
California Environmental Quality Act (CEQA) Initial Study

for the
Three Meadows Restoration Project

March 20, 2020

Project Title: Three Meadows Restoration Project

Lead Agency Name and Address: Amador Resource Conservation District
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Project location: Eldorado National Forest, Amador Ranger District
El Dorado County, T09N, R16E, Sections 29, 30 and 31

Project Sponsor's name and address: Eldorado National Forest
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General Plan designation: Timberland Agricultural Area

Zoning: FR-160 (Forest Resource, 160-acre minimum)

Description of Project: Three Meadow Restoration Project would restore the natural morphology of three relatively small, high elevation meadows in Amador County, California. The purpose of the project is to improve hydrologic functions of the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of flora and fauna and downstream users by reducing downstream flood peaks. The proposed project would halt the encroachment of upland plant species, particularly lodgepole pine, while increasing the extent and quality of wet meadow and riparian vegetation. By improving the meadow hydrology, the project would also improve and increase habitat potentially available for Sierra Nevada yellow-legged frogs, expand willow habitat for songbirds, including the willow flycatcher, and improve habitat quality for sensitive species associated with wet meadows such as broad-nerved hump-moss (*Meesia uliginosa*), moonworts (*Botrychium* spp.) and Bolander’s bruchia (*Burchia bolanderi*), and increase the production of aquatic invertebrates and insects that provide food for amphibians, and songbirds.

Surrounding Land Uses and Setting: The Three Meadows Restoration Project Area (Project Area) is located within three (3) small alpine meadows ranging in elevation from 6,800 to 8,000 feet in elevation. High Onion and Upper Onion Valley are located along Onion River within the Cole Creek Watershed. Tyler meadow drains to Upper Bear River Reservoir. The meadows are surrounded by mixed fir and pine forest dominated by lodgepole pine (*Pinus contorta*, FAC) and red fir (*Abies magnifica*, UPL).

Meadow Name	Location	Project Area	Elevation
Upper Onion Valley	T8N, R16E, Sec 11	26.8 acres	7,480
High Onion Meadow	T8N, R16E, Sec 1	10.2 acres	8,000
Tyler Meadow	T8N, R16E, Sec 3	10.3 acres	6,800

The meadows are accessible via the USDA-Forest Service road network. The meadow was used historically for cattle and sheep grazing; dispersed recreation (e.g., camping, fishing, etc.) is now the primary land use. Surrounding land uses in the vicinity of the meadow include timber harvest, fuels reduction, plantation management, and dispersed summer and winter recreational activities.

Other Public Agencies Whose Approval is Required:

- Central Valley Regional Water Quality Control Board: 401 Water Quality Certification (in process).
- U.S. Army Corp of Engineers: Clean Water Act, Section 404, Nationwide Permit #27 (in process).
- Draft Eldorado National Forest: Decision Memo (under review, Attachment J).

California Native American Tribal Consultation Summary: On July 18, 2019, the Amador Ranger District, Eldorado National Forest notified local Native American tribes, pursuant to Public Resources Code Section 21080.3.1, of the proposed project and of the tribes’ opportunity to request consultation. On February 22, 2020, the ARCD as Lead CEQA Agency contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands files and request a list of Native American contacts in the vicinity of the project site. Several tribal groups were notified: Buena Vista Rancheria of Me-wuk Indians, Ione Band of Miwok Indians, Jackson Rancheria, Shing Springs Rancheria, United Auburn Indian Community, Washoe Tribe of Nevada and California, Calaveras Band of Mi-Wuk Indians, and Wilton Rancheria. As of March 2020, there has been no response from any of the Tribal contacts. Tribal consultation will be on-going throughout the duration of the project. Interested Tribes will be kept informed of the project stages and implementation as the project progresses.

Table of Contents

Project Description.....	1
Background	1
Proposed Project	1
<i>Upper Onion Valley</i>	3
<i>High Onion Meadow</i>	5
<i>Tyler Meadow</i>	7
<i>Material Sourcing</i>	10
<i>Revegetation</i>	10
<i>Post-Project Monitoring</i>	10
Environmental Factors Potentially Affected.....	11
Initial Study and Checklist.....	12
Introduction.....	12
1. <i>Aesthetics</i>	12
Environmental Setting	12
Impact Discussion	13
Mitigation Measures: No mitigation measures required.	13
2. <i>Agriculture/Forest Resources</i>	13
Environmental Setting	14
Impact Discussion	14
Mitigation Measures: No mitigation required.	14
3. <i>Air Quality</i>	15
Environmental Setting.....	15
Impact Discussion	15
Mitigation Measures:.....	16
4. <i>Biological Resources</i>	16
Environmental Setting.....	17
<i>Upper Onion Valley Meadow</i>	17
<i>High Onion Meadow</i>	17
<i>Tyler Meadow</i>	18
Special Status Species Review	18
<i>Terrestrial Wildlife</i>	18
<i>Aquatic Wildlife</i>	19
<i>Botanical Species</i>	19
<i>Sensitive Natural Communities</i>	20
Impact Discussion	25
<i>Terrestrial Wildlife Species Impacts</i>	25
California Spotted Owl, Northern Goshawk, and American Marten	26

<i>Direct and Indirect Impacts</i>	26
Great Gray Owl.....	26
<i>Direct and Indirect Impacts</i>	26
Pallid Bat.....	27
<i>Direct and Indirect Impacts</i>	27
Fringed myotis.....	27
<i>Direct and Indirect Impacts</i>	27
Townsend’s big-eared bat	28
<i>Direct and Indirect Impacts</i>	28
Western bumblebee and Morrison bumblebee	28
<i>Direct and Indirect Impacts</i>	28
<i>Aquatic Species</i>	28
Sierra Nevada Yellow Legged (SNYLF)	29
<i>Direct and Indirect Impacts</i>	29
Southern long-toed salamander (SLTS).....	29
<i>Direct and Indirect Impacts</i>	29
<i>Botanical Species and Sensitive Communities</i>	30
<i>Direct and Indirect Impacts</i>	30
<i>Mitigation Measures:</i>	31
Terrestrial Wildlife.....	31
Aquatic Wildlife.....	31
Botanical Resources.....	32
5. <i>Cultural Resources</i>	32
Environmental Setting.....	32
Impact Discussion	33
Mitigation Measures:.....	33
6. <i>Energy</i>	34
Environmental Setting.....	34
Impact Discussion	34
Mitigation Measures: No mitigation required.	34
7. <i>Geology and Soils</i>	35
Environmental Setting.....	35
Impact Discussion	36
Mitigation Measures:.....	36
8. <i>Greenhouse Gas Emissions</i>	37
Environmental Setting.....	37
Impact Discussion	37
Mitigation Measure: No mitigation required.....	37
9. <i>Hazards and Hazardous Materials</i>	38
Environmental Setting.....	38

Impact Discussion	38
Mitigation Measure:	39
<i>10. Hydrology and Water Quality</i>	39
Environmental Setting	39
Impact Discussion	41
Mitigation Measures:.....	41
<i>11. Land Use and Planning</i>	42
Environmental Setting	42
Impact Discussion	42
Mitigation Measure: No mitigation required.....	43
<i>12. Mineral Resources</i>	43
Environmental Setting	43
Impact Discussion	43
Mitigation Measure: No mitigation required.....	43
<i>13. Noise</i>	43
Environmental Setting	44
Impact Discussion	44
Mitigation Measure: No mitigation required.....	44
<i>14. Population and Housing</i>	44
Environmental Setting and Impact Discussion.....	44
Mitigation Measure: No mitigation required.....	44
<i>15. Public Services</i>	45
Environmental Setting and Impact Discussion.....	45
Mitigation Measure: No mitigation required.....	45
<i>16. Recreation</i>	45
Environmental Setting and Impact Discussion.....	46
Mitigation Measure: No mitigation required.....	46
<i>17. Transportation</i>	46
Environmental Setting and Impact Discussion.....	46
Mitigation Measure: No mitigation required.....	46
<i>18. Tribal Cultural Resources</i>	47
Environmental Setting and Impact Discussion.....	47
Mitigation Measures: See Section 5	48
<i>19. Utilities and Service Systems</i>	48
Environmental Setting and Impact Discussion.....	49
Mitigation Measure: No mitigation required.....	49
<i>20. Wildfire</i>	49
Environmental Setting	49
Impact Discussion	50
Mitigation Measures:.....	50
<i>21. Mandatory Findings of Significance</i>	50

Impact Discussion	51
References	52
Mitigation Measures and Design Criteria.....	53
Monitoring and Reporting Program Summary for the Three Meadows Restoration Project ..	53
<i>Mitigation Measures and Design Criteria.....</i>	<i>53</i>
Air Quality.....	53
Biological Resources	53
<i>Terrestrial Wildlife</i>	<i>53</i>
<i>Aquatic Wildlife</i>	<i>53</i>
<i>Botanical Resources</i>	<i>54</i>
Cultural Resources.....	54
Geology and Soils.....	55
Hazards and Hazardous Materials	55
Hydrology and Water Quality	55
Tribal Cultural Resources.....	56
Wildfire	56
<i>Post Construction Monitoring & Reporting</i>	<i>56</i>
<i>Mitigation Monitoring</i>	<i>57</i>

List of Figures

Figure 1. Location Map	2
Figure 2. Upper Onion Valley Plan View	4
Figure 3. High Onion Meadow Plan View	6
Figure 4. Tyler Meadow Plan View	8

List of Tables

Table 1. Project Area Location Summary	1
Table 2. Action Items of the Three Meadows Restoration Project.....	9
Table 3. Special Status Terrestrial Wildlife Species Potentially Occurring in the Three Meadow Restoration Project Area	19
Table 4. Special Status Aquatic Wildlife Species Potentially Occurring in the Three Meadow Restoration Project Area	19
Table 5. Habitat potential of the Proposed Three Meadows Restoration Project for TEPS plant taxa known or suspected to occur on the Eldorado National Forest.....	21
Table 6. Three Meadows Project Area Hydrology and Watershed Summary.....	40

Appendices

- Appendix A Three Meadows Restoration Basis of Design Report – November 24, 2019
- Appendix B Biological Evaluation and Biological Assessment for Threatened, Endangered, and Sensitive Terrestrial Wildlife Species for the Three Meadows Restoration Project – February 5, 2020
- Appendix C Aquatic Biological Assessment for the Three Meadows Restoration Project – February 5, 2020
- Appendix D Aquatic Biological Evaluation for the Three Meadows Restoration Project – February 5, 2020
- Appendix E Biological Evaluation and Assessment for the Threatened, Endangered, and Sensitive Botanical Species – February 5, 2020
- Appendix F Additional Botanical, Terrestrial and Aquatic Wildlife Species Considered for Analysis for the Three Meadows CEQA Initial Study
- Appendix G Silvicultural Assessment of Three Meadows Restoration Project – September 6, 2019
- Appendix H Hydrology Report for the Three Meadows Restoration Project – February 28, 2020
- Appendix I Tribal Consultation Documentation

Project Description

Background

Within the Mokelumne River watershed, a diverse group of stakeholders formed the Amador Calaveras Consensus Group (ACCG) to address the impacts to unique meadow habitats from historic land use practices. Together with the Amador Resource Conservation District (ARCD), ACCG have applied for and received funding to conduct an assessment and develop preliminary restoration plans for three small, high elevation meadows located on the Amador Ranger District Eldorado National Forest in Amador County, California. The project is referred to as the “Three Meadows” Project Area and includes: Upper Onion Valley, High Onion Meadow, and Tyler Meadow.

The Three Meadows Restoration Project area is located approximately 50 miles northeast of Jackson, California, and east of Bear River Reservoir in the Amador Ranger District of the Eldorado Nation Forest. Tyler meadow is located within the Bear River Watershed, and High Onion and Upper Onion are in the Cole Creek Watershed (T9N, R16 E, Sections 01, 03, 11), Mount Diablo Meridian (reference Figure 1).

Table 1. Project Area Location Summary

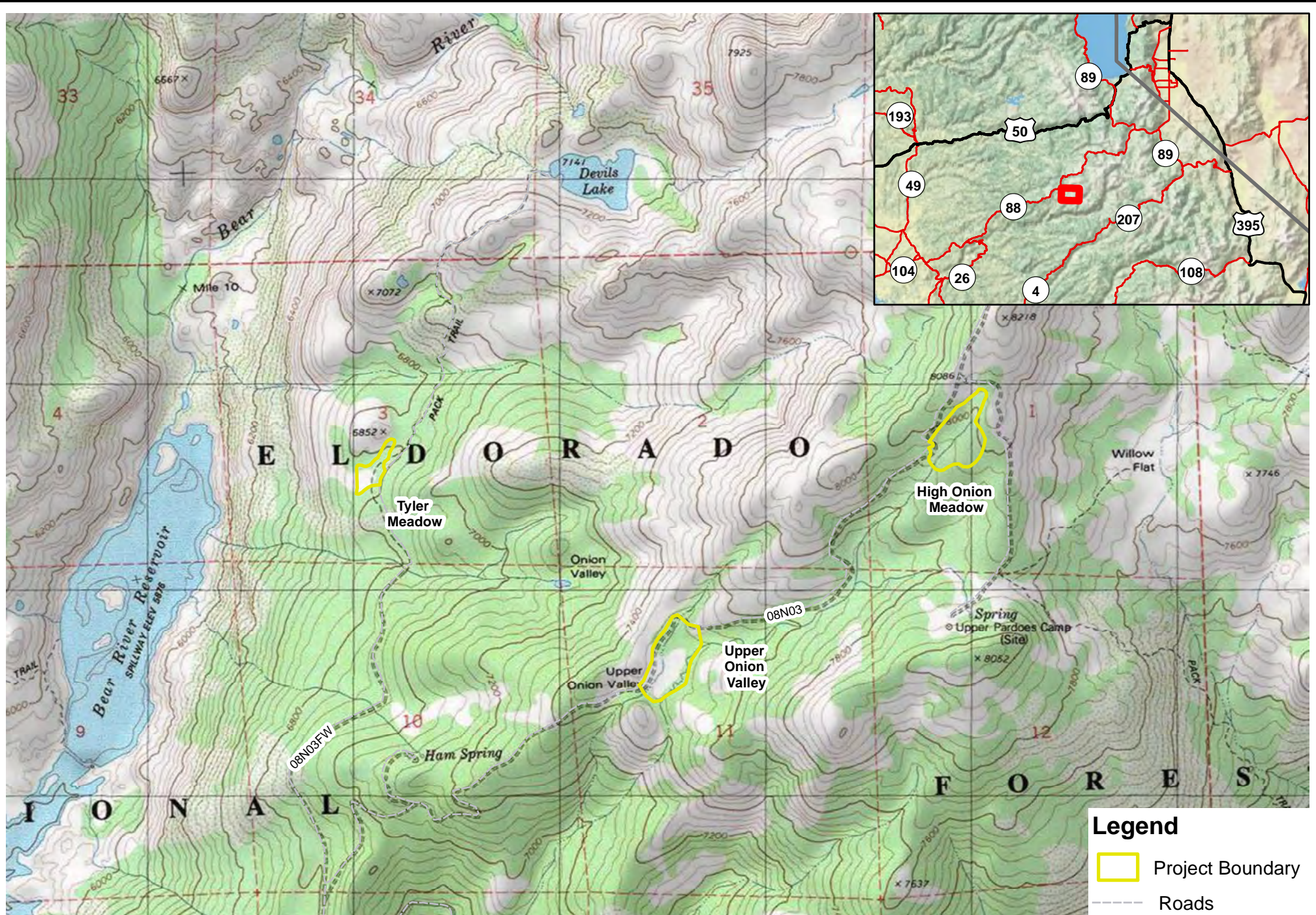
Meadow Name	Location	Project Area	Elevation
Upper Onion Valley	T8N, R16E, Sec 11	26.8 acres	7,480
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Tyler Meadow	T8N, R16E, Sec 3	10.3 acres	6,800

ARCD in Amador Ranger District (District) is the lead California Environmental Quality Act (CEQA) agency for the Three Meadows Project. The District has obtained Waterways Consulting Inc, to prepare design services for this meadow project. The completed Design Report is provided in Appendix A.

