

## Environment Site Assessment

A Phase 1 Environmental Site Assessment was performed for the Traverse Mountain property on November 19, 2006, by AGEC Applied Geotechnical Engineering Consultants of Sandy, Utah. The site assessment found that no items of obvious adverse environmental concern were found regarding historical use of structures on adjoining properties. In the past the site was used primarily for agricultural purposes, although there are sections of the Provo Reservoir Canal and of the Union Pacific railroad crossing the site. No major adverse conditions were discovered relating to soils, geology, and hydrogeology. In addition, there were no registered environmental hazards in the vicinity of the property, as shown by review of federal and state government environmental databases. Overall, the site was found to have no recognized environmental conditions.

### Vegetation

The only known use prior to any development of Traverse Mountain property is in the production of agricultural crops, primarily winter wheat. The remainder of the site consists of native vegetation common to the foothill sloped of northern Utah. Species include scrub oak, sagebrush, and other plants common to the area. No evidence of endangered species or threatened plat species has been found on the site.

### Aquifer Recharge Areas

MW Brown undertook an examination of the drainage patterns, streams, and aquifer recharge areas on the Traverse Mountain property, to determine whether these issues will affect development. The geologic formations on the foothills are primarily gravelly formations. As a result, all precipitation in this area percolates into the water table underground and remains in the watershed. It does not leave the site in the form of runoff in streams. The only exception would be in the event of a heavy storm, where precipitation may accumulate and begin to leave the site as runoff. There have been no perennial historical flows exiting the Traverse Mountain property, and it is not anticipated that this will change. As development occurs at Traverse Mountain, recharge of into the underground aquifers will continue as it has in the past. This may be accomplished through the installment of detention basins in strategic locations, to enable runoff to be directed to drains and detention basins.

### Stream and Aqueducts

No comprehensive information on the locations of streams in the State of Utah is available. MW Brown used the area's USGS 7.5 minute quadrangle to approximate the location of streams and channels at Traverse Mountain. Several ephemeral drainage channels exist in the small canyons throughout the property. In addition, the Murdock Canal crosses the southwestern portion of the property, as indicated on the map showing the rough locations of the drainage channels. The Murdock Canal is contained within an easement across the property, ranging in width from 55 feet to 300 feet. The Jordan Aqueduct, in a 66-inch diameter pipe also crosses the property. No streams cross the property.



## Drainage Areas

The southern portion of Traverse Mountain slopes to the south, with surface runoff being directed toward Timpanogos Highway (SR-92) running east-west at the south property line. Surface runoff is passed through culverts under the railroad and the canal. Several unnamed natural drainage channels in this southern part of the property begins in the mountainous terrain to the north and runs southerly toward Timpanogos Highway (SR-92).

Several large natural drainage channels can be seen in the northern part of the property with the largest being Oak Hollow. The drainage channels start near the ridgeline to the northwest and run southwest toward Interstate 15. Oak Hollow is the only named drainage channel and it appears to be contiguous to the Jordan River, with a drainage area close to two square miles at Traverse Mountain. The remaining drainage channels become less defined where they leave the foothills and are intercepted by the canal, Timpanogos Highway (SR-92) and Interstate 15. Page six (6) of this section provides a drainage channel exhibit. Additional information concerning drainage can be referenced in the Storm Drain section of the Area Plan.

Vegetative cover is fair, mainly consisting of native grasses with limited areas of mountain brush and sagebrush. Soils are generally well-drained, gravelly with rapid permeability. Infiltration rates for on-site soils are anticipated to be in the range of 5 to 30 minutes per inch.

## Slopes

MW Brown has performed a slope analysis, which is a part of this section. Slopes in the northern portion of the property range from 15% to greater than 30%. A map indicating areas of 30% or greater is provided in this section.

## Wetlands and Floodplains

The Lehi City Development Code requires that any development area containing wetlands adhere to the U.S. Army Corps of Engineers guidelines regarding wetlands. An examination of the Corps of Engineer's online interactive mapping program shows that no wetlands are found in the area north of Timpanogos Highway (SR-92), east of Interstate 15, south of the Utah County-Salt Lake City County line, and west of Alpine.

The Federal Emergency Management Agency (FEMA) publishes maps of all areas of the United States. These maps are mainly used to determine flood zones, flood plains, and the probability of flooding in an area. The Traverse Mountain property is shown on FEMA Flood Insurance Rate Map Community Parcel Number 495517 0105 A. Traverse Mountain is in Flood Zone C, indicating minimal flooding danger.

