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The Corporation of the City of Vernon 3400 - 30th Street Vernon, BC V1T 5E6

email: ccorbett@vernon.ca

December 13, 2011

Attention: Cleo Corbett, Long Range Planner

Re:

Silver Star Foothills Neighbourhood Plan AreaLegal Parcels- Lot 1 Plan 42075- NW ¼ of SW ¼ Sec 19.- West ½ of NE ¼ of SW ¼ Sec 19.

The following information is provided in response to the City of Vernon's request for planning materials and information from land owners in the area now designated the Silver Star Foothills Neighbourhood Plan.

Enclosed is the conceptual land use and road network for a 30.67 hectare site in the neighbourhood plan area which we have identified as the Proposed Residential Strata Development. We note that this layout is preliminary in nature and cannot be confirmed without further collaboration with other stakeholders and the City of Vernon to develop an integrated infrastructure system between parcels; however, we have utilized the information available to produce a development plan which we feel is the best suited utilization of existing infrastructure and past planning and development initiatives.

The Foothills area has historically been designated as a growth area since its initial development in the 1980's. The authors of this report, having owned lands in the area for over 30 years, have participated directly in various past planning and development initiatives. In an effort to refine planning initiatives and complete a cohesive infrastructure design for the area we have included what we foresee as the future development of the lands which were annexed in 2008.

We believe that all stakeholders in the area should have their fair opportunity for input during this neighbourhood planning process, as such, the additional planning materials provided and proposed off-site infrastructure design are in no way intended to interfere, dictate, or limit the current or potential land use for any neighbouring parcels; but rather, to provide a functional infrastructure network based on engineered design.

It is our hope, that once complete, the neighbourhood plan will outline the framework for future growth in the Silver Star Foothills Neighbourhood. We feel that this Neighbourhood planning process should aim to identify land use areas, as well as, establish approximate residential unit count and identify the location of infrastructure routes and common infrastructure projects fundamental to the development of the overall area. Consideration should be given to these common infrastructure projects, both the acquisition of legal right-of-ways and determining financial cost sharing.

TABLE OF CONTENTS

INTRODUCTION

EXECUTIVE SUMMARY

- 1.0 OVERVIEW
- 2.0 LOCATION & DEVELOPMENT VISION
- 3.0 SITE INVENTORY & ANALYSIS
- 4.0 LAND USE SUMMARY
- 5.0 ENVIRONMENT
- 6.0 TRANSPORTATION
- 7.0 SERVICING
- 8.0 COSTS
- 9.0 CONCLUSION

SCHDULES

Foothills:

- 1) Foothills Neighbourhood Plan Area
- 2) Foothills Composite Aerial Map
- 3) Foothills Slope Analysis Map
- 4) Foothills Environmental Assessment Map
- 5) Foothills Proposed Composite Land Use Map

Strata Development:

- 6) Strata Development Aerial Map
- 7) Strata Development Detailed Slope Analysis Map
- 8) Strata Development Simplified Slope Analysis Map
- 9) Strata Development Environmental Assessment Map
- 10) Strata Development Proposed Composite Land Use Map

LIST OF FIGURES

- Photos Foothills from viewpoints specified by the City of Vernon
- Photos Site Assessment
- Photos Proposed Foothills Loops Trail and Destination View Points.

APPENDIX

Environmental Assessment Report - Sage Environmental Consulting Ltd, October 2011.

EXECUTIVE SUMMARY

1.0 OVERVIEW

This information in this report is intended to act as a framework by providing a feasible and obtainable growth scenario as the City of Vernon undertakes the Neighbourhood Planning process in the Silver Star Foothills Area.

It is requested that this Neighbourhood Plan provide for a variety of housing options and determine the overall area density without limiting future flexibility and allow market demand to determine the housing mix as the area grows.

Some of these projects and initiatives will require additional information and analysis in order to finalize the design and determine their feasibility.

2.0 LOCATION & DEVELOPMENT VISION

The fundamental premise on which this preliminary design has been developed is that:

"Healthy Living creates Healthy Communities"

The proposed residential strata development seeks to provide opportunities for a wide range of housing forms and costs. It is also the intent to create new community parks, an expanded trail network, and provide improved safe transportation and fire protection to the area.

The benefits of a strata development in this location are the ability for a strata association to potentially fund and maintain common open spaces and boulevards; similarly, a strata council can internally manage and enforce development regulations without the need for City intervention. Private strata roads will eliminate maintenance costs to the municipality and will provide for greater flexibility in neighbourhood design.

