevation	Northing	Easting
A	1	N 60° 16' 28.573"	W 149° 11' 27.996"	13.97'	2294213.91'	1424251.98'
B	2	N 60° 16' 29.590"	W 149° 11' 28.144"	11.80'	2294313.64'	1424193.11'

PT# 1

Set $\frac{5}{8}$" rebar with yellow plastic cap, flush with ground, Approximately 6' ft NE of OHW line.

PT# 2

Set 8" Mag spike in inter tidal zone, approximately 4' ft, SW of OHW line.

LEGEND:

- Culvert
- Concrete
- Gravel
- Asphalt
- Outhouse
- Utility Pole
- Sign
- Contour Line (1' Interval)
- USDA Forest Service yellow plastic cap on 5/8" diam. rebar, set this survey.
- A 8" Duranail Spike, set this survey.

PREPARED BY:
USDA FOREST SERVICE – R10
CHUGACH NATIONAL FOREST
161 EAST 1st AVE., DOOR 8
ANCHORAGE, ALASKA 99501

DATE OF SURVEY:
BEGINNING DATE: August 8, 2022
ENDING DATE: August 8, 2022

PROJECT NO.: 7074-22

DRAWN BY: G. Stafford DATE: 12-30-2022

CHECKED BY: DATE: 10-14-2022

EQUIPMENT: Trimble R12, R10 GNSS Receivers
Trimble TSC7, TSC5 Data Collectors
Nikon 2.C. Total Station

LOCATED: Cordova Ranger District
Secs 9, T. 2 N., R. 13 E., SM

Port Chalmers New Cabin Site
Chugach National Forest, Cordova Ranger District

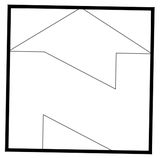
SURVEY NOTE: This Survey is current as of July 12, 2022.

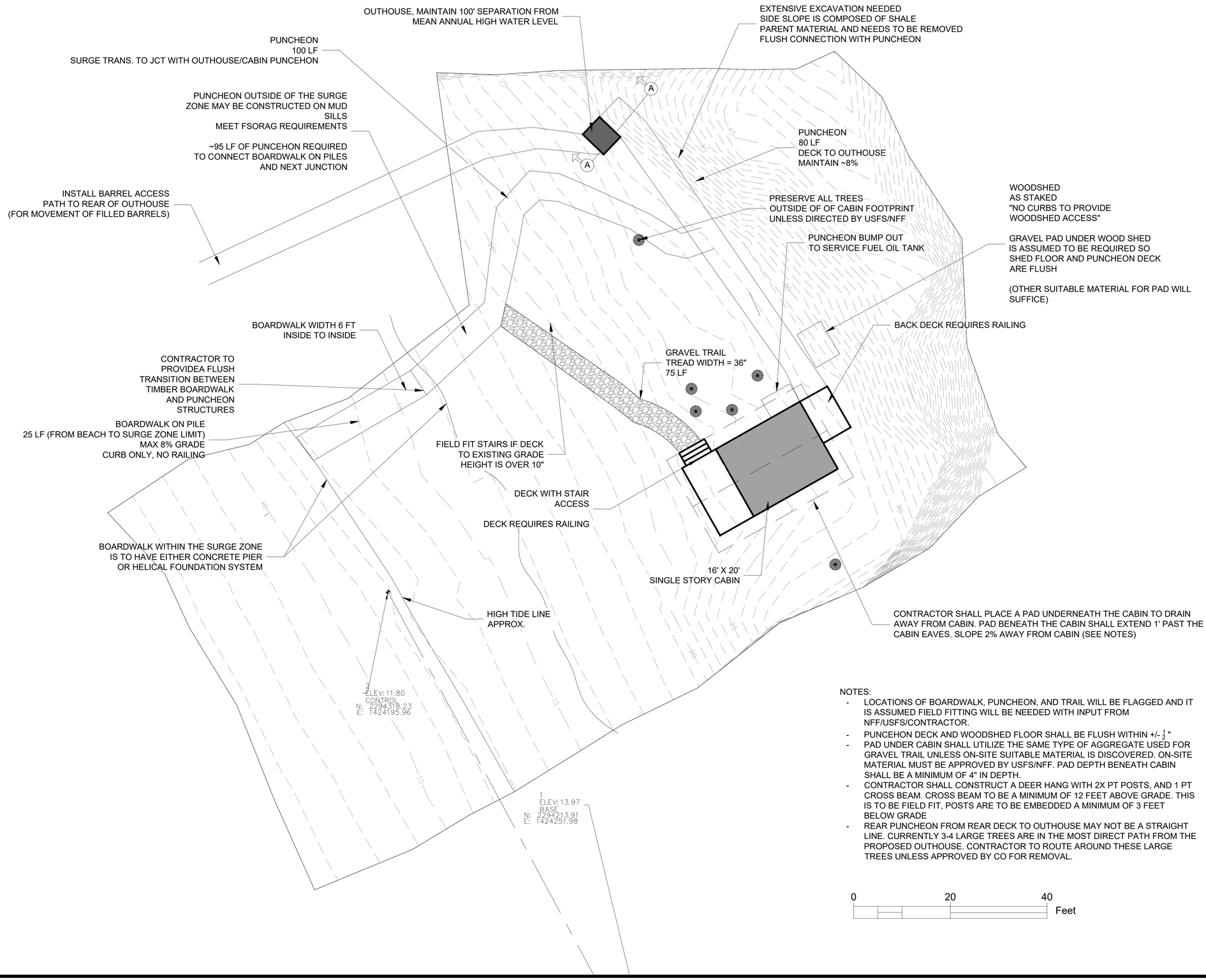
DRAWING NAME: Port_Chalmers_7074_22

Topo survey for Port Chalmers Cabin site

0 20 40
Feet

V – 01





NOTES:

- LOCATIONS OF BOARDWALK, PUNCHEON, AND TRAIL WILL BE FLAGGED AND IT IS ASSUMED FIELD FITTING WILL BE NEEDED WITH INPUT FROM NFF/USFS/CONTRACTOR.
- PUNCEHON DECK AND WOODSHED FLOOR SHALL BE FLUSH WITHIN +/- $\frac{1}{2}$ "
- PAD UNDER CABIN SHALL UTILIZE THE SAME TYPE OF AGGREGATE USED FOR GRAVEL TRAIL UNLESS ON-SITE SUITABLE MATERIAL IS DISCOVERED. ON-SITE MATERIAL MUST BE APPROVED BY USFS/NFF. PAD DEPTH BENEATH CABIN SHALL BE A MINIMUM OF 4" IN DEPTH.
- CONTRACTOR SHALL CONSTRUCT A DEER HANG WITH 2X PT POSTS, AND 1 PT CROSS BEAM. CROSS BEAM TO BE A MINIMUM OF 12 FEET ABOVE GRADE. THIS IS TO BE FIELD FIT, POSTS ARE TO BE EMBEDDED A MINIMUM OF 3 FEET BELOW GRADE
- REAR PUNCHEON FROM REAR DECK TO OUTHOUSE MAY NOT BE A STRAIGHT LINE. CURRENTLY 3-4 LARGE TREES ARE IN THE MOST DIRECT PATH FROM THE PROPOSED OUTHOUSE. CONTRACTOR TO ROUTE AROUND THESE LARGE TREES UNLESS APPROVED BY CO FOR REMOVAL.

0 20 40 Feet

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

C01 - SITE PLAN

DATE **02/03/26**

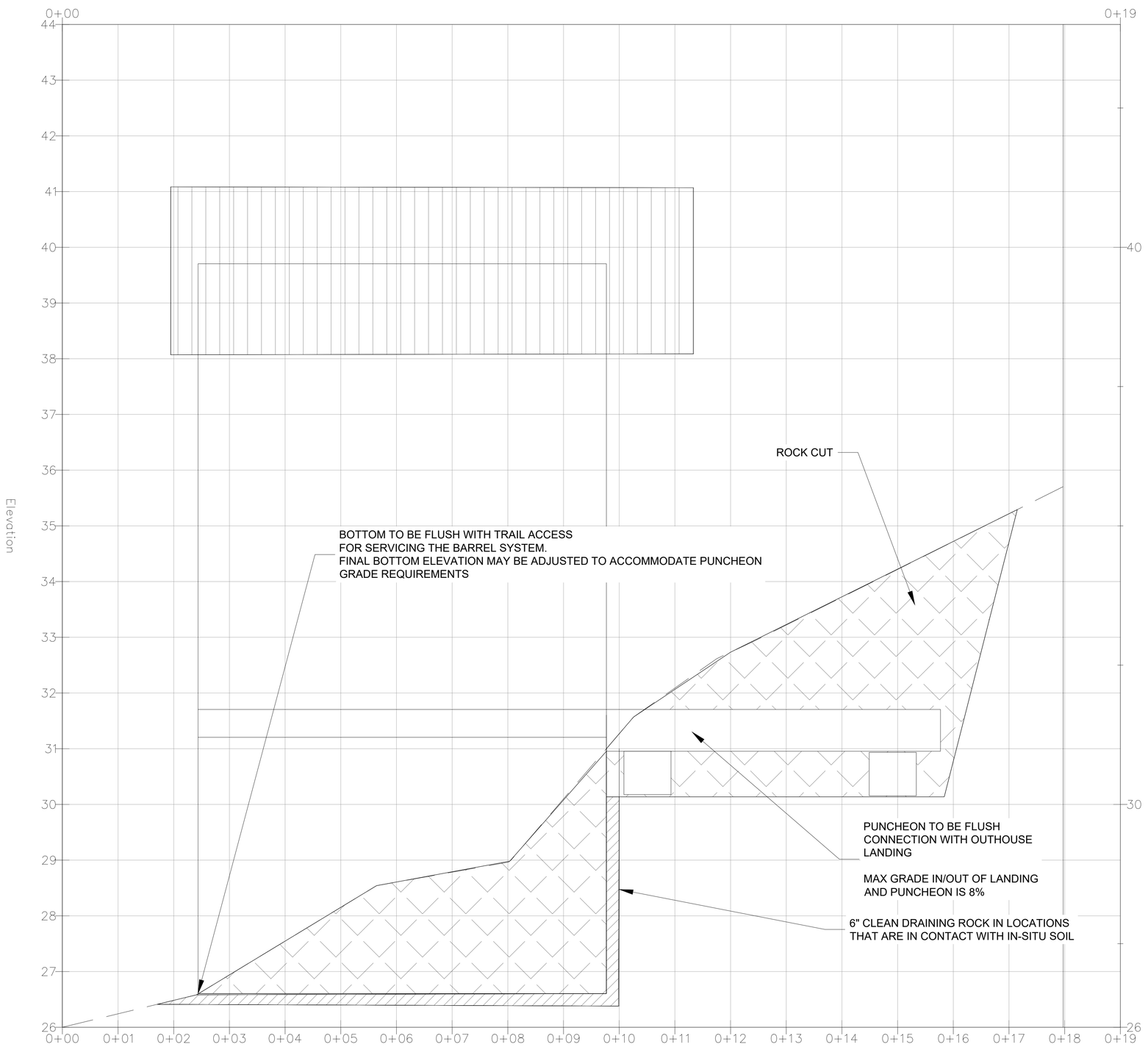
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PROJECT NO.: 1	SHEET **4** OF **22**

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SECTION A–A (OUTHOUSE) PROFILE



United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

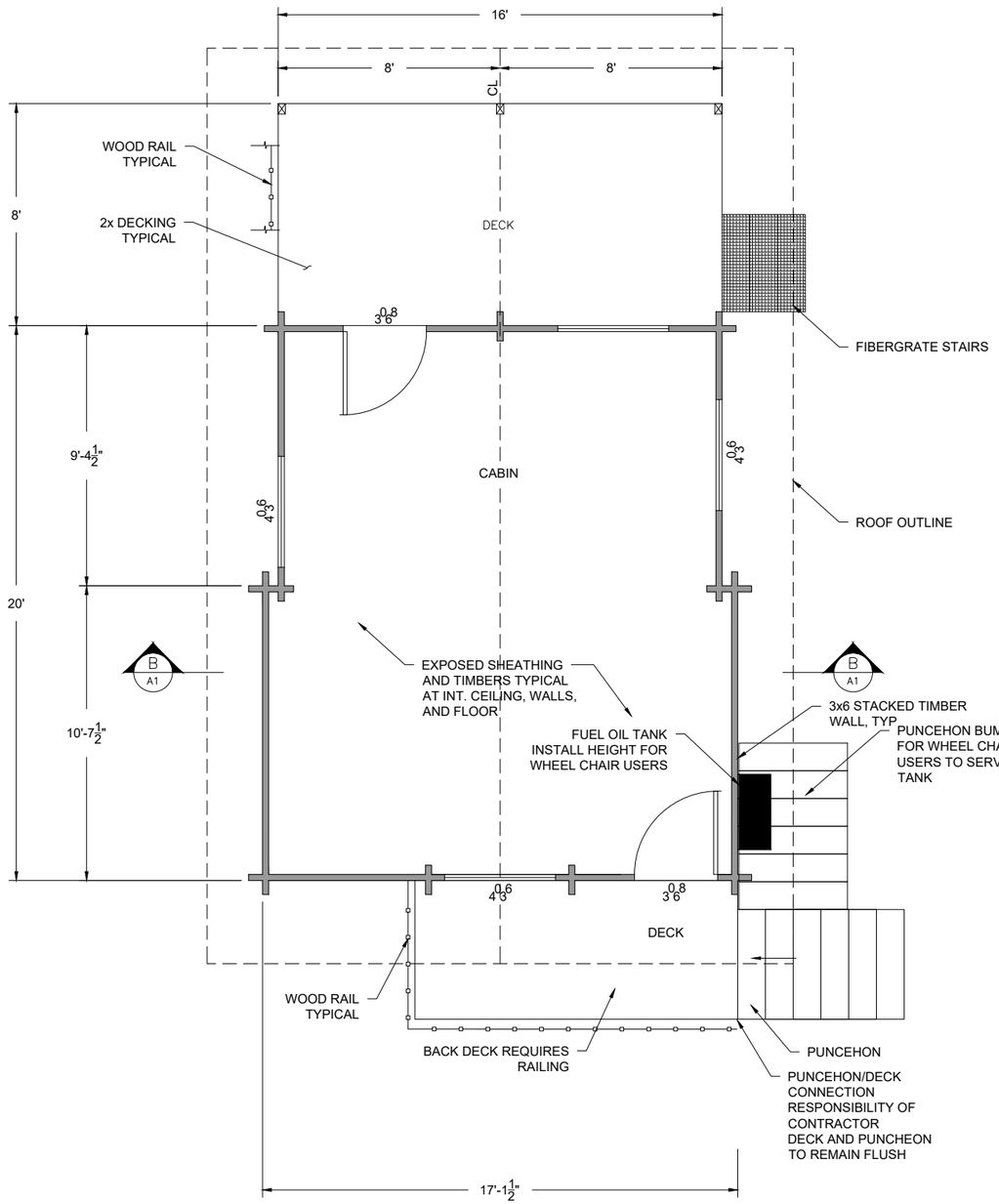
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C02- OUTHOUSE SECTION

DATE
02/03/26

ARCHIVE NO.

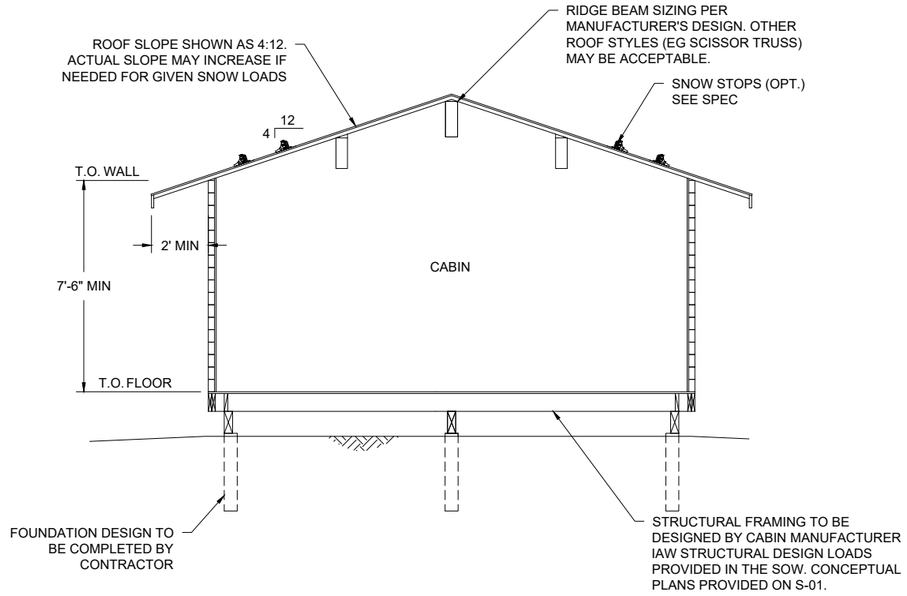
DESIGNER	DWG SHEET NO.
HC	5
DRAWN: HC	
CHECKED: USFS	
PROJECT NO.: 1	SHEET 5 OF 22



A A-01 FLOOR PLAN
SCALE: 3/16"=1'

GENERAL NOTES

1. BUILDING PLAN AND ELEVATIONS ARE INTENDED TO DEPICT CONCEPTUAL STRUCTURE AND LAYOUT. FINAL PLANS TO BE DEVELOPED BY THE CONTRACTOR IAW THE PROJECT SPECIFICATIONS, IN COLLABORATION WITH NFF AND THE USFS.
2. FOUNDATION DESIGN TO BE COMPLETED BY THE CONTRACTOR FOLLOWING ACCEPTANCE OF THE FINAL STRUCTURE DESIGN.
3. RAILING AT DECKS NOT FULLY SHOWN FOR CLARITY, BUT SHALL MEET IBC REQUIREMENTS.
4. RIDGE BEAM STYLE ROOF FRAMING SHOWN, BUT OTHER STYLES MAY BE ACCEPTABLE IF SHOWN TO SUPPORT REQUIRED LOADS AND MEET AESTHETIC AND FUNCTIONAL REQUIREMENTS ON THE INTERIOR OF THE CABIN. FINAL DETERMINATION OF ACCEPTABILITY LIES WITH NFF AND THE USFS.
5. CHIMNEY CRICKET REQUIRED, PROVIDED SHOP DRAWINGS TO NFF/USFS FOR APPROVAL. CRICKET IS NOT SHOWN IN THE CONCEPTUAL PLANS



B A-01 BUILDING SECTION
SCALE: 3/16"=1'

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

United States Department of Agriculture
Forest Service
R10
ALASKA REGION

PROJECT NAME
PORT CHALMERS CABIN
CHUGACH NATIONAL FOREST
CORDOVA RANGER DISTRICT

DRAWING TITLE
A1 - FLOOR PLAN & SECTION

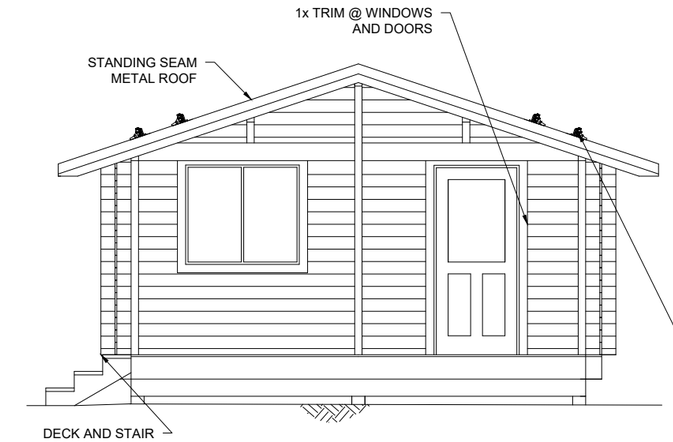
DATE
02/03/26

ARCHIVE NO.

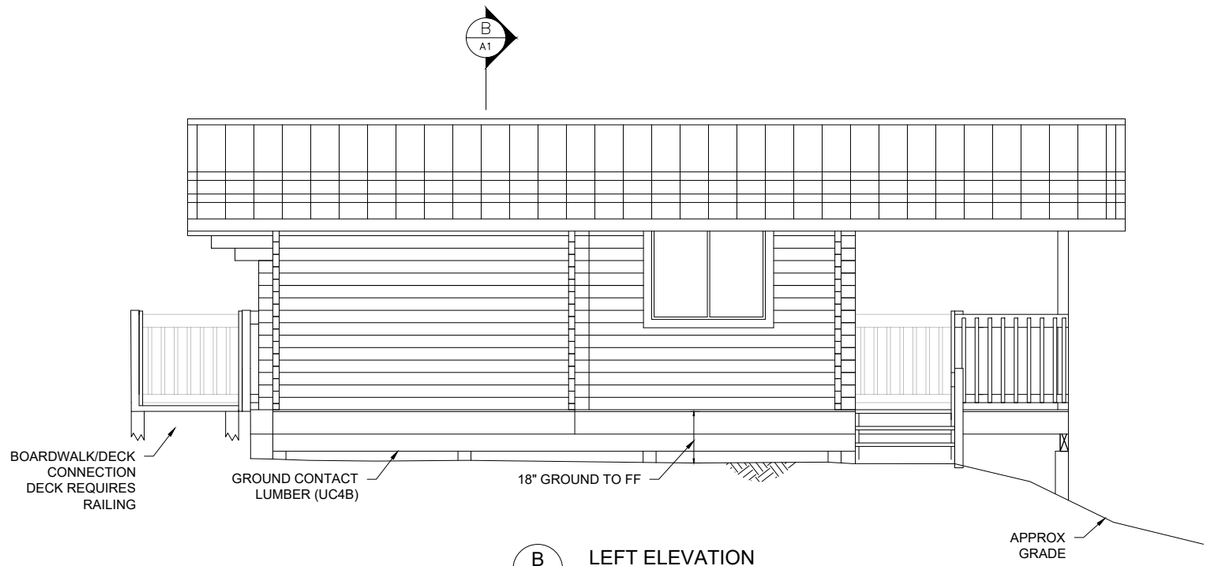
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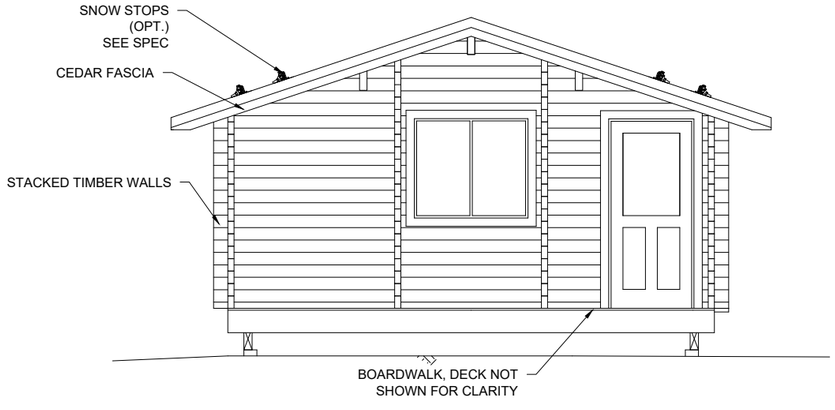


A A-02 FRONT ELEVATION
SCALE: 3/16"=1'



B A-02 LEFT ELEVATION
SCALE: 3/16"=1'

C A-02 RIGHT ELEVATION
SCALE: 3/16"=1'



D A-02 REAR ELEVATION
SCALE: 3/16"=1'

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

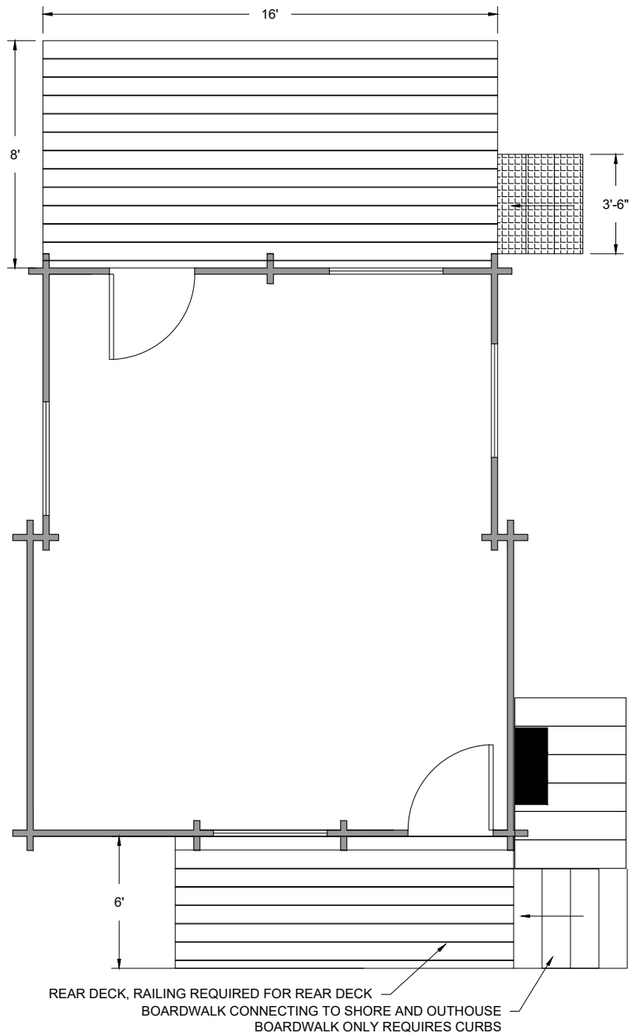
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A2 - ELEVATION VIEWS

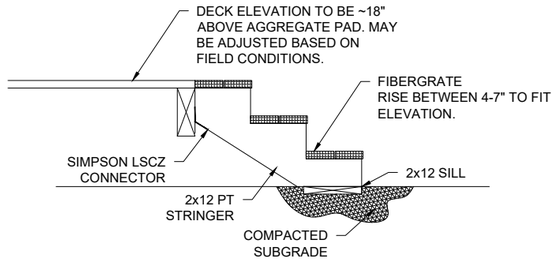
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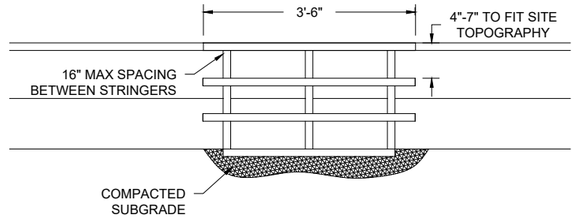
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HC	**7**
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CHECKED: **USFS**	
PROJECT NO.: 1	SHEET **7** OF **22**



A C-01 RAMP & STAIRS PLAN
SCALE: 3/16"=1'



B C-01 STAIRS SECTION
SCALE: 1"=15'



C C-01 STAIRS ELEVATION
SCALE: 1"=15'

NOTES:

1. RAILINGS ARE NOT SHOWN FOR CLARITY. ALL STAIRS AND DECKS WILL RECEIVE IBC COMPLIANT RAILINGS, AND THE RAMP AND ASSOCIATED LANDING WILL RECEIVE IBC COMPLIANT RAILINGS WHERE CALLED OUT ON THE PLAN. BOARDWALK WILL REQUIRE CURBS ONLY.
2. RAMP LENGTH SHOWN IS APPROXIMATE AND WILL VARY BASED ON FINAL SITE TOPOGRAPHY.

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

United States Department of Agriculture
Forest Service
R10
ALASKA REGION

PROJECT NAME
PORT CHALMERS CABIN
CHUGACH NATIONAL FOREST
CORDOVA RANGER DISTRICT

DRAWING TITLE
A3 - RAMP & STAIRS

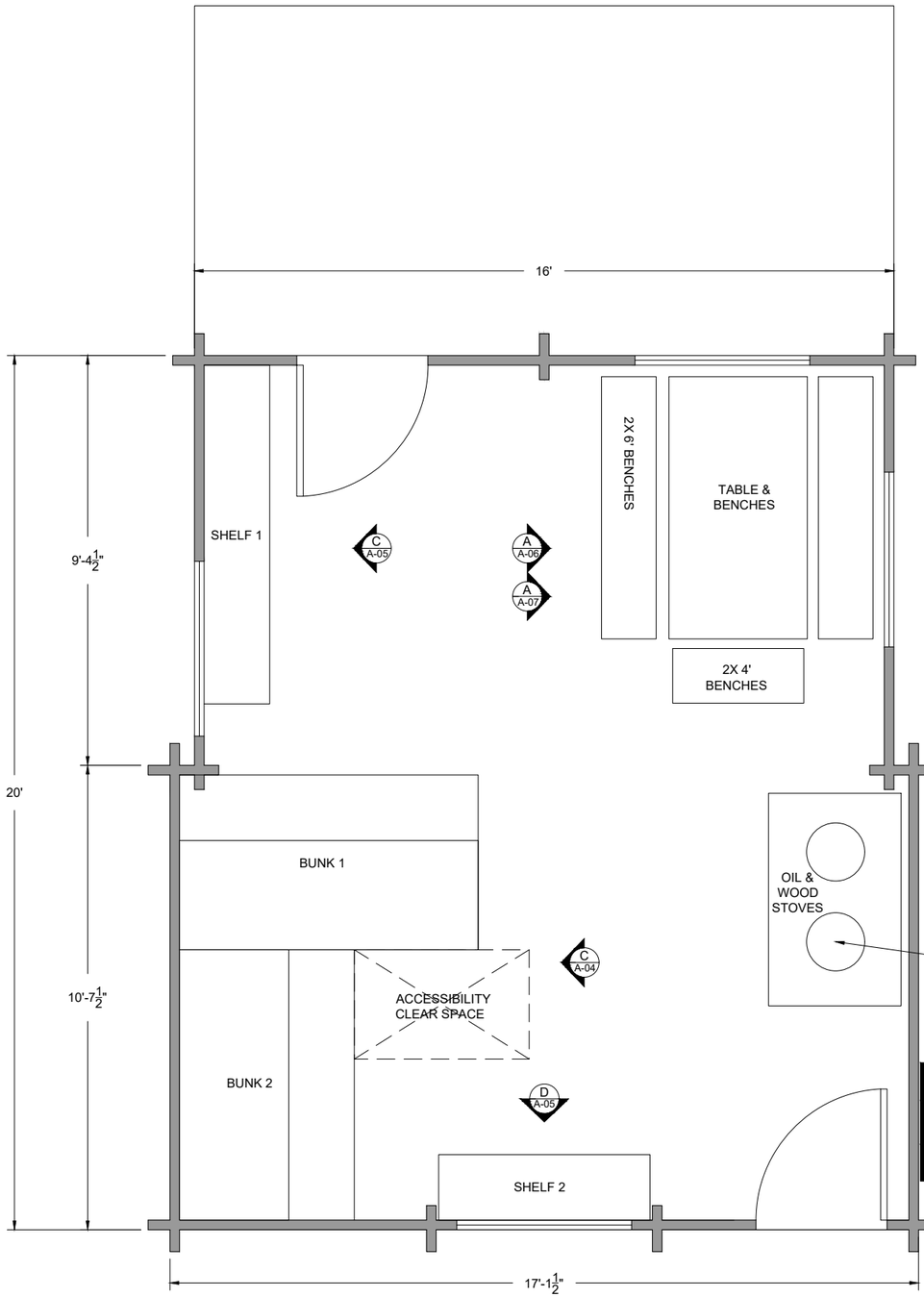
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9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTSIFY\27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;



A A-03 CONCEPTUAL FURNITURE LAYOUT
SCALE: 1" = 20'



NOTE:
1. PROVIDE (2) LANTERN HOOKS
2. PROVIDE (20) COAT HOOKS IN THE INTERIOR AT HEAD HEIGHT MIN. OR AS DIRECTED
3. PROVIDE (10) HOOK IN THE INTERIOR AT HIP HEIGHT OR AS DIRECTED
4. PROVIDE (10) RAIN JACKET HOOKS ON THE EXTERIOR AT HEAD HEIGHT OR AS DIRECTED
5. PROVIDE (10) RAIN JACKET HOOKS ON THE EXTERIOR AT HIP HEIGHT OR AS DIRECTED

NOTE: INSTALL FUEL FILTER IN LINE WITH COPPER FUEL SUPPLY LINE OUTSIDE OF CABIN WITH EASY ACCESS TO PERFORM MAINTENANCE. ROUTE FUEL LINE INTO CABIN THROUGH WALL DIRECTLY BEHIND STROVE. INSIDE CABIN PROVIDE EASILY ACCESSIBLE VALVE UPSTREAM OF FUEL REGULATOR PRIOR TO STOVE. ROUTE FUEL LINE INSIDE CABIN SUCH THAT IT IS BEHIND STOVE IN AN AREA NOT PRONE TO DAMAGE.

CRICKETS AND BRACES ARE NOT SHOWN ON THESE REFERENCE DRAWINGS BUT ARE REQUIRED. SUBMIT DRAWINGS FOR APPROVAL OF BOTH STOVE CRICKETS AND BRACING.

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

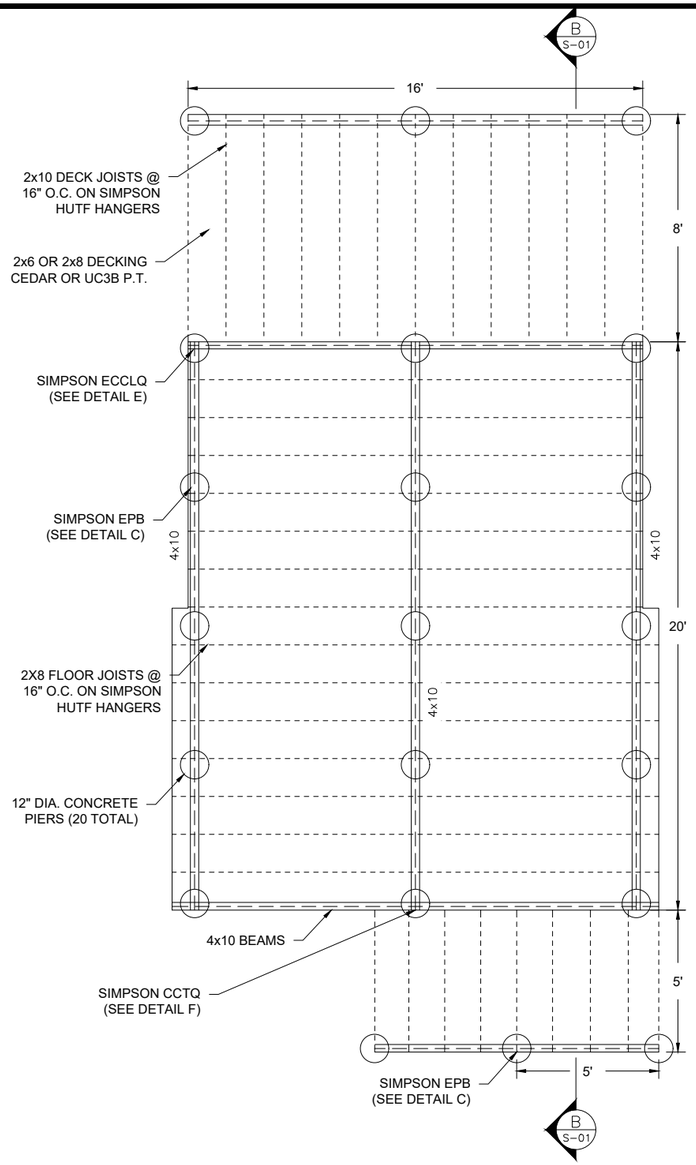
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A4 - INTERIOR LAYOUT

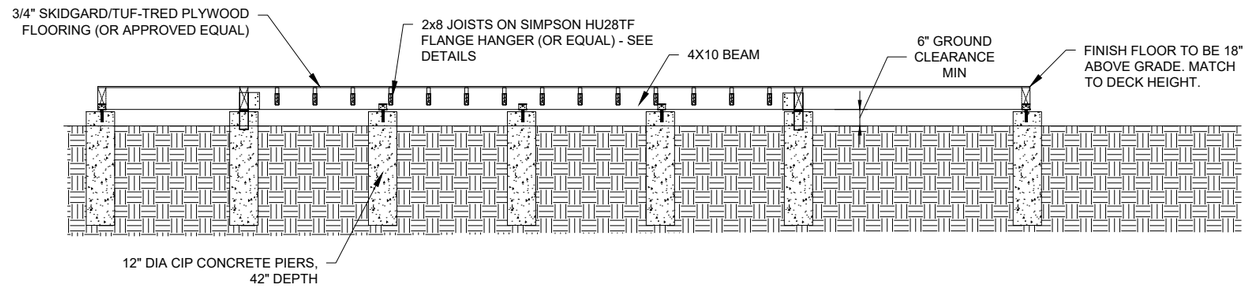
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02/03/26

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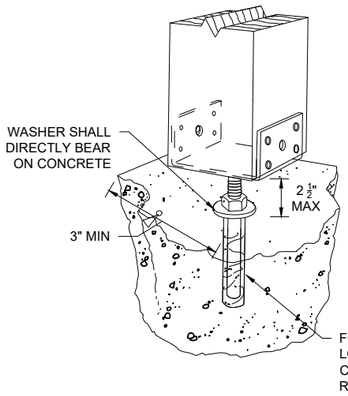
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PROJECT NO.: 1	SHEET **9** OF **22**



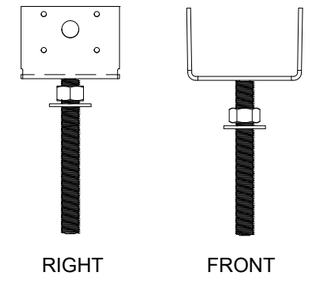
A S-01 FLOOR FRAMING & FOUNDATION PLAN
SCALE: 3/16"=1'



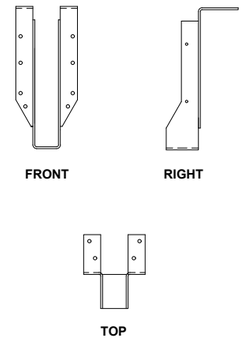
B S-01 FOUNDATION SECTION
SCALE: 3/16"=1'

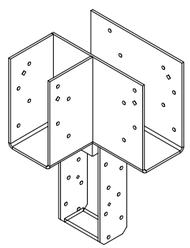


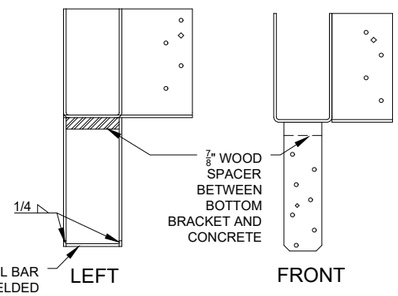
C S-01 SIMPSON EPB
SCALE: NTS



D S-01 SIMPSON HU28TF HANGER
SCALE: NTS

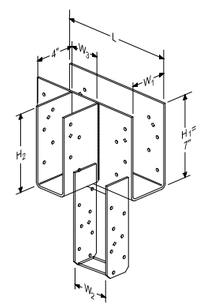


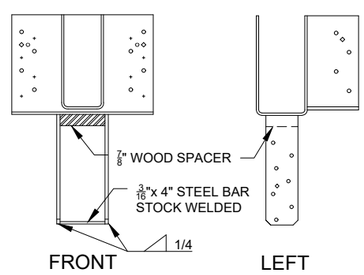




NOTE: WELD FLAT-BAR BETWEEN BEAM BRACKET BOTTOM TABS AND PLACE DIRECTLY IN CONCRETE WITH 7/8" SPACER AS SHOWN.

E S-01 CORNER POST BASE - ECCLQ
SCALE: NTS





F S-01 BEAM TO COLUMN - CCTQ
SCALE: NTS

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION
IT IS RESPONSOBILITY OF CONTRACTOR FOR FOUNDATION DESIGN
DEPICTED IS CONCRETE PIERS, OTHER FOUNDATIONAL SYSTEM ARE ALLOWED. I.E. HELICAL PILES, BIGFOOT SYSTEM, OR PIERS ATTACHED TO BEDROCK IF BEDROCK IS DISCOVERED

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R10
ALASKA REGION

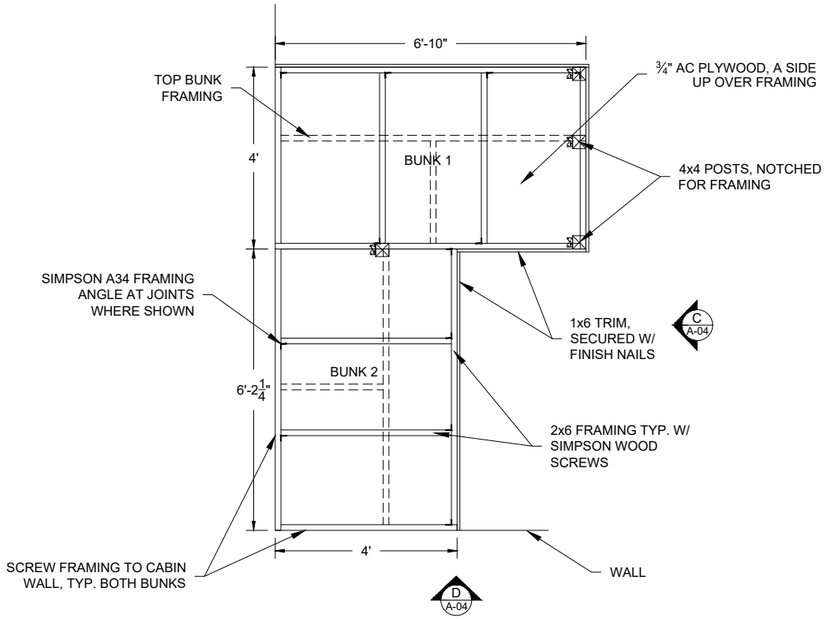
PROJECT NAME
PORT CHALMERS CABIN
CHUGACH NATIONAL FOREST
CORDOVA RANGER DISTRICT

DRAWING TITLE
S01 - CONCEPTUAL FOUNDATION PLAN

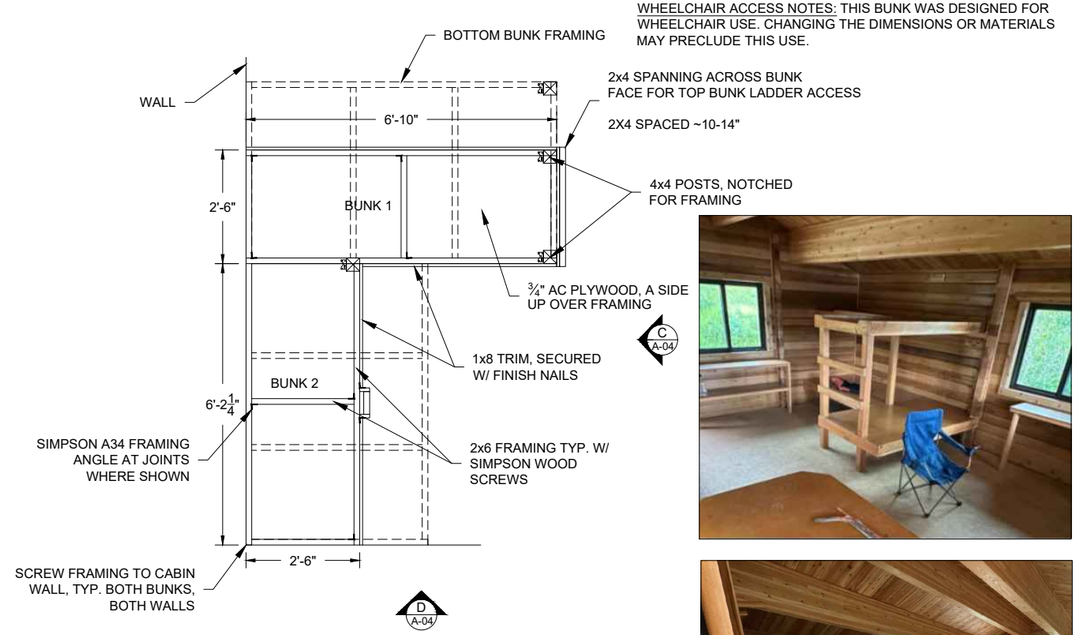
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ARCHIVE NO.
DESIGNER: **HC**
DRAWN: HC
CHECKED: **USFS**
PROJECT NO.: 1
DWG SHEET NO.: **10**
SHEET **10** OF **22**

9/23/26 07:19 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ. SETUP\PLANS AND SHEETSET\DWGS- STRUCTURAL PORT CHALMERS.DWG;

9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;



A A-04 BOTTOM BUNK FRAMING PLAN
SCALE: 1" = 20'

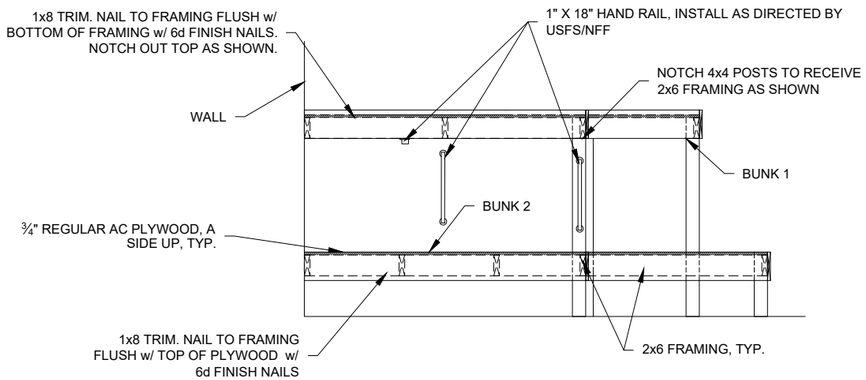


B A-04 TOP BUNK FRAMING PLAN
SCALE: 1" = 20'

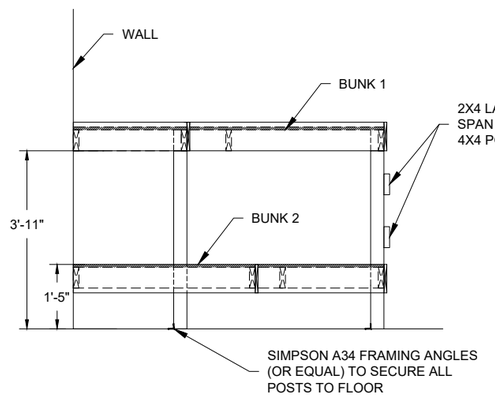
WHEELCHAIR ACCESS NOTES: THIS BUNK WAS DESIGNED FOR WHEELCHAIR USE. CHANGING THE DIMENSIONS OR MATERIALS MAY PRECLUDE THIS USE.



AK SOURCED LUMBER REQUIRED



C A-04 FRONT ELEVATION
SCALE: 1" = 20'



D A-04 SIDE ELEVATION
SCALE: 1" = 20'

BUNKS MATERIAL LIST

QTY		DESCRIPTION
6	EA.	1X8X8' AYC, OR OTHER AK SOURCED LUMBER
15	EA.	2x6x8' AYC, OR OTHER AK SOURCED LUMBER
6	EA.	4X4X8' AYC, OR OTHER AK SOURCED LUMBER
4	EA.	4X8 SHT. ¾" AC PLYWOOD, A SIDE UP
2	EA.	2X4X8' AYC, OR OTHER AK SOURCED LUMBER
1	LS	SILVER MATTE HANDRAILS

CONCEPTUAL PLANS NOT FOR CONSTRUCTION

United States Department of Agriculture
Forest Service
R10
ALASKA REGION

PROJECT NAME
PORT CHALMERS CABIN
CHUGACH NATIONAL FOREST
CORDOVA RANGER DISTRICT

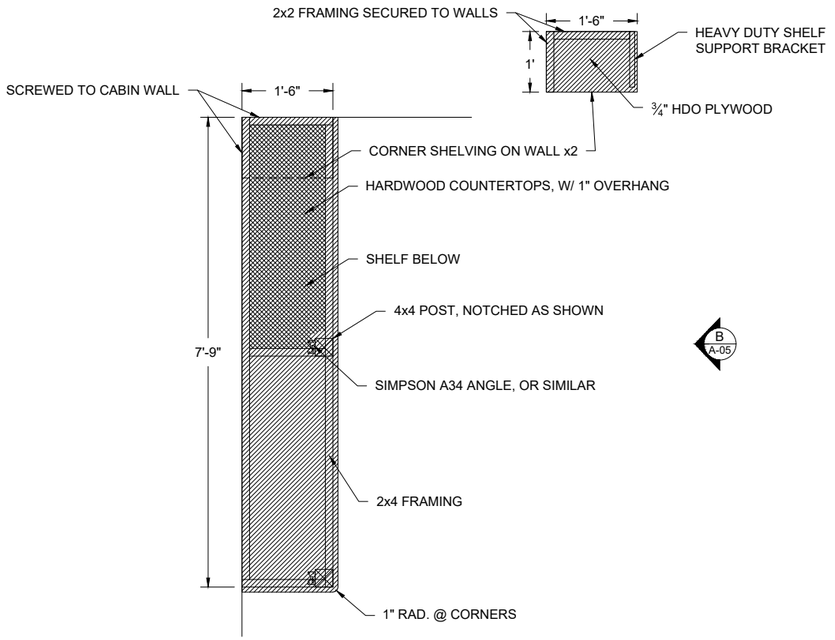
DRAWING TITLE
A5 - BUNK SECTIONS

DATE
02/03/26

ARCHIVE NO.

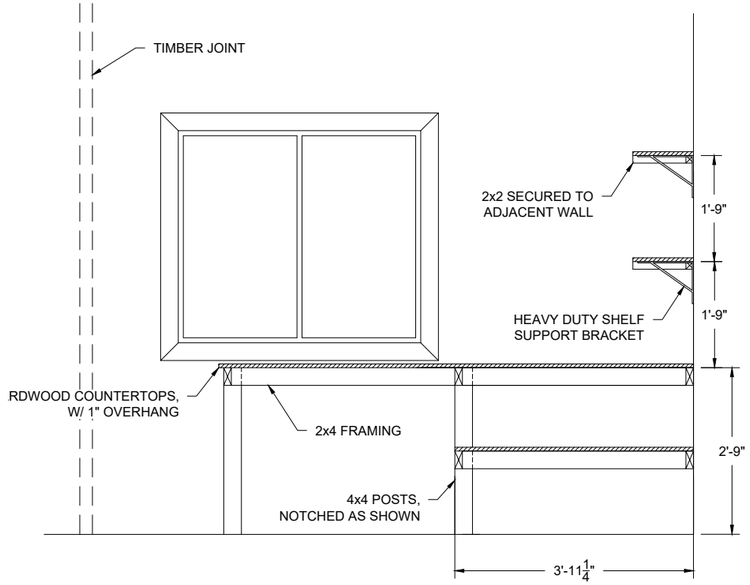
DESIGNER	DWG SHEET NO.
HC	11
DRAWN: HC	
CHECKED: USFS	
PROJECT NO.: 1	SHEET 11 OF 22

9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;



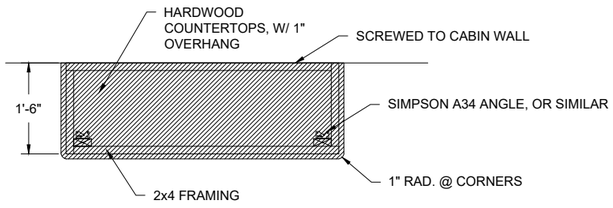
A / A-05 SHELF 1 FRAMING PLAN

SCALE: 1" = 15'



B / A-05 SHELF 1 ELEVATION

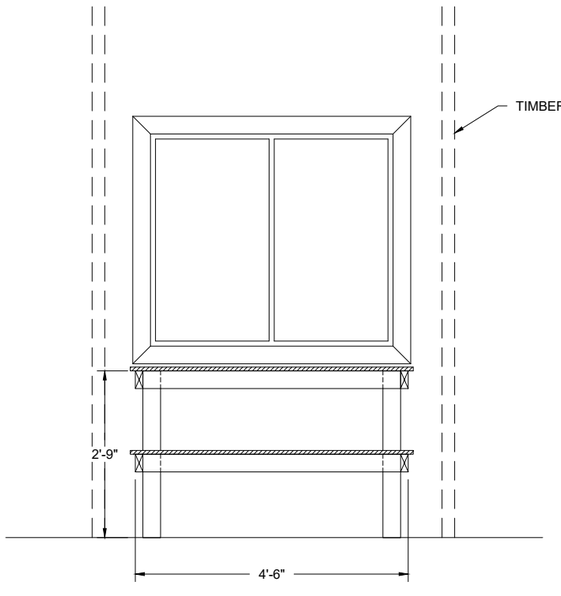
SCALE: 1" = 15'



D / A-05

C / A-05 SHELF 2 FRAMING PLAN

SCALE: 1" = 15'



D / A-05 SHELF 2 ELEVATION

SCALE: 1" = 15'

NOTE: THE DIMENSIONS SHOWN ARE CONCEPTUAL AND WILL BE REVISED FOLLOWING THE FINAL CABIN DESIGN.

AK SOURCED LUMBER REQUIRED

SHELVING MATERIAL LIST

QTY		DESCRIPTION
9	EA.	2x4x8' AYC OR OTHER AK SOURCED LUMBER
1	EA.	2x2x8' AYC OR OTHER AK SOURCED LUMBER
2	EA.	4X8 SHT. ¾" AC PLYWOOD OR OTHER AK SOURCED LUMBER HARDWOOD COUNTERTOPS REQUIRED

*4x4 POSTS WILL BE CUT FROM LEFTOVER BUNK LUMBER

CONCEPTUAL PLANS NOT FOR CONSTRUCTION

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

A6 - SHELF ELEVATION & PLAN

DATE **02/03/26**

ARCHIVE NO.

DESIGNER **HC**

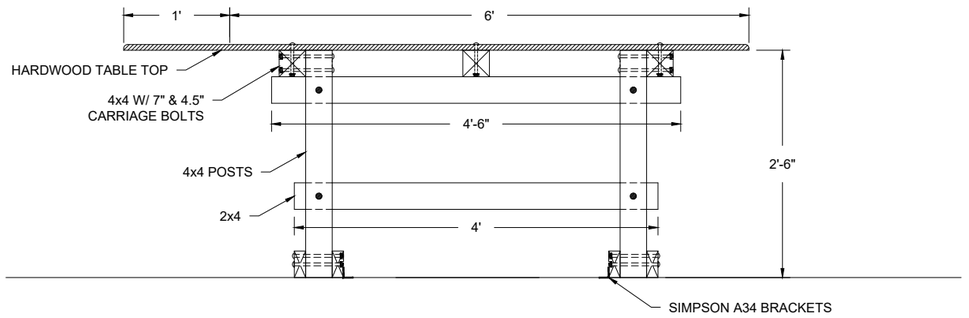
DRAWN HC

CHECKED **USFS**

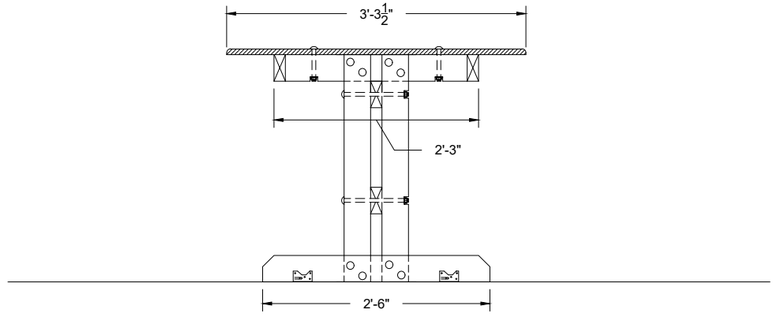
PROJECT NO. 1

DWG SHEET NO. **12**

SHEET **12** OF **22**

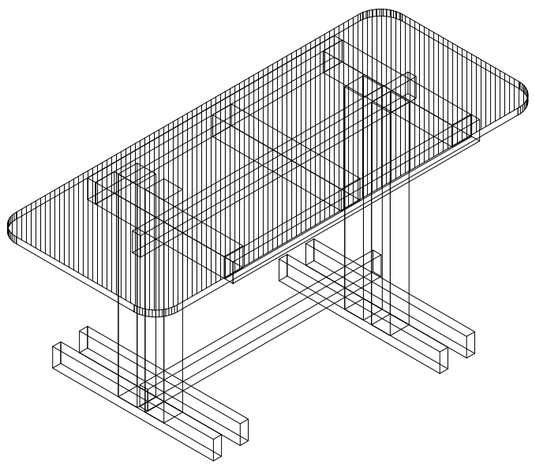


A A-06 TABLE SIDE VIEW
SCALE: 1" = 10'



B A-06 TABLE END VIEW
SCALE: 1" = 10'

AK SOURCED LUMBER REQUIRED



C A-06 ISOMETRIC VIEW
SCALE: 1" = 10'

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

TABLE MATERIAL LIST

QTY		DESCRIPTION
5	EA.	2x4x8' AYC, OR OTHER AK SOURCED LUMBER
3	EA.	4x4x8' AYC, OR OTHER AK SOURCED LUMBER
1	EA.	4X8 SHT. ¾" HARDWOOD TABLE TOP

USDA FOREST SERVICE
United States Department of Agriculture
Forest Service
R10
ALASKA REGION

PROJECT NAME
PORT CHALMERS CABIN
CHUGACH NATIONAL FOREST
CORDOVA RANGER DISTRICT

DRAWING TITLE
A7 - TABLE VIEWS

DATE
02/03/26

ARCHIVE NO.