## Wildlife Habitat

The Lehi City Development Code requires that any development with the potential to adversely affect wildlife habitat must take steps to minimize impacts on the habitat. There is wildlife on the site that has been observed in the higher elevations of the property, particularly in the area to be designated as undevelopment open space.



In the opinion of the Division of Wildlife Resources of the Utah Department of Natural Resources, there is no rare, threatened or endangered species living in the area, including the township-range sections adjoining the property. The informational manager at the Division of Wildlife stated that "Utah Natural Heritage Program (UNHP) does not have records of occurrence for any species of special concern, including threatened or endangered species with the study area." Letter from Department of Natural Resources Division of Wildlife dated, February 1, 2000, is reference at the end of this section.

#### Historical Areas

The only known uses of the Traverse Mountain property are agricultural before development activity began in 2001. According to the Environmental Site Assessment performed by AGEC in December 2006, there are no historical sites on the property. The Utah Historical Society requires that any structure over fifty years old be considered for historical status. There were no buildings at all on the property prior to the development activity begun in 2001.

#### Archeological Sites

Psomas Engineering contacted Jim Dykmann, an archeologist with the Utah Historical Society, regarding the presence of archeological sites on the property. Mr. Dykmann stated that there are no known archeological sites on the property. A letter from Department of Community and Economic Development Division of State History Utah State Historical Society dated, July 17, 2000, is referenced at the end of this section.



# Wildlife Habitat Letter

UTAH STATE HISTORICAL SOCIETY

F. 21/00



Department of Community and Economic Development  
Division of State History  
Utah State Historical Society

UTAH STATE  
HISTORICAL  
SOCIETY

Michael O. Leavitt  
Governor  
Max J. Evans  
Director

300 Rio Grande  
Salt Lake City, Utah 84101-1152  
(801) 533-3500 FAX: 533-3501 TDD: 533-3502  
utahhistory.state.ut.us utahhistory.utah.org

July 17, 2000

Maria Vyas  
Planner I  
PSOMAS  
2825 East Cottonwood Parkway, Suite 120  
Salt Lake City UT 84121

Post-it® Fax Note	7671	Date	# of Pages
To	YAS	From	
Co/Dept		Co.	
Phone #		Phone #	
Fax #	270-5182	Fax #	

RE: Fox Ridge Development

In Reply Please Refer to Case No. 00-0138

Dear Ms. Vyas:

The Utah State Historic Preservation Office received the above referenced information. After consideration of the project and the consultation meeting, the Utah Preservation Office provides the following comments for consideration.

1. Problems with the area of potential effect. I made a mistake concerning the location of this project. The original letters indicating that there were known cultural sites in the project area applies to the west side of the freeway and another project
2. Concerning the Fox Ridge Project, the area of potential effect has not been surveyed for cultural resources. Given the nature of the project area, the USHPO would not recommend a cultural resource survey of the project area. The potential for affecting cultural resources in the area is limited.
3. There is one exception to this recommendation; the northern part of the project extends up into an area named Oak Hollow. I understand that development is to take place at a later date, and that developers are not sure at this point of when this will happen. When the area is to be developed, our office recommends that a sample survey be completed of the project area. The potential is higher in this area for the location of indigenous sites and human remains.

This information is provided on request to assist with Section 106 responsibilities as specified in §36CFR800. If you have questions, please contact me at (801) 533-3555. My email address is: jdykmann@history.state.ut.us

As ever,  
  
James L. Dykmann  
Compliance Archaeologist

RECEIVED

JUL 19 2000

LEHI CITY

TLD:00-0133 OR:NAE

Preserving and Sharing Utah's Past for the Present and Future



Archeological Letter



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WILDLIFE RESOURCES

1594 West North Temple, Suite 2110  
PO Box 146301  
Salt Lake City, Utah 84114-6301  
801-538-4700  
801-538-4709 (Fax)  
801-538-7453 (TTY)

Michael O. Leavitt  
Governor  
Kathleen Clarke  
Executive Director  
John Kimball  
Division Director

February 1, 2000

Maria Vyas  
Psomas Engineering  
2825 East Cottonwood Pkwy  
Suite 120  
Salt Lake City, UT 84121

Dear Ms. Vyas,

I am writing in response to your request for information regarding species of special concern found proximal to the area described in your request in Salt Lake and Utah Counties.

