

## SECTION 011000 - SUMMARY

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Use of premises.
3. Access to the site.
4. Coordination with the occupants.
5. Work restrictions.
6. Specification formats and drawing conventions.
7. Miscellaneous provisions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitation and procedures governing temporary use of Owner's facilities.
2. Division 01 Section "Historical Site Work" for procedures governing work on historic facilities.

C. Primary Importance:

1. Bannack State Park is recognized by the state and federal government as being a National Landmark Historic District in the National Register of Historic Places. All work shall comply with the Secretary of the Interior's Guidelines for the Preservation of Historic Properties.
  - a. **Preservation** is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.
  - b. The grounds and structures within the site, not specifically called out for work in these documents, shall be protected from damage.
  - c. Each employee of the Contractor and his sub-contractors shall be informed of the historic nature of Bannack. Any artifacts discovered in the course of the work – nails, glass, bones, wood, etc. – are valuable and are the property of the State of Montana. Any such findings shall be reported to Montana Fish, Wildlife & Parks and NOT be removed from site by other than Montana Fish, Wildlife & Parks.
2. All existing materials scheduled to remain will be protected from damage.

## 1.2 PROJECT INFORMATION

- A. Project Identification: Bannack State Park – Historic Structure Re-Roofing
  - 1. Project Location:  
Bannack State Park  
721 Bannack Road  
Dillon, Montana 59725  
Latitude/Longitude: (45.1606846 / -112.994215)
- B. Owner: Montana Fish, Wildlife & Parks
  - 1. Owner’s Representative: Randi Rognlie, Project Manager  
State of Montana Fish, Wildlife and Parks  
Design & Construction Bureau  
1522 Ninth Avenue  
Helena, Montana  
Phone: (406) 841-4009  
Cell: (406) 421-3755
  - 2. Park Manager: Milo Root
  - 3. Assistant State Park Manager: Roger Kasak
- C. Architect: Gilmore Franzen Consulting LLC, 180 North Low Bench Road, Gallatin Gateway, MT 59730

## 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists of the following:
  - 1. The work consists of removing and replacing cedar shingles and related materials from:
    - a. Base Bid: The Manager’s House & Office (A1-1).
    - b. Alternate No. 1: The Fire House (B16-2).
    - c. Alternate No. 2: The Gibson House (B10).
  - 2. All work associated with the re-roofing project and included in these specifications shall be considered incidental, including but not limited to: fasteners, seals, flashing, ridge cap, existing roofing removal and disposal, roofing preparation and installation, site protection, and associated work.
  - 3. It is the contractor’s responsibility to confirm dimensions and layout for quantifying materials. Slope factor, waste, and overlap is considered incidental to the project and will not be paid as extra.

## 1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

## 1.5 USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations, including use of Project site, during construction period.

- B. Use of Site: Limit use of premises to areas within the boundaries of Bannack State Park. Do not disturb portions of Project site beyond areas in which the Work is indicated.
- C. Staging Area: Designated area for Contractor parking is in the Park maintenance yard or as otherwise approved by Park Management.
- D. Use of site: Limit use of Project site to work in areas of re-roofing. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Keep the building entrances clear and available to Owner, Owner's employees, the public and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of this site by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
    - c. Do not drive vehicles or equipment on the grounds around the buildings or off established roads unless approved by the Park Manager. It is understood that pneumatic- wheeled equipment such as a manlift may be necessary to drive onto the site to perform the work. Any damage to the ground area around the buildings shall be repaired by the Contractor at no cost to the Owner.
  - 2. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair any damage caused by construction operations.

#### 1.6 COORDINATION WITH OCCUPANTS

- A. Owner Occupancy: Owner will occupy the Manager's House and Office during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate safe Owner and Public usage. Perform the Work so as not to interfere with Owner's day-to-day operations.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.
  - 3. Contractor shall coordinate work at the Manager's House and Office with the Park Manager.

#### 1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
- B. On-Site Work Hours: Project work will be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. Additional hours or working days are subject to Owner approval with prior notice. Contractor must give Owner a minimum of two (2) days' notice for working hours outside of those indicated above.
- C. Work Suspension Periods: The Contractor shall suspend work and completely clean up the site(s) during the following two time periods:

1. Bannack Days: July 9-18, 2022
  2. Living History Days: September 13-19, 2022.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruptions to Owner occupancy with Owner.
1. Notify Owner not less than two days in advance of proposed disruptive operations.
  2. Undesirable language and other such devices such as excessively loud radios and conversation are hereby specifically prohibited on the project site.
- E. Smoking is not permitted on the site due to fragile wildfire conditions in and around Bannack. Workers may smoke in their vehicles.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- G. The following conditions shall be followed during the Contractor's presence in the Park:
1. To prevent the unnatural attractants to animals, no foods, garbage, drinks, trash, or food and drink containers shall be placed outside trailers or buildings, except during actual use. Outside cooking at the construction site is prohibited.
  2. Pets are prohibited.
  3. Feeding of any wildlife or livestock is prohibited.
- H. Preservation of Natural Features: Confine all operations to work limits of the project. Prevent damage to natural surroundings. Restore damaged areas, at no additional expense to the Owner.
- I. Existing Utilities: Notify Architect/Engineer and utility companies of proposed locations and times for excavation.
1. Contractor shall be responsible for locating and preventing damage to known utilities. If damage occurs, repair utility at no additional expense to the Owner.
  2. If damage occurs to an unknown utility, repair utility. An equitable adjustment will be made in accordance with Contract.
  3. Do not interrupt existing utility services serving occupied buildings without the approval of the Owner's representative and utility authority. 72 hours-notice is required for any planned utility interruptions. Substitute utility service shall be provided for utility service interruptions lasting more than four hours. To the greatest extent possible, utility service interruptions shall be limited to non-working hours.
- 1.8 MISCELLANEOUS PROVISIONS
- A. Crews must be supervised at all times by a competent superintendent.
  - B. See Special Conditions.
- 1.9 FIELD VERIFICATION
- A. Contractor to verify and document existing conditions prior to start of work or ordering products.

