



Planning Commission Staff Report

Meeting Date: May 3, 2022

Agenda Item: 8B

TENTATIVE SUBDIVISION MAP CASE NUMBER: WTM22-003 (West 2nd Ave. Highlands)

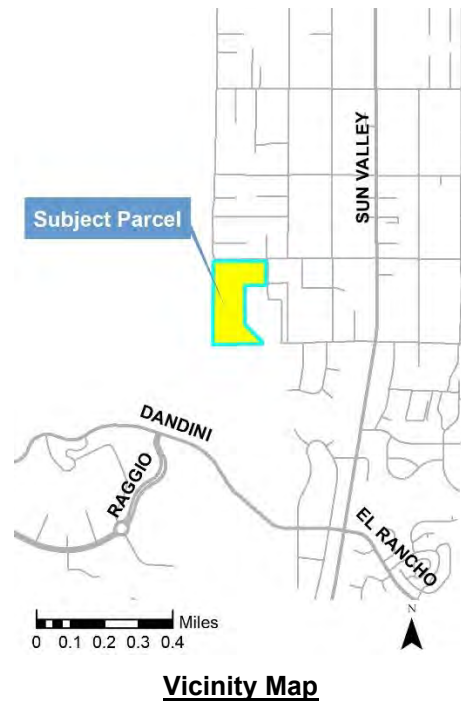
BRIEF SUMMARY OF REQUEST: To create a 48-lot common open space development.

STAFF PLANNER: Chris Bronczyk, Senior Planner
Phone Number: 775.328.3612
Email: cbronczyk@washoecounty.gov

CASE DESCRIPTION

For hearing, discussion, and possible action to approve a 48-lot residential common open space tentative subdivision map with lots ranging in size from 4,999 square feet to 15,058 square feet on one parcel totaling 18.27 acres; to approve associated major grading for 10.26 acres of ground disturbance, including 43,500 cy of cut and 45,900 cy of fill for the proposed tentative map; and to modify the development code standard found in WCC 110.438.45(c), which provides that finish grading shall not vary from the natural slope by more than ten feet.

Applicant / Owner: Salmon Point Development, LLC
Location: 0 West 2nd Avenue
APN: 085-010-44
Parcel Size: 18.27 Acres
Master Plan: Suburban Residential (SR)
Regulatory Zone: Medium Density Suburban (MDS)
Area Plan: Sun Valley
Development Code: Authorized in Article 608, Tentative Subdivision Maps
Commission District: 3 – Commissioner Jung



STAFF RECOMMENDATION

APPROVE

APPROVE WITH CONDITIONS

DENY

POSSIBLE MOTION

I move that, after giving reasoned consideration to the information contained in the staff report and information received during the public hearing, the Washoe County Planning Commission approve Tentative Subdivision Map Case Number WTM22-003 for Salmon Point Development, LLC, along with the applicant's request to vary the development code standard in Washoe County Code 110.438.45(c), with the conditions of approval included as Exhibit A to this matter, having made all ten findings in accordance with Washoe County Code Section 110.608.25.

(Motion with Findings on Page 14)

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The technical reports submitted with the project application are extensive. To review the technical reports online click [HERE](#) or contact Planning at Planning@washoecounty.gov to have a copy sent by email.

Tentative Subdivision Map

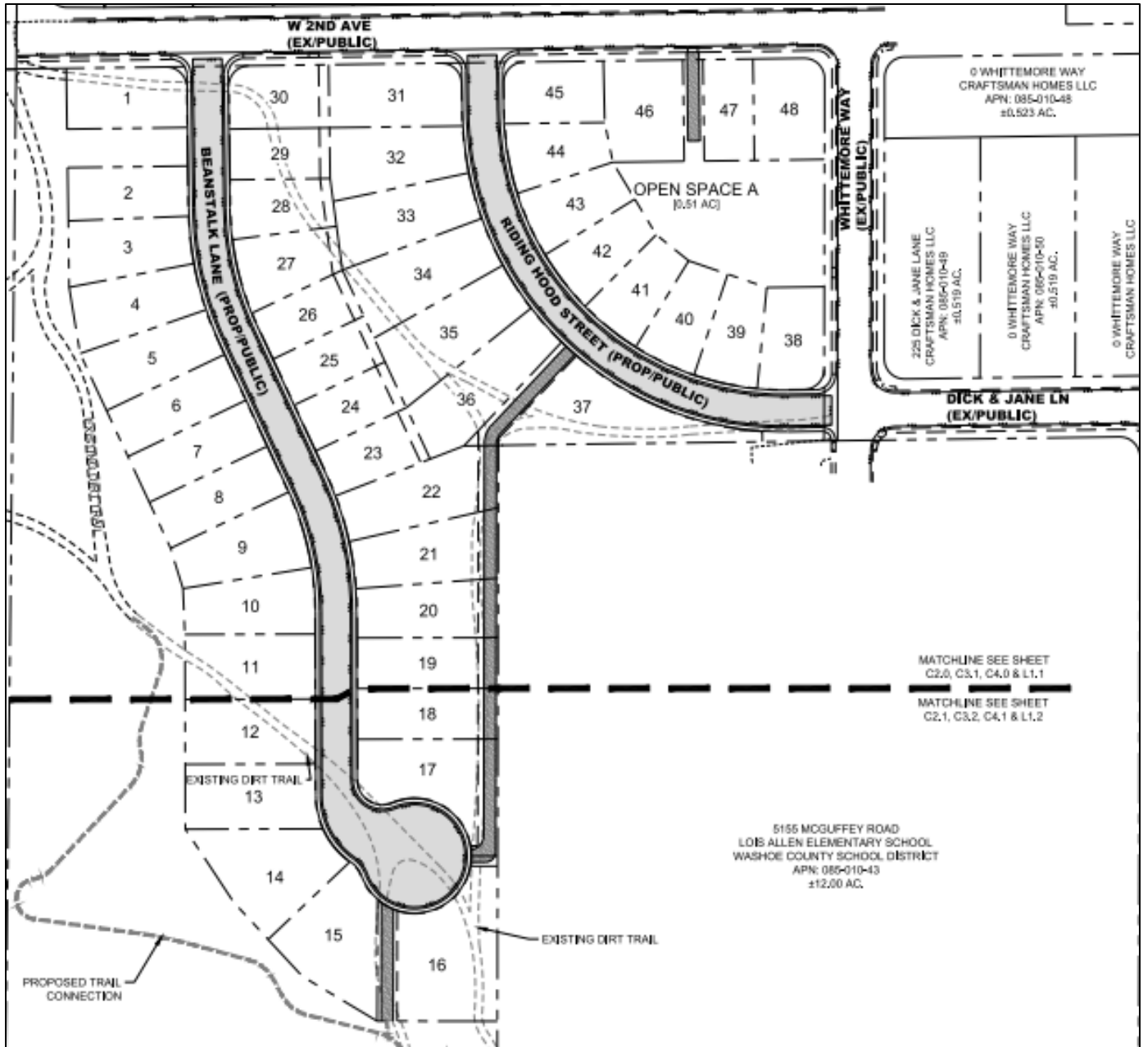
The purpose of a tentative subdivision map is:

- To allow the creation of saleable lots;
- To implement the Washoe County Master Plan, including the area plans, and any specific plans adopted by the County;
- To establish reasonable standards of design and reasonable procedures for subdivision and re-subdivision in order to further the orderly layout and use of land and ensure proper legal descriptions and monumenting of subdivided land; and;
- To safeguard the public health, safety and general welfare by establishing minimum standards of design and development for any subdivision platted in the unincorporated area of Washoe County.

If the Planning Commission grants an approval of the tentative subdivision map, that approval is subject to conditions of approval. Conditions of approval are requirements that need to be completed during different stages of the proposed project. Those stages are typically:

- Prior to recordation of a final map.
- Prior to obtaining a final inspection and/or a certificate of occupancy on a structure.
- Prior to the issuance of a business license or other permits/licenses.
- Some conditions of approval are referred to as “operational conditions.” These conditions must be continually complied with for the life of the project.

The conditions of approval for Tentative Subdivision Map Case Number WTM22-003 are attached to this staff report and will be included with the action order.



Site Plan

Project Evaluation

West 2nd Avenue Highlands is a proposed single-family, common open space, residential subdivision of 48 lots on an 18.27-acre site (APN: 085-010-44). The applicant is also proposing a boundary line adjustment which will take 1.05 acres from the site, resulting in a 17.22-acre final site location. The proposed subdivision has a regulatory zone of Medium Density Suburban (MDS) which allows for up to 3 dwelling units per acre. The 17.22-acre site has a maximum density of 51 lots. The site is adjacent to Lois Allen Elementary School in Sun Valley, and to Washoe County’s Red Hill open space area. No phasing is proposed. There are a number of informal trails on Red Hill as part of the common open space amenities is proposing additional trail connections into these social trails. The applicant states that any trail connections disturbed with development will be realigned and connected. This would provide trail connectivity from Lois Allen Elementary School to the Red Hill open space, and the future Sun Valley Rim Trail (Exhibit C). The proposed subdivision also includes an access road off the cul-de-sac on the southern end that would double as trail access for future residents.

This project is proposed as a common open space subdivision which allows, “variation of lot size, including density transfer subdivisions, in order to preserve or provide open space, protect natural and scenic resources, achieve a more efficient use of land, minimize road building, and encourage a sense of community.” Because the request is for a common open space subdivision, the applicant is proposing smaller lot sizes than otherwise allowed within the existing regulatory zones, the smaller lot sizes will reduce the amount of hillside disturbance, and grading. The proposed setbacks will follow the Medium Density Suburban (MDS) standards outlined within the Washoe County Development Code. The proposed subdivision is located within the Sun Valley Suburban Character Management Area (SCMA), which is a designated growth area in Sun Valley.

Approximately 8.08 acres are being designated by the developer as common open space due to the steep slopes and as required by Washoe County Code Section 110.424.25.

Land Type	Acreage	Percent of Site
Common Open Space	8.08	47%
Developable Lots	9.14	53%

The total density allowed can be found below:

Regulatory Zoning	Total Acreage	Density	Allowed Units
Medium Density Suburban (MDS)	17.22	3.00	51.66
Total	17.22		51.66

The smallest proposed lot size is 4,999 square feet, and the largest proposed lot size is approximately 15,058 square feet. The average lot size is 7,336 square feet. The minimum lot size allowed within the MDS regulatory zone is 12,000 square feet, but common open space subdivisions allow for lot size to be modified. Typical residential redwood fencing will be permitted on side and rear lot lines. The applicant notes that an HOA or a Landscape Maintenance Agreement (LMA) will be responsible for all common open space.

The application indicates that approximately 7.05 acres of open space along the eastern and southern portions of the parcel are proposed to be dedicated to the Park Program. Washoe County Parks and Open Space reviewed the proposed subdivision and states that while the dedication is consistent with the Red Hill Master Plan, it is the current direction of the Park Program not to accept additional open space unless a homeowner’s or landscaping maintenance

association agrees to maintain the area. Washoe County Parks and Open Space conditions can be found in Exhibit C.

Article 408: Common Open Space

The proposed tentative subdivision map is for a common open space development. This requires the applicant to meet the purpose of a Common Open Space Development Article as outlined in 110.408.00, summarized in the table below:

Article 408 Purpose Requirement	Brief Analysis
Preserve or Provide Open Space	The applicant provided ± 7.56 of common open space area in the form of open space, and trails within the development area.
Protect Natural and Scenic Resources	Areas of steep slopes and potential drainageways are included in the common open space area.
Achieve a More Efficient Use of Land	The average lot size for single family detached is 7,336 square feet.
Minimize Road Building	The road network is generally a lot-and-block pattern.
Encourage A Sense of Community	The proposed tentative subdivision provides community assets in the form of open space, and trails.

The proposed development must be shown to be in conformance with Article 408, Common Open Space Development. The intent of Article 408 is to, *“set forth regulations to permit variation of lot size, including density transfer subdivisions, in order to preserve or provide open space, protect natural and scenic resources, achieve a more efficient use of land, minimize road building, and encourage a sense of community.”*

Washoe County Code 110.408.45 (b) requires:

Permanent Preservation and Maintenance. Provisions shall be made for the permanent preservation and ongoing maintenance of the common open space and other common areas using a legal instrument acceptable to the County.

Appropriate conditions of approval have been included with this report, should approval be granted by the Planning Commission.

Site Characteristics

The topography of the site includes both steeper areas which will generally be included in the common open space and flatter areas which are more suitable for development. Vegetation is typical of our high-desert climate and generally consists of sagebrush. Among the requirements of Article 424 is the requirement for a site analysis, map of the developable area of the project site and a slope map which can be found as part of the project application (Exhibit H). The analysis indicates that development is proposed to take place on the suitable areas and is proposed to leave most of the steep hillsides as common open space. Additionally, Article 424 requires that any portion of a hillside development which has been deemed unsuitable for development, due to having greater than 30% slopes, for development must be designated as permanent common open space and the uses shall be limited to paths, trails, outdoor recreation, utilities and drainage improvements.

Article 424 also requires standards for the locations of dwellings, including clustering, placing dwellings on the natural slope and preserving the hillside. Additionally, there are standards for parking, fences, preservation of natural features, open space and trail easements, in addition to requirements that grading must mimic the natural contour of the land and all disturbed areas are required to be revegetated. The proposed subdivision application materials demonstrate general compliance with the requirements of Article 424.

Grading:

The application is proposing major grading as part of the proposed Tentative Subdivision Map. The following code sections are what triggers the major grading request:

110.438.35 (a)(1) – Grading on slopes less than or flatter than 15%

- **Area - (i)(C)** – Grading of an area of more than four (4) acres on a parcel of any size
- **Volume (ii)(A)** – Excavation of five thousand (5,000) cubic yards or more whether the material is intended to be permanently located on the project site or temporarily stored on a site for relocation to another, final site.

110.438.35 (a)(2) – Grading on slopes of 15% or greater (steeper)

- **Area (i)(C)** – Grading of an area of more than two (2) acres on a parcel of any size
- **Volume (ii)(B)** – Importation of one thousand (1,000) cubic yards or more whether the material is intended to be permanently located on the project site or temporarily stored on a site for relocation to another, final site.

110.438.35(a)(3) – Any driveway or road that traverses any slope of thirty (30) percent or greater (steeper)

The proposed grading consists of a total of 43,500 cubic yards of cut and 45,900 cubic yards of fill. The proposed grading is in line with similar developments within the Sun Valley Planning Area. The maximum slope grade proposed is 3:1. The applicant indicates that some retaining walls will be incorporated as part of the overall grading; the maximum retaining wall height proposed is 6-feet, with terracing proposed on Lots 14 and 15. The proposed grading will be visible from the north and east, specifically West 1st Avenue and Whittmore Way.

Together with the grading, a modification of standards is also being requested to modify Section 110.438.45(c) of the Washoe County Development Code. Section 110.438.45(c) is outlined below.

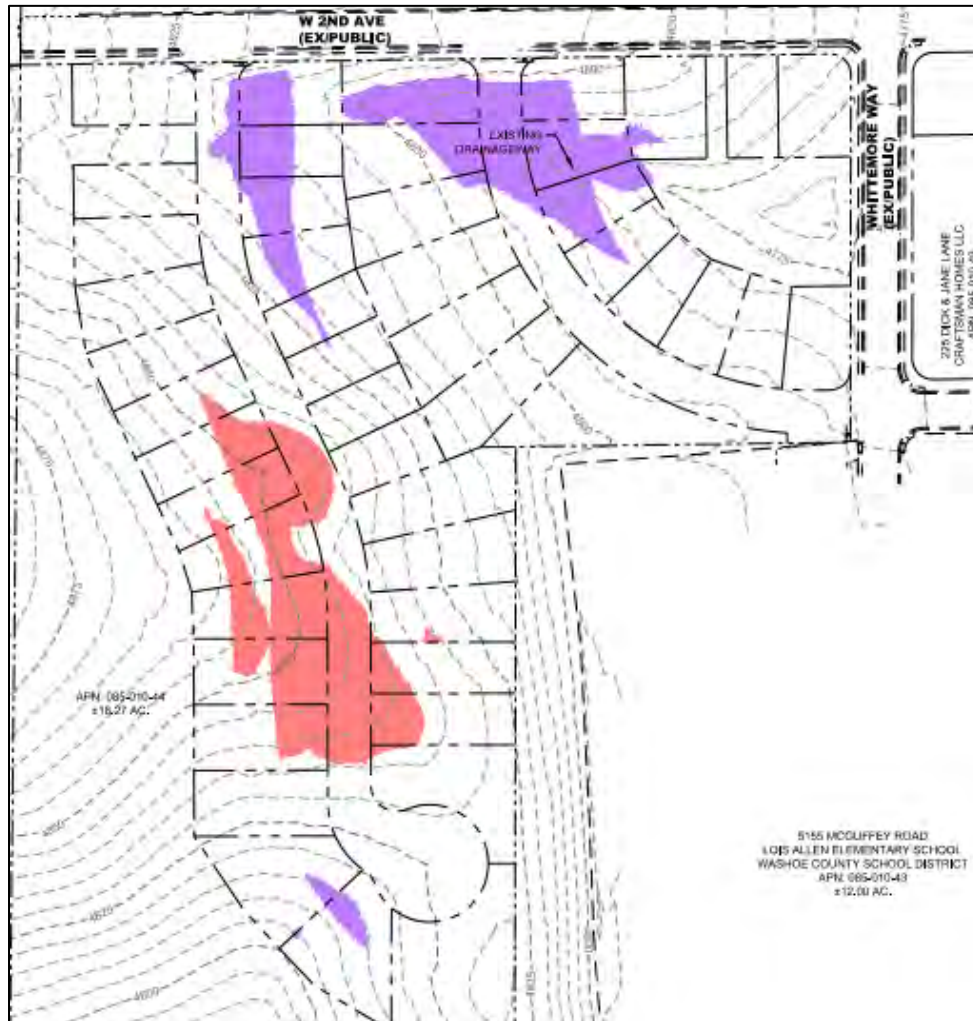
- **110.438.45(c)** – Finish grading shall not vary from the natural slope by more than ten (10) feet in elevation. Exposed finish grade slopes greater than ten (10) feet in height may be allowed upon the approval of a director's modification of standards by the Director of Community Development upon recommendation by the County Engineer.

The applicant states that there are areas throughout the site where either cuts or fills will exceed this threshold and those areas can be seen on the cut and fill map provided with this application package In Tab C.

The applicant is requesting this modification due to the proposed cut and fill exceeding the 10-foot threshold. The applicant did submit a Director's Modification application associated with this request. The applicant states that the primary reason that the cut and fill thresholds are being exceeded is due to the varied topography. The applicant further states that in order to provide smooth grade transitions within the development, to provide adequate drainage, and to meet the street grades required by Washoe County Code, the cut and fill limits that are set within the code need to be varied. The total surface area of the property that contains fill material that exceed 10

feet from natural slope is 0.78+/- acres (33,976 sf), and the total surface area of the site that is proposed to contain cuts in excess of 10 feet is 0.77+/- acres (33,541 sf).

Due to the topographic features found on the property, which include significant slopes and drainage-ways that create exceptional topographic conditions, the use of retaining walls is necessary. The terraces that are proposed on Lots 14 and 15 are proposed to be landscaped, with a 3:1 or flatter slope between the walls. The applicant states that the total height of the terraced walls on Lots 14 and 15 are less than 10 feet and are a total combined height of 9 feet outside the building setbacks.



CUT/FILL TABLE				
NUMBER	MIN ELEVATION (FT)	MAX ELEVATION (FT)	AREA (AC)	COLOR
1	-19.08	-10.00	0.77	■
2	10.00	21.94	0.78	■

TOTAL DEVELOPED AREA: 10.27 AC.

Cut / Fill Map

Utilities

The proposed subdivision is located within the Sun Valley Suburban Character Management Area and will connect into the Sun Valley General Improvement District (SVGID) for water and wastewater service. SVGID requires all developments to conduct a water and sewer capacity study. These studies are intended to identify any deficiencies and or upgrades needed to serve development. Electricity and natural gas will be provided by NV Energy. Solid waste disposal will be serviced by Waste Management.

Washoe County School District

The project is currently zoned for Lois Allen Elementary School, Desert Skies Middle School, and Hug High School. The project is calculated to generate 9 elementary school students, 5 middle school students, and 6 high school students.

The following table lays out current and projected enrollment capacities for all schools listed above.

School	Current Enrollment	2026/27 Enrollment	2031/32 Enrollment
Lois Allen ES	76%	72%	74%
Desert Skies MS	78%	76%	67%
Hug HS	88%	94%	86%

The school district provided staff with a memo that states that the district anticipates no conflicts with the ability to accommodate the number of students possibly generated by this project.

Sun Valley Area Plan Modifiers Evaluation

The following Sun Valley Area Plan modifiers (Article 218 of the Washoe County Development Code) are relevant to the proposed subdivision:

Section 110.218.05 Community Water and Sewer: The following types of development shall be served by community water and sewer facilities:

- (a) Residential Development of one (1) unit or more per acre;
- (b) All commercial development; and
- (c) All industrial development

Staff Comment: The proposed development is located within the Sun Valley General Improvement District service area. Sun Valley General Improvement District (SVGID) will be the Water and Wastewater provider, and the proposed subdivision will be subject to Sun Valley General Improvement District Water and Wastewater Facility fees as well as Water Right Dedication for the proposed development. All developments must provide a water and sewer capacity study. These studies are to be completed prior to the issuance of an Intent to Serve (at Tentative Map) and should identify any deficiencies and or upgrades needed to serve the development.

Section 110.218.20 Height Restrictions: In addition to height restrictions established in Article 402, *Density/Intensity Standards*, and Article 406, *Building Placement Standards*, all new residential, commercial, and industrial structures are limited to two stories in height.

Staff Comment: The proposed subdivision will be limited to two story homes.

Section 110.218.25 New Parcel Restrictions: The creation of additional parcels in any regulatory zone within the Sun Valley planning area is restricted to areas within the service area of recognized water purveyors.

Staff Comment: All new parcels proposed for creation are already located within the Sun Valley General Improvement District.

Sun Valley Area Plan Evaluation

In addition to the Washoe County Development Code Article 218, Sun Valley Area Modifiers, the following policies contained in the Sun Valley Area Plan are relevant to the proposed subdivision:

SUN.1.7 Tentative subdivision maps will not be approved for any development until the impacts of that development have been included in the Sun Valley General Improvement District's water resources facilities plan.

Staff Comment: The proposed development is currently located within the Sun Valley General Improvement District service area. Sun Valley General Improvement District reviewed the application and made no recommendations for denial or comments related to the water resources facility plan.

SUN.4.2 Hillside development shall disturb the minimum area required for construction and conserve steep slopes in their natural state.

Staff Comment: The applicant has designed the subdivision with the express intent of minimizing hillside disturbance.

SUN.4.5 Disturbed areas shall be finished and fill slopes will not exceed a 3:1 slope; hillside grading will establish an undulating naturalistic appearance by creating varying curvilinear contours.

Staff Comment: The proposed subdivision complies with this requirement.

SUN.7.1 Development proposals within the Sun Valley planning area will include detailed soils and geo-technical studies sufficient to:

- a. Ensure structural integrity of roads and buildings.
- b. Provide adequate setbacks from potentially active faults.
- c. Minimize erosion potential.

Staff Comment: A geo-technical study was provided with the application packet; and can be found within the project application exhibit.

SUN.10.1 and SUN.12.1 Whenever applicable, all development within the Sun Valley Suburban Character Management Area and the Downtown Character Management Area will connect to a community water service.

Staff Comment: The proposed subdivision is located within the Sun Valley Suburban Character Management Area and will connect into the Sun Valley General Improvement District (SVGID) for water and wastewater service.

Washoe County Master Plan: Housing Element

Goal One: Remove Regulatory Barriers to increase the availability of affordable and workforce housing for all.

Policy 1.5: Encourage development at higher densities where appropriate.

Staff Comment: Common open space development will cluster the density on the site.

Goal Seven: Promote Homeownership opportunities.

Policy 7.4: Promote home ownership as a community asset.

Staff Comment: The development will be a single-family development and will promote home ownership.

Reviewing Agencies

The following agencies/individuals received a copy of the project application for review and evaluation.

Agencies	Sent to Review	Responded	Provided Conditions	Contact
Environmental Protection	X			
NDOT (Transportation)	X			
NDOW (Wildlife)	X			
NV Water Resources	X	X	X	Steve Shell, sshell@water.nv.gov
Washoe County Building & Safety	X			
Washoe County Engineering & Capital Projects	X	X		
Washoe County Land Development	X	X	X	Rob Wimer, rwimer@washoecounty.gov
Washoe County Parks & Open Space	X	X	X	Sophia Kirschenman, skirschenman@washoecounty.gov
Washoe County Sewer	X	X		Tim Simpson, tsimpson@washoecounty.gov
Washoe County Street Naming	X	X	X	Stephen Hein, shein@washoecounty.gov
Washoe County Traffic	X	X	X	Mitch Fink, MFink@washoecounty.gov
Washoe County Water Rights Manager	X	X	X	Timber Weiss, tweiss@washoecounty.gov
WCSO Law Enforcement	X			
WCHD Air Quality	X			
WCHD EMS	X	X	X	Sabrina Brasuell, sbrasuell@washoecounty.gov
WCHD Environmental Health	X			
TMFPD	X	X	X	Brittany Lemon, BLemon@tmfpd.us
Regional Transportation Commission (All Apps)	X	X	X	Rebecca Kapuler, rkapuler@rtcwashoe.com
Washoe County School District (All TMs)	X	X	X	Kyle.Chisholm@washoeschools.net
Washoe-Storey Conservation District (All Apps)	X	X	X	Jim Schaffer, shafferjam51@gmail.com
Sun Valley GID	X	X	X	Chris Melton, cmelton@svgid.com

All conditions required by the contacted agencies can be found in Exhibit A, Conditions of Approval.

Staff Comment on Required Findings

WCC Section 110.608.25 of Article 608, *Tentative Subdivision Maps*, requires that all of the following findings be made to the satisfaction of the Washoe County Planning Commission before granting approval of a tentative map request. Staff has completed an analysis of the application and has determined that the proposal is in compliance with the required findings as follows.

- (a) **Plan Consistency.** That the proposed map is consistent with the Master Plan and any specific plan.

Staff Comment: The proposed tentative map is consistent with the goals and policies of the Master Plan and the Sun Valley Area Plan. The proposed tentative map falls under the allowable density.

- (b) Design or Improvement. That the design or improvement of the proposed subdivision is consistent with the Master Plan and any specific plan.

Staff Comment: The proposed tentative map meets all of the density, lot size and common open space criteria of the Master Plan and the Sun Valley Area Plan.

- (c) Type of Development. That the site is physically suited for the type of development proposed.

Staff Comment: The site is physically suited for the type of development proposed and the site can accommodate the type of development proposed. While there are steep slopes on the property, the developable area proposed minimizes impacts to hillsides.

- (d) Availability of Services. That the subdivision will meet the requirements of Article 702, Adequate Public Facilities Management System.

Staff Comment: The proposed subdivision will meet the requirements of Article 702, Adequate Public Facilities Management System; impacts associated with the proposed subdivision will be appropriately mitigated, based upon the imposition of appropriate conditions of approval as included at Exhibit A to this report.

- (e) Fish or Wildlife. That neither the design of the subdivision nor any proposed improvements is likely to cause substantial environmental damage, or substantial and avoidable injury to any endangered plant, wildlife or their habitat.

Staff Comment: The proposed improvements will not cause substantial environmental damage or harm to endangered plants, wildlife or their habitat. The applicant is required to prepare a Revegetation Plan that includes provisions to mitigate impacts.

- (f) Public Health. That the design of the subdivision or type of improvement is not likely to cause significant public health problems.

Staff Comment: Due to the location and design of the subdivision and type of improvements, this development is not likely to cause significant public health problems.

- (g) Easements. That the design of the subdivision or the type of improvements will not conflict with easements acquired by the public at large for access through, or use of property within, the proposed subdivision.

Staff Comment: The proposed development has taken all easements into consideration and will not conflict with the easements in regard to utility purposes or public access, etc

- (h) Access. That the design of the subdivision provides any necessary access to surrounding, adjacent lands and provides appropriate secondary access for emergency vehicles.

Staff Comment: The design of the subdivision provides access to surrounding adjacent lands and provides appropriate secondary access for emergency vehicles.

- (i) Dedications. That any land or improvements to be dedicated to the County is consistent with the Master Plan.

Staff Comment: The application states that the roadways are to be dedicated to the County. In the event that the roads or other lands are dedicated to the County, the lands will be improved such that they are consistent with the Master Plan and/or built to County standards.

- (j) Energy. That the design of the subdivision provides, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision.

Staff Comment: To the extent feasible, the development will include building materials to allow for passive or natural heating and cooling opportunities. Additionally, the homes will be oriented in such a way to take advantage of passive/natural heating and cooling opportunities to the extent allowed by the sites topography.

Recommendation

After a thorough analysis and review, Tentative Subdivision Map Case Number WTM22-003 is being recommended for approval with conditions. Staff offers the following motion for the Board's consideration.

Motion

I move that, after giving reasoned consideration to the information contained in the staff report and information received during the public hearing, the Washoe County Planning Commission approve Tentative Subdivision Map Case Number WTM22-003 for Salmon Point Development, LLC, along with the applicant's request to vary the development code standard in Washoe County Code 110.438.45(c), with the conditions of approval included as Exhibit A to this matter, having made all ten findings in accordance with Washoe County Code Section 110.608.25:

- (a) **Plan Consistency.** That the proposed map is consistent with the Master Plan and any specific plan;
- (b) **Design or Improvement.** That the design or improvement of the proposed subdivision is consistent with the Master Plan and any specific plan;
- (c) **Type of Development.** That the site is physically suited for the type of development proposed;
- (d) **Availability of Services.** That the subdivision will meet the requirements of Article 702, Adequate Public Facilities Management System;
- (e) **Fish or Wildlife.** That neither the design of the subdivision nor any proposed improvements is likely to cause substantial environmental damage, or substantial and avoidable injury to any endangered plant, wildlife or their habitat;
- (f) **Public Health.** That the design of the subdivision or type of improvement is not likely to cause significant public health problems;
- (g) **Easements.** That the design of the subdivision or the type of improvements will not conflict with easements acquired by the public at large for access through, or use of property within, the proposed subdivision;
- (h) **Access.** That the design of the subdivision provides any necessary access to surrounding, adjacent lands and provides appropriate secondary access for emergency vehicles;
- (i) **Dedications.** That any land or improvements to be dedicated to the County is consistent with the Master Plan; and
- (j) **Energy.** That the design of the subdivision provides, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision.

Appeal Process

Planning Commission action will be effective 10 calendar days after the written decision is filed with the Secretary to the Planning Commission, unless the action is appealed to the Washoe County Board of County Commissioners, in which case the outcome of the appeal shall be determined by the Washoe County Board of County Commissioners. Any appeal must be filed in

writing with the Planning and Building Division within 10 calendar days from the date the written decision is filed with the Secretary to the Planning Commission and mailed to the applicant.



Conditions of Approval

Tentative Subdivision Map Case Number WTM22-003

The project approved under Tentative Subdivision Map Case Number WTM22-003 shall be carried out in accordance with the conditions of approval granted by the Planning Commission on May 3, 2022. Conditions of approval are requirements placed on a permit or development by each reviewing agency. These conditions of approval may require submittal of documents, applications, fees, inspections, amendments to plans, and more. These conditions do not relieve the applicant of the obligation to obtain any other approvals and licenses from relevant authorities required under any other act.

Unless otherwise specified, all conditions related to the approval of this tentative subdivision map shall be met or financial assurance must be provided to satisfy the conditions of approval prior to the recordation of a final subdivision map. The agency responsible for determining compliance with a specific condition shall determine whether the condition must be fully completed or whether the applicant shall be offered the option of providing financial assurance. All agreements, easements, or other documentation required by these conditions shall have a copy filed with the County Engineer and the Planning and Building Division.

Compliance with the conditions of approval related to this tentative subdivision map is the responsibility of the applicant, his/her successor in interest, and all owners, assignees, and occupants of the property and their successors in interest. Failure to comply with any of the conditions imposed in the approval of the tentative subdivision map may result in the institution of revocation procedures.

Washoe County reserves the right to review and revise the conditions of approval related to this tentative subdivision map should it be determined that a subsequent license or permit issued by Washoe County violates the intent of this approval.

For the purpose of conditions imposed by Washoe County, “may” is permissive and “shall” or “must” is mandatory.

Conditions of approval are usually complied with at different stages of the proposed project. Those stages are typically:

- Prior to recordation of a final map.
- Prior to obtaining a final inspection and/or a certificate of occupancy.
- Prior to the issuance of a business license or other permits/licenses.
- Some “conditions of approval” are referred to as “operational conditions.” These conditions must be continually complied with for the life of the project.

The Washoe County Commission oversees many of the reviewing agencies/departments with the exception of the following agencies.

- **The DISTRICT BOARD OF HEALTH, through the Washoe County Health District, has jurisdiction over all public health matters in the Health District. Any conditions set by the Health District must be appealed to the District Board of Health.**
- **The REGIONAL TRANSPORTATION COMMISSION (RTC) is directed and governed by its own Board. Conditions recommended by the RTC may be required, at the discretion of Washoe County.**

STANDARD CONSIDERATIONS FOR SUBDIVISIONS
Nevada Revised Statutes 278.349

Pursuant to NRS 278.349, when contemplating action on a tentative subdivision map, the governing body, or the planning commission if it is authorized to take final action on a tentative map, shall consider:

- (a) Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;
- (b) The availability of water which meets applicable health standards and is sufficient for the reasonably foreseeable needs of the subdivision;
- (c) The availability and accessibility of utilities;
- (d) The availability and accessibility of public services such as schools, police and fire protection, transportation, recreation and parks;
- (e) Conformity with the zoning ordinances and master plan, except that if any existing zoning ordinance is inconsistent with the master plan, the zoning ordinance takes precedence;
- (f) General conformity with the governing body's master plan of streets and highways;
- (g) The effect of the proposed subdivision on existing public streets and the need for new streets and highways to serve the subdivision;
- (h) Physical characteristics of the land such as floodplain, slope and soil;
- (i) The recommendations and comments of those entities reviewing the tentative map pursuant to NRS 278.330 and 278.335; and
- (j) The availability and accessibility of fire protection, including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires, including fires in wild lands.

FOLLOWING ARE CONDITIONS OF APPROVAL REQUIRED BY THE REVIEWING AGENCIES. EACH CONDITION MUST BE MET TO THE SATISFACTION OF THE ISSUING AGENCY.

Washoe County Planning and Building Division

1. The following conditions are requirements of the Planning and Building Division, which shall be responsible for determining compliance with these conditions.

**Contact Name – Chris Bronczyk, Senior Planner, 775.328.3612,
cbronczyk@washoecounty.gov**

- a. The applicant shall demonstrate substantial conformance to the plans approved as part of this tentative subdivision map.
- b. The subdivision shall be in substantial conformance with the provisions of Washoe County Development Code Article 604, Design Requirements, and Article 608, Tentative Subdivision Maps.
- c. Final maps and final construction drawings shall comply with all applicable statutes, ordinances, rules, regulations and policies in effect at the time of submittal of the

tentative map or, if requested by the developer and approved by the applicable agency, those in effect at the time of approval of the final map.

- d. In accordance with NRS 278.360, the sub-divider shall present to Washoe County a final map, prepared in accordance with the tentative map, for the entire area for which a tentative map has been approved, or one of a series of final maps, each covering a portion of the approved tentative map, within four years after the date of approval of the tentative map or within two years of the date of approval for subsequent final maps. On subsequent final maps, that date may be extended by two years if the extension request is received prior to the expiration date.
- e. Final maps shall be in substantial compliance with all plans and documents submitted with and made part of this tentative map request, as may be amended by action of the final approving authority.
- f. All final maps shall contain the applicable portions of the following jurat:

THE TENTATIVE MAP FOR **WTM case number for map name** WAS APPROVED BY THE WASHOE COUNTY PLANNING COMMISSION ON **DATE**.

THIS FINAL MAP, **MAP NAME AND UNIT/PHASE #**, MEETS ALL APPLICABLE STATUTES, ORDINANCES AND CODE PROVISIONS, IS IN SUBSTANTIAL CONFORMANCE WITH THE TENTATIVE MAP, AND ALL CONDITIONS HAVE BEEN MET.

[Omit the following paragraph if this is the first and last (only) final map.]

THE NEXT FINAL MAP FOR **<WTM CASE NUMBER>** MUST BE APPROVED AND ACCEPTED FOR RECORDATION BY THE PLANNING AND BUILDING DIRECTOR ON OR BEFORE THE EXPIRATION DATE, THE _____ DAY OF _____, 20____, OR AN EXTENSION OF TIME FOR THE TENTATIVE MAP MUST BE APPROVED BY THE WASHOE COUNTY PLANNING COMMISSION ON OR BEFORE SAID DATE.

THIS FINAL MAP IS APPROVED AND ACCEPTED FOR RECORDATION **THIS _____ DAY OF _____, 20____** BY THE PLANNING AND BUILDING DIRECTOR. THE OFFER OF DEDICATION FOR **STREETS, SEWERS, ETC.** IS REJECTED AT THIS TIME, BUT WILL REMAIN OPEN IN ACCORDANCE WITH NRS CHAPTER 278.

MOJRA HAUENSTEIN, DIRECTOR
PLANNING AND BUILDING

Jurat for ALL SUBSEQUENT FINAL MAPS

THE TENTATIVE MAP for **<TM CASE NUMBER>** APPROVED **<denied>** BY THE WASHOE COUNTY PLANNING COMMISSION ON **<date>**. **[If the TM had been appealed to the BCC --- Add:]** THE

WASHOE COUNTY COMMISSION APPROVED THE TENTATIVE MAP ON APPEAL ON *<date>*.

THE FIRST FINAL MAP FOR THIS TENTATIVE MAP WAS APPROVED AND ACCEPTED FOR RECORDATION ON *<date of Planning and Building Director's signature on first final map>*. [Omit the following if second map.] THE MOST RECENTLY RECORDED FINAL MAP, *<subdivision name and prior unit/phase #>* FOR THIS TENTATIVE MAP WAS APPROVED AND ACCEPTED FOR RECORDATION ON *<date of Planning and Building Director's signature on most recent final map>* [If an extension has been granted after that date – add the following]: A TWO YEAR EXTENSION OF TIME FOR THE TENTATIVE MAP WAS APPROVED BY THE WASHOE COUNTY PLANNING COMMISSION ON *<date of last Planning Commission action to extend the tentative map>*.

THIS FINAL MAP, *<subdivision name and unit/phase #>*, MEETS ALL APPLICABLE STATUTES, ORDINANCES AND CODE PROVISIONS; IS IN SUBSTANTIAL CONFORMANCE WITH THE TENTATIVE MAP; AND ALL CONDITIONS HAVE BEEN MET.

[Omit the following paragraph if this is the last final map.]

THE NEXT FINAL MAP FOR *<TM CASE NUMBER>* MUST BE APPROVED AND ACCEPTED FOR RECORDATION BY THE PLANNING AND BUILDING DIRECTOR ON OR BEFORE THE EXPIRATION DATE, THE ____ DAY OF _____, 20____, *<add two years to the current expiration date unless that date is more than two years away>* OR AN EXTENSION OF TIME FOR THE TENTATIVE MAP MUST BE APPROVED BY THE WASHOE COUNTY PLANNING COMMISSION ON OR BEFORE SAID DATE.

<Insert Merger and Re-subdivision option as applicable>

THIS FINAL MAP IS APPROVED AND ACCEPTED FOR RECORDATION THIS ____ DAY OF _____, 20____ BY THE WASHOE COUNTY PLANNING AND BUILDING DIRECTOR. THE OFFER OF DEDICATION FOR *<streets, sewers>* IS REJECTED AT THIS TIME, BUT WILL REMAIN OPEN IN ACCORDANCE WITH NRS CHAPTER 278.

MOJRA HAUENSTEIN, DIRECTOR,
PLANNING AND BUILDING DIVISION

- g. A note shall be placed on all grading plans and construction drawings stating:

NOTE

Should any cairn or grave of a Native American be discovered during site development, work shall temporarily be halted at the specific site and the Sheriff's Office as well as the State Historic

Preservation Office of the Department of Conservation and Natural Resources shall be immediately notified per NRS 383.170.

- h. The final map shall designate faults that have been active during the Holocene epoch of geological time, and the final map shall contain the following note:

NOTE

No habitable structures shall be located on a fault that has been active during the Holocene epoch of geological time.

- i. Prior to acceptance of public improvements and release of any financial assurances, the developer shall furnish to Engineering Division a complete set of reproducible as-built construction drawings prepared by a civil engineer registered in the State of Nevada.
- j. The developer shall be required to participate in any applicable General Improvement District or Special Assessment District formed by Washoe County.
- k. The developer shall provide written approval from the U.S. Postal Service concerning the installation and type of mail delivery facilities. The system, other than individual mailboxes, must be shown on the project construction plans and installed as part of the on-site improvements.
- l. The developer and all successors shall direct any potential purchaser of the site to meet with the Planning and Building Division to review conditions of approval prior to the final sale of the site. Any subsequent purchasers of the site shall notify the Planning and Building Division of the name, address, telephone number and contact person of the new purchaser within thirty (30) days of the final sale.
- m. A certification letter or series of letters by a registered landscape architect or other persons permitted to prepare landscaping and irrigation plans pursuant to N.R.S. 623A shall be submitted to and approved by Planning and Building. The letter(s) shall certify that all applicable landscaping provisions of Articles **[408, 410 and 412]** of the Development Code have been met. Any landscaping plans and the letter shall be wet-stamped. The letter shall indicate any provisions of the code that the Director of Planning and Building Division has waived.
- n. All landscaping shall be maintained in accordance with the provisions found in Section 110.412.75, Maintenance. A three-year maintenance plan shall be submitted by a licensed landscape architect registered in the State of Nevada to the Planning and Building Division, prior to a Certificate of Occupancy. The plan shall be wet-stamped.
- o. Failure to comply with the conditions of approval shall render this approval null and void.
- p. Conditions, covenants, and restrictions (CC&Rs), including any supplemental CC&Rs, shall be submitted to Planning and Building staff for review and subsequent forwarding to the District Attorney for review and approval. The final CC&Rs shall be signed and notarized by the owner(s) and submitted to Planning and Building with the recordation fee prior to the recordation of the final map. The CC&Rs shall require all phases and units of the subdivision approved under this tentative map to be subject to the same CC&Rs. Washoe County shall be made a party to the applicable provisions of the CC&Rs to the satisfaction of the District Attorney's Office. Said CC&Rs shall specifically address the potential for liens against the properties and the individual property owners' responsibilities for the funding of maintenance, replacement, and perpetuation of the following items, at a minimum:

1. Maintenance of public access easements, common areas, and common open spaces. Provisions shall be made to monitor and maintain, for a period of three (3) years regardless of ownership, a maintenance plan for the common open space area. The maintenance plan for the common open space area shall, as a minimum, address the following:
 - a. Vegetation management;
 - b. Watershed management;
 - c. Debris and litter removal;
 - d. Fire access and suppression; and
 - e. Maintenance of public access and/or maintenance of limitations to public access.
2. All drainage facilities and roadways not maintained by Washoe County shall be privately maintained and perpetually funded by the homeowners association or LMA.
3. All open space identified as common open space or common area on the final map shall be privately maintained and perpetually funded by the homeowners association or LMA. The deed to the open space and common area shall reflect perpetual dedication for that purpose. The maintenance of the common areas and related improvements shall be addressed in the CC&Rs to the satisfaction of the District Attorney's Office.
4. The project, if adjacent to undeveloped land shall maintain a fire fuel break of a minimum 30 feet in width until such time as the adjacent land is developed.
5. Locating habitable structures on potentially active (Holocene) fault lines, whether noted on the recorded map or disclosed during site preparation, is prohibited.
6. All outdoor lighting on buildings and streets within the subdivision shall be down-shielded.
7. No motorized vehicles shall be allowed on the platted common area.
8. Washoe County will not assume responsibility for maintenance of the private street system of the development nor will Washoe County accept the streets for dedication to Washoe County unless the streets meet those Washoe County standards in effect at the time of offer for dedication.
9. Mandatory solid waste collection.
10. Fence material (if any), height, and location limitations, and re-fencing standards. Replacement fence must be compatible in materials, finish and location of existing fence.
- q. The common open space owned by the homeowners association or LMA shall be noted on the final map as "common open space" and the related deed of conveyance shall specifically provide for the preservation of the common open space in perpetuity.

Washoe County Engineering and Capital Projects – General Land Development and Grading Standards (County Code 110.438)

2. The following conditions are requirements of the Washoe County Engineering and Capital Projects Division which shall be responsible for determining compliance with these conditions.

Contact Name: Robert Wimer, P.E. (775) 328-2059

- a. Final maps and final construction drawings shall comply with all applicable statutes, ordinances, rules, regulations, and policies in effect at the time of submittal of the tentative map or, if requested by the developer and approved by the applicable agency, those in effect at the time of approval of the final map.
- b. Prior to acceptance of public improvements and release of any financial assurances, the developer shall provide as-built construction drawings in an acceptable digital format prepared by a civil engineer licensed in the State of Nevada.
- c. The developer shall provide written approval from the U.S. Postal Service (USPS) concerning the installation and type of mail delivery facilities. The system, other than individual mailboxes, must be shown on the project construction plans and installed as part of the onsite improvements.
- d. A complete set of construction improvement drawings, including an onsite grading plan, shall be submitted to the County Engineer for approval prior to finalization of any portion of the tentative map. Grading shall comply with best management practices (BMPs) and shall include detailed plans for grading and drainage on each lot, erosion control (including BMP locations and installation details), slope stabilization and mosquito abatement. Placement or disposal of any excavated material shall be indicated on the grading plan.
- e. All open space shall be identified as common area on the final map. A note on the final map shall indicate that all common areas shall be privately maintained and perpetually funded by the Homeowners Association. The maintenance of the common areas shall also be addressed in the CC&Rs to the satisfaction of the District Attorney's Office.
- f. Any existing easements, facilities or utilities that conflict with the development shall be relocated, quitclaimed, and/or abandoned, as appropriate.
- g. Any easement documents recorded for the project shall include an exhibit map that shows the location and limits of the easement in relationship to the project.
- h. With each affected final map, provide written approval from all utility provider(s) for any improvements located within their easement or under or over their facilities.
- i. Appropriate easements shall be granted for any existing or new utilities, with each affected final map.
- j. A 10-foot public utility easement (PUE), a 10-foot Washoe County easement for traffic control signage, plowed snow storage and sidewalks, and a 10-foot United States Postal Service facilities easement shall be granted adjacent to all rights-of-way.
- k. A design level geotechnical investigation with fault study shall be provided with the submittal of each final map.
- l. Cut slopes, fill slopes, and berms shall be setback from parcel lines and access easements in accordance with Washoe County Code Article 438.

Washoe County Engineering and Capital Projects – Flood Hazards (County Code 110.416), Storm Drainage Standards (County Code 110.420), and Storm Water Discharge Program (County Code 110.421)

3. The following conditions are requirements of the Washoe County Engineering and Capital Projects Division which shall be responsible for determining compliance with these conditions.

Contact Name: Robert Wimer, P.E. (775) 328-2059

- a. The conditional approval of this tentative map shall not be construed as final approval of the drainage facilities shown on the tentative map. Final approval of the drainage facilities will occur during the final map review.
- b. Prior to finalization of the first final map, a master hydrology/hydraulic report and a master storm drainage plan shall be submitted for approval.
- c. Prior to finalization of any portion of the tentative map, a final, detailed hydrology/hydraulic report for that unit shall be submitted.
- d. Any increase in storm water runoff flow rate resulting from the development and based on the 5-year and 100-year storm(s) shall be retained onsite.
- e. Prior to the finalization of the first final map, an operation and maintenance plan for the maintenance of the project's storm water basin(s) and drainage channel(s) shall be developed in accordance with the Washoe County Code Article 421. The Operation and Maintenance Plan shall be incorporated into the project CC&Rs.
- f. The following note shall be added to each final map; "All properties, regardless if they are located within or outside of a FEMA Special Flood Hazard Area, may be subject to flooding. The property owner is required to maintain all drainage easements and natural drainages and not perform or allow unpermitted and unapproved modifications to the property that may have detrimental impacts to surrounding properties."
- g. The developer shall provide pretreatment for petrochemicals and silt for all storm drainage leaving the site.
- h. The Truckee Meadows Regional Storm Water Quality Management Program Construction Permit Submittal Checklist and Inspection Fee shall be submitted with each final map.
- i. Drainage swales that drain more than two lots are not allowed to flow over the curb into the street; these flows shall be intercepted by an acceptable storm drain inlet and routed into the storm drain system.
- j. A note on the final map shall indicate that all drainage facilities not maintained by Washoe County shall be perpetually maintained by a homeowner's association. The maintenance and funding of private drainage facilities shall also be addressed in the CC&Rs to the satisfaction of the District Attorney's Office.
- k. Maintenance access and drainage easements shall be provided for all existing and proposed drainage facilities. All drainage facilities located within Common Area shall be constructed with an adjoining minimum 12-foot wide all-weather access road. Maintenance access road(s) shall be provided to the bottom of proposed storm water basins as well as over County owned and maintained storm drainage facilities.
- l. Drainage easements shall be provided for all storm runoff that crosses more than one lot.

Washoe County Engineering and Capital Projects – Street Design Standards (County Code 110.436)

4. The following street design conditions are requirements of the Washoe County Engineering and Capital Projects, which shall be responsible for determining compliance with these conditions.

Contact Information: Mitchell Fink, P.E. (775) 328-2050

- a. All roadway improvements necessary to serve the project shall be designed and constructed to County standards and specifications and/or financial assurances in an appropriate form and amount shall be submitted.

- b. Roads offered for dedication to Washoe County shall be constructed and meet Washoe County standards and code requirements.
- c. Signing, striping and traffic control improvements shall comply with American Association of State Highway and Transportation Officials Design guidelines, the Manual of Uniform Traffic Control Devices and Washoe County requirements.
- d. Street names shall be reviewed and approved by the Regional Street Naming Coordinator.
- e. Proposed landscaping and/or fencing along street rights-of-way and within median islands shall be designed to meet American Association of State Highway and Transportation Officials (AASHTO) sight distances and safety guidelines. No tree shall overhang the curb line of any public street.
- f. An Encroachment and Excavation Permit shall be obtained from Washoe County Engineering and Capital Projects Division for any utilities or other encroachments/excavations constructed within existing County roadways/right-of-ways.
- g. Streetlights shall be constructed to Washoe County standards at locations to be determined at the final design stage.
- h. Sidewalks shall be constructed on both sides of all streets within the development.
- i. Appropriate curve warning signs and/or a lower speed limit shall be determined and posted on all horizontal roadway curves that do not meet the standard Washoe County 25-mile per hour design speed.
- j. Appropriate transitions shall be provided between the existing and proposed improvements at all proposed street connections. This may include removal of existing pavement.
- k. The minimum pavement requirements for roads dedicated to Washoe County shall be four inches (4") over six inches (6") granular base.
- l. Any streetlights that do not meet Washoe County standards shall be placed outside Washoe County right-of-way. These streetlights shall be private, and the CC&Rs shall indicate operation and maintenance of the streetlights shall be the responsibility of the Homeowners Association. The County Engineer and the District Attorney's Office shall determine compliance with this condition.
- m. A 20' setback is required between the back of the sidewalk and the front of the garage.
- n. Traffic calming measures over project roadways within the project boundary shall be constructed every 500 to 600 feet to the satisfaction of the County Engineer. Acceptable traffic calming measures include speed cushions, bulb outs, neck downs, chicanes and mini roundabouts.
- o. Additional school zone improvements, including, but not limited to school flashers, signage, striping and pavement markings shall be installed or relocated to the satisfaction of the County Engineer upon further evaluation.
- p. A Safe Routes to School walkway plan, including any required crossings, shall be provided for all school age pedestrians. A pedestrian walkway plan shall be approved by the County Engineer prior to the finalization of construction improvement drawings.

Washoe County Engineering and Capital Projects – Utilities (County Code 422 & Sewer Ordinance)

- 5. The following utility conditions are requirements of Washoe County Engineering and Capital Projects Division, which shall be responsible for determining compliance with these conditions.

Contact Information: Tim Simpson, P.E. (775) 954-4648

- a. No utility related conditions.

Washoe County Water Rights Coordinator

6. The following conditions are requirements of the Water Rights Coordinator, which shall be responsible for determining compliance with these conditions.

Contact Name – Timber Weiss, P.E., 775.954.4626 , tweiss@washoecounty.gov

- a. Following the possible approval of the tentative subdivision map, the potential future project will require water supply and sewer service which in turn will require the expansion of water and sewer services and annexation to SVGID service area.
- b. Valid water and sewer will serve letters will be required prior to approval of the final map proposed by this tentative map.

Washoe County Planning and Building Division

7. The following conditions are requirements of the Planning and Building Division, which shall be responsible for determining compliance with these conditions.

Contact Name – Sophia Kirschenman, Parks Planner, 775.328.3623, skirschenman@washoecounty.gov

- a. All imported materials shall be “Certified Weed Free” to prevent the spread of noxious and invasive weeds.
- b. The applicant shall utilize Best Management Practices to control the spread of noxious and invasive weeds. At a minimum, the highlighted portion in Attachment 2 (Found in Exhibit C) shall be included on the final plans and contracts.
- c. Trails shall be built in conformance with Washoe County Regional Parks and Open Space trail standards. The United States Forest Service’s standard trail specifications (Attachment 3 in Exhibit C) can be utilized for guidance.
- d. In regard to the open space dedication, Washoe County Regional Parks and Open Space offers three options:
 - a. Prior to dedication of the 7.05 acres of open space to Washoe County, the applicant shall agree that a future homeowner’s association (HOA) or landscaping maintenance association (LMA) shall maintain the dedicated open space in perpetuity and shall cause to be executed a maintenance agreement between Washoe County Regional Parks and Open Space and the HOA or LMA outlining the maintenance terms, as negotiated by Community Services Department staff and approved by the Washoe County Regional Parks and Open Space Commission and the Board of County Commissioners; or
 - b. Prior to dedication of the 7.05 acres of open space to Washoe County, a maintenance agreement between Washoe County and the applicant shall be executed outlining terms for the applicant and/or future homeowner’s association to pay Washoe County for maintenance of the dedicated open space, in perpetuity, as negotiated by Community Services Department staff and approved by the Washoe County Parks and Open Space Commission and the Board of County Commissioners; or
 - c. The applicant shall not dedicate the 7.05 acres of open space to Washoe County, instead dedicating a public trail easement over all proposed trails in the tentative subdivision map.

Washoe County School District

8. The following conditions are requirements of the Washoe County School District, which shall be responsible for determining compliance with these conditions.

**Contact Name – Kyle Chisholm, Planning Manager, 775.789.3810,
kyle.chisholm@washoeschools.net**

- a. WCSD shall be provided access to the 12' sewer access road shown on lots 17-22 and 37 for the purpose of maintenance of the WCSD property, west of the playground fence.
- b. The existing/re-routed trail at the south end of the development should shall be improved with a suitable walking surface such as asphalt base material or acceptable alternative and extend southeast towards the sidewalk at the terminus of W. 1st Ave for Safe Routes to School purposes. The applicant shall work with WCSD for grading that may be necessary on WCSD property to soften the grade of the path near the western terminus of W. 1st Avenue.
- c. Prior to the issuance of a building permit for site improvements, the applicant shall coordinate with and have plans approved by WCSD - Capital Projects staff for grading and fencing along the northern boundary between proposed lot #37 and the WCSD property.
- d. Prior to the issuance of a final map, the applicant shall provide a pedestrian safety and traffic access study prepared by a qualified traffic engineer and implement recommended mitigations into the final plans for the Whittemore Way/Dick and Jane Lane intersection located north of the existing school. The study shall evaluate adjacent school operational hours and pedestrian activities in conjunction with proposed traffic flows.

Regional Transportation Commission (RTC)

9. The following conditions are requirements of the Regional Transportation Commission, which shall be responsible for determining compliance with these conditions. The Regional Transportation Commission is directed and governed by its own board. Therefore, any conditions set by the Regional Transportation Commission must be appealed to that board.

**Contact Name – Rebecca Kapuler, Senior Planner, 775.332.0174,
rkapuler@rtcwashoe.com**

- a. Contact Scott Miklos, Trip Reduction Analyst, at 775-335-1920 or smiklos@rtcwashoe.com to discuss disbursing information to the residents regarding the RTC Smart Trips Program to promote transportation options. Mr. Miklos can assist with providing information on the RTC Smart Trips Program which includes providing materials with specific transportation options for residents which will also help reduce the pollution and congestion in the region and promote transit.
- b. New development and re-development will be encouraged to construct pedestrian and bicycle facilities, internal and/or adjacent to the development, within the regional road system. In addition, these plans recommend that the applicant be required to design and construct any sidewalks along the frontage of the property in conformance with the stated ADA specifications.

Washoe County Street Naming

7. The following conditions are requirements of the Health District, which shall be responsible for determining compliance with these conditions. The District Board of Health has

jurisdiction over all public health matters in the Health District. Any conditions set by the Health District must be appealed to the District Board of Health.

Contact Name – Stephen Hein, P.E., 775.328.2319, shein@washoecounty.gov

- a. Proposed street names shall be per the Regional Street Naming Manual and reserved to the Regional Street Directory.

Sun Valley General Improvement District

8. The following conditions are requirements of the Sun Valley General Improvement District, which shall be responsible for determining compliance with these conditions.

Contact Name – Chris Melton, Public Works Director, 775.673.2253, CMelton@svgid.com

- a. The parcel is located on the 400 block of West 2nd Ave. and in SVGID service area.
- b. Development will be subject to water and wastewater capacity study (completed).
- c. SVGID will be the water and wastewater provider.
- d. Water rights that may be required for development will need to be dedicated to SVGID for this project via TMWA Wholesale Will Serve.
- e. SVGID to be signature on the Jurat.
- f. Compliance with applicable regulations and policies of the Sun Valley General Improvement District shall be required.
- g. Development will subject to SVGID water and wastewater facility fees.

Truckee Meadows Fire Protection District

9. The following condition is a requirement of the Truckee Meadows Fire Protection District, which shall be responsible for determining compliance with this condition.

Contact Name – Brittany Lemon, Fire Captain, 775.326.6079, blemon@tmfpd.us

- a. This project shall meet and comply with all requirements of currently adopted TMFPD fire codes, ordinances, and standards at the time of construction to include infrastructure for fire apparatus access roads and water supply. <https://tmfpd.us/fire-code/>

*** End of Conditions ***

**WASHOE COUNTY
HEALTH DISTRICT**
ENHANCING QUALITY OF LIFE

March 21, 2022

Chris Bronczyk, Planner
Washoe County Community Services
Planning and Development Division
PO Box 11130
Reno, NV 89520-0027

RE: W. 2nd Avenue Highlands; 085-010-44
Tentative Subdivision Map; WTM22-003

Dear Mr. Bronczyk:

The Washoe County Health District, Emergency Medical Services (EMS) Oversight Program, has reviewed the above referenced project. Based on the proposed development packet, there may be impacts regarding EMS responses to the area, particularly during peak hours. Additionally, the addition of 48 residential lots may increase the use of the healthcare system in the region. The traffic study indicates 79 average daily trips will be generated from this project. Additionally, congestion in the thoroughfare due to projects will also impact EMS response to surrounding communities during construction.

Advanced Life Support (ALS) fire services are provided by Truckee Meadows Fire Protection District and ALS ambulance services are provided by REMSA through a Franchise agreement with the Washoe County Health District. For the parcel location, REMSA's Franchise response requirement for life-threatening calls is 8 minutes 59 seconds for 90 percent of calls. Washoe County population and franchise map response zones are evaluated annually.

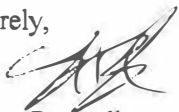
The closest hospital is Renown Regional Medical Center, which is approximately 6 miles away from the parcel, should individuals require such services. There are also several other acute care hospitals and healthcare resources available in Washoe County.