The Utah Natural Heritage Program (UNHP) does not have records of occurrence for any species of special concern, including threatened and endangered species, within the study area.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated by the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values may also be present on the designated site. These values may include critical habitats for ring-necked pheasant, Hungarian partridge, chukar, deer, and elk. Please contact UDWR's regional habitat manager, Doug Sakaguchi, at (801) 489-5678 if you have any questions.

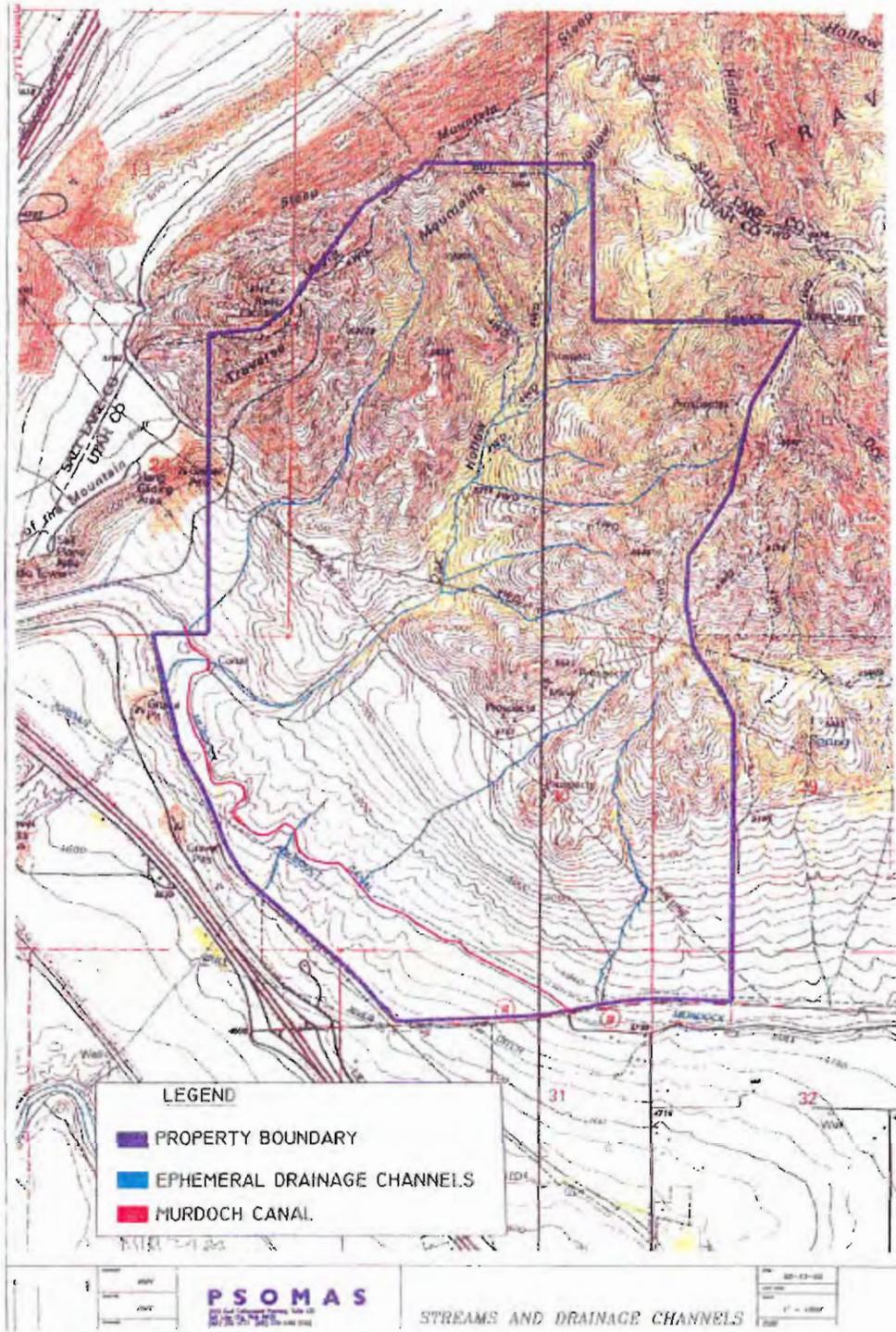
The UNHP normally charges for this type of request, but due to the small amount of research and time required to fulfill this request, you will not be charged for this information. Please contact our office at (801) 538-4759 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Ward".

