



BUILDING 27, SUITE 3, FORT MISSOULA ROAD
MISSOULA, MONTANA 59804
TEL 406.542.2805
NATIONALFORESTS.ORG

Resurrection Creek Restoration Project Phase II

Statement of Work and Request for Proposals

Chugach National Forest, Alaska

Background and Statement of Work: The [National Forest Foundation](#) (NFF), in coordination with the Chugach National Forest, is requesting proposals for implementation of a portion of Phase II of the Resurrection Creek Restoration Project. The project objectives are to restore the degraded stream channel, riparian areas, and important fish and wildlife habitat along an approximate 2.2 miles segment of Resurrection Creek.

Resurrection Creek Phase II Restoration Project is divided into four separate areas (see maps and table - Appendix A). Full implementation of the project is anticipated to be completed in three to four years to accomplish restoration of the entire reach.

Contracted services will include but are not limited to constructing a new channel including excavation of the channel corridor, floodplain, channel features and pools, ponds, side channels, placement of channel substrate and boulders, harvesting, hauling and stockpiling of whole trees, some with rootwads attached, placement of log structures, erosion control measures and site cleanup. Tracked excavators, dozers and articulated trucks will be used to complete the work. Up to 200,000 cubic yards of placer mine tailings will be mechanically redistributed to recontour the tailings to recover floodplain elevations and widths as designated by the Forest Service Representative.

Restoration materials such as boulders for construction of the restored channel, trees for logjam construction, and soil for spreading on restored floodplain areas to enhance re-vegetation efforts will be obtained from within the restoration corridor and designated adjacent areas within the project area. This will include harvesting up to 1,000 trees total, with and without rootwads, for use as bank and floodplain stabilization on the new stream channel and floodplain. Within the project area, approximately 50% of medium to large spruce and cottonwood will be retained during harvest.

Restoration Summary:

- The designed channel is 2.2 miles (11,400') with 157' of elevation drop producing an average slope of 1.33%.
- The habitat design features are composed of 55% riffles, 25% pools and 20% spawning glides; 6,270' of riffles, 2,850' of pools and 2,280' of spawning glides.
- Pool slopes are less than 0.2%, glide slopes range from 0.002 – 0.008 with an average slope of 0.5%, and riffle slopes range from 0.008 – 0.04 with an average slope of 2.4%.

- The design has 26 riffles/pool/glide sequences with an average length of 439'; riffle average length is 241', minimum lengths are 181' and maximum lengths are 301'. Pool average length is 110', maximum 148' and minimum 71'. Spawning glides have an average length of 88', maximum 118' and minimum 57'.
- The design discharges for the project are 766 cubic feet per second (cfs) for low flow/Q1.2, 1226 cfs for channel forming/bankfull flow/Q2 and 4,577 cfs for floodprone/Q100 discharge.

General Specifications

- (a) Description of Work – This contract is for restoration services in **2023 only** and will primarily occur in Project Area 1, the upper one mile of the Resurrection Creek project area (see maps Appendix A). Subsequent years of work will be offered in a separate Request for Proposals. Work will be paid on a time and materials, equipment operation hourly basis. Exact location, elevations and dimensions of work described below will be marked and designated on the ground by the Forest Service Representative.

2023 Stream Corridor Construction. Work includes but is not limited to:

- Pioneering and improving existing routes to access tree harvest area, new channel and log structure sites.
- Constructing approximately 4,120 feet of new channel as shown in the drawings and as designated by the Forest Service Representative. The instream activity will include pioneering a new stream channel which includes excavating up to 70,000 cubic yards of material from the new channel and side channels and grading and contouring up to 25 acres of new floodplains and terraces to restore historic floodplain elevations.
- New channel will include constructing control features and riffles, placement of channel substrate and boulders, excavating pools, constructing gravel bar structures, excavating ponds and placing erosion control devices as designated by the Forest Service Representative. Materials vary by location and range from topsoil to 4-foot diameter boulders. Equipment may at times work in or around flowing water up to five feet deep.
- Channel and pond excavation and wood structure placement will be conducted out of flowing water wherever practical. Most sites will have pools excavated near log jams due to the coarseness of the bed and potential for shallow bedrock. Test areas may be excavated prior to any channel excavation, placement of trees or excavation of the logjam. Equipment crossings within the wetted stream channel are required to access and construct the log complexes. Mitigation measures will be incorporated into the project to minimize potential impacts to water quality. Mitigation measures may include recommending one machine straddle the stream while other machines pass off logs/trees on each side to minimize stream crossings. All stream crossings will be approved by the Forest Service Representative.

Log Structures. Work includes but is not limited to:

- Log structures will be constructed using tracked excavators and will be made up of conifer trees, some with rootwads attached. The remaining logs will be placed in the floodplain and off-channel areas including side channels and alcoves as designated by the Forest Service.
- Each of the log jams will be strategically located to accomplish specific restoration objectives. Most of the log jams will be constructed along the edges of the proposed or current stream channel or on the floodplain as designated by the Forest Service Representative.

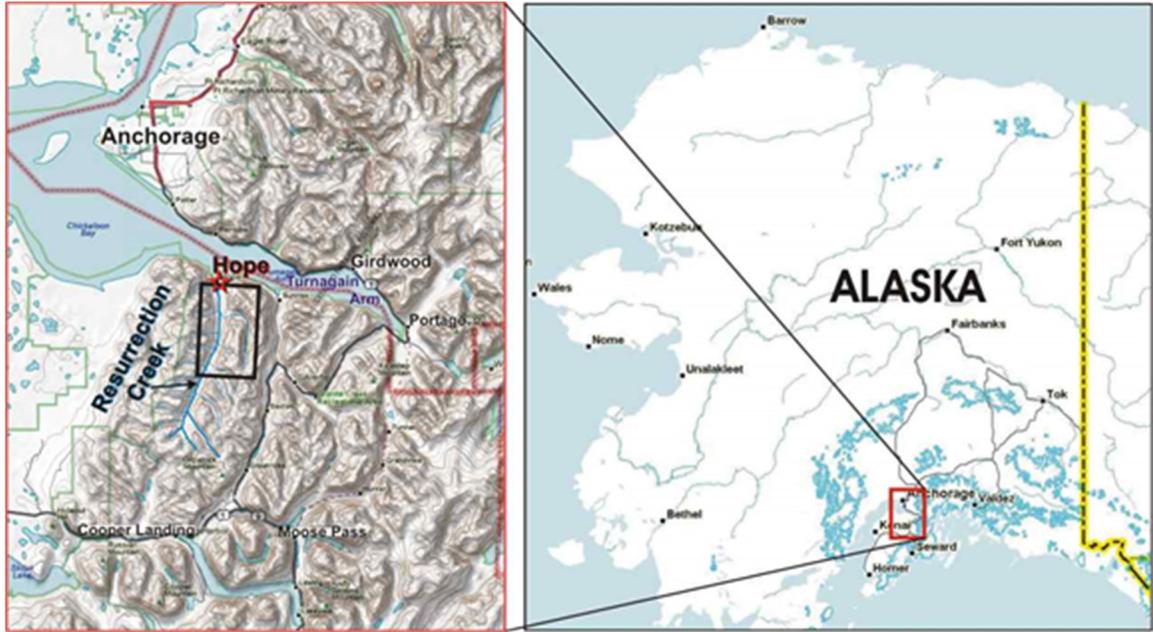
- Equipment will transport trees and brush and large wood (up to but not limited to >30" DBH, 60-80 ft. in length, some with rootwads attached) from designated stockpile sites to desired locations (structure sites). The amount of wood per structure will depend on the structure type and location and will range from 15 to about 65 pieces of wood per structure. All log jams will be designed and constructed to remain stable during large flood events. A large portion of each structure will be buried below the streambed or trenched into the stream banks. Pools located adjacent to these log structures will be excavated and the stream materials will be incorporated into the floodplain and/or placed behind the logjam. The structures will also utilize an interlocking construction.
- A typical structure buried along the streambank will consist of several anchor trees, the tops of which will be buried or driven into the ground at an angle to the river. If rootwads are attached, they will be exposed and face the water typically pointing upstream. Other trees will be woven through these anchors, and smaller woody debris and slash will be jackstrawed and packed into the orifices of the woven matrix of trees. These structures are typically placed on the downstream end of the bends where woody debris typically accumulates. This type of placement should encourage initiating and maintaining pool scour.
- Gravel bar and island point bar structures are designed to develop work in concert with stream bank structures to scour and maintain pools and to develop or maintain island and side channel habitat. The typical log structure on gravel bars and island point bars are constructed by burying several logs into the ground to serve as pilings followed by placing additional trees and slash on the upstream side of pilings and weaving them into pilings

Tree Harvest and Staging. Work includes but is not limited to:

- Harvesting of up to 500 trees with the majority retaining rootwads
- If conditions allow, some tree harvest will occur before May 1 before the migratory bird restrictions, the remaining harvest will occur after July 15
- Trees will be harvested from approximately 35 acres on the west side of Resurrection Creek
- Trees will be marked and will primarily be beetle kill spruce and hemlock
- Harvested trees will be hauled and stockpiled at locations as designated by the Forest Service Representative
- Haul distances will be approximately ½ to 1 mile
- Harvest shall be minimized during periods of high precipitation when soils are saturated
- Rootwad trees should be shaken and/or scraped to remove as much soil as possible so that nutrient rich soil clinging to the roots is left on site
- Bare mineral soils greater than 100 square feet in size, and any smaller areas of bare mineral soil with erosion potential, will be covered with native slash or other organic material before the machinery leaves the unit. Maintain 85% soil cover in units

All project specifications, requirements and permits can be found in Appendices B – G. The Forest Service will attain all necessary permits for the project this winter.

- (a) Project Location – The project site is located 5.5 miles south of Hope, Alaska on Resurrection Creek Road, on the Chugach National Forest.



Resurrection Creek Phase II project area locator map.

- (b) Work Schedule – Following the pre-work meeting, the Contractor shall submit a project schedule to be reviewed and approved by the Forest Service Representative. All instream work will occur May 15 – July 15. All tree harvest will occur July 15 – May 1.

Pricing Schedule

Contractor shall price work according to the bid schedule in Appendix D.

Other Project Requirements and Specifications

- (a) Utilities – There will be no sanitation, water, electrical or housing services available. The Contractor shall make its own arrangements for temporary facilities if needed. Approval may be granted for a temporary, self-contained contractor camp on site and equipment and fuel storage at a designated location with conditional restrictions. See Utilities, Camping and Staging Information for more details.
- (b) Permits – Soil Erosion & Pollution Control/SWPPP will be the contractor’s responsibility. All other necessary permits will be secured by the Forest Service and will be provided to the contractor in the spring prior to work commencement.
- (c) Specifications – The project occurs in an area of active federal mining claims. The federal claim owner is Hope Mining Company (HMC) and coordination with HMC will be facilitated by the Forest Service Representative so mining and construction operations do not interfere with each other. The work shall be in accordance with the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP 14 - US CUSTOMARY UNITS) as modified for this contract.
<http://flh.fhwa.dot.gov/resources/pse/specs/>

Insurance Requirements

Upon selection of the winning bid, chosen contractor will be asked to affirm that it has and shall maintain State minimum workers' compensation insurance coverage for its employees, if any. The selected contractor shall also maintain broad form general liability, property damage, and automotive liability insurance in the minimum amount of \$1,000,000 for bodily injury, death, or damage to property of any person and \$2,000,000 for bodily injury, death, or damage to property of more than one person. The Contractor shall name NFF an Additional Named Insured and provide NFF with documentation evidencing such coverages.

Performance Security

Chosen contractor shall post bond, cash, a letter of credit, or other financial security that is easily convertible into cash in a form acceptable to the NFF in its sole determination in the amount of 5% of the amount due to contractor, not to exceed \$250,000 dollars, to assure completion of the work required under this Agreement and payment of all amounts lawfully due to all persons supplying or furnishing to the Contractor or Contractor's subcontractors with labor, laborers, materials, rental machinery, tools or equipment used or to perform the work. As work is completed in integrated component parts, inspected, approved and, if applicable, conveyed to NFF, the Performance Security shall be released in a proportional amount, unless a lesser amount of release is necessary to maintain 5% Performance Security.

Information Requested

If interested in this project, please provide a proposal for the above statement of work by providing:

1. A description of your ability to complete the scope of work by describing your approach, proposed equipment to be used, and past work experience on similar projects,
2. A list of equipment operators and history of relevant experience,
3. Past experience working with the Forest Service on projects located on national forests preferred, but not required,
4. Proposed schedule of operations,
5. A completed bid sheet (see Appendix D), and
6. Three references.

This is a request for proposals only and quotations furnished are not offers. This request does not commit the National Forest Foundation to pay any costs incurred in the preparation of submission of the quotation or to contract for supplies or services.

Bid Submission

Submit bids via email to pshannon@nationalforests.org by **Wednesday, November 23, 2022**.

Contractor Selection Process

The NFF will use the Evaluation Factors below to review each submitted bid. Level 1 criteria will be weighted heaviest, with Level 2 and 3 providing additional consideration when bids are reviewed. Based on the outcomes of that selection process, the NFF will notify successful and

unsuccessful bidders by **Friday, December 16, 2022**, and will prepare a separate contract document.

Point of Contact

For questions about the details of producing the bid, please contact:

Patrick Shannon

National Forest Foundation, Pacific Northwest and Alaska Director

503.407.2898, pshannon@nationalforests.org

Evaluation Factors and Relative Importance

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

Level 2 Criteria

- Technical proposal / proposed approach to project
- Overall strategic benefits to meeting NFF goals and grant needs, requirements, and timelines

Level 3 Criteria

- Benefits to the local community
- Relationship to local community

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.



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List of Appendices:

1. Appendix A: Resurrection Phase II Restoration Project Areas Maps
2. Appendix B: Drawings
3. Appendix C: Project Specifications and Special Contract Requirements (USFS H clauses)
4. Appendix D: Bid Schedule
5. Appendix E: Forest Service Supplemental Specifications to the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects
6. Appendix F: Contract and Project Implementation Best Management Practices
7. Appendix G: Permit Notifications A - E

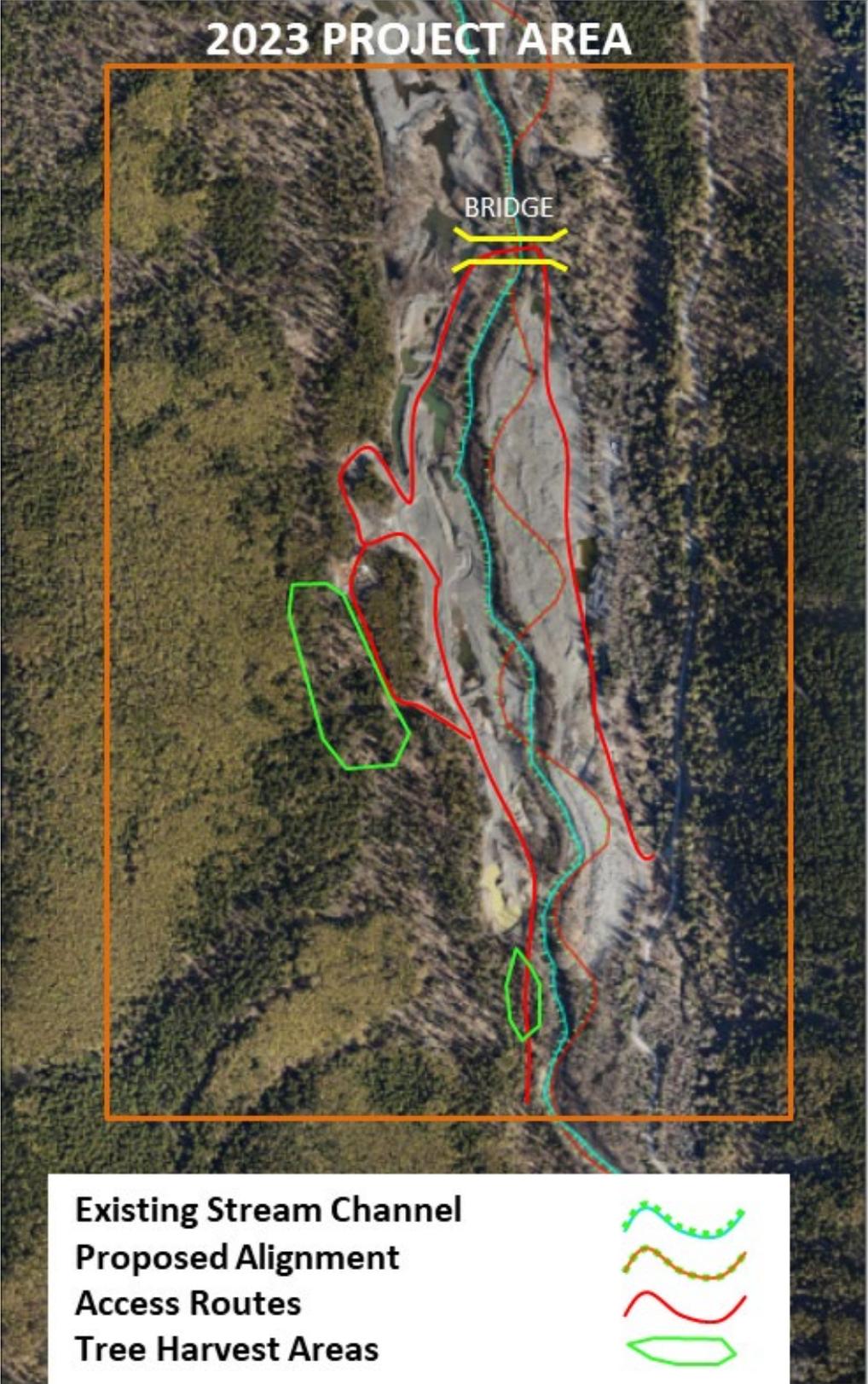
**Appendix A:
Resurrection Phase II Restoration Project Areas Maps**

Phase II Project Areas 1 – 4:



**Resurrection Phase II Restoration Project
Areas, Existing and Proposed Main Channels.**

Project Area 1 Map - 2023 Season



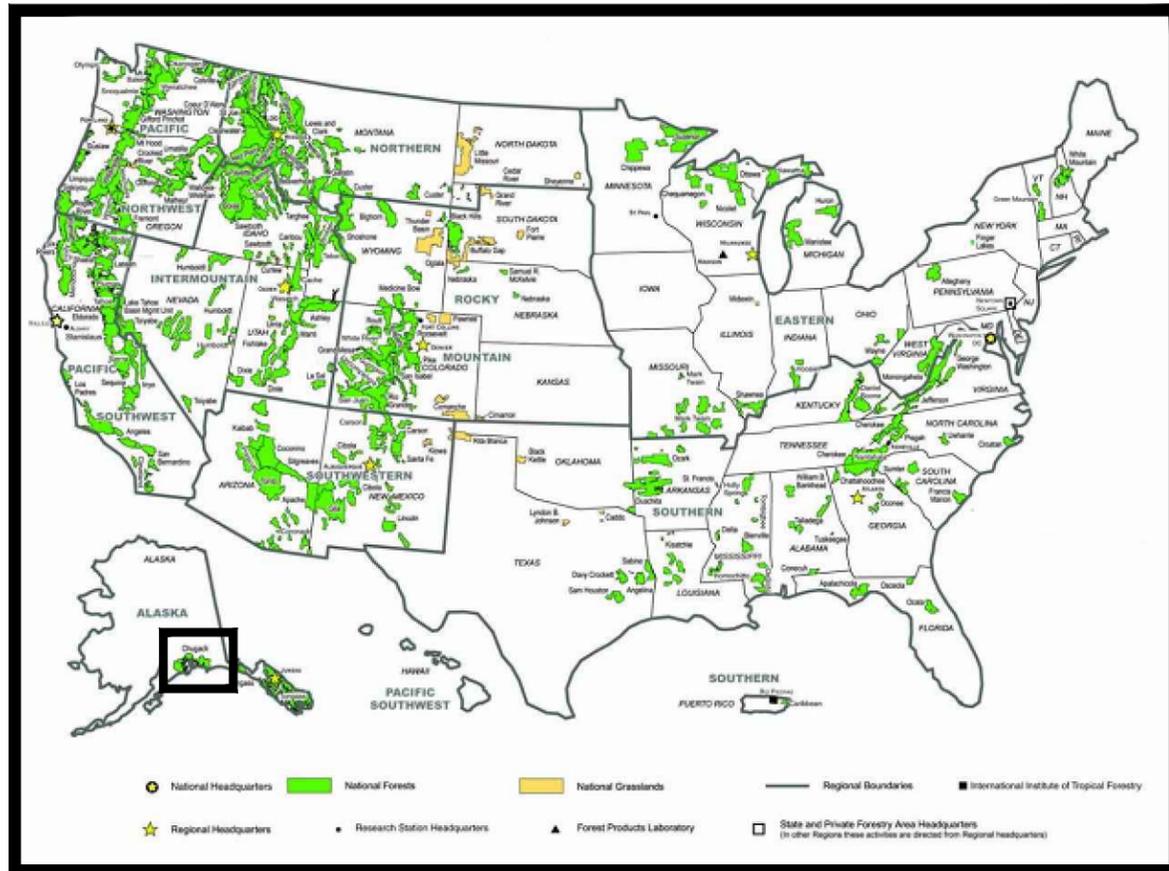


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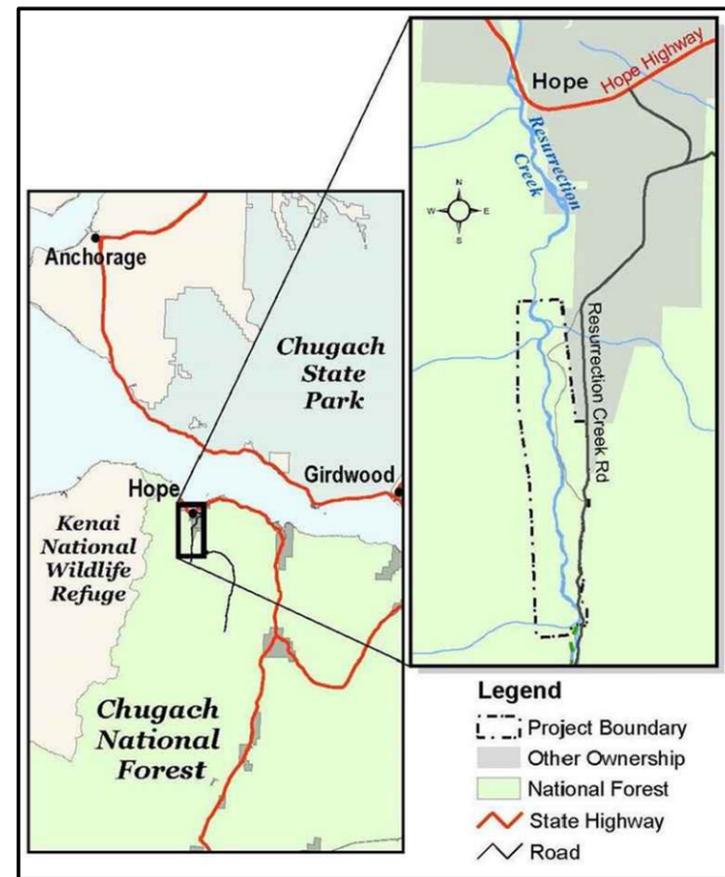
HOPE, ALASKA
KENAI PENINSULA
R10 - ALASKA
CHUGACH NATIONAL FOREST
SEWARD RANGER DISTRICT

INDEX OF SHEETS		
SHEET	SHEET TITLE	NUMBER
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7	FMF FORMIDABLE MULTI-FACETED TERRACE BARBS	X-04
8	ISLAND BAR BUDDIES	X-05

RESURRECTION CREEK PHASE II RESTORATION



FOREST LOCATION



VICINITY MAP

TRAVEL DIRECTIONS:
FROM HOPE, ALASKA, TRAVEL SOUTH ON RESURRECTION CREEK ROAD
FOR 5.5 MILES TO PROJECT SITE.

GENERAL NOTES

SPECIFICATIONS: THE WORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP 14 – US CUSTOMARY UNITS) AS MODIFIED FOR THIS CONTRACT.

UTILITIES: THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING A UTILITY LOCATE. CONTRACTOR IS RESPONSIBLE FOR CONTACTING, COORDINATING AND SCHEDULING WITH UTILITY PROVIDERS AND PAYING FOR LOCATES, AND ANY OBSERVERS REQUIRED BY THE UTILITY PROVIDERS.

IN-STREAM WORK WINDOW: MAY 15 – JULY 15

TREE HARVEST WINDOW: JULY 15 – MAY 1

HOURS OF OPERATION: NO FEDERAL HOLIDAYS OR WEEKENDS UNLESS APPROVED BY THE FOREST SERVICE REPRESENTATIVE.

NOXIOUS WEED CONTROL: ALL CONSTRUCTION EQUIPMENT SHALL BE CLEAN & POWER WASHED & FREE OF DIRT & DEBRIS PRIOR TO ENTRY ON NATIONAL FOREST. ALL MATERIALS MUST BE CERTIFIED WEED FREE.

ARCHEOLOGICAL SITES: SHOULD ARCHEOLOGICAL OR PALEONTOLOGICAL REMAINS OR SPECIMENS BE DISCOVERED, SUSPEND OPERATIONS AT THE DISCOVERY SITE AND NOTIFY THE FOREST SERVICE REPRESENTATIVE.

TOPSOIL: TOPSOIL SHALL BE STRIPPED FROM BASES OF FILL TO A MINIMUM DEPTH OF 4" AND STOCKPILED AS DIRECTED BY THE FOREST SERVICE REPRESENTATIVE. FINISHED SLOPES SHALL RECEIVE 2-3" OF TOPSOIL TO THE EXTENT ALLOWED BY EVEN DISTRIBUTION OF THE STOCKPILE.

TEMPORARY BYPASS: COMPLY WITH ALASKA DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS. DEWATERING PLAN MUST BE SUBMITTED 15 DAYS IN ADVANCE OF CONSTRUCTION.

SILT FENCE: LOCATIONS OF SILT FENCE AND SEDIMENT BASINS SHALL BE APPROVED BY THE FOREST SERVICE REPRESENTATIVE. REFER TO SUPPLEMENTAL SPECIFICATION IN 157 FOR REQUIREMENTS.

STAGING AREAS: STAGING AREAS SHALL BE APPROVED BY THE FOREST SERVICE REPRESENTATIVE.

SPILL PREVENTION PLAN: PLAN SHALL BE SUBMITTED AND APPROVED BY THE FOREST SERVICE REPRESENTATIVE PRIOR TO MOBILIZATION TO THE PROJECT SITE. ANY RE-FUELING SITE SHALL BE LOCATED AT LEAST 100 FEET AWAY FROM WATER AND AS APPROVED BY THE FOREST SERVICE REPRESENTATIVE. CONTAINMENT BERMS SHALL BE CONSTRUCTED AROUND ANY FUEL TANKS PLACED ON THE GROUND SURFACE.

CHANNEL: CONSTRUCT STREAMBED IN THE DRY WHILE MAINTAINING INFLOW TO DOWNSTREAM CHANNEL.

DESIGN FLOW DATA	
EVENT	FLOW (CFS)
Q _{1.2}	766 CFS
Q ₂	1226 CFS
Q ₁₀₀	4577 CFS

ESTIMATE OF QUANTITIES				
Base Items				
Item No.	Base Items Schedule	Pay Unit	Method of Measure	Estimated Quantity
15101	Mobilization	LS	LS	1
15701	Soil Erosion & Pollution Control/SWPPP	LS	LS	1
62201 - 1	Hydraulic Excavator #1 Rate (>110,000 LBS Operating Weight)	HR	AQ	245
62201 - 2	Hydraulic Excavator #2 (>110,000 LBS Operating Weight Rate)	HR	AQ	245
62201 - 3	Hydraulic Excavator #3 Rate (>50,000 LBS Operating Weight)	HR	AQ	245
62201 - 4	Dozer #1 Rate (>80,000 LBS Operating Weight)	HR	AQ	245
62201 - 5	Articulated Dump Truck #1 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	245
62201 - 6	Articulated Dump Truck #2 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	245
62202	Biodegradable Hydraulic Oil Conversion	EA	AQ	6
63704	Radios	EA	AQ	10

Option Items				
Item No.	Option Items Schedule	Pay Unit	Method of Measure	Estimated Quantity
62201 - 1	Hydraulic Excavator #1 Rate (>110,000 LBS Operating Weight)	HR	AQ	550
62201 - 2	Hydraulic Excavator #2 (>110,000 LBS Operating Weight Rate)	HR	AQ	550
62201 - 3	Hydraulic Excavator #3 Rate (>50,000 LBS Operating Weight)	HR	AQ	550
62201 - 4	Dozer #1 Rate (>80,000 LBS Operating Weight)	HR	AQ	550
62201 - 5	Articulated Dump Truck #1 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	550
62201 - 6	Articulated Dump Truck #2 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	550



STAMPS, LOGOS, AND SEALS		
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PROJECT NAME
RESURRECTION CREEK PHASE II RESTORATION
 CHUGACH NATIONAL FOREST
 SEWARD RANGER DISTRICT

DRAWING TITLE
GENERAL NOTES

DATE 10/5/2022	ARCHIVE NO.
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STAMPS, LOGOS, AND SEALS

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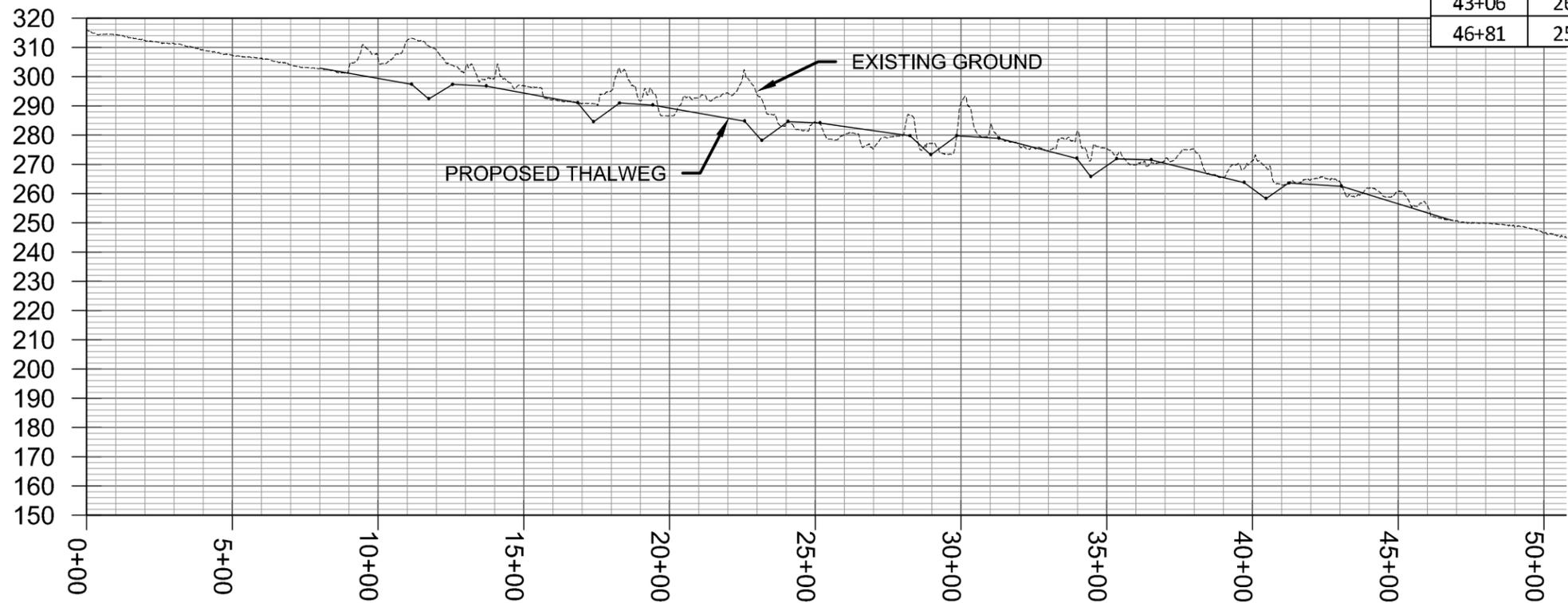
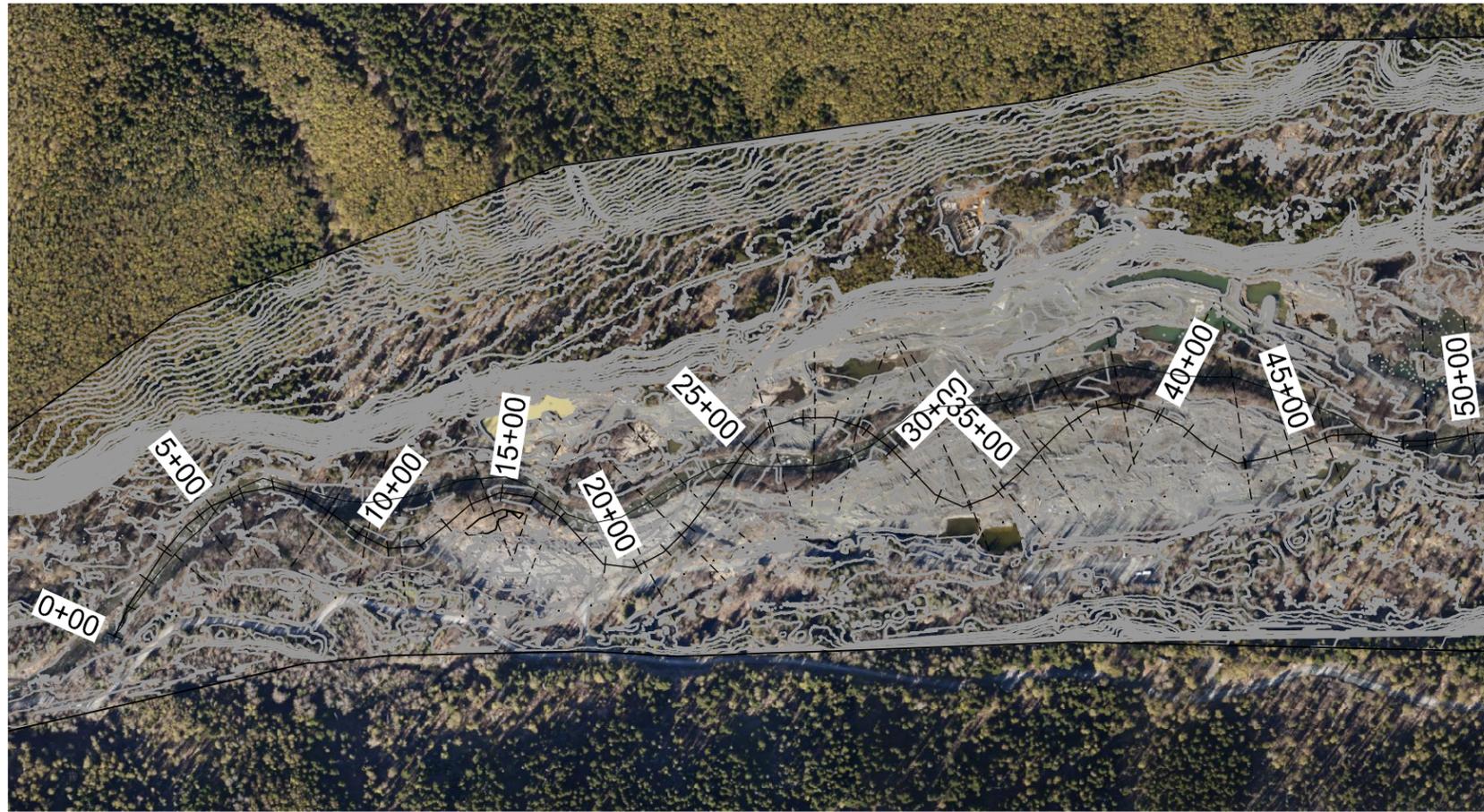
CHUGACH NATIONAL FOREST

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**PLAN & PROFILE
STA 0+00 - 50+00**

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STA	ELEV	NOTES
8+03	302.8	RIFFLE, TIE INTO EXISTING ELEVATION
11+15	297.4	POOL HEAD
11+75	290.0	POOL MAX
12+56	297.4	POOL TAIL CREST
13+71	296.7	GLIDE
16+85	291.0	POOL HEAD
17+38	284.5	POOL MAX
18+28	291.0	POOL TAIL CREST
19+42	290.2	GLIDE
22+58	284.8	POOL HEAD
23+16	278.0	POOL MAX
24+06	284.7	POOL TAIL CREST
25+16	284.1	GLIDE
28+25	279.8	POOL HEAD
28+95	273.2	POOL MAX
29+85	279.8	POOL TAIL CREST
31+30	278.9	GLIDE
33+97	272.0	POOL HEAD
34+45	265.7	POOL MAX
35+33	271.9	POOL TAIL CREST
36+52	271.5	GLIDE
39+71	263.7	POOL HEAD
40+46	258.3	POOL MAX
41+25	263.7	POOL TAIL CREST
43+06	262.5	GLIDE
46+81	250.8	RIFFLE, TIE INTO EXISTING ELEVATION



SCALE: 1" = 500'
VERTICAL EXAGGERATION 10x

- NOTES:
- COORDINATE SYSTEM IS NAD83, ALASKA STATE PLANES, ZONE 4, US FOOT.
 - CONTOURS SHOWN ARE APPROXIMATE. CONTOUR INTERVAL IS 5 FEET AND 25 FEET. IF THERE IS A DISCREPANCY BETWEEN THE ELEVATION SHOWN FOR A CONTROL POINT AND THE ADJACENT CONTOURS, THE ELEVATION SHOWN FOR THE CONTROL POINT SHALL BE CONSIDERED CORRECT.
 - FROM STATION 0+00 TO 50+00, TOTAL CUT IS APPROXIMATELY 46,330 CUBIC YARDS AND TOTAL FILL IS APPROXIMATELY 75,750 CUBIC YARDS.