DESIGNER **HC**
DRAWN HC
CHECKED **USFS**
PROJECT NO. 1
DWG SHEET NO. **13**
SHEET **13** OF **22**

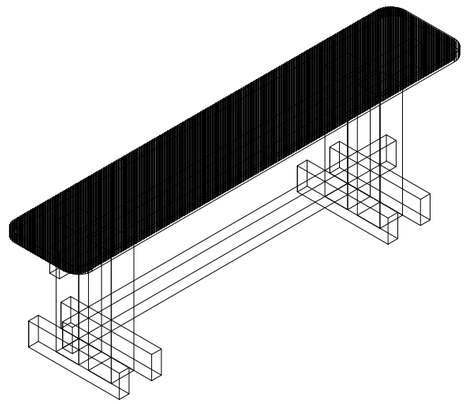
9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;

CONSTRUCT 2X 6' BENCHES AND 2X 4' BENCHES

MATERIAL LIST

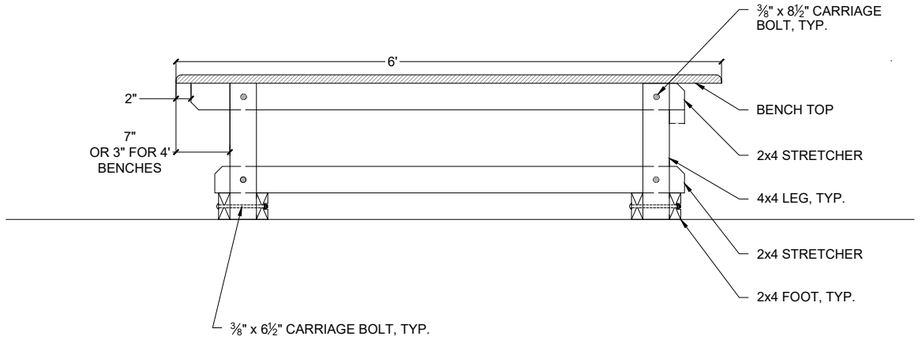
SUFFICIENT MATERIAL FOR A SET OF FOUR 6' BENCHES

QTY		DESCRIPTION
16	EA.	2x6x8' AYC, OR OTHER AK SOURCED LUMBER
104	EA.	#10 x 2-1/2" EXTERIOR DECKING SCREWS (ACQ RATED).
1	QT.	WOOD FINISH, SAME AS CABIN EXTERIOR.



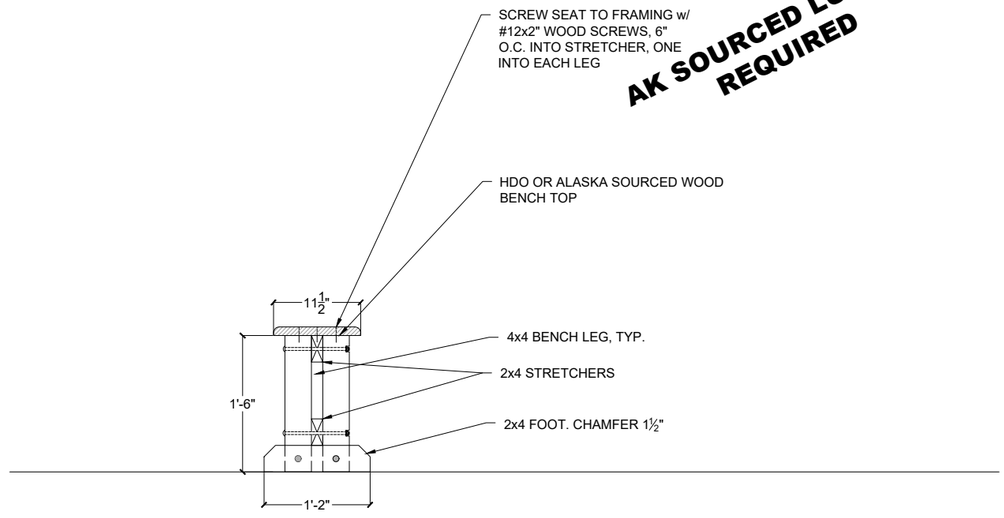
ISOMETRIC VIEW

NOT TO SCALE



END VIEW

SCALE: 1" = 1'-0"
FULL SIZE



SIDE VIEW

SCALE: 1" = 1'-0"
FULL SIZE

United States Department of Agriculture
Forest Service
R10
ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

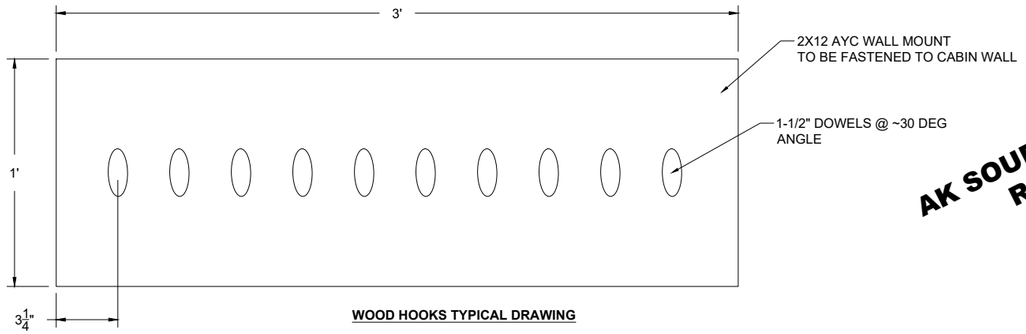
A8 - BENCH VIEWS

DATE **02/03/26**

ARCHIVE NO.

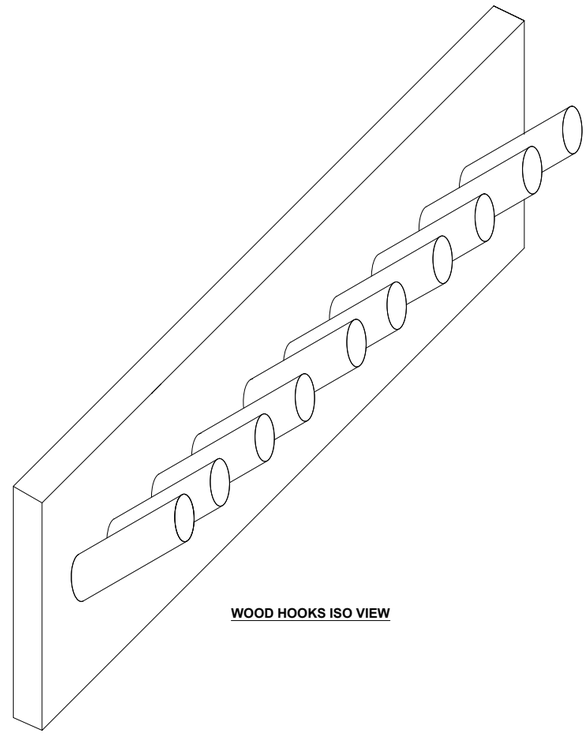
DESIGNER	DWG SHEET NO.
HC	14
DRAWN: HC	
CHECKED: USFS	
PROJECT NO.: 1	SHEET 14 OF 22

9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;



WOOD HOOKS TYPICAL DRAWING

AK SOURCED LUMBER REQUIRED



WOOD HOOKS ISO VIEW

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

A9 - WOOD HOOKS

DATE
02/03/26

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
HC	**15**
DRAWN: HC	
CHECKED: **USFS**	
PROJECT NO.: 1	SHEET **15** OF **22**

9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;

9/23/26 07:21 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ. SETUP\PLANS AND SHEETSET\DWG\A-ARCH PORT CHALMER.DWG;

NOTE:

1. LOGS CAN BE CUT AND BARK REMOVED ON SITE
2. SUPPORT POST SHOULD BE DIPPED 4' IN PENTACHLOROPHENOL OR EQUAL
3. NOTCH 8" Ø SPRUCE LOG 3" INTO SUPPORT POST
4. PEAK ANGLE OF ROOF IS 90°

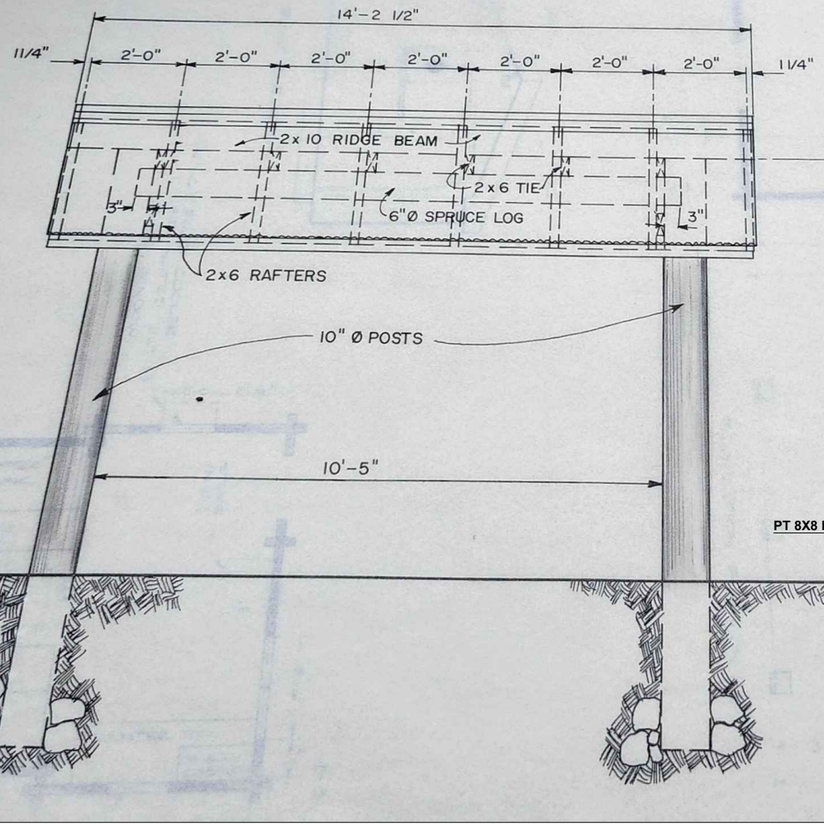
AK SOURCED LUMBER REQUIRED

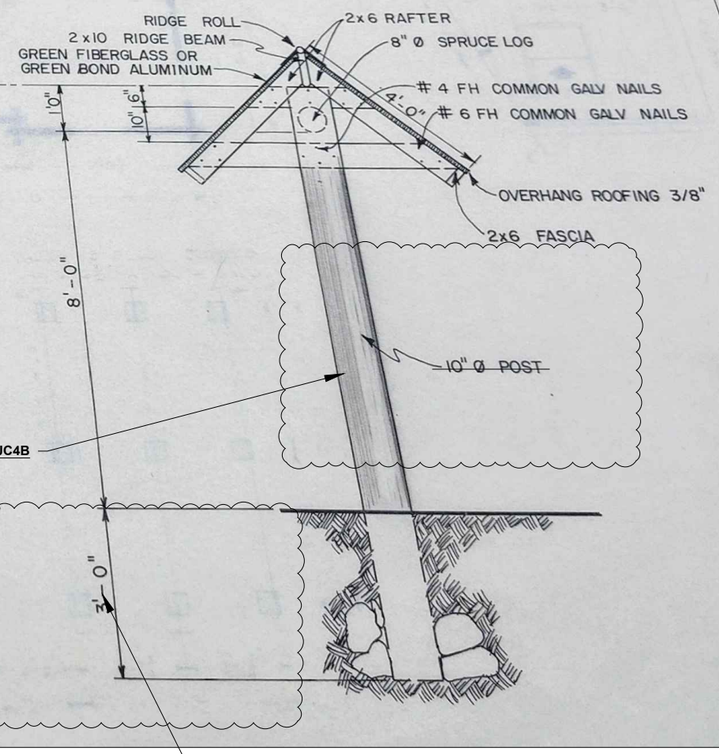
BILL OF MATERIALS

QUANTITY	SIZE	DESCRIPTION
16	3'-11"	2 x 6 RAFTER
6	2'-7"	2 x 6 TIE
2	5'-4"	2 x 6 TIE
1	14'-2"	2 x 10 RIDGE BEAM
1	11'-2"	8" Ø VERY SOUND SPRUCE LOG
2	12'-0"	SPRUCE OR CEDAR 10" Ø LOG - PENTA TREATED 4' ONE END
1	14'-2 1/2" LONG	ALUMINUM OR FIBERGLASS RIDGE ROLL
4	2'W x 8' L	GREEN FIBERGLASS OR GREEN BOND ALUMINUM
24	NO.6 (20 d)	COMMON F.H. DP GALV. NAILS
14	NO.4 (40 d)	" " " " "
3	LBS	ROOFING NAILS
2	2" 6" 14'-2"	FASCIA BOARD

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 10
THE ALASKA REGION

APPROVED — DATE
APPROVED FOREST SUPERVISOR — DATE
DESIGNED BY: — DRAWN BY: — CHECKED BY: — DATE





MEAT RA

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

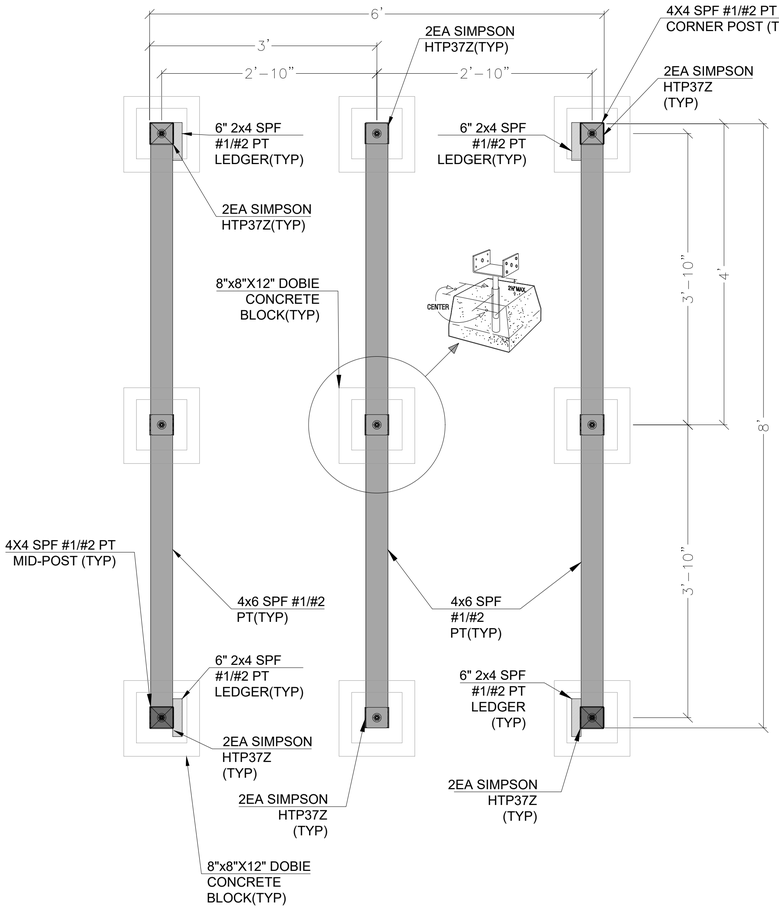
DRAWING TITLE

A9A - DEER HANG (1960s)

DATE
02/03/26

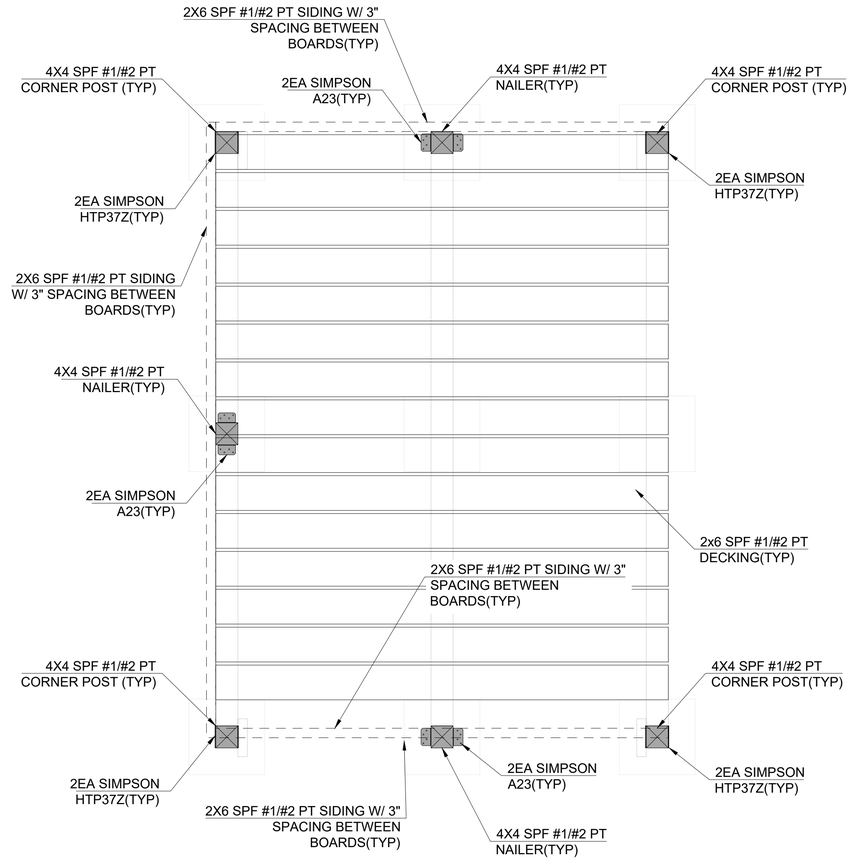
ARCHIVE NO.

DESIGNER	DWG SHEET NO.
HC	15.1
DRAWN: HC	
CHECKED: USFS	
PROJECT NO.: 1	SHEET 15.1 OF 22



5 WOOD SHED FOUNDATION

SCALE: 1"=1-0' (22x34 FULL SIZE)



6 WOOD SHED FRAMING

SCALE: 1"=1-0' (22x34 FULL SIZE)

9/23/26 07:19 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A- OUTHOUSE_WOODSHED.DWG;

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ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

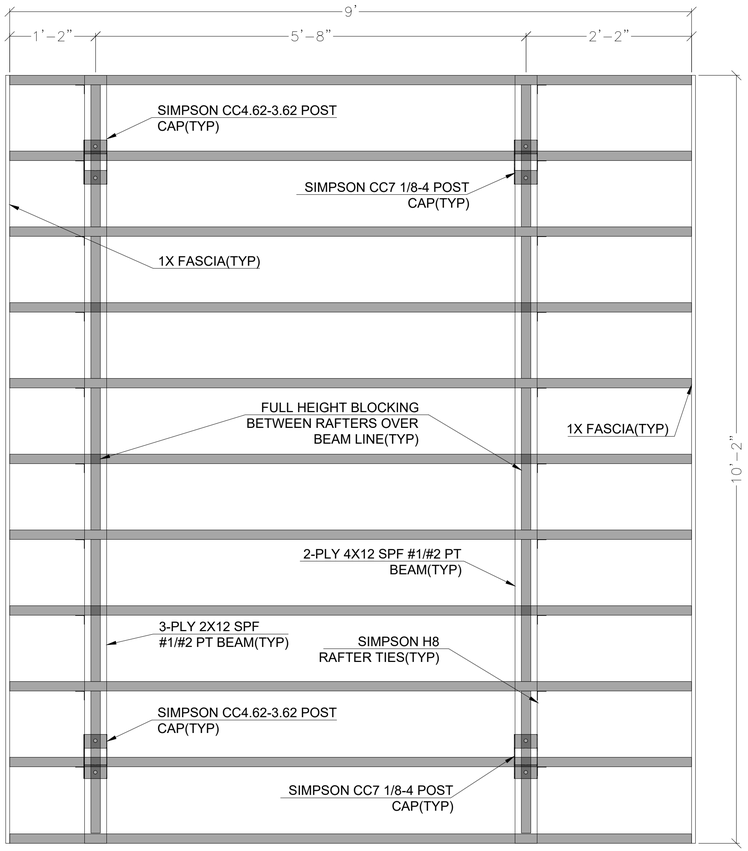
A10 - WOODSHED PLAN VIEW

DATE **02/03/26**

ARCHIVE NO.

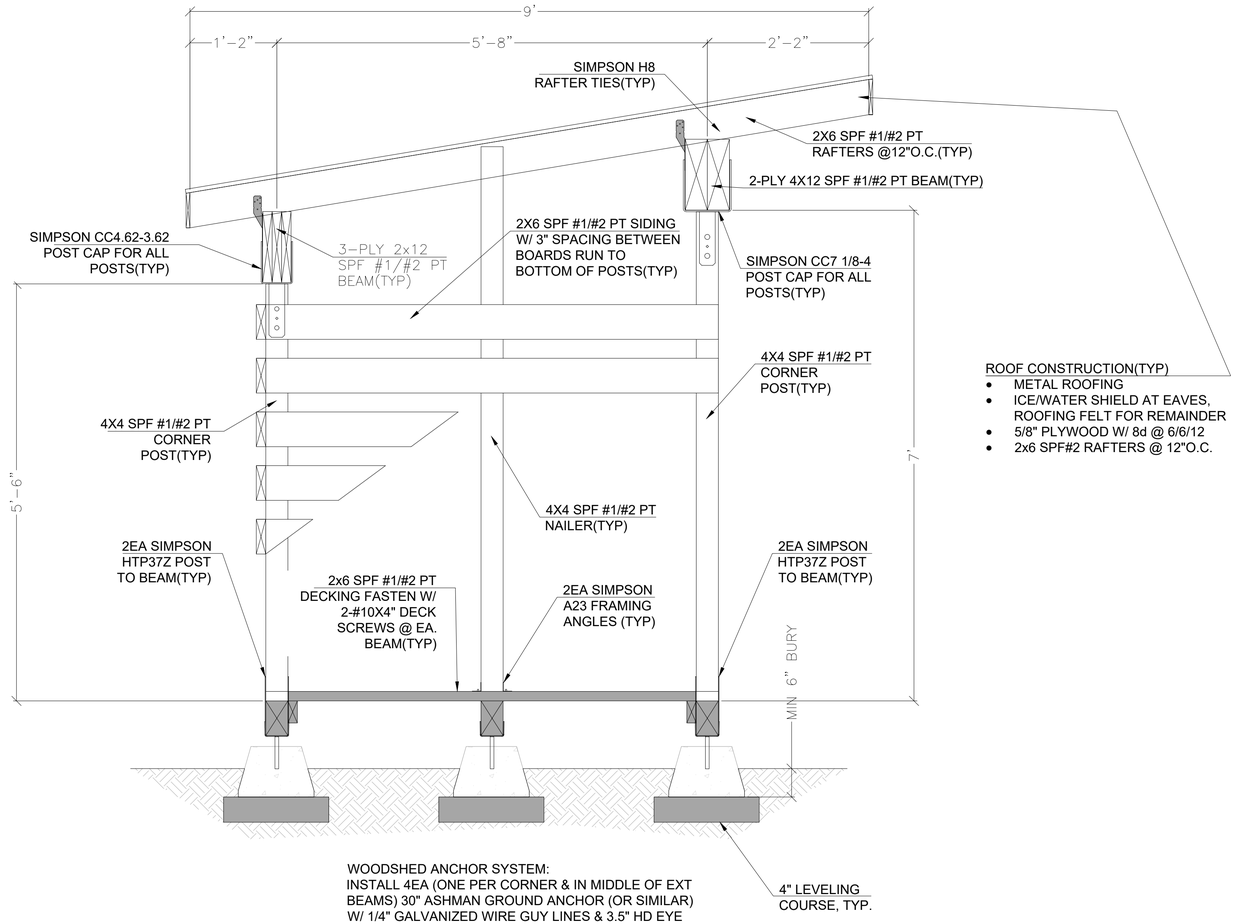
DESIGNER	DWG SHEET NO.
HC	**16**
DRAWN: HC	
CHECKED: **USFS**	
PROJECT NO.: 1	SHEET **16** OF **22**

9/23/26 07:19 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\A- OUTHOUSE_WOODSHED.DWG;



7 WOOD SHED ROOF FRAMING

SCALE: 1"=1-0' (22x34 FULL SIZE)



ROOF CONSTRUCTION(TYP)
- METAL ROOFING
- ICE/WATER SHIELD AT EAVES, ROOFING FELT FOR REMAINDER
- 5/8" PLYWOOD W/ 8d @ 6/6/12
- 2x6 SPF#2 RAFTERS @ 12"O.C.

WOODSHED ANCHOR SYSTEM:
INSTALL 4EA (ONE PER CORNER & IN MIDDLE OF EXT BEAMS) 30" ASHMAN GROUND ANCHOR (OR SIMILAR) W/ 1/4" GALVANIZED WIRE GUY LINES & 3.5" HD EYE HOOK SCREW BOLTS (800LB CAPACITY) AT FRAMING CORNER CHANCE ANCHOR SPECIFIED IN THE PIT TOILET IS AN ALLOWABLE SUBSTITUTE

8 WOOD SHED ELEVATION

SCALE: 1"=1-0' (22x34 FULL SIZE)

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

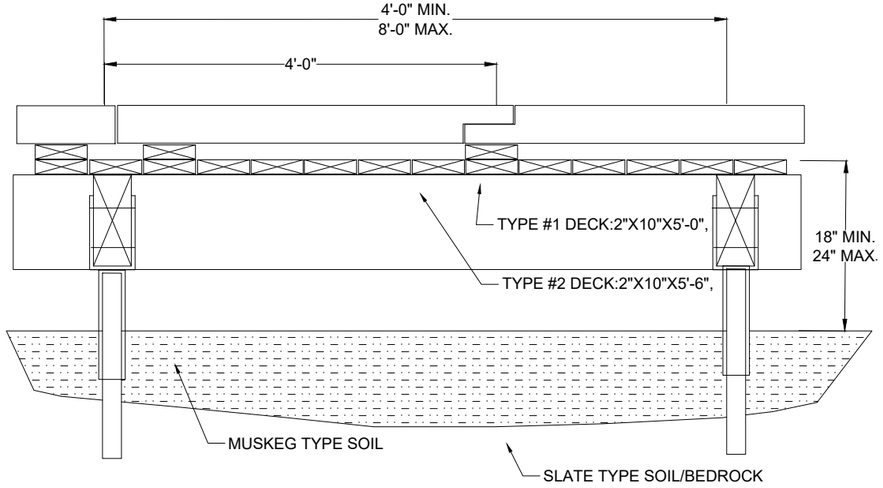
DRAWING TITLE

A11 - WOODSHED ELEVATION VIEW

DATE
02/03/26

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
HC	17
DRAWN: HC	
CHECKED: USFS	
PROJECT NO.: 1	SHEET 17 OF 22



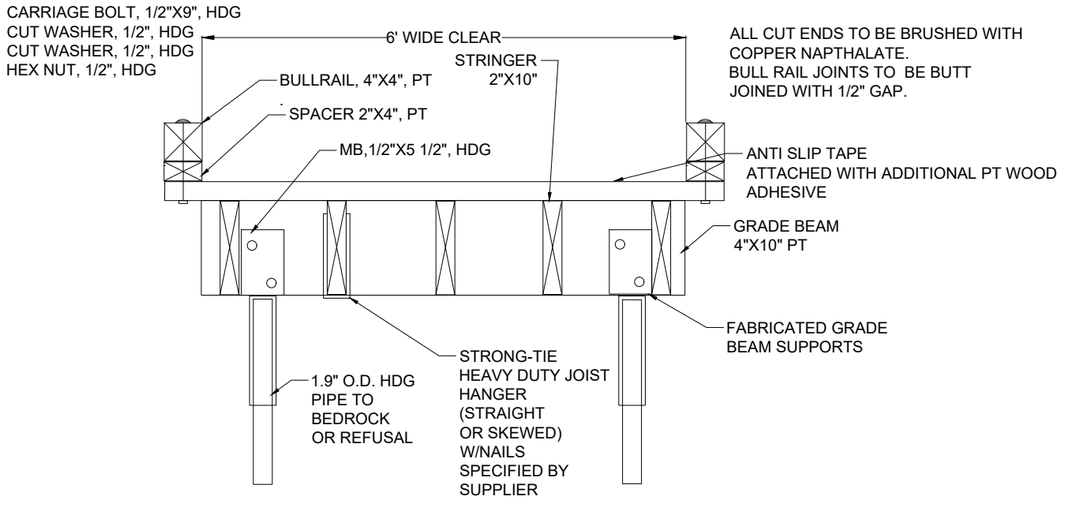
NOTES:

1. LAP JOIN BULRAILS (0-5% GRADIENT)
2. BUTT JOIN BULLRAILS (MORE THAN 5% GRADIENT, MAX. 1" GAP)
3. FOUNDATION DESIGN IS RESPONSIBILITY OF CONTRACTOR, HELICAL PILES ARE DEPICTED BUT OTHER OPTIONS ARE ALLOWED.

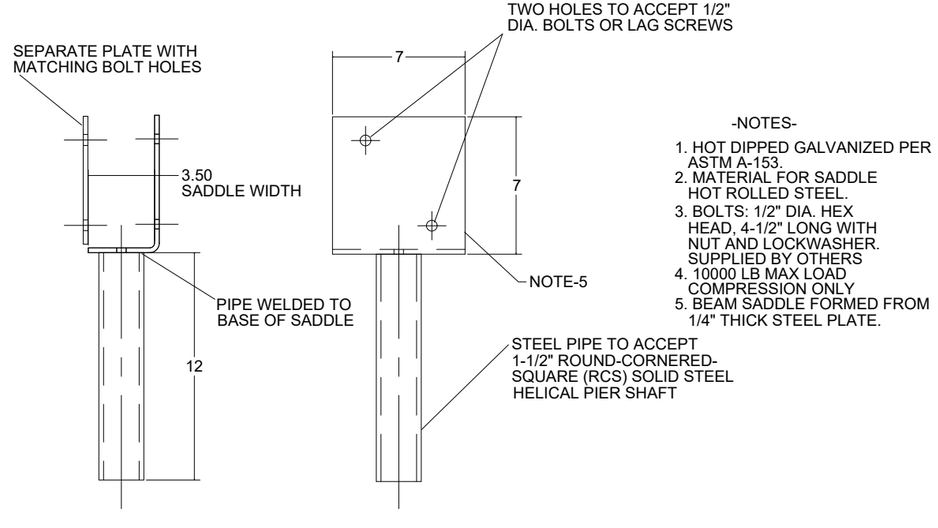
1 BOARDWALK SECTION LENGTHWAYS

TIMBER BOARDWALK ON PILES MUST BE USED FOR LOCATIONS BELOW THE SURGE ZONE AS SHOWN ON THE SITE PLAN. IT IS CONTRACTOR'S RESPONSIBILITY FOR THE DESIGN. DEPICTED IS A STANDARD USFS BOARDWALK ON HELICAL PILES, BUT CONTRACTOR MAY ELECT AN ALTERNATIVE PILE DESIGN/TYPE.

TIMBER TO BE DF UC4B TREATMENT OR OTHER EQUAL SUBSTITUTE



2 BOARDWALK CROSS SECTION



-NOTES-

1. HOT DIPPED GALVANIZED PER ASTM A-153.
2. MATERIAL FOR SADDLE HOT ROLLED STEEL.
3. BOLTS: 1/2" DIA. HEX HEAD, 4-1/2" LONG WITH NUT AND LOCKWASHER. SUPPLIED BY OTHERS
4. 10000 LB MAX LOAD COMPRESSION ONLY
5. BEAM SADDLE FORMED FROM 1/4" THICK STEEL PLATE.

3 BOARDWALK SLEEVE DETAIL

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

G01 TIMBER BOARDWALK

DATE **02/03/26**

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
HC	18
DRAWN HC	
CHECKED USFS	
PROJECT NO. 1	SHEET 18 OF 22

9/23/26 07:19 HCOOGLE C:\USERS\HCOOGLE\BOX\EXTERNAL ALASKA CABINS PROJECT\01. PROJECTS\FY27 CONSTRUCTION\CNF PORT CHALMERS\1. PW FILE STRUCTURE\1. DEVELOPMENT\1. AUTOCAD MODEL\R10-34X22-EZ_SETUP\PLANS AND SHEETSET\DWG\TIMBER BOARDWALK.DWG;

STANDARD PUNCHEON

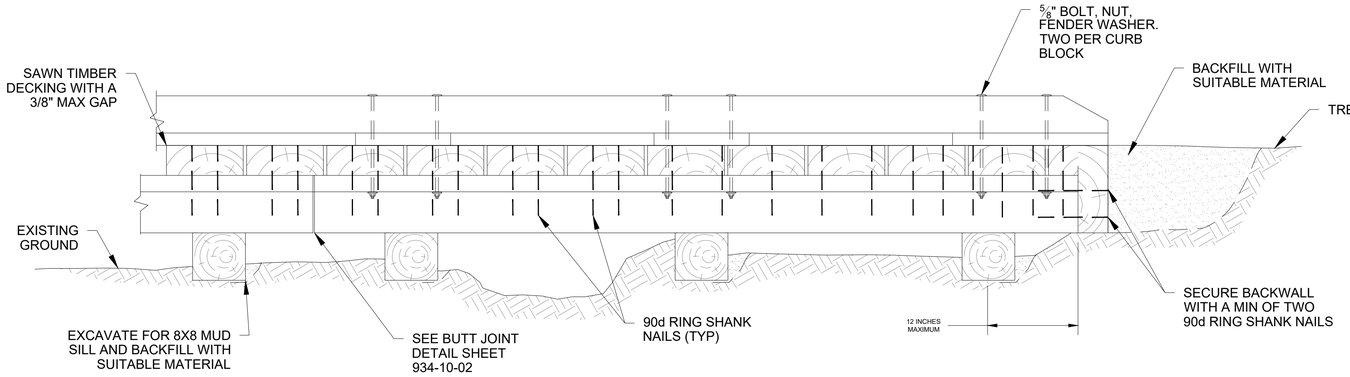
	STRINGER(S)/MUD SILL (MS)				DECK/BACKWALL				CURB			WEARING SURFACE				
TYPICAL ID	SIZE	SPECIES	NUMBER	PRESERV. TYPE	TYPE	SIZE	SPECIES	PRESERV. TYPE	SIZE	SPECIES	PRESERV. TYPE	TYPE	SIZE	SPECIES	PRESERV. TYPE	COMMENTS
BW	12"X12" = MS 8"X8" = S	DF	AS REQ	P3	DF	4X10	DF	P3	4"X4"	DF	P3	TAR PAPER	C TO C	SYNTHETIC	N/A	*SILLS 12X12 , STRINGERS 8X8
																ANIT SLIP TAPE WITH ADDITIONAL ADHESIVE REQUIRED
																MINIMUM INSIDE TO INSDIE WIDTH = 6'

N/A WHEN NOT APPLICABLE

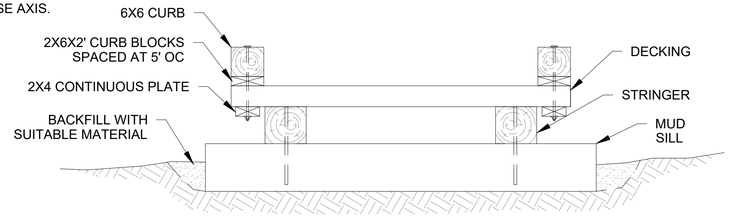
STANDARD PUNCHEONS MAY BE USED AT LOCATIONS OUTSIDE OF THE SURGE ZONE AS SHOWN ON THE SITE PLAN. CONTRACTOR SHALL INSTALL CURBS AND A MINIMUM INSIDE WIDTH BETWEEN CURBS IS 6'

CONTRACTOR IS REQUIRED TO HAVE FLUSH CONNECTION BETWEEN PUNCHEONS AND BOARDWALK/OUTHOUSE/WOODSHED/CABIN REAR DECK OF NO LESS THAN $\frac{1}{4}$". IT IS CONTRACTORS RESPONSIBILITY TO FIELD FIT PUNCHEONS TO MEET THIS REQUIREMENT. STACKING OF MUD SILLS OR STACKING OF STRINGERS IS ALLOWED PROVIDED USFS/NFF APPROVAL. OTHER ALTERNATIVES OTHER THAN STACKING OF SILLS/STRINGERS ARE ALLOWED WITH USFS/NFF APPROVAL TO MEET VERTICAL GRADES AND FLUSH CONNECTIONS.

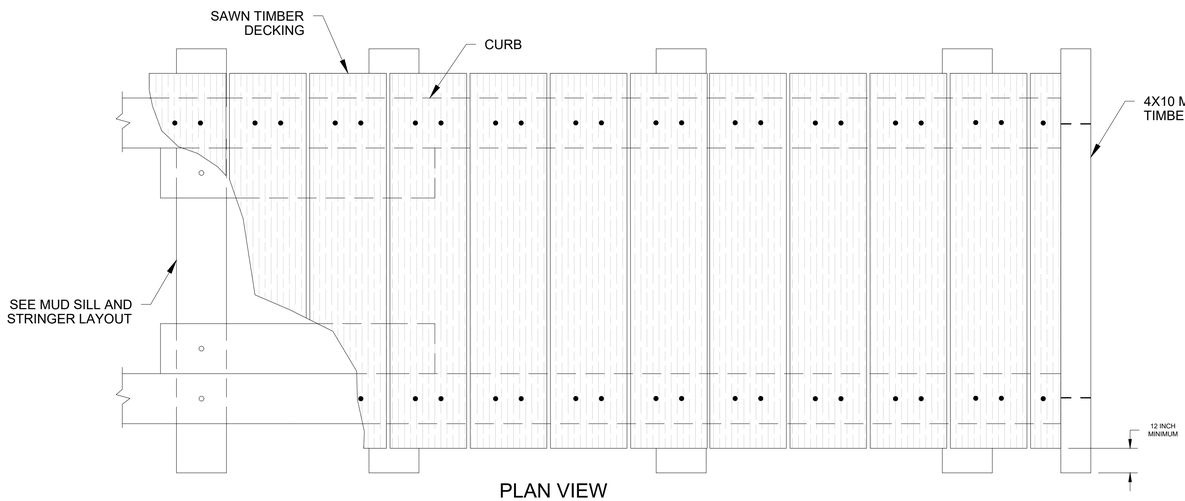
STACKING OF SILL AND OR STRINGERS MUST BE CONNECTED TOGETHER AND SECURE TO PREVENT FROM TIPPING IN THE LONGITUDINAL OR TRAVERSE AXIS.



ELEVATION VIEW



TYPICAL SECTION
NTS



PLAN VIEW

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.
6. CURVES REQUIRE MINIMUM OF 5' RADIUS
7. MUDSILLS/STRINGERS MAY BE STACKED IN A PYRAMID AND FASTENED TOGETHER TO ACHIEVE PROPER VERTICAL ALIGNMENT

PRESERVATIVE TREATMENT - (REFER TO AWPA USE CATEGORY SYSTEM)			
PRESERVATIVE TYPE	TREATMENT TYPE	USE CATEGORY	COMMENTS
P1	WB	UC3B	
P2	WB	UC4A	
P3	WB	UC4B	

TREATMENT TYPE

WB = WATERBORNE
OT = OIL-BORNE

USE CATEGORY

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

United States Department of Agriculture
Forest Service
R10
ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

G02 BOARDWALK 1 OF 2

DATE **02/03/26**

ARCHIVE NO.

DESIGNER **HC**

DRAWN HC

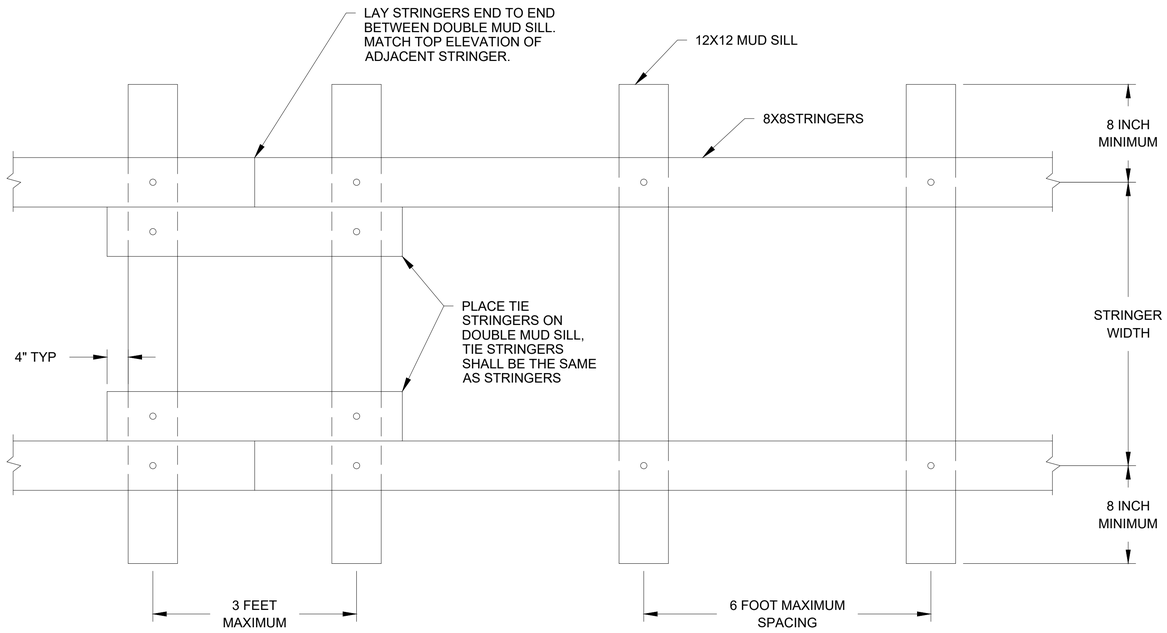
CHECKED **USFS**

PROJECT NO. 1

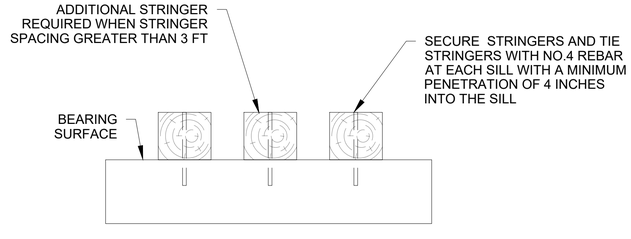
DWG SHEET NO. **19**

SHEET **19** OF **22**

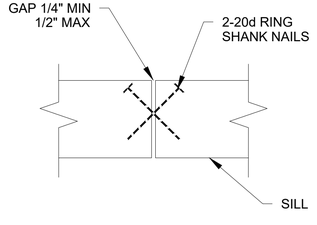
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MUD SILL AND STRINGER LAYOUT



MUD SILL AND STRINGER LAYOUT



TYPICAL BUTT JOINT

SHEET 2 OF 2

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

G02 - BOARDWALK 2 OF 2

DATE
02/03/26

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
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PROJECT NO.: 1	

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..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - CABIN LAYOUT 1.jpg

CABIN TEST PIT: TEST PIT HIT WATER ~1-2' BELOW GRADE. TEST PIT WAS WITHIN THE FOOTPRINT OF THE CABIN

..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - CABIN LAYOUT 2.jpg

CABIN TEST PIT: GRAVELS AND COBBLES WERE PRESENT

..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - OUTHOUSE 1.jpg

OUTHOUSE TEST PIT: TEST PIT FILLED WITH WATER 1-2' BELOW GRADE

..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - OUTHOUSE 2.jpg

OUTHOUSE TEST PIT: MORE GRAVELS WITH FEWER COBBLES WERE PRESENT

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

EXISTING CONDITION IMAGES 1 OF 2

DATE
02/03/26

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
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PROJECT NO.: 1	

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..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - CABIN LAYOUT.jpg

CABIN TEST PIT: TEST PIT WAS WITHIN THE CABIN FOOTPRINT

..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - PUNCHEON 1.jpg

PUNCHEON/BOARDWALK: IMAGE TAKEN FROM BEACH. THE FIRST TWO STAKES SEEN ARE WHERE THE PROPOSED BOARDWALK WILL BE INSTALLED

..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - OUTHOUSE.jpg

OUTHOUSE STAKING: IMAGE OF THE CORNERS OF THE OUTHOUSE

..\..\..\..\..\..\..\2026 PLAN IN HAND\PORT CHALMERS-2026-07-22\PORT CHALMERS-2026-07-22-CABIN - PUNCHEON BACK OF CABIN.jpg

PUNCHEON/BOARDWALK: IMAGE TAKEN AT INTERSECTION WITH PUNCHEON STAKES ON LEFT OF IMAGE ARE BOARDWALK COMING UP FROM THE SWITHCBACK AND PINK FLAGS AHEAD ARE THE PROPOSED PUNCHEON TO THE OUTHOUSE BEHIND IS PUNCHEON TO THE BACK OF CABIN

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R10

ALASKA REGION

PROJECT NAME

PORT CHALMERS CABIN

CHUGACH NATIONAL FOREST

CORDOVA RANGER DISTRICT

DRAWING TITLE

EXISTING CONDITION IMAGES 2 OF 2

DATE
02/03/26

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
HC	22
DRAWN: HC	
CHECKED: USFS	SHEET 22 OF 22
PROJECT NO.: 1	

Attachment B

Project Specifications

Port Chalmers Cabin

US FOREST SERVICE

CHUGACH NATIONAL FOREST

April 14, 2026

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APPENDIX 2 SUBMITTAL TRANSMITTAL FORM (.docx file)
APPENDIX 3 SCHEDULE OF SUBMITTAL REGISTRY (.xlsx file)
APPENDIX 4 SUMMARY TABLE OF ENVIRONMENTAL REQUIREMENTS (.pdf file)
APPENDIX 5 OUTLINES OF REQUIRED PLANS (.pdf file)

SUMMARY OF WORK

SECTION 01 11 00

PART 1 - GENERAL

1.1 DESCRIPTION

A. BASE BID: Furnish and install one cabin including all materials necessary to assemble a finished cabin and one outhouse including all materials necessary to assembly a finished outhouse. Furnish materials for cabin, foundation for cabin, outhouse (above ground roller style) foundation for outhouse, deck, ramp, heating system, furniture, deer hang and sign.

1. The Contractor shall conduct an independent geotechnical analysis of the site and provide a fully functional foundation design for the cabin site conditions.
2. Provide shop drawings, construction details, assembly instructions and other submittals, to National Forest Foundation (NFF) Coordinator for approval which illustrate all aspects of the proposed designs for cabin and outhouse and assembly procedure. The submittal for review and approval of the Government will be made prior to ordering materials for the cabin and outhouse.
3. Base the submittals upon the attached drawings for a standard Forest Service cabin, with modifications made where necessary to accommodate design requirements specific to the Contractor's methods of construction. All suggested modifications to the standard Forest Service cabin plans are subject to review and approval by the Government.
4. The outhouse can be a pre-manufactured outhouse. The Contractor shall provide the design for the outhouse system, including the foundation, barrel system, and structure.
5. The design will comply with all applicable building codes and the layout will meet the Architectural Barriers Act (ABA) Accessibility guidelines, as published by the United States Access Board, July 23, 2004.
6. Provide written plans to the NFF Coordinator for approval. Refer to each section of the specifications for requirements of these plans and to Section 01 33 00 (Submittals). An outline of the required plans is provided in Appendix 5. The plans include:

- **Project Work Plan**: Describes all aspects of the proposed construction and the Contractor’s technical approach to the project. The work plan will include a proposed timeline and must be approved prior to start of work. The intent is for this plan to be a continuation and refinement of the technical approach submitted during solicitation, with additional details included regarding public and worker safety procedures.
    - Health and safety information may include fall arrest plans and Hazardous Materials Control Plan (if applicable). The Hazardous Materials Control Plan is the Contractor’s detailed plan to prevent pollution from the use, containment, cleanup and disposal of hazardous materials (see 40 CFR 117 and 302 for listing), including petroleum products generated by construction equipment or activities.
- **Site Use and Camping Plan** per Section 01 14 13 Site Access, Use, and Storage.
- **Erosion & Sedimentation Control Plan (ESCP)** per Section 01 56 00 Environmental Requirements and Controls.

- **Quality Control Plan** per Section 01 43 00 Quality Control.

B. BID SCHEDULE: The base bid shall be bid standalone from the two alternatives and option items. Alternative 1 and Alternative 2 are each part of separate schedules as found in the bid schedule. Only one of these alternatives will be awarded based on available funding.

1.2 AGAR 452.211-72 STATEMENT OF WORK/SPECIFICATIONS (FEB 1988)

A. The Contractor shall furnish the necessary personnel, material, equipment, services and facilities to perform the Statement of Work/Specification.

PART 2 – PRODUCTS

2.1 DEFINITIONS

A. "Material" includes all lumber, windows, doors, hardware, fasteners, millwork, roofing, flooring, etc., precut to the extent feasible, and ready for erection.

B. Structural Design Values

Design Parameter	Value	Notes
Risk Category	II	ASCE 7-22, Table 1.5-1 for All other buildings
Ground Snow Load	317 psf	Estimated using SEAA snow data (284 SNWD x 1.25 for WESD conversion)
Floor Live Load	40 psf	Per ASCE 7-22, Table 4.3-1 for Residential Areas
Wind		
Basic Wind Speed	160 mph	Per ASCE 7-22 Hazard Tool, for Risk Category II
Exposure Category	D	ASCE 7-22, 26.7
Seismic		
Site Class	D	ASCE 7-22, Table 20.1 for little known soil data
S_{MS}	1.76	ASCE 7-22, ASCE 7 Hazard Tool
S_{M1}	2.17	ASCE 7-22, ASCE 7 Hazard Tool
S_S	1.65	ASCE 7-22, ASCE 7 Hazard Tool
S_1	0.77	ASCE 7-22, ASCE 7 Hazard Tool
Presumptive Soil Bearing Capacity	2,000 psf	IBC 2021, Table 1806.2 for GM/SM.

2.2 CABIN DESCRIPTION

A. This section describes the cabin elements that are included in this contract.

A. Forest Service Cabin Design Type (Select Type) (Dimension does not include

porch/overhang)

1. ☐ 16'x20' Cabin with Loft
2. ☒ 16'x20' Single Story Cabin – Pan Abode kit
3. ☐ 20'x20' A-Frame Cabin

B. Cabin Foundation (Select Type) – Design Responsibility of Contractor
   1. ☒ Helical Piles, Targeted Torque for installation: determined by the contractor
   2. ☒ Big Foots
   3. ☒ Cast-in-Place Concrete Column Footings

C. Cabin flooring (Select Type)
   1. ☒ Simpson SkidGuard High Density Overlay (HDO) Plywood for Main level flooring or approved alternative
   2. ☐ 2x6 T&G SPF (Spruce, Pine or Fir) for Loft Flooring
   3. ☐ Plywood with epoxy coat embedded with glass beads or well-graded sand for main level flooring.

D. Fiberglass Exterior Door Style (Select One)
   1. ☐ Standard
   2. ☒ Window in Top Half of Door

E. Exterior Door Swing (Select One)
   1. ☒ Interior Swing
   2. ☐ Exterior Swing

F. Exterior Deck Material (Select One)
   1. ☐ Composite Exterior Planks (i.e. Trex, Fiberon, Timbertech, Fibergrate, etc.)
   2. ☐ Fibergrate
   3. ☐ Alaska Yellow Cedar
   4. ☐ Western Red Cedar
   5. ☒ Pressure Treated Deck, AWPA Category UC4A

G. Exterior Stair Material (Select One)
   1. ☐ Composite Exterior Planks (i.e. Trex, Fiberon, Timbertech, etc.)
   2. ☒ Fibergrate
   3. ☐ Alaska Yellow Cedar
   4. ☐ Western Red Cedar
   5. ☐ Pressure Treated Deck

H. Bunk Ladders (Select One)
   1. ☒ Yes
   2. ☐ No

I. Deck Railing (Select One)
1. ☒ Yes (Required when finished floor is more than 18" above grade)
2. ☐ No
3. ☒ Pressure Treated with Cedar Top Rail
4. ☐ Hogwire with Cedar Top Rail
5. ☐ Vertical Pipes with Cedar Top Rail

J. Roof Assembly (Select One)
1. ☐ Cold Roof Assembly
2. ☒ Hot Roof Assembly

K. Roof Color (Select One)
1. ☐ Forest Green
2. ☒ Brown
3. ☐ Other: _____

L. Snow Stops (Select One) – SAME COLOR AS ROOF
1. ☐ Yes
2. ☒ No

M. Insulation (Select Type)
1. ☒ Floor insulation, with a given R-value of R-20
2. ☒ Ceiling insulation, for Hot Roof Assembly or for Cold Roof Assembly

N. Heating Source (Select Type)
1. ☒ Oil Stove: Day Tank 5 gallon Nordic Stove Deluxe Rustic 250 (window)
2. ☒ Wood Stove: Pacific Energy Vista LE2 wood stove
3. ☒ Other: Install both oil and wood stove; see Drawing for locations.

O. Outhouse Type (Select One)
1. ☐ Above-Ground Vault Outhouse
2. ☒ Above-Ground Roll-Out Vault Outhouse
3. ☐ Below-Ground Vault Outhouse
4. ☐ Strainer Outhouse
5. ☐ Pit Toilet
6. ☐ Other:

P. Amenities (Select Required Amenities)
1. ☒ Wood Shed, Size: 9'x10'
2. ☐ Fire Pit/Ring, Size:
3. ☐ Exterior Picnic Table
4. ☒ Bear Proof Locker, ☒ FS16 or ☐ FS30, FS Brown
5. ☒ Timber Boardwalk below surge zone; Snow load = 203 PSF

6. ☒ Puncheon Trail: above the surge zone, as per plans
7. ☐ Other:

Q. Coating Finish Requirements (Select Type)
1. ☒ Exterior Coating, Type: Oil based, UV coat or approved alternative
2. ☒ Interior Coating, Type: Water based, transparent coat or approved alternative

R. Weather Protection (Select Required Weather Protections)

1. ☒ Beam End Cap (if used): _____
2. ☐ Rain Gutter: _____
3. ☒ Heavy Duty Snow Diverter/Cricket: Needed for both stoves

S. Windows and Doors

1. Window frame type (select one) Wood _____ Vinyl __X__
2. Window glazing type (select options) Low E__X____ Double Pane__X____ Tempered__X____
3. Door material (select one) Wood (Solid) __X___ Fiberglass w/ wood texture___

   Door style (select one) Standard __X__ Dutch ____.

   Window on top of door? Yes __X__ (picture window – no dividers) No_____ (except where shown as "required" on elevation view drawings)

PART 3 - EXECUTION

3.1 PREPARATION OF MATERIALS FOR SHIPMENT

A. Palletize or otherwise contain all materials to allow for handling with a forklift.

B. Package all materials to protect from damage, including inclement weather.

C. Itemize the contents of each pallet. Include the itemized list with the order. Pallet Packing list should be attached in weatherproof envelop attached to exterior of each palletized package.

END OF SECTION 01 11 00

SITE ACCESS, USE AND STORAGE

SECTION 01 14 13

PART 1 – GENERAL

1.1 RELATED SPECIFICATIONS

A. 01 56 00 Environmental Requirements and Controls.

1.2 CONTRACTOR USE OF PREMISES (addendum to AGAR 452.236-72)

A. The Contractor's use of the project site shall include construction, operations, and storage of materials, and fabrication of facilities, only within limit of Work, identified on the Drawings or as approved by National Forest Foundation (NFF) Coordinator.

B. This area contains black bear and brown bear habitat, and is therefore, subject to frequent or infrequent travel and/or presence by these wild animals and other wildlife. They might be habituated to humans, and/or food-conditioned, which may pose a threat to Contractor personnel; it is the responsibility of the Contractor to ensure any personnel are "bear aware" and able to minimize impacts to these animals by securing attractants out of reach or attainment by the animal(s).

C. The Contractor shall secure the site from public use during all staging and construction operations. No public access shall be allowed during demolition operations, or when construction hazards exist. Provide to NFF Coordinator for approval all methods and materials for securing the project site from the public prior to beginning Work.

D. The Contractor shall secure the site during seasonal (winter) shut down. Obtain NFF Coordinator approval of site conditions, securing of site, and allowed visitor access prior to Contractor leaving the site including any other periods when the Contractor leaves the site for more than a week (7 days) period. Before leaving the project area, remove from the work area and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Leave the Work area in a clean, neat, and orderly condition satisfactory to the NFF Coordinator.

E. It is the Contractor's responsibility to secure the site, materials, tools, equipment, and the Work when not on site.

1.3 GOVERNMENT USE OF THE PROJECT SITE

A. The Government shall be allowed access to the project site during construction. The Contractor shall cooperate and coordinate with the Government to facilitate safe access while minimizing interference with Contractor's activities.

1.4 WORK BY OTHERS IN THE AREA

A. The Government anticipates Work by Others in or adjacent to the Area. Other Contractors, including Contractors under contract by an agency other than the Government, may be working at or near the site, however the extents of their Work and scheduling are unknown. Coordinate and cooperate with other Contractors and the Government to the full extent practicable. Immediately notify NFF Coordinator of instances where conflicting Work or schedules may interfere with the Work. Other potential Work by Others in the area may include, and is not limited to:

1. Aquatic organism passage construction and maintenance.
2. Tree thinning.
3. Rock quarry development.

1.5 SUBMITTALS

A. Submit a Site Use and Camping Plan, as described below, a minimum of 5 calendar days prior to the Pre-Construction Conference. All plans shall be for the duration of the project.

The Site Use and Camping Plan shall include information on the following topics:

- Site Security: Including but not limited to, securing the site from the public, bears and other wildlife, minimizing impacts to existing wildlife and habitat, and safety protocol for human and wildlife interactions.
- Site Usage and Operations: Including but not limited to, site access, types of equipment, use areas, and travel routes, equipment storage, hazardous material storage, power generation, laydown and materials storage, helicopter operating areas (if required), construction operations within sensitive areas, protection measures for sensitive area, areas to be protected, and timing of all operations and use areas.
- Camping: Including but not limited to, location and type of crew camp (field camp), facilities to be used, cooking facilities and storage, sanitation and water and on-site power generation. See Section 01 56 00 – Environmental Requirements and Controls.
- Debris and Waste Disposal: Including but not limited to, locations(s), materials to be disposed of, method of disposal (e.g. burial, removal, etc.), permits if required, methods of transport, and safety protocols. Burning in any campground or at the cabin site is prohibited.
- Site Restoration: Including but not limited to, the clean-up and restoration of all areas impacted by construction operations and returning to a condition equal to or better than prior to constriction activities. This includes any impacts to roads, facilities, and existing and adjacent recreation facilities.

B. The NFF Coordinator will review all submittals within 14 calendar days then either approve plans or require changes. If required for approval, modify the submittal within 5 calendar days of receiving comments from the Government.

C. The approved plans become part of the project. Both must be signed by the Contractor and the Government. A copy must be kept on site by the Contractor.

D. If there's any changes or updates to plans, the Contractor must re-submit for review and acceptance by the NFF Coordinator.