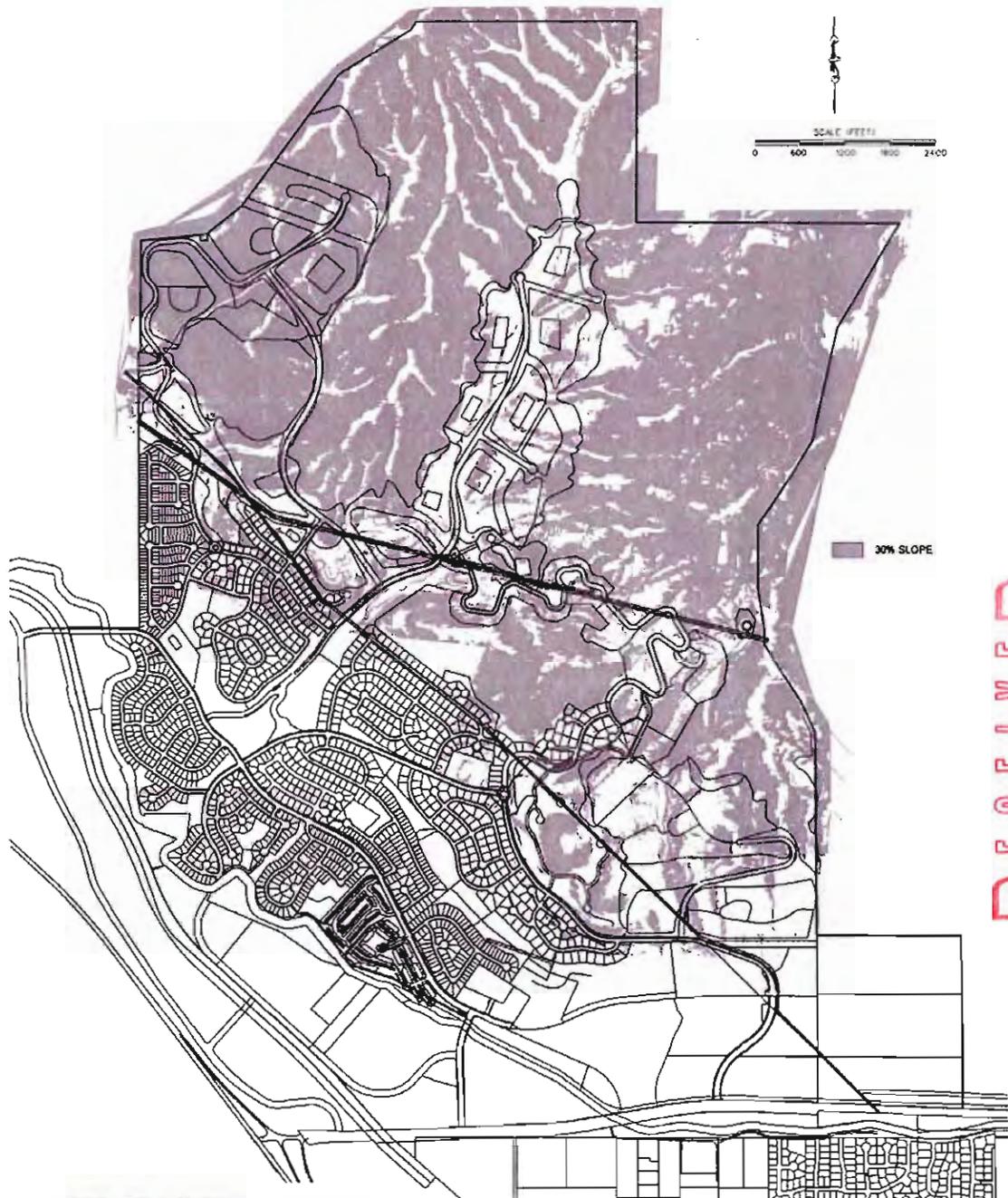
Alan Ward  
Information Manager





Drainage Channel Exhibit

**RECEIVED**  
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APR 24 2012

LEHI CITY

**MW  
BROWN  
ENGINEERING, INC**

Office: (801) 377-1790 Fax: (801) 377-1789  
378 East 790 North, Orem UT 84057

Class	TRAVERSE MOUNTAIN, LEHI UTAH	PROJECT NO.	2010-037
Drawing Name	30 PERCENT SLOPE	Sheet No.	31-21-51

**30 Percent Slope Exhibit**

## Mass Grading

Mass grading is defined as grading that is completed on a large scale over a large area which includes all the area approved for development at Traverse Mountain (see Mass Grading Exhibit 1) and includes the process of achieving a desired ground configuration by altering the existing ground contours through engineered cutting and filling of soils. Mass grading generally does not create final designed pads and a rough grading plan and/or precise grading plan will typically be used once the specific product has been determined. The mass grading operation will balance the soils such that the final grading operation will not import or export beyond trench and fine grading spoils.