3.0 SITE INVENTORY & ANALYSIS

- The Strata Development site is comprised of three existing land parcels totaling 30.67 hectares. (SCHEDULE 1)
- The Hillside characteristics of the site provide for panoramic views of the valley, including the four local lakes.
- Area with slopes exceeding 30% account for approximately 10.98 Hectares or 35.8 %.
- Area with slopes less than 30% account for approximately 19.66 Hectares or 64.2%.
- Steep slopes are predominately found on both the East and West sides of the development site. (SCHEDULE 3)
- The landscape is characterized by both open grass lands and forested areas. (SCHEDULE 2)
- Much of the area is currently being used by the public for walking trails and motorcycle/BMX trails. Despite private property signage, public trespassing has been problematic and has resulted in damaged fence lines and soil erosion from bikes carving trails. (FIGURE 2)
- A destination trail and lookout have been created by trespassers at the south end of the development site. It appears well used and has been equipped with a bench and fire pit. (FIGURE 2)
- Vehicular access is at the north end of the properties and services one single family dwelling.

4.0 LAND USE SUMMARY

Residential:

The Residential designation as illustrated on the enclosed Land Use Map (SCHEDULE 10) is intended to apply to all forms of housing and is intentionally flexible and oriented to accommodate various forms and densities.

The subject properties have a total area of approximately 19.66 hectares with slopes less than 30%. This developable area can be serviced by the layout shown on the enclosed plans. Overall site density has been determined based on the existing City of Vernon Zoning Bylaw designation "Hillside Residential: HR1" – keeping in mind that the types of housing that will actually be constructed are not to be limited to Single Family and Duplex homes.

HR1 max density (25.0 units per hectare) x 19.66 Developable Hectares = 491 Dwelling units

It is not the intention to initiate a change in zoning at this time, but rather, to provide guiding principles for future development and to determine the overall site density such that infrastructure planning can be sized accordingly.

Parks and Recreations:

- Parks and Open Spaces account for approximately 12.2 Hectares or 39.8% of the proposed development site. (SCHEDULE 10)
- Outdoor recreation, trails, and natural features are an attribute to the development of this area and to the general livability of the Silver Star Foothills Neighbourhood. The proposed publically dedicated 2.2km "Foothills Loop Trail" will provide the ability to access nature and viewpoints by way of a continuous level walking loop which follows the topographical contour at elevation 800m along with accompanying internal destination trails (SCHEDULE 10) and (FIGURE 3). This trail network will in turn connect to the "Ribbons of Green" Trail System.
- Collaboration with other stakeholders will aim to extend the proposed trail network and integrate connections loops and trail heads in a way that supports feasible infrastructure construction and promotes a walkable Foothills neighbourhood.
- Consideration should be given to the expanded trail system as a whole in order to provide adequate parking, sufficient access points, trail signage, benches, and related maintenance. Narrow trails are promoted in areas where suitable.

5.0 ENVIRONMENT

- Enclosed is the environmental assessment conducted by Sage Environmental Consulting Ltd. as was requested by the City of Vernon. (APPENDDX 1)
- The proposed development design will minimize disturbance in polygons area designated as SEI high value. Once the specifics of infrastructure, roads, and buildings are identified for the area; then site specific mitigation measures will be developed that will preserve overall environmental site conditions. (SCHEDULE 9)
- Invasive weeds were identified in the area.
- Slopes in excess of 30% will remain largely undeveloped and are to retain natural vegetation. (SCHEDULE 8)
- Wildlife corridors are promoted by extending parks and open space areas to adjacent properties.
- No riparian features were found during the environmental assessment.

6.0 TRANSPORTATION

Access to the proposed strata development site is by Hitchcock Road and Wildwood Road intersecting at Silver Star Road (SCHEDULE 5). This route is preferred as it provides direct access to the site and eliminates the need for large cuts and fills along the western slope to connect down to the existing Foothills development.

Upgrading of existing roads will depend on density of development and an overall transportation plan. We recommend that Hitchcock Road be paved and upgraded while maintaining a narrow cross section. Hitchcock should be maintained as a through road with no additional driveway accesses or roadside trails. Topographical conditions lend themselves to a narrow cross section in order to minimize the need for retaining walls.

Private internal roads will provide access within the strata development. Private roads eliminate maintenance costs to the City and provide for greater flexibility in neighbourhood design (SCHEDULE 10).