1.6 SECURING OF FACILITIES

A. Existing recreation facilities and areas not open to the public within the Project. Limits shall be secured during performance of the Work for the protection and safety of the public.

1. Contractor is responsible for managing trail and facility closure, and for providing and maintaining signage.
2. All closed routes shall be signed, and securely barricaded. Provide adequate signage with clearly-lettered, professional-appearing signs that can be read at a distance of 100 feet at all roads, docks, and floats, and access points.
3. Coordinate and receive approval from the NFF Coordinator for securing the site from the public in the form of Site Use and Camping Plan. Provide a notification of closure times to the NFF

Coordinator 7 calendar days minimum prior to closure.

B. The Contractor shall take all necessary precautions for the protection of the Work and the safety of the public. All signs, signals, and barricades shall conform to the requirements of Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.

1.7 CONTRACTOR'S ACCESS, WORK AND STORAGE AREAS

A. Coordinate and receive approval for access to the Project Site and storage of materials with the NFF Coordinator prior to beginning Work in the form of the Site Use Plan. Minimize impacts and damage to the existing natural environment (AK BMP's 12.8 and 12.9; National BMP Road-9; National BMP Rec-2; Fac-2).

B. Limit access, work and storage to areas as indicated on the Drawings or as approved by the NFF Coordinator. Make provisions to minimize disturbance within these areas including but not limited to, the use of mats, boards, cribbing, and other materials and techniques that minimize damage to existing recreation facilities and the natural environment, including existing grades, soils and vegetation and tree roots. Should the Contractor require additional area(s) for work or storage, these areas need to be identified on the Site Usage and Operation Plan for NFF Coordinator approval prior to mobilization, and supported by reasoning of need and mitigation. The request will not necessarily be granted and will be made by the NFF Coordinator.

C. Coordinate all Work to minimize impacts to existing vegetation to remain, the adjacent marine environment, and wildlife in the area.

D. For land-based motorized equipment, use appropriately scaled/sized excavators, track haulers and other equipment for work that minimize disturbance to the existing landscape, roads, facilities, and existing recreation facilities. Describe the types and size of equipment, how the equipment will be used, what mitigation measures will be followed to minimize adverse effects, how the equipment will be moved to and from the work areas, and other considerations in the Site Use Plan.

E. Contractors are cautioned that the existing Forest Service Roads in the project vicinity shown on Drawing are single lane gravel roads. Construction equipment and materials may subject the roadway to weight loads it is not designed to support. This is especially critical during periods of excessive moisture. This may required appropriate selection and scheduling of equipment and materials to minimize impacts to roadways and adjacent facilities. Any roadway damage resulting from operations will be corrected by the Contractor at Contractor's expenses.

F. Replace petroleum-based hydraulic fluid in all heavy equipment and bar oil in chainsaws with vegetable-based oil (biobased oil) to protect water (AK BMP's 12.8 and 12.9).

G. The use of helicopters in the project area is allowed. Include in Site Use Plan any landing zones, refueling areas, or other areas impacted by helicopter use prior to beginning operation.

H. Refuel all gas-powered equipment, including helicopters, a distance of at least 150 feet from waterbodies. Include equipment refueling plan as part of Site Use Plan (AK BMP's 12.8; 12.9; National BMP Road-10).

I. The Contractor shall limit the storage of hazardous materials on the Project site. Protect hazardous materials from spills and potential impacts to the existing landscape and waterbodies. Do not store materials within sensitive areas or areas to be protected. Detail storage of hazardous materials in the Site Use Plan and include a Hazardous Materials Control Plan (HMCP) based on the types of hazardous materials/chemicals anticipated. Consult the Safety Data Sheet (SDS) and product label for information on use, hazards, and safe handling procedures for chemical products under consideration for use. Store chemicals/hazardous materials away from waterbodies. (National BMP Chem-1; Chem-3; Road-10). Meet the requirements of 40 CRF 112 (Oil Pollution Prevention) for

fuel storage. Meet the requirements of 33 CRF 150 and 33 CRF 154 for facilities transferring oil or hazardous materials in bulk.

J. The Contractor shall make its own arrangements for any off-site storage of shop areas necessary for the proper execution of the Work. Should the Contractor find it necessary to use any additional land for staging or storing equipment or materials for other purpose during the construction of the Work, it shall provide for the use of such lands at its own expense and approval of land manager. The use of off-site storage or shop areas does not include National Forest lands beyond those identified as the Project area.

K. Do not allow materials or equipment to enter the adjacent saltwater, streams, areas of known contaminated soils, or other sensitive areas. Minimize impacts to sensitive areas and vegetation adjacent to the Work. Coordinate and receive approval from NFF Coordinator and permitting agencies for the timing and methods of all Work that may impact sensitive areas.

L. Do not stockpile materials, or store or operate equipment in areas outside of the access, work, and storage areas as listed in the Site Usage and Operations Plan.

M. Upon completion of construction and clean-up and removal of materials, equipment and related items from the area, the NFF Coordinator will inspect all access, work, and storage areas. Restore all areas impacted by access, work, and storage areas to the satisfaction of the NFF Coordinator prior to demobilization and indicated in the Site Restoration Plan.

1.8 CONTRACTOR'S WORK CAMP AREA

A. A Work Camp can be located along the FS Roads shown in Drawings, and is contingent of the following requirements and District Ranger approval:
   1. For any land-based work camp location, obtain permission of NFF Coordinator for location, facilities to be included, and footprint (limit of disturbance) of Work Camp prior to any camp development.
   2. Impacts from the land-based Work Camp shall be minimized to the existing site.
   3. The site shall be restored and all land-based Work Camp facilities removed to the satisfaction of the NFF Coordinator.

B. Vault toilet facilities are presently at the project location or the trailhead.
   1. The Contractor may provide temporary toilet facilities at the site during construction work at no cost to the government, if they so choose. Temporary toilet facilities location shall be submitted with the Site Use Plan and subject to approval by NFF Coordinator. Comply with State of Alaska wastewater disposal regulations 18 AAC 72 for domestic sewage. Do not use, or make available for public use, toilet facilities installed as part of Work until installation is inspected. Work is accepted by the Government, and public use is authorized. See Section 01 56 00, 1.2 Sanitation for additional information.

C. Ensure that the design, operation, and maintenance of all solid waste systems are protected from bears and other wildlife and meet all Federal, State and local requirements. Meet State of Alaska solid waste management regulations (18 AAC 80) and Federal Regulations contained in 40 CFR 243, 40 CFR 245, 40 CFR 257, and 40 CFR 258. Remove solid wastes and/or residues and dispose of in approved commercial landfills.

D. The area may be visited by black and brown bears. Bears may be attracted by activity and food and become habituated to humans and learn to associate them with food. Do not allow bears or other wildlife access to human food, garbage, or other attractants. Store food in bear-proof containers or hang at least 12 feet above ground if working from a camp. Do not leave food scraps at any time in camp or within Project area.

1.9 DEBRIS AND WASTE DISPOSAL

A. Transport all waste and disposal items to a disposal site outside of the Forest and off government land per approved Disposal Plan.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 14 13

SUBMITTALS

SECTION 01 33 00

PART 1 - GENERAL

1.1 DESCRIPTION

A. Wherever submittals are required hereunder, all such submittals by the Contractor shall be submitted to the National Forest Foundation (NFF) Coordinator, using the Submittal Coversheet.

B. POST-AWARD: Within 30 days after award of the contract, the contractor shall submit a written Project Work Plan and technical Approach to NFF for approval. The Project Work Plan will describe all aspects of the proposed construction and the contractor's technical approach to the project. The work plan will also include designations of the Contractor's Superintendent, the Contractor's Safety Representative, and the Contractor's Quality Control Representative, with responsibility and authority of these positions defined. The work plan will include a proposed timeline and must be approved prior to start of work.

C. PRE-CONSTRUCTION: After contract award and no less than 5 days prior to the Pre-Construction Conference, the Contractor shall submit the following items to the NFF Coordinator for review and approval:

1. A complete progress schedule for all phases of the Project.. It is Contractor's responsibility to identify long-lead item and submit procurement request in timely manner, to ensure product availability at the time of construction.
2. All required Safety Data Sheets.
3. Product submittals, including data sheets, color samples, and certifications of type, quality, and color for all project materials.
4. Foundation and cabin structural calculations, as applicable.
5. Stamped shop drawings and specifications for deferred design components.
6. All Plans as indicated in Quality Control; Site Access, Use and Storage; and Erosion Control Sections and elsewhere in the Specifications. These include, but are not limited to:
    a. Project Work Plan
    b. Quality Control Plan
    c. Site Use and Camping Plan
    d. Erosion and Sediment Control Plan

D. PRE AND DURING CONSTRUCTION: After contract award, the contractor shall submit any questions and/or recommended solutions using the Request for Information (RFI) form. This form shall be submitted to the NFF Coordinator for review and response. The RFI should include any relevant product data, drawings, or specifications.

E. Submittals shall be approved by the NFF Coordinator. The Contractor shall not purchase, order, ship, install, or otherwise incur costs for a product or other work subject to submittal approval until after approval is granted by the NFF Coordinator.

F. Rejection of any submittal by the NFF Coordinator constitutes notice that a resubmittal is required for the same purpose; rejections shall be explained.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. Wherever called for in the Contract Documents, or where required by the NFF Coordinator, the Contractor shall furnish to the NFF Coordinator, for review, one digital copy of each submittal as a PDF. All submittals must identified in Submittal Registry and shall include Submittal Coversheet. Submittal Registry and Submittal Coversheet will be provided to the Contractor by the NFF Coordinator.

B. Color samples/selection shall be submitted as hard copy (sample) on or of the chosen material unless approved otherwise; digital files will not be accepted for color samples/selection submittals.

C. Include any certifications with product submittals, such as Weed-Free certificates.

D. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal o various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group of packages as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the NFF Coordinator.

E. Except as may otherwise be provided herein, the NFF Coordinator will respond and return one digital copy of each submittal to the Contractor within 14 calendar days following their receipt by the NFF Coordinator. It is considered reasonable that the Contractor shall make a complete and acceptable second re-submittal to the NFF Coordinator if the initial submittal is rejected or deemed unacceptable. The Government reserves the right to withhold monies due the Contractor to cover additional costs of the NFF Coordinator review beyond the second submittal. The NFF Coordinator's maximum review period for each submittal including all re-submittals will be 14 days per submission. In other words, for a submittal that requires 2 re-submittals before it is complete, the maximum review period for that submittal could be 42 days.

F. If submittal is returned to the Contractor marked "NO EXEPTIONS TAKENS," formal revision and re-submission of said submittal will not be required.

G. If submittal is returned to the Contractor marked "MAKE CORRECTIONS NOTED," formal revision and re-submission of said submittal will not be required.

H. If submittal is returned to the Contractor marked "AMEND-RESUBMIT," the Contractor shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the NFF Coordinator.

I. If submittal is returned to the Contractor marked "REJECTION-RESUBMIT," the Contractor shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the NFF Coordinator.

J. Fabrication of an item may be commenced only after the NFF Coordinator has reviewed the pertinent submittal and returned copies to the Contractor marked either "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittal shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements. Only a modification signed by the NFF Coordinator can alter the contract price, time, or requirements.

K. All Contractor submittals shall be carefully reviewed by an authorized representative of the Contractor, prior to submission to the NFF Coordinator. Each submittal shall be dated, signed, and certified by the Contractor, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be dated, signed, and certified. No consideration for review by the NFF Coordinator of any Contractor submittal will be made

for any items which have not been so certified by the Contractor. All non-certified submittals will be returned to the Contractor without action taken by the NFF Coordinator, and any delays caused thereby shall be the total responsibility of the Contractor.

L. The NFF Coordinator's review of Contractor shop drawing submittals shall not relieve the Contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to any error in Contractor submittals. The Contractor shall be responsible for the dimensions and the design of adequate connections and details.

2.2 STAMPED SHOP DRAWINGS AND STRUCTURAL CALCULATIONS

A. Within sixty (60) calendar days of receipt of Noticed to Proceed, the Contractor shall submit to the NFF Coordinator two copies of shop drawings, structure calculations and other instructions for review.

B. The Contractor is responsible for performing a site geotechnical investigation in order to confirm site conditions and the conceptual foundation plan in the Drawings. It is the Contractor's responsibility to provide a design for a foundation system that meets the loading and site requirements for this cabin.

C. For Cabin materials, it is the Contractor's responsibility to verify and confirm the design values as shown on Design Drawings provided by the Government against the actual site condition and proposed material strength (foundation, bolts, screws, snow cricket, etc.) conforms to applicable building codes.

D. If the Contractor's calculation shows that the Design Drawings provided by the Government requires changes, then proposed variations/changes shall be highlighted in the proposed Shop Drawings for an approval prior to procurement of materials.

E. All proposed variations shall conform to applicable building codes.

F. For the Outhouse, it is the Contractor's responsibility to design the foundation, structure, and connections.

G. These submissions shall clearly illustrate, at minimum, the following:

1. Scaled drawings of foundation plan, floor framing plan and details, including connection details, of cabin.
2. Scaled drawings showing the elevation views, floor plan, foundation plan, floor framing plan and roof framing plan of outhouse.
3. A complete list of materials to be supplied by the Contractor.
4. Manufacturer's specification sheets for all products and materials including windows, doors, roofing and insulation.
5. Assembly instructions and construction detail drawings for all cabin elements such as walls, window installations, foundation, insulation, deck, ramp, and roof supports, etc.
6. Structural design values.
7. Structural calculations.
8. Proposed method of shipment and delivery date.

H. If discrepancies in design direction are found between government-provided design drawings, and specifications, resolve such issues in submittals and highlight for discussion and approval.

I. Shop drawings shall bear the stamp of Alaska registered Architect or Professional Engineer.

Calculations shall be prepared and stamped by a Professional Engineer licensed in the State of Alaska.

J. The Government shall review the submittal and within 14 calendar days provide a written response to the contractor outlining any corrections to the proposed working drawings. The Contractor shall then have 14 calendar days to submit the corrected shop drawings to the NFF Coordinator for approval. Approval of the shop drawings will constitute the Contractor's Notice to Proceed.

2.3 MATERIALS AND SITE LAYOUT

A. Prior to ordering materials and beginning site work the contractor shall submit and stake the following for approvals:

1. Submit for approval sign manufacturer's scaled drawing for cabin identification sign as described in Section 10 14 00.
2. Submit manufacturer's color samples for all products where color choices are available, such as roofing, windows, doors, and other products identified in the specifications. A computer image or paper printout from an online source will not be acceptable unless decided otherwise by NFF.
3. Submit all material and product certifications as required in project specifications for trail construction materials such as aggregate gradation sheet and results of concrete testing.
4. Identify for approval all areas proposed for disposal of unsuitable materials from clearing and grubbing, out of sight of cabin, as described in Section 31 10 00 Site Clearing and Grubbing.
5. Stake or mark proposed clearing area for approval by NFF or designee.
6. Stake corners of all buildings and site amenities for approval by NFF or designee.

B. The Government shall review submittals and staking within 14 calendar days and provide response to the contractor.

C. The Contractor shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all Project conditions, locations, configurations, and any other changes or deviation which may vary from the details represented on the original contract Drawings, including curried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried construction that differ from the locations indicated, or which were not indicated on the Contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the Work as actually constructed. These master record drawings of the Contractor's representation of as-built conditions, including all revisions made necessary by addenda, modifications, and the like shall be maintained up-to- date during the progress of the Work.

D. Record drawings shall be accessible to the NFF Coordinator at all times during the Construction period and a shall be delivered to the NFF Coordinator upon completion of the Work.

E. Final payment will not be acted upon until the Contractor-prepared record drawings have been delivered to the NFF Coordinator.

2.4 PROGRESS SCHEDULES

A. The progress schedule shall be in a mutually agreeable format and approved by the NFF Coordinator.

B. The progress schedule shall show the order in which the Contractor proposes to carry out the Work and the contemplated date on which the Contractor and their subcontractors will start and finish each of the salient features of the Work, including any scheduled periods of shutdown.

C. Upon substantial changes to the Contractor's progress schedule of Work or upon request of the NFF Coordinator, the Contractor shall submit a revised progress schedule(s) in the form required. Such revised schedule(s) shall conform with the Contract Time and take into account delays which may have been encountered in the performance of the Work. In submitting a revised schedule(s), the Contractor shall state specifically the reason for the revision, state whether it's a cost change or no cost change, and the adjustments made in its schedule or methods of operation to ensure the completion of all the Work within the contract time.

2.5 PROPOSED SUBSTITUES OR "OR-EQUAL" ITEM SUBMITTAL

A. Whenever materials or equipment are specified or described in the Contract Document by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other Suppliers may be accepted by the NFF Coordinator if sufficient information is submitted by the Contractor to allow the NFF Coordinator to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the Contractor.
2. The NFF Coordinator will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the NFF Coordinator's decision shall be final.
3. The NFF Coordinator may require the Contractor, to furnish at the Contractor's expense, additional data about the proposed substitute.
4. The NFF Coordinator may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute.
5. Acceptance by the NFF Coordinator of a substitute item proposed by the Contractor shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
6. The Contractor shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the Contractor's Work, the Work of its subcontractors and of other contractors, and shall effect such changes without cost to the Government. This shall include the cost for redesign and claims of other contractor affected by the resulting change.

B. The Contractor's application using the "Substitution Request" shall contain the following statements and/or information which shall be considered by the NFF Coordinator in evaluating the proposed substitution:

1. The evaluation and acceptance of the proposed substitute will not impact the Contractor's achievement of substantial completion on time.
2. Whether or not acceptance of the substitute for use in the Work will require a change in

any of the Contract Documents to adopt the design to the proposed substitute.

3. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims or other contractors affected by the resulting change.

C. Submit separate requests for each substitution. Support each request with the following:

1. Complete data substantiating compliance of proposed substitution item(s) with the requirement stated in the Contract Documents:
    a. Product identification, including manufacturer's name and address;
    b. Manufacturer's literature, identifying:
        i. Product description;
        ii. Reference standards, and;
        iii. Performance and test data
    c. Samples, as applicable;
2. Substitute products must not be ordered or installed without written acceptance by the NFF Coordinator.
3. The NFF Coordinator will determine acceptability of proposed substitutions in consultation with other Government employees with knowledge of the project and/or product(s).

2.6 CONTRACTOR SUBSTITUTION REQUEST REPRESENTATION AND RESPONSIBILITIES

A. In making a formal request for substitution of item(s), the Contractor represents that:

1. Have investigated the product proposed to substitute the originally-specified item, and have determined that it is either equal to, or superior to, the original item in all respects to that originally-specified item;
2. Will provide the same or better warranties and bond(s) for the substitute as for the originally-specified item;
3. Will coordinate the installation of any accepted substitution into the Work, and will make such changes as may be required for the Work to be completed in all respects;
4. Will waive any and all claims for additional costs caused by substitution, which may not be readily apparent, and may become apparent only subsequently, and;
5. Cost data is complete and includes related costs under the contract, other than:
    a. Costs under separate contracts, and;
    b. NFF Coordinator costs for redesign or revision of contract documents.
6. The Contractor assumes full responsibility that the substitution and/or alternate item(s) or procedure(s) will meet the job requirement(s).
7. The Contractor is solely responsible for the cost of redesign and modification(s) to this and other parts of the work cause by the substitution(s) or alternate item(s) furnished.

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 33 00

TERMS, ABBREVIATIONS, ACRONYMS AND DEFINITIONS

SECTION 01 42 00

PART 1 - GENERAL

1.1 TERMS

A. Specification Terms: These specifications are generally written in the imperative mood. In sentences using the imperative mood, the subject "the Contractor," is implied. Also implied in this language is "shall," "shall be," or similar words or phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project. Wherever "directed," "required," "prescribed," or similar words are used, the "direction," "requirement," or "order" of the NFF COORDINATOR is intended. Similarly, wherever "approved," "acceptable," "suitable," "satisfactory," or similar words are used, they mean "approved by," "acceptable to," or "satisfactory to" the NFF COORDINATOR. The words "will" generally pertains to decisions or actions of the NFF COORDINATOR. Whenever in these specifications, or in other contract documents, the following terms (or pronouns in place of them are used, the intent and meaning shall be interpreted as follows: reference to a specific standard, test, testing methods, or specification shall mean the latest published edition or amendment that is in effect at the solicitation issue date for the public works contracts.

1.2 ABBREVIATIONS AND ACRONYM

AASHTO	American Association of State Highway and Transportation Officials
AQ	Actual Quantities
ASTM	American Society for Testing and Material
AWPA	American wood Preservers Association
AYC	Alaska Yellow Cedar
CL	Centerline
DQ	Design Quantities
EA	Each
FFE	Finished Floor Elevation
HR	Hour
LF	Linear Feet
LS	Lump Sum
LSQ	Lump Sum Quantities
MW	Miscellaneous Work
NW	No Work
NBS	National Bureau of Standards
PS	Product Standard issued by the U.S. Department of Commerce
SHT	Sheet
WCLIB	West Coast Lumber Inspection Bureau
WWPA	Western Wood Products Association

1.3 DEFINITIONS

When the following terms or pronouns in place of them, are used in these specifications or in other contract documents, the intent and meaning are as follows:

Berm. The ridge of material formed on the outer edge of the trail that projects higher than the tread.

Borrow. Suitable materials taken from approved sources designated on the drawings or on ground, to be used for embankments and backfilling.

Catch Point. The outer limits of a trailway where the excavation and/or embankment intersect with the ground line.

Clearing Limit. The area over and beside the trail that is cleared of trees, limbs, and other obstructions.

Compacted. Consolidation that is obtained by tamping or rolling suitable material until no noticeable displacement of material is observed.

Crusher Fines. A finely crushed stone mix that is often the byproduct of gravel operations.

Danger Tree. An unstable tree 5 inches or greater in diameter at breast height that is likely to fall across the trail.

Designated on the Ground. The location of materials, work areas, and construction items, including lines and grades, marked on the ground with stakes, flagging, tags, or paint.

Drawings. Documents showing details for construction of a facility, including but not limited to straight-line diagrams, trail logs, standard drawings, construction logs, plan and profile sheets, cross-sections, diagrams, layouts, schematics, descriptive literature, and similar materials.

Duff. Organic material overlying rock or mineral soil.

Embankment. A structure of suitable material placed on the prepared ground surface and constructed to the trailbed elevation.

Excess Excavation. Material in the trailway in excess of that needed for construction of designed trailways.

Full Bench. Trailbed constructed entirely on undisturbed material.

Grade. The vertical distance of ascent of descent of the trail expressed as a percentage of the horizontal distance.

Header Rock. Rock laid with the narrow end towards the face of the wall.

Inslope. Where the trail tread is sloped downward toward the backslope.

Mineral Soil. Soil or aggregate that is free from organic substances and contains no particles larger than 2 inches at their greatest dimension.

Outslope. Where the trail tread is sloped downward toward the embankment or daylight side of the trailway.

Sideslope. The natural slope of the ground, usually expressed as a percentage.

Slough. That material from the backslope or the area of the backslope that has raveled onto the trailbed.

Slump. Where the trailbed material has moved downward, causing a dip in the trail grade.

Special Project Specification. Specifications that detail the conditions and requirements peculiar to an individual project, including additions and revisions to the standard specifications.

Surfacing. Material placed on top of the trailbed that provides the desired tread.

Suitable Material. Rock that can be accommodated in the trail structure, and soil free of duff with a recognizable granular texture.

Switchback. A reverse in direction of trail grade with a level landing used to change elevation on a steel slope, usually involving special treatment of the approaches, barriers, and drainages.

Native Topsoil. A mixture of organic and sometimes mineral material from the project site taken from the upper several inches of the soil horizon, with roots and other material greater than 2 inches in any direction removed.

Tread. The surface portion of the trail upon which traffic moves.

Turnpoint. A short section of extra trail width to provide for passage of trail users.

Water Courses. Any natural or constructed channel where water naturally flows or will collect and flow during spring runoff, rainstorms, etc.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 42 00

QUALITY CONTROL

SECTION 01 43 00

PART 1 - GENERAL

1.1 DEFINITION

A. Specific quality control requirements to the Work are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the Work beyond furnishing of manufacture products. The term “Quality Control” and/or “Quality Assurance” includes inspection, sampling and testing, and associated requirements.

B. Work consists of providing certification that the quality of construction conforms to the drawings, specifications, and requirements of the contract.

1.2 PROJECT MEETINGS/CONFERENCES

A. POST-AWARD CONFERENCE

1. Typically 1-2 weeks after Notice to Award project, a Post-Award Conference is to be held at a mutually agreed time and place which shall be attended by the Contractor’s Project Manager, its Contractors’ Designated Representative, and its subcontractors as the Contractor deems appropriate. Other attendants will be:

   i. National Forest Foundation (NFF) Coordinator.
   ii. Representatives of the Government.
   iii. Contractor’s Quality Control Manager.
   iv. Other Representatives as appropriate.
   v. Others as requested by Contractor, Government or NFF Coordinator.

2. The Contractor shall bring, at minimum, to the Post-Award Conference one copy each of following:

   i. Project schedule.
   ii. Procurement schedule of major equipment and materials and items requiring long lead time.
   iii. Name, qualifications, and telephone number of Contractor’s Project Superintendent, Health and Safety Representative, and Quality Control Representative.
   iv. Other materials and documents as requested by NFF Coordinator.

3. The purpose of Post-Award Conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedure for handling such matters established. The complete agenda will be furnished to the Contractor prior to the meeting date. The Contractor should be prepared to discuss all of the items listed below:

   i. Contractor’s tentative schedule.
   ii. Intent of use of camp on site and anticipated facilities.
   iii. Transmittal, review, and distribution of Contractor’s submittals.
   iv. Processing applications for payment.
   v. Maintaining record documents.
   vi. Critical work sequencing.
   vii. Use of project site, access, storage, and work areas, security, and Government’s

needs.

viii. Major equipment and materials deliveries and priorities, equipment types and use, including helicopter operations.

ix. Preliminary schedule of Shop Drawings, Samples, and proposed Substitutes

x. or "Or-Equal" Submittals.

xi. A list of all permits and licenses the Contractor shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.

4. The NFF Coordinator will preside at the Pre-Work Conference and will arrange for keeping and distributing the minutes to all person in attendance.

B. PRE-CONSTRUCTION CONFERENCE

1. No more than 30-days and no less than 14-days prior to the commencement of Work at the site, a Pre-Construction Conference is to be held at a mutually agreed time and place which shall be attended by the Contractor's Project Manager, its Contractors' Designated Representative, and its subcontractors as the Contractor deems appropriate. Other attendants will be:

   i. NFF Coordinator.
   ii. Representatives of the Government.
   iii. Contractor's Quality Control Representative.
   iv. Contractor's Health and Safety Representative
   v. Other Representatives as appropriate.
   vi. Others as requested by Contractors, USFS Representative or NFF Coordinator.

2. The Contractor shall bring, at a minimum, to the Pre-Construction Conference one copy each of the following:

   i. Project Work Plan
   ii. Site Use and Camping Plan.
   iii. Updated Project Schedule.
   iv. Updated Procurement schedule of major equipment and materials and items requiring long lead time.
   v. Erosion and Sediment Control Plan
   vi. Health and Safety Plan, including Fall Arrest Plan and Hazardous Materials Control plan (if required).
   vii. Quality Control Plan.
   viii. Other materials and documents as requested by NFF Coordinator.

3. The purpose of the Pre-Construction conference is to discuss and review the various Plans required as part of the Work and update schedules, work sequencing and expected substitutions. Matters requiring coordination will be discussed and procedure for handling such matters established. The complete agenda will be furnished to the Contractor prior to the meeting date. The Contractor should be prepared to discuss all of the items listed below:

   i. Revised Contractor's schedule.
   ii. Critical Work sequencing.
   iii. Work Orders and Modifications.

iv. Use of project site, access, storage, and work areas, security, housekeeping, camping and Government's needs.

v. Major equipment and materials deliveries and priorities, equipment types and use, including helicopter operations.

vi. Contractor's assignments for safety and first aid.

vii. Quality Control Plan.

4. The NFF Coordinator will preside at the Pre-Construction Conference and will arrange for keeping and distributing the minutes to all persons in attendance.

C. ARCHEOLOGICAL COORDINATION MEETING

1. No less than seven-days prior to the commencement of Work at the site, meet with the USFS Representatives and Archaeological Monitor to discuss:

i. If using Government quarry, archeological protection measures and other requirements as indicated by NFF Coordinator, daily work schedule, equipment, limits, and methods to be used.

ii. Quarry, Plan, if using Government managed quarry, discuss Quarry Plan including schedule, limits of Work, equipment and methods to be used.

iii. Discovery of unknown archeological resources within Work Area and measures and requirements for protection.

D. PROGRESS MEETINGS

1. USFS may request the Contractor to schedule and hold regular on-site and/on telephone progress meetings at least weekly, as needed, during construction layout, installation of major components and at other times or as required by progress of the Work. The Contractor, USFS Representative or Inspector, and all subcontractors active on the site must attend each meeting. Contractor may at its discretion request attendance by representatives of its suppliers, manufacturers, and other subcontractors. The NFF Coordinator may or may not attend all meetings or attend in person.

2. The Contractor shall preside at the meeting and will arrange for keeping and distributing the minutes. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss change in schedule, and resolve other problems which may develop. During each meeting, the Contractor is required to present any issues which may impact the Work, with a view toward resolving these issues expeditiously.

1.3 INSPECTION AND TEST SERVICE

INSPECTION AND TEST SERVICE

1. Inspection and testing laboratory service shall comply with the following:
    1. Contractor shall appoint, employe, and pay for services to perform inspection and testing for critical components of the Work such as concrete foundation pouring, and similar Work as required. Contractor shall provide for approval the individual's qualifications and related information as specified in 1.4 Quality Control Plan.
    2. The NFF Coordinator will perform quality assurance inspections as specified in individual Specification Sections and at the NFF Coordinator's discretion.

3. Test results shall be submitted to the NFF Coordinator in digital format, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
4. The Contractor shall notify the NFF Coordinator 48 hours prior to the expected time for operations requiring inspection and laboratory testing services.
5. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm or individual. The Contractor shall bear all costs from such retesting at no additional cost to the Government/NFF.
6. For Samples and tests required for Contractor's use, the Contractor shall make arrangements with an independent firm for payment, and scheduling of testing. The cost of sampling and testing for the Contractor's use shall be included in the Contract Price.
7. Points 1-6 above synopsis: The contractor may conduct slump test, air entrainment tests themselves and provide the results to the NFF/USFS. Contractor may also collect compression test cylinders themselves and provide the break results to the USFS/NFF from a testing firm.

1.4 QUALITY CONTROL PLAN

A. Quality Control Plan (QCP). Submit a final Quality Control Plan for approval a minimum of 5-calendar days prior to the Pre-Construction Conference addressing at a minimum the following categories:

1. All concrete work.
2. Cabin wall framing.
3. Cabin roof framing and assembly.
4. Road/access trail construction.
5. Foundation other than concrete (if applicable)

B. A category consists of related work items performed in one operation (such as excavation, drainage, or concrete placement). Include the work of subcontractors, major material suppliers, and structural services suppliers.

C. For each category, include the following:

1. Quality Control Personnel. Furnish the name, authority, responsibilities, and qualifications of the quality control manager and other personnel directly involved in inspecting and testing.

2. Quality Control Procedures. Describe the inspection, testing, and other activities to be performed for each phase of work. Include methods, schedules, equipment, and laboratory facilities.

3. List the materials to be tested by:

   i. Pay item;
   ii. Applicable requirements of the Sampling, Testing, and Acceptance Requirements table;
   iii. Persons responsible for performing the sampling and testing;
   iv. Laboratory testing facilities to be used for process control and project testing; and
   v. Proposed reporting formats.

D. Records. Describe the reporting format for inspection, testing, certification, and daily reports.

E. Do not perform work on a category unless the quality control for that category is accepted. Approval does not imply that the QCP will result in contract compliance.

F. Revise the QCP when contract quality requirements are not achieved and when changes occur in the contract work progress, or personnel.

1.5 CERTIFICATION AND MEASUREMENTS

A. Offsite-Produced Materials. Furnish signed certificates executed by the manufacturer, supplier, or vendor, stipulating that all offsite-produced materials incorporated in the Work meet applicable requirements as shown on Drawings or stated in the Specifications. Furnish a certificate for each commodity.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 INSTALLATION

A. Inspection. The Contractor shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.

B. Measurements. The Contractor shall verify measurements and dimensions of the Work, as an integral step of starting each installation.

C. Manufacturer's Instructions. Where installations include manufactured products, the Contractor shall comply with manufacturer's applicable instruction and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

END OF SECTION 01 43 00

ENVIRONMENTAL REQUIREMENTS & CONTROLS

SECTION 01 56 00

PART 1 - GENERAL

1.1 CONTENTS

A. Environmental Controls
B. Erosion Control
C. Archeological Protection
D. Ecology
E. Forestry
F. Hydrology/Soils
G. Recreation
H. Subsistence
I. Wildlife

1.2 ENVIRONMENTAL CONTROLS

A. RUBBISH CONTROL

1. During the progress of the Work, the Contractor shall keep the site of the Work and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the Work site, and shall establish regular intervals of collection and disposal of such materials and waste. The Contractor shall also keep adjacent facilities and access areas free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.
2. All rubbish shall be secured in a manner and location where it is protected from bears and other wildlife.

B. SANITATION

1. Sanitary Facilities: Unless provided otherwise, the Contractor shall provide and maintain the following facilities (if applicable):
2. Potable water supplies for drinking, washing, and cooking that comply with State of Alaska Drinking Water Regulations (18 AAC 80).
3. Wastewater systems for domestic sewage that comply with State of Alaska Wastewater Disposal Regulations (18 AAC 80).
4. Design, operation, and maintenance of all solid waste systems on lands under Forest Service jurisdiction meet all Federal, State, and local requirements. This includes, but is not limited to:
    i. Federal regulations 40 CFR 243, 40 CFR 245, 40 CFR 257, 40 CFR 258, and;
    ii. State regulations 18 AAC 60.
    iii. Removal of all solid wastes and/or residues, with proper disposal at/in approved

commercial landfills.

iv. Meet the requirements of 40 CFR 112 (Oil Pollution Prevention) for fuel storage, and the requirements of 33 CFR 150 and 33 CFR 154 for facilities involved with transferring oil or hazardous materials in bulk.

5. Toilet Facilities: Fixed or portable vault toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction and State of Alaska Wastewater Disposal Regulations 18 AAC 72 for domestic sewage.

6. Alaska Department of Environmental Conservation (DEC) requires a "minimum separation distance between the ordinary high water mark (OHWM) of a lake, river, stream, or slough, and a holding tank, soil absorption system, seepage pit, pit privy, or other wastewater collection, treatment, or disposal system is 100 feet, measured horizontally." (18 AAC 72.020(b)).

7. The Forest Service standard is "Latrines, vaults or pit toilets for camps and cabins will be located a minimum of 100 feet from all perennial lakes and streams." (R10 MBP 12.15 in the FSH 2509.22 Soil and Water Conservation Handbook). Additionally, a minimum of 100 feet from Mean High Water (MHW) shall apply for measurements from tidally influenced waters.

C. CHEMICALS

1. A chemical shall not be stored on site without approval by NFF Coordinator.

2. Any chemicals approved by the NFF Coordinator used to perform the Work shall show approval of either the U.S. Environmental Protection Agency (EPA) or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer. Any approved chemicals stored need to be contained within a bear-proof, hard-sided container that will prevent bears or other animals from damaging the chemical container in a way that will cause it to leak.

D. LANDSCAPE PRESERVATION

1. Landscape Preservation includes the following, in addition to AGAR Clause 452.23 -74 Control of Erosion, Sedimentation and Pollution (Nov. 1996).

2. Give attention to the effect of contract operation upon the landscape, take care to maintain natural surroundings undamaged, and conduct the work at all times in compliance with the following requirements.

3. Do not remove, deface, injure, or destroy trees, shrubs, rock outcroppings, or other natural features or any other improvements in the work area unless specifically authorized by the NFF Coordinator.

4. Confine operations to within the clearing limits or other areas designated in Contract Documents, and prevent the depositing of rocks, excavated materials, stumps, or other debris outside of these limits. Unless otherwise agreed to by the NFF Coordinator, retrieve material which falls outside of these limits and either incorporate the material in the work or dispose of the material as directed by the NFF Coordinator.

5. Collect and return waste motor oils, fuels, lubricants, bitumen, and similar hydrocarbons off site to Contractor's property. Comply with the requirements of 40 CFR 279, Standards for the Management of Used Oil. Do not discharge hydrocarbon products on ground, use them for road oiling, or bury them in a landfill.
6. Schedule and conduct operations to minimize erosion of soils and to prevent silting and muddying of streams, rivers, irrigation systems, and impoundments (lakes, reservoirs, etc.). Install silt fencing, as/where required around areas immediately next to streams drainages (natural or man-made) and ponds to mitigate suspended sediments.
7. Wash and inspect tools, materials, and construction equipment prior to fist entering the project area, or before re-entering the project area after use in another area that is infested by invasive plants.
8. All imported construction gravel and sand should be either certified weed-free or inspected for the presence of invasive plants before transport to the project area.
9. Use natural fiber matting such as coconut fiber for erosion control as an alternative to straw bales.
10. Ensure all equipment is clean of aquatic invasive species, as well as oil and grease, and is well maintained.
11. Use vegetable oil or other biodegradable hydraulic oil for heavy equipment when operating on site.
12. Ensure spill containment kit is accessible on each piece of heavy equipment.

E. EMERGENCY CONTROL

1. Follow Emergency Control as indicated in addendum to AGAR 452.236-77.
2. Immediately extinguish, without expense to the Government, all fires on or in the vicinity of the project areas which are caused by the Contractor's employees, equipment or through prosecution of the work, whether set directly or indirectly as a result of construction operations, with or without direction by the Forest Service. The Contractor may be held liable for all damages and costs of additional labor, subsistence, equipment, supplies, and transportation deemed necessary by the Government resulting from fires set or cause by Contractor's employees or resulting from construction operations.
3. Contractors' Responsibility for Controlling Other Emergencies: When requested by the NFF Coordinator, allow the Forest Service to temporarily use employees and equipment for emergency control work. Payment will be made at not less than the current area rate established or adopted by the Forest Service through partnership with the National Wildfire Coordinating Group (NWCG).
4. Property install and constantly maintain in serviceable condition all exhaust equipment described above, including spark arresters and mufflers.
5. Do not burn camp refuse.

1.3 EROSION CONTROL

A. DEFINITIONS

1. Erosion and Sediment Control Plan (ESCP): Provide detailed information about the construction site, limit of Work, and shows the location, installation, and maintenance of permanent and temporary prevention of erosion and control of sedimentation during construction of the Work.

2. Final Stabilization: That point when all soil disturbing activities resulting from the project have been completed and a live uniform blanket of perennial vegetation to preclude erosion, has been established on all unpaved areas (excluding graveled shoulders and crushed aggregate base course) not covered by permanent structures or equivalent permanent stabilization measures, such as use of riprap, gabions, or geotextiles.

3. Best Management Practices (BMP's): A wide range of project management practices, schedules of activities or prohibition of practices that when used singly or in combination, prevent or reduce erosion, sedimentation and pollution of adjacent water bodies and wetlands. BMP's include both structural devises and non-structural practices and can be temporary or permanent. The State of Alaska DOT/PF Best Management Practices for Construction Erosion and Sediment Control describes a variety of standard BMP's.

B. EROSION AND SEDIMENTATION CONTROL PLAN (ESCP) REQUIREMENTS

1. Base the ESCP on the approach of first avoiding and preventing erosion, then minimizing erosion and finally trapping sediment before it leaves the project site.

2. Address all ground disturbing activities required by the contract as well as those planned for your operations. Ensure that all erosion, sediment and pollution control requirements are met for all activities associate with the work and are addressed in the ESCP.

3. The plan must demonstrate that any offsite operations, including material sources and waste areas are in compliance with all local, state, and federal erosion, sediment and pollution control requirements. Material obtained from a commercial source does not require evidence of compliance. A commercial source is defined as one that serves multiple unrelated projects and would continue to operate after project completion. A site developed solely for the project is considered a Contractor source.

4. Provide the following information in the ESCP:

   a. A Site Map displaying the following:
      i. Approximate locations of drainage patterns and nearby water bodies likely to receive discharges from disturbed areas of the project.
      ii. Approximate areas of soil disturbance.
      iii. Proposed locations, quantities, and types of erosion and sediment control methods.

   b. A Written Narrative briefly describing the proposed control measures to be implemented at the construction site, and off-site areas if necessary.
      i. Clearly describe for each major activity, appropriate control measures and the period during the construction process that the measures will be implemented.
      ii. Ensure that all temporary or permanent erosion and sediment control materials do not introduce non-native or invasive species. The use of straw bales and other materials that may introduce any weed seeds or that may result in the

germination of an invasive is prohibited.

c. Specifically address your plan for controlling and managing erosion and sedimentation during construction at the following locations:
   i. All construction adjacent to existing drainages, streams, lakes, water bodies, wetlands, and other sensitive areas.
   ii. Designated disposal sites and material sites
   iii. Any additional sites which may be sensitive due to the proposed construction operation (including contractor supplied material and disposal sites, staging areas, and stockpile locations).

d. Inspections: Identify the Contractor personnel responsible for inspection of the project's erosion and pollution control measures.

e. Responsible Party: Clearly identify for each measure shown in the plan, the Contractor and/or subcontractors that will implement and maintain the measure.

C. CONSTRUCTION REQUIREMENTS

1. Do not begin earth disturbing work until written approval of the ESCP has been received from the Government.
2. Contain, clean up, and dispose of all construction related (including camp facilities) discharges of petroleum products and/or other materials hazardous to the land, air water and organic life forms. Perform all fueling operations in a safe and environment ally responsible manner. Comply with the requirements of 18 AAC 75 and AS 46, Oil and Hazardous Substances Pollution Control.
3. Implement all temporary and permanent erosion and sediment control measures identified in the ESCP and contract Plans and ensure that the ESCP remains current.
4. During construction, inspect the following at least once every 7 calendar days:
   a. Disturbed areas of the construction site where final stabilization is not complete.
   b. Areas used for storage of materials that are exposed to rain.
   c. Structural control measures.
   d. Locations where equipment enter or exit the site.
5. Perform inspections within 24 hours of the end of storm resulting in significant or unusually heavy rainfall.
6. When erosion control measures are not functioning as intended, take corrective action to eliminate or minimize pollutants in storm water discharges from the project.
7. Perform other inspections, if directed, during or following high intensity rainfall events of any depth.
8. Prepare inspection reports summarizing the scope of the inspections, names of personnel making the inspections, the dates of the inspections and major observations relating to the implementation of the ESCP. Identify any incidents of non-compliance, steps taken to implement corrective actions to bring the work in compliance with the ESCP. Inspection reports are not required to be submitted to NFF but a copy may be requested by NFF if a concern or issue arises.
9. Based on the results of each inspection, modify the ESCP as necessary to include additional or modified BMPs designed to correct problems identified. Complete the revisions within 7

calendar days following the inspection. Implement modified or additional BMPs before the next anticipated storm event or as soon as practicable.

10. If a storm event occurs, where storm water discharges pose a threat to water quality, take immediate suitable action to preclude erosion and pollution.
11. Prior to winter shutdown, ensure that the site has been stabilized as detailed in the ESCP.
12. Prior to project closeout and demobilization, the NFF Coordinator will review all areas disturbed by construction to determine if final soil and sediment stabilization is complete.
13. The Contractor shall maintain existing temporary erosion control structures as necessary and/or as directed by the Government for the duration of the contract. They shall be maintained in effective operating conditions at all times. Structures shall be cleaned, repaired, or replaced as necessary.
14. Temporary erosion control structures shall remain in place until NFF approves their removal.

1.4 ARCHEOLOGICAL PROTECTION

A. While archaeological monitoring is recommended, based on the negative results of the tests in the area, monitoring is not required. Further archaeological survey is recommended for the trail widening of the INHT that leads to the cabin project area. Survey is dependent on the width and breadth of the trail widening and will be coordinated between the Contractor/NFF/USFS as the design progresses.

B. To date, no archaeological sites or historic properties were found during the USFS survey within the project area. In the case that the Contractor discovers artifacts:

1. Avoid any known Heritage Sites.
2. Collection and/or disturbance of artifacts is illegal and not allowed.
3. Establish a 600 feet (200 yards) buffer zone around all archeological sites.
4. Follow Leave No Trace standards for Heritage Sites.
5. Notification of the Zone Archaeologist is required if any historic or prehistoric objects or sites are encountered.
6. Provide Zone Archaeologist with the specific location of new sites or artifacts identified by a GPS location and/or a dot on a map.

1.5 ECOLOGY

1. All tools and equipment used for this project shall be cleaned and free of all soil, plant material, insects, or animals prior to entering Forest Service lands.
2. All heavy equipment used in the project area must be inspected by a qualified Forest Service employee prior to entry onto Forest Service lands.
3. The Department of Interior Technical Memorandum No. 86-68220-07-05: Inspection and Cleaning Manual for Equipment and Vehicles to prevent the Spread of Invasive Species, available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5374537.pdf, shall be provided to the contractor prior to implementation to provide clear guidance for equipment cleaning.
4. All mineral materials, topsoil and straw or hay erosion control products used shall be certified as weed free under the State of Alaska's Division of Agriculture weed free certification program.
5. All seed products used for revegetation shall not exceed the maximum allowable tolerances for noxious weed seed established in Alaska Administrative Code Title 11, Chapter 34.

6. Any invasive species introduced by the Contractor to the Project shall be removed immediately at no expense to the Government. Remove the entire plant including all roots and plant parts that break off during excavation. Contain plants, roots, plat parts, and any related soil required for full removal in sealed plastic bags and dispose of legally in an off-site landfill. Disposal requirements are as follows:
    1. Dispose of all plant parts including vegetative materials, flowers, roots, and rhizomes. Do not cut or brush cut plants as part of removal and keep plants intact as best possible. Take steps necessary to prevent the spread of plant during construction and disposal activities.
    2. Limits of invasive species removal shall be 3-feet beyond existing limits of invasives and verified by NFF Coordinator. Coordinate limits to minimize damage to larger trees and facilities to remain.
    3. Excavate upper soil layer (minimum 4-inches), invasive plants, and other vegetation and place in (4 mil minimum thickness) black plastic bags for transportation to disposal site. Bags shall be securely tied or sealed.
    4. Excavate an additional 8-inches depth to obtain a total excavation depth of 12-inches to remove soil containing seeds, roots and/or rhizomes shall be wrapped in black plastic sheeting (4 mil minimum thickness) or tarp and securely transported in a manner which prevents the spread of the contaminated material during transport to disposal site. Alternatively, for larger quantities, utilize “Bulk Bag” or similar construction haul sacks, and tarp securely for transport.
    5. Transport and contain the material in a manner that will ensure that it is not spilled or deposited in any location (including transportation route) other than the final disposal site. Prevent the accidental spread of materials from wind, rain, and other actions during transport.
    6. Disposal of invasives and associated soils shall be buried in a NFF Coordinator approved City or Municipal landfill or similar NFF Coordinator approved excavated pit not located on Government land. Dispose of legally. Disposal shall be covered with at least 4-feet of uncontaminated fill material. Do not bury or dispose of within 100-feet of a water body, including wetlands. If more stringent disposal methods are required by the disposal site, the more stringent methods shall be followed.
    7. Fill excavations within project area from invasives removal with approved clean fill materials and planting soil as approved by NFF Coordinator.
    8. Clean equipment thoroughly after use to remove all contamination as indicated in 1.10 Equipment Cleaning. Collect, contain, and dispose of, as indicated above, all invasive plant materials removed from equipment during cleaning operations.
    9. Do not use herbicides or burning as part of invasive species removal.

1.6 FORESTRY

A. All spruce cuts will have at least 40% of the bark stripped or be bucked to firewood lengths to avoid beetle issues. Forest Service retains ownership of merchantable timber for disposal.

1.7 HYDROLOGY/SOILS

A. A wetland delineation has been completed by the USFS and will be provided to the Contractor. If

a USACE Clean Water Act 404 permit is required it will be the responsibility of the Contractor to obtain.

B. Ensure outhouse placement meets Alaska Department of Environmental Conservation separation distance standard (18AAC 72.020): b) minimum separation distance between the mean annual high water level of a lake, river, stream, spring, or slough, or the mean higher high water level of coastal waters, and a lift station, holding tank, septic tank, soil absorption system, seepage pit, pit privy, or other waste water collection, treatment, or disposal system is 100 feet, measured horizontally.

C. Avoid locating outhouses in wetlands, poorly drained soils, or in areas with ephemeral overland water flow. (FSH 2509.22 BMP 12.15; FS-990a Fac-4)

D. A pit privy may not be installed in an area subject to flooding. The vertical separation between the lowest point of a pit privy and the water table, measured during the season of the year with maximum water table elevation, must be at least four feet.

E. Where practicable, avoid locating roads and trails within riparian areas, wetlands, floodplains, alluvial fans and outwash areas. Locate roads and trails to fit the terrain, follow natural contours, and limit the need for excavation. (FSH 2509.22 BMP 12.5, 14.2, 16.1; FS-990a Rec-4, Road-2)

F. Minimize soil erosion and water quality problems originating from trails and their drainage structures by using standard engineering practices and techniques to harden trails in wet areas, and to reduce erosion on hillslopes. (FSH 2509.22 BMP 14.3, 16.4, FS-990a Rec-4)

G. Implement and maintain proper erosion and sediment control practices for all disturbed areas, including ditches, cut and fill slopes, borrow sites, stockpile areas, access routes, and staging areas used during construction activities. Establish effective ground cover (e.g. slash, displaced sod, seeding) on disturbed sites to avoid or minimize accelerated erosion. Erosion control measures should keep pace with ground disturbance. Prior to seasonal or other extended shutdown, any corrective or remedial erosion control measures should be completed. (FSH 2509.22 BMP 12.17, 14.5, 14.6, 14.8, 14.11, 14.25, 16.1; FS-990a Fac-2)

H. Limit operation of ground-based equipment when ground conditions could result in excessive rutting, soil puddling, or runoff of sediment directly into waterbodies. (FSH 2509.22 BMP 14.6; FS-990a Fac-2)

I. Avoid disturbing soils outside the footprint of the project area. Limit clearing, excavation, and other surface-disturbing activities to the minimum necessary. (FS-990a Fac-2)

1.8 FISHERIES AND AQUATIC RESOURCES

A. Maintain shore character including vegetation, bank conditions, and near-shore substrate, except for localized areas of development for recreation.

B. Maintain the natural channel and streambanks in an undisturbed condition.

C. Minimize trees felled within the riparian management zones where possible. Trees that need to be felled within the riparian management zones should be felled toward the stream and left whole.

D. Minimize travel within the riparian management zones to protect riparian vegetation and stream banks from trampling and degradation.

E. When removing any structure erected over a pit privy apply lime to the pit, cover with a minimum of two feet of compacted soil or more as needed to adequately cover the pit, contour the soil so there is a mound that will ensure drainage away from the pit to allow settling of the soil, and mark the pit location to avoid digging a new pit into a previously abandoned pit. (Alaska DEC)

F. Burning of materials should be outside of riparian management zones to keep sediment, ash, and activity fuels out of stream channels and protect soil, water, and riparian resources. The riparian management zone in the marine environment is measured horizontally as defined by the landward extent of salt tolerant vegetation.

G. Refuel and store fuel and equipment outside of riparian management zones and more than 100 feet away from any surface water or drinking water sources.

1.9 RECREATION

A. Limit impacts to trail users. Construction crew camps should be established outside of view of the trail. Coordinate with local district recreation staff prior to any helicopter operations so public can be informed in advance of any temporary trail closures. Construction materials should be staged outside of view of the trail and any materials delivered via helicopter to adjacent meadows should be relocated to an area outside of view of the trail as soon as practical.

1.10 SUBSISTENCE

A. Construction activities may overlap with subsistence hunting seasons. If construction is expected to occur between August 20 and September 25th, the Contractor is to coordinate with the NFF/USFS so that notices can be posted in local communities at least 2 weeks prior.

1.11 WILDLIFE

A. Bald Eagles:

1. There are no known/identified eagle nests in the immediate project area.
2. If a bald eagle nest is found within 660 feet of the project area during project activities, the wildlife biologist shall be notified as soon as possible and provide direction on how to proceed.
3. Avoid disturbing nesting eagles (including vegetation clearing/removal) within 660 feet of the nest during the breeding season (March 1 through August 31; USDA 2020a, BGEPA 1962).
4. Avoid clear cutting and removal of overstory trees within 330 feet of a nest (USDA 2020a, BGEPA 1962).
5. New trails will not be constructed within 660 feet of bald eagle nests when the trail will be visible from the nest; nor within 330 feet of nest when the trail is not visible from the nest (USDI 2007, BGEPA 1962).
6. Eagle nests generally occur in large old cottonwood trees along lakes, rivers, and bays.

B. Osprey:

1. There are no known/identified osprey nests within the immediate project area.
2. If an osprey nest is found within 330 feet of the project area during project activities, the wildlife biologist shall be notified as soon as possible and provide direction on how to proceed.
3. Minimize disturbance within 330 feet of active osprey nesting sites during the nesting period (April 20 through July 15; USDA 2020a).
4. Osprey build large stick nests situated near water, atop trees, posts, rock pinnacles, or even the ground, across the Kenai Peninsula.

C. Bears:

1. To minimize the potential for adverse interactions between humans and bears, human and

pet food, trash, and other attractants (i.e. fuel, toiletries) should be attended by humans or secured in a bear resistant manner (bear canisters/boxes/storage lockers or inside vehicles; USDA 2020a).

2. Do not approach bears for photographs (USDA 2020a).
3. Educate workforce to be aware that bears frequent the area and bear-human interactions may occur. Emphasize minimizing bear-human conflicts. Workers shall be briefed on safety in bear country prior to any activities. Workers shall be informed of species they may encounter, and appropriate behavior should an encounter occur (USDA 2020a).
4. Incidents where bears have obtained human or pet food, trash, other attractants, property was damaged, or a bear deterrent was used should be reported to the wildlife biologist (USDA 2020b).

D. Goshawks:

1. There are no known/identified goshawk nests in the immediate project area.
2. If a goshawk nest is found within 660 feet of the project area during project activities, the wildlife biologist shall be notified as soon as possible and provide direction on how to proceed.
3. Prevent disturbance within a 660-foot radius of goshawk nests during the active nesting season (March 1 through July 31; USDA 2020a).
4. Northern goshawks build large stick nests, usually in a major crotch of birch or aspen trees in mixed stands of coniferous and deciduous trees in mountainous, forested regions of western central Alaska, including across the Kenai Peninsula.

E. Migratory Birds:

1. Avoid vegetation clearing, site preparation, or other vegetation removal activities during the breeding season of migratory birds from May 1 – July 15 (USDA 2020a, USDA 2008, MBTA 1918).

F. Raptors:

1. There are no known/identified raptor nests within the immediate project area. If any raptor nests are discovered during project implementation, the Wildlife Biologist will be notified, and appropriate action will be taken to minimize effects of the project activities on species.

G. Marine Mammals:

1. To minimize disturbance to marine mammals in compliance with the Marine Mammal Protection Act and the Endangered Species Act, Forest Service employees and all personnel conducting activities authorized by the Forest Service should adhere to the National Marine Fisheries Service Alaska Marine Mammal Viewing Guidelines and Regulations.
2. Marine transport of materials, equipment, and/or staff for development, maintenance, or inspections and the permitting or other new USFS actions that allow or promote commercial or public uses requiring marine transport are covered by the USFS Programmatic Consultation for U.S. Forest Service, Region 10 Marine Operations (USFS 2025). The findings must be documented on the project specific worksheet and included in the annual report to NMFS.
3. If additional activities, i.e. blasting, are needed for the project, consultation with NMFS will be required before implementation.
4. Management actions and authorized activities are prohibited within 3,000 feet of endangered

Steller sea lion critical habitat.

5. When transiting an area where seals or sea lions are hauled out on land or ice, travel routes should be selected to avoid approaching within 750 feet of hauled out seals or sea lions. If safe travel requires a closer approach, watercraft or individuals should proceed in a compact group, maintain a relatively constant speed, and remain as far from the hauled out animals as possible.
6. Actions or activities to be conducted at sites within 750 feet, or at greater distances if causing disturbance, of any sea lion or seal hauled out on land should be delayed until the animal(s) depart the area.
7. Adhere to the Alaska Humpback Whale Approach Regulation when vessels are transiting to and from the project site. The regulation requires that you (50 CFR §§ 216.18, 223.214, and 224.103(b)):
    - Not approach within 100 yards of a humpback whale
    - Not place vessel in the path of oncoming humpback whales causing them to surface within 100 yards of vessel.
    - Not disrupt the normal behavior or prior activity of a whale.
    - Operate vessel at a slow, safe speed when near a humpback whale.

H. Birds/Small Mammals:

1. Infrastructure should be designed or modified to prevent entry or entrapment of birds, amphibians, and small mammals in open pipes or cavities 1.5 inches in diameter or greater through use of screening or other modifications. Newly installed toilet will have screens on vent pipes to prevent entrapment of birds and small mammals.

I. Black Oystercatchers (Shorebirds):

1. Avoid disturbing nesting black oystercatchers within 330 feet of nesting areas during nesting season (April 20 through June 15). No known nests exist in the project area.
2. If a nest is discovered, any construction activities planned within 330 feet of nesting areas and related boat operations will occur outside of nesting season.

J. Trumpeter Swans:

1. Maintain a one-half-mile radius habitat management zone around active trumpeter swan nests to sustain habitat quality. Within this zone:
    a. No new roads or trails should be constructed.
    b. Maintenance or reconstruction of existing roads, trails, or facilities may be authorized, but should be conducted to prevent disturbance to swans during the nesting season.
    c. Vegetation management should be limited to habitat restoration projects that will not degrade trumpeter swan habitat and should be conducted to prevent disturbance to swans during the nesting season.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 56 00

CONSTRUCTION SURVEY AND LAYOUT

SECTION 01 71 23

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work under this Section includes providing all labor, materials, tools and equipment necessary to perform all surveying and staking necessary for the completion of the Project in conformance with the Drawing. Work also includes removing all construction stakes, tags, flagging, and plastic ribbon from the Project area and legally disposing off-site.