With the assistance of Resource Concepts, Inc (RCI), an environmental consulting firm, the District has completed the required natural and cultural resource surveys necessary to assess potential environmental impact and complete this CEQA Initial Study. Resource surveys and environmental assessments are attached in Appendices B-I.

Proposed Project

The Amador Ranger District, El Dorado National Forest and project stakeholders are seeking to restore the natural morphology of three relatively small, high elevation meadows in Amador County, California. The purpose of the project is to improve hydrologic functions of the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of flora and fauna and downstream users by reducing downstream flood peaks.



0 1,000 2,000 Feet
 1 Inch = 2,000 Feet

Figure 1: Location Map
Three Meadows Restoration Project

Legend
 [Yellow Outline] Project Boundary
 [Dashed Line] Roads

To achieve the above restoration goals, each of the three meadows has its own management action plan to resolve specific resource concerns as described below:

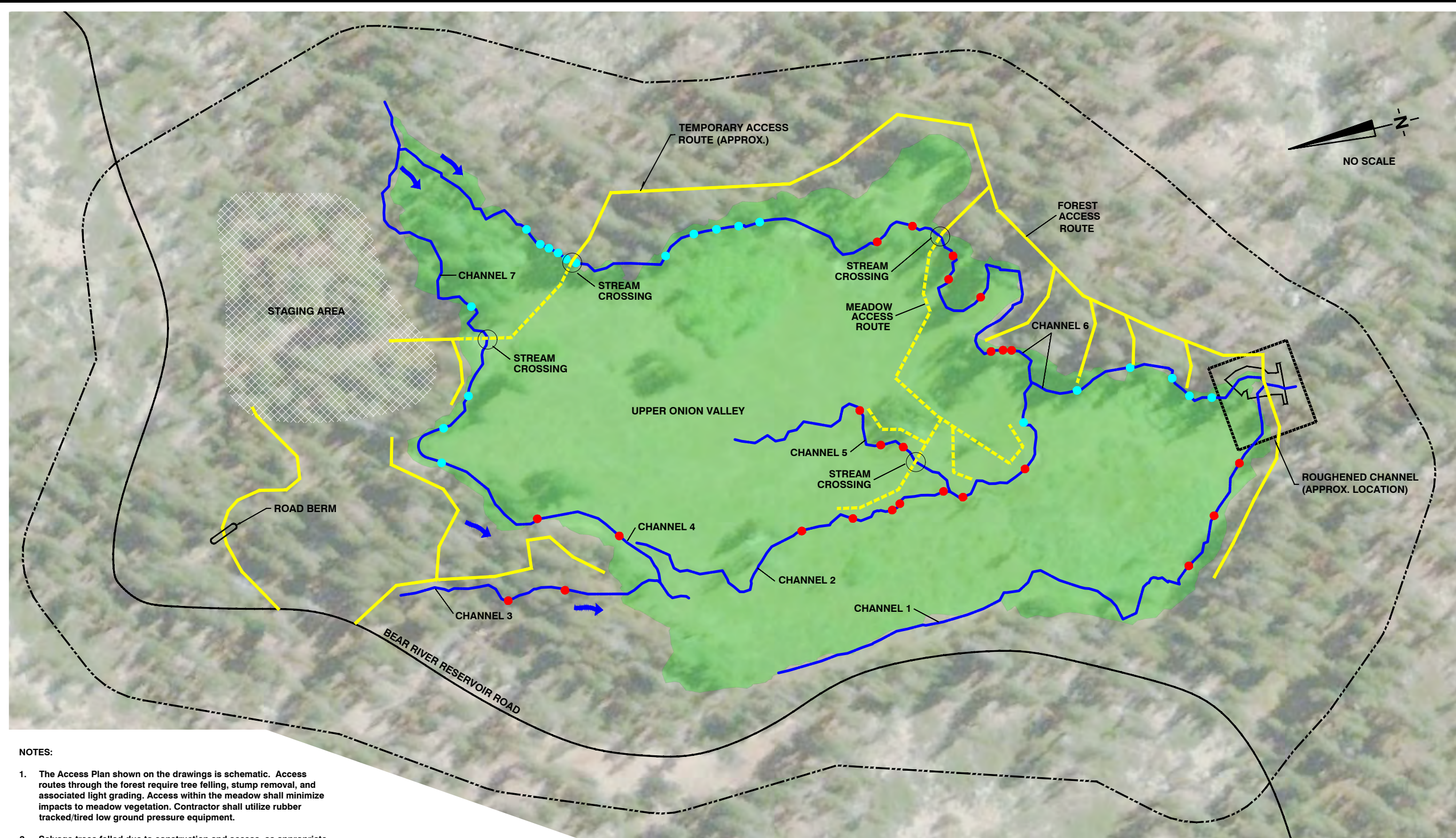
Upper Onion Valley

The proposed restoration actions for Upper Onion Valley include installation of rock riffles and log weirs. The constructed rock riffles and log weirs would be located in existing, incised channels to stabilize the profile grade within the meadow channel, encourage aggradation, restore the hydraulic continuity of flow through the meadow, and raise the groundwater table (reference Figure 2). Rock riffles would be placed in greater than one foot in depth, forming a system of short rock riffle segments interspersed with longer pools. For the constructed riffles a four foot long riffle crest would be established that is keyed into the streambed and banks. Rock ramps are then constructed upstream and downstream of the riffle crest that conform to the existing streambed at a 10% maximum slope downstream of the crest and at a 1:1 slope at the upstream end. Riffles would consist of fine material borrowed from the surrounding upland areas and coarser rock that would be from other Forest Service rock staging areas in the district. Approximately twenty-one (21) constructed rock riffles would be placed within Onion Creek, the main channel through the Upper Onion Valley.

Additionally, the project activities at Upper Onion Valley include the installation of twenty-five (25) log weirs as grade control located primarily within lower energy, less incised portions of the channel network. It is estimated that approximately seventy-three (73) logs less than 30" diameter at breast height (dbh) would be needed to construct the weirs and would be harvested from trees within the meadow, along the designated access routes, or near the meadow margins. Harvested trees would be hand felled, bucked, and limbed. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable, and not on saturated soil conditions. Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the Project Area to a depth not to exceed 30".

To provide downstream grade control for the meadow, a roughened channel will be constructed at outlet of the meadow. The purpose of the structure is to actively raise water surfaces through the channels and the meadow but rely on passive delivery of fine and coarse sediment from upstream reaches to ultimately aggrade the meadow channels and bury the upstream grade control structures. The roughened channel will be constructed at a 4.4% gradient and will tie into existing grade approximately 65 feet downstream of the crest and extend upstream of the crest at a 1:1 slope for approximately 10 feet to protect against undermining of the roughened channel. The roughened channel should be a minimum of three feet thick, composed of rock material of various sizes, and would look like a long sloping riffle when completed. Rock would likely be imported to the site from Forest Service rock staging areas in the district.

The proposed restoration within Upper Onion Valley includes stabilization and realignment of a large tributary to Onion Creek where it crosses an existing road to the informal day use/camping area (reference the design report in Appendix A and Figure 2). Currently flow within the channel is captured and rerouted within the existing roadbed rather than the natural stream channel. To restore and contain the flows within the original stream channel, the restoration project would build up the road approaches to the crossing to reestablish the original thalweg alignment of the tributary channel. The berms on each side of the stream channel would be built up two feet with a 1.5 inch aggregate base material and will contain the streamflow in the original channel and prevent the water from flowing within the existing roadbed. The aggregate base material will be located within the roadbed above the stream channel.



NOTES:

1. The Access Plan shown on the drawings is schematic. Access routes through the forest require tree felling, stump removal, and associated light grading. Access within the meadow shall minimize impacts to meadow vegetation. Contractor shall utilize rubber tracked/tired low ground pressure equipment.
2. Salvage trees felled due to construction and access, as appropriate.
3. Access routes require channel crossings. Contractor shall minimize channel impacts by use of temporary bridge such as marsh mats or corduroy stream crossings.
4. Stage materials within the existing primitive campground. Contain the downslope perimeter of staging or stockpile areas with silt fence.
5. Store, maintain and refuel all equipment and materials in a designated portion of the staging area.
6. Restore access routes prior to final demobilization. Forest access routes require ripping, seeding, and course wood cover (e.g. logs and slash). Meadow access routes shall be restored to pre-project conditions.
7. Salvage willows at direction of Engineer or USFS representative.

FIGURE 2
THREE MEADOWS RESTORATION PROJECT
UPPER ONION VALLEY
PLAN VIEW

KEY:

●	CONSTRUCTED RIFFLE
●	LOG WEIR LOCATION
---	SURVEY BOUNDARY (26.8 AC.)
→	DIRECTION OF FLOW
—	SEASONAL CHANNEL
■	WET MEADOW

The Upper Onion Valley site would be accessed by Bear River Reservoir Road (FS Road 08N03), a well-developed road that runs along the entire western and northern sides of the meadow. Staging of equipment and materials would occur at an existing primitive campground located at the northern (up gradient) edge of the meadow. Temporary access routes originating from the staging area and Bear River Reservoir Road would be utilized to access the interior of the site for placement of log weirs on the smaller, interior channels. Access routes would be field fit to minimize impacts caused by potential tree felling, removal of stumps, and light grading. Where access routes cross a stream channel, temporary bridge crossings, such as corduroy road, steel plates, or marsh mats would be used. Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, forest access routes would be restored by ripping, seeding, and placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions and elevation.

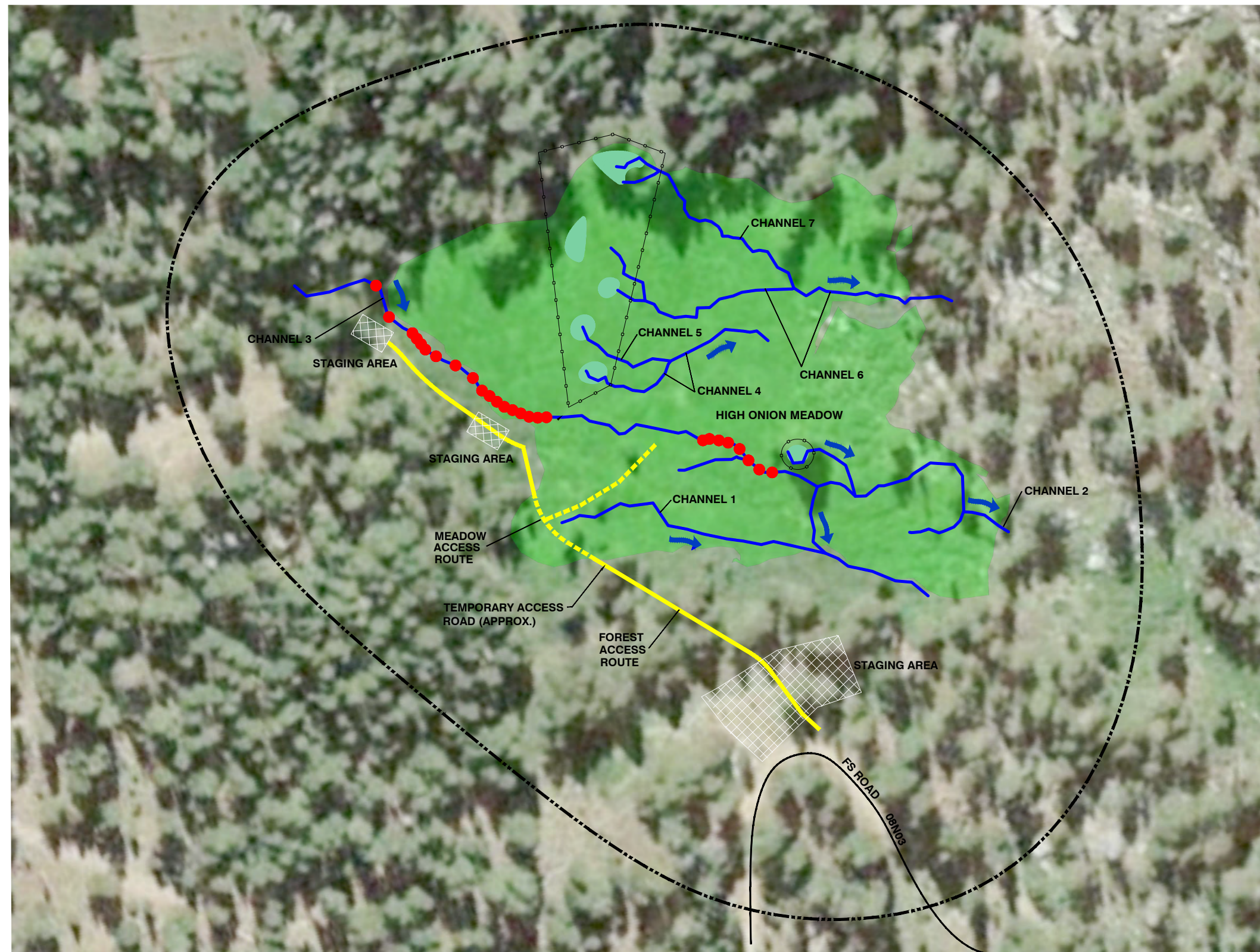
High Onion Meadow

The proposed action for High Onion Meadow includes the installation of low weir grade control structures in the primary meadow channel to limit additional downcutting, manage the timing and duration of grazing, and protect seepage sources from cattle grazing (reference Figure 3). Approximately 26 log grade control weirs spaced at approximately 25-foot intervals are proposed to be installed along the unnamed creek to enhance sedimentation and limit future risk of channel incision. It is anticipated that the structures would be built with hand tools and hand labor given the relatively narrow channel widths.

Approximately 75 conifers not to exceed 12-15 feet in length and with diameters ranging from 8 to 12 inches may be selected for harvest near the meadow margins, along the designated access routes, or in and around the High Onion Meadow. Harvested trees would be hand felled, bucked, and limbed. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable, and not on saturated soil conditions. Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the Project Area to a depth not to exceed 30".

To discourage cattle use around sensitive areas and seepage sources, the project proposes to install fencing around the seeps that would prevent cattle access and usage of these areas. Most of the seeps identified in High Onion occur along the downstream margin of the upper fansurface as perched groundwater intersects the lower fan surface, and the entire geomorphic surface will be fenced off. Fencing would consist of steel posts, wood corner posts for bracing, and three wires. The fencing has been designed to allow easy removal of the wires prior to the winter and reinstallation following spring snowmelt.

High Onion Meadow is accessible from Forest Service Road 08N03 and staging of materials and equipment would be located within an existing primitive campground adjacent to the road. Temporary access routes originating from the staging area adjacent to the Forest Service Road would skirt the upper edge of the meadow and cross over Onion Creek. Access routes would be field fit to minimize impacts to the meadow caused by potential tree felling, removal of stumps, and light grading. Within High Onion Meadow, access routes are to be constructed along the upper northwestern edge and no stream crossings are required. Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, forest access routes would be restored by ripping, seeding, and placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions.