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STAMPS, LOGOS, AND SEALS

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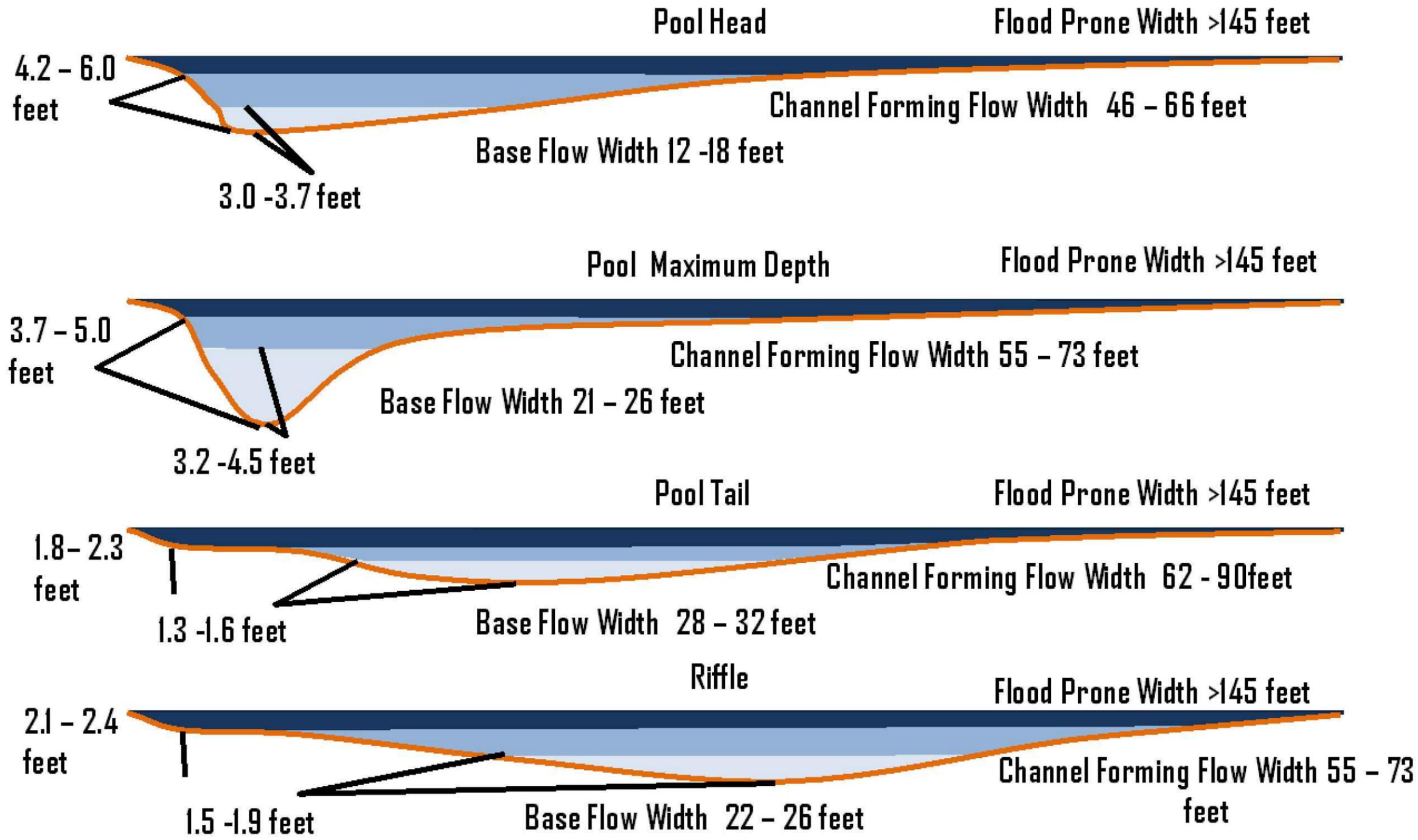
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CHUGACH NATIONAL
FOREST

SEWARD RANGER DISTRICT

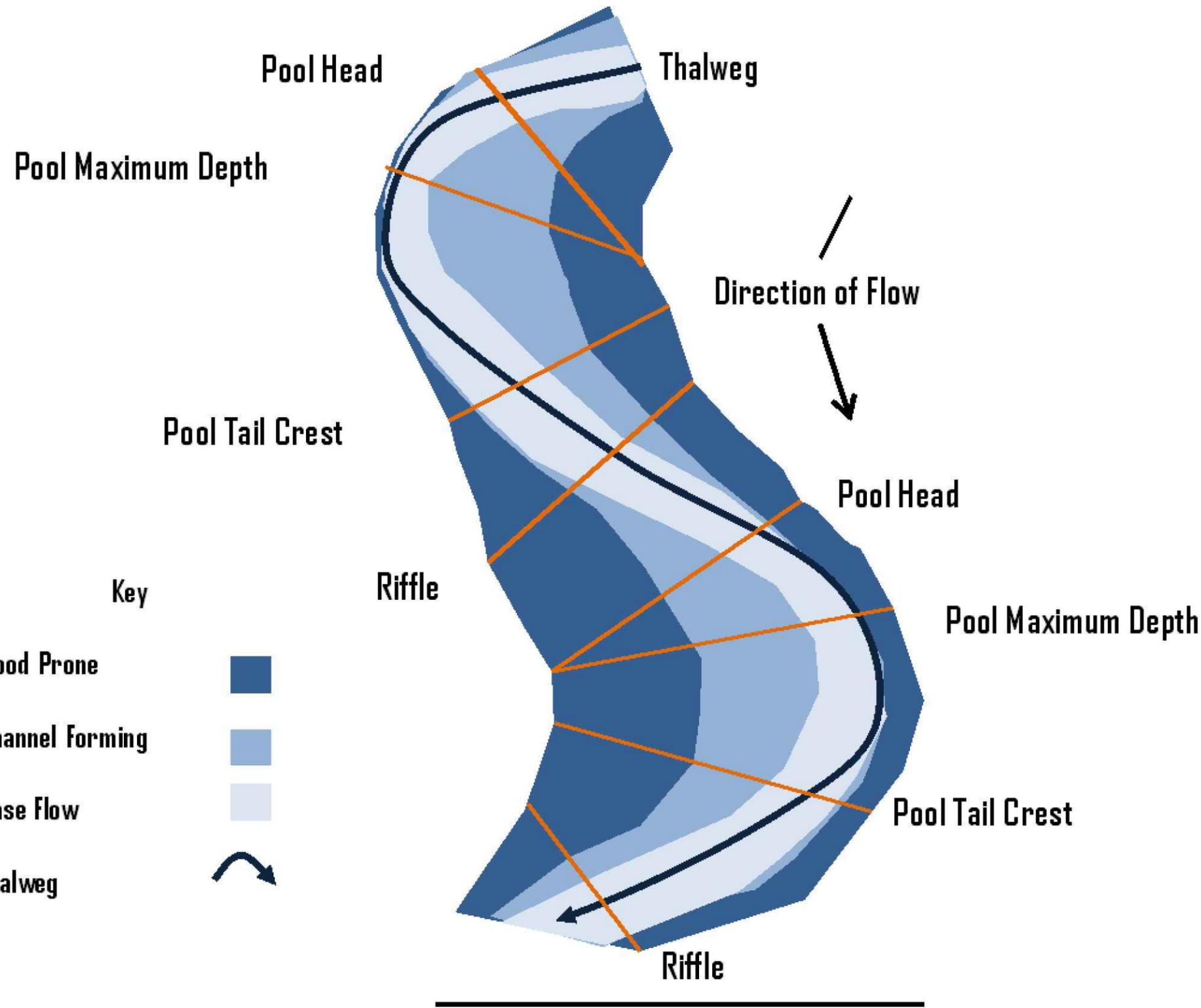
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TYPICAL CROSS
SECTIONS

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Pool Maximum Depth

Pool Head

Thalweg

Direction of Flow

Pool Tail Crest

Riffle

Pool Head

Pool Maximum Depth

Key

Flood Prone



Channel Forming



Base Flow



Thalweg



Pool Tail Crest

Riffle

Meander Belt Width
325 - 455 feet

Meander Wave Length
536 - 1,064 feet



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STAMPS, LOGOS, AND SEALS

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PROJECT NAME
**RESURRECTION CREEK
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CHUGACH NATIONAL FOREST

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DRAWING TITLE
**CONCEPTUAL PLAN
 VIEW**

DATE 10/5/2022	ARCHIVE NO.
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FMF STRUCTURE CONSTRUCTION SEQUENCE

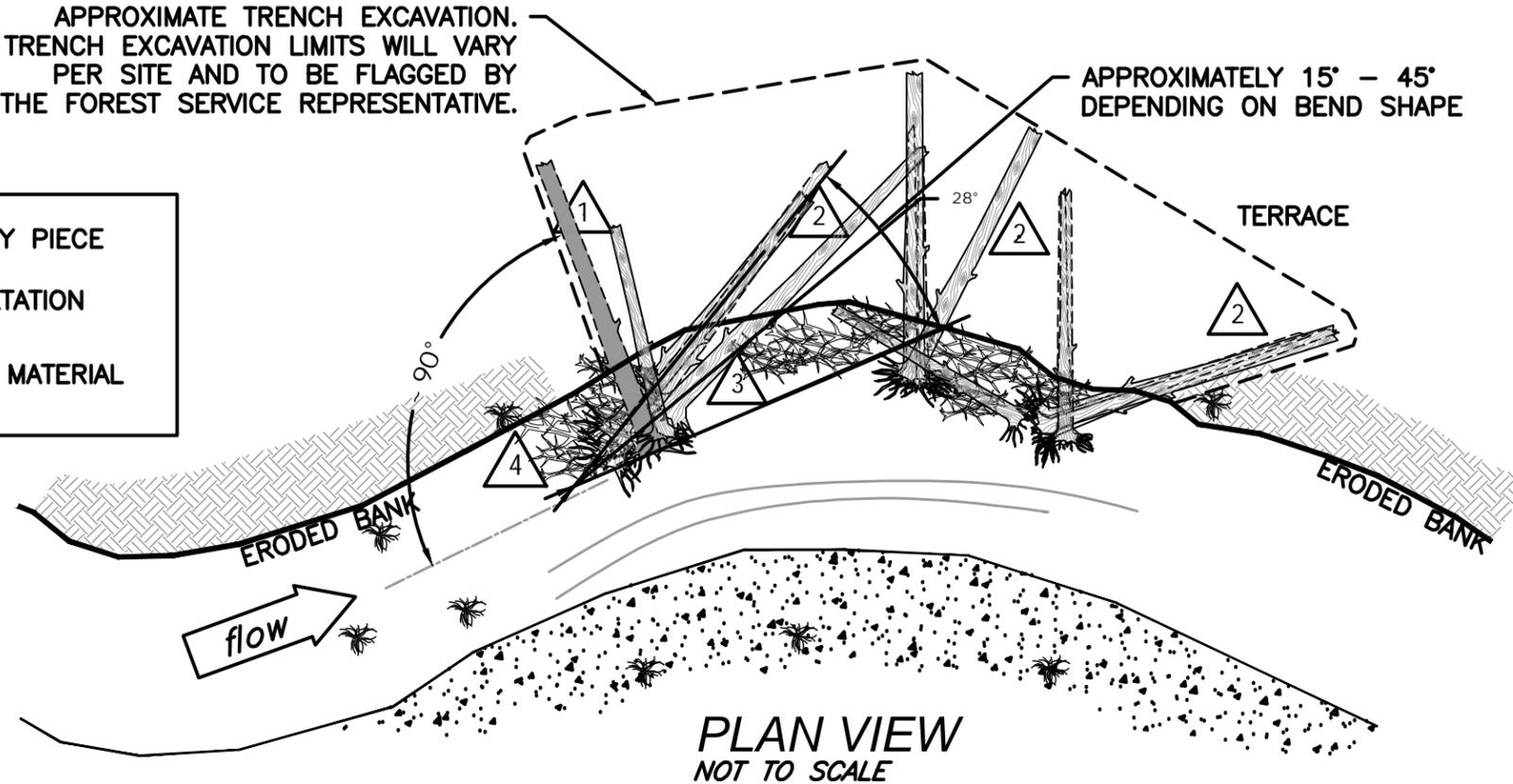
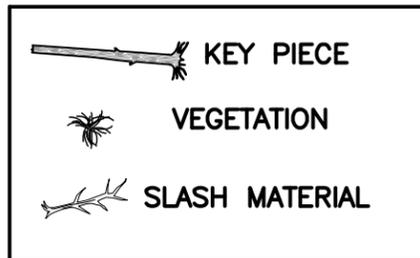
APPROXIMATE TRENCH EXCAVATION. TRENCH EXCAVATION LIMITS WILL VARY PER SITE AND TO BE FLAGGED BY THE FOREST SERVICE REPRESENTATIVE.

APPROXIMATELY 15° - 45° DEPENDING ON BEND SHAPE

FMF NOTES:

1. EXCAVATE TOE LOG TRENCHES PERPENDICULAR TO FLOW AND INTO TERRACE BELOW STREAM BED SURFACE AT EXCAVATED POOL DEPTH. TRENCH DEPTH SHALL BE TO MAXIMUM SCOUR DEPTH OR 3' BELOW LOW FLOW INDICATORS.
2. EXCAVATE TORSION LOG TRENCHES AT A 45° ANGLE TO FLOW AND TO STREAM BED SURFACE ELEVATION. TOP OF FINAL TORSION LOG ELEVATION SHOULD EXCEED 100 YEAR DISCHARGE RETURN INTERVAL OR TERRACE ELEVATION.
3. WEAVE ADDITIONAL TREES, LOGS, SLASH OR ROOT-WADS IN APEX OF STRUCTURE.
4. PLACE AMPLE SLASH AND SMALL WOODY DEBRIS ON THE UP-STREAM BANK INTERFACE OF THE STRUCTURE.

LEGEND



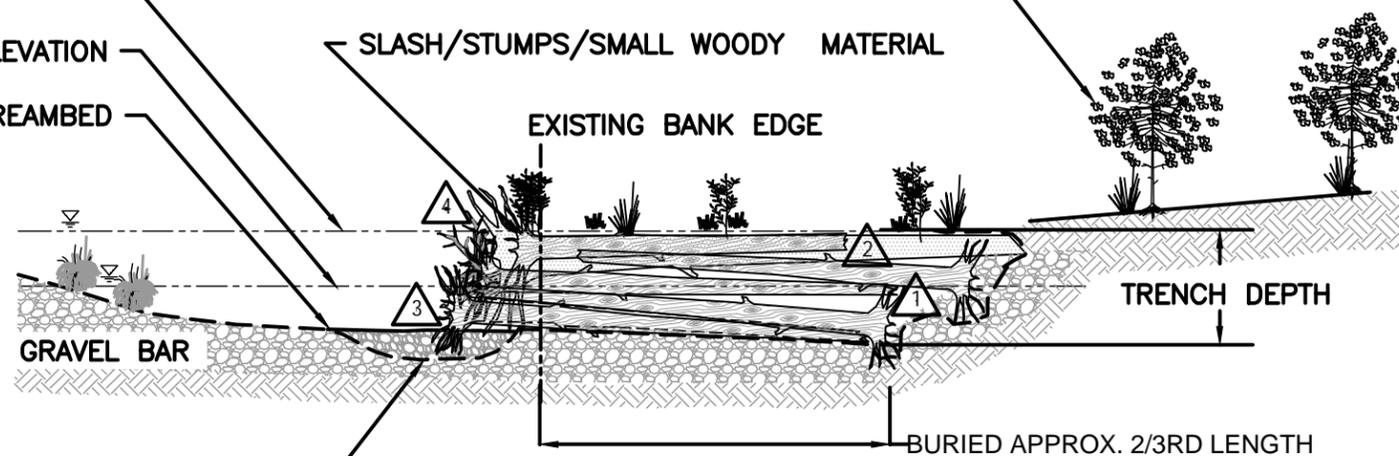
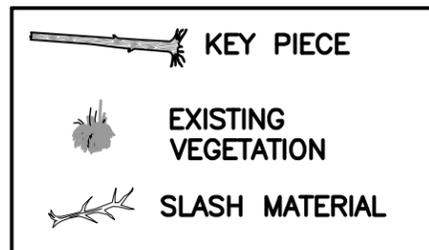
APPROX. Q100 ELEVATION
BANKFULL/FLOODPRONE ELEVATION
STREAMBED

TERRACE HEIGHT VARIES

SLASH/STUMPS/SMALL WOODY MATERIAL

EXISTING BANK EDGE

LEGEND



EXCAVATE CHANNEL BOTTOM TO ACCOUNT FOR ROOTWAD. TOE LOG SHOULD LAY FLAT IN BOTTOM OF EXCAVATED TRENCH

CROSS SECTION VIEW
NOT TO SCALE



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R10
ALASKA REGION

STAMPS, LOGOS, AND SEALS

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NO.	REVISION / ISSUE	DATE

PROJECT NAME

RESURRECTION
CREEK
PHASE II
RESTORATION

CHUGACH NATIONAL
FOREST

SEWARD RANGER DISTRICT

DRAWING TITLE

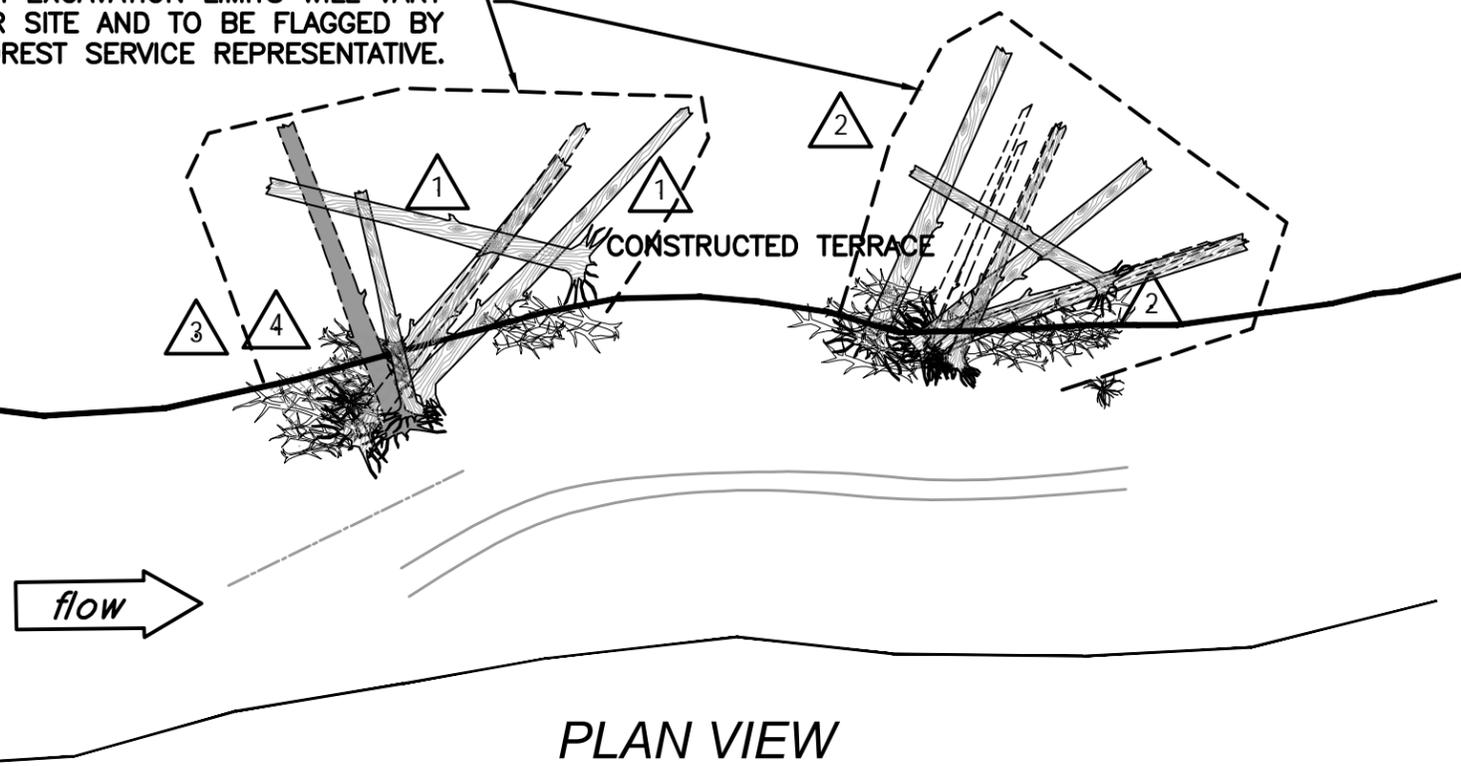
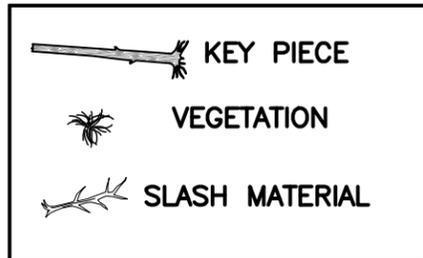
FMF FORMIDABLE
MULTI-FACETED LWD
COMPLEX

DATE 10/5/2022	ARCHIVE NO.
DESIGNER BAIR/MARZULLO	DRAWING SHEET NO. X-03
DRAWN C. MARZULLO	
CHECKED	
PROJECT NO.	SHEET 006 OF 008

FMF-TB STRUCTURE CONSTRUCTION SEQUENCE

APPROXIMATE TRENCH EXCAVATION. TRENCH EXCAVATION LIMITS WILL VARY PER SITE AND TO BE FLAGGED BY THE FOREST SERVICE REPRESENTATIVE.