1.2 QUALITY ASSURANCE

A. During the course of construction, the Contractor shall make available survey personnel to help the NFF Coordinator with field checking of grades and control as may be necessary to assure proper construction.

B. Locate and protect the initial control point, or reference thereto, prior to commencing work. Establish additional reference points as needed during construction.

C. Report to the NFF Coordinator when reference points or initial control points are lost or destroyed during construction. Replace points immediately.

D. The Contractor shall use competent, qualified personnel and suitable equipment for the layout Work required and shall furnish all stakes, templates, straight edge and other devices necessary for establishing, checking and maintaining the required points, lines and grades.

E. A competent, qualified personnel can be a surveyor with minimum experience of 5 years without Professional Land Surveyor license.

PART 2 – PRODUCTS

2.1 SURVEY RECORDS

A. Maintain a complete, accurate log of all control and construction survey work as it progresses.

B. Provide a survey planset that includes any pertinent information to be part of final As- Builts set. Survey planset is not a traditional survey set; it does not requires additional equipment and information other than what was collected in field and does not needs to be prepared or stamped by Professional Land Surveyor.

PART 3 – EXECUTION

3.1 PROJECT LAYOUT

A. The Drawings supply information relative to the approximate locations of monuments and control points, but final responsibility for locations, referencing and restoration shall rest with the Contractor. Provide all construction survey based on control provided on the Drawings or other sources.

B. Stake all site features for approval prior to commencing construction in that area. The Government reserves the right to field adjust layouts and grades for the purpose of avoiding obstruction and/or conforming to existing site features. Make adjustments as directed by the NFF Coordinator at no additional cost to the Government. Survey and maintain these revised stakes as control for construction. Do not perform work in the absence of approved construction

staking or control points.

C. Take measurements as far in advance of required installation as possible and verify measurements given on Drawings. Promptly report variation, discrepancies or non- closing dimensions with the NFF Coordinator for further direction.

D. Maintain construction lines and grade staking to assure accurate and proper control of the work and to verify final grades and construction lines.

E. If any construction stakes or control points are erroneous, notify the NFF Coordinator.

F. The Contractor shall obtain all information necessary for as-built plan production, from actual measurements and observations made by its own workforce, including Subcontractors, and submit this information to the NFF Coordinator.

G. The Contractor shall perform all staking necessary to delineate clearing and/or grubbing limits; all slope staking; the setting of such finishing stakes as may be required; the staking, referencing and other actions as may be required to preserve or restore land monuments and property corners; and all other staking necessary to complete the Project.

H. Field notes shall be kept in standard bound notebooks in a clear, orderly and neat manner, consistent with standard engineering and surveying practices. The Contractor's field books shall be available for inspection by the NFF Coordinator at any time.

I. The NFF Coordinator may randomly spot-check the Contractor's surveys, staking and computations at the NFF Coordinator's discretion. After the survey or staking has been completed, the Contractor shall provide the NFF Coordinator with a minimum of 72 hours' notice prior to performing any Work, and shall furnish the appropriate data as required, to allow for such random spot-checking, however, the Government assumes no responsibility for accuracy of the Work.

END OF SECTION 01 71 23

FINAL CLEAN-UP AND SITE RESTORATION

SECTION 01 74 23

PART 1 - GENERAL

1.1 SUMMARY

A. The Work under this Section includes final clean-up and restoration of all areas disturbed by construction activities, to a condition equal to, or better than, before construction started. This does not include clean-up or restoration incidental to, or directly provided for by, other construction items.

1.2 SITE RESTORATION PLAN

A. Submit a plan for Site Restoration (as part of the Site Use and Camping Plan) for approval a minimum of 5 calendar days prior to the Pre-Construction Conference.

1. Plan should include but not limited to, the clean-up and restoration of all areas impacted by construction operations, and Work within Demolition Area Limits, and returning to a condition equal to or better than prior to construction activities. This includes any impacts to roads, facilities, existing and adjacent recreation facilities, and natural areas.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Any materials required shall conform to the appropriate Section of these Specifications.

PART 3 – EXECUTION

3.1 CLEAN-UP AND RESTORATION

A. The Contractor shall follow all conditions and complete all requirements within the Specifications and Drawings, permit conditions, and other Contractor submitted plans related to final clean up and site restoration.

B. The Contractor shall clean up all sites disturbed during construction and demolition activities of the Project. This includes removal of all construction equipment, disposal of all excess materials, disposal of all rubbish and debris, removal of all temporary structures, field camps and related facilities.

C. Replacement and regrading of earth fill or backfill, where it has eroded or settled below the required finish elevations. Restore grading of the sites so that no standing water is evident, and water moves toward approved drainage system.

D. All natural areas impacted by construction operations including access, storage areas, landing zones, field camp, and other areas shall be restored to condition equal to or better and approved by NFF Coordinator, see also Section 32 29 50 – Site Revegetation.

E. All bare soils exposed by construction activities and exposed fill areas shall be restored to condition equal to or better and approved by NFF Coordinator, see also Section 32 29 50 – Site Revegetation.

END OF SECTION 01 74 23

PROJECT CLOSE-OUT

SECTION 01 77 00

PART 1 - GENERAL

1.1 CLOSE-OUT TIMETABLE

A. The Contractor shall establish dates for acceptance period and project close-out. Such dates shall be established not less than one month prior to beginning any of the foregoing items, to allow the Government, the NFF Coordinator, and their authorized representatives sufficient time to schedule attendance at such activities.

1.2 QUALITY ASSURANCE

A. Prior to requesting inspection by the NFF Coordinator, use adequate means to assure that the work is substantial or final completed in accordance with the specified requirements and is ready for the requested inspection.

1.3 SUBSTANTIAL COMPLETION

A. Substantial completion is defined as that point at which the work is basically complete and ready for use. All specified products shall have been installed and are functionally operational. Remaining work shall be extremely minor or require seasonal opportunity to complete or subject to delayed completion items and shall not impair the functionality of the site.

B. The Contractor shall notify the NFF Coordinator, in writing as required by the General Conditions, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection.

C. Within a reasonable time after receipt of such notice, the NFF Coordinator will inspect to determine status of completion.

D. Should the NFF Coordinator determine that the Work is not substantially complete:

1. The NFF Coordinator promptly will so notify the Contractor in writing, giving the reasons therefore. Contractor shall notify NFF Coordinator when ready for re- inspection.
2. The NFF Coordinator will re-inspect the Work.
3. The Contractor shall be liable for expenses incurred by the USFS for reason of such Substantial Completion Re-Inspection.

E. When the NFF Coordinator concurs that the Work is substantially complete:

1. The NFF Coordinator will prepare a Punch List of items to be completed or corrected.
2. The NFF Coordinator will submit the Punch List to the Contractor for their written acceptance of the responsibilities assigned to them in the Punch List.
3. Once the Contractor executes the Punch List, the NFF Coordinator must be notified in writing.

F. Immediately following approval of Substantial Completion, the Contractor shall submit the following documents:

1. Final Pay Request with final adjustment of accounts stating all adjustments to the contract sum.
   i. Previous change orders.
   ii. Deductions for uncorrected work.
   iii. Other adjustments.

2. Contractor's Certificate and Release.
3. Operation and Maintenance Manuals.
4. As-Built Drawings/Submittals.
5. As-Built drawings for the Government, in .dwg and .pdf format.

1.4 FINAL INSPECTION

A. Final Inspection: Final Inspection shall be defined as that period at which all work in the Contract is 100% complete and no minor details remain to be performed.

1. Final inspection shall not be made until all work under the contract is completed. The Contractor shall notify the NFF Coordinator in writing, at least 10 days prior to the date requested on which the work will be ready for final inspection.
2. Following notification, the NFF Coordinator will make an inspection of the Contractor's work and record any deficiencies on the Final Punch List. The Contractor shall immediately correct these deficiencies at their own expense and notify the NFF Coordinator in writing when all items have been corrected. The NFF Coordinator will re-inspect the Work to assure correction of all deficiencies before release of amounts retained for minor, seasonal, or delayed items. The Contractor shall be liable for all costs of re-inspection when the Substantial Completion Punch List deficiencies have not been corrected at the time of the Final Inspection and re- inspection is required.
3. Any reasonable delay by the NFF Coordinator in making final inspection shall not relieve the Contractor of responsibility for the Work nor shall the USFS be held responsible for damages or claims for compensation on account of continuing overhead, maintenance, etc., occasioned by such a delay.
4. If the Contractor chooses to de-mobilize from the Work site prior to final inspection and acceptance of work, and inspection reveals additional work is required prior to acceptance, re-mobilization to complete the Work shall be at Contractor's own expense.

B. The Contractor, prior to requesting final payment, shall obtain and submit the following items to the NFF Coordinator for transmittal to the Government:

1. Written guarantees and warranties for materials and equipment.
2. Maintenance stock items; spare parts/items; special tools; and keys where required.
3. Completed record drawings, as-builts.
4. Close-out permits by agencies having jurisdiction or permits for the project.
5. A final Sub-Contractor list complete with the final subcontract amounts (including all equipment rentals with operators).

1.5 MAINTENANCE AND GUARANTEE

A. The Contractor shall make all repairs and replacements of any construction promptly upon receipt of written order from the NFF Coordinator. If the Contractor fails to make such repairs or replacements promptly, the Government reserves the right to do the Work and the Contractor and the Contractor's surety shall be liable to the Government for the cost thereof.

1.6 BOND

A. The Contractor shall provide a bond to guarantee performance of the provisions contained the Paragraph "Maintenance and Guarantee" above.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 77 00

CONCRETE FORMS AND ACCESSORIES

SECTION 03 10 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Formwork for cast-in-place concrete, with shoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.2 DESCRIPTION

A. Section 03 20 00 – Concrete Reinforcement

B. Section 03 30 00 – Cast-in-Place Concrete

1.3 QUALITY ASSURANCE

A. Perform work on this section in accordance with ACI 347, Recommended Practice for Concrete Formwork.

B. Concrete forms shall be cleaned of all material or other objects which would be considered deleterious to the concrete structure or surface.

PART 2 – PRODUCTS

2.1 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

B. Design and construct to provide resultant concrete that conforms to design with respect to shape, lines, and dimensions.

C. Comply with applicable State and local codes with respect to design, fabrication, erection and removal of formwork.

2.2 GENERAL

A. Materials for concrete forms may be new or used wood, steel or other material capable of producing the required tolerances and finishes. The quality of the materials, not the age or previous usage, shall be the determining factor as to their suitability.

2.3 FORM LINERS AND COATINGS

A. Forms shall be lined, coated, or treated with a suitable bond-breaker to ensure their timely removal with minimum damage to the concrete. Bond-breaker material shall be non-coloring and shall not leave a film on the concrete surface which will prohibit the subsequent finishing activities required to attain the desired appearance.

PART 3 - EXECUTION

3.1 GENERAL

A. Falsework and forms shall be set to allow for structural camber plus an allowance for shrinkage and settlement. The finished concrete shall conform to the lines and grades indicated on the drawings.

3.2 EXAMINATION

A. Verify lines, level and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.3 APPLICATION – FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

3.4 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

END OF SECTION 03 10 00

CONCRETE REINFORCEMENT

SECTION 03 20 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.2 RELATED SECTIONS

A. Section 03 13 00 – Insulating Concrete Forms

B. Section 03 30 00 – Cast-in-Place Concrete

1.3 SUBMITTALS

A. Shop Drawings: Include bar schedules, shapes of bent bars, spacing of bars and location of splices.

B. Manufacturer's Certificates: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

C. Mill Certificates: Submit mill certificates for all reinforcement prior to construction.

1.4 QUALITY ASSURANCE

A. Qualification of Workmen: Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this section.

B. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained under current edition of SP-66 ACI Detailing Manual and ACI 318 Building Code Requirements for Reinforced Concrete of the American Concrete Institute.

PART 2 – PRODUCTS

2.1 REINFORCEMENT

1. General

    1. All concrete reinforcement materials shall be new, free from rust, and shall comply with the following reference standards:

        1. Reinforcing Steel: ASTM A615/A615M Grade 60 (420), "Standard Specification for Deformed Billet-Steel Bars for Concrete Reinforcement," unless shown otherwise on drawings.

            - Epoxy Coating : ASTM A775/A775M for straight bars or ASTM A934/A934M for bent bars, with less than 2 percent damaged coating in each 12-inch bar length.

2. Welded Reinforcing Steel: Bars for reinforcement that are to be welded shall comply with ASTM A706 Grade 60, “Standard Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement,” unless shown otherwise on drawings.

Steel Welded Wire Reinforcement: ASTM A884/A884M deformed Class A, epoxy coated type.

1. Flat Sheets.

2. Mesh size and Wire Gaue: as indicated on drawings.

2. Reinforcement Accessories

    1. Tie Wire: ASTM A1064/A1064M, annealed steel, minimum 16 gauge (1.5 mm).

        - Finish: Plan where standard uncoated rebar is used. ASTM A884/A884M, Class A, Type 1, epoxy coated, with less than 2 percent damaged coating in each 12-inch wire length where epoxy coated rebar is used.

PART 3 - EXECUTION

3.1 REINFORCING STEEL BARS

A. Before ordering material, the Contractor shall furnish all order and bending diagrams to the Contracting Officer for review and approval. This review shall in no way relieve the Contractor of responsibility for the correctness of materials.

B. All bars shall be bent cold to the shapes indicated on the plans. Bends and hooks shall be made in accordance with the Concrete Reinforcing Steel Institute and SP-66 ACI Detailing Manual.

C. Placing and Fastening:

1. All steel reinforcement shall be accurately placed in the position indicated on the plans and firmly held during the placing and setting of concrete. Bars shall be tied at all intersections except where spacing is less than one foot in each direction where alternate intersection shall be tied.

2. Provide minimum concrete covering of reinforcement in accordance with ACI 318 unless otherwise indicated on the drawings.

3. Distance from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved supports. Blocks, for holding reinforcements from contact with the forms, shall be precast mortar blocks of not less than 3,750 psi f’c of approved shape and dimensions or approved metal chairs. Metal chairs which are in contact with the exterior surface of the concrete shall be plastic coated or galvanized.

4. Conform to applicable code for concrete cover over reinforcement.

D. Splicing:

1. All reinforcement shall be furnished in full lengths wherever possible Splicing of bars shall conform to ACI SP-66 and ACI 318 and shall be shown on the shop drawings. Splices shall be staggered as far apart as possible.

2. Unless otherwise shown, lap all reinforcing bars 40 diameters (24 inches minimum).

3.2 CLEANING REINFORCEMENT

A. Steel reinforcement, at the time of concrete is placed around it, shall be free from loose rust or mill scale, paint, and other coatings which will destroy or reduce bond between steel and concrete.

END OF SECTION 03 20 00

CAST-IN-PLACE CONCRETE

SECTION 03 30 00

PART 1 - GENERAL

1.1 STANDARDS AND CODES

A. American Concrete Institute (ACI) 211.1-22: Standard Practice for Selecting Proportions for Normal, Heavyweight, or Mass Concrete.

B. ACI 301-20: Specifications for Structural Concrete for Buildings Reference standards and publications in ACI 301-89 are incorporated in this Specification Section by reference.

C. ACI 302.1R-15: Guide for Concrete Floor and Slab Construction.

D. ACI 304R-00: Recommended practice for Measuring, Mixing, Transporting and Placing Concrete.

E. ACI 305R-20: Hot Weather Concreting.

F. ACI 306R-16: Cold Weather Concreting.

G. ACI 315R-18: Details and Detailing of Concrete Reinforcement.

H. ACI 347R-14: Recommended Practice for Concrete Formwork.

I. ACI SP15 (99): Field Reference Manual.

J. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C131: Abrasion and Impact of Coarse Aggregate in Los Angeles Machine.

K. ASTM D98: Calcium Chloride (Accelerating Admixture)

L. INTERNATIONAL BUILDING CODES (IBC): 2021 Edition.

1.2 SECTION INCLUDES

A. The requirements for providing all cast-in-place concrete and associated work in conformance with these specifications and as shown on the Drawings.

B. Concrete building members.

C. Concrete curing.

1.3 RELATED SECTIONS

A. Section 03 10 00 – Concrete Forms and Accessories

B. Section 03 20 00 – Concrete Reinforcement

1.4 SUBMITTALS

A. PROJECT DATA: The Contractor shall submit, for each class of concrete, mix design data and test documentation as described in ACI 301, Chapter 3, Proportioning.

B. Concrete aggregate sieve analysis and Los Angeles wear.

C. Catalog data showing pertinent dimensions and details of forming accessories such as ties and accessories.

D. Catalog data on form materials indicating conformance with Specifications.

E. Catalog data on all accessories, joint fillers, sealants, surface treatments, and curing materials.

F. Catalog data on concrete admixture.

1.5 TEST AND INSPECTION REPORTS

A. The contractor shall test each batch of concrete for specified compression, air entrainment and slump. Testing shall be done in conformance with ASTM C231 and ASTM C143 respectively. If concrete is not from a batch and mixed on site see Section 2.6 below for requirements.

B. Certified laboratory reports on compressive strength and contractor field reports on air entrainment and slump testing shall be provided to the USFS/NFF.

1.6 FIELD REFERENCES

A. The Contractor shall keep at least one copy of the following references in field office at all times:
   1. ACI 301-20: Specification for Structural Concrete for Buildings.
   2. ACI SP15 (99): Field Reference Manual.

1.7 QUALITY ASSURANCE

A. Codes and Standards: All concrete shall meet the requirements of the latest edition of the International Building Code, and ACI 318 Building Code Requirements for Reinforced Concrete and ACI 301 Specifications for Structural Concrete for Buildings of the American Concrete Institute. Where provisions of pertinent codes, standards and this specification conflict the more stringent provisions shall govern.

B. Follow recommendations of ACI 306R when concreting during cold weather.

1.8 PRECEDENCE OF STANDARDS

A. In the event of conflicts among these specifications and referenced standards, the more stringent requirements shall apply.

PART 2 – MATERIALS

2.1 CONCRETE

A. GENERAL: Concrete shall provide not less than following compressive strength in twenty-eight (28) days when Type I cement is used, and in seven (7) days when Type III cement is used. Compressive strength shall be in accordance with ASTM C31 and ASTM C39.

Application	Compressive Strength
Structural Use	4,000 psi

B. HYDRAULIC CEMENT: Concrete shall use Type I or Type III (Use Type II where exposed to saltwater). Portland Cement as required by the Drawings and Specifications. Hydraulic cement shall conform to ASTM C150 “Specification for Portland Cement” and ASTM C175 “Specifications for Air Entraining Portland Cement.” Cements conforming to Canadian standards substantially the same as ASTM will be acceptable subject to approved by the NFF Coordinator.

C. AGGREGATES: Concrete aggregates shall conform to ASTM C33 “Specifications for Concrete Aggregates” except that aggregates which have been shown by special test or actual service to produce concrete of the specified strength and durability may be used if approved by the Engineer of Record. Aggregates shall be washed, clean of sticks, roots, clay and deleterious substances prior

to use. Coarse aggregate shall be 1 inch minus.

D. AIR ENTRAINED CONCRETE: Air entrained concrete shall be used. Either air-entrained Portland Cement or an air-entrained admixture shall be added at the mixer. The volume of air in freshly mixed concrete shall be five (5) percent by volume, plus or minus one (1) percent. Admixtures may be used only with NFF Coordinator approval.

E. CEMENT AND WATER CONTENT: Cement content and water content shall be determined by the Contractor to meet the strength requirements specified above.

F. WATER: Water used in mixing cement shall be clean and free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances that may be deleterious to concrete or steel.

G. WATER REDUCING: Water reducing admixtures shall conform to ASTM C494 “Specification for Chemical Admixtures for Concrete.”

H. NON-SHRINK ADDITIVES: By “Isovol,” “Embeco,” “Interplast N”, or an approved mix design. The mix design shall be tested in accordance with ASTM C191 for workability, and ASTM C109 for compressive strength. The use of powdered aluminum will not be permitted.

I. Calcium chloride or other chloride-based accelerators shall not be used.

2.2 FORMWORK

A. Comply with requirements of Section 03 10 00 Concrete Forms and Accessories.

2.3 REINFORCING STEEL

A. Comply with requirements of 03 20 00 Concrete Reinforcement.

B. STEEL BARS: Reinforcing steel shall consists of round deformed bars. Deformed steel bars shall conform to on the following ASTM designations:

1. A615-68: “Standard Specifications for Deformed Billet Steel Bars for Concrete Reinforcement”, Grade 60.
2. A616-68: “Standard Specifications for Rail Steel Deformed Bars for Concrete Reinforcement”, Grade 60.
3. A617-68: “Standard Specifications for Axle Steel Deformed Bars for Concrete Reinforcement”, Grade 60.

C. WELDED WIRE FABRIC: Welded wire fabric used for reinforcement of concrete in pavement restoration shall be minimum AWG No. 6, 6-inch x 6-inch spacing, 75,000 pounds per square inch tensile strength, manufactured in accordance with ASTM Designation A185.

2.4 ACCESSORIES

A. EPOXY ADHESIVES: A two-component compounds, 100 percent solids, 100 percent reactive compound suitable for use on dry or damp surfaces. For bonding new concrete to old “Concresive” Paste (LPL) or (SPL) by Master Builders, inc., or approved or equal.

B. VAPOR BARRIER: ASTM A2103, 10 mil thick clear polyethylene film.

C. FORM RELEASE AGENT: Colorless material which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete; Cast Off by Sonneborn.

D. ANCHORS: Coupling anchors, if used, shall be DECO Column Anchor and adjustable anchors

shall be DECO Standard Anchor. All anchors shall be DECO Manufacturing Co., Decatur, Illinois, or equal.

E. Bolsters, chairs, spacers and other devices for spacing, supporting, and fastening reinforcement in place.

1. Use wire bar-type supports complying with CRSI recommendations, unless otherwise indicated. Do not use wood, brick, or other unacceptable materials.
2. For slabs on ground, use supports with sand plates or horizontal runners where base material will not support chair legs.
3. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with either hot-dip galvanized or plastic-protected legs.

F. TIE WIRE: No. 16 American Wire Gauge or heavier, black annealed per ASTM A82.

G. Anchor bolts may be either drilled or cast-in-place, unless otherwise shown on Drawings.

1. Drilled anchor bolts shall be Wedge Type expansion anchor, 316 Stainless steel, Hilti Type HKB, or approved equal.
2. Drilled drop-in-type female expansion anchors shall be 304 stainless steel, Hilti Type HDI or approved equal.
3. Adjustable anchors for equipment, where used, shall be floating nut-type which will allow at least 1/2-inch movement of the fastening studs. The fastening stud shall be 316 stainless steel. Adjustable anchors shall be DECO Manufacturing Co., Decatur, Illinois, Standard Anchor or equal.
4. All expansion anchors shall be male-type, projecting anchors unless female-type anchors are specifically called out otherwise.

2.5 CURING MATERIALS

A. WATER: Conform to standards for mixing water, paragraph 2.01F.

B. ABSORPTIVE MAT: Burlap fabric of 9 oz/sq. yd., clean, roll goods.

C. MEMBRANE CURING COMPOUND: Conform to requirements to ASTM C309.

2.6 FIELD QUALITY CONTROL

A. BATCH TICKETS: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site. For cast in place on site, the mix design can be substituted for batch tickets provided the mix design in not altered during construction. If concrete is not coming from a batch plant the mix design submittal will be considered the batch ticket provide the mix design is followed and not altered.

B. INSPECTIONS:

1. Headed bolts and studs.
2. Verification of used of required design mixtures.
3. Concrete placement, including conveying and depositing.
4. Curing procedures and maintenance of curing temperature.
5. Verification of concrete strength before removal of shores and forms from beams and slabs.
6. Batch Plant Inspection: On a random basis, as determined by Contracting Officer.

C. CONCRETE TESTS: Testing of composite samples of fresh concrete obtained in accordance with ASTM C172/C172M to be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof, if concrete is to be prepared and poured utilizing a batch plant. If concrete is to be mixed and prepared on site, then obtain one composite sample for each day's pour for every four foundation piers.
2. Slump: ASTM C143/C143M.
    a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    b. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete.
    a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C1064/C1064M.
    a. One test hourly when air temperature is 40 degrees Fahrenheit and below or 80 degrees Fahrenheit or above, and one test for each composite sample.
5. Compression Test Specimen: ASTM C31/C31M.
    a. Cast and laboratory cure one set of three 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample, at a minimum.
6. Compressive Strength Tests: ASTM C39/C39M.
    a. Test a minimum of one laboratory-cured specimens at seven days, and two specimens at 28 days. If Type III High Early Strength concrete is to be used, then two specimens shall be tested at seven days and one at 28 days.
    b. A compressive-strength test to be the average compressive strength from a set of two specimens obtained from same composite sample and tested at 28-day age indicated (or 7-day for Type III).
7. Strength of each concrete mixture will be satisfactory if every average of any two consecutive compressive-strength tests equal or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5,000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5,000 psi.
8. Unsatisfactory testing results may require re-work at no additional cost to the NFF/USFS, at the discretion of NFF.
9. Additional Tests:
    a. The Contractor is to take additional tests of concrete when test results indicate that slump, air entrainments, compressive strength, or other requirements have not been met, as directed by NFF.
        i. Acceptance criteria for concrete strength to be in accordance with ACI 301, Section 1.6.6.3.

PART 3 - EXECUTION

3.1 GENERAL

A. Unless otherwise specified, execution shall conform with ACI 301 and Chapter 19 of the 2021 IBC.

3.2 FORMWORK

A. COORDINATION: Coordinate formwork with the work of other trades as required for installation

of inserts, conduit pipe sleeves, drains, hangers, supports, anchors, and similar items. Secure in position before concrete is poured.

B. INSTALLATION:

1. General: Construct the forms to meet the tolerances specified in ACI 301. Provide for openings, offsets, chamfers, blocking, and other features required on the Work. Provide for easy removal of forms without damage to concrete surfaces. Keep formwork clear of wood chips, cogs, and other deleterious material Form all concrete surfaces. Earth side walls permitted only with Engineer's approval.
2. Wood Forms: Provide MDO forms for all surfaces exposed to view. The MDO panels shall be attached to the studs, walers, etc., using countersunk, power-driven screws. The countersunk hole shall be filled with putty and sanded smooth.
    a. Provide Grade B, Class 1 plywood forms for all non-exposed surfaces.
    b. Set plywood panels tightly together to prevent loss of concrete mortar. Carefully form intersecting planes to provide true clean-cut corners with edge grain of plywood not exposed as form for concrete. Back joints with extra studs or girts to maintain true, square intersections. Use extra studs, walers, and bracing as required to prevent bowing of forms between studs.
3. Plastic Forms: Provide Bigfoot forms with sonotube.
4. Form Ties: Provide cone form ties at exposed surfaces. Set ties in straight rows, evenly spaced. Ties shall be water-seal-type with polyethylene washer in the center.
5. Chamfers: Except where 90-degree corners are specifically called out on drawings, at flush joints between concrete and other construction, and as otherwise detailed, provide 3/4-inch triangular wood or plastic strips; place and secure in forms at corners. Horizontal chamfer strips shall be installed with a maximum deviation in elevation of one inch in ten feet.
6. Form Release Agents: Coat contact surfaces of forms with form-coating compound before placing concrete. Apply in strict accordance with manufacturer's instructions, paying special attention to rate and method of application. Ensure that any agent can be disposed prior to coating or is compatible with any required coatings.
7. Deflections: Construct forms with spacing on supports and ties such that they will support the maximum pressure exerted by fluid concrete with an actual deflection not to exceed 1/32 inch, or 0.0025 times the support spacing, whichever is the larger, at the midpoint between supports.
8. Cambers: Design and erect formwork for anticipated deflection due to weight and pressure of fresh concrete as well as structural cambers as noted on drawings. Provide positive means for adjustment of shores and struts to take up settlement during placement.

C. REMOVAL OF FORMS:

1. Formwork shall be designed for easy removal without damaging or marring finished surfaces of the concrete; take particular are in removing forms from exposed concrete surfaces. Prying against face of concrete will not be permitted; where mechanical means are necessary to release forms, use wood wedges only, and then only if approved by the Engineer.
2. Do not remove forms and supports until concrete has attained sufficient strength to support anticipated loads. Use methods of form removal which will not cause overstressing of the concrete. Remove supports to permit the concrete to uniformly and gradually take the stress due to its own weight. Do not use high-impact methods to remove supports.

3. Reshoring: If early form removal is desired, reshore in such manner that at no time will large areas of new construction be required to support their own weight; allow no live loads on new construction until reshored; tighten reshores to take loads, taking care not to overtighten. Leave reshoring in place until concrete has attached 28-day strength.
4. Backfilling: Backfilling and compaction behind walls shall not commence until all walls have been poured and the concrete has reached its required 28-day strength as specified in Item 2, above. Mechanical compaction adjacent to walls shall not be allowed within a distance equal to one half the backfill depth. Contractor shall be responsible for any cracking or damage to walls from the mechanical compaction.
5. Reuse of Form: Use only forms that will provide surfaces of same quality as specified for original use.

3.3 REINFORCING

A. HANDLING:

1. Deliver reinforcing steel to the site bundled, tagged, and marked with metal tags indicating bar sizes, lengths, and other information corresponding with marking shown on placement diagram.
2. Store reinforcement off the grounds to prevent damage, excessive rust, dirt, and the like.

B. PLACING:

1. General: Conform to applicable portions of reference specifications except as exceeded by provisions of Drawings or Specifications.
2. Condition: Reinforcement to be free from loose rust, mill scale, ice, and other materials which would reduce or destroy bond.
3. Positioning: Accurately place, support, and secure reinforcement against displacement by formwork construction or concrete placement operations. Locate and support reinforcing with chairs, runners, bolsters, spacers, and hangers as required.
4. Wire Fabric: Place fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with 15 gauge ire. Offset end laps in adjacent widths.
5. Splices and Reinforcements: Provide standard reinforcement splices by lapping ends, lacing bars in contact, and tightly wire typing. Comply with requirements of 2012 IBC for minimum lap of spliced bars.

3.4 PLACING CONCRETE, GENERAL REQUIREMENTS

A. PREPARATION:

1. Before placing concrete, all equipment for mixing and transporting the concrete shall be cleaned, all debris and ice shall be removed from the places to be occupied by the concrete, forms shall be thoroughly wetted (except in freezing weather) or oiled, and masonry filler units that will be in contact with concrete shall be well drenched, and the reinforcement shall be thoroughly cleaned of ice or other coatings. Standing water shall be removed from place of deposit before concrete is placed unless specified or indicated on the Drawings.
2. Foundations for footings and grade slabs shall be prepared in accordance with ACI 301 so as to prevent the subgrade from absorbing moisture or cement paste from freshly placed concrete.

3. Inserts and Embedded Items: In cooperation with all trades and other contractors, all inserts and fastening devices such as anchors, hangers, ties, bolts, pipes, conduits, waterstops, nailing strips, etc., shall be properly located and secured in position before concrete is placed. Where pipes pass through the structure, they shall be cast-in-place unless permission is given by the Engineer to do otherwise. Wherever these requirements interfere by the plans, the bars shall be spread and rearranged as directed by the Engineer.
4. Construction Joints: The location of construction joints not shown on the Drawings shall be approved by the Engineer. Prior to placing new concrete against any previously poured concrete, the latter shall be roughened by cutting or chipping as required and cleaned of all loose concrete, debris, and laitance, and thoroughly soaked. Horizontal joints shall be covered with a layer of grout 1/2-inch thick before placing new concrete. At the joints between footings and walls, roughen the footing surface at the joint before placing concrete for walls.
5. Contraction Joints: The location of contraction joints shall be as shown on the plans or as approved by the Engineer.

B. CONCRETE PLACEMENT:

1. Place concrete within 1-1/2 hours after it is mixed. Once concreting is started, it shall be carried on as a continuous operation until the placing of the panel or section is complete. Suspension of operations for more than 2 hours will not be permitted during a continuous placement, and this limit ma be reduced by the Engineer. Flowable concrete may be pumped from the bottom of the form, pumping the full form height without stopping.
2. Concrete shall be placed generally in horizontal layers no more than 24 inches thick except as otherwise specified. When a monolithic layer cannot be completed in one operation, it shall be terminated with a vertical bulkhead. Feathering to less than 6 inches will not be permitted. Concrete shall be placed so as to avoid segregation of the materials and the displacement of the reinforcement. Where placing operations would involve the dropping of concrete through completed forms from heights of 6 or more feet for plain concrete and 4 or more feet through installed reinforcement, concrete so placed shall be discharged into hoppers feeding into flexible drop chutes. Encrustation o installed reinforcement by concrete spilled on it will be tolerated only for a length of time shorter than encrustation concrete needs for drying out. Where conditions warrant, this procedure may be altered by the Engineer upon request of the Contractor.

C. CONSOLIDATION:

1. Concrete shall be thoroughly consolidated by the proper use of immersion-type vibrators as specified in ACI 301.
2. Pumps may be used only if they can pump the mix designed. Do not add fine aggregate or water to the mix to satisfy the needs of a pumping device.

D. COLD WEATHER PLACEMENT:

1. Comply with ACI 306R to protect all concrete work from physical damage and reduced strength caused by frost, freezing actions, or low temperatures. Place no concrete against frozen earth.
2. The concrete may be placed at 40ºF (4ºC) and below down to 20ºF (-7ºC), ambient temperature, without heating the mix and maintaining the noted protection if the specified “Freeze Protection Admixture” is added to the mix at 60 to 90 oz. per 100 pounds of cement per manufacturer’s instructions. The ambient temperature must be 20ºF (-7ºC) or higher until initial set is reached and the hardened concrete has been sealed to prevent the ingress of

additional water.

E. HOT WEATHER PLACEMENT:

1. Cool ingredients before mixing as necessary to maintain concrete temperature at time of placement below 80ºF (32ºC). Mixing water may be chilled, or chopped ice may be used to control temperature provided the water in the ice is used as part of the mix water and included in calculating the water/cement ratio. Follow the requirements of ACI 305R in producing and placing concrete in ambient temperature over 80ºF (32ºC).
2. The specified second-generation superplasticizer may be used in place of cooling for concrete with concrete temperature of 80ºF (27ºC) and over. Work with the ready-mix producer and admixture manufacturer to make a mix using a second-generation plasticizer to control the concrete temperature rise.
3. During dry, windy weather, erect windbreaks and/or sunshades and protect the concrete surface immediately after placing and leveling using either a fog spray or the specified Hot Weather Finishing Aid, during the entire finishing operation, until curing is applied.

3.5 EXAMINATION

A. Verify fines, levels, and dimensions before proceeding with work of this section.

B. Verify that all items to be embedded in concrete are in place, properly oriented, located and secured.

3.6 CONCRETE FINISHING

A. Unformed Surfaces: The top surface of the footings shall be rodded across the screeds and smoothed with a “full float,” light steel trowel. The general surface shall have no irregularities greater than 1/8-inch in depth or variation in grade of more than 3/8-inch in 10 feet.

3.7 CURING AND PROTECTION

A. Comply with requirements of ACI 308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

3.8 FIELD QUALITY CONTROL

A. Inspections, tests and other quality assurance requirements shall be the responsibility of the Contractor.

B. The Contractor shall provide compressive strength testing by an independent testing firm approved by the Contracting Officer.

3.9 SCHEDULE – CONCRETE TYPES AND FINISHES

A. All concrete shall have the following minimum compressive strengths at 28 days and shall be proportioned within the following limits:

1. Footings:
    a. Minimum psi @ 28 days: 4,500 psi.
    b. Minimum Sacks of Cement/Cubic Yard: 5-1/2”
    c. Maximum Slump: 3-1/2”

B. Entrained air is 5% to 8% for all concrete subject to freezing.

C. The minimum compressive strength tabulated are the strength at 28 days for ordinary concrete or strength at seven days for high-early strength concrete.

D. Maximum aggregate size shall not exceed 1-inch. Concrete made with less than 7/8-inch maximum

size aggregates shall have an extra one-half sacks of cement added to the minimum indicated in the table above.

END OF SECTION 03 30 00

METAL FABRICATIONS

SECTION 05 50 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Miscellaneous Metals.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. ASTM A36 – Structural Steel
   2. ASTM A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware

B. Steel Structures Painting Council (SSPC)

1.3 FIELD MEASUREMENTS

A. Verify that field measurements are correct.

PART 2 – MATERIALS

2.1 MATERIALS

A. Plates: ASTM A283

B. Bolts, Nuts and Washers: ASTM A307 Galvanized to ASTM A153 for galvanized components.

C. Shop and Touch-Up Primers: SSPC 15, Type 1, red oxide.

D. Touch-Up Primers for Galvanized Surfaces: Zinc rich type.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.2 INSTALLATION

A. Install items plumbs and level, accurately fitted, free from distortion or defects.

B. All exterior steel and steel in contact with treated wood shall be hot dipped galvanized after fabrication. All other steel shall be shop primed after fabrication.

END OF SECTION

PIPE AND TUBE HANDRAILS

SECTION 05 52 13

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Aluminum railings.

1.2 ACTION SUBMITTALS

A. PRODUCT DATA:

1. Manufacturer's product lines of mechanically connected railings.
2. Handrail brackets.
3. Shop primer.
4. Intermediate coats and topcoats.
5. Bituminous paints.
6. Non-shrink, non-metallic grout.
7. Anchoring cement.
8. Metal finishes.
9. Paint products.

B. SAMPLES: For each type of exposed finish.

1.3 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. PRODUCT TEST REPORTS: For tests on railings performed by a qualified testing agency, in accordance with ASTM E894 and ASTM E935.

1.4 QUALITY ASSURANCE

A. WELDING QUALITIFACTIONS: Quality procedures and personnel in accordance with the following:

1. AWS D1.2/D1.2M, "Structural Welding Code – Aluminum."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. STRUCTURAL PERFORMANCE: Railing, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:
   a. Uniform load of 50 lbf/ft applied in any direction.
   b. Concentrated load of 200 lbf applied in any direction.
   c. Uniform and concentrated loads need not be assumed to act concurrently.
2. Infill of Guards:
   a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.

B. Infill load and other loads need not be assumed to act concurrently.

2.2 METALS, GENERAL

A. METAL SURFACES, GENERAL: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. BRACKETS, FLANGES, AND ANCHORS: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2 inch clearance from inside face of handrail to finished wall surface.

2.3 ALUMINUM RAILINGS

A. ALUMINUM, GENERAL: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.

B. EXTRUDED BARS AND TUBING: ASTM B221, Alloy 6063-T5/T52.

C. EXTRUDED STRUCTURAL PIPE AND TUBING: ASTM B429/B429M, Alloy 6063-T6.

1. Provide Standard Weight (Schedule 40) pipe unless otherwise indicated.

D. DRAWN SEAMLESS TUBING: ASTM B210/B210M, Alloy 6063-T832.

E. PLATE AND SHEET: ASTM B209, Alloy 6061-T6.

F. DIE AND HAND FORGINGS: ASTM B247, Alloy 6061-T6.

G. CASTINGS: ASTM B26/B26M, Alloy A356.0-T6

H. WOVEN WIRE MESH INFILL PANELS: Intermediate-crimp, diamond pattern, 2-inch woven-wire mesh, made from 0.162 inch diameter aluminum wire complying with ASTM B211/B211M, Alloy 6061-T94.

1. Basis-of-Design Product: Provide product with crimp pattern matching prefabricated stair and ramp construction.

2.4 FASTENERS

A. FASTENER MATERIALS:

1. Hot-Dip Galvanized Railing Components: Type 304 stainless steel or hot-dip zinc- coated steel fasteners complying with ASTM A153/A53M or ASTM F2329/F2329M for zinc coating.
2. Aluminum Railing Components: Type 304 stainless steel fasteners.

B. POST-INSTALLED ANCHORS: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193.

1. Material for Exterior Locations: Alloy Group 1 stainless steel bolts, ASTM F593 and nuts, STM F594.

2.5 MISCELLANEOUS MATERIALS

A. HANDRAIL BRACKETS: Cast aluminum center of handrail 2-1/2 inches from face of railing.

B. WELDING RODS AND BARE ELECTRODES: Select in accordance with AWS specifications for metal alloy welded.

1. For aluminum railings, provide type and alloy as recommended by producer of metal to

be welded and as required for color match, strength, and compatibility in fabricated items.

C. SHOP PRIMERS: Provide primers that comply with Section 09 91 13 Exterior Painting.

D. UNIVERSAL SHOP PRIMER: Fast-curing, lead-and chromate-free, universal modified- alkyd primer complying with MPI#79 and compatible with topcoat.

1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

E. ANCHORING CEMENT: Factory-packaged, non-shrink, non-staining, hydraulic- controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound.

1. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

A. Cut, drill, and punch metals an accurately.

1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
2. Remove sharp or rough areas on exposed surfaces.

B. Form work true to line and level with accurate angles and surfaces.

C. WELDED CONNECTIONS: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove flux immediately.
4. At exposed connections, finish exposed welds to comply with National Ornamental & Miscellaneous Metals Association (NOMMA) “Voluntary Joint Finish Standards” for Finish #3 welds; utilitarian appearance not subject to view, partially dressed weld with spatter removed.

D. WELDED CONNECTIONS FOR ALUMINUM PIPE: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer’s standard system of sleeve and socket fittings.

E. NON-WELDED CONNECTIONS: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

F. Form changes in direction as follows:
By bending or inserting prefabricated elbow fittings.

G. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

H. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.

I. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.

J. BRACKETS, FLANGES, FITTINGS AND ANCHORS: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other Work unless otherwise indicated.

K. Provide inserts and other anchorage devices for connecting railing to concrete or masonry work.

1. Fabricate anchorage devices capable of withstanding loads imposed by railing.
2. Coordinate anchorage devices with supporting structure.

L. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches long with inside dimension not less than 1/2 inch greater than outside dimension of post, with metal plate forming bottom closure.

M. For removable railing posts, fabricate slip-fit sockets from stainless steel tube or pipe whose interior diameter (ID) is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height.

1. Provide socket covers designed and fabricated to resist being dislodged.
2. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.

N. NON-WOVEN MESH INFILL PANELS: Fabricate infill panels from woven-wire mesh crimped into 1-by-1/2-by-1/8-inch metal channel frames.

1. Fabricate wire mesh and frames from same metal as railings in which they are installed.
2. Orient wire mesh with diamond perpendicular to top rail wires perpendicular and parallel to top rail.

2.7 ALUMINUM FINISHES

A. APPEARANCE OF FINISHED WORK: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same pieces are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

B. MILL FINISH: AA-M12, non-specular as fabricated.

PART 3 – EXECUTION

3.1 INSTALLATION, GENERAL

A. Perform cutting, drilling, and fitting required for installing railings.

1. Fit exposed connections together to form tight, hairline joints.
2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
5. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed ¼ inch in 12 feet.

B. CONTROL OF CORROSION: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood or dissimilar metals, with a heavy coat of bituminous paint.

3.2 ANCHORING POSTS

A. Use stainless steel pipe sleeves preset and anchored into concrete for installation posts. After posts are inserted into sleeves, fill annular space between post and sleeve with non-shrink, non-metallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacture's written instruction.

B. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than outside diameter (OD) of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, non- metallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

C. Anchor posts to metal surface with flanges, single type, or floor type, as required by conditions, connected to posts and to metal supporting members.

D. Install removable railing sections, where indicated on Drawings, in slip-fit stainless- steel sockets cast in concrete.

3.3 ATTACHING RAILINGS

A. Attach handrails to walls with wall brackets, except where end flanges are used. Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface.

B. Install railing gates level, plumb, and secure for full opening without interference.

C. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

3.4 CLEANING

A. Clean aluminum by washing thoroughly with clean water and soap and rinsing with clean water.

END OF SECTION 05 52 13

HELICAL PILES

SECTION 05 53 00

PART 1 GENERAL

SCOPE OF WORK

The work shall consist of the Helical Pile Contractor furnishing all labor, tools, equipment, materials and supervision to install Helical Piles according to the specifications contained herein and shown on the construction drawings. The Helical Pile Contractor shall install a helical pile which will provide a minimum load capacity as indicated on the construction documents/plans.

REFERENCES

A. American Society of Testing and Materials (ASTM)

   a. ASTM-A29 Steel Bars, Carbon and Alloy, Hot Wrought and Cold Finished
   b. ASTM-A36 Structural Carbon Steel
   c. ASTM-A53 Welded and Seamless Steel Pipe
   d. ASTM-A500, Grade C, Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
   e. ASTM-A307 Carbon Steel bolts and Studs
   f. ASTM-563 Carbon and Alloy Steel Nuts

B. American Welding Society (AWS)

   a. AWS D1.1 Structural Welding Code – Steel

C. Society of Automotive Engineers (SAE)

   a. SAE J429 Mechanical and Material Requirements for Externally Threaded Fasteners

D. International Code Council - Evaluation Services (ICC-ES)

   a. Acceptance Criteria for Corrosion Protection of Steel Foundation Systems Using Polymer (EAA) Coatings (AC228)
   b. Acceptance Criteria for Helical Pile Systems and Devices (AC358)
   c. Evaluation Service Report (ESR)

E. International Organization for Standardization (ISO)

   a. ISO 9001:2008 – Quality Management System

SUBMITTALS

F. Five (5) sets of site specific shop drawings sealed by a registered professional engineer. Shop drawings to include:

   a. Helical pile/anchor identification number and location

b. Helical pile/anchor design load
c. Type and size of helical pile/anchor shaft
d. Helical configuration (number and diameter of helical plates)
e. Minimum effective torque required
f. Connection details

G. Copies of certified calibration reports for all hydraulic gages. The calibrations shall have been performed within one (1) year of the proposed starting date of the pile installation.

H. Provide steel manufacturer's mill test reports, covering physical and chemical tests, for all steel piles.

I. Provide strength and properties sections of pile sections and calculations by a Professional Engineer demonstrating the pile will meet or exceed the strength requirements of the design loads as shown on the construction documents.

a. If applicable, the calculation(s) shall include the load eccentricity on the pile. The eccentricity shall be measured from the vertical face of the footing to the center of the pile shaft.

J. Installation Records: Within 7 days after pile installation, submit 2 copies of the installation record for each pile installed.

a. The installation record shall clearly indicate the pile identification number or mark, pile diameter, helix configuration, installation depth, installation torque, ultimate and allowable capacity of pile.

b. Where helical piles are being installed on existing structures provide final lifting force/design load applied to pile, the amount of elevation recovery of each pile.

QUALITY ASSURANCE

K. The Contractor performing the Work of this Section shall have been regularly engaged in pile work for a period of not less than 3 years and shall be properly equipped to execute the Work. If directed, furnish a list of projects of a similar type and magnitude executed by the Contractor.

L. In lieu of the Contractor achieving 3 years of Helical Pile experience, a certificate of competency can be provided by manufacturer. The certificate should state that the Contractor has been trained and is authorized to install the underpinning pile system or the manufacturer shall provide a letter expressing the ability and intent to provide on-site supervision of the pile installation.

M. Design of the helical piles/anchors shall be performed by a professional engineer licensed in the state of the project in accordance with existing building code requirements.

N. The helical pile shall be recognized by the International Code Council (ICC) and the manufacturer shall hold a current ICC-ES issued ESR report showing compliance with AC358 and the current International Building Code (IBC).

PART 2 PRODUCTS

MATERIAL

A. The helical piles/anchors shall have a central shaft that is cold formed welded and seamless carbon steel structural round tubing with a minimum yield strength and torque spec as determine by the contractor.

PERFORMANCE REQUIREMENTS

B. All helical piles shall be designed to support the design load(s) as determine by the contractor.

C. Helical piles shall be designed by a licensed professional engineer in accordance with the current International Building Code (IBC) adopted by the local jurisdiction.

PART 3 EXECUTION

PREPARATION

A. Mark all pile installation locations as determined by the contractor. The Engineer of Record shall be notified if the piles are relocated more than 12” from the locations shown on the plans or approved shop drawings. Relocation of the piles will not be allowed unless approved by the Engineer of Record.

B. A torque indicator shall be used during helical pile/anchor installation. The torque indicator can be an integral part of the installation system or externally mounted in-line.

C. The contractor must inspect and provide a report of the following:

a. Verify the type of helical pile/anchor being installed is as specified on the shop drawings.
b. Verify final embedment depth of helical pile/anchor.
c. Verify final installation torque readings as specified on the shop drawings.

INSTALLATION

D. The helical pile/anchor installation technique shall be such that it is consistent with the geotechnical, logistical, environmental and load carrying conditions of the project.

E. The lead section shall be positioned at the location as shown on the construction drawings. Battered helical piles/anchors can be positioned perpendicular to the ground to assist in initial advancement into the soil before the required battered angle shall be established.

F. Sufficient down pressure shall be applied to uniformly advance the helical pile/anchor sections approximately 3-inches per revolution. The rate of down pressure (crowd) shall be adjusted for different soil conditions and depths.

G. The minimum installation torque and minimum overall length criteria as shown on the stamped drawings shall be satisfied prior to terminating the helical pile/anchor installation.

H. If the torsional strength rating of the pile shaft and/or installation equipment has been reached prior to achieving the minimum overall length required, the Contractor shall have the following options:

I. Terminate the installation depth obtained subject to the review and acceptance of the Engineer of Record for the If the minimum installation torque as shown on the working drawings is not achieved at the minimum overall length and there is no maximum length constraint, the Contractor shall have the following options:

    a. Install the helical pile/anchor deeper using additional extension sections

    b. De-rate the load capacity of the helix pile/anchor and install additional helical piles/anchors. The de-rated capacity and additional helical piles/anchors location shall be subject to the review and acceptance of the Engineer of Record.

J. If the helical pile/anchor is refused or deflected by a subsurface obstruction, the installation shall be terminated and the pile/anchor removed. The obstruction shall be removed, if feasible, and the helical pile/anchor re-installed. If the obstruction can't be removed, the helical pile/anchor shall be installed at an adjacent location, subject to the review and acceptance of the Engineer of Record.

FIELD QUALITY CONTROL

K. The Contractor shall furnish and install all helical piles per the plans and approved pile design documentation. In the event of conflict between the plans and approved pile design documentation, the contractor shall not begin construction on any affected items until such conflict has been resolved.

L. Centerline of helical piles/anchors shall not be more than three inches (3") from indicated plan location unless approved by the Engineer of Record.

M. Helical pile/anchor plumbness shall be within 2 degrees of the design alignment.

END OF SECTION 05 53 00

FASTENERS AND SUPPORTS

SECTION 06 05 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This section includes, tie down fasteners, miscellaneous connectors for rough carpentry and miscellaneous fasteners for structural connections.

1.2 REFERENCES

A. International Building Code (IBC)

PART 2 – PRODUCTS

2.1 CONNECTORS

A. Acceptable Manufacturer: Simpson “Strong-Tie” or equal.

B. Finish: Hot Dip Galvanized. When applied against pressure treated lumber, ensure galvanization is designed for the corrosive properties of the specific chemicals used in the treated lumber.

2.2 NAILS, SCREWS, AND BOLTS

A. In accordance with manufacturer's recommendations.

B. Use stainless steel or Galvanized nails, screws, bolts, and connectors in association with treated wood. When applied against pressure treated lumber, ensure galvanization is designed for the corrosive properties of the specific chemicals used in the treated lumber.

C. Provide all necessary spikes, nails, screws, and bolts for proper installation of heavy timber and rough carpentry; sizes and quantities as indicated on shop drawings. Where not indicated, provide sizes and quantities as required by IBC. Accessories shall include bolts with necessary nuts and washers, timber connectors, drift pins, dowels, nails, screws, spikes, straps and other metal fasteners.

D. Bolts and nuts shall conform to the specifications of ASTM A307, grade A. Washers shall be malleable iron or medium steel. Bolts shall be provided with washers under nut and head. Washers shall be provided under lag screw heads.

E. Common nails shall be round wire of standard form.

F. All hardware shall be galvanized with a minimum requirement to be in accordance with ASTM A153. Where hardware is used in wood treated with a waterborne preservative, use stainless steel hardware or hardware with extra heavy galvanizing (Z-Max).

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install items as required by the drawings and in accordance with the manufacturer's requirements.

END OF SECTION 06 05 00

ROUGH CARPENTRY

SECTION 06 10 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Structural framing and sheathing
B. Log Dimensions
C. Subflooring
D. Floor Finish

1.2 RELATED SECTIONS

A. Section 055000 – Metal Fabrications
B. Section 060590 – Pressure Treated Lumber
C. Section 062000 – Finish Carpentry

1.3 REGULATORY REQUIREMENTS

A. Conform to International Building Code (IBC)
B. Conform to International Log Builders Association (ILBA)

1.4 REFERENCES

A. National Design Specifications for Stress Grade Lumber and its Fastening (NDS)
B. Voluntary Product Standard PS-1 – Construction and Industrial Standards
C. Voluntary Product Standard PS-20 – American Softwood Lumber Standard

1.5 PRODUCT HANDLING

A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide air circulation within and around stacks and under temporary weather resistant coverings.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Logs: Square logs shall have a dimension between 4” to 6”.

B. Tongue & Groove Roof Decking: See Section 01 11 00 SUMMARY OF WORK Part 2 Section 2.02.B Cabin Configuration for Tongue & Groove roof deck materials.

C. Lumber Standards: Manufactured lumber to comply with PS-20 “American Softwood Lumber Standard” and with applicable grading rules of inspection and agencies certified by American Lumber Standards Committee’s (ALSC) Board of Review.

D. Trademark**:** Factory-mark each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rule requirements and identification agency, grade, species, moisture content at tie of surfacing, and mill.

2.2 DIMENSIONAL LUMBER

A. Nominal sizes are indicated, except as shown by detail dimension. Provide actual sizes as required by PS-20, for moisture content specific for each use.

2.3 CONSTRUCTION PANELS

A. Construction Panel Standards: Comply with PS-1 "US Product Standard for Construction and Industrial Plywood" for plywood panels and, for products not manufactured under PS-1 provisions, with American Plywood Association (APA) "Performance Standard and Policies for Structural-Use Panels", Form No. E455.

B. Trademark: Factory-mark each construction panel with APA trademark evidencing compliance with grade requirements.

2.4 STAIRS AND RAILS

A. Alaska Yellow Cedar, Alaska Cedar, Sitka Spruce, White Spruce or Western Hemlock sourced from Alaska shall be used in the construction of interior furniture.

B. Tabletop shall be hard wood, not required to be sourced from Alaska. Species to be selected during design.

2.5 EXTERIOR DECKS AND RAMP

A. See Drawings and Section 01 11 00 SUMMARY OF WORKS to determine deck material.

PART 3 - EXECUTION

3.1 GENERAL

A. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

B. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.

C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

D. Use common wire nails, unless as otherwise indicated. Use finishing nails for finish work. Select fasteners that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

E. Provide pressure-treated at all locations where materials are in contact with grade and other locations indicated on Contract Drawings.

3.2 INSTALLATION OF CONSTRUCTION PANELS

A. General: Comply with applicable recommendations contained in Form No. 30F, "APA Design/Construction Guide – Residential & Commercial," for types of construction panels and applications indicated.

B. Subfloor: Glue and nail subflooring plywood to substructure. Immediately before placing each sheet of subflooring, apply adhesive to substrate and contact side of subflooring.

C. Roof Sheathing: Secure panels perpendicular to framing members, with ends staggered and sheet ends over firm bearing.

END OF SECTION 06 10 00

GLUE-LAMINATED STRUCTURAL UNITS

SECTION 06 18 10

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Glue laminated wood beams.
B. Steel hardware and attachment brackets.

1.2 RELATED REQUIREMENTS

A. Section 060500 – Fasteners and Supports
B. Section 055000 – Metal Fabrications
C. Section 099300 – Staining and Transparent Finishing

1.3 REFERENCE/STANDARDS

A. American Institute of Timber Construction (AITC)
    1. AITC 117 – Standard Specifications for Structural Glued Laminated Timber of Softwood Species; 2004 (with errata 2005).
    2. AITC A109.1 – American National Standard for Wood Products – Structural Glued Laminated Timber; 2007.

B. American Standard for Testing and Materials (ASTM)
    1. ASTM A36/A36M – Standard Specification for Carbon Structural Steel; 2005.

C. National Design Specification (NDS)
    1. National Design Specification for Wood Construction; 2005 Edition.
    2. NDS Supplement – Design Values for Wood Construction.

1.4 QUALITY ASSURANCE

A. Standards: Except as otherwise indicated, comply with ANSI/AITC A190.1 “Structural Glued Laminated Lumber”.

B. Manufacturer/Fabricator Qualifications: Company specializing in manufacturing glue laminated structural units with three years of documented experience and certified by AITC in accordance with AITC A190.1

C. Trademark: Factory mark each piece of glued laminated structural units with AITC Quality Inspected mark.
    1. Place AITC mark on timber surfaces, which will not be exposed in completed work.

D. Design Supervision: Design structural members under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in state of Alaska.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for loads, seismic zoning, and other load criteria.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Leave individual wrapping in place until finishing occurs.

B. Keep dry during delivery, storage, handling, and erection, by maintaining factory-applied protective covering in weather-tight and light proof condition, or by applying other weather-tight protection.

C. Do not store in areas of either excessively high or excessively low relative humidity; comply with manufacturer's instructions.

D. Place stored individual or bundle wrapped units on blocks well off ground with individual members separated for air circulations. Leave wrappings intact but slit or puncture lower side to permit drainage of water, which may accumulate.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General: Comply with ANSI/AITC A109.1 and applicable lumber association standards cited therein for grades required to achieve Glulam requirements for design values, appearance, fabrication limitations and species (if any).

B. Stress Values for Beams: Provide glued laminated members sized as shown on drawings with laminating combination 20F-V13 for simple span beams and for multiple span beams.

C. Lumber: Alaskan-Cedar lumber conforming to RIS grading rules with 12 percent maximum moisture content before fabrication. Design for the following values:

1. Bending (Fb): 2,000 psi
2. Tension Parallel to Grain (Ft): 925 psi
3. Compression Parallel to Grain (Fc): 1,550 psi
4. Horizontal Shear (Fv): 265 psi
5. Modulus of Elasticity (E): 1,500,000 psi

D. Adhesive: ASTM D2559 "wet use" adhesive, unless otherwise indicated.

E. End Sealer: Manufacturer's standard transparent, colorless wood sealer, effective in retarding transmission of moisture at cross-grain cuts.