KEY:

- SEEPS
- LOG WEIR LOCATION
- SURVEY BOUNDARY (10.2 AC.)
- DIRECTION OF FLOW
- SEASONAL CHANNEL
- WET MEADOW
- EXCLUSIONARY CATTLE FENCING

- NOTES:**
1. The Access Plan shown on the drawings is schematic. Access routes through the forest require tree felling, stump removal, and associated light grading. Access within the meadow shall minimize impacts to meadow vegetation, through the use of marsh mats and rubber tracked/tired low ground pressure equipment.
 2. Salvage trees felled due to construction and access, as appropriate.
 3. Stage materials within the existing primitive campground. Contain the downslope perimeter of staging or stockpile areas with silt fence.
 4. Store, maintain and refuel all equipment and materials in a designated portion of the staging area.
 5. Restore access routes prior to final demobilization. Forest access routes require ripping, seeding, and course wood cover (e.g. logs and slash). Meadow access routes shall be restored to pre-project conditions.
 6. Salvage willows at direction of Engineer or USFS representative.

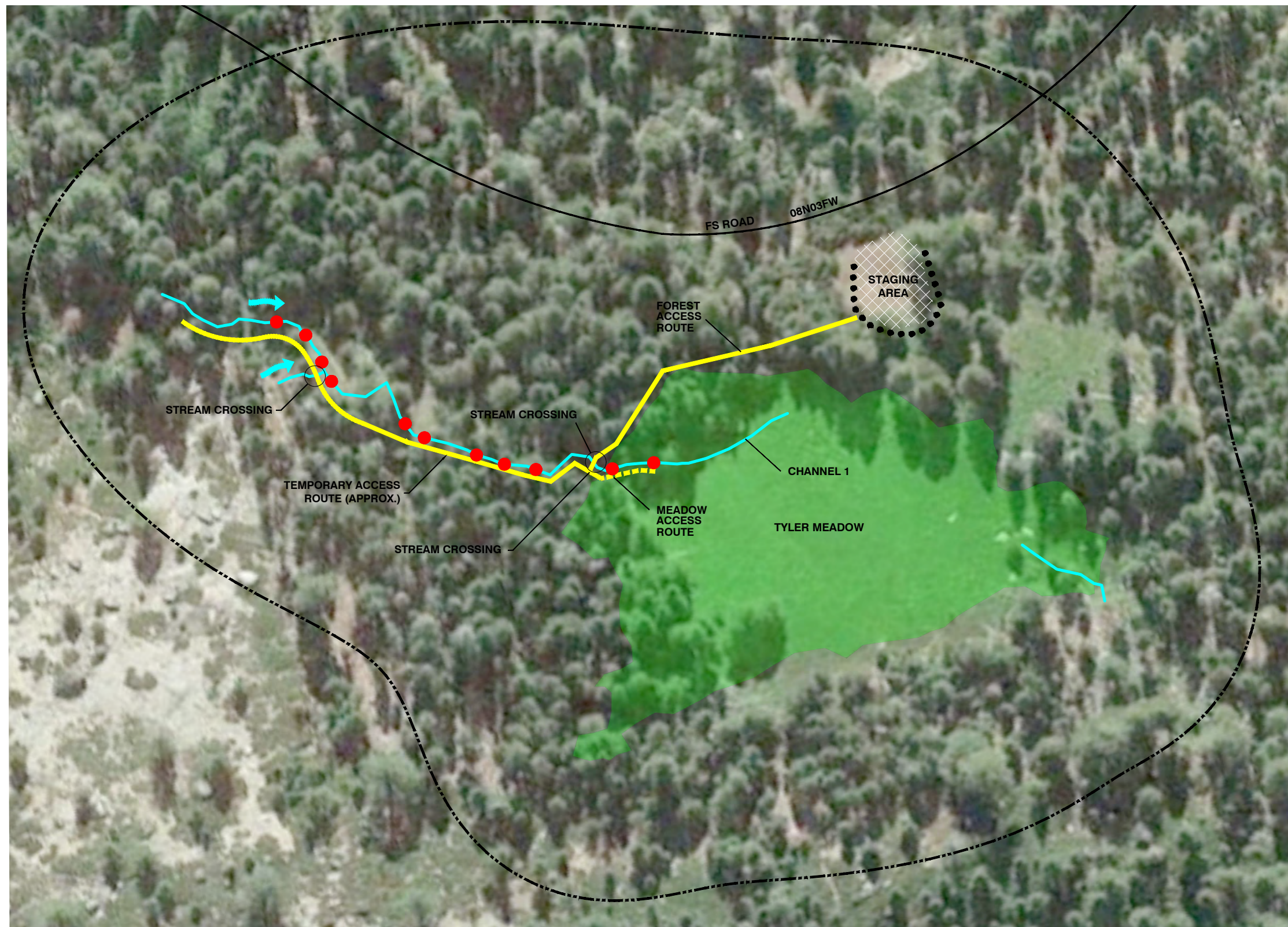
FIGURE 3
THREE MEADOWS RESTORATION PROJECT
HIGH ONION MEADOW
PLAN VIEW

Tyler Meadow

The proposed restoration actions for Tyler Meadow include management of the timing and duration of grazing, limit access by off-highway vehicles (OHVs), and installation of approximately 10-12 log weir grade control structures to limit additional downcutting (reference Figure 4). The log weir grades would be in the primary channel located in the forested area upstream of the meadow. Approximately thirty (30) conifers less than 30" dbh may be selected for harvest near the meadow margins, along the designated access routes, or in and around the Tyler Meadow Project Area. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable, and not on saturated soil conditions. Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the Project Area to a depth not to exceed 30".

One temporary access route will be constructed through upland forest from the FS Road 08N03FW located along the east side of the meadow to the stream channel. The access route will cross through the intermittent stream channel and will be located along the northwestern edge of the stream within an existing disturbance corridor. The access route would be field fit to minimize impacts soil caused by potential tree felling, removal of stumps, and light grading. One crossing of the intermittent stream channel is proposed at the upstream end of the meadow. A corduroy stream crossing will be constructed to protect the channel and streambanks as shown on the plan. As the proposed action is limited to the creek channel above Tyler Meadow, there would be no access routes or construction equipment within the meadow.

To limit future access to the meadow by off-road vehicles, either boulders or logs buried by sediment will be placed around the margin of the parking area.



- KEY:**
- LOG WEIR LOCATION
 - SURVEY BOUNDARY (10.3 AC.)
 - DIRECTION OF FLOW
 - INTERMITTENT STREAM
 - WET MEADOW
 - BOULDER OR LOG EXCLUSION BARRIER

- NOTES:**
1. The Access Plan shown on the drawings is schematic. Access routes through the forest require tree felling, stump removal, and associated light grading. Access within the meadow shall minimize impacts to meadow vegetation through use of marsh mats or rubber tracked/tired low ground pressure equipment.
 2. Access routes require channel crossings. Contractor shall minimize channel impacts by use of temporary bridge such as marsh mat or corduroy stream crossing.
 3. Stage materials within the existing primitive campground. Contain the downslope perimeter of staging or stockpile areas with silt fence.
 4. Store, maintain and refuel all equipment and materials in a designated portion of the staging area.
 5. Restore access routes prior to final demobilization. Forest access routes require ripping, seeding, and course wood cover (e.g. logs and slash). Meadow access routes shall be restored to pre-project conditions.
 6. Salvage willows at direction of Engineer or USFS representative.

FIGURE 4
THREE MEADOWS RESTORATION PROJECT
TYLER MEADOW
PLAN VIEW

Table 2 summarizes the action items proposed at each of the three meadows to restore the hydrologic functions utilizing log weirs, constructed rock riffles, and constructed roughened channel to raise the base level within the channels, encourage aggradation, reduce the overall channel capacity and raise the groundwater tables. The project also proposes the installation of fencing and boulder barriers to reduce impacts from grazing and off-highway vehicle (OHV) access to the meadows. Project construction will be completed in late summer and fall of 2020 when the channels are expected to be dry.

Table 2. Action Items of the Three Meadows Restoration Project

Action Item Number	Action
1	<p style="text-align: center;">Construction of log weirs and constructed rock riffles within existing incised channels to raise base level of channel, encourage aggradation, reduce overall channel capacity and raise the groundwater table (Figures 2 through 4):</p> <ul style="list-style-type: none"> • Construction of log weirs: 11 at Tyler Meadow (intermittent stream), 25 at Upper Onion Valley (intermittent streams), and 26 at High Onion (intermittent streams). Logs will be felled from suitable trees located along the meadow edge, along temporary access routes or from within the meadows. Trees used for log weirs will be hand felled, bucked, and limbed. Transport from the harvest location to the weir construction will utilize various construction equipment. Log weirs will be installed by hand crews. • Construct 21 rock riffles along Onion Creek and two tributaries within Upper Onion Valley. It is expected that rock for the riffles will be imported from the Tragedy Pit. Construction of rock riffles will be completed using motorized equipment in the meadow.
2	<p style="text-align: center;">Construct Roughened Channel To control overall base level of Upper Onion Valley meadow (Figure 2)</p> <ul style="list-style-type: none"> • Placement of rock within 90 lf / 720 sq. ft. of perennial streams and 0.01 acre of adjacent wet meadow at the outflow from Upper Onion Valley. Rock will likely be imported from Tragedy Pit for this component. Motorized equipment would be used in order to accomplish this action item.
3	<p style="text-align: center;">Construct Road Berm on FS Road 08N03 (Figure 2)</p> <ul style="list-style-type: none"> • Placement of 5:1 sloped rock berms to direct stream flow to original channel and into meadow.
4	<p style="text-align: center;">Installation of exclusionary cattle fencing at High Onion (Figure 3)</p> <ul style="list-style-type: none"> • Fencing will be placed around six (6) hillslope seeps to protect existing hydrology and prevent soil compaction
5	<p style="text-align: center;">Installation of OHV fencing at Tyler Meadow (Figure 4)</p> <ul style="list-style-type: none"> • Log or rock barriers will be placed along upper meadow edge to prevent OHV access from adjacent roadway.
6	<p style="text-align: center;">Installation Temporary Access Roads (Figures 2 through 4)</p> <ul style="list-style-type: none"> • Access to the meadow restoration areas will be via temporary forest access routes (approx. 3,875 lf / 1.3 acres) and meadow access routes (1,170 lf / 0.40 ac) to be restored upon project completion.

Material Sourcing

The primary materials needed for the construction of the restoration project are logs for the log weirs and the stream bed material for the constructed riffles and roughened channels. All of the logs are anticipated to be sourced from on-site, both adjacent to and within the meadow. The streambed material is expected to be sourced from other Forest Service rock staging areas within the district. Rock transported to the site would be delivered to the proposed staging areas and mixed on site to achieve the desired gradation for either the constructed riffles of the roughened channel.

Revegetation

The project will require areas of revegetation. Prior to final demobilization, access routes will be restored. Access routes through the meadows are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed as determined necessary by the Eldorado National Forest (ENF) Botanist. Willow stakes will be planted next to stream channels and disturbed areas following construction to reduce immediate post project vulnerability to erosion. During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow sites, and other heavily disturbed areas as needed.

Forest access routes are to be ripped, seeded with native species approved by the ENF Botanist, and covered with coarse woody debris (eg. logs and slash). Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the Project Area to a depth not to exceed 30".

Post-Project Monitoring

All revegetated areas would be monitored for three years following project completion. Monitoring will quantify willow survival and percent cover of native meadow vegetation. Successful revegetation will be achieved with 70% survival of willow cuttings and 50% cover of seeded areas. Any areas that do not meet the survival or cover area would be replanted.

Environmental Factors Potentially Affected

This Initial Study has determined that in the absence of mitigation the proposed project could have the potential to result in significant impacts associated with the factors checked below. Mitigation measures are identified in this Initial Study that would reduce all potentially significant impacts to less-than-significant levels.

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture/Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

On the basis of this initial evaluation:

- I find that the project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier BIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier BIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Initial Study and Checklist

Introduction

This checklist is to be completed for all projects that are not exempt from environmental review under the CEQA. The information, analysis and conclusions contained in the checklist are the basis for deciding whether an Environmental Impact Report (EIR) or Negative Declaration is to be prepared. Additionally, if an EIR is prepared, the checklist shall be used to focus the EIR on the effects determined to be potentially significant.

1. Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Three Meadows Project Area is in a natural setting, surrounded by forest lands administered by the Eldorado National Forest (ENF), Amador Ranger District. The meadows are located approximately 45 miles east of Jackson, California, and five miles south of State Highway 88, in the vicinity of the Upper Bear River Reservoir. State Highway 88 is a State Scenic Highway. The Project Area is not visible from the highway or any designated campgrounds. The Upper Onion Valley and High Onion meadows are visible from South Bear River Road (FS Road 08N03) and Tyler Meadow is visible from FS Road 08N03FW. These roads are rough and not well traveled.

The Land and Resource Management Plan (LRMP) for the ENF (USDA 1988) contains a discussion of Visual Quality Objectives (VQOs) based on management areas and land use types using the USFS Visual Management System. The plan specifically names Highway 88 as scenic corridors. Viewsheds surrounding other well-traveled roads or populated areas must meet visual quality management objectives. The Plan requires retention or partial retention of foreground and middleground areas seen

from roads, trails, rivers, reservoirs and densely developed recreation sites. Unseen areas and background areas have a VQO of modification or maximum modification.

Impact Discussion

The proposed restoration project would not degrade the existing visual character or quality of the site, create any new sources of light or glare, or have an adverse effect on any scenic vistas. The proposed project may result in some temporarily bare areas for the first year following the project, however, the project includes a revegetation component to accelerate establishment of meadow vegetation if determined necessary by the ENF Botanist.

This project seeks to restore the hydrologic function of the meadow ecosystem and will not alter the existing vegetation structure. The forest surrounding Three Meadows, including conifers encroaching on the meadow, has been thinned in accordance with USFS VQOs. The proposed project would remove approximately 140 trees (primarily lodgepole pine) from within the meadows and along temporary access routes surrounding the meadows to construct sixty-two (62) log weirs to be installed within incised channels spread throughout the three meadows. The removal of the trees is negligible relative to the overall forest landscape.

Temporary access routes would be constructed through upland forests and within the wet meadows. Prior to final demobilization, all access routes will be restored. Access routes through the meadow are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed as determined necessary by the ENF Botanist. Forest access routes are to be ripped, seeded with native species approved by the ENF Botanist, and covered with coarse woody debris (eg. logs and slash). Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30” following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the Project Area to a depth not to exceed 30”.

Willow stakes will be planted next to stream channels and disturbed areas following construction to reduce immediate post project vulnerability to erosion. During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow sites, and other heavily disturbed areas as needed.

All revegetated areas would be monitored for three years following project completion. Monitoring will quantify willow survival and percent cover of native meadow vegetation. Successful revegetation will be achieved with 70% survival of willow cuttings and 50% cover of seeded areas. Any areas that do not meet the survival or cover area would be replanted. The Forest Service Botanist will monitor for revegetation success and determine if additional revegetation treatments are necessary.

Mitigation Measures: No mitigation measures required.

2. Agriculture/Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range

Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 1 2220(g)) or timberland (as defined by Public Resources Code section 4526)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The proposed project is not located on or near any agricultural lands. The proposed Project Area is located within three montane meadows surrounded by coniferous forest. The project parcels are zoned as Timberland Agricultural Area in the updated 2016 Amador County General Plan. The purpose of this zone is to encourage timber production and associated activities, and to limit noncompatible uses from restricting such activities (Amador County 2009).

Impact Discussion

The Three Meadows Project lies within the boundaries of the Amador Calaveras Consensus Group (ACCG) Collaborative Forest Landscape Restoration Project (ACCG 2006), and therefore the project is consistent with the overall forest management direction for the region. The meadows and surrounding forest have been previously altered from planned timber harvest, fuels treatments, road construction/use, grazing, and hazard tree removal within and adjacent to the Project Area. Past and current grazing, and current and past road use and construction have affected all three meadows and the surrounding area. The proposed project would remove approximately 140 trees (primarily lodgepole pine) from within the meadows and along temporary access routes surrounding the meadows to construction 62 log weirs to be installed within incised channels spread throughout the three meadows. The removal of conifers under the project would not result in a loss of forested land in the overall forest landscape surrounding the meadow. Therefore, there would be no impact to agricultural and forest resources under the proposed project.