1.10 CONTRACTOR-FURNISHED ITEMS

- A. All materials shall be Contractor-furnished from outside the park, unless otherwise indicated.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  - 3. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

## SECTION 012200 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.

#### 1.2 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 SCHEDULE OF UNIT PRICES

- A. The Unit Price numbering below matches the Item # on the Bid Proposal Form.
- B. Unit Price 1: Replacement of roof decking board.
  - 1. Description: Removal and replacement of existing deteriorated, structurally unsound roof decking. This includes installation of decking board furnished by BSP.
  - 2. Unit of Measurement: Linear foot.

END OF SECTION 012200

## SECTION 012300 - ALTERNATES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section includes non-technical descriptions of Alternates. Refer to specific sections of the Specifications and to Drawings for technical descriptions of Alternates.
- B. Coordinate related work and modify surrounding work as required to integrate Alternates into the Work.
- C. Base Bid includes all work indicated, except work described as Alternates.
- D. The Owner reserves the right to award none, anyone, or more in any order, or all Alternates in combination with work covered by Base Bid.
- E. Alternates will not be awarded without awarding Base Bid.
- F. The Owner reserves the right to determine low bid as Base Bid alone or sum of Base Bid and any combination of Alternates.
- G. Each Alternate is intended to cover all work required for a complete finished job.
- H. Alternates are additive to the Base Bid. Provide costs in appropriate spaces provided on Bid Form.
- I. Submit bids for Base Bid and all Alternates listed on Bid Form. Failure to quote an amount, or insertion of the words "no bid," "none" or words of similar meaning, will be considered as not completing the proposal and may constitute disqualification of entire bid, at the Owner's discretion. When there is no change in base bid due to using the Alternate, use the words "No Change". The words "No Change" will be interpreted to mean that work described in the Alternate shall be completed at no adjustment or change in cost of Base Bid.
- J. Base Bid and Alternates are exclusive in their scope of work. There is no overlap between or among Base Bid and Alternates. The cost of any item of work shall be included only once, in Base Bid or in Alternates.

#### 1.2 DESCRIPTION OF ADDITIVE ALTERNATES

- A. Additive Alternate 1: Re-roof the Fire House, Building #B16-2.
- B. Additive Alternate 2: Re-roof the Gibson House, Building #B10.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION (NOT USED)

END OF SECTION 012300

## SECTION 014121 – HISTORICAL SITE WORK

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes historical site preservation.

#### 1.2 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and other items of interest or value to Owner that may be uncovered during operations remain the property of Owner.

### PART 2 - SITE AREAS

#### 2.1 SITE AREA REQUIREMENTS

- A. Refer to Division 01 – “Summary” for a description of the work and other site requirements.

### PART 3 - EXECUTION

#### 3.1 HISTORICAL SITE PRESERVATION

- A. Original Condition: The Contractor shall keep historical sites in original conditions or return to original conditions when applicable at Owners approval. This includes but is not limited to the following:
  1. Historical building(s) shall be kept in as-is condition. Necessary construction in those buildings shall be done in a neat and workman like manner. Accumulated debris shall be cleaned each day to the condition the building was found in and to the satisfaction of the Park Management.
  2. It is expected that work in these buildings will be done with the utmost care. Contractor shall report any damage immediately to the Park Management to determine the method and means of repairs.
  3. Contractor shall be responsible for any damages to historic buildings, sidewalks, fences or any other items of archeological significance. All costs of Contractor caused damage shall be borne by the Contractor. Careless construction will not be tolerated and will be subject to a Stop Work order and evaluation of personnel and methods involved.
  4. Any disturbed ground shall be returned to original surface condition. Contractor is responsible for any seeding. Seeding mix will be specified by Owner.
  5. Contractor shall be responsible for bracing building rafters/walls to enable access and movement in buildings where building integrity is of concern. Contractor shall be responsible to bring any integrity issues of buildings to the Owner and Architect.
  6. Contractor shall be responsible for taking before and after pictures of all areas and buildings where work is being performed. The Contractor must provide the Owner with a digital copy of both before and after pictures when the job is completed.



- B. Uncovered Artifacts: For historical sites, there is a likely probability that artifacts will be uncovered during Work.
  - 1. If an artifact is uncovered, the Contractor is responsible to immediately notify the Park Management or onsite archaeologist.
  - 2. In the case of an uncovered artifact, the Contractor is expected to move ahead to another work area after notifying the proper personnel. Onsite archaeologist will need adequate time to carefully examine the artifact.
  - 3. It is at the archaeologist or Owner's discretion on when work can resume in the area of where the artifact was uncovered.
  
- C. Temporary Protection: Provide temporary barricades, signs and other protection required to prevent injury to people and damage to adjacent buildings and facilities.
  - 1. The Park will remain open to the public during construction. Park management must be notified and updated on a routine basis as to scheduled closing and reopening of work areas. To the extent practical, Work shall be scheduled to minimize impact to the public.
  - 2. Provide protection to ensure safe passage of people around selective work area and to and from occupied portions of building.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective operations.
  
- D. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of the building that is being worked on.
  - 1. The design for work in the buildings is, for the most practical degree, for an installation that would be possible with the least amount of hazard to the worker and the least likelihood of damage to the building. Historic buildings are fragile and contractor care is imperative.
  
- E. Remove temporary barricades and protections where hazards no longer exist.
  
- F. Remedy property damage: The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor of any tier or level, or anyone employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible.

END OF SECTION 014121

## SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Division 01 Section "Summary" for work restrictions.

#### 1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Owner and authorities having jurisdiction.
- B. Utilities from Existing System: The existing electrical infrastructure may be utilized by the Contractor at no cost but with coordination with Park Management.

#### 1.3 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service.

#### 1.4 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: The existing electrical infrastructure may be utilized by the Contractor, however the Contractor may plan on providing portable generators. Water is available in minor quantity. Propane and other fuel is not available to the Contractor.

### PART 2 - PRODUCTS

#### 2.1 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units. Contractor's option- Field office not required at project site.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations. Contractor's option – Storage shed not required at project site.
- C. Toilet Facility: Locate in designated staging area, or as otherwise approved by Park Management. At this site, the Park sanitary facilities may be utilized by the Contractor.