It is recommended that the address number is clearly marked on the curb and the structure(s) so the individuals can be quickly located by public safety agencies.

CC'ing Truckee Meadows and REMSA for informational purposes.

Please feel free to contact me if you have any questions.

Sincerely,



Sabrina Brasuell
EMS Coordinator
sbrasuell@washoecounty.gov
(775) 326-6043

Cc: Aaron Abbott, REMSA
Joe Kammann, TMFR





WASHOE COUNTY

COMMUNITY SERVICES DEPARTMENT

Engineering and Capital Projects

1001 EAST 9TH STREET
RENO, NEVADA 89512
PHONE (775) 328.3600
FAX (775) 328.3699

Date: March 28, 2022

To: Chris Bronczyk, Planner

From: Robert Wimer, P.E., Licensed Engineer

Re: **West 2nd Avenue Highlands TM22-003** (48 Lots)

GENERAL PROJECT DISCUSSION

Washoe County Engineering staff has reviewed the above referenced application. The proposed project consists of a 48 lot subdivision and is located on approximately 18.27 acres at the westernmost terminus of 2nd Avenue in Sun Valley. The parcel number is 085-010-44. The Engineering and Capital Projects Division recommends approval subject to the following comments and conditions of approval, which supplement applicable County Code and are based upon our review of the site and the tentative map application prepared by Lumos & Associates Inc.

Sanitary sewer service will not be provided by Washoe County.

For questions related to sections below, please see the contact name provided.

Washoe County Engineering and Capital Projects – General Land Development and Grading Standards (County Code 110.438)

1. The following conditions are requirements of the Washoe County Engineering and Capital Projects Division which shall be responsible for determining compliance with these conditions.
Contact Name: Robert Wimer, P.E. (775) 328-2059
 - a. Final maps and final construction drawings shall comply with all applicable statutes, ordinances, rules, regulations, and policies in effect at the time of submittal of the tentative map or, if requested by the developer and approved by the applicable agency, those in effect at the time of approval of the final map.
 - b. Prior to acceptance of public improvements and release of any financial assurances, the developer shall provide as-built construction drawings in an acceptable digital format prepared by a civil engineer licensed in the State of Nevada.
 - c. The developer shall provide written approval from the U.S. Postal Service (USPS) concerning the installation and type of mail delivery facilities. The system, other than individual mailboxes, must be shown on the project construction plans and installed as part of the onsite improvements.
 - d. A complete set of construction improvement drawings, including an onsite grading plan, shall be submitted to the County Engineer for approval prior to finalization of any portion of the tentative map. Grading shall comply with best management practices (BMPs) and shall include detailed plans for grading and drainage on each lot, erosion control (including BMP locations and installation details), slope stabilization and mosquito abatement. Placement or disposal of any excavated material shall be indicated on the grading plan.
 - e. All open space shall be identified as common area on the final map. A note on the final map shall indicate that all common areas shall be privately maintained and perpetually funded by the



Subject: **West 2nd Avenue Highlands TM22-003** (48 Lots)
Date: March 28, 2022
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Homeowners Association. The maintenance of the common areas shall also be addressed in the CC&Rs to the satisfaction of the District Attorney's Office.

- f. Any existing easements, facilities or utilities that conflict with the development shall be relocated, quitclaimed, and/or abandoned, as appropriate.
- g. Any easement documents recorded for the project shall include an exhibit map that shows the location and limits of the easement in relationship to the project.
- h. With each affected final map, provide written approval from all utility provider(s) for any improvements located within their easement or under or over their facilities.
- i. Appropriate easements shall be granted for any existing or new utilities, with each affected final map.
- j. A 10-foot public utility easement (PUE), a 10-foot Washoe County easement for traffic control signage, plowed snow storage and sidewalks, and a 10-foot United States Postal Service facilities easement shall be granted adjacent to all rights-of-way.
- k. A design level geotechnical investigation with fault study shall be provided with the submittal of each final map.
- l. Cut slopes, fill slopes, and berms shall be setback from parcel lines and access easements in accordance with Washoe County Code Article 438.

Washoe County Engineering and Capital Projects – Flood Hazards (County Code 110.416), Storm Drainage Standards (County Code 110.420), and Storm Water Discharge Program (County Code 110.421)

2. The following conditions are requirements of the Washoe County Engineering and Capital Projects Division which shall be responsible for determining compliance with these conditions.

Contact Name: Robert Wimer, P.E. (775) 328-2059

-
- a. The conditional approval of this tentative map shall not be construed as final approval of the drainage facilities shown on the tentative map. Final approval of the drainage facilities will occur during the final map review.
 - b. Prior to finalization of the first final map, a master hydrology/hydraulic report and a master storm drainage plan shall be submitted for approval.
 - c. Prior to finalization of any portion of the tentative map, a final, detailed hydrology/hydraulic report for that unit shall be submitted.
 - d. Any increase in storm water runoff flow rate resulting from the development and based on the 5-year and 100-year storm(s) shall be retained onsite.
 - e. Prior to the finalization of the first final map, an operation and maintenance plan for the maintenance of the project's storm water basin(s) and drainage channel(s) shall be developed in accordance with the Washoe County Code Article 421. The Operation and Maintenance Plan shall be incorporated into the project CC&Rs.
 - f. The following note shall be added to each final map; "All properties, regardless if they are located within or outside of a FEMA Special Flood Hazard Area, may be subject to flooding. The property owner is required to maintain all drainage easements and natural drainages and not perform or allow unpermitted and unapproved modifications to the property that may have detrimental impacts to surrounding properties."

Subject: **West 2nd Avenue Highlands TM22-003** (48 Lots)
Date: March 28, 2022
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- g. The developer shall provide pretreatment for petrochemicals and silt for all storm drainage leaving the site.
- h. The Truckee Meadows Regional Storm Water Quality Management Program Construction Permit Submittal Checklist and Inspection Fee shall be submitted with each final map.
- i. Drainage swales that drain more than two lots are not allowed to flow over the curb into the street; these flows shall be intercepted by an acceptable storm drain inlet and routed into the storm drain system.
- j. A note on the final map shall indicate that all drainage facilities not maintained by Washoe County shall be perpetually maintained by a homeowner's association. The maintenance and funding of private drainage facilities shall also be addressed in the CC&Rs to the satisfaction of the District Attorney's Office.
- k. Maintenance access and drainage easements shall be provided for all existing and proposed drainage facilities. All drainage facilities located within Common Area shall be constructed with an adjoining minimum 12-foot wide all-weather access road. Maintenance access road(s) shall be provided to the bottom of proposed storm water basins as well as over County owned and maintained storm drainage facilities.
- l. Drainage easements shall be provided for all storm runoff that crosses more than one lot.

Washoe County Engineering and Capital Projects – Street Design Standards (County Code 110.436)

- 3. The following street design conditions are requirements of the Washoe County Engineering and Capital Projects, which shall be responsible for determining compliance with these conditions.
Contact Information: Mitchell Fink, P.E. (775) 328-2050
 - a. All roadway improvements necessary to serve the project shall be designed and constructed to County standards and specifications and/or financial assurances in an appropriate form and amount shall be submitted.
 - b. Roads offered for dedication to Washoe County shall be constructed and meet Washoe County standards and code requirements.
 - c. Signing, striping and traffic control improvements shall comply with American Association of State Highway and Transportation Officials Design guidelines, the Manual of Uniform Traffic Control Devices and Washoe County requirements.
 - d. Street names shall be reviewed and approved by the Regional Street Naming Coordinator.
 - e. Proposed landscaping and/or fencing along street rights-of-way and within median islands shall be designed to meet American Association of State Highway and Transportation Officials (AASHTO) sight distances and safety guidelines. No tree shall overhang the curb line of any public street.
 - f. An Encroachment and Excavation Permit shall be obtained from Washoe County Engineering and Capital Projects Division for any utilities or other encroachments/excavations constructed within existing County roadways/right-of-ways.
 - g. Streetlights shall be constructed to Washoe County standards at locations to be determined at the final design stage.
 - h. Sidewalks shall be constructed on both sides of all streets within the development.

Subject: **West 2nd Avenue Highlands TM22-003** (48 Lots)
Date: March 28, 2022
Page: 4

- i. Appropriate curve warning signs and/or a lower speed limit shall be determined and posted on all horizontal roadway curves that do not meet the standard Washoe County 25-mile per hour design speed.
- j. Appropriate transitions shall be provided between the existing and proposed improvements at all proposed street connections. This may include removal of existing pavement.
- k. The minimum pavement requirements for roads dedicated to Washoe County shall be four inches (4") over six inches (6") granular base.
- l. Any streetlights that do not meet Washoe County standards shall be placed outside Washoe County right-of-way. These streetlights shall be private, and the CC&Rs shall indicate operation and maintenance of the streetlights shall be the responsibility of the Homeowners Association. The County Engineer and the District Attorney's Office shall determine compliance with this condition.
- m. A 20' setback is required between the back of the sidewalk and the front of the garage.
- n. Traffic calming measures over project roadways within the project boundary shall be constructed every 500 to 600 feet to the satisfaction of the County Engineer. Acceptable traffic calming measures include speed cushions, bulb outs, neck downs, chicanes and mini roundabouts.
- o. Additional school zone improvements, including, but not limited to school flashers, signage, striping and pavement markings shall be installed or relocated to the satisfaction of the County Engineer upon further evaluation.
- p. A Safe Routes to School walkway plan, including any required crossings, shall be provided for all school age pedestrians. A pedestrian walkway plan shall be approved by the County Engineer prior to the finalization of construction improvement drawings.

Washoe County Engineering and Capital Projects – Utilities (County Code 422 & Sewer Ordinance)

- 4. The following utility conditions are requirements of Washoe County Engineering and Capital Projects Division, which shall be responsible for determining compliance with these conditions.
Contact Information: Tim Simpson, P.E. (775) 954-4648
 - a. No utility related conditions.

From: [Lemon, Brittany](#)
To: [Bronczyk, Christopher](#)
Cc: [Way, Dale](#)
Subject: WTM22-003 (West 2nd Ave. Highlands) Conditions of Approval
Date: Tuesday, March 22, 2022 10:56:39 AM
Attachments: [image001.png](#)

Hi Chris,

“This project shall meet and comply with all requirements of currently adopted TMFPD fire codes, ordinances, and standards at the time of construction to include infrastructure for fire apparatus access roads and water supply.”

<https://tmfpd.us/fire-code/>.

Thank you.

Brittany Lemon

Fire Captain - Fire Prevention | Truckee Meadows Fire & Rescue

blemon@tmfpd.us | Office: 775.326.6079 | Cell: 775.379.0584
3663 Barron Way, Reno, NV 89511



“Committed to excellence, service, and the protection of life and property in our community”



REGIONAL TRANSPORTATION COMMISSION

Metropolitan Planning • Public Transportation & Operations • Engineering & Construction

Metropolitan Planning Organization of Washoe County, Nevada

March 17, 2022

FR: Chrono/PL 181-22

Mr. Chris Bronczyk, Planner
Community Services Department
Washoe County
PO Box 11130
Reno, NV 89520

Dear Mr. Bronczyk,

RE: WTM22-003 (West 2nd Ave Highlands)

The RTC has reviewed this request for a common open space tentative subdivision map for 48 residential lots on a currently 18.27+/- acre parcel in Sun Valley. A boundary line adjustment will take 1.05+/- acres from the parcel area. Considerations for Grading and Hillside Development are also included as part of the request.

Please ask the developer to contact Scott Miklos, Trip Reduction Analyst, at 775-335-1920 or smiklos@rtcwashoe.com to discuss disbursing information to the residents regarding the RTC Smart Trips Program to promote transportation options. Mr. Miklos can assist with providing information on the RTC Smart Trips Program which includes providing materials with specific transportation options for residents which will also help reduce the pollution and congestion in the region and promote transit.

The RTP, RTC Bicycle/Pedestrian Master Plan and the Nevada Department of Transportation Pedestrian Safety Action Plan, all indicate that new development and re-development will be encouraged to construct pedestrian and bicycle facilities, internal and/or adjacent to the development, within the regional road system. In addition, these plans recommend that the applicant be required to design and construct any sidewalks along the frontage of the property in conformance with the stated ADA specifications.

Thank you for the opportunity to comment on this application. Please feel free to contact me at 775-332-0174 or email me at rkapuler@rtcwashoe.com if, you have any questions or comments.

Sincerely,

Rebecca Kapuler
Senior Planner

CC: Dale Keller, Regional Transportation Commission
Blaine Petersen, Regional Transportation Commission,
Sara Going, Regional Transportation Commission
Tina Wu, Regional Transportation Commission
Andrew Jankayura, Regional Transportation Commission
Scott Miklos, Regional Transportation Commission

/ West 2nd Ave Highlands

From: [Chisholm, Kyle W](#)
To: [Bronczyk, Christopher](#); [Fink, Mitchell](#)
Subject: WTM22-003 (West 2nd Ave Highlands)
Date: Monday, April 4, 2022 4:33:44 PM

[**NOTICE:** This message originated outside of Washoe County -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Hi Chris,

Below are the revised WCSD recommended conditions of approval for this request. Please let me know if you have any questions or concerns.

- WCSD shall be provided access to the 12' sewer access road shown on lots 17-22 and 37 for the purpose of maintenance of the WCSD property, west of the playground fence.
- The existing/re-routed trail at the south end of the development should shall be improved with a suitable walking surface such as asphalt base material or acceptable alternative and extend southeast towards the sidewalk at the terminus of W. 1st Ave for Safe Routes to School purposes. The applicant shall work with WCSD for grading that may be necessary on WCSD property to soften the grade of the path near the western terminus of W. 1st Avenue.
- Prior to the issuance of a building permit for site improvements, the applicant shall coordinate with and have plans approved by WCSD - Capital Projects staff for grading and fencing along the northern boundary between proposed lot #37 and the WCSD property.
- Prior to the issuance of a final map, the applicant shall provide a pedestrian safety and traffic access study prepared by a qualified traffic engineer and implement recommended mitigations into the final plans for the Whittemore Way/Dick and Jane Lane intersection located north of the existing school. The study shall evaluate adjacent school operational hours and pedestrian activities in conjunction with proposed traffic flows.

Thank you,

Kyle Chisholm

School Property Planning Manager
Washoe County School District, Capital Projects
Office: (775) 789-3810
Email: Kyle.Chisholm@WashoeSchools.Net





Nevada Division of
WATER RESOURCES

STATE OF NEVADA
Department of Conservation and Natural Resources
Steve Sisolak, *Governor*
Bradley Crowell, *Director*
Adam Sullivan, P.E., *State Engineer*

March 18, 2022

To: Rodger Pelham
Washoe County Community Services
Building and Planning
1001 East 9th Street
Reno, NV 89512

Re: Comments on 21224-T, WTM22-0002

Name: West 2nd Avenue Highlands

County: Washoe County – Sun Valley, West 2nd Avenue and Whitmore Way

Location: A portion of the SW¼ SW¼ of Section 19, Township 20 North, Range 20, East, MDB&M.

Plat: Tentative: Forty-eight (48) lots, common areas, and rights-of-way totaling approximately 18.27 acres and being Washoe County Assessor’s Parcel Number 085-010-44.

Water Service Commitment

Allocation: No water has been allocated for this project. No estimate of demand is available.

Owner-Developer: Lumos & Associates
9222 Prototype Drive
Reno, NV 89521

Engineer: Lumos & Associates
9222 Prototype Drive
Reno, NV 89521

Water Supply: Sun Valley Water and Sanitation District

General: There are no active water rights appurtenant to the described lands in this proposed project. The lands of the proposed project lie within the Sun Valley Water and Sanitation District service area. Any water used on the described lands should be provided by an established utility or under permit issued by the State Engineer's Office.

All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions of Chapters 533 and 534 of the Nevada Revised Statutes (NRS), and not otherwise.

Any water or monitor wells, or boreholes that may be located on either acquired or transferred lands are the ultimate responsibility of the owner of the property at the time of the transfer and must be plugged and abandoned as required in Chapter 534 of the Nevada Administrative Code. If artesian water is encountered in any well or borehole it shall be controlled as required in NRS § 534.060(3).

Municipal water service is subject to Sun Valley Water and Sanitation District rules and regulations and approval by the Office of the State Engineer regarding water quantity and availability.

A Will Serve from Sun Valley Water and Sanitation District and mylar map of the proposed project must be presented to the State Engineer for approval and signed through his office prior to development.

Action: Approval of West 2nd Avenue Highlands will be based on acceptance of Water Will Serve by Sun Valley Water and Sanitation District.

Best regards,

Steve Shell

Steve Shell
Water Resource Specialist II

From: [Hein, Stephen](#)
To: [Bronczyk, Christopher](#)
Subject: Re: March Agency Review Memos I & II
Date: Monday, March 14, 2022 3:54:47 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[Outlook-5ln40epg.png](#)
[Outlook-xvu1abhs.png](#)
[Outlook-ra5xxabw.png](#)
[Outlook-ugzmrkw.png](#)
[Outlook-vqchn0cw.png](#)

Hey Chris,

Here is the only comment I have regarding Street Naming:

1. Proposed street names shall be per the Regional Street Naming Manual and reserved to the Regional Street Directory.

Let me know if you have any questions.

P.S. Do you have Kentucky going out 1st or 2nd round? St. Peters is such a beast



Stephen Hein, P.E. | Licensed Engineer

Engineering & Capital Projects Division | CSD

SHein@washoecounty.us | Office: 775.328.2319

1001 East Ninth Street, Reno, NV 89512



Have some kudos to share about a Community Services Department employee or experience?

Email: csdallstars@washoecounty.us

Stay healthy-keep calm-wash your hands.

From: Kerfoot, Lacey <LKerfoot@washoecounty.gov>

Sent: Monday, March 14, 2022 3:36 PM

To: Schull, Shyanne <SSchull@washoecounty.gov>; Holly, Dan <DHolly@washoecounty.gov>; Gustafson, Jennifer <jgustafson@da.washoecounty.gov>; Large, Michael <mlarge@da.washoecounty.gov>; Smith, Dwayne E. <DESmith@washoecounty.gov>; Heeran, Jennifer <JHeeran@washoecounty.gov>; Giesinger, Chad <CGiesinger@washoecounty.gov>; West, Walt <WWest@washoecounty.gov>; Wimer, Robert <RWimer@washoecounty.gov>; Crump, Eric S <ECrump@washoecounty.gov>; Kirschenman, Sophia <SKirschenman@washoecounty.gov>; Simpson, Tim <TSimpson@washoecounty.gov>; Hein, Stephen <SHein@washoecounty.gov>; Handrock, Wayne <WHandrock@washoecounty.gov>; Philumalee, Matthew <MPhilumalee@washoecounty.gov>; Fink, Mitchell <MFink@washoecounty.gov>; WRWC <WRWC@washoecounty.gov>; Behmaram, Vahid <VBehmaram@washoecounty.gov>; Weiss,

From: cmelton@svgid.com
To: [Bronczyk, Christopher](#)
Cc: [Jennifer Merritt](#)
Subject: WTM22-003 (West 2nd Ave Highlands)
Date: Monday, March 14, 2022 3:57:36 PM

[**NOTICE:** This message originated outside of Washoe County -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Good afternoon Chris,

This email is in response to WTM22-003 (West 2nd Ave. Highlands) APN: 085-010-44 (18.27 Acres) into 48 parcels.

Sun Valley GID comments on parcel map case number WTPM22-003.

1. The parcel is located on the 400 block of West 2nd Ave. and in SVGID service area.
2. Development will be subject to water and wastewater capacity study (completed).
3. SVGID will be the water and wastewater provider.
4. Water rights that may be required for development will be need to be dedicated to SVGID for this project via TMWA Wholesale Will Serve.
5. SVGID to be signature on the Jurat.
6. Compliance with applicable regulations and policies of the Sun Valley General Improvement District shall be required.
7. Development will subject to SVGID water and wastewater facility fees.

Thank you,

Chris Melton
Public Works Director
Sun Valley General Improvement District
5000 Sun Valley Blvd.
Sun Valley, NV 89433
Phone: 775-673-2253
Fax: 775-673-7708
CMelton@svgid.com
Website: www.svgid.com

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WASHOE COUNTY
COMMUNITY SERVICES
INTEGRITY COMMUNICATION SERVICE

P.O. Box 11130
Reno, Nevada 89520-0027
Phone: (775) 328-3600
Fax: (775) 328-3699

March 24, 2022

TO: Chris Bronczyk, Planner, CSD, Planning & Development Division
FROM: Timber Weiss, Licensed Engineer, CSD
SUBJECT: Tentative Subdivision Map Case Number WTM22-003 (West 2nd Ave Highlands)

Project description:

For hearing, discussion and possible action to approve a 48-lot residential common open space subdivision with associated grading.

Project located at the western end of West Second Avenue. • Assessor's Parcel Number: 085-010-44.

The Community Services Department (CSD) recommends approval of this project with the following Water Rights comments & conditions:

Comments:

The application indicates that Municipal water service will be provided by the Sun Valley General Improvement District (SVGID).

Conditions:

There are no water rights conditions for approval of this tentative map. Following the possible approval of the tentative subdivision map, the potential future project will require water supply and sewer service which in turn will require the expansion of water and sewer services and annexation to SVGID service area.

Valid water and sewer will serve letters will be required prior to approval of the final map proposed by this tentative map.



Washoe-Storey Conservation District

Bret Tyler Chairman
Jim Shaffer Treasurer
Cathy Carfield Storey app.
Jean Herman Washoe app.

1365 Corporate Blvd.
Reno NV 89502
775 857-8500 ext. 131
nevadacconservation.com

March 21, 2022

Washoe County Community Services Department

C/O Chris Bronczyk, Planner

1001 E Ninth Street, Bldg. A

Reno, NV 89512

WTM22- 003 West 2nd Ave Highlands

Dear Chris,

In reviewing the approval of a 48-lot residential common open space subdivision, the District has the following comments.

With the proposed detention basin, we recommend as a condition for approval to construct a low flow channel between the inlet to outlet pipe, lining the flow line with 4–6-inch rock. Additionally construct two feet by three feet deep infiltration trench below the low flow channel to encourage ground water recharge and minimize downstream water runoff.

Additionally, we recommend for the typical front lot a xeriscape landscape look and if turf is allowed a three-foot landscape buffer from the back face of sidewalk and or curb minimizing water runoff in the detention basin and downstream.

The District will require a revegetation plan or if one is proposed that includes a seed mix based on the soil, contingency water plan, fertilizer plan, erosion control structures and a monitoring plan with updates provided to the Conservation District after the growing season (October 31) every year for a three-year period.

To prevent the spread of noxious weeds in the relocation of 5,000 cubic yards of material, the applicant develops an onsite noxious weeds management plan to ensure weed seeds do not impact other areas, utilizing certified weed free material.

If rockery walls are constructed, the District will require the voids in the face of the rockery walls entire height filled with smaller rock to prevent the undermining by small animals

The District will require an earth tone color palette for the exterior building finishes and roofing material that is environmentally friendly.

The proposed lighting for the project follows Washoe County code as it relates to dark sky illumination.

Thank you for the opportunity to review the project that may have impacts on our natural resources and any questions call us at 775-750-8272.

Sincerely,

Jim Shaffer



WASHOE COUNTY
COMMUNITY SERVICES DEPARTMENT
Regional Parks and Open Space

1001 EAST 9TH STREET
 RENO, NEVADA 89520-0027
 PHONE (775) 328-3600
 FAX (775) 328.3699

TO: Chris Bronczyk, Planner

FROM: Sophia Kirschenman, Park Planner

DATE: April 5, 2022

SUBJECT: Tentative Subdivision Map Case Number WTM22-003 (West 2nd Avenue Highlands)



I have reviewed WTM22-003 on behalf of the Washoe County Regional Parks and Open Space Program (Parks Program) and prepared the following comments:

If approved, this subdivision map would approve a 48-lot, common-open-space subdivision in Sun Valley, along with the associated grading required to facilitate the project. The subject site is located south of West 2nd Avenue between Chocolate Drive and Whittemore Way. It is situated between Lois Allen Elementary School to the east and Red Hill Open Space, owned by the Parks Program, to the west. The subject site is characterized by a variety of existing social trails that traverse the property. The applicant is proposing the construction of several trails that would reroute the existing social trails and provide connectivity from the northern end of the site to the southern and southeastern portion of the site. This would provide trail connectivity from Lois Allen Elementary School to Red Hill Open Space and the future Sun Valley Rim Trail (see Attachment 1). There is also an access road at the end of the cul-de-sac on the southern end of the subdivision that would double as trail access for future residents.

The application indicates that the project would require approximately 43,500 cubic yards of cut with 45,900 cubic yards of fill. The application also indicates that approximately 7.05 acres of open space along the eastern and southern portions of the parcel are to be dedicated to the Park Program. While the dedication is consistent with the Red Hill Master Plan, it is the current direction of the Park Program not to accept additional open space unless a homeowner’s or landscaping maintenance association agrees to maintain the area. Given these considerations, the Parks Program offers the following conditions of approval:

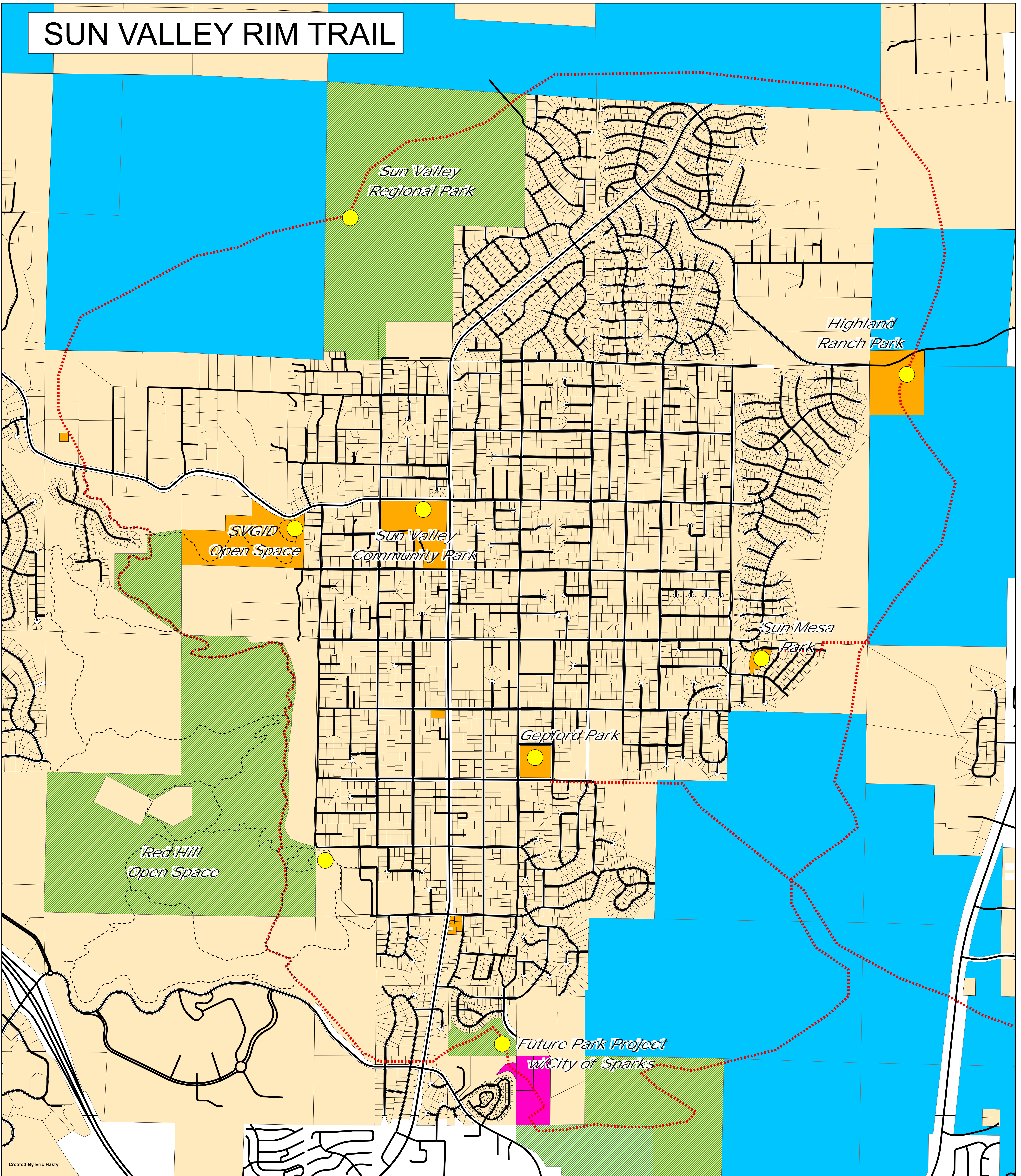
1. All imported materials shall be “Certified Weed Free” to prevent the spread of noxious and invasive weeds.
2. The applicant shall utilize Best Management Practices to control the spread of noxious and invasive weeds. At a minimum, the highlighted portion in Attachment 2 shall be included on the final plans and contracts.



Memo to: Chris Bronczyk
Subject: WTM22-003
Date: April 5, 2022
Page: 2

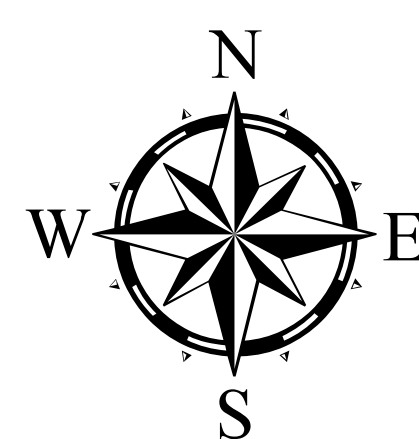
3. Trails shall be built in conformance with Washoe County Regional Parks and Open Space trail standards. The United States Forest Service's standard trail specifications (Attachment 3) can be utilized for guidance.
4. In regard to the open space dedication, Washoe County Regional Parks and Open Space offers three options:
 - a. Prior to dedication of the 7.05 acres of open space to Washoe County, the applicant shall agree that a future homeowner's association (HOA) or landscaping maintenance association (LMA) shall maintain the dedicated open space in perpetuity and shall cause to be executed a maintenance agreement between Washoe County Regional Parks and Open Space and the HOA or LMA outlining the maintenance terms, as negotiated by Community Services Department staff and approved by the Washoe County Regional Parks and Open Space Commission and the Board of County Commissioners; or
 - b. Prior to dedication of the 7.05 acres of open space to Washoe County, a maintenance agreement between Washoe County and the applicant shall be executed outlining terms for the applicant and/or future homeowner's association to pay Washoe County for maintenance of the dedicated open space, in perpetuity, as negotiated by Community Services Department staff and approved by the Washoe County Parks and Open Space Commission and the Board of County Commissioners; or
 - c. The applicant shall not dedicate the 7.05 acres of open space to Washoe County, instead dedicating a public trail easement over all proposed trails in the tentative subdivision map.

SUN VALLEY RIM TRAIL



Created By Eric Hasty

- | | | |
|------------------|-------------------------|--------------------|
| Private | Washoe County Park | Proposed Trailhead |
| Federal Property | Red Hill Proposed Trail | |
| City of Sparks | Proposed Trail | |
| SVGID Park | Roads | |



0.5 Miles





Measures to Prevent the Spread of Noxious and Invasive Weeds During Construction Activities

**Steven Siegel, Environmental Scientist
Sierra Pacific Power Company**

**Susan Donaldson, Water Quality Education Specialist
University of Nevada Cooperative Extension**

Invasive weeds are plants that have been introduced into an environment outside of their native range, where they have few or no natural enemies to limit their spread. Invasive weeds affect us all—as homeowners, taxpayers, consumers, tourists, and land managers. Some invasive weeds are designated as noxious in Nevada state law, requiring control by the property owner or manager.

The spread of invasive and noxious weeds is a significant issue in construction projects that involve land disturbance. Earth moving activities contribute to the spread of weeds, as does the use of contaminated construction fill, seed, or erosion-control products. Permits for construction projects may now require that measures be incorporated to identify and manage these weeds.

Experience has demonstrated that prevention is the least expensive and most effective way to halt the spread of noxious and invasive weeds. Preventing the establishment or spread of weeds relies upon:

- Educating workers about the importance of managing weeds on an ongoing basis;
- Properly identifying weed species;
- Avoiding or treating existing weed populations; and
- Incorporating measures into projects that prevent weed seeds or other plant parts from establishing new or bigger populations such as certification of weed-free products.

A search was conducted of Internet sites and published permit requirements that incorporate weed prevention measures to determine appropriate practices to prevent weed spread during projects involving land disturbance. These measures may not be applicable or appropriate for all projects, but the list below should contain at least a few useful measures for any project. The weed management process should include education, weed identification, avoidance or treatment and reclamation of bare or disturbed areas. Following the list of management practices, we have provided sample suggested language for inclusion in contracts for projects that may be impacted by weed invasion.

Construction and Property Maintenance

1. Incorporate a strategy of integrated weed management into construction layout, design, and project alternatives evaluation.
2. Remove or treat seed sources and other viable reproducing plant parts that could be spread by construction disturbance or by passing vehicles or foot traffic.
3. Avoid moving weed-infested gravel, rock and other fill materials to relatively weed-free locations. Gravel and fill should come from weed-free sources. Inspect gravel pits and fill sources to identify weed-free sources.
4. Identify existing noxious weeds along access roads and control them before construction equipment moves into relatively weed-free areas.
5. Clean off-road equipment (power or high-pressure cleaning) of all mud, dirt, and plant parts before moving into relatively weed-free areas.
6. Minimize the removal of roadside vegetation during construction, maintenance and other ground-disturbing activities.
7. Use only certified weed-free straw and mulch for erosion control projects. Consider the use of weed-free fiber roll barriers or sediment logs.
8. Minimize contact with roadside sources of weed seed that could be transported to other areas.
9. Keep active road construction sites that are in relatively weed-free areas closed to vehicles that are not involved with construction.
10. Road maintenance programs should include monitoring and treatment for noxious weeds.
11. Provide training to management and workers on the identification of noxious weeds, the importance of noxious weed control and measures to minimize their spread.
12. Quickly treat individual plants or small infestations before they become established, produce seed or are able to spread.

Seeding and Planting

1. Obtain soil components and mulches from weed-free sources.
2. Purchase and use only certified weed-free seed.
3. Reestablish vegetation on all bare ground (including areas denuded by fire) to minimize weed spread.
4. Ensure establishment and maintenance of vigorous, desirable vegetation to discourage weeds.
5. Minimize contact with sources of weed seed in areas not yet revegetated.
6. Monitor all seeded sites for weed infestation. Treat all weeds adjacent to newly seeded areas prior to planting and treat planted areas for weeds in the first growing season.
7. Mulch to minimize the amount of noxious weed seeds that will reach the soil surface and subsequently germinate.

Grazing and Livestock Management

1. Refrain from grazing or moving cattle through populations of noxious weeds while they are setting seed or when fruit is ripened.

2. Purchase only weed-free hay and other feed.
3. Keep cattle and other livestock out of newly planted areas.
4. Employ rotational grazing and other management strategies that minimize soil disturbance.
5. Purge animals with weed-free feed for five days before moving them from infested to non-infested areas

General

1. Identify and map noxious weed populations on lands that you own or manage. Provide mapping information using the protocol for your state's weed mapping efforts. Contact the Natural Resources Conservation Service, 775-784-5863 ext. 118, for Nevada's protocol.
2. Suppress fires that may impact native plant populations. Clean vehicles that may contribute to the spread of weeds during fire fighting activities.
3. Minimize soil disturbances caused by water, vehicle, and animal traffic in weed infested areas.
4. Minimize transport of weed seeds or reproductive weed parts by irrigation water.

Suggested Construction Contract Wording for Weed Prevention

Note: This section is provided as an example of language that can be included in construction contracts when appropriate to help prevent the spread of weeds. Nevada Revised Statutes Chapter 555 advises that the control of noxious weeds is the responsibility of every landowner or occupant. This suggested contract wording can be modified as needed to fit individual projects.

Prior to any construction disturbance you will:

- Identify and map all noxious and invasive weed populations present in the project area
- Treat or contain any weed populations that may be impacted or disturbed by construction activity
- Flag all weed populations to be avoided
- Provide training to construction workers and equipment operators on the identification of weeds to be avoided
- Certify that all construction material sources used for supplies of sand, gravel, rock and mulch are weed-free prior to obtaining or transporting any material from them
- Obtain and use only certified weed-free straw or use fiber roll logs for sediment containment
- Wash and inspect all vehicles for weed seeds and plant parts prior to bringing them onto the job site
- Install stormwater Best Management Practices to prevent erosion of the job site and the potential transport of weedy material onto or off of the job site

During construction you will:

- Minimize ground disturbance and vegetation removal as much as possible and practical

- Wash, or using an air compressor, blow clean all vehicles (including tires and undercarriage) that may have entered weed-infested areas prior to entering uninfested areas of the job site
- Restrict vehicles or other traffic that may transport weed seeds or plant material from entering the job site unless they are first washed and inspected

After construction is complete you or the property owner will:

- Revegetate or otherwise prevent the establishment of weeds in all areas of the job site through a program of monitoring and post-construction weed treatment for the life of the project
- Revegetate using soil components and mulches obtained from non-weed infested sources
- Utilize seed and other plant materials that has been checked and certified as noxious weed-free and that has a weed content of 0.05 percent or less
- Revegetate using plant materials that have a high likelihood of survival
- Maintain all planted material and native vegetation located on the project site for the life of the project

References:

- California Bureau of Land Management. 2003. Weed Management and Prevention Guidelines for Public Lands. <http://www.ca.blm.gov/pa/weeds/weedprevent.html>
- Center for Invasive Plant Management. 2003. Guidelines for Coordinated Weed Management of Noxious Weeds: Development of Weed Management Areas, Section IV: Prevention and Early Detection and Appendix 1: Sample Contracts, Agreements and Memorandums of Understanding. <http://www.weedcenter.org/management/guidelines/tableofcontents.html>
- Colorado Bureau of Land Management. 1991. Prototype Weed Prevention Measures. <http://www.co.blm.gov/botany/lolostip.htm>
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STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FOREST SERVICE PROJECTS

U.S. Customary Units

National Technology and Development Program

10/30/2014

Supersedes the 1996 Standard Specification for Construction and Maintenance of Trails

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Section 900

General Specifications

Section 901—Terms, Format, Abbreviations and Definitions

901.01 Meaning of Terms. These specifications are generally written in the imperative mood. In sentences using the imperative mood, the subject “the Contractor,” is implied. Also implied in this language is “shall,” “shall be,” or similar words or phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project.

Wherever “*directed*,” “*required*,” “*prescribed*,” or similar words are used, the “*direction*,” “*requirement*,” or “*order*” of the Contracting Officer is intended. Similarly, wherever “*approved*,” “*acceptable*,” “*suitable*,” “*satisfactory*,” or similar words are used, they mean “*approved by*,” “*acceptable to*,” or “*satisfactory to*” the Contracting Officer.

The word “*will*” generally pertains to decisions or actions of the Contracting Officer.

Whenever in these specifications, or in other contract documents, the following terms (or pronouns in place of them) are used, the intent and meaning shall be interpreted as follows: reference to a specific standard, test, testing method, or specification shall mean the latest published edition or amendment that is in effect at the solicitation issue date for the public works contracts.

901.02 Specification Format These specifications are divided into Sections.

Sections 900 through 906, 908 and 909 consist of general contract requirements for which no direct payment is made. The requirements contained in Sections 900 through 906 are applicable to all contracts.

Sections 907, 908, 909 and 910 through 989 consist of construction contract requirements for specific items of work. Work under these Sections is paid for directly or indirectly according to Subsection 906.04 and the Section ordering the work. When there is no pay item in the bid schedule, no direct payment is made.

Sections 990 through 999 contain the material requirements for Sections 910 through 989. No direct payment is made in Sections 990 through 999. Payment for material is included as part of the work required in Sections 910 through 989.

The first three digits of the pay item number identify the Section under which the work is performed.

901.03 Abbreviations. Whenever these abbreviations are used in the specifications, they represent the following:

(a) Acronyms

AASHTO	American Association Of State Highway And Transportation Officials
ABS	Acrylonitrile-Butadiene-Styrene

AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
AQ	Actual Quantities
APA	American Plywood Association
ASTM	American Society For Testing And Material
AWPA	American Wood Protection Association
CO	Contracting Officer
C.F.	Cubic Feet
C.Y.	Cubic Yard
DQ	Design Quantities
EA	Each
FAR	Federal Acquisition Regulation
g	Grams
HDPE	High-Density Polyethylene
hr	Hour
kg	Kilogram
kN	Kilonewtons
lb	Pound
L.F.	Linear Feet
LS	Lump Sum
LSQ	Lump Sum Quantities
m	Meter
m ²	Square Meter
m ³	Cubic Meter
mi	Mile
mm	Millimeter
MPa	Megapascals
MSE	Mechanically Stabilized Earth
N	Newton
NBS	National Bureau Of Standards
NCMA	National Concrete Masonry Association
OSHA	Occupational Safety & Health Administration
Pa	Pascal
PE	Polyethylene
PS	Product Standard Issued By The U.S. Department Of Commerce
psi	Pounds Per Square Inch
PVC	Polyvinyl Chloride
S.F.	Square Feet
SQ	Staked Quantities
S.Y.	Square Yard
WCLIB	West Coast Lumber Inspection Bureau
WWPA	Western Wood Products Association
WWPI	Western Wood Preservers Institute

Additional abbreviations may be found in Section 101.03 of the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03).

(b) Slope notation (vertical: horizontal). For slopes flatter than 1:1, express the slope as the ratio of one unit vertical to a number of units horizontal. For slopes steeper than 1:1, express the slope as the ratio of a number of units vertical to one unit horizontal.

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

Barriers. A fence or other obstacle that prevents movement or access.

Base Course. The layer or layers of specified material of designed thickness placed on a trailbed to support surfacing.

Batter. A backward and upward slope of the face of a wall.

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

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

Bridge. A trail structure, including supports, erected over a depression or obstruction such as a body of water, a road, a trail, or a railroad that provides a continuous pathway and that has a deck for carrying traffic or other loads.

Cap Rock. Rock placed in the top or uppermost layer in a constructed rock structure, such as a talus or rubble rock section or rock retaining wall.

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

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

Climbing Turn. A reverse in direction of trail grade without a level landing used to change elevation on a steep slope.

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

Contracting Officer (CO). An official of the Government with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the CO acting within the limits of their authority as delegated by the CO.

Culvert. Any structure with a bottom, regardless of the fill depth, the depth of invert, or the presence of a horizontal driving surface, or any bottomless (natural

channel) structure with footings that does not have wheel loads in direct contact with the top of the structure.

Curb. A border defining the edge of the trail or trail bridge.

Cushion Material. Native or imported material generally placed over rocky section of unsurfaced trail to provide a usable and maintained traveled way.

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

Drawings. Design sheets or fabrication, erection, or construction details submitted to the Government by the Contractor according to FAR Clause 52.236-21 Specifications and Drawings for Construction. Also refers to submissions and submittals.

Duff. Organic material overlying rock or mineral soil.

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

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

Falsework. Temporary construction work on which a main work is wholly or partly built and supported until the main work is strong enough to support itself.

Ford. A water-level stream crossing constructed to provide a level surface for safe traffic passage.

Full Bench. Trailbed constructed entirely on undisturbed material.

Gabion Basket. Rectangular wire baskets filled with rock used as pervious, semiflexible building blocks for slope and foundation stabilization.

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

Hazard Tree. An unstable tree that is likely to fall across the trail.

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

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

Leave Tree. Trees designated to be left or to remain undisturbed after trail construction.

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

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

Plans. The contract plans furnished by the Government showing the location, type, dimensions, and details of work.

Retainers. Embedded border of wood or rock used to retain fill and/or surface material.

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

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

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

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

Standard Plans. Detailed plans approved for repetitive use and included as part of the plans.

Standard Specifications. The Standard Specifications for Construction of Trails on Federal Projects approved for general application and repetitive use.

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

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

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

Trailbed. The finished surface on which base course or surfacing may be constructed. For trails without surfacing the trailbed is the tread.

Trailway. The portion of the trail within the limits of the excavation and embankment.

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

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

Waterbar. A structure used for turning water off the trail, usually made of logs or stones.

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

Additional definitions may be found in Section 101.03 of the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03).

Section 902—Intent of Contract

902.01 Intent of Contract. The intent of the contract is to provide for the construction and completion of the work described. The precise details of performing the work are not stipulated except as considered essential for the successful completion of the work. Furnish all labor, material, equipment, tools, transportation, and supplies necessary to complete the work according to the contract.

Section 903—Control of Work

903.01 Specifications and Drawings. Follow the requirements of FAR Clause 52.236-21 Specifications and Drawings for Construction.

(a) General. Prepare drawings as necessary to construct the work. Drawings include, but are not limited to, layouts that show the relative position (vertical and horizontal as appropriate) of work to be performed, fabrication details for manufactured items and assemblies, installation and erection procedures, details of post-tensioning and other systems, detailed trench and excavation procedures that conform to OSHA requirements, traffic control implementation drawings, and methods for performing work near existing structures or other areas to be protected. Show all the drawing dimensions in United States customary units.

Drawings shall be a minimum size of 11 by 17 inches and a maximum size of 24 by 36 inches. All text should have a minimum height of 1/8 inch for 24 by 36 inch drawings (D size sheets). Include on each drawing and calculation sheet, the project number, name, and other identification as shown in the contract.

Furnish 5 sets of drawings and supporting calculations for acceptance before performing work covered by the drawings. If drawings are returned for revision, correct and resubmit for acceptance. Allow 40 days per submission for railroad structures and 30 days per submission for all other structures. The review time as specified is applied separately to each drawing submitted. The CO may request additional specific drawings for unique situations in order to clarify layout, construction details, or methodology. If drawings must be resubmitted, the time for acceptance starts over. Obtain written approval before changing or deviating from the accepted drawings.

(b) Specific requirements for concrete and miscellaneous structures.

(1) Furnish drawings for the following:

- (a) Site-specific layouts for all wall types and gabion installations;
- (b) Gabion and revet mattress details and installation procedures;
- (c) Forms and falsework for reinforced concrete box culverts less than or equal to 6 feet in height;

- (d) Fabrication drawings for bridge railings and parapets;
 - (e) Fabrication drawings for prestressed members;
 - (f) Fabrication and installation drawings for expansion joint assemblies;
 - (g) Fabrication drawings for bearing assemblies;
 - (h) Construction joint location and concrete deck placement sequences not shown on the plans;
 - (i) Erection diagrams for Soil-Corrugated Metal Structure interaction systems (multi-plate structures);
 - (j) Structural steel fabrication drawings;
 - (k) Utility hangar details; and
 - (l) Fabrication and installation drawings for precast items.
- (2) Furnish drawings that bear the seal and signature of a professional engineer proficient in the pertinent design field for the following:
- (a) Erection plans;
 - (b) Reinforced soil slopes details;
 - (c) MSE wall and crib wall details;
 - (d) Details and installation procedures for proprietary wall systems;
 - (e) Temporary bridge structures for public use;
 - (f) All bridge forms except for railings, parapets, and components less than 6 feet in height;
 - (g) Shoring systems and cofferdams greater than 6 feet in height;
 - (h) All shoring systems that support traffic loadings;
 - (i) Forms and falsework for all structures greater than 6 feet in height;
 - (j) Post-tensioning systems;
 - (k) Ground anchors, soil nail, and rock bolt assembly details, layout, and installation and testing procedures;
 - (l) Tie back wall details; and
 - (m) Alternate retaining wall details.
- (3) Furnish drawings that bear the seal and signature of a professional engineer who is proficient in forms and falsework

design and licensed in the state where the project will be constructed for the following:

- (a) Falsework for any structure with a span exceeding 16 feet;
- (b) Falsework for any structure with a height exceeding 14 feet; and
- (c) Falsework for structures where traffic, other than workers involved in constructing the structure, will travel under the structure.

Section 904—Control of Materials

904.01 Handling Materials. Transport and handle all materials to preserve their quality and fitness for the work. Stockpile, load, and transport aggregates in a manner that will preserve specified gradation and avoid contamination.

Store materials to assure the preservation of their quality and fitness for the work. Locate stored materials to facilitate their prompt inspection. Sites on Government-administered land that are not already designated may be used for storage purposes and for placing of equipment only when approved in advance by the CO. Restore all storage sites in accordance with requirements SHOWN ON THE PLANS or as otherwise specified. Arrangements for storage on other than designated sites are the responsibility of the contractor.

904.02 Material Sources

(a) Designated Sources. Sources for materials such as, but not limited to, soil, rock, or logs that are not available from trailway excavation or clearing operations will be designated. Sources of local materials designated in the SPECIAL CONTRACT REQUIREMENTS or SHOWN ON THE PLANS are guaranteed by the Government for the quality and quantity of material in the source.

Use all needed suitable material from the source. The designation of a source includes the right to use areas SHOWN ON THE PLANS for the purposes designated (such as plant sites, stockpiles, and haul roads). Operations are restricted to the confines of the area(s) designated.

Comply with the requirements of 30 CFR 56, subparts B and H. When required, re-establish vegetation in disturbed areas according to section 981.

(b) Contractor-Furnished Sources. Furnish material that produces an end product equivalent in performance to that specified.

904.03 Restoration. Shape and grade borrow areas on Government-administered land to make them stable and to minimize future erosion. Dispose of debris resulting from development of material sources by scattering, unless otherwise specified. Do not scatter debris within the clearing limits of trails or within roadsides. Cut off stumps to less than 12 inches above the ground as measured on the uphill side of the stump.

Section 905—Quality Assurance and Quantity Measurement

Description

905.01 This work consists of providing certification that the quality and quantity of construction conform to the plans, specifications, and requirements of the contract.

Construction

905.02 Certification and Measurements

(a) Offsite-Produced Materials. Furnish signed certificates executed by the manufacturer, supplier, or vendor, stipulating that all offsite-produced materials incorporated in the work meet applicable requirements SHOWN ON THE PLANS or stated in the specifications. Furnish a certificate for each commodity or invoice.

(b) Quantity Measurements. Submit quantities to the CO for periodic progress payments, and the CO will compute payments. Quantities are subject to verification.

905.03 Records. Maintain a set of contract plans depicting as-built conditions resulting from approved changes. Maintain the plans in a current condition and indicate changes from the original contract plans in red. Give the plans to the CO upon the completion of the contract work.

Measurement

905.04 Method. There will be no separate measurement for this item.

Payment

905.05 Payment will be considered incidental to other pay items in this contract.

Section 906—Measurement and Payment

906.01 General. Measurement and payment for contract work will be made only for and under those pay items included in the SCHEDULE OF ITEMS. All other work and materials will be considered incidental and included in the payment of the PAY ITEMS in the SCHEDULE OF ITEMS.

When more than one class, size, or thickness is specified in the SCHEDULE OF ITEMS for any PAY ITEM, suffixes will be added to the item number to differentiate between the items.

906.02 Determination of Quantities. The following measurements and calculations are to be used to determine contract quantities for payment:

Make measurements for seeding, geotextiles, and erosion control blankets along slope lines.

For retaining walls, measure by the square foot of front wall face.

Measure structures according to neat lines SHOWN ON THE PLANS or as altered by the CO in writing to fit field conditions. Make measurements along the centerline and parallel to the specified grade or foundation or as SHOWN ON THE PLANS.

Deduct lengths for stairways, turnpike, puncheon, retaining walls, wire baskets, switchbacks, bridges, and bridge approaches from the measurement of excavation in Section 911 unless these items are specified as incidental to excavation in Section 911.

For standard manufactured items, such as fence, wire, plates, rolled shapes, and pipe conduits identified by gage, weight, section dimensions, and the like, such identification shall be considered the nominal weights or dimensions. Manufacturer's tolerances will be accepted unless controlled by tolerances in the cited specifications.

906.03 Units of Measurement. Payment will be made by units defined and determined according to U.S. Customary measure and by the following:

(a) Cubic Yard. A measurement computed by one of the following methods:

- (1) Excavation, embankment, or borrow. The measurement computed by the average-end-area method from measurements made longitudinally along a centerline or other reference line.
- (2) Material in place or stockpiled. The measurement computed with the dimensions of the in-place material using average-end-area method or prismoidal formula.
- (3) Material in the Delivery Vehicle. The measurement computed using measurements of material in the hauling vehicles at the point of delivery.

Vehicles shall be loaded to at least their water-level capacity. Leveling of the loads may be required when vehicles arrive at the delivery point.

- (b) Each (EA). One complete unit, which may consist of one or more parts.
- (c) Lump Sum (LS). The quantities that denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job.

906.04 Methods of Measurement. One of the following methods of measurement for determining final payment is DESIGNATED ON THE SCHEDULE OF ITEMS for each PAY ITEM:

(a) Designed Quantities. These quantities denote the final number of units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, and plans. Changes in the number of units DESIGNATED IN THE SCHEDULE OF ITEMS may be authorized under the following conditions:

- (1) As a result of changes in the work approved by the CO.
- (2) As a result of the CO determining that errors exist in the original design that cause a PAY ITEM quantity to change by 15 percent or more.
- (3) As a result of the contractor submitting to the CO a written request showing evidence of errors in the original design that cause a PAY ITEM quantity to change by 15 percent or more. The evidence must be verifiable and consist of calculations, plans, or other data that show how the designed quantity is believed to be in error.

- (b) Staked Quantities (SQ). These quantities are determined from staked measurements prior to the construction.
- (c) Actual Quantities (AQ). These quantities are determined from measurement of completed work.
- (d) Vehicle Quantities. These quantities are measured or weighed in hauling vehicles.
- (e) Lump Sum Quantities (LSQ). These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job.

906.05 Government-Furnished Materials. When materials are furnished by the Forest Service, the note "Government-Furnished Materials" will be added to the description of the PAY ITEM.

Section 907—Mobilization

Description

907.01 This work consists of moving personnel, equipment, material, and incidentals to the project and performing all work necessary before beginning work at the project site. Mobilization includes the costs associated with obtaining permits, insurance, and bonds. Mobilization is not intended to pay for the costs of materials before they are used on the project site.

Payment

907.02 The accepted quantity, measured as provided in Subsection 906.02, will be paid at the contract price per unit of measurement for the Section 907 pay item shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section.

Progress payments for mobilization lump sum will be paid as follows:

- (a) Bond premiums will be reimbursed according to FAR Clause 52.232-5, Payments Under Fixed-Price Construction Contracts, after receipt of the evidence of payment. Reimburse for bond premiums before issuing the Notice to Proceed if evidence of payment is received.
- (b) When 5 percent of the original contract amount is earned from other bid items, 50 percent of the mobilization item, or 5 percent of the original contract amount, whichever is less, will be paid.
- (c) When 10 percent of the original contract amount is earned from other bid items, 100 percent of the mobilization item, or 10 percent of the original contract amount, whichever is less, will be paid.
- (d) Any portion of the mobilization item in excess of 10 percent of the original contract amount will be paid after final acceptance. Pay any unpaid amount for mobilization upon final acceptance of all work items.

Section 908—Construction Staking, Flagging, and Cleanup

Description

908.01 This work consists of establishing any control points needed in addition to existing staking, and removing and disposing of all construction stakes, tags, flagging, and plastic ribbon from the project area.

Construction

908.02 General. The Government will set initial construction stakes or flagging, and control points, and furnish the contractor with all necessary information relating to lines, slopes, and grades. These stakes and flagging constitute the field control.

Furnish and maintain additional stakes, flagging, templates, batter boards, and other materials and supplies necessary for marking and maintaining points and lines established. Do not perform work in the absence of control points. If any construction control points are destroyed, displaced, or erroneous, notify the CO. Uniformly contour alignment and construct grade from control point to control point.

Remove all construction stakes, tags, flagging, and plastic ribbon from the project area within 7 days after the final inspection of all other work on the project. Dispose of all stakes, tags, flagging, and plastic ribbon off Government-administered lands unless otherwise designated.

Measurement

908.03 There will be no separate measurement for this item.

Payment

908.04 Trail staking, flagging, and cleanup will be considered incidental to other pay items in this contract, and additional payment will not be made.

Section 909— Maintenance for Traffic and Temporary Construction Access

Description

909.00.01 This work consists of maintaining existing trails that are undergoing improvements open and maintained in such a condition as to safely accommodate traffic and providing temporary construction access to the site. Maintaining the trail for traffic and temporary access may be covered by subsection:

- 909.10 Maintenance for Traffic
- 909.20 Temporary Construction Access

Measurement

909.00.02 There will be no separate measurement for these items.

Payment

909.00.03 Maintaining the trail for public access and providing temporary construction access will be considered incidental to other pay items in this contract, and additional payment will not be made.

909.10 - Maintenance for Traffic

Description

909.10.01 Keep existing trails that are undergoing improvements open and maintained in such a condition as to safely accommodate traffic. Provide and maintain temporary detours, approaches, or crossings and intersections with trails, roads, businesses, parking lots, and campgrounds in a safe and passable condition. Perform no work that interferes or conflicts with traffic until a plan for handling traffic has been submitted and approved. Specific requirements for detours or closures are SHOWN ON THE PLANS or in the SPECIAL CONTRACT REQUIREMENTS.

Before any suspension of work, take precautions necessary to prevent damage to the project, such as temporary detours, approaches, crossings, or intersections, and make provisions for normal drainage and to minimize erosion. Leave all trailways in a condition suitable for traffic unless otherwise specified.

The Government may permit use of portions of the project during periods when operations are shut down. All maintenance attributable to permitted use during periods of work suspension will be provided by the Government. The contractor is responsible for any maintenance that is not attributable to use or that is necessary during suspensions resulting from fault or negligence of the contractor.

909.20 - Temporary Construction Access

Description

909.20.01 The government may provide temporary access for the contractor from another route or trail other than the trail being constructed. The contractor will be responsible for maintaining the temporary access, removing and rehabilitating the temporary access route and any damaged area after construction is completed.

Section 910—Trailways

Section 911 - Trail and Prism

Description

911.00.01 This work consists of constructing trails, restoration of existing trails or obliteration of abandoned trails. The earthwork and associated trail tread and prism work may be covered by one or more of the following subsections:

911.10.	Excavation and Embankment
911.20.	Borrow
911.30.	Existing Trail Restoration
911.40.	Slide Maintenance
911.50.	Slough and Berm Removal
911.60.	Obliteration of Abandoned Trails
911.70.	Retainers

Measurement

911.00.02 Measure the section 911 items listed in the bid schedule according to subsection 906.

Payment

911.00.03 The accepted quantities will be paid at the contract price per unit of measurement for the section 911 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

911.10 - Excavation and Embankment

Description

911.10.01 This work consists of the excavation and placement of excavated material, regardless of its nature, from within the trailway or from other sources, except for material included under other pay items SHOWN IN THE SCHEDULE OF ITEMS.

Includes excavation, embankment, and backfill construction required to shape and finish the trailbed, ditches, backslopes, fill slopes, drainage dips, trail passing sections, and turnouts. Also includes excavation and embankment work required to construct culverts, trail bridges, shallow stream fords and gully crossings, talus and rubble rock sections, and climbing turns.

Materials

911.10.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

911.10.03 Use and Disposal of Excavated Material. Conserve and use all suitable material for specified work. Conserve excess excavated rock suitable for specified project work and use in place of materials from designated sources.

Remove all duff and debris from within trailway limits and uniformly spread outside the clearing limits, not more than 4 inches in depth (unless otherwise SHOWN ON THE PLANS). Do not obstruct drainage or create piles, berms, or windrows of debris.

Place excess and unsuitable excavation beyond the downslope edge of the trailbed Do not obstruct drainage and spread to a depth not exceeding 4 inches. This includes any material removed in the grubbing operation and deposited in the same area.

Place rocks over 4 inches in greatest dimension not used in construction beyond the hinge point on the downslope side. Place rocks so that the tops are at least 6 inches lower than the trailbed surface. Ensure that no blockage of drainage or creation of a windrow effect occurs.