LEGEND



PLAN VIEW
NOT TO SCALE

FMF NOTES:

- EXCAVATE TOE LOG TRENCHES PERPENDICULAR TO FLOW AND INTO TERRACE BELOW STREAM BED SURFACE AT EXCAVATED POOL DEPTH. TRENCH DEPTH SHALL BE TO MAXIMUM SCOUR DEPTH OR 3' BELOW LOW FLOW INDICATORS.
- EXCAVATE TORSION LOG TRENCHES AT A 45° ANGLE TO FLOW AND TO STREAM BED SURFACE ELEVATION. TOP OF FINAL TORSION LOG ELEVATION SHOULD EXCEED 100 YEAR DISCHARGE RETURN INTERVAL OR TERRACE ELEVATION.
- WEAVE ADDITIONAL TREES, LOGS, SLASH OR ROOT-WADS IN APEX OF STRUCTURE.
- PLACE AMPLE SLASH AND SMALL WOODY DEBRIS ON THE UP-STREAM BANK INTERFACE OF THE STRUCTURE.



United States Department of Agriculture
Forest Service

R10
ALASKA REGION

STAMPS, LOGOS, AND SEALS

△		
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△		
NO.	REVISION / ISSUE	DATE

PROJECT NAME

RESURRECTION
CREEK
PHASE II
RESTORATION

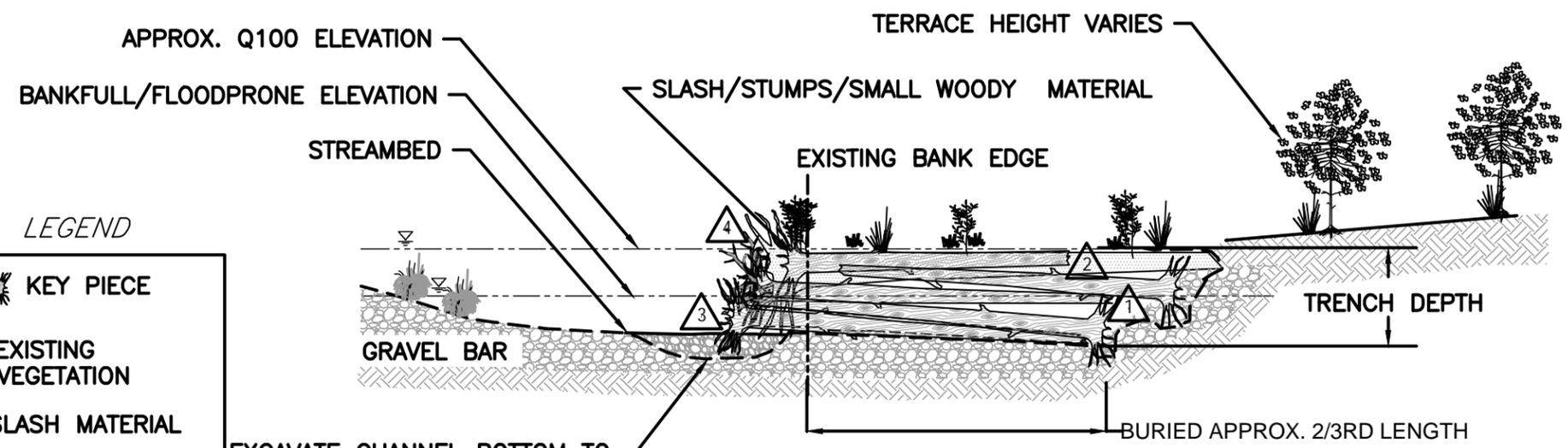
CHUGACH NATIONAL
FOREST

SEWARD RANGER DISTRICT

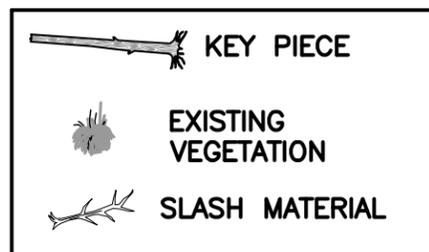
DRAWING TITLE

FMF FORMIDABLE
MULTI-FACETED
TERRACE BARBS

DATE 10/5/2022	ARCHIVE NO.
DESIGNER BAIR/MARZULLO	DRAWING SHEET NO. X-04
DRAWN C. MARZULLO	
CHECKED	
PROJECT NO.	SHEET 007 OF 008



LEGEND



CROSS SECTION VIEW
NOT TO SCALE



United States Department of Agriculture
Forest Service

R10
ALASKA REGION

STAMPS, LOGOS, AND SEALS

△		
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NO.	REVISION / ISSUE	DATE

PROJECT NAME
**RESURRECTION CREEK
PHASE II
RESTORATION**

CHUGACH NATIONAL FOREST

SEWARD RANGER DISTRICT

DRAWING TITLE
ISLAND BAR BUDDIES

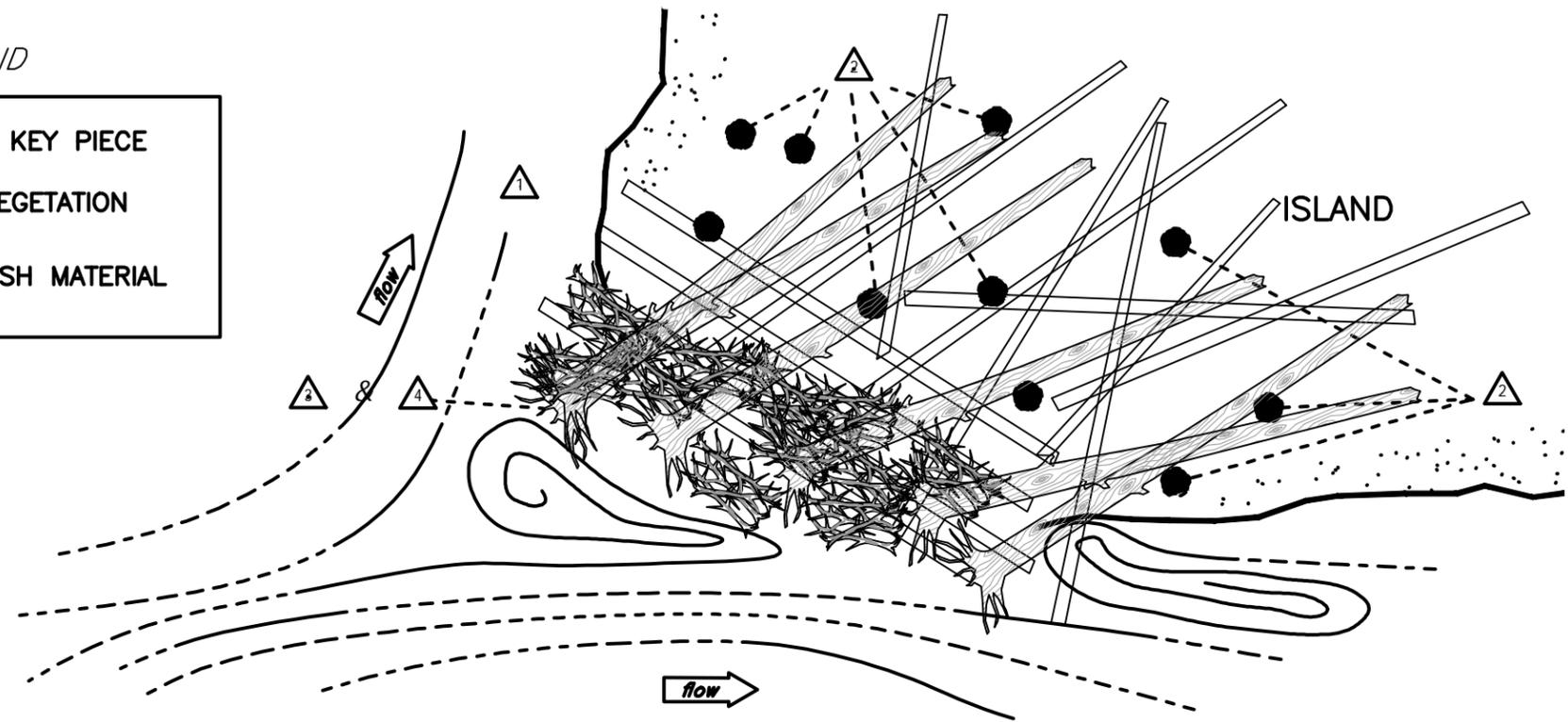
DATE 10/5/2022	ARCHIVE NO.
DESIGNER BAIR/MARZULLO	DRAWING SHEET NO. X-05
DRAWN C. MARZULLO	
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PROJECT NO.	SHEET 008 OF 008

LEGEND

KEY PIECE

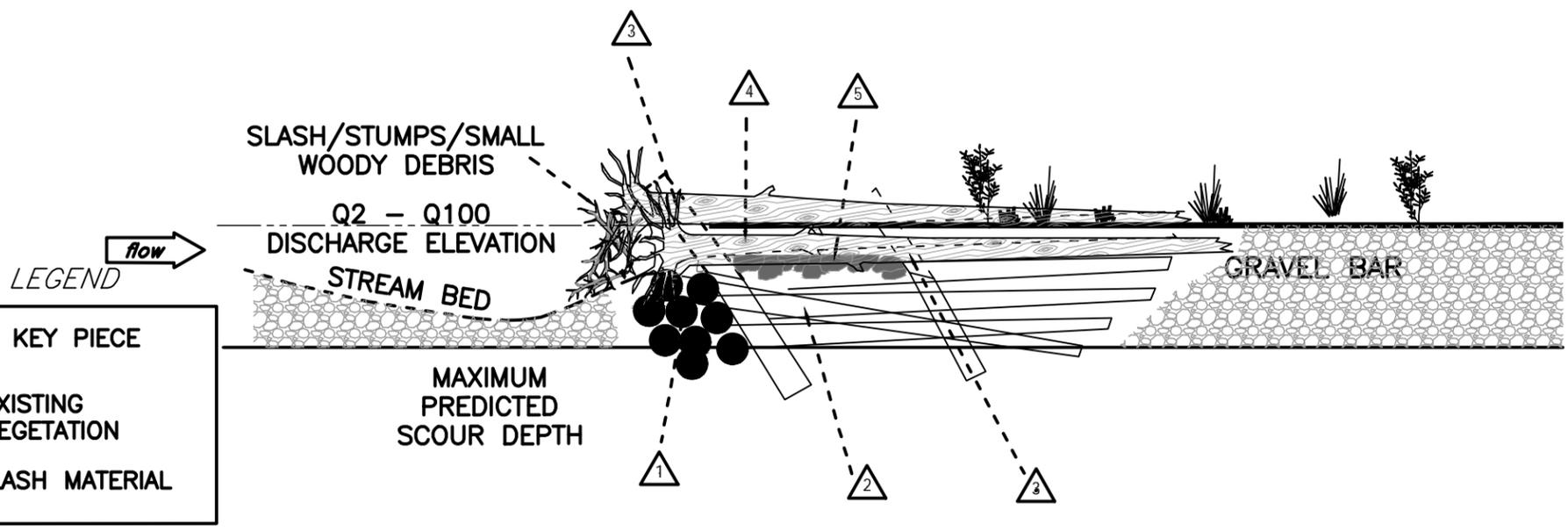
VEGETATION

SLASH MATERIAL



PLAN VIEW

- NOTES:
- EXCAVATE AND PLACE TOE/RACK LOGS PERPENDICULAR TO FLOW, BELOW PREDICTED MAXIMUM SCOUR DEPTH.
 - EXCAVATE AND PLACE SOUND TREES WITH ROOTWADS OR DRIVE PILINGS TO PREDICTED MAXIMUM SCOUR DEPTH BEHIND TOE/RACK LOGS.
 - PLACE, INTEGRATE/INTERLOCK BACKER LOGS WITH TOE/RACK LOGS AND PILINGS. BACKER/TOE LOGS ARE PLACED IN LIFTS, COVERED WITH COBBLE AND GRAVEL AND THEN BUCKET COMPACTED WITH THE EXCAVATOR.
 - PLACE TREES WITH INTACT ROOT WADS ON TOP OF AND BRACING THE UPPER MOST TOE LOG, ROOT WADS FACING UP-STREAM.
 - PLACE AMPLE SLASH AND SMALL WOODY DEBRIS ON THE UP-STREAM INTERFACE OF THE STRUCTURE.



PROFILE
NOT TO SCALE

LEGEND

KEY PIECE

EXISTING VEGETATION

SLASH MATERIAL

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Appendix C: Resurrection Creek Restoration Project Phase II Project Specifications and Special Contract Requirements

Contents:

- Project Access and Usage
- Work Window
- Equipment Requirements
- Job-Specific Safety Plan
- Personal Protective Equipment
- Hazardous Materials
- Use of Premises
- Washing of Equipment
- Contractor's Use of Existing Roads
- Road Maintenance Requirements

Project Access and Usage

Phase II stream restoration will occur within mining claims held by Hope Mining Company (HMC). The Forest Service has an agreement with HMC to establish a restoration corridor where most mining operations will be excluded in order to protect the restored ecosystem. HMC currently has established routes developed on both sides of Resurrection Creek for accessing different parts of the claim block. The Forest Service will use the established routes for restoration site access during construction. Use of these roads will be coordinated between the Contractor, HMC and the Forest Service Representative.

A temporary bridge over Resurrection Creek has been constructed near the middle of the project area for use during restoration implementation. The bridge is designed for HL-93 and to pass equipment, fuel trucks and repair trucks. Approximately 1.7 miles of established routes within the restoration corridor will be removed during restoration and need to be relocated outside of the corridor as designated by the Forest Service Representative. Replacement routes will be of at least equal quality, as approved by the Forest Service Representative, so that HMC can maintain access to their claims.

Work Window

Instream channel work will be conducted between May 15 and July 15 of each construction season to minimize the impacts on fish populations, and revegetation will occur in June of the year following completion of construction in each area. Construction occurring at elevations above the ordinary highwater mark, such as floodplain grading, can occur outside of the instream in water work window (April – October). Tree harvest work will be conducted between July 15 and May 1 of each construction season.

Equipment Requirements

The equipment required for this work are two (2) excavators greater than 110,000 lbs. operating weight, one (1) excavator greater than 50,000 lbs. operating weight, one (1) dozer greater than 80,000 lbs. operating weight, two (2) articulated trucks with a 30 ton or greater payload capacity, Refer to FSSS 157 for Soil and Erosion & Pollution Control specs.

1. Excavators #1 & 2
 - a. Minimum operating weight: 110,000 lbs.
 - b. Crawler-mounted hydraulic excavator
 - c. General purpose 4.0 CY or greater bucket with general purpose & finishing bucket
 - d. Hydraulic thumb
 - e. Crawler-mounted
 - f. Hydraulic Fish Oil Conversion

2. Excavator #3
 - a. Minimum operating weight: 50,000 lbs.
 - b. Crawler-mounted hydraulic excavator
 - c. General purpose 2.0 CY or greater bucket with general purpose & finishing bucket
 - d. Hydraulic thumb
 - e. Crawler-mounted
 - f. Hydraulic Fish Oil Conversion

3. Dozer #1
 - a. Minimum operating weight: 80,000 lbs.
 - b. 13.0 CY or greater semi universal blade capacity with wear plate
 - c. Ripper attachment
 - d. Hydraulic Fish Oil Conversion

4. Articulated Trucks #1 & 2
 - a. Minimum operating weight: 30 ton rated payload
 - b. Minimum 17 CY body capacity truck
 - c. End dump, 3 axles
 - d. Hydraulic Fish Oil Conversion

All equipment will use approved nontoxic biodegradable hydraulic fluid. "Fish-friendly" hydraulic fluid is defined as a synthetic thermally stable biodegradable hydraulic oil (ISO 32/46), such as Panolin HLP Synth, Chevron's Clarity, or equivalent. Contractor shall certify in writing that equipment is bled and filled with "fish-friendly" lubricants and hydraulic fluids when stipulated prior to beginning operations. Chainsaws will also be equipped with "fish-friendly" bar oil.

Two-way Radios

Contractor shall provide a minimum of ten (10) UHF Digital portable two-way radios, minimum range 2 miles, with remote speaker microphones and chargers. Radios will be used for safety and communication between operators, the Forest Service and inspectors during all instream operations.

It is the Contractor's responsibility to ensure safe operations for this project. The Forest Service will apply necessary traffic closures to ensure public safety and efficient workflow.

Job-Specific Safety Plan

Prior to the post award meeting, the Contractor shall provide a written job specific safety plan that recognizes the inherently hazardous conditions that will exist on this task order. Some of these hazardous conditions are, but not limited to: heavy equipment operation, loading and unloading of materials including trees with rootwads, site security, noises, dust and the use of personal protective equipment (PPE) in the work area. The plan shall be in accordance with OSHA Regulations. The plan shall include all tasks and related activities anticipated to successfully complete the work.

Personal Protective Equipment

1. 29 CFR 1910 Subpart I, OSHA's General Industry Personal Protective Equipment (PPE) standard contains the general requirements for the provision of personal protective equipment and requires employers to perform a hazard assessment to select appropriate PPE for hazards that are present or likely to be present in the workplace. OSHA requires that many categories of personal protective equipment meet or be equivalent to standards developed by the American National Standards Institute (ANSI).
2. Before a worker begins operating equipment, the Contractor must train the workers on the in the safe operation and use of equipment to all workers using such equipment.
3. The Contractor shall provide the appropriate personal protective equipment for the work required to be performed in the contract / task order, whenever necessary by reason of hazards or processes encountered that may cause injury or impairment in the function of any part of the body. Except for foot protection, all PPE must be provided by the employer at no cost to the employee. Includes:
 - a) Head Protection
 - b) Hearing Protection
 - c) Eye/Face Protection
 - d) Leg Protection
 - e) Foot Protection
 - f) Hand Protection
4. PPE must be sanitary and in reliable condition. Contractor shall not use defective or damaged PPE. PPE must be inspected by the Contractor prior to use on each work shift to ensure it is in serviceable condition.
5. A checklist of applicable PPE Guidelines typical for the work performed under this task order is available at <https://www.osha.gov/SLTC/personalprotectiveequipment/index.htm> or OSHA 3151-12 R 2003 Personnel Protective Equipment Booklet and other locations.
6. At all times, the Contractor is responsible for performing a risk assessment and providing the necessary PPE for their operation on this contract/task order.

7. The Contractor shall be in compliance with the all field sanitations. OSHA's established minimum standards for field sanitation is applicable to this task contract/task order. Refer to Fact Sheet # 51 Field Sanitation Standards under the Occupational Safety and Health Act.

Hazardous Materials

Contractor shall notify the Government of any hazardous materials and or waste (as defined in 29 CFR 1910.1200) to be used on the job and will have Material Safety Data Sheets (MSDSs) for those materials available on the job. All such materials shall be labeled in accordance with Federal and State regulations.

If Contractor maintains storage facilities for oil or oil products in the task order area, Contractor shall take appropriate preventive measures to insure that any releases of such oil or oil products does not enter any stream or other waters, or ground of the United States, or any of the individual States and shall conform to Federal, State, and Local regulations.

If the total oil or oil products storage exceeds 1,320 gallons, or if any single container exceeds a capacity of 660 gallons, Contractor shall prepare and implement a Spill Prevention Control and Countermeasures (SPCC) Plan. Such plan shall meet applicable EPA requirements (40 CFR 112) including certification by a registered professional engineer.