East and Central Canyon will be a balanced mass grading operation. West Canyon has been permitted by Lehi City to be an export mass grading operation with the exported materials being transferred to the adjoining Geneva Rock property or transported out Flight Park Road.

Mass grading within the East Canyon Planning Areas B and D as well as the 5.4 acre private park in Planning Area C2 shall be done in one phase including slope protection and revegetation. The grading may stop during winter weather conditions; however the intent is to proceed with grading until completion. Planning Areas A and C1 grading may be done separately from each other. As a part of the Planning Area A grading, Planning Area B will be partially graded for export material to balance the grading of Planning Area A. All graded slopes created during the mass grading operation will be revegetated with an appropriate seed mix see Exhibit 2 for sample seed mix with recommendations for planting methods and the planting season.

All mass grading operations shall comply with Lehi City Design Standards Chapter 4 Earthwork.

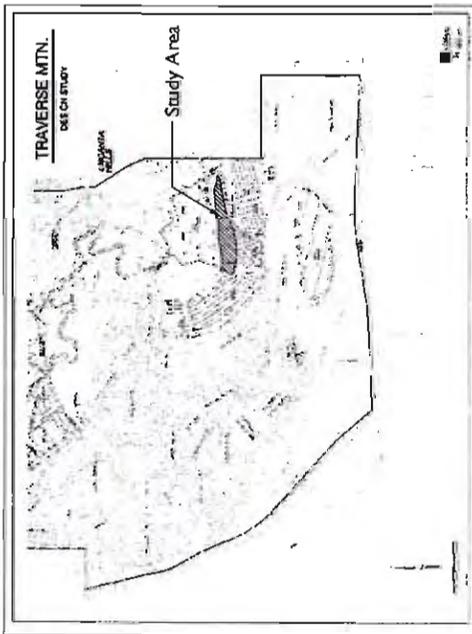
All mass grading will comply with the Lehi City Development Code Chapter 12-A Hillside Preservation and Grading Permit ordinance with the approved exceptions contained in Exhibit 3 - Traverse Mountain Exceptions from the Lehi City Grading Permit and Hillside Preservation Ordinance. These exceptions were approved by Lehi City Council on November 11, 2008, and are made a part of this Area Plan as a reference to the granted exception to the Lehi City Development Code Chapter 12-A Hillside Preservation and Grading Permit.

Soil screening and rock crushing machinery is permitted in all area designated for mass grading on a temporary basis while the mass grading operation is occurring. Mass grading operations that will be using soil screening and rock crushing machinery will be required to secure a conditional use permit when obtaining a grading permit.

Should blasting be necessary in mass grading areas all Lehi City blasting requirements will be complied with per Chapter 33 of the International Fire Code.







Index Map

Exhibit A

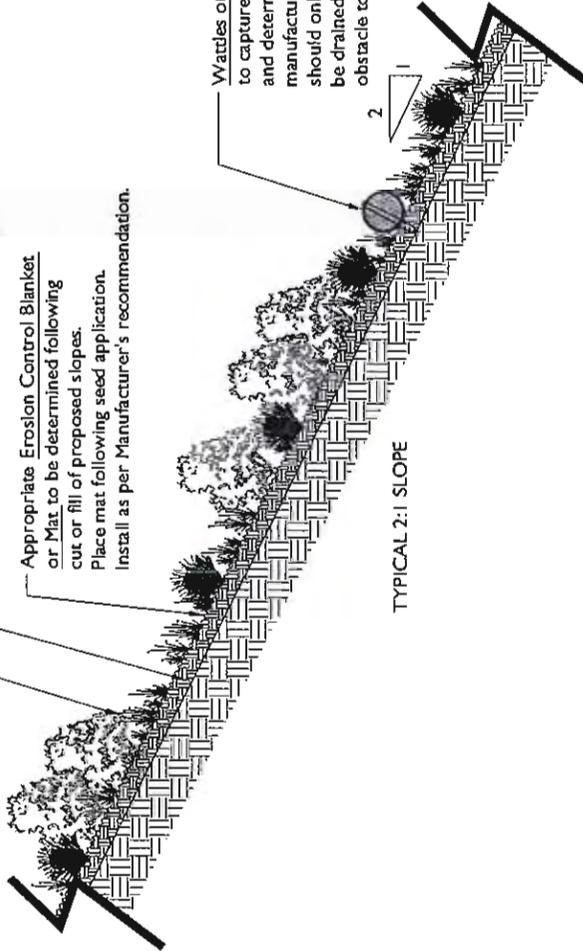
The re-vegetated slope indicated represents a 2:1 slope located on the Traverse Mountain property which was seeded in 2004. Plantings indicated are representative of the proposed Revegetative Seed Mix below.