911.10.04 Trailway Excavation and Embankment. Minor deviations of \pm 12 inches in vertical alignment and 36 inches in horizontal alignment with smooth transitions of at least 30 feet on each side of the deviation are acceptable unless otherwise SHOWN ON THE PLANS.

Construct embankments with suitable compacted material. Compact all disturbed soil within the trailbed area.

Remove any rock within or above the backslopes that is unstable. Use or dispose of rock in accordance with Subsection 912.03.

Leave the finished slope in a uniform and roughened condition.

Make necessary adjustments of horizontal or vertical alignment, within the tolerances specified in this subsection, to produce the designed trailway section and balance earthwork. Such adjustments shall not be considered as changes.

911.10.05 Trailbed Finish. Fill holes with suitable material, compact, and cut high points to provide a uniform trailbed finish.

911.10.07 Ditches. Construct ditches to be free of loose rocks, roots, sticks, and other obstructions.

911.10.08 Geosynthetics. Where SHOWN ON THE PLANS, place geosynthetics flat and parallel to centerline of the trail before placing embankment. Overlap geosynthetics a minimum of 24 inches. Install anchors or fasteners as recommended by the geosynthetic manufacturer.

911.20 - Borrow

Description

911.20.01 This work consists of placing select borrow material on the trailbed.

Materials

911.20.02 Requirements. Obtain borrow materials from locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Obtain CO's approval before using borrow from other locations. Suitable material from slough and berm removal may also be used as borrow material. Use suitable borrow material and aggregate under 2 inches in the greatest dimension.

Construction

911.20.03 General. On sideslopes where water can drain away from the trailbed, provide a sufficient depth of borrow material to obtain the outslope as SHOWN ON THE PLANS.

Across meadows and on turnpike sections, provide a sufficient depth of borrow material to produce a crowned trailbed as SHOWN ON THE PLANS.

Compact all material placed. Compact borrow material placed on the approaches of bridges and puncheon to provide a smooth surface and a smooth transition from the structure to the adjoining trail tread surface.

Cover any culvert surfaces that have become exposed with a minimum depth of 6 inches of suitable material over the full length of the exposed culvert and of sufficient length along the trail to present a uniform trail grade.

Provide free-draining borrow sites and backslopes no steeper than 1 1/3:1.

911.30-Existing Trail Restoration

Description

911.30.01 This work consists of restoring the original trail template, including clearing, removing slough and berm, borrow, filling ruts and troughs, reshaping backslopes, excavation, reshaping trail tread, restoring drainage and other trail structures, constructing check dams, and removing protruding rocks, roots, stumps, slough, and berms.

Construction

911.30.03 Clearing and Grubbing. Clear and grub in accordance with the requirements of section 912 and as SHOWN ON THE PLANS.

911.30.04 Excavation and Embankment. Excavate and place all excavated material in accordance with the requirements of section 911.10.04 and as SHOWN ON THE PLANS.

911.30.05 Rock and Root Removal. Uniformly scatter the removed rocks and roots below the trailway and distribute to ensure no blockage of watercourses or creation of a windrow. Fill holes with suitable material and compact.

911.30.06 Slough and Berm Removal and Excess Material. Use suitable slough and berm material within the trailway to restore the trailbed as SHOWN ON THE PLANS. Place all unsuitable and excess material beyond the downslope edge of the trailbed and uniformly spread to a depth not exceeding 4 inches and so as not to obstruct drainage or interfere with the drainage of outsloped tread.

Remove berm when daylight can be obtained within a distance of 5 feet from the outslope edge of finished tread unless otherwise DESIGNATED ON THE GROUND or SHOWN ON THE PLANS.

911.30.07 Fill Material and Borrow. Use suitable material to fill ruts, troughs, and potholes in the tread that cannot be leveled and outsloped through performance of work in Subsection 915.06. Compact and shape as SHOWN ON THE PLANS.

Obtain borrow from areas SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

911.30.08 Drainage. Restore drainage dips and ditches to reestablish drainage as SHOWN ON THE PLANS by removing obstructions such as rocks, roots, and sticks to make ditches and culverts free draining.

Restore rock spillways in accordance with section 923 and as SHOWN ON THE PLANS.

911.30.09 Stream Channel Cleaning. Clean channel of obstructions in areas SHOWN ON THE PLANS. Remove debris and rocks from the stream channel and scatter outside of the side slopes of the stream channel and beyond the clearing limits.

911.30.10 Check Dams. When constructing check dams for gullies, use dimensional lumber, sound peeled logs, or a row of stones placed across the gully in the subgrade with the ends securely embedded in the banks as SHOWN ON THE PLANS and at locations STAKED ON THE GROUND.

Use suitable material for backfill as SHOWN ON THE PLANS. Place and compact backfill to meet the density of the existing trailbed and to form a smooth tread.

911.30.11 Switchbacks. Restore switchbacks in accordance with section 914 and as SHOWN ON THE PLANS.

911.30.12 Waterbars. Restore waterbars in accordance with section 922 and as SHOWN ON THE PLANS. Reestablish drainage by removing accumulated material and replacing loose or missing rocks, unsuitable logs, and deteriorated rubber belting.

911.30.13 Turnpikes. Restore turnpikes in accordance with section 913 and as SHOWN ON THE PLANS by replacing missing, rotten, or loose retainer logs and stakes, or missing or loose retainer rocks. Backfill with suitable material.

911.30.14 Trail Structures. Restore all trail structures at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

911.30.15 Reshaping and Finishing Trailbed and Backslopes. Provide a firm and uniformly finished trailbed in accordance with cross-sections SHOWN ON THE PLANS.

Provide a uniform and roughened surface on disturbed backslopes in accordance with cross-sections SHOWN ON THE PLANS. Cut all roots flush.

911.40 - Slide Maintenance

Description

911.40.01 This work consists of the removal and disposal of slide material from the trailbed and the restoration of all sections of trail that have been damaged.

Maintenance

911.40.02 General. Conserve and use suitable material from the slide on the trailbed for tread surfacing. Spread this material at a maximum depth of 3 inches for a distance not exceeding 100 feet in each direction from the site of the slide unless otherwise SHOWN ON THE PLANS.

Place all excess and unsuitable material beyond the downslope edge of the trailbed. Uniformly spread unsuitable material to a depth not exceeding 4 inches and do not obstruct drainage.

Reshape the backslope that contributed to the slide to reduce future sloughing and to conform to adjacent undamaged sections unless otherwise SHOWN ON THE PLANS.

Re-grade sections of trailbed that have been damaged to a width and finish that conform to adjacent undamaged sections unless otherwise SHOWN ON THE PLANS.

911.50 - Slough and Berm Removal

Description

911.50.01 This work consists of the removal and disposal of slough and berm material that has accumulated on the trailway.

Construction

911.50.02 Slough and Berm Removal and Excess Material. Remove all slough material within the trailway. Remove all material from the trailbed when daylight can be obtained within a distance of 4 feet from the outsloped edge of the finished tread unless otherwise DESIGNATED ON THE GROUND or SHOWN ON THE PLANS. Conserve and use suitable material to restore the trail tread as SHOWN ON THE PLANS.

Place all excess and unsuitable material beyond the downslope edge of the trailbed. Uniformly spread to a depth not exceeding 4 inches and do not obstruct drainage or interfere with the drainage of outsloped tread.

911.60 - Obliteration of Abandoned Trails

Description

911.60.01 This work consists of removal and disposal of existing structures, including turnpikes, walkways, bridges, culverts, signs and posts, and other material within the trailway, above or below ground. Work also includes salvaging DESIGNATED materials and backfilling the resulting trenches, holes, and pits.

Construction

911.60.02 Removal of Culverts and Bridges. Remove existing culverts within embankment areas at locations SHOWN ON THE PLANS.

Remove existing structures down to the natural stream bottom, and remove parts outside the water course to at least 12 inches below natural ground surface or finish ground surface, whichever is lower. Where portions of an existing structure lie wholly, or in part, within the limits of a new structure, remove parts to accommodate the installation of the proposed structure.

Avoid damage to bridges being dismantled for salvage. Match mark steel and/or wood members and prepare drawings showing the structural location of each member.

911.60.03 Signs and Posts. Remove signs, posts, and associated hardware at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Backfill post hole, compact, and contour area to match existing ground.

911.60.04 Removal of Other Obstructions. Remove other obstructions at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

911.60.05 Disposal. Dispose of native log and rock material by scattering below the trailway and outside clearing limits. Do not place debris in water courses, snow ponds, lakes, meadows, or locations where it could impede the flow to, through, or from the drainage structures. Dispose of metal, treated timber, and other manufactured products by removing from Government-administered lands and placing in approved waste disposal sites.

911.70 - Retainers

Description

911.70.01 This work consists of furnishing and installing log, sawn timber and rock retainers, including excavation and backfill, wood stakes and/or metal anchors and selecting and hauling of retainer materials.

Materials

911.70.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Material for Timber Structures	995

Construction

911.70.03 General. Place log, sawn timber, or rock retainers in continuous rows. Bed retainers along their entire length and so they are stable. When retainers are constructed of logs or sawn timber use lengths greater than or equal to 10 feet.

Section 912 - Clearing Limits

Description

912.00.01 This work consists of clearing, grubbing, trimming, removing, and treating trees, logs, limbs, branches, brush, plants, and other vegetation along with removal of rocks, undermined roots and hazard trees within the clearing limits. Clearing and removal of trees, vegetation and rocks may be covered by one or more of the following subsections:

- 912.10. Clearing and Grubbing
- 912.20. Brush Cutting
- 912.30. Logging Out
- 912.40. Hazard Tree Removal
- 912.50. Loose Rock Removal
- 912.60. Rock and Root Removal

Measurement

912.00.02 Measure the section 912 items listed in the bid schedule according to subsection 906.

Payment

912.00.03 The accepted quantities will be paid at the contract price per unit of measurement for the section 911 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

912.10 - Clearing and Grubbing

Description

912.10.01 This work consists of clearing, grubbing, trimming, removing, and treating trees, logs, limbs, branches, brush, plants, and other vegetation within the clearing limits. Work includes the felling and treatment of designated trees outside the clearing limits. Also, included are the protection from injury or defacement of trees and other objects not designated for removal and treatment of damaged trees.

Construction

912.10.02 Clearing Limits. Clear to the dimensions SHOWN ON THE PLANS or 12 inches beyond the fill and backslope catch points, whichever is greater.

912.10.03 Material to Be Cleared. Remove and dispose of trees, logs, limbs, branches, brush, herbaceous plants, and other vegetation within the clearing limits, except for the following:

- a) Live, sound, and firmly rooted trees of the size SHOWN ON THE PLANS.
- b) Live brush, herbaceous plants, and trees between the trailway and the clearing limits that are less than 12 inches in height and less than ½ inch in diameter at ground line.

Except as provided above, cut all limbs and branches more than ½ inch in diameter that extend into the clearing limits. Cut limbs flush with the tree trunks or stems or cut at the ground surface as SHOWN ON THE PLANS.

Fall and limb designated trees.

912.10.04 Damaged Trees. When felling, cutting, or trimming, do not cause bark damage to standing timber. If damage does occur to standing trees, treat the injured trees as SHOWN ON THE PLANS. Remove and dispose of trees with major roots exposed by construction that are rendered unstable.

912.10.05 Removal of Stumps. Remove all stumps within the trailbed. Remove stumps located between the edge of the trailbed and the edge of the trailway that cannot be cut flush with the finished slope or that are not tightly rooted.

912.20 - Brush Cutting

Description

912.20.01 This work consists of removing brush, trees less than 4 inches in diameter, and shrubs within the clearing limits.

Construction

912.20.02 General. Remove all limbs of shrubs and trees that extend across or into the clearing limits as SHOWN ON THE PLANS. Saw or cut limbs flush with the tree trunk. Make cuts in a manner that will not tear or strip bark from the trees.

Cut and remove from the clearing limits all woody plants exceeding ½ inch in stem diameter or 12 inches in height. The maximum size material to be cut under this specification is 4 inches in diameter when measured at a height of 6 inches above the ground on the uphill side of the stump.

Cut all brush and small, woody plants as near flush to the ground surface as possible. When impractical to cut plants flush, the maximum stem length shall be 2 inches.

Remove all woody material for a minimum of 3 inches below the trail tread surface. Fill holes in the trail tread caused by removing woody material with suitable material.

Scatter the clearing debris removed from the clearing limits outside and below the clearing limits. Do not place materials in stream channels, drainage ways, ditches, culvert inlets, or other locations where they would prevent the free flow of water away from the trailbed.

912.30 - Logging Out

Description

912.30.01 This work consists of removing brush, logs, and down trees from the clearing limits.

Construction

912.30.02 Clearing Out. Cut and remove all logs that extend across or into the clearing limits. The portions of cut logs that remain on the upper side of the trail shall be either firmly anchored to prevent sliding or rolling onto the trailway or moved across the trail to the lower side and scattered outside the clearing limits.

Fell all trees over 4 inches in diameter that are leaning into the clearing limits and that are within 10 feet above the trailbed. Stump height of leaning trees that are cut outside the clearing limits shall not exceed 12 inches as measured on the uphill side of the stump. Disposal and payment for the leaning trees described above will be the same as for down logs and trees. Remove roots and stumps from trees within the trailway that have been uprooted.

Rerouting the trail around windfalls, uprooted trees, and other obstacles will not be permitted. Ramp or reroute sections of the trail tread that have been damaged by uprooted stumps as necessary to provide safe passage on the trail. Payment for such work will be incidental to the specified work item, and no extra payment will be made.

Remove sticks or wood chunks exceeding 2 inches in diameter and 12 inches in length that have fallen onto the trailbed.

Scatter the down trees on the lower side of the trailway outside the clearing limits. Do not place such materials in stream channels, drainage ways, ditches, culvert catch basins or other locations where they would prevent the free flow of water away from the trailbed.

912.40 - Hazard Tree Removal

Description

912.40.01 This work consists of felling, bucking, and limbing trees and scattering slash.

Construction

912.40.02 Hazard Trees. Remove trees and snags that are broken off or that are in a leaning, unstable position over the trailway to designated areas as SHOWN ON THE PLANS. Cut designated danger trees so that stump heights do not exceed 12 inches as measured on the uphill side of the stump. Maximum stump height of designated trees within 4 feet of the trail centerline is 4 inches. Do not leave felled trees parallel with the trail unless there are sufficient barriers to keep them from rolling or sliding onto the trail. Lop limbs to reduce slash concentration and scatter the clearing debris outside and below the clearing limits. If the trunk or a portion thereof, falls within the trailway, remove that portion within 4 feet of either side of the trail centerline and scatter a minimum distance of 4 feet beyond and below the trail centerline.

912.50 - Loose Rock Removal

Description

912.50.01 This work consists of removal and disposal of loose rock from the trail tread.

Construction

912.50.02 General. Remove loose rocks that are larger than 2 inches at their greatest dimension from the trailbed. Remove any loose rock in drainage dips or ditches that may impede water flow off the trail. Loose rocks are rocks that are not firmly embedded in the trail and can be removed by hand. Where the trailbed consists predominantly of rock with little or no soil present, remove all loose rock larger than 3 inches.

Fill any holes remaining from rock removal with suitable material and compact. If the rock removed is not needed for other items of maintenance work, scatter the rock by side-casting to the lower side of trailway beyond the clearing limits, and distribute rock to ensure that no blockage of drainage or creation of a windrow occurs. Do not dispose of waste materials in water courses.

912.60 - Rock and Root Removal

Description

912.60.01 This work consists of removal and disposal of rocks and roots from the tread.

Construction

912.60.02 Rock Removal. Remove surface rocks that are larger than 2 inches at their greatest dimension, and rocks that project more than 2 inches above the surface of the trail tread, when removal can be accomplished by hand or when rocks can be pried out with a pick mattock, shovel, pry bar, or similar tool. Where the trailbed consists predominantly of rock with little or no soil present, remove loose rock in excess of 3 inches.

Shatter any protruding rocks in trail tread that are too large to be pried out with a pick and bar by using either a rock sledge or explosives. Remove the protrusion down to the level of the tread surface. Fill any resulting depressions with suitable material and compact by tamping. If rock removed is not needed for other items of maintenance work, scatter the rock by side-casting to the lower side of the trailway and beyond the clearing limits and distribute rock to ensure that no blockage of drainage

or creation of windrow occurs. Do not dispose any waste material in water courses.

912.60.03 Root Removal. Remove exposed tree roots on or in the trail tread that are greater than 1 inch in diameter. Cut embedded roots that project more than 2 inches above the trail tread flush with the trail tread. Scatter removed roots on the lower side of the trailway beyond the clearing limits and outside of water courses.

Fill holes caused by rock and root removal with suitable material and compact to form a smooth trail tread.

Maintain trail tread to the width as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Section 913 – Surfacing

Description

913.00.01 This work consists of furnishing, hauling, watering, placing, and compacting surfacing and other associated work. Trail surfacing may be covered by one or more of the following subsections:

913.10.	Aggregate Surfacing and Base Course
913.20.	Hot Asphalt Plant Mix Trail Surfacing
913.30.	Cold Asphalt Mix Trail Surfacing
913.40.	Grid Unit Surfacing
913.50.	Riprap Surfacing
913.60.	Chunk Wood Surfacing
913.70.	Imported Clay Surfacing
913.80.	Geosynthetic Surfacing
913.90.	Surface Maintenance

Materials

913.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

913.00.02 Preparation of Subgrade. Prepare and finish trailbed as required under section 911. Obtain written approval of the CO before placing aggregate.

913.00.03 Retainers. Construct retainers in accordance with Section 911.70 and as SHOWN ON THE PLANS.

Measurement

913.00.04 Measure the section 913 items listed in the bid schedule according to subsection 906.

Payment

913.00.05 The accepted quantities will be paid at the contract price per unit of measurement for the section 913 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

913.10 - Aggregate Surfacing and Base Course

Description

913.10.01 This work consists of furnishing, hauling, watering, placing, and compacting aggregate surfacing or base course; furnishing and installing retainers; and geosynthetics.

Materials

913.10.02 Materials. Produce aggregate by pit run, screening, or crushing. Obtain materials from sources SHOWN ON THE PLANS or other sources approved by the CO in writing.

913.10.03 Handling Materials. Stockpile, remove, transport, and spread aggregates in a manner that will preserve specified gradation and avoid contamination. Do not intermingle stockpiles of aggregate having different gradations.

913.10.04 Sampling Aggregate. Submit test results and a Certificate of Compliance verifying that aggregate gradation meets contract requirements.

Sample the material before incorporation into the work as follows:

- (a) for onsite-produced materials at crushing or screening plants, after additions of any necessary blending material.
- (b) for commercially produced aggregates, at the producer's plant or stockpile.

The sampling will not be considered a final acceptance and will not preclude later sampling and testing after final processing of the material. Such sampling does not relieve the contractor of responsibility of providing quality control measures to ensure compliance with contract requirements.

Construction

913.10.05 Preparation of Subgrade. Prepare and finish trailbed as required under section 912. Obtain written approval of the CO before placing aggregate.

913.10.06 Spreading and Compacting. Use aggregate that is uniformly mixed at optimum moisture content and spread and compact in layers to the final thickness and width SHOWN ON THE PLANS. The maximum thickness of any one layer shall be 3 inches. Obtain compaction by one of the following methods as SHOWN IN THE SCHEDULE OF ITEMS:

- (a) by hand, using non-mechanized compaction tools over the full area of each layer until visual displacement ceases;
- (b) by mechanical vibratory compactors over the full area of each layer until visual displacement ceases, but not fewer than three complete passes;
- (c) by using a roller or mechanical hand tamper until the density is at least 90 percent of the maximum density, as determined by AASHTO T 99, Method C or D.

Immediately following final spreading, smoothing, and compacting, correct any irregularities or depressions that develop by adding or removing material until the surface is smooth, uniform, and compacted.

913.10.07 Acceptance, Testing, Sampling, and Tolerances. Do not vary the total compacted thickness of the aggregate by more or less than $\frac{3}{4}$ inch from the specified thickness or place it consistently below or above the specified depth.

Do not vary the aggregate width by more than ± 3 inches from the specified width or place it consistently narrower or wider than the specified width.

913.20 - Hot Asphalt Plant Mix Trail Surfacing

Description

913.20.01 This work consists of constructing a single course of hot asphalt plant mix on a prepared base course or trailbed and furnishing or installing retainers and geosynthetics.

Materials

913.20.02 Materials. Use hot plant mix design that is currently in use by the local State department of transportation, the county, or city, and submit a certificate of compliance that the mix meets their requirements. Certify the locations of past projects for the CO's inspection prior to approval.

Construction

913.20.03 Weather Limitations. Do not place the asphalt mixture when weather conditions prevent the proper compaction of the mixture, the base course is frozen, or the average temperature of the underlying surface upon

which the asphalt mixture is to be placed is less than 55°F. Do not place when it is raining or snowing.

913.20.04 Mixing. Do not allow the temperature of the mix to exceed 320°F when discharging from the mixer.

913.20.05 Surface Preparation. Remove loose aggregate, soil, or other deleterious materials from the surface to be paved. Prepare base or trailbed by shaping, watering, and compacting before placing plant mix. Obtain the CO's approval before placing plant mix on prepared base.

913.20.06 Placement and Compaction. Place and compact plant mix to meet the lines, grades, and thicknesses SHOWN ON THE PLANS. Avoid segregation of the mix. Hand or small machine placement of mix is permitted, except where the use of asphalt paving machines is required for areas SHOWN ON THE PLANS. Use only self-contained, power-propelled paving machine units, provided with an adjustable activated screed or strike-off assembly, heated if necessary, and capable of spreading and finishing courses of asphalt plant mix to the required widths and thicknesses.

Start compaction when the mix is above 230°F. Compact the mix with at least three passes over the entire trail surface. Use a steel wheel power roller that is of a minimum weight of 1 ton. Use vibratory plate compactors in areas that are not accessible to rollers. Continue compaction over the full width of the layer until visible deformation of the layer ceases.

913.20.07 Thickness. Do not vary the thickness of the compacted hot mix by more or less than 15 percent from the thickness SHOWN ON THE PLANS and not consistently above or below the specified thickness.

913.30 - Cold Asphalt Mix Trail Surfacing

Description

913.30.01 This work consists of constructing a single course of cold bituminous mix on a prepared base course or trailbed and furnishing and installing retainers.

Materials

913.30.02 Requirements. Use cold bituminous mix design that is currently in use by the local State department of transportation, the county, or city, and submit a certificate of compliance that the mix meets their requirements. Certify the locations of past projects for the CO's inspection prior to approval.

Use either MC250 liquid asphalt that conforms to AASHTO M 82 or CMS-2 emulsion that conforms to AASHTO M 208.

For the cold bituminous mix, use aggregate with a maximum size of ¾ inch and no more than 10 percent by weight passing the No. 200 sieve.

Construction

913.30.03 Weather Limitations. Place cold asphalt concrete on an unfrozen, reasonably dry surface. Place when the air temperature in the shade is above 50°F, the temperature of the road surface is above 40°F, and it is not raining or snowing or predicted to rain or snow within 24 hours after placement.

913.30.04 Surface Preparation. Clean the surface to be paved of all loose aggregate, soil, or other deleterious materials. Shape, water, and compact the base course or trailbed with a compactor to prepare the base and subgrade just before placing cold mix. Obtain the CO's approval before placing mix on prepared bases.

913.30.05 Mixing. If liquid asphalt is used, use aggregate that contains no more than 3 percent moisture and is at a temperature between 60 and 220°F during mixing. If emulsified asphalt is used, use aggregate that is at a temperature between 60 and 175°F during mixing.

Mix the aggregate and bituminous material until the aggregates are thoroughly coated and the mass is a uniform color.

913.30.06 Placement and Compaction. Place and compact the mix to meet the lines, grades, and cross-section SHOWN ON THE PLANS. Avoid segregation of the mix. Hand or small machine placement of mix is permitted, except where the use of bituminous paving machines is required for areas SHOWN ON THE PLANS. Use self-contained, power-propelled paving machine units, provided with an adjustable activated screed or strike off assembly, heated if necessary, and capable of spreading and finishing courses of bituminous plant mix to the required widths and thicknesses.

Compact the mix with at least three passes over the entire trail surface. Use a steel wheel power roller that is of a minimum weight of 1 ton. Use vibratory plate compactors in areas that are not accessible to rollers. Continue compaction over the full width of the layer until visible deformation of the layer ceases.

913.30.07 Thickness. Do not vary the thickness of the compacted hot mix by more or less than 15 percent from the thickness SHOWN ON THE PLANS and not consistently above or below the specified thickness.

913.40 - Grid Unit Surfacing

Description

913.40.01 This work consists of furnishing and installing grid pavement units, including excavation, backfilling, and geosynthetics.

Construction

913.40.02 Excavation and Embankment. Perform excavation and embankment in accordance with section 911 and as SHOWN ON THE PLANS.

Excavate to the depth of the grid pavement units to be installed after first removing all duff and debris.

Stockpile all excavated suitable material adjacent to the trail for later use as backfill.

Obtain approval before placing grid pavement units.

913.40.03 Laying Grid Block. Place and bed blocks so they rest firmly against adjacent blocks, are stable, and form a smooth and uniform tread surface. Blocks designed to be interlocked must be interconnected. Fill void areas to full depth with fractured or cut pieces of block on curves or where needed to establish the grid pavement units in which native surface areas are no larger than 6 inches in greatest dimension. Bury beginning and ending blocks at a 30° angle to the tread.

Dispose of unused block material by removing from Government-administered lands to an appropriate site or by burying it at a location DESIGNATED ON THE GROUND.

913.40.04 Backfilling. After approval of the grid block installation by the CO, place and compact suitable material into holes between and around grid pavement units. For block surfacing used in shallow stream fords and gully crossings, substitute native gravels for suitable materials.

913.50 - Riprap Surfacing

Description

913.50.01 This work consists of construction of riprap surfacing, including excavation, furnishing, hauling, and placing rock and aggregate, compacting surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

913.50.02 Construct riprap surfacing as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

913.60 - Chunk Wood Surfacing

Description

913.60.01 This work consists of construction of chunk wood surfacing, including excavation, furnishing, hauling, and placing chuck wood, compacting surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

913.60.02 Construct chunk wood surfacing as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

913.70 - Imported Clay Surfacing

Description

913.70.01 This work consists of construction of imported clay surfacing, including excavation, furnishing, hauling, and placing clay, compacting surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

913.70.02 Construct imported clay surfacing as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

913.80 - Geosynthetic Surfacing

Description

913.80.01 This work consists of construction of geosynthetic surfacing, including excavation, furnishing, hauling, and placing geosynthetics and aggregate, compacting surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

913.80.02 Construct geosynthetic surfacing as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

913.90 – Surface Maintenance

Description

913.90.01 This work consists of maintenance of surfacing, including excavation, furnishing, hauling, and placing rock, aggregate and other surfacing, compacting surfacing, and associated barriers, ditches, and retaining walls to bring surface up to good condition.

Maintenance

913.90.02 Perform maintenance of surfacing as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

914 - Climbing Turn

Description

914.00.01 This work consists of construction or maintenance of climbing turns, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections. Construction or maintenance of the climbing turn may be covered by one or more of the following subsections:

- 914.10. Climbing Turn
- 914.20. Climbing Turn Maintenance

Materials

914.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

914.00.03 Preparation of Subgrade. Prepare and finish trailbed as required under section 911 and/or as SHOWN ON THE PLANS. Obtain written approval of the CO before placing aggregate.

914.00.04 Retaining Walls. When SHOWN ON THE PLANS, construct retaining walls in accordance with section 935.

914.00.05 Barriers. When SHOWN ON THE PLANS, construct barriers at each climbing turn in accordance with section 933.

914.00.06 Ditches. When SHOWN ON THE PLANS, construct ditches in accordance with section 925.

Measurement

914.00.07 Measure the section 914 items listed in the bid schedule according to subsection 906.

Payment

914.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the section 914 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

914.10 - Climbing Turn

Description

914.10.01 This work consists of construction of climbing turns, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

914.10.02 Construct climbing turn as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

914.20 - Climbing Turn Maintenance

Description

914.20.01 This work consists of maintenance of climbing turns, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections to bring the climbing turn up to good condition.

Maintenance

914.20.02 Perform maintenance of climbing turn as required under the construction section of 914.00. and/or as SHOWN ON THE PLANS.

915 - Talus Section

Description

915.00.01 This work consists of furnishing, hauling, and placing rock and aggregate, and compacting aggregate surfacing and through talus or rubble rock sections of trail. Construction or maintenance of the talus section may be covered by one or more of the following subsections:

915.10.	Talus Section
915.20.	Talus Section Maintenance

Materials

915.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

915.00.03 Preparation of Subgrade. Prepare and finish trailbed as required under section 911. Obtain written approval of the CO before placing aggregate

915.00.04 Talus or Rubble Rock Sections. Through talus or rubble rock slide areas, fill all voids with suitable material to the depth SHOWN ON THE PLANS. Use cap rocks that weigh a minimum of 130 lbs and have a length of at least twice their width. At least 50 percent of all hand-placed outer rocks should weigh a minimum of 130 lbs. Construct tread by building out rather than by removing material from the inner bank.

Measurement

915.00.05 Measure the section 915 items listed in the bid schedule according to subsection 906.

Payment

915.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the section 915 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

915.10 - Talus Section

Description

915.10.01 This work consists of construction of talus section, including furnishing, hauling, and placing rock and aggregate, and compacting aggregate surfacing and through talus or rubble rock sections of trail.

Construction

915.10.02 Construct talus section as required under the construction section 915.00., and and/or as SHOWN ON THE PLANS.

915.20 - Talus Section Maintenance

Description

915.10.01 This work consists of maintenance of talus section, including furnishing, hauling, and placing rock and aggregate, and compacting aggregate surfacing and through talus or rubble rock sections of trail.

Maintenance

915.10.02 Perform maintenance of talus section as required under the construction section 915.00., and/or as SHOWN ON THE PLANS.

916 - Turnout and Passing Section

Description

916.00.01 This work consists of construction or maintenance of turnout and passing sections, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections. Construction or maintenance of the turnout and passing section may be covered by one or more of the following subsections:

- 916.10. Turnout and Passing Section
- 916.20. Turnout and Passing Section Maintenance

Materials

916.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

916.00.03 Preparation of Subgrade. Prepare and finish trailbed as required under section 911 and/or as SHOWN ON THE PLANS. Obtain written approval of the CO before placing aggregate.

916.00.04 Retaining Walls. When SHOWN ON THE PLANS, construct retaining walls in accordance with section 935.

916.00.05 Barriers. When SHOWN ON THE PLANS, construct barriers at each switchback in accordance with section 933.

916.00.06 Ditches. When SHOWN ON THE PLANS, construct ditches in accordance with section 925.

Measurement

916.00.07 Measure the section 916 items listed in the bid schedule according to subsection 906.

Payment

916.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the section 916 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

916.10 - Turnout and Passing Area

Description

916.10.01 This work consists of construction of turnout and passing sections, including furnishing, hauling, and placing rock and aggregate, and compacting aggregate surfacing and through talus or rubble rock sections of trail.

Construction

916.10.02 Construct turnout and passing sections as required under the construction section 916.00., and/or as SHOWN ON THE PLANS.

916.20 - Turnout and Passing Area Maintenance

Description

916.10.01 This work consists of maintenance of turnout and passing sections, including furnishing, hauling, and placing rock and aggregate, and compacting aggregate surfacing and through talus or rubble rock sections of trail.

Maintenance

916.10.02 Perform maintenance of turnout and passing sections as required under the construction section 916.00., and /or as SHOWN ON THE PLANS.

917 – Fords

Description

917.00.01 This work consists of construction or maintenance of fords or stepping stones, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections. Construction or maintenance of the ford or stepping stones may be covered by one or more of the following subsections:

917.10.	Natural Ford
917.20.	Constructed Ford
917.30.	Stepping Stones
917.40.	Ford Maintenance

Materials

917.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

917.00.03 Preparation of Subgrade. Prepare and finish trailbed as required under section 911 and 912 and/or as SHOWN ON THE PLANS. Obtain written approval of the CO before placing aggregate.

917.00.04 Retaining Walls. When SHOWN ON THE PLANS, construct retaining walls in accordance with section 935.

917.00.05 Barriers. When SHOWN ON THE PLANS, construct barriers at each ford in accordance with section 933.

917.00.06 Ditches. When SHOWN ON THE PLANS, construct ditches in accordance with section 925.

Measurement

917.00.07 Measure the section 917 items listed in the bid schedule according to subsection 906.

Payment

917.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 917 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

917.10 - Natural Ford

Description

917.10.01 This work consists of construction of natural ford, approaches and surfacing, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

917.10.02 Construct natural ford, approaches and surfacing as required under the construction section 917.00., and/or as SHOWN ON THE PLANS.

917.20 - Constructed Ford

Description

917.20.01 This work consists of construction of ford, approaches and surfacing, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

917.20.02 Construct ford, approaches and surfacing as required under the construction section 917.00., and/or as SHOWN ON THE PLANS.

917.30 - Stepping Stones

Description

917.30.01 This work consists of construction of stepping stones and approaches, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, ditches, retaining walls, and approach sections.

Construction

917.30.02 Construct stepping stones and approaches as required under the construction section 917.00., and/or as SHOWN ON THE PLANS.

917.40 – Ford Maintenance

Description

917.40.01 This work consists of maintenance of fords and approaches, including excavation, furnishing, hauling, and placing rock and aggregate, compacting aggregate surfacing, and associated barriers, retaining walls, and approach sections to bring the ford up to good condition.

Maintenance

917.40.02 Maintain stream fords and gully crossings as SHOWN ON THE PLANS. Remove debris and loose rocks over 3 inches from existing stream crossings to provide the tread width. Maintain and replace missing or rotted log or rock barriers that form the dam at fords and gully crossings. Level and smooth the stream bottom with gravel or rock less than 3 inches in greatest dimension to provide a crossing.

Re-grade or fill the approaches to the stream fords and gully crossings to provide for safe use. Replace missing stepping stones.

918.00. – Foundations

Description

918.00.01 This work consists of construction or maintenance of foundations for trailways, including excavation, furnishing, hauling, placing and compacting rock, aggregate, geosynthetics, wire baskets and timber materials, and associated barriers, ditches, retaining walls, and approach sections. Construction or maintenance of the foundations may be covered by one or more of the following subsections:

918.10.	Rock
918.20.	Geosynthetics
918.30.	Gabion Basket
918.40.	Crib Foundation
918.50.	Corduroy Foundation
918.60.	Foundation Maintenance

Materials

918.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995
Wire Basket Materials	996

Construction

918.00.03 Preparation of Subgrade. Prepare and finish subgrade as required under section 911 and/or as SHOWN ON THE PLANS. Obtain written approval of the CO before placing rock, geosynthetics, gabion baskets or crib foundations.

918.00.03 Foundation Construction. Construction foundation as SHOWN ON THE PLANS, construct with approved backfill material in accordance with section 911 and 912.

918.00.04 Retaining Walls. When SHOWN ON THE PLANS, construct retaining walls in accordance with section 935.

918.00.05 Barriers. When SHOWN ON THE PLANS, construct barriers at each switchback in accordance with section 933.

918.00.06 Ditches. When SHOWN ON THE PLANS, construct ditches in accordance with section 925.

Measurement

918.00.07 Measure the section 918 items listed in the bid schedule according to subsection 906.

Payment

918.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 918 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 906.04.

918.10. – Rock

Description

918.10.01 This work consists of construction of rock foundation for trailways, including excavation, furnishing, hauling, and placing rock, aggregate, and geosynthetics.

Construction

918.10.02 Construct foundation as required under the construction section 918.00. and/or as SHOWN ON THE PLANS.

918.20. – Geosynthetics

Description

918.20.01 This work consists of utilizing geosynthetics for foundation construction for trailways, including excavation, furnishing, hauling, and placing rock, aggregate, and geosynthetics.

Construction

918.20.02 Construct foundation as required under the construction section 918.00. and/or as SHOWN ON THE PLANS.

918.30. - Gabion Basket

Description

918.30.01 This work consists of utilizing wire baskets for foundation construction for trailways, including excavation, furnishing, hauling, and placing rock, aggregate and wire baskets.

Construction

918.30.02 Construct foundation as required under the construction section 918.00. and/or as SHOWN ON THE PLANS.

918.40. - Crib Foundation

Description

918.40.01 This work consists of utilizing timber cribs for foundation construction for trailways, including excavation, furnishing, hauling, and placing rock, aggregate and timber cribs.

Construction

918.40.02 Construct foundation as required under the construction section 918.00. and/or as SHOWN ON THE PLANS.

918.50. – Corduroy Foundation

Description

918.50.01 This work consists of utilizing corduroy for foundation construction for trailways, including excavation, furnishing, hauling, and placing logs, aggregate and geosynthetics.

Construction

918.50.02 Construct foundation as required under the construction section 918.00. and/or as SHOWN ON THE PLANS.

918.60. - Foundation Maintenance

Description

918.60.01 This work consists of maintenance of foundation for trailways, including excavation, furnishing, hauling, placing and compacting rock, aggregate, geosynthetics, wire baskets and timber materials, and associated barriers, ditches, retaining walls, and approach sections.

Maintenance

918.60.02 Perform maintenance on foundation as required under the construction section 918.00. and/or as SHOWN ON THE PLANS.

Section 920—Drainage Structures

921 – Culverts

Description

921.00.01. This work consists of furnishing and installing culverts, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins, and headwalls. Construction of culverts may be covered by one or more of the following subsections:

921.10.	Standard Culvert
921.20.	Standard Culvert with Headwall
921.30.	Rock Culvert
921.40.	Treated Timber Box Culvert
921.50.	Open-Top Drain
921.60.	Bottomless Arch Culvert
921.70.	Culvert Maintenance

Materials

921.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Drainage Pipe	992
Geosynthetics	994
Material for Timber Structures	995

Construction

921.00.03 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

921.00.04 Placement. Place culverts to provide for unobstructed inlet and outlet flow. Remove logs, debris, soil, rock, and other obstructions above and below the culvert that would impede flow into the culvert or away from the trailway. Minimize disturbance to streambeds.

Construct a catch basin to facilitate flow from trail ditches into the culvert.

921.00.05 Installation. Install culverts of the types and at the locations SHOWN ON THE PLANS or as DESIGNATED ON THE GROUND.

(a) Placing. Skew ditch relief culverts as staked to provide a downgrade equal to or greater than the uphill ditch. Place culverts at stream crossings in the natural streambed on stream grade.

Attach end sections to the pipe by connecting bands or other means as recommended by the manufacturer.

(b) Bedding. Excavate and remove all unsuitable material and rocks over 3 inches to a minimum depth of 6 inches below the pipe invert and to a minimum width of 1.5 pipe diameters. Bed pipe with compacted suitable material free of

rocks larger than 3 inches and in a stable foundation of undisturbed or compacted soil. Make the bed shaped to fit the lower quadrant of the pipe exterior and provide uniform continuous support along the entire length of the pipe.

921.00.06 Backfilling. Backfill and compact around culverts with suitable material that is free of rocks over 3 inches. Provide for the cover height as SHOWN ON THE PLANS.

Measurement

921.00.07 Measure the section 921 items listed in the bid schedule according to section 906.

Payment

921.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 921 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

921.10 - Standard Culvert

Description

921.10.01 This work consists of furnishing and installing culverts without headwalls, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins.

Construction

921.10.02 Install culverts as required under construction section 921.00 and/or as SHOWN ON THE PLANS.

921.20 - Standard Culvert with Headwalls

Description

921.20.01 This work consists of furnishing and installing culverts with headwalls, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins.

Construction

921.20.02 Install culverts and headwalls as required under construction section 921.00 and/or as SHOWN ON THE PLANS.

921.20.03 Headwalls. Install headwalls at the locations SHOWN ON THE PLANS or as DESIGNATED ON THE GROUND.

Provide a compacted bench as a foundation for the wall.

Select rocks that have a general rectangular shape with flat top and bottom faces. Place the largest rocks on the bottom. Lay each rock stable on the course that supports it, interlocking with surrounding rocks. Do not break, jar, or displace rocks already set. Place the exposed face of each rock parallel to the face of the wall. Stagger vertical joints a minimum of 4 inches horizontally from vertical joints in adjoining courses.

921.30 - Rock Culvert

Description

921.30.01 This work consists of furnishing and installing rock culverts, including excavation and backfill, selecting and hauling of rock material, and constructing catch basins.

Construction

921.30.02 Install culverts as required under construction section 921.00 and/or as SHOWN ON THE PLANS.

921.30.03 Rock Culverts. Install rock culverts at the locations SHOWN ON THE PLANS or as DESIGNATED ON THE GROUND.

Firmly embed selected sidewall rocks below the natural ground or streambed as SHOWN ON THE PLANS. Use flat cover rocks long enough to bridge between outside faces of the sidewalls. Select and place rocks so as to fit snugly with firm bearing on underlying rocks. Fill voids with small rock to prevent entry of soil into the culvert.

921.40 – Treated Timber Box Culvert

Description

921.40.01 This work consists of furnishing and installing treated timber box culverts, including excavation and backfill, and constructing catch basins.

Construction

921.40.02 Install culverts as required under construction section 921.00 and/or as SHOWN ON THE PLANS.

921.40.03 Treated Timber Box Culverts. Install treated timber box culverts at the locations SHOWN IN THE PLANS or as DESIGNATED ON THE GROUND.

Place the box culvert walls on a firm foundation of undisturbed or compacted suitable material shaped to fit the bottom of the culvert walls and free of rocks larger than 3 inches in size.

921.50 - Open-Top Drain

Description

921.50.01 This work consists of furnishing and installing open-top drains, including excavation and backfill, and constructing catch basins.

Construction

921.50.02 Install open-top drains as required under construction section 921.00 and/or as SHOWN ON THE PLANS.

921.60 - Bottomless Arch Culvert

Description

921.50.01 This work consists of furnishing and installing bottomless arch culverts, including excavation and backfill, selecting and hauling of log and rock materials for headwalls, and constructing catch basins.

Construction

921.50.02 Install culverts as required under construction section 921.00 and as SHOWN ON THE PLANS.

921.70. - Culvert Maintenance

Description

921.50.01 This work consists of maintenance of culverts, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins, and headwalls.

Maintenance

921.50.02 General. Where trail drainage facilities have been plugged and the water has been diverted from the intended channel, remove the debris causing the diversion and return the drainage to the channel. Divert water off and away from the trailbed. If washing or ponding of water has been or is occurring, dig a shallow ditch sloped 2 percent to 5 percent to the downstream side of the trail and 3 inches minimum deep and 12 inches minimum wide across the trail at the point where water enters the trail.

Clean ditches to permit the free flow of water into culverts and away from the trail.

Scatter all unusable or unneeded material that is cleared from the drainage structures 3 feet or more beyond and below the trail or drainage facility and out of water courses.

921.50.03 Remove debris and soil from catch basins and inlet and outlet ditches and inside culverts to permit the unobstructed flow of water into, through and away from the culvert. Replace any missing or loose rocks or logs in culvert headwalls. Fit replacement rocks for rock culverts so that they have a firm bearing on adjacent and underlying rocks. Place rocks snugly and fill voids with small rocks to prevent material from sifting into the drain. Fill and compact with suitable material all disturbed areas in the trail tread over or adjacent to rock culverts.

922 - Waterbars

Description

922.00.01 This work consists of installing and maintaining waterbars, including excavation and backfill; selecting and hauling of log and rock materials; and furnishing treated timber, belting, and other materials. Construction and maintenance of waterbars may be covered by one or more of the following subsections:

922.10.	Rock Waterbar
922.20.	Log or Treated Timber Waterbars
922.30.	Belted Waterbar
922.40.	Waterbar Maintenance

Materials

922.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Drainage Pipe	992
Geosynthetics	994
Material for Timber Structures	995

Use rubber belting that is single-ply, non-reinforced material 3/8 inch to 1/2 inch thick.

Construction

922.00.03 General. Install waterbars of the types and at the locations SHOWN ON THE PLANS or as DESIGNATED ON THE GROUND.

922.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911. Around waterbars, backfill and compact suitable material that is free of rocks larger than 3 inches in size. Compact material on the downgrade side of rock, log, and treated timber waterbars, flush with the top of waterbars.

Outslope the trailbed on the upgrade side of the waterbar with a slope equal to or greater than the trail grade leading into the waterbar. Provide a uniform outsloped plane that forms a gutter against the waterbar.

Measurement

922.00.05 Measure the Section 922 items listed in the bid schedule according to section 906.

Payment

922.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 922 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

922.10 - Rock Waterbar

Description

922.10.01 This work consists of installing rock waterbars, including excavation and backfill; selecting and hauling of rock materials; and other materials.

Construction

922.10.02 Install rock waterbars as required under construction section 922.00 and/or as SHOWN ON THE PLANS.

922.10.03 Rock Waterbar. Tightly embed selected rocks into the trailbed. Place waterbar rocks with tops relatively even, with no sharp points. Use rocks with lengths greater than or equal to 1.5 times the width.

922.20 - Log or Treated Timber Waterbars

Description

922.20.01 This work consists of installing log or treated timber waterbars, including excavation and backfill; selecting and hauling of log materials or furnishing treated timbers and other materials.

Construction

922.20.02 Install waterbars per as required under construction section 922.00 and/or as SHOWN ON THE PLANS.

922.20.03 Log or Treated Timber Waterbars. Embed peeled native logs or treated timbers into the trailbed to form a waterbar across the trail. Use anchor methods as SHOWN ON THE PLANS at log or treated timber ends outside the trail tread. Pre-drill pilot holes (for steel pins) through timbers prior to treatment. Anchor stakes firmly in the ground, and tightly nail to the log without splitting. In the absence of a backslope, anchor the upgrade end of the log or timber waterbar in the same manner as the downgrade end.

922.30 - Belted Waterbar

Description

922.30.01 This work consists of installing belted waterbars, including excavation and backfill; furnishing treated timbers and other materials.

Construction

922.30.02 Install waterbars as required under construction section 922.00 and/or as SHOWN ON THE PLANS.

922.30.03 Rubber Belting Waterbars. Tightly secure one continuous piece of rubber belting between treated timbers as SHOWN ON THE PLANS.

922.40. - Waterbar Maintenance

Description

922.40.01 This work consists of maintenance of waterbars, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins, and headwalls.

Maintenance

922.40.02 General. Where trail drainage facilities have been plugged and the water has been diverted from the intended channel, remove the debris causing the diversion and return the drainage to the channel. Divert water off and away from the trailbed. If washing or ponding of water has been or is occurring, dig a shallow ditch sloped 2 percent to 5 percent to the downstream side of the trail and 3 inches minimum deep and 12 inches minimum wide across the trail at the point where water enters the trail.

Clean ditches to permit the free flow of water into culverts and away from the trail.

Scatter all unusable or unneeded material that is cleared from the drainage structures 3 feet or more beyond and below the trail or drainage facility and out of water courses.

922.40.03. Clean the upgrade side of all existing waterbars and maintain them as SHOWN ON THE PLANS. Remove material accumulated against rubber belting waterbars. Use and compact suitable material removed from the upgrade side of all waterbars to bring the trail tread flush with the top of those waterbars on the downgrade side. Remove all debris from the lead-off area of all waterbars that restricts the free flow of water away from the trail. Firmly embed replacement rocks for rock waterbars into the trailbed and fit the rocks together. Make the tops of the rocks even, with no sharp points. Peel native replacement logs before using them. Anchor stakes tightly in the ground without splits and nail tightly to the log.

923 – Rock Spillways

Description

923.01 This work consists of constructing or maintenance of spillways, including selecting, excavating, and placing geotextile and rock material. Construction and maintenance of spillways may be covered by one or more of the following subsections:

- 923.10. Rock Spillway
- 923.20. Rock Spillway Maintenance

Materials

923.02 Requirements. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Drainage Pipe	992
Geosynthetics	994
Material for Timber Structures	995

Construction

923.03 General. Construct rock spillways at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Construct spillways so the flow of water from the facility being drained is centered on and flows down the full length of the spillway.

923.04 Excavation. Excavate for the spillway in accordance with Section 911. Construct a horizontal bench into undisturbed material and compact it as a foundation for the toe of the rock spillway.

923.05 Geotextile Placement. Place geotextile under the rock as required or as SHOWN ON THE PLANS.

923.06 Rock Placement. Construct the spillway by hand-placing rock, with the larger rock in the bottom layers. Place each rock to provide a stable course. Interlock each rock with adjacent rocks, and minimize voids. Use small rocks to fill voids. Do not break, jar, or displace rocks already set.

Measurement

923.06 Measure the Section 923 items listed in the bid schedule according to section 906.

Payment

923.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 923 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

923.10. – Rock Spillway

Description

923.10.01 This work consists of constructing or maintenance of spillways, including selecting, excavating, and placing rock material.

Construction

923.10.02 Install rock spillway as required under construction section 923.00 and/or as SHOWN ON THE PLANS.

923.20. – Rock Spillway Maintenance

Description

923.20.01 This work consists of maintenance of spillways, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins, and headwalls.

Maintenance

923.20.02 General. Where trail drainage facilities have been plugged and the water has been diverted from the intended channel, remove the debris causing the diversion and return the drainage to the channel. Divert water off and away from the trailbed. If washing or ponding of water has been or is occurring, dig a shallow ditch sloped 2 percent to 5 percent to the downstream side of the trail and 3 inches minimum deep and 12 inches minimum wide across the trail at the point where water enters the trail.

Clean ditches to permit the free flow of water into culverts and away from the trail.

Scatter all unusable or unneeded material that is cleared from the drainage structures 3 feet or more beyond and below the trail or drainage facility and out of water courses.

923.20.03. Maintain rock spillways to conform as SHOWN ON THE PLANS. Replace missing rocks, interlocking each rock with adjacent rocks. Place the rocks to ensure that the water flows down the spillway and away from the facility being drained. Use small rocks to fill voids. Clean all material from the spillway that restricts the flow of water away from the trail.

924 – Underdrains

Description

924.00.01 This work consists of constructing or maintaining underdrains, including excavation and backfill and obtaining and installing filter rock, geosynthetics, and drainpipe with necessary fittings. Construction and maintenance of underdrains may be covered by one or more of the following subsections:

924.10.	Rock Underdrain
924.20.	Sheet Underdrain
924.30.	Underdrain Maintenance

Materials

924.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Drainage Pipe	992
Geosynthetics	994
Material for Timber Structures	995

Construction

924.00.03 General. Construct underdrains at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

924.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

924.00.05 Trench Construction. Grade underdrain trenches to provide complete drainage of the underdrain system. Obtain CO approval of the trench system prior to placement of underdrain materials.

924.00.06 Pipe Installation. Ensure positive drainage from the underdrain pipes and drainage system. Place pipe in the trench with the perforations down.

Measurement

924.00.07 Measure the Section 924 items listed in the bid schedule according to section 906.

Payment

924.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 924 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

924.10 - Rock Underdrain

Description

924.10.01 This work consists of constructing rock underdrains and associated drainage ditches, including excavation and backfill and obtaining and installing filter rock, geosynthetics, and drainpipe with necessary fittings.

Construction

924.10.02 Install underdrain as required under construction section 924.00 and/or as SHOWN ON THE PLANS.

924.20 - Sheet Underdrain

Description

924.20.01 This work consists of constructing sheet underdrains or sheet drains, including excavation and backfill and obtaining and installing filter rock, geosynthetics, and drain pipe with necessary fittings.

Construction

924.20.02 Install underdrain as required under construction section 924.00 and/or as SHOWN ON THE PLANS.

924.30. - Underdrain Maintenance

Description

924.30.01 This work consists of maintenance of rock and sheet underdrains and associated drainage ditches, including excavation and backfill and obtaining and installing filter rock, geosynthetics, and drainpipe with necessary fittings.

Maintenance

924.30.02 Perform maintenance on underdrains and associated ditches as required under construction section 924.00 and/or as SHOWN ON THE PLANS.

Where ditches have been plugged and the water has been diverted from the intended underdrain, remove the debris causing the diversion and return the drainage to the ditch.

925 – Ditches

Description

925.00.01 This work consists of construction and maintenance of ditches, including excavation and backfill. Construction and maintenance of ditches may be covered by one or more of the following subsections:

- 925.10. Side Ditch
- 925.20. Leadoff Ditch
- 925.30. Ditch Maintenance

Construction

925.00.02 General. Construct ditches at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

925.00.03 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

Measurement

925.00.04 Measure the Section 925 items listed in the bid schedule according to section 906.

Payment

925.00.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 925 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

925.10. - Side Ditch

Description

925.10.01 This work consists of construction of side ditches, including excavation and backfill.

Construction

925.10.02 Construct side ditches as required under construction section 925.00 and/or as SHOWN ON THE PLANS.

925.20. - Leadoff Ditch

Description

925.20.01 This work consists of construction of leadoff ditches, including excavation and backfill.

Construction

925.20.02 Construct leadoff ditches as required under construction section 925.00 and/or as SHOWN ON THE PLANS.

925.30. - Ditch Maintenance

Description

925.30.01 This work consists of maintenance of leadoff ditches, including excavation and backfill.

Maintenance

925.30.02 General. Where ditches have been plugged and the water has been diverted from the intended ditch, remove the debris causing the diversion and return the drainage to the ditch. Clean deposited material and restore ditches as SHOWN ON THE PLANS. Remove all debris from the lead-off ditches that restricts the free flow of water away from the trail.

Clean ditches to permit the free flow of water into culverts and away from the trail.

Scatter all unusable or unneeded material that is cleared from the drainage structures 3 feet or more beyond and below the trail or drainage facility and out of water courses.

926 – Berms

Description

926.00.01 This work consists of construction and maintenance of berms and associated drainage ditches, including excavation and backfill. Construction of berms may be covered by one or more of the following subsections:

- 926.10. Berms
- 926.20. Berm Maintenance

Construction

926.00.02 General. Construct berms at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

926.00.03 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

Measurement

926.00.04 Measure the Section 926 items listed in the bid schedule according to section 906.

Payment

926.00.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 926 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

926.10. – Berms

Description

926.10.01 This work consists of constructing berms and associated drainage ditches, including excavation and backfill.

Construction

926.10.02 Construct berms as required under construction section 926.00 and/or as SHOWN ON THE PLANS.

926.20. - Berm Maintenance

Description

926.10.01 This work consists of maintaining berms, including excavation and backfill.

Maintenance

926.10.02 Perform maintenance of berms as required under construction section 926.00 and/or as SHOWN ON THE PLANS.

927 - Drain Dips

Description

927.00.01 This work consists of construction and maintenance of drainage dips, including excavation and backfill. Construction and maintenance of drainage dips may be covered by one or more of the following subsections:

- 924.10. Drain Dip
- 924.20. Drain Dip Maintenance

Materials

927.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

927.00.03 General. Construct drainage dips at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

927.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

Measurement

927.00.05 Measure the Section 924 items listed in the bid schedule according to section 906.

Payment

927.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 924 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

927.10. - Drain Dip

Description

926.10.01 This work consists of constructing drain dips and associated drainage ditches, including excavation and backfill.

Construction

926.10.02 Construct drain dips as required under construction section 927.00 and/or as SHOWN ON THE PLANS.

927.20. - Drain Dip Maintenance

Description

927.20.01 This work consists of maintenance of drain dips, including excavation and backfill, selecting and hauling of log and rock materials, and constructing catch basins, and headwalls.

Maintenance

927.20.02 General. Where trail drainage facilities have been plugged and the water has been diverted from the intended channel, remove the debris causing the diversion and return the drainage to the channel. Divert water off and away from the trailbed. If washing or ponding of water has been or is occurring, dig a shallow ditch sloped 2 percent to 5 percent to the downstream side of the trail and 3 inches minimum deep and 12 inches minimum wide across the trail at the point where water enters the trail.

Clean ditches to permit the free flow of water into culverts and away from the trail.

Scatter all unusable or unneeded material that is cleared from the drainage structures 3 feet or more beyond and below the trail or drainage facility and out of water courses.

927.20.03 Clean deposited material and restore drainage dips as SHOWN ON THE PLANS. Remove all debris from the lead-off area of dips that restricts the free flow of water away from the trail. Use suitable material obtained by cleaning dips for fill on the downgrade side, removing rock more than 3 inches at its greatest dimension. Compact all material placed in the trail tread.

928 - Check Dams

Description

928.00.01 This work consists of construction and maintenance of check dams, including excavation and backfill, and obtaining and installing of log and rock materials. Construction and maintenance of check dam may be covered by one or more of the following subsections:

- 928.10. Check Dam
- 928.20. Check Dam Maintenance

Materials

928.00.02 Materials. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics	994
Material for Timber Structures	995

Construction

928.00.03 General. Construct check dams at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

928.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

Measurement

928.00.05 Measure the Section 928 items listed in the bid schedule according to section 906.

Payment

928.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 928 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

928.10. - Check Dams

Description

928.00.01 This work consists of construction of check dams, including excavation and backfill and obtaining and installing rocks.

Construction

928.10.02 Construct check dams as required under construction section 928.00 and/or as SHOWN ON THE PLANS.

928.20. - Check Dam Maintenance

Description

928.20.01 This work consists of maintenance of check dams, including excavation and backfill and obtaining and installing rocks.

Maintenance

928.20.02 General. Where check dams have been plugged and the water has been diverted from the intended channel, remove the debris causing the diversion and return the drainage to the channel. Divert water off and away from the trailbed. If washing or ponding of water has been or is occurring, dig a shallow ditch sloped 2 percent to 5 percent to the downstream side of the trail and 3 inches minimum deep and 12 inches minimum wide across the trail at the point where water enters the trail.

Clean ditches to permit the free flow of water into culverts and away from the trail.

Scatter all unusable or unneeded material that is cleared from the drainage structures 3 feet or more beyond and below the trail or drainage facility and out of water courses.

928.20.03 Clean deposited material and restore check dams as SHOWN ON THE PLANS. Remove all debris from the lead-off area of dips that restricts the free flow of water away from the trail. Use suitable material obtained by cleaning dips for fill on the downgrade side, removing rock more than 3 inches at its greatest dimension. Compact all material placed in the trail tread.

Section 930 – Trail Structures

Section 931 – Switchbacks

Description

931.00.01 This work consists of construction and maintenance of switchbacks, including excavation, associated barriers, ditches, retaining walls, and approach sections. Construction and maintenance of switchbacks may be covered by one or more of the following subsections:

931.10.	Type 1 – Radius Switchback
931.20.	Type 2 – Circular Landing Switchback
931.30.	Type 3 – Rectangular Landing Switchback
931.40.	Switchback Maintenance

Materials

931.00.02 Materials. Conform to the following Sections and Subsections:

Rock, Grid Pavement Units, and Aggregate	991
Material for Timber Structures	995

Construction

931.00.03 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

931.00.04 Retaining Walls. When SHOWN ON THE PLANS, construct retaining walls in accordance with Section 935.

931.00.05 Barriers. When SHOWN ON THE PLANS, construct barriers at each switchback in accordance with Section 933.

931.00.06 Ditches. When SHOWN ON THE PLANS, construct ditches in accordance with Section 925.

931.00.07 Limits of Switchback. Beginning and ending of switchback will be as SHOWN ON THE PLAN or as DESIGNATED ON THE GROUND.

Measurement

931.00.08 Measure the Section 931 items listed in the bid schedule according to section 906.

Payment

931.00.09 The accepted quantities will be paid at the contract price per unit of measurement for the Section 931 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

931.10 - Type 1 – Radius Switchbacks

Description

931.10.01 This work consists of construction of radius switchbacks, including excavation, associated barriers, ditches, retaining walls, and approach sections.

Construction

931.10.02 Construct radius switchback as required under construction section 931.00 and/or as SHOWN ON THE PLANS.

931.20 - Type 2 – Circular Landing Switchbacks

Description

931.20.01 This work consists of construction of circular landing switchbacks, including excavation, associated barriers, ditches, retaining walls, and approach sections.

Construction

931.20.02 Construct circular landing switchback as required under construction section 931.00 and/or as SHOWN ON THE PLANS.

931.30 - Type 3 – Rectangular Landing Switchbacks

Description

931.30.01 This work consists of construction of rectangular landing switchbacks, including excavation, associated barriers, ditches, retaining walls, and approach sections.