Contractor shall immediately take action to notify appropriate agencies including the NFF, and the Forest Service Representative, contain, and cleanup without expense to the Government, all petroleum products or other hazardous substance (as defined in 29 CFR 1910.120) releases on/or in the vicinity of the project of construction operations. Contractor shall be held liable for all damages and costs of additional labor, subsistence, equipment, supplies and transportation deemed necessary by the Government for the containment and cleanup of petroleum products releases caused by Contractor's employees or resulting from construction operations.

All petroleum products or other hazardous substances shall not be released on or into land or into rivers, streams, and impoundments, or into natural or manmade channels leading thereto. Servicing of all equipment shall be done only in the areas approved by the Forest Service Representative. Contractor shall properly dispose of vehicle oil filters (drained of free-flowing oil), oily rags, and waste oil in accordance with Local, State, and Federal regulations off of Government property and shall transport such material in accordance with State and Federal regulations.

Use of Premises

1. The Contractor shall comply with the regulations governing the operation of premises which are occupied and shall perform this task order in such a manner as not to interrupt or interfere with the conduct of Government business.

2. Before any camp, quarry, borrow pit, storage, detour, or bypass site, other than shown on the drawings, is opened or operated on Forest Service land or lands administered by the Forest Service, the Contractor shall obtain written permission from the appropriate Ranger District. A camp is interpreted to include a campsite or trailer parking area of any employee working on the project for the Contractor. If permission is granted, a work order will specify all conditions and requirements. Sanitation facilities shall be provided for all employees of the Contractor and members of the campsite.

3. It is further stipulated that in addition to clean-up of any campsites, the Contractor shall remove his equipment from National Forest Service land before final acceptance and payment of the task order.

Washing of Equipment

The Contractor shall wash all equipment except for hauling vehicles prior to entering National Forest Land. Remove all soil which could contain noxious weed seed. Remove grease and oil from drive mechanisms which would be discharged into the stream when equipment is operating. Prior to transporting equipment to the site, assure that the equipment's hydraulic, lubrication and fuel systems are free from leaks. Inspection of equipment will be coordinated with Forest Service Representative prior to mobilization to the job site.

Pollutants such as fuels, lubricants, bitumen, raw sewage, and other harmful materials shall not be discharged on the ground; into or nearby rivers, streams, or impoundments; or into natural or man-made channels. Wash water or waste from concrete or aggregate operations shall not be allowed to enter live streams prior to treatment by filtration, settling, or other means sufficient to reduce the sediment content to not more than that of the stream into which it is discharged.

Contractor's Use of Existing Roads

The Contractor is authorized to use roads in the immediate construction project area for performance of work under this task order. The authorization is limited to roads necessary for direct access between the construction area and storage sites, disposal areas, and other work areas designated in the task order.

The roads authorized for use will be subject to the following general conditions:

1. State laws governing traffic rules and equipment requirements on State and Borough Highways.
2. Federal Regulations contained in 36 CFR 261.12. These regulations prohibit use in excess of State Codes for weight and size, damaging a road while using it, and blocking a road open to use by others.

The Contractor shall be responsible for and perform road maintenance commensurate with his use of Forest Service roads in the construction area.

Road Maintenance Requirements

In order to fulfill the obligation to protect existing facilities, material source, and disposal site access roads from seasonal weather damage, to safeguard soil and water quality, and to repair damage commensurate with his use, the Contractor shall perform road maintenance work on these roads in accordance with the following:

1. While performing ordinary road maintenance work, the Contractor shall avoid permanent fouling of gravel or bituminous surfaces through covering them with earth or debris from side ditches, slides, or other sources. The Contractor shall avoid blading surface material off the surface of roads.
2. While performing all phases of construction, the Contractor shall minimize damage to ditches, slopes and road surfaces. Where damage does occur, the Contractor shall restore the road to its prior condition within a reasonable period of time.

**Appendix D: Resurrection Creek Restoration Project Phase II
Bid Schedule**

BASE ITEMS

Period of Performance : 2023						
Item No.	Base Items Schedule	Pay Unit	Method of Measure	Estimated Quantity	Unit Price	Total Price
15101	Mobilization	LS	LS	1	\$ _____	\$ _____
15701	Soil Erosion & Pollution Control/SWPPP	LS	LS	1	\$ _____	\$ _____
62201 - 1	Hydraulic Excavator #1 Rate (>110,000 LBS Operating Weight)	HR	AQ	245	\$ _____	\$ _____
62201 - 2	Hydraulic Excavator #2 (>110,000 LBS Operating Weight Rate)	HR	AQ	245	\$ _____	\$ _____
62201 - 3	Hydraulic Excavator #3 Rate (>50,000 LBS Operating Weight)	HR	AQ	245		
62201 - 4	Dozer #1 Rate (>80,000 LBS Operating Weight)	HR	AQ	245	\$ _____	\$ _____
62201 - 5	Articulated Dump Truck #1 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	245	\$ _____	\$ _____
62201 - 6	Articulated Dump Truck #2 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	245		
62202	Biodegradable Hydraulic Oil Conversion	EA	AQ	6	\$ _____	\$ _____
63704	Radios	EA	AQ	10	\$ _____	\$ _____
Total Price Base Bid Items						\$ _____

OPTION ITEMS

Period of Performance : 2023						
Item No.	Option Items Schedule	Pay Unit	Method of Measure	Estimated Quantity	Unit Price	Total Price
62201 - 1	Hydraulic Excavator #1 Rate (>110,000 LBS Operating Weight)	HR	AQ	550		
62201 - 2	Hydraulic Excavator #2 (>110,000 LBS Operating Weight Rate)	HR	AQ	550	\$ _____	\$ _____
62201 - 3	Hydraulic Excavator #3 Rate (>50,000 LBS Operating Weight)	HR	AQ	550	\$ _____	\$ _____
62201 - 4	Dozer #1 Rate (>80,000 LBS Operating Weight)	HR	AQ	550		
62201 - 5	Articulated Dump Truck #1 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	550	\$ _____	\$ _____
62201 - 6	Articulated Dump Truck #2 Rate (Haul Capacity 30 Tons or Greater)	HR	AQ	550	\$ _____	\$ _____
Total Price Option Items						\$ _____
Total Price Option + Base Bid Items						\$ _____

Appendix E: Forest Service Supplemental Specifications (FSSS) to the “Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14”

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Preface

Preface_wo_06_29_2019

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-14 for construction of National Forest System Roads.

101 - Terms, Format, and Definitions

101.01_National_6_29_2019

Add the following paragraph to Subsection 101.01:

101.01 Meaning of Terms.

Delete all references to the TAR (Transportation Acquisition Regulations) in the specifications.

101.03_National_6_29_2019

Add the following to Subsection 101.03:

101.03 Abbreviations.

(a) Acronyms.

AGAR — Agriculture Acquisition Regulations

AFPA — American Forest and Paper Association

FSAR — Forest Service Acquisition Regulations

MSHA — Mine Safety and Health Administration

NESC — National Electrical Safety Code

WCLIB — West Coast Lumber Inspection Bureau

(f) Miscellaneous unit abbreviations.

MP — milepost location

ppm — parts per million volume

STA — station location

101.04_National_6_29_2019

Make the following changes to Subsection 101.04:

101.04 Definitions.

Delete these definitions and replace the following:

Bid Schedule — The Schedule of Items.

Bridge — A structure, including supports, erected over a depression or an obstruction such as water along a road, a trail, or a railway and having a deck for carrying traffic or other loads.

Contractor — The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the “Purchaser”.

Culvert — Any structure with a bottom, regardless of fill depth, depth of invert burial, or presence of horizontal driving surface, or any bottomless (natural channel) structure with footings that will not have wheel loads in direct contact with the top of the structure.

Drawings — (Public Works Contracts) Design sheets or fabrication, erection, or construction details submitted to the CO by the Contractor according to FAR Clause 52.236-21 Specifications and Drawings for Construction. Also refers to submissions and submittals.

Notice to Proceed — (Public Works Contracts) Written notice to the Contractor to begin the contract work.

Right-of-Way — A general term denoting (1) the privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or (2) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

Solicitation—(Public Works Contracts) The complete assembly of documents (whether attached or incorporated by reference) furnished to prospective bidders.

Add the following definitions:

Adjustment in Contract Price — “Equitable adjustment,” as used in the Federal Acquisition Regulations, or “construction cost adjustment,” as used in the Timber Sale Contract, as applicable.

Change — “Change” means “change order” as used in the Federal Acquisition Regulations, or “design change” as used in the Timber Sale Contract.

Forest Service — The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

Neat Line — A line defining the proposed or specified limits of an excavation or structure.

Pioneer Road — Temporary construction access built along the route of the project.

Purchaser — The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through agents, employees, or subcontractors.

Protected Streamcourse — A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

Road Order — An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

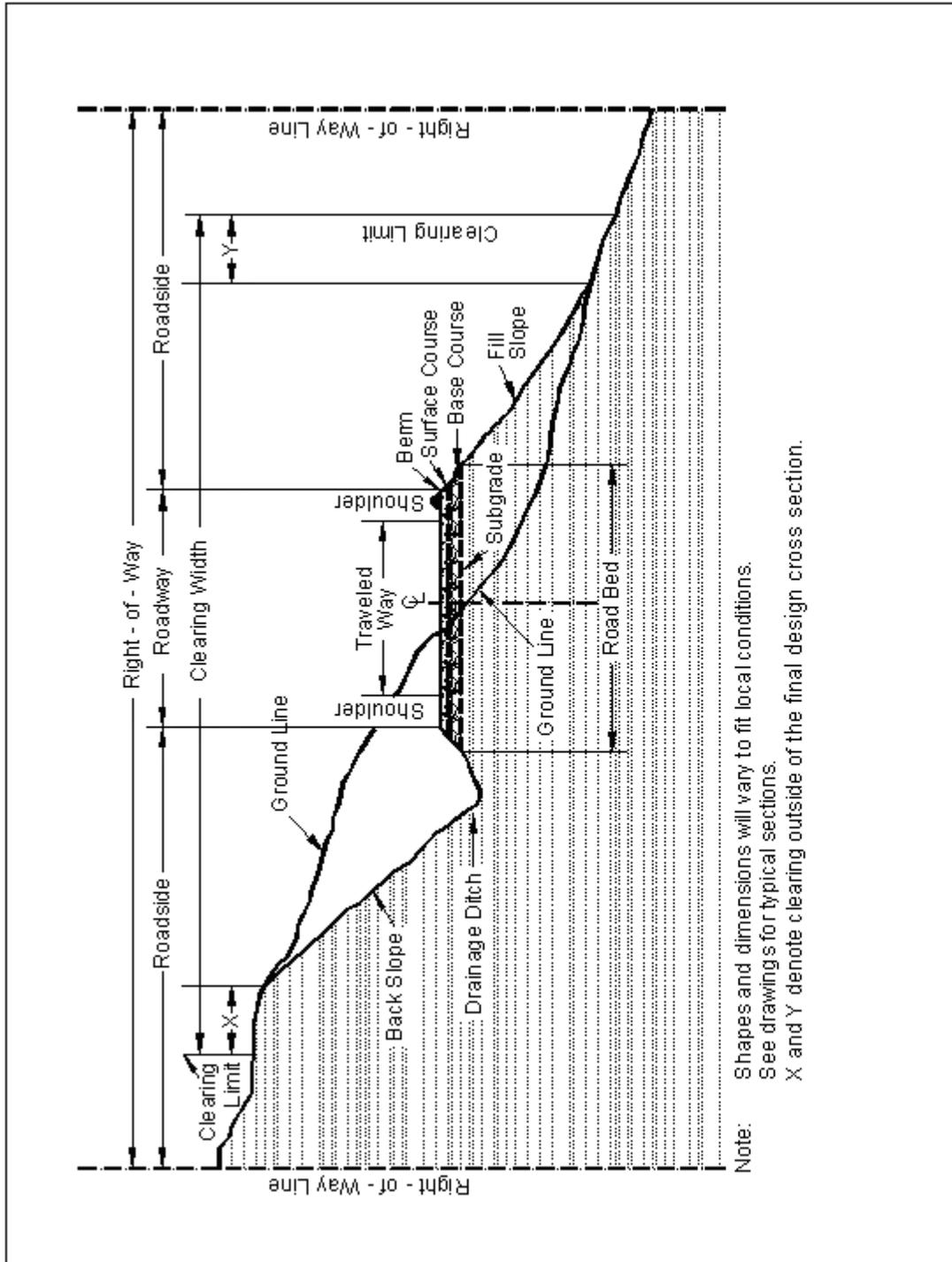
Shop Drawings — (Timber and Stewardship Contracts) Referred to as “Drawings” in FP-14, include drawings, diagrams, layouts, schematics, descriptive literature, illustrations, lists or tables, performance and test data, and similar materials furnished by Purchaser to explain in detail specific portions of the work required by the contract.

Utilization Standards —

The minimum size and percent soundness of trees described in Public Works contract specifications or Timber Sale and IRTC contract provisions to determine merchantable timber.

Add Figure 101-1—Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



102 - Bid, Award, and Execution of Contract

102.00_National_6_29_2019

Delete Section 102 in its entirety.

Delete Section 102.

103 - Scope of Work

103.00_National_6_29_2019

Delete all of Section 103 except Subsection 103.01 Intent of Contract.

Delete Subsections 103.02, 103.03, 103.04, 103.05.

104 - Control of Work

104.00_National_6_29_2019

Delete Subsections 104.01, 104.02, and 104.04.

Delete Subsections 104.01, 104.02, 104.04.

104.06_National_6_29_2019

Add the following to Subsection 104.06:

104.06 Use of Roads by Contractor.

The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

105 - Control of Material

105.02_National_6_29_2019

Add the following to Subsection 105.02c:

105.02(c) Contractor-located sources.

All material (e.g., soil, gravel, sand, borrow, aggregate, etc.) transported onto National Forest System land or incorporated into the work shall be weed-free. The Contracting Officer may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds of concern in the local area. The following applies to this contract:

106 - Acceptance of Work

106.01_National_6_29_2019

Delete Subsection 106.01 and replace with the following:

106.01 Conformity with Contract Requirements.

Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

References to standard test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the methods in effect on the date of solicitation for bids.

Perform all work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown on the plans or specified in the contract.

Incorporate manufactured materials into the work according to the manufacturer's recommendations or to these specifications, whichever is more strict.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which any deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

When standard manufactured items are specified (such as fence, wire, plates, rolled shapes, pipe conduits, etc., that are identified by gauge, unit mass, section dimensions, etc.), the identification will be considered to be nominal masses or dimensions. Unless specific contract tolerances are noted, established manufacturing tolerances will be accepted.

The Government may inspect, sample, or test all work at any time before final acceptance of the project. When the Government tests work, copies of test reports are furnished to the Contractor upon request. Government tests may or may not be performed at the work site. If Contractor testing and inspection is verified by the Government, the Contractor's results may be used by the Government to evaluate work for acceptance. Do not rely on the availability of Government test results for process control.

Acceptable work conforming to the contract will be paid for at the contract unit bid price. Four methods of determining conformity and accepting work are described in Subsections 106.02 to 106.05 inclusive. The primary method of acceptance is specified in each Section of work. However, work may be rejected at any time it is found by any of the methods not to comply with the contract.

Remove, repair, or replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted. Removing, repairing, or replacing work; providing temporary traffic control; and any other related work to accomplish conformity will be at no cost to the Government.

(a) Disputing Government test results. If the accuracy of Government test results is disputed, promptly inform the CO. If the dispute is unresolved after reasonable steps are taken to resolve the dispute, further evaluation may be obtained by written request. Include a narrative describing the dispute and a proposed resolution protocol that addresses the following:

1. Sampling method;
2. Number of samples;
3. Sample transport;
4. Test procedures;

5. Testing laboratories;
6. Reporting;
7. Estimated time and costs; and
8. Validation process.

If the evaluation requires additional sampling or testing be performed, mutually agree with the Government on witnessing procedures and on sampling and testing by a third party laboratory. Use a third party laboratory accredited by the AASHTO accreditation program. Provide proof of the laboratory's accreditation for the test procedures to be used. Do not use the same laboratory that produced the disputed Government test results or that produced the test results used as a basis for the dispute.

The CO will review the proposed resolution protocol and may modify it before final approval and execution.

The Government will use the approved resolution protocol test results to determine the validity of the disputed testing. If the Government test results are validated, the Contractor will be responsible for all costs associated with developing and performing the resolution protocol. If the Government test results are not validated, the Government will be responsible for all costs associated with developing and performing the resolution protocol. If the validity of the Government test results cannot be determined, the Contractor and Government will equally share all costs associated with developing and carrying out the resolution protocol.

(b) Alternatives to removing and replacing non-conforming work. As an alternative to removal and replacement, the Contractor may submit a written request to:

1. Have the work accepted at a reduced price; or
2. Be given permission to perform corrective measures to bring the work into conformity.

The request must contain supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis. The CO will determine disposition of the nonconforming work.

106.02_National_6_29_2019

Delete Subsection 106.02 and replace with the following:

106.02 Visual Inspection.

Acceptance is based on visual inspection of the work for compliance with the specific contract requirements. Use prevailing industry standards in the absence of specific contract requirements or tolerances.

107 - Legal Relations and Responsibility to the Public

107.05_National_6_29_2019

Delete Subsection 107.05.

Delete Subsection 107.05.

108 - Prosecution and Progress

108.00_National_6_29_2019

Delete Section 108 in its entirety.

Delete Section 108.

109 - Measurement and Payment

109.00_National_6_29_2019

Delete Subsections 109.06, 109.07, 109.08, and 109.09:

Delete Subsections 109.06, 109.07, 109.08, 109.09.

109.01_National_6_29_2019

Delete the third paragraph and Table 109-1 of Subsection 109.01 and replace with the following:

109.01 Measurement of Work.

Take measurements as described in Subsection 109.02 unless otherwise modified by the Measurement Subsection of the section controlling the work being performed. Table 109-1 indicates the accuracy required for quantities of the various pay units used in the Schedule of Items. Use this guide to determine the decimal placement in the final payment.

Table 109-1

Decimal Accuracy of Quantities for Final Payment

Pay Item	Level of Precision
Linear Foot	1
Exception--Timber, Steel, and concrete Piles	0.1
Station	0.1
Mile	0.01
Square Foot	0.1
Square Yard	0.1
Each	1
Acre	0.01
Gallon	1
M-Gals.	0.1
Cubic Yard	1
Exception--Structure Excavation; Sheathing Materials; Bedding, Bed Course, and Backfill Materials; Gabions;	0.1
Exception--Concrete; Masonry	0.01
Pound	1
Ton	0.1
Exception--Calcium Chloride; Sodium Chloride; Hydrated Lime; Bituminous Materials; Pavements; Bed Course Materials	0.01
Hour	0.1
MFBM	0.01
Station Yard	1
Cubic Yard Mile	1
Ton Mile	1

Add the following sentence to Subsection 109.02(b):

109.02 Measurement Terms and Definitions.

(b) Contract quantity.

Contract quantities will be adjusted only when there are errors in the original design of 15% or more.

Add the following to Subsection 109.03(c):

109.03 Weighing Procedures and Devices.

(c) Project weighing system.

For aggregates weighed for payment, adjust scale weights of material to deduct the daily average moisture content in excess of 2 percentage points over optimum moisture as determined by AASHTO T 99 or the designated compaction method. If moisture determination is necessary, determine the daily average moisture content in accordance with AASHTO T 255, from not less than three representative samples of aggregate taken at random intervals each day that aggregate is being weighed.

Manual scales may be used if approved in writing by the CO and if the method of weighing meets all other contract requirements.

152 - Construction Survey and Staking

152.00_National_6_29_2019

Add the following to Subsection 152.04(c):

152.04 General.

(c) Material.