F. Connectors, Anchors, Accessories: Provide fabricated steel (ASTM A36) shapes, plates and bars, welded into assemblies of types and sizes indicated or, if not indicate, manufacturer's standard units for timber sizes indicated. Provide steel volts (ASTM A307), lag bolts, nails, and other standard fasteners as required for installation.

1. Finish: Except as otherwise indicated, finish fabricated assemblies with rust-inhibitive primer.

2.2 FABRICATION

A. General: Comply with ANSI/AITC A190.1 in providing units indicated where dimensions are not completely documented, provide manufacturer's standard sizes and shapes required to fulfill indicated performances.

B. Shop-cut for connections and connection hardware to greatest extent feasible, including drilling of bolt holes and dapping of bearing plates.

C. Fabricate glue laminated structural members in accordance with AITC Industrial grade.

D. Unless otherwise noted, comply with AITC 110, for all enclosed members and Architectural Grade units and for all exposed members.

E. Verify dimension and site conditions prior to fabrication.

F. Cut and fit members accurately to length to achieve tight joint fit.

G. Do not splice or join members in locations other than those indicated without permission.

H. Fabricate steel hardware and connections with joints neatly fitted, welded, and ground smooth.

I. After end trimming, seal with penetrating sealer in accordance with AITC requirements.

J. Camber: Except as otherwise noted, fabricate horizontal load-bearing members, which are shown as straight members (not arched) with zero camber.

K. Before shipping or exposing to outdoor conditions, individually wrap each member with manufacturer's standard opaque, durable, water-resistant, plastic-coated paper covering with water-resistant seams.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that supports are ready to receive units.
B. Verify sufficient end bearing area.
C. Notify Owner's Representative of any discrepancy.

3.2 ERECTION

A. General: Install miscellaneous steel connectors, anchors, and accessories as indicated. Plan and execute erection procedures so that close fit and neat appearance of joints and structures as a whole will not be impaired. When hoisting members in place, use padded or non-marring slings, and protect corners with wood blocking.

B. Do not remove wrapping on individually wrapped members until it will serve no useful purpose including protection from weather, soiling and damage from work of other trades.

C. Coordinate removal of wrapping with finishing work specified in Division 9 Sections. Retain wrapping wherever it can serve as painting shield.

D. Lift members using protective straps to prevent visible damage.

E. Set structural members level and plumb, in correct positions or sloped where indicated.

F. Provide temporary bracing and anchorage to hold members in place until permanently secured.

G. Fit members together accurately without trimming, cutting, or other unauthorized modification.

H. Repair damaged surfaces and finishes after completion of erection and removal or wrappings, or replace damaged members as directed where damage is beyond acceptable repair.

END OF SECTION 06 18 10

FINISH CARPENTRY

SECTION 06 20 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Finish Carpentry Items
B. Wood Trim
C. Wood Door Frames
D. Wood Casings and Moldings

1.2 RELATED SECTIONS

A. Section 061000 – Rough Carpentry
B. Section 082110 – Flush Fiberglass Door
C. Section 085500 – Vinyl Windows

1.3 QUALITY ASSURANCE

A. Perform work in accordance with AWI Architectural Woodwork Quality Standards illustrated, Custom Grade.

B. All millwork shall be kiln dried to a moisture content not to exceed 19%.

1.4 DELIVERY, STORAGE, AND PROTECTION

A. Keep all millwork and trim under cove, dry and fully protected.

PART 2 – PRODUCTS

2.1 LUMBER MATERIALS

A. Alaska Yellow Cedar, Alaska cedar, Western Red Cedar, Sitka Spruce, White Spruce or Western Hemlock should be used in all interior/exterior trim, fascia, and soffit material.

B. Interior furniture and exterior lumber amenities are required to use AK sourced cedar lumber.

C. Exterior structural members such as, girders and exterior deck joists, shall be treated for ground contact dimensional lumber or approved equal.

2.2 FASTENERS

A. Nails for trim, door jambs, window jambs, baseboard, soffits, and millwork shall be hot dipped galvanized or stainless steel, casing nails. Nailing shall be in an organized pattern.

B. Blind nail interior work insofar as possible.

C. Interior finish work shall be secured to studs, nailing blocks, grounds, etc.

D. Trim head screws with non-corrosive phosphate finish shall be used for attaching shelving, cabinets, wood trim, etc., to light gauge studs, metal door jambs or other metal backing.

E. Use galvanized nails for exterior work. Blind nail exterior work insofar as possible.

2.3 FABRICATION

A. Run trims and moldings true to profile detailed.

B. All edges of finish pieces shall be slightly eased and sanded smooth.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify blocking and nailers are adequate and are properly installed before any finish or substrates are applied.

B. Obtain Contracting Officer's acceptance of all millwork prior to painting or staining.

3.2 INSTALLATION

A. Set and secure materials and components in place, plumb and level.

B. Fit and place all finish carpentry accurately and in a workmanlike manner. Gouges, dents, hammer marks, splits, or other defects will not be permitted in the finish work.

C. Countersink all nail heads by use of steel set or use a nail for setting.

D. Carefully scribe work abutting other components, with maximum gaps of 1/16 inch (2 mm). Do not use additional overly trim to conceal larger gaps.

E. Examine all work; repair or replace any damaged or split pieces.

F. Seal all edges and exposed ends of all pieces. Set all exposed nails and countersink all screws. Sand exposed work lightly to remove any rough spots, smooth skips.

G. All carpentry work shall be sanded, or otherwise processed to create a smooth and even surface.

END OF SECTION 06 20 00

FIBERGLASS REINFORCED GRATING

SECTION 06 74 13

PART 1 - GENERAL

1.1 SMMARY

A. Section includes glass-fiber-reinforced plastic gratings.

1.2 SUBMITTALS

A. The Contractor shall submit the manufacturer's published literature including structural design data, structural properties data, corrosion resistance tables, certificates of compliance, test reports as applicable.

1. PRODUCT DATA: For glass-fiber-reinforced plastic gratings.
2. SHOP DRAWINGS: Includes plans, sections, details, and attachments to other Work.

B. The Contractor may be requested to submit sample pieces of each item specified herein for acceptance by the Contracting Officer as to quality and color. Sample pieces shall be manufactured by the method to be used in the Work.

1.3 QUALITY ASSURANCE

A. Manufacturer shall offer a 3-year limited warranty on all FRP products against defects in materials and workmanship.

B. Manufacturer shall provide proof of certification from at least two other quality assurance programs for its facilities or products (DNV, ABS, USCG, AARR).

1.4 DELIVERY AND STORAGE

A. DELIVERY OF MATERIALS: Manufactured materials shall be delivered in original, unbroken pallets, packages, containers, or bundles bearing the label of the manufacturer. Adhesives, resins and their catalysts and hardeners shall be crated or boxed separately and noted as such to facilitate their movement to a dry indoor storage facility.

B. STORAGE OF MATERIAL: All materials shall be carefully handled to prevent them from abrasion, cracking, chipping, twisting, and other types of damage. Store adhesives, resins and their catalysts and hardeners in dry indoor storage facilities between 70 and 85 degrees in Fahrenheit (21 to 29 degrees in Celsius) until they are required.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. FIBERGRATE Fiberglass Pultruded Grating: Safe-T-Span® & Aqua Grate®, Structural Grating, ISOFR or approved equal.

2.2 PERFORMANCE REQUIREMENTS

A. STRUCTURAL PERFORMANCE: Gratings are to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Walkways and Elevated Platforms: Uniform load of 100 lbf/sq. ft.
2. Limit deflection to L/360 or ¼ inch, whichever is less.

B. SEISMIC PERFORMANCE: Gratings are to withstand the effects of earthquake motions determined according to the loads listed on Sheet S1.
   1. Component Importance Factor: 1.5

2.3 GLASS-FIBER-REINFORCED PLASTIC GRATING

A. MOLDED GLASS-FIBER-REINFORCED GRATINGS: Bar ratings made by placing glass-fiber strands that have been saturated with thermosetting plastic resin in mols in alternating directions to form interlocking bars without voids and with a high resin content.
   1. Configuration: 1-1/2 inch square mesh thickness as required to comply with structural performance requirements.
   2. Traffic Surface: Applied abrasive finish.

2.4 FASTENERS

A. **GENERAL:** Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

2.5 FABRICATION

A. Cut, drill, and punch materials cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

B. Form gratins from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.

C. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.

2.6 GRATING FRAMES AND SUPPORTS

A. FRAMES AND SUPPORTS FOR GLASS-FIBER-REINFORCED PLASTIC GRATINGS: Fabricate from glass-fiber-reinforced plastic shapes and sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.
   1. Equip units indicated to be cast into concrete or built into masonry with integral anchors.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. CUTTING, FITTING AND PLACEMENT: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

B. Fit exposed connections accurately together to form hairline joints.

3.2 INSTALLING GLASS-FIBER-REINFORCED PLASTIC GRATINGS

A. Comply with manufacturer's written instructions for installing gratings. Use manufacturer's standard stainless steel anchor clips and hold-down devices for bolted connections.

END OF SECTION 06 74 13

BOARD INSULATION

SECTION 07 21 13

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Board insulation in exterior wall, floor and roof assemblies.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C578 – Standard Specification for Rigid Cellular Polystyrene Thermal Insulation.
2. ASTM C612 – Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
3. ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
4. ASTM E84 – Standard Test Methods for Surface Burning Characteristics of Building Materials.
5. ASTM E96/E96M – Standard Test Method for Water Vapor Transmission of Materials.
6. ASTM E136– Standard Test Methods for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Indicate product composition and performance characteristics.

B. Quality Control Submittals:
   1. Certificate of Compliance: Certification from an independent testing laboratory that insulation meets fire hazard classification requirements.

1.4 QUALITY ASSURANCE

A. Fire Hazard Classifications:

1. Noncombustible, Tested to ASTM E136.
2. Flame spread/smoke developed rating of 25/50 or less, tested to ASTM E84.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store insulation in a clean, dry, sheltered area, off ground or floor, until used. Protect against wetting and moisture absorption.

1.6 PROJECT CONDITIONS

A. Install only as much insulation as can be covered in a single day. Protect insulation from moisture until building is substantially water and weather tight.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers – Polystyrene Insulation:

1. Dow Chemical Co. (www.dowbuildingmaterials.com)
2. Owens Corning. (www.owenscorning.com)
3. Approved Equal.

2.2 MATERIALS

A. Board Insulation:

1. Type: ASTM C578, closed cell extruded polystyrene foam.
2. Minimum Compressive Strength: 60 psi (pounds per square inch)
3. Thermal Resistance: Minimum LTTR value of 5/inch.
4. Water Vapor Permeance: Maximum 1.5 permeance for 1 inch thickness, tested to ASTM E96/E96M.

2.3 ACCESSORIES

A. Adhesives: Type recommended by insulation manufacturer.

B. Tape: Minimum 2 inches wide, pressure sensitive, waterproof.

C. Impale Fasteners:

1. Steel impaling fasteners on metal base with lock washers, length to suit insulation thickness.
2. Adhesive: Type recommended by fastener manufacturer.

D. Metal Clips: Galvanized Steel, L-Shaped, 2 inches long.

PART 3 – EXECUTION

3.1 PREPARATION

A. Substrate:
1. Remove protrusions flush with adjacent surface.
2. Remove dirt, dust, oil, grease, and other materials that could impair adhesion.

B. Apply adhesive in continuous beads, 1/8 inch thick.

C. Install boards vertically or horizontally in a method to maximize contact bedding.

3.2 INSTALLATION

A. Butt edges and ends tight to adjacent boards, at perimeter, and around penetrations with maximum 1/4 inch gaps.

B. Tape seal to perimeter and at joints between insulation pieces.

END OF SECTION 07 21 13

BATT INSULATION

SECTION 07 21 15

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Batt insulation in exterior wall, floor and roof assemblies.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C665 – Standard Specification for Mineral Fiber Blanket Thermal Insulation for Wood Frame and Light Construction Buildings.
2. ASTM E84 – Standard Test Methods for Surface Burning Characteristics of Building Materials.
3. ASTM E136– Standard Test Methods for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.

1.3 QUALITY ASSURANCE

A. Fire Hazard Classifications:
1. Noncombustible, Tested to ASTM E136.
2. Flame spread/smoke developed rating of 25/50 or less, tested to ASTM E84.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store insulation in a clean, dry, sheltered area, off ground or floor, until used. Protect against wetting and moisture absorption.

1.5 PROJECT CONDITIONS

A. Install only as much insulation as can be covered in a single day. Protect insulation from moisture until building is substantially water and weather tight.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Johns Manville. (www.jm.com)
2. Knauf Insulation. (www.knaufinsulation.us)
3. Owens Corning. (www.owenscorning.com)
4. Approved Equal.

2.2 MATERIALS

A. Thermal Batt Insulation:
1. Type: ASTM C665, glass fiber composition.
2. Facing: Unfaced.
3. Thermal resistance:
    a. 3-1/2 inches thick: R-value of 11.00

b. 3-1/2 inches thick: R-value of 13.00
c. 3-5/8 inches thick: R-value of 19.00
d. 6-1/2 inches thick: R-value of 22.0
e. 8-1/2 inches thick: R-value of 25.0
f. 9 inches thick: R-value of 26.0
g. 10 inches thick: R-value of 30.00
h. 12 inches thick: R-value of 38.00

PART 3 – EXECUTION

3.1 INSTALLATION

A. Friction fit between framing members.

END OF SECTION 07 21 15

VAPOR RETARDERS

SECTION 07 26 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Sheet materials for controlling vapor diffusion at exterior walls and roofs.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM E154 – Standard Test Method for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
2. ASTM E1643 – Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
3. ASTM E1745– Standard Test Methods for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:

1. Griffolyn, Division of Reef Industrie (www.reefindustries.com)
2. Raven Industries (www.rufco.com)
3. Stego Industries (www.stegoindustries.com)
4. W.R. Meadows, Inc. (www.wrmeadows.com)
5. Approved Equal.

2.2 MATERIALS

A. Vapor Retarders:

1. Minimum 6 mil thick, clear polyethylene film.

2.3 ACCESSORIES

A. Pipe Boots: Vapor retarders manufacturer's standard pipe boot system.

B. Adhesive: Compatible with vapor retarder and substrate, permanently non-hardening.

C. Joint Tape: Minimum 4 inches wide, pressure sensitive, waterproof, compatible with vapor retarders.

PART 3 – EXECUTION

3.1 INSTALLATION – WALLS AND ROOFS

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Provide complete and continuous vapor retarder at exterior walls and roofs except where interrupted by glazing or other openings.

C. Locate vapor retarder on interior side of insulation.

D. Apply adhesives to substrate in accordance with manufacturer's instructions for application and coverage.

E. Install vapor retarder without tears, voids, and holes.

F. Lap ends and edges minimum 2 inches over adjacent sheets. Seal alps with tape.

G. Extend vapor retarder to full perimeter of adjacent door frames, window frames, roof beams, and other penetrations interrupting plane of membrane.

H. Tape seal lapped joints, tears, holes, perimeter, and penetrations through vapor retarders.

3.2 REPAIR

A. Inspect vapor retarders for damages just prior to covering.

B. Clean damaged areas and cover with additional vapor retarder material cut minimum 6 inches larger than damaged area on all sides. Seal to maintain vapor retarder with continuous tape.

END OF SECTION 07 26 00

METAL WALL PANEL

SECTION 07 42 13

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Preformed metal wall panel system for wainscoting.
B. Flashings, trim, anchorage and accessories.

1.2 RELATED SECTIONS

A. Section 07 90 00 – Joint Sealers.

1.3 REFERENCES

A. American Society of Civil Engineers (ASCE)
   1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures.

B. American Architectural Manufacturers Association (AAMA)
   1. AAMA 621 – Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.
   2. AAMA 2604 – Voluntary Specifications, Performance Requirements and Test Procedures for High Performance Organic Coatings on Architectural Extrusions and Panels.
   3. AAMA 2605 – Voluntary Specifications, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Architectural Extrusions and Panels.

C. American Society for Testing and Materials (ASTM)
   1. ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process.
   2. ASTM A755/A755M – Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products.
   3. ASTM A792/A792M – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   4. ASTM B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   5. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

1.4 SYSTEM DESCRIPTION

A. Design Requirements: Design system to withstand:
   1. Live loads in accordance with International Building Code.
   2. Minimum Wind pressure in accordance with ASCE 7, with maximum allowable deflection of L/240.
   3. Movement caused by ambient temperature range of 120 degrees F and a surface temperature range of 160 degrees F.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 5 years documented experience of Work in this Section.

1.6 DELIVERY, STORAGE AND HANDLING

A. Protect panels from contact with materials that could cause staining or discoloration of finish.

1.7 PROJECT CONDITIONS

A. Do not install panels on wet or frozen substrate.

1.8 WARRANTIES

A. Furnish manufacturer's 20 year warranty providing coverage against chipping, cracking, fading, or delamination of panel finish.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. AEP-Span (www.aepspan.com)
B. Berridge Manufacturing Co. (www.berridge.com)
C. Centria Architectural Systems (www.centria.com)
D. MBCI (www.mbci.com)
E. Petersen Aluminum Corp. (www.pac-clad.com)
F. VicWest (www.vicwest.com)
G. Approved Equal.

2.2 MATERIALS

A. Precoated Galvanized Steel:
   1. ASTM A755/A755M, Structural Quality, G90 Galvanized Coating Class, 26-Gage Core Steel, unless noted otherwise.

2.3 ACCESSORIES

A. Fasteners: 300 Series Stainless Steel, type best suited to application; head color to match panels where exposed, with neoprene gasketed washers.

B. Panel Clips: Hot-dip galvanized steel, thermally responsive, designed to fit between two adjacent panels and secure both panels.

C. Panel End Closures: Sponge neoprene, cut to fit panel configuration, minimum 1 inch depth.

D. Joint Sealers: Specified in Section 07 90 00 Joint Sealers.

2.4 FABRICATION

A. Fabricate panels from minimum 26 gaga pre-coated galvanized steel sheet.

B. Panel Profile: 36 inches wide x 2 inches deep, nesting edges with factory-applied seam tape or sealant.

C. Trim: Profiles as indicated or as required, fabricated from same material as panels.

D. Roll form panels and trim to required profiles in longest practical lengths.

2.5 FINISHES

A. Panels and Trims: AAMA 2605, Fluoropolymer coating containing minimum 70 percent PVDF resins, color to be selected from manufacturer's full color range.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install aligned, level, and plumb.

C. Fasten panels to supports in concealed locations. Exposed fasteners permitted on trim members only.

D. Locate panel joints over supports.

E. Lap end joints 4 inches minimum.

F. Install trim to maintain visual continuity of system.

G. Install joint sealers and gaskets to prevent water penetration.

H. Installation Tolerances:
   1. Variation from location: ±1/4 inches
   2. Variation from plane: 1/4 inches in 10 feet.

3.2 ADJUSTING

A. Touch-up field cuts and abrasions on finished surfaces to match factory finish.

END OF SECTION 07 42 13

SHEET METAL ROOFING

SECTION 07 60 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Galvanized Steel Roofing.
B. Underlayment.
C. Flashings, Trim, and Accessories.
D. Snow Retention System.

1.2 RELATED SECTIONS

A. Section 06 10 00 – Rough Carpentry.
B. Section 07 61 00 – Sheet Metal Flashing and Trim.
C. Section 07 90 00 – Joint Sealers.

1.3 REFERENCES

A. American Society of Civil Engineers (ASCE)

1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures.

B. American Architectural Manufacturers Association (AAMA)

1. AAMA 621 – Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.
2. AAMA 2604 – Voluntary Specifications, Performance Requirements and Test Procedures for High Performance Organic Coatings on Architectural Extrusions and Panels.
3. AAMA 2605 – Voluntary Specifications, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Architectural Extrusions and Panels.

C. American Society for Testing and Materials (ASTM)

1. ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process.
2. ASTM A755/A755M – Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products.
3. ASTM A792/A792M – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
4. ASTM A32 – Standard Specifications for Solder Metal.
5. ASTM C1549 – Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
6. ASTM D226 – Standard Specification for Asphalt Saturated Organic Felt Used in Roofing and Waterproofing.
7. ASTM D1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
8. ASTM D1592 – Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
9. ASTM E1980 – Standard Practice for Calculating Solar Reflectance Index of Horizontal

and Low-Sloped Opaque Surfaces.

D. Architectural Sheet Metal Manual.

E. Metal Building Manufacturers Association, Inc. Cleaveland, OH

1. Low Rise Building Systems Manual; 1996.

F. American Iron and Steel Institute, Washington D.C.

1. Cold-Formed Steel Design Manual; 1996.

1.4 SYSTEM DESCRIPTION

A. Design Requirements: Design system to withstand:

1. Live loads in accordance with International Building Code.
2. Minimum Wind pressure in accordance with ASCE 7, with maximum allowable deflection of L/240.
3. Movement caused by ambient temperature range of 120 degrees F and a surface temperature range of 160 degrees F.

1.5 SUBMITTALS

A. Submittal for Reviews:

1. Manufacturer's data and installation instruction for Arctic conditions
2. Shop Drawings: Include dimensioned layout showing locations of seams, accessories, gage of metal, fastening methods, provisions for expansion and contraction, and details of joints. Show engineered attachment schedule to match wind velocity and exposure as recommended per manufacture.
3. Samples: Each profile proposed for use.
4. Warranty: Sample warranty form.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 5 years documented experience of Work in this Section.

1.7 SYSTEM PERFORMANCE REQUIREMENTS

A. Performance Testing: Metal roofing systems shall be designed in accordance with latest release of AISI. Metal roof system shall be designed to meet loading conditions per the applicable building code.

1.8 PROJECT CONDITIONS

A. Do not form sheet metal at ambient temperatures less than 50 degrees F.

B. Do not apply underlayment at ambient or surface temperatures less than 40 degrees F or on wet or frozen substrate.

C. Do not install roofing on wet or frozen substrates.

1.9 DELIVERY, STORAGE AND HANDLING

A. Delivery materials in manufacturer's original unopened containers and rolls with labels intact and legible showing type and specifications of material.

1.10 WARRANTIES

A. Furnish manufacturer's two year warranty providing coverage against water leakage through roofing system.

PART 2 - PRODUCTS

2.1 METAL ROOF

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to the following:
   1. Metal Sales Manufacturing Corporation: www.metalsales.us.com
   2. Champion Metal: https://championmetal.com

B. Roofing shall be standing seam concealed fastened panels and shall be formed from 24 - gage steel. See Subsection 2.02 Materials.

C. Provide compatible metal preformed sheet flashings and trims as required for complete installation of roofing as shown and detailed on the Contract Drawings and as required by the manufacturer.

D. Provide enclosures as recommended by the manufacturer. Flashing shall be fabricated from the same materials and finish.

E. Provide all accessories and appurtenances as recommended by the manufacturer for the specific installation.

2.2 MATERIALS

A. Galvanized Steel Sheet:

   1. ASTM A653/A653M, Structural Quality, G90 Galvanized Coating class, 24-gage Core Steel, unless noted otherwise.
   2. Where sheet metal is to be painted, apply phosphate film at factory.

B. Pre-Coated Galvanized Steel Sheet:

   1. ASTM A755/A755M, Structural Quality, G90 Galvanized Coating Clas, 24-gage Core Steel, unless noted otherwise.
   2. Finish: AAMA 621, Fluoropolymer coating containing minimum 70 percent PVDF resins, color to be selected from manufacturer's full color range.

2.3 ACCESSORIES

A. Underlayment: ASTM D226, asphalt impregnated, No. 30, non-perforated.

B. Slip Sheet: Rosin sized building paper.

C. Solder: ASTM B32.

D. Fasteners: Same material and finish as sheet metal, with neoprene gasketed washers where exposed.

E. Joint Sealers: Specified in Section 07 90 00.

F. Snow Retention System:

   1. Design Basis: S-5! Colorgard
   2. Mill finished aluminum, color matched to roofing color. Provide unpunctured cross members in lengths to provide complete eave coverage as illustrated in drawings.
   3. Versaclip as manufactured by S-5! Colorgard.
   4. Install snow retention system as recommended by manufacturer's written instructions.

2.4 FABRICATIONS

A. Fabricate components in accordance with the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) Manual.

B. Form roofing to provide 1-1/2 inch high, double locked standing seams spaced nominally 12 inches on center.

C. Turn up sides of panels and extend 1 inch above finished seam height.

D. Form cross seams with 3/4 inch fold under on lower end and 2 inches fold on upper end.

E. Form panels and caps in longest practical length.

F. Fabricate cleats and starter strips of same material as sheet metal.

G. Hem exposed edges on underside 1/2 inch; miter and seam corners.

H. Form sections true to shape, accurate in size, square, and free from distortions and defects.

I. Solder shop formed metal joints. After soldering, remove flux and excess solder and clean joints.

PART 3 – EXECUTION

3.1 INSTALLATION OF UNDERLAYMENT

A. Starting at low edge, apply one (1) 18 inch wide strip of underlayment horizontally over substrate. Apply following strips full 36 inch width; weatherlap preceding strip by 3 inches.

B. Lap ends 6 inches minimum.

C. Fasten top of each strip under overlapping strip to hold strip in position until roofing panels are installed.

D. Provide 18 inch weave pattern at valleys.

E. Lap underlayment minimum 12 inches over hips and ridges from both sides. Apply 36 inch wide strip centered lengthwise over ridge. Nail at 12 inches on center on each side.

F. Extend minimum 4 inches up abutting vertical surfaces.

3.2 INSTALLATION OF ROOFING

A. Conform to SMACNA Manual, Plates.

B. Apply roofing panels beginning at low edge of roof.

C. Extend edge strip up under panels 4 inches minimum and secure at maximum 4 inches on center, located 1 inch down from upper edge of strips. Hook lower end of first panels over edge strip.

D. At end joints between panels, hook fold on lower end of upper panel into fold on upper end of underlying panel.

E. Stagger end joints of adjacent panels.

F. Form standing seams to 1-1/2 inch height; fold panel edges down to form double hem.

G. Form valleys of sheets not over 10 feet in length. Lap joints 6 inches minimum in direction of drainage. Extend minimum 6 inches under roofing panels on each side. Double fold valley and roofing sheets and cleat at 18 inches on center maximum.

H. Fit flashings with square corners and surfaces true, aligned, and accurate to required profiles.

END OF SECTION 07 60 00

SHEET METAL FLASHING AND TRIM

SECTION 07 61 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Roof Flashing.
B. Counterflashing at roof vent stacks.
C. Counterflashing for roof penetrations.
D. Wall flashings.

1.2 RELATED SECTIONS

A. Section 061000 – Rough Carpentry
B. Section 074120 – Preformed Metal Roofing
C. Section 079000 – Joint Sealers

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM)
    1. ASTM A525 – Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
B. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
    1. Architectural Sheet Metal Manual.

1.4 SYSTEM DESCRIPTION

A. Work of this Section is to physically protect membrane roofing and base flashings, from damage that would permit water leakage to building interior.
B. Flashing where required around door, window, or mechanical openings.

1.5 SUBMITTALS

A. Submit shop drawings and product data.
B. Manufacturer's installation instructions.

1.6 STORAGE AND HANDLING

A. Store and handle products in accordance with manufacturer's recommendations.
B. Stack preformed material to prevent twisting, bending, or abrasion, and to provide ventilation.
C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.
D. Factory apply self-adhering, strippable, non-staining protective film to all flashing materials.

PART 2 – MATERIALS

2.1 BACKFILL

A. Galvanized Steel: ASTM A525, 22-gauge core steel, except minimum 20-gauge at roof penetrations, shop prefinished to match metal roof finish and color or siding color as per drawings.

2.2 ACCESSORIES

A. Fasteners: Galvanized steel with soft neoprene washers at exposed fasteners. Finish exposed fasteners same as flashing metal.

B. Protective Backing Paint: Bituminous, conforming to ASTM D1187, Type A.

C. Sealant: Silicone type as recommended by manufacturer.

D. Bedding Compound: Approved by roofing manufacturer.

E. Plastic Cement: FS SS-C-153, Type 1 asphaltic base cement.

2.3 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats and starter strips of same material as sheet, minimum 18 inches wide, interlockable with sheet.

C. Form pieces in longest practical lengths.

D. Hem exposed edges on underside 1/2-inch; miter and seam corners.

E. Fabricate corners from one piece with minimum 18 inch long legs; solder for rigidity, seal with sealant.

F. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mils.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify roof and wall openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, can't strips and in place, and nailing strips located.

B. Install in accordance with manufacturer's instructions and IBC.

END OF SECTION 07 61 00

JOINT SEALERS

SECTION 07 90 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Sealant and joint backing.

1.2 REFERENCES

A. American Society of Testing and Materials (ASTM)
   1. ASTM C920 – Standard Specification for Elastomeric Joint Sealants; 2002.

1.3 SUBMITTALS

A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and color availability.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualification: Company specializing in manufacturing the Products specified in this Section with minimum three years of documented experience.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions, or when temperature is below manufacturer's recommended limitations for installation. Proceed with the work only when forecast weather conditions are favorable for proper cure and development of high early bond strength. Wherever joint width is affected by ambient temperature variations, install elastomeric sealants only when temperatures are in the lower third of manufacturer's recommended installation temperature range.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to to the following:
   1. Tremco; www.tremcosealants.com
   2. GE Plastics; www.geplastics.com
   3. DOW Corning; www.dow.com

2.2 SEALANTS

A. Sealants and Primers – General: Provide only products having lower volatile organic compound (VOC) content.

B. Sealant shall be specifically designed for application to the surfaces as shown on the drawings and shall be non-sag with integral nonfading colors.

C. Interior silicone sealants shall be synthetic silicone rubber base component type conforming to Federal Specifications TT-S-1543 (a) Class A.

D. Pro-Seal 34 polycarbonate, single component, non-sag elastomeric copolymer sealant is to be used as an exterior sealant or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Perform preparation in accordance with manufacturer's instruction and ASTM C1193.

B. Protect elements surrounding the work of this section from damage or disfigurement.

3.3 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instruction.

B. Perform installation in accordance with ASTM C1193.

3.4 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

END OF SECTION 07 90 00

FLUSH FIBERGLASS DOOR

SECTION 08 21 10

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Fiberglass doors.

1.2 RELATED SECTIONS

A. Section 061000 – Rough Carpentry
B. Section 062000 – Finish Carpentry
C. Section 087100 – Door Hardware

1.3 REFERENCES

A. Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada (AWI/AWMAC)
   1. Architectural Woodwork Quality Standards Illustrated (QSI).
B. International Building Code (IBC)

1.4 SUBMITTALS

A. Product Data: Indicate construction, color, and type.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five (5) years of experience.

1.6 DELIVERY, STORAGE AND HANDLING

A. Furnish doors poly-wrapped.
B. Accept doors on site in manufacturer's packaging. Inspect for damage.
C. Doors should not be subjected to extreme of heat, dry or humid conditions. Relative humidity should not be less than 30 percent or more than 55 percent.
D. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean hands or glove.

1.7 PROJECT CONDITIONS

A. Coordinate the work with door opening construction, door frame and door hardware installation.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to the following:
   1. Jeld-Wen, Inc.: www.jeld-wen.com
   2. Vancouver Door Co., Puyallup, WA: www.vancouverdoorco.com

2.2 DOORS

A. All Doors: See drawings for locations and additional requirements.
   1. Quality Level: Premium Grade, Heavy Duty performance, in accordance with WDMA I.S.1-A.

B. Exterior Doors: Flush solid construction, pre-finish.
   1. Thickness: 1-3/4 inches (44 mm), unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerances for size or alignment.

3.2 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

3.3 ADJUSTING

A. Adjust doors for smooth and balanced door movement and wipe clean.

END OF SECTION 08 21 10

VINYL WINDOWS & GLAZING

SECTION 08 53 00

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Tubular extruded plastic windows with fixed and operating sash.
B. Shop glazing.
C. Operating hardware and insect screens.

1.2 REFERENCES

A. American Society of Civil Engineers (ASCE)
    1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures.
B. American Architectural Manufacturers Association (AAMA)
    1. AAMA 303 – Voluntary Specification for Poly-Vinyl Chloride (PVC) Exterior Profile Extrusions.
    2. AAMA 502 – Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
    3. AAMA 1503.1 – Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
C. American Architectural Manufacturers Association/Window and Doors Manufacturers Association/Canadian Standard Associations (AAMA/WDMA/CSA)
    1. AAMA101/WDMA I.S.2/CSA A440 – Standard/Specification for Windows, Doors and Unit Skylights.
D. American Society for Testing and Materials (ASTM)
    1. ASTM D3656 – Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
    2. ASTM E783 – Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
    3. ASTM E1105 – Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference.
    4. ASTM E2112 – Standard Practice for Installation of Exterior Windows, Doors and Skylights.
    5. ASTM F588 – Standard Test Method for Resistance of Window Assemblies to Forced Entry Excluding Glazing.
D. Energy Star (www.energystar.gov) – Qualified Products.
E. National Fenestration Rating Council (NFRC)
    1. NFRC 100 – Procedures for Determining Fenestration Products U-Factors.

1.3 SYSTEM DESCRIPTION

A. Windows (AAMA101/WDMA I.S.2/CSA A440)
    1. Product Type:

a. Sliding Windows: HS – Horizontal Sliding.
b. Fixed Windows: F – Fixed.

2. Performance Classification: LC.
3. Performance Grade: 30.
4. Thermal Transmittance of Window Assembly: Maximum U-value of 0.30 BTU/square foot per hour per degree, F, tested to NFRC 100.

B. Design Requirements – Design Windows and Glass Doors to withstand:

1. Wind loads in accordance with IBC.
2. Movement caused by an ambient temperature range of 120 degrees F and a surface temperature range of 160 degrees F.
3. Movement between system and adjacent construction.
4. Dynamic loading and release of loads.
5. Deflection of supports.
6. Overhead structure deflection of 1/2 inch.

1.4 SUBMITTALS

A. Submittal for Reviews:

1. Warranty: Sample warranty form.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 5 years documented experience of Work in this Section.

B. Conform to applicable accessibility code for locating hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Alpine Windows Systems, Inc. (www.alpinewindowsystems.com) 3773 Slate Road Cuyahoga Falls, OH 44223

1. Alpine Windows 80 Series.

B. Approved Equal.

2.2 MATERIALS

A. Extruded PVC: AAMA 303 – Hollow, Multi-Chambered sections of Extruded Poly-Vinyl Chloride (PVC), with Integral Ultraviolet Inhibitors.

1. Glass and Glazing Accessories: Double Glaze, Tempered SolarTherm Ultra Plus, DS/DS.

B. Operating Hardware:

1. Aluminum, stainless steel, plated steel, or other non-corroding material compatible with aluminum.
2. Horizontal Sliding Windows: Extruded PVC interfacing tracks and cam type lock.

2.3 ACCESSORIES

A. Fasteners: Stainless Steel, Hot-Dip Galvanized Steel, or Fluoropolymer Coated Steel; type best suited to application.

1. Weatherstripping: PVC, Permanently Resilient, Profiled for Weather Seal.

B. Insect Screens: Aluminum, 8x14 mesh.

C. Limit Stops: Resilient Rubber.

2.4 FABRICATION

A. Fabricate to AAMA101/WDMA I.S.2/CSA A440.

1. Fabricate with minimum clearance and shim spaces around perimeter, yet enabling installation and dynamic movement.
2. Fabricate framing, mullions, and sash members with fusion welded corners and joints, in rigid jig. Supplement frame sections with internal reinforcement where required for rigidity.
3. Form sills in one piece. Slope sills for wash.
4. Accurately fit and secure joints and intersections. Make joints flush, hairline, and weathertight.
5. Fabricate in largest practical units.
6. Weatherstrip operable sash.
7. Conceal fasteners and attachments from view.
8. Provide internal drainage weep holes and channels to route moisture to exterior.
9. Form snap-in glass stops, closure molds, weather stops, and flashings of extruded PVC for tight fit into window frame section.
10. Form weather stop flange to perimeter of unit.
11. Mount screens in removable, rewirable aluminum frame.

2.5 FINISHES

A. Exterior Surface: Almond.

1. Interior Surface: Almond.
2. Screens: Black.
3. Hardware: Baked Enamel, Almond.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install windows and glass doors in accordance with ASTM E2112, manufacturer's instructions, and approved Shop Drawings.

B. Set plumb, level, and rigid, free from warpage.

C. Anchor to supporting construction.

D. Installation Tolerances:

1. Maximum variation from plumb or level: 1/8 inch in 3 feet or 1/4 inch in any 10 feet, whichever is less.
2. Maximum misalignment of members abutting end to end: 1/32 inch.

3.2 ADJUSTING

A. Adjust for smooth operation.

END OF SECTION 08 53 00

DOOR HARDWARE

SECTION 08 71 00

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Hardware for fiberglass doors.
B. Thresholds.
C. Weatherstripping, seals and door gaskets.

1.2 SUBMITTALS

A. Door Hardware Schedule: Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, and, function and finish of door hardware.

B. Maintenance Data: Include data on operating hardware, shop drawings, lubrication requirements and inspection procedures related to preventative maintenance.

1.3 QUALITY ASSURANCE

A. Hardware Supplier Qualification: Company specializing in supplying commercial door hardware with minimum three (3) years of experience.

B. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

C. Regulatory Requirements: Comply with provisions of following:

1. Comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)", as follows: Handles, Pulls, Latches, Locks, and Other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers with identification labels intact.

B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule and include basic installation instructions with each item or package.

1.5 WARRANTY

A. Warranty Period: One year from the date of Substantial Completion, unless otherwise indicated.

1.6 MAINTENANCE PRODUCTS

A. Furnish the following materials, which shall be delivered directly to the Owner prior to substantial completion:

1. One (1) set of special wrenches and tools applicable to each different or special hardware component.

PART 2 – PRODUCTS

2.1 HINGES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Hanger Companies: www.hagerhinge.com (Referenced Mfgr. -HAG)
2. Stanley Hardware: www.stanleyworks.com (STA)

B. Quantity: Provide the following, unless otherwise indicated:

1. Three Hinges: For doors with heights 60 to 90 inches (1,524 to 2,286 mm).

C. Size: Provide the following, unless otherwise indicated with hinge widths sized for door thickness and clearance required:

1. Maximum Door Size: 36" by 84" by 1-3/4"
   a. Hinge Height: 4-1/2"
   b. Standard Weight Hinge Thickness: 0.134"
   c. Heavy Weight Hinge Thickness: 0.180"

D. Hinge Options: Comply with the following where indicated on the Door Hardware Schedule or on the Drawings:

1. Non-removable Pins: Provide set screws in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed.

2.2 MECHANICAL LOCKS AND LATCHES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Schlage: www.schlage.com
2. Yale-Corbin U.S.: www.yalesecurity.com
3. Best Access Systems: www.bestlock.com

B. Certified Products: Provide door hardware listed in the following BHMA directories:

1. Mechanical Locks and Latches's BHMA's "Directory of Certified Locks and Latches"

C. General: Provide a keypad locking mechanism similar to Schlage Model FE595 keypad lock or Kwikset SmartCode 270 deadbolt lock.

2.3 DOOR KNOBS/LEVERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Schlage: www.schlage.com
2. Kwikset: www.kwikset.com

B. General: Install door knob on exterior of door and door lever on interior of door. The Contractor is responsible to procure a set door knob and door lever that is compatible to each other. Below is lever and knob models that are compatible with each other. The Contractor may use below models or approved equal.

1. Lever Handle: https://www.homedepot.com/p/Schlage-Accent-Aged-Bronze- Passage-Hall-and-Closet-Door-Handle-F10-V-ACC-716/100529534
2. Knob: https://www.lowes.com/pd/Schlage-F10-Georgian-Georgian-Aged-Bronze-Passage-Door-Knob-Single-Pack/3196747

C. Door lever shall be compliance to ABA requirements.

2.4 MANUAL AND AUTOMATIC BOLTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Rockwood Manufacturing Company: www.rockwoodmfg.com
2. Glynn-Johnson: www.irco.com

2.5 GASKETING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Pemko Manufacturing Co.: www.pemko.com
2. National Guard Products, Inc.: www.ngpinc.com

B. Standard: Comply with BHMA A156.22

C. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide non-corrosive fasteners for exterior applications and elsewhere as indicated.

2.6 WALLS AND FLOOR STOPS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Rockwood Manufacturing Company: www.rockwoodmfg.com

2.7 THRESHOLDS

A. Available Manufacturers: Subject to compliance with requirements including ABA requirements, manufacturers offering products that may be incorporated into the work include, but not limited to, the following:

1. Pemko Manufacturing Co.: www.pemko.com
2. National Guard Products, Inc.: www.ngpinc.com

B. Standard: Comply with ABA Standards Chapter 4 Threshold Height.

C. General: Provide measures against deterioration and rotting of wood thresholds.

2.8 FINISHES

A. Finish in General: Satin Chromium Plated

B. Locksets: Satin Stainless Steel

C. Push Plates & Door Pulls: Satin Stainless Steel

D. Weatherstrip: Clear Anodized Aluminum

E. Door Closers: Powder Coated Aluminum

2.9 KEYING

A. All locksets and cylinders for this project shall be keyed per the Contracting Officer's instructions.

B. Stamp all keys "Do Not Duplicate" and with change designation as directed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

3.3 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware sets to ensure proper operation or function of every unit.

END OF SECTION 08 71 00

RESILIENT FLOORING

SECTION 09 62 50

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Treated industrial wood panels.

1.2 RELATED SECTIONS

A. Section 06 10 00 – Rough Carpentry.
B. Section 06 20 00 – Finish Carpentry.

1.3 SUBMITTALS

A. Product Data: Manufacturer's printed data sheets for products specified.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in unopened containers clearly labeled with manufacturer's name and identification of contents.

PART 2 – PRODUCTS

2.1 TREATED INDUSTRIAL WOOD PANELS

A. Manufacturers: All products by the same manufacturer.
   1. Olympic Panel
      204 East Railroad Avenue Shelton, WA 98584
      800-782-265
      www.olypanel.com

B. Products:
   1. Skid Guard Industrial Panel

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for conditions detrimental to installation of flooring. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Verity that surfaces are flat to tolerances acceptable to flooring manufacturer.

C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.

   1. Obtain instruction if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

3.2 PREPARATION

A. Concrete: Use leveling compound as necessary to achieve substrate flatness of plus or minus 1/8 inch within 10 ft radius (1/1000).

B. Remove coatings that are incompatible with flooring adhesives, using methods recommended by

flooring manufacturer.

C. Broom clean areas to receive flooring immediately before beginning installation.

3.3 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor condition.

B. Comply with manufacturer's recommendations and approved shop drawings.

3.4 CLEANING

A. Clean flooring using methods recommended by manufacturer.

3.5 PROTECTION

A. Protect finished flooring from construction traffic to ensure that it is without damage upon completion of the work.

END OF SECTION 09 62 50

PAINTS, STAINS AND FINISHES

SECTION 09 93 00

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of primer and paints for exterior and interior wood finishes and application of stains and finish to wood.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D4442 – Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
2. ASTM D6886 – Standard Test Method for Speciation of Volatile Organic Compounds (VOCs) in low VOC Content Waterborne Air-Dry Coatings by Gas Chromatography.

B. Green Seal, Inc. (GS) 11 – Standard for Paints and Coatings.

C. Master Painters Institute (MPI) – Architectural Painting Specification Manual.

D. Society of Protective Coatings (SSPC) – Painting Manual.

1.3 SUBMITTALS

A. PRODUCT DATA: For each type of product indicated.
1. Product designation and grade.
2. Product analysis and performance characteristics.
3. Standards Compliances.
4. Material content.
5. Mixing and application procedures.

B. PRODUCT SAMPLES: For each type of product indicated.

C. Samples of each paint, stain and finish on each specified material appropriately finished. Minimum Size: 2-inch by 6-inch or an alternate size approved by NFF Coordinator.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Minimum two years documented experience in work of this Section.

1.5 DELIVERY, STORAGE AND HANDLING

A. STORAGE AND PROTECTION: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
1. Container Labels: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage rates, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
2. Coating Materials: Store at ambient temperature from 45 to 90 degrees F in ventilated area, or as required by manufacturer's instructions.

B. DELIVERY AND STORAGE OF MATERIALS: Deliver in unopened containers; manufacturer's original labels thereon. Store in dry location, protected from weather.

1.6 PROJECT CONDITIONS

A. Do not apply materials when surface and ambient temperatures or other relative humidity are outside ranges required by paint manufacturer.

B. Maintain ambient and substrate temperature above manufacturer's minimum requirements for 24 hours before, during, and after paint application.

C. Do not apply materials when relative humidity is above 85 percent or when dew point is less than 5 degrees F different than ambient or surface temperature.

D. Provide lighting level of 30 foot-candles at substrate surface.

1.7 MAINTENANCE

A. Extra Materials: 1 gallon of each color and sheen.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Sherwin-Williams (www.sherwin-williams.com)
   2. Rustoleum (www.rustoleum.com)

B. Substitution: With prior approval from NFF or their representative.

2.2 MATERIALS

A. Provide the following finishes or approved equal.

   1. Exterior Finish: Sherwin-Williams Superdeck Exterior Oil based Transparent Stain in Natural.
   2. Interior Finish: Water based Varathan Polyurethane Floor Finish, Crystal Clear Finish.

B. Coat must be applied on all 6 surfaces of lumber.

2.3 ACCESSORIES

A. Accessory Materials: Paint thinners and other materials required to achieve specified finishes; commercial quality.

2.4 MIXES

A. Deliver stains and coatings pre-mixed and pre-tinted.

B. Uniformly mix to thoroughly disperse pigments.

C. Do not thin excess of manufacturer's recommendations.

D. Re-mix paint during application; ensure complete dispersion of settled pigment and uniformity of color and gloss.

PART 3 - EXECUTION

3.1 GENERAL

A. WORKMANSHIP: Highest quality by skilled workmen to NFF Coordinator's satisfaction. Apply material evenly without runs, thin spots, skips or other finishing and visual defects. Finish surfaces

uniformly, free from streaks, blotches, and other defects.

B. Prepare material and apply as directed manufacturer.

3.2 EXAMINATION

A. Measure moisture content of surface using electronic moisture meter. Do not apply coatings unless moisture content of surfaces are below following maximums:
   1. Wood: 15 percent, measured to ASTM D4442.

3.3 PREPARATION

A. General:
   1. Protect adjacent and underlying surfaces.
   2. Correct defects and clean surfaces capable of affecting work of this Section.
   3. Seal marks that may bleed through surface finishes with waterborne stain blocker.

B. Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow to dry.

C. Interior Wood:
   1. Wipe off dust and grit.
   2. Seal knots, pitch streaks, and sappy sections with sealer.
   3. Fill nail holes and cracks after primer has dried; sand between coats.

D. Exterior Wood
   1. Remove dust, grit, and foreign matter.
   2. Seal knots, pitch streaks, and sappy sections.

3.4 APPLICATION

A. Testing**:** Provide rain-proof plastic tenting for wood where it is to be stained and allow one week minimum dry time before applying finish or as recommended by manufacturer, whichever is longer. Maintain effective tenting until 2 days after finish is completed an approved.

B. Sand new wood surfaces with 80 grit to remove “saw fuzz” prior to staining.

C. Interior Surfaces: Apply coatings to all interior wood surfaces including but not limited to: walls, ceiling, floors, (where applicable), trim, framing, furnishing, built-ins, etc. Apply a minimum of three coats on walls and ceilings, and four coats on floors, countertops, tables, benches, beds, and wood doors.

D. Exterior Surfaces: Apply coatings to all exterior wood surfaces including but not limited to: wall logs, siding, trim, pressure treated lumber, eaves, soffits, posts, benches, etc. Apply a minimum of three coats on all exterior surfaces.

E. Do not apply finishes to surfaces that are not dry.

F. Apply coatings to minimum dry film thickness recommended by manufacturer.

G. Apply coatings to uniform appearance without laps, sags, curtains, holidays, and brush marks.

H. Allow applied coats to dry before next coat is applied.

I. Continue paint finishes behind wall-mounted accessories.

J. Sand between coats on interior wood surfaces, if recommended per manufacturer’s instructions.

K. Match final coat to approved color samples.

3.5 ADJUSTING

A. Touch up or refinish disfigured surfaces.

3.6 CLEANING

A. Remove paint from adjacent surfaces

END OF SECTION 09 93 00

MANUFACTURED STOVES

SECTION 10 30 50

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Manufactured oil stoves.
B. Manufactured wood stoves.
C. Insulated chimney flue and associated roof flashings.

1.2 SUBMITTALS

A. Product Data: Provide manufacturer's specification data, warranty data, and installation manual for design engineer review and approval.

1.3 REGULATORY REQUIREMENTS

A. Conform to applicable code for clearances from adjacent materials, chimney height above roof line requirements and unit Underwriters Laboratories Inc. (UL) approval.

B. Listed by Underwriters Laboratories, Inc. as complying with UL 127.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. NORDIC OIL STOVES:
   1. Model: NordicStove Rustic 250.
   2. The oil stove will be provided by USFS; however, it is contractor’s responsibility to provide all ancillary equipment and parts and install the oil stove to fully functioning.

B. WOOD STOVES:
   1. Model: Pacific Energy Vista LE2, Ash Drawer, Metallic Black Door, Metallic Black Legs, and Rear Heat Shield.
   2. Equal make/model may be submitted for approval.

C. Functioning test of stoves will be part of Final Close-out tasks.

2.2 MATERIALS

A. WOOD STOVES:
   1. Efficiency: 75% min (HHV), EPA 2020 Certified
   2. BTU: 54,000 min
   3. Non-catalytic, single-lever air control
   4. Door: Black frame
   5. Legs: Black
   6. Warranty: Lifetime

2.3 ACCESSORIES

A. SPARK PROTECTION MAT FOR FLOOR: Type 1 spark protection mat shall be installed per manufacturer recommendations. The mat must be listed under UL 1618- 2009 for a type 1 application and shall be a minimum 32.75" x 42.5" with minimum 10 gauge steel encasement. Belle Flame American Panel, Ember Defenders Type-1 Textured Black, or

approved equal. Submit the material sample to be approved by the NFF Coordinator.

B. ROOF FLASHING: Pre-painted sheet metal, configured to fit tightly to chimney riser and seal to metal roofing system.

C. CHIMNEY CHASE: Frame chimney chase with 2x wood and 2x decking. Chimney chase to be constructed with removable decking for ease of maintenance access. Provide shop drawings to USFS for approval prior to installation.

D. CRICKET: Crickets above stove pipes to divert snow. Crickets must be constructed to withstand site appropriate snow loads. Provide engineered stamped design and drawings to USFS for approval prior to installation.

E. HEAT SHIELD: Class I fire retardant, indentation resistant, steel over mineral board UL 1618 Type 2, 5/8" thick, R-value 1.56. Size and finish to be determined by NFF Coordinator and USFS.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that prepared opening(s) are ready to receive work and opening dimensions are as indicated on drawings.

3.2 INSTALLATION

A. Install unit assembly in accordance with manufacturer's instructions and UL requirements.

3.3 TOLERANCES

A. Maximum variation of chimney from plumb: 1/2 inch (12 mm).

END OF SECTION 10 30 50

SITE CLEARING AND GRUBBING

SECTION 31 10 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION

A. This Section consists of furnishing all labor, equipment, supplies, and materials required for site clearing.
   1. Surface preparation and cleanup of the construction site prior to the start of cabin assembly.
   2. Clear site of plant life including trees, shrubs, and grasses.
   3. Organics and soil stripping and stockpiling for reinstall.
   4. Clearing and grubbing, including removal of trash and/or debris.

1.3 QUALITY ASSURANCE

A. TREE PRUNING STANDARDS: Comply with ANSI A300, "Trees, Shrubs, and Other Woody Plant Maintenance – Standard Practices," unless more stringent requirements are indicated.

1.4 PROJECT CONDITIONS

A. PROTECTION OF EXISTING IMPROVEMENTS: Provide protection necessary to prevent damage to existing improvements indicated to remain in place.
   1. Restore damaged improvements to their original condition, as acceptable by NFF Coordinator.
   2. Take precautions and conduct operations to prevent damage to adjacent structures, other facilities, and plant materials.

B. PROTECTION OF EXISTING TREES AND VEGETATION: See Section 31 20 00 Plant Protection.

C. PROTECTION OF MIGRATORY BIRD HABITAT: The Contractor shall protect migratory bird habitat in compliance with the Migratory Bird Treaty Act of 1918, located at https://www.fws.gov/law/migratory-bird-treaty-act-1918, including avoiding clearing and grubbing activities during the nesting season, typically May 1 – July 15. Additionally, the Contractor shall notify the NFF Coordinator if any active nests are found at any time during the construction of the project.

PART 2 – PRODUCTS

2.1 FILL MATERIALS

A. As specified in Section 32 10 00 Excavation and Embankment.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain erosion control devices.

B. Protect existing structures, vegetation, and other features indicated to remain.

C. Prevent movement or settlement of adjacent structures; provide bracing and shoring where required.

D. Locate, protect and maintain all survey monuments, property corner markers, pins and related legal survey boundary devices.

3.2 CLEARING LIMITS

A. Clearly stake obtain approval from NFF Coordinator for clearing limits prior to proceeding with clearing and grubbing.

B. Confine all equipment, construction activity, and material stockpiles to limits shown on Drawings and NFF Coordinator approved clearing limits and work areas. Do not place equipment and material used for the construction upon drainage, streams, adjacent wetland areas or within driplines of live trees. Identify area suitable for staging construction materials and equipment on site in the Site Usage and Operations Plan and obtain approval by NFF Coordinator prior to implementation (BMP 12.8; 14.14; National BMP Fac-2).

C. Limit construction disturbance to a minimum distance beyond the edge of new improvements as approved by NFF Coordinator. Establish approximate construction limits as specified below, except as otherwise shown on the plans or as approved:
   1. Excavation: At the top of cut slopes.
   2. Embankments: At the bottom of fill slope.
   3. Structures and Decks: Three-feet (3') beyond walls or edges of decks, or as required for excavation or embankment.
   4. Trails: Limits of excavation and embankment.

3.3 SITE CLEARING AND GRUBBING

A. GENERAL: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. "Removal" includes digging out and disposing of stumps and roots.

   1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.
   2. Completely remove stumps, roots, and other debris protruding through ground surface.
   3. Use only hand methods for grubbing inside drip line of trees indicated to remain.
   4. All roots 3 inches and greater in diameter shall be removed within 5'-0" of all existing or new site improvements. See also Section 31 20 00 Plant Protection, Root Pruning.

3.4 TRAIL WORK CEARING AND GRUBBING

A. Cut brush and trees less than 4" diameter at breast height (dbh) within approved clearing limits. Leave trees larger than 4" dbh located within clearing limits standing, except if they are danger trees or they hinder passage, as approved by NFF Coordinator. Limb all felled trees to a 4-inch diameter top.

B. Cut tree limbs and branches less than 10 feet above trail or ground surface and more than 1/2 inch in diameter that extend into the clearing limits. Cut tree limbs flush with the outside of the branch collar; cut brush at the ground surface.

C. At project completion, trim roots protruding from cut slopes flush with ground level.

3.5 STRIPPING AND STOCKPILING OF ORGANICS AND SOILS FOR REINSTALL

A. SOIL: Soil is defined as friable clay loam surface soil found in a depth of net less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, or over 3 feet in length, and without weeds, roots, and other objectionable materials.

1. Strip soil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable materials.
   a. Remove heavy growths of grass and herbaceous plant materials from areas before stripping that are not intended to be used for revegetation use.
2. Where existing trees are indicated to remain, leave existing soil in place within drip lines to prevent damage to root system.

3.6 BACKFILLING

A. Completely fill below grade areas and voids resulting from demolition or removal of structures (including footings and structures, etc.) using approved select fill materials consisting of stone, gravel, and sand free from debris, trash, frozen materials, roots and other organic matter.

1. Fill depressions caused by clearing and grubbing operations with acceptable fill material to subgrade elevation.
2. Ensure that areas to be filled are free of standing water, frost, frozen, or unsuitable material, trash, and debris prior to fill placement.
3. Place fill materials in horizontal layers and compact each layer at optimum moisture content of fill materials to proposed density as specified in Section 32 10 00 Excavation and Embankment.
4. Grade surface to match adjacent grades and to provide desired flow of surface drainage, as approved by NFF Coordinator, after fill placement and compaction.

3.7 EXCAVATION AND FILL AROUND EXISTING TREES AND PLANTS

A. Excavation around trees to remain: See Section 31 20 00 Plant Protection.

B. Grading and filling around trees near clearing limits: See Section 31 20 00 Plant Protection.

3.8 CUTTING OF LARGE TREES

A. Flag all trees to be removed for approval by NFF Coordinator prior to cutting. Coordinate the falling, and desired location of the felled tree on the ground with NFF Coordinator.

B. Remove trees in a manner that protects adjacent trees designated to remain from damage. This includes directional falling or removing trees by “chunking” in pieces.

C. Tree trimming and root pruning shall be in accordance with standards established by the International Society of Arboriculture. Limb trees with clean cuts made flush with the outside edge of branch collar. See also Section 31 20 00 Plant Protection.

D. For larger trees to be removed coordinate the direction and the ground placement location of the tree to b felled with NFF Coordinator prior to cutting.

1. Stumps to be kept in place, unless otherwise noted. The Contractor is to masticate the cut top of stump with chainsaw to create visual effect that the tree broke naturally in a wind event.
2. Cut end of logs. The Contractor is to masticate the cut top of stump with chainsaw to

create visual effect that the tree broke naturally in a wind event.

3. Remove branches and twigs as directed by NFF Coordinator. Dispose of material as indicated below.

3.9 DISPOSAL OF CLEARED MATERIALS

A. Dispose of cleared materials and slash at the offsite location. Burning of clean wood material is not allowed on construction site

END OF SECTION 31 10 00

PLANT PROTECTION

SECTION 31 20 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION

A. Section includes protection of existing trees and plants within the Project Limits that are affected by execution of the Work, whether temporary or permanent construction.

