

North Clifton Area Structure Plan

**Lakeside Communities
(Melcor Developments)**

April 2014

EXECUTIVE SUMMARY

Lakeside Communities Inc. is pleased to present the North Clifton Area Structure Plan for the undeveloped lands located at the end of Clifton Road North. This plan was prepared in consultation with the landowners and stakeholders of the McKinley Landing Residents Association, Clifton Highlands Community Association, City of Kelowna staff and Council, and other stakeholders. This Area Structure Plan details the opportunities and constraints of the area, community design, land uses, parks and open spaces, services, and staging of development to take place within the project area. This plan addresses how these undeveloped hillside lands can be developed into a healthy, vibrant lakefront residential neighbourhood that will compliment surrounding neighbourhoods.

Specifically, the Plan provides for the following:

- ▶ A system of neighbourhood open space and lakefront parkland, with both passive and active features, and neighbourhood trails to connect all residents to the amenities provided;
- ▶ A maximum of 200 single/two family residential homes for an estimated 460 people.
- ▶ A general servicing scheme to complete the neighbourhood.
- ▶ An approximate staging plan for efficiently guiding development.

This Area Structure Plan focuses upon providing a lakefront lifestyle and single family housing types through the provision of a range of housing forms. Specific details of sensitive site design, lot layout, and preservation and protection of environmental features are also provided for in the concept design.

The Plan's policies seek to complement and enhance with the strengths of the existing surrounding neighbourhoods, while creating a new neighbourhood that looks to the future. The vision of the neighbourhood is achieved through a plan that has considered sensitive site design, single/two family housing, the public realm, and a compliment of neighbourhood amenities.

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Area Structure Plan Purpose	1
1.2	Plan Authority	2
1.3	Plan Preparation Process.....	3
1.3.1	North Clifton Process and Open Houses	3
1.4	Interpretation	5
1.5	Timeframe	5
1.6	Plan Review and Revision	5
2.0	SITE DESCRIPTION	6
2.1	Location.....	6
2.2	Background.....	6
2.3	Land Ownership	7
2.4	Site Context.....	7
2.4.1	Geotechnical Conditions.....	9
2.4.2	Existing Terrestrial & Aquatic Ecology	10
2.4.3	Historical, Cultural, Archaeological Buildings, and Sites.....	12
2.4.4	Landscape & Visually Significant Features	13
2.4.5	Adjacent Neighbourhoods	22
2.4.6	Existing Infrastructure	22
2.4.7	Existing Utility Corridors & Utility Rights of Ways.....	25
2.4.8	Other Site Constraints	26
3.0	NORTH CLIFTON NEIGHBOURHOOD	27
3.1	Vision & Guiding Principles	27
4.0	NORTH CLIFTON DEVELOPMENT CONCEPT	30
4.1	Single/Two Family Residential.....	30
4.1.1	Potential Unit Count.....	31
4.1.2	Residential Enclaves	32
4.2	Environment and Ecology	34
4.2.1	No-Disturb and Limits of Disturbance Areas	36
4.3	Parks and Open Space	37
4.3.1	City-Wide Park (Neighbourhood Park)	39
4.3.2	Open Space.....	40
4.3.3	Roadside Corridor	41
4.3.4	Multi-Use Trails.....	42

4.3.5	Nature Trail	42
4.3.6	Dedicated Crossing Point	43
4.4	Guiding Architecture and Neighbourhood Design Patterns	43
4.5	Transportation Network.....	45
4.5.1	Traffic Impact Assessment	46
4.5.2	Clifton Road North Extension	46
4.5.3	Internal Road Network.....	47
4.5.4	Emergency Access	48
4.5.5	Pedestrian Connectivity.....	49
4.5.6	Road Safety Audit.....	49
4.6	Infrastructure and Servicing	50
4.6.1	Water Supply	50
4.6.2	Sanitary System	51
4.6.3	Stormwater Management	51
4.7	Shallow Utilities	52
4.7.1	Natural Gas	52
4.7.2	Hydro	52
4.7.3	Telephone.....	52
4.7.4	Cable	53
4.8	Wildfire Mitigation and Fire Protection	53
4.9	Combined Development Concept.....	54
5.0	NORTH CLIFTON DEVELOPMENT POLICY	55
5.1	Land Use and Housing	55
5.2	Environment and Ecology	56
5.2.1	Environmental and Ecology Policies	56
5.3	Parks, Trails, and Open Space.....	57
5.3.1	Parks, Trails, and Open Space Policies	57
5.4	Transportation	57
5.4.1	Transportation Policies	57
5.5	Servicing and Shallow Utilities	58
5.5.1	Servicing and Shallow Utility Policies	58
6.0	DEVELOPMENT PERMIT AREAS	60
7.0	IMPLEMENTATION AND PHASING	61

APPENDIX - Under separate cover

PART I - ADMINISTRATION

1.0 INTRODUCTION

The North Clifton property is a 197.44 acre (79.90 ha) lakefront site located within the northwest area of the city of Kelowna. Specifically, North Clifton is an undeveloped tract of land between the McKinley Landing and Clifton Highland neighbourhoods (**Figure 1.1 Area Context**). In relation to the new North Clifton neighbourhood, McKinley Landing is located to the north, Clifton Highlands is located to the south, Wilden is located to the east, and Lake Okanagan shoreline is located to the west. The proposed development lands consist of four legal parcels, which are described in further detail in the following sections.