Use required stake dimensions and materials. Pre-paint the top 2 inches of all stakes and lath, or mark them with plastic flagging. Use designated colors for paint or flagging. Mark all stakes with a stake pencil that leaves a legible imprint, or with waterproof ink.

Do not use aerosol spray paints.

Use moisture-resistant paper for survey notes. Keep notes in books with covers that will protect the contents and retain the pages in numerical sequence.

Make the following changes to Subsection 152.05:

152.05 Survey and Staking Requirements.

Delete Subsection 152.05(d)(2) and replace with the following:

(d) Slope and reference stakes.

(2) Conventional survey methods. When required, locate slope stakes on designated portions of the road. Locate the slope stake catch points and use them to establish clearing limits and slope stake references.

Mark slope stakes with the station, the amount of cut or fill, the horizontal distance to centerline, and the slope ratios.

Place slope reference stakes at least 10 feet outside the clearing limit and mark with the offset distance to the slope stake. Place sight stakes when required.

Prior to clearing and grubbing operations, move the slope stake outside the clearing limit to the slope reference stake. After clearing and grubbing and before excavation, reset the slope stakes in their original position.

Use the designated method to establish the slope stake catchpoint.

Method I—Computed Method. Use the template information shown in the plans or other Government-provided data to calculate the actual location of the catchpoint. The slope stake “catchpoint distance” provided may be used as a trial location to initiate slope staking. Recatch slope stakes on any section that does not match the staking report within the tolerances established in Table 152-2.

Method II—Catchpoint Measurement Method. Determine the location of slope stake catchpoints by measuring the catchpoint distances shown in the plans or other Government-provided data.

Add the following to Subsection 152.05(e):

(e) Clearing and grubbing limits.

Mark the clearing limits with flagging or tags on trees to be left standing, or on lath. Make markings intervisible, and no more than 90 feet apart.

After establishing clearing limits, move the location line stake outside the clearing limits for station identification purposes, and mark it with horizontal distance to location line.

Replace Table 152-1 with the following:

Table 152-1 Construction Survey and Staking Tolerances

**Table 152-1
Construction Survey and Staking Tolerances ⁽¹⁾**

Staking Phase	Horizontal	Vertical
Control points set from existing Government control points- Tolerance Class A	±0.03 feet (±10 millimeters)	±0.01 feet × √N (±3 millimeters × √N) ⁽²⁾
Mapping, topography, and cross-section Points- Tolerance Class A	±0.16 feet (±50 millimeters)	±0.16 feet (±50 millimeters)
Centerline points ⁽³⁾ including (PC), (PT), (POT),(POC), and references- Tolerance Class A	±0.06 feet (±20 millimeters)	±0.06 feet (±20 millimeters)
Slope-stake and slope-stake references- Tolerance Class A ⁽⁴⁾	±0.16 feet (±50 millimeters)	±0.16 feet ±50 millimeters)
Culverts, ditches, and minor drainage structures stakes- Tolerance Class A	±0.16 feet (±50 millimeters)	±0.06 feet (±20 millimeters)
Retaining walls stakes	±0.06 feet (±20 millimeters)	±0.03 feet (±10 millimeters)
Curb and gutter stakes	±0.06 feet (±20 millimeters)	±0.03 feet (±10 millimeters)
Bridge substructures stakes	±0.03 feet (±10 millimeters) ⁽⁵⁾	±0.03 feet (±10 millimeters)
Bridge superstructures stakes	±0.03 feet (±10 millimeters) ⁽⁵⁾	±0.03 feet (±10 millimeters)
Clearing and grubbing limit stakes- Tolerance Class A	±1.00 feet (±300 millimeters)	–
Roadway subgrade finish stakes- Tolerance Class A ⁽⁶⁾	±0.16 feet (±50 millimeters)	±0.03 feet (±10 millimeters)
Roadway finish grade stakes ⁽⁶⁾	±0.16 feet (±50 millimeters)	±0.03 feet (±10 millimeters)

**Table 152-1
Construction Survey and Staking Tolerances (continued) ⁽¹⁾**

Staking Phase	Horizontal	Vertical
Control points set from existing Government control points –Tolerance Class B ⁽⁷⁾	±0.16 feet (±20 millimeters)	$\pm 0.16 \text{ feet} \times \sqrt{N}$ (±20 millimeters $\times \sqrt{N}$) ⁽²⁾
Mapping, topography, and cross-section points–Tolerance Class B ⁽⁷⁾	±1.00 feet (±300 millimeters)	±0.50 feet (±150 millimeters)
Centerline points including (PC), (PT), (POT),(POC), and references–Tolerance Class B ⁽⁷⁾	±0.16 feet (±20 millimeters)	±0.16 feet (±20 millimeters)
Slope-stake and slope-stake references–Tolerance Class B ⁽⁷⁾	±0.50 feet (±50 millimeters)	±0.16 feet ±50 millimeters)
Culverts, ditches, and minor drainage structures stakes–Tolerance Class B ⁽⁷⁾	±0.50 feet (±150 millimeters)	±0.16 feet (±20 millimeters)
Clearing and grubbing limit stakes–Tolerance Class B ⁽⁷⁾	±2.00 feet (±600 millimeters)	—
Roadway subgrade finish stakes–Tolerance Class B ⁽⁷⁾	±0.50 feet (±50 millimeters)	±0.16 feet (±10 millimeters)
Roadway finish grade stakes–Tolerance Class B ⁽⁷⁾	±0.50 feet (±50 millimeters)	±0.16 feet (±10 millimeters)

(1) At statistical 95 percent confidence level. Tolerances are relative to existing Government control points.

(2) N is the number of instrument setups.

(3) Centerline points: PC - point of curve, PT - point of tangent, POT - point on tangent, POC - point on curve.

(4) Take the cross-sections normal to the centerline ±1 degree.

(5) Bridge control is established as a local network and the tolerances are relative to that network.

(6) Includes paved ditches.

(7) Tolerance Class B for Very Low Volume Roads with an aggregate or native finished surface.

153 - Contractor Quality Control

153.02_National_6_29_2019

Delete Subsection 153.02 and replace with the following:

153.02 Qualifications.

Submit the following for approval with the quality control plan:

- (a) Quality control manager (QCM).** Furnish a QCM who has at least 2 years' experience in construction, inspector, quality control and material testing on construction projects of similar type and scope.
- (b) Testers.** Provide testers with at least one year experience in the type of sampling and testing required, and with one of the following for the type of sampling and testing performed:
 - (1) NICET Level II certification in highway material or equivalent state or industry certification;
 - (2) Certification by a regional certification program (such as Western Alliance for Quality Transportation Construction (WAQTC), Northeast Transportation Technician Certification Program (NETTCP), Southeast Task Force for Technician Training and Qualification (STFTTQ), or Multi Regional Training and Certification (M-TRAC)); or
 - (3) At least one year employment by an AASHTO accredited laboratory performing equivalent sampling and testing.

153.03_National_6_29_2019

Add the following paragraph to the end of Subsection 153.03(b):

153.03 Quality Control Plan.

(b) Quality Control Procedures.

Submit written proposals for approval of alternate AASHTO or State approved test methods. Alternate methods may be allowed based on documented equivalence to the specified method.

153.07_National_6_29_2019

Delete Subsection 153.07 and replace with the following:

153.07 Records and control charts.

Maintain complete testing and inspection records by pay item number and make them accessible to the CO.

155 - Schedules for Construction Contracts

155.00_National_6_29_2019

Delete Section 155 in its entirety.

Delete Section 155.

156 - Public Traffic

Delete Section 156 in its entirety and replace with the following:

Section 156. – PUBLIC TRAFFIC

Description

156.01 This work consists of controlling and protecting public traffic adjacent to and within the project.

Material

156.02 Conform to the MUTCD and the following Sections and Subsections:

Permanent Traffic Control	633
Traffic Signing and Marking Material	718
Concrete Barriers and Precast Guardwalls	618
Temporary plastic fence	710.11

Construction Requirements

156.03 General. Accommodate traffic according to MUTCD, approved traffic control plan and this section. Perform work in a manner that ensures safety and convenience of the public. Unless otherwise provided for in Table 156-1, keep existing roads open to all traffic during road improvement work, and maintain them in a condition that will adequately accommodate traffic. Delays may not exceed **30** minutes at any one time followed by an open period of no less than **30** minutes. Accommodate public traffic on roads adjacent to and within the project until the project is accepted according to Subsection 106.07(b).

Submit traffic control plan at least 15 days prior to intended use. Perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a traffic control plan has been approved.

Post construction signs and traffic control devices in conformance with MUTCD and Forest Service EM 7100-15. All required signs will be in place and approved prior to beginning work on project.

If the Contractor agrees in writing to allow public traffic to use a new road being constructed prior to completion, it will be considered an existing road for traffic control purposes.

156.04 Temporary Traffic Control. Install and maintain temporary traffic control devices adjacent to and within the project as required by the approved traffic control plan and the MUTCD. Install and maintain traffic control devices as follows:

- (a) Furnish and install traffic control devices before the start of construction operations.
- (b) All detours outside of clearing limits will be approved in writing by the Contracting Officer as part of the traffic control plan.
- (c) Install only those traffic control devices needed for each stage or phase.
- (d) Relocate temporary traffic control devices as necessary.

- (e) Remove devices that no longer apply to the existing conditions.
- (f) Immediately replace any device that is lost, stolen, destroyed, or inoperative.
- (g) Keep temporary traffic control devices clean.
- (h) Remove all temporary traffic control devices upon contract completion or when approved.
- (i) When required, use flaggers certified by the American Traffic Safety Services Association, the National Safety Council, the International Municipal Signal Association, a state agency, or other acceptable organization. Perform the work described under MUTCD Part 6. Use type III, VII, VIII, or IX retroreflective sheeting on flagger paddles. Do not use flags. Flaggers must wear high visibility safety apparel as required by MUTCD 6E.02.

156.06 Acceptance. Public traffic work will be evaluated under Subsection 106.02.

Measurement and Payment

156.07 Do not measure Public Traffic for payment. Payment for contract work is provided indirectly. See Subsection 109.05.

157 - Soil Erosion and Sediment Control

157.04_National_6_29_2019

Delete Subsection 157.04 and replace with the following:

157.04 General.

Thirty (30) days prior to the start of construction, submit a written plan according to subsection 104.03 with all necessary permits that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Do not begin work until the necessary controls for that particular phase of work have been implemented. Do not modify the type, size, or location of any control without approval.

When erosion control measures are not functioning as intended, take corrective action to eliminate or minimize pollutants in storm water discharges from the project.

204 - Excavation and Embankment

204.00_National_6_29_2019

Delete Section 204 in its entirety and replace with the following.

Section 204. — EXCAVATION AND EMBANKMENT

Description

204.01 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.

204.02 Definitions.

(a) Excavation. Excavation consists of the following:

(1) Roadway excavation. Material excavated from within the right-of-way or easement areas, except subexcavation covered in Subsection 204.02(a)(2) and structure excavation covered in Sections 208 and 209. Roadway excavation includes all material encountered regardless of its nature or characteristics.

(2) Subexcavation. Material excavated from below subgrade elevation in cut sections or from below the original ground-line in embankment sections. Subexcavation excludes the work required by Subsection 204.05 or 204.06.

(3) Borrow excavation. Material used for embankment construction that is obtained from outside the roadway prism. Borrow excavation includes unclassified borrow, and topping.

(b) Embankment construction. Embankment construction consists of placing and compacting roadway or borrow excavation. This work includes:

(1) Preparing foundation for embankment;

(2) Constructing roadway embankments;

(3) Benching for side-hill embankments;

(4) Constructing dikes, ramps, mounds, and berms; and

(5) Backfilling subexcavated areas, holes, pits, and other depressions.

(c) 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.

(d) Waste. Excess and unsuitable roadway excavation and subexcavation that cannot be used.

Material

204.03 Conform to the following Subsections:

Topping 704.05

Unclassified borrow 704.06

Water 725.01(c)

Construction Requirements

204.04 Preparation for Roadway Excavation and Embankment Construction. Clear the area of vegetation and obstructions according to Sections 201 and 203.

Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation and embankment. Maintain drainage during pioneering operations.

204.05 Conserved Topsoil. When designated, conserve topsoil from roadway excavation and embankment foundation areas. 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. When designated, place conserved topsoil on completed slopes according to Section 624.

204.06 Roadway Excavation. Excavate as follows:

(a) Rock cuts. Blast rock according to Section 205. 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 according to Subsection 204.11.

(b) Earth cuts. Scarify earth cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(c) Pioneer Roads. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the 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.

(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 according to Subsection 204.11. Excavate on a uniform grade between control points.

Do not disturb material and vegetation outside the construction limits. Retrieve material deposited outside the construction limits. Dispose of unsuitable or excess excavation material according to Subsection 204.14. Replace shortage of suitable material caused by premature disposal of roadway excavation.

Shape to drain and compact the work area to a uniform cross-section at the end of each day's operations.

204.07 Subexcavation. Excavate material to the required limits. Dispose of unsuitable material according to Subsection 204.14. Take cross-sections according to Section 152. Backfill subexcavated area with suitable material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness and compact according to Subsection 204.11. Prevent unsuitable material from mixing with suitable backfill material.

204.08 Borrow Excavation. Use suitable roadway excavation in embankment construction. Do not use borrow excavation when it results in excess roadway excavation. Deduct excess borrow excavation from the total borrow excavation quantity.

Obtain borrow source approval according to Subsection 105.02. Develop and restore borrow sources according to Subsections 105.03 and 105.06. Do not excavate beyond the established limits. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

204.09 Preparing Foundation for Embankment Construction. Prepare foundation for embankment construction as follows:

(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 according to Subsection 204.11.

(b) Embankments 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 according to Subsection 204.11.

(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.

204.10 Embankment Construction. 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. Construct embankments as follows:

(a) General. 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.

During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

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 $\frac{3}{4}$ H or steeper, compact the slopes as embankment construction progresses.

(b) 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-millimeter) layers by reducing them in size or placing them individually as required below. Compact each layer according to Subsection 204.11 before placing the next layer.

Material composed predominately of boulders or rock fragments too large for 12-inch (300-millimeter) layers may be placed in layers up to 24 inches (600 millimeters) thick. Incorporate oversize boulders or rock fragments into the 24-inch (600-millimeter) 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 (1200 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; and
- (4) Compact each layer according to Subsection 204.11(a) before placing the next layer.

(c) 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 according to Subsection 204.11.

204.11 Compaction. Compact the embankment using one of the following methods as specified.

(a) Placement Method 1. Use AASHTO T 27 to determine the quantity of material retained on a No. 4 (4.75-millimeter) sieve. Compact as follows:

(1) More than 80 percent retained on a No. 4 (4.75-millimeter) 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 roller passes of a vibratory roller having a minimum dynamic force of 40,000 pounds (180 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute;
- (b) Eight roller passes of a 20-ton (20-metric ton) compression-type roller; or
- (c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches (300 millimeters) as follows:

- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(1)(a), by four passes; or
- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(1)(b) and (c), by eight passes.

(2) 50 to 80 percent retained on a No. 4 (4.75-millimeter) sieve. Classify the material according to AASHTO M 145. 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 T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 (4.75-millimeter) sieve. Multiply this number by the percentage of material passing a No. 4 (4.75-millimeter) sieve, and add 2 percent to determine the optimum moisture content of the material.

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 204.11(a)(1).

(3) Less than 50 percent retained on a No. 4 (4.75-millimeter) sieve. Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 99, Method C.

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 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 T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

(b) 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.

(c) Placement Method 3. 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 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.

(d) Placement Method 4. 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 hauling and spreading equipment uniformly over the full width of each layer.

(e) Placement Method 5. Adjust the 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 ½ width of bucket.

(f) Placement Method 6. Adjust the 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.

When compacting with rollers or hauling and spreading equipment is not practical, use approved mechanical tampers for a minimum of three complete passes.

204.12 Drainage Features. 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.

Form furrow ditches 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.

204.13 Sloping, Shaping, and Finishing. Complete subgrade, slopes, drainage features, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish to the designated tolerance class as defined in Table 204-2 as follows:

(a) Sloping. Leave earth slopes with uniform roughened surfaces, except as described in Subsection 204.13(b), 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.

If a slide or slipout 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.

(b) Stepped slopes. Where required, construct steps on slopes of 1½V: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.

(c) 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.

(d) 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.

Maintain proper ditch drainage.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or according to Subsection 203.05(a)

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

204.15 Acceptance. See Table 204-1 for sampling, testing, and acceptance requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Subexcavation will be evaluated under Subsections 106.02 and 106.04.

Measurement

204.16 Measure the Section 204 pay items listed in the bid schedule according to Subsection 109.02 and the following as applicable:

(a) 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 subexcavation 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 and used in Section 204 work, except topsoil measured under 624; and
- (i)* Slide and slipout 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)* Overbreakage 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 embankments;
- (j)* Slide or slipout 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; and
- (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 subexcavation is not listed in the bid schedule;
- (b) Slide and slipout material not attributable to the Contractor's method of operations; and
- (c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, and topping. When measuring by the cubic yard (cubic meter) measure in its original position. If borrow excavation is measured by the cubic yard (cubic meter) in-place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden. Do not measure borrow excavation until suitable roadway excavation is depleted.

(c) 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 embankment construction:

- (a) Roadway embankments;
- (b) Material used to backfill subexcavated areas, holes, pits, and other depressions;
- (c) Material used to restore obliterated roadbeds to original contours; and
- (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; and
- (c) Material used to round fill slopes.

(d) 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 is not included in the bid schedule payment will be considered indirect to roadway excavation.

(e) 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 overburden.

(f) Slope scaling. Measure slope scaling by the cubic yard (cubic meter) in the hauling vehicle.

(g) Subexcavation. Measure subexcavation by the cubic yard (cubic meter) in its original position.

(h) Drainage features. Measurement includes all excavation, embankment, shaping, and grading necessary for a completed drainage feature.

Payment

204.17 The accepted quantities will be paid at the contract price per unit of measurement for the Section 204 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

**Table 204-1
Sampling, Testing, and Acceptance Requirements**

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Source								
Topping (704.05)	Measured and tested for conformance (106.04 & 105)	Classification ⁽¹⁾	–	AASHTO M 145	1 per soil type and source of material	Processed material	Yes	Before using in work
Unclassified borrow (704.06)	"	"	–	"	"	"	"	"
Production								
Topping (704.05) and (204.11(a))	Measured and tested for conformance (106.04)	Moisture-density	–	T 99, Method C ⁽²⁾	1 per soil type, but not less than 1 per each 13,000 yd ³ (10,000 m ³)	Processed material	Yes	Before using in work
		Density	–	AASHTO T 310 or other approved procedures	1 per 3500 yd ² (3000 m ²), but not less than 3 per layer	In-place	No	Before placement of next layer
Unclassified borrow (704.06) and (204.11(a))	"	Moisture-density	–	T 99, Method C ⁽²⁾	1 per soil type, but not less than 1 per each 13,000 yd ³ (10,000 m ³)	Processed material	Yes	Before using in work
		Density	–	AASHTO T 310 or other approved procedures	1 per 3500 yd ² (3000 m ²), but not less than 3 per layer	In-place	No	Before placement of next layer

**Table 204-1
Sampling, Testing, and Acceptance Requirements**

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Production (continued)								
Earth embankment (204.11(a))	Measured and tested for conformance (106.04)	Classification	–	AASHTO M 145	1 per soil type	Source of material	Yes	Before using in work
		Moisture-density	–	T 99, Method C ⁽²⁾	1 per soil type, but not less than 1 per each 13,000 yd ³ (10,000 m ³)	"	"	"
		Density	–	AASHTO T 310 or other approved procedures	1 per 3500 yd ² (3000 m ²), but not less than 3 per layer	In-place	No	Before placement of next layer
Top of subgrade (204.11(a))	"	Density	–	AASHTO T 310 or other approved procedures	1 per 2500 yd ² (2000 m ²), but not less than 3 per layer	In-place	No	Before placement of next layer
Finished Product								
Roadbed (204.13)	Measured and tested for conformance (106.04)	Final line & grade	–	Field measured	Determined by the CO	Determined by the CO	No	Before placement of next layer

(1) Not required when using Government-provided source.