## 2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures. Due to fragile nature of the structures and location, the contractor must have fire extinguishers on the site daily.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Connect to existing service.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel or make arrangements with Park Management to use Park sanitary facilities. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities, including any requirements related to Covid-19.
- C. Electric Power Service: Provide Contractor supplied portable generators if necessary.
- D. Telephone Service: Provide job superintendent with a cellular phone to use on the job site or away from the job site.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. Parking: Use area(s) designated by Owner for construction personnel.
- B. Waste Disposal Facilities: Provide covered waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. The Owner's waste receptacles shall not be used by the Contractor.
- C. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.4 SECURITY AND PROTECTION

- A. Contractor is solely responsible for security and protection of all temporary facilities, equipment and materials stored on site.

- B. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities caused by Contractor.
- C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- D. Tree and Plant Protection: Protect vegetation from damage from construction operations. Replace vegetation damaged from work in this Contract. Replace damaged trees and plants as directed by the Project Representative at no cost to the Owner.
- E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Termination and Removal: Remove each temporary facility when need for its service has ended. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION 015000

## SECTION 070150 – PREPARATION FOR RE-ROOFING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. This Section includes the following:

1. Roof tear-off.

B. Related Requirements:

1. Division 01 Section “Temporary Facilities and Controls” for limitation and procedures governing temporary use of Owner’s facilities.
2. Division 01 Section “Historical Site Work” for procedures governing work on historic facilities.

#### 1.2 SUBMITTALS

A. Contractor shall submit to the Owner the following information at least 5 business days prior to starting work:

1. Procedures for protecting site features which may be impacted by the reroofing project.
2. Procedures to allow a safe working environment for MFWP employees and continued service to the public.
3. Fastener removal management, clean-up procedures, and disposal container locations.

#### 1.3 PERMITS

A. Contractor shall be responsible to obtain and pay for all necessary permits to complete the work.

B. Copies of the permit(s) shall be provided to the Owner before the start of any work.

#### 1.4 PROJECT CONDITIONS

A. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

C. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit work to proceed without water entering existing roofing system or building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day.
- B. Contractor to only remove existing roofing materials as specified on the Drawings.

3.2 DECK PREPARATION

- A. Inspect decking after tear-off of roofing system.
- B. If broken or loose fasteners that secure decking are observed or if deck appears or feels inadequately attached, immediately notify Owner's representative. Do not proceed with installation until directed by Owner's representative. Minor work to re-secure decking in areas where fasteners are needed is allowed without prior approval.
- C. If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Owner's representative. Do not proceed with installation until directed by Owner's representative.
- D. See Unit Prices 012200 for installation of BSP-furnished decking boards to replace structurally unsound existing decking boards. Replacement boards shall span a minimum of three rafter spaces.

3.3 EXISTING BASE FLASHINGS

- A. Remove and reinstall existing base flashings around penetrations scheduled to remain and replace base flashing around Gibson House and Manager's House chimneys.
- B. Notify Owner if fascia and gable trim is deteriorated. Removal and replacement of fascia and gable trim around perimeter may be ordered as additional work if deemed necessary.

3.4 FASTENER REMOVAL AND COLLECTION

- A. Contractor shall be required to control the collection of removed fasteners and minimize the amount that land onto sidewalks, landscaped areas, and gravel/paved parking areas. Control procedures may consist of using tarps or other means to collect the fasteners as the existing roofing materials are removed.
- B. Contractor shall be required to inspect the grounds at the end of each workday and at the end of the project completion for stray fasteners. Magnets or other collection devices should be used to properly collect fasteners. Owner will inspect and approve the clean-up areas at the end of the project before final payment will be approved.

3.5 DISPOSAL

- A. All materials removed become the property of the Contractor who therefore is responsible for disposal and removal from the site. Demolition and construction waste must be removed from

the site each day or placed in covered waste receptacles furnished by the Contractor. The Owner's waste receptacles shall not be used by the Contractor.

- B. The function of the buildings, continued use by employees, and service to the public will require the Contractor to clean the grounds on a daily basis, and not allow removed materials to accumulate on the landscaped grounds, sidewalks, or parking areas.
- C. Transport and legally dispose of demolished materials off Owner's property.
- D. Contractor shall remove all temporary protection and all debris attributed to the execution of the Contract subject to Owner's final acceptance.

END OF SECTION 070150

## SECTION 073115 – WOOD SHINGLES AND SHAKES

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. This Section includes the following:

1. Wood roof shingles.
2. Self-adhering sheet underlayment.
3. Spray treatment of clear enamel coating on metals incompatible with the fire-retardant treatment in the shingles.
4. Pre-finished sheet metal flashing and cricket for chimneys.

B. Related Requirements:

1. Division 01 Section “Temporary Facilities and Controls” for limitation and procedures governing temporary use of Owner’s facilities.
2. Division 01 Section “Historical Site Work” for procedures governing work on historic facilities.

#### 1.2 DEFINITIONS

A. CSSB: Cedar Shake & Shingle Bureau.

B. Roofing Terminology: See ASTM D 1079 and glossary in NRCA’s “The NRCA Roofing Waterproofing Manual” for definitions of terms related to roofing work in this Section.

#### 1.3 RELATED SECTIONS

A. Section 070150 – Preparation for Re-Roofing.

#### 1.4 REFERENCES

A. Cedar Share & Shingle Bureau (CSSB) *New Roof Construction Manual*, 2020 edition, shall be referenced for construction methods, details, and specifications.

#### 1.5 PERFORMANCE REQUIREMENTS

A. Cedar roof system to consist of tapersawn #1 Blue Label Western Red shingles, CertiGuard Class B Fire-Retardant, attached to structural substrate to form weathertight roof envelope with no measurable water penetration.

B. Method of attachments shall be designed to adequately resist wind uplift for roof configuration and project location.

#### 1.6 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.



- B. Samples for Verification: For the following products, of sizes indicated, to verify selected materials' attributes.
  - 1. Wood Shingles: Full size.
  - 2. Re-manufactured Ridge Shingle: Full size.
  - 3. Nail: 3 representative nails.
  - 4. Self-adhering Underlayment: 12 inches square.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.