Construction

931.30.02 Construct rectangular landing switchback as required under construction section 931.00 and/or as SHOWN ON THE PLANS.

931.40 - Switchback Maintenance

Description

931.40.01 This work consists of replacing or maintaining retaining walls, trail tread, barriers, and drain ditches on existing switchbacks.

Maintenance

931.40.02 General. Perform maintenance on switchbacks as required under construction section 931.00 and/or as SHOWN ON THE PLANS.

931.40.03 Retaining Walls. When needed in rock retaining wall maintenance, use replacement rock that is sound, durable, and free from rifts, seams, laminations, and minerals that could cause deterioration through weathering.

931.40.04 Barriers. Perform barrier maintenance where needed. Use the same type of materials as in the original construction.

931.40.05 Ditches. Clear switchback ditches to permit the free flow of water. Construct ditches as SHOWN ON THE PLANS.

931.40.06 Tread. Maintain trail tread to the original designed tread width.

Section 932 – Turnpikes

Description

932.00.01 This work consists of construction and maintenance of turnpike sections, including excavation, embankment, retainers, geosynthetics, backfill, and drainage features. Construction and maintenance of turnpike sections may be covered by one or more of the following subsections:

932.10.	Type 1 – Standard Turnpike
932.20.	Type 2 – Standard Turnpike with Foundation
932.30.	Turnpike Maintenance

Materials

932.00.02 Materials. Conform to the following Sections and Subsections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics materials	994
Material for Timber Structures	995

Construction

932.00.03 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

932.00.04 Retainers. Construct retainers in accordance with Section 911.70 and as SHOWN ON THE PLANS. Place retainers in a continuous row along each shoulder of the turnpike section as SHOWN ON THE PLANS. Bed the parallel retainers so they are stable and at approximately the same top elevation.

932.00.05 Geosynthetics. Where SHOWN ON THE PLANS, place geosynthetics flat and parallel to centerline of the trail before placing embankment. Overlap geosynthetics a minimum of 2 feet. Install anchors or fasteners as recommended by the geosynthetic manufacturer.

932.00.06 Backfill. Backfill and compact with suitable material.

932.00.07 Drainage. Construct side ditches, cross-drainage, and culverts at locations SHOWN ON THE PLANS and/or DESIGNATED ON THE GROUND. Provide leadoff ditches from side ditches on the lower side of trail at points DESIGNATED ON THE GROUND or SHOWN ON THE PLANS.

Measurement

932.00.08 Measure the Section 932 items listed in the bid schedule according to section 906.

Payment

932.00.09 The accepted quantities will be paid at the contract price per unit of measurement for the Section 932 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

932.10 - Type 1 – Standard Turnpikes

Description

932.10.01 This work consists of construction of standard turnpike sections, including excavation, embankment, retainers, geosynthetics, backfill, and drainage features.

Construction

932.10.02 Construct standard turnpike sections as required under construction section 932.00. and/or as SHOWN ON THE PLANS.

932.20 - Type 2 – Standard Turnpikes with Foundation

Description

932.20.01 This work consists of construction of standard turnpike sections with foundation, including excavation, embankment, retainers, geosynthetics, rocks, backfill, and drainage features.

Construction

932.20.02 Standard turnpike sections with foundation as required under construction section 932.00. and/or as SHOWN ON THE PLANS.

932.30 - Turnpike Maintenance

Description

932.30.01 This work consists of maintaining turnpike sections.

Maintenance

932.30.02 General. Perform maintenance on turnpikes as required under construction section 932.00. and/or as SHOWN ON THE PLANS.

932.30.03 Obtain logs, staking material, and suitable material for backfill from locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

932.30.04 Replace missing rocks, or missing or decayed retaining logs or lumber, with rocks, logs, or dimensional lumber as SHOWN ON THE

PLANS. Secure loose or dislocated retainers. Drive stakes 2-3 inches in diameter and 18-24 inches in length along the outside edge of each log or lumber retainer to hold them in place at a maximum of 3 feet.

932.30.05 Clear all drainage structures of obstructions, silt, and debris so as to permit the free flow of water away from the trail.

932.30.06 If necessary, use suitable material removed from the drainage structures to build up the crown. Shape the tread with suitable material to provide a 2 inch crown measured from the top of the crown at the centerline to the top of the retainers.

Section 933 – Side Barriers

Description

933.00.01 This work consists of construction and maintenance of side barriers, including excavation, embankment, widening, debris disposal and backfill. Construction and maintenance of side barriers may be covered by one or more of the following subsections:

933.10.	Stacked Rock Barrier
933.20.	Masonry Rock Barrier
933.30.	Barrier Rail on Grade
933.40.	Barrier Rail on Posts
933.50.	Curb
933.60.	Guardrail

Materials

933.00.02 Materials. Conform to the following Sections and Subsections:

Rock, Grid Pavement Units, and Aggregate	991
Material for Timber Structures	995

Construction

933.00.03 General. Construct barriers of the type and at the locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Use logs in which the true centerline deviates no more than 2 inches from the line between the centers of the ends of the log.

933.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

933.00.05 Backfill. Backfill and compact with suitable material.

Measurement

933.00.06 Measure the Section 933 items listed in the bid schedule according to section 906.

Payment

933.00.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 933 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

933.10. – Stacked Rock Barrier

Description

933.10.01 This work consists of construction of stacked rock barrier, including excavation, embankment, widening, debris disposal and backfill.

Construction

933.10.02 Construct stacked rock barrier as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.20. – Masonry Rock Barrier

Description

933.20.01 This work consists of construction of masonry rock barrier, including excavation, embankment, widening, debris disposal and backfill.

Construction

933.20.02 Construct masonry rock barrier as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.30. – Barrier Rail on Grade

Description

933.30.01 This work consists of construction of barrier rail on grade, including excavation, embankment, widening, debris disposal and backfill.

Construction

933.30.02 Construct barrier rail on grade as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.40. – Barrier Rail on Posts

Description

933.40.01 This work consists of construction of barrier rail on posts, including excavation, embankment, widening, debris disposal and backfill.

Construction

933.40.02 Construct barrier rail on posts as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.50. – Curb

Description

933.50.01 This work consists of construction of curbing, including excavation, embankment, debris disposal and backfill.

Construction

933.50.02 Construct curbing as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.60. – Guardrail

Description

933.60.01 This work consists of construction of guardrail, including excavation, embankment, widening, debris disposal and backfill.

Construction

933.60.02 Construct guard as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.70 – Side Barrier Maintenance

Description

933.70.01 Work consists of maintaining rock, log, and timber barriers.

Maintenance

933.70.02 General. Perform maintenance on barriers as required under construction section 933.00. and/or as SHOWN ON THE PLANS.

933.70.03 Restore rock, log, and timber barriers to their original lines and grades unless otherwise SHOWN ON THE PLANS.

933.70.04 Rock Barriers. Replace missing rocks, using rocks of general rectangular shape between 45 lbs and 120 lbs, with the larger rocks placed on the bottom. Use rock chips to wedge larger rocks in place to form a stable wall. Stagger all vertical joints.

Stabilize and reset loose rocks.

Form a continuous grade with the top of the restored barrier consistent with adjacent segments of the barrier.

933.70.05 Log or Timber Barriers. Replace missing, damaged, and unsound logs or timbers using material similar to that used in the original barrier unless otherwise SHOWN ON THE PLANS. The location of trees for native timber materials will be DESIGNATED ON THE GROUND.

Stabilize and re-attach loose logs or timbers that are in sound condition.

Section 934 – Puncheons

Description

934.00.01 This work consists of construction and maintenance of puncheon, including excavation, embankment, backfill, and drainage features. Construction and maintenance of puncheon may be covered by one or more of the following subsections:

934.10.	Standard Puncheon
934.20.	No Deck Puncheon
934.30.	Puncheon Maintenance

Materials

934.00.02 Materials. Conform to the following Sections and Subsections:

Rock, Grid Pavement Units, and Aggregate	991
Material for Timber Structures	995

The location of trees for native timber materials will be SHOWN ON THE PLANS and DESIGNATED ON THE GROUND.

Construction

934.00.03 General. Construct puncheon at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Pre-drill holes for fasteners when necessary to prevent splitting and drive spikes flush.

934.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with the requirements of Section 911 and as SHOWN ON THE PLANS.

934.00.05 Mud Sills. Bury mud sills to a depth that provides a finished walking surface that is less than or equal to 3 feet above the surrounding ground. Hew sill logs to provide a bearing surface for the log stringers and to provide the log stringers with a level top surface. Do not hew sill logs more than one-third their diameter. Do not level the top surfaces of the log stringers by shimming or notching their ends.

934.00.06 Log Stringers. Use logs greater than or equal to 10 feet in length. Use logs greater than or equal to 8 inches in diameter before the top is flattened. Fasten each stringer to each mud sill with drift pins that penetrate a minimum of 4 inches into the mud sill unless otherwise SHOWN ON THE PLANS.

When plank decking is used, hew the top surfaces of log stringers up to 2 inches deep, as necessary, to provide bearing surfaces for deck planks.

934.00.07 Sawn Timber Stringers. Use sawn timber greater than or equal to 10 feet in length. Fasten each stringer to each mud sill with drift pins that penetrate a minimum of 4 inches into the mud sill unless otherwise SHOWN ON THE PLANS.

934.00.08 Finished Walkway. Construct abutting ends of sections of log or plank puncheon flush with each other. Do not slope the surface of the completed walkway to either side. Construct the puncheon with a grade that does not exceed 5 percent and where no change in grade exceeds 6 percent unless otherwise SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Construct the finished walking surface of the puncheon flush with the trail grade at each end of the structure.

934.00.09 Decking. Spike decking evenly at right angles to each stringer.

Lay split log decking alternately flat side down first, then round side down, ending with a flat side down. When round side is down, notch round log decking to provide 2 inches wide bearing surface.

Lay split and sawn deck planks on the stringer to provide bearing for the full width of the plank.

Trim protruding ends of the decking to give a straight-line appearance to the edges of the structure or as SHOWN ON THE PLANS.

934.00.10 Curbs. Construct curbs with logs or sawn timber as SHOWN ON THE PLANS. Use lengths greater than or equal to 10 feet and splice with a 6 inches half-lap joint at a spacer location. Match diameters of logs at lap joints and trim excess to provide a smooth transition between logs.

Counter bore lag screws in curbs so that heads are flush with the surface.

Finish curbs smooth and free from splinters and sharp projections.

934.00.11 Approach Fills. Construct the approach fills with compacted suitable material.

Measurement

934.00.12 Measure the Section 934 items listed in the bid schedule according to section 906.

Payment

934.00.13 The accepted quantities will be paid at the contract price per unit of measurement for the Section 934 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

934.10. – Standard Puncheon

Description

934.10.01 This work consists of construction of standard puncheon, including excavation, embankment, backfill, and drainage features.

Construction

934.10.02 Construct standard puncheon as required under construction section 934.00. and/or as SHOWN ON THE PLANS.

934.20. – No Deck Puncheon

Description

934.20.01 This work consists of construction of no deck puncheon, including excavation, embankment, backfill, and drainage features.

Construction

934.20.02 Construct no deck puncheon as required under construction section 934.00. and/or as SHOWN ON THE PLANS.

934.30. – Puncheon Maintenance

Description

934.30.01 This work consists of maintaining puncheon sections.

Maintenance

934.30.02 General. Perform maintenance on puncheon as required under construction section 934.00. and/or as SHOWN ON THE PLANS.

934.30.03 Obtain logs, staking material, and suitable material for backfill from locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

934.30.04 Replace missing rocks, or missing or decayed retaining logs or lumber, with rocks, logs, or dimensional lumber as SHOWN ON THE PLANS. Secure loose or dislocated retainers. Drive stakes 2-3 inches in diameter and 18-24 inches in length along the outside edge of each log or lumber retainer to hold them in place at a maximum of 3 feet.

934.30.05 Clear all drainage structures of obstructions, silt, and debris so as to permit the free flow of water away from the trail.

934.30.06 If necessary, use suitable material removed from the drainage structures to build up the crown. Shape the tread with suitable material to provide a 2 inch crown measured from the top of the crown at the centerline to the top of the retainers.

935 - Retaining Walls

Description

935.00.01 Work consists of construction or maintenance of retaining walls, including excavating, placing borrow, backfilling, geosynthetics, trailbed construction and slope finishing. Construction and maintenance of retaining walls may be covered by one or more of the following subsections:

935.10.	Log Crib
935.20.	Stacked Rock Retaining Wall
935.30.	Wire Basket Retaining Wall
935.40.	Masonry Rock Retaining Wall
935.50.	Cast-in-place Concrete Retaining Wall
935.60.	Post and Plank Retaining Wall (Soldier Pile)
935.70.	Retaining Wall Maintenance

Materials

935.00.02 Requirements. Use materials meeting the requirements of the following section:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics Materials	994
Material for Timber Structures	995
Wire Basket Material	996

The location of trees for native timber materials is SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Construction

935.00.03 Installation. Install retaining walls of the types and at the locations SHOWN ON THE PLANS or as DESIGNATED ON THE GROUND.

935.00.04 Excavation. Excavate in accordance with Section 911 to provide a full bench foundation of stable undisturbed soil or compacted suitable material. Construct the finished foundation grade parallel with the trail profile grade.

935.00.05 Backfill. Place geosynthetics before backfilling and compaction. Backfill and compact with suitable material.

Measurement

935.00.06 Measure the Section 935 items listed in the bid schedule according to section 906.

Payment

935.00.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 935 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

935.10 - Log Crib

Description

935.10.01 This work consists of constructing log or split timber retaining walls. Work includes excavation, notching, pre-drilling, pinning, borrow, backfilling, tread and slope finishing.

Construction

935.10.02 Install retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.10.03 Log Notching. Notch logs only on bottom side.

Do not notch sill and filler logs. Individually notch all face, rear, and header logs to fit as the wall construction proceeds vertically. Do not pre-notch.

Provide a notch depth between one-fourth and one-third the log diameter. Vary notching depth and width as required to obtain a snug fit between interlocking logs of varying diameter. Do not exceed 1/2 inch of space between filler and face logs.

935.20 - Stacked Rock Retaining Wall

Description

935.20.01 This work consists of constructing stacked rock retaining walls, including excavating, placing borrow, backfilling, tread and slope finishing.

Construction

935.20.02 Install retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.20.03 Wall Construction. Construct rock retaining walls at locations SHOWN ON THE PLANS and DESIGNATED ON THE GROUND. Stagger vertical joints a minimum of 4 inches horizontally from vertical joints in adjoining courses.

Use uniformly distributed header rocks for at least 25 percent of the rocks in the front and rear faces of the wall each having a length at least 2.5 times its width. Place all header rocks with the greatest dimension extending into the wall (at right angle to trail centerline), except at corners. At corners, lay alternating courses containing headers with greatest dimension parallel with wall.

Place the exposed face of each rock parallel to the face of the wall in which it is set.

Stabilize each rock on the course that supports it. Do not break, loosen, or displace rocks already set.

Use rocks of a general rectangular shape. Fill voids with small rock fragments or fine aggregate.

935.30 - Wire Basket Retaining Wall

Description

935.30.01 Work consists of furnishing and constructing wire basket structures, including excavating, placing borrow, backfilling, tread and slope finishing.

Construction

935.30.02 Install retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.30.03 Basket Assembly. Do not damage wire coatings during basket assembly, structure erection, cell filling, or backfilling. Rotate the basket panels into position and join the vertical edges with fasteners. Where lacing wire is used, wrap the wire with alternating single and double loops every other mesh opening. Where spiral binders are used, crimp the ends to secure the binders in place. Where alternate fasteners are used, space the fasteners in every other mesh opening.

Rotate the diaphragms into position and join the vertical edges with fasteners, lacing wire, or spiral binders as specified above.

935.30.04 Structure Erection. Place the empty baskets on the foundation and interconnect the adjacent baskets along the top and vertical edges using fasteners.

Where lacing wire is used, wrap the wire with alternating single and double loops every other mesh opening. Install the other fasteners according to Subsection 935.30.03, but space alternate fasteners in every other mesh opening.

In the same manner, interconnect each horizontal layer of baskets to the underlying layer of baskets along the front, back, and sides. Stagger the vertical joints between the baskets of adjacent rows and layers by at least one cell length.

935.30.05 Cell Filling. Remove all kinks and folds in the wire mesh and properly align all the baskets. Place rock carefully in the basket cells to prevent the baskets from bulging and to minimize voids in the rock fill.

Maintain the basket alignment and shape by placing the basket in tension during the filling operation.

Place internal connecting wires in each unrestrained exterior basket cell greater than 12 inches in height. This includes interior basket cells left temporarily unrestrained. Place internal connecting wires concurrently with rock placement.

Fill the cells in any row or layer so that no cell is filled more than 12 inches above an adjacent cell. Repeat this process until the basket is full and the lid bears on the final rock layer.

Secure the lid to the sides, ends, and diaphragms according to Subsection 935.00.04. Make all exposed basket surfaces smooth and neat, with no sharp rock edges projecting through the wire mesh.

935.30.06 Geotextile Installation. Place the geotextile as SHOWN ON THE PLANS. Ensure that the surfaces upon which geotextile is to be placed have a uniform slope and are reasonably smooth and free of obstructions, depressions, and debris that could damage the geotextile. Have the surface approved by the CO before placing geotextile.

Loosely lay the geotextile without wrinkles or creases. Sew or overlap adjacent strips a minimum of 12 inches at joints.

Insert securing pins through both strips of overlapped geotextile at maximum intervals of 36 inches, but no closer than 2 inches to each edge, to prevent the geotextile from being displaced.

935.30.07 Basket Mattresses. Construct wire baskets for mattresses less than 12 inches thick according to Subsections 935.30.03 through 935.30.05. Note that alternate fasteners for basket assembly may be used for structure erection. Anchor the mattress in place as SHOWN ON THE PLANS. Place geotextile against the vertical edges of the mattress and backfill against the geotextile, using structural backfill material or other approved material.

935.40. – Masonry Rock Retaining Wall

Description

935.40.01 This work consists of constructing masonry rock retaining walls. Work includes excavation, borrow, backfilling, tread and slope finishing.

Construction

935.40.02 Install masonry rock retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.50. – Cast-in-place Concrete Retaining Wall

Description

935.50.01 This work consists of constructing cast-in-place concrete retaining walls. Work includes excavation, borrow, backfilling, tread and slope finishing.

Construction

935.50.02 Construct cast-in-place concrete retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.60. – Post and Plank Retaining Wall (Soldier Pile)

Description

935.60.01 This work consists of constructing post and plank retaining walls. Work includes excavation, borrow, backfilling, tread and slope finishing.

Construction

935.60.02 Install post and plank retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.70 - Retaining Wall Maintenance

Description

935.70.01 This work consists of maintenance and repair of retaining wall sections.

Maintenance

935.70.02 General. Perform maintenance on retaining walls as required under construction section 935.00. and/or as SHOWN ON THE PLANS.

935.70.03 Obtain logs, rocks, and suitable material for backfill from locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

935.70.04 Replace missing rocks, or missing or decayed logs or lumber, with rocks, logs, or dimensional lumber as SHOWN ON THE PLANS. Secure loose or dislocated rocks and logs.

935.70.05 Repair walls back to a height that will provide a uniform grade consistent with segments of trail adjacent to each side of the damaged wall.

Section 936 – Trail Stairways

Description

936.00.01 This work consists of construction and maintenance of stairways, including excavation and placing embankment and constructing rock, log and treated timber riser, crib-ladder, stairways and railing systems. Construction and maintenance of stairways may be covered by one or more of the following subsections:

936.10.	Individual Steps
936.20.	Overlapping Steps
936.30.	Crib Ladder
936.40.	Staircase
936.50.	Ladder
936.60.	Stairway Maintenance

Materials

936.00.02 Requirements. Use materials meeting the requirements of the following sections:

Rock, Grid Pavement Units, and Aggregate	991
Geosynthetics Materials	994
Material for Timber Structures	995

Construction

936.00.03 General. Construct stairways of the type and at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

936.00.04 Excavation and Embankment. Excavate and place embankment in accordance with Section 911. Backfill with suitable compacted material after stairs are constructed.

Measurement

936.00.05 Measure the Section 936 items listed in the bid schedule according to section 906.

Payment

936.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 936 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

936.10. – Individual Steps

Description

936.10.01 This work consists of construction of individual steps, including excavation and placing embankment and constructing rock, log and treated timber steps.

Construction

936.10.02 Install steps as required under construction section 936.00. and/or as SHOWN ON THE PLANS.

936.10.03 Log or Treated Timber Steps. Use single logs or timbers for the entire riser.

936.10.04 Rock Steps. Lay rock with the greatest dimension horizontally and embed a minimum of one-third the height of the rock. Use single rocks to form the entire riser, unless otherwise DESIGNATED ON THE GROUND.

936.10.05 Pinned Steps. Provide a rock base clean of loose materials, roots, soil, and other obstructions.

Drill two 3/4 inch holes into the treads from the bottom side to match the positions of the holes in the rock and provide for the correct position of the step. Do not allow holes to penetrate the top of the tread. Hew the bottom of the tread to provide a firm, solid contact with the rock base. This contact does not need to be continuous but must provide a firm solid bearing.

Place the timber tread on the reinforcing bars and drive the tread down to its solid position.

936.20. – Overlapping Steps

Description

936.20.01 This work consists of construction of overlapping steps, including excavation and placing embankment and constructing rock steps.

Construction

936.20.02 Install overlapping steps as required under construction section 936.00. and/or as SHOWN ON THE PLANS.

936.20.03 Overlapping Rock Stairways. Construct steps starting with the bottom rock. Form the entire tread and riser with single rocks and provide two or more contact points for stability.

936.30. – Crib Ladder

Description

936.30.01 This work consists of construction of crib ladders, including excavation and placing embankment and constructing log and treated timber risers.

Construction

936.30.02 Install crib ladder as required under construction section 936.00. and/or as SHOWN ON THE PLANS.

936.30.03 Crib Ladder Stairway. Construct by laying two carriages parallel to each other. Construct sills and risers between carriages. Excavate location for crib ladder so that the ladder is firmly supported for their entire length. Backfill around carriages and behind the risers with suitable compacted material.

936.40. – Staircase

Description

936.40.01 This work consists of construction of staircases, including excavation and placing embankment and constructing log and treated timber riser.

Construction

936.40.02 Install staircase as required under construction section 936.00. and/or as SHOWN ON THE PLANS.

936.40.03 Plank Staircase. Construct plank staircase by laying two continuous and parallel carriages. Firmly embed the bottom of each carriage in the ground. Support each carriage by a sill at each end. Construct carriages and steps as SHOWN ON THE PLANS.

936.50. – Ladder

Description

936.50.01 This work consists of construction of ladders, including excavation and placing embankment and constructing log and treated timber riser.

Construction

936.50.02 Install ladders as required under construction section 936.00. and/or as SHOWN ON THE PLANS.

936.60. – Stairway Maintenance

Description

936.60.01 This work consists of maintaining stairways and ladders.

Maintenance

936.60.02 Perform maintenance on stairways and ladders as required under construction section 936.00. and/or as SHOWN ON THE PLANS.

Replace missing, broken or decayed logs or lumber with logs or dimensional lumber as SHOWN ON THE PLANS. Secure loose or dislocated stairs and steps.

Section 937— Railing System

Description

937.00.01 This work consists of construction and maintenance of railing system, including fasteners, posts and railing. Construction and maintenance of railing systems may be covered by one or more of the following subsections:

- 937.10. Site-built Railing System
- 937.20. Modular Railing System
- 937.30. Railing System Maintenance

Materials

937.00.02 Materials. Conform to the following Sections and Subsections:

- | | |
|--------------------------------|--------------------|
| Material for Timber Structures | 995 |
| Steel | FP-03, Section 555 |

Construction

937.00.03 General. Construct Railing Systems at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

937.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with the requirements of Section 911 and as SHOWN ON THE PLANS.

937.00.05 Log Rails and Posts. Use logs greater than or equal to 10 feet in length. Use logs greater than or equal to 4 inches in diameter for rails and posts. Fasten each rail to posts with spikes that penetrate a minimum of 4 inches into the posts unless otherwise SHOWN ON THE PLANS.

937.00.06 Sawn Timber Rails and Posts. Use sawn timber rails greater than or equal to 10 feet in length. Use posts greater than or equal to 4 inches x 4 inches and rails greater than 2 inches by 4 inches. Fasten each rail to posts with spikes or fasteners as SHOWN ON THE PLANS that penetrate a minimum of 3 inches into the posts unless otherwise SHOWN ON THE PLANS. Pre-drill holes for fasteners to prevent splitting and drive spikes flush.

937.00.07 Metal Rails and Posts. Construct metal railing systems as SHOWN ON THE PLANS.

937.00.08 Finish railing systems smooth and free from splinters and sharp projections.

Measurement

937.00.09 Measure the Section 937 items listed in the bid schedule according to section 906.

Payment

937.00.10 The accepted quantities will be paid at the contract price per unit of measurement for the Section 937 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

937.10. — Site-Built Railing System

Description

937.10.01 This work consists of construction of site-built railing system, including fasteners, posts and rails.

Construction

937.10.02 Construct site-built railing system as required under construction section 937.00 and/or as SHOWN ON THE PLANS.

937.20. — Modular Railing System

Description

937.20.01 This work consists of installation of modular railing systems, including fasteners, and modular railing systems.

Construction

937.20.02 Install modular railing systems as required under construction section 937.00 and/or as SHOWN ON THE PLANS.

937.30. — Railing System Maintenance

Description

937.30.01 This work consists of maintaining railing systems.

Maintenance

937.30.02 General. Perform maintenance on railing systems as required under construction section 937.00 and/or as SHOWN ON THE PLANS.

Replace missing, broken or decayed logs or lumber with logs or dimensional lumber as SHOWN ON THE PLANS. Secure loose or dislocated curbing and railing systems.

Section 938—Boardwalks

Description

938.00.01 This work consists of construction and maintenance of boardwalks, including excavation, embankment, backfill, curbs and railing systems. Construction and maintenance of boardwalks may be covered by one or more of the following subsections:

938.10.	Standard Boardwalk
938.20.	Elevated Boardwalk
938.30.	Step and Run
938.40.	Boardwalk Maintenance

Materials

938.00.02 Materials. Conform to the following Sections and Subsections:

Material for Timber Structures	995
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Construction

938.00.03 General. Construct boardwalks of the type and at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

938.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with the requirements of Section 911 and as SHOWN ON THE PLANS.

938.00.05 Mud Sills. Bury mud sills to a depth that provides a uniform walking surface as SHOWN ON THE PLANS.

938.00.06 Piers. Construct piers as SHOWN ON THE PLANS.

938.00.06 Approach Fills. Construct the approach fills with compacted suitable material.

Measurement

938.00.07 Measure the Section 938 items listed in the bid schedule according to section 906.

Payment

938.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 938 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

938.10.—Standard Boardwalk

Description

938.10.01 This work consists of construction of standard boardwalks, including excavation, embankment, backfill, curbs and/or railing system.

Construction

938.10.02 Construct standard boardwalks as required under construction section 938.00 and/or as SHOWN ON THE PLANS.

938.10.03 Sawn Timber Stringers. Use sawn timbers that are continuous over 2 or more spans. Fasten each stringer to each mud sill with fasteners as SHOWN ON THE PLANS that penetrate a minimum of 4 inches into the mud sill unless otherwise SHOWN ON THE PLANS. Pre-drill holes for fasteners to prevent splitting and drive spikes flush.

938.10.04 Finished Walkway. Construct abutting ends of sections of boardwalk flush with each other. Do not slope the surface of the completed walkway to either side. Construct the boardwalk with a grade that does not exceed 5 percent and where no change in grade exceeds 5 percent unless otherwise SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Construct the finished walking surface of the boardwalk flush with the trail grade at each end of the structure.

938.10.05 Decking. Lay sawn deck planks on the stringer to provide bearing for the full width of the plank. Fasten decking evenly at right angles to each stringer. Trim protruding ends of the decking to give a straight-line appearance to the edges of the structure or as SHOWN ON THE PLANS.

938.10.06 Curbs and Railing Systems. Construct curbs and railing systems with sawn timber as SHOWN ON THE PLANS. Use lengths greater than or equal to 10 feet and splice with a 6 inch half-lap joint at a spacer location. Finish curbs and railing systems smooth and free from splinters and sharp projections.

938.20.—Elevated Boardwalk

Description

938.20.01 This work consists of construction of elevated boardwalks, including excavation, embankment, backfill, curbs and/or railing system.

Construction

938.20.02 Construct elevated boardwalks as required under construction section 938.00 and/or as SHOWN ON THE PLANS.

938.20.03 Sawn Timber Stringers. Use sawn timbers that are continuous over 2 or more spans. Fasten each stringer to each mud sill with fasteners as SHOWN ON THE PLANS that penetrate a minimum of 4 inches into the

mud sill unless otherwise SHOWN ON THE PLANS. Pre-drill holes for fasteners to prevent splitting and drive spikes flush.

938.20.04 Finished Walkway. Construct abutting ends of sections of boardwalk flush with each other. Do not slope the surface of the completed walkway to either side. Construct the boardwalk with a grade that does not exceed 5 percent and where no change in grade exceeds 5 percent unless otherwise SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Construct the finished walking surface of the boardwalk flush with the trail grade at each end of the structure.

938.20.05 Decking. Lay sawn deck planks on the stringer to provide bearing for the full width of the plank. Fasten decking evenly at right angles to each stringer. Trim protruding ends of the decking to give a straight-line appearance to the edges of the structure or as SHOWN ON THE PLANS.

938.20.06 Curbs and Railing Systems. Construct curbs and railing systems with sawn timber as SHOWN ON THE PLANS. Use lengths greater than or equal to 10 feet and splice with a 6 inch half-lap joint at a spacer location. Finish curbs and railing systems smooth and free from splinters and sharp projections.

938.30.—Step and Run

Description

938.30.01 This work consists of construction of step and runs, including excavation, embankment, and backfill.

Construction

938.30.02 Construct standard step and runs as required under construction section 938.00 and/or as SHOWN ON THE PLANS.

938.40.—Boardwalk Maintenance

Description

938.40.01 This work consists of maintaining boardwalks.

Maintenance

938.40.02 General. Perform maintenance on boardwalks as required under construction section 938.00 and/or as SHOWN ON THE PLANS.

Replace missing, broken or decayed lumber with dimensional lumber as SHOWN ON THE PLANS. Secure loose or dislocated decking, curbing and railing systems.

Clear boardwalk of obstructions, silt, and debris so as to permit the free flow of water away under the boardwalk. Clean decking of all dirt and debris.

940 – Restriction Devices

Section 941 – Fences

Description

941.00.01 This work consists of construction and maintenance of fences, including excavation, backfill, and associated hardware. Construction and maintenance of fences may be covered by one or more of the following subsections:

941.10.	Post and Wire Fence
941.20.	Post and Rail Fence
941.30.	Woven Wire Fence
941.40.	Jackleg Fence
941.50.	Stacked Rail (Worm) Fence
941.60.	Remove and Reset Fence
941.70.	Fence Maintenance

Material

941.00.02 Conform to the following Sections and Subsections:

Concrete	FP-03, Section 601
Fence Material	993

Construction Requirements

941.00.03 General. Clear along the fence line. Remove and dispose of trees, brush, logs, upturned stumps, roots of downed trees, rubbish, and debris according to section 912. Clear a 3 feet width for wire fence.

Grubbing is not required except where short and abrupt changes in the ground contour require removal of stumps to properly grade the fence line. Remove or close cut stumps within the clearing limits.

Perform clearing and leveling with minimum disturbance to the terrain outside the fence line.

Schedule the fence installation, provide temporary fence, or other adequate means to prevent livestock from entering the project right-of-way, easements, or adjoining properties.

At bridges, cattle underpasses, and culverts, connect new fence to structure to permit free passage of livestock under or through the structure.

941.00.04 Posts. Excavate holes for posts, footings, and anchors as SHOWN ON THE PLANS. Space posts at intervals SHOWN ON THE PLANS for the type of fence being installed. Measure post spacing interval parallel to the existing ground slope. Set posts in a vertical position. Backfill post holes in 6 inch lifts. Tamp and compact each lift.

Wood posts may be driven in place if the method of driving does not damage the

post. Metal posts may be driven. Set metal corner, gate, end, and pull posts in concrete.

Where solid rock is encountered without overburden, drill line post holes at least 14 inches deep, and end, corner, gate, and pull posts at least 20 inches deep in the solid rock. Make the hole width or diameter at least 1 inch greater than the post width or diameter. Cut the post to the required length before installation or drill the hole deep enough to set the post at the required height. Set and plumb the post and fill the hole with grout. Thoroughly work the grout into the hole to eliminate voids. Crown the grout to drain water away from the post. Metal posts set in this manner do not require anchor plates and concrete footings.

Where solid rock is covered with soil or loose rock overburden, set posts to the plan depth or to the minimum depth into the solid rock as specified above, whichever is less. When the depth of overburden is greater than 12 inches, use an anchor plate on steel line posts and backfill steel end, corner, gate, and pull posts with concrete from the solid rock to top of the ground. When the depth of overburden is 12 inches or less, anchor plates and concrete backfill are not required. Grout the portion of the post in solid rock.

Install corner posts at changes in alignment of 30 degrees or more. Where new fence joins an existing fence, set end or corner posts, as necessary, and attach in a manner satisfactory to the CO.

941.00.05 Braces. Limit fence runs to no more than 650 feet between adjacent corner braces, gate braces, end braces, or line braces. Install line braces at uniform intervals so the distance between any two braces is 650 feet or less. Construct braces before placing the fence fabric and wires on posts.

(a) *Metal braces.* Provide corner posts and pull posts with two braces, one each direction from the post in the main fence line. Provide end posts and gate posts with one brace in the line of the fence. Attach metal braces to the metal end, corner, pull, and gate posts and set in concrete as SHOWN ON THE PLANS.

(b) *Wood braces.* Tap the posts to receive the braces. Anchor the brace to the post with three 16d nails or a 3/8 inch by 4 inches dowel. Install brace wires as SHOWN ON THE PLANS and twist together until the entire assembly is taut and firm. Lightly notch the posts to position the brace wire. Drive three staples at each notch to secure wire.

Measurement

941.00.06 Measure the Section 941 items listed in the bid schedule according to section 906.

Payment

941.00.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 941 pay items listed in the bid schedule. Payment will

be full compensation for the work prescribed in this Section. See Subsection 906.04.

941.10. - Post and Wire Fence

Description

941.10.01 This work consists of furnishing and installing post and wire fence, including excavation, backfill, and any associated materials.

Construction

941.10.02 General. Construct post and wire fence as required under construction section 911 and 941.00 and/or as SHOWN ON THE PLANS.

941.10.03 Placement. Place barbed wire on the side of the post face away from the trail. On curved alignment, place the barbed wire on the post face on the outside of the curve. Tightly stretch and fasten barbed wire to the posts.

Apply tension according to the manufacturer's recommendations using a mechanical stretcher or other device designed for such use. Do not use a motor vehicle to stretch the wire.

Splicing of barbed wire between posts is permitted provided not more than two splices, spaced a minimum of 50 feet apart, occur in any one run of fence. Use wrap or telephone type splices for barbed wire with each end wrapped around the other wire for not less than six complete turns.

941.10.04 Fastening. Terminate the barbed wire at each end, corner, gate, and pull post. Wrap each line of barbed around the post and then itself with at least four turns. Where wood posts are used, staple the wires tightly to the posts.

Fasten each strand of barbed wire to each line post. Use wire ties or clamps to fasten the wires to metal posts. Securely splice tie wires to the fence on both sides of the post so there are two loops behind the post and one loop in front. On wood line posts, drive U-shaped staples diagonally across the wood grain so that both points do not enter between the same grain. In depressions where wire uplift occurs, drive staples with points slightly upward. On level ground and over knolls, slope the points slightly downward. Drive the staples just short of actual contact with the wires to permit free longitudinal movement of those lines and to prevent damage to the protective coating.

At grade depressions, alignment angles, and other locations where stresses tending to pull posts from the ground or out of alignment are created, snub or guy the wire fence. Attach the guy wire to each strand of barbed wire in a manner to maintain the entire fence in its normal shape. Attach the guy wire to a deadman anchor buried not less than 24 inches in the ground or to an approved anchor at a point that best serves to resist the pull of the wire

fence. If necessary to guy the fence in solid rock, grout the guy wire in a hole 2 inches in diameter and 10 inches deep. Deadman may also be fastened to posts. Place the deadman anchors at locations as directed.

Where required, install vertical cinch stays as SHOWN ON THE PLANS. Twist the wire to permit weaving into the horizontal fence wires to provide rigid spacing. Weave barbed wires and the top, middle, and bottom wire of the woven wire, as applicable, into the cinch stay.

Where existing fence intersects the new fence, cut the existing fence materials or, splice in kind, new material as necessary, and fasten each strand of the barbed wire to a new end post in line with or immediately adjacent to the new fence line.

941.20. – Post and Rail Fence

Description

941. 20.01 This work consists of furnishing and installing post and rail fence, including any associated materials.

Construction

941. 20.02 General. Construct post and rail fence as required under construction section 911 and 941.00 and/or as SHOWN ON THE PLANS.

941.30. – Woven Wire Fence

Description

941.30.01 This work consists of furnishing and installing woven wire fence including any associated materials.

Construction

941.30.02 General. Construct woven wire fence as required under construction section 911 and 941.00 and/or as SHOWN ON THE PLANS.

941.40. – Jackleg Fence

Description

941.40.01 This work consists of furnishing and installing jackleg fence including any associated materials.

Construction

941.40.02 General. Construct jackleg fence as required under construction section 911 and 941.00 and/or as SHOWN ON THE PLANS.

941.50. – Stacked Rail (Worm) Fence

Description

941.50.01 This work consists of furnishing and installing stacked rail (worm) fence including any associated materials.

Construction

941.50.02 General. Construct stacked rail (worm) fence as required under construction section 911 and 941.00 and/or as SHOWN ON THE PLANS.

941.60. – Remove and Reset Fences

Description

941.60.01 This work consists of removing and resetting of fencing, including excavation and backfill, including any associated materials.

Construction

941.60.02 General. Remove and reset fencing at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

941.60.03 Remove and Reset Fence. Remove existing fence and reset to approximately the same condition as the original fence. Salvage material in the existing fence and incorporate the material into the reset fence. When posts are set in concrete, remove concrete from old post and reset in concrete. Replace fence material damaged beyond reuse. Firmly reset posts on new alignment. Space posts and attach the horizontal members or wires to posts the same as the original fence. Furnish and use new material to fasten members or wires to posts.

941.70. – Fence Maintenance

Description

941.70.01 This work consists of maintenance of fences including any associated materials.

Maintenance

941.70.02 General. Perform maintenance on fences as required under construction section 911 and 941.00 and/or as SHOWN ON THE PLANS.

Section 942 – Gates

Description

942.00.01 This work consists of construction and maintenance of gates, including excavation, embankment, backfill and rails. Construction and maintenance of gates may be covered by one or more of the following subsections:

942.10.	Wire Gate
942.20.	Swing Gate
942.30.	Loose Rail Gate
942.40.	Accessible Gate – Kissing Gate
942.50.	Accessible Gate - Chicane
942.60.	Gate Maintenance

Material

942.00.02 Conform to the following Sections and Subsections:

Concrete	FP-03, Section 601
Fence Material	993

Construction Requirements

942.00.03 General. Construct gates at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Provide minimum 10 feet clear width along the fence line for gate construction and operation.

Remove and dispose of trees, brush, logs, roots of downed trees, rubbish, and debris according to section 912. All stumps and roots shall be removed to allow for unhindered operation of the gate.

Schedule the gate installation, provide temporary fence, or other adequate means to prevent livestock from entering the project right-of-way, easements, or adjoining properties.

942.00.04 Posts. Excavate holes for posts and install posts at locations as SHOWN ON PLANS. Set posts in a vertical position. Backfill post holes in 6 inch lifts. Tamp and compact each lift.

Wood posts may be driven in place if the method of driving does not damage the post. Metal posts may be driven.

Where solid rock is encountered without overburden, drill gate post holes at least 20 inches deep in the solid rock. Make the hole width or diameter at least 1 inch greater than the post width or diameter. Cut the post to the required length before installation or drill the hole deep enough to set the post at the required height. Set and plumb the post and fill the hole with grout. Thoroughly work the grout into the hole to eliminate voids. Crown the grout to drain water away from the post. Metal posts set in this manner do not require anchor plates and concrete footings.

Where solid rock is covered with soil or loose rock overburden, set posts to the

plan depth or to the minimum depth into the solid rock as specified above, whichever is less. When the depth of overburden is greater than 12 inches, use an anchor plate on steel line posts and backfill steel end, corner, gate, and pull posts with concrete from the solid rock to top of the ground. When the depth of overburden is 12 inches or less, anchor plates and concrete backfill are not required. Grout the portion of the post in solid rock.

Measurement

942.00.06 Measure the Section 942 items listed in the bid schedule according to section 906.

Payment

942.00.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 942 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

942.10 – Wire Gates

Description

942.10.01 This work consists of furnishing and installing gates, including any associated hardware and materials.

Material

942.10.02 Wire gates to be constructed of the same material as the fence.

Construction

942.10.03 Construct gates as required under construction section 911 and 942.00 and/or as SHOWN ON THE PLANS.

Provide a taut and well-aligned closure of the opening, capable of being readily opened and closed by hand.

942.20 – Swing Gates

Description

942.20.01 This work consists of furnishing and installing gates, including any associated hardware and materials.

Material

942.20.02 Swing gates to be constructed from the material SHOWN ON THE PLANS.

Construction

942.20.03 Construct gates as required under construction section 911 and 942.00 and/or as SHOWN ON THE PLANS.

Install metal gates and fittings to gate posts previously set as SHOWN ON THE PLANS. Firmly attach the fittings to the posts and gates. Hinge each single gate to prevent removal of the gate without tools. Set the gate in an approximately horizontal plane. Set the gate so it swings freely inward and outward and fastens securely in its latch holder, or in the case of double gates, in its latch holder and gate stops. Set gates to swing open at least 90 degrees in each direction.

Install wood gates similar to metal gates and as SHOWN ON THE PLANS.

942.30 – Loose Rail Gates

Description

942.30.01 This work consists of furnishing and installing gates, including any associated hardware and materials.

Material

942.30.02 Loose rail gates to be constructed of the same material as the fence.

Construction

942.30.03 Construct gates as required under construction section 911 and 942.00 and/or as SHOWN ON THE PLANS.

942.40 – Accessible Gate – Kissing Gate

Description

942.40.01 This work consists of furnishing and installing gates, including any associated hardware and materials.

Material

942.40.02 Gates to be constructed from the material SHOWN ON THE PLANS.

Construction

942.40.03 Construct kissing gates as required under construction section 911 and 942.00 and/or as SHOWN ON THE PLANS.

942.50 – Accessible Gate – Chicanes

Description

942.50.01 This work consists of furnishing and installing gates, including any associated hardware and materials.

Material

942.50.02 Gates to be constructed from the material SHOWN ON THE PLANS.

Construction

942.50.03 Construct chicanes as required under construction section 911 and 942.00 and/or as SHOWN ON THE PLANS.

942.60 – Gate Maintenance

Description

942.60.01 This work consists of maintenance of gates and latches including any associated materials.

Maintenance

942.60.02 Perform maintenance on gates and latches as required under construction section 911 and 942.00 and/or as SHOWN ON THE PLANS.

Replace missing, broken or decayed logs or lumber as SHOWN ON THE PLANS. Adjust gate hinges to allow gate to open and close and gate latches to function properly.

Section 943 - Cattle Guard

Description

943.00.01 This work consists of construction and maintenance of cattle guards, including excavation, embankment, and backfill. Construction and maintenance of cattle guards may be covered by one or more of the following subsections:

- 943.10. Standard Cattle Guard
- 943.20. Above Ground Cattle Guard
- 943.30. Cattle Guard Maintenance

Materials

943.00.02 Materials. Conform to the following Sections and Subsections:

- Steel FP-03, Section 555
- Material for Timber Structures 995

Construction

943.00.03 General. Construct cattle guards at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

943.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with the requirements of Section 911 and as SHOWN ON THE PLANS. Excavate foundation to depth with sufficient space for proper installation of formwork.

When the cattle guard is to be installed on new embankment, complete and compact the embankment according to Section 911 before excavating for footing.

943.00.05 Concrete foundation. Construct concrete foundations according to FP-03, Section 601. Concrete units may be cast-in-place or precast.

Finish stringer bearings to allow full bearing under each stringer. The cattle guard shall rest on the concrete without rocking.

943.00.06 Cattle guard. Fabricate cattle guard as SHOWN ON THE PLANS. Assemble and place guards as shown on the plans. Securely fasten the cattle guard to the foundation. Fasten the metal wings to the cattle guard as shown on the plans. Connect fences and gates according to the plans. Weld according to ANSI/AASHTO/AWS D1.5.

Standard manufactured cattle guards may be used if approved. Designs shall provide for AASHTO loading H-10. Provide suitable cleanouts. Prepare and submit drawings according to Subsection 903.01. Acceptance of the drawings covers the requirements for strength and detail only. No responsibility is assumed for errors in dimensions.

943.00.07 Painting. All metal parts shall receive one shop coat. Two additional coats are required and may be applied in the shop or in the field. Paint according to FP-03, Section 563.

943.00.08 Approach Fills. Construct the approach fills with compacted suitable material.

Measurement

943.00.09 Measure the Section 943 items listed in the bid schedule according to section 906.

Payment

943.00.10 The accepted quantities will be paid at the contract price per unit of measurement for the Section 943 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

943.10. - Standard Cattle Guard

Description

943.10.01 This work consists of furnishing and installing cattle guards, including excavation, embankment, backfill, and any associated materials.

Construction

943.10.02 Construct standard cattle guards as required under construction section 943.00 and/or as SHOWN ON THE PLANS.

943.20. – Above Ground Cattle Guard

Description

943.20.01 This work consists of furnishing and installing cattle guards, including excavation, embankment, backfill, and any associated materials.

Construction

943.20.02 Construct standard cattle guards as required under construction section 943.00 and/or as SHOWN ON THE PLANS.

943.30.—Cattle Guard Maintenance

Description

943.30.01 This work consists of maintaining cattle guards.

Maintenance

943.30.02 Perform maintenance on cattle guards as required under construction section 943.00 and/or as SHOWN ON THE PLANS.

Replace missing, broken or decayed rails as SHOWN ON THE PLANS.
Secure loose or dislocated rails.

944.00. – Stiles

Description

944.00.01 This work consists of construction and maintenance of stiles, including excavation, embankment, backfill and rails. Construction and maintenance of stiles may be covered by one or more of the following subsections:

- 944.10. Stile
- 944.20. Stile Maintenance

Materials

944.00.02 Materials. Conform to the following Sections and Subsections:

Material for Timber Structures

995

Construction

944.00.03 General. Construct stiles at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

944.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with the requirements of Section 911 and as SHOWN ON THE PLANS.

Measurement

944.00.05 Measure the Section 944 items listed in the bid schedule according to section 906.

Payment

944.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 944 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

944.10. – Stiles

Description

944.10.01 This work consists of furnishing and installing stile, including excavation, embankment, backfill, timbers and any associated hardware materials.

Construction

944.10.02 Construct stile as required under construction section 944.00. and/or as SHOWN ON THE PLANS.

944.20. – Stiles Maintenance

Description

944.20.01 This work consists of maintaining stiles.

Maintenance

944.20.02 General. Perform maintenance on stiles as required under construction section 944.00. and/or as SHOWN ON THE PLANS.

Replace missing or broken steps and rails as SHOWN ON THE PLANS.
Secure loose or dislocated steps and rails.

Section 945 – Bollards

Description

945.00.01 This work consists of construction and maintenance of bollards, including excavation, embankment, and backfill. Construction and maintenance of bollards may be covered by one or more of the following subsections:

945.10.	Bollards
945.20.	Bollard Maintenance

Materials

945.00.02 Materials. Conform to the following Sections and Subsections:

Material for Timber Structures	995
Steel	555

Construction

945.00.03 General. Construct bollards of the type and at locations as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

945.00.04 Bollards. Drill holes for bollards. Set posts plumb, backfill with approved material, and compact or as SHOWN ON THE PLANS.

Measurement

945.00.05 Measure the Section 945 items listed in the bid schedule according to section 906.

Payment

945.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 945 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

945.10. – Bollards

Description

945.10.01 This work consists of furnishing and installing bollards, including excavation, embankment, backfill, and any associated hardware materials.

Construction

945.10.02 Construct bollards as required under construction section 945.00 and/or as SHOWN ON THE PLANS.

945.20. – Bollard Maintenance

Description

945.20.01 This work consists of maintaining bollards.

Maintenance

945.20.02 General. Perform maintenance on bollards as required under construction section 945.00 and/or as SHOWN ON THE PLANS.

Replace missing, broken or decayed bollards as SHOWN ON THE PLANS.

Secure loose or dislocated bollards as SHOWN ON THE PLANS.

Section 949 – Reserved for Restriction Devices Special Project Specifications

950. Signs and Markers

Section 951 - Signs

Description

951.00.01 This work consists of furnishing and installing or maintaining signs and posts, including excavation, backfill, and associated materials and hardware. Construction and maintenance of signs and posts may be covered by one or more of the following subsections:

- | | |
|---------|---|
| 951.10. | Signs |
| 951.20. | Sign Repair and Replacement Maintenance |

Material

951.00.02 All materials shall conform to Forest Service EM-7100-15, *Sign and Poster Guidelines for the Forest Service* or as SHOWN ON THE PLANS.

Construction

951.00.03 General. Erect signs and posts of the type and at the locations as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

951.00.04 Post Installation. Excavate post hole to the depth as SHOWN ON THE PLANS. The hole width should not be more than three times the width of the post. If necessary because of obstacles, the post hole may be moved within the tolerances as SHOWN ON THE PLANS.

Set posts in a plumb position. Backfill the post holes with suitable material in 6 inch layers and compact material to produce a solid installation. Stabilize the post with concrete or rock mounds built in accordance with rock cairn specifications when approved by the CO.

951.00.05 Sign Installation. Pre-drill signs before mounting. Tighten hardware snug, but do not damage the sign panel surface.

For signs mounted on trees, remove obstructing limbs and notch the outer bark to provide a flat surface at the sign mounting position as necessary. Avoid removing the inner bark or cutting the cambium. Use 50-penny galvanized nails or spikes to fasten signs to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the sign.

Measurement

951.00.06 Measure the Section 951 items listed in the bid schedule according to section 906.

Rock cairns built to support posts will be considered incidental to the PAY ITEM for signs, and separate payment will not be made.

Payment

951.00.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 951 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

951.10 – Signs

Description

951.10.01 This work consists of furnishing and installing signs and posts, including excavation, backfill, and associated materials and hardware.

Construction

951.10.02 Install signs and posts as required under construction section 911 and 951.00 and/or as SHOWN ON THE PLANS.

951.20 – Sign Repair and Replacement Maintenance

Description

951.20.01 This work consists of repairing existing damaged signs, refastening existing signs to existing sign posts and resetting existing sign posts and furnishing and installing new replacement signs and new sign posts.

Maintenance

951.20.02 General. Repair signs at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Reattach designated signs that are out of their original position so that the lines of the sign legend are horizontal. Reset sign support posts to a plumb position and firmly tamp in place. Set sign posts designated for replacement in the ground to a depth as SHOWN ON THE PLANS at the approximate location of the original post.

Reset existing posts that are out of plumb and firmly tamp in place. Set posts that need to be reset and new replacement posts in a plumb position and to a depth of as SHOWN ON THE PLANS. Backfill and tamp holes from which posts are removed.

Pre-drill replacement signs before mounting. Tighten sign mounting bolts or lag screws to hold the sign snugly in place. Do not damage sign surface.

For signs mounted on trees, remove obstructing limbs and notch the outer bark to provide a flat surface at the sign mounting position as necessary.

Avoid removing the inner bark or cutting the cambium. Use 50-penny galvanized nails or spikes to refasten signs to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the sign.

Section 952 – Route Markers

Description

952.00.01 This work consists of furnishing and installing or maintaining route markers or route markers on supports, including excavation, backfill, and associated materials and hardware. Construction and maintenance of route markers may be covered by one or more of the following subsections:

- 952.10. Route Markers
- 952.20. Route Marker Maintenance

Material

952.00.02 All materials shall conform to Forest Service EM 7100-15, *Sign and Poster Guidelines for the Forest Service* or as SHOWN ON THE PLANS.

Construction

952.00.03 General. Erect route markers of the type and at the locations as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Measurement

952.00.04 Measure the Section 952 items listed in the bid schedule according to section 906.

Rock cairns built to support route marker posts will be considered incidental to the PAY ITEM for route markers, and separate payment will not be made.

Payment

952.00.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 952 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

952.10 – Route Markers

Description

952.10.01 This work consists of furnishing and installing route markers or route markers on supports, including associated materials and hardware.

Construction

952.10.02 Construct route markers as required under construction section 952.00 and/or as SHOWN ON THE PLANS.

952.10.03 Post Installation. Excavate post hole to the depth as SHOWN ON THE PLANS. The hole width should not be more than three times the width of the post. If necessary because of obstacles, the post hole may be moved within the tolerances as SHOWN ON THE PLANS.

Set posts in a plumb position. Backfill the post holes with suitable material in 6 inch layers and compact material to produce a solid installation. Stabilize the post with concrete or rock mounds built in accordance with rock cairn specifications when approved by the CO.

952.10.04 Tree Installation. Remove obstructing limbs and notch the outer bark to provide a flat surface at the manufactured blaze mounting position as necessary. Avoid removing the inner bark or cutting the cambium.

952.10.05 Route Marker Installation. Pre-drill route markers before mounting. Tighten hardware snug, but do not damage the route marker surface. Use 50-penny galvanized nails or spikes to fasten route markers to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the markers.

952.20 – Route Marker Maintenance

Description

952.20.01 This work consists of refastening existing route markers to existing marker supports, resetting existing marker support posts, and furnishing and installing new replacement route markers and new route marker supports.

Maintenance

952.20.02 General. Repair route markers at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Reattach designated route markers that are out of their original position so that the lines of the marker legend are vertical. Reset route marker support posts to a plumb position and firmly tamp in place. Set route marker posts designated for replacement in the ground to a depth as SHOWN ON THE PLANS at the approximate location of the original post.

Reset existing supports that are out of plumb and firmly tamp in place. Set supports that need to be reset and new replacement supports in a plumb position and to a depth as SHOWN ON THE PLANS. Backfill and tamp holes from which posts are removed.

Tighten route marker mounting bolts or lag screws to hold the marker snugly in place. Do not damage route marker surface.

For route markers mounted on trees, remove obstructing limbs and notch the outer bark to provide a flat surface at the marker mounting position as necessary. Avoid removing the inner bark or cutting the cambium. Use 50-penny galvanized nails or spikes to refasten markers to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the marker.

Section 953 – Reassurance Markers

Description

953.00.01 This work consists of blazing trees, furnishing and installing manufactured blazers on supports, or maintaining blazed trees, manufactured blazers and/or supports, including excavation, backfill, and associated materials and hardware. Construction and maintenance of reassurance markers may be covered by one or more of the following subsections:

- 953.10. Standard Forest Service Blaze
- 953.20. Manufactured Blazer
- 953.30. Reassurance Marker Maintenance

Material

953.00.02 All materials shall conform to Forest Service EM-7100-15, *Sign and Poster Guidelines for the Forest Service* or AS SHOWN ON THE PLANS.

Construction

953.00.03 General. Construct a reassurance marker of the type and at the locations as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Measurement

953.00.04 Measure the Section 953 items listed in the bid schedule according to section 906.

Rock cairns built to reassurance marker posts will be considered incidental to the PAY ITEM for markers, and separate payment will not be made.

Payment

953.00.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 953 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

953.10 – Standard Forest Service Blaze

Description

953.10.01 This work consists of cutting, painting, branding or routing and/or scorching blazes on trees or rocks.

Construction

953.10.02 Cut, paint, brand or router and/or scorch blazes on trees or rocks as required under construction section 953.00 and/or as SHOWN ON THE PLANS.

953.20 – Manufactured Blazer

Description

953.20.01 This work consists of furnishing and installing manufactured blazers on supports.

Construction

953.20.02 Install the manufactured blazer on supports as required under construction section 953.00 and/or as SHOWN ON THE PLANS.

953.20.03 Tree Installation. Remove obstructing limbs and notch the outer bark to provide a flat surface at the manufactured blazer mounting position as necessary. Avoid removing the inner bark or cutting the cambium.

953.20.04 Post Installation. Excavate post hole to the depth as SHOWN ON THE PLANS. The hole width should not be more than three times the width of the post. If necessary because of obstacles, the post hole may be moved within the tolerances as SHOWN ON THE PLANS.

Backfill the post holes with suitable material in 6 inch layers and compact material to produce a solid and plumb installation. Stabilize the post with concrete or rock mounds built in accordance with rock cairn specifications when approved by the CO.

953.20.05 Blazer Installation. Pre-drill blazers before mounting manufactured blazers on supports. Use 50-penny galvanized nails or spikes to fasten manufactured blazers to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the manufactured blazers. Tighten hardware snug for posts, but do not damage the manufactured blazer surface.

953.30 – Reassurance Marker Maintenance

Description

953.30.01 This work consists of maintaining manufactured blazers or blazed trees, including resetting supports, refastening or replacing manufactured blazers or re-blazing trees with an axe or paint.

Maintenance

953.30.02 General. Repair reassurance markers at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND and as required under construction section 953.

Reattach designated reassurance markers that are out of their original position so that the marker is vertical. Reset reassurance markers support posts to a plumb position and firmly tamp in place. Set reassurance marker supports designated for replacement in the ground to a depth as SHOWN ON THE PLANS at the approximate location of the original post.

Reset existing supports that are out of plumb and firmly tamp in place. Set supports that need to be reset and new replacement supports in a plumb position and to a depth as SHOWN ON THE PLANS. Backfill and tamp holes from which posts are removed.

Tighten route marker mounting bolts or lag screws to hold the marker snugly in place. Do not damage route marker surface.

For reassurance markers mounted on trees, remove obstructing limbs and notch the outer bark to provide a flat surface at the marker mounting position as necessary. Avoid removing the inner bark or cutting the cambium. Use 50-penny galvanized nails or spikes to refasten markers to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the marker.

Section 954 – Mileage Markers

Description

954.00.01 This work consists of furnishing and installing or maintaining mileage markers or mileage markers on supports, including excavation, backfill, and associated materials and hardware. Construction and maintenance of mileage markers may be covered by one or more of the following subsections:

- 954.10 Mileage Markers
- 954.20 Mileage Marker Maintenance

Material

954.00.02 All materials shall conform to Forest Service EM 7100-15, *Sign and Poster Guidelines for the Forest Service* or as SHOWN ON THE PLANS.

Construction

954.00.03 General. Erect mileage markers of the type and at the locations as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Measurement

954.00.04 Method. Measure the Section 954 items listed in the bid schedule according to section 906.

Rock cairns built to support mileage marker posts will be considered incidental to the PAY ITEM for markers, and separate payment will not be made.

Payment

954.00.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 954 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

954.10 – Mileage Markers

Description

954.10.01 This work consists of furnishing and installing mileage markers or mileage markers on supports, including associated materials and hardware.

Construction

954.10.02 Construct mileage markers as required under construction section 954.00 and/or as SHOWN ON THE PLANS.

954.10.03 Post Installation. Excavate post hole to the depth as SHOWN ON THE PLANS. The hole width should not be more than three times the width of the post. If necessary because of obstacles, the post hole may be moved within the tolerances as SHOWN ON THE PLANS.

Set posts in a plumb position. Backfill the post holes with suitable material in 6 inch layers and compact material to produce a solid installation. Stabilize the post with concrete or rock mounds built in accordance with rock cairn specifications when approved by the CO.

954.10.04 Tree Installation. Remove obstructing limbs and notch the outer bark to provide a flat surface at the mileage marker mounting position as necessary. Avoid removing the inner bark or cutting the cambium.