(2) Minimum 5 points per proctor.

**Table 204-2
Construction Tolerances**

Location Description	Tolerance Class (a)												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Roadbed width (ft)	+0.5	+0.5	+1.0	+1.0	+1.0	+1.0	+1.5	+1.0	+2.0	+2.0	+2.0	+2.0	+2.0
Subgrade elevation (ft)	±0.1	±0.2	±0.2	±0.5	±0.5	±1.0	±1.0	±1.5	±2.0	±3.0	±2.0	±3.0	(c)
Centerline alignment (ft)	±0.2	±0.2	±0.5	±0.5	±1.0	±1.0	±1.5	±1.5	±2.0	±3.0	±3.0	±5.0	(c)
Slopes, excavation, and embankment (% slope ^(b))	±3	±5	±5	±5	±5	±5	±10	±10	±10	±10	±20	±20	±20

(a) Maximum allowable deviation from construction stakes and drawings.

(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 feet of length.

208 - Structure Excavation and Backfill for Selected Major Structures

208.07_National_6_29_2019

Add the following to Subsection 208.07:

208.07 Dewatering.

Construct diversions according to Subsection 157.10 Diversions. Submit dewatering plans according to Subsection 104.03.

209 - Structure Excavation and Backfill

209.09_National_6_29_2019

Make the following Changes to Subsection 209.09:

209.09 Backfill.

Add the following to Subsection 209.09(a):

(a) General.

Backfill without damaging or displacing the culvert or structural plate structure. Replace any pipe that is distorted by more than 5 percent of nominal dimensions, or that is ruptured or broken.

Add the following to Subsection 209.09(b)

(b) Pipe culverts.

Do not place or backfill pipe that meets any of the following conditions until the excavation and foundation have been approved in writing by the CO:

- Embankment height greater than 6 feet at subgrade centerline.
- Installation in a protected stream course.
- Round pipe with a diameter of 48 inches or greater.
- Pipe arches with a span of 50 inches or greater.
- Any box culvert or structure other than pipe culverts.

209.10_National_6_29_2019

Delete Subsection 209.10 and replace with the following:

209.10 Compacting.

Compact the embankment using one of the following methods as specified.

(a) Compaction Method 1. Use AASHTO T 27 to determine the quantity of material retained on a No. 4 (4.75-millimeter) sieve. Compact as follows:

(1) More than 80 percent retained on a No. 4 (4.75-millimeter) 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 roller passes of a vibratory roller having a minimum dynamic force of 40,000 pounds (180 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute;
- (b) Eight roller passes of a 20-ton (20-metric ton) compression-type roller; or
- (c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches (300 millimeters) as follows:

- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 209.10(a)(1)(a), by four passes; or
- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 209.10(a)(1)(b) and (c), by eight passes.

(2) 50 to 80 percent retained on a No. 4 (4.75-millimeter) sieve. Classify the material according to AASHTO M 145. 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 T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 (4.75-millimeter) sieve. Multiply this number by the percentage of material passing a No. 4 (4.75-millimeter) sieve, and add 2 percent to determine the optimum moisture content of the material.

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 209.10(a)(1).

(3) Less than 50 percent retained on a No. 4 (4.75-millimeter) sieve. Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 99, Method C..

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 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 T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

(b) Compaction 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.

(c) Compaction Method 3. 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 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.

(d) Compaction Method 4. 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 hauling and spreading equipment uniformly over the full width of each layer.

(e) Compaction Method 5. Adjust the 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 ½ width of bucket.

(f) Compaction Method 6. Adjust the 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.

When compacting with rollers or hauling and spreading equipment is not practical, use approved mechanical tampers for a minimum of three complete passes.

308 - Minor Crushed Aggregate

308.00_01_us_10_11_2006

New section:

Description

308.01 This work consists of placing Government furnished aggregate or furnishing and placing crushed aggregate for bedding, backfill and roadway aggregate course.

Material

308.02 Conform to the following Subsections:

Crushed aggregate	VDOT 21B
Water	725.01

Construction Requirements

308.03 Preparing Surface. Prepare the roadway surface on which aggregate course is placed as shown on the plans.

308.04 Placing Crushed Aggregate.

(a) Roadway aggregate. Mix the aggregate and adjust the moisture content to obtain a uniform mixture with a moisture content suitable for compaction. Spread and shape the mixture on the prepared surface in a uniform layer.

Do not place the mixture in a layer exceeding 6 inches in compacted thickness. When more than one layer is necessary, compact each layer according to Subsection 308.05(a) before placing the next layer.

(b) Bedding and backfill aggregate. Place and shape the mixture in layers that, when compacted, do not exceed 6 inches in depth.

308.05 Compacting and Finishing Crushed Aggregate.

(a) **Roadway aggregate.** Compact using the methods below, specified in the Schedule of Items.

(1) Method 1. Operate equipment over the full width of spread aggregate.

(2) Method 2. Compact the aggregate by operating compaction equipment over the total width until visible deformation ceases. A minimum of three complete roller passes shall be made at a moisture content suitable for compaction.

(b) **Bedding and backfill aggregate.** Compact in 6 inch lifts by using a Forest Service approved mechanical compactor until no visible deformation is observed over the entire area of aggregate.

308.06 Acceptance. Crushed aggregate will be evaluated under Subsections 106.02 and 106.03. Furnish a production certification including gradation and quality properties for each source.

Construction of roadway aggregate courses will be evaluated under Subsections 106.02 and 106.04. Method 2 compaction will be evaluated under Section 106.04.

Placement of bedding and backfill aggregate will be evaluated under Subsection 106.02 and Section 209.

Preparation of the surfaces on which crushed aggregate is placed will be evaluated under Section 303 and 209 as applicable.

Measurement

308.07 Measure the Section 308 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Measure crushed aggregate by the cubic yard in-place on the road.

Measure width horizontally to include the top of aggregate width including designed widenings. Measure the length horizontally along the centerline of the roadway.

Payment

308.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 308 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

602 - Culverts and Drains

602.05_National_6_29_2019

Add the following to Subsection 602.05.

602.05 Laying Metal Pipe.

(c) Standard Connecting bands. Band corrugation shall match that of the pipe sections being joined or the annular rerolled ends of those pipe sections.

603 - Structural Plate Structures

603.00_National_6_29_2019

Add the following to Subsection 603.03.

603.03 General.

Submit design drawings and details with supporting calculations according to Subsection 104.03.

Make the following changes to Subsection 603.04.

603.04 Erecting.

Add to the third paragraph:

Torque all bolts before beginning the backfill.

Delete the seventh paragraph and substitute with the following:

Torque steel bolts and aluminum bolts on 0.1-inch thick and heavier aluminum plates to at least 115 foot-pounds, and a maximum of 130 foot-pounds.

Delete the first sentence of the eighth paragraph and substitute with the following:

Assemble multi-plate structures according to manufacturer's instructions and in conformance with parts (a) thru (e).

633 - Permanent Traffic Control

633.00_National_6_29_2019

Delete the first sentence of Subsection 633.02 and replace with the following:

633.02 Material.

Conform to the MUTCD, USDA Forest Service EM-7100-15, and the following Section and Subsections:

Make the following changes to Subsection 633.03:

633.03 General.

Delete the first paragraph of Subsection 633.03 and replace with the following:

Furnish and install permanent traffic control devices according to the MUTCD, USDA Forest Service EM-7100-15 and permanent traffic control plans. Provide traffic control devices that are crashworthy.

Add the following sentence to Subsection 633.03:

Sign panel layout proofs shall be approved by the CO prior to ordering.

Add the following to Subsection 633.05(a):

633.05 (a) Fabrication.

(3) Protective Overlay Film. When specified, cover the entire face of a sign with a clear high-performance, solvent-resistant, ultraviolet-stabilized, pressure-sensitive adhesive, protective overlay film. Use 3M Scotchlite Premium Protective Overlay Film Series 1160 or approved equivalent.

(4) Edge Film. When specified, edge film shall be 3 inches wide vinyl film that is pressure-sensitive, premium quality, clear, and ultraviolet-resistant.

648 - Stream Simulation

648.00_National_6_29_2019

Add Section 648:

Description

648.01 This work consists of furnishing and installing alluvium, rock, logs, trees, rootwads and specified fill to simulate natural stream profile, grade control structures, and streambed through culverts, bridge structures, and existing stream channels. Work includes developing materials; hauling materials; dewatering; sediment control; placing bedding and backfill to construct stream simulation channels inside and outside of the structures (culverts, bridges, existing channels); placing, keying, sealing, and compacting designed streambed fill; constructing instream structures (steps, pools, riffles, ribs, banks); reconstructing existing channels; and all other streambed work to complete the project.

Material

648.02 Conform to the following Subsections.

Backfill Material	704.03
Stream Bed Simulation Material	705.08
Channel Rock	705.08

Furnish instream structures materials (boulders, boulder clusters, ribs, steps, riffles, etc) and stream simulation streambed mix with the sizes and gradations as required in the contract.

Provide native log materials that are green, sound, and free of cracks or defects that would affect structural integrity or accelerate decay.

Sort material for streambed simulation rock by screening (power screen or grizzly/stationary screen). Large particles may be machine sorted by heavy equipment or hand labor.

Mix streambed simulation rock in proportions based on Table 705-4. All streambed material will be similar in shape / angularity as those found in the natural stream channel or as designated in the specifications. Tolerance for material gradation is + or - 5% for each screen size listed in the gradation.

Provide streambed simulation rock and channel rock that is durable and at least as angular as those found in the natural stream channel or as SHOWN ON THE PLANS.

Do not use rounded channel rock in the construction of banks or steps within the culvert or bridge structure. Rounded channel rocks may be used outside the culvert or bridge structure if approved by the CO in the field.

Request approval of rock to be used for steps, banks and all grade control structures 3 days prior to scheduled placement.

Construction Requirements

648.03 General. Place streambed simulation material on a prepared surface to form a well-graded, low permeability mass, similar in appearance and texture to the natural streambed. Do not drive metal track or rubber tired equipment directly on metal or concrete structure surfaces.

648.04 Equipment Operations.

An oil spill containment kit is required on each job site when working in and around the stream. Composition of the kit is dependent on the job; determine contents of the kit as needed for each job. At a minimum, include tarps and oil-absorbent pads. Provide floating oil boom downstream of the work site

648.05 Equipment Limitations.

Do not drive metal track or rubber tired equipment directly on metal or concrete structure surfaces. Place a layer of streambed mix material on the structure bottom before operating metal track or rubber tired equipment directly on metal or concrete structure surfaces.

648.06 Excavation.

Control excavated material to minimize disturbance to the adjacent channel and banks. Incorporate suitable streambed materials into the project if required gradations are accordance with contract specifications.

648.07 Dewatering.

Dewatering or diversions are required for construction and adjacent instream work in addition to complete reconstruction of the channel. Dewatering is not required when constructing isolated or infrequent structures such as single rock or log step and other instream structures in channel reconstruction areas outside 25 feet from the inlet or outlet of the structure. Customize dewatering to the site depending on flow, ground water depths at the time of installation, terrain configuration, and culvert embedment depths. Submit a dewatering plan 15 days in advance of construction. Include in the plan the method (bypass or pumping), number of pumps and capacity required, pump and bypass culvert calculations, location/layout of dewatering operations and equipment, and erosion control measures for dealing with the return flow back to the existing stream channel. The plan will be approved by the CO within 14 calendar days of plan submission.

Dewatering operations shall comply with State of Alaska Department of Environmental Quality requirements.

Maintain the dewatering pumping operations to ensure return flow does not exceed State water quality standards. Water pumped from the construction site may require additional filtration by filter bags or other methods (settling basins, gravel filters, etc) to prevent turbid water from directly entering the stream.

Place additional measures or cease operations until the discharge reaches allowable levels when turbidity exceeds State water quality standards.

Relocate fish contained within the cofferdams before the site is completely dewatered. Place relocated fish in the closest pool upstream of the construction zone.

If trash pumps are used during construction, the intake must be operated and maintained to prevent fish entrapment, entrainment, or injury with the use of perforated or slotted plate and woven wire with a mesh size not greater than 3/32 inch or a profile bar and wedgewire with openings not greater than 1/16 inch. Approach velocities shall not exceed a passive velocity of 0.2 feet per second (fps) or an active velocity 0.4 fps.

648.08 Rewatering.

Conduct rewatering activities to minimize sediment movement downstream of the site upon completion of instream work. Prior to rerouting stream flow into the new channel, rinse the surface of the streambed to removed fine-grained sediment. After the initial sediment pulse is removed, slowly breach the coffer/diversion dams to avoid a large pulse of water being sent through the newly constructed channel.

648.09 Placed Streambed Simulation Material and Channel Rock.

(a) Method A, Machine Placed. Place stream simulation material in one or more layers with a layer depth not exceeding **12 inch** depth. Place stream simulation material by methods that do not cause segregation or damage to the prepared surface. Place or rearrange individual rocks by mechanical methods to obtain a compact low permeability mass matching streambed simulation details. Fill voids before placing the next lift and compact each layer until there is no visible evidence of further consolidation. Place channel rock, rock bands, rock weirs, stream bank rock, and other in stream rock structures as designated.

(b) Method B, End Dumped. End dump stream simulation rock in one or more layers with a layer depth not exceeding **12 inch**. Distribute larger rocks throughout the mass of streambed simulation material. Obtain a uniformly dense, compact, low permeability bed with a surface matching stream simulation bed details. Fill voids before placing the next lift and compact each layer until there is no visible evidence of further consolidation. Place channel rock, rock bands, rock weirs, stream bank rock, and other in stream rock structures as designated.

(c) Method C, Hand Placed. Place stream simulation rock using hand labor. Material may be hand carried, or carried in wheelbarrows and end dumped to obtain its full thickness. Compact each layer using tamping rods or other hand operated mechanical equipment to obtain a uniformly dense, compact, low permeability bed with a surface matching stream simulation bed details. Fill voids before placing the next lift, and compact each layer until there is no visible evidence of further consolidation. Place channel rock, rock bands, rock weirs, stream bank rock, and other in stream rock structures as designated.

648.10 Streambed Surface. Fill all voids in the streambed surface left during placement of channel rock and streambed simulation material with backfill material. Use water pressure, metal tamping rods, and similar hand operated equipment to force material into all surface voids.

648.11 Log and Root Wad Structures.

Locate and place log structures as required in the contract, and/or designated in the field by the CO.

Construct log weirs with cross slope gradients not less than 5(H):1(V), unless SHOWN ON THE DRAWINGS or staked in the field by the CO, and maximum tolerance of 6(H):1(V), unless approved in writing by the CO.

Embed log weirs to a minimum depth of 10 feet beyond bank full widths or half bankfull width on each side, whichever is greater or AS SHOWN ON THE DRAWINGS. When placing habitat logs (overhanging a portion of the stream) that lay on the banks, ensure 2/3 of the log remain behind bankfull width on top of the bank.

Embed rootwad revetment trunks a minimum of 10 feet behind bankfull width limits or as SHOWN ON THE DRAWINGS. Bury the root to a point where the base of the bol is resting in the bottom of the bank or as required in the contract, and/or designated in the field by the CO.

648.12 Acceptance. Placing streambed simulation material will be evaluated under Subsections 106.02 and 106.04.

Measurement

648.13 Measure the items listed in the bid schedule according to Subsection 109.02.

Payment

648.14 The accepted quantities, measured as provided in Subsection 109.02, will be paid at the contract unit price per unit of measurement for Section 648 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05

703 - Aggregate

703.05_National_6_29_2019

Delete 703.05 and replace with the following:

703.05 Subbase, Base, Surface Course, and Screened Aggregate.

(a) Subbase or base aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

(1) Gradation	Table 703-2
(2) Liquid limit, AASHTO T 89	25 max.
(3) Plastic limit, AASHTO T 90	Nonplastic
(4) Los Angeles abrasion, AASHTO T 96	40% max.
(5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104	12% max.
(6) Durability index (coarse), AASHTO T 210	35 min.
(7) Durability index (fine), AASHTO T 210	35 min.
(8) Fractured faces, ASTM D 5821	50% min.
(9) Free from organic matter and lumps or balls of clay	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

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.

(b) Surface course aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

(1) Gradation	Table 703-3
(2) Liquid limit, AASHTO T 89	35 max.
(3) Plastic Index, AASHTO T 90	
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 T 96	40% max.
(5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104	12% max.
(6) Durability index (coarse), AASHTO T 210	35 min.
(7) Durability index (fine), AASHTO T 210	35 min.
(8) Fractured faces, ASTM D 5821	75% min.
(9) Free from organic matter and lumps or balls of clay	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Do not furnish material that contains asbestos fibers.

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.

(c) Screened aggregate – Furnish hard, durable particles or fragments of stone, slag, or gravel conforming the following:

- | | |
|--|--------------|
| (1) Gradation | Table 703-16 |
| (2) Plastic Index, AASHTO T 90 | Less than 9 |
| (3) Los Angeles abrasion, AASHTO T 96 | 55% max. |
| (4) Free from organic matter and lumps or balls of clay. | |

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary.

Delete Table 703-2 and replace with the following:

Table 703-2
Target Value Ranges for Subbase and Base Gradation

Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)						
Sieve Size	Grading Designation					
	A (Subbase)	B (Subbase)	C (Base)	D (Base)	E (Base)	F (Base)
2½ inch	100					
2 inch	97 – 100	100	100			
1½ inch		97 – 100				
1 inch	65 – 79 (6)		80 – 100 (6)	100		
¾ inch			64 – 94 (6)	86 – 100 (6)	100	
½ inch	45 – 59 (7)					
⅜ inch			40 – 69 (6)	51 – 82 (6)	62 – 90 (6)	
No. 4	28 – 42 (6)	40 – 60 (8)	31 – 54 (6)	36 – 64 (6)	36 – 74 (6)	
No. 40	9 – 17 (4)			12 – 26 (4)	12 – 26 (4)	
No. 200	4.0 – 8.0 (3)	4.0 – 12.0 (4)	4.0 – 7.0 (3)	4.0 – 7.0 (3)	4.0 – 7.0 (3)	4.0 – 7.0 (3)

() The value in the parentheses is the allowable deviation (±) from the target values..

Delete Table 703-3 and replace with the following:

**Table 703-3
Target Value Ranges for Surface Gradation**

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)								
	F	G	H	S	T	U			
1 1/2 inch	100			100					
1 inch	97-100	100		72 - 92 (6)	100				
3/4 inch	76-89 (6)	97 - 100	97 - 100			100			
1/2 inch					71 - 91 (6)				
3/8 inch	56-68 (6)	70 - 80 (6)	80 - 92 (6)	51 - 71 (6)		71 - 90 (6)			
No. 4	43-53 (7)	51 - 63 (7)	58 - 70 (7)	36 - 53 (7)	43 - 60 (7)	50 - 68 (7)			
No. 8				26 - 40 (6)	30 - 46 (6)	34 - 51 (6)			
No. 16	23-32 (6)	28 - 39 (6)	28 - 40 (6)						
No. 40	15-23 (5)	19 - 27 (5)	16 - 26 (5)	14 - 25 (5)	16 - 28 (5)	19 - 30 (5)			
No. 200	10.0-16.0 (4)	10.0 - 16.0 (4)	9.0 - 14.0 (4)	8.0 - 15.0 (4)	8.0 - 15.0 (4)	8.0 - 15.0 (4)			

() The value in the parentheses is the allowable deviation (\pm) from the target values.
If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 8-12 (4).