#### 1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Wood Shingles: 100 sq. ft. of each type, in unbroken bundles.
  - 2. Ridge Shingles: 10 linear feet of full ridge cover.

#### 1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Company competent in installing shingle roof systems with 3-years' minimum experience.
- B. Manufacturer Qualifications: Company specializing in manufacturer of cedar shingles.
- C. Source Limitations: Obtain wood shingles from single source from single manufacturer.
- D. Grading Agency Qualifications: An independent testing and inspecting agency recognized by authorities having jurisdiction as qualified to label wood shingles for compliance with referenced grading rules.
- E. Fire-Resistance Characteristics: Where indicated, provide wood shingles and related roofing materials identical to those of assemblies tested for fire resistance per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.
  - 1. Exterior Fire-Test Exposure: Class B: UL 790 or ASTM E108 with ASTM D 2898, for application and roof slopes indicated.
- F. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetics, effects, and quality of the completed Work. Mockup may remain in place until Substantial Completion.
  - 1. Build mockups for wood shingles including accessories.
    - a. Size: 48 inches long by 48 inches wide.
    - b. Include double-up eave condition and specified overhang.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Store wood shingles and ridges on pallets or other raised surfaces. Maintain in original packing and packaging until pulled out for use.
- B. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double stack rolls.
  1. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.
- C. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

#### 1.11 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit wood shingles and related work to be performed according to manufacturer's written instructions and warranty requirements.
  1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

#### 1.12 WARRANTY

- A. Warranty: Manufacturer's warranty for shingles against breakage and deterioration that causes leaks under normal weather and use conditions.
- B. Special Project Warranty: Roofing Installer's Warranty covering Work of this Section, in which roofing Installer agrees to repair or replace components of wood shingle roofing that fails in materials or workmanship within the following warranty period:
  1. Warranty Period: Two years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 ROOF SHINGLES

- A. Certified Wood: Provide shingles produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- B. Cedar Roof Shingles: Smooth-sawn Western Red Cedar shingles.
  1. Grading Standards: CSSB's "Grading Rules for Certigrade Red Cedar Shingles."
  2. Grade: No. 1 Blue shingles, with starter courses of No. 1 Blue shingles.
    - a. 100% clear.
    - b. 100% heartwood
    - c. 100% vertical grain

3. Water absorption: 0.18 percent by weight tested in accordance with ASTM D471.
4. Impact resistance: Class 4 to withstand two drops of 2 inches (52 mm) diameter, 1.2 pounds (0.54 kg) steel ball dropped from 20 feet (6 m) tested in accordance with UL 2218.
5. Nail pull through resistance: 138 foot-pounds at 72 degrees F (187 joules at 22 degrees C) and 166 foot-pounds at 32 degrees F (225 joules at 0 degrees C) tested in accordance with ASTM D 3462.
6. Freeze-thaw resistance: No crazing, cracking, delamination of coating, or other deleterious surface changes after one month exposure with temperature cycled from -40 to +180 degrees F (0 degrees to 82 degrees C) in 22 hours tested in accordance with International Code Council (ICC) - ES Acceptance Criteria AC07 Section 4.9.
7. Accelerated weathering: Little change after 2,500 hours exposure to ultraviolet (UV) radiation, elevated temperature, moisture, and thermal shock.
8. Fungus resistance: No algae growth when inoculated with blue green algae in warm, damp environment for 4 to 6 weeks tested in accordance with ASTM G 21.
9. Profile: Match existing taper.
10. Size; 0.50 inch thick at butt.
11. Size: 16" and 18", depending on the building.
12. Maximum Width: 8"

- C. Requests for substitutions will be considered 10 days prior to bid day, in accordance with the above product requirements.

## 2.2 WOOD TREATMENTS

- A. Fire-Retardant Treatment, wood shingles shall be factory pressure-impregnated and pass performance tests ASTM E-108, UL-790, and NFPA-256:
1. FSR Fire Smart Roofing Fire Retardant. Sumas, WA.
  2. Thermex FR by Chemco, Ferndale, WA.
  3. Pre-approved equal.
- B. Identification: Attach a label to each bundle of wood shingles or shakes; identify manufacturer, references to model-code approval, type of product, grade, dimensions, and approved grading agency.
1. Include chemical treatment, method of application, purpose of treatment, and warranties available.

## 2.3 UNDERLAYMENTS

- A. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D1970, a minimum of 40-mil thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Carlisle Coatings & Waterproofing, Inc.
    - b. Grace, WR & Co
    - c. Henry Company. Henry FortiFlash Butyl Flashing Membrane is acceptable.
    - d. Owens Corning

- e. Polyguard Products, Inc.
- f. Protecto Wrap Company

B. High-altitude, high-temperature self-adhering underlayment for under copper valleys. Material shall be composed of two waterproofing materials — an aggressive butyl rubber-based adhesive backed by a layer of high density, cross-laminated polyethylene. Thickness 0.76mm.

- 1. Manufacturers as listed above.

## 2.4 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Roofing Nails: ASMT F 1667 stainless-steel Type 316 wire nails, sharp-pointed, and of sufficient length to penetrate a minimum of ¾” into roof decking, but no deeper. (1½” long)

- 1. Use shingle-type nails for wood shingles.
- 2. Note: Where nails are in contact with copper flashing, use Type 316 (passive) stainless steel nails. This is required for contact with fire-retardant-treated roofing shingles.

C. Roofing Staples: Roofing staples are not allowed.

## 2.5 METAL FLASHING AND TRIM

A. Reuse existing sheet metal, taking care during removal from roof.

B. Sheet metal shall be compatible with the Fire-Retardant treatment for the wood shingles. See Product literature. Incompatible sheet metal – galvanized steel, copper, and uncoated steel – shall be treated with two coats of clear acrylic enamel coating.

C. Pre-finished metallic-coated sheet metal, where specified: Provide zinc-coated (galvanized) steel sheet according to ASTM A653/A 653M, G90 coating designation; prepainted by coil-coating process to comply with ASTM A 755/A 755M.