This ASP document has been divided into three separate parts, each of which provides specific content that supplements the document as a whole:


Part I: Administration – provides brief statements and descriptions about the North Clifton Area Structure Plan, ASP purpose, authority, preparation process, interpretation, timeframe, and ASP amendment process.

Part II: Background and Context – provides sufficient background history of the area and its' conditions, past and existing development, connectivity of lands within the ASP area and as it relates to the surrounding areas, land ownership details, and site context, including, but not limited to environmental and geotechnical conditions, and infrastructure information.

Part III: Land Use, Transportation, and Servicing – provides information related to the future of the area and how development will progress. Information within this Part will identify the areas vision, goals and objectives, land use, transportation, and servicing policy, parkland and open space facilities, population and unit projections, and implementation measures.

1.1 Area Structure Plan Purpose

The purpose of the North Clifton ASP is to ensure that the growth and development of the site progresses in a logical and integrated manner. The ASP Plan will further ensure that the development is set within the context of the adjacent existing and developing neighbourhood and the context of the city as a whole.



The limits of the of the North Clifton ASP boundary are illustrated (**Figure 1.2 ASP Boundary and Topography**), and fully described in Part II.

1.2 Plan Authority

The North Clifton Area ASP is authorized by the City of Kelowna as a formal policy document, which was guided by the policies within the City's Growth Management Strategy, and Official Community Plan.

The City of Kelowna Growth Management Strategy and 2030 Official Community Plan (OCP) provides the foundation for the development of policy established within the ASP. Using the direction provided by formal City policy documents as a foundational guide, the North Clifton ASP provides development principles and policy for land use, road and transportation, municipal servicing and utilities, parks and open space, and environment and ecology.

This ASP has been guided by high-level City policies which foster the creation of neighbourhoods and communities. The policies within this Area Structure Plan conform to, and seek to fulfill the objectives as outlined within the 2030 OCP, which include:

- ▶ Develop sustainably
- ▶ Focus development to designated growth areas
- ▶ Ensure adherence to form and character, natural environment, hazardous condition and conservation guidelines
- ▶ Ensure appropriate and context sensitive built form
- ▶ Promote social well-being and quality of life by providing facilities that serve all community members
- ▶ Achieve high-quality urban design
- ▶ Ensure opportunities are available for greater use of active transportation and transit to:
 - ▶ Improve community health
 - ▶ Reduce greenhouse gas emissions; and
 - ▶ Increase resilience in the face of higher energy prices
- ▶ Provide parks for a diversity of people and a variety of uses
- ▶ Ensure environmentally sustainable development
- ▶ Ensure efficient use of land

1.3 Plan Preparation Process

The City of Kelowna has established a hierarchy of Community Plans. **Figure 1.3** illustrates how the Area Structure Plan relates to other City Planning documents.

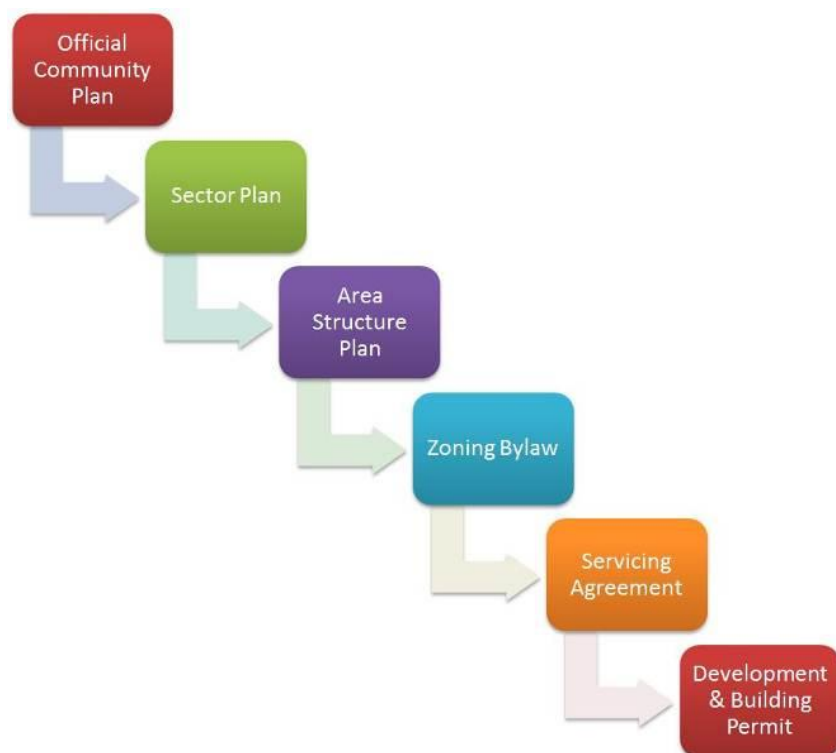



Figure 1.3 – Plan Process

The North Clifton ASP provides an intermediate link between the Official Community Plan, and specific development applications. More specifically, Area Structure Plans provide policy and a generalized development concept for future development within specific areas of the City. An ASP must adhere to the spirit and intent of the Official Community Plan, and include the primary development elements as it relates to the site. The primary elements addressed within the North Clifton Area Structure Plan include, but are not limited to land use, parks and open space areas, transportation, infrastructure servicing strategies, environment and ecology.