Add Table 703-13:

**Table 703-13
Gradation Requirements for Screened Aggregate**

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)						
	Grading Designation						
	L	M	N	O	P	Q	R
6 inch	100	100					
4 inch			100	100			
3 inch					100	100	
2 inch							100
No. 4		15-45		15-45		15-45	

704 - Soil

704.08_National_6_29_2019

Make the following changes to Subsection 704.08:

704.08 Select Granular Backfill.

Delete Subsection 704.08(a)(2)

704.08 Select Granular Backfill. (a) Quality requirements. (2)

Delete Table 704-2 and replace with the following:

704.08 Select Granular Backfill. Table 704-2

**Table 704-2
Select Granular Backfill Gradation**

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 & AASHTO T 11)
4 inch (100 mm)	100
No. 40 (425 µm)	0 – 30
No. 200 (75 µm)	0.0 – 8.0

705 - Rock

705.02_National_6_29_2019

Add the following Class to Table 705-1 in Subsection 705.02:

705.02 Riprap. Table 705-1.

**Table 705-1
Gradation Requirements for Riprap**

Class	% of Rock Equal or Smaller by Count, DX	Range of Intermediate Dimensions,(2) inches (millimeters)	Range of Rock Mass,(3) pounds (kilograms)
2	100	15 – 21 (380 - 530)	270 – 750 (120 – 340)
	85	11 – 15 (280 – 380)	110 – 270 (50 – 120)
	50	8 – 11 (200 – 280)	42 – 110 (19 – 50)
	15	6 – 8 (130 – 200)	10 – 42 (6 – 19)

705.08_National_6_29_2019

Add Subsection 705.08:

705.08 Streambed Simulation Rock.

(a) Simulation Material. Furnish a mixture of soil, gravel, cobble, and boulders to simulate a natural streambed. The cobbles and boulders should be hard, durable rock that conforms to test values in 705.02.

**Table 705-4
Gradation requirements for Streambed Simulation Material (inches or sieve size)**

Bed Class	100% passing	84% passing	50% passing	16% passing	10% passing
2	5	2	3/4	1/4	No. 10
4	10	4	1 3/4	1/2	No. 10
6	14	6	2 1/2	3/4	No. 10
8	22	8	3	1	No. 10
10	24	10	4	1	No. 10
12	30	12	5	1 1/2	No. 10
14	36	14	6	1 3/4	No. 10
16	42	16	7	2	No. 10
20	48	20	8	3	No. 10
24	60	24	10	3	No. 10
36	72	36	14	4	No. 10
48	96	48	18	6	No. 10

(b) Streambed Channel Rock. Furnish hard durable rock that is resistant to weathering and water action, free of organic or other unsuitable material, similar in color to those in the area, and at least as angular as that found in the natural stream channel. Do not use shale, rock with shale seams, or other fissile or fissured rock that may break into smaller pieces in the process of handling and placing. Conform to test values in 705.02.

**Table 705-5
Gradation Requirement for Channel Rock (CR)**

Class	Mass (Pounds)	Approximate Cubic Dimension (inches)
CR - 0	12 - 90	6 - 12
CR - 1	90 - 300	12 - 18
CR - 2	300 - 700	18 - 24
CR - 3	700 - 1350	24 - 30
CR - 4	1350 - 2400	30 - 36
CR - 5	2400 - 3700	36 - 42
CR - 6	3700 - 5500	42 - 48
CR - 7	5500 - 7900	48 - 54
CR - 8	7900 - 10800	54 - 60

Note: Mass / Pounds of channel is based on a sphere of the approximate cubic dimensions composed of granite. Mass will vary with rock type. Inspection should be performed by using the cube root of the A axis * B axis * C axis of each piece.

APPENDIX F

CONTRACT/PROJECT IMPLEMENTATION BMP'S

- In-stream work within fisheries timing windows (May 15th – July 15th as per Title 16 consultation). In-stream work suspended during high flow events.
- Tree harvest work within migratory bird windows (July 15th – May 1st).
- Schedule, to the extent practicable, construction activities to avoid direct soil and water disturbance during periods of the year when heavy precipitation and runoff are likely to occur.
- Install and maintain suitable stormwater and erosion control measures, as necessary, to stabilize disturbed areas and waterways during project and before seasonal shutdown of project operations.
- Stabilize steep excavated slopes
- All equipment and materials brought from off-site should be free of invasive plant species, seeds or plant roots.
- Equipment use in live stream kept to minimum and will be limited to the designated equipment ford. All stream crossings shall be approved by the Forest Service Representative. Equipment shall not be stored, maintained or repaired within the stream channel or floodplain.
- Oil pollution prevention and contingencies in place. Refuel and service equipment only in designated staging areas, approved by the Forest Service Representative, and a minimum of 100 feet, measured horizontally, from waterbodies. Detailed equipment refueling plans should be approved by the Forest Service Representative prior to work commencement.
- Fuel delivery and transfer processes will be conducted in a manner that minimizes the potential for spills and contamination of soil and water and will follow all state and federal regulations. Fuel and oil storage facilities will be located, designated, constructed, and maintained in a manner that minimizes the potential for contamination of surface and subsurface soil and water resources. All active fuel storage containers will be in good repair and will be repaired or removed if leaking is detected. An impermeable liner will be placed under and around fuel storage and filling areas that is large enough to capture 110 percent of the container capacity as required by Alaska Department of Environmental Conservation. Spill containment kit will be kept on site.
- The use of mechanized equipment within the ordinary high-water mark during restoration will only occur if work cannot be performed in the dry above the ordinary high water mark and will be accomplished under the supervision of the Forest Service construction engineer or representative. Approved equipment working within the ordinary high water will use nontoxic, biodegradable hydraulic fluid.
- Ensure all equipment operated in or adjacent to the water body is clean of oil and grease and is well maintained and free of leaks before use in the restoration implementation. Pollutants such as fuels, lubricants, bitumen, raw sewage, and other harmful materials shall not be discharged on the ground, into or nearby rivers, streams, impoundments, or into natural or manmade channels. All construction equipment shall be washed free of dirt, debris and noxious weed seed prior to entering National Forest Land. Remove all oil which could contain noxious weed seed. Remove grease and oil from drive mechanisms which would be discharged into the stream when equipment is operating. Prior to

transporting equipment to site, assure that the equipment's hydraulic, lubrication and fuel systems are free from leaks.

- Limit operation of equipment when ground conditions could result in excessive rutting, soil puddling, or runoff of sediments directly into waterbodies.
- Constructed berms, ditch dams, sediment retention devices, rock walls or settling ponds will be used along streambanks and any surface water, on both sides of construction to minimize movement of sediments into the channel.
- Avoid rootwad collection near stream courses, live streams, or wetlands. Riparian vegetation disturbance kept to minimum
- Plan projects to use natural, locally available materials to provide soil cover and minimize exposed mineral soil (erosion) whenever possible. A minimum of 4 inches (where practicable) of topsoil should be disturbed across the disturbed area. If topsoil is not available, use ¾ inch minus size material or smaller, where available from mining operations, to cover disturbed areas and cover with a layer of organic debris (slash).
- If material such as buried clay layers or materials determined by the Forest Service to be unsuitable for surface placement are discovered, these materials will either be placed at least 12 inches below the layer of suitable material the plant will grow in or will be buried deeper in a constructed landform such as a terrace or pond bottom during reclamation and/or restoration. Do not spread glacial clay on surface.
- Slash from tops and limbs that are not used for in-stream structural components can be used to prevent erosion and soil compaction in areas where equipment operates or where mineral soils are exposed. Bare mineral soils of any size with erosion potential will be covered with slash or other organic material.
- For all watershed restoration work, closed overgrown access roads (non-system roads) should be reopened to the minimum standard necessary to access the site. If trucks do not need to use the road, flush cut stumps and lay vegetation as corduroy over the road surface. The corduroy will prevent erosion. Use waterbars and other erosion control practices as necessary. Decompact to a depth of 24", as necessary, to encourage natural regeneration.
- Equipment access roads used during the project will be left in a state similar to prior condition upon project completion.



514 Funny River Road • Soldotna, AK 99669 • (907) 714-2460 • Fax: (907) 260-5992

MULTI-AGENCY PERMIT PACKAGE

**Chugach National Forest Resurrection Creek
bridge
161 East 1st Ave Door 8
Anchorage, AK 99501**

RC# 12801

3/15/2022

PARCEL ID: 03510013

PROJECT DESCRIPTION:

Applicant proposes to construct a temporary bridge approx. 100 feet long by 20 feet wide over the Resurrection Creek for approx. ten crossings of the creek. They also will put in a 36' by 52 foot culvert across a pond. There will be removal of approx. 20 trees. There will be approx. 70 cubic yards of gravel material fill used in water.

Enclosed please find the individual permits from the following River Center Agencies:

Expiration	Agency
<input type="checkbox"/> 6/28/2023	Kenai Peninsula Borough, Habitat Protection
<input type="checkbox"/> Not required	Kenai Peninsula Borough, Floodplain Development
<input type="checkbox"/> Not required	State of Alaska, Division of Parks & Outdoor Recreation
<input type="checkbox"/> Lifetime of Project	State of Alaska, Department of Fish & Game Habitat Division

Each of these permits have expiration dates. Please review them carefully. If you are unable to complete your project by the expiration dates, you must apply for an extension to your permits.

The permittee is responsible for the actions of the contractors, agents, or other persons who perform work to accomplish the approved plan. For any activity that deviates from the approved plan, the permittee shall notify the River Center and obtain written approval before beginning the activity.

If you have any questions regarding your project, please contact the River Center at (907) 714-2460 or kenairivcenter@kpb.us.

KENAI PENINSULA BOROUGH PLANNING COMMISSION

RESOLUTION 2021-19

A RESOLUTION GRANTING A CONDITIONAL USE PERMIT PURSUANT TO KPB 21.18 FOR THE CONSTRUCTION OF A 100 BY 20-FOOT BRIDGE, THE PLACEMENT OF A 36-INCH BY 52-FOOT CULVERT, AND THE PLACEMENT OF APPROXIMATELY 70 CUBIC YARDS OF FILL WITHIN THE 50-FOOT HABITAT PROTECTION DISTRICT OF RESURRECTION CREEK.

WHEREAS, Chapter 21.18 provides for the approval of Conditional Use Permits for certain activities within the habitat protection district; and

WHEREAS, KPB 21.18.081 provides that a conditional use permit is required for construction not meeting the standards of KPB 21.18.071; and

WHEREAS, KPB 21.18.091 provides for mitigation measures by the planning department staff to address impacts to the Habitat Protection District from a proposed, ongoing, or completed project; and

WHEREAS, public notice was sent to all property owners within a 300-foot radius of the proposed activity as provided in Section 21.11.030; and

WHEREAS, public notice was published in the Peninsula Clarion on June 17, 2021 and June 24, 2021 as provided in Section 21.11.020; and

WHEREAS, public testimony was received at the June 28, 2021 meeting of the Kenai Peninsula Borough Planning Commission;

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE KENAI PENINSULA BOROUGH:

That the Planning Commission makes the following findings of fact pursuant to KPB 21.18:

Section 1. Project Details Within the 50-foot Habitat Protection District

1. Installation of a 100 by 20-foot bridge across Resurrection Creek.
2. Installation of a 36-inch by 52-foot culvert and approximately 70 cubic yards of alluvial gravel to cross a settling pond running parallel to Resurrection Creek.
3. Structures will provide the applicant with access perform the Resurrection Creek Phase II Restoration Project, a bank restoration project that will be 2 miles in length, and is scheduled to begin in 2022.
4. Bridge, culvert, and fill will be removed at the conclusion of the Resurrection Creek Phase II Restoration Project (approximately 5 - 10 years), and the area will be revegetated pursuant to KPB 21.18.071(A)(1).

Section 2. Pursuant to 21.18.081(D) General Standards, the following standards shall be met before conditional use approval may be granted:

1. The use or structure will not cause significant erosion, sedimentation, damage to the habitat protection district, an increase in ground or surface water pollution, or damage to riparian wetlands and ecosystems;
2. Granting of the conditional use shall be consistent with the purposes of this chapter, the borough comprehensive plan, other applicable chapters of the borough code, and other applicable planning documents adopted by the borough;
3. The development of the use or structure shall not physically damage the adjoining property;
4. The proposed use or structure is water-dependent;
5. Applicant and/or owner must be in compliance with other borough permits and ordinance requirements.

Section 3. Findings of fact pursuant to KPB 21.18.081

1. Portions of this proposed project are within the 50-foot habitat protection district as defined by KPB 21.18.040.
2. Pursuant to KPB 21.18.081(B)(5), the construction of transportation and utility infrastructure may be approved within the habitat protection district under a conditional use permit.
3. Pursuant to KPB 21.18.081(D), staff finds that the proposed project meets the five general standards above.
4. Pursuant to KPB 21.18.020(A), this chapter was established to protect and preserve the stability of anadromous fish through controlling shoreline alterations and disturbances along anadromous waters and to preserve nearshore habitat.
5. Pursuant to KPB 21.18.020(A)(2), the installation of the proposed structures will preserve nearshore habitat by reducing the number of in-water crossings that heavy equipment will make to complete the development of Resurrection Creek Phase II Restoration Project.
6. Pursuant to KPB 21.18.20(B)(5), one purpose of this chapter was established to separate conflicting land uses.
7. Access to the site and all construction activities will occur along active mining roads used by Hope Mining Company and will not affect neighboring parcels.
8. Kenai Peninsula Borough Planning Commission Resolution 2015-35 defines water-dependent as:

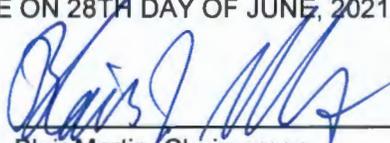
“...a use or structure located on, in or adjacent to water areas because the use requires access to the waterbody. The definition is applicable to facilities or activities that must be located at or near the shoreline and within the 50-foot buffer. An activity is considered water dependent if it is dependent on the water as part of the intrinsic nature of its operation. Examples of water dependent facilities may include, but are not limited to, piers, boat ramps, and elevated walkways.”
9. The River Center found the application complete and scheduled it for public hearing on June 28, 2021.
10. Agency review was distributed on June 2, 2021. No comments or objections have been received from resource agencies to date.
11. KPB 21.11.030 requires that public notice be mailed to all property owners within a 300-foot radius of the project. The applicant is the only property owner within the 300-foot radius.
12. Pursuant to KPB 21.11.020, public notice was published in the Peninsula Clarion on June 17, 2021 and June 24, 2021.

Section 4. Permit Conditions

1. Construction techniques and best management practices shall be utilized to ensure that land disturbing activities do not result in runoff or sedimentation to Resurrection Creek.

2. The bridge, culvert, and fill must be designed and installed to meet KPB floodplain requirements.
3. The permittee shall minimize damage to all vegetation and shall revegetate all disturbed areas with native vegetation.
4. For each tree removed, two seedlings less than 5.5-feet tall of a species native to the region will be planted within the 50-foot HPD.
5. Storage or use of fuel is prohibited within 50-feet of any open water.
6. The River Center shall be notified at least 3 days prior to the start of the project.
7. If changes to the approved project described above are proposed prior to or during its siting, construction, or operation, the permittee is required to notify the River Center to determine if additional approval is required.
8. The permittee shall be held responsible for the actions of the contractors, agents, or others who perform work to accomplish the approved plan.
9. The construction or installation phase of this Conditional Use Permit must be completed within one calendar year from the date of the permit's issuance, or the Conditional Use Permit shall expire unless the Planning Commission finds that more time is necessary to effectuate the purposes of this chapter, in which case the commission may extend the deadline for a maximum of six years from the date of issuance. Prior to its expiration date and upon written request, the Planning Director may grant a Conditional Use Permit extension for 12 months (KPB 21.18.081 (H)).
10. In addition to the penalties provided by KPB 21.18.110, and pursuant to KPB 21.50, the permit may be revoked if the permittee fails to comply with the provisions of this chapter or the terms and conditions of a permit issued under this chapter. The Borough Clerk shall provide at least 15 day's written notice to the permittee of a revocation hearing before the hearing officer (KPB 21.18.082).
11. The permittee shall comply with the terms, conditions and requirements of the Kenai Peninsula Borough Code of Ordinances Chapter 21.18, and any regulations adopted pursuant to this chapter.
12. The permittee is responsible for abiding by all other federal, state, and local laws, regulations, and permitting requirements applicable to the project (KPB 21.18.081 (G)).

THIS CONDITIONAL USE PERMIT EFFECTIVE ON 28TH DAY OF JUNE, 2021.


 Blair Martin, Chairperson
 Planning Commission

ATTEST:


 Ann Shirnberg
 Administrative Assistant

Note: An appeal of a decision of the Planning Commission may be filed to the hearing officer, in accordance with the requirements of the KPB Code of Ordinances, Chapter 21.20.250. An appeal must be filed with the Borough Clerk within 15 days of date of the notice of the decision using the proper forms and be accompanied by the filing and records preparation fee.



Donald E. Gilman River Center

514 Funny River Road, Soldotna, Alaska 99669 • (907) 714-2460 • (907) 260-5992 Fax

A Division of the Planning Department

Charlie Pierce
Borough Mayor

March 15, 2022

Chugach National Forest
161 East 1st Ave Door 8
Anchorage, AK 99501

Issued: June 28, 2021
Expired: June 28, 2022
Time Extension Request: June 28, 2022
Expires: June 28, 2023

RE: Conditional Use Permit (Resolution #2021-19 Bridge Time Extension Request)

Dear Applicant:

Because of a funding issue, you were unable to initiate the project in 2021, as originally permitted. On March 28, 2022, a time extension was submitted for the installation of a 100 foot long by 20 foot wide bridge within the 50-foot Habitat Protection District of the Kenai River.

KPB 21.18 081(H) states prior to its expiration date, a conditional use permit issued for up to one year may be extended up to twelve (12) months by the director of planning upon written request. Any additional time extensions beyond the 6/28/2023 date will need to be approved by the KPB Planning Commission.

The project must be completed as outlined in the enclosed Resolution 2021-19, approved by the Kenai Peninsula Borough Planning Commission on June 28, 2021. During construction, a copy of this letter and the Resolution must be kept on site.

If you have questions regarding this action, please contact Samantha Lopez, River Center Manager, at (907) 714-2468.

Sincerely,

Melanie Aeschliman
Planning Director
Kenai Peninsula Borough

Enclosed: KPB Resolution 2021-19

**DISPLAY THIS SIGN SO IT IS VISIBLE FROM THE ROAD AND A SECOND COPY THAT IS VISIBLE FROM THE RIVER
THIS SIGN SHOULD BE POSTED DURING ALL PHASES OF CONSTRUCTION**



RC 12801

RIVER CENTER PERMITTED PROJECT

<p>Applicant: Chugach National Forest Resurrection Creek bridge</p> <p>KPB Parcel: 03510013</p>	<p>Authorized Work: Applicant proposes to construct a temporary bridge approx. 100 feet long by 20 feet wide over the Resurrection Creek for approx. ten crossings of the creek. They also will put in a 36' by 52 foot culvert across a pond. There will be removal of approx. 20 trees. There will be approx. 70 cubic yards of gravel material fill used in water.</p>	
<p>Legal Description: T 9N R 2W SEC 1 SEWARD MERIDIAN SW ENTIRE TOWNSHIP EXCEPT USS 2761 & USS 2636 & USS 2642 & US MIN SUR 1449 & US MIN SUR 1451 & ASLS 88-13 & SAXTONS BIRCH ACRES SUB & KINGS CASTLE ACRES SUB & E1/2 NW1/4 OF SEC 3 & W1/2 NE1/4 OF SEC 4</p>	Permits Issued:	Expiration:
	KPB Floodplain	Not required
	KPB Habitat Protection	6/28/2023
	ADNR Park Use Permit	Not required
	ADFG Division of Habitat	Lifetime of Project

Questions regarding this permit should be directed to the Gilman River Center: (907) 714-2460