1.3 DEFINITIONS

A. Diameter at Breast Height (dbh): The diameter of a tree's trunk in inches measured at a height of 4.5 feet above the natural ground level. If a root flare is present on the tree, the measurement should be taken above the root flare where the trunk is relatively straight.

B. Drip Line: The area directly located below the outermost circumference of the tree canopy. Trees with an uneven circular canopy shall be measured from the greatest extent of the canopy and expressed as a circle concentric from the trunk as a constant radius distance.

C. Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by the drip line.

1.4 SUBMITTALS

A. PRODUCT DATA: For each type of product indicated.

B. SAMPLES: For each type of protection-zone fencing and protection-zone signage.

C. EXISTING CONDITIONS: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1.5 QUALITY ASSURANCE

A. PRE-WORK CONFERENCE: Conduct conference at Project site prior to beginning Work with NFF Coordinator.

1.6 PROJECT CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated materials.
2. Parking equipment.
3. Foot traffic.
4. Erection of shreds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Prohibited heat sources, flames, ignition sources, and smoking within or near protection zones

and organic mulch.

PART 2 – PRODUCTS

2.1 MATERIALS

A. PROTECTION-ZONE MARKINGS: Markings fixed in position and meeting the following requirements.

1. Plastic Flagging: Strung between 2x2" posts, T-shaped posts or similar spaced no more than 8 feet apart to indicate limits but allow passage by bears. Use high- visibility orange color.
2. Height of Fencing: 4-5 feet to allow passage by bears underneath.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. EROSION AND SEDIMENTATION CONTROL: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction area or generated by construction activity do not enter or cross protection zones.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Locate and clearly identify trees, and other vegetation to remain or to be removed. Clearly flag each tree to be removed.

3.2 PROTECTION ZONES

A. PROTECTION-ZONE MARKING: Install protection-zone markings along edges of the limits of construction in a manner that will clearly indicate limits of protection.

B. Maintain protection-zone marking in good condition as acceptable to NFF Coordinator and remove when construction operations are complete, and equipment has been removed from the site. It is the Contractor's responsibility to maintain the markings, including those damaged by bears.

3.3 ROOT PRUNING

A. Protect all live roots 2-inches in diameter or greater for all trees designated to remain. Obtain NFF Coordinator approval for roots 2-inches in diameter or greater requiring removal due to earthwork.

B. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Temporarily support and protect roots from damage until they are permanently covered with soil.
3. Cover exposed roots with burlap and water regularly.
4. Backfill as soon as possible according to requirements in Section 31 00 00 Earthwork.

C. ROOT PRUNING AT EDGE OF PROTECTION-ZONE: Prune roots by cleanly cutting all roots to the depth of the required excavation to preserve full depth of roots.

D. ROOT PRUNING WITHIN PROTECTION-ZONE: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.4 EXCAVATION AROUND TREES AND PLANTS TO REMAIN

A. EXCAVATION NEAR TREES AND PLANTS: When excavation is required within protection zones or drip line (whichever is greater), hand excavate to minimize damage to root systems and provide sheeting at excavations if required. Use narrow-tine spading forks and comb soil to expose roots. Relocate roots in backfill area. If large, main lateral roots are encountered, exposed beyond excavation limits, bend and relocate without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical, cut roots approximately 3 inches back from new construction as approved by NFF Coordinator.

1. Allow no exposed roots to dry out before permanent backfill is placed; provide temporary earth cover, or pack with peat moss and wrap with burlap. Water and maintain in moist condition and temporarily support and protect from damage until permanently relocated and covered with backfill.
2. Prune branches in accordance with standard horticultural practice to balance loss to root system caused by damage or cutting of root system. Engage qualified Arborist to prune branches.

3.5 REGRADING AROUND TREES AND PLANTS TO REMAIN

A. EXISTING GRADE: Maintain existing grading within drip line of trees and plants, unless otherwise indicated on the Drawings.

B. LOWERING GRADE: Where new finish grade is indicated below existing grade around trees and plants, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

C. RAISING GRADE: Where new finish grade is indicated above existing grade around trees and plants, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. MINOR FILL WITHIN PROTECTION ZONE: Where existing grade is 2 inches or less below elevation of finished grade, fill with NFF Coordinator approved salvaged soil. Place planting soil in a single uncompacted layer and hand grade to required finished elevation.

E. MODERATE FILL WITHIN PROTECTION ZONE: Do not place fill greater than 2 inches within the protection zone. If a greater depth of fill is required, engage qualified arborist and NFF Coordinator. Do not proceed with Work until approved by NFF Coordinator.

3.6 REPAIR OF DAMAGED PLANTS

A. Make repairs promptly after damage occurs to prevent progressive deterioration.

B. Notify NFF Coordinator of any significant damage.

C. Remove dead and damaged trees and plants which are determined by NFF Coordinator to be incapable of restoration to normal growth pattern, vigor, and full-growth-status.

3.7 REPAIR AND REPLACEMENT

A. GENERAL: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by NFF Coordinator.

END OF SECTION 31 20 00

EXCAVATION AND EMBANKMENT

SECTION 32 10 00

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Work consists of excavating material and constructing embankments, This Work also includes furnishing, hauling, stockpiling, placing, disposing, sloping, shaping, compacting, and finishing earthen and rocky material. Unless noted otherwise in the plans the aggregate pads, trails or other aggregate use that does not see ground loads above 90 psf (pedestrian), the compaction method shall be compacted until not visible deformation/settlement is encountered in lifts no larger than 6".

1.2 REFERENCE SPECFICATIONS

A. Standard Specification for Construction of Roads and Bridges on Federal Highway Projects (FP-14).

B. Forest Service Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects.

1.3 DEFINITIONS

A. ROADWAY EXCAVATION: Materials excavated from within the right-of-way or easement areas, except sub-excavation. Roadway excavation includes all material encountered regardless of its nature or characteristics.

B. SUB-EXCAVATION: Material excavated from below subgrade elevation in cut sections or from below the original ground-line in embankment sections.

C. BORROW EXCAVATION: Material used for embankment construction that is obtained from outside and roadway prism. Borrow excavation includes unclassified borrow, and topping.

D. EMBANKMENT CONSTRUCTION: Embankment construction consist of placing and compacting roadway or borrow excavation. The work includes:
   1. Preparing foundation for embankment;
   2. Constructing roadway embankment;
   3. Benching for side-hill embankment;
   4. Constructing dike, ramps, mounds, and berms; and
   5. Backfilling sub-excavated areas, holes, pits, and other depressions.

E. CONSERVED TOPSOIL: Excavated material conserved from the roadway excavation and embankment foundation areas that is suitable for growth of grass, cover crops, or native vegetation.

F. WASTE: Excess and unsuitable roadway excavation and sub-excavation that cannot be used.

1.4 ROADWAY EXCAVATION AND EMBANKMENT

A. Adjust the moisture content of embankment material to a moisture content suitable for compaction. Place embankment material in 12-inch layers and compact each layer. Where compacting with rollers is not practical, use approved mechanical or vibratory compaction equipment.

1.5 GRADING TOLERANCE

A. ALIGNMENT: Alignment may be shifted a maximum of 10 feet (3 meters) left or right of the planned centerline. Do not construct curves with radii less than what is shown on the plans. Compound curves are permitted.

1.6 ACCEPTANCE

A. Acceptance is based on visual inspection of Work for compliance with the specific contract requirements. Use prevailing industry standards in the absence of specific contract requirements or tolerances.

B. Refer to below table for sampling, testing and acceptance requirements.

Material or Product	Type of Acceptance	Type of Testing	Test Method	Sampling Frequency	Point of Sampling	Reporting Time
Source						
Topping	Measured and tested for conformance	Classification(1)	AASHTO M145	1 per soil type and source of material	Processed material	Before using in Work
Unclassified Borrow	Measured and tested for conformance	Classification(1)	AASHTO M145	1 per soil type and source of material	Processed material	Before using in Work
Production						
Topping	Measured and tested for conformance	Moisture-Density	T99, Method C(2)	1 per soil type but not less than 1 per each 13,000 yd^3 (10,000 m^3)	Processed material	Before using in Work
	Measured and tested for conformance	Density	AASHTO T310 or other approved procedure	1 per 3,500 yd^3 (3,000 m^3) but not less than 3 per layer	In-place	Before placement of next layer
Unclassified Borrow	Measured and tested for conformance	Moisture-Density	T99, Method C(2)	1 per soil type but not less than 1 per each 13,000 yd^3 (10,000 m^3)	Processed material	Before using in Work

Material or Product	Type of Acceptance	Type of Testing	Test Method	Sampling Frequency	Point of Sampling	Reporting Time
Production (Continued)						
Unclassified Borrow	Measured and tested for conformance	Density	AASHTO T310 or other approved procedure	1 per 3,500 yd^3 (3,000 m^3) but not less than 3 per layer	In-place	Before placement of next layer
Earth Embankment	Measured and tested for conformance	Classification(1)	AASHTO M145	1 per soil type and source of material	Source of material	Before using in Work
	Measured and tested for conformance	Moisture-Density	T99, Method C(2)	1 per soil type but not less than 1 per each 13,000 yd^3 (10,000 m^3)	Source of material	Before using in Work
	Measured and tested for conformance	Density	AASHTO T310 or other approved procedure	1 per 3,500 yd^3 (3,000 m^3) but not less than 3 per layer	In-place	Before placement of next layer
Top of subgrade	Measured and tested for conformance	Density	AASHTO T310 or other approved procedure	1 per 2,500 yd^3 (2,000 m^3) but not less than 3 per layer	In-place	Before placement of next layer
Finished Product						
Roadbed	Measured and tested for conformance	Final line and grade	Field measured	Determined by the NFF Coordinator	Determined by the NFF Coordinator	Before placement of next layer

(1) Not required when using Government-provided source.
(2) Minimum 5 points per proctor.

1.7 MEASUREMENT

A. Measure the pay items listed in the bid schedule, following as applicable:

B. ROADWAY EXCAVATION: Measure roadway excavation in its original position as follows:

1. Include the following volumes in roadway excavation:
    a. Roadway prism excavation.
    b. Rock material excavated and removed from below subgrade in cut sections.

c. Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for sub-excavation is not listed in the bid schedule.
d. Ditches, except furrow ditches measured under a separate pay item.
e. Conserved topsoil.
f. Borrow material used in the Work when a pay item for borrow is not listed in the bid schedule.
g. Loose scattered rocks removed and placed as required within the roadway.
h. Conserved material taken from pre-existing stockpiles.
i. Slides and slip-out material not attributable to the Contractor's method of operation.

2. Do not include the following in roadway excavation:
   a. Overburden and other spoil material from borrow sources.
   b. Over-breakage from the backslope in rock excavation.
   c. Water or other liquid material.
   d. Material used for purposes other than required.
   e. Roadbed material scarified in place and not removed.
   f. Material excavated when stepping cut slopes.
   g. Material excavated when rounding cut slopes.
   h. Preparing foundations for embankment construction.
   i. Material excavated when benching for embankment.
   j. Slide or slip-out material attributable to the Contractor's method of operation.
   k. Conserved material taken from stockpiles constructed at the option of the Contractor.
   l. Material excavated outside the established slope limits.
   m. Road pioneering for the convenience of the Contractor.

3. When both roadway excavation and embankment construction pay items are listed in the bid schedule, measure roadway excavation only for the following:
   a. Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for sub-excavation is not listed in the bid schedule.
   b. Slid and slip-out material not attributable to the Contractor's method of operations.
   c. Drainage ditches, channel changes, and diversion ditches.

C. UNCLASSIFIED BORROW AND TOPPING: Unclassified borrow shall be sourced on site from usable excavation or commercially sourced. It shall be earth, sand, gravel, rock, or combinations thereof containing no muck, peat, frozen material, roots, sod, or other deleterious matter and is compactable under the provisions of Part 3 of this Section. Plasticity index shall not be greater than 6 as tested by AASHTO T89 and T90. It shall have max 12 inch particle size and shall consist primarily of sand and gravel, meeting Classification A-1 per Soil classification, AASHTO M 145 A-1-a. Soil Gradations shall be provided prior to procurement from the source pit. Unclassified borrow shall have no more than 15% particles passing the no. 200 sieve.

D. EMBANKMENT CONSTRUCTION: Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

1. Include the following volumes in the embankment construction:
   a. Roadway embankment.
   b. Material used to backfill sub-excavated areas, holes, pits, and other depressions.
   c. Material used to restore obliterated roadbeds to original contours.
   d. Material used for dikes, ramps, mounds, and berms.

2. Do not include the following in embankment construction:
   a. Preparing foundations for embankment construction.

b. Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed.
c. Material used to round fill slopes.

E. ROUNDING CUT SLOPES: If a pay item for slope rounding is included in the bid schedule, measure rounding cut slopes horizontally along the centerline of the roadway. If a pay item is not included for slope rounding in the bid schedule, payment will be considered indirect to roadway excavation.

F. WASTE: Measure waste by the cubic yard (cubic meter) in its final position. Take initial cross-sections of the ground surface after stripping over-burden. Upon completion of the waste placement, retake cross-sections before replacing over-burden.

G. SLOPE SCALING: Measure slope scaling by the cubic yard (cubic meter) in the hauling vehicle.

H. SUB-EXCAVATION: Measure sub-excavation by the cubic yard (cubic meter) in its original position.

I. DRAINAGE FEATURES: Measurement includes all excavation, embankment, shaping, and grading necessary for a completed drainage feature.

J. LINEAR GRADING: Construct the roadbeds according to the applicable requirements of Section 204 of the FP-14, except as modified herein.
1. Adjust the moisture content of embankment material to a moisture content suitable for compaction.
2. Place embankment material in 12 inch (300 millimeter) layers and compact each layer according to Subsection 204.11(a).
3. Where compacting with rollers is not practical, use approved mechanical or vibratory compaction equipment.
4. Construct approach connection to existing roads, parking areas, and trails.
5. Construct new approaches.

PART 2 – MATERIALS

2.1 AGGREGATE FOR ROAD

A. Refer to Alaska Department of Transportation and Public Facility's Gradation Requirements for D-1 Aggregates for Road.

AGGREGATE GRADATION FOR BASE AND SURFACE COURSE

Percent Passing by Weight

SIEVE	**GRADATION**			
	Base Course		Surface Course	
	C-1	D-1	E-1	F-1
1-1/2 in.	100	-	-	-
1 in.	70 - 100	100	100	100
3/4 in.	60 - 90	70 – 100	70 – 100	85 – 100
3/8 in.	45 - 75	50 – 80	50 – 85	60 – 100
No. 4	30 - 60	35 – 65	35 – 65	50 – 85
No. 8	22 - 52	20 – 50	20 – 50	40 – 70

No. 50	6 - 30	6 - 30	15 - 30	25 – 45
No. 200	0 - 6	0 - 6	8 - 15	

2.2 SOIL FOR CULVERT

B. Provide bedding material with maximum particle size of 3 in (75 millimeters) or half the corrugation depth, whichever is smaller.

2.3 ROCK FOR CULVERT

A. Refer to below table for reference.

CLASS	RANGE OF ROCK MASS BY PERCENTAGE
Class I	0 – 50% weighing up to 25 pounds
	0 – 10% weighing more than 50 pounds
Class II	50 - 100% weighing 200 pounds or more
	0 – 15% weighing up to 25 pounds
	0 – 10% weighing more than 400 pounds
Class III	50 – 100% weighing 700 pounds or more
	0 – 15% weighing up to 25 pounds
	0 – 10% weighing more than 1,400 pounds
Class IV	50 – 100% weighing 2,000 pounds or more
	0 – 15% weighing up to 400 pounds
	0 – 10% weighing m ore than 5,400 pounds

PART 3 - EXECUTION

3.1 PREPARATION FOR ROADWAY EXCAVATION AND EMBANKMENT CONSTRUCTION

A. Clear the area of vegetation and obstructions.

B. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation and embankment. Maintain drainage during pioneering operations.

3.2 CONSERVED TOPSOIL

A. When designated, conserve topsoil from roadway excavation and embankment foundation areas.

B. Stockpile conserved topsoil in low windrows immediately beyond the rounding limits of cut and embankment slopes or in other approved locations. Separate conserved topsoil from other excavated material.

C. When designated, place conserved topsoil on completed slopes.

3.3 ROADWAY EXCAVATION

A. ROCK CUTS: Blast and excavate rock cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Backfill to subgrade with topping or other suitable material. Compact the

material.

B. EARTH CUTS: Scarify earth cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Compact the scarified material.

C. PIONEER ROADS: Conduct excavation and placement operations to material to be treated will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

D. DRAINAGE FEATURE: Drainage feature includes construction of all ditches, minor channel changes, drainage dips, catch basins, surface water deflectors, and other minor drainage structures. Compact the material. Excavate on a uniform grade between control points.

E. SNOW AND ICE: Remove snow and ice in advance of work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

F. Do not disturb material and vegetation outside the construction limits. Retrieve material deposited outside the construction limits. Dispose of unsuitable or excess excavation material. Replace shortage of suitable material caused by premature disposal of roadway excavation.

G. Shape to drain and compact the work area to a uniform cross-section at the end of each day's operations.

3.4 SUB-EXCAVATION

A. Excavate material to the required limits.
B. Dispose of unsuitable materials.
C. Take cross-sections.
D. Backfill sub-excavated area with suitable material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness.
E. Prevent unsuitable material from mixing with suitable backfill material.

3.5 BORROW EXCAVATION

A. Use suitable roadway excavation in embankment construction.
B. Do not use borrow excavation when it results in excess roadway excavation.
C. Deduct excess borrow excavation from the total borrow excavation quantity.
D. Obtain borrow source approval by NFF Coordinator.
E. Develop and restore borrow sources.
F. Do not excavate beyond the established limits.
G. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

3.6 PREPARING FOUNDATION FOR EMBANKMENT CONSTRUCTION

A. EMBANKMENT OVER NATURAL GROUND: Remove topsoil and break up the ground surface to a minimum depth of 6 inches (150 millimeters) by plowing or scarifying. Compact the ground surface.

B. EMBANKMENT OVER AN EXISTING ASPHALT, CONCRETE OR GRAVEL ROAD SURFACE: Scarify gravel roads to a minimum depth of 6 inches (150 millimeters). Scarify or pulverize asphalt and concrete roads to 6 inches (150 millimeters) below the pavement. Reduce particles to a maximum size of 6 inches (150 millimeters) and produce a uniform material. Compact the surface.

C. EMBANKMENT ACROSS GROUND NOT CAPABLE OF SUPPORTING EQUIPMENT:

Dump successive loads of embankment material in a uniformly distributed layer to construct the lower portion of the embankment. Limit the layer thickness to the minimum depth necessary to support the equipment.

D. EMBANKMENT ON AN EXISTING SLOPE STEEPER THAN 1V:3H: Cut horizontal steps in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Step the slope as the embankment is placed and compacted in layers. Begin each step at the intersection of the original ground and the vertical cut of the previous step.

3.7 EMBANKMENT CONSTRUCTION

A. Incorporate only suitable roadway excavation material into the embankment. When the supply of suitable roadway excavation is exhausted, furnish unclassified borrow to complete the embankment. Obtain written approval before beginning construction of embankments over 6 feet (2 meters) high at subgrade centerline.

B. At the end of each day's operations, shape to drain and compact the embankment surface to a uniform cross-section. Eliminate ruts and low spots that could hold water.

C. During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

D. Compact embankment side slopes with a tamping foot roller, by walking with a dozer, or by over-building the fill and then removing excess material to the final slope line. For slopes 1V:1-3/4H or steeper, compact the slopes as embankment construction progresses.

E. EMBANKMENT WITHIN THE ROADWAY PRISM: Place embankment material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch (300-millimeters) layers by reducing them in size or placing them individually as required below. Compact each layer before placing the next layer.

F. Material composed predominately of boulders or rock fragments too large for 12-inch (300-millimeters) layers may be placed in layers up to 24 inches (600 millimeters) layer by reducing them in size or placing individual rock fragments into the 24-inch (600- millimeters) layer by reducing them in size or placing individual rock fragments and boulders greater than 24 inches (600 millimeters) in diameter as follows:
   1. Reduce rock to less than 48 inches (1,200 millimeters) in the largest dimension.
   2. Distribute rock within the embankment to prevent nesting.
   3. Place layers of embankment material around each rock to a depth not greater than that permitted above. Fill voids between rocks.
   4. Compact each layer before placing the next layer.

G. EMBANKMENT OUTSIDE OF ROADWAY PRISM: When placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches (600 millimeters) in compacted thickness. Compact each layer.

3.8 COMPACTION

A. Compact the embankment using one of the following methods as specified.

B. PLACEMENT METHOD 1: Use AASHTO 27 to determine the quantity of material retained on No. 4 (4.75-millimeters) sieve. Compact as follows:

   1. More than 80% Retained on No. 4 (4.75-millimeters) Sieve: Adjust the moisture content to a level suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Use compression-type rollers at speeds less than 6 feet (1.8

meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) per second. Compact each layer of material full width with one of the following and until there is no visible evidence of further consolidation:

a. Four rollers passes a vibratory roller having a minimum dynamic force of 40,000 pounds (180 kilonewtons) impact per vibration and a minimum frequency of 1,000 vibrations per minute;
b. Eight rollers passes of a 20-ton (20-metric ton) compression-type roller; or
c. Eight roller passes a vibratory roller having a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration and a minimum frequency of 1,000 vibrations per minute.
d. Increase the compaction effort for layers deeper than 12 inches (300 millimeters) as follows:
    i. For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 3.08.B.1.a by four passes; or
    ii. For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 3.08.B.1.b and c. by eight passes.

2. 50 to 80 percent Retained on No. 4 (4.75-millimeters) Sieve: Classify the material according to AASHTO M145. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content. Use AASHTO T99 to determine the optimum moisture content of the portion of the material passing No. 4 (4.75-millimeters) sieve. Multiply this number by the percentage of material passing a No. 4 (4.75-millimeters) sieve and add 2 percent to determine the optimum moisture content of material.
    a. Use nonvibratory rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) per second. Compact each layer of material full width according to Subsection 3.08.B.1.

3. Less than 50 percent Retained on No. 4 (4.75-millimeters) Sieve: Classify the material according to AASHTO M145. For material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.
    a. Use compression-type or vibratory rollers. Compact each layer of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T310 or other approved test procedures. When required, use ASHTO T224 to correct for coarse particles.

C. PLACEMENT METHOD 2: Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate roller compaction equipment over the full width of each layer until there is no visible evidence of further consolidation, or, if when a sheepsfoot roller is used, the roller "walks out" of the layer. Make at least three complete passes. Use compression-type rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) per second. Ensure rollers meet the following requirements.
    1. Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch (4.5 kilogram/millimeter) of width of the compression roll or rolls.
    2. Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration, specifically designed to compact the material on which it is used.
    3. Pneumatic-tired rollers with smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground

pressure of at least 80 psi (550 kilopascals).

4. Sheepsfoot, tamping, or grid rollers capable of exerting a force of 250 pounds per inch (4.5 kilogram/millimeter) of width of roller drum.

D. PLACEMENT METHOD 3: Adjust moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate hauling and spreading equipment uniformly over the full width of each layer until there is no visible evidence of further consolidation. Make at least three complete passes.

E. PLACEMENT METHOD 4: Adjust moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate hauling and spreading equipment uniformly over the full width of each layer.

F. PLACEMENT METHOD 5: Adjust moisture content of the material to a moisture content suitable for compaction. Compact the complete surface with a bucket of an excavator larger than 39,000 pounds (18 metric ton) Gross Vehicle Weight using a minimum of three blows. Overlap compaction by 1/2 width of bucket.

G. PLACEMENT METHOD 6: Adjust moisture content of the material to a moisture content suitable for compaction. Compact using an approved mechanical tamper for a minimum of three complete passes.

H. When compacting with rollers and hauling and spreading equipment is not practical, use approved mechanical tampers for a minimum of three complete passes.

3.9 DRAINAGE FEATURES

A. Slope, grade, and shape all drainage features. Remove projecting roots, stumps, rock, or similar matter. Maintain all drainage features in an open condition and without sticks, and other debris.

B. Form furrow fitches by plowing or using other acceptable methods to produce a continuous furrow. Place excavated material on the downhill side so the bottom of the ditch is approximately 18 inches (450 millimeters) below the crest of the loose material. Clean the ditch using a hand shovel or other suitable method. Shape to provide drainage without overflow.

3.10 SLOPING, SHAPING, AND FINISHING

A. Complete subgrade, slopes, drainage features, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish to the designated tolerances class as defined in Subsection 1.05 and as follows:

B. SLOPING: Leave earth slopes with uniform roughened surfaces, except as described in Subsection 3.10.A.3 Stepped Slopes, with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale rock slopes. Slope rounding is not required on tolerance class D through M roads.

1. If a slide or slip-out occurs on a cut or embankment slope, remove or replace the material and repair or restore damage to the Work. Bench or key the slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

C. STEPPED SLOPES: Where required, construct steps on slopes of 1-1/3V:1H to 1V:2H. Construct the steps approximately 18 inches (450 millimeters) high. Blend the steps into natural ground at the end of the cut. If the slope contains non-rippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks

that may fall, scaling stepped slopes is not required.

D. SHAPING: Shape the subgrade to a smooth surface and to the cross-section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground.

E. FINISHING: Ensure that the subgrade is visibly moist during shaping and dressing; smooth and uniform and shaped to conform to the typical sections. Remove material larger than 6 inches (150 millimeters) from the top 6 inches (150 millimeters) of the roadbed. Remove unsuitable material from the roadbed and replace it with suitable material. Scarify to 6 inches (150 millimeters) below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material.

F. Maintain proper ditch drainage.

3.11 DISPOSAL OF UNSUITABLE OR EXCESS MATERIAL

A. Dispose of unsuitable or excess material at designated sites.

END OF SECTION 32 10 00

AGGREGATE TRAIL/PADS

SECTION 32 15 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION

A. Work includes constructing aggregate trail and aggregate pads including excavation, wear/surface course.

1.3 REFERENCE SPECFICATIONS

A. Standard Specification for Construction of Roads and Bridges on Federal Highway Projects (FP-14).

B. American Association of State Highway Transportation Officials (AASHTO), Standard Specifications for Transportation Materials and Methods of Sampling and Testing, most recent edition.

C. Forest Service Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects.

1.4 QUALITY ASSURANCE

A. Provide gradation test of aggregate type specified.

B. Provide aggregate materials that are free of viable seeds or vegetative materials. Ensure that contamination does not occur from equipment and tools used to handle aggregate or construct trail. Prior to mobilization, thoroughly wash all equipment and tools that come into contact with aggregate or are to be used at the work site, to remove all soil, debris, and other material from off-site sources that could contain sed or vegetative material. Use only aggregate from an active stockpile that is certified weed free. Provide notification to NFF Coordinator a minimum of one week before moving material from the source facility to allow for Government inspection and approval.

1.5 HANDLING

A. Stockpile, remove, transport, and spread aggregates in a manner that will preserve specified gradation and avoid contamination. Do not transport materials to Project site that have soil, debris, or a substance adhered to it that could contain seed or vegetative matter from an offsite location.

B. For aggregate to be removed and reinstalled, protect from mixing with other materials and preserve gradation.

PART 2 – MATERIALS

2.1 AGGREGATE, GENERAL

A. Provide a well-graded mixture of hard, durable particles or fragments of stone, slag, or gravel. The material must be free of excess moisture, muck, frozen lumps, roots, sod, organic matter,

lumps or balls of clay, or other deleterious material The material must provide a solid mass with minimal voids after compaction.

B. Do not use material that breaks up when alternately frozen and thawed or wetted and dried. Obtain aggregate gradation by crushing, screening, and blending processes as necessary.

C. Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

2.2 WEAR/SURFACE COURSE

A. Provide crushed aggregate meeting FP-14 Base Grading E (3/8" minus) and the requirements of FP-14 Section 703.

B. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following or a similar product as approved by USFS/NFF:

1. Gradation: See Table 703-2 below.
2. Liquid Limit, AASHTO T89: 35 max.
3. Plastic Index, AASHTO T90.
    a. If the percent passing the No. 200 sieve is less than 12%: 2 to 9
    b. If the percent passing the No. 200 sieve is greater than 12%: Less than 2.
4. Los Angeles Abrasion, AASHTO T96: 40% max.
5. Sodium Sulfate soundness loss (5 cycles), AASHTO T104: 12% max.
6. Durability Index (Coarse), AASHTO T210: 35 min.
7. Durability Index (Fine), AASHTO T210: 35 min.
8. Fractured Faces, ASTM D5821: 75% min.
9. Free from organic matter and mumps or balls of clay.

TABLE 703-2
AGGREGATE GRADATION FOR BASE AND SURFACE COURSE
Percent Passing by Weight

SIEVE	GRADATION			
	BASE COURSE		SURFACE COURSE	
	C-1	D-1	E-1	F-1
1-1/2 in.	100			
1 in.	70-100	100	100	100
3/4 in.	60-90	70-100	70-100	85-100
3/8 in.	45-75	50-80	50-85	60-100
No. 4	30-60	35-65	35-65	50-85
No. 8	22-52	20-50	20-50	40-70
No. 50	6-30	6-30	15-30	25-45
No. 200	0-6	0-6	8-15	8-20

PART 3 - EXECUTION

3.1 GENERAL

A. Obtain approval by NFF Coordinator prior to excavation and placing specified trail surface type.

B. Work consists of removing soil and existing wear/surface course material to the depth of 6" or to allow a smooth transition from the existing trail to the boardwalk. Clear roots, stumps, duff, and existing vegetation for even grade in the affected area. Retain live roots 2-inch diameter and greater for trees designated to remain unless approved otherwise. Clear all dead and smaller diameter rots as required to perform the specified Work. Follow clearing

requirements for trails.

C. Where unsatisfactory soil is present at depth required for trail type excavation, continue excavation and replace with compacted satisfactory soil or fill material as directed by NFF Coordinator.

D. Ground protection during construction. Take measures to ensure that excessive rutting and erosion does not occur, and that the trail does not become wider than the specified width.

E. Regrade disturbed areas and install drainage as needed to minimize erosion and promote drainage and restore natural appearance.

3.2 USE AND DISPOSAL OF EXCAVATED MATERIAL

A. Conserve and use all suitable material for reinstallation for like use and as approved by NFF Coordinator for specified Work. Obtain NFF Coordinator approval for disposal. Place excess and unsuitable excavation to the debris disposal site indicated in the Drawings.

B. Excavate to depths to accept a 6" depth course of Wear/Surface Course to competent and stable subgrade comprised of mineral soils capable of compaction.

C. Where soft of undesirable subgrade soils are encountered such as mud, organic soils, or muck, the undesirable soils shall be over-excavated to competent and stable subgrade comprised of mineral soils or bedrock. Obtain NFF Coordinator approval for over- excavated soils.

3.3 PREPARATION OF SUBGRADES

A. Prior to placement of any materials specified under this Section, the subgrade shall be prepared by dressing, shaping, wetting, or drying and compacting. Obtain approval of compacted subgrades by NFF Coordinator prior to final surfacing. Scarify, moisture condition, and recompact as required to achieve compaction.

B. Any ruts or soft yielding spots that may appear shall be corrected by loosening and removing unsuitable material and adding approved material as required, reshaping and recompacting the affected areas to the lines and grades indicated on the plans.

3.4 COMPACTION AND FINISH GRADING

A. Provide the minimum 6" compacted depth/thickness of Wear/Surface Course aggregate surfacing to the portion of trail that interfaces with boardwalk. If excess aggregate has been delivered to the Work area it may be stockpiled in approved locations or spread evenly over the trail; the method to be approved at no cost to the Government.

B. Moisten or dry aggregate to uniform moisture content suitable for compaction.

C. Compact existing disturbed Base material with two passes by a vibratory compactor or plate compactor. Following compaction correct any irregularities or depressions that develop by adding or removing material until the surface is smooth and uniform.

D. Compact Wear/Surface Course with one pass by a vibratory compactor or plate compactor. Following compaction of Surface/Wear Course correct any irregularities or depressions that develop by adding or removing material until the surface is smooth and uniform.

3.5 FINISH

A. Blend and smooth Wear/Surface Course to ensure a finished, neat appearance, adding or removing material as needed. Provide a high level of attention to detail to provide a finished appearance.

B. Correct all defective areas by loosening the material, adding or removing material, reshaping and compacting.

C. Revegetate disturbed area with soil and seed per Section 32 29 50 Site Revegetation.

END OF SECTION 32 15 00

TRAILWAYS

SECTION 32 15 50

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. The earthwork and associated trail tread and prism work may be covered by Section 32 10 00 Excavation and Embankment.

1.2 DESCRIPTION

A. This Work consists of construction trails including excavation, embankment, and backfill construction required to shape and finish the trail bed, ditches, backslopes, fill slopes, drainage dips, trail passing sections and turnouts.

B. Also includes excavation and embankment Work required to construct culverts, trail bridges, shallow stream fords and gully crossings, talus and rubble rock sections, and climbing turns.

1.3 REFERENCE SPECFICATIONS

A. Forest Service Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects.

1.4 QUALITY ASSURANCE

A. Provide aggregate materials that are free of viable seeds or vegetative materials. Ensure that contamination does not occur from equipment and tools used to handle aggregate or construct trail. Prior to mobilization, thoroughly wash all equipment and tools that come into contact with aggregate or are to be used at the work site, to remove all soil, debris, and other material from off-site sources that could contain sed or vegetative material. Use only aggregate from an active stockpile that is certified weed free. Provide notification to NFF Coordinator a minimum of one week before moving material from the source facility to allow for Government inspection and approval.

PART 2 – MATERIALS (NOT USED)

PART 3 - EXECUTION

3.1 BORROW MATERIAL

A. Obtain borrow materials from locations shown on plans or designated on the ground.

B. Obtain NFF Coordinator’s approval before using borrow from other locations.

C. Suitable material from slouth and berm removal may also be used as borrow material.

D. Use suitable borrow material and aggregate under 2 inches in the greatest dimension.

E. On side slopes where water can drain away from the trail bed, provide a sufficient depth of borrow material to obtain on out-slope as shown on plans.

F. Across meadows and on turnpike sections, provide a sufficient depth of borrow material to produce a crowned trail bed as shown on plans.

A. Compact all material placed. Compact borrow material placed on the approaches of bridges and puncheon to provide a smooth surface and a smooth transition from the structure to the adjoining trail tread surface. Compact in layers not to exceed 6", and compact until not visible deformation/settlement is observed.

G. Cover any culvert surfaces that have become exposed with a minimum depth of 6 inches of suitable material over the full length of the exposed culvert and sufficient length along the trail to present a uniform trail grade.

H. Provide free-draining borrow sites and back slopes no steeper and 1-1/3V:1H.

3.2 USE AND DISPOSAL OF EXCAVATED MATERIAL

A. Conserve and use all suitable material for reinstallation for like use and as approved by NFF Coordinator for specified Work. Obtain NFF Coordinator approval for disposal. Place excess and unsuitable excavation to the debris disposal site indicated in the Drawings.

B. Remove all duff and debris from within trailway limits and uniformly spread outside the clearing limits, not more than 4 inches in depth (unless otherwise shown on the plans). Do not obstruct drainage or create piles, berms or windrows of debris.

C. Place excess and unsuitable excavation beyond the downslope edge of the trail bed. Do not obstruct drainage and spread to a depth not exceeding 4 inches. This includes any material removed in the grubbing operation and deposited in the same area.

D. Place rocks over 4 inches in greatest dimension not used in construction beyond the hinge point on the down slope side, Place rocks so that the top are at least 5 inches lower than the trail bed surface. Ensure that no blockage of drainage or creation of windrow effect occurs.

3.3 TRAILWAY EXCAVATION AND EMBANKMENT

A. Minor deviation of ±12 inches in vertical alignment and 36 inches in horizontal alignment with smooth transitions of at least 30 feet on each side of the deviation are acceptable unless otherwise shown on the plans.

B. Construct embankments with suitable compacted material. Compact all disturbed soil within the trail bed area.

C. Remove any rock within or above the back slopes that is unstable. Use or dispose of rock.

D. Leave the finished slope in a uniform and roughened condition.

E. Make necessary adjustments of horizontal or vertical alignment, within the tolerances specified in this Subsection, to produce the designed trailway section and balanced earthwork. Such adjustments shall not be considered as changes.

3.4 TRAIL BED FINISHING

A. Fill holes with suitable material, compact, and cut high points to provide a uniform trail bed finish.

3.5 DITCHES

A. Construct ditches to be free of loose rocks, roots, sticks, and other obstructions.

3.6 GEOSYNTHETICS

A. Where shown on the plans, place geosynthetics flat and parallel to centerline of the trail before

placing embankment. Overlap geosynthetics a minimum of 24 inches. Install anchors or fasteners as recommended by the geosynthetic manufacturer.

END OF SECTION 32 15 50

PUNCHEON

SECTION 32 15 60

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. The earthwork and associated trail tread and prism work may be covered by Section 32 10 00 Excavation and Embankment.

1.2 DESCRIPTION

A. This Work consists of construction of standard puncheon, including excavation, embankment, backfill and drainage features.

1.3 REFERENCE SPECFICATIONS

A. Forest Service Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects.

PART 2 – MATERIALS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Construct puncheon at locations shown on the plans or designated on the ground.

B. Pre-drill holes for fasteners when necessary to prevent splitting and drive spikes flush.

3.2 EXCAVATION AND EMBANKMENT

A. Perform excavation and embankments in accordance with the requirements of Section 32 10 00 and as shown on the plans.

3.3 MUD SILLS

A. Bury mud sills to a depth that provides a finished walking surface that is less than or equal to 3 feet above the surrounding ground.

B. Hew sill logs to provide a bearing surface for the log stringers and to provide the log stringers with a level top surface.

C. Do not hew sill logs more than one-third their diameter. Do not level the top surfaces of the log stringers by shimming or notching their ends.

3.4 LOG STRINGERS

A. Use logs greater than or equal to 10 feet in length. Use logs greater than or equal to 8 inches in diameter before the top is flattened. Fasten each stringer to each mud sill with drift pins that penetrate a minimum of 4 inches into the mud sill unless otherwise shown on the plans.

B. When plank decking is used, hew the top surfaces of log stringers up to 2 inches deep, as necessary, to provide bearing surfaces for deck planks.

3.5 SAWN TIMBER STRINGERS

A. Use sawn timber greater than or equal to 10 feet in length. Fasten each stringer to each mud sill with drift pins that penetrate a minimum of 4 inches into the mud sill unless otherwise shown on the plans.

3.6 FINISHED WALKWAY

A. Construct abutting ends of sections of log or plank puncheon flush with each other.

B. Do not slope the surface of the completed walkway to either side.

C. Construct the puncheon with a grade that does not exceed 5 percent and where no change in grade exceeds 6 percent unless otherwise shown on the plans or designated on the ground.

D. Construct the finished walking surface of the puncheon flush with the trail grade at each end of the structure.

3.7 DECKING

A. Spike decking evenly at right angles to each stringer.

B. Lay split log decking alternately flat side down first, then round side down, ending with a flat side down. When round side is down, notch round log decking to provide 2 inches wide bearing surface.

C. Lay split and sawn deck planks on the stringer to provide bearing for the full width of the plank.

D. Trim protruding ends of the decking to give a straight-line appearance to the edges of the structure or as shown on the plans.

3.8 CURBS

A. Construct curbs with logs or sawn timber as shown on the plans.

B. Use length greater than or equal to 10 feet and splice with a 6 inches half-lap joint at a spacer location.

C. Match diameters of logs at lap joints and trim excess to provide a smooth transition between logs.

D. Counter bore lag screws in curbs so that heads are flush with the surface.

E. Finish curbs smooth and free from splinters and sharp projections.

3.9 APPROACH FILLS

A. Construct the approach fills with compacted suitable material.

3.10 NO DECK PUNCHEON

A. Construct no deck puncheon as required as shown on the plans.

END OF SECTION 32 15 60

SITE REVEGETATION

SECTION 32 29 50

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Soil Preparation.
   2. Erosion Control.
   3. Clean-Up

1.3 DEFINITIONS

A. FINISH GRADE: Elevation of top of installed materials.

B. ACCEPTANCE INSPECTION: Final inspection of landscape where upon approval, the maintenance and warranty period commence.

C. SOIL**:** Existing on-site native soil capable of supporting plant growth.

1.4 SUBMITTALS

A. Submit vegetation mat salvage and revegetation plan, inclusive of:
   1. Description of installation method.

1.5 QUALITY ASSURANCE AND SAFETY

A. The Contractor shall be experienced in soil/slope stabilization for erosion control.

B. The Contractor shall furnish all labor, materials, equipment, supervision, traffic control, and transportation and shall secure all necessary permits and licenses required to install revegetated areas for the maintenance and warranty period.

1.6 STORAGE

A. SOILS:

   1. Stockpile soils excavated from construction operations and stockpile in a location that prevents the discharge of soil-bearing water runoff, and airborne dust from reaching existing facilities to be protected, new construction, waterways, and sensitive area. Obtain NFF Coordinator approval for location of stockpiled soil.
   2. Protect soils from excessive moisture that will lead to erosion or saturation levels that will negatively affect the texture and structure of soil or its placement on site.

1.7 COORDINATION

A. WEATHER LIMITATIONS: Proceed with planting only when existing and forecasted weather conditions permit.

PART 2 – PRODUCTS

2.1 SOIL

A. Native soil and/or subsoil removed as part of excavation Work that is suitable for supporting the growth of plant materials and approved by NFF Coordinator. Soil may need to be stockpiled for construction coordination before reinstalled.

2.2 ACCESSORIES

A. WATER: Clean fresh and free of substances or matter which could inhibit vigorous plant growth.

PART 3 - EXECUTION

3.1 GENERAL

A. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent Work, and waterbodies. See Section 01 57 00 Erosion Control.

B. Install soil and in locations indicated on Drawings.

C. All areas disturbed by construction activities that includes bare soils and as directed by NFF Coordinator shall be revegetated. This includes areas not indicated on Drawings.

3.2 EXAMINATION

A. Examine erosion control for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Commencement of installation indicates Contractor acceptance of existing site condition.

3.3 SOIL PREPARATION

A. GENERAL: Install soils to depths as indicated on Drawings, including areas disturbed due to construction not indicated on Drawings, or as directed by NFF Coordinator.

1. Remove all sticks and other foreign material greater than 2-inch in any dimension.
2. Ensure that surfaces are moist at the time of placement.

3.4 CLEAN-UP AND PROTECTION

A. Install temporary protection to keep people off freshly re-finished areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, and dispose of in approved locations away from developed area and out of sight as approved by NFF Coordinator. Remove trash and other non-organic debris, and legally dispose of off Forest Service lands.

C. Treat or repair damaged areas.

3.5 MAINTENANCE AND REPAIR

A. The Contractor shall be responsible for repairing damaged material and watering and protecting areas while on site through Project Close Out.

B. Make good, refinished area that have greater than 35% bare areas, as directed by NFF Coordinator.

END OF SECTION 32 29 50

SITE FURNISHINGS

SECTION 32 33 00

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This Section includes the following site furnishing:
   1. Bear Proof Locker.

1.2 SUBMITTALS

A. PRODUCT DATA: For each type of product indicated. Include construction details, material descriptions, dimension of individual components and profiles, finishes, field - assembly requirements, and installation details. Provide Forest Stewardship Council Certification for all wood.

B. Color chip of finishes.

PART 2 – PRODUCTS

2.1 MATERIALS

A. ALUMINUM: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated; free of surface blemishes and complying with the following:

   1. Casting: ASTM B26/B26M

B. STEEL AND IRON: Free of surface blemishes and complying with the following:

   1. Plates, Shapes, and Bars: ASTM A36/A36M
   2. Steel Pipe: Standard-weight steel pipe complying with ASTM A53 or electric- resistance-welded pipe complying with ASTM A135.
   3. Tubing: Cold-formed steel tubing complying with ASTM A500.

C. STAINLESS STEEL: Free of blemishes and complying with the following:

   1. Pipe: Complying with ASTM A132/A132M
   2. Tubing: ASTM A554
   3. Anchors, Fasteners, Fittings, and Hardware: For Contractor fabricated furnishings, Stainless Steel. For Pre-manufactured furnishings, Manufacturer's standard, corrosion-resistant-coated or non-corrodible materials.

D. NON-SHRINK, NON-METALLIC GROUT: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C1107; recommended in writing by manufacturer, for exterior applications.

E. GALVANIZING: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:

   1. Hot-Dip Galvanizing: According to ASTM A123/A123M, ASTM A153/A153M, or ASTM A924/A924M.

2.2 BEAR PROOF LOCKER

A. Bear Proof Locker shall be manufactured by BearSaver.

   1. Model: FS30-DFL Large Double Food Storage Locker.

2. Finish/Color: Forest Green.
3. Mounting Method: Surface Mount.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Comply with manufacturer's written instructions unless more stringent requirements are indicated. Complete field assembly of site and street furnishings, where required.

B. Install site and street furnishings level, plumb, true, and securely anchored at locations indicated on Drawings or per manufacturer's specifications.

3.3 CLEANING

A. After completing site and street furnishing installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION 32 33 00

Attachment C – Current Photos

BEFORE CLEARING



AFTER CLEARING





PORT CHALMERS FROM BEACH





APPROXIMATE LOCATIONS OF THE CABIN



Attachment D: Barrel System Outhouse Concept Design

GENERAL ABBREVIATIONS (SEE ENGINEERING SHEETS FOR ADDITIONAL)

@	AT
AB	ANCHOR BOLT(S)
ABA	ARCHITECTURAL BARRIERS ACT
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
APPRX	APPROXIMATE
ASPH	ASPHALT
BATT	MINERAL FIBER BLANKET
BLDG	BUILDING
BLKG	BLOCKING
BOC	BOTTOM OF CONCRETE
BOD	BOTTOM OF DECK
BO	BOTTOM OF
BOS	BOTTOM OF STEEL
℄	CENTERLINE
CG	CORNER GUARD
CLG	CEILING
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONFIG	CONFIGURATION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CSNK	COUNTERSINK
DIA	DIAMETER
DISP	DISPENSER
DIM	DIMENSION
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
(EX)	EXISTING
EA	EACH
EIFS	EXTERIOR INSULATION FINISH SYSTEM
ELEC	ELECTRIC(AL)
ENGR	ENGINEER
EOS	EDGE OF STRUCTURE
EP	ELECTRICAL PANELBOARD
EPS	EXPANDED POLYSTYRENE INSULATION BOARD
EQ	EQUAL
EQUIP	EQUIPMENT
EXTG	EXISTING
FA	FIRE ALARM
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FACE
FFB	FINISH FLOOR BREAK
FIN	FINISH
FL	FLOOR(ING)
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOS	FACE OF STUD
FRT	FIRE-RETARDANT TREATED
FT	FOOT, FEET
FTG	FOOTING
FURR	FURRING
FSORAG	FOREST SERVICE OUTDOOR RECREATION ACCESSIBILITY GUIDELINES
GA	GAUGE, GYPSUM ASSOCIATION
GALV	GALVANIZED
GB	GRAB BAR
GL	GLASS, GLAZING
GLU-LAM	GLUED-LAMINATED
H	HIGH
HDWD	HARDWOOD
HM	HOLLOW METAL
HSS	HOLLOW STEEL SECTION
HT	HEIGHT
HORZ	HORIZONTAL
ID	INSIDE DIAMETER
IN	INCH
INCL	INCLUDING, INCLUDED
INSUL	INSULATION, INSULATED
JST	JOIST
KIT	KITCHEN
L	LENGTH
LAM	LAMINATE(D)
LB	POUND
LF	LINEAL FEET
LVR	LOUVER
MAT	MATERIAL
MANUF'R	MANUFACTURER
MAX	MAXIMUM
MB	MARKERBOARD
MECH	MECHANICAL
MEZZ	MEZZANINE
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MTL	METAL
MUL	MULLION
NIC	NOT IN CONTRACT
NO/#	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISH CONTRACTOR INSTALL
OFOI	OWNER FURNISH OWNER INSTALL
OH	OVERHEAD, OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
PDF	POWER DRIVEN FASTENER
PERF	PERFORATED
PIC	POLYISOCYANURATE BOARD INSULATION
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
POLY	POLYETHYLENE
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PT	PRESSURE TREATED
PTA, PT1	PAINT TYPE "A", PAINT TYPE "1", ETC.
PVC	POLY VINYL CHLORIDE
RAD	RADIUS
RB	RESILIENT WALL BASE
REINF	REINFORCED, REINFORCING
REQ'D	REQUIRED
RESIL	RESILIENT
RESIST	RESISTANT
REV	REVISION, REVISE
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
RTN	RETURN
S-AWPM	SELF-ADHERED WATERPROOF MEMBRANE
SCHED	SCHEDULE
SECT	SECTION(AL)
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATIONS(S)
SQ	SQUARE
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURE, STRUCTURAL
SS	STAINLESS STEEL
SYMM	SYMMETRIC(AL)
T	TREAD(S), TOILET
T&G	TONGUE AND GROOVE
TOC	TOP OF CONCRETE
TEMP	TEMPORARY
TOC	TOP OF CONCRETE
TOD	TOP OF DECK(ING)
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TS	TUBE STEEL
TYP	TYPICAL
UC	UNDER COUNTER
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
VF	VERIFY IN FIELD
VOL	VOLUME
VR	VAPOR RETARDER
VTR	VENT THROUGH ROOF
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WP	WATERPROOF
WM	WALK-OFF MAT
WR	WATER RESISTANT
WSCT	WAINSCOT
WT	WEIGHT
XPS	EXTRUDED PLASTICBOARD INSULATION
YD	YARD, YARD DRAIN

THIS STRUCTURE IS FOR 450PSF SNOW LOAD, CONTRACTOR CAN REDUCE TIMBER SIZES FOR THE SNOW LOAD OF PORT CHALMERS

SCHEDULES - FINISHES

FLOORING:

3/4" PLY SHEATHNG PER STRUCT, USE MARINE GRADE PLY WITH "SKIDGUARD" OR EQUIVALENT SLIP RESISTANT COATING, SEE SPEC.

WALLS:

PAINT TYPE 1 (PT-1): INTERIOR WOOD - NATURAL CLEAR FINISH: BASIS OF DESIGN, WATER-BASED VARATHANE POLYURETHANE, CRYSTAL CLEAR.

1. PREPARATION AND APPLICATION AS SPECIFIED BY MANUFACTURER, UNLESS OTHERWISE SPECIFIED.

2. APPLY 3 COATS ON WALLS AND CEILINGS. APPLY 4 COATS ON FLOORS, COUNTERTOPS, TABLES, BENCHES, BEDS, AND WOOD DOORS (IF APPLICABLE). SAND ALL SURFACES BEFORE FINAL COAT. ALL 6 SIDES TO BE COATED U.O.N.

PAINT TYPE 2 (PT-2): EXTERIOR WOOD - BASIS OF DESIGN - BENJAMIN MOORE: WOODLUXE® OIL-BASED WATERPROOFING EXTERIOR STAIN + SEALER - SEMI-SOLID

1. PREPARATION AND APPLICATION AS SPECIFIED BY MANUFACTURER, UNLESS OTHERWISE SPECIFIED.

2. APPLY 3 COATS ALL 6 SIDES EXCEPT INTERIOR EXPOSED. U.O.N

BASE:

WOOD BASE (WD): 4" HARDWOOD BASE TRIM.

CEILING: EXPOSED STRUCTURE, WITH INTERIOR WOOD FINISH COATING

PRODUCTS/ACCESSORIES:

INSTALL 1 LANTERN HOOK AND 2 WALL HOOKS MINIMUM. COORDINATE WITH DISTRICT

INSTALL ABA/ADA GRAB BARS AS SHOWN ON DRAWINGS

INSTALL 1 SURFACE-MOUNTED TOILET TISSUE DISPENSER, BASIS OF DESIGN - BOBRICK B-9543 FINO COLLECTION, SATIN FINISH, ONE ROLL

Window Schedule

Type	Type Mark	Width	Height	Description
FIXED WINDOW 42X24	A	3' - 6"	2' - 0"	PROVIDE PRIVACY GLASS

Door Schedule

Mark	Type Mark	Width	Height	Finish	Frame Material	Hardware Type	Comments
1	A	3' - 0"	7' - 0"	FG	FG	1	KNOB ON OUTSIDE, LEVER ON INSIDE
2	B	3' - 0"	3' - 6"				ACCESS DOOR IN ABOVE GROUND ROLL-OUT VAULT OUTHOUSE

LEVER KNOB REQ.

HARDWARE SETS

SET #1 (Exterior - Access, Fiberglass Doors)

3	Hinges	BEST 199 Series Ball Bearing Heavy Weight Hinge FBB199-4.5X4.5-32D (304-SS) or SIM
1	Slide Lock	BRINKS COMMERCIAL 2-3/4-in Stainless Steel Slide Bolts or SIM
1	Door Closer	Uxcell 1Pcs Pneumatic Storm Door Closer, 304 Stainless Steel or SIM
1	Floor Stop	Harney Hardware DSF3225U26
1	Gasketing	NGP 127 NA 1 x 36" 2 x 84"
1	Door Sweep/shoe	Pemko 216DV36 AL
1	ABA Threshold	Pemko 273_FG Series AL

OTHER ACCESSORIES:

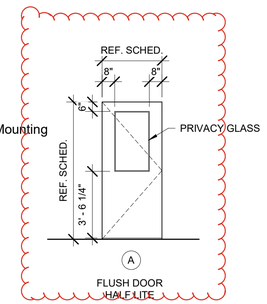
HATCH LOCKING HASP: Stainless Steel, 1 1/2 in Ht, 1 3/8 in Lg, 4 1/2 in Wd

HATCH HINGES: Basis of Design; 2" Wide Stainless Steel Piano Hinge SKU 13770-80573-CPPin
Diameter .091", Barrel Thickness .1875", Leaf Thickness/Gauge .04", Knuckle Length .5", Material 304 Stainless Steel, Mounting #6 SS fasteners

DOOR ABBREVIATIONS

FG	FIBERGLASS
FP	FIELD PAINTED
INS	1" INSULATED GLASS UNIT
MF	MANUFACTURE PRE-FINISH
PL	PLASTIC LAMINATE FACED
SP	SHOP PAINTED
TG	TEMPERED GLASS
WD	WOOD

SOLID DOOR, NO GLASS



1 DOOR TYPES

GENERAL NOTES

MRV ARCHITECTS GENERAL NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE MINIMUM STANDARDS OF THE APPLICABLE CODES INDICATED IN THE CODE STUDY AND ALL LOCAL CODES IN EFFECT UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.

2. ALL NEW CONSTRUCTION SHALL COMPLY W/THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) AND CHAPTER 11 OF THE INTERNATIONAL BUILDING CODE (INCLUDES ICC A117.1 PER IBC)

3. THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, AND ALL UTILITY CHARGES, AND ARRANGE FOR ALL REQUIRED INSPECTIONS.

4. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS & CONDITIONS ON THE JOB SITE PRIOR TO THE BIDDING OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES. IN CASES OF DISCREPANCY CONCERNING DIMENSIONS, QUANTITIES AND LOCATION, THE CONTRACTOR SHALL, IN WRITING, CALL TO THE ATTENTION OF THE ARCHITECT ANY DISCREPANCIES BETWEEN SPECIFICATIONS, PLANS, DETAILS OR SCHEDULES. THE ARCHITECT WILL THEN INFORM THE CONTRACTOR, IN WRITING, WHICH DOCUMENT TAKES PRECEDENCE. THERE SHALL BE NO ADJUSTMENT TO THE COST OR TIME OF THE WORK RESULTING FROM CLARIFICATION OF SUCH DISCREPANCIES.

5. DIMENSIONS ON DRAWINGS ARE SHOWN TO FACE STRUCTURE UNLESS OTHERWISE NOTED. CEILING HEIGHT DIMENSIONS AND ALL OTHER VERTICAL DIMENSIONS ARE TO THE FINISHED FLOOR SURFACE UNLESS OTHERWISE NOTED.

6. ALL MATERIALS SPECIFIED OR NOTED SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING SHOP DRAWINGS, PRODUCT DATA, OR SAMPLES FOR CASEWORK, FINISHES, DOORS, FRAMES, HARDWARE, MECHANICAL, ELECTRICAL, AND PLUMBING FIXTURES, AND OTHER ITEMS REQUIRING ARCHITECT'S REVIEW FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, AND FOR ALL ITEMS WHICH ALLOW CONTRACTOR OPTIONS. PRIOR TO FORWARDING TO THE ARCHITECT FOR REVIEW. THESE SUBMITTALS MUST BE REVIEWED BY THE CONTRACTOR FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS SELECTED BY THE CONTRACTOR, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL AFFIX A STAMP TO SUBMITTAL INDICATING THEIR REVIEW. SUBMITTALS FORWARDED WITHOUT A STAMP WILL BE RETURNED. ALL SUBMITTALS MUST BE REVIEWED BY THE ARCHITECT PRIOR TO CONSTRUCTION.

8. CONTRACTOR SHALL GUARANTEE ALL WORK AGAINST FAULT OF ANY MATERIAL OR WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE YEAR AFTER COMPLETION OR ACCEPTANCE. FAULTY WORK SHALL BE REPLACED OR REPAIRED AS REQUIRED AT NO COST TO THE OWNER.

9. ALL CHANGES PROPOSED DURING CONSTRUCTION WHICH RESULT IN A CHANGE TO THE CONTRACT TIME AND/OR SUM SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING AND APPROVED BY THE ARCHITECT AND OWNER BEFORE SUCH WORK SHALL COMMENCE.

10. CONTRACTOR SHALL COORDINATE CLEAR OPENINGS FOR ALL APPLIANCES PRIOR TO CONSTRUCTION OF CASEWORK.

11. CONTRACTOR SHALL COORDINATE ALL LOCK AND LATCH SETS AND FINAL KEYING WITH OWNER.

12. ALL DOOR HARDWARE ON EXIT DOORS SHALL BE READILY OPERABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE, OR EFFORT.

13. IF THE CONTRACTOR FAILS TO SUBMIT A MATERIAL FOR APPROVAL, THE MATERIAL MAY BE REQUIRED TO BE REMOVED BY THE CONTRACTOR EITHER BY DIRECTION OF THE OWNER OR ARCHITECT.