- 1. Gauge: 24.
- 2. Coil length: 36”-48”.
- 3. Surface: Smooth, flat.
- 4. Exposed coil-coated finish:
  - a. Two-Coat fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers’ written instructions.
  - b. Color: As selected by Architect from manufacturer’s full range.

## 2.6 FINISHES

A. Clear acrylic enamel coating for metals incompatible with the fire-retardant treatment. Acceptable products and manufacturers include, but are not limited to, the following:

- 1. Sherwin Williams Krylon COLORmaxx Acrylic Crystal Clear spray.
- 2. Rust-Oleum 249845 Painter’s Touch 2X Ultra Cover, Satin Clear.

3. Dupli-Color Premium Acrylic Enamel PAE114, Clear.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Follow requirements in Specification Section 071500 – Preparation for Re-Roofing.

#### 3.2 PREPARATION

- A. Coordinate cedar shingle installation with provision of gutters and downspouts, if any.
- B. Verify roof deck is clean, dry, and ready to receive cedar shingles.
- C. Remove dirt, loose fasteners, and other protrusions from roof surface.

#### 3.3 SELF-ADHERED MEMBRANE UNDERLAYMENT INSTALLATION

- A. Underlayment is only called for at the ridges of all three buildings and at the occupied Manager's House and Manager's Office.
- B. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- C. Self-Adhering Sheet Underlayment: Install, wrinkle-free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated on Drawings, lapped in direction to shed water. Lap sides not less than 3½' inches. Lap ends not less than 6 inches, staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days.

#### 3.4 FLASHING INSTALLATION

- A. Install metal flashings and other sheet metal according to recommendations for wood roofing in NRCA's "The NRCA Roofing and Waterproofing Manual" and per SMACNA.
- B. Weather lap joints 2 inches minimum and seal with sealant as specified.
- C. Secure in place with clips, nails, or other fasteners that are compatible with the sheet metal AND the fire-retardant wood shingles.
- D. Pipe Flashings: Form flashing around pipe penetrations and wood roofing. Fasten and seal to wood roofing.
- E. Chimneys: Provide base and counter flashing. Reglet counter flashing into existing mortar joints.
- F. Clear coat spray at least two coats onto all unfinished sheet metal before the wood shingle roofing is installed.

### 3.5 INSTALLATION - GENERAL

- A. Install cedar in accordance with manufacturer's instructions, per recommendations in CSSB's "New Roof Construction Manual," and per NRCA's "The NCRA Roofing and Waterproofing Manual."
- B. Accurately layout shingles. Ensure that edges are parallel and perpendicular to roof eaves.
- C. Cutting: Layout work to avoid cutting shingles.
  - 1. At gables and vertical intersections, vary combination of shingle widths and spacing of shingles to avoid cutting.
  - 2. If cutting is required, place shingle such that cut edge is not exposed.
  - 3. Use circular saw or straight edge and utility knife if cuts are necessary.

### 3.6 CEDAR SHINGLE INSTALLATION

- A. Install double-layer wood shingle started course along lowest roof edge. Extend starter course 1½" over fascia and 1" over rake edge.
- B. Exposure: Install shingles in staggered pattern with exposure and bottom edges of adjacent shingles staggered.
  - 1. Match original existing exposure.
- C. Spacing: Provide 1/4" - 3/8" gap between shingles to allow for expansion and contraction. (This condition is specified by the FSR fire-retardant treatment.)
- D. Stagger shingle joints in one course 1-1/2 inches minimum from joints in course below.
- E. Ridges:
  - 1. After field shingle installation is completed, install double row of shingles over self-adhering flashing membrane.
  - 2. Use pre-manufactured ridge shingles with exposure. Start ridge shingles at leeward end. Face shingle laps away from the prevailing wind.
- F. Fastening: Attach each shingle to wood deck with two nails using hammer or pneumatic nail gun PROVIDED the pneumatic nail guns are properly adjusted to drive nails as specified below.
  - 1. Place nails at locations on shingles.
  - 2. Ensure good penetration but do not overdrive nail. Do not nail at angle. Ensure head is flush with shingle surface to avoid creating depressions or crushing wood.
  - 3. Nails shall be driven to penetrate the board decking at least ¾" but not all the way through the decking.

### 3.7 FIELD QUALITY CONTROL

- A. Inspect units as they are installed. Do not install cracked, broken, twisted, curled, or otherwise damaged units.

- B. As work progresses, exercise care not to scratch or mar installed units. Units damaged during installation shall be immediately removed and discarded.
- C. After approximately 200 units have been installed, inspect roof from ground. Verify proper layout and appearance. Repeat inspection every 200 shingles.
- D. Visually inspect complete installation to ensure that it is weather tight.

### 3.8 CLEANING AND PROTECTION

- A. Cleaning: Low-pressure wash roof immediately after installation, with potable water. This will lessen the tannic acid and FSR run-off onto sheet metal fabrications. Water is available at the Park.
- B. Remove excess materials and debris from finished surfaces and adjacent roof areas.
- C. Do not allow work force on completed roof.
- D. Protect installed products until completion of project.
- E. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 073115



**Resource Technologies, Inc.**

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1050 East Main Street Suite 4, Bozeman, Montana 59715  
Voice: (406) 585-8005 • Fax: (406) 585-0069 • e-mail: mail@rtimt.com

November 11, 2021

Ms. Randi Rognlie  
Design and Construction Section  
Montana Fish Wildlife and Parks  
P.O. Box 200701  
Helena, Montana 59620-0701

Subject: Asbestos Sampling Report; Bannack State Park Historic Building Siding and Foundation Repairs Project; FWP # 7216303.

Dear Ms. Rognlie:

Resource Technologies, Inc. (RTI) has completed collection and analysis of suspect asbestos containing building materials (ACM) at selected structures at Bannack State Park. ACM is defined as any material containing greater than 1% asbestos.

**Asbestos Inspection**

On October 29, 2021, RTI inspected eight structures and collected bulk samples from seven of the structures. RTI was directed to sample foundation materials at the Sudberry House (building number A22-2); however, no foundation material was exposed so no samples were collected. Buildings and materials sampled are listed below:

Building Number	Building Name	Material Sampled
A1-1	Manager's House	Roofing
A18	Bootlegger Cabin	Roofing
B6	Masonic Lodge/School	Siding
B9	Montana Hotel	Siding
B10	Gibson House	Roofing
B16-1	Griffith House	Roofing
B16-2	Fire House	Roofing.