Mitigation Measures: No mitigation required.

3. Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is located on National Forest lands in southeastern Amador County in the Mountain Counties Air Basin. The Amador County Air District is the local air pollution control authority in Amador County. They provide compliance assistance, implement measures to achieve and maintain ambient air quality, protect the public and environment from adverse air quality impacts, and assist with planning and education. The Amador County General Plan presently adopted does not include an element specific to air quality. The Amador air district is designated as unclassified for the State PM10 standards, since no PM10 data are available for this area.

Local sources of impact on air quality in the Project Area are imported constituents from outside the Mountain Counties Air Basin, emissions from vehicular traffic on State Highway 88, and dust from infrequent travel on the nearby Forest Service roads. Other infrequent air quality impacts result from wildfires and intermittent controlled burns implemented by the Forest Service.

Impact Discussion

The proposed project would have no long-term impacts to air quality and would not conflict with or obstruct implementation of the applicable air quality plan. Air quality would be minimally affected by short term construction related emissions such as fugitive dust from roads and soil disturbance and fuel combustion emission from vehicles and other construction equipment. Construction activities have the potential to affect PM10 and ozone concentrations through the production of exhaust emissions and may affect PM10 through the generation of fugitive dust from soil-disturbing activities. Because the Project Area is located within a rural forested area, construction activities are not expected to generate visible dust beyond the project boundaries and impact to PM10 emissions under the proposed project would be less than significant.

The project would have no impact on sensitive receptors.

Mitigation Measures:

The following fugitive dust control measures would be implemented as needed to ensure that PM10 fugitive dust emissions from construction activities are maintained at less-than-significant level. Other precautions not specifically listed in this rule but have been approved in writing by the Amador County Air Pollution Control Officer may be used prior to implementation.

3a. Water and/or approved chemicals would be applied to Forest Service road surfaces and temporary access roads to suppress dust and to maintain a stabilized surface.

3b. Vegetation and other barriers will be used to contain and to reduce fugitive emissions.

3c. Reasonable vehicle speeds will be maintained while driving on unpaved roads in order to minimize fugitive dust emissions.

4. Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The following discussion is summarized from the following sources and are provided as appendices to this document:

- Appendix B: Biological Evaluation and Biological Assessment for Threatened, Endangered, and Sensitive Terrestrial Wildlife Species for the Three Meadows Restoration Project (Loffland, 2020a).
- Appendix C: Aquatic Biological Assessment for the Three Meadows Restoration Project (Loffland, 2020b)
- Appendix D: Aquatic Biological Evaluation for the Three Meadows Restoration Project (Loffland, 2020c)
- Appendix E: Biological Evaluation and Biological Assessment for Threatened, Endangered, and Sensitive Botanical Species for the Three Meadows Restoration Project (Brown, 2020).
- Appendix F: Additional Botanical, Terrestrial and Aquatic Wildlife Species Considered for Analysis for the Three Meadows CEQA Initial Study (Resource Concepts, Inc, 2020).
- Appendix G: Silviculture Report for the Three Meadows Restoration Project – Environmental Compliance, Eldorado National Forest – Amador Ranger District (Dudek, 2019).

Environmental Setting

The Three Meadows Restoration Project includes three small, high elevation meadows. High Onion Meadow and Upper Onion Valley are located along Onion River within the Cole Creek Watershed. Tyler meadow drains to Upper Bear River Reservoir. The meadows are surrounded by mixed fir and pine forest dominated by lodgepole pine (*Pinus contorta*, FAC) and red fir (*Abies magnifica*, UPL).

Upper Onion Valley Meadow

Upper Onion Valley contains the largest of the three meadows at approximately 8.7 acres in size surrounded by high-elevation fir/pine type forest. Stand density ranges from 100-200 sq. ft. per acre. Large snags are dense with approximately 10-15 snags per acre. Onion Creek is an intermittent stream, which flows along the far eastern edge, often forming the boundary between the wetland and adjacent to the upland forest. The primary emergent wetland meadow is 8.7 acres and is characterized by commonly occurring herbaceous species such as: California false hellebore (*Veratrum californicum*, FAC), American bistort (*Bistorta bistortoides*, FACW), arrow leaf ragwort (*Senecio triangularis*, FACW), Blue-pod lupine (*Lupinus polyphyllus* (FAC), Parish's yampah (*Perideridia parishii*, FAC), and tower larkspur (*Delphinium glaucum*, FACW) as well as various sedges and grasses. There are several small clusters of lodge pole pines scattered throughout. Onion Creek is the largest of the streams through the meadow and has become highly incised, causing a lowering of the water table, and drying of adjacent soils. Lodgepole pine encroachment has been a problem throughout the meadow which has been repeatedly addressed by past projects to cut and pile young lodgepoles under three-inch diameter. The meadow is annually grazed.

High Onion Meadow

High Onion Meadow is located within the upper Cole Creek watershed at approximately 8,000 feet in elevation. The wetland meadow is approximately 2.7 acres in size. Hydrology is driven by snowmelt and subsurface flows. One main drainage (Onion Creek) flows north to south through the meadow, and several small drainages begin within the meadow from seeps or have advanced upslope as head cuts stemming from Onion Creek. The drainages flow to the south and coalesce along the southern wetland boundary near the outflow of Onion Creek, which flows through Upper Onion Valley (described above) and then into Cole Creek and the North Fork Mokelumne River.

The meadow is dominated with healthy riparian vegetation, but has been impacted by past and present management activities including grazing and fire exclusion (Dudek 2020). The upper, moderately wet portion of the meadow is dominated by large stands of California false hellebore. There is a distinct break in topography in mid slope of the meadow, where several small seeps discharge along the topographic break creating small stream channels and drainage swales supporting stands of willows (*Salix* spp., OBL-FAC), arrow leaf ragwort (FACW), blue-pod lupine (FAC), Parish's yampa (FAC), American bistort (FACW), sedges (OBL-FAC), and several species of wetland grasses. The meadows adjacent forested stand consist of high-elevation fir/pine type forest, appears healthy, and is estimated to be approximately 100 years old. Average tree diameter is approximately 10" to 15" d.b.h. Large snags are dense with approximately 10-15 snags per acre. (Dudek 2020).

Tyler Meadow

Tyler Meadow (is approximately 1.5 acres in size and drains into Upper Bear River Reservoir. The relatively flat meadow (approximately 1.2% slope) has a shallow depth to bed rock and shallow groundwater table. The channel slope above the meadow is 1.8%, but the channel bed and bank recede at the start of the meadow and flows infiltrate as they reach the flatter meadow below. There are groundwater seeps located in the northwest corner of the meadow. All surface and subsurface flows coalesce along the southern boundary and discharge from the wetland through an intermittent stream which flows into Upper Bear River Reservoir.

Vegetation within the meadow consists primarily of sedges (OBL – FAC), spikerush (OBL), tufted hairgrass (FACW), America bistort (OBL), alpine aster (*Oreostemma alpigenum*, FACW), water plantain buttercup (*Ranunculus alismifolius*, FACW) and other wetland grasses and forbs. Encroachment of small diameter lodgepole seedlings is occurring along the meadow edges. The meadow is located adjacent to an existing FS Road and evidence of OHV use occurring in the meadow was observed.

The meadow's adjacent forested stand consists of mid-elevation fir/pine type forest growing on a moderate to highly productive site. This stand appears healthy and is estimated to be approximately 100 years old on average. The forest species composition of the meadow margin stand includes multiple age classes of red fir, white fir (*Abies concolor*), Jeffrey pine (*Pinus jeffreyi*), and lodgepole pine. A few of the larger diameter red fir and Jeffrey pine are estimated to be over 200 years old. Stand density ranges from 150-200 sq. ft. per acre, and is split evenly between red fir, white fir, and lodgepole pine. The Jeffrey pine occupies a very small portion of the stand. Average tree diameter for the stand is approximately 15-20" d.b.h. Large snag density is moderate with approximately 5-10 snags per acre.

Special Status Species Review

A list of potential state- and federally listed, special-status, and Forest Sensitive species that may be present in the Project Area was compiled using information requested from the US Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDDB), CDFW Biogeographic Information and Observation System (BIOS) and the USDA-Forest Service Region 5 Sensitive Species list (June 2013). The evaluation of botanical impacts also included a review of Forest Watch List species, which includes rare plants on the California Rare Plant list that were identified in CNDDDB query.

Terrestrial Wildlife

Table 3 presents a list of terrestrial species from the CNDDDB, USFWS, and the Regional Forester's Sensitive species list that may occur in the Project Area.

Table 3. Special Status Terrestrial Wildlife Species Potentially Occurring in the Three Meadow Restoration Project Area

Species	Listing Status
Mammals	
California wolverine (<i>Gulo gulo luscus</i>)	FS; ST; Proposed FT
American martin (<i>Pennanti pacifica</i>)	FS
Pacific fisher (<i>Martes pennant pacifica</i>)	FS; SSC; Proposed FT
Sierra Nevada red fox (<i>Vulpes vulpes necator</i>)	ST
Fringed myotis (<i>Myotis thysanodes</i>)	FS
Pallid bat (<i>Antrozous pallidus</i>)	FS; SSC
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	FS; SSC
Birds	
Bald eagle (<i>Haliaeetus leucocephalus</i>)	FS; SE; FP
California spotted owl (<i>Strix occidentalis occidentalis</i>)	FS; SSC
Great gray owl (<i>Strix nebulosa</i>)	FS; SE
Northern goshawk (<i>Accipiter gentilis</i>)	FS; SSC
Willow flycatcher (<i>Empidonax traillii</i>)	FS; SE
Invertebrates	
Western bumble bee (<i>Bombus occidentalis</i>)	FS
Morrison bumble bee (<i>Bombus morrisoni</i>)	SA
*FP= State Fully Protected; FS = Forest Sensitive Species within the ENF; SA = CDFW Special Animal; SE = State Endangered; ST = State Threatened; SSC = State Species of Special Concern	

Aquatic Wildlife

Table 4 presents a list of aquatic wildlife species from the CNDDDB, USFWS, and the Regional Forester's Sensitive species list that may occur in the Project Area.

Table 4. Special Status Aquatic Wildlife Species Potentially Occurring in the Three Meadow Restoration Project Area

Species	Listing Status
Amphibians	
Sierra Nevada yellow-legged frog (<i>Rana sierrae</i>)	FE; ST
Sierra Nevada yellow-legged frog (<i>Rana sierrae</i>)	CH
Yosemite toad (<i>Anaxyrus canorus</i>)	FT; FS; SSC
Southern long-toed salamander (<i>Ambystoma macrodactylum sigillatum</i>)	SSC
Fish	
Delta smelt (<i>Hypomesus transpacificus</i>)	FT; SE
FE = Federal Endangered; ST = State Threatened; FT = Federal Threatened; CH= Critical Habitat; SSC = State Species of Special Concern	

Botanical Species

Currently the only USFWS listed plant species expected to occur on the ENF is *Packera layneae* (Federally Threatened). This species occurs on rocky, gabbroic, or serpentinitic soils in chaparral and cismontane woodland below 3,000 feet. Potential habitat for *Packera layneae* is not found within the proposed Project Area.

The Three Meadows Project area has been previously surveyed for TEPS species as summarized below:

- **High Onion:** This meadow was surveyed in 2015 and 2017, resulting in the identification of two separate suboccurrences of *Botrychium simplex* (Occurrence No. 022-1), an ENF Special Status Species, along the mainstream channel. The occurrences were revisited in August 2019, but no individuals were observed. No TEPS species were located during any of the site surveys.
- **Upper Onion Valley:** This meadow was first surveyed in 2015 for sensitive plants and revisited in 2016 and 2017, resulting in identification of five (5) suboccurrences of *B. simplex* (Occurrence No. 024). All of the suboccurrences were located along the stream channel on the east side of the meadow except one, which was located along a stream channel located near the western meadow edge. The occurrences were revisited in August 2019, but no individuals were observed. No TEPS species were located during any of the site surveys.
- **Tyler Meadow:** Tyler Meadow was surveyed in 2014 as part of the Cole Creek Unit 4 plant surveys completed by ARD survey crews. The site was resurveyed July 2019. No TEPS species were located during any of the site surveys.

Sensitive Natural Communities

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. Natural communities with ranks of S1-S3 are considered Sensitive Natural Communities to be addressed in the CEQA review. The CNDDDB was queried to search for S1-S3 ranked Sensitive Natural Communities within Amador County. Nine occurrences of Ione Chapperal were identified, but not located within vicinity of the project area.

Table 5. Habitat potential of the Proposed Three Meadows Restoration Project for TEPS plant taxa known or suspected to occur on the Eldorado National Forest.

Common Name / Scientific Name	Status				Habitat Description	Potential Habitat within Project Area and Rational
	USFWS	Forest Service	State Rank	CNPS		
Three-bracted onion <i>(Allium tribracteatum)</i>	--	S	S2	1B.2	Grows on open ridges with gravelly lahar soils (lava cap communities) in chaparral and lower & upper montane coniferous forests from ~ 3,300 to 10,000 feet in elevation.	No potential habitat.
El Dorado manzanita <i>(Arctostaphylos nissenana)</i>	--	S	S1	1B.2	Grows on highly acidic slate and shale soils and is often associated with closed-cone conifer forest from about 1,400 to 3,600 feet.	No potential habitat; occurs below site elevation range
Big-scale balsamroot <i>(Balsamorhiza macrolepis var. macrolepis)</i>	--	S	S2	1B.2	Grows in chaparral, vernal moist meadows & grasslands, grasslands within oak woodland, and ponderosa pine forest below 4,600 feet.	No potential habitat; occurs below site elevation range
Upswept moonwort <i>(Botrychium ascendens)</i>	--	S	S2	2B.3	Grows in lower montane coniferous forest, meadows, and seeps from 4,900 to over 7,500 feet in elevation. Only Tyler Meadow is located within elevation range.	Yes. Project areas contains coniferous forest, meadows, and seeps within the elevation range of the species.
Scalloped moonwort <i>(Botrychium crenulatum)</i>	--	S	S3	2B.2	Grows in fens, lower montane coniferous forest, meadows, seeps, and freshwater marshes from 4,900 feet to 10,500 feet in elevation.	
Common moonwort <i>(Botrychium lunaria)</i>	--	S	S2	2B.2	Grows in meadows, seeps, subalpine and upper montane coniferous forest from 7,450 feet to over 11,000 feet in elevation.	
Mingan moonwort <i>(Botrychium minganense)</i>	--	S	S3	2B.2	Grows in fens, lower and upper montane coniferous forest, meadows, and seeps from 4,900 to 6,750 feet. Only Tyler Meadow is located within known elevation range.	
Mountain moonwort <i>(Botrychium montanum)</i>	--	S	S2	2B.1	Grows in lower and upper montane coniferous forest, meadows, and seeps from 4,900 feet to 7,000 feet in elevation. Only Tyler Meadow is located within known elevation range.	
Paradox moonwort <i>(Botrychium paradoxum)</i>	--	S	S1	2B.1	Grows in lower and upper montane coniferous forest, meadows, and seeps from 4,900 feet to 7,000 feet in elevation. Only Tyler Meadow is located within known elevation range.	