14. THE CONTRACTOR IS TO PROVIDE AS BUILT DRAWINGS IN HARD COPY TO THE OWNER AT THE CONCLUSION OF THE PROJECT.

15. INSTALL ELASTOMERIC JOINT SEALER AROUND ALL PENETRATIONS, INCLUDING; PIPES, DUCTWORK, & STRUCTURE PASSING THRU INTERIOR/EXTERIOR WALLS.

USDA FOREST SERVICE
United States Department of Agriculture
Forest Service
(R10)
ALASKA REGION

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MRV ARCHITECTS
ARCHITECTURE PLANNING INTERIORS

STATE OF ALASKA 49TH
PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION
JASON C. JONES 17779 PROFESSIONAL ARCHITECT

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE 90% DESIGN

CHUGACH & TONGASS NATION FOREST

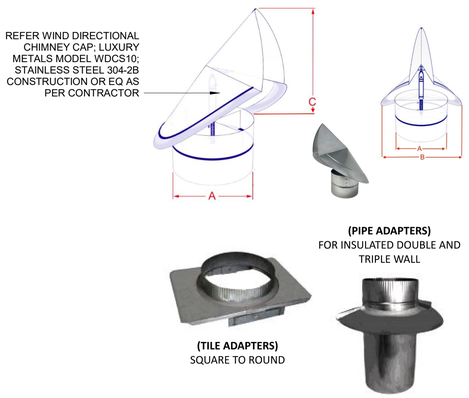
ALASKA REGIONAL FOREST SERVICE

DRAWING TITLE

SHEET INDEX, CODE, ABBREV.

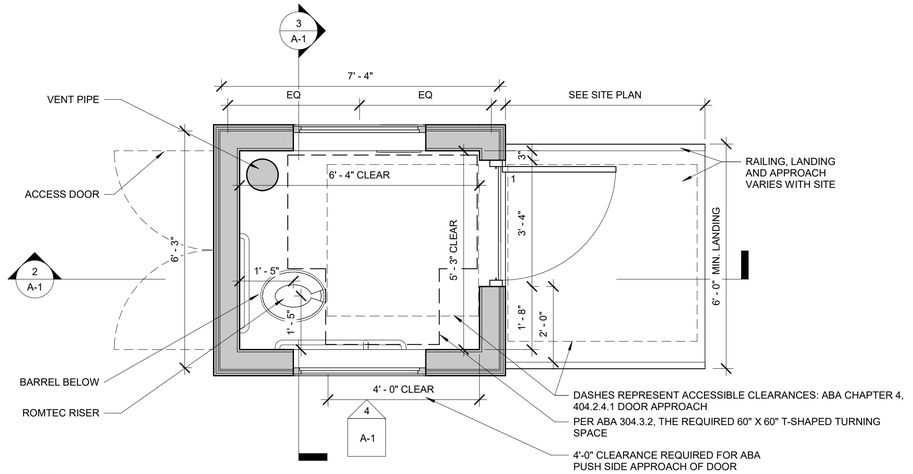
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DESIGNER MM	DRAWING SHEET NO. A-0
DRAWN CN	
CHECKED ZJ	
PROJECT NO. MRV # 2421	SHEET OF

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WIND DIRECTIONAL CAP

5 PRODUCT EXAMPLES



1 OH TYPE 2 BARREL, PLAN

1/2" = 1'-0" 0' 1' 2' 4'

NOTE:

1. 2X6 STUD WALL SHOWN. MEET INTERIOR DIMENSIONS SHOWN ON PLAN AND ADJUST OTHER DIMENSIONS TO ENSURE ABA/ADA COMPLIANCE.

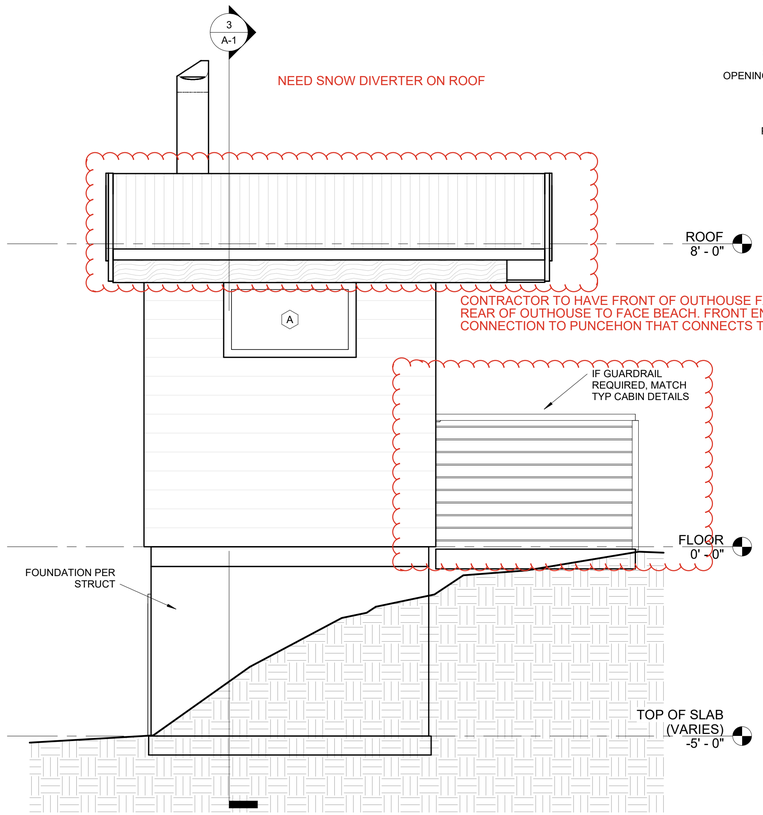
2. WINDOW TYPE D BOTH SIDES OF OUTHOUSE. ALL GLASS FROSTED

3. FINISHES TO MATCH CABIN. COORDINATE W/ OWNER

4. PER ABA 304.3.2, THE REQUIRED 60" X 60" T-SHAPED TURNING SPACE FITS WITHIN THE 5'-3" ROOM WIDTH.

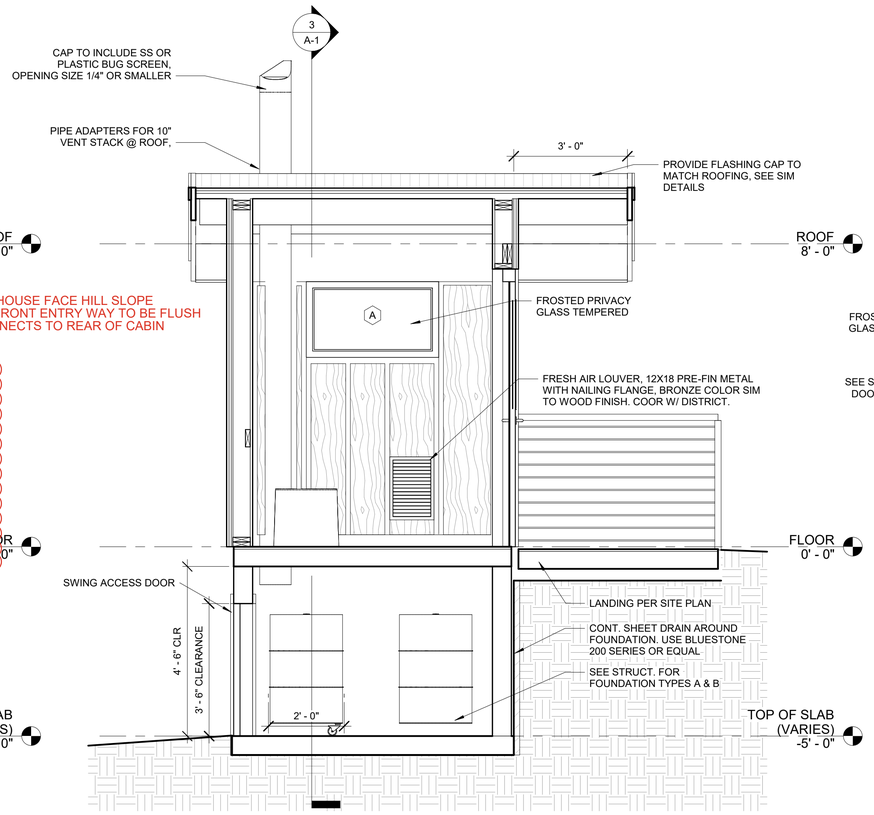


BARREL ON CASTERS PRODUCT EXAMPLE



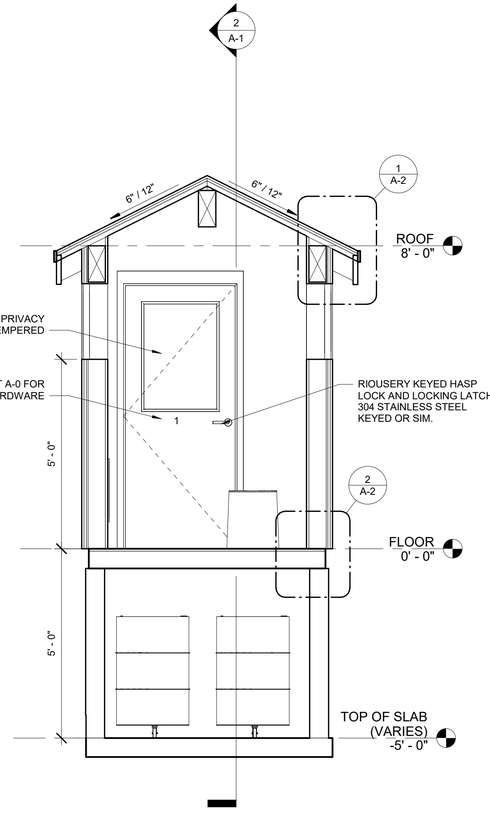
4 ELEVATION TYPE 2

1/2" = 1'-0" 0' 1' 2' 4'



2 CROSS SECTION, TYPE 2

1/2" = 1'-0" 0' 1' 2' 4'



3 LONGITUDINAL SECTION, TYPE 2

1/2" = 1'-0" 0' 1' 2' 4'

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CHUGACH & TONGASS NATION FOREST

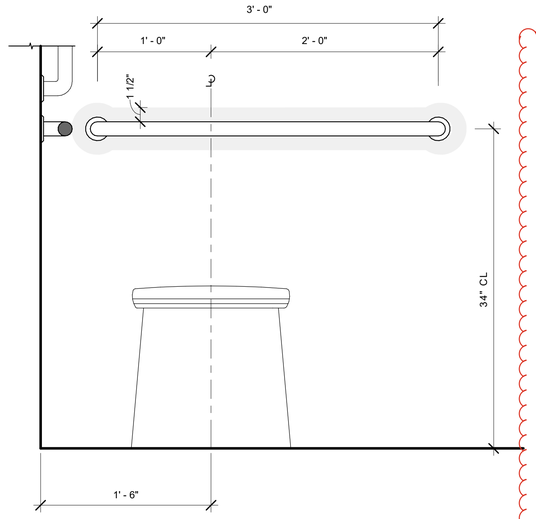
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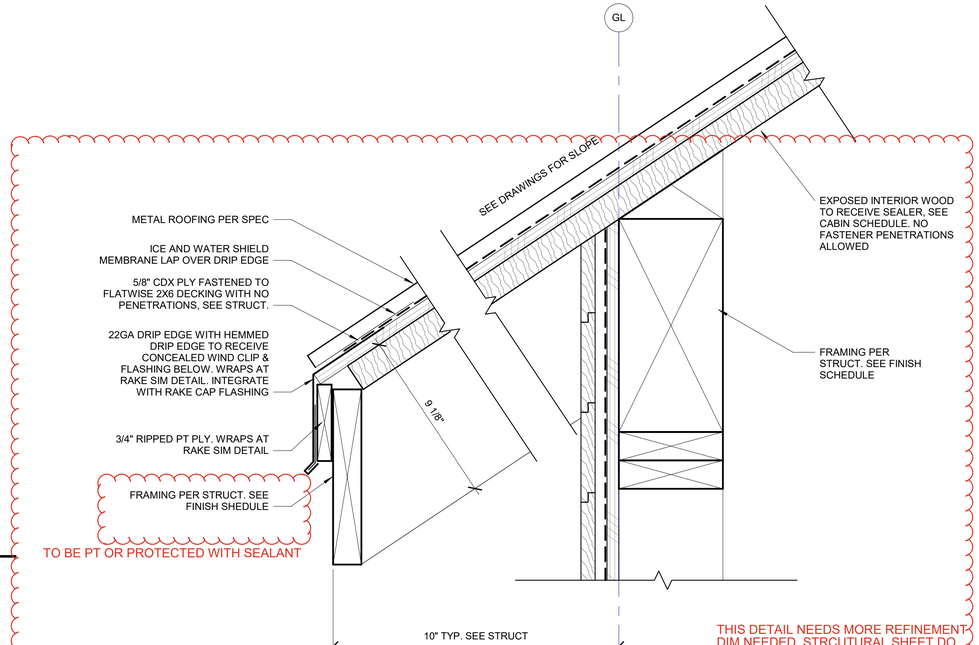
ABOVE GROUND ROLL-OUT VAULT OUTHOUSE

DATE 7/14/2026	ARCHIVE NO.
DESIGNER ZJ	DRAWING SHEET NO. A-1
DRAWN MRV	
CHECKED PV	
PROJECT NO. MRV # 2421	SHEET OF

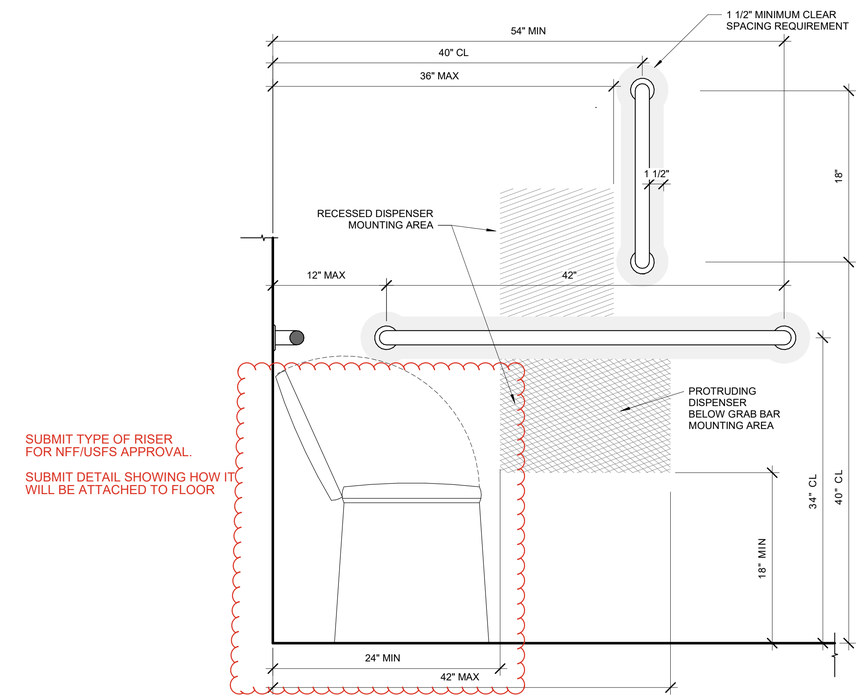
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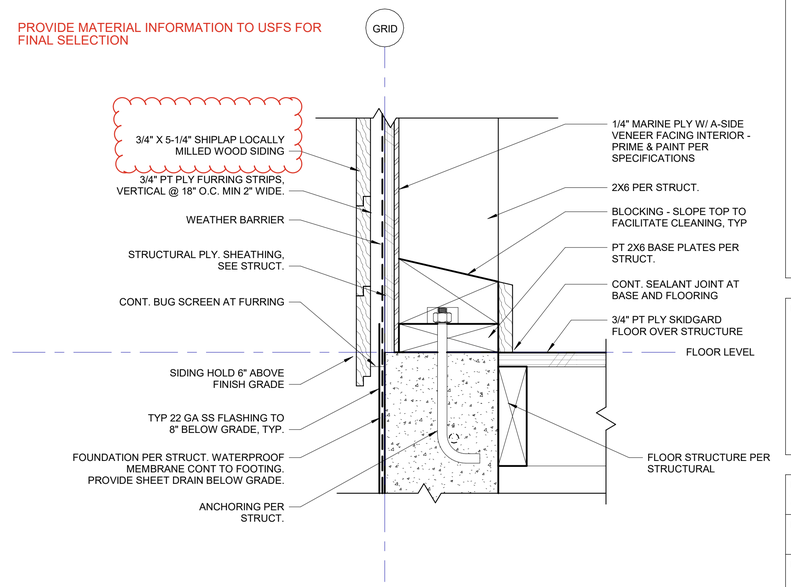
3 ABA GRAB BAR REAR WALL
1 1/2" = 1'-0"



1 TYP. ROOF
3" = 1'-0"



4 ABA GRAB BAR/DISPENSER SIDE WALL
1 1/2" = 1'-0"



2 TYP EXT WALL
3" = 1'-0"

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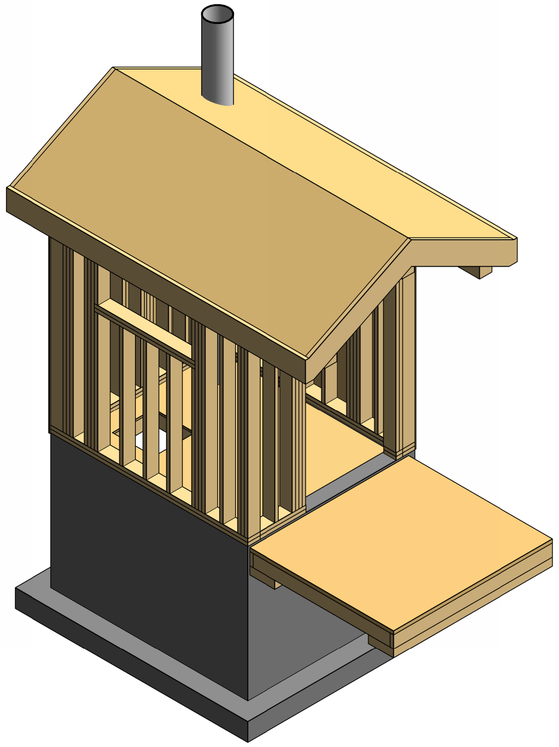
ALASKA REGIONAL FOREST SERVICE

DRAWING TITLE

DETAILS

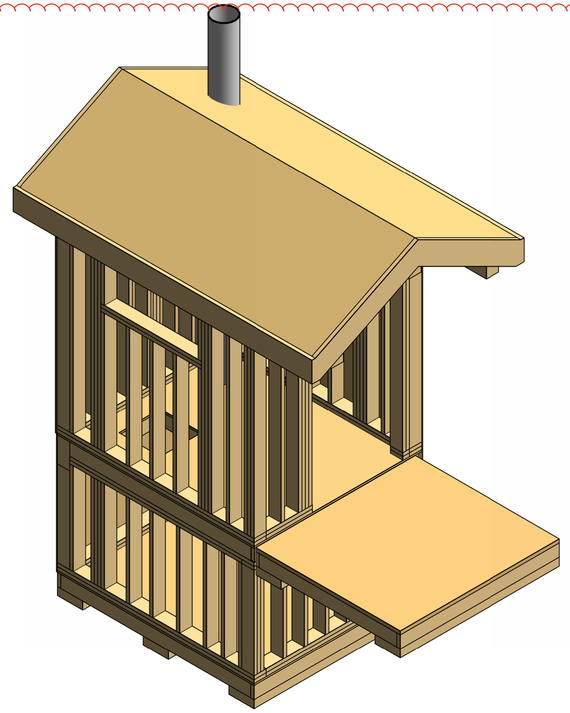
DATE 7/14/2026	ARCHIVE NO.
DESIGNER Designer	DRAWING SHEET NO. A-2
DRAWN MRV	
CHECKED Checker	
PROJECT NO. MRV # 2421	SHEET OF

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SHEET LIST
ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE WITH FOUNDATION OPTION A - CONCRETE

SHEET	SHEET TITLE
S-1	STRUCTURAL OVERVIEW
S-2	LEGEND AND ABBREVIATIONS
S-3	GENERAL NOTES
S-4	GENERAL NOTES
S-5A	FOUNDATION AND SHEAR WALL PLAN OPTION A - CONCRETE
S-6A	FOUNDATION AND HOLDOWN DETAILS OPTION A - CONCRETE
S-7	STUD FRAMING PLAN AND ROOF FRAMING PLAN
S-8	FRAMING DETAILS



SHEET LIST
ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE WITH FOUNDATION OPTION B - WOOD

SHEET	SHEET TITLE
S-1	STRUCTURAL OVERVIEW
S-2	LEGEND AND ABBREVIATIONS
S-3	GENERAL NOTES
S-4	GENERAL NOTES
S-5B	FOUNDATION AND SHEAR WALL PLAN OPTION B - WOOD
S-6B	FOUNDATION AND HOLDOWN DETAILS OPTION B - WOOD
S-7	STUD FRAMING PLAN AND ROOF FRAMING PLAN
S-8	FRAMING DETAILS

TYPE B TO BE INSTALLED

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www.respec.com
AECC162270

PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

REGION 10 ALASKA

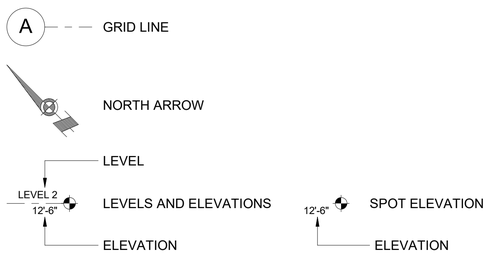
DRAWING TITLE

STRUCTURAL OVERVIEW

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DESIGNER: JCL	DRAWING SHEET NO.: S-1
DRAWN: JTR	
CHECKED: JEH	
PROJECT NO.: I1694.25003	SHEET OF

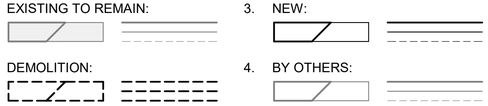
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DATUM



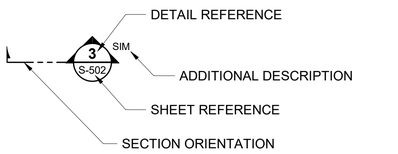
LINEWORK

1. EXISTING TO REMAIN:
2. DEMOLITION:
3. NEW:
4. BY OTHERS:

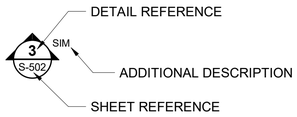


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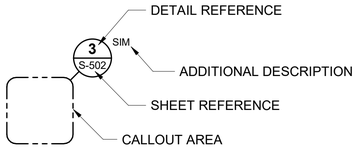
1. SECTIONS:



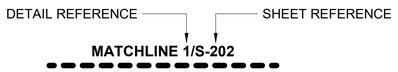
2. ELEVATIONS:



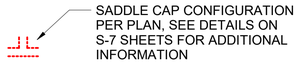
3. CALLOUTS:



4. MATCHLINES:

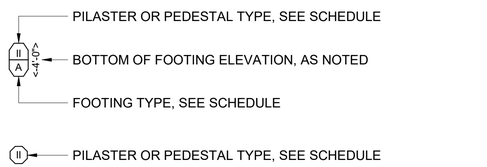


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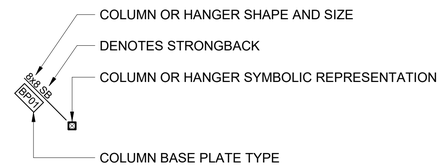


TAGS AND SYMBOLS

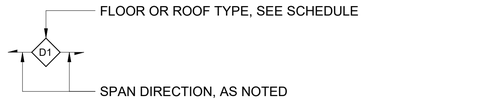
1. FOUNDATIONS:



2. COLUMNS AND HANGERS:



3. FLOORS AND ROOFS:



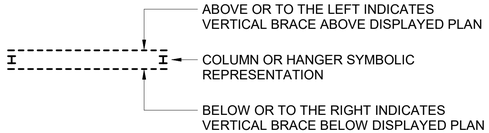
4. WALLS



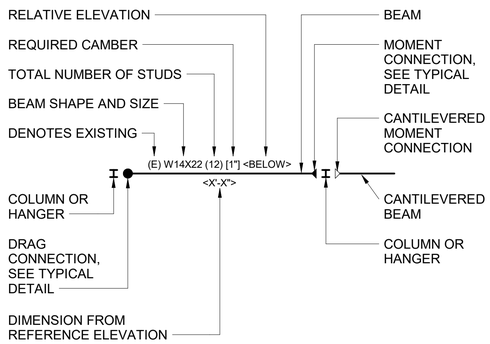
5. CHANGES IN ELEVATION:



6. VERTICAL BRACING:



7. BEAMS:



A. NOTES:

a. SEE TYPICAL FRAMING DETAILS FOR CONNECTIONS.

b. SPACE STUDS PER TYPICAL SHEAR STUD PLACEMENT DETAIL.

STRUCTURAL ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS USED.

@	AT
AB	ANCHOR BOLT
AFF	ABOVE FINISH FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
ASD	ALLOWABLE STRENGTH DESIGN
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATR	ALL THREAD ROD
AWS	AMERICAN WELDING SOCIETY
AWW	ALL WEATHER WOOD
BET / BTWN	BETWEEN
BLKG	BLOCKING
BM	BEAM
BN	BOUNDARY NAILING
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BPL	BOTTOM PLATE
BRKT	BRACKET
BS	BOTH SIDES
CANT	CANTILEVER
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CONTR'S	CONTRACTORS
CP	COMPLETE PENETRATION
DBL	DOUBLE
DIA / DIAM / ø	DIAMETER
DIAG	DIAGONAL
DICA	DRILLED IN CONCRETE ANCHOR
DIM	DIMENSION
DL	DEAD LOAD
DP	DEEP
DWG	DRAWING
(E)	EXISTING
EA	EACH
EJ	EXPANSION JOINT
ELEV	ELEVATION
ELF	EQUIVALENT LATERAL FORCE PROCEDURE
EMBED	EMBEDDED
EN	END NAILING
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIV	EQUIVALENT
ES	EQUALLY SPACED
EW	EACH WAY
FDN	FOUNDATION
FF	FINISH FLOOR
FRMG	FRAMING
FS	FAR SIDE
FT	FOOT/FEET
FTG	FOOTING
GA	GAGE
GALV	GALVANIZED
GLB	GLULAM BEAM
GR	GRADE
HD	HOLDOWN
H / HORIZ	HORIZONTAL
IBC	INTERNATIONAL BUILDING CODE
IN	INCH(ES)
INSUL	INSULATION
INT	INTERIOR
JT	JOINT
K	KIP (1000 LB)
KSI	KIPS PER SQUARE INCH
LL	LIVE LOAD
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL

STRUCTURAL ABBREVIATIONS (CONTINUED)

NOTE: NOT ALL ABBREVIATIONS USED.

MANUF	MANUFACTURER
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MID	MIDDLE
MIN	MINIMUM
MPH	MILES PER HOUR
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE HAND
OSB	ORIENTED STRAND BOARD
PC	PRECAST
PEN	PENETRATION
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLB	PARALLAM BEAM
PLF	POUNDS PER LINEAL FOOT
PLY	PLYWOOD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWJ	PLYWOOD WEB JOIST
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RO	ROUGH OPENING
SB	STRONGBACK
SCH / SCHED	SCHEDULE
SIM	SIMILAR
SFRS	SEISMIC FORCE RESISTING SYSTEM
SMS	SHEET METAL SCREWS
SOG	SLAB-ON-GRADE
SQ	SQUARE
STAGG	STAGGERED
STD	STANDARD
STL	STEEL
STR / STRUCT	STRUCTURAL
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TEMP	TEMPERATURE
THRD	THREADED
TO	TOP OF
TOC	TOP OF CONCRETE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
USFS	UNITED STATES FOREST SERVICE
V / VERT	VERTICAL
W/	WITH
WD	WIDE

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www.respec.com
AECC162270

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DRAWING TITLE

LEGEND AND ABBREVIATIONS

DATE: 07/14/2026	ARCHIVE NO.: FAC-STRU-I1694.25003_RV25.rvt
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DRAWN: JTR	
CHECKED: JEH	
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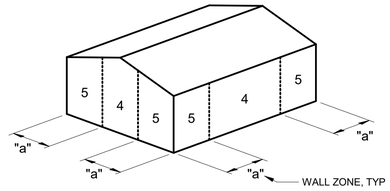
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STRUCTURAL DESIGN DATA

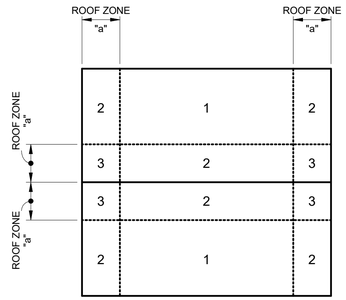
1. RISK CATEGORY — II
2. LIVE LOADS:
   - A. FIRST FLOOR — 40 PSF
   - B. ROOF — 20 PSF
   - C. DECK & WALKWAY — 60 PSF
3. SNOW LOADS:
   - A. GROUND SNOW LOAD — P_g = 450 PSF
   - B. EXPOSURE FACTOR — C_e = 1.2
   - C. THERMAL FACTOR — C_t = 1.2
   - D. IMPORTANCE FACTOR — I_s = 1.0
   - E. FLAT ROOF SNOW LOAD — P_f = 454 PSF
   - F. SLOPED ROOF SNOW LOAD — P_s = 454 PSF
   - G. DRIFT LOADING — NO DRIFT LOAD
   - H. UNBALANCED SNOW LOADING
     - a. LEEWARD — $P_{LEEWARD}$ = 450 PSF
     - b. WINDWARD — $P_{WINDWARD}$ = 0 PSF
4. WIND LOADS:
   - A. WIND SPEED — V_{ULT} = 160 MPH
   - B. WIND EXPOSURE CATEGORY — D
   - C. WIND VELOCITY PRESSURE COEFFICIENT — K_Z = 1.12
   - D. WIND TOPOGRAPHIC FACTOR — K_{ZT} = 1.0
   - E. INTERNAL PRESSURE COEFFICIENT — GC_{pi} = +/- 0.18
5. DESIGN RAIN INTENSITY
   - A. 15 MINUTE DESIGN RAIN INTENSITY — i = 3.33 IN/HR
   - B. 60 MINUTE DESIGN RAIN INTENSITY — i = 1.51 IN/HR
6. FLOOD DESIGN CRITERIA — NOT IN FLOOD ZONE
7. SEISMIC LOADS:
   - A. SEISMIC FORCE RESISTING SYSTEM
     - a. LOG SHEARWALLS
   - B. SEISMIC IMPORTANCE FACTOR — I_e = 1.0
   - C. SITE CLASS — D
   - D. MAPPED ACCELERATIONS
     - a. SHORT-PERIOD — S_S = 1.78 g
     - b. 1-SECOND — S_1 = 0.78 g
   - E. DESIGN ACCELERATIONS
     - a. SHORT-PERIOD — S_{DS} = 1.31 g
     - b. 1-SECOND — S_{D1} = 1.47 g
   - F. SEISMIC DESIGN CATEGORY — E
   - G. RESPONSE MODIFICATION FACTOR — R = 6.5
   - H. ANALYSIS PROCEDURE USED — ELF
   - I. SEISMIC RESPONSE COEFFICIENT — C_s = 0.20
   - J. DESIGN BASE SHEAR — V = 2.1 KIPS

COMPONENT AND CLADDING WIND PRESSURES

1. COMPONENT AND CLADDING WIND PRESSURE NOTES:
   - A. ROOF COMPONENT AND CLADDING WIND PRESSURE ZONE DIAGRAM IS VALID FOR GABLE ROOFS WITH SLOPES OF 7° < θ ≤ 27°.
   - B. WIND PRESSURES ARE BASED ON THE ULTIMATE WIND SPEED AND ARE REPORTED AT STRENGTH LEVELS. TO OBTAIN ASD PRESSURES, MULTIPLY TABLE VALUES BY 0.6.
   - C. POSITIVE (+) PRESSURES ACT TOWARDS STRUCTURE.
   - D. NEGATIVE (-) PRESSURES ACT AWAY FROM STRUCTURE.
2. WALL COMPONENT AND CLADDING PRESSURE ZONE DIAGRAM:



   - A. WALL ZONE DIMENSION 'a' = 3'-0"
   - B. WALL ZONE 5 OCCURS WITHIN A DISTANCE 'a' AWAY FROM ALL CORNERS. WALL ZONE 4 OCCURS IN ALL OTHER LOCATIONS.
3. ROOF COMPONENT AND CLADDING PRESSURE ZONE DIAGRAM:



   - A. ROOF ZONE DIMENSION 'a' = 3'-0"
4. COMPONENT AND CLADDING WIND PRESSURES:

ZONE	10 SQ FT		20 SQ FT		50 SQ FT		100 SQ FT	
ROOF ZONE 1	-93	37	-89	35	-84	32	-80	30
ROOF ZONE 2	-112	37	-104	35	-94	32	-87	30
ROOF ZONE 3	-193	37	-176	35	-153	32	-136	30
ROOF OVERHANG ZONE 1	-150	37	-143	35	-134	32	-127	30
ROOF OVERHANG ZONE 2 AT WALL ZONE 4	-169	37	-158	35	-144	32	-133	30
ROOF OVERHANG ZONE 2 AT WALL ZONE 5	-188	37	-173	35	-155	32	-141	30
ROOF OVERHANG ZONE 3 AT WALL ZONE 4	-250	37	-230	35	-203	32	-183	30
ROOF OVERHANG ZONE 3 AT WALL ZONE 5	-269	37	-245	35	-214	32	-191	30
4 MAIN WALL	-80	74	-77	71	-73	66	-69	63
5 EDGE WALL	-99	74	-92	71	-84	66	-77	63

STRUCTURAL GENERAL NOTES

1. PERFORM ALL WORK IN COMPLIANCE WITH THE MINIMUM STANDARDS OF THE FOLLOWING CODES:
   - A. THE INTERNATIONAL BUILDING CODE (IBC) 2021 AND ITS REFERENCED STANDARDS, HEREIN REFERRED TO AS "THE CODE", AND OTHER REGULATORY CRITERIA WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.
2. THIS WORK MAY INVOLVE EXISTING STRUCTURES, PERFORM THE FOLLOWING TASKS PRIOR TO STARTING CONSTRUCTION:
   - A. SURVEY AND FIELD VERIFY ALL EXISTING CONDITIONS ASSOCIATED WITH THE WORK.
   - B. INVESTIGATE THE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES, SUCH AS FOUNDATIONS, ETC.
   - C. ALL OMISSIONS OR CONFLICTS BETWEEN ELEMENTS OF THE CONTRACT DOCUMENTS MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE USFS, PRIOR TO PROCEEDING WITH THE RELATED WORK.
3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. CONSTRUCTION LOADS MUST NOT EXCEED THE DESIGN LIVE LOADS.
4. THE FOLLOWING ITEMS ARE PART OF THE LATERAL FORCE RESISTING SYSTEM (LFRS):
   - A. DIAPHRAGMS, SHEAR WALLS, DRAG BEAMS, AND ALL ASSOCIATED CONNECTIONS.

STRUCTURAL FOUNDATION NOTES

1. THE PRELIMINARY FOUNDATION DESIGNS ARE BASED ON THE 2021 IBC TABLE 1806.2 PRESUMPTIVE LOAD BEARING VALUES FOR VARIOUS SOIL TYPES. THE PROJECT ENGINEER SHALL UTILIZE THESE PRELIMINARY FOUNDATION OPTIONS & PRESUMPTIVE SOIL CONDITIONS WITH SITE SPECIFIC GEOTECHNICAL INVESTIGATION DATA TO SELECT & FINALIZE THE STRUCTURE'S FOUNDATION OPTION. SITE SOIL CONDITIONS COULD VARY GREATLY FROM THE PRESUMPTIVE CONDITIONS ASSUMED FOR THESE FOUNDATION DESIGNS AND WHERE THIS OCCURS AN ADDITIONAL SITE SPECIFIC FOUNDATION DESIGN MAY BE REQUIRED BY THE PROJECT ENGINEER.
2. A GEOTECHNICAL INVESTIGATION SHALL BE CONDUCTED IN ACCORDANCE WITH IBC SECTION 1803.2 AND REPORTED IN ACCORDANCE WITH IBC SECTION 1803.6 UNLESS THE PROJECT ENGINEER DETERMINES THERE IS SATISFACTORY GEOTECHNICAL DATA FROM ADJACENT AREAS THAT DEMONSTRATES AN INVESTIGATION IS NOT NECESSARY FOR ANY OF THE CONDITIONS IN IBC SECTIONS 1803.5.6, 1803.5.10, & 1803.5.11.
3. THE BASIS OF THE GEOTECHNICAL INVESTIGATION SHALL BE TO DETERMINE SOIL CLASSIFICATION. SOIL CLASSIFICATION SHALL BE BASED ON OBSERVATION AND ANY NECESSARY TESTS OF THE MATERIALS DISCLOSED BY BORINGS, TEST PITS, OR OTHER SUBSURFACE INVESTIGATION METHODS. ADDITIONAL STUDIES SHALL BE MADE AS NECESSARY TO EVALUATE SLOPE STABILITY, SOIL STRENGTH, POSITION AND ADEQUACY OF LOAD BEARING SOILS, THE EFFECT OF MOISTURE VARIATION ON SOIL-BEARING CAPACITY, COMPRESSIBILITY, LIQUEFACTION, AND EXPANSIVENESS.
4. THE SCOPE OF THE GEOTECHNICAL INVESTIGATION, INCLUDING THE NUMBER & TYPE OF BORINGS OR SOUNDINGS, THE EQUIPMENT USED TO DRILL OR SAMPLE, THE IN-SITU TESTING EQUIPMENT USED TO DRILL OR SAMPLE, AND THE LABORATORY TESTING PROGRAM SHALL ALL BE DETERMINED BY THE PROJECT ENGINEER.
5. THE CONTRACTOR MUST PERFORM ALL FOUNDATION WORK IN CONFORMANCE WITH THE GEOTECHNICAL REPORT DEVELOPED FOR THE PROJECT SITE. THE GEOTECHNICAL REPORT PRODUCED SHALL BE PART OF THESE CONTRACT DOCUMENTS.
6. THE CONTRACTOR MUST FOLLOW ALL RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT.
7. DO NOT COMMENCE CONSTRUCTION OF SHALLOW FOUNDATION ELEMENTS UNTIL ALL SEASONAL FROST HAS THAWED OR BEEN REMOVED.
8. PLACE PROPERLY COMPACTED STRUCTURAL FILL BELOW ALL FOUNDATION ELEMENTS, UNLESS NOTED OTHERWISE.
9. COMPACT ALL FOOTING SUBGRADES, ALL SLAB SUBGRADES INCLUDING PIT SLABS, AND ALL BACKFILL AROUND AND ABOVE ALL FOUNDATION ELEMENTS TO 95 PERCENT OF THE MODIFIED PROCTOR DENSITY PER ASTM D-1557.
10. REMOVE ALL ORGANIC AND OTHER UNSUITABLE MATERIALS FROM SUBGRADE AND BACKFILL. BACKFILL WITH ACCEPTABLE GRANULAR FILL, COMPACTED TO 95 PERCENT OF THE MODIFIED PROCTOR DENSITY PER ASTM D-1557.
11. PROVIDE THE DESIGN AND INSTALLATION OF TEMPORARY SHORING, EXCAVATION BRACING, AND OTHER TEMPORARY WORKS REQUIRED. THE DESIGN MUST PROTECT EXISTING STRUCTURES, STREETS, UTILITIES, AND ADHERE TO ALL NATIONAL, STATE, AND LOCAL REQUIREMENTS AND SAFETY ORDINANCES.
12. PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADES BEFORE AND AFTER PLACING OF CONCRETE UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.
13. PROPERLY BACKFILL ALL EXCAVATIONS.
14. FOUNDATIONS SHALL BE LOCATED ABOVE THE WATER TABLE. NOTE THAT THE WATER TABLE ELEVATION MAY FLUCTUATE SEASONALLY.

FOUNDATION TYPE SELECTION NOTES

1. FOUNDATION TYPE SELECTION SHALL BE BASED ON SITE CONDITIONS, ACCESSIBILITY, CONSTRUCTION LOGISTICS, LONGEVITY REQUIREMENTS, AND ECONOMIC FEASIBILITY.
2. OPTION A: CONCRETE FOUNDATION SYSTEM
   - A. SHALL BE UTILIZED IN LOCATIONS WITH ADEQUATE VEHICULAR ACCESS AND/OR HIGH TRAFFIC / DAILY USE.
   - B. CONCRETE FOUNDATIONS PROVIDE SUPERIOR LONG-TERM PERFORMANCE AND MINIMAL MAINTENANCE.
   - C. CONCRETE FOUNDATIONS ARE PREFERRED WHERE SITE SOILS ARE POORLY DRAINED OR HIGH-HUMIDITY ENVIRONMENTS.
   - D. FOUNDATION TYPE IS PREFERRED WHERE LONGEVITY IS PRIORITIZED.
3. OPTION B: WOOD FOUNDATION SYSTEM
   - A. SHALL BE UTILIZED IN REMOTE OR DIFFICULT-TO-ACCESS LOCATIONS WHERE TRANSPORTATION OF HEAVY MATERIALS AND EQUIPMENT IS LIMITED.
   - B. WOOD SYSTEMS OFFER REDUCED MATERIAL WEIGHT, LOWER INSTALLATION COSTS, AND GREATER FLEXIBILITY FOR SMALL CREW CONSTRUCTION.
   - C. WOOD FOUNDATIONS ARE MORE SUSCEPTIBLE TO MOISTURE-RELATED DEGRADATION OVER TIME, PARTICULARLY IN POORLY DRAINED OR HIGH-HUMIDITY ENVIRONMENTS. WHERE LOCAL SITE CONDITIONS ARE NOT IDEAL USE CONCRETE FOUNDATION OPTION.

FOUNDATION OPTION A - CONCRETE

1. PLACE CONCRETE FOR EACH SLAB IN ONE CONTINUOUS PLACEMENT.
2. PROVIDE VAPOR BARRIER BELOW SLAB.
3. SLOPE GRADE AWAY FROM ALL WALLS AT 5% MINIMUM SLOPE.

FOUNDATION OPTION B- WOOD

1. USE 3/4" SHEATHING AT ALL BELOW GRADE LOCATIONS. SHEATHING SHALL EXTEND 1'-6" MIN ABOVE GRADE AND/OR FINISH FLOOR.
2. PROVIDE FULLY ADHERED WATER-PROOF MEMBRANE ON ALL 3/4" SHEATHING. TIE MEMBRANE IN WITH ARCHITECTURAL FLASHING.
3. PROVIDE 6" OF IMPERMEABLE BACKFILL SLOPED AWAY FROM ALL WALLS AT 5% MINIMUM SLOPE.
4. PROVIDE 2'-0" THICK NFS AGGREGATE PAD BELOW ALL WOOD FOUNDATION ELEMENTS.

United States Department of Agriculture
Forest Service

(R10)
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PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

REGION 10 ALASKA

DRAWING TITLE

GENERAL NOTES

DATE: 07/14/2026	ARCHIVE NO.: FAC-STRU-I1694.25003_RV25.rvt
DESIGNER: JCL	DRAWING SHEET NO.: S-3
DRAWN: JTR	
CHECKED: JEH	
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STRUCTURAL CONCRETE NOTES

1. PERFORM ALL CONCRETE WORK IN ACCORDANCE WITH CHAPTER 19 OF THE IBC, AND ALL REFERENCED STANDARDS.

2. USE NORMAL WEIGHT (150 PCF) CAST-IN-PLACE CONCRETE WITH 28 DAY COMPRESSIVE STRENGTHS (F'_c) AS FOLLOWS:

CONDITION	MINIMUM STRENGTH (PSI)	EXPOSURE CATEGORY	MAX W/C RATIO	AIR ENTRAINMENT
FOUNDATIONS	5,000	F2, S0, C1	0.45	4% - 7%

3. CONCRETE MATERIAL REQUIREMENTS:

   A. USE PORTLAND CEMENT CONFORMING TO ASTM STANDARD C-150 AND TYPE I, IL, OR III, UNLESS NOTED OTHERWISE.

   B. USE NORMAL WEIGHT AGGREGATE OF NATURAL SAND AND ROCK CONFORMING TO THE REQUIREMENTS AND TESTS OF ASTM C-33.

   C. USE AN AIR ENTRAINING ADMIXTURE CONFORMING TO ASTM C-260 IN ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER.

4. REINFORCING MATERIAL REQUIREMENTS:

   A. USE DEFORMED REINFORCING BARS CONFORMING TO THE STANDARDS OF ASTM A615, GRADE 60.

5. PROVIDE DOWELS, WHERE REQUIRED, THAT MATCH THE SIZE AND NUMBER OF MAIN REINFORCING.

6. PROVIDE A MINIMUM CONCRETE COVER OVER REINFORCING OF:

   A. 3" FOR CONCRETE CAST AGAINST THE EARTH.

   B. 1 1/2" FOR BARS EXPOSED TO WEATHER AND BEAMS AND COLUMNS.

   C. 3/4" FOR INTERIOR SLABS.

7. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF SHORING,THE DESIGN, REMOVAL, AND RESHORING OF FORMWORK MUST CONFORM TO ACI 318, AND IS THE RESPONSIBILITY OF THE CONTRACTOR.

8. PROVIDE CONCRETE WITH A MAXIMUM SLUMP OF 8 INCHES ± 1 INCH WITH VERIFIED SLUMP OF 3 INCHES ± 1 INCH BEFORE ADDING HIGH-RANGE WATER REDUCING OR PLASTICIZING ADMIXTURES AT THE PROJECT SITE.

9. SUBMIT THE FOLLOWING TO THE USFS FOR REVIEW AND APPROVAL:

   A. CONCRETE MIX DESIGN DATA FOR EACH TYPE AND COMPRESSIVE STRENGTH OF CONCRETE REQUIRED. BASE MIX DESIGNS ON FIELD EXPERIENCE, TRIAL MIXTURES, OR BOTH, IN CONFORMANCE WITH ACI 318.MIX DESIGNS MUST BE SIGNED BY A REGISTERED CIVIL OR STRUCTURAL ENGINEER.

   B. REINFORCING BAR SHOP DRAWINGS, CONTAINING ALL REINFORCING DETAILS, SPACING, PLACEMENT, AND PLANNED CONSTRUCTION JOINTS. PREPARE SHOP DRAWINGS IN CONFORMANCE WITH ACI 315

10. CONCRETE CURING REQUIREMENTS:

    A. MAINTAIN CONCRETE ABOVE 50 DEGREES FAHRENHEIT AND IN A MOIST CONDITION FOR A MINIMUM OF SEVEN DAYS AFTER PLACEMENT UNLESS OTHERWISE NOTED.

    B. WHEN THE TEMPERATURE IS EXPECTED TO FALL BELOW 40 DEGREES F FOR THREE CONSECUTIVE DAYS, COMPLY WITH ACI 306.1. DO NOT USE FROZEN MATERIALS, MATERIALS CONTAINING ICE OR SNOW, OR CALCIUM CHLORIDE, SALT, OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS. A TEMPERATURE OF 50 DEGREES FAHRENHEIT MUST BE MAINTAINED DURING CURING VIA USE OF TENTING OR OTHER ACCEPTABLE ENCLOSURES.

STRUCTURAL STEEL NOTES

1. DETAIL, FABRICATE, AND ERECT ALL WORK IN CONFORMANCE WITH CHAPTER 22 OF THE IBC AND ALL REFERENCED STANDARDS.

2. USE STRUCTURAL STEEL CONFORMING TO THE FOLLOWING STANDARDS, UNLESS NOTED OTHERWISE:

SHAPE	YIELD STRENGTH	MATERIAL NOTES
W, WF, WT	50 KSI	ASTM A992
HSS	50 KSI	ASTM A500, GR C OR A1080
PIPE	35 KSI	ASTM A53, GR B
C, L, PLATES, MISCELLANEOUS	36 KSI	ASTM A36

3. BOLT AND ANCHOR ROD REQUIREMENTS:

   A. USE BOLTS AND ANCHOR RODS WITH A MINIMUM DIAMETER OF 5/8", UNLESS NOTED OTHERWISE.

   B. USE BOLTS, NUTS AND WASHERS CONFORMING TO THE REQUIREMENTS OF ASTM F3125 GRADE A325.

   C. USE ANCHOR RODS THAT MEET OR EXCEED THE REQUIREMENTS OF ASTM F1554 GR. 36, UNLESS NOTED OTHERWISE.

4. WELDING REQUIREMENTS:

   A. WELDING MUST BE DONE BY QUALIFIED WELDERS AND MUST CONFORM TO THE AWS "D1.1 STRUCTURAL WELDING CODE-STEEL", LATEST EDITION.

5. REQUIREMENTS FOR STRUCTURAL STEEL LOCATED OUTSIDE OF THE HEATED BUILDING ENVELOPE (EXTERIOR STEEL):

   A. HOT-DIP GALVANIZE ALL EXTERIOR STEEL. ANY VISIBLE EXTERIOR STEEL SHALL ALSO BE PAINTED BLACK.

   B. PROVIDE A 1/4"ø WEEP HOLE AT THE BASE OF ALL VERTICAL MEMBERS AND AT THE LOWEST POINT OF ALL HORIZONTAL AND SLOPED HSS MEMBERS.

6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCE. SPECIAL CONSIDERATION SHOULD BE GIVEN TO TEMPERATURE DIFFERENTIALS.

7. DO NOT FIELD CUT OR MODIFY STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER OF RECORD.

STRUCTURAL WOOD NOTES

1. PERFORM ALL STRUCTURAL WOOD WORK IN CONFORMANCE WITH CHAPTER 23 OF THE IBC, AND ALL REFERENCED STANDARDS.

2. USE CONVENTIONAL FRAMING MATERIALS MEETING OR EXCEEDING THE FOLLOWING MINIMUM REQUIREMENTS:

USE	DIMENSIONS	GRADE	Fv (PSI)	Fb (PSI)	Fcp (PSI)
LIGHT FRAMING	2x4, 2x6, 2x8	No. 2	125	800	425
WALL LOGS	4x6	No. 1	125	875	425
JOISTS, LEDGERS	2x4, 2x6, 2x8, 2x10, 2x12	No. 1	125	875	425
BEAMS, STRINGERS	4x, 6x, 8x	No. 1	125	875	425
POSTS	6x, 8x	No. 1	125	875	425
T&G SHEATHING	2x6, 2x8	No. 2	125	800	425

   A. USE VISUALLY GRADED OR MACHINE STRESS RATED LUMBER IN ACCORDANCE WITH THE LATEST EDITIONS OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB) TECHNICAL PUBLICATION NO. 17 OR THE WESTERN WOOD PRODUCTS ASSOCIATION (WWPA) "WESTERN LUMBER GRADING RULES (G5)".

3. USE COMPOSITE FRAMING MATERIALS MEETING OR EXCEEDING THE FOLLOWING MINIMUM REQUIREMENTS:

USE	DIMENSIONS	SPECIES	GRADE	Fb (PSI)
GLB - SIMPLE SPAN	ALL	DF / DF	24F-V4	2,400
GLB - CANTILEVERED	ALL	DF / DF	24F-V8	2,400
GLB - CONTINUOUS SPAN	ALL	DF / DF	24F-V8	2,400

   A. FABRICATE GLULAM FRAMING IN CONFORMANCE WITH THE LATEST EDITION OF ANSI/AITC STANDARD A190.1

4. PLYWOOD MATERIAL AND CONSTRUCTION REQUIREMENTS:

   A. 3/4" APA-RATED SHEATHING. EXTERIOR GRADE 48/24, UNO

   B. USE PLYWOOD PANELS (SHEATHING) CONFORMING TO THE REQUIREMENTS OF THE LATEST EDITION OF "U.S. PRODUCT STANDARDS PS-1 & PS-2 FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD." EACH PANEL MUST BEAR THE APA GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION.

   C. INSTALL ALL PLYWOOD WITH THE LONG DIMENSION OF THE PANEL ACROSS SUPPORTS, UNLESS NOTED OTHERWISE, WITH THE PANEL OVER TWO OR MORE SPANS. ALLOW 1/8 INCH SPACING AT PANEL ENDS AND 1/4 INCH AT PANEL EDGES, UNLESS OTHERWISE RECOMMENDED BY THE PANEL MANUFACTURER.

   D. FASTEN PLYWOOD FLOOR PANELS TO FLOOR FRAMING WITH GLUE AND NAILS.

5. USE CONNECTION HARDWARE MEETING THE FOLLOWING REQUIREMENTS, UNLESS NOTED OTHERWISE ON PLANS:

   A. USE BOLTS CONFORMING TO ASTM A307 WITH STANDARD WASHERS UNDER ALL BOLT HEADS AND NUTS CONTACTING WOOD.

   B. USE LAG BOLTS CONFORMING TO ASTM A307.

   C. USE COMMON WIRE NAILS OF SIZES NOTED ON DRAWINGS. IF ALTERNATIVE FASTENERS ARE DESIRED, THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A SCHEDULE OF SUBSTITUTIONS, SHOWING EQUIVALENT FASTENER STRENGTHS.

   D. WHERE FASTENERS ARE IN CONTACT WITH TREATED WOOD, USE HOT-DIPPED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE, OR COPPER FASTENERS, OR AS REQUIRED BY THE WOOD TREATMENT MANUFACTURER.

   E. USE STAINLESS STEEL ANCHORS CONFORMING TO 304 OR 316, AT ALL BELOW GRADE LOCATIONS.

   F. WHERE HARDWARE IS VISIBLE PAINT BLACK IN ADDITION TO ANY OTHER COATING REQUIREMENTS LISTED ABOVE.

6. DO NOT FIELD CUT STRUCTURAL WOOD MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR REVIEW OF THE ENGINEER.

7. DO NOT USE WOOD TREATMENTS OR PRESERVATIVES WITHOUT SUBMITTAL AND REVIEW BY THE ENGINEER OF RECORD.

GROUND CONTACT FOR OUTHOUSE TYPE B SHALL BE UC4C ALL OTHER FRAMING AND STRUCTURAL LUMBER TO BE UC4A

TREAT ALL END CUTS

STRUCTURAL WOOD NOTES CONTINUED

8. PROVIDE TREATED WOOD IN ACCORDANCE WITH THE CODE FOR ALL LEDGERS, PLATES, SILLS, AND NAILERS IN CONTACT WITH CONCRETE, OR WITHIN 6" OF THE GROUND. ALL DECK SUPPORT BEAMS, COLUMNS JOISTS, AND FLOOR PLYWOOD SHALL PRESSURE TREATED.

9. WOOD USED FOR THE OUTHOUSE FOUNDATIONS SHALL BE RATED FOR GROUND CONTACT.

10. APPLY A MINIMUM OF ONE COAT OF END SEALER IMMEDIATELY AFTER TRIMMING GLULAM AND/OR PRESSURE TREATED FRAMING MEMBERS IN EITHER SHOP OR FIELD.

United States Department of Agriculture
Forest Service

(R10)
ALASKA REGION

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PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

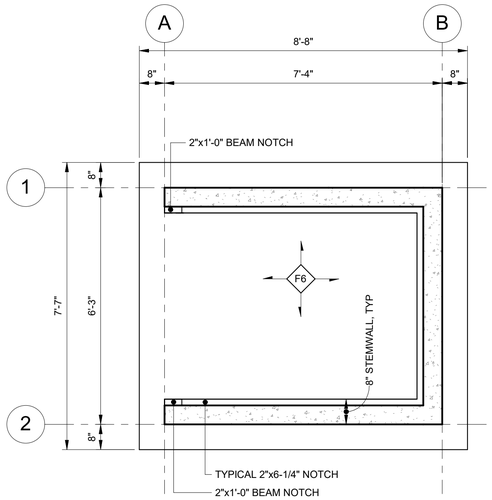
REGION 10 ALASKA

DRAWING TITLE

GENERAL NOTES

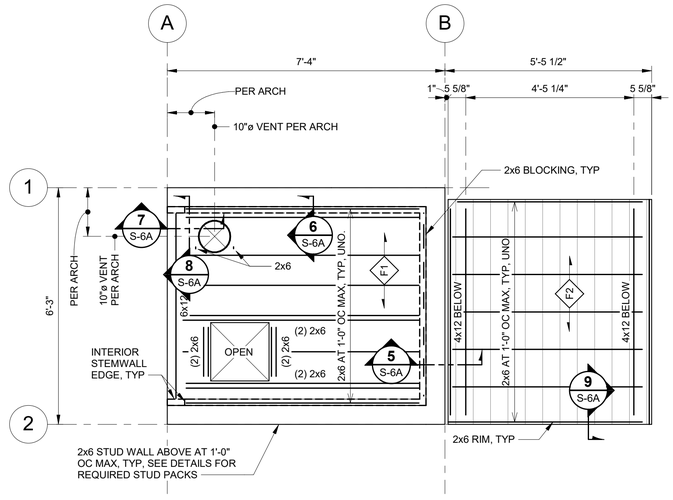
DATE 07/14/2026	ARCHIVE NO. FAC-STRU-I1694.25003_RV25.rvt
DESIGNER JCL	DRAWING SHEET NO. S-4
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CHECKED JEH	
PROJECT NO. I1694.25003	SHEET OF

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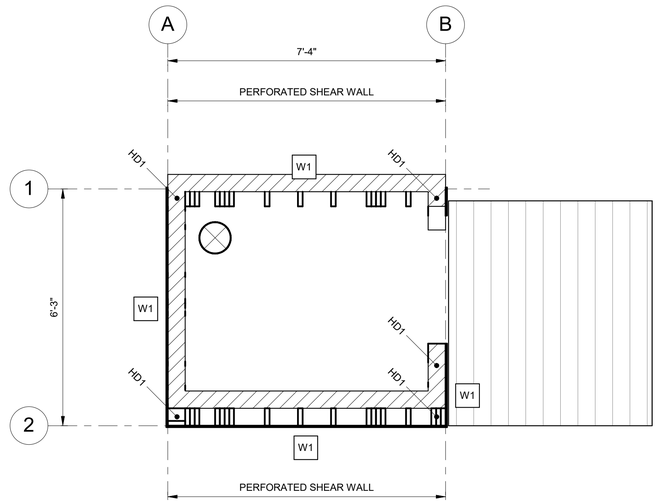
1 S-5A FOUNDATION PLAN OPTION A - CONCRETE

SCALE: 1/2" = 1'-0"



2 S-5A FLOOR FRAMING PLAN OPTION A - CONCRETE

SCALE: 1/2" = 1'-0"



3 S-5A SHEAR WALL PLAN OPTION A - COCNRETE

SCALE: 1/2" = 1'-0"

SHEET NOTES

1. SEE FOUNDATION OPTION A DETAILS ON S-6A.

FOUNDATION DESIGN CRITERIA

1. CLASS OF MATERIALS PER IBC TABLE 1806.2:
   A. SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL (SW, SP, SM, SC, GM, AND GC).
2. ALLOWABLE BEARING PRESSURES:
   A. STATIC 1,500 PSF
   B. DYNAMIC 2,250 PSF
3. LATERAL EARTH PRESSURES:
   A. AT REST 45 PSF/FT
   B. ACTIVE 22.5 PSF/FT
   C. PASSIVE 150 PSF/FT
   D. STATIC COEFFICIENT OF FRICTION 0.25

HOLDOWN SCHEDULE NOTES

1. PROVIDE PANEL EDGE NAILING PER SHEAR WALL SCHEDULE AT HOLDOWN POSTS AND AT PANEL EDGES.
2. PROVIDE PLATE NAILING TO JOIN MULTIPLE STUDS AT EACH SHEAR WALL END.
3. ALL CAST-IN-PLACE HOLDOWN ANCHORS SHALL BE ASTM F1554 GRADE 55 THREADED ROD WITH NUT AND WASHER INSTALLED AT BOTTOM.
4. ALL HOLDOWN ANCHORS SHALL HAVE A 3"x3"x1/4" PLATE WASHER ON THE EMBEDDED END.