954.10.05 Mileage Marker Installation. Pre-drill mileage markers before mounting. Tighten hardware snug, but do not damage the route marker surface. Use 50-penny galvanized nails or spikes to fasten mileage markers to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the markers.

954.20 – Mileage Marker Maintenance

Description

954.20.01 This work consists of refastening existing mileage markers to existing marker supports, resetting existing marker supports, and furnishing and installing new replacement mileage markers and new mileage marker supports.

Maintenance

954.20.02 General. Repair mileage markers at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Reattach designated mileage markers that are out of their original position so that the lines of the marker legend are vertical. Reset route marker support posts to a plumb position and firmly tamp in place. Set route marker posts designated for replacement in the ground to a depth as SHOWN ON THE PLANS at the approximate location of the original post.

Reset existing supports that are out of plumb and firmly tamp in place. Set supports that need to be reset and new replacement supports in a plumb position and to a depth as SHOWN ON THE PLANS. Backfill and tamp holes from which posts are removed.

Tighten route marker mounting bolts or lag screws to hold the marker snugly in place. Do not damage marker surface.

For mileage markers mounted on trees, remove obstructing limbs and notch the outer bark to provide a flat surface at the marker mounting position as necessary. Avoid removing the inner bark or cutting the cambium. Use 50-penny galvanized nails or spikes to refasten markers to trees and leave 1 inch of nail exposed to allow for tree to grow without impacting the marker.

Section 955 – Cairns

Description

955.00.01 This work consists of furnishing and installing or maintaining cairns. Construction and maintenance of cairns may be covered by one or more of the following subsections:

- 955.10. Cairns
- 955.20. Cairn Maintenance

Material

955.00.02 Conform to the following Sections and Subsections:

- Rock, Grid Pavement Units, and Aggregate 991

Construction

955.00.03 General. Erect cairns of the type and at the locations as SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

955.00.04 Rock Cairn Construction. Slope each rock layer toward the center. Place each rock with at least three points of contact. Do not wedge small rocks into cracks between large rocks to stabilize the large rocks.

Measurement

955.00.05 Measure the Section 955 items listed in the bid schedule according to section 906.

Payment

955.00.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 955 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

955.10 – Cairns

Description

955.10.01 This work consists of furnishing and installing cairns.

Construction

955.10.02 Construct cairns as required under construction section 955.00 and/or as SHOWN ON THE PLANS.

955.20 – Cairn Maintenance

Description

955.20.01 This work consists of maintenance of cairns.

Maintenance

955.20.02 Perform maintenance on cairns as required under construction section 955.00 and/or as SHOWN ON THE PLANS.

Section 959 – Reserved for Route Markers and Signs Special Project Specifications

960. Trail Bridges

Section 961- Native Log Stringer Trail Bridge

Description

961.00.01 This work consists of constructing native log stringer bridges, including mud sills, bulkheads, rail systems, curbs, decking, excavation, backfill, and approach fills as SHOWN ON THE PLANS. Construction of native log stringer trail bridges may be covered by one or more of the following subsections:

- 961.10. Single Log Stringer Trail Bridge
- 961.20. Multiple Log Stringer Trail Bridge

Materials

961.00.02 Materials. Conform to the following Sections and Subsections:

- | | |
|--|-----|
| Rock, Grid Pavement Units, and Aggregate | 991 |
| Material for Timber Structures | 995 |

The location of trees for native timber materials will be SHOWN ON THE PLANS and DESIGNATED ON THE GROUND.

Construction

961.00.03 General. Construct native log stringer trail bridges at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Pre-drill holes for fasteners when necessary to prevent splitting and drive spikes flush. Use washers with lag screws and bolts.

961.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

961.00.05 Hardware. Furnish and install hardware as SHOWN ON THE PLANS.

961.00.06 Mud Sills. Construct mud sills at each end of the span in the location staked on the ground. Construct mud sills to be level, bedded evenly, and buried to the depth necessary for the bottom of the log stringers to clear the ground surface by a minimum of 6 inches.

Hew sill logs to provide a bearing surface for the log stringers and to provide the log stringers with a level top surface. Do not hew sill logs more than one-third their diameter. Do not level the top surfaces of the log stringers by shimming or notching their ends.

961.00.07 Stringers. Fasten log stringer to each mud sill with a drift pin that penetrates a minimum of 8 inches into the mud sill.

When plank decking is used, hew the top surfaces of log stringers up to 2 inches deep, as necessary, to provide bearing surfaces for deck planks.

961.00.08 Decking. Spike decking evenly at right angles to each stringer, unless otherwise SHOWN ON THE PLANS.

Lay split log decking alternately flat side down first, then round side down, ending with a flat side down. When the round side is down, provide a bearing surface that is between 1½ inches and 2 inches wide.

Lay split and sawn deck planks on the stringer to provide bearing for the full width of the plank.

Trim protruding ends of the decking to give a straight-line appearance to the edges of the structure, except for decking that extends out to provide handrail support.

961.00.09 Curbs. Construct curbs with logs or sawn timber as SHOWN ON THE PLANS. Use lengths greater than or equal to 10 feet and splice with a 24 inch half-lap joint at a curb block location. Match diameters of logs at lap joints and trim excess to provide a smooth transition between logs.

Finish curbs smooth and free from splinters and sharp projections.

961.00.10 Rail Systems. Construct rail systems with logs or sawn timber as SHOWN ON THE PLANS and use lengths greater than or equal to 10 feet.

When rail systems are constructed of logs, splice them with a 6 inch half-lap joint at a post location. Notch surfaces of posts and rails 5/8 inch at connections. Match diameters of rails at lap joints and trim excess to provide a smooth transition between rails. Use timber bolts for fastening rails to posts as SHOWN ON THE PLANS.

When rail systems are constructed of sawn timber, splice them with a diagonal butt joint at a post location. Use S4S sawn timber, for all rails, posts, and top caps. Fasten each rail and top rail to each post with wood screws as SHOWN ON THE PLANS. Finish handrails and posts smooth and free from splinters and sharp projections.

961.00.11 Approach Fills. Construct the approach fills with compacted suitable material.

Measurement

961.00.12 Measure the Section 961 items listed in the bid schedule according to section 906.

Payment

961.00.13 The accepted quantities will be paid at the contract price per unit of measurement for the Section 961 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

961.10 – Single Log Stringer Trail Bridge

Description

961.10.01 This work consists of construction of a single log stringer bridge, including excavation, embankment, backfill, curbs and/or railing system.

Construction

961.10.02 Construct single log stringer bridge as required under construction section 961.00 and as SHOWN ON THE PLANS.

961.20 – Multiple Log Stringer Trail Bridge

Description

961.20.01 This work consists of construction of a multiple log stringer bridge, including excavation, embankment, backfill, curbs and/or railing system.

Construction

961.20.02 Construct multiple log stringer bridge as required under construction section 961.00 and as SHOWN ON THE PLANS.

Section 962 - Sawn Timber Trail Bridge

Description

962.00.01 This work consists of furnishing, fabricating, constructing sawn timber trail bridges, including all required lumber, hardware, sills, backwalls, rail systems, curbs, decking, excavation, backfill, and approach fills as SHOWN ON THE PLANS. Construction of sawn timber trail bridges may be covered by one or more of the following subsections:

- 962.10. Sawn Timber Stringer Trail Bridge
- 962.20. Longitudinal Nail-Laminated Trail Bridge

Materials

962.00.02 Materials. Conform to the following Sections and Subsections:

- Rock, Grid Pavement Units, and Aggregate 991
- Material for Timber Structures 995

Furnish the following compliance certificates to the CO upon delivery of the materials to the jobsite:

- (a) Verification of compliance with grading rules and species of timber and lumber. Provide certification by an agency accepted as competent by the American Lumber Standards Committee (ALSC).
- (b) Lot certification of each charge for preservative, penetration in inches, and retention in pounds per cubic foot (assay method) by a qualified independent inspection and testing agency. In addition, have the producer of the treated products provide written certification that Best Management Practices (BMP's) in accordance with "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute (WWPI) and Canadian Institute of Treated Wood, were followed, including a description and appropriate documentation of the applicable BMP's used.
- (c) Such other certifications as SHOWN ON THE PLANS or called for in the SPECIAL PROJECT SPECIFICATIONS.

Provide shop drawings in accordance with section 903 for all timber bridges 30 days in advance of fabrication when SHOWN ON THE PLANS or in the SPECIAL PROJECT SPECIFICATIONS. Show all dimensions and fabrication details for all cut, framed, or bored timbers.

Construction

962.00.03 General. Construct sawn timber trail bridges at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Furnish structural lumber and timber of the required stress grade as SHOWN ON THE PLANS.

Clear stacks of weeds, rubbish, or other objectionable material from the ground under and in the vicinity of all stored material. Place the bottom layer of material at least 8 inches above the ground level. Provide sufficient support to prevent sagging.

Open-stack untreated material to shed water. Stack material in layers on spacers (stickers) that extend across the full width of the stack to allow for free air circulation. Align all stickers vertically and space them at regular intervals.

Close-stack treated material to shed water.

Protect material from the weather. If covered, used sheet material such as water-resistant paper or opaque polyethylene film. Do not cover with impervious membranes, such as polyethylene film, during dry weather. Slit individual wrappings full length or puncture on the lower side to permit drainage of water.

Use slings or other devices to protect corners of heavy construction timbers and banded packages of heavy construction timber

962.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

962.00.05 Hardware. Furnish and install hardware as SHOWN ON THE PLANS

962.00.06 Workmanship. Cut and form all lumber and construction timbers so all joints will have even bearing over the entire contact surface. Do not use shims in making joints. Construct all joints to be closed. Drive nails and spikes to set the heads flush with the wood surface. Use the same end, face, and edge of the timber member for all layout dimensions. Bore all holes from mating faces.

962.00.06 Mud Sills. Construct mud sills at each end of the span in the location staked on the ground. Construct mud sills to be level, bedded evenly, and buried to the depth necessary for the bottom of the log stringers to clear the ground surface by a minimum of 6 inches.

962.00.07 Stringers. Stringers shall be size matched at bearings and shall be positioned so that knots near the edge will be in the top portion of the stringers. Bridging between stringers shall be neatly and accurately framed and securely fastened.

962.00.08 Curbs. Construct curbs with logs or sawn timber as SHOWN ON THE PLANS. Use lengths greater than or equal to 10 feet and splice with a 24 inch half-lap joint at a curb block location. Match diameters of logs at lap joints and trim excess to provide a smooth transition between logs.

Finish curbs smooth and free from splinters and sharp projections.

962.00.09 Rail Systems. Construct rail systems with logs or sawn timber as SHOWN ON THE PLANS and use lengths greater than or equal to 10 feet.

When rail systems are constructed of logs, splice them with a 6 inch half-lap joint at a post location. Notch surfaces of posts and rails 5/8 inch at connections. Match

diameters of rails at lap joints and trim excess to provide a smooth transition between rails. Use timber bolts for fastening rails to posts as SHOWN ON THE PLANS.

When rail systems are constructed of sawn timber, splice them with a diagonal butt joint at a post location. Use S4S sawn timber, for all rails, posts, and top caps. Fasten each rail and top rail to each post with wood screws as SHOWN ON THE PLANS. Finish handrails and posts smooth and free from splinters and sharp projections.

962.00.10 Approach Fills. Construct the approach fills with compacted suitable material.

Measurement

962.00.11 Measure the Section 962 items listed in the bid schedule according to section 906.

Payment

962.00.12 The accepted quantities will be paid at the contract price per unit of measurement for the Section 962 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

962.10 – Sawn Timber Stringer Trail Bridge

Description

962.10.01 This work consists of construction of a sawn timber stringer trail bridge, including excavation, embankment, backfill, curbs and/or railing system.

Construction

962.10.02 Construct a sawn timber stringer trail bridge as required under construction section 962.00 and as SHOWN ON THE PLANS.

962.20 – Longitudinal Nail-Laminated Trail Bridge

Description

962.20.01 This work consists of construction of a longitudinal nail-laminated trail bridge, including excavation, embankment, backfill, curbs and/or railing system.

Construction

962.20.02 Construct a longitudinal nail-laminated trail bridge as required under construction section 962.00 and as SHOWN ON THE PLANS.

Section 963 - Glulam Trail Bridge

Description

963.00.01 Work. This work consists of furnishing, fabricating, constructing glulam trail bridges, including all required lumber, hardware, sills, backwalls, rail systems, curbs, decking, excavation, backfill, and approach fills as SHOWN ON THE PLANS. Construction of glulam trail bridges may be covered by one or more of the following subsections:

- 963.10. Glulam Stringer Trail Bridge
- 963.20. Longitudinal Glulam Deck Panel Trail Bridge

Materials

963.00.02 Materials. Conform to the following Sections and Subsections:

- Rock, Grid Pavement Units, and Aggregate 991
- Material for Timber Structures 995

Furnish the following compliance certificates to the CO upon delivery of the materials to the jobsite:

- (a) Verification of compliance with grading rules and species of timber and lumber. Provide certification by an agency accepted as competent by the American Lumber Standards Committee (ALSC).
- (b) Lot certification of each charge for preservative, penetration in inches, and retention in pounds per cubic foot (assay method) by a qualified independent inspection and testing agency. In addition, have the producer of the treated products provide written certification that Best Management Practices (BMP's) in accordance with "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute (WWPI) and Canadian Institute of Treated Wood, were followed, including a description and appropriate documentation of the applicable BMP's used.
- (c) Certification from a qualified inspection and testing agency indicating that all glued laminated members are in accordance with the requirements of American National Standard, "Standard for Wood Products - Structural Glued Laminated Timber" (ANSI A190.1) modified as SHOWN ON THE PLANS.
- (d) Such other certifications as SHOWN ON THE PLANS or called for in the SPECIAL PROJECT SPECIFICATIONS.

Provide shop drawings in accordance with section 903 for all timber bridges 30 days in advance of fabrication when SHOWN ON THE PLANS or in the SPECIAL PROJECT SPECIFICATIONS. Show all dimensions and fabrication details for all cut, framed, or bored timbers.

Construction

963.00.03 General. Construct glulam trail bridges at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Furnish glulams and lumber of the required stress grade.

Clear stacks of weeds, rubbish, or other objectionable material from the ground under and in the vicinity of all stored material. Place the bottom layer of material at least 8 inches above the ground level. Provide sufficient support to prevent sagging.

Store and protect glued laminated timber in accordance with the recommendations for Loading and Handling, Job Site Storage, and Erection in "Recommended Practice for Protection of Structural Glued Laminated Timber During Transit, Storage, and Erection," published by the American Institute of Timber Construction, AITC 111.

Open-stack untreated material to shed water. Stack material in layers on spacers (stickers) that extend across the full width of the stack to allow for free air circulation. Align all stickers vertically and space them at regular intervals.

Close-stack treated material to shed water.

Protect material from the weather. If covered, used sheet material such as water-resistant paper or opaque polyethylene film. Do not cover with impervious membranes, such as polyethylene film, during dry weather. Slit individual wrappings full length or puncture on the lower side to permit drainage of water.

Use slings or other devices to protect corners of heavy construction timbers and banded packages of heavy construction timber.

963.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

963.00.05 Hardware. Furnish and install hardware as SHOWN ON THE PLANS.

963.00.06 Workmanship. Cut and form all lumber and construction timbers so all joints will have even bearing over the entire contact surface. Do not use shims in making joints. Construct all joints to be closed. Drive nails and spikes to set the heads flush with the wood surface. Use the same end, face, and edge of the timber member for all layout dimensions. Bore all holes from mating faces.

963.00.07 Mud Sills. Construct mud sills at each end of the span in the location staked on the ground. Construct mud sills to be level, bedded evenly, and buried to the depth necessary for the bottom of the log stringers to clear the ground surface by a minimum of 6 inches.

963.00.08 Glulam Stringers. Do not drag or skid stringers. Stringers shall be size matched at bearings and shall be positioned so that the camber is up. Bridging between stringers shall be neatly and accurately framed and securely fastened.

963.00.09 Glued Laminated Panel Decks. Do not drag or skid panels. When lifted, support panels in the weak-moment plane at a sufficient number of points to avoid overstressing, and protect the edges from damage.

When dowels are SHOWN ON THE PLANS between deck panels, use a template or drilling jig to ensure that dowel holes are accurately spaced and drilled parallel to one another and to the horizontal surfaces of the panel. Drill holes to a depth 1/4 inch greater than one-half the dowel length, and a diameter that is 3/32 greater than the dowel, unless otherwise SHOWN ON THE PLANS. Use a temporary dowel as a check for snug fit prior to production drilling. Use dowels of the size SHOWN ON THE PLANS, with the tips slightly tapered or rounded. Use an approved lubricant to facilitate the connection process.

Start the tips of all dowels partially and equally into the holes of the two panels being joined. Draw the panels together keeping the edges parallel, until the panels abut tightly. Securely fasten each panel to each stringer as SHOWN ON THE PLANS.

Assemble and match-mark panels prior to delivery to the construction site when SHOWN ON THE PLANS or called for in the SPECIAL PROJECT SPECIFICATIONS. Follow erection procedures given in FPL-263, Forest Service, Forest Products Laboratory (FPL), Madison, Wisconsin.

963.00.010 Curbs. Construct curbs with sawn timber as SHOWN ON THE PLANS. Use lengths greater than or equal to 10 feet and splice with a 24 inches half-lap joint at a curb block location. Match diameters of logs at lap joints and trim excess to provide a smooth transition between logs.

Finish curbs smooth and free from splinters and sharp projections.

963.00.11 Rail Systems. Construct rail systems with sawn timber as SHOWN ON THE PLANS and use lengths greater than or equal to 10 feet.

When rail systems are constructed of sawn timber, splice them with a diagonal butt joint at a post location. Use S4S sawn timber, for all rails, posts, and top caps. Fasten each rail and top rail to each post with wood screws as SHOWN ON THE PLANS. Finish handrails and posts smooth and free from splinters and sharp projections.

963.00.12 Approach Fills. Construct the approach fills with compacted suitable material.

Measurement

963.00.13 Measure the Section 963 items listed in the bid schedule according to section 906.

Payment

963.00.14 The accepted quantities will be paid at the contract price per unit of measurement for the Section 963 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

963.10 – Glulam Stringer Trail Bridge

Description

963.10.01 This work consists of construction of a glulam stringer trail bridge, including excavation, embankment, backfill, curbs and/or railing system.

Construction

963.10.02 Construct a glulam stringer trail bridge as required under construction section 963.00 and as SHOWN ON THE PLANS.

963.20 – Longitudinal Glulam Deck Panel Trail Bridge

Description

963.20.01 This work consists of construction of a longitudinal glulam deck panel trail bridge, including excavation, embankment, backfill, curbs and/or railing system.

Construction

963.20.02 Construct a longitudinal glulam deck panel trail bridge as required under construction section 963.00 and as SHOWN ON THE PLANS.

Section 964 - Prefabricated Steel Trail Bridges

964.00.01 This work consists of designing, furnishing, fabricating, and constructing prefabricated steel trail bridges, including all required materials, hardware, sills, backwalls, rail systems, curbs, decking, excavation, backfill, and approach fills as SHOWN ON THE PLANS. Work includes all other incidental work necessary to complete the bridge installation. These specifications are for a fully engineered clear span bridge and shall be regarded as minimum standards for design and construction.

Design

964.00.02 Engineering Requirements. Structural design of the bridge structure(s) shall be performed by or under the direct supervision of a licensed professional engineer and done in accordance with recognized engineering practices and principles. The engineer shall be licensed to practice in the State in which the bridge is fabricated. The design shall be in accordance with AASHTO LRFD Bridge Design Specifications, Current Edition and as recommended in AASHTO's LRFD Guide Specifications for Design of Pedestrian Bridges, Current Edition. The design shall meet the following requirements unless otherwise SHOWN ON THE PLANS:

1. Pedestrian Load – Main supporting members shall be designed for a pedestrian live load of 90 psf.
2. Vehicle Load – When the clear deck width between railings is greater than 7 ft and less than 10 ft the bridge shall be designed for an occasional single maintenance vehicle of 10,000 lbs (H5 Design Vehicle). When clear deck width is greater than 10 feet, the bridge shall be designed for an occasional single maintenance vehicle of 20,000 lbs (H10 Design Vehicle). The vehicle load shall not be placed in combination with the pedestrian live load or snow load. A vehicle impact allowance is not required.
3. Other Loads– Other loads such as snow, equestrian, wind and fatigue loads and load combinations shall be designed for as specified in AASHTO LRFD and as SHOWN ON THE PLANS. When a snow load greater than the 90 psf pedestrian load is SHOWN ON THE PLANS the bridge shall be analyzed and designed for the controlling load.
4. Deflection – Pedestrian live load deflection shall not exceed $L/360$ for steel or as SHOWN ON THE PLANS.
5. Vibration – The fundamental frequency of the pedestrian bridge without live load shall be greater than 3.0 hertz in the vertical direction and 1.3 hertz in the lateral direction for steel bridges. The minimum fundamental frequency for loads other than pedestrian loads, such as equestrian and mule trains shall be determined by the design engineer.

6. Camber - The bridge shall have a vertical camber dimension at midspan equal to 100% of the full dead load deflection plus 1% of the full length of the bridge or as SHOWN ON THE PLANS.

964.00.03 General Features of Design. The following are the required minimum design features unless otherwise SHOWN ON THE PLANS.

1. Span -The required bridge span shall be as SHOWN ON THE PLANS.
2. Deck Width -The required bridge width between railing elements as SHOWN ON THE PLANS.
3. Truss Type - Bridge(s) shall be designed as a through (or box) "Pratt" truss with one (1) diagonal per panel and square end vertical members.
4. Through truss bridges will be designed utilizing underhung floor beams.
5. The top of the top chord shall not be less than 42 inches above the deck (measured from the high point of the riding surface) unless otherwise SHOWN ON THE PLANS.
6. Safety Rails - Horizontal safety rails shall be placed on the structure so as to prevent a 4 inch sphere from passing through the truss or as SHOWN ON THE PLANS. The safety rail system shall be designed for 50 pounds per linear foot transversely and vertically, acting simultaneously on each rail.

964.00.04 Design Drawings and Calculations. Provide design drawings and calculations for the prefabricated bridge including wind, seismic and bearing forces. The Contractor is responsible for preparing all shop drawings necessary for erection of the bridge. All design drawings and calculations shall have the signature and seal of a registered professional engineer.

The Contractor shall submit all design drawings and calculations in accordance with section 903 at least 30 days in advance of the start of fabrication to allow time for review by the CO and correction of any changes. Include plan, elevation, and section views of the pedestrian bridge superstructure, dimensions of all components, connection details, and general and specific notes regarding design and construction.

The Contractor and COR shall be provided with detailed installation instructions.

Materials

964.00.05 Materials. Conform to the following Sections:

Steel Structures	FP-03, Section 555
Rock, Grid Pavement Units, and Aggregate	991
Material for Timber Structures	995

Furnish materials that meet the following requirements:

1. Unpainted Steel - Bridges which are not to be painted shall be fabricated from high strength, low alloy, atmospheric corrosion resistant ASTM A847 cold-formed welded square and rectangular tubing and/or ASTM A588, or ASTM A242, ASTM A606 plate and structural steel shapes ($F_y = 50,000$ psi). The minimum corrosion index of atmospheric corrosion resistant steel, as determined in accordance with ASTM G101, shall be 5.8.
2. Minimum Metal Thickness – The minimum nominal metal thickness of closed structural tubular metal members shall 0.25 inches.
3. 3/8 inch weep holes are required at all low points for bottom and top chords, verticals, and diagonals for closed structural tubular metal members.
4. Hardware – All fasteners and hardware shall be in compliance with FP-03, Section 717 and as SHOWN ON THE PLANS.
5. Wood Decking - Wood decking shall be West Coast Regional Douglas Fir or Southern Pine as SHOWN ON THE PLANS. Treated wood shall meet the requirements as SHOWN ON THE PLANS.

964.00.06 Welding

1. Welding Process - Welding and weld qualification tests shall conform to the provisions of the ANSI/AWS D1.5 Structural Welding Code.
2. Welders - Welders shall be properly accredited experienced operators, each of whom shall submit certification of satisfactorily passing AWS standard qualification tests for all positions, satisfactory evidence of experience and skill in welding structural steel with the kind of welding to be used in the work, and who has demonstrated the ability to make uniform, sound welds of the type required.

964.00.07 Submittals

1. Welder certifications showing compliance with Section 964.00.06(2)
2. Welding procedures in compliance with Section 964.00.06(1)
3. Steel Certification - All certified mill test reports shall be furnished upon request. Mill test reports shall show the chemical analysis and physical test results for each heat of steel used in the work. All steel shall be produced in the United States of America and be AISC certified.
4. Bolt Certification - All certified mill test reports shall be furnished upon request. Mill test reports shall show the chemical analysis and physical test results for each heat of steel used in the work. All bolts shall be produced in the United States of America.
5. Wood Certifications - Furnish the following compliance certificates to the CO upon delivery of the wood materials to the jobsite:

(a) Verification of compliance with grading rules and species of timber and lumber. Provide certification by an agency accepted as competent by the American Lumber Standards Committee (ALSC).

(b) Lot certification of each charge for preservative, penetration in inches, and retention in pounds per cubic foot (assay method) by a qualified independent inspection and testing agency. In addition, have the producer of the treated products provide written certification that Best Management Practices (BMP's) in accordance with "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute (WWPI) and Canadian Institute of Treated Wood, were followed, including a description and appropriate documentation of the applicable BMP's used.

(c) Such other certifications as SHOWN ON THE PLANS or called for in the SPECIAL PROJECT SPECIFICATIONS.

Provide shop drawings in accordance with section 903 for all bridges 30 days in advance of fabrication when SHOWN ON THE PLANS or in the SPECIAL PROJECT SPECIFICATIONS. Show all dimensions and fabrication details for all cut, framed, or bored timbers.

Construction

964.00.08 General Construct a prefabricated steel trail bridge as required under construction section 964.00. and as SHOWN ON THE PLANS.

964.00.09 Excavation and Embankment. Perform all excavation and embankment work in accordance with Section 911.

964.00.10 Installation. All construction and installation shall be performed in conformance with manufacturer's recommendations and the approved shop drawings. Unprotected steel chains shall not be used as a sling for installation.

964.00.11 Performance. Provide 14 day notice prior to delivery and/or installation of prefabricated bridge.

If the prefabricated superstructure is not installed immediately upon delivery to the project site, provide appropriate equipment and labor to unload and stack, support, and store all material at the delivery point designated by the COR. Support and stack all components to prevent damage. Furnish and install blocking such that all components are supported at least 8 inches above the ground.

Measurement

964.00.12 Measure the section 964 items listed in the bid schedule according to section 906.

Payment

964.00.13 The accepted quantities will be paid at the contract price per unit of measurement for the Section 964 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

Section 965 – Trail Bridge Substructures

Description

965.00.01 This work consists of furnishing, fabricating, constructing trail bridge substructures, including all required geosynthetics, gabion baskets, concrete, lumber, hardware, excavation, and backfill as SHOWN ON THE PLANS. Construction of trail bridge substructure may be covered by one or more of the following subsections:

965.10.	Timber Sill on Geocell Pad
965.20.	Timber Sill on Gabion Baskets
965.30.	Timber Sill on Timber Cribbing
965.40.	Concrete Leveling Pad on Bedrock

Materials

965.00.02 Materials. Conform to the following Sections:

Concrete	FP-03, Section 552
Reinforcing Steel	FP-03, Section 554
Rock, Grid Pavement Units, and Aggregate	991
Geosynthetic Materials	994
Material for Timber Structures	995
Wire Basket Materials (Gabion Baskets)	996

Furnish the following compliance certificates to the CO upon delivery of the materials to the jobsite:

- (a) Verification of compliance with grading rules and species of timber and lumber. Provide certification by an agency accepted as competent by the American Lumber Standards Committee (ALSC).
- (b) Lot certification of each charge for preservative, penetration in inches, and retention in pounds per cubic foot (assay method) by a qualified independent inspection and testing agency. In addition, have the producer of the treated products provide written certification that Best Management Practices (BMP's) in accordance with "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute (WWPI) and Canadian Institute of Treated Wood, were followed, including a description and appropriate documentation of the applicable BMP's used.
- (c) Such other certifications as SHOWN ON THE PLANS or called for in the SPECIAL PROJECT SPECIFICATIONS.

Provide shop drawings in accordance with section 903 for all timber bridge substructures 30 days in advance of fabrication when SHOWN ON THE PLANS or in the SPECIAL PROJECT SPECIFICATIONS. Show all dimensions and fabrication details for all cut, framed, or bored timbers.

Construction

965.00.03 General. Construct trail bridge substructure at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

Furnish structural lumber and timber of the required stress grade as SHOWN ON THE PLANS.

Clear stacks of weeds, rubbish, or other objectionable material from the ground under and in the vicinity of all stored material. Place the bottom layer of material at least 8 inches above the ground level. Provide sufficient support to prevent sagging.

Open-stack untreated material to shed water. Stack material in layers on spacers (stickers) that extend across the full width of the stack to allow for free air circulation. Align all stickers vertically and space them at regular intervals.

Close-stack treated material to shed water.

Protect material from the weather. If covered, used sheet material such as water-resistant paper or opaque polyethylene film. Do not cover with impervious membranes, such as polyethylene film, during dry weather. Slit individual wrappings full length or puncture on the lower side to permit drainage of water.

Use slings or other devices to protect corners of heavy construction timbers and banded packages of heavy construction timber

965.00.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

965.00.05 Hardware. Furnish and install hardware as SHOWN ON THE PLANS.

965.00.06 Workmanship. Cut and form all lumber and construction timbers so all joints will have even bearing over the entire contact surface. Do not use shims in making joints. Construct all joints to be closed. Drive nails and spikes to set the heads flush with the wood surface. Use the same end, face, and edge of the timber member for all layout dimensions. Bore all holes from mating faces.

Measurement

965.00.07 Measure the Section 965 items listed in the bid schedule according to section 906.

Payment

965.00.08 The accepted quantities will be paid at the contract price per unit of measurement for the Section 965 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

965.10 – Timber Sill on Geocell Pad

Description

965.10.01 This work consists of construction of a timber sill on geocell pad including excavation, embankment, backfill, curbs and/or railing system.

Construction

965.10.02 Construct a timber sill on geocell pad as required under construction section 965.00 and as SHOWN ON THE PLANS.

965.20 – Timber Sill on Gabion Baskets

Description

965.20.01 This work consists of construction of a timber sill on gabion baskets including excavation, embankment, backfilling.

Construction

965.20.02 Construct a timber sill on gabion baskets as required under construction section 965.00 and as SHOWN ON THE PLANS.

965.30 – Timber Sill on Timber Cribbing

Description

965.30.01 This work consists of construction of a timber sill on timber cribbing including excavation, embankment, and backfilling.

Construction

965.30.02 Construct a timber sill on timber cribbing as required under construction section 965.00 and as SHOWN ON THE PLANS.

965.40 – Concrete Leveling Pad on Bedrock

Description

965.40.01 This work consists of construction of a concrete leveling pad on bedrock including rock excavation, embankment and backfilling.

Construction

965.40.02 Construct a concrete leveling pad on bedrock as required under construction section 965.00 and as SHOWN ON THE PLANS.

Section 966 - Trail Bridge Maintenance

Description

966.01 This work consists of maintenance of trail bridges, including replacing or reconstructing rail systems, curbs, decking, sills, stringers and approach fills as SHOWN ON THE PLANS.

Materials

966.02 Materials. Conform to the following Sections:

Rock, Grid Pavement Units, and Aggregate	991
Material for Timber Structures	995

Furnish the following compliance certificates to the CO upon delivery of the materials to the jobsite:

- (a) Verification of compliance with grading rules and species of timber and lumber. Provide certification by an agency accepted as competent by the American Lumber Standards Committee (ALSC).
- (b) Lot certification of each charge for preservative, penetration in inches, and retention in pounds per cubic foot (assay method) by a qualified independent inspection and testing agency. In addition, have the producer of the treated products provide written certification that Best Management Practices (BMP's) in accordance with "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute (WWPI) and Canadian Institute of Treated Wood, were followed, including a description and appropriate documentation of the applicable BMP's used.
- (c) Certification from a qualified inspection and testing agency indicating that all glued laminated members are in accordance with the requirements of American National Standard, "Standard for Wood Products - Structural Glued Laminated Timber" (ANSI A190.1) modified as SHOWN ON THE PLANS.
- (d) Such other certifications as SHOWN ON THE PLANS or called for in the SPECIAL PROJECT SPECIFICATIONS.

Maintenance

966.03 General. Maintenance of trail bridges at locations SHOWN ON THE PLANS.

Furnish structural lumber and timber of the required stress grade as SHOWN ON THE PLANS.

Clear stacks of weeds, rubbish, or other objectionable material from the ground under and in the vicinity of all stored material. Place the bottom layer of material at least 8 inches above the ground level. Provide sufficient support to prevent sagging.

Open-stack untreated material to shed water. Stack material in layers on spacers (stickers) that extend across the full width of the stack to allow for free air circulation. Align all stickers vertically and space them at regular intervals.

Close-stack treated material to shed water.

Protect material from the weather. If covered, used sheet material such as water-resistant paper or opaque polyethylene film. Do not cover with impervious membranes, such as polyethylene film, during dry weather. Slit individual wrappings full length or puncture on the lower side to permit drainage of water.

Use slings or other devices to protect corners of heavy construction timbers and banded packages of heavy construction timber

966.04 Excavation and Embankment. Perform excavation and embankment in accordance with Section 911.

963.05 Hardware. Furnish and install hardware as SHOWN ON THE PLANS.

966.06 Workmanship. Cut and form all lumber and construction timbers so all joints will have even bearing over the entire contact surface. Do not use shims in making joints. Construct all joints to be closed. Drive nails and spikes to set the heads flush with the wood surface. Use the same end, face, and edge of the timber member for all layout dimensions. Bore all holes from mating faces.

966.07 Stringers. Stringers shall be size matched at bearings and shall be positioned so that the camber is up and if possible, so that knots near the edge will be in the top portion of the stringers. Bridging between stringers shall be neatly and accurately framed and securely fastened.

Measurement

966.08 Measure the Section 966 items listed in the bid schedule according to section 906.

Payment

966.09 The accepted quantities will be paid at the contract price per unit of measurement for the Section 966 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

970. Specialty Specifications

Section 971 – Reserved for Snow Shed

Section 972 – Reserved for Tunnels

Section 979 – Reserved for Specialty Structures Special Project Specifications

980. Incidentals

Section 981 – Seeding, Fertilizing and Mulching

Description

981.01 This work consists of preparing seedbeds and furnishing and placing required seed, fertilizer, and mulch.

Materials

981.02 Seed. Conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable State and local seed and noxious weed laws. Do not use wet, moldy, or otherwise contaminated or damaged seed. Furnish each seed type in separate sealed container. Clearly label each container with the following:

- (a) Name and type of seed
- (b) Lot number
- (c) Net mass
- (d) Percent of purity, germination, and hard seed
- (e) Percent of maximum weed seed content
- (f) Seed Origin
- (g) Noxious weeds present
- (h) Other crop seed
- (i) Inert matter
- (j) Name and address of seed distributor
- (k) Mixture percent of each component

Inoculate legume seed with approved cultures according to the manufacturer's instructions.

Certify that seed meets the type as SHOWN ON THE PLANS. Furnish the CO with duplicate copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 6 months of the date of delivery.

Include in the certificate:

- (1) Name and address of the laboratory
- (2) Date of test
- (3) Lot number for each kind of seed
- (4) Percent of purity and germination for each kind of seed
- (5) Percent of weed seed content for each kind of seed
- (6) Mixture percent of each component

981.03 Fertilizer. Furnish standard commercial grade dry formulated fertilizer conforming to the standards of the Association of Official Analytical Chemists International, applicable State and Federal regulations, and required minimum percentages of available nutrients. Supply fertilizer in new, clean, sealed, and properly labeled containers with name, mass, and guaranteed analysis of contents clearly marked. Use fertilizer with the minimum percentage of available nutrients as SHOWN ON THE PLANS.

981.04 Mulch. Use commercially produced mulch as SHOWN ON THE PLANS.

(a) **Straw.** Furnish certified weed free straw from oats, wheat, rye, or other grain crops that is free from mold or other objectionable material. Furnish straw in an air-dry condition suitable for placing with mulch blower equipment.

(b) **Wood fiber.** Furnish processed wood fiber from wood chips conforming to the following:

- (1) Colored with a green dye noninjurious to plant growth
- (2) Readily dispersible in water
- (3) Nontoxic to seed or other plant material
- (4) Free of growth or germination inhibiting substances
- (5) Free of weed seed
- (6) Air dried to an equilibrium moisture content of 12 ± 3 percent
- (7) Packaged in new labeled containers
- (8) Packaged in a condition appropriate for mixing in a homogeneous slurry suitable for application with power spray equipment

(c) **Grass straw cellulose fiber.** Furnish processed grass straw fiber conforming to the following:

- (1) Colored with a green dye noninjurious to plant growth
- (2) Readily dispersible in water
- (3) Nontoxic to seed or other plant material
- (4) Free of growth or germination inhibiting substances
- (5) Free of weed seed
- (6) Air dried to a moisture content of 10 ± 0.2 percent
- (7) Air dried to a uniform mass of ± 5 percent
- (8) Packaged in new containers labeled with the manufacturer's name and air-dry mass
- (9) Packaged in a condition appropriate for mixing in a homogeneous slurry suitable for application with power spray equipment

Construction

981.05 Seeding Seasons. Seed during the seeding dates as SHOWN ON THE PLANS. Do not apply seeding materials during windy weather or when the ground is excessively wet or frozen.

981.06 Soil Preparation. Shape and finish cut slopes, fill slopes, embankments, or other areas to be seeded as required by other applicable sections or as SHOWN ON THE PLANS. Prepare soil as specified in other sections.

981.07 Mulch. Spread mulch immediately after seeding, or after seeding and fertilizing, to a loose depth of 1 1/2 inches to 3 inches at locations SHOWN ON THE PLANS.

Measurement

981.08 Measure the section 981 items listed in the bid schedule according to subsection 906.

Payment

981.09 The accepted quantities will be paid at the contract price per unit of measurement for the Section 981 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

Section 982 – Erosion Control Blankets

Description

982.01 This work consists of furnishing and installing erosion control blankets.

Material

982.02 Erosion Control Blanket. Use erosion control materials of the type and in the locations SHOWN ON THE PLANS.

(a) **Burlap.** Use burlap of standard weave with a weight of 4, $\pm 1/2$ oz/SY.

(b) **Excelsior Blanket.** Use excelsior blanket consisting of a machine-produced mat or curled wood excelsior of 80-percent, 8 inches or longer fiber length with consistent thickness and the fiber evenly distributed over the entire area of the blanket. Use blanket with mesh dimensions of 1 inch by 2 inches ± 25 percent. Provide blanket with average weight of 8 oz/SY ± 10 percent at time of manufacture.

Construction

982.03 General. Install erosion control blankets in accordance with manufacturer's recommendations at locations SHOWN ON THE PLANS.

Make the soil surface stable, firm, and free of rocks and other obstructions. Install erosion control blankets to the following minimum guidelines.

(a) Slope Installations. At the top of slope, anchor the erosion control blankets by one of the following methods:

(1) Staples. Install the erosion control blankets 3 feet over the shoulder of the slope onto flat final grade. Secure with a single row of staples on 1 foot centers.

(2) Anchor trench. Construct a 6 inch by 6 inch trench. Extend the upslope terminal end of the erosion control blankets 10 feet past the trench. Use staples on 1 foot centers to fasten the erosion control blankets into the trench. Backfill the trench and compact the soil. Secure the terminal end with a single row of staples on 1 foot centers and cover the end with soil. Apply turf establishment.

(3) Check slot. Install two rows of staples 4 inch apart on 4 inch centers across the top edge of the erosion control blankets. Drive all staple heads flush with soil surface.

Securely fasten all erosion control blankets to the soil by installing staples at a minimum rate of 1.5 per square yard.

(b) Channel Installations. At the beginning of the channel, construct a full width anchor trench according to paragraph (a)(2) above. Construct additional anchor trenches or check slots at intervals along the channel reach and at the channel end according to paragraph (a)(2) or (a)(3) and the manufacturer's installation guidelines.

Securely fasten all erosion control blankets to the soil by installing staples at a minimum rate of 2.0 per square yard. Significantly higher anchor rates may be necessary in sandy, loose, or wet soils and in severe applications.

Repair all damaged areas immediately by restoring soil to finished grade, re-applying turf establishment, and replacing the erosion control blankets.

Measurement

982.04 Measure the section 982 items listed in the bid schedule according to subsection 906.

Payment

982.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 982 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

Section 983 – Removal of Structures and Obstructions

Description

983.01 Work. Work consists of removal and disposal of existing structures, including turnpikes, walkways, bridges, culverts, signs and posts, and other material within the trailway, above or below ground. Work also includes salvaging DESIGNATED materials and backfilling the resulting trenches, holes, and pits.

Construction

983.02 Removal of Culverts and Bridges. Remove existing culverts within embankment areas at locations SHOWN ON THE PLANS.

Remove existing structures down to the natural stream bottom, and remove parts outside the water course to at least 1 inch below natural ground surface or finish ground surface, whichever is lower. Where portions of an existing structure lie wholly, or in part, within the limits of a new structure, remove parts to accommodate the installation of the proposed structure.

Avoid damage to bridges being dismantled for salvage. Match mark steel and/or wood members and prepare drawings showing the structural location of each member.

983.03 Removal of Signs and Posts. Remove signs, posts, and associated hardware at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND. Backfill post hole, compact, and contour area to match existing ground.

983.04 Removal of Other Obstructions. Remove other obstructions at locations SHOWN ON THE PLANS or DESIGNATED ON THE GROUND.

983.05 Disposal. Dispose of native log and rock material by scattering below the trailway and outside clearing limits. Do not place debris in water courses, snow ponds, lakes, meadows, or locations where it could impede the flow to, through, or from the drainage structures. Dispose of metal, treated timber, and other manufactured products by removing from Government-administered lands and placing in approved waste disposal sites.

Measurement

983.06 Measure the section 983 items listed in the bid schedule according to subsection 906.

Payment

983.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 983 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 906.04.

Section 989 – Reserved for Incidentals Special Project Specifications

990. Materials

Section 990 - Materials

990.01 General. Materials specification not found in this section will be covered by the most current version of *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects*, U.S. Department of Transportation, Federal Highway Administration.

Section 991 - Rock, Grid Pavement Units, Aggregate and Asphalt

991.01 Rock. Use sound, durable rock free of rifts, seams, laminations, and minerals that could deteriorate as a result of weathering. Dress rock to remove thin or weak portions before use.

Furnish rock of the size, shape, weight, and face area necessary to produce the general characteristics and appearance SHOWN ON THE PLANS.

991.02 Gabion and Revet Mattress Rock. Ensure that rock conforms to the requirements of Section 991.01 and the following specifications.

- (a) Coarse durability index, AASHTO T 210 52 min.
- (b) Unit weight of a filled basket 100 pounds per cubic foot min.
- (c) Gradation:
 - (1) Baskets 12 inches or greater in the vertical dimension:

Maximum dimension of rock	8 inch
Minimum dimension of rock	4 inch
 - (2) Baskets less than 12 inches in the vertical dimension:

Maximum dimension of rock	6 inch
Minimum dimension of rock	3 inch

991.03 Grid Pavement Units. Use concrete grid pavement units with a minimum compressive strength of 4495 lbs/in² that meet the National Concrete Masonry Association (NCMA) Designation: A-15-82: Specifications for Grid Pavers.

991.04 Pit-Run Aggregate. Use pit-run aggregates consisting of native materials that can be placed on the trail without crushing or screening. No gradation, other than a maximum size, will be required. Provide pit-run aggregate with a maximum size as SHOWN IN THE SCHEDULE OF ITEMS.

991.05 Screened Aggregate. Use screened material consisting of gravel, talus, rock, sand, shale, or other suitable material that is reasonably hard, durable, and free of organic material, mica, clay lumps, or other deleterious material. Use screened aggregate meeting the gradation requirements shown in table 961-1 and of the grading SHOWN IN THE SCHEDULE OF ITEMS.

991.06 Crushed Aggregate for Base or Surface Course. Use crushed aggregate meeting the requirements of tables 991-1 and 991-2 and SHOWN IN THE SCHEDULE OF ITEMS.

At least 50 percent, by weight, of the aggregate retained on the No.4 sieve is to have one fractured face. Naturally fractured faces may be included in the 50-percent requirement.

The CO may approve other gradations if they are similar to those specified Grade aggregate from coarse to fine within the gradation band.

Table 991-1-Crushed and screened aggregate grading requirements for base or surface courses.

Sieve	Percent Passing (AASHTO T 11 and T 27)			
	Grading A	Grading B	Grading C	Grading D
1"				
¾"	100	100		
½"	50-90	70-100		
3/8"			100	100
No.4	30-65	45-75	60-85	70-90
No.8	25-55	30-60	35-70	45-70
No.30		15-40		20-40
No.200	6-12	6-20	5-20	5-20

Table 991-2.-Crushed Aggregate Quality Requirements

Description	AASHTO Test Method	Requirement
Percent Wear	T 96	40 Max.
Durability Index, Coarse and Fine	T 211	35 Min.
Liquid Limit	T 89	35 Max.
Plasticity Index	T 91	2-11

991.07 – Asphalt. Asphalt material for trail construction shall conform to requirements of the U.S. Department of Transportation, Federal Highway Administration, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, most current edition, Section 702 – Asphalt Material.

991.08 – Cement. Cement material for trail construction shall conform to requirements of the U.S. Department of Transportation, Federal Highway Administration, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, most current edition, Section 701 – Cement.

Section 992 – Pipe Material

992.01 General. Use pipe, coupling bands, and special sections such as elbows, tees, and wyes made of the same material and of the same thickness as the conduit to which they are joined, unless otherwise specified.

992.02 Corrugated Steel Pipe, Pipe Arches and Underdrains

(a) **Riveted Pipe and Pipe Arches.** Use pipes meeting the requirements of AASHTO M 36.

(b) **Welded Pipe and Pipe Arches.** Use corrugated metal pipe and pipe arches fabricated by resistance spot welding meeting the applicable requirements of AASHTO M 36.

(c) **Helical Pipe.** Use un-perforated helically corrugated pipe with continuous lock or welded seams meeting the applicable requirements of AASHTO M 36.

(d) **Coupling Bands.** Use coupling bands meeting the requirements of AASHTO M 36.

(e) **Special Sections.** Use special sections such as elbows, tees, and wyes meeting the same thickness as the conduit to which they are joined and meeting the applicable requirements of AASHTO M 36.

(f) **Flared-End Sections.** Use flared-end sections for inlet and outlet ends of pipe and pipe arch culverts meeting the applicable requirements of AASHTO M 36.

(g) **Corrugated Steel Pipe for Underdrains.** Use perforated galvanized pipe meeting the requirements of AASHTO M 36. Use polymer-precoated perforated underdrains meeting the requirements of AASHTO M 245

992.03 Corrugated Aluminum Alloy Culvert Pipe, Pipe Arches, and Underdrains. Use pipe meeting the requirements of AASHTO M 196.

992.05 Aluminum-Coated (Aluminized Type 2). Use pipe and coupling bands meeting the requirements of AASHTO M 36 except that they must be made from material meeting the requirements of AASHTO M 274.

992.06 Concrete Pipe and Pipe Arches

(a) **Non-Reinforced Concrete Pipe.** Conform to AASHTO M 86M for the diameters and strength classes specified.

(b) Reinforced Concrete Pipe. Conform to AASHTO M 170M for the diameters and strength classes specified. For precast reinforced concrete end sections, conform to cited specifications to the extent they apply.

(c) Perforated Concrete Pipe. Conform to AASHTO M 175M type 1 or 2 and AASHTO M 86M for the diameters and strength classes specified.

(d) Reinforced Arch-Shaped Concrete Pipe. Conform to AASHTO M 206M for the diameters and strength classes specified.

(e) Reinforced Elliptically-Shaped Concrete Pipe. Conform to AASHTO M 207M for the diameters, placement design (horizontal or vertical), and strength classes specified.

992.07 Precast Reinforced Concrete Box Sections. Conform to AASHTO M 259M or M 273M, as applicable, for dimensions and loading conditions specified.

992.08 Plastic Pipe. Furnish perforated and non-perforated plastic pipe conforming to the following for the sizes and types specified. For watertight joints, conform to ASTM D 3212.

(a) Smooth wall polyethylene pipe. Furnish 12 to 42-inch diameter pipe conforming to ASTM F 714 and minimum cell class, ASTM D 3350, 335434C.

(b) Corrugated polyethylene pipe. Furnish 12 to 42-inch diameter pipe conforming to AASHTO M 294M. For sanitary sewer applications, furnish AASHTO M 294M type S pipe with watertight joints.

(c) Profile wall (ribbed) polyethylene pipe. Furnish 18 to 48-inch diameter pipe conforming to ASTM F 894 and minimum cell class, ASTM D 3350, 334433C or 335434C.

(d) Corrugated polyethylene drainage tubing. Furnish 3 to 10-inch diameter tubing conforming to AASHTO M 252M.

(e) Smooth wall polyvinyl chloride pipe. Furnish 4 to 15-inch diameter pipe conforming to AASHTO M 278 and minimum cell class, ASTM D 1784, 12454B or 12364C. For sanitary sewer applications, conform to ASTM D 3034.

(f) Profile wall (ribbed) polyvinyl chloride pipe. Furnish 4 to 48-inch diameter pipe conforming to AASHTO M 304M and minimum cell class, ASTM D 1784, 12454C or 12364C. For sanitary sewer applications, conform to ASTM F 794 or F 949.

(g) Acrylonitrile-butadiene-styrene (ABS) pipe. Conform to AASHTO M 264. For perforations, conform to AASHTO M 278.

Section 993 - Fence Material

993.01 Barbed Wire. Furnish galvanized wire conforming to AASHTO M 280 or aluminum coated wire conforming to AASHTO M 305 type I.

993.02 Woven Wire. Furnish galvanized fabric conforming to AASHTO M 279 or aluminum coated fabric conforming to ASTM A 584.

993.04 Fence Posts.

(a) **Wood.** Conform to AASHTO M 168 and as SHOWN ON THE PLANS.

Peel all bark, except for red cedar posts and bracing which do not require peeling. Trim all knots flush with the surface and season the wood.

For dimension lumber for fences or gates, use timber that is sound, straight, and reasonably free from knots, splits, and shakes. Provide S4S finish.

(b) **Concrete.** Conform to FP-03, Section 601.

(c) **Steel.** For line fence posts, conform to AASHTO M 281.

993.05 Fence Gates. Furnish wood gates conforming to conforming to AASHTO M 168 and as SHOWN ON THE PLANS. For dimension lumber for gates, use timber that is sound, straight, and reasonably free from knots, splits, and shakes. Provide S4S finish.

993.06 Metal Beam Rail. Conform to AASHTO-AGC-ARTBA *A Guide to Standardized Highway Barrier Hardware*.

(a) **Galvanized steel rail.** Furnish W-beam or thrie beam rail elements fabricated from corrugated sheet steel conforming to AASHTO M 180 for the designated shape, class, type, and mass of coating specified.

(b) **Corrosion resistant steel rail.** Furnish W-beam or thrie beam rail elements and associated weathering steel hardware conforming to the following:

- | | |
|-----------------------|--------------|
| (1) Shapes and plates | ASTM A 242 |
| (2) Rail elements | AASHTO M 180 |
| (3) Fasteners | AASHTO M 180 |

993.07 Guardrail Posts. Conform to AASHTO-AGC-ARTBA "A Guide to Standardized Highway Barrier Hardware."

Do not use a wood guardrail post that has a thorough check, shake, or end slit in the same plane as, or a plane parallel to the bolt hole and extending from the top of the post to within 3 inches of the bolt hole.

For steel-backed timber rail posts, furnish 10 by 12-inch posts conforming to Subsection 710.08.

993.08 Guardrail Hardware. Conform to the AASHTO-AGC-ARTBA *A Guide to Standardized Highway Barrier Hardware*.

For angles, channels, wide flanges, and plates not contained in the above standard, conform to ASTM A 36M. For structural tubing for short steel posts, conform to ASTM A 500 or ASTM A 513 grade 1008. Galvanize soil plates and structural tubing according to AASHTO M 111. Do not punch, drill, cut, or weld the metal after galvanizing.

993.09 Temporary Plastic Fence. Furnish plastic noncorrosive fence fabricated from polyethylene (HDPE) and UV stabilized for outdoor weathering. Conform to the following:

- | | |
|-------------------|----------------------|
| (a) Height | 48 inch min. |
| (b) Mesh openings | 3 to 3.5 inches |
| (c) Color | International orange |
| (d) Mass | 0.168 lb/ft min. |

Section 994 - Geosynthetics

994.01 Geotextiles

- (a) Use geotextiles, alone or in combination with other geosynthetics that meet the following Class B requirements for subsurface drainage as specified in AASHTO M288.
- (1) Grab Strength at 50 percent elongation
ASTM D4632-91 355 N min.
 - (2) Seam Strength,
ASTM D 4632 310 N min.
 - (3) Puncture Strength,
ASTM D4833-88 110 N min.
 - (4) Mullen Burst,
ASTM D 3786-87 900 kPa min.
 - (5) Trap Tear Strength,
ASTM D4533-91 110 N min.
- (b) Use geotextile meeting the following critical physical properties, unless otherwise SHOWN ON THE PLANS.
- (1) Material Structure Nonwoven (all purposes)
or Slit Film (for reinforcement
or separation)
 - (2) Polymer Composition Polypropylene
 - (3) Apparent Opening,
ASTM D 4751-8730 mm max.
 - (4) Permittivity, ASTM
D4491-92 4060 liters/minute/m² min.
 - (5) Ultraviolet Degradation 70 at 150 hours

994.02 Geonet. Use geonet meeting the following critical physical properties unless otherwise SHOWN ON THE PLANS.

- (a) Polymer Composition of Core
(Net or Mesh)..... Medium PE or HDPE
- (b) Permeability..... 0.001cm/second min.
- (c) Geotextile Must meet all Section
994.01 requirements
- (d) Compressive Strength
of Core, ASTM D1621..... 500 kPa min.
- (e) Transmissivity with Gradient
at 0.1, Pressure at 10 kPa..... 0.0009 m²/second min.

994.03 Geogrids. Use geogrids made from polypropylene or coated polyester that meets the following critical physical properties.

- (a) Polymer Type HDPE, Polypropylene, or Polyester with Acrylic or PVC coating
- (b) Mass per Unit Area, ASTM D5261-92... 175 g/m² min.
- (c) Maximum Aperture Size
 - (1) Direction (MD) 100 mm
 - (2) Cross-Direction (XD) 75 mm
- (d) Wide-Width Strip Tensile Strength at 5 percent Strain, ASTM D4595-86
 - (1) Machine Direction (MD) 8 kN/m min.
 - (2) Cross-Direction (XD) 6 kN/m max.

994.04 Geocells. Use geocells meeting the following physical properties.

- (a) Composition PE or HDPE
- (b) Geocell Weight expanded: 1.70 kg/m² min.
- (c) Minimum Cell Seam Peel Strength, U.S. Army Corps of Engineers Technical Report G:-86-19, Appendix A 800 N min.
- (d) Expanded Dimensional Properties..... AS SHOWN ON PLANS

994.05 Sheet Drains. Use sheet drains meeting the following critical physical properties.

- (a) Core Polymer Composition Polystyrene, HDPE, or polypropylene attached
- (b) Geotextile Nonwoven on one side if core solid; on both sides if core perforated. Must meet all Section 994.01 requirements
- (c) Core Thickness, ASTM D5199 10 mm min.
- (d) Core Compressive Strength at Yield, ASTM D1621 650 kPa max.

994.06 Fasteners. Use anchors or fasteners of the design recommended by the manufacturer, and install per manufacturer's specifications.

994.07 Certification. Furnish a certificate or affidavit signed by an official from the company manufacturing the geosynthetic, verifying that the geosynthetic meets specifications.

994.08 Delivery, Storage, and Handling. During shipment and storage, wrap all geosynthetics to protect them from sunlight. When storing geosynthetics, protect them from mud, soil, dust, and debris. If materials are not installed immediately after delivery to site, do not store them in direct sunlight.

Section 995 - Material for Timber Structures

995.01 Untreated Structural Timber and Lumber. Conform to AASHTO M 168. Furnish an inspection certification from an agency accredited by the American Lumber Standards Committee for the species and grade. Mark all pieces with the inspection service, grade designation, species, and inspector identity.

Season and dry all structural timber and lumber before fabrication. Do not use material that is twisted, curved, or otherwise distorted.

Do not use boxed-heart pieces of Douglas fir or redwood in outside stringers, floor beams, caps, posts, sills, or rail posts. Boxed-heart pieces are defined as timber so sawed that at any point in the length of a sawed piece the pith lies entirely inside the four faces.

Select native log stringers from designated sites on Government-administered land. Select the species and sizes of materials as SHOWN ON THE PLANS. Select native log stringers that are straight, sound, and free of defects. Obtain CO approval of logs and trees before felling or moving them to the site. Fell trees to prevent damage to standing timber and to minimize breakage of trees to be used. Buck logs from felled trees in such a way to minimize waste and to obtain the required length and diameter.

Peel logs, square the ends, and trim the knots and limbs flush unless otherwise SHOWN ON THE PLANS. Scatter the debris from the processing of timber away from the trail and so it will not block the trail or plug water courses.

Field treat the following untreated timber surfaces in accordance with AWWA standard M4.

- (a) All ends and tops, and all contact surfaces of posts, sills, and caps.
- (b) All ends, joints, and contact surfaces of bracing and truss members.
- (c) All surfaces of timber bumpers and the back faces of bulkheads.
- (d) All other timber that will be in contact with earth.
- (e) All ends of log stringers.

995.02 Holes for Bolts, Dowels, Rods & Lag Screws. Bore all holes before preservative treating the wood.

Bore holes for round drift bolts and dowels 1/16 inch smaller in diameter than that of the bolt or dowel to be used. Ensure that the diameter of holes for square drift bolts or dowels is equal to the side dimension of the bolt or dowel.

Bore holes for machine bolts 1/16 inch larger than the diameter, except when galvanized bolts are specified. In this case, drill all holes 1/8 inch greater than the bolt size.

Bore holes for lag screws 1/16 inch larger for the shank portion of the lag screw and drill the remainder of the hole approximately 75 percent of the shank diameter to a depth of 1 inch less than the length of the screw.

995.03 Hardware. Use nails of standard form (ASTM F 1667), wood screws (ANSI/ASME B 18.6.1), hex headed bolts and nuts (ASTM A307), lag screws (ASTM A307 and ANSI/ASME B18.2.1), carriage bolts (ASTM A307), and drift pins and dowels (ASTM A307) as SHOWN ON THE PLANS.

Fabricate washers from gray iron or malleable iron castings unless structural washers are specified. Use malleable iron washers with a diameter approximately four times the bolt diameter under all bolt heads or nuts in contact with wood, unless otherwise SHOWN ON THE PLANS.

Galvanize all hardware according to AASHTO M 232 or cadmium plate all hardware according to ASTM B 766 class 12, type III, unless otherwise SHOWN ON THE PLANS, except for the glued laminated deck panel dowels. Ensure that all fasteners, including nails, spikes, bolts, washers, and timber connectors, other than malleable iron, are galvanized.

Final tighten all nuts to provide proper bearing and snug tight condition. Snug tight is defined as sufficient tightness to bring faces of members into firm contact with each other. Cut off excess bolt lengths of more than 1 inch. After final tightening, check or burr all bolts effectively with a pointing tool to prevent loosening of the nuts.

995.04 Treated Structural Timber and Lumber. Furnish wood according to Subsection 995.01. Incise all wood and make all dimensional cuts and holes in the wood before pressure treatment. Use wood preservative treatment methods meeting the requirements of AASHTO M 133 as SHOWN ON THE PLANS. Treat dimensional lumber, sawn timber and glued laminated timber members according to AWPA Standards as SHOWN ON THE PLANS.