Common Name / Scientific Name	Status				Habitat Description	Potential Habitat within Project Area and Rational
	USFWS	Forest Service	State Rank	CNPS		
Stalked moonwort (<i>Botrychium pedunculosum</i>)	--	S	S1	2B.1	Grows in lower and upper montane coniferous forest, meadows, and seeps from 4,900 feet to 7,000 feet in elevation. Tyler Meadow is located within known elevation range.	Yes. Project areas contains coniferous forest, meadows, and seeps within the elevation range of the species.
Bolander's bruchia (<i>Bruchia bolanderi</i>)	--	S	S3	4.2	Grows in meadows and fens in montane and subalpine communities from about 5,500 to 9,000 feet. Grows in ephemeral habitats such as erosional ditches or small streamlets through wet meadows.	Yes. Project areas contains coniferous forest, meadows, and seeps within the elevation range of the species.
Pleasant Valley mariposa lily (<i>Calochortus clavatus var. avius</i>)	--	S	S2	1B.2	Grows in openings in mixed conifer & ponderosa pine forest, usually on ridgetops and south-facing slopes from 2,500 to 5,600 feet.	No potential habitat; occurs below site elevation range
Porcupine sedge (<i>Carex hystericina</i>)	--	-	S2	2B.1	Grows in wet environments, and specifically along streambanks and in marshes.	Yes. Potential habitat is within Project Area.
Western single-spiked sedge (<i>Carex scirpoidea</i> ssp. <i>pseudoscirpoidea</i>)	--	--	S2	2B.2	Grows in mesic, often carbonate habitats. Prefers rocky alpine areas, meadows and seeps, and / or subalpine coniferous forest.	Yes. Potential habitat is within Project Area.
Alpine dusty maiden (<i>Chaenactis douglasii var. alpina</i>)	--	W	S2	2B.3	Grows in rocky alpine areas, specifically in ridges and rock crevices from 9,000 to 11,000 feet.	No potential habitat.
Fells-fields claytonia (<i>Claytonia megarhiza</i>)	--	W	S2	2B.3	Grows in rocky alpine areas, specifically in ridges and rock crevices from 8,500 to 11,000 feet.	No potential habitat.
Mountain lady's slipper (<i>Cypripedium montanum</i>)	--	S	S4	4.2	Grows in moist areas and upland sites with northerly aspects, loamy soils and shade, from 3,500 to 5,700 feet (generally <5,000 ft).	No potential habitat.
Branched Collybia (<i>Dendrocollybia racemosa</i>)	--	S	--	--	Grows on remains of decayed mushrooms or occasionally in duff/leaf litter, in mid-mature to old-growth stands of mixed hardwood-conifer forests. Evidence of timber harvest at some extant occurrences.	No potential habitat.
Yellow-lip pansy monkeyflower (<i>Diplacus pulchellus</i>)	--	--	S2	1B.2	Grows in mesic environments, particularly in meadows and seeps at 2,000 to 6,500 feet. Occurs frequently in disturbed areas.	No potential habitat; occurs below site elevation range
Tahoe draba (<i>Draba asterophora var. asterophora</i>)	--	S	S2?	1B.2	Restricted to rocky ledges and talus slopes in subalpine and alpine habitats above 8,200 feet.	No potential habitat

Common Name / Scientific Name	Status				Habitat Description	Potential Habitat within Project Area and Rational
	USFWS	Forest Service	State Rank	CNPS		
Cup Lake draba <i>(Draba asterophora var. macrocarpa)</i>	--	S	S1	1B.1	Restricted to sandy slopes, rocky ledges, and talus slopes in subalpine and alpine habitats above 8,200 ft.	No potential habitat
Male fern <i>(Dryopteris filix-mas)</i>	--	W	S2	2B.3	Grows in montane coniferous forests, particularly in granite and rocky soils at 6,000 to 10,000 feet.	Yes. Montane coniferous forests present.
Scribner's wheatgrass <i>(Elymus scribneri)</i>	--	--	S3	2B.3	Grows in rocky alpine areas from 9,500 to 13,000 feet.	No potential habitat.
Tripod buckwheat <i>(Eriogonum tripodum)</i>	--	S	S4	4.2	Grows on serpentine soils in foothill and cismontane woodlands below 5,300 feet.	No potential habitat; occurs below site elevation range
Blandow's bog-moss <i>(Helodium blandowii)</i>	--	S	S2	2B.3	Grows in wet meadows, fens, & seeps in subalpine coniferous forest and alpine lakes from 6,100 to 9,000 feet.	Yes. Wet meadows, fens, & seeps in subalpine coniferous forest.
Parry's horkelia <i>(Horkelia parryi)</i>	--	S	S2	3.2	Grows on stony, disturbed, slightly acidic soils in open chaparral and cismontane woodland below 3,400 feet.	No potential habitat; occurs below site elevation range
Hutchison's lewisia <i>(Lewisia kelloggii ssp. hutchisonii)</i>	--	S	S3	3.2	Grows in openings in upper montane coniferous forest, often on slate soils and on soils that are sandy granitic to erosive volcanic from 4,800 to 7,000 feet.	No potential habitat; occurs below site elevation range
Kellogg's lewisia <i>(Lewisia kelloggii ssp. kelloggii)</i>	--	S	S2/S3	3.2	Grows on granitic and volcanic balds from about 5,000 to 8,000 feet.	No potential habitat
Long-petaled lewisia <i>(Lewisia longipetala)</i>	--	S	S2	1B.3	Restricted to subalpine & alpine slopes or basins with deep snow accumulations, above 8,200 feet.	No potential habitat
Saw-toothed lewisia <i>(Lewisia serrata)</i>	--	S	S2	1B.1	Restricted to steep, nearly vertical cliffs in inner gorges of perennial streams and rarely near seeps and intermittent streams. Grows between 2,800 and 4,800 feet in the American River watershed.	No potential habitat; occurs below site elevation range
Stebbins' lomatium <i>(Lomatium stebbinsii)</i>	--	--	S2	1B.1	Grows in lower montane coniferous forests, particularly from 4,000 to 8,000 feet.	Yes. Montane coniferous forests present.
Broad-nerved hump-moss <i>(Meesia uliginosa)</i>	--	S	S3	2B.2	Grows in permanently wet, primarily spring-fed meadows and fens in montane to subalpine coniferous forest from 4,200 to 9,200 feet.	Yes. Permanently wet, primarily spring-fed meadows present.

Common Name / Scientific Name	Status				Habitat Description	Potential Habitat within Project Area and Rational
	USFWS	Forest Service	State Rank	CNPS		
Elongate Copper Moss (<i>Mielichhoferia elongata</i>)	--	S	S4	4.3	Grows on metamorphic, sedimentary, limestone, and serpentine rock outcrops that often contain copper or other heavy metals and that are seasonally moist or less commonly on moist soil. ponderosa pine. Grows from sea level to 3,550 feet.	No potential habitat; occurs below site elevation range
Yellow bur navarretia (<i>Navarretia prolifera ssp. lutea</i>)	--	S	S3	4.3	Grows in openings in or adjacent to mixed conifer forest or cismontane woodland on rocky ridgelines, saddles, or eroding ephemeral drainages from 2,300 to 5,000 feet.	No potential habitat; occurs below site elevation range
Holzinger's orthotrichum moss (<i>Orthotrichum holzingeri</i>)	--	S	S2	1B.3	Grows on rocks both in and along streambanks, and occasionally on tree limbs. Occurs in montane coniferous forests and in pinyon and juniper woodlands from 2,000 to 6,000 feet.	No potential habitat; occurs below site elevation range
Adder's tongue (<i>Ophioglossum pusillum</i>)	--	S	S1	2B.2	Grows in moist habitat including wet meadows and roadside ditches.	Yes. Wet, meadows present.
Layne's ragwort (<i>Packera layneae</i>)	FT	T, S	S2	1B.2	Grows on rocky, gabbroic or serpentinitic soils in chaparral and cismontane woodland below 3,000 feet.	No potential habitat; occurs below site elevation range
Veined water lichen (<i>Peltigera gowardii</i>)	--	K	S3	4.2	Grows on rocks in cold, unpolluted spring-fed streams without marked seasonal fluctuation. Submerged most of year. Peak flows must not scour the rocks & gravels where this species attaches.	No potential habitat.
Stebbins' phacelia (<i>Phacelia stebbinsii</i>)	--	S	S3	1B.2	Grows on dry, open, rocky sites (bedrock outcrops, rubble or talus) on ledges or moderate to steep slopes and on damp, mossy inner gorges from 2,000 to 6,800 feet.	No potential habitat; occurs below site elevation range
Olive phaeocollybia (<i>Phaeocollybia olivacea</i>)	--	S			Conifer and hardwood forests where it grows in the humus layer. Logging disturbance, when present, is not intense (e.g. clear-cut or patch-cut).	No potential habitat.
Whitebark pine (<i>Pinus albicaulis</i>)	--	C, S		CBR	Whitebark pine typically occurs on cold and windy high elevation sites in western north America (7,000-12,000 feet).	No potential habitat.
Sierra blue grass (<i>Poa sierrae</i>)	--	S	S3	1B.3	Grows in lower montane coniferous forest on steep, shady, moist slopes from 1,200 feet to 3,800 feet.	No potential habitat; occurs below site elevation range
White-stemmed pondweed (<i>Potamogeton praelongus</i>)	--	--	S2	2B.3	Grows in deep water, and particularly lakes and ponds. Requires a wet environment. Occurs in water bodies from 5,800 to 10,000 feet.	No potential habitat.

Impact Discussion

The proposed project will use heavy equipment for placement of rock to construct 21 rock riffles and 95 linear feet (0.01 acres) of a roughened rock lined channel within Upper Onion Valley. Riffles would consist of fine material borrowed from the surrounding upland areas and coarser rock that would be from other Forest Service rock staging areas in the district. Large boulders will also be brought in to block access to Tyler Meadow from OHV use.

Sixty-two log weirs will be installed within the Project Area: eleven (11) log weirs will be installed at Tyler Meadow, twenty-five (25) log weirs will be installed at Upper Onion Valley, and twenty-six (26) log weirs will be installed at High Onion. Felled trees from cleared forest access routes or from within the meadows will be used for construction of the log weirs. Harvested trees would be hand felled, bucked, and limbed. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable, and not on saturated soil conditions. Construction will take place in late summer/fall, under low-flow conditions.

The project includes a revegetation component. Prior to final demobilization, access routes will be restored. Access routes through the meadow are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed as determined necessary by the ENF Botanist. Willow stakes will be planted next to stream channels and disturbed areas following construction to reduce immediate post project vulnerability to erosion. During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow sites, and other heavily disturbed areas as needed.

Forest access routes are to be ripped, seeded with native species approved by the ENF Botanist, and covered with coarse woody debris (eg. logs and slash). Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the Project Area to a depth not to exceed 30".

Terrestrial Wildlife Species Impacts

Based on review of habitat requirements for the above listed Threatened, Endangered, and Sensitive (TES) terrestrial species, several of the listed species would not be affected by the proposed project. The Project Area does not contain habitat for the bald eagle, California wolverine, Pacific fisher, Sierra Nevada red fox, and willow flycatcher, therefore, these species would not be directly, indirectly, or cumulatively impacted by the proposed project (reference Appendix B).

The Three Meadows Restoration Project would not affect the Pacific fisher because the Project Area does not occur within the known or suspected range of this species. The species is not known to be present on the Amador Ranger District.

The Three Meadows Restoration Project would not affect California wolverine, American bald eagle, or willow flycatcher because there is no suitable habitat within the Project Area.

The Three Meadows Restoration Project would not affect the Sierra Nevada red fox. The Sierra Nevada red fox is not known to occur in the Eldorado National Forest Systematic surveys from 1996-2002. The only known population is in Lassen National Park, with an additional detection in 2010 on the Humboldt-

Toiyabe National Forest (Sierra Nevada Red Fox Interagency Working Group 2010). California Wildlife Habitat Relationships (CWHR) range maps were also reviewed for the Project Area for this species. The project is outside of the mapped CWHR range for Sierra Nevada red fox and predicted habitat range by more than two miles.

The proposed project may affect/impact individuals of the following species, but is not likely to result in a trend toward federal listing or loss of viability:

California Spotted Owl, Northern Goshawk, and American Marten

Direct and Indirect Impacts

The proposed action would have minimal effect on suitable habitat for these species. The proposed action is to treat meadow habitat and restore meadow hydrology. Trees encroaching within the meadow and along the meadow edges will be removed for construction of log weirs and access roads, but overall impact to canopy closure or reduction in nesting trees would be minimal in the areas of suitable habitat surrounding the meadow sites. As habitat would not be altered, only disturbance impacts during implementation are likely to occur and will be analyzed further.

Disturbance impacts are similar for all three species. The project could disturb individuals of these species and may temporarily displace individuals, should they be active near project activities, primarily from equipment use and increased human activity. The Project Areas are not located within northern goshawk or spotted owl PACs and would only likely temporarily displace foraging individuals. Project design criteria provides the following protection:

- The USFS District Biologist will be on site during project construction and has the authority to adjust the project to protect TES species.
- Trees and snags will be retained when possible except for meadow encroaching trees, and those approved for use for livestock and OHV barriers.
- Retain all trees 30" dbh and greater, unless trees pose a safety risk, or are required to construct restoration structures that cannot utilize smaller diameter material.

Should disturbance to these species occur, disturbance is unlikely to affect more than one or two individuals, due to the small scale of the project, timing of the project, and the design features in place to reduce likelihood of impacts to reproduction. Should disturbance occur, during foraging or travel activities, the result could be temporary displacement of individuals. Impacts on reproduction and population numbers, or species viability would not be expected to occur for California spotted owl, northern goshawk, or marten.

Great Gray Owl

Direct and Indirect Impacts

Direct impacts to suitable foraging habitat may occur from the proposed restoration treatments with the stream channel and adjacent wet meadows (primarily installation of log weirs and rock riffles), but there is no nesting habitat within the Project Area. Approximately 12 acres of suitable foraging open meadow habitat would be directly affected by project activities. Revegetation of this area is expected to be rapid. Prey density is expected to increase post project, as the treated stream channel and surrounding vegetation responds to the increased water table and associated changes to vegetation.

Construction activities in the Project Area would occur under no flow or low flow conditions. This typically occurs between August 1 and October 30. This would result in project activities taking place toward the end, or after the nesting season for great gray owl (GGO). Noise disturbance resulting from the

equipment used in the restoration process would take place primarily in foraging habitat (meadow) away from potential nesting locations. This species foraging behavior would unlikely be affected, as much of the foraging for great GGO is nocturnal when project activities would not be taking place. If disturbance did occur, temporary displacement of individuals could occur, but would not be expected to affect reproduction, due to both time of year, and foraging time of day.

Pallid Bat

Direct and Indirect Impacts

Pallid bat tends to be both a roosting and foraging generalist. Suitable roost sites include a variety of features, such as large snags, oaks and rock crevices; suitable foraging occurs from grasslands to higher elevation coniferous forests. For this reason, all acres within the Project Area which are proposed for treatment are considered to be potentially suitable habitat for this species, although not necessarily high capability due to elevation and relatively wet forest/meadow conditions. Foraging habitat could be improved through implementation of the project, as meadow function improves after implementation; the restored meadow should increase insect diversity and quantities, which would make them available to pallid bats to forage on. If there are any short term impacts to foraging habitat, it is expected to be negligible, as the project would take place late in the season, after most insect populations have peaked, and the project would not impact all of the potential foraging habitat in the immediate area, allowing for foraging elsewhere in close proximity to project activities.