RTI collected 30 bulk samples from 10 distinct types of suspect building materials [homogeneous areas (HAs)] that are summarized in Table 1. HA identifiers in Table 1 include the number designation for each building listed above. Bulk sample records are attached.



Samples were submitted to QuanTEM laboratories of Oklahoma City, Oklahoma, for polarized light microscopy (PLM) analysis. Several samples were not analyzed under positive-stop protocol. A total of 26 analyses were performed. Laboratory analytical reports for bulk samples are attached.

### **ACM Sampling Results**

Materials identified as ACM by sampling and laboratory analysis included tar on two structures (HAs B10-R1 and B16-1-R1). Material identified as ACM is discussed below.

Tar: On the Gibson House (HA B10-R1), this material is found as a sealer around the base of the brick chimneys on both sides of the roof. There is an estimated 10 linear feet of tar around the chimneys. On the Griffith House (HA B16-1-R1), the material underlies green asphalt roofing along the margins of the lean-to attached to the south end of the building. There was no tar found on the main Griffith House structure. There is an estimated 15-20 linear feet of the material around the margins of the lean-to roof. The tar is non-friable and is classified as Category I non-friable asbestos. Non-friable means the material cannot be reduced to powder by hand pressure. While not friable, the material is brittle and substantially weathered.

### **Recommendations**

Removal of Category 1 non-friable asbestos is not regulated by the Montana Department of Environmental Quality Asbestos Control Program (MDEQ-ACP) as long as the material is not rendered friable during removal. The tar is unlikely to become friable during handling unless subjected to processes such as sawing and grinding that could reduce the material to powder. Although removal of the material is not regulated, transport and disposal of ACM waste is regulated. As such, the tar, or any material with tar adhered to it should be segregated, and properly bagged and labeled prior to transport off site for disposal. The Butte-Silver Bow Landfill accepts non-friable asbestos waste.

MDEQ-ACP requires submission of a National Emissions Standards for Hazardous Air Pollutants (NESHAP) notification prior to conducting renovation activities where asbestos is present. Notification of renovation work involving disturbance of ACM must be submitted 10 working days prior to commencement of the work.

**If any suspect materials are encountered during demolition that are not included in Table 1, renovation work should cease until the materials can be tested.**

Procedures for the proper handling of asbestos containing material in renovation, demolition, or remodeling activities can be found in the National Emission Standards for Hazardous Air Pollutants EPA 40 CFR 61.

This report is based only on visual inspection of the suspect building materials described herein and analysis of such. The samples were submitted to an independent, accredited laboratory using chain-of-custody documentation. The samples were analyzed in accordance with standard EPA methods using PLM methodology. QuanTEM Laboratories is accredited by the American Industrial Hygiene Association (AIHA) and the National Voluntary Laboratory Accreditation Program (NVLAP). RTI does not assume responsibility for errors and wrongful reporting by independent testing

laboratories. If you have any questions regarding this report, please do not hesitate to call.

Sincerely,

**Resource Technologies, Inc.**



Joe Laudon  
Montana Asbestos Inspector-MTA-2842  
Expiration – April 8, 2022

Attachments: Analytical Laboratory Reports

**Table 1. Asbestos Sampling Summary**  
**Bannack State Park**  
 October 29, 2021

Homogeneous Area	Sample ID	Material	Location	Asbestos
<b>Manager's House</b>				
A1-1-R1	A B C	black felt	under steel porch roof east end under steel porch roof east end under steel porch roof east end	Not Present Not Present Not Present
A1-1-R2	A B C	black tar paper	under shingles on north roof southeast corner under shingles on north roof southeast corner under shingles on north roof southeast corner	Not Present Not Present Not Present
<b>Bootlegger Cabin</b>				
A18-R1	A B C	black felt	west roof peak hip at northeast corner hip at northeast corner	Not Present Not Present Not Present
<b>Masonic Lodge</b>				
B6-M1	A B C	black tar paper	west side south side east side	Not Present Not Present Not Present
<b>Montana Motel</b>				
B9-M1	A B C	grey/tan chinking	west side at gap in siding loose piece east side loose piece east side	Not Present Not Present Not Present
<b>Gibson House</b>				
B10-R1	A B C	black tar	east chimney base east chimney base east chimney base	<b>12% chrysotile</b> Not Analyzed Not Analyzed
<b>Griffith House</b>				
B16-1-R1	A B C	tar	edge of lean-to roof on south side edge of lean-to roof on south side edge of lean-to roof on south side	<b>12% chrysotile</b> Not Analyzed Not Analyzed
B16-1-R2	A B C	green asphalt sheet roofing	west edge of lean-to roof east edge of lean-to roof east edge of lean-to roof	Not Present Not Present Not Present
B16-1-R3	A B C	black felt	junction of mud room roof and main house junction of mud room roof and main house junction of mud room roof and main house	Not Present Not Present Not Present
<b>Fire House</b>				
B16-2-R1	A B C	black felt	under roof peak at north end under roof peak at north end under roof peak at north end	Not Present Not Present Not Present

Grey shading indicates ACM.