7.0 SERVICING

Sanitary Sewer:

The City of Vernon has historically acknowledged that Blackcomb Way will be the primary route for sanitary and storm sewer infrastructure servicing development to the north of the commonly known Silverdale and Mendenhall lands; accordingly, sanitary should be able to feed by gravity to this system. Sizing of sanitary sewer mains in the Mendenhall lands will depend on the density of development and the number of connection points into the existing system.

Alternate sanitary service route could be through the existing Foothills sanitary system. Temporary mains may be required to circumvent undeveloped areas and engineered modeling will be required to establish capacity of existing lines.

Potable Water:

Currently potable water services are non-existent to lands above geodetic elevation 765m. The proposed strata development site is located within the GVSW service area and previous planning initiatives have identified this area to be serviced by municipal water which will require the extension of the Foothills Water System. The construction of a reservoir at elevation 865m will provide water service to lands above geodetic 765m, will eliminate the need for a temporary pumping station at the existing 765m reservoir site, and will provide cascading fire flow protection for the entire Silver Star Foothills area.

The water reservoir at elevation 865m is a common infrastructure project fundamental to the development of the overall area. Without this reservoir lands above elevation 765m cannot be developed; however, in order to construct the reservoir right-of-ways must be acquired, access constructed, and services extended from existing infrastructure.

Because of the scope of works, initial up-front costs to install the reservoir and related services could prove cost prohibitive for only one or two developers. This may slow or even prevent further development in the Silver Star Foothills area which could eliminate the opportunity for the community to acquire parks and open space or to create the previously discussed public trails and expand the "Ribbon of Green" Trail System.

-

Since the construction of this reservoir system would benefit multiple stakeholders we recommend phasing of infrastructure and the use of cost sharing agreements, late comer agreements, local taxation zones, or the application of DCC fees to assist in financing

General Utilities:

The proposed strata development would be serviced by underground utilities. Telephone and electricity are readily available on site, while gas and cable will be extended from the south.

8.0 COSTS

The costs below represent the direct consultant expenses incurred by Country Springs Estates Ltd. to compile the materials requested by the City of Vernon. These costs do not include any past engineering expenses, any internal preliminary design, or any of the internal man hours on site and time spent to assemble information.

Sage Environmental Consultants Ltd:	
(Environmental Assessment per criteria specified by City)	\$ 11,138
W.E. Maddox BCLS: Surveyor services and mapping	\$ 2,250
Quantum Consulting Group Ltd: Engineering services	\$ 7,634
TOTAL:	\$21,022

9.0 CONCLUSION

As the owner of the subject lands for the last 32 years, we have taken great pride in the stewardship of our property. While the grass lands have been grazed by cattle, we have protected the majority of the coniferous treed areas with fencing in an attempt to maintain these areas in their natural state.

During this neighbourhood planning process, it has become very apparent to us that the long term planning of services for the area will need the cooperation of all stakeholders; including government agencies, land owners, and the community. The preparation of this Neighbourhood Plan is an excellent opportunity to explore and create an infrastructure plan for the servicing of the area at a base level that will provide the important interface between the existing Foothills neighbourhood and future development.

Provided that an economically feasible growth framework can be established, we see this Neighbourhood Plan as the first step towards future development of the Silver Star Foothills area and the creation of a new community park, a user friendly trail network, the construction of a variety of market driven housing types, and most importantly, the long term protection of the top of the hill for generations to come.

We trust you find the forgoing report suitable for your present needs, please call if you wish to discuss the report in further detail.

Yours truly, Country Springs Estates Ltd

Josh Galloway





















Figure 1: Photos – Foothills from viewpoints specified by the City of Vernon

Foothills – Village Green Mall



Foothills – Star Road



Foothills – Tillicum Road



Figure 2: Photos – Site Assessment

Foothills Strata Development Site: Trespass Lookout



Foothill Strata Development Site: Trespass Trails



Foothills Strata Development Site: Fence Damage



Figure 3: Photos – Proposed Foothills Loops Trail and Destination View Points



Foothill Loop Trail – View Point 2



Foothill Loop Trail – View Point 3





Sage Environmental Consulting Ltd 2503 35th Ave. Vernon BC V1T 2S6 Contact: Matthew Davidson <u>matt@sageenvironmental.ca</u> Office: 250-558-0627