Foraging activity and foraging individuals would not be expected to experience disturbance from project activities, due to timing of foraging (night) not coinciding with the project activities (daytime). Disturbance could occur to day roosting bats where roosting location coincides with project activities. The amount of potential disturbance and effect on individuals is expected to be low, as the forest surrounding the meadow is not being altered, which is where roosting would be expected, and noise from work in the meadow would only be expected to minimally impact snags/tree roosts. This would reduce both the number of potential roosts impacted, and the number of bats that could be impacted. Due to the timing, should disturbance occur, it would be after the reproductive period for this species, and reproduction would not be impacted. Temporary displacement would be possible where roosting sites and project activities coincide. Due to the wide variety of roosting habitats used, this alternative would not be expected to have any long-term population effects on this species, as few individuals would likely be affected.

Future actions on National Forest lands are likely to be favorable to the species. Snags and oaks are retained where they exist under current Forest Plan direction, except where they pose a hazard, such as: recreational sites, administrative sites, and along roadways. Cumulative impacts to the pallid bat from activities on National Forest lands should therefore be quite limited. Due to the location of the project above common elevational range for the species, and the scale of the project (small acreage impacted), effects of the proposed action would not be of sufficient magnitude to greatly change cumulative effects for this species, the project would improve the quality of habitat for this species, but not change the amount of habitat available to this species.

Fringed myotis

Direct and Indirect Impacts

Fringed myotis are considered to be foraging generalists, but do seem to be tied to day-roost habitat associated with old forest conditions, especially large diameter snags. Fringed myotis often forage in meadows and along secondary streams, in fairly cluttered habitats. This project would have a minimal effect on potential roosting sites, large trees and snags in this case. Although trees will be removed at all three meadow sites for construction of log weirs, construction of temporary access roads, and along the

meadow edges, the number is minimal relative to the surrounding forest. Additionally, design criteria have been included within the project to minimize impacts to fringed myotis habitat.

The potential for disturbance to foraging bats would be unlikely from the proposed activities, as project activities would take place during daylight hours, when bat foraging activity is not occurring or is at a minimum (dusk/dawn). Disturbances from project activities are not likely to affect reproduction, and there is a low chance of individuals being affected, due to timing of activities in the year and the low likelihood of species being present in any numbers in the Project Area. Temporary displacement would be possible where roosting sites and project activities coincide. Due to the wide variety of roosting habitats used, this alternative would not be expected to have any long-term population effects on this species, as few individuals would likely be affected.

Townsend's big-eared bat

Direct and Indirect Impacts

Townsend's big-eared bats are associated with a variety of habitats including desert, native prairies, coniferous forests, mid-elevation mixed conifer, mixed hardwood-conifer forests, riparian communities, agricultural lands, and coastal habitats. This species has foraging associations with edge habitats along streams, which the project includes. For this reason, the entire Project Area is believed to provide suitable foraging habitat; however, no roosting habitat is known to occur in the Project Area and would not be affected by this project. Potential for disturbance to foraging bats would be unlikely from the proposed activities, as project activities would take place during daylight hours, when bat foraging activity is not occurring or is at a minimum (dusk/dawn). In the long term, foraging habitat within the Project Area would be enhanced by the proposed project. This project is very unlikely to result in any disturbance to foraging Townsend's big-eared bats and would not affect roosting bats or reproduction.

Western bumblebee and Morrison bumblebee

Direct and Indirect Impacts

Within the Project Area, the meadow habitat provides high quality foraging habitat, and the edge of the meadow and surrounding conifer stands provide nesting and overwintering habitat for this species. Western and Morrison bumblebees, if present in the Project Area, are believed to be in low numbers. Should either species be present, the timing of the project is after the bee population peak, most of the plant flowering has completed, and only queens would be expected to be in the meadow in any number at that time. The short term, likely single season impacts to foraging habitat quality and availability, and temporary displacement to individual bees from disturbance, would not be expected to affect reproduction, or local populations of this species. Longer term, in seasons following implementation, the project would increase both habitat quality and quantity for this species and may prolong the availability of the habitat as the meadow condition improves.

Aquatic Species

The following federally and state listed aquatic species and Critical Habitat were considered for effects from this proposal:

- Yosemite toad (*Anaxyrus canorus*, Threatened)
- Sierra Nevada yellow-legged frog (*Rana sierrae*; Endangered)
- Sierra Nevada yellow-legged frog Designated Critical Habitat,
- Delta smelt (*Hypomesus transpacificus*; Threatened)
- Southern long-toed salamander (*Ambystoma macrodactylum sigillatum*)

The project will have no effect on the following special status aquatic species: Yosemite toad or delta smelt. The Project Area is located within Yosemite Toad habitat distribution but does not contain suitable

habitat. The nearest occurrence to the Project Area is 10.7 miles east of High Onion Valley at Wheeler Lake. Designated critical habitat is located approximately 3.0 miles to the east. No impacts to individuals or Yosemite Toad suitable habitat are expected.

There are no populations of delta smelt known to occur on the Eldorado National Forest land. The Project Area is outside of the species habitat range and there is no suitable habitat within the Project Area.; therefore, there would be no effects to this species from the project. No impacts to individuals or Delta smelt suitable habitat are expected.

Sierra Nevada Yellow Legged (SNYLF)

Direct and Indirect Impacts

The Project Area is located within the elevation range of suitable habitat and designated critical habitat for the Sierra Nevada yellow-legged frog (*Rana sierrae*). Three Meadows Restoration proposed actions contains approximately 27 acres of suitable/Critical Habitat wet meadow habitat with a 25m buffer that includes 6,765 linear feet of intermittent stream habitat. Recent surveys (2019) did not detect any species in the Project Area; however, a previous survey of Upper Onion Valley in 1997 detected one adult SNYLF.

Short-term impacts from construction activities could include localized increases in turbidity and minor scale ground disturbance to designated Critical Habitat. Of the 27 acres of Critical Habitat for SNYLF within the project boundary, including 6,765 linear feet of intermittent stream, approximately 1.95 acres (7.2%) would be directly impacted by project activities resulting in short term adverse effects. However, the project is proposed to be completed under no-flow conditions in late summer and fall and would minimize any increase in local turbidity. Upon completion, the installation of in-channel rock riffles and log weirs is a restorative action, and should result in flow velocity reduction, bank stabilization and subsequently reduce the potential for future erosion, incision and sedimentation. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of SNYLF habitat. Short term direct and indirect impacts to acres of suitable and critical habitat are minimal compared to the positive long-term indirect impacts to 27 acres through improvement of hydrologic functions within the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. For these reasons, it was determined that the Three Meadows Restoration Project may affect but is not likely to adversely affect the designated Critical Habitat of the SNYLF.

Mechanical operations within suitable habitat may cause a risk to SNYLF through disturbance, injury or mortality (e.g., crushing from equipment) in the short-term. There is potential for SNYLF individuals to be crushed or injured by the excavator driving through the meadow. If present, disturbance from work activities may flush any frogs from the in-stream construction site, either downstream or into cover away from activities, reducing the likelihood of mortality. Direct effects to individuals would be short-term, occurring during operations when equipment and personnel are in close proximity and within suitable habitat; however, likelihood of injury or take is relatively low as recent surveys (2019) found no detections of SNYLF within any of the three meadows and construction would occur under dry conditions when SNYLF are not likely to be present. For these reasons, it was determined that project implementation would result in less than significant impacts to this species.

Southern long-toed salamander (SLTS)

Direct and Indirect Impacts

Although no focused surveys were conducted for SLTS, the species is typically detected during surveys for SNYLF. The Project Area was surveyed in 2019, and no adult or larval SLTS were detected within

the Project Area (Chow, 2020a). If individuals of SLTS are present, they are likely in low numbers. There would be no potential for crushing or trampling of breeding adults because construction activities would occur during the fall low flow period. Potential direct effects to SLTS could result from construction disturbance of subterranean adults. There is the potential to dig up subterranean adults while construction instream weirs and riffles; however, due to the low likelihood of occupancy, overall impacts from project implementation to this species would be less than significant.

Botanical Species and Sensitive Communities

Direct and Indirect Impacts

Based on the Three Meadows Botanical BE/BA (Brown, 2020, Appendix E), there are no Threatened, Endangered, or Sensitive (TES) species known from the Project Area, so direct and indirect effects are not expected. The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants was queried on January 16, 2020 to identify additional rare plants in the Three Meadows Restoration Project Area that may not have been addressed in the Botanical BE/BA. A total of 11 species have documented records in the Bear River Reservoir (Table 2). A review of the Botanical BE/BA indicates that all species have been addressed in the Botanical BE/BA and no further analysis is required (Brown 2020).

The Three Meadows Project Area has been previously surveyed for special status plant species in 2015, 2017 and 2019. Although past surveys of the meadow areas were completed, it is always possible for a special status plants to be overlooked. If this were the case, undetected individuals could be crushed, uprooted, or destroyed during the construction of rock riffles, roughened channel, placement of log weirs, and creation of temporary access routes placed within the wet meadows and across stream channels. Additionally, any undetected special status plant species occurring in the meadow could be impacted following project implementation by altered microsite and hydrologic condition. Project design criteria will minimize the potential impacts to plant species habitat by restoring meadow access routes to preconstruction site conditions, and final location of log weirs and rock riffles will be field fit to avoid special status plant species to the extent practicable. The objective of the in-stream modifications is to restore the natural hydrology of the meadow and is expected to be beneficial to many ENF Sensitive and CA state special status species by increasing suitable habitat.

If any new special status plant species are discovered prior to project implementation, these populations would be protected from project activities. Any new occurrences of special status plant species identified within the Project Area would be flagged and avoided to the extent practical. The Forest botanist will be consulted on appropriate avoidance and minimization measures for Sensitive plants.

Soil disturbances can provide opportunities for the introduction and proliferation of invasive species. These species have the potential to quickly outcompete native plants, including Sensitive plants for sunlight, water, and nutrients. These species can also form dense monocultures which can alter habitat for special status plant species. Seeds of these species can be carried into special status plant species areas on equipment, vehicles, and on workers' boots and clothing. The magnitude of this impact is difficult to predict since it is contingent on the introduction of a noxious weed species into an area, an event which may or may not occur. Currently the Three Meadows Project Area is free of ENF priority listed invasive species and State listed noxious weed species. To minimize the potential for invasive establishment, project design criteria requires all off-road equipment be cleaned to ensure it is free of soil, seeds, vegetative matter or other debris that could contain seeds before entering the Project Area.

The proposed project will impact wetlands, a sensitive natural community identified within the Amador County General Plan. A formal wetland delineation in accordance with US Army Corps of Engineers (USACE) standards has been completed and will be submitted for verification. The purpose of the

proposed project is to improve hydrologic functions of the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of flora and fauna and downstream users by reducing downstream flood peaks. The proposed project would halt the encroachment of upland plant species, particularly lodgepole pine, while increasing the extent and quality of wet meadow and riparian vegetation. The proposed project is authorized under Nationwide Permit 27 for Aquatic Habitat Restoration, Establishment and Enhancement Activities, and the ENF Service will submit a Preconstruction Notification to the USACE for verification. The ENF will also submit an application for certification from the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA.

Mitigation Measures:

Terrestrial Wildlife

- 4a.** The USFS District Biologist will be on site during project construction and has the authority to adjust the project to protect Threatened, Endangered and Sensitive species.
- 4b.** Trees and snags will be retained when possible with the exception of meadow encroaching trees, and those approved for use for livestock and OHV barriers.
- 4c.** Retain all trees 30” diameter at breast height (dbh) and greater, unless trees pose a safety risk, or are required to construct restoration structures that cannot utilize smaller diameter material.

Aquatic Wildlife

- 4d.** Project activities will conform to conservation measures and terms and conditions requirements as stated by the USFWS 12/19/2014 Programmatic Biological Opinion. Further instruction by the USFWS will be obtained through the consultation process.
- 4e.** If the SNYLF are found within the Project Area during project implementation, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in the 2014 Programmatic Biological Opinion issued by the USFWS.
- 4f.** Visual encounter surveys for SNYLF will be conducted by a Forest Service approved wildlife or aquatic biologist within 24 hours of any work proposed.
- 4g.** A Forest Service approved screen-covered drafting box, or other device to create a low entry velocity, would be used while drafting or dewatering to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles from aquatic habitats. In perennial and intermittent streams, pump intake screens shall have openings not exceeding 3/32-inch (approximately 1/10 inch) and be sized according to the pump intake capacity. Place hose intake into bucket in the deepest part of the pool. Use a low-velocity water pump and do not pump natural ponds to low levels beyond which they cannot recover quickly (approximately one hour).
- 4h.** The development of water drafting sources shall follow all applicable guidelines under BMP 2.5 (USFS 2012). Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat.
- 4i.** In-channel water drafting locations would include rocking of approaches and barriers of rock or sloping of drafting pads away from water source to prevent spillage at vehicle from returning to the watercourse.
- 4j.** Tightly woven fiber netting, plastic mono-filament netting, or similar material will not be used for erosion control or other purposes in suitable SNYLF habitat.

Botanical Resources

Management of botanical resources, special habitats, and noxious weeds would follow the standards and guidelines in the Sierra Nevada Forest Amendment Record of Decision (SNFPA ROD 2004). Specific design criteria and protection measures for the project include:

4k. Any new occurrences of sensitive plants identified within the Project Area would be flagged and avoided to the extent practical. The Forest botanist will be consulted on appropriate avoidance and minimization measures for sensitive plants.

4l. A Forest Service watchlist species, *Botrychium simplex*, occurs within the Project Area. Under the supervision of the District Botanist all known occurrences will be flagged and avoided to the extent practicable during project implementation. Should any new threatened, endangered, sensitive (TES) or watchlist species be located during the proposed project, available steps will be taken to evaluate and mitigate effects.

4m. All off-road equipment would be cleaned to ensure it is free of soil, seeds, vegetative matter or other debris that could contain seeds before entering the Project Area.

4n. Infestations of invasive plants that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest botanist.

4o. Rock for riffle construction would be weed free. On site sand, gravel, rock, or organic matter would be used where possible or from documented weed free sources.

4p. Any seed used for restoration or erosion control would be from a locally collected source (ENF, Seed, Mulch and Fertilizer Prescription, 2000).

4q. All temporarily disturbed areas will be revegetated and monitored for three years following project completion for the presence of noxious weeds.

5. Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

On September 17 and 28, 2019 a Class III reconnaissance of the Three Meadows Restoration' Project Area was completed to comply with Forest Service policies and Section 106 of the National Historic Preservation Act. Inventory coverage methods followed USDA Forest Service guidelines for archaeological inventory, as outlined in the *Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer (USDA-SHPO PA 2011)*.

A total of two historical and/or archaeological sites, as well as a historic two-track road, were identified within the Area of Potential Effects (APE). The two identified sites are located at the margins of High Onion and Upper Onion Meadow and will be avoided during project activities. This specific area where the project is located was historically the site of vegetal grinding or milling stations. As such, the artifacts found at these sites have to do with such historical practices. The two-track road (Forest Service Road 08N03) is still in regular use and was used to access all three survey parcels.

No paleontological resources or unique geologic features were recorded within the survey areas.

Impact Discussion

The USFS Archeologist has determined that implementation of the Three Meadows Restoration Project will avoid all documented cultural and archeological resources within the APE. However, this does not fully eliminate the chance of discovering unrecorded sites or subsurface remains within the project boundary. If project ground disturbance should expose a cultural deposit, disturbance activities will be suspended until a qualified archaeologist can examine the area, evaluate the material, and adequate protection measures are incorporated. In the event that human remains are uncovered during project activity, project managers must stop work and contact Eldorado National Forest. Existing law requires that the County coroner be contacted as well. If the remains are determined to be of Native American origin, both the Native American Heritage Commission and any identified descendants shall be notified (Health and Safety Code 7050.5, Public Resources Code Section 5097.94 and 5097.98).