## **Bulk Sample Record**



**RESOURCE TECHNOLOGIES, INC.**  
ENVIRONMENTAL ENGINEERING AND GEOSCIENCES

1050 East Main Street Suite 4, Bozeman, Montana 59715

Voice: (406) 585-8005 • Fax: (406) 585-0069 • e-mail: mail@rtimt.com

### Asbestos Bulk Sample Record

Date: 10/29/21 Address: Bannock State Park

Building: Various Inspector: Lawden Certification #: MTA-2842

Line	HA Number	Sample Number	Material Description	Sample Location	Quantity
1	<del>A-22-R1</del>	<del>A</del>	<del>Black Asphalt</del>	<del>Sudberry House A-22-2 East front edge</del>	<del>Foundation</del>
2	<del>B</del>	<del>B</del>	<del>Roll</del>	<del>NE corner</del>	<del>July 20</del>
3	<del>C</del>	<del>C</del>	<del></del>	<del>North Peak</del>	<del>Foundation</del>
4					<del>Material / Pkbt.</del>
5				Boatlegger Cabin A-18	
6	A-18-R1	A	Black Felt	West Roof peak	
7	B	B	↓	Rip at NE corner	
8	C	C	↓	Rip at NE corner	
9					
10				Galfrith House	
11	B161-R1	A	Tar	Rear addition - East edge	
12	B	B	↓	" " "	
13	C	C	↓	" " West "	
14	B161-R2	A	Green asphalt roll	East Side	
15	B	B	↓	" " "	
16	C	C	↓	West Side	
17	B161-R3	A	Black felt	Junction of entry roof & main house	
18	B	B	↓	Floors visible	
19	C	C	↓		
20				Firehouse	
21	B162-R1	A	Black felt	Under roof peak - North End	
22	B	B	↓	" "	
23	C	C	↓	" "	



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Voice: (406) 585-8005 • Fax: (406) 585-0069 • e-mail: mail@rtimt.com

**Asbestos Bulk Sample Record**

Date: 10/29/04 Address: Bannock State Park

Building: Various Inspector: MTA Leadon Certification #: MTA-2842

Line	HA Number	Sample Number	Material Description	Sample Location	Quantity
1	B				
2	B10-R	A	Tar	Gibson House	Could not reach roof peak.
3		B			
4		C		Base of east chimney	
5				Fibers visible	
6				Montana Hotel	
7	B9-M1	A	Chinking	West side of gap in outer siding	
8		A		Loose piece east side	
9		C		Loose piece east side	
10					
11					
12				Masonite ledge	
13	B6-M1	A	Black Tar paper	West side	
14		B		South side	
15		C		East side	
16					
17				Manager's House	
18	A1-1-R1	A	Black felt	Under corrugated steel roof	
19		B		"	
20		C		"	
21	A1-1-R2	A	Black Tar Paper	SE Corner of east entrance	
22		B		"	
23		C		"	

## **Laboratory Analytical Reports**



2033 HERITAGE PARK DR, OKLAHOMA CITY, OK 73120 | 1.800.822.1650

### Polarized Light Microscopy Asbestos Analysis Report

Quantem Lab No. 340770	Client: Resource Technologies, Inc.
Account Number: A851	1050 E Main St, Ste 4
	Bozeman, MT 59715
Date Received: 11/02/2021	
Received By: Cyonne Harrod	
Date Analyzed: 11/08/2021	Project: FWP-Bannack
Analyzed By: Katherine Sluder	Project Location: Bannack, MT
Methodology: EPA/600/R-93/116	Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	A1-1-R1-A	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
002	A1-1-R1-B	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
003	A1-1-R1-C	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
004	A1-1-R2-A	Homogeneous	Black Tar Paper	Asbestos Not Present	Cellulose 5 Glass Fiber 10	Tar Sand CaCO3
005	A1-1-R2-B	Homogeneous	Black Tar Paper	Asbestos Not Present	Cellulose 5 Glass Fiber 10	Tar Sand CaCO3
006	A1-1-R2-C	Homogeneous	Black Tar Paper	Asbestos Not Present	Cellulose 5 Glass Fiber 10	Tar Sand CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

Quantem is a NVLAP accredited Testing PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested.

NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods.

This report may not be used to claim product endorsement by NVLAP or any agency of the US Government.

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Analyzed By: Katherine Sluder	Project Location: Bannack, MT
Methodology: EPA/600/R-93/116	Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
007	A18-R1-A	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 60 Synthetic 5	Tar
008	A18-R1-B	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 60 Synthetic 5	Tar
009	A18-R1-C	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 60 Synthetic 5	Tar
010	B6-M1-A	Homogeneous	Black Tar Paper	Asbestos Not Present	Cellulose 70	Tar
011	B6-M1-B	Homogeneous	Black Tar Paper	Asbestos Not Present	Cellulose 70	Tar
012	B6-M1-C	Homogeneous	Black Tar Paper	Asbestos Not Present	Cellulose 70	Tar
013	B9-M1-A	Homogeneous	Tan Plaster	Asbestos Not Present	Cellulose 10	Sand Binder Paint

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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Methodology: EPA/600/R-93/116	Project Number: N/A

QuantEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
014	B9-M1-B	Homogeneous	Tan Plaster	Asbestos Not Present	Cellulose 10	Sand Binder Paint
015	B9-M1-C	Homogeneous	Tan Plaster	Asbestos Not Present	Cellulose 10	Sand Binder Paint
016	B10-R1-A	Homogeneous	Black Tar	Asbestos Present Chrysotile 12	NA	Tar CaCO3
017	B10-R1-B	Homogeneous	** Tar	**	Not Analyzed	
Positive Stop						
018	B10-R1-C	Homogeneous	** Tar	**	Not Analyzed	
Positive Stop						
019	B161-R1-A	Homogeneous	Black Tar	Asbestos Present Chrysotile 12	NA	Tar CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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### Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 340770	Client: Resource Technologies, Inc.
Account Number: A851	1050 E Main St, Ste 4
	Bozeman, MT 59715
Date Received: 11/02/2021	
Received By: Cyonne Harrod	
Date Analyzed: 11/08/2021	Project: FWP-Bannack
Analyzed By: Katherine Sluder	Project Location: Bannack, MT
Methodology: EPA/600/R-93/116	Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
020	B161-R1-B	Homogeneous	** Tar	**	Not Analyzed	
Positive Stop						
021	B161-R1-C	Homogeneous	** Tar	**	Not Analyzed	
Positive Stop						
022	B161-R2-A	Homogeneous	Green Shingle	Asbestos Not Present	Glass Fiber 10	Sand Tar CaCO3
023	B161-R2-B	Homogeneous	Green Shingle	Asbestos Not Present	Glass Fiber 10	Sand Tar CaCO3
024	B161-R2-C	Homogeneous	Green Shingle	Asbestos Not Present	Glass Fiber 10	Sand Tar CaCO3
025	B161-R3-A	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited Testing PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested.