All treated stringers, decking, running planks, and handrails shall be treated after fabrication in accordance with AWPA U1, *Use Category System*, using Pentachlorophenol or Copper Naphthenate (CuN) in Light Oil, (Type C Solvent) for Use Category UC3B.

All treated substructures (sills, backing planks, cribs, timber walls, etc.) shall be treated after fabrication in accordance with AWPA U1 *Use Category System*, using Pentachlorophenol or Copper Naphthenate (CuN) in Heavy Oil (Type A Solvent) for Use Category UC4B.

Treat timber members shall comply with the requirements of the current edition of WWPI's *Best Management Practices for the Use of Treated Wood in Aquatic Environments*.

Except for pine, incise before treatment all surfaces greater than 2 inches in width and all Douglas fir and western larch surfaces. Field treat all cuts, abrasions, drilled

holes, and recesses that occur after initial preservative treatment in accordance with the requirements specified in AWWA standard M4, *Standard for the Care of Pressure-Treated Wood Products*. Plug all unused holes with preservative-treated plugs. Perform all field-applied preservation treatment with necessary precautions so as to prevent soil and/or water contamination.

All treated timber members must have an approved American Lumber Standards Committee quality mark, individually or sealed pallets, assuring that treatment conforms to the appropriate AWWA standards.

Submit a certified copy of the lot certification, by a qualified independent inspection and testing agency, to the CO for each charge of preservative, stating penetration in inches and retention in pounds per cubic foot (assay method). In addition, provide a written certification from the producer of the treated products that "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute and Canadian Institute of Treated Wood, were utilized. Include a description and appropriate documentation of the Best Management Practices used.

Handle treated timber according to the Consumer Information Sheet published by AWWA. Do not cut, frame, or bore treated timber after treatment unless approved by the CO. Handle treated timbers carefully and do not drop, damage outer fibers, or penetrate the surface with tools. Do not use cant dogs, hooks or pike poles. In coastal waters, do not cut or bore timber below the highwater mark.

995.05 Structural Glued Laminated Timber. Furnish structural glued laminated timber according to American National Standard, "Standard Specifications for Structural Glued Laminated Timber of Softwood Species" (ANSI 117). Fabricate according to the combination and grade as indicated in the contract. Fabricate structural glued laminated members according to American National Standard, "Standard for Wood Products - Structural Glued Laminated Timber" (ANSI A190.1).

Manufacture members as industrial appearance grade for wet use conditions, using a phenol-resorcinol resin type of adhesive throughout. Use only single- or multiple-piece laminations with bonded edge joints.

Section 996 - Gabion and Revet Mattress Material.

996.01 Basket Mesh. Twist or weld the mesh from galvanized steel wire conforming to ASTM A 641, class 3 or aluminized steel wire conforming to ASTM A 809. Use wire with a minimum tensile strength of 60,000 pounds per square inch when tested according to AASHTO T 244. The galvanized or aluminized coating may be applied after mesh fabrication. Make the mesh openings with a maximum dimension less than 4½ inches, an area less than 10 square inches, and a size less than the gabion or revet mattress rock to be used with the mesh.

(a) Gabion baskets (1 foot or greater in the vertical dimension).

Fabricate the mesh for galvanized or aluminized coated baskets from nominal-sized 0.12-inch or greater diameter wire and fabricate the mesh for polyvinyl chloride coated baskets from nominal-sized 0.11-inch or greater diameter wire.

(1) *Twisted wire mesh.* Form the mesh in a uniform hexagonal pattern with non-raveling double twists. For galvanized or aluminized coated baskets, tie the perimeter edges of the mesh for each panel to a 0.15-inch or greater diameter selvedge wire. For polyvinyl chloride coated baskets, tie the perimeter edges of the mesh for each panel to a 0.13-inch or greater diameter selvedge wire. Make the selvedge at least the same strength as the body of the mesh. Furnish selvedge wire from the same type of material used for the wire mesh.

(2) *Welded wire mesh.* For galvanized or aluminized coated baskets, weld each connection to obtain minimum average weld shear strength of 585 pounds with no value less than 450 pounds. For polyvinyl chloride coated baskets, weld each connection to obtain minimum average weld shear strength of 472 pounds with no value less than 360 pounds.

Fabricate gabion baskets in the dimensions required with a dimension tolerance of ±5 percent. Where the length of the basket exceeds 1.5 times its width, equally divide the basket into cells less than or equal to the basket width using diaphragms of the same type and size mesh as the basket panels. Prefabricate each basket with the necessary panels and diaphragms secured so they rotate into place.

(b) Revet mattresses (less than 1 foot in the vertical dimension).

Fabricate the mesh from nominal-sized 0.086-inch or greater diameter wire.

(1) *Twisted wire mesh.* Form the mesh in a uniform hexagonal pattern with non-raveling double twists. Tie the perimeter edges of the mesh for each panel to a 0.11-inch or greater diameter selvedge wire. Make the selvedge at least the same strength as the body of the mesh. Furnish selvedge wire from the same type of material used for the wire mesh.

(2) *Welded wire mesh.* Weld each connection to obtain minimum average weld shear strength of 292 pounds with no value less than 225 pounds.

Fabricate renet baskets in the dimensions required with a dimension tolerance of ± 5 percent in length and width and ± 10 percent in height. Where the length of the basket exceeds 0.5 times its width, equally divide the basket into cells less than or equal to 0.5 times the basket width using diaphragms of the same type and size mesh as the mattress panels. Prefabricate each basket with the necessary panels and diaphragms secured so they rotate into place.

(c) Epoxy or Polyvinyl chloride coated baskets. Use either a fusion bonded or extruded coating to coat the galvanized or aluminized mesh.

Make the coating at least 0.0625 inches in thickness for epoxy and 0.125 inch thickness for PVC. Make the color black or gray and conform to the following:

(1) For epoxy coating meet:

- Abrasion resistance, ASTM D 1242, maximum weight loss 0.19 g.
- Salt crock, ASTM G 8, maximum disbondment diameter 1.75 inch, and at 90 days, 1.5 volts, and 3 percent solution.
- Chemical resistance, ASTM G 20, with 45 days at 70°F, 3 molar CaCl₂, 3 molar NaOH, saturate Ca(OH)₂, and no coating loss.
- Weatherometer, ASTM G 23, with a surface chalk and 2,000 hours.

(2) For polyvinyl coating meet:

- | | |
|---------------------------------------|---------------------|
| ▪ Specific gravity, ASTM D 792 | 1.20 to 1.40 |
| ▪ Tensile strength, ASTM D 638 | 2,300 pounds |
| per square inch | min. |
| ▪ Modulus of elasticity, ASTM D 638 | 2,000 pounds |
| per square inch | min. at 100 strain |
| ▪ Hardness — shore "A", ASTM D 2240 | 75 min. |
| ▪ Brittleness temperature, ASTM D 746 | 16 °F max. |
| ▪ Abrasion resistance, ASTM D 1242, | 12% max. |
| method B at 200 cycles, | mass loss |
| CSI-A abrader tape, 80 grit | |
| ▪ Salt spray (ASTM B 117) and | No visual effect |
| ultraviolet light exposure | (c) $\Delta < 6\%$ |
| (ASTM D 1499 and G 23 using | (d) $\Delta < 25\%$ |
| apparatus type E and 145 °F) | (e) $\Delta < 25\%$ |

- | | |
|---|---|
| <ul style="list-style-type: none"> for 3000 hours ▪ Mandrel bend, 360° bend at 0 °F around a mandrel 10 times the wire diameter | <p>(h) $\Delta < 10\%$
No breaks or cracks in coating</p> |
|---|---|

996.02 Permanent fasteners.

- (1) **Lacing wire.** Furnish nominal-sized 0.086-inch diameter wire of the same type, strength, and coating as the basket mesh.
- (2) **Spiral binders.** Form with wire having at least the same diameter, type, strength, and coating as the basket mesh.
- (3) **Alternate fasteners.** Furnish fasteners according to the basket manufacturer's specification that remain closed when subjected to a 585-pound tensile force while confining the maximum number of wires to be confined in the gabion structure or revet mattress. Submit installation procedures and fastener test results.

996.03 Internal connecting wire. Furnish lacing wire as described in (b)(1) above or alternate stiffeners according to the basket manufacturer's specification.

W. 2nd Avenue Highlands

Common Open Space Tentative Subdivision Map

Neighborhood Meeting Presentation
March 31, 2022

Project Location

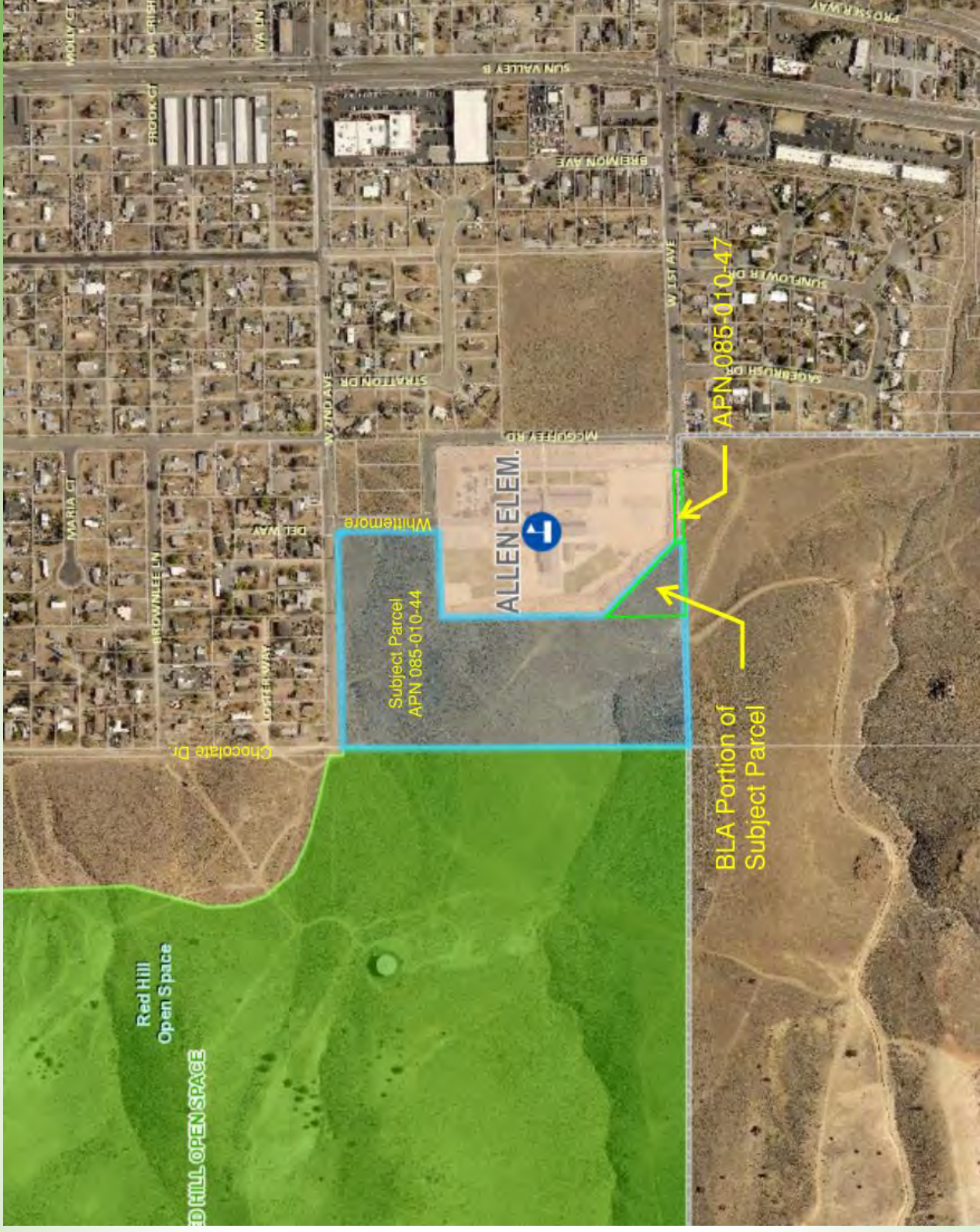
APN 085-010-44

South of W. 2nd Ave and
West of Lois Allen
Elementary School

18.27+/- acre parcel

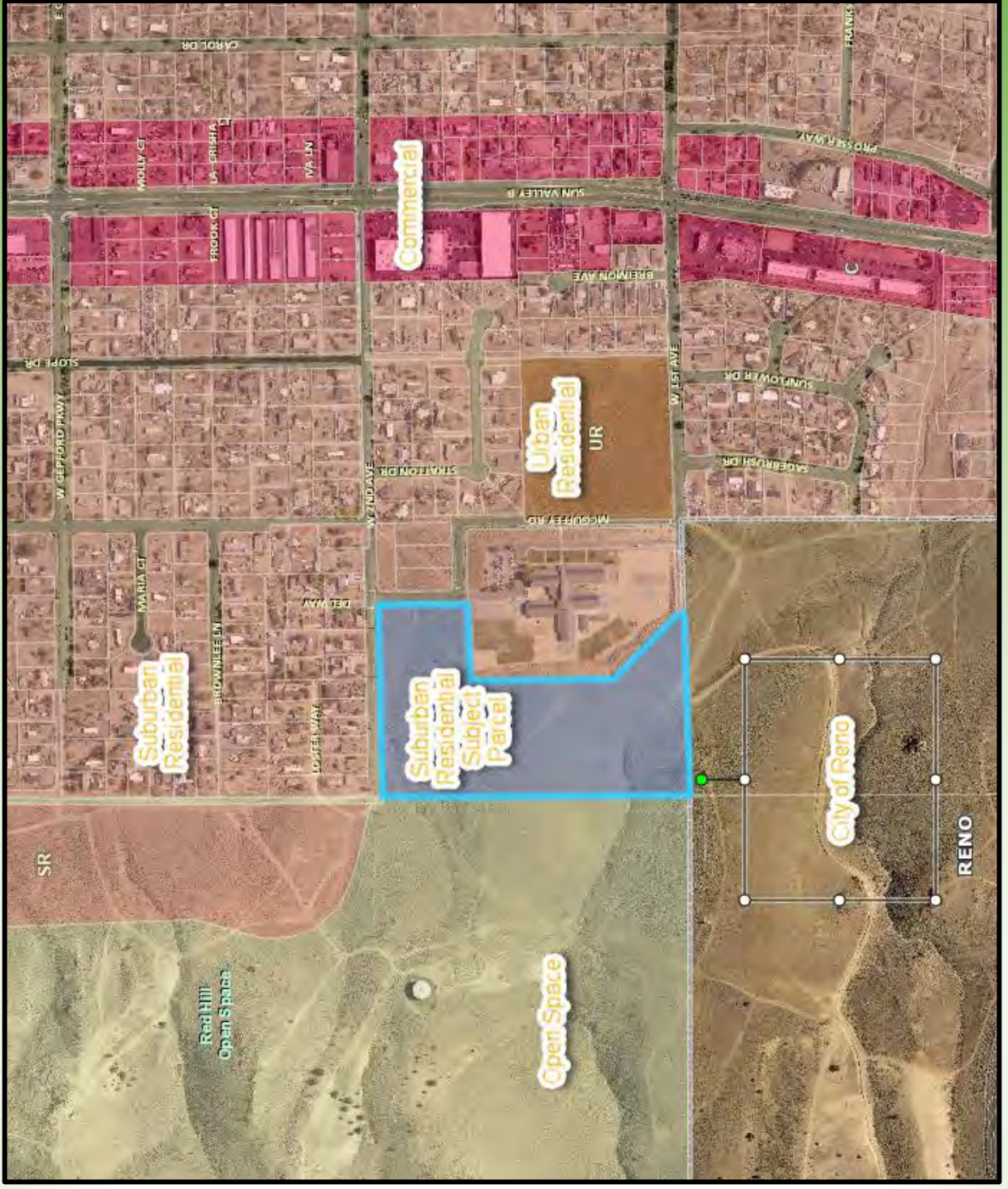
1.05+/- acre triangle
at SE corner of parcel
currently requested for a
Boundary Line Adjustment

17.22+/- acres after BLA



Master Plan

Subject property is master planned Suburban Residential (SR) in Sun Valley Area Plan



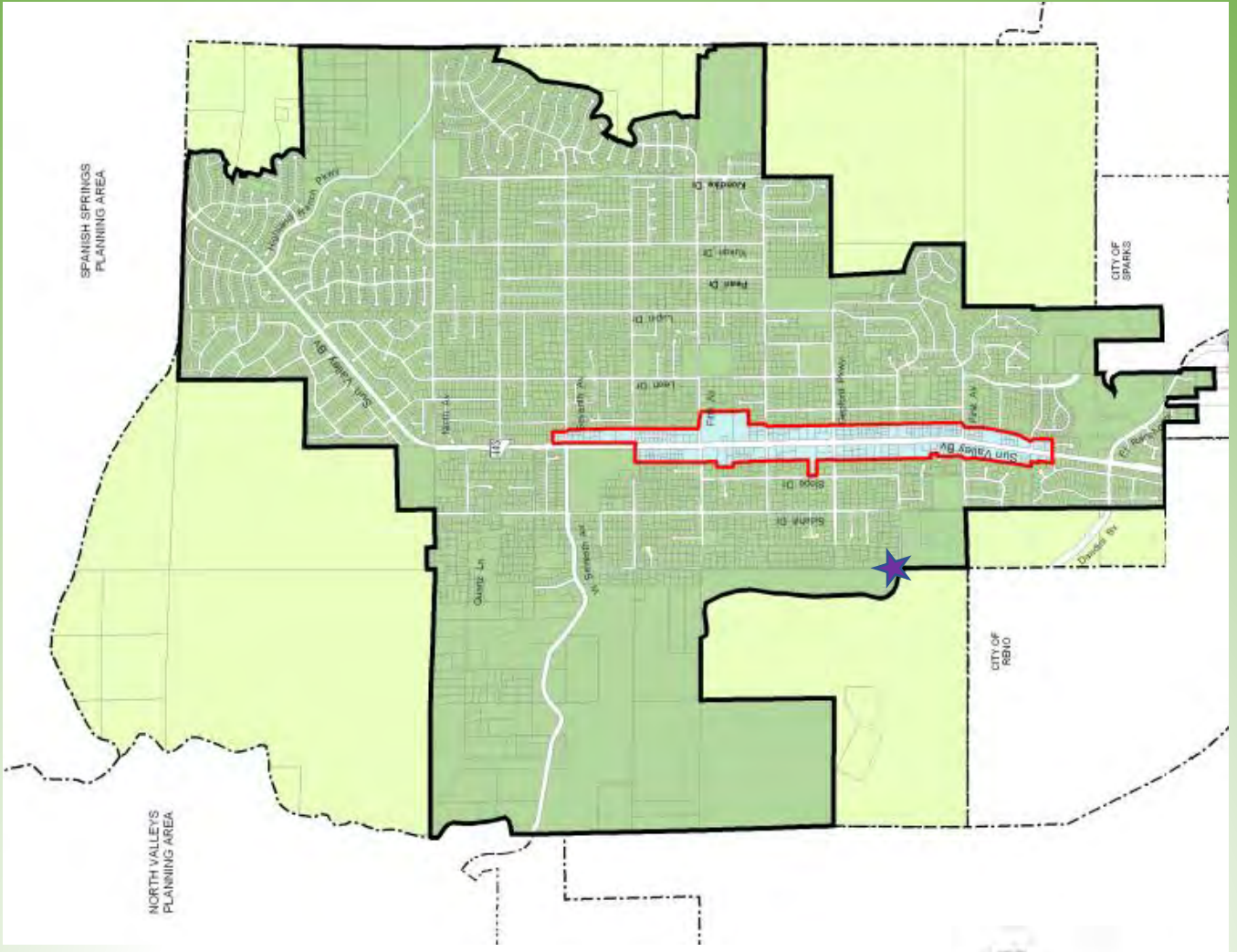
Character Management Area

Subject property is within the Suburban Character Management Area of the Sun Valley Area Plan

SUN.1.3

The following Regulatory Zones are permitted within the Sun Valley Suburban Character Management Area:

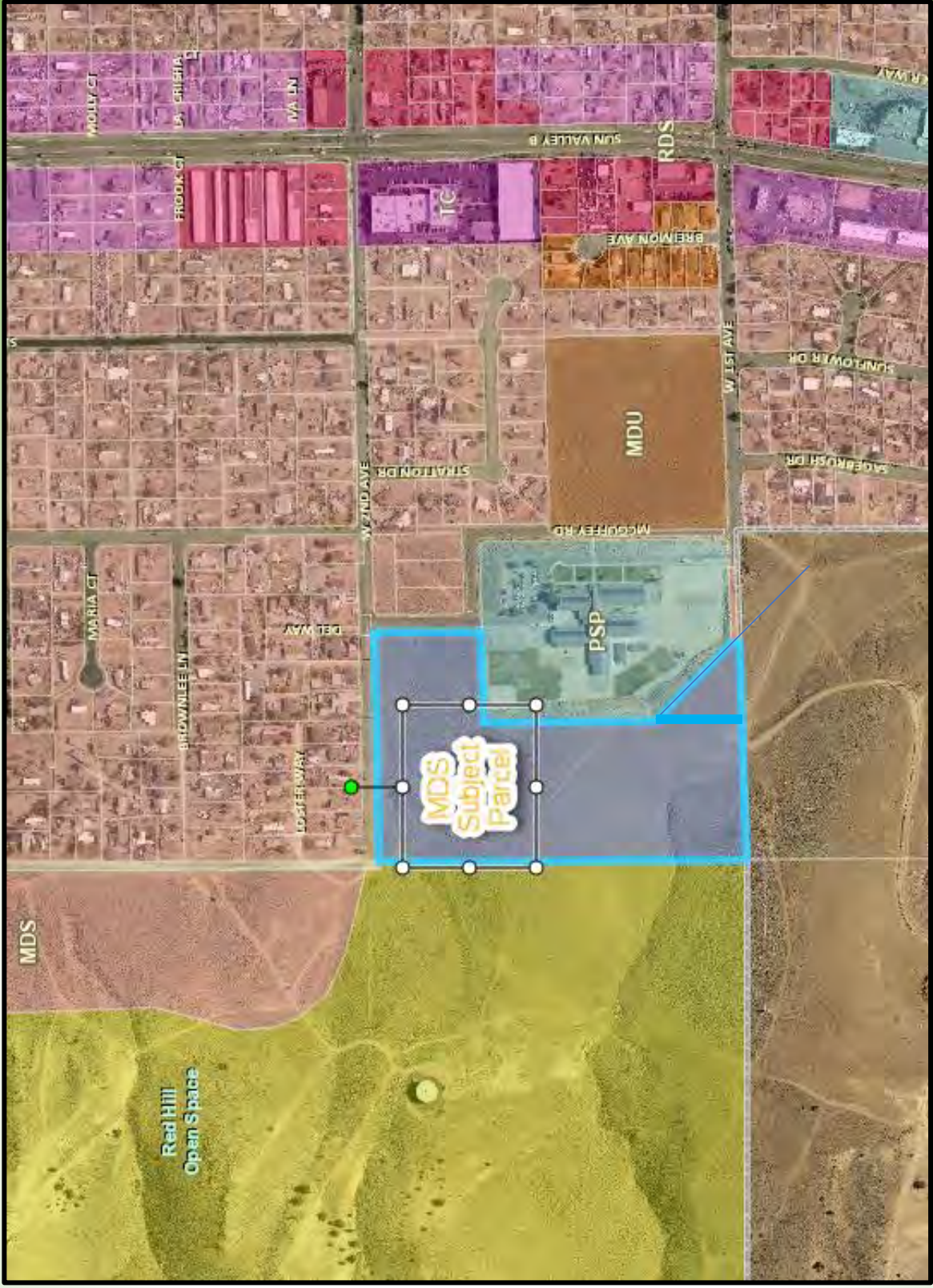
- a. High Density Rural (HDR – One unit per 2.5 acres).
- b. Low Density Suburban (LDS – One unit per acre).
- c. Medium Density Suburban (MDS – Three units per acre).
- d. High Density Suburban (HDS – Seven units per acre).
- e. Medium Density Urban (MDU – Twenty-one units per acre).
- f. Neighborhood Commercial/Office (NC).
- g. General Commercial (GC).
- h. Industrial (I).
- i. Public/Semi-Public Facilities (PSP).
- j. Parks and Recreation (PR).
- k. General Rural (GR).
- l. Open Space (OS).



Existing Zoning

Subject property is zoned MDS (Medium Density Suburban) allowing for 3 units per acre.

17.22 acre site @ 3 DU/AC = 51.66 Lots



Existing Site Conditions



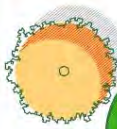
Drainage and Trail Access to Red Hill Open Space



Site Plan

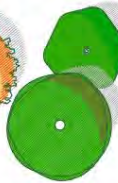
LANDSCAPE LEGEND:

(± 12)



ACCENT TREE - COURTYARD
MIN. 2-1/2" CALIPER SIZE

(± 70)



DECIDUOUS TREES
MIX OF 1" & 2-1/2" CALIPER SIZES PER CODE

(± 4)



EVERGREEN TREES
6 FT. HEIGHT MIN.



RTC – US 395 – Pyramid Highway Connector



Development Statistics

Total Parcel Area: 18.27+/- AC
Total Site Area (After BLA) 17.22+/- AC
Maximum Dwelling Units Allowed: (After BLA) 51 Residential Lots
Total Lots Proposed: 48 Residential Lots
Gross Density Proposed: 2.8+/- DU/AC

Areas of Use

Disturbed Area - Residential Lot Area (Street & Detention included): 10.26+/- AC
Open Space A (Detention): 0.51+/- AC
Open Space B (Natural Area): 7.05+/- AC

Lot Sizes

Minimum Lot Size: 4,999+/- SF
Maximum Lot Size: 15,058+/- SF
Average Lot Size: 7,336+/- SF

Setbacks (following MDS standards)

Front Yard 20 feet
Side Yard 8 feet
Rear Yard 20 feet

Questions?

Extra Slides if Needed in Presentation



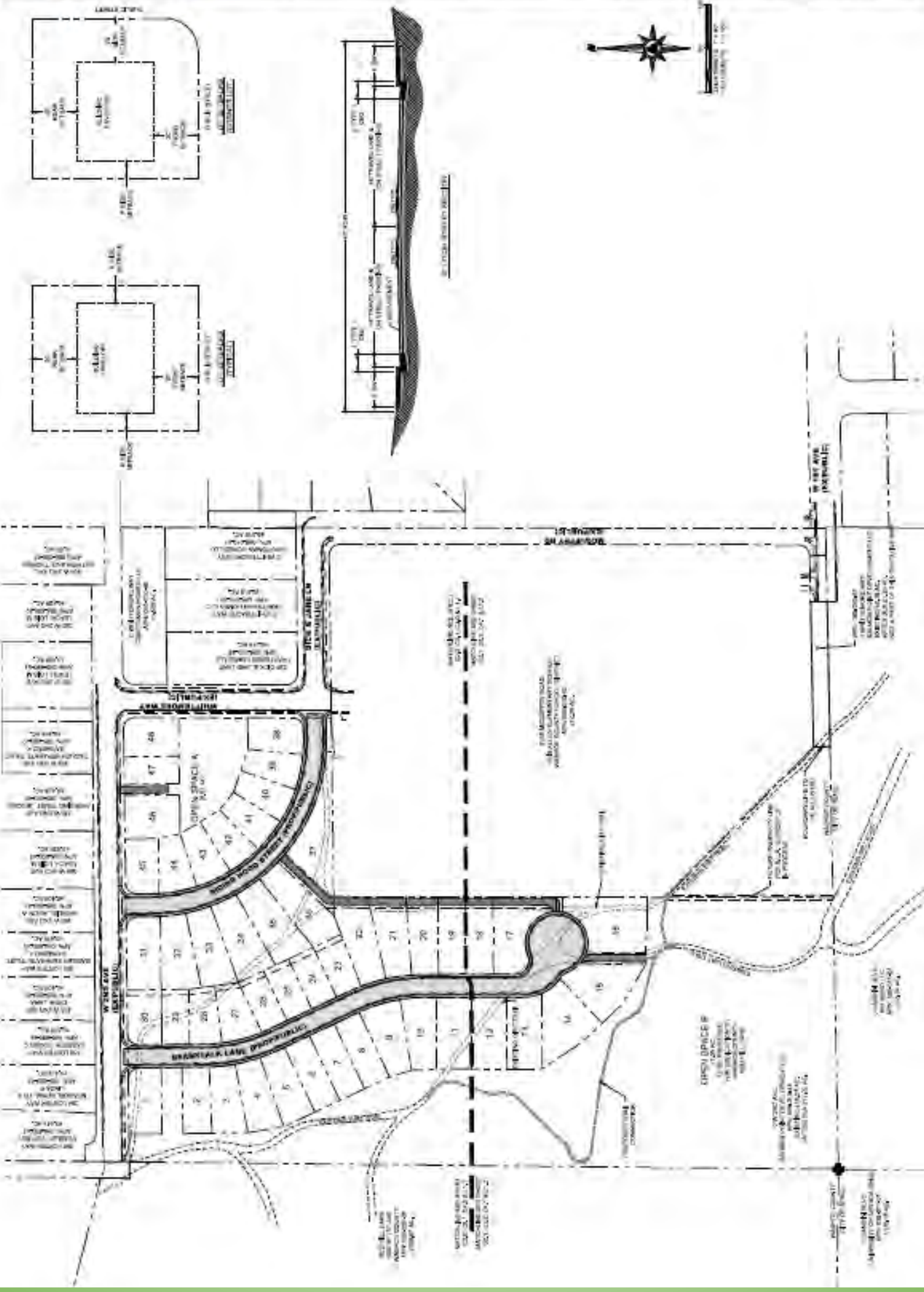
1000 WEST 10TH AVENUE
 SUITE 1000
 DENVER, CO 80202
 TEL: 303.733.1100
 WWW.SOMMITS.COM



SWAYN POINT SUBDIVISION
 COMMON OPEN SPACE TENTATIVE MAP
 OVERALL SITE PLAN

TENTATIVE MAP

C1.1
 COMMON OPEN SPACE TENTATIVE MAP
 SWAYN POINT SUBDIVISION
 DATE: 08/11/2022
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SCALE: 1" = 100'





PLANNING & ZONING DEPARTMENT
 1000 WEST 10TH AVENUE
 DENVER, CO 80202
 (303) 855-3300
 WWW.DENVER.CO.GOV



W 2ND AVE HIGHLANDS
 COMMON OPEN SPACE TENTATIVE MAP
 SITE PLAN

DATE: 03/11/2022

TENTATIVE MAP

NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10

C2.0

COMMUNITY DEVELOPMENT DEPARTMENT
 1000 WEST 10TH AVENUE
 DENVER, CO 80202
 (303) 855-3300
 WWW.DENVER.CO.GOV



CURVE TABLE

Stationing	Curve No.	Radius (ft)	Length (ft)	Area (sq ft)
0+00	1	1000	157.08	15708.00
1+57.08	2	1000	157.08	15708.00
3+14.16	3	1000	157.08	15708.00
4+71.24	4	1000	157.08	15708.00
6+28.32	5	1000	157.08	15708.00
7+85.40	6	1000	157.08	15708.00
9+42.48	7	1000	157.08	15708.00
11-00	8	1000	157.08	15708.00
12-57.08	9	1000	157.08	15708.00
14-54.16	10	1000	157.08	15708.00
16-51.24	11	1000	157.08	15708.00
18-48.32	12	1000	157.08	15708.00
20-45.40	13	1000	157.08	15708.00
22-42.48	14	1000	157.08	15708.00
24-39.56	15	1000	157.08	15708.00
26-36.64	16	1000	157.08	15708.00
28-33.72	17	1000	157.08	15708.00
30-30.80	18	1000	157.08	15708.00
32-27.88	19	1000	157.08	15708.00
34-24.96	20	1000	157.08	15708.00
36-22.04	21	1000	157.08	15708.00
38-19.12	22	1000	157.08	15708.00
40-16.20	23	1000	157.08	15708.00
42-13.28	24	1000	157.08	15708.00
44-10.36	25	1000	157.08	15708.00
46-7.44	26	1000	157.08	15708.00
48-4.52	27	1000	157.08	15708.00
50-1.60	28	1000	157.08	15708.00
52-0.00	29	1000	157.08	15708.00
54-0.00	30	1000	157.08	15708.00
56-0.00	31	1000	157.08	15708.00
58-0.00	32	1000	157.08	15708.00
60-0.00	33	1000	157.08	15708.00
62-0.00	34	1000	157.08	15708.00
64-0.00	35	1000	157.08	15708.00
66-0.00	36	1000	157.08	15708.00
68-0.00	37	1000	157.08	15708.00
70-0.00	38	1000	157.08	15708.00
72-0.00	39	1000	157.08	15708.00
74-0.00	40	1000	157.08	15708.00
76-0.00	41	1000	157.08	15708.00
78-0.00	42	1000	157.08	15708.00
80-0.00	43	1000	157.08	15708.00
82-0.00	44	1000	157.08	15708.00
84-0.00	45	1000	157.08	15708.00
86-0.00	46	1000	157.08	15708.00
88-0.00	47	1000	157.08	15708.00
90-0.00	48	1000	157.08	15708.00
92-0.00	49	1000	157.08	15708.00
94-0.00	50	1000	157.08	15708.00
96-0.00	51	1000	157.08	15708.00
98-0.00	52	1000	157.08	15708.00
100-0.00	53	1000	157.08	15708.00



1. ALL DIMENSIONS ARE IN FEET AND DECIMAL FRACTIONS THEREOF.
 2. THE TOTAL AREA OF THE COMMON OPEN SPACE SHALL BE APPROXIMATELY 1,000,000 SQ FT.
 3. THE TOTAL AREA OF THE COMMON OPEN SPACE SHALL BE APPROXIMATELY 1,000,000 SQ FT.



7
LUMS
LANDSCAPE ARCHITECTURE
INCORPORATED
1000 UNIVERSITY AVENUE
SUITE 100
ANN ARBOR, MI 48106
TEL: 734.769.1234
WWW.LUMS7.COM



MANAGEMENT DEVELOPMENT
W 2ND AVE HIGHLANDS
COMMON OPEN SPACE TENTATIVE MAP
GRADING PLAN

TENTATIVE MAP

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	11/11/2022
2	REVISION	
3	REVISION	
4	REVISION	
5	REVISION	
6	REVISION	
7	REVISION	
8	REVISION	
9	REVISION	
10	REVISION	

C3.1

DATE: 11/11/2022
PROJECT: W 2ND AVE HIGHLANDS
SHEET NO: C3.1
TOTAL SHEETS: 10
SCALE: AS SHOWN





PROJECT NO. 2022-003
 DATE: 03/20/2024
 DRAWN BY: [Name]
 CHECKED BY: [Name]

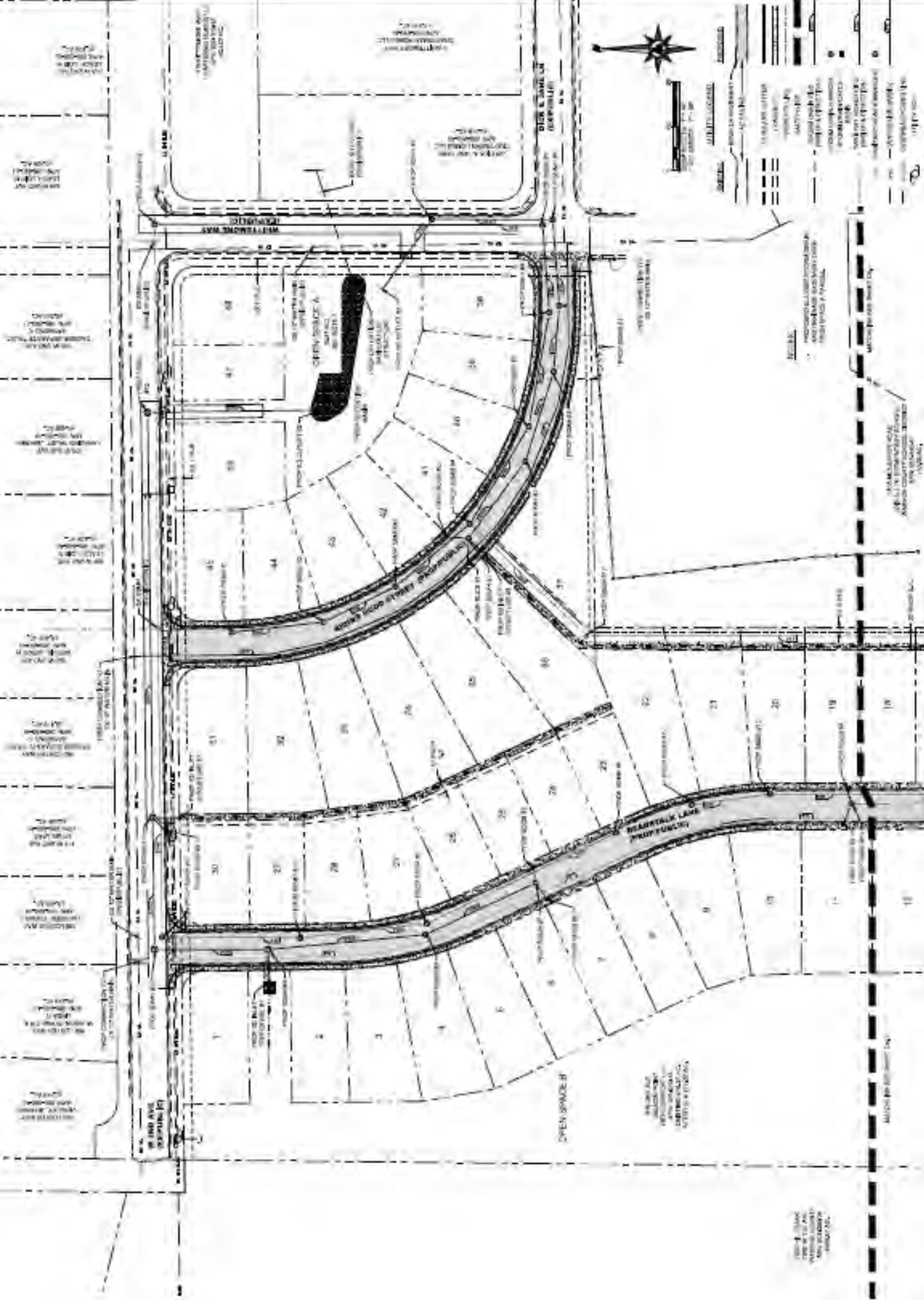


W 2ND AVE HIGHLANDS
 COMMON OPEN SPACE TENTATIVE MAP
 UTILITY PLAN

TENTATIVE MAP
 MARCH 2024

NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10

C4.0
 COMMON OPEN SPACE TENTATIVE MAP
 UTILITY PLAN



Findings Review

Project Name: W 2nd Avenue Highlands - District 3

Neighborhood Meeting

Meeting Location: 5195 Sun Valley Blvd, Sun Valley, Nevada, 89433; Hobey's Casino Banquet Room (2nd Floor)

Sign-In Sheet

Meeting Date: March 31, 2022

	First and Last Name (please print legibly)	Address	Email (or) Phone
1	Raymond Dagher	365 W. 2 nd AVE	(775) 673-4137
2	Karlie Mautner	365 W. 2 nd AVE.	(775) 673-4137
3	Carol Burns	15 Columbus St	775 673-5256
4	Keith Roberts	240 W. 2 ND Ave.	(775)-221-5491
5	Jodi Roberts	240 W. 2 ND Ave.	(775)-770-4310
6	Jeri Barth	2560 Granite Spring R. Reno	775 813-6505
7	MARK NEUMANH	845 CLOUDY CT	775-313-5374
8	Darlah Lee	3506 Brassie Dr	da_lee@fastmail.com

CAB

Disclaimer: A copy of this sign-in sheet will be submitted to Washoe County Planning Division along with the project application.

	First and Last Name (please print legibly)	Address	Email (or) Phone
9	George Lee	3506 Brassie Dr.	da_lee@fastmail.com
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			

Disclaimer: A copy of this sign-in sheet will be submitted to Washoe County Planning Division along with the project application.

**Neighborhood Meeting
Comment Card**

Project Name: W. 2nd AVE HIGHLANDS, SV

Name: DAGGER'S

Company/Organization (if applicable): _____

Address: 365 W. 2nd AVE, SV

.....
Comment:

LIKE THE MEDIUM DENSITY SUBURBAN TRACK.

Notice of Neighborhood Meeting

Dear Property Owner:

You are invited to attend a neighborhood meeting to discuss W. 2nd Avenue Highlands Common Open Space Tentative Map, a proposed development project in your area. This is your opportunity to review the proposed project, ask questions and provide feedback prior to submittal of a formal development application.

Neighborhood Meeting Information:

6:00 p.m., Thursday, March 31, 2022
Hobey's Casino Banquet Room (Second Floor)

Project Description:

This project is located at 0 W 2nd Avenue, parcel number(s) 085-010-44. This proposed project is 48 lot single family subdivision on 17.22+/- acres. Lot sizes will range from 4,999+/- SF to 15,058+/- SF and 7.05+/- acres of natural open space.

If you have questions about the meeting or would like to discuss the proposed development project, please contact: Dave Snelgrove at CFA, Inc at dsnelgrove@cfareno.com or by telephone at 775-856-7073

This is not a public hearing, and public officials will not be present. If you have questions regarding meeting requirements, please contact the Washoe County Planning Division: Planning@washoecounty.gov or 775-328-6100. You may also contact the Washoe County Staff Planner for the project: Chris Bronczyk, 775.328-3612, cbronczyk@washoecounty.gov

To review information about neighborhood meetings, please visit: <https://neighborhood-washoe.hub.arcgis.com/>

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If you have questions about the meeting or would like to discuss the proposed development project, please contact: Dave Snelgrove at CFA, Inc at dsnelgrove@cfareno.com or by telephone at 775-856-7073

This is not a public hearing, and public officials will not be present. If you have questions regarding meeting requirements, please contact the Washoe County Planning Division: Planning@washoecounty.gov or 775-328-6100. You may also contact the Washoe County Staff Planner for the project: Chris Bronczyk, 775.328-3612, cbronczyk@washoecounty.gov

To review information about neighborhood meetings, please visit: <https://neighborhood-washoe.hub.arcgis.com/>

Notice of Neighborhood Meeting

Dear Property Owner:

You are invited to attend a neighborhood meeting to discuss W. 2nd Avenue Highlands Common Open Space Tentative Map, a proposed development project in your area. This is your opportunity to review the proposed project, ask questions and provide feedback prior to submittal of a formal development application.

Neighborhood Meeting Information:

6:00 p.m., Thursday, March 31, 2022
Hobey's Casino Banquet Room (Second Floor)

Project Description:

This project is located at 0 W 2nd Avenue, parcel number(s) 085-010-44. This proposed project is 48 lot single family subdivision on 17.22+/- acres. Lot sizes will range from 4,999+/- SF to 15,058+/- SF and 7.05+/- acres of natural open space.

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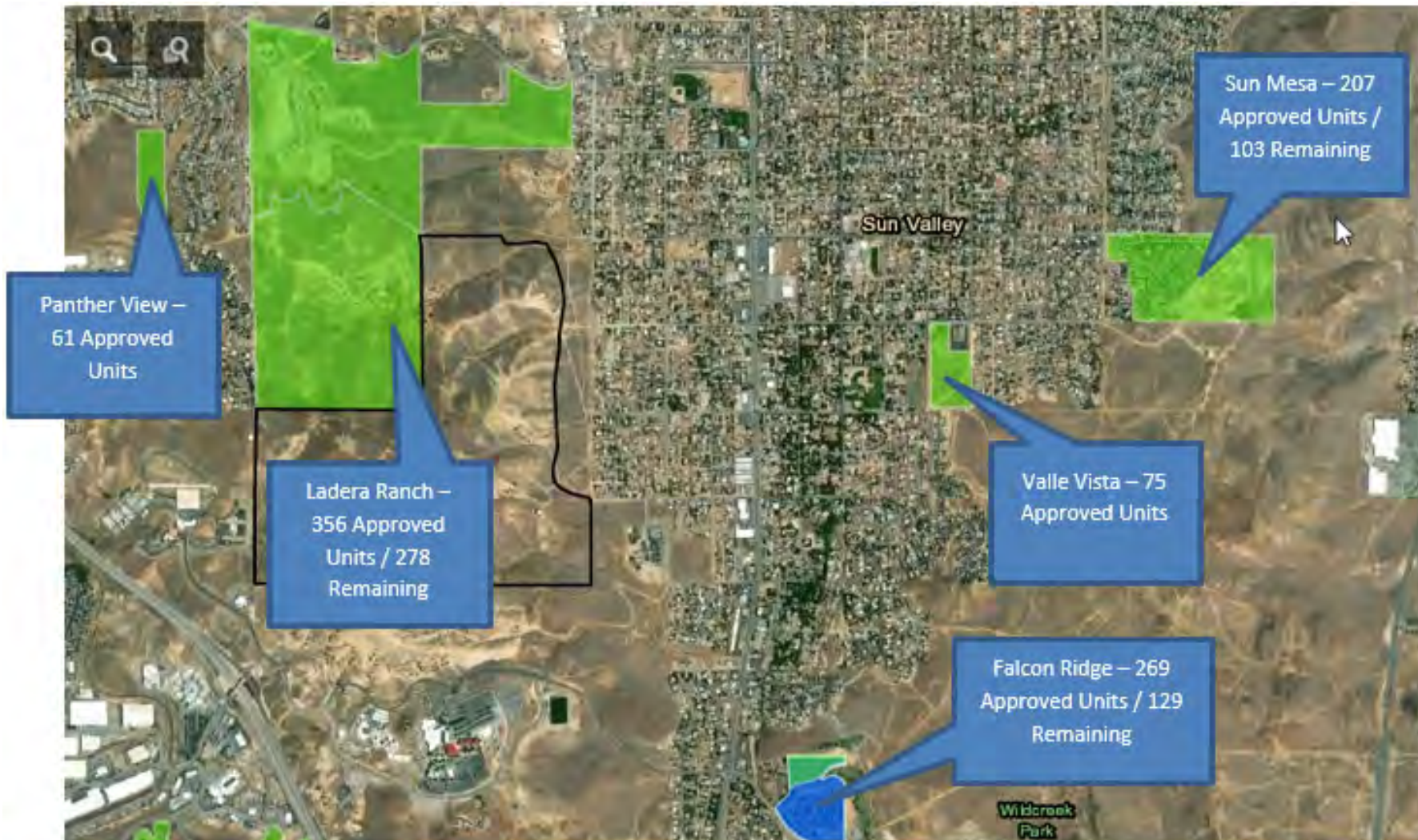
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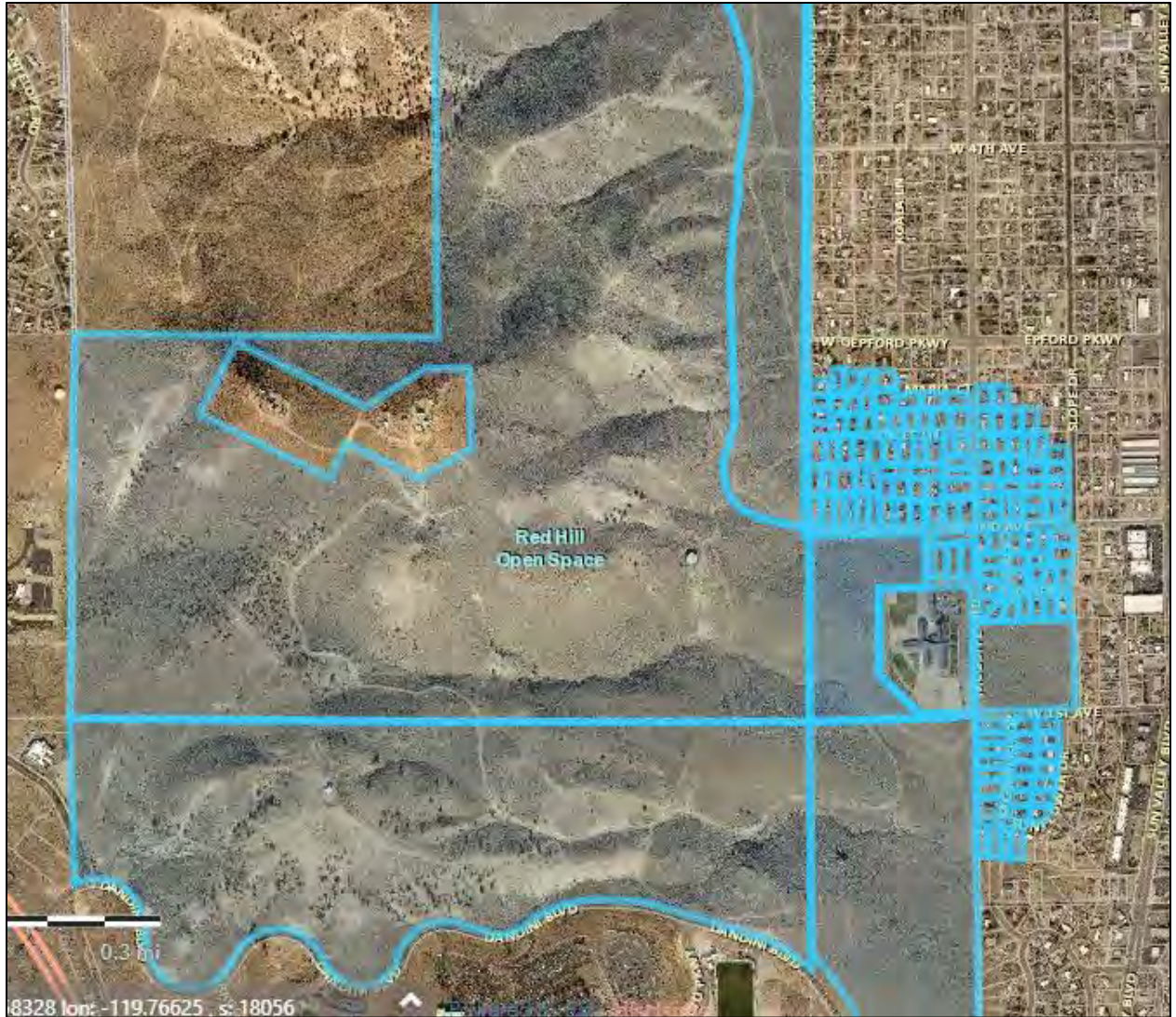
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To review information about neighborhood meetings, please visit: <https://neighborhood-washoe.hub.arcgis.com/>



Approved Un-Built Map



Project Notice - 154 Parcels within 1,000 Feet

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

Project Information		Staff Assigned Case No.: _____	
Project Name: W. 2nd Avenue Highlands Common Open Space Tentative Subdivision Map			
Project Description: Director's Modification to allow for finish grading to vary from natural slope by more than ten (10) feet as noted in 110.438.45(c).			
Project Address: 0 W 2ND AVE WASHOE COUNTY NV 89433			
Project Area (acres or square feet): Parcel is currently 18.27 +/- acres - will be 17.22 +/- acres after BLA			
Project Location (with point of reference to major cross streets AND area locator): Project is located at the westernmost terminus of 2nd Avenue in Sun Valley. The project is west of Lois Allen Elementary school.			
Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
085-010-44	18.27 +/-		
Indicate any previous Washoe County approvals associated with this application: Case No.(s).			
Applicant Information (attach additional sheets if necessary)			
Property Owner:		Professional Consultant:	
Name: Salmon Point Development, LLC		Name: Lumos & Associates	
Address: 2560 Granite Springs Road		Address: 9222 Prototype Drive	
Reno, NV	Zip: 89519	Reno, NV	Zip: 89521
Phone: 775-303-3789	Fax:	Phone: 775-827-6111	Fax:
Email: ron.salmonpoint@gmail.com		Email: wanderson@lumosinc.com	
Cell:	Other:	Cell:	Other:
Contact Person: Ronald W. Bath		Contact Person: Billy Anderson, P.E.	
Applicant/Developer:		Other Persons to be Contacted:	
Name: Same as above		Name: CFA, Inc.	
Address:		Address: 1150 Corporate Blvd	
	Zip:	Reno, NV	Zip: 89502
Phone:	Fax:	Phone: 775-856-7073	Fax:
Email:		Email: dsnelgrove@cfareno.com	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person: Dave Snelgrove, AICP	
For Office Use Only			
Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

Director's Modification of Standards Supplemental Information

(All required information may be separately attached)

1. What modification or deviation are you requesting? **Be specific.**

The request of for the allowance of finish grading to vary from natural slope by more than ten (10) feet as noted in 110.438.45(c).

2. Why is the modification or deviation necessary to the success of the project/development? **Be specific.** Are there any extenuating circumstances or physical conditions on the proposed project/development site?

The overriding reason that the cut and fill thresholds need to be exceeded is that the topography of the land is varied. In order to provide smooth grade transitions within the development and to provide positive drainage and code required street grades, the cut and fill limits that are set within the code need to be crossed.

3. Are you proposing to mitigate the effect of the modification or reduction?

The proposed common open space subdivision will have grades that are moderate and consistent with what would be expected from a suburban level residential lot. Some lots incorporate stepped elevations within the subdivision to reasonably address grades and existing slopes.

4. What section of code are you requesting to modify or deviate? **Be specific.** List the code section and if there are specific requirements for the modification, provide detailed information. For deviation, provide the percentage of the deviation.

The section of code that is requested for director's modification is 110.438.45(c) that states that exceeding the code listed standard "...may be allowed upon approval of a director's modification..."

5. For Minor Deviation request; list what properties/parcels are affected by the deviation? Explain if there will be any impacts to the affected neighboring properties. (At a minimum, affected property owners are those owners of parcels that immediately abut the location of the proposed minor deviation.)

Not applicable. this is not a minor deviation request.

Director's Modification

Parking standards may be modified by the Director of Planning and Building per Washoe County Code Chapter 110.410.35 – Modification of Standards

Landscaping standards may be modified by the Director of Planning and Building per Washoe County Code Chapter 110.412.05(d) – Review of Extenuating Circumstances.

Grading standards may be modified by the Director of Planning and Building per Washoe County Code Chapter 110.438.45- Grading of Slopes

Minor Deviation Standards may be granted by the Director of Planning and Building per Washoe County Code Section 110.804.35 – Minor Deviations, for a deviation of less than 10% of the applicable Development Code standards.

1. **Fees:** See Master Fee Schedule. **Bring payment with your application to Community Services Department (CSD). Make check payable to Washoe County.**
2. **Development Application:** A completed Washoe County Development Application form.
3. **Owner Affidavit:** The Owner Affidavit must be signed and notarized by all owners of the property subject to the application request.
4. **Proof of Property Tax Payment:** The applicant must provide a written statement from the Washoe County Treasurer's Office indicating all property taxes for the current quarter of the fiscal year on the land have been paid.
5. **Application Materials:** The completed Director's Modification Supplemental Information. (You are encouraged to meet with a planner to determine the applicability of individual requirements.)
6. **General Modifications:** Provided a site plan which includes all buildings on the property, location of the modification and any other useful details.
 - **Parking Modifications:** If the modification is for parking, a site plan shall be provided which includes all buildings on the property, all parking areas, stripping plan, handicap parking plan, and number of proposed parking spaces and the proposed surface materials.
 - **Landscaping Modifications:** If the request is for a modification of landscaping requirements, landscaping plans of the proposal are required. The landscape plan must include: type of plant material; location of plant material and proposed maintenance schedule; size of plant material at planting and size of plant material at full maturation; type and amount of mulch material; and an irrigation plan. The planting plan must include all necessary information to satisfy Washoe County Code Section 110.412.60, Planting Standards.
 - Location, spacing, size, and genus and/or species of proposed plantings, and identification of existing plants;
 - Existing vegetation, natural features, and site improvements on adjoining properties within ten (10) feet of the property line; and
 - Plant list which includes the following: quantity of proposed plants; existing plants to remain; number of proposed trees; number of existing trees to be preserved; amount of paved area; and the amount of turf.
 - Irrigation Plan Specifications.
 - Location, size, and specifications of water source(s), water mains, meter(s), valves, and the controller;
 - Temporary or permanent water irrigation systems;
 - Specifications of irrigation equipment identified by manufacturer's name and equipment identification number; and
 - An approved backflow prevention device is required on all landscape irrigation systems.

- **Minor Deviation Plot Plan or Vicinity Map:**

- The location of the proposed deviation;
- Location of adjoining neighboring parcels;
- Location of all existing structures on site;
- Clearly show property lines, streets, easements, and setback measurements from property lines;
- Any other information supporting your request or illustrates the need of the deviation; and
- Signed written consent from owners of all properties affected by deviation (properties abutting the property).

7. **Packets:** Two (2) packets and a flash drive – any digital documents need to have a resolution of 300 dpi. One (1) packet must be labeled “Original” and contain a signed and notarized Owner Affidavit.

-
- Notes:
- (i) Application and map submittals must comply with all specific criteria as established in the Washoe County Development Code and/or the Nevada Revised Statutes.
 - (ii) Appropriate map engineering and building architectural scales are subject to the approval of Planning and Building and/or Engineering.
 - (iii) All oversized maps and plans must be folded to a 9” x 12” size.
 - (iv) Based on the specific nature of the development request, Washoe County reserves the right to specify additional submittal packets, additional information and/or specialized studies to clarify the potential impacts and potential conditions of development to minimize or mitigate impacts resulting from the project. No application shall be processed until the information necessary to review and evaluate the proposed project is deemed complete by the Director of Planning and Building.



LAND SURVEYORS
CIVIL ENGINEERS
LAND USE PLANNERS

April 12, 2022

Chris Bronczyk
Washoe County Planning
P.O. Box 11130
Reno, NV 89520-0027

Re: WTM22-003 (W. 2nd Avenue Highlands TSM) – Director’s Modification

Dear Chris:

Per our recent conversation, it is understood that you need a specific request and fees for the director’s modification that was identified as part of the common open space tentative subdivision map application. This letter formalizes request for the director’s modification and the required fee amount is provided with this letter.

The specific request for a director’s modification relates to section 110.438.45(c) that states:

“Finish grading shall not vary from the natural slope by more than ten (10) feet in elevation. Exposed finish grade slopes greater than ten (10) feet in height may be allowed upon the approval of a director’s modification of standards by the Director of Community Development upon recommendation by the County Engineer.”

The total surface area of the property that contains fill material that exceed 10 feet from natural slope is 0.78+/- acres and the total surface area of the site that is proposed to contain cuts in excess of 10 feet is 0.77+/- acres.

The overriding reason that the cut and fill thresholds need to be exceeded is that the topography of the land is varied. In order to provide smooth grade transitions within the development and to provide positive drainage and code required street grades, the cut and fill limits that are set within the code need to be crossed.

The applicable section of code identifies specific determinations that need to be made for approval of a director’s modification. Following is a listing of those determinations and a response to each.

- (i) The proposed cut and/or fill slopes include stepped-back structural containment (retaining walls) that form terraces, and;

Response - Retaining walls will be utilized to reduce the extents of cut and fill slopes. Walls have been terraced as applicable for combined wall heights over 6’ and are shown away from building foundations.

- (ii) The proposed terraces include landscaping, are a minimum of six (6) feet in width and have a slope flatter than three horizontal to one vertical (3:1).

Response - Terraces will be landscaped, a minimum of 6’ in width, with a 3:1 or flatter slope between the walls. The only place on the property where terraced walls are shown and anticipated are on Lots 14 & 15.

- (iii) Retaining walls used to create terraces are limited to a maximum vertical height of ten (10) feet, when located outside any required yard setback.

Response - Terraced walls will be less than 10' in total combined height. The terraced walls on Lots 14 & 15 are a total combined height of 9' and located outside the building setback.

- (iv) Terrace widths shall be at least sixty (60) percent of the height of the higher of the two (2) adjacent retaining walls.

Response - The terraced walls on Lots 14 & 15 are 4.5' tall, each. 60% of the wall height would be 2.7'. Per (ii), the bench widths will be at least six (6) feet.

- (v) Bench widths shall be at least four (4) feet.