ENVIRONMENTAL MANAGEMENT INFORMATION HABITAT ASSESSMENT AND MAPPING

Foothills, Vernon BC

Prepared for: Josh Galloway Landowner Representative c/o Country Springs Estates Ltd 7601 McLennan Road Vernon, BC, V1B 3S7

October 4, 2011

SEC File: CSVN11-01

Environmental Management Information Habitat Assessment and Mapping

Silver Star Foothills Neighbourhood Plan Development

Page 2 of 16



October 4, 2011

Josh Galloway c/o Country Springs Estates Ltd 7601 McLennan Road Vernon, BC, V1B 3S7

RE: Environmental Management Information - Habitat assessment and mapping for an 86.57 hectare land parcel in the Foothills Neighbourhood of Vernon BC.

1 INTRODUCTION

Sage Environmental was engaged to provide habitat assessment and mapping services for a group of nine properties in the Foothills area of Vernon BC. This report has been prepared to identify the environmental characteristics of the subject lands and to provide strategic planning materials to the Neighbourhood Plan which is being developed for the Foothills and Silver Star Area.

1.1 Terms of Reference

This assessment and mapping was completed to fulfill an information request made to landowners in the Foothills neighbourhood by the City of Vernon. The specific requirements outlined by the City of Vernon are as follows:

Environmental Management Information: As per the Environmental Management Areas Strategy in the Official Community Plan (OCP), the following information is requested:

- Creation of a 1:3000 habitat assessment map of the property based on the Sensitive Ecosystem Ranking map included in the EMA Strategy The habitat map is to include identification of sensitive and protected species habitat areas, unique features, such as rock outcrops and ravines, and wildlife corridor areas;
- The 1:3000 maps need to include the location of any existing, abutting and proposed trails as per the Ribbons of Green map; and
- Identify Areas with noxious and invasive weeds

Page 3 of 16



1.2 Expertise

The assessment has been conducted by Matthew Davidson P.Ag., an Environmental Scientist with Sage Environmental Consulting Ltd. and Mark Piorecky RPBio. of Valhalla Environmental Consulting Inc.

1.3 Limitations

This assessment and reporting was carried out in accordance with generally accepted practices. Site condition information is limited to information collected on the date(s) of the field inspection. Our work plan has been prepared to meet the information request from the City of Vernon.

2 SITE INFORMATION

2.1 Site Location and Description

The Study Area consists of nine parcels located along and near the northern border of the Foothills neighbourhood in the City of Vernon BC. The total area for assessment is 86.57 ha. The site is located within Management Area 3 (MA3): Hillside Residential and Agricultural District as identified on the City of Vernon Environmental Management Areas Strategy¹ (EMA), Map 1. Refer to attachment 1 and map 1 for more detail.

3 METHODOLOGY

3.1 Desk Assessment

The desk assessment process involved a review of existing information for the subject property (reports, maps, aerial photographs and data files). To start this process, the Conservation Data Centre (CDC) was queried for known occurrences of rare, threatened, or endangered vegetation, vegetation communities and wildlife within the study area and vicinity. Sensitive Ecosystem Inventory (SEI) and Terrestrial Ecosystem Mapping (TEM) reports and map products, completed between 2005 and 2007 for the Ministry of Environment (Iverson, K. et al. 2008)², served as the basis for all mapping refinements. These mapping products existed for the entire subject property at a 1:20 000 scale. Initially, existing polygons were further delineated and refined to a 1:3 000 scale, based on interpretation of colour orthophotos and 5m contour intervals. Delineated polygons contain areas of

¹ City of Vernon, 2008, Environmental Management Areas Strategy

http://www.vernon.ca/services/pde/documents/ema strategy final.pdf

² Iverson, K.,P. Uunila, A. Haney and M. Sarell, 2008. Sensitive Ecosystems Inventory: Coldstream – Vernon, 2007. Volumes: 1-3 <u>http://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=15353</u>, Accessed July/August 2011



Page 4 of 16

relatively uniform terrain, slope, aspect, vegetation and disturbance. Each polygon was then classified to TEM site series and structural stage.

3.2 Field Assessment

Initial field assessment was conducted on July 21st and 22nd 2011. All mapped polygons within the study area were visited and assessed for accuracy of initial boundary positioning, site series classification and structural stage. At this point they were also assigned ecological condition values based on the level of anthropogenic disturbance, adjacency to linear disturbances, and the level of invasive species presence. A follow-up site visit was made on August 9th, 2011 for further refinements.