SHEAR WALL SCHEDULE NOTES

1. INSTALL PANELS EITHER HORIZONTALLY OR VERTICALLY.
2. WHERE SHEATHING IS APPLIED ON BOTH SIDES OF WALL, PANEL EDGE JOINTS ON 2x FRAMING MUST BE STAGGERED SO THAT JOINTS ON THE OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUD.
3. BLOCKING IS REQUIRED AT ALL PANEL EDGES.
4. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR THE ENTIRE LENGTH OF ALL EXTERIOR WALLS ON THE PLANS. SEE PLANS FOR HOLDOWN REQUIREMENTS.
5. SHEATHING EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS.
6. INTERMEDIATE FRAMING MEMBERS MUST BE 2x.
7. USE 8d x 1-1/2" NAILS WHEN ATTACHING TO FRAMING. USE 8d x 2-1/2" NAILS WHEN ATTACHING THROUGH SHEATHING.
8. FRAMING CLIPS TO BE SIMPSON STRONG TIE A35 OR LTP5 CLIP OR AN APPROVED EQUIVALENT.
9. PROVIDE DOUBLE SUPPORT MEMBER WHERE PLATE ATTACHMENT SPECIFIES (2) ROWS OF NAILS.
10. ANCHOR BOLTS MUST BE PROVIDED WITH 3"x3"x1/4" STEEL PLATE WASHERS.
11. PROVIDE HOT-DIPPED GALVANIZED NAILS AND CONNECTOR PLATES FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED FRAMING MEMBERS.
12. AT ADJOINING PANEL EDGES, (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF A SINGLE 3x STUD. (2) 2x STUDS MUST BE JOINED TOGETHER BY USING PLATE NAILING REQUIREMENTS.

OUTHOUSE FLOOR & LOW ROOF SCHEDULE - OPTION A

TYPE	FLOOR DESCRIPTION
F1	3/4" T&G PLYWOOD FASTENED WITH 10d NAILS AT 6" OC AT BOUNDARY MEMBERS, 6" OC AT ALL OTHER PANEL EDGES AND 1'-0" OC FIELD.
F6	1'-0" CONCRETE SLAB-ON-GRADE REINFORCED WITH #5 AT 1'-0" OC EACH WAY, TOP & BOT, CENTERED IN SLAB.

HOLDOWN SCHEDULE

TYPE	MODEL NUMBER	DIMENSIONS (IN)		MINIMUM WOOD MEMBER SIZE (IN)
		ANCHOR BOLT ø (IN)	WOOD FASTENERS	
HD1	HDU2-SDS2.5	5/8"ø x 8" EMBED	(6) 1/4"øx2-1/2" SDS	3"x3-1/2"

SHEAR WALL SCHEDULE

WALL TYPE	WALL APA-RATED SHEATHING [1] [2] [4]	NAIL SIZE AND SPACING AT EDGES [4] [5]	NAIL SIZE AND SPACING AT INTERIOR FRAMING MEMBERS [6]	STUD AND BLOCKING SIZE AT ADJOINING EDGES [3]	PLATE NAILING (NAIL SIZE AND SPACING) [9]	RIM JOIST OR BLOCKING CONNECTION TO TOP PLATE [7] [8]	SILL PLATE SIZE [11]	ANCHOR BOLT TO CONCRETE BELOW [10]
W1	15/32" CD-EXT (1) SIDE	8d AT 6" OC	8d AT 1'-0" OC	2x	(2) 16D AT 6" OC	CLIP AT 2'-0" OC	(2) 2x	5/8"ø AT 3'-0" OC 8" EMBED

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PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

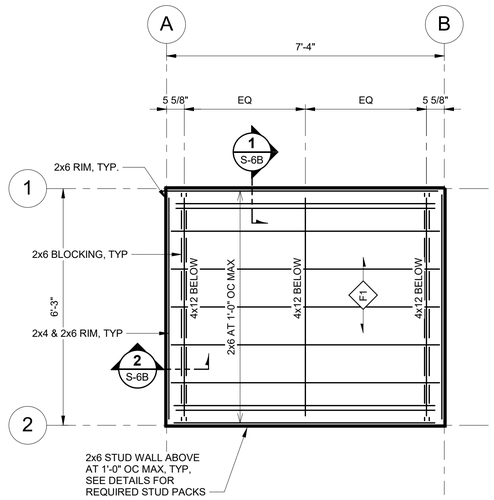
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FOUNDATION AND SHEAR WALL PLAN OPTION A - CONCRETE

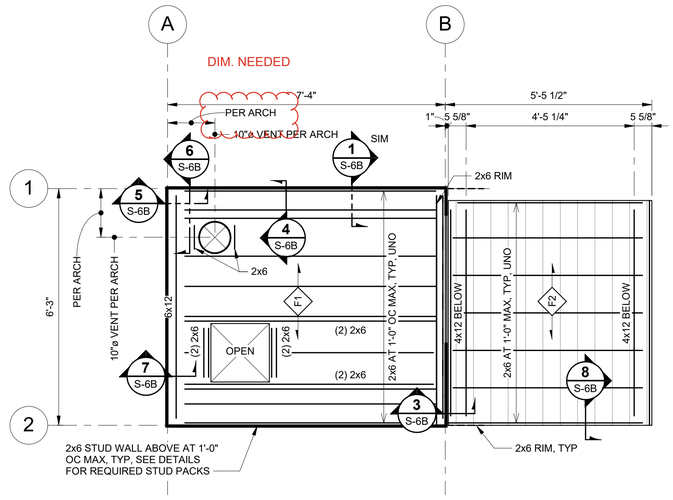
DATE 07/14/2026	ARCHIVE NO. FAC-STRU-I1694.25003_RV25.rvt
DESIGNER JCL	DRAWING SHEET NO. S-5A
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1 S-5B FOUNDATION PLAN OPTION B - WOOD

SCALE: 1/2" = 1'-0"



2 S-5B FLOOR FRAMING PLAN OPTION B - WOOD

SCALE: 1/2" = 1'-0"

3 S-5B SHEAR WALL PLAN OPTION B - WOOD

SCALE: 1/2" = 1'-0"

OUTHOUSE FLOOR & LOW ROOF SCHEDULE - OPTION B

TYPE	FLOOR DESCRIPTION
F1	3/4" T&G PLYWOOD FASTENED WITH 10d NAILS AT 6" OC AT BOUNDARY MEMBERS, 6" OC AT ALL OTHER PANEL EDGES AND 1'-0" OC FIELD.
F2	FLATWISE (1-1/2" THICK) 2x6 DECKING FASTENED WITH (2) 3" #12 DECK SCREWS AT INTERMEDIATE AND END BEARING SUPPORTS, AND (3) #12 DECK SCREWS AT BOUNDARY MEMBERS. DECKING MEMBERS SHALL HAVE A 1/4" GAP BETWEEN THEM.

HOLDOWN SCHEDULE

TYPE	MODEL NUMBER	DIMENSIONS (IN)		MINIMUM WOOD MEMBER SIZE (IN)
		THROUGH BOLT ø (IN) [10] [14]	WOOD FASTENERS	
HD1	HDU2-SDS2.5	5/8"ø	(6) 1/4"øx2-1/2" SDS	3"x3-1/2"

SHEAR WALL SCHEDULE

WALL TYPE	WALL APA-RATED SHEATHING [1] [2] [4]	NAIL SIZE AND SPACING AT EDGES [4] [5]	NAIL SIZE AND SPACING AT INTERIOR FRAMING MEMBERS [6]	STUD AND BLOCKING SIZE AT ADJOINING EDGES [3]	PLATE NAILING (NAIL SIZE AND SPACING) [9]	RIM JOIST OR BLOCKING CONNECTION TO TOP PLATE [7] [8]	SILL PLATE SIZE [11]	THROUGH BOLT BELOW [10] [13]	COIL STRAP [13]
W1	15/32" CD-EXT (1) SIDE	8d AT 6" OC	8d AT 1'-0" OC	2x	(2) 16D AT 6" OC	CLIP AT 2'-0" OC	(2) 2x	5/8"ø AT 4'-0" OC	SIMPSON CS16 AT 4'-0" OC

SHEET NOTES

1. SEE FOUNDATION OPTION A DETAILS ON S-6B.

FOUNDATION DESIGN CRITERIA

1. CLASS OF MATERIALS PER IBC TABLE 1806.2:
   - A. SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL (SW, SP, SM, SC, GM, AND GC).
2. ALLOWABLE BEARING PRESSURES:
   - A. STATIC 1,500 PSF
   - B. DYNAMIC 2,250 PSF
3. LATERAL EARTH PRESSURES:
   - A. AT REST 45 PSF/FT
   - B. ACTIVE 22.5 PSF/FT
   - C. PASSIVE 150 PSF/FT
   - D. STATIC COEFFICIENT OF FRICTION 0.25

HOLDOWN SCHEDULE NOTES

1. PROVIDE PANEL EDGE NAILING PER SHEAR WALL SCHEDULE AT HOLDOWN POSTS AND AT PANEL EDGES.
2. PROVIDE PLATE NAILING TO JOIN MULTIPLE STUDS AT EACH SHEAR WALL END.
3. ALL HOLDOWN ANCHORS SHALL BE ASTM F1554 GRADE 55 THREADED ROD WITH NUT AND WASHER INSTALLED AT BOTTOM.
4. ALL HOLDOWN ANCHORS SHALL HAVE A 3"x3"x1/4" PLATE WASHER.

SHEAR WALL SCHEDULE NOTES

1. INSTALL PANELS EITHER HORIZONTALLY OR VERTICALLY.
2. WHERE SHEATHING IS APPLIED ON BOTH SIDES OF WALL, PANEL EDGE JOINTS ON 2x FRAMING MUST BE STAGGERED SO THAT JOINTS ON THE OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUD.
3. BLOCKING IS REQUIRED AT ALL PANEL EDGES.
4. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR THE ENTIRE LENGTH OF ALL EXTERIOR WALLS ON THE PLANS. SEE PLANS FOR HOLDOWN REQUIREMENTS.
5. SHEATHING EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS.
6. INTERMEDIATE FRAMING MEMBERS MUST BE 2x.
7. USE 8d x 1-1/2" NAILS WHEN ATTACHING TO FRAMING. USE 8d x 2-1/2" NAILS WHEN ATTACHING THROUGH SHEATHING.
8. FRAMING CLIPS TO BE SIMPSON STRONG TIE A35 OR LTP5 CLIP OR AN APPROVED EQUIVALENT.
9. PROVIDE DOUBLE SUPPORT MEMBER WHERE PLATE ATTACHMENT SPECIFIES (2) ROWS OF NAILS.
10. THROUGH BOLTS MUST BE PROVIDED WITH 3"x3"x1/4" STEEL PLATE WASHERS.
11. PROVIDE HOT-DIPPED GALVANIZED NAILS AND CONNECTOR PLATES FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED FRAMING MEMBERS.
12. AT ADJOINING PANEL EDGES, (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF A SINGLE 3x STUD. (2) 2x STUDS MUST BE JOINED TOGETHER BY USING PLATE NAILING REQUIREMENTS.
13. USE COIL STRAPS WHERE WALL STUDS ARE BROKEN BY 2x PLATE ELEMENT. USE THROUGH BOLTS WHERE 2x PLATE ELEMENT CAN BE ATTACHED TO A BEAM ELEMENT. SEE DETAILS FOR CLARITY.
14. COILS STRAPS MAY BE REQUIRED IN ADDITION TO HOLDOWN ASSEMBLY. SEE DETAILS FOR CLARITY.

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PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

REGION 10 ALASKA

DRAWING TITLE

FOUNDATION AND SHEAR WALL PLAN OPTION B - WOOD

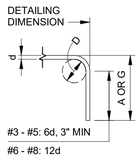
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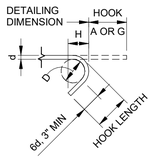
LAP LENGTH SCHEDULE: CLASS "B"										
F'C (PSI)	BAR SIZE (GR 60)	3	4	5	6	7	8	9	10	11
	BAR DIAMETER (IN)	0.375	0.500	0.625	0.750	0.875	1.000	1.128	1.270	1.410
5,000	TOP BAR	23	30	37	45	51	59	65	75	82
	BOTTOM BAR	17	23	29	34	39	45	51	58	63
LAP LENGTH SCHEDULE: CLASS "A" - DIVIDE SCHEDULE VALUES BY 1.3										

NOTES:

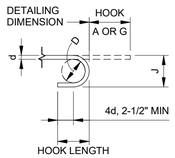
1. LAP SPLICES ASSUMED TO BE CLASS "A" UNLESS NOTED OTHERWISE.
2. SCHEDULE VALUES ARE VALID FOR NORMAL WEIGHT CONCRETE WITH REBAR LAYOUTS MEETING THE REQUIREMENTS OF EITHER A, B, OR C:
   A. CLEAR SPACING AND CLEAR COVER OF BARS BEING DEVELOPED OR LAP SPLICED IS NOT LESS THAN (1) BAR DIAMETER.
   B. CLEAR SPACING OF BARS BEING DEVELOPED OR LAP SPLICED IS AT LEAST (2) BAR DIAMETERS AND CLEAR COVER IS AT LEAST (1) BAR DIAMETER.
   C. MULTIPLY SCHEDULE VALUES BY 1.5.
3. THE ABOVE VALUES RELATE ONLY TO PLAIN (UNCOATED) DEFORMED REINFORCING.
4. TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 1'-0" OF NEW CONCRETE PLACED MONOLITHICALLY BELOW BAR.
5. BOTTOM BARS ARE HORIZONTAL REINFORCEMENT WITH LESS THAN 1'-0" OF NEW CONCRETE PLACED BELOW BAR.



90° HOOKS



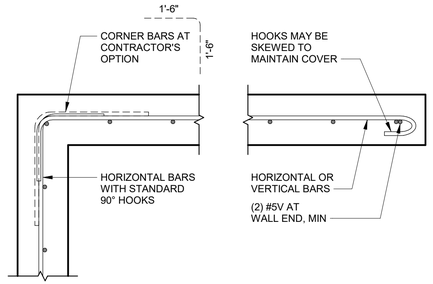
135° HOOKS



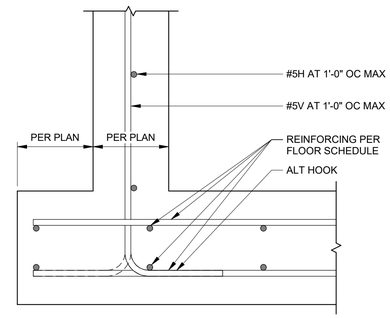
180° HOOKS

BEND DIMENSION SCHEDULE										
	90° HOOKS		135° HOOKS				180° HOOKS			
BAR SIZE	D	A OR G	D	A OR G	H	HOOK LENGTH	D	A OR G	J	HOOK LENGTH
#3	2"	4-1/2"	2"	4-1/2"	2-3/4"	4-1/4"	2"	5"	2-3/4"	3-3/4"
#4	2-1/2"	4-3/4"	2-1/2"	5"	3"	4-3/4"	2-1/2"	5-1/2"	3-1/2"	4-1/4"
#5	3-1/4"	6"	3-1/4"	6"	3-3/4"	6"	3-1/4"	6-1/2"	4-1/2"	4-3/4"
#6	4-1/2"	1'-0"	4-1/2"	8"	4-1/2"	7-3/4"	4-1/2"	8-1/4"	6"	6"
#7	5-1/4"	1'-2"	5-1/4"	9"	5-1/4"	8-3/4"	5-1/4"	9-3/4"	7"	7"
#8	6"	1'-4"	6"	10-1/2"	6"	10"	6"	11"	8"	8"

D = FINISHED INSIDE BEND DIAMETER (INCLUDES SPRING BACK), d = BAR DIAMETER, ACI 318 MINIMUM BEND DIAMETER: #3 - #5: 4d (5d USED IN TABLE), #6 - #8: 6d



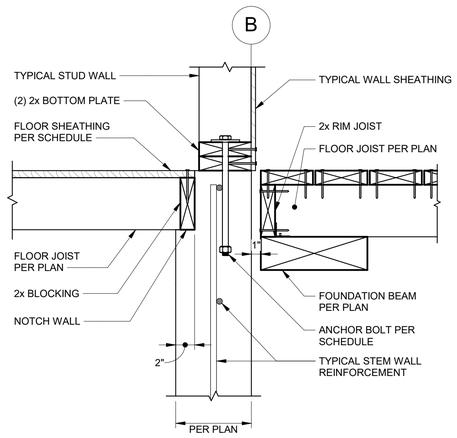
WALL CORNER **WALL END OR TOP**



NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

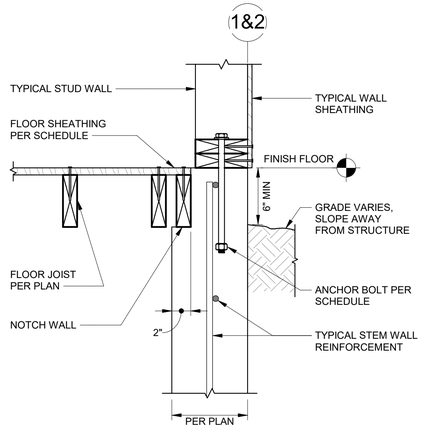
1 TYPICAL LAP SPLICE LENGTHS

S-6A SCALE: 12" = 1'-0"



2 TYPICAL STANDARD HOOK DIMENSIONS

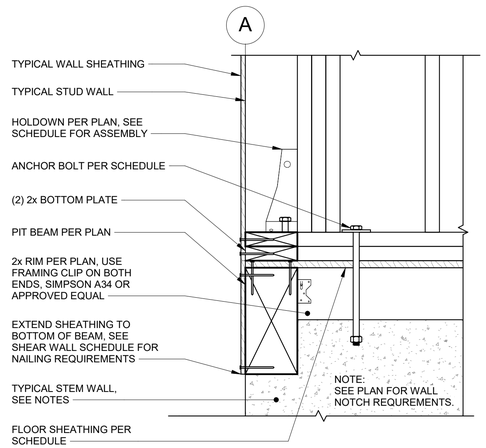
S-6A SCALE: 1" = 1'-0"



NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

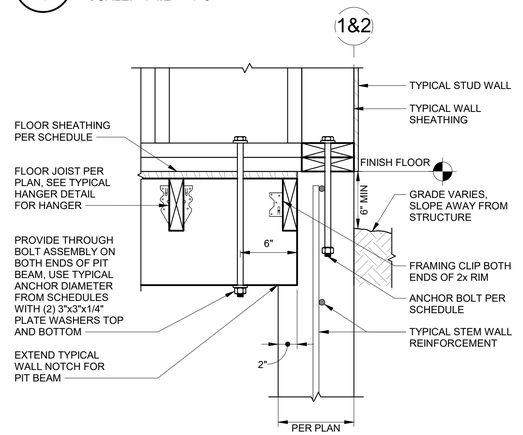
3 TYPICAL SINGLE LAYER WALL REINFORCING

S-6A SCALE: 1" = 1'-0"



4 TYPICAL STEM WALL

S-6A SCALE: 1 1/2" = 1'-0"



NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

5 CONCRETE STEM WALL AT DOOR

S-6A SCALE: 1 1/2" = 1'-0"

6 CONCRETE STEM WALL SECTION PERPENDICULAR

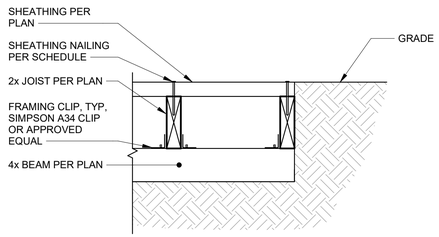
S-6A SCALE: 1 1/2" = 1'-0"

7 PIT BEAM SECTION - HOLDOWN

S-6A SCALE: 1 1/2" = 1'-0"

8 CONCRETE STEM WALL SECTION PIT BEAM

S-6A SCALE: 1 1/2" = 1'-0"



9 TYPICAL APPROACH DETAIL

S-6A SCALE: 1 1/2" = 1'-0"

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ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
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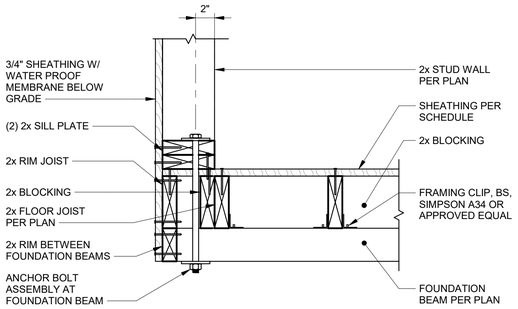
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FOUNDATION AND HOLDOWN DETAILS OPTION A - CONCRETE

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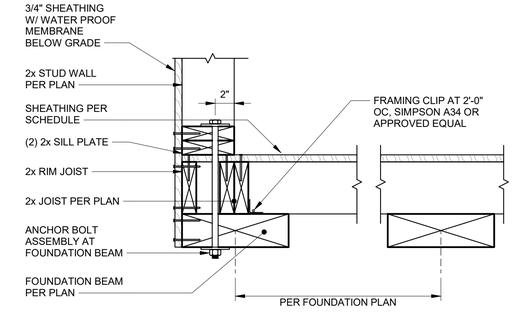
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NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

1 S-6B TYPICAL WOOD FOUNDATION DETAIL

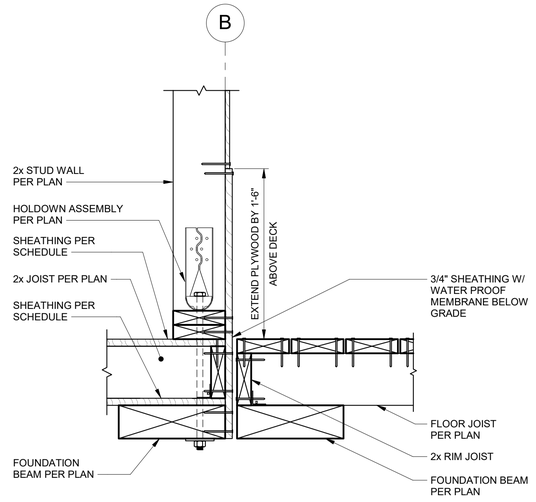
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NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

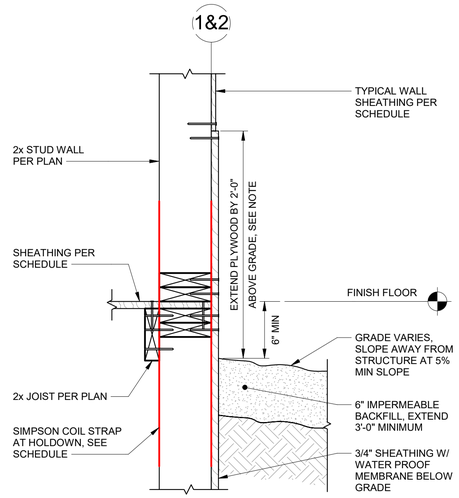
2 S-6B TYPICAL WOOD FOUNDATION DETAIL PARALLEL

SCALE: 1 1/2" = 1'-0"



3 S-6B WOOD FOUNDATION SECTION AT DOOR

SCALE: 1 1/2" = 1'-0"



NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

4 S-6B WOOD FOUNDATION SECTION SIDE WALL

SCALE: 1 1/2" = 1'-0"

5 S-6B PIT BEAM SECTION - HOLDOWN

SCALE: 1 1/2" = 1'-0"

NOTE: MAX FOUNDATION DEPTH SHALL BE 6'-0" BELOW GRADE.

6 S-6B PIT BEAM SECTION - HOLDOWN

SCALE: 1 1/2" = 1'-0"

7 S-6B PIT BEAM SECTION - ANCHOR

SCALE: 1 1/2" = 1'-0"

8 S-6B TYPICAL APPROACH DETAIL

SCALE: 1 1/2" = 1'-0"

CONTRACTOR NEEDS TO VERIFY THIS MASS TIMBER HAS ADEQEUT OVERTURN RESISTANCE AND TO ADD ANCHORS IF MORE RESISTANCE IS NEEDED

USDA FOREST SERVICE

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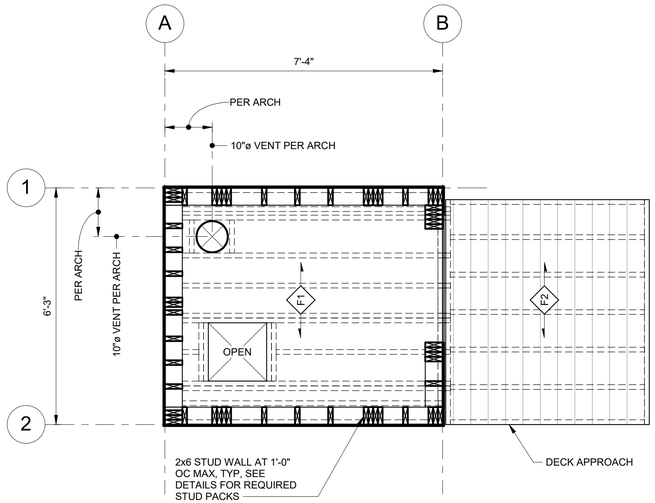
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FOUNDATION AND HOLDOWN DETAILS OPTION B - WOOD

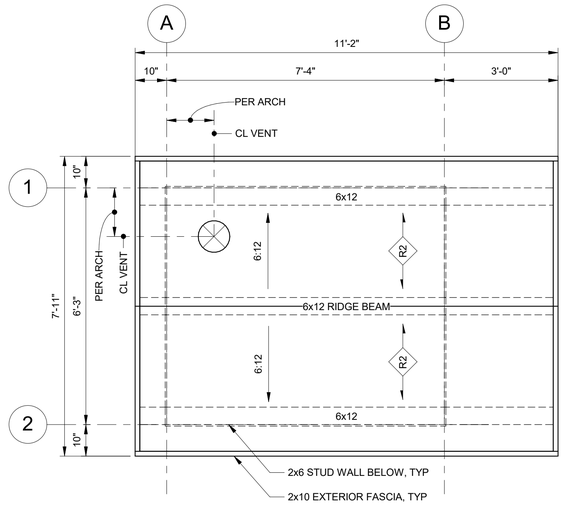
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1 STUD FRAMING PLAN

S-7 SCALE: 1/2" = 1'-0"



2 ROOF FRAMING PLAN

S-7 SCALE: 1/2" = 1'-0"

SHEET NOTES

1. ROOF SHEATHING NOTES:
   A. PLYWOOD PANEL EDGES MUST NOT COINCIDE WITH JOINTS IN FLATWISE 2x T&G DECKING.
   B. PLYWOOD ADJACENT PANEL EDGES PARALLEL TO THE FLATWISE 2x T&G DECKING MUST BE FASTENED TO A COMMON MEMBER.

OUTHOUSE FLOOR & LOW ROOF SCHEDULE - OPTION B

TYPE	FLOOR DESCRIPTION
F1	3/4" T&G PLYWOOD FASTENED WITH 10d NAILS AT 6" OC AT BOUNDARY MEMBERS, 6" OC AT ALL OTHER PANEL EDGES AND 1'-0" OC FIELD.
F2	FLATWISE (1-1/2" THICK) 2x6 DECKING FASTENED WITH (2) 3" #12 DECK SCREWS AT INTERMEDIATE AND END BEARING SUPPORTS, AND (3) #12 DECK SCREWS AT BOUNDARY MEMBERS. DECKING MEMBERS SHALL HAVE A 1/4" GAP BETWEEN THEM.

OUTHOUSE HIGH ROOF SCHEDULE

TYPE	ROOF DESCRIPTION
R2	5/8" STRUCTURAL-1 PLYWOOD OVER (1-1/2" THICK) FLATWISE 2x6 T&G DECKING. FLATWISE 2x6 T&G DECKING SHALL SPAN RAFTER TO RAFTER & BE FASTENED WITH (2) 16d COMMON NAILS AT INTERMEDIATE AND END BEARING SUPPORTS, AND (3) 16d COMMON NAILS AT BOUNDARY MEMBERS. PLYWOOD FASTENED OVER FLATWISE 2x6 T&G DECKING WITH 6d NAILS AT 4" OC AT BOUNDARY MEMBERS, 6" OC AT ALL OTHER PANEL EDGES, AND 6d NAILS AT 6" OC FIELD. SEE ROOF SHEATHING NOTES FOR ADDITIONAL PLYWOOD SHEATHING REQUIREMENTS.

USDA FOREST SERVICE
United States Department of Agriculture
Forest Service

(R10)
ALASKA REGION

BCE
Bratkovsky CONSULTING ENGINEERS INC
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mail@bce-ak.com

RESPEC
Anchorage, AK
3700 Gambell St, Ste 500
Anchorage, AK 99503
Phone: 907.743.3200
www.respec.com
AECC162270

PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

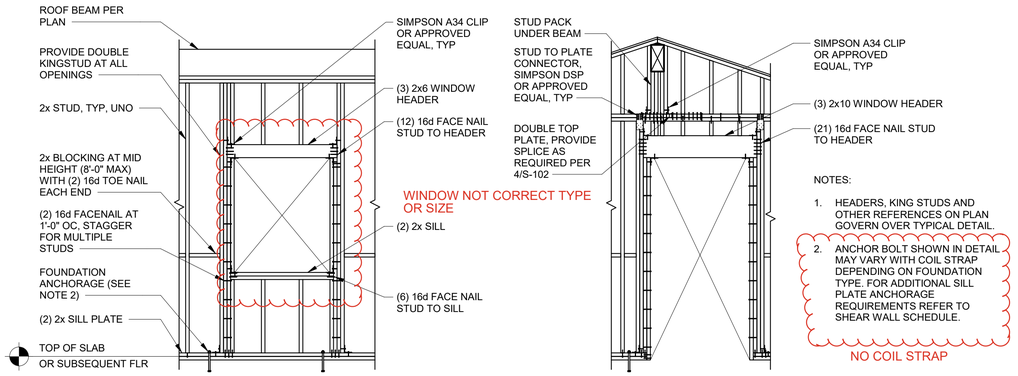
REGION 10 ALASKA

DRAWING TITLE

STUD FRAMING PLAN AND ROOF FRAMING PLAN

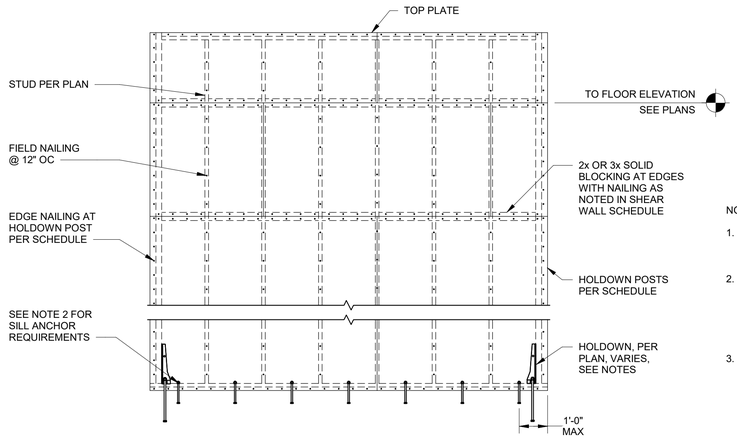
DATE 07/14/2026	ARCHIVE NO. FAC-STRU-I1694.25003_RV25.rvt
DESIGNER JCL	DRAWING SHEET NO. S-7
DRAWN JTR	
CHECKED JEH	
PROJECT NO. I1694.25003	SHEET OF

7/31/2026 11:44:22 AM Autodesk Docs://I1694.25003 - NFF BCE Alaska Cabin Design & Engineering Services/FAC-STRU-I1694.25003_RV25.rvt



1 S-8 TYPICAL BEARING WALL FRAMING ELEVATION

SCALE: 3/8" = 1'-0"



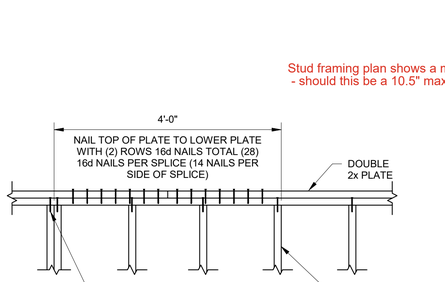
NOTES:

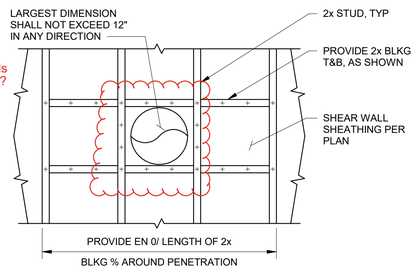
1. ALL FASTENERS TO BE COMMON NAILS. SUBMIT LITERATURE FOR ALTERNATIVE FASTENERS FOR APPROVAL AS PER GENERAL NOTES.
2. ANCHOR BOLTS AND HOLDDOWNS SHOWN IN DETAIL MAY VARY WITH COIL STRAPS DEPENDING ON FOUNDATION TYPE. FOR ADDITIONAL SILL PLATE ANCHORAGE REQUIREMENTS REFER TO SHEAR WALL SCHEDULE.
3. PROVIDE 1/8" GAP BETWEEN EDGE AND SIDES OF SHEATHING PANELS.

2 S-8 TYPICAL SHEAR WALL FRAMING ELEVATION

SCALE: 3/8" = 1'-0"

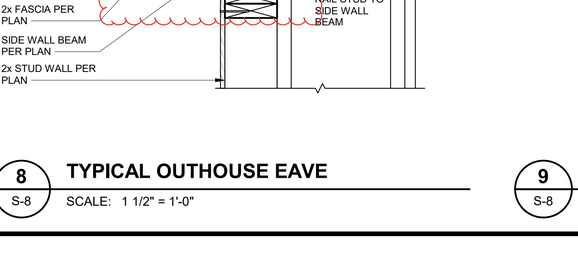
Stud framing plan shows a max of 12" OC for studs - should this be a 10.5" max horizontal dimension?





NOTES:

1. UNLESS INDICATED ON PLANS, COORDINATION OF MULTIPLE PENETRATIONS (2 OR MORE) SHALL BE APPROVED BY THE EOR.

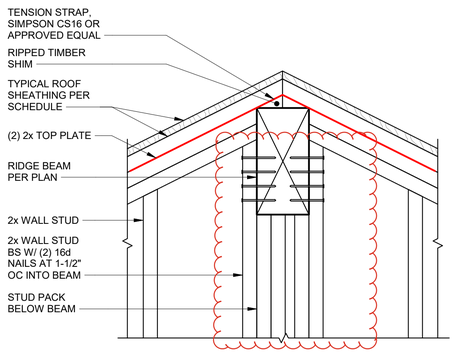


NOTE(S):

1. PLYWOOD PANEL EDGES MUST NOT COINCIDE WITH JOINTS IN FLATWISE 2x DECKING.
2. PLYWOOD ADJCENT PANEL EDGES PARLLEL TO THE FLATWISE 2x T&G DECKING MUST BE FASTENED TO A COMMON MEMBER.

3 S-8 TYPICAL TOP PLATE SPLICE

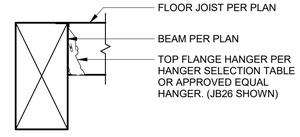
SCALE: 3/4" = 1'-0"



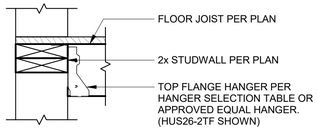
The stud pack appears to be (3) 2x and an additional 1" of ply.
Is this typical/standard practice or should that be identified on the drawings?

4 S-8 TYPICAL SHEAR WALL PENETRATION

SCALE: 3/4" = 1'-0"



BEAM CONDITION

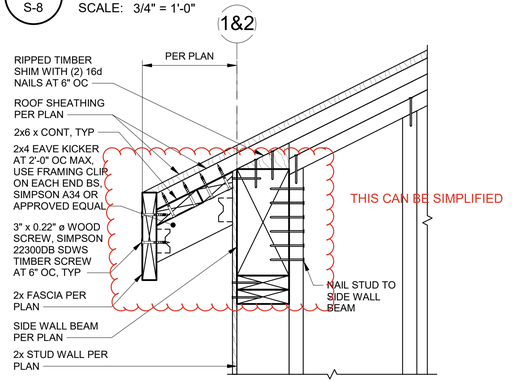


STUDWALL CONDITION

HANGER SELECTION TABLE	
JOIST	HANGER
2x6	JB26
(2) 2x6	HUS26-2TF

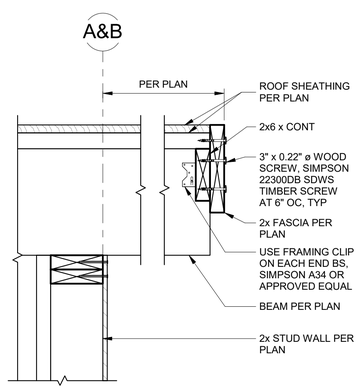
5 S-8 TYPICAL DIAPHRAGM NAILING

SCALE: 3/4" = 1'-0"



10 S-8 TYPICAL DIAPHRAGM OPENING

SCALE: 1" = 1'-0"



6 S-8 TYPICAL RIDGE BEAM CONNECTION

SCALE: 1 1/2" = 1'-0"

7 S-8 TYPICAL HANGER DETAIL

SCALE: 1 1/2" = 1'-0"

8 S-8 TYPICAL OUTHOUSE EAVE

SCALE: 1 1/2" = 1'-0"

9 S-8 TYPICAL OUTHOUSE RAFTER

SCALE: 1 1/2" = 1'-0"

USDA FOREST SERVICE
United States Department of Agriculture
Forest Service

(R10)
ALASKA REGION

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mail@bce-ak.com

RESPEC
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3700 Gambell St, Ste 500
Anchorage, AK 99503
Phone: 907.743.3200
www.respec.com
AECC16270

PRELIMINARY DOCUMENTS NOT FOR CONSTRUCTION

PROJECT NAME

EXTREME HIGH HAZARD

ABOVE-GROUND ROLL-OUT VAULT OUTHOUSE
90% DESIGN

CHUGACH & TONGASS NATIONAL FOREST

REGION 10 ALASKA

DRAWING TITLE

FRAMING DETAILS

DATE	ARCHIVE NO.
07/14/2026	FAC-STRU-I1694.25003_RV25.rvt
DESIGNER: JCL	DRAWING SHEET NO. S-8
DRAWN: JTR	
CHECKED: JEH	
PROJECT NO.: I1694.25003	SHEET OF

7/31/2026 11:44:23 AM Autodesk Docs://I1694.25003 - NFF BCE Alaska Cabin Design & Engineering Services/FAC-STRU-I1694.25003_RV25.rvt

APPENDIX 1

National Forest Foundation

REQUEST FOR INFORMATION (RFI)

PROJECT NAME:	RFI NUMBER:
	00x
CONTRACTOR COMPANY & POINT OF CONTRACT:	**ORIGINATOR OF RFI**
	☐ USFS/NFF
	☐ CONTRACTOR

SUBMITTAL DATE	DUE BY DATE (10 biz days)	SPECIFICATION/DRAWING SECTION:
		Example: Appendix X, page x

RFI OVERVIEW	TO BE REVIEWED AND APPROVED BY (USFS):

CHANGE IN COST			CHANGE IN TIME		
☐	NO CHANGE		☐	NO CHANGE	
☐	INCREASE IN COST	$	☐	INCREASE IN TIME	# of Calendar Days =
☐	DECREASE IN COST	$	☐	DECREASE IN TIME	# of Calendar Days =

INFORMATION REQUESTED / CLARIFICATION REQUIRED:
NAME & TITLE OF SUBCONTRACTOR REQUESTING INFORMATION (IF APPLICABLE)::
COST AND SCHEDULE IMPACT DETAILS (IF APPLICABLE):

RESPONSE:	
NAME & TITLE OF RESPONDING PARTY (USFS)	**DATE OF RESPONSE**
NAME & TITLE OF RESPONDING PARTY (NFF)	**DATE OF RESPONSE**

For questions regarding use of this form, please email cauwaerter@nationalforests.org.

APPENDIX 2

National Forest Foundation

SUBMITTAL TRANSMITTAL

SUBMITTAL #	SUBMITTAL DATE:	☒ New	SUBMITTAL TITLE:
00X	MM/DD/YYYY	☐ Resubmittal	
CONTRACTOR COMPANY & POINT OF CONTACT:			SPECIFICATION/DRAWING SECTION:
Contractor Company, Name			
PROJECT NAME:		TO BE REVIEWED AND APPROVED BY (USFS):	DUE BY DATE (10 biz days):
Mendenhall Lake Cabin		Sophia Lee/David Tomlinson	MM/DD/YYYY

Item #	DESCRIPTION (Materials, Shop Drawings, Test Data, Design, etc.)	APPROVED	REJECTED	APPROVED AS NOTED	CONDITIONALLY APPROVED
		☐	☐	☒	☐
		☐	☐	☐	☒
		☐	☐	☐	☐
		☐	☐	☐	☐

CONTRACTOR COMMENTS: Through submission of this form, the contractor certifies that the product/item offered is in compliance with the service agreement, except as noted:

REVIEWER COMMENTS:

Be advised that acceptance of any portion of this submittal does not relieve the contractor in any way of the responsibility to meet all contract requirements in the case of an omission or discrepancy in the submittal process.

NAME & TITLE OF RESPONDING PARTY (USFS)	DATE OF RESPONSE
NAME & TITLE OF RESPONDING PARTY (NFF)	**DATE OF RESPONSE**

For questions regarding use of this form, please email cauwaerter@nationalforests.org.

	SCHEDULE OF MATERIAL SUBMITTALS													PROJECT NAME								CONTRACTOR
		TO BE COMPLETED BY CONTRACTOR												TO BE COMPLETED BY CONTRACT ADMINISTRATOR								
LINE NUMBER	Note: 3 copies required per submittal. Government will retain all submittals. Provide an electronic copy for each submittal.	CERTIF. OF COMPLIANCE	SHOP DRAWINGS	COLOR SELECTION	MANUFATURUR'S RECOMMENDATION	CATALOG DATA	O&M RECOMMENDATIONS	CALCULATIONS	WARRANTY	DRAWINGS	REPORT	OTHER	REQUIRED SUBMISSION DATE	DATE TO CONTRACTING	DATE TO CIVIL ENGINEERING	RETURN SUSPENSE DATE	SUBMITTAL NUMBERS	APPROVED	DISAPPROVED	CONTRACTOR SUBMITTAL	FINAL APPROVAL	NOTES
	GENERAL																					
1	Contract Progress Schedule										X		NTP + 15									
2	Contractor's Health, Safety, and Environment Plan										X		NTP + 15									
3	Contractor's QA/QC Plan										X		NTP + 15									
	CIVIL																					
4	Geotechnical Soil Report							X			X		NTP + 30									
5	Erosion Control Plan									X	X		NTP + 30									
	ARCHITECTURAL																					
6	Propane Tank	X				X			X				NTP + 30									
7	Fiberglass Grate, Ramp and Stair Systems	X				X			X				NTP + 30									
8	Fire Escape Ladder	X				X	X		X				NTP + 30									
9	Roof & Floor Decking	X				X			X				NTP + 30									
10	HDO-MDO Plywood	X				X			X				NTP + 30									
11	Log Fasteners	X				X			X				NTP + 30									
12	Stainless Steel Countertop	X				X			X				NTP + 30									
13	Gutters & Downsprouts	X				X	X		X				NTP + 30									
14	Insulation	X			X	X	X		X				NTP + 30									
15	Metal Roofing	X			X	X	X		X				NTP + 30									
16	Snow Guards				X	X	X		X				NTP + 30									
17	Entry Door	X		X	X	X	X		X				NTP + 30									
18	Interior Door	X		X	X	X	X		X				NTP + 30									
19	Vinyl Windows	X		X	X	X	X		X				NTP + 30									
20	Exterior Stain	X		X	X	X	X		X				NTP + 30									
21	Stain Color Chart	X		X	X	X	X		X				NTP + 30									
22	Stripping Paint	X		X	X	X	X		X				NTP + 30									
23	Lantern, Gear & Clothing Hooks			X	X	X	X		X				NTP + 30									
24	Fire Extinguisher	X			X	X	X		X				NTP + 30									
25	Propane Heater				X	X	X		X				NTP + 30									
26	Wood Stove				X	X	X		X				NTP + 30									
27	Entrry Door Hardware (Hinges, Knob & Lever)			X	X	X	X		X				NTP + 30									
28	Interior Door Hardware (Hinges, Knobs)			X	X	X	X		X				NTP + 30									

	SCHEDULE OF MATERIAL SUBMITTALS	PROJECT NAME	CONTRACTOR

	TO BE COMPLETED BY CONTRACTOR												TO BE COMPLETED BY CONTRACT ADMINISTRATOR								
LINE NUMBER	Note: 3 copies required per submittal. Government will retain all submittals. Provide an electronic copy for each submittal.	CERTIF. OF COMPLIANCE	SHOP DRAWINGS	COLOR SELECTION	MANUFATURUR'S RECOMMENDATION	CATALOG DATA	O&M RECOMMENDATIONS	CALCULATIONS	WARRANTY	DRAWINGS	REPORT	OTHER	REQUIRED SUBMISSION DATE	DATE TO CONTRACTING	DATE TO CIVIL ENGINEERING	RETURN SUSPENSE DATE	SUBMITTAL NUMBERS	APPROVED	DISAPPROVED	CONTRACTOR SUBMITTAL	FINAL APPROVAL	NOTES
29	Food Storage Locker					X	X		X				NTP + 30									
30	Steel Bollards					X	X		X				NTP + 30									
31	Wheelstop					X	X		X				NTP + 30									
	STRUCTURAL																					
31	Concrete Mix Design										X		NTP + 30									
32	Double T&G Profile									X			NTP + 30									
33	Simpson Connection Brackets				X	X	X		X				NTP + 30									
34	Helical Piers				X	X	X		X				NTP + 30									
35	Outhouse Kit	X	X	X	X	X	X	X	X	X			NTP + 30									
	CLOSEOUT																					
35	As Builts (electronic in AutoCAD and PDF formats)									X			Final + 7									

Appendix 4: Environmental Summary

Important Note: This document may not be all inclusive and is not intended to be a replacement for the Project Specifications or federal/state/local regulations and laws. It is intended to be a quick reference guide and reminder of key environmental requirements. The Contractor is responsible for being familiar with the Project Specifications and all applicable laws and regulations.

Ecology				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Equipment Cleaning	Clean all equipment before entering National Forest land; USFS inspection for invasive plant propagules	require inspection prior to entry	Applies to heavy equipment	DOI Tech Memo No. 86-68220-07-05; USFS
Weed-Free Materials	All fill must be certified weed-free	Verify certifications prior to delivery	—	Spec 01 56 00, 1.5
Vegetation Protection	Limit trampling; use existing routes/trails; minimize new trail establishment	Limit staging duration to avoid vegetation mortality	—	Spec 01 56 00, 1.5
Revegetation (Natural)	Use natural revegetation where conditions are favorable	Assess seed source/site conditions	—	Spec 01 56 00, 1.5
Revegetation (Native)	Use native, locally sourced plants if natural revegetation is not favorable		—	Spec 01 56 00, 1.5

Fisheries & Aquatic Resources				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Shoreline & Nearshore	Maintain shore character (vegetation, banks, substrate), except localized recreation development	Avoid unnecessary alteration	—	Spec 01 56 00, 1.8
Streambanks & Channels	Keep channels/streambanks undisturbed	Minimize riparian tree felling; fell toward stream and leave whole if required	—	Spec 01 56 00, 1.8
Riparian Access	Minimize travel in riparian management zones	Protect vegetation and banks from trampling/degradation	—	Spec 01 56 00, 1.8
Pit Privy (Siting)	Do not install in flood-prone areas; maintain vertical separation to water table	Minimum 4 ft vertical separation at seasonal high water table	—	Spec 01 56 00, 1.7 Alaska DEC
Fuel Handling	Refuel/store fuel & equipment outside riparian zones	Keep >100 ft from surface/drinking water	100 ft minimum setback	Spec 01 56 00, 1.8

Archeology/Heritage				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Cultural Discoveries	Stop work if cultural properties encountered or trail tread degrades	Notify NFF immediately	During any implementation	36 CFR 800.13(b)
Material Transport	Use trail corridor without impacting tread	If impacts occur, cease and adjust transport method	No adverse effect if fabric/tread protected	USFS

Hydrology & Soils				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Siting of Roads/Trails	Avoid riparian areas, wetlands, floodplains, alluvial fans/outwash where practicable	Fit terrain; follow contours; limit excavation	—	USFS
Outhouse Setbacks	Maintain horizontal separation from waters	≥100 ft from lakes/rivers/streams/springs/sloughs/coastal mean higher high water	Measured horizontally	Alaska DEC (18 AAC 72.020) Spec 01 56 00, 1.7
Pit Privy Flooding	Do not install in flood areas	Maintain ≥4 ft vertical separation to highest seasonal water table	—	Alaska DEC Spec 01 56 00, 1.7
Erosion Control	Develop ESPC, practice erosion control throughout project	Establish and maintain erosion control measures	—	Spec 01 56 00, 1.3
Disturbance Limits	Do not disturb soils outside project footprint	Minimize clearing/excavation/surface disturbance	—	Spec 01 56 00, 1.7

Subsistence				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Seasonal Notice	Notify public if work during subsistence seasons	Provide ≥14-day public notice; notify NFF 30 days prior to Aug 1 if work occurs Aug 1–Jun 30	Subsistence season: Aug 1 – Jun 30	Spec 01 56 00, 1.10

Wildlife (Terrestrial & Avian)				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Migratory Birds	Avoid vegetation clearing/site prep during breeding season	No clearing May 1–Jul 15	—	USFWS–USFS MOU (2008) Spec 01 56 00, 1.11
Bald Eagles (Nesting)	Avoid disturbing nesting eagles	No clearing within 660 ft, Mar 1–Aug 31	Maintain buffers; avoid clear cutting within 330 ft	Spec 01 56 00, 1.11
Raptor Nests	Report discovered raptor nests	Notify NFF; apply protective measures	Maintain buffers; avoid clear cutting within 330 ft	Spec 01 56 00, 1.11
Goshawk Nests	Report discovered goshawk nests	Notify NFF; apply protective measures	Maintain buffers; avoid clear cutting within 330 ft	Spec 01 56 00, 1.11
Osprey Nests	Report discovered osprey nests	Notify NFF; apply protective measures	Maintain buffers; avoid clear cutting within 330 ft	Spec 01 56 00, 1.11
Oystercatchers	Report discovered oystercatcher nests	Notify NFF; apply protective measures	Maintain buffers; avoid clear cutting within 330 ft	Spec 01 56 00, 1.11

Wildlife (Terrestrial & Avian)				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
Entrapment Prevention	Design infrastructure to prevent wildlife entry/entrapment	Screen pipes/cavities ≥1.5" dia; screen vault toilet vent pipes	—	Spec 01 56 00, 1.11
Human–Bear Interface	Design/manage camps & facilities to minimize adverse interactions	Store food/garbage/odorous attractants in bear-resistant manner or under direct attendance	—	Spec 01 56 00, 1.11
Shorebird Nests	Do not encroach near black oystercatcher nests	Maintain ≥330 ft distance	—	Spec 01 56 00, 1.11
Non-native Slugs	Report European black slug sightings	Provide GPS or map dot to permit administrator	Montague Island sightings prioritized	Spec 01 56 00, 1.11
Trumpeter Swan Nests	Maintain habitat mgmt zone	0.5-mile radius around active nests; within zone: no new roads/trails; maintenance OK if non-disturbing; vegetation mgmt only for restoration and non-disturbing	Prevent disturbance during nesting season	Spec 01 56 00, 1.11

Wildlife (Marine Mammals)				
Topic	**Key Requirements**	**Actions / Prohibitions**	**Thresholds / Notes**	**Reference**
General Viewing	Adhere to NMFS Alaska Marine Mammal Viewing Guidelines	Minimize disturbance during authorized activities	—	NMFS / MMPA / ESA Spec 01 56 00, 1.11
Steller Sea Lion Habitat	Prohibited actions within critical habitat	Maintain ≥3,000 ft buffer	—	NMFS / ESA Spec 01 56 00, 1.11
Haul-out Approach	Avoid close approaches to hauled-out seals/sea lions	Maintain ≥750 ft; if closer is necessary for safety: proceed compactly, constant speed, maximize distance	Delay activities within 750 ft or if disturbance occurs	NMFS Spec 01 56 00, 1.11
Humpback Whales	Follow Alaska Humpback Whale Approach Regulation	Do not approach within 100 yards; do not place vessel in path; do not disrupt behavior; operate at slow, safe speed near whales	50 CFR §§ 216.18, 223.214, 224.103(b)	NMFS Spec 01 56 00, 1.11

A. Submittal Requirements

Submit the following Plans for review and acceptance a minimum of 14 calendar days prior to the Pre-Construction Conference. All plans shall cover the full duration of the project.

1. Project Work Plan

Purpose: Describes all aspects of the proposed construction and the Contractor's technical approach to the project. See Specification Section 01 11 00 for additional information.

The plan shall include, but not be limited to:

- Proposed timeline and schedule, showing Critical Path tasks
- Logistical plans for material, equipment and personnel mobilization and storage
- Field personnel and roles
- Health and Safety
  - Fall arrest plans
  - Hazardous material control plan, if applicable
  - Protections for public safety

2. Site Use and Camping Plan

Purpose: Provide a comprehensive plan addressing site security, operational layout, camp facilities, and health and safety compliance. See Specification Section 01 14 13 for additional information.

The plan shall include, but not be limited to:

- Site Security
  - Securing the site from the public, bears, and other wildlife
  - Measures to minimize impacts to existing wildlife and habitat
  - Safety protocols for human and wildlife interactions
- Site Usage & Operations
  - Site access points and control measures
  - Types of equipment and designated use areas
  - Travel routes and traffic control
  - Equipment storage and laydown areas
  - Hazardous material storage and handling
  - Power generation systems and safety measures
  - Materials storage and segregation
  - Helicopter operating areas (if required)
  - Construction operations within sensitive areas and protection measures
- Camp Plan
  - Location and type of crew camp (field camp)
  - Facilities to be used (sleeping, dining, sanitation)

  - Cooking facilities and food storage protocols
  - Water supply and treatment
  - On-site power generation and backup systems
- Debris and Waste Disposal
  - Location(s) and material(s) to be disposed of
  - Transportation and disposal methods
  - Permits, if required
- Site Restoration
  - Clean-up and restoration plans for the site

---

3. Erosion & Sedimentation Control Plan (ESCP)

Purpose: Provides detailed information about the construction site, limit of Work, and shows the location, installation, and maintenance of permanent and temporary prevention of erosion and control of sedimentation during construction. See Specification Section 01 56 00 for additional information.

The plan shall include, but not be limited to:

- A Site Map displaying the following:
  - Drainage patterns and nearby water bodies likely to receive discharges from disturbed areas of the project
  - Approximate areas of soil disturbance
  - Proposed locations, quantities, and types of erosion and sediment control methods
- A brief written narrative
  - Appropriate control measures and the period during the construction process that the measures will be implemented
- Specifically address your plan for controlling and managing erosion and sedimentation during construction at the following locations:
  - All construction adjacent to existing drainages, streams, lakes, water bodies, wetlands, and other sensitive areas.
  - Designated disposal sites and material sites
  - Any additional sites which may be sensitive due to the proposed construction operation (including contractor supplied material and disposal sites, staging areas, and stockpile locations).
- Inspections: Identify the Contractor personnel responsible for inspection of the project's erosion and pollution control measures
- Responsible Party: Clearly identify the Contractor and/or Subcontractors that will implement and maintain the measure.

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4. Quality Control Plan (QCP)

Purpose: Provides detailed information about the Contractor's procedures and personnel relating to contract Quality Control. See Specification Section 01 43 00 for additional information.

The plan shall include, but not be limited to:

- Quality Control personnel
    - Name, authority, responsibilities, and qualifications of QC Manager and other personnel directly involved in inspecting and testing
- QC Procedures
    - Inspection, testing, and other activities to be performed for each phase of work
    - Methods, schedules, equipment, and laboratory facilities
- List the materials to be tested
- Records: Describe the reporting format for inspection, testing, certification, and daily reports.