Response - Slopes are not anticipated to be tall enough to warrant benching by using walls to limit the extents of cut and fill slopes.

I hope that this information provides what you need for the formal request for a director's modification as has been requested for review as part of the overall tentative subdivision map for this project.

Please feel free to contact me if you have any questions regarding the provided information.

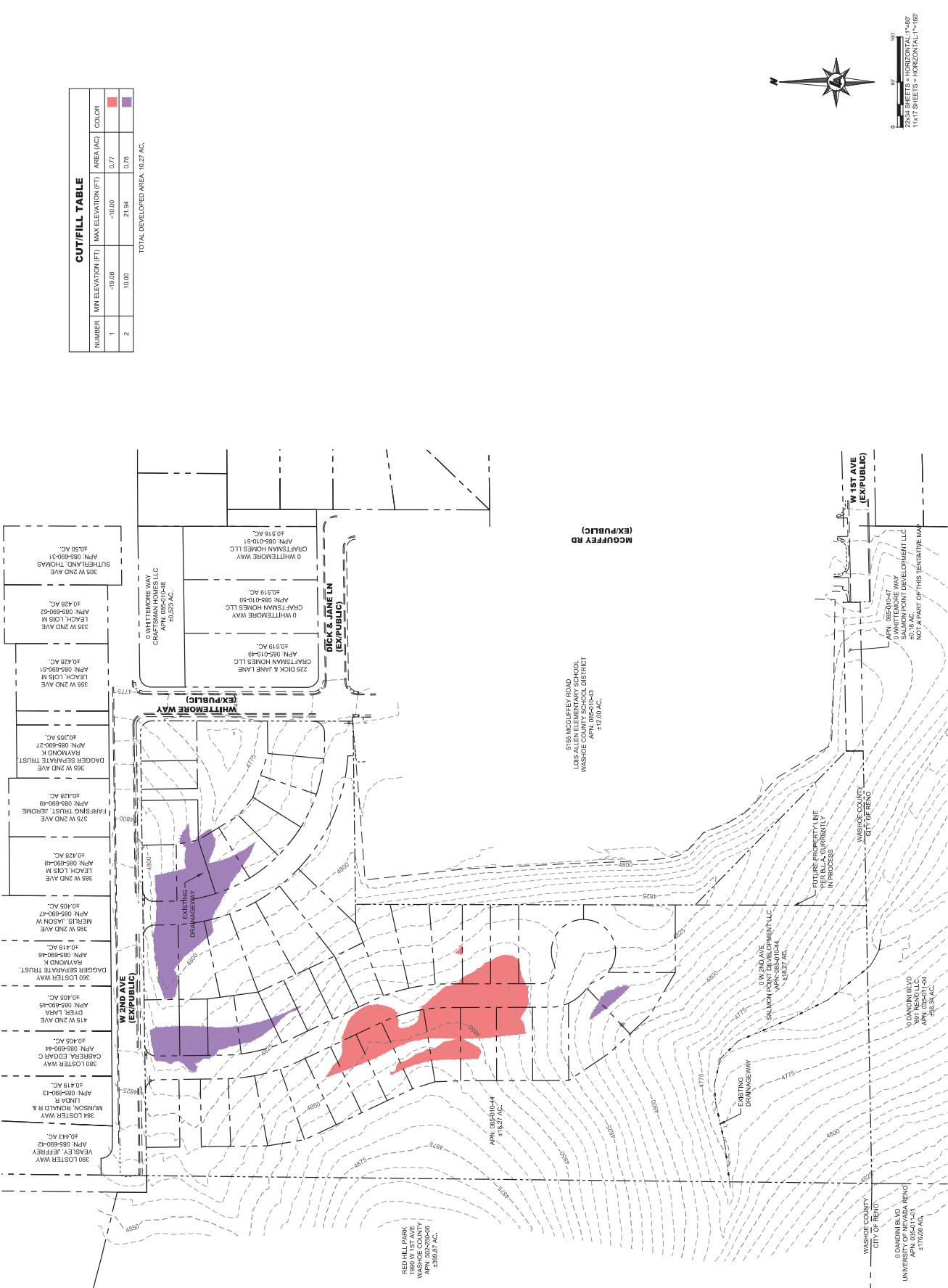
Sincerely,



R. David Snelgrove, AICP
Planning & Right-of-Way Manager

Att: Cuts and Fills Exceeding 10 Feet

**WTM22-003
EXHIBIT G**



CUT/FILL TABLE				
NUMBER	MIN ELEVATION (FT)	MAX ELEVATION (FT)	AREA (AC)	COLOR
1	-18.08	-10.00	0.77	Red
2	10.00	21.34	0.78	Purple

TOTAL DEVELOPED AREA: 10.27 AC.

LUMOS & ASSOCIATES
 9222 PROTOTYPE DRIVE
 REDO, WY 80011
 WWW.LUMOS.COM
 INFO@LUMOS.COM

THIS DOCUMENT IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEMS. THIS DOCUMENT IS TO BE USED ONLY FOR THE PROJECT FOR WHICH IT WAS PREPARED.

SALMON POINT DEVELOPMENT
**W 2ND AVE HIGHLANDS
 COMMON OPEN SPACE TENTATIVE MAP**
 CUTS/FILLS EXCEEDING 10'
 WASHOE NEVADA

REV	DATE	DESCRIPTION	BY

MARCH 2022

TENTATIVE MAP

TABLES SHOWN ON ORIGINAL DRAWING
 IF NOT ON THIS SHEET, PLEASE REFER TO ORIGINAL DRAWING

EX 1

DRAWN BY: MMC
 CHECKED BY: JTK
 WRA
 10/27/2022
 SHEETS: 12 OF 13



0 50 100
 22X34 SHEETS - HORIZONTAL - 1/80'
 11X17 SHEETS - HORIZONTAL - 1/80'



W. 2ND AVE HIGHLANDS

COMMON OPEN SPACE
TENTATIVE MAP
APPLICATION

March 8, 2022

9222 Prototype Drive
Reno, Nevada 89521
T 775.827.6111
F 775.827.6122
www.LumosInc.com

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

Project Information		Staff Assigned Case No.: _____	
Project Name: W. 2nd Avenue Highlands Common Open Space Tentative Subdivision Map			
Project Description: Requested is a common open space tentative subdivision map for 48 residential lots on a currently 18.27+/- acre parcel in Sun Valley. A boundary line adjustment will take 1.05+/- acres from the parcel area. Considerations for Grading and Hillside Development are also included as part of the request.			
Project Address: 0 W 2ND AVE WASHOE COUNTY NV 89433			
Project Area (acres or square feet): Parcel is currently 18.27 +/- acres - will be 17.22+/- acres after BLA			
Project Location (with point of reference to major cross streets AND area locator): Project is located at the westernmost terminus of 2nd Avenue in Sun Valley. The project is west of Lois Allen Elementary school.			
Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
085-010-44	18.27+/-		
Indicate any previous Washoe County approvals associated with this application: Case No.(s).			
Applicant Information (attach additional sheets if necessary)			
Property Owner:		Professional Consultant:	
Name: Salmon Point Development, LLC		Name: Lumos & Associates	
Address: 2560 Granite Springs Road		Address: 9222 Prototype Drive	
RENO NV	Zip: 89519	Reno, NV	Zip: 89521
Phone: 775-303-3789	Fax:	Phone: 775.827-6111	Fax:
Email: ron.salmonpoint@gmail.com		Email: wanderson@lumosinc.com	
Cell:	Other:	Cell:	Other:
Contact Person: Ronald W. Bath		Contact Person: Billy Anderson, P.E.	
Applicant/Developer:		Other Persons to be Contacted:	
Name: Same as above		Name: CFA, Inc	
Address:		Address: 1150 Corporate Blvd.	
	Zip:	Reno, NV	Zip: 89502
Phone:	Fax:	Phone: 775-856-7073	Fax:
Email:		Email: dsnelgrove@cfareno.com	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person: Dave Snelgrove, AICP	
For Office Use Only			
Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

Property Owner Affidavit

Applicant Name: SALMON POINT DEVELOPMENT LLC

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, Ronald W. Bath, Manager of Salmon Point Development, LLC
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true, and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Building.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 085-010-44

Printed Name Ronald W. Bath

Signed [Signature]

Address 2560 Granite Springs Rd.
Reno, NV 89519

Subscribed and sworn to before me this
2nd day of March, 2022

Lynell T. Higashi
Notary Public in and for said county and state

My commission expires: July 7, 2023

(Notary Stamp)



*Owner refers to the following: (Please mark appropriate box.)

- Owner
- Corporate Officer/Partner (Provide copy of record document indicating authority to sign.)
- Power of Attorney (Provide copy of Power of Attorney.)
- Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- Property Agent (Provide copy of record document indicating authority to sign.)
- Letter from Government Agency with Stewardship

Tentative Subdivision Map Application Supplemental Information

(All required information may be separately attached)

1. What is the location (address or distance and direction from nearest intersection)?

South of W. 2nd Avenue between Chocolate Drive and Whittemore Way.

2. What is the subdivision name (proposed name must not duplicate the name of any existing subdivision)?

W. 2nd Avenue Highlands

3. Density and lot design:

a. Acreage of project site	18.27+/- AC (Current Parcel) - 17.22+/- AC after BLA
b. Total number of lots	48 residential lots
c. Dwelling units per acre	2.8+/- du/acre
d. Minimum and maximum area of proposed lots	4,999+/- SF (Min) and 15,058+/- SF (Max)
e. Minimum width of proposed lots	50 feet
f. Average lot size	7,336+/- SF

4. What utility company or organization will provide services to the development:

a. Sewer Service	SVGID
b. Electrical Service	NV Energy
c. Telephone Service	ATT
d. LPG or Natural Gas Service	NV Energy
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	Charter Spectrum
g. Water Service	SVGID

5. For common open space subdivisions (Article 408), please answer the following:

- a. Acreage of common open space:

7.56+/- AC - OS Area A (Detention) is 0.51+/- acres and OS Area B (Sloped Area) 7.05+/- acres

- b. What development constraints are within the development and how many acres are designated slope, wetlands, faults, springs, and/or ridgelines:

The entire common open space area associated with the project is in steeper slopes and will be preserved.

- c. Range of lot sizes (include minimum and maximum lot size):

Residential lots ranging from 4,999+/- SF to 15,058+/- SF

d. Proposed yard setbacks if different from standard:

Setbacks are proposed to follow MDS Standards in WCDC

e. Justification for setback reduction or increase, if requested:

No reduction to setbacks is requested.

f. Identify all proposed non-residential uses:

No non-residential uses are proposed.

g. Improvements proposed for the common open space:

Trail connections disturbed with development will be realigned and connected.

h. Describe or show on the tentative map any public or private trail systems within common open space of the development:

Trail connections are shown on the plans for the project.

i. Describe the connectivity of the proposed trail system with existing trails or open space adjacent to or near the property:

Trails connect to the Red Hill Park trail system.

j. If there are ridgelines on the property, how are they protected from development?

No ridgelines exist on the property.

k. Will fencing be allowed on lot lines or restricted? If so, how?

Yes. typical residential redwood fencing will be allowed on side and rear lot lines.

l. Identify the party responsible for maintenance of the common open space:

An HOA or LMA will be responsible for common area open space.

6. Is the project adjacent to public lands or impacted by "Presumed Public Roads" as shown on the adopted April 27, 1999 Presumed Public Roads (see Washoe County Engineering website at <http://www.washoecounty.us/pubworks/engineering.htm>). If so, how is access to those features provided?

The property is adjacent to County Park Land and a Public School. No Presumed Public Roads exist in the area of the parcel.

7. Is the parcel within the Truckee Meadows Service Area?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
---	-----------------------------

8. Is the parcel within the Cooperative Planning Area as defined by the Regional Plan?

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes, within what city?
------------------------------	--	---------------------------

9. Has an archeological survey been reviewed and approved by SHPO on the property? If yes, what were the findings?

None of which we are aware.

10. Indicate the type and quantity of water rights the application has or proposes to have available:

a. Permit #		acre-feet per year	
b. Certificate #		acre-feet per year	
c. Surface Claim #		acre-feet per year	
d. Other #		acre-feet per year	

a. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

Water Rights will need to be purchased for the project.

11. Describe the aspects of the tentative subdivision that contribute to energy conservation:

More efficient use of infrastructure is provided by Common Open Space Lotting and positive solar orientation for over 1/2 of the lots.

12. Is the subject property in an area identified by Planning and Building as potentially containing rare or endangered plants and/or animals, critical breeding habitat, migration routes or winter range? If so, please list the species and describe what mitigation measures will be taken to prevent adverse impacts to the species:

No

13. If private roads are proposed, will the community be gated? If so, is a public trail system easement provided through the subdivision?

No private roads are proposed.

14. Are there any applicable policies of the adopted area plan in which the project is located that require compliance? If so, which policies and how does the project comply?

Please see planning policy review in Tab B for policies and responses.

15. Are there any applicable area plan modifiers in the Development Code in which the project is located that require compliance? If so, which modifiers and how does the project comply?

No area plan modifiers apply to the project.

16. Will the project be completed in one phase or is phasing planned? If so, please provide that phasing plan:

No phasing is proposed.

17. Is the project subject to Article 424, Hillside Development? If yes, please address all requirements of the Hillside Ordinance in a separate set of attachments and maps.

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, include a separate set of attachments and maps.
---	-----------------------------	---

18. Is the project subject to Article 418, Significant Hydrologic Resources? If yes, please address Special Review Considerations within Section 110.418.30 in a separate attachment.

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes, include separate attachments.
------------------------------	--	---------------------------------------

Grading

Please complete the following additional questions if the project anticipates grading that involves: (1) Disturbed area exceeding twenty-five thousand (25,000) square feet not covered by streets, buildings and landscaping; (2) More than one thousand (1,000) cubic yards of earth to be imported and placed as fill in a special flood hazard area; (3) More than five thousand (5,000) cubic yards of earth to be imported and placed as fill; (4) More than one thousand (1,000) cubic yards to be excavated, whether or not the earth will be exported from the property; or (5) If a permanent earthen structure will be established over four and one-half (4.5) feet high:

19. How many cubic yards of material are you proposing to excavate on site?

45,000+/- CY

20. How many cubic yards of material are you exporting or importing? If exporting of material is anticipated, where will the material be sent? If the disposal site is within unincorporated Washoe County, what measures will be taken for erosion control and revegetation at the site? If none, how are you balancing the work on-site?

Cut and fill estimates balance. It is expected that some select material import will be necessary for roads.
--

21. Can the disturbed area be seen from off-site? If yes, from which directions, and which properties or roadways? What measures will be taken to mitigate their impacts?

Grading will be visible from the north and east. w. 1st Ave. and Whittmore Way
--

22. What is the slope (Horizontal/Vertical) of the cut and fill areas proposed to be? What methods will be used to prevent erosion until the revegetation is established?

3:1 is the maximum graded slope. Some walls will be incorporated.

23. Are you planning any berms and, if so, how tall is the berm at its highest? How will it be stabilized and/or revegetated?

No berms are proposed.

24. Are retaining walls going to be required? If so, how high will the walls be, will there be multiple walls with intervening terracing, and what is the wall construction (i.e. rockery, concrete, timber, manufactured block)? How will the visual impacts be mitigated?

Yes. Maximum of 6-feet. Terracing is proposed on Lots 14 & 15. Wall type has not been defined at this point.
--

25. Will the grading proposed require removal of any trees? If so, what species, how many, and of what size?

No. No trees exist on the site.

26. What type of revegetation seed mix are you planning to use and how many pounds per acre do you intend to broadcast? Will you use mulch and, if so, what type?

A re-vegetation seed mix is provided on preliminary landscape plan.

27. How are you providing temporary irrigation to the disturbed area?

Temporary irrigation will be provided, if necessary.

28. Have you reviewed the revegetation plan with the Washoe Storey Conservation District? If yes, have you incorporated their suggestions?

No.

Request to Reserve New Street Name(s)

The Applicant is responsible for all sign costs.

Applicant Information

Name: Lumos & Associates

Address: 9222 Prototype Drive
South of W. 2nd Avenue between Chocolate Drive and Whittemore Way.

Phone : 775-827-6111 Fax: _____

Private Citizen Agency/Organization

Street Name Requests

(No more than 14 letters or 15 if there is an "i" in the name. Attach extra sheet if necessary.)

Beanstalk Lane	
Riding Hood Street	

If final recordation has not occurred within one (1) year, it is necessary to submit a written request for extension to the coordinator prior to the expiration date of the original

Location

Project Name: W. 2nd Avenue Highlands Common Open Space Tentative Subdivision Map

Reno Sparks Washoe County

Parcel Numbers: 085-010-44

Subdivision Parcelization Private Street

Please attach maps, petitions and supplementary information.

Approved: _____ Date: _____

Regional Street Naming Coordinator
 Except where noted

Denied: _____ Date: _____

Regional Street Naming Coordinator

Washoe County Geographic Information Services

1001 E. Ninth Street
Reno, NV 89512-2845

Phone: (775) 328-2325 - Fax: (775) 328-6133

Joe Ketron, E.I.

From: NoReply_WashoeCountyStreets <NoReply@washoecounty.gov>
Sent: Monday, February 14, 2022 2:23 PM
To: Joe Ketron, E.I.
Cc: Streetnames@washoecounty.us
Subject: Street Name Request Status - 2nd Avenue Highlands, 2/14/2022 10:13:36 AM

Categories: Filed by Newforma

Caution! This message was sent from outside your organization.

[Allow sender](#) | [Block sender](#)

Washoe County - Community Services

Street Name Reservation Status

2nd Avenue Highlands, Submitted: 2/14/2022 10:13:36 AM

Lumos & Associates, Inc.

Joe Ketron

9222 Prototype Dr.

Reno, NV

The following street name(s) have been **Accepted**
and reserved into the Washoe County Master Street Directory Reservation table

Jurisdiction: WASHOE COUNTY, Parcel Numbers: 085-010-44,085-010-47

Accepted Reservations		
Requested Street Name	Description	Expiration Date
Beanstalk	2nd Avenue Highlands	03/14/2023
Riding Hood	2nd Avenue Highlands	03/14/2023

****Note:** Washoe County GIS reserves the right to rescind any reserved street name before recordation, in accordance with public safety concerns.

****Note:** A street name reservation is valid for one year after it is ACCEPTED. If the name does not appear on a recorded document within one year of acceptance, then there is no obligation to honor the reservation. Forward this email or send a request to StreetNames@washoecounty.gov for renewal, once reservation expires.

All future street name requests:

1. Fill out online [Form](#)
2. Do NOT include USPS suffix types (e.g. AVE, ST, RD, CT, DR, LN, WAY, CIR, PL, TRL, etc.); that comes later.
3. No more than 14 letters, 15 if there is an “i” in the name (spaces count as a character).
4. Special characters are NOT allowed (‘, “, ` , ~, /, \, -, *, #, &, @, %, +).
5. Abbreviations for MOUNT (MT) and SAINT (ST) are NOT allowed.

For the purposes of Emergency Management, street names will reject if the street name already exists, appears similar, or sounds phonetically similar to an existing street name.

To check proposed street names against already existing or reserved in the Washoe County Master Street Directory click:

1. [Existing streets](#)
2. [Reserved streets](#)

Regional Street Naming & Mapping [Homepage](#)

Regional Services - GIS
(775) 328 - 2344
1001 E 9th St, Bldg C
Reno, NV 89512

TAB A

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WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION

PROJECT NARRATIVE

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Assessor's Parcel Maps with Site Layout	
Vesting Deeds with Legal Description	
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WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION PROJECT NARRATIVE

Property Location

The subject property is located south of West 2nd Avenue, between Whittemore Way, and Chocolate Drive. The subject parcel is currently 18.27+/- acres in size. The subject parcel is identified as APN 085-010-44 by the Washoe County Assessor's Office. A Boundary Line Adjustment (BLA) application has been submitted that has requested that a 1.05+/- acre triangular portion of the subject parcel be combined with APN 085-010-47.

An aerial based vicinity map is provided below showing the subject parcel location, the BLA location, and the uses and the general lot patterning of the surrounding properties.

Vicinity Map



Project Request

Requested is a common open space tentative map to create a total of 48 single family residential lots on an existing 18.27+/- acre parcel. A boundary line adjustment application has been submitted to remove 1.05+/- acres from the subject parcel, which will leave 17.22+/- acres in the subject parcel after approval and recordation of the BLA. A common open space development has been proposed to consolidate the development area into the norther portion of the site. The northern portion of the site contains, predominately 0-15% slopes, which are deemed to be "most developable" by the Washoe County Master Plan and Developable Code.

The project development plans propose grading that will cross thresholds that are identified in Article 438 of the Washoe County Development Code. The specific sections of Article 438 that are requested for consideration and approval with this application area are as follows::

110.438.35 (a)(1) – Grading on slopes less than or flatter than 15%

Area - (i)(C) – Grading of an area of more than four (4) acres on a parcel of any size

Volume (ii)(A) – Excavation of five thousand (5,000) cubic yards or more whether the material is intended to be permanently located on the project site or temporarily stored on a site for relocation to another, final site.

110.438.35 (a)(2) – Grading on slopes of 15% or greater (steeper)

Volume (i)(C) – Grading of an area of more than two (2) acres on a parcel of any size

Volume (ii)(A) – Importation of five thousand (1,000) cubic yards or more whether the material is intended to be permanently located on the project site or temporarily stored on a site for relocation to another, final site.

110.438.35(a)(3) – Any driveway or road that traverses any slope of thirty (30) percent or greater (steeper)

110.438.45(c) – Finish grading varying by more than 10-feet from natural slope. There are areas throughout the site where either cuts or fills will exceed this threshold and those areas can be seen on the cut and fill map provided with this application package In Tab C. This standard is typically reviewed under a director's modification, but it is requested that this instance be reviewed along with the Tentative Subdivision Map request by the Planning Commission.

The minimum lot size proposed is 4,999+/- SF and the maximum lot size is 15,058+/- SF. The property is Master Planned Suburban Residential (SR) and zoned Medium Density Suburban (MDS). Only 48 custom home lots are proposed with the project although 51 are allowed, after the Boundary Line Adjustment.

Additional considerations for the review of this project include review relative to the standards containing in Article 408 (Common Open Space Development) and Article 424 (Hillside Development). A site analysis/review is provided in this Narrative with reference to maps within the application. The review sections commence on Page 4 of this narrative.

Project Background

A parcel map was approved that created this parcel. The parcel map was recorded on June 29, 1990, as file no. 1409959 in the Washoe County Recorder's Office and is identified as Parcel Map 2450. This parcel map created the subject parcel 085-010-44. An additional parcel (not associated with this application) was also created that allowed for the siting and construction of the Lois Allen Elementary School directly east of the site.

The property is defined by Washoe County to sit within areas considered to be most suitable per the Sun Valley Development Suitability Map from the Sun Valley Area Plan. This category is reserved for land that falls within the 0% - 15% slope range without any development constraint areas. The only constraint areas on the property are identified to be some moderately sloped land in the center of the property running south to the parcel boundary. A copy of the Sun Valley Development Suitability Map is provided in Tab D with this application.

The site is defined as being part of the Suburban Character Management Area (SCMA) within the Sun Valley Area Plan. This area will contain residential densities of one unit per acre or greater. The SCMA is the designated growth area in Sun Valley.

Existing Site Condition Photos

The 18.27+/- acres is currently vacant with larger lot/rural residential development consisting of 12,000 sf properties, adjacent to it. The properties surrounding the subject property are served by a private water company, the Sun Valley General Improvement District (SVGID) and connects to the Washoe County municipal sewer system. Following are photos of the site that show the land condition and the relatively gentle slope to the land.

WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION PROJECT NARRATIVE



Photo of proposed development area of the site, south of W. 2nd Avenue. View to the south along W. 2nd Avenue approximately midblock between Chocolate Drive and Whittemore Way.

Photo of proposed development area of the site, south of W. 2nd Avenue. View to the south along W. 2nd Avenue approximately midblock between Chocolate Drive and Whittemore Way.



Photo from the south property line showing some of the steeper slopes, existing trail access and some illegal dumping that has occurred over time.

Article 408 - Common Open Space Site Analysis Site Analysis/Review

Following are the site analysis requirements identified in Article 408 for a Common Open Space Development:

- (a) Location Map. A general location map providing the context of location and vicinity of the site.

A location map is provided on the first page of this narrative and on the cover sheet for the project plans in Tab B.

- (b) Land Use. Current and planned land use on the site and adjacent current, planned and approved, but unbuilt land uses.

The property zoning is MDS, which allows for up to 51 lots on the 17.22+/- acre property (after the boundary line adjustment). The total number of residential lots proposed with this project is 48.

- (c) Existing Structures. A description of the location, physical characteristics, condition and proposed use of any existing structures.

No Structures exist on the site.

- (d) Existing Vegetation. A description of existing vegetation, including limits of coverage, and major tree sizes and types. In the instance of heavily wooded sites, typical tree sizes, types and limits of tree coverage may be substituted.

The existing vegetation on the site consists of natural brush and shrubs. No trees exist on the project site.

- (e) Prevailing Winds. An analysis of prevailing winds.

Prevailing winds are from the west.

- (f) Topography. An analysis of slopes on the site using a contour interval of five (5) feet, or at a contour interval appropriate for the site and agreed to by the Director of Community Development.

A slope analysis map with the project lotting overlaid is provided with this project plan sheets.

- (g) Soil. An analysis of the soil characteristics of the site using Soil Conservation Service (SCS) information.

A preliminary geotechnical report has been provided with this application package.

- (h) Natural Drainageways. Identification of natural drainageways on and adjacent to the site.

No drainageways that are identified as significant hydrologic resources exist on the development area of the site.

- (i) Wetlands and Water Bodies. Identification of existing or potential wetlands and water bodies on the site.

There are no wetlands or water bodies located on the project site.

- (j) Flood Hazards. Identification of existing and potential flood hazards using Federal Emergency Management Agency (FEMA) information.

The subject property is in unshaded Zone X.

- (k) Seismic Hazards. Identification of seismic hazards on or near the site, including location of any Holocene faults.

The preliminary soils report provided for the project does not identify any faulting on the subject parcel.

- (l) Avalanche Hazards. An analysis of avalanche and other landslide hazards.

There are no avalanche hazards on the site.

- (m) Sensitive Habitat and Migration Routes. An analysis of sensitive habitat areas and migration routes.

Review of the sensitive habitat and migration route maps within the Washoe County Master Plan did not show that any such areas exist on the subject parcel.

- (n) Significant Views. A description and analysis of all on and off site significant views.

Due to the existing slopes on the subject parcel, views to the north and west, across Sun Valley exist on the northern portion of the site, where the development area is proposed. The southern portion of the site (area to remain as open space) will offer views to the south across the Truckee Meadows and toward Mt. Rose.

- (o) Easements. A description of the type and location of any easements on the site.

Only Public Utility Easements (PUE's), located along some of the property boundaries, currently exist on the subject property. This is evidenced by Parcel Map #2450, Doc # 1409959 as recorded in the Washoe County Recorder's Office (copy provided in Tab D with this application).

WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION

PROJECT NARRATIVE

- (p) Utilities. A description of existing or available utilities, and an analysis of appropriate locations for water, power, sanitary sewer and storm water sewer facilities.

Utilities to serve the project exist adjacent to the project development site.

- (q) Appropriate Access Points. An analysis of appropriate access points based upon existing and proposed streets and highways and site opportunities and constraints.

Access to the project will be served off W. 2nd Avenue and Whittemore Way. RTC has plans to provide connector roads to link to U.S. 395 and Pyramid Highway that is conceptually designed to include a connector linkage from Dandini Boulevard to W. 1st Avenue and W. 2nd Avenue in Sun Valley at or near Chocolate Drive. The image below is from an RTC Preferred Alternatives Map available on RTC's website.



- (r) Other Information. All other information deemed appropriate and necessary by the Director of Community Development.

No other information was identified prior to application submittal.

Article 424 - Hillside Development Site Analysis/Review

Following are the site analysis requirements identified in Article 424 for a Hillside Development

(a) Site Analysis.

(1) Major topographic conditions including ridgelines, ravines, canyons and knolls;

There are no ridgelines, ravines, canyons or knolls on the subject property or development area.

(2) Preliminary geological conditions including major rock outcroppings, slide areas and areas underlain with faults that have been active during the Halocene epoch of geological time;

A geotechnical report is provided with this application and no Halocene faults existing on or near the site. Additionally, there are no major rock outcroppings or slide areas on the site,

(3) Preliminary soil conditions including soil type, expansiveness, slumping, erodibility and permeability;

A geotechnical report is provided with this application. Please refer to Tab C.

(4) Significant surface hydrological conditions including natural drainage courses, perennial streams, floodplains, wetlands and ponding areas;

A drainageway is identified on the southern portion of the property and will be within the 7.05+/- acre natural area (Open Space B) shown on the site plan. It should be noted that this drainageway is not shown on Map 110.418.05.1 (Significant Hydrologic Resources).

(5) The location and types of significant vegetation including known rare and endangered plant species and general plant communities;

No known rare or endangered plan species were identified through the initial project design and site review work.

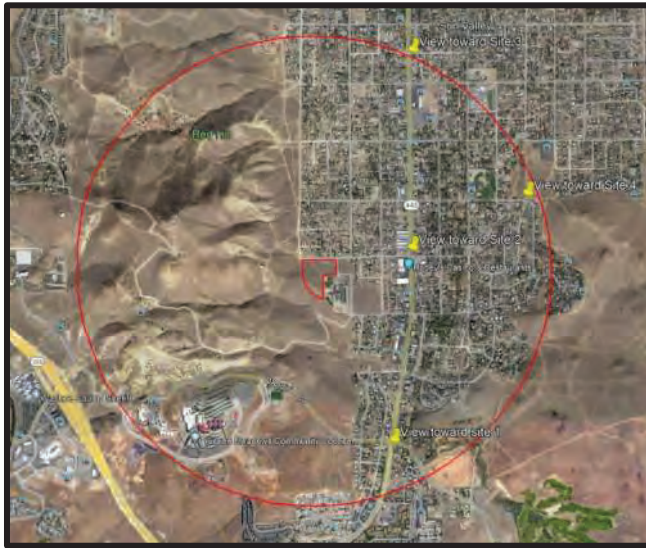
(6) Habitat areas for rare or endangered animal species;

Review of the sensitive habitat and migration route maps within the Washoe County Master Plan did not show that any such areas exist on the subject parcel.

(7) Preliminary viewshed analysis including cross sections of views to and from the development site from all major roadways within one (1) mile of the project site, and from major focal points on the project site;

WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION PROJECT NARRATIVE



Viewshed Aerial Map. 1 mile radius shown from center of development site of subject project.



View Toward Site 1 – Site not visible.

WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION PROJECT NARRATIVE



View Toward Site 2 – Site very limited on visibility.



View Toward Site 3 – Site not visible.



View Toward Site 4 – Site not visible.

(8) How the development responds to the unique conditions of the hillside; and

The proposed project locates the development area in the most suitable portion of the site, leaving the steeper slopes at the southern end of the property in natural area (Open Space B).

(9) A slope analysis, submitted on a topographic map with contour intervals of at least five (5) feet for planning purposes. This analysis shall indicate the location and amount of land included within the following slope categories, tabulated in acres:

- (i) 0 - 15 percent;
- (ii) 15 - 20 percent;
- (iii) 20 - 25 percent;
- (iv) 25 - 30 percent; and
- (v) Greater than 30 percent.

A slope analysis map using these slope ranges is provided in Tab B.

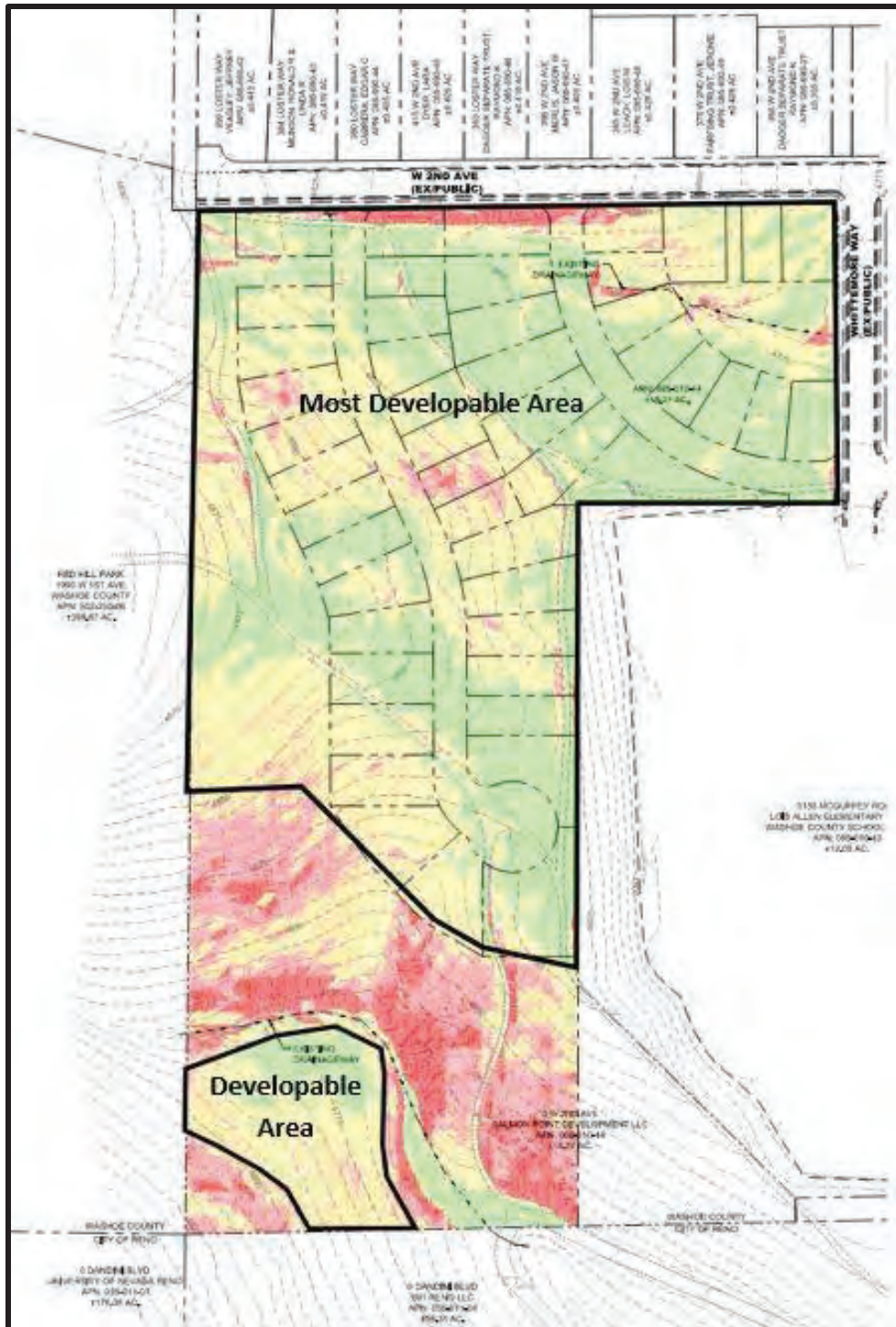
(b) Developable Area Map. A developable area map, prepared pursuant to Section 110.424.20(b).

WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION

PROJECT NARRATIVE

The most suitable areas for development contain the northern 2/3 of the property and a small area at the southern end of the property. Please see the annotated slope analysis map, below showing the areas that would be considered to be most suitable.



(c) Constraint and Mitigation Analysis. A detailed analysis of how the identified constraints will be mitigated and incorporated into the project's design.

The development plan is considerate to the steep slopes by not proposing development within those areas.

(d) Washoe County Master Plan Amendment. All applicants proposing a hillside development requiring a Washoe County Master Plan amendment shall enter into a development agreement with Washoe County pursuant to Article 814, Development Agreements. Supplemental to all other requirements, development agreements for hillside development shall contain the following:

- (1) Agreement by the applicant to seek a Washoe County Master Plan amendment;
- (2) Agreement by Washoe County to process a Washoe County Master Plan amendment request pursuant to the requirements listed in Article 820, Amendment of Master Plan;
- (3) Site analysis as required under Section 110.424.15(a);
- (4) Developable area analysis as required under Section 110.424.20; and
- (5) Calculation and location of density being proposed.

Consideration d. is not applicable as the project request does not include a Master Plan Amendment.

(e) Detailed Contour Analysis. As determined through a pre-application meeting between the applicant and the Department of Community Development, a topographic map with more or less detailed contour intervals may be required by the Director of Community Development for design purposes.

A Slope Analysis map has been prepared and provided using 5-foot contour. The preliminary grading and drainage plan has also been prepared using this same contour interval.

Project Summary

W. 2nd Avenue Highlands Subdivision is proposed to be a 48-lot single-family subdivision that has been designed as a Common Open Space Development, preserving 7.05+/- acres of the site as open space.

Allowed Density

As reference previously in this Project Narrative, the subject property is zoned MDS existing on the entire 17.22+/- acre property (after BLA). Per code density allowed, the property can develop with a maximum of 51 lots. The 48 proposed lots meets the density allowance within Code. The overall density that is proposed is 2.77 DU/AC. Article 408 of the Washoe County Development Code allows for a 3.0 lots per acre, thus the proposed density of the project conforms to the code allowances.

Access, Traffic and Private Roadways

The project will be served by a road that will connect with W. 2nd Avenue at its westernmost point. All streets within 2nd Avenue Highlands Subdivision are proposed to be public street.

Headway Transportation has prepared a trip generation letter for the proposed project. This trip generation letter is provided in Tab C of this application. The estimated average daily trips (ADT) from the 48-lot 2nd Avenue Highlands Subdivision is 452 ADT. AM and PM Peak trip ends are 34 and 45, respectively. The peak hour trips associated with the proposed 48 lots does not meet the threshold for any traffic report or study, per Washoe County Development Code 110.

Fencing

"Good neighbor" Redwood fencing that is typical with the residential lots is proposed to be allowed on the side and rear yard areas of the residential lots within the project. This fencing will provide for privacy and security of the rear yard areas of each lot.

Landscaping

The project will provide landscaping in the form of street trees along W. 2nd Avenue, Whittemore Way and along the proposed new public streets within the subdivision. A preliminary landscape plan is provided in Tab B with this application. A total of 86 trees are provided, per the street frontage requirements of Code and a total of 515 shrubs are identified per the preliminary landscape plan

Open Space A (Detention Basin) – The preliminary landscape plan identifies revegetation within this area. A seed mix for the revegetation areas of the site is provided on the preliminary landscape plan sheet.

Open Space B (Natural Area) – The natural landscaping that currently exists in the southern and western portion of the property that is not proposed for lotting will be retained. Due to the location of this natural area and its proposed retention as open space, it is proposed that this 7.05+/- acre area be dedicated to Washoe County with any necessary access or other easement rights, maintained.

Public Facilities and Infrastructure

Schools – The property is zoned for Lois Allen Elementary School. The property is also zoned for Desert Skies School Middle School and Hug High School.

Fire Station– Emergency fire service is to be provided by the Truckee Meadows Fire Protection District. The nearest TMFPD station is Station 45, located at 110 Quartz Lane, which is just under 2 driving miles from the subject parcel.

Water Service – Water service will be provided by the Sun Valley General Improvement District (SVGID). A SVGID capacity study has been prepared (provided in Tab C) prior to construction of the project and will identify the project water lines and any upgrades that may be necessary to the existing system to serve the project.

Sewer Service – Wastewater service will be provided by the Sun Valley General Improvement District (SVGID). A SVGID capacity study has been prepared (provided in Tab C) prepared prior to construction of the project and will identify the project sewer lines and any upgrades that may be necessary to the existing system to serve the project.

A preliminary sewer report is provided as part of this application in Tab C.

Stormwater – A preliminary drainage report for the project is provided in the “Special Package” submittal that has been made with this application. The conclusion of this report is that a detention basin sized to accommodate 7,800 cubic feet of stormwater is necessary.

Development Statistics

Following are development statistics for W. 2nd Avenue Highlands Subdivision.

Total Parcel Area:	18.27+/- AC
Total Site Area (After BLA)	17.22+/- AC
Maximum Dwelling Units Allowed: (After BLA)	51 Residential Lots
Total Lots Proposed:	48 Residential Lots
Gross Density Proposed:	2.8+/- DU/AC

Areas of Use

Disturbed Area - Residential Lot Area (Street & Detention included):	10.26+/- AC
Open Space A (Detention):	0.51+/- AC
Open Space B (Natural Area):	7.05+/- AC

Lot Sizes

Minimum Lot Size:	4,999+/- SF
Maximum Lot Size:	15,058+/- SF
Average Lot Size:	7,336+/- SF

Setbacks (following MDS standards)

Front Yard	20 feet
Side Yard	8 feet
Rear Yard	20 feet

WEST 2ND AVENUE HIGHLANDS

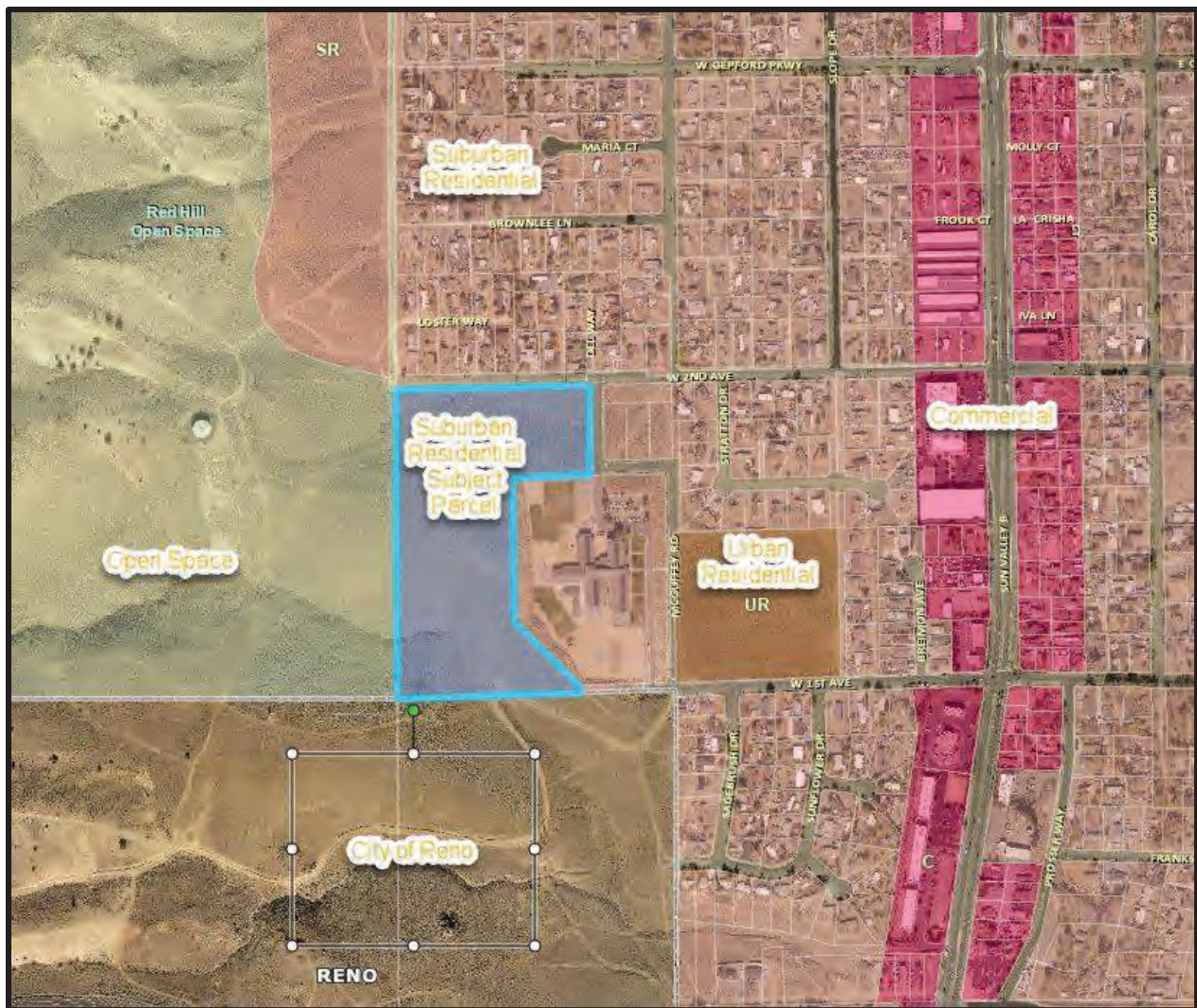
COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION PROJECT NARRATIVE

Master Plan and Zoning Conformance

Master Plan -- The subject property is master planned Suburban Residential within the Sun Valley Area Plan. The entire property is further designated to be within the Sun Valley Suburban Character Management Area of this portion of the Washoe County Master Plan. See Planning/Policy Analysis section of the project description for an identification of the master plan goals and policies that are met with this proposed common open space tentative map request.

Zoning - The subject property is zoned Medium Density Suburban (MDS). The proposed lot sizes are allowed with a common open space development and the proposed density is allowed per the property zoning (MDS).

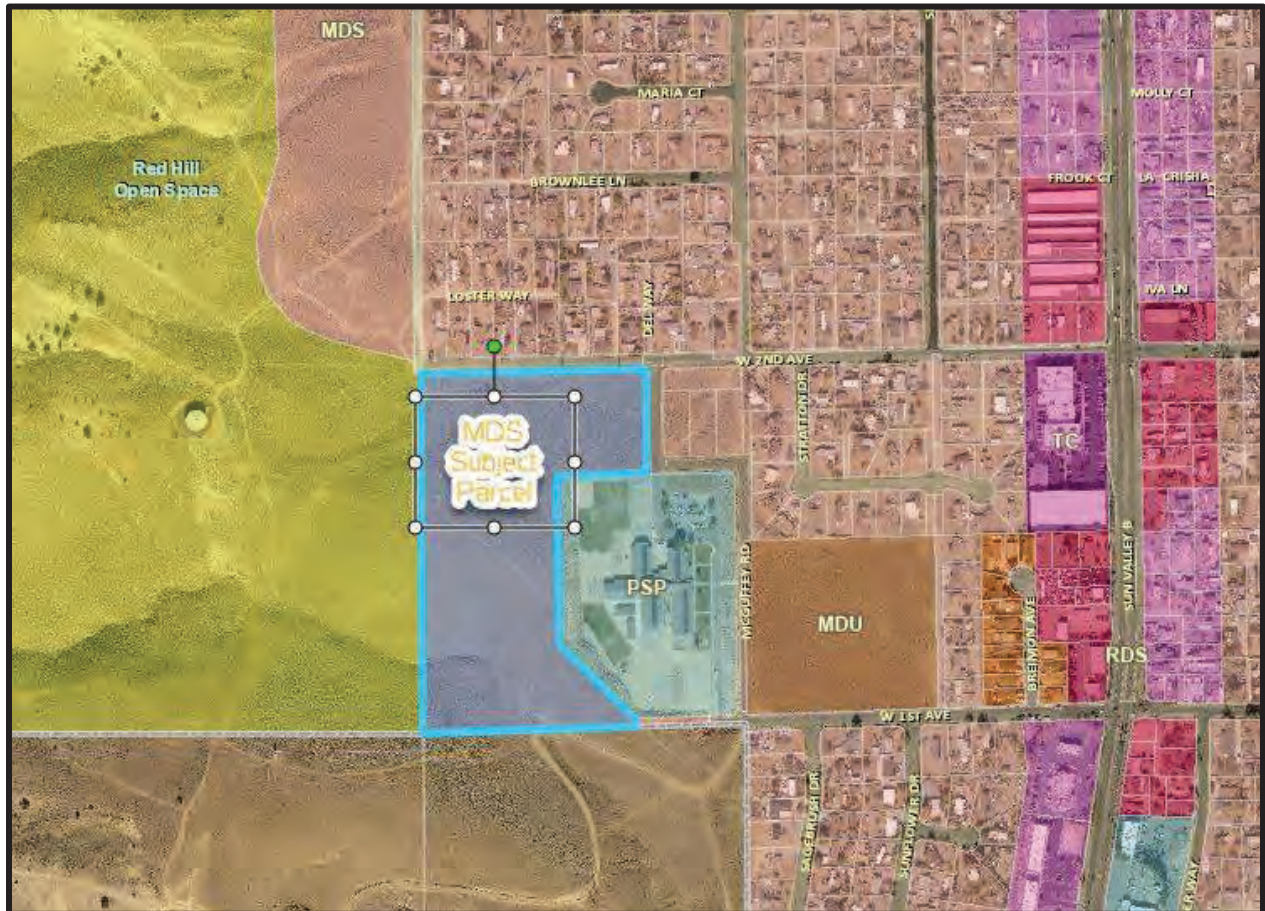
Existing Master Plan Exhibit



WEST 2ND AVENUE HIGHLANDS

COMMON OPEN SPACE TENTATIVE SUBDIVISION MAP APPLICATION PROJECT NARRATIVE

Existing Zoning Exhibit



Tentative Map Findings & Considerations

Tentative Map Findings Review

Article 821 of the Washoe County Development Code identifies findings that must be made in order to approve a common open space tentative map application. Following is an identification of each finding and the applicant's response as to how or why this finding is met with this request.

(a) Plan Consistency.

The proposed 2nd Avenue Highlands Subdivision Tentative Map has been designed as a common open space development to preserve some of the steeper portions of the property to the south of the site. This steeper area currently holds trail access that links to the Washoe County owned Red Hill Open Space area. It is proposed that the 7.05+/- acres of Open Space B, shown on the project plans, be dedicated to Washoe County as an extension of the public land/open space area. The subject property is contained within the Sun Valley Area Plan Suburban Character Management Area. The existing zoning designation of MDS is consistent with the Washoe County Master Plan and policies. Please see the SV Area Plan – Planning Policy Analysis, provided in Tab D of this application for a review of the master plan policies that are specific to the area in which the project is located.

(b) Design or Improvement.

Finding b addresses consistency with master plan goals and policies. Please see the SV Area Plan – Planning Policy Analysis, provided in Tab D of this application for a review of the master plan policies that are specific to the area in which the project is located.

(c) Type of Development

The areas of the subject property identified for development are categorized to be predominately within the area "most suitable" for development per the Development Suitability Map in the Sun Valley Area Plan. A project specific slope analysis map, provided in Tab B of this application shows that the steeper areas of the site, holding some areas of 30% and greater, are to be retained as Open Space within Open Space B as identified on the project plan sheets. The northern portion of the site is identified as most suitable for development and is where the proposed lots are defined under a common open space development

(d) Availability of Services.

Roadway and utilities to serve the site are adjacent to the subject property or nearby. Any extensions or upgrades of utilities will be required to be provided by the project developer.

(e) Fish or Wildlife.

The Washoe County Master Plan Conservation Element Habitat and Migration Route Maps show that wildlife habitats are not shown to exist or have limited intrusion anywhere near the subject property.

(f) Public Health.

A single-family residential home subdivision does not present any anticipated public health problems. The provision of community water and sewer to the site will present a positive by not necessitating well water or septic tanks and leech filed systems that can add to nitrates in the groundwater supply.

(g) Easements

Only Public Utility Easements (PUE's) along some of the property boundaries currently exist on the subject property. This is evidenced by Parcel Map #2450, Doc # 1409959 as recorded in the Washoe County Recorder's Office (copy provided in Tab D with this application.

(h) Access

The project will be served by a road that will connect with W. 2nd Avenue at its westernmost point. All streets within 2nd Avenue Highlands Subdivision are proposed to be public streets.

(i) Dedications

The 2nd Avenue Highland Subdivision is proposed to contain public streets that will be constructed to County standards. These streets will be dedicated to Washoe County after acceptance of construction. Additionally, it is proposed that Open Space B, the natural area of the site be dedicated to Washoe County for inclusion with the County owned Red Hill Open Space area that is directly adjacent to the west.

(j) Energy

The orientation of most of the homes will provide opportunities for solar access.

TAB B



WASHOE
 SALMON POINT DEVELOPMENT
 COMMON OPEN SPACE TENTATIVE MAP
 W 2ND AVE HIGHLANDS
 OVERALL GRADING & EROSION CONTROL PLAN
 NEVADA

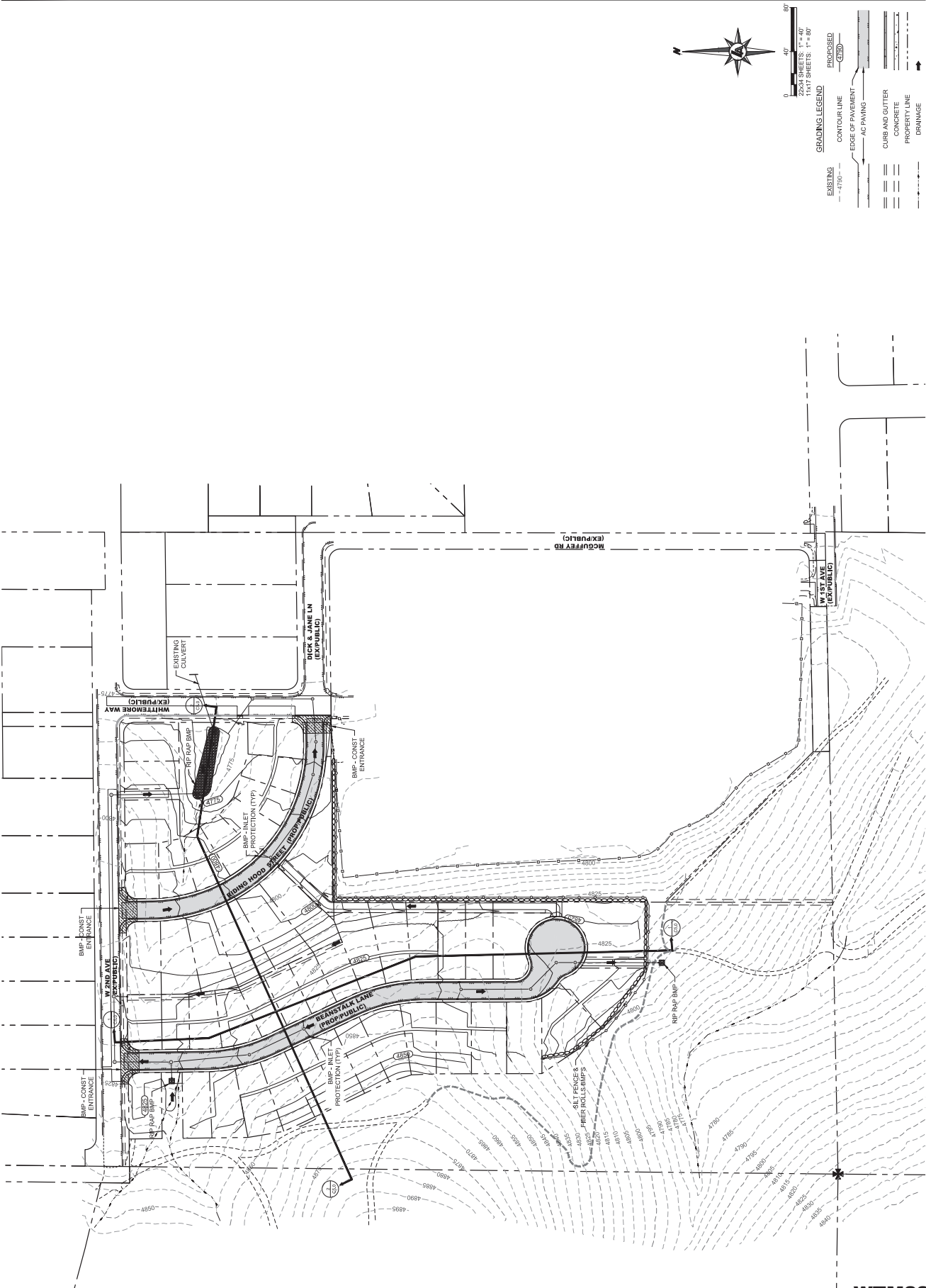
MARCH 2022

TENTATIVE MAP

REV	DATE	DESCRIPTION	BY

BARLES INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET, PLEASE USE THE ORIGINAL DRAWING

C3.0
 DRAWN BY: MMC
 DESIGNED BY: JTK
 CHECKED BY: WBA
 APPROVED BY: JTK
 SHEETS: 8 OF 13



0 40' 80'

20x20 SHEETS: T = 40'
 1x17 SHEETS: T = 80'

- GRADING LEGEND**
- EXISTING CONTOUR LINE: -4700-
 - PROPOSED CONTOUR LINE: -4700-
 - EDGE OF PAVEMENT: AC PAVING
 - CURB AND GUTTER: CONCRETE
 - PROPERTY LINE
 - DRAINAGE

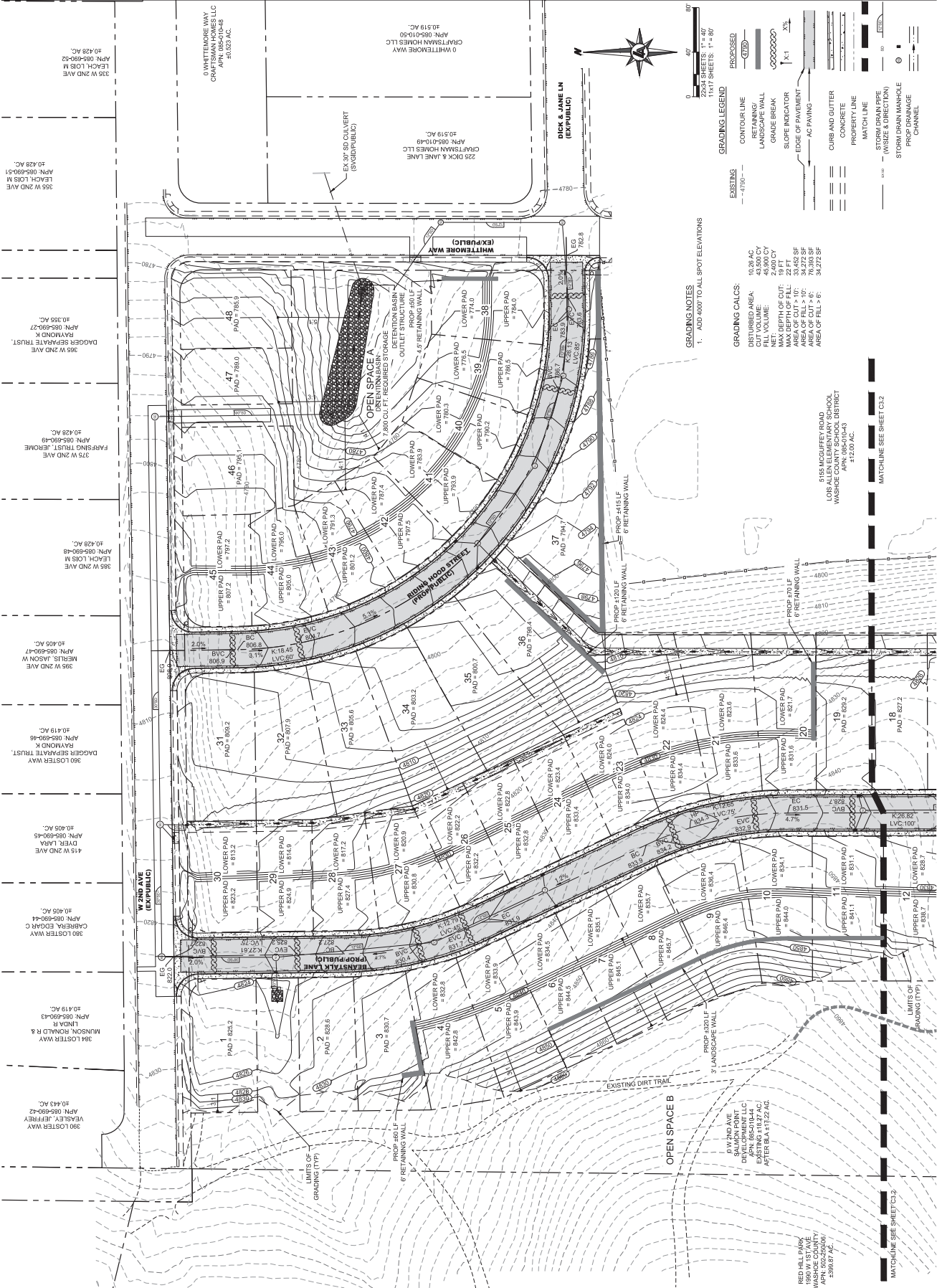


COMMON OPEN SPACE TENTATIVE MAP
W 2ND AVE HIGHLANDS
 SALMON POINT DEVELOPMENT
 WASHOE

REV	DATE	DESCRIPTION	BY

TENTATIVE MAP
 MARCH 2022

DATE: 03/15/2022 07:28 AM
 PROJECT: COMMON OPEN SPACE TENTATIVE MAP
 SHEETS: 8 OF 13



GRADING LEGEND

	CONTOUR LINE
	PROPOSED
	RETAINING WALL
	LANDSCAPE WALL
	GRADE BREAK
	SLOPE INDICATOR
	SLOPE OF PAVEMENT
	AC PAVING
	CURB AND GUTTER
	CONCRETE
	PROPERTY LINE
	MATCH LINE
	STORM DRAIN PIPE
	STORM DRAIN MANHOLE
	CHANNEL

GRADING NOTES

1. AUD 8007 TO ALL SPOT ELEVATIONS

GRADING CALCS:

DISBURSED AREA:	10.28 AC
CUT VOLUME:	43,500 CY
NET VOLUME:	2,480 CY
MAX DEPTH OF CUT:	2.9 FT
AREA OF CUT > 10':	33,452 SF
AREA OF CUT > 6':	36,503 SF
AREA OF FILL > 6':	34,272 SF

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L:\WP\101011001 - W 2nd Ave Highlands TM & SMD\03\2022\0728 AM\81301\COMMON OPEN SPACE TENTATIVE MAP.dwg



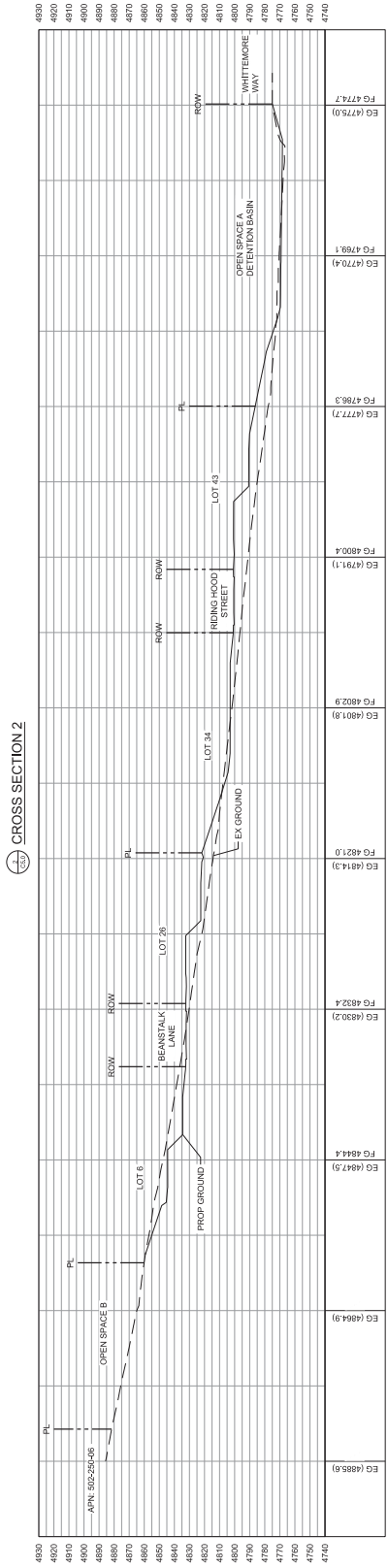
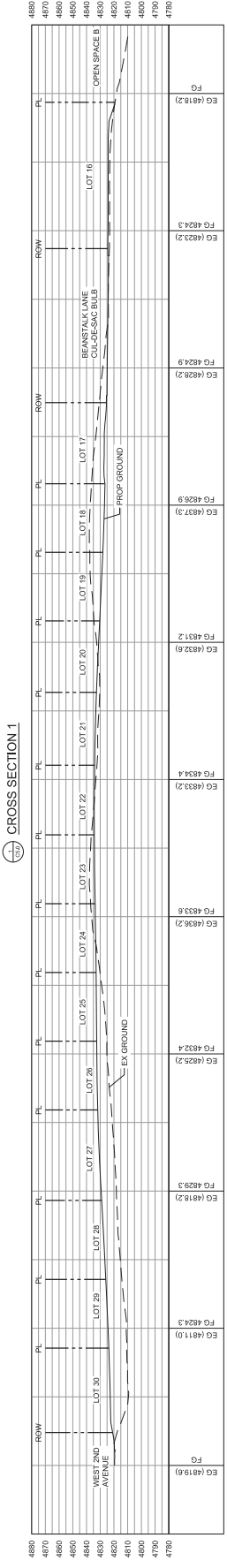
SALMON POINT DEVELOPMENT
 W 2ND AVE HIGHLANDS
 COMMON OPEN SPACE TENTATIVE MAP
 CROSS SECTIONS
 WASHOE
 NEVADA

MARCH 2022
TENTATIVE MAP

REV	DATE	DESCRIPTION	BY

SCALE: 1"=50'
 ORIGINAL DRAWING
 IF ANY DIMENSIONS ON THIS SHEET
 VARY FROM THE ORIGINAL DRAWING

C5.0
 DRAWN BY: MMC
 CHECKED BY: JTK
 WRA
 06/28/2022
 SHEETS: 10 OF 13





WASHOE
 COMMON OPEN SPACE TENTATIVE MAP
 EARTHWORK ANALYSIS MAP
 SALMON POINT DEVELOPMENT
 W 2ND AVE HIGHLANDS
 MARCH 2022
 TENTATIVE MAP

REV	DATE	DESCRIPTION	BY

BASED UPON ORIGINAL DRAWING
 IF ANY DISCREPANCY EXISTS BETWEEN THIS SHEET AND THE ORIGINAL DRAWING, THE ORIGINAL DRAWING SHALL CONTROL.