During all three site visits, the locations of key wildlife features that occur at spatial scales too fine to capture in mapping polygons (i.e. individual wildlife trees, rock outcrops and small or ephemeral wetlands) were recorded. In addition to key wildlife features, observations and sign of medium to large mammals was recorded throughout the study area to provide information on wildlife use and movement patterns. See Map 3 for more detail.

3.3 Conservation Value

Conservation values were generated for the individual habitat polygons using the methodology outlined by the City of Vernon in their Environmental Management Areas Strategy (EMA). As stated in the EMA, "*Conservation Value combines ecosystem (SEI Value and Quality/Condition) and Wildlife Habitat Values, with a weighting of two to one for ecosystem values*". Each polygon in the study area contains up to three deciles each representing a habitat type within an individual polygon. For each of the deciles in the habitat polygons, SEI value, quality/condition, and wildlife habitat values were determined. SEI values were assigned to each specific SEI habitat type based on rankings identified in the EMA (i.e. GR:sh=9). Quality and condition scores were generated based on field assessment findings, and wildlife habitat values were tabulated from ratings tables provided within volume 3 of Iverson et al. (2008). The conservation value is a composite value including each of these three variables. The equation below describes mathematically how these variables influence the resulting conservation value.

CV = Max [(2*SEIval_1 * QC_1) + WLhc_1] / 3, [(2*SEIval_2 * QC_2) + Wlhc_2] / 3, or [(2*SEIval_3 * QC_3) + WLhc_3] / 3

Habitat polygons were ranked based on groupings of conservation value (CV) scores. Rankings are as follows: low value (0 to 2.9), medium value (3 to 6.9) and high

Page 5 of 16

value (7 to 10). It should be noted that the EMA CV rankings are conservative by nature, as it requires that the highest ranked decile per habitat polygon is used to describe the polygons overall value regardless of its proportion of representation within that polygon. Environmental impact assessments may be undertaken to develop mitigation measures should future development be proposed to encroach upon the mapped high value habitat polygons in the study area.

4 **RESULTS**

This assessment has identified low, medium and high value habitat polygons on the subject property. Following is a summary of moderate and high value habitat types identified and mapped on the subject parcel. Low value polygons (marked NA) are not considered to be sensitive and are not described below. Other features mapped during this assessment include weed species abundance and unique habitat features.

4.1 Habitat Types

Five of the unique habitat types outlined in the City of Vernon EMA document were encountered. Descriptions of these habitat types and general condition are provided. Refer to Maps 2 and 3 for more detail.

4.1.1 Broadleaf Woodland

Variants of the Broadleaf Woodland, aspen copse (BW:ac) were found in the study area. These habitats are often highly ranked due to use by numerous species, however in some cases received a lower ranking in the study area due to significant disturbance resulting from land use and/or significant invasive or noxious weed presence.

4.1.2 Grassland

Grasslands were found to dominate on the western portion of the property. These habitats often have a high default ranking. Much of the grassland has been disturbed by historic use and/or invasive or noxious weeds species encroachment. Many of the grassland habitats received a reduced ranking of moderate due to the observed disturbances. SEI units Grassland, disturbed (GR:dg), Grassland, grassland (GR:gr), and Grassland,shrubland (GR:sh) were all represented on the subject property.

Environmental Management Information Habitat Assessment and Mapping

Silver Star Foothills Neighbourhood Plan Development

Page 6 of 16



4.1.3 Riparian

The SEI unit Riparian, fringe (RI:ff) represents a moisture loving species mixture including Western Red Cedar (*Thuja plicata*), Paperbirch (*Betula paperifera*), Thimbleberry (*Rubus parviforus*) and False Solomon's Seal (*Maianthemum racemosum*). This habitat was found to exist in one location and has a high value. A very small amount of Riparian, gully (RI:gu) exists along the eastern edge of the study area. This is a high value ecosystem. It should be noted that the indicated riparian gully and riparian fringe communities would not be classified as riparian areas under the Riparian Areas Regulation as no surface water was observed.

4.1.4 Open Coniferous Woodland

This moderately rated habitat was found to represent a relatively small portion of the study area. Some invasive and noxious weed encroachment was observed in these areas. These were often found to be moderately rated ecosystems.

4.1.5 Mature Forests

Both mixed and coniferous Mature Forests were found scattered throughout the study area. This is a moderate to low rated ecosystem. The rating for the ecosystem varies within the study area based on wildlife habitat values.