**Typical Re-vegetative plantings**

Loosened 2-3" depth of Topsoil prior to seed placement. Import as needed. Slope to be 'tracked' as needed.

Appropriate Erosion Control Blanket or Mat to be determined following cut or fill of proposed slopes. Place mat following seed application. Install as per Manufacturer's recommendation.



TYPICAL 2:1 SLOPE

**RE-VEGETATIVE SEED MIX:**

SPECIES	%
Slender wheatgrass	15
Western wheatgrass	17.5
Bluebunch wheatgrass	16.25
Sheep fescue	3.5
Sandberg bluegrass	2.75
Indian ricegrass	10
Rubber rabbit brush	5
Western sage	5
Blanket flower	5
Blue flax	10
California poppy	10

SEEDING RATE IS 20 POUNDS PER ACRE

(Seedmix provided by Granite Seed, Lehi, Utah)

Exhibit 2: Slope Re-vegetation Study



# northland

DESIGN GROUP

landscape architecture | land planning  
 486 N. 900 W, Ste. 200  
 Timpview Market Plaza  
 American Fork, UT 84003  
 801.763.0179  
 www.northland-design.com

## Re: Re-Vegetation Recommendations

*Prepared for:*

Mountain Homes Development Corp  
 Traverse Mountain  
 Lehi, Utah  
 c/o Jack Hepworth  
 September 27, 2011

Dear Lehi City Staff,

Northland Design (The Consultant) contracted with Mountain Homes Development Corp. (The Client) to prepare a report that meets the requirements of Section 12-A.030-D4 Hillside Preservation Development Standards as set forth by the City of Lehi.

### 1. Re-vegetative Plan

The following re-vegetative plan (Table 1) includes a seed-mix specifically selected for the Traverse Mountain project taking into consideration the existing plant communities found on the site. It is recommended that construction and silt fencing be placed to provide a limits of disturbance line to minimize damage to existing adjacent plant communities to remain.

Proposed hillside grades for the site are 2 to 1 slopes at final completion. The existing surface soil face consists of silt, sand, gravel and bedrock.

**Table 1. – Species Recommended for Direct Seedings**

Species	Seeding Rates lbs/ac (PLS)
<i>Grasses</i>	
Bluebunch wheatgrass	Agropyron spicatum 2
Mountain brome	Bromus carinatus 3
Slender wheatgrass	Agropyron trachycaulum 3
Western wheatgrass	Agropyron smithii 4
Pubescent Wheatgrass	Agropyron Trichophorum 3
Hard Fescue	Festuca ovina 2
<i>(Source: Great Basin Seed, Ephraim Utah)</i>	
Total	18

### 2. Maintenance Recommendations:

Existing Plantings:

Existing plantings if protected during construction shall maintain themselves and not require any maintenance. Protective measures should at a minimum be: Visible construction fencing and necessary silt fencing.



Proposed Planting:

When seeded correctly this mix requires no maintenance and is intended to establish itself. Re-seeding is occasionally required where seed didn't establish or was thinned.

**3. Methods for Minimizing Problems**

**Planting Methods**

All seeds must be incorporated into soil to adequately germinate and establish. Seeds may be distributed on the soil surface by hand or mechanical broadcasting; however some means must also be employed to cover the seeds with an appropriate amount of soil. New plants are difficult to establish on steep and unstable slopes primarily because seeds are not placed or incorporated into the soil. Most seeds require 0.25 inch depth placement in the soil. Seed coverage can be accomplished using drags, rakes, or rails. Depositing seeds on a roughened surface and placing mulch or erosion blankets can improve seedling establishment, however these practices alone will not assure successful establishment of many species. Seeds should be covered immediately after broadcast distribution to prevent wind and water erosion and loss to small mammals, insects, and birds.