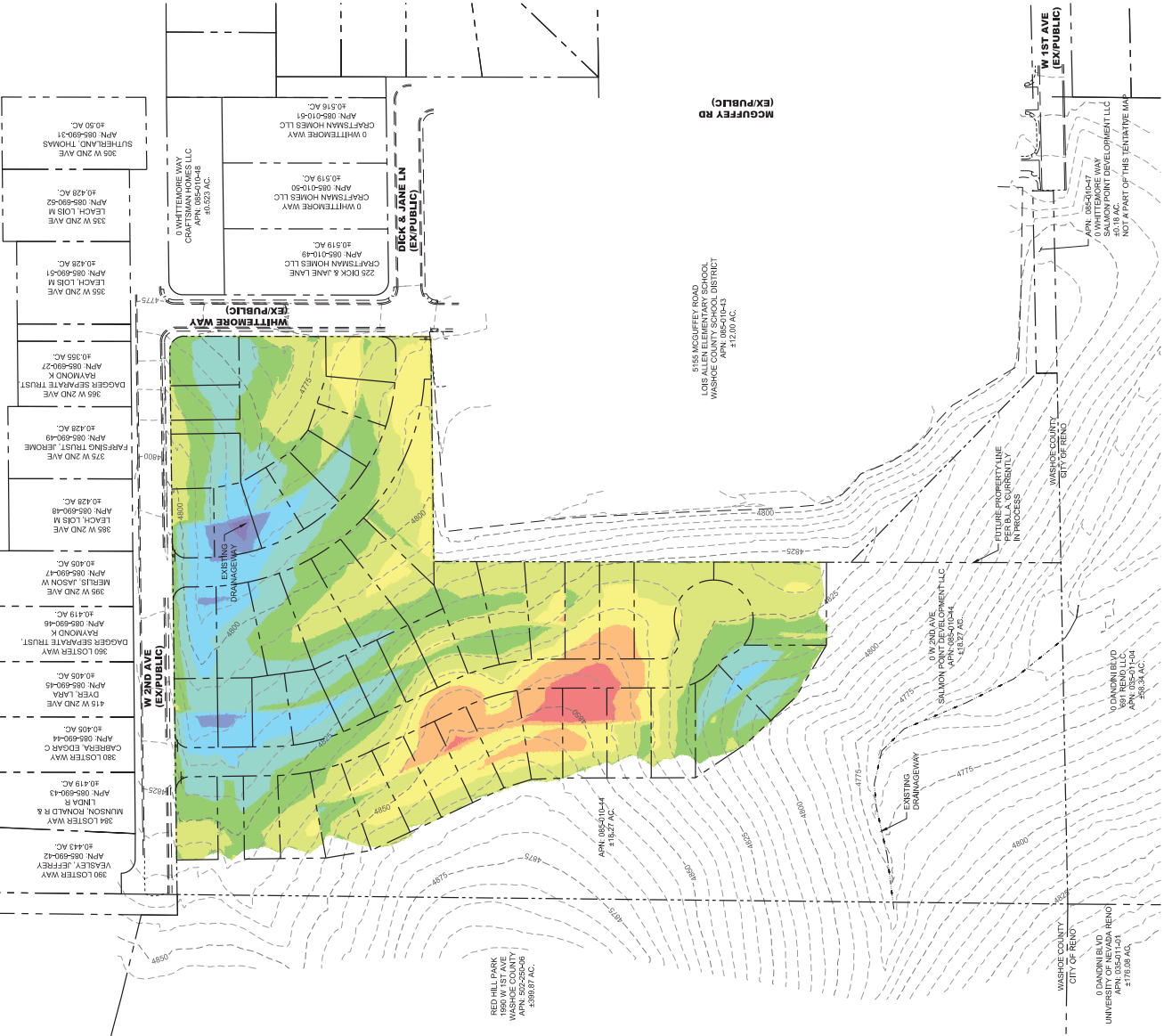
C5.2
 DRAWN BY: MMC
 CHECKED BY: JTK
 WRA
 1687
 SHEETS: 12 OF 13

NUMBER	MIN ELEVATION (FT)	MAX ELEVATION (FT)	AREA (SFT)	COLOR
1	-20.00	+15.00	8202	Red
2	-15.00	+10.00	29251	Orange
3	-10.00	+5.00	59640	Yellow
4	-5.00	0.00	139923	Light Green
5	0.00	5.00	103818	Green
6	5.00	10.00	75976	Light Blue
7	10.00	15.00	28622	Blue
8	15.00	20.00	4543	Dark Blue
9	20.00	25.00	463	Very Dark Blue

TOTAL DEVELOPED AREA: 10.77 AC.



22X34 SHEETS - HORIZONTAL - 1"=80'
 11X17 SHEETS - HORIZONTAL - 1"=80'



TAB C

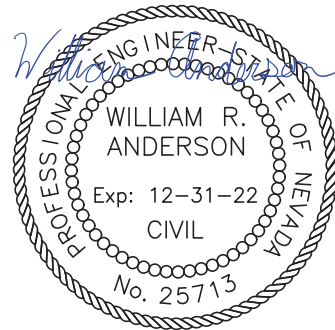
PRELIMINARY SEWER REPORT
For
W 2ND AVENUE HIGHLANDS
TENTATIVE MAP

Prepared For:
Salmon Point Development, LLC
2560 Granite Springs Rd.
Reno, NV 89519

Prepared By:



Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
(775) 827-6111



JN 10511.001
MARCH 2022

03/02/2022



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I. INTRODUCTION & PROJECT LOCATION 1

II. EXISTING SANITARY SEWER FACILITIES..... 2

III. DESIGN CRITERIA..... 2

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Figure 2: Existing Sanitary Sewer Facilities..... 5

Figure 3: Preliminary Sanitary Sewer System Layout..... 6

APPENDICES

Appendix A Proposed Gravity Main Pipe Calculations

*[File Doc: L:\LAProj\10511.001 - W 2nd Avenue Highlands TM & SUP\Civil\Sewer\10511.001 Preliminary Sewer Report.docx]
February 22, 2022*

I. INTRODUCTION & PROJECT LOCATION

The W 2nd Avenue Highlands project (project) is located within Washoe County limits along W 2nd Avenue within two miles of US395. Refer to **Figure 1** for the Project Vicinity Map. The site is located within Section 19, T20N, R20E, of Washoe County, Nevada, including a total project property area of 18.27 acres within Assessor’s Parcel Number (APN) 085-010-44. The project property is zoned medium density suburban (MDS) and is bound by a residential development to the north, also zoned as MDS, Washoe County’s Red Hill Park to the west, undeveloped private land to the south currently zoned as mixed use suburban, and Lois Allen Elementary School to the east. The proposed project will consist of 48 single-family residential units. The site is currently undeveloped and covered with natural vegetation with several unauthorized dirt roads on the property.

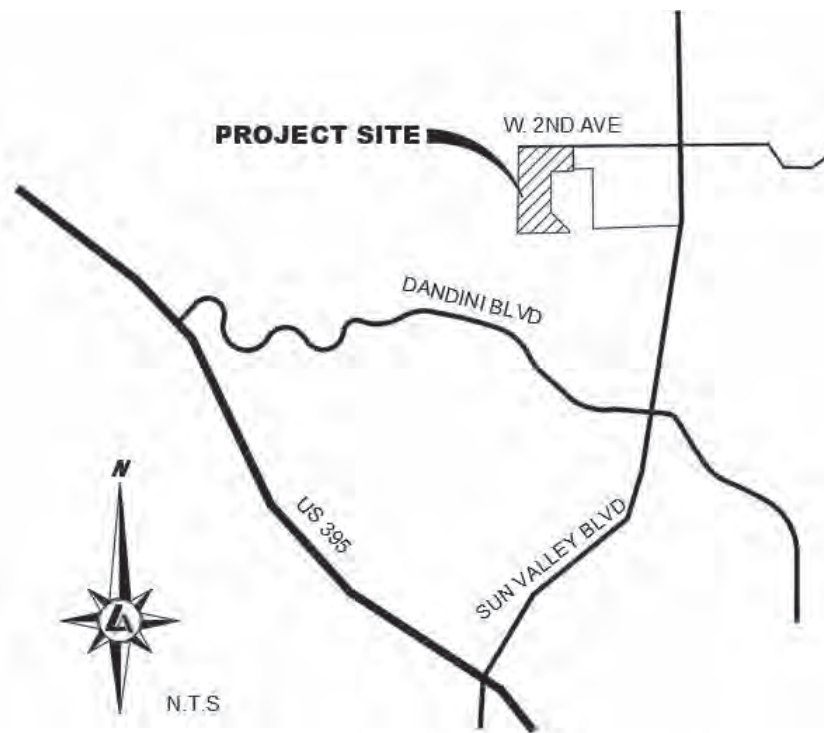


Figure 1: Project Vicinity Map

II. EXISTING SANITARY SEWER FACILITIES

Existing sanitary sewer facilities that will serve W 2nd Avenue Highlands are owned and maintained by the Sun Valley General Improvement District (SVGID). In W 2nd Avenue there is an 8" main that runs parallel to the northern boundary line of W 2nd Avenue Highlands. The sewer main is gravity fed into the SVGID 18" interceptor at SVGID Flow Meter Station #1 at Prosser Drive that flows to Sparks Boulevard and Baring Way. The 18" interceptor ultimately flows to the Truckee Meadows Water Reclamation Facility (TMWRF), operated by the City of Sparks Public Works Department, Environmental Engineering section. Paul J. Winkelman in the *Salmon Point Development Preliminary Water and Wastewater Capacity Study*, dated December 23, 2021 [1], has analyzed the off-site sewer system for this report.

III. DESIGN CRITERIA

The preliminary on-site and off-site sewer system designs are based on the *Washoe County Community Services Department: Engineering Design Standards Section 2 - Gravity Sewer Collection Design Standards*, March 2016 (Design Manual) [2].

A. Sanitary Sewer Generation Factors

- Average Residential Flow: 270 gallons per unit per day (gpd/unit)
- Peak Flow Factor: 3

B. Gravity Sanitary Sewer System

Gravity Pipelines

- Pipe sizing: Based on peak flow
- Minimum main diameter: 8 inches
- Minimum depth of cover for mains: 4 feet from top of pipe to bottom of asphalt
- Minimum velocity: 2.5 feet per second (fps) when flowing half full or as approved by CSD
- Maximum velocity: 10 fps
- Manning's roughness coefficient "n": 0.012
- Pipe material: PVC plastic pipe, SDR 35, in accordance with ASTM D3034
- Maximum depth of flow (depth/diameter: d/D): 0.8

Manholes

- Placed at all junction points, changes in horizontal and/or vertical alignment, changes in pipe size and at the end of public lines
- Maximum spacing of 400 feet (ft.)

IV. PROPOSED SANITARY SEWER FACILITIES

The W 2nd Avenue Highlands development proposed sanitary sewer system will service 48 lots in the Sun Valley General Improvement District (SVGID). The proposed system will require two tie-ins to the existing sewer system in W 2nd Avenue.

A. Gravity System

The W 2nd Avenue Highlands sanitary sewer system will utilize approximately 2,555 LF of on-site, 8" SDR 35 PVC gravity sanitary sewer mains to convey wastewater to the 8" main in W 2nd Avenue. Refer to **Figure 3** for the preliminary lot layout and gravity sanitary sewer flow directions.

Using Washoe County design standards, the proposed gravity system serving 48 single-family homes at an average flow of 270 gallons per unit per day (gpd/unit) with a peaking factor of 3 will produce 38,880 gallons per day (gpd) of wastewater.

Using a minimum pipe size of 8" SDR 35 PVC and Manning's roughness coefficient ("n") of 0.012, the minimum slope required to achieve the 2.5 fps minimum velocity stipulated by the *Design Manual* is 0.44% when flowing half-full. In this situation, the capacity is 277,916 gpd. When flowing 80% full at 0.44% slope the capacity is 536,443 gpd. Based on these calculations, on-site 8" gravity sanitary sewer mains will be sufficient to service the project in all areas, leaving 497,563 gpd of excess capacity at minimum slope. Shaw Engineering performed downstream sanitary sewer calculations in the *Salmon Point Development Preliminary Water and Waste Water Capacity Study* [1] and confirms that the additional flows from 49 residential units does not require existing sewer main or interceptor improvements.

V. CONCLUSION

The preliminary sanitary sewer system for W 2nd Avenue Highlands will service 48, single-family residences utilizing gravity sanitary sewer mains to convey wastewater to an off-site main in W 2nd Avenue. The existing 8" main will convey the water to the southeast of the project to an existing 18" interceptor in Prosser Drive ultimately leading to Truckee Meadows Water Reclamation Facility (TMWRF). The existing 8" main has sufficient available capacity for the 48 lot development laid out in the *Salmon Point Development Preliminary Water and Wastewater Capacity Study* [1] by Paul J. Winkelman. The proposed gravity sewer infrastructure within public right-of-way will be dedicated to the Sun Valley General Improvement District once complete and operational. The initial design for the gravity sewer infrastructure with 8" mains has an available capacity of 536,443 gallons per day (gpd) for the developments 38,880 gallons per day (gpd) peak flow generation resulting in an excess capacity of 497,563 gpd. The final layout and sizing of sewer infrastructure will be determined during final design.

VI. REFERENCES

- [1] Winkelman, Paul J. "Salmon Point Development Preliminary Water and Wastewater Capacity Study" *Shaw Engineering*, 23 Dec. 2021.
- [2] Washoe County. Community Services Department. *Washoe County Community Services Department: Engineering Design Standards Section 2 – Gravity Sewer Collection Design Standards*, 2016. rev. 3. Web. March 2016.

FIGURES

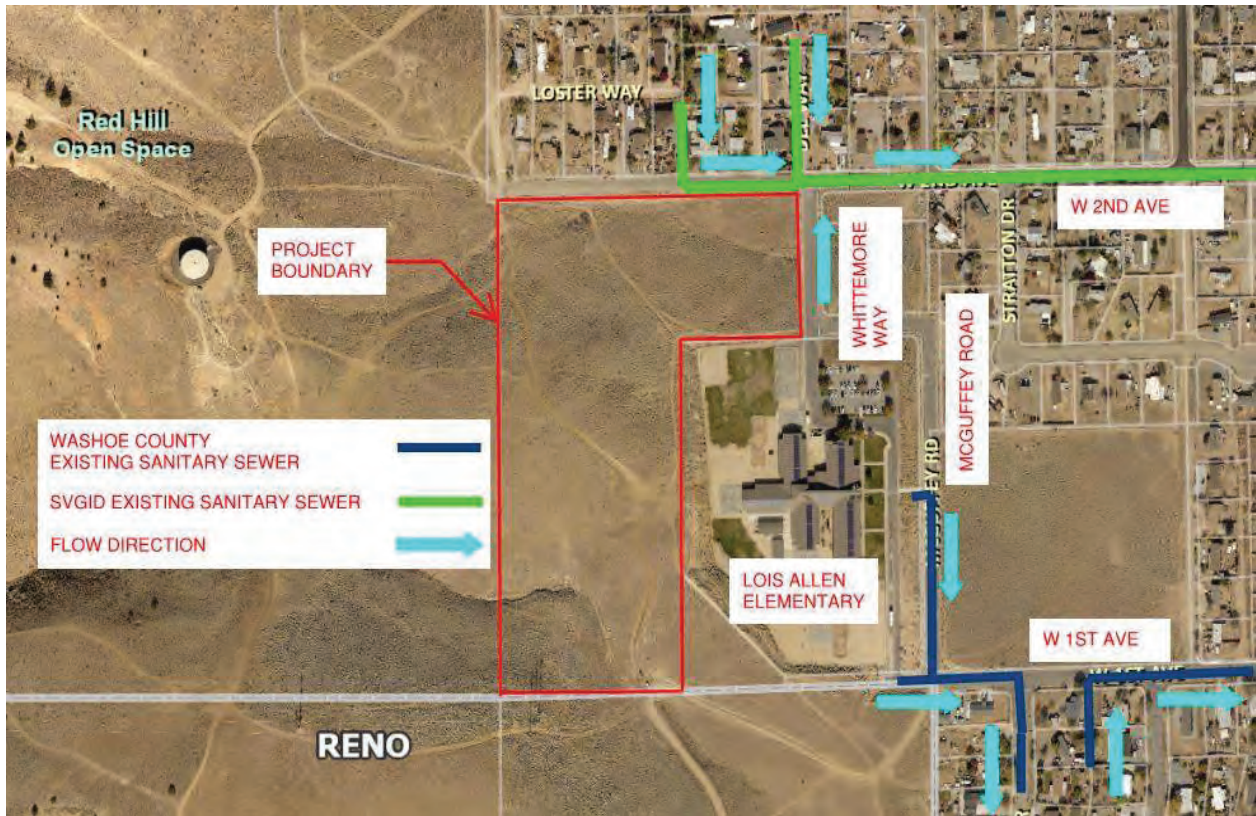


Figure 2: Existing Sanitary Sewer Facilities

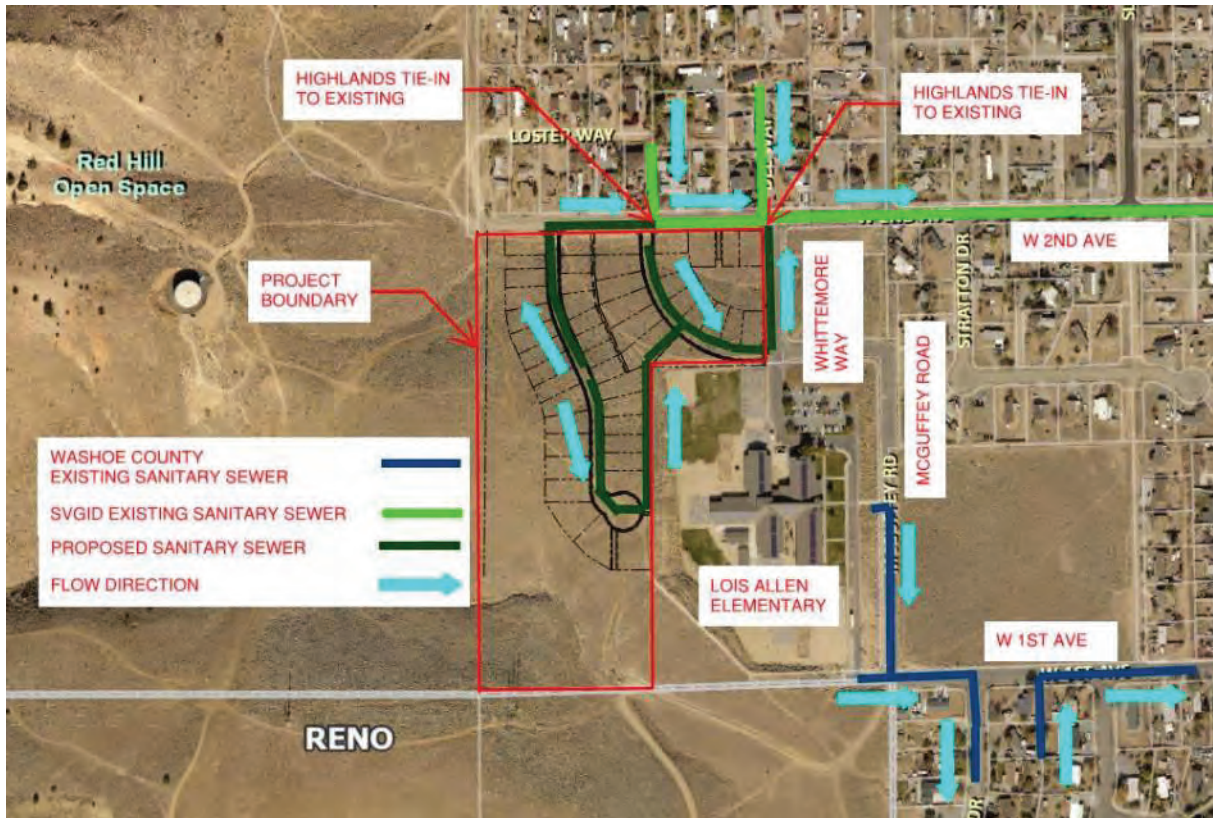


Figure 3: Preliminary Sanitary Sewer System Layout



February 17, 2022

Billy Anderson, P.E.
Lumos and Associates
9222 Prototype Drive
Reno, NV 89521

Trip Generation Letter – 2nd Avenue Highlands

Dear Mr. Anderson,

This letter provides trip generation estimates for the proposed 2nd Avenue Highlands project located in Sun Valley, NV. The proposed project includes 48 single family housing units and is located south of West Second Avenue and west of Whittemore Way. The project location is shown in **Figure 1** and the conceptual site plan is provided in **Attachment A**.



Figure 1. Project Location

Headway Transportation, LLC
5482 Longley Lane, Suite B, Reno, Nevada 89511
775.322.4300
www.HeadwayTransportation.com

Trip Generation

The proposed project consists of a total of 48 single family housing units. Trip generation estimates were calculated based on average trip rates presented in the Institute of Transportation Engineer’s (ITE) *Trip Generation Manual, 11th Edition* for the ‘Single Family Detached Housing’ (ITE Code 210) land use.

Table 1 shows the Daily, AM Peak Hour, and PM Peak Hour trip generation estimates.

Table 1. Estimated Project Trips

Land Use (ITE Code)	Quantity	Trips ¹								
		Daily			AM			PM		
		Total	In	Out	Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	48 Dwelling Units	452	226	226	34	9	25	45	28	17

Notes: 1. Trips are calculated based on the following rates per dwelling unit: Daily - 9.43; AM – 0.7 (26% in/74% out); PM – 0.94 (63% in/37% out)

Source: Headway Transportation, 2022

The project is expected to generate approximately 452 Daily trips, 34 AM Peak Hour trips, and 45 PM Peak Hour trips.

Conclusion

The peak hour trip generation estimates for 48 single family dwelling units is below the Washoe County requirements for a Traffic Impact Study (80 peak hour trips). Therefore, no further analysis is needed or recommended. The generation of 45 peak hour trips is not expected to create any notable traffic impacts.

The project driveways should be designed and constructed in accordance with Washoe County Standards and have adequate sight triangles.

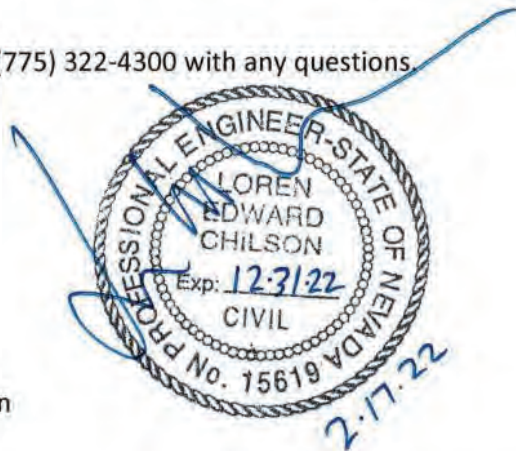
The project will pay standard Regional Road Impact Fees (RRIF) as mitigation for its minor impacts on the roadway network.

Please do not hesitate to contact us at (775) 322-4300 with any questions.

Sincerely,
 Headway Transportation, LLC

Loren E. Chilson, PE
 Principal

Attachments: A – Conceptual Site Plan



TAB D

**Master Plan
Sun Valley Area Plan
Planning/Policy Review**

For

**2nd Avenue Highlands
Subdivision
Tentative Map Application**

Vision and Character Management

Land Use

Goal One: The pattern of land use designations in the Sun Valley Area Plan will implement and preserve the community character described in the Character Statement.

Policies

- SUN.1.1 The Sun Valley Character Management Plan map (CMP) shall identify the Sun Valley Suburban Character Management Area (SCMA), the Downtown Character Management Area (DCMA) and the Sun Valley Rural Character Management Area (RCMA).

Not applicable – this policy is only description of what areas are covered within the Character Management Plan map, prepared by the County.

- SUN.1.2 To promote “mixed-use” development and redevelopment along Sun Valley Boulevard, the following density bonus is available within the specified boundaries of the Sun Valley Downtown Character Management Area (DCMA).

- a. All General Commercial and Neighborhood Commercial/Office properties are afforded the opportunity to add a residential component of Low Density Urban, if incorporated into a mixed-use development that meets the DCMA design standards.

Not applicable – this policy applies to properties along Sun Valley Boulevard and are only intended to be applied within the specified boundaries of the Sun Valley Downtown Character Management Area (DCMA).

- SUN.1.3 The following Regulatory Zones are permitted within the Sun Valley Suburban Character Management Area:

- a. High Density Rural (HDR – One unit per 2.5 acres).
- b. Low Density Suburban (LDS – One unit per acre).
- c. Medium Density Suburban (MDS – Three units per acre).
- d. High Density Suburban (HDS – Seven units per acre).
- e. Medium Density Urban (MDU – Twenty-one units per acre).
- f. Neighborhood Commercial/Office (NC).
- g. General Commercial (GC).
- h. Industrial (I).
- i. Public/Semi-Public Facilities (PSP).
- j. Parks and Recreation (PR).
- k. General Rural (GR).
- l. Open Space (OS).

The proposed 2nd Avenue Highlands Subdivision conforms to the MDS Designation, which is specifically allowed within the Sun Valley Suburban Character Management Area.

- SUN.1.4 The following Regulatory Zones are permitted within the Sun Valley Downtown Character Management Area:
- a. High Density Suburban (HDS – Seven units per acre).
 - b. Low Density Urban (LDU – Fourteen units per acre).
 - c. Neighborhood Commercial/Office (NC).
 - d. General Commercial (GC).
 - e. Tourist Commercial (TC).
 - f. Public/Semi-Public Facilities (PSP).
 - g. Parks and Recreation (PR).

Not Applicable – subject property is not in this CMA

- SUN.1.5 The following Regulatory Zones are permitted within the Sun Valley Rural Character Management Area:
- a. General Rural (GR – One unit per 40 acres).
 - b. Public/Semi-Public Facilities (PSP).
 - c. Parks and Recreation (PR).
 - d. Open Space (OS)

Not Applicable – subject property is not in this CMA

- SUN.1.6 Staff will review any proposed Master Plan Amendment against the findings, criteria and thresholds identified in the Plan Maintenance section of this plan and make a recommendation to the Planning Commission. At a minimum, the Planning Commission must make each of the findings in order to recommend approval of the amendment to the Board of County Commissioners.

Not Applicable – subject project is not proposing a Master Plan Amendment as part of this development application. is not in this CMA

- SUN.1.7 Tentative subdivision maps will not be approved for any development until the impacts of that development have been included in the Sun Valley General Improvement District's water resources facilities plan.

This is understood. SVGID has already prepared a water and sewer capacity study for the project. A copy of the Capacity Study from SVGID is provided in Tab C with this application.

- SUN.1.8 The Washoe County Planning Commission will review any application to

expand the Suburban Character Management Area into the Rural Character Management Area against the findings, criteria and thresholds in the Plan Maintenance section of this plan. At a minimum, the Planning Commission must make each of the applicable findings in order to recommend approval of the amendment to the Board of County Commissioners.

Not Applicable – subject project is currently within the Suburban Character Management Area.

SUN.1.9 New or redeveloped commercial and office development will be constructed to front (main entrance) on Sun Valley Boulevard. Buildings that have no other option than to front on a side street will have the same or similar architectural features on the side and rear of building that faces Sun Valley Boulevard.

Not Applicable – subject project is not within the Sun Valley Downtown Character Management Area (DCMA), nor does it front Sun Valley Boulevard.

SUN.1.10 The Washoe County Capital Improvements Program shall identify needed sidewalk and open drainage structure improvements (location, costs and funding) based on a study conducted by the County and the Sun Valley General Improvement District.

This is understood.

SUN.1.11 Washoe County will work to ensure that the long range plans of facilities providers for transportation, water resources, schools and parks reflect the goals and policies of the Sun Valley Area Plan.

This is a county directive policy and not directly applicable to the project. The project is utilizing the existing site zoning (MDS) that has been in existence on the property for many years and would have been included in the buildout scenarios prepared by the County for facility planning.

SUN.1.12 Prior to any approval of proposed land use intensification that will result in existing school facilities exceeding design capacity and which may compromise the Washoe County School District's ability to implement the neighborhood school philosophy for elementary facilities, the school district will identify improvements in their capital improvements plan or school rezoning plan that will enable the District to absorb the additional enrollment. The Washoe County Planning Commission, upon request of the Washoe County School District Board of Trustees, may waive this finding.

Not applicable as the proposed subdivision.

Transportation

Goal Two: The regional and local transportation system in the Sun Valley planning area

will be a safe, efficient, multi-modal system providing significant connections to the greater region, and access to commercial services, public lands and public services available in the community. The system will contribute to the preservation and implementation of the community character as described in the Sun Valley Vision and Character Statement.

Policies

SUN.2.1 Level of service “C” or above is the desired level for all regional roads in the Sun Valley planning area.

This is understood. The project will pay the appropriate fee amount into the Regional Road Impact Fee program as required.

SUN.2.2 The Regional Transportation Commission is urged to fund and construct, at the earliest possible opportunity, the construction of the Sun Valley Arterial with a grade-separated interchange at 7th Avenue. Sun Valley Boulevard shall not be extended north to connect to the Spanish Springs area until the arterial is constructed.

This is understood. This is directed at the Regional Transportation Commission to minimize impacts to the Valley.

SUN.2.3 New construction or redevelopment of commercial properties along Sun Valley Boulevard shall combine vehicle entrances with adjacent properties to provide combined parking and landscaping. If contiguous commercial properties are not developed at the same time, then the vehicle access point to Sun Valley Boulevard will be located close to the property line between adjacent parcels.

Not Applicable. Project is not located along Sun Valley Boulevard.

SUN.2.4 Remaining right-of-way along Sun Valley Boulevard should be utilized to establish an “edge” that includes covered ditches, public transit improvements, bike/pedestrian paths and landscaping.

Not Applicable. Project is not located along Sun Valley Boulevard.

SUN.2.5 The number of traffic signals on Sun Valley Boulevard shall be kept to the minimum number required to provide for safe and efficient traffic flow.

Not Applicable. Project is not located along Sun Valley Boulevard.

SUN.2.6 The Washoe County Department of Public Works shall initiate a study and subsequent action program aimed at improving traffic flow from residential streets onto collectors and arterials, to include consideration of “cut-through” traffic issues.

This is understood. This directed at the Washoe County Department of Public Works to minimize impacts to the Valley.

SUN.2.7 The Nevada Department of Transportation, Regional Transportation Commission and Washoe County shall jointly seek funding to construct sidewalks or paved paths along both sides of Sun Valley Boulevard and main streets such as: 4th, 5th, 6th and 7th Avenues when the safety of pedestrians and children walking to and from schools requires such facilities.

This is understood.

SUN.2.8 Washoe County will include in their Capital Improvements Program the improvement and paving of dirt roads under their jurisdiction.

Not directly applicable. County directive. However, all streets proposed within the project will be paved to county standards.

SUN.2.9 The owners of private roads or driveways are required to adequately sign them to allow for better emergency response.

Not applicable. The project proposes public streets.

SUN.2.10 The Nevada Department of Transportation, Regional Transportation Commission, Sun Valley General Improvement District and Washoe County shall continue to work with the local community to implement traffic/pedestrian safety improvements within Sun Valley.

This is a directive to two public agencies. Not directly applicable.

SUN.2.11 Needed infrastructure improvements to streets and drainage ditches that are required for improved pedestrian safety, transit stops and expanded bus service within the entire valley, shall be included in the Washoe County Capital Improvements Program following the completion of a joint study between the Washoe County Public Works Department and the Regional Transportation Commission.

This is understood. This is directed at these governing bodies to maximize funding efforts to improve pedestrian and transit connectivity in the Valley.

SUN.2.12 Weed abatement along Sun Valley roadways with open ditches shall occur annually.

This is understood.

SUN.2.13 The Regional Transportation Commission is urged to locate a multi-modal transit stop (parking, bike racks, shelters, concessions) on Sun Valley Boulevard.

Not applicable. Project is not on Sun Valley Blvd.

SUN.2.14 The necessary right-of-way and intersection requirements for future roadways identified in the Regional Transportation Commission Transportation Plan will be protected through dedication, setback or other method deemed adequate and appropriate by the Regional Transportation Commission and Washoe County.

RTC has plans for a long range linkage to the Pyramid Highway/U.S. 395 connector. The route of that alignment connecting to W. 2nd Avenue has been conceptually designed but

is not funded. There is plenty of room to accommodate for the proposed development and to make a connection with Chocolate Drive, which is shown on the preferred plan map from RTC that is provided in the project narrative with this project.

SUN.2.15 Washoe County will advocate for the expansion of transit services to and within the Sun Valley planning area pursuant to the Regional Transportation Commissions updated 2030 Plan.

Not applicable. Public agency directive.

SUN.2.16 Improvements listed in the Regional Transportation Commission's Sun Valley Bikeway Plan shall be incorporated into the Washoe County Capital Improvements Program. The bikeway plan will be integrated with the local and regional trails system and provide access to commercial and public services (See Recreational Opportunities Plan map).

This is understood. It is directed to Washoe County staff.

SUN.2.17 The Department of Community Development will provide an annual status report to the Planning Commission regarding the implementation of all transportation related policies in this plan.

This is understood. It is directed at Washoe County staff.

Scenic/Recreational/Cultural Resources

Goal Three: Maintain the natural, scenic and recreational values of the public lands surrounding Sun Valley.

Policies

SUN.3.1 Retain all public lands within and adjacent to the Sun Valley Area Plan boundaries. In the event that public land does become private property, that land would automatically be included in the Sun Valley SCMA.

The project proposes dedicating the natural area associated with the project for incorporation into the Red Hill Open Space Area.

SUN.3.2 The planning of all future roadways, subdivisions or other development will maintain adequate access (vehicular and/or pedestrian) to surrounding public land. Existing and/or needed public access easements will be depicted on all development applications and on the initial right-of-way design for new roadways.

This is understood. It is directed at Washoe County staff

SUN.3.3 Washoe County and Sun Valley residents shall work with the Bureau of Land Management to develop and implement an appropriate plan for the education, management and enforcement of off-highway vehicle (OHV) use on surrounding public lands.

This is understood. It is directed at Washoe County staff

SUN.3.4 Unneeded dirt roads and other disturbed areas on the public lands surrounding Sun Valley should be obliterated and revegetated by the appropriate land management agency.

This is understood. It is directed at Washoe County staff

SUN.3.5 The Washoe County Sheriff's Office shall cooperate with the Bureau of Land Management to increase education and enforcement efforts in order to reduce the incidents of illegal shooting and dumping on public and private lands in Sun Valley.

This is understood. It is directed at Washoe County staff

SUN.3.6 The Washoe County Department of Regional Parks and Open Space will continue to work with all interested organizations and individuals to reduce illegal dumping and other resource damage to Red Hill and take appropriate steps to eliminate off-highway vehicle use on Red Hill.

This is understood. It is directed at Washoe County staff.

Goal Four: Maintain open vistas of the surrounding ridges and hills and minimize the visual impact of hillside development.

Policies

SUN.4.1 Washoe County will require the underground placement of new electrical power transmission lines within the Suburban Character Management Area and the Downtown Character Management Area. In considering whether to grant the required special use permit for transmission lines or in consideration of any conditions including underground placement which may be placed upon an approval, the Planning Commission will utilize the best available information including, but not limited to, the most recent Regional Utility Corridor Report and any Environmental Impact Statement or other study undertaken regarding the proposal. Underground placement of public utilities in general, including electrical power distribution lines, is dictated by Section 110.604.30 of the Washoe County Development Code.

Project will work with Washoe County staff and NV Energy to facilitate the underground placement of distribution level power lines within the project boundaries, as necessary.

SUN.4.2 Hillside development shall disturb the minimum area required for construction and conserve steep slopes in their natural state.

The project proposes development only on the lesser sloped portions of the property and stays out of the steeper sloped areas that are located on the southern end of the site.

SUN.4.3 Significant ridgelines in the Sun Valley planning area are to be protected from future development.

This is understood. It is not intended that any identified significant ridgelines will be affected by this project.

SUN.4.4 Structures shall be located to eliminate or minimize silhouettes against the skyline.

This is understood. Site design will eliminate or minimize silhouettes against the skyline.

SUN.4.5 Disturbed areas shall be finished and fill slopes will not exceed a 3:1 slope; hillside grading will establish an undulating naturalistic appearance by creating varying curvilinear contours.

This is understood. See grading plan included with this application for specifics

SUN.4.6 Soils disturbed through the development process shall be revegetated no later than the next spring and, during the winter, shall be treated to prevent the blowing of soil from the site by wind or the movement of soil by precipitation. Drought tolerant/fire resistant plant species should be used where appropriate (refer to the "Recommended Plant List" in Appendix A).

This is understood.

Goal Five: The Sun Valley planning area will contain a system of parks and trails that provides the community and the region with a broad range of recreational opportunities; provides connections between major developments, recreational facilities, the regional trail system, public lands and schools; and contributes to the enhancement and implementation of the community character.

Policies

SUN.5.1 Updates to the Parks District Master Plan for the Sun Valley planning area (District 2D) will look to Goal Five for direction. The Parks District 2D Master Plan will seek to enhance and implement the community character.

This is understood. It is directed at Washoe County staff

SUN.5.2 The Washoe County Department of Regional Parks and Open Space shall support and schedule the construction of a multi-purpose trail system within the valley (see Recreational Opportunities Plan map). The ultimate goal is the connection of existing and new trails required to complete a Sun Valley Rim Trail.

This is understood. It is directed at Washoe County staff

SUN.5.3 New trails will be designed to accommodate equestrian, pedestrian and mountain bike traffic, unless technical or severe economic hardships warrant consideration of a more limited use.

The natural area, included as part of the overall open space in the project will include perpetuation of the trails that exist as ties to the Red Hill Open Space area.

SUN.5.4 Parking will be provided at all trailheads unless technical or safety issues prevent the construction of parking facilities.

This is understood.

SUN.5.5 Washoe County will work collaboratively with the Cities of Sparks and Reno to determine appropriate trail alignments and connections between unincorporated Washoe County and properties within the cities corporate limits and the spheres of influence.

This is understood. It is directed at Washoe County staff

SUN.5.6 Access to existing and future trails will be protected and improved whenever possible. During the process of development review, the Washoe County

Department of Community Development and Washoe County Department of Regional Parks and Open Space will request dedication of property and/or easements when appropriate trail alignments have been identified that link significant nodes within the Sun Valley planning area or connect existing or planned trails.

The natural area, included as part of the overall open space in the project will include perpetuation of the trails that exist as ties to the Red Hill Open Space area.

SUN.5.7 Development proposals and population trends will be evaluated on their impact to an established community standard of seven acres of Community Park per 1,000 residents. When warranted, the Washoe County Department of Regional Parks and Open Space will request the dedication of an appropriate amount of community park acreage as property develops within the planning area.

This is understood. It is directed at Washoe County staff

SUN.5.8 The Regional Transportation Commission is urged to designate and construct a "Bike Path" along the entire length of Sun Valley Boulevard (See Recreational Opportunities Plan map).

This is understood. It is directed at Regional Transportation Commission staff

Natural Resources

Air Resources

Goal Six: The Sun Valley planning area will maintain or exceed federal, state and local air quality standards for carbon monoxide, nitrogen dioxide, ambient particulates (pm10 & 2.5) and ozone. The vistas of the surrounding ridges and more distant mountain ranges will not be obstructed by man-made pollutants.

Policies

SUN.6.1 Commercial and/or industrial uses that qualify as a major source of air pollutants are prohibited within the Sun Valley planning area.

Not applicable. Project does not contain commercial or industrial uses. It is a residential subdivision.

SUN.6.2 Encourage pavement of dirt roads and parking lots in the Sun Valley planning area. The application of dust reduction material for unpaved parking lots in commercial and industrial areas shall be required.

It is Proposed that the roadways within the site will be paved to Washoe County standards.

Land Resources

Goal Seven: The built environment will minimize the destructive potential of any identified geological hazard.

Policies

SUN.7.1 Development proposals within the Sun Valley planning area will include detailed soils and geo-technical studies sufficient to:

- a. Ensure structural integrity of roads and buildings.
- b. Provide adequate setbacks from potentially active faults.
- c. Minimize erosion potential.

This development proposal is required to provide a grading plan with best management practices outlined, and a preliminary geotechnical report prepared by a Nevada registered civil engineer, including soils characteristics sufficient for use in tentative structural design (i.e. street sections, building pads, etc.)

SUN.7.2 Development proposals on areas with identified geological hazards will follow the recommendations of any geo-technical study conducted pursuant to Policy SUN.7.1.

Reference response to SUN.7.1 above

Land Resources – Mining

Goal Eight: Mining operations do not presently exist in the Sun Valley planning area and are not compatible with the compact development and visually prominent hillsides found in the valley.

Policies

SUN.8.1 Proposed mining operations, including aggregate pits, on private or public lands will not be approved within the Sun Valley Area Plan boundaries.

This is not applicable as there are no mining operations proposed with this application.

Water Resources – Flooding

Goal Nine: Personal and economic loses associated with flooding will be minimized. Restrict development within the 100-year Flood Hazard area in the Sun Valley planning area that would increase the 100-year floodwater levels.

Policies

SUN 9.1 The Washoe County Department of Public Works shall initiate an annual drainageway inspection program. Private property owners will be required to keep drainage facilities, located on their property, clear of debris and obstructions to maintain the existing carrying capacity of stormwater runoff and reduce flooding potential.

This is understood. Maintenance of the detention area will be determined through this process.

SUN.9.2 The Washoe County Department of Public Works will ensure that new developments in FEMA mapped flood areas that do not provide for flood control alternatives (e.g. channelization or detention) follow applicable regulations and ordinances for construction and maintenance.

The subject property is within unshaded Zone X.

SUN.9.3 The Washoe County Department of Public Works will require new developments to provide such on-site detention and drainage facilities as are needed to ensure that development of the site does not adversely impact downstream properties.

This is understood. A preliminary drainage report will be prepared and provided to support the onsite designed drainage facilities.

SUN 9.4 The Washoe County Department of Public Works shall require all new development to conform to any low impact development (LID) guidelines adopted by Washoe County.

This is understood. A detention basin to meet County requirements has been designed as part of the subdivision.

SUN.9.5 Washoe County, in coordination with the City of Sparks, will study the adequacy of flood detention facilities for the entire Sun Valley Hydrographic Basin and implement study recommendations to assure combined stormwater runoff from the basin will not adversely impact development downstream of Sun Valley.

This is understood. It is directed at Washoe County staff

Water Resources – Supply and Service

Goal Ten: Water resources will be supplied to land uses in the Sun Valley planning area according to the best principles/practices of sustainable resource development.

Policies

SUN.10.1 Whenever applicable, all development within the Sun Valley Suburban Character Management Area and the Downtown Character Management Area will connect to a community water service.

This project will be connected to community water through SVGID.

SUN.10.2 Surface water features using groundwater are not allowed in the Sun Valley planning area. Surface water features using reclaimed water may be created provided applicable health regulations are followed.

No such features are proposed.

SUN.10.3 To the extent that reclaimed water is available to meet a new proposed non- potable water demand; potable water shall not be supplied to meet the demand.

Reclaimed water is not available.

Water Resources – Quality

Goal Eleven: The quality of water in the Sun Valley Hydrographic Basin will be protected from degradation resulting from human activities.

Policies

SUN.11.1 The Washoe County Department of Water Resources will continue to maintain and implement a Wellhead Protection Plan for the Sun Valley Hydrographic Basin.

Not applicable. The project intends to connect to community water facility - SVGID

Water Resources – Wastewater

Goal Twelve: Wastewater treatment and disposal will be provided to land uses in the Sun Valley planning area according to the best principles/practices of sustainable resource development.

Policies

SUN.12.1 Whenever applicable, all development within the Sun Valley Suburban Character Management Area and the Downtown Character Management Area will connect to a community sewer service.

This project will be connected to community sewer through SVGID.

SUN.12.2 Conversion of existing septic systems in the Sun Valley planning area to community sewer shall be a priority.

Plan Maintenance

Goal Thirteen: Amendments to the Sun Valley Area Plan will be for the purpose of further implementing the Vision and Character Statement, or to respond to new or changing circumstances. Amendments must conform to the Sun Valley Vision and Character Statement.

Policies

SUN.13.1 In order for the Washoe County Planning Commission to recommend the approval of any amendment to the Sun Valley Area Plan, the following findings must be made in addition to the required findings in Washoe County Development Code, Section 110.820.15:

- a. The amendment will further implement and preserve the Vision and Character Statement.
- b. The amendment conforms to all applicable policies of the Sun Valley Area Plan and the Washoe County Master Plan.
- c. The amendment will not conflict with the public's health, safety or welfare.

Not Applicable. This application does not include an amendment to the SVAP.

SUN.13.2 Amendments will be reviewed by the Department of Community Development against the following set of criteria and thresholds that are measures of the impact on, or progress toward, the Vision and Character Statement:

- a. A feasibility study has been conducted and paid for by the applicant, relative to municipal water, sewer and storm water, that clearly identifies the improvements likely to be required to support the intensification, and those improvements have been determined to be in substantial compliance with all applicable existing facilities and resource plans for Sun Valley by the Sun Valley General Improvement District in conjunction with the Department of Water Resources. This may be waived by the Department of Public Works for projects that are determined to have minimal impacts. The Department of Water Resources will establish and maintain the standards and methodologies for these feasibility studies.
- b. A traffic analysis has been conducted that clearly identifies the impact to the adopted level of service within the Sun Valley planning area and the improvements likely to be required to maintain/achieve the adopted level of service. This may be waived by the Department of Public Works for projects that are determined to have minimal impacts. The Department of Public Works may request any information it deems necessary to make this determination.

If the proposed intensification will result in a drop below the established policy level of service for transportation (as established by the Regional Transportation Commission and Washoe County) within the Sun Valley planning area, the necessary improvements required to maintain the established level of service are scheduled in either the Washoe County Capital Improvements Program or Regional Transportation Commission Capital Improvements Program within three years of approval of the intensification. For impacts to regional roads, this finding may be waived by the Washoe County Planning Commission upon written request from the

Regional Transportation Commission.

- a. If roadways impacted by the proposed intensification are currently operating below adopted levels of service, the intensification will not require infrastructure improvements beyond those articulated in Washoe County and Regional Transportation Commission transportation plans AND the necessary improvements are scheduled in either the Washoe County Capital Improvements Program or Regional Transportation Commission Capital Improvements Program within three years of approval of the intensification.
- b. Washoe County will work to ensure that the long range plans of facilities providers for transportation, water resources, schools and parks reflect the goals and policies of the Sun Valley Area Plan.
- c. If the proposed intensification results in existing facilities exceeding design capacity and compromises the Washoe County School District's ability to implement the neighborhood school philosophy for elementary facilities, then there must be a current capital improvements plan or rezoning plan in place that would enable the District to absorb the additional enrollment. The Washoe County Planning Commission, upon request of the Washoe County School District Board of Trustees, may waive this finding.

Not Applicable. This application does not include an amendment to the SVAP.

SUN.13.3 For proposals to establish new commercial land uses outside of the Downtown Character Management Area, a market analysis has been conducted that clearly establishes a community serving trade area and provides convincing evidence of a need to increase the inventory of community-serving commercial land use opportunities.

Not applicable.

SUN.13.4 For any amendment that proposes to alter the Sun Valley Vision or Character Statement, the Department of Community Development has conducted a series of community visioning workshops with the Sun Valley Citizen Advisory Board (CAB), and the results of that process, including any CAB and staff recommendations, have been included and discussed in the staff analysis of the proposed amendment.

Not applicable.

SUN.13.5 For any amendment that proposes to expand the Suburban Character Management Area into the Rural Character Management Area and/or to revise the Character Statement, the Department of Community Development has conducted a series of community visioning workshops with the Sun Valley Citizen Advisory Board (CAB) and the results of that process, including any CAB and staff recommendations, have been included and discussed in the staff analysis of the proposed amendment; and a proposed land use change accompanies the boundary change proposal, and the land use proposal meets all of the applicable policies of the Sun Valley Area Plan.

Not applicable.

SUN.13.6 The Department of Community Development will provide an annual status report to the Planning Commission regarding the implementation of this plan.

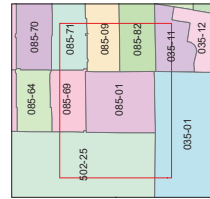
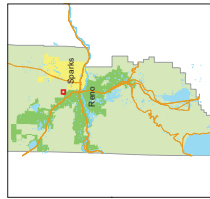
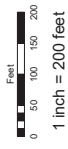
Not applicable.

Goal Thirteen is directed to Washoe County staff in regard to a proposed amendment to the Sun Valley Area Plan. This proposed project application is not requesting an amendment and this goal

is not applicable.

Assessor's Map Number
085-01

STATE OF NEVADA
WASHOE COUNTY
ASSESSOR'S OFFICE
1001 East Ninth Street, Building D
Reno, Nevada, 89512
(775) 328-2231

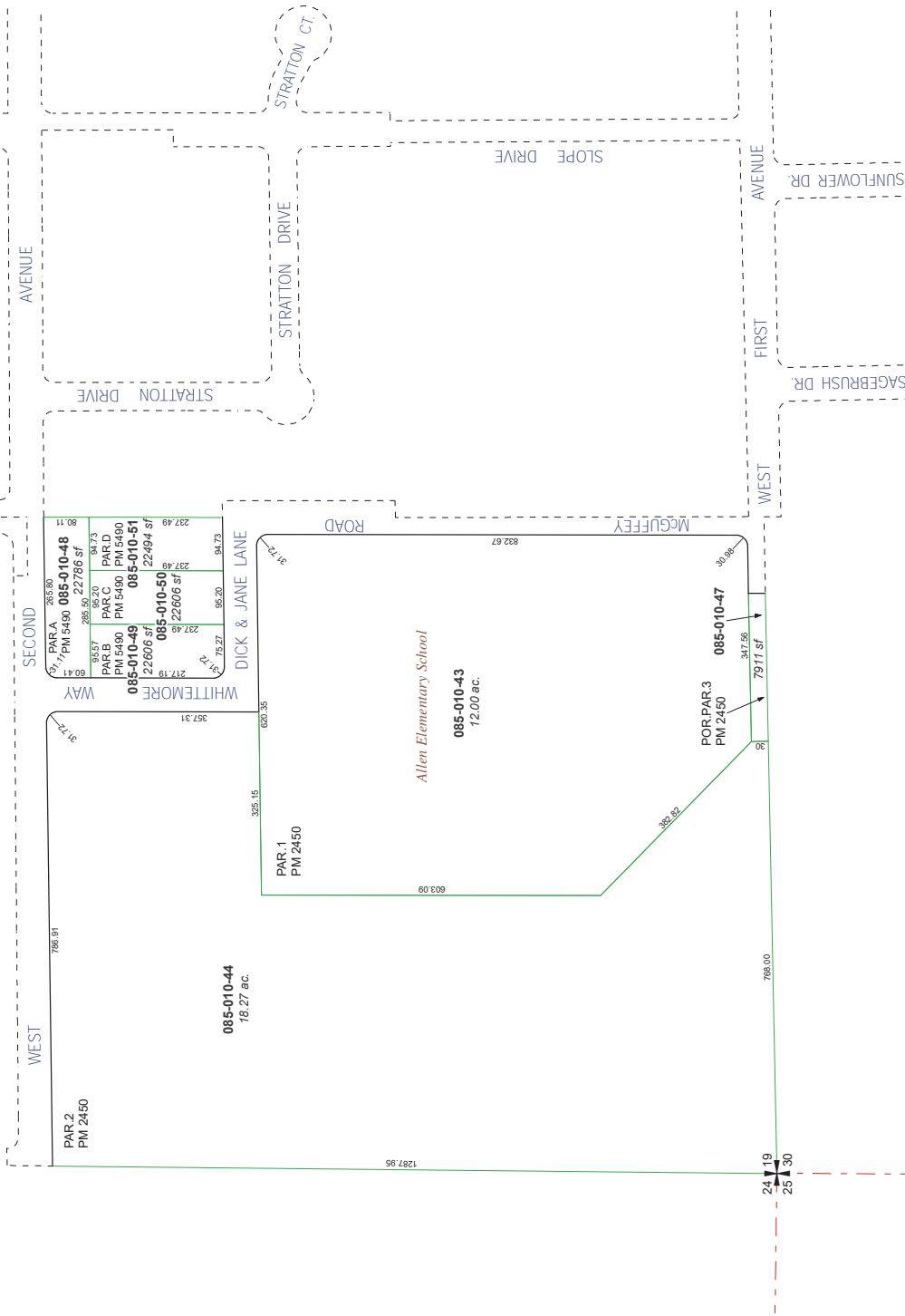


created by: **TMT 09/09/2011**
updated: **CFE 06/26/12 SR 11/17/20**

area previously shown on map(s):

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent any other information and is not intended as to the sufficiency or accuracy of the data delineated hereon.

**SW 1/4 OF SW 1/4 OF SECTION 19
T20N - R20E**





Sun Valley General Improvement District
5000 Sun Valley Boulevard
Sun Valley, NV 89433-8229
Phone: (775) 673-2220
Fax: (775) 673-1835

January 20, 2022

Lumos & Associates
Attn: Billy Anderson, P.E.
9222 Prototype Drive
Reno, NV 89521

RE: Salmon Point Development

Dear Mr. Anderson,

The Sun Valley General Improvement District is the owner/operator of the water and wastewater facilities in the Sun Valley Hydro Basin. This Hydro Basin includes the 18 acre site of Salmon Point Development, 49 lot common open space subdivision that is proposed at the end of W. 2nd Ave. APN:085-010-44.

Water:

At the writing of this letter there is currently enough capacity to serve this proposed subdivision. This capacity is being utilized on a first come, first serve basis.

Wastewater:

At the writing of this letter there is currently enough capacity to serve this proposed subdivision. This capacity is being utilized on a first come, first serve basis.

Sincerely,

Sun Valley General Improvement District

Chris Melton
Public Works Director