4.2 Habitat Features

Habitat features that were included in this assessment are unique features including wildlife corridors, ravines, rock outcrops and wildlife trees. Wildlife corridors were few within the study area and are limited to two gullies. One gully is partially within the study area and is located near the eastern boundary. This gully represents a wildlife corridor, however it has been degraded as it is interrupted by road crossings and has a road running parallel for the entire length in the study area. Another gully east of the study area boundary is a more significant corridor however it is just outside of the study area. Rock outcrops, cliffs and wildlife trees were recorded and mapped when encountered in the study area. Refer to map 4 for more detail.

4.3 Weeds

Noxious, invasive and other weedy species were noted in the study area. Table 1 below summarizes the species present, the status and general presence. Two weed maps have been generated to demonstrate abundance and cover of weeds within the study area. Six noxious weed species, one regionally significant invasive species and



Page 7 of 16

six nuisance weed species were recorded. The weed abundance is represented as low, medium or high. Coverage for weedy species is denoted as point (1 to 10 plants), patch (greater than 10 plants) and polygon for wide area coverage. Refer to maps 5 & 6 for more detail.

 Table 1: Noxious, invasive and weed species abundance and coverage for the

 foothills area mapping assessment

Common Name	Species Name	Status	Abundance	Coverage
Annual Sowthistle	Sonchus oleraceus	Noxious	Low	Polygon
Leafy Spurge	Euphorbia esula	Noxious	Moderate	Polygon
Mullein	Verbascum thapsus		Low	Polygon
Rush Skeletonweed	Chondrilla juncea	Noxious	Low	Polygon
Spotted Knapweed	Centaurea maculosa	Noxious	Moderate	Polygon
St.John's Wort	Hypericum perforatum		V. High	Polygon
Suphur Cincfoil	Potentilla recta	Invasive	High	Polygon
Hound's-Tongue	Cynoglossum officinale	Noxious	Moderate	Patch
Canada Thisle	Cirsium arvense	Noxious	Moderate	Patch
Cleavers	Galium aparine		Moderate	Point
Sheperd's-Purse	Capsella bursa-pastoris		Low	Patch
Stinkweed	Thlapsi arvense		Low	Point
Cheatgrass	Bromus tectorum	Low Patch		

4.3.1 Ribbons of Green

The Ribbons of Green trail mapping was provided by the City of Vernon and has been included as requested. Refer to map 7 for more detail.

I Trust this letter report and accompanying maps meets with your needs in this regard. Please contact the undersigned with any inquiries.

Respectfully Submitted

Matthew Davidson, P.Ag. 1957

Environmental Management Information Habitat Assessment and Mapping

Silver Star Foothills Neighbourhood Plan Development

Page 8 of 16



ATTACHMENTS

4







	Broadleaf Woodland Ecosystems: (BWxx) These areas are dominated by trembling aspen. These systems tend to be shrubby, and include broad, moist basins in grassland areas. Broadleaf woodland ecosystems provide habitat many species.			
	Coniferous Woodland Ecosystems: (WDxx) These ecosystems are similar to old forests, but have less uniform canopy structure and may consist of sparse, clustered tree cover. These ecosystems have been impacted by invasive species encroachment, growth of other tree species in canopy gaps, and development.			
	Grassland Ecosystems: (GRxx) These ecosystems are dominated by bunchgrasses, and forb species. These systems have been impacted by agricultural practices, development, invasive species encroachment, alteration of area hydrology, or other forms of land alteration. Grassland ecosystems provide essential habitat to a wide range of species, many of which are protected.			
	Mature Forest Ecosystems: (MFxx)These ecosystems tend to be composed of mature trees which buffer old or newly re-establishing forest systems. Mature forests provide habitat for many species and can grow into old forest ecosystems over time.			
Notes Ecosystem Description extracted	Riparian Ecosystems: (RIxx)Ecosystems identified by the proximity of streams, gullies with ephemeral or permanent creek flow, fringes of lakes and ponds, as well as sites with significant seepage. These systems provide habitat for a wide range of species and provide hydrologic ecosystem services including water quality improvements including temperature control, pollutant filtration, rainfall water retention and delayed release, and the prevention of stream bank erosion.			
NA – Low value ecosystems				

Example: 70% GRASSLANDgrassland / 30%WOODLANDconiferous

SEI Label Diagram

SEI

Sub-Category

7GRgr / 3WDco

SEI / Category

Meters 0

Percentage

u / 5Rlg

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