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Account Number: A851	1050 E Main St, Ste 4
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Date Analyzed: 11/08/2021	Project: FWP-Bannack
Analyzed By: Katherine Sluder	Project Location: Bannack, MT
Methodology: EPA/600/R-93/116	Project Number: N/A

Quantem Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
026	B161-R3-B	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
027	B161-R3-C	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
028	B162-R1-A	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
029	B162-R1-B	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar
030	B162-R1-C	Homogeneous	Black Felt	Asbestos Not Present	Cellulose 70	Tar

  
 \_\_\_\_\_  
 Katherine Sluder, Analyst

11/8/2021  
 \_\_\_\_\_  
 Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.  
 Quantem is a NVLAP accredited Testing PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested.  
 NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods.  
 This report may not be used to claim product endorsement by NVLAP or any agency of the US Government.  
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**ASBESTOS CHAIN OF CUSTODY**  
 2033 Heritage Park Drive, Oklahoma City, OK 73120-7502  
 (800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058  
**LEGAL DOCUMENT - PLEASE PRINT LEGIBLY**

For Lab Use Only
Lab No. <u>340770</u>
<input checked="" type="checkbox"/> Accept <input type="checkbox"/> Reject

Contact Information		Project Information	
Company: Resource Technologies, INC	Phone: (406) 585-8005	Project Name: FWP-Bannack	<input checked="" type="checkbox"/> Report Results (one box)
Contact: Joe Laudon	Call Phone: (406) 580-8585	Project Location: Bannack, MT	<input type="checkbox"/> Quantem Website
Account #: A851	Email: <a href="mailto:rl@montana.net">rl@montana.net</a>	Project ID:	<input type="checkbox"/> Other

Sampled By: <i>J Laudon</i>	Name: J Laudon	Date: 10/29/21	VIA	RECEIVED BY	DATE & TIME
				<i>CWN</i>	<i>11/2/21 @ 9:20</i>

REQUESTED SERVICES (Please  the Appropriate Boxes)

PLM	PLM	TEM	TEM	TURNAROUND TIME
<input checked="" type="checkbox"/> Bulk Analysis (EPA 600/R-93/116)	<input type="checkbox"/> Vermiculite Attic Insulation (EPA 600/R-04/004)	<input type="checkbox"/> Air-AHERA	<input type="checkbox"/> Bulk-Presence / Absence EPA600/R-93/116	<input type="checkbox"/> Rush
<input type="checkbox"/> 400 Point Count	<input type="checkbox"/> Other	<input type="checkbox"/> Air-NIOSH 7402	<input type="checkbox"/> Bulk-Quantitative [weight%]-Chatfield	<input type="checkbox"/> Same Day
<input type="checkbox"/> 1000 Point Count		<input type="checkbox"/> Air-ISO 10312	<input type="checkbox"/> Dust-Presence / Absence	<input type="checkbox"/> 24 - Hour
<input type="checkbox"/> Gravimetric Preparation	PCM	<input type="checkbox"/> Drinking Water- EPA 100.2	<input type="checkbox"/> Dust-Quantitative [fibers/sq.cm]-ASTM D5755	<input type="checkbox"/> 3 - Day
<input type="checkbox"/> Particle ID	NIOSH 7400	<input type="checkbox"/> Waste Water- EPA 600/4-83-043	<input type="checkbox"/> Other	<input checked="" type="checkbox"/> 5 - Day

No.	Sample ID (10 Characters Max)	<input checked="" type="checkbox"/> To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	A1-1-R1-A	<input checked="" type="checkbox"/>		black felt		positive stop
2	A1-1-R1-B	<input checked="" type="checkbox"/>		"		"
3	A1-1-R1-C	<input checked="" type="checkbox"/>		"		"
4	A1-1-R2-A	<input checked="" type="checkbox"/>		tar paper		positive stop
5	A1-1-R2-B	<input checked="" type="checkbox"/>		"		"
6	A1-1-R2-C	<input checked="" type="checkbox"/>		"		"
7	A18-R1-A	<input checked="" type="checkbox"/>		black felt		positive stop
8	A18-R1-B	<input checked="" type="checkbox"/>		"		"
9	A18-R1-C	<input checked="" type="checkbox"/>		"		"
10	B6-M1-A	<input checked="" type="checkbox"/>		black tar paper		positive stop

SATURDAY SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"



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For Lab Use Only
Lab No. <b>340770</b>
<input checked="" type="checkbox"/> Accept <input type="checkbox"/> Reject

Project Information						
Company: Resource Technologies, INC			Project Name: FWP-Bannack		Project Location: Bannack, MT	
No.	Sample ID (10 Characters Max)	<input checked="" type="checkbox"/> To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
11	B6-M1-B	<input checked="" type="checkbox"/>		"		"
12	B6-M1-C	<input checked="" type="checkbox"/>		"		"
13	B9-M1-A	<input checked="" type="checkbox"/>		tan/grey chinking		positive stop
14	B9-M1-B	<input checked="" type="checkbox"/>		"		"
15	B9-M1-C	<input checked="" type="checkbox"/>		"		"
16	B10-R1-A	<input checked="" type="checkbox"/>		black tar		positive stop
17	B10-R1-B	<input checked="" type="checkbox"/>		"		"
18	B10-R1-C	<input checked="" type="checkbox"/>		"		"
19	B161-R1-A	<input checked="" type="checkbox"/>		black tar		positive stop
20	B161-R1-B	<input type="checkbox"/>		"		"
21	B161-R1-C	<input type="checkbox"/>		"		"
22	B161-R2-A	<input type="checkbox"/>		green asphalt sheet		positive stop
23	B161-R2-B	<input type="checkbox"/>		"		"
24	B161-R2-C	<input type="checkbox"/>		"		"
25	B161-R3-A	<input type="checkbox"/>		black felt		positive stop
26	B161-R3-B	<input type="checkbox"/>		"		"
27	B161-R3-C	<input type="checkbox"/>		"		"
28	B162-R1-A	<input type="checkbox"/>		black felt		positive stop
29	B162-R1-B	<input type="checkbox"/>		"		"
30	B162-R1-C	<input type="checkbox"/>		"		"