**Planting Season**

Direct seeding should be completed in the late fall and early winter period, normally during October and November. Late fall plantings are recommended to prevent seed from germination in the summer months when consistent moisture is not available to maintain the small seedlings. In addition, seeds of some species require a period of cold and moist conditions to break dormancy and germinate uniformly. Seeds deposited and maintained in the soil over winter normally germinate in the spring when soil moisture is available to assure germination and initial establishment. Over-winter stratification of the seeds eliminates dormancy and allows for uniform germination and seedling establishment. (*Information by Western Ecological Consulting Inc. 2004*)

If there are further questions regarding this report please call me at the numbers listed above.

Thank you,

Jeremy S. Fillmore, President, LLA  
Licensed Landscape Architect  
Northland Design Group



**Traverse Mountain Exceptions from Lehi City  
Grading Permit and Hillside Preservation Ordinances**

In the approved Area Plan it was agreed that the scale and scope of the development required flexibility and creative design techniques, and that design and engineering standards need to be in harmony with the scale and special circumstances at the Traverse Mountain Property.

Lehi City's Grading Permit and Hillside Preservation Ordinances do not preclude Traverse Mountain from their vested rights under the approved Concept Plans. Per the August 15, 2006, City Council approval of the June 1, 2006 Concept Plan mass grading will occur in the Canyon District and elsewhere on slopes that exceed 30%. The following language is a part of the June 1, 2006 approved concept plan. "The Canyon District at Traverse Mountain will consist of several types of mixed-use residential and commercial development including various themed attached and detached housing, cluster housing, townhomes, rental properties, high rise construction up to 12 stories for various mixed-uses and district retail including neighborhood retail and resort properties. The development will be integrated with the natural environments to provide a unique canyon living experience. Due to unique terrain conditions and other appropriate constraints and conditions of the property, mass grading will be permitted to achieve the allocated densities (as per the ADA and 1<sup>st</sup> Amendment). Where grading occurs, slopes will be revegetated with like and natural vegetation."

**TRAVERSE MOUNTAIN VARIANCES TO THE GRADING PERMIT ORDINANCE**

**Grading Permit Requirements Section D**

Traverse Mountain shall submit a grading plan, soils report, and geologic report, if recommended, Storm Water Prevention Plan, and a vegetation plan, when applicable for a grading permit.

**Submittal Requirements Section C & Grading Permit Issuance Section B) 2**

Item 12.060 (K) (1) (steep slopes) is not applicable to Traverse Mountain. Traverse Mountain is allowed to develop areas within the approved Concept Plan where slopes exceed 30% so long as Traverse Mountain meets the criteria outlined in the Lehi City Grading Permit Ordinance as amended by Traverse Mountain in this document. Grading plans shall specifically denote areas that exceed 30%.

**Grading Permit Issuance Section A & B) 3**

A preliminary plat will not be required for mass grading in Sage and Radio Tower Canyons as identified in the November 18, 2008, Lehi City Council approved Concept Plan; however, a conceptual vision plan will be required prior to issuing a grading permit.



**TRAVERSE MOUNTAIN VARIANCES TO THE HILLSIDE PRESERVATION ORDINANCE**

**Replacement of the Purpose and Intent Paragraph**

To ensure that all grading, excavation, filling or erection of any structure on land within the approved Concept Plan shall conform to the Lehi City Hillside Preservation and Grading Permit Ordinance as amended by Traverse Mountain in this document, while giving due consideration to the vested rights of Traverse Mountain and its predecessors in previously approved concept and/or area plans.

**Purpose and Intent Sections - Items A - J**

Items A, B, F, G, I, and J do not take into account that Traverse Mountain will be permitted to mass grade on slopes that exceed 30% throughout the approved Concept Plan given certain conditions are met which conditions are set forth in the Lehi City Hillside Preservation and Grading Permit Ordinances as amended by Traverse Mountain in this document. Items A, B, F, G, I, and J does not preclude Traverse Mountain of vested rights under the approved Concept Plan. The City has previously approved mass grading throughout the Canyon District with the approval of the June 1, 2006 Concept Plan.