Mitigation Measures:

- 5a.** Heritage resources would be avoided. Known historic properties will be flagged with a buffer of at least ten meters for avoidance prior to project implementation. No ground disturbing activities will occur within the flagged area. The flagging will be removed post-project implementation.
- 5b.** Buffer zones may be established to ensure added protection if determined necessary by the Forest Service District Archeologist. The use of buffer zones in avoidance measures may be applicable where heavy equipment is used in proximity to historic properties.
- 5c.** The only access roads to the Project Area will be those shown by the plan set to reduce impacts to previously undiscovered cultural sites.
- 5d.** If articulated or disarticulated human remains are discovered during ground disturbing construction activities or ground disturbing activities, all work shall cease within 100 feet of the find and all ground disturbing activities shall not resume until the requirements of Health and Safety Code section 7050.5 and, if applicable, Public Resources Code 5097.98 are met.

6. Energy

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Three Meadows Project is located within a natural setting, part of and surrounded by forest lands administered by the Eldorado National Forest, Amador Ranger District. No electrical services are located within the Project Area. Energy consumption in the Project Area is limited to fuel use associated with dispersed recreation (e.g., vehicles traveling to/through Project Area, snowmobiles, etc.)

The Amador County Energy Action Plan was adopted on May 26, 2015. The purpose of the plan is to guide the County in expanding energy-efficiency and renewable energy, as well as the associated cost-saving from these efforts.

Impact Discussion

The Project is a restoration activity that would not create an additional source of energy demand that would result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. Energy consumption would occur temporarily during project construction through the operation of heavy equipment for grading and fill activities. There would be no unusual equipment operation that would result in energy consumption that is wasteful, inefficient, or unnecessary during project construction. All equipment will be provided through equipment contractors and rental fleets, which are required to meet California Air Resources Board (emissions) standards for diesel equipment. Further, each piece of equipment has a dedicated function during construction—e.g., excavating, placing rock, transplanting vegetation or scarifying completed surfaces for seed planting. All equipment not actively in use will be required to be turned off.

Mitigation Measures: No mitigation required.

7. *Geology and Soils*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Three Meadows Project area is located within the North Fork Mokelumne River Watershed. The Project Area is not located along or near an earthquake fault delineated on the Alquist-Priolo Earthquake Fault Zoning map, nor does it occur on a geologic unit or soil that is unstable or would become unstable as a result of the proposed activities.

The Project Area lies within the Sierra Nevada geomorphic province with outcrops of Mesozoic age granitic rocks (Norris and Webb, 1990). All rock units are of igneous origin and have no potential to contain paleontological resources (SVP 2010).

A Custom Soil Resource Report for Three Meadows and the surrounding area was obtained from the USDA Natural Resource Conservation Service Web Soil Survey application (NRCS 2019). The main

meadow portion of the High Onion meadow is Andic Cryumbrepts-Lithic Cryumbrepts association, 15 to 50 percent slopes sandy loam and Xerumbrepts-Cryumbrepts, wet association, 5 to 50 percent slopes sandy loam. The main portion of the Upper Onion meadow is Aquepts, Umbrepts and 0 to 15 percent slopes soils sandy loam. The Tyler Meadow is Xerumbrepts-Cryumbrepts, wet association, 5 to 50 percent slopes sandy loam. None of these soils are classified as susceptible to erosion.

Impact Discussion

None of the soils in the Project Area are susceptible to erosion and the project would not result in erosion or loss of topsoil. The objective of the project is to restore floodplain function and reduce ongoing soil erosion from the incised channel and expanding gullies.

Restoring floodplain function would have a long-term beneficial effect on soils by reducing erosion, increasing the frequency of floodplain sediment deposition, and retaining moisture. Prior to the establishment of vegetation, there is a short-term potential for negative impacts from soil erosion on newly disturbed areas, in the event of significant storms. The design criteria/mitigation measures described below are designed to ensure that soil resources remain on-site.

Mitigation Measures:

Mitigation measures have been developed under consultation with soil scientists and engineers as an integral component of the meadow restoration project.

7a. Standard best management practices will be employed to protect soil resources and have been developed under consultation with soil scientists and engineers as an integral component of meadow floodplain restoration. These mitigation measures have been monitored and refined based on previous projects of this type.

7b. The installations will be sequenced beginning with the downstream structures and moving in the upstream direction. This will allow the downstream structures to functionally capture the sediment caused by bank and bed disturbance for the upstream structures.

7c. Access routes would be field fit to minimize impacts to the meadow caused by potential tree felling, removal of stumps, and light grading. Where access routes cross a stream channel, temporary bridge crossings, such as corduroy road or marsh mats would be used. Each crossing would be monitored to ensure they function to limit significant disturbance to the bed and banks of the channel and remedial actions will be taken to address any deficiencies. Following construction, the logs would be removed from the crossing and placed as slash along the temporary access roads.

7d. Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, access routes would be restored such as ripping, seeding, and placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions.

7e. The project will require revegetation. Access routes are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed as determined necessary.

Revegetation will consist of the following measures:

- During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow pits, and other heavily disturbed areas.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation of seeded area would have at least 50% cover of native vegetation. Any areas that do not meet the survival or cover criteria would be reseeded.
- Erosion control would be accomplished using locally collected materials (wood chips, duff, pine needles, etc.). Straw would not be used.

8. Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is located within a natural setting in the Eldorado National Forest. On-going greenhouse gas (GHG) emissions in this area are from normal ecosystem function, emissions from nearby vehicular traffic on State Highway 88, and emissions from vehicles engaged in dispersed recreation. Intermittent sources of GHG emissions occur from forest management activities and wildfire.

The Project Area is a series of meadow ecosystems in a degraded state, with incised (downcut) channels that have resulted in a loss of floodplain connectivity and drying of the meadows. Carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄) are GHGs associated with meadows, and fluxes in the emission of these GHGs can be dependent on soil moisture content (Blankinship and Hart 2014). Functional meadows are considered to be net reservoirs for greenhouse gases; however, there are a number of active research projects across the state that are attempting to quantify the net flux of GHGs in restored and degraded meadows. Currently, there is a statewide effort to restore wetlands and mountain meadows as a climate change adaptation strategy through increased carbon sequestration that includes quantitative research on GHG fluxes (CDFW 2017).

Impact Discussion

The proposed project would restore the hydrologic function of High Onion Meadow, Upper Onion Valley, and Tyler Meadow which is expected to provide a long-term reduction in GHG emissions from the Project Area, although with current data gaps it is not possible to accurately quantify this benefit. Construction of the project would generate temporary and one-time GHG emissions by on-site construction equipment and travel to the work site during the proposed one-month construction period. The GHGs emitted during construction would come from diesel fuel combustion from off-road construction equipment and diesel or gasoline combustion from on-road vehicles. The primary GHG generated from these processes would be carbon dioxide (CO₂), with smaller amounts of emissions of methane (CH₄) and nitrous oxide (N₂O). Construction emissions would permanently cease at the end of the project. Over the long-term, these temporary emissions would be offset by the restoration of meadow hydrology and re-establishment of meadow vegetation. Thus, while the project would have an incremental, short-term, and one-time contribution to GHG emissions within the context of the county and region, the individual impact is considered less than significant.

The proposed project would not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases.

Mitigation Measure: No mitigation required.

9. Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Project Area is located within a natural setting. There are no known hazards, nor hazardous materials, in the Project Area. Above ground forest ecosystem carbon density is greater than 200 Mg/ha (USFS Forest Inventory and Analysis 2012) and wildland fire potential is high (USFS Fire Modeling Institute 2012) for the meadow and surrounding landscape (Dudek, 2019).

Impact Discussion

There are no hazardous materials that will be transported or disposed of as part of this project. There is no risk of accidental release of hazardous substances associated with this project, other than those normally associated with use of any equipment with an internal combustion engine. The heavy equipment used to construct the project will be fueled with diesel fuel. Re-fueling and equipment maintenance will be conducted outside of the riparian areas, and hazardous material cleanup supplies will be kept onsite during construction in the event of an accidental spill or leak. In addition, contracting specifications will ensure equipment is in good working condition prior to mobilization to the Project Area.

Mitigation Measure:

9a. Equipment will be re-fueled and serviced at the designated staging area located within uplands and outside of the meadow. No fuel will be stored on-site. In the event of an accidental spill, hazmat materials for quick on-site clean-up will be kept at the project sites during all construction activities, and in each piece of equipment.

10. Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

The discussion provided in this section is summarized from the Hydrology Report for the Three Meadows Restoration Project, provided in Appendix H.

The Three Meadows Project area is described in Table 6.

Table 6. Three Meadows Project Area Hydrology and Watershed Summary

Area	Meadow acreage	Watershed acreage	Elev. (feet)	Meadow Description	Drainage Description	Watershed Description
Upper Onion Valley	7	450	7,480	Meadow hosts one main drainage and several springs which coalesce in channels toward the southeastern end.	One main drainage on the western side of the meadow has several head cuts. Several small drainages begin within the meadow.	The perennial Riparian Conservation Area (RCA) drainage from this meadow flows approximately two miles downstream to Cole Creek which is tributary to the N. F. Mokelumne River.
High Onion Meadow	3	30	8,000	Meadow hosts several springs which coalesce in channels toward the southern end.	One main drainage traverses the southeastern boarder of the meadow. Several drainages begin within the meadow with head cuts.	This meadow is at the drainage headwaters and the perennial RCA drainage feeds into Upper Onion approximately one mile downstream.
Tyler Meadow	2	60	6,800	Wet meadow with low areas. Spring area on the west side of the meadow.	Seasonal channel above meadow. No discernable channel through meadow. Meadow outlet is at bedrock and boulders	Meadow is fed by an ephemeral RCA and is tributary to Bear River Reservoir via an 0.5 mile ephemeral drainage. The reservoir feeds Bear River which is tributary to the N.F. Mokelumne River

Impact Discussion

The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. The project, once complete should improve water quality by reducing erosion. There may be some short duration increase in sediment immediately following construction, but the Project Design Criteria incorporated would minimize the potential for impacts to water quality.

The project design should retain water on the meadows longer, and thus improve infiltration to groundwater. The rate of runoff would decrease as a result of the project. There will be no reduction in groundwater or groundwater recharge.

The existing drainage patterns of the sites will not be altered. There are no impervious surfaces as a part of the project. No flood flows would be impeded. The Design Criteria incorporated into the project would eliminate any potential for impacts to water quality.

Coverage under two permits will ensure that water quality standards are protected. The project will need to obtain a Clean Water Act Section 404 permit from the US Army Corps of Engineers and a Section 401 Water Quality Certification from the Central Valley Regional Water Quality Control Board.

Although the permit has not yet been obtained, 404 permits for meadow restoration projects typically limit the total area of ground disturbance and contain requirements for erosion control. The project will also be required to obtain. Although this permit has not yet been obtained, 401 permits for meadow restoration projects typically require water quality monitoring and measures to ensure that water quality standards are met. Design Criteria are described below. Additional measures are described in the section entitled Geology and Soils.

Mitigation Measures:

Construction activities within the Project Area would occur during the time of year when flows are at the lowest within the streams and adjacent meadows. This typically occurs between August 1 and October 30th but is dependent on the previous season snowpack. Required permits would be obtained, including the 404 permit from the U.S. Army Corps of Engineers and a 401 Water Quality Certification from the Central Valley Regional Water Board. Watershed mitigation measures also would include the use of Best Management Practices (BMPs) to protect water quality as described in the *National Best Management Practices for Water Quality Management on National Forest System Lands* (USDA Forest Service 2012) and the California Stormwater Quality Association's *Stormwater Best Management Practice Handbook* (CASQA 2015).

10a. Materials and equipment will be staged within designated staging area within existing primitive campgrounds and parking areas. The downslope perimeter of staging areas and material stockpile areas will be contained with silt fence.

10b. The meadows and streams would be avoided to the extent feasible by using existing roads and staging areas.

10c. Where streams and meadows cannot be avoided, corduroy stream crossings consisting of logs placed within the channel and up onto the banks parallel to the flowline of the channel will provide a conformable surface for the constructed equipment to drive across without impacting the channel. Each of the crossings would be monitored to ensure that they are functioning. Remedial actions to address any deficiencies includes adding additional logs as necessary, depending on the number of

times the crossing is used. Following construction, the logs would be removed from the crossing and placed as slash along the temporary forest access routes.

10d. Marsh mats will be used to protect the meadow from excessive disturbance and rutting from heavy equipment on the meadow access areas. The mats would consist of slash material from the salvaged trees, layered to a depth of 1 to 1.5 feet, and be a minimum of 15 feet wide to accommodate the construction. Marsh mats will be periodically inspected to determine if additional material should be added to provide continuous protection to the meadow. The mats would be removed from the meadow and placed as slash along the temporary forest access roads.

10e. Low impact construction equipment would be used as described in the technical specifications and will provide limits on the size and type of equipment that can be used in the meadow. Only rubber tracked/tired low ground pressure equipment would be used for installation of the log weirs. Larger equipment may be necessary to construct the roughened channel and the location would be accessed via the temporary forest route through uplands with only a single, short traverse across the meadow at the northern end of the project site.

11. Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project site is on lands administered by the USDA-Forest Service, Eldorado National Forest and is used primarily for dispersed recreation (e.g., fishing, hunting, camping, and occasional winter use). The Project Area is also grazed and will continue to be in an active grazing allotment for the foreseeable future. Timber harvest, fuel reduction projects, and management have and will continue to take place adjacent to and in the vicinity of the meadows.

Impact Discussion

There are no other known plans for the Project Area. There is no established community in, or close, to the project sites. There would be no permanent, direct impacts to land use and planning under the proposed project.

Temporary impacts to grazing may occur from construction activities if the timing of project implementation conflicts with the permittee's grazing permit period of use. However, the project implementation is anticipated to occur in late summer to fall when cattle would likely be gone from the meadow. Because the proposed project results in minor ground disturbance, grazing is unlikely to be impacted post construction. However, if determined necessary by the ENF Botanist, grazing may be removed from the meadows temporarily post construction in order to allow the newly planted vegetation to become established.

Mitigation Measure: No mitigation required.

12. Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Project Area is outside of the important mineral resource areas mapped in the 2009 Amador County General Plan, and there are no other mineral resources in the Project Area.

Impact Discussion

There are no mineral resources in the Project Area, therefore, there would be no impact to mineral resources under the proposed project.

Mitigation Measure: No mitigation required.

13. Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is within a natural landscape, with noise coming from natural sources (e.g., bird song) and vehicles passing on nearby USFS roads. The project is over two miles from the nearest campground or paved road. There are no noise-sensitive areas (e.g., residences, schools, hospitals, rest homes, long-term medical or mental care facilities, and other uses deemed noise-sensitive by the local jurisdiction, such as libraries or places of worship) located near the Project Area.

The Amador County General Plan Noise Element sets goals and policies for noise and land use planning. The County has developed land use compatibility standards rating compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. Using these land use compatibility guidelines, the County has established interior and exterior noise standards (Amador County 2016).

Impact Discussion

The restoration project will require construction with heavy equipment, which will create temporary noise for approximately four to five weeks. Construction activities will be conducted in the late summer/early fall during daylight hours of the work week. The project will not create generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance.

The project will not generate excessive groundborne vibration or groundborne noise levels.

The Project Area is not located within the vicinity of a private airstrip

Mitigation Measure: No mitigation required.

14. Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The Project Area is located within a natural setting on the Eldorado National Forest. There is no housing near the project site. The Three Meadows Restoration Project is located within a remote location, and would not cause direct or indirect population growth, nor would it displace existing housing or people.

Mitigation Measure: No mitigation required.

15. Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

No public services are available in the area. The project is a restoration project located within a natural forested setting and would not affect populations or public services.

Mitigation Measure: No mitigation required.

16. Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The project is located on public land within Eldorado National Forest and is occasionally used for dispersed recreation such as hunting, camping, and OHV touring. The meadows are accessible by foot, with FS 08N03 and 08N03FW as the nearest roads. The project does not include recreational facilities, nor would it lead to a need for recreational facilities. The project is not expected to increase recreational use of the area, because the primary character of the area, open meadow, would not change.

Mitigation Measure: No mitigation required.

17. Transportation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The surrounding area is occasionally used for dispersed recreation such as hunting, camping, and OHV touring. The meadow is accessible by foot, with FS 08N03 and 08N03FW as the nearest roads, which are not primary routes to any destination. The project would not affect the existing capacity of the transportation system near the Three Meadows. The project would not change the nature of travel in the area, and therefore would not increase hazardous conditions, nor affect emergency access. There are no alternative transportation plans that affect the Project Area because of its natural setting and low use.

Mitigation Measure: No mitigation required.

18. Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

On September 17 and 28, 2019 a Class III reconnaissance of the Three Meadows Restoration Project Area was completed to comply with Forest Service policies and Section 106 of the National Historic Preservation Act. Inventory coverage methods followed USDA Forest Service guidelines for archaeological inventory, as outlined in the *Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer (USDA-SHPO PA 2011)*. Evaluation of tribal cultural resources based on previous historical/archaeological inventories is provided in Section 5 of this checklist (Cultural Resources).

A total of two historical and/or archaeological sites, as well as a historic two-track road, were identified within the APE. The two identified sites are located at the margins of High Onion and Upper Onion Meadow and will be avoided during project activities. The USFS Archeologist has determined that design criteria included in the Three Meadows Restoration Project design will avoid all documented cultural and archeological resources within the APE. See list of mitigation measures listed in Section 5.

On July 18, 2019 the Eldorado National Forest, Amador Ranger District Archeologist sent a letter requesting consultation to a local list of Native American individuals/ organizations that may have knowledge of local cultural resources to solicit tribal input on the project. The list of Native American individuals/organizations contacted includes:

- Wilton Rancheria
- Washoe Tribe of Nevada and California
- United Auburn Indian Community
- Shingle Springs Rancheria
- Jackson Rancheria
- Ione Band of Miwok Indians
- Buena Vista Rancheria of Me-wuk Indians

As of March 2020, there has been no response to the ENF Amador Ranger District Archeologist from any of the Tribal contacts. Tribal consultation with the Forest Service will be on-going throughout the duration of the project. Interested Tribes will be kept informed of the project stages and implementation as the project progresses.

Pursuant to California Assembly Bill 52 (AB 52), on February 22, 2020 the Amador Resource Conservation District, Lead CEQA Agency, contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands file for information on Native American cultural resources in the study area and to request a list of Native American contacts in the vicinity of the project site. In the response letter dated March 03, 2020, the NAHC reported that there were no known Sacred Sites in the Project Area or immediate vicinity and the following tribes had requested to be notified:

- Buena Vista Rancheria of Me-wuk Indians
- United Auburn Indian Community of the Auburn Rancheria
- Calaveras Band of Mi-Wuk Indians
- Washoe Tribe of Nevada and California
- Ione Band of Miwok Indians
- Jackson Rancheria Band of Miwuk Indians

On March 9, 2020 ARCD contacted each of the above listed tribes. Pursuant to AB 52, once notified tribes are allowed up to 30 days to request consultation on the project. As of March 24, 2020, there has been no request for consultation has been received. With the exception of the Ione Band of Miwok Indians, the ENF Amador Ranger District Archeologist had been previously contacted each of these tribes in July 2019.

Mitigation Measures: See Section 5

19. Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting and Impact Discussion

The Project Area is within a natural setting with no utilities or service systems. The project is a restoration project that will not affect utilities and service systems.

Mitigation Measure: No mitigation required.

20. Wildfire

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted energy response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project is located within the Federal Fire Protection Responsibility area (FFRA). The meadow is dominated with healthy riparian vegetation but has been impacted by past and present management activities including grazing and fire exclusion. The meadow's adjacent forested stand consists of high-

elevation fir/pine type forest growing on a low to moderately productive site. Above ground forest ecosystem carbon density is greater than 200 Mg/ha (USFS Forest Inventory and Analysis 2012) and wildland fire potential is high (USFS Fire Modeling Institute 2012) for the meadow and surrounding landscape (Dudek, 2019). The stands complexity and contribution to late successional forest function is ranked 3 out of 5 for having retained significant numbers of large trees and snags but lacking the parklike structure often produced by frequent low-intensity fire (Sierra Nevada Ecosystem Project, Final Report to Congress; Late Successional Old-Growth Forest Conditions, University of California; SNEP Science Team and Special Consultants, 1996).

Impact Discussion

The project is a restoration activity that would not result in land use changes that would affect an emergency response or emergency evacuation plan. The project would not require installation of infrastructure that would exacerbate fire risk and would not result in downstream flooding or landslide risk due to post-fire slope instability or drainage changes.

The purpose of the project is to improve hydrologic functions of the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of flora and fauna and downstream users by reducing downstream flood peaks. Post construction, the increase in site hydrology and prolonged inundation would likely decrease the site risk of wildfire.

Mitigation Measures:

20a. While the Project Area is located within a meadow and outside of identified very fire hazard severity zones, portions of the meadow are expected to be dry, with a risk for wildfire associated with the use of any internal combustion engine. A trash pump and/or water truck will be on site to assist with vegetation transplants and dust control, as well as to reduce the risk of wildfire.

21. Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Impact Discussion

Overall, implementation of this restoration project is expected to have a long-term, beneficial impact to the environment, improving wildlife habitat, wetland plant communities, and water quality. There would be no cumulative significant impacts caused or created by construction of the restoration project that would degrade existing natural resources, adversely affect human beings, or have an incremental negative effect in connection with past, current or foreseeable future projects. Best management practices, standard operating procedures, and project-specific mitigation measures described in this initial study would ensure that resources are protected and impacts under the proposed project would be less than significant.

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Mitigation Measures and Design Criteria

Monitoring and Reporting Program Summary for the Three Meadows Restoration Project

This sheet summarizes the mitigation measures, design criteria and best management practices discussed under each section of the Initial Study checklist. Some of the measures are redundant because they protect more than one resource.

Mitigation Measures and Design Criteria

Air Quality

- 3a.** Water and/or approved chemicals would be applied to Forest Service road surfaces and temporary access roads to suppress dust and to maintain a stabilized surface.
- 3b.** Vegetation and other barriers will be used to contain and to reduce fugitive emissions.
- 3c.** Reasonable vehicle speeds will be maintained while driving on unpaved roads in order to minimize fugitive dust emissions.

Biological Resources

Terrestrial Wildlife

- 4a.** The USFS District Biologist will be on site during project construction and has the authority to adjust the project to protect Threatened, Endangered and Sensitive species.
- 4b.** Trees and snags will be retained when possible with the exception of meadow encroaching trees, and those approved for use for livestock and OHV barriers.
- 4c.** Retain all trees 30” diameter at breast height (dbh) and greater, unless trees pose a safety risk, or are required to construct restoration structures that cannot utilize smaller diameter material.

Aquatic Wildlife

- 4d.** Project activities will conform to conservation measures and terms and conditions requirements as stated by the USFWS 12/19/2014 Programmatic Biological Opinion. Further instruction by the USFWS will be obtained through the consultation process.
- 4e.** If the Sierra Nevada yellow-legged frog (SNYLF) are found within the Project Area during project implementation, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in the 2014 Programmatic Biological Opinion issued by the USFWS.
- 4f.** Visual encounter surveys for SNYLF will be conducted by a Forest Service approved wildlife or aquatic biologist within 24 hours of any work proposed.
- 4g.** A Forest Service approved screen-covered drafting box, or other device to create a low entry velocity, would be used while drafting or dewatering to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. In perennial and intermittent streams, pump intake screens shall have openings not exceeding 3/32-inch (approximately 1/10 inch) and be sized according to the pump intake capacity. Place hose intake into bucket in the deepest part of the pool. Use a low-velocity water pump and do not pump natural ponds to low levels beyond which they cannot recover quickly (approximately one hour).

4h. The development of water drafting sources shall follow all applicable guidelines under BMP 2.5 (USFS 2012). Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat.

4i. In-channel water drafting locations would include rocking of approaches and barriers of rock or sloping of drafting pads away from water source to prevent spillage at vehicle from returning to the watercourse.

4j. Tightly woven fiber netting, plastic mono-filament netting, or similar material will not be used for erosion control or other purposes in suitable SNYLF habitat.

Botanical Resources

Management of botanical resources, special habitats, and noxious weeds would follow the standards and guidelines in the Sierra Nevada Forest Amendment Record of Decision (SNFPA ROD 2004). Specific design criteria and protection measures for the project include:

4k. Any new occurrences of sensitive plants identified within the Project Area would be flagged and avoided to the extent practical. The Forest botanist will be consulted on appropriate avoidance and minimization measures for sensitive plants.

4l. A Forest Service watchlist species, *Botrychium simplex*, occurs within the Project Area. Under the supervision of the District Botanist all known occurrences will be flagged and avoided to the extent practicable during project implementation. Should any new threatened, endangered, sensitive (TES) or watchlist species be located during the proposed project, available steps will be taken to evaluate and mitigate effects.

4m. All off-road equipment would be cleaned to ensure it is free of soil, seeds, vegetative matter or other debris that could contain seeds before entering the Project Area.

4n. Infestations of invasive plants that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest botanist.

4o. Rock for riffle construction would be weed free. On site sand, gravel, rock, or organic matter would be used where possible or from documented weed free sources.

4p. Any seed used for restoration or erosion control would be from a locally collected source (ENF, Seed, Mulch and Fertilizer Prescription, 2000).

4q. All temporarily disturbed areas will be revegetated and monitored for three years following project completion for the presence of noxious weeds.

Cultural Resources

5a. Heritage resources would be avoided. Known historic properties will be flagged with a buffer of at least ten meters for avoidance prior to project implementation. No ground disturbing activities will occur within the flagged area. The flagging will be removed post-project implementation.

5b. Buffer zones may be established to ensure added protection if determined necessary by the Forest Service District Archeologist. The use of buffer zones in avoidance measures may be applicable where heavy equipment is used in proximity to historic properties.

5c. The only access roads to the Project Areas will be those shown by the plan set to reduce impacts to previously undiscovered cultural sites.

5d. If articulated or disarticulated human remains are discovered during ground disturbing construction activities or ground disturbing activities, all work shall cease within 100 feet of the find and all ground disturbing activities shall not resume until the requirements of Health and Safety Code section 7050.5 and, if applicable, Public Resources Code 5097.98 are met.

Geology and Soils

7a. Standard best management practices will be employed to protect soil resources and have been developed under consultation with soil scientists and engineers as an integral component of meadow floodplain restoration. These mitigation measures have been monitored and refined based on previous projects of this type.

7b. The installations will be sequenced beginning with the downstream structures and moving in the upstream direction. This will allow the downstream structures to functionally capture the sediment caused by bank and bed disturbance for the upstream structures.

7c. Access routes would be field fit to minimize impacts to the meadow caused by potential tree felling, removal of stumps, and light grading. Where access routes cross a stream channel, temporary bridge crossings, such as corduroy road or marsh mats would be used. Each crossing would be monitored to ensure they function to limit significant disturbance to the bed and banks of the channel and remedial actions will be taken to address any deficiencies. Following construction, the logs would be removed from the crossing and placed as slash along the temporary access roads.

7d. Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, access routes would be restored such as ripping, seeding, and placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions.

7e. The project will require revegetation. Access routes are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed as determined necessary.

Revegetation will consist of the following measures:

- During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow pits, and other heavily disturbed areas.
- All revegetation areas would be monitored for three years following project completion. Successful revegetation of seeded area would have at least 50% cover of native vegetation. Any areas that do not meet the survival or cover criteria would be reseeded.
- Erosion control would be accomplished using locally collected materials (wood chips, duff, pine needles, etc.). Straw would not be used.

Hazards and Hazardous Materials

9a. Equipment will be re-fueled and serviced at the designated staging area, which is outside of the riparian area and meadow. No fuel will be stored on-site. In the event of an accidental spill, hazmat materials for quick on-site clean-up will be kept at the project sites during all construction activities, and in each piece of equipment.

Hydrology and Water Quality

10a. Materials and equipment will be staged within designated staging area within existing primitive campgrounds and parking areas. The downslope perimeter of staging areas and material stockpile areas will be contained with silt fence.

10b. The meadows and streams would be avoided to the extent feasible by using existing roads and staging areas.

10c. Where streams and meadows cannot be avoided, corduroy stream crossings consisting of logs placed within the channel and up onto the banks parallel to the flowline of the channel to provide a conformable surface for the constructed equipment to drive across without impacting the channel. Each of the crossings would be monitored to ensure that they are functioning. Remedial actions to address any deficiencies includes adding additional logs as necessary, depending on the number of

times the crossing is used. Following construction, the logs would be removed from the crossing and placed as slash along the temporary forest access routes.

10d. Marsh mats will be used to protect the meadow from excessive disturbance and rutting from heavy equipment on the meadow access areas. The mats would consist of slash material from the salvaged trees, layered to a depth of 1 to 1.5 feet, and be a minimum of 15 feet wide to accommodate the construction. Marsh mats will be periodically inspected to determine if additional material should be added to provide continuous protection to the meadow. The mats would be removed from the meadow and placed as slash along the temporary forest access roads.

10e. Low impact construction equipment would be used as described in the technical specifications to provide limits on the size and type of equipment that can be used in the meadow. Only rubber tracked/tired low ground pressure equipment would be used for installation of the log weirs. Larger equipment may be necessary to construct the roughened channel and the location would be accessed via the temporary forest route through uplands with only a single, short traverse across the meadow at the northern end of the project site.

Tribal Cultural Resources

Repeated from Section 5 Cultural Resources

5a. Heritage resources would be avoided. Known historic properties will be flagged with a buffer of at least ten meters for avoidance prior to project implementation. No ground disturbing activities will occur within the flagged area. The flagging will be removed post-project implementation.

5b. Buffer zones may be established to ensure added protection if determined necessary by the Forest Service District Archeologist. The use of buffer zones in avoidance measures may be applicable where heavy equipment is used in proximity to historic properties.

5c. The only access roads to the Project Areas will be those shown by the plan set to reduce impacts to previously undiscovered cultural sites.

5d. If articulated or disarticulated human remains are discovered during ground disturbing construction activities or ground disturbing activities, all work shall cease within 100 feet of the find and all ground disturbing activities shall not resume until the requirements of Health and Safety Code section 7050.5 and, if applicable, Public Resources Code 5097.98 are met.

Wildfire

20a. While the project area is located in a meadow and outside of identified very fire hazard severity zones, portions of the meadow are expected to be dry, with a risk for wildfire associated with the use of any internal combustion engine. A trash pump and/or water truck will be on site to assist with vegetation transplants and dust control, as well as to reduce the risk of wildfire.

Post Construction Monitoring & Reporting

Monitoring is a means to determine if conditions in Three Meadows are meeting or moving toward the desired conditions. All revegetated areas would be monitored for three years following project completion. Monitoring will quantify willow survival and percent cover of native meadow vegetation. Successful revegetation will be achieved with 70% survival of willow cuttings and 50% cover of seeded areas. Any areas that do not meet the survival or cover area would be replanted. Monitoring would be conducted by Amador Ranger District staff and project partners.

Mitigation Monitoring

During construction, ENF staff would be on-site continuously and responsible for ensuring that Best Management Practices and Design Criteria are followed and mitigations measures are implemented.

Once the project is completed, a report on construction is to be sent to the funding agency, as well to the permitting agencies (Regional Water Quality Control Board and US Army Corps of Engineers). The report will certify compliance with mitigation measures.