**Development Standards and Provisions Section - Item A**

Traverse Mountain is allowed to grade, excavate, fill, erect structures, and otherwise disturb slopes greater than 30% provided Traverse Mountain has complied with sound engineering practices and geologic recommendations as well as the Lehi City's Hillside Preservation and Grading Permit Ordinances as amended by Traverse Mountain in this document. Traverse Mountain will submit a preliminary plat to Lehi City Council for all areas within the Concept Plan except those areas approved for mass grading in Sage and Radio Tower Canyons as identified in the November 18, 2008, Lehi City Council approved Concept Plan.



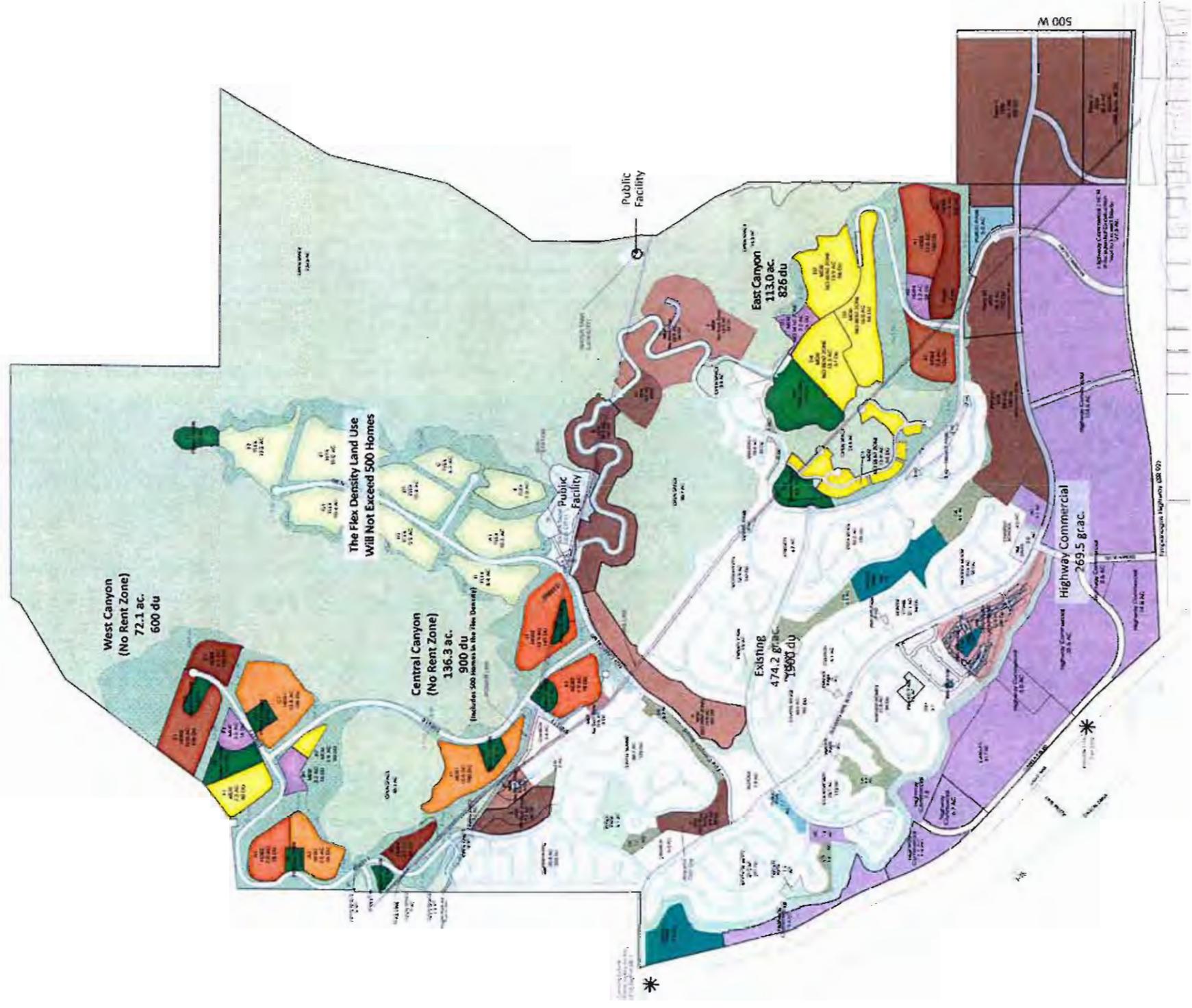


Exhibit 1: Areas of Mass Grading

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