1.3.1 North Clifton Process and Open Houses

The North Clifton ASP was developed in consultation with a range of stakeholders, including various City of Kelowna departments and interested citizens from the Clifton Highlands and McKinley Landing residential neighbourhoods. In addition to several meetings with City staff, multiple meetings and



presentations were delivered to the Clifton Highlands and McKinley Landing Residents Association. Communication to area residents and stakeholder groups was successfully achieved through the establishment of a project website and email updates. Both the project website and email updates promoted open and ongoing opportunities for dialog and feedback.

A total of two open houses were held during the ASP development process to inform the general public of the process and to present the land use concept and receive feedback.

Open House #1

The first open house was an informal 'drop-in' format that provided background information to participants on multiple 24" x 36" display panels. Project staff and facilitators were present at the open house to provide information and field questions by attendees. City staff were also in attendance to observe and answer questions related to the process. To ensure all attendees had a comprehensive understanding of the content presented at the Open House, a two-page project summary hand-out was provided and a four-point questionnaire was available to record attendee comments.

Several verbal and written comments were received at the Open House and via the questionnaire. Many residents expressed concern for the proposed road connection from Clifton Road N. to Arthur Court, quoting increased traffic volumes and safety concerns. However, most open house participants did not have concerns with the development of the ASP itself or the addition of future residential development within the area. Many residents expressed the desire for Lakeside Communities to preserve the existing trails on site in addition to providing public beach access and active transportation opportunities.

Open House #2

The second open house mirrored the approach of the first open house for consistency purposes. The approach was an informal 'drop-in' format that provided attendees with detailed information about the Draft North Clifton ASP. Multiple 24" x 36" display panels were used to communicate the ASP proposal, including its land use, parks and open space, and road network concept. A written 'take-home' summary was available for attendees that highlighting the key elements of the draft North Clifton ASP. In an effort to attain feedback about on draft North Clifton ASP, participants were asked to complete and submit a short questionnaire with any additional comments. Results of the questionnaire and comments provided by open house participants were reviewed and taken into consideration prior to finalizing the Draft North Clifton ASP.

A detailed summary of each open house (Open House #2 pending) can be found within **Appendix F**.

1.4 Interpretation

Any mapping and figures within the North Clifton ASP including boundaries, lot locations, and locations of any symbols or areas shown on a map or figure in the ASP, are approximate and conceptual only, and are not absolute and therefore should be interpreted as such.

Where a statement accompanies a policy or policies, it is provided for information purposes only to enhance the understanding of the policy. Should there be any inconsistency between general statements and the policies themselves, the policy shall take precedence. The purpose of the Plan is not to replace other city policy documents or by-laws, but to enhance and provide assistance to decision makers.

Where a policy requires submission of studies, analysis or information, the exact requirements and timing of the studies, analysis or information shall be determined at the rezoning, subdivision, or Development Application stages.

1.5 Timeframe

The North Clifton ASP is future-oriented and depicts a proposed land use and transportation pattern for the area. No specific timeframe is applied to the Plan as the timing of development will be influenced by a number of contributing factors such as, but not limited to market changes, and the supply and demand of housing. It is, however, anticipated that under existing development conditions, full build out of the North Clifton Area could take between 10-15 years from the start of construction.

1.6 Plan Review and Revision

The text and illustrative figures within the North Clifton ASP are not intended to be static. Instead, their purpose is help guide the future development of the area. While the North Clifton ASP describes and illustrates the best representation of how the development will proceed, designs are conceptual and some modification and revision may occur as development progresses.



PART II – LOCAL CONTEXT AND BACKGROUND

The intent of Part II – Local Context and Background is to provide historical background and context to the North Clifton site. The content identifies both historical and existing background, while providing information about surrounding neighbourhoods, site features, current infrastructure servicing conditions, and community open house undertaken as part of the overall ASP process. The content of this section forms the foundation for the established development concept and resulting guiding principles and land use policies within Part III.

2.0 SITE DESCRIPTION

2.1 Location

The North Clifton Road ASP area is located in Kelowna, British Columbia, approximately 10 kilometres north of the Kelowna City Centre on Okanagan Lake (Figure 1.1). The study area is approximately 79.90 hectares (197.44 acres) located between the McKinley Landing neighbourhood to the north, Clifton North neighbourhood to the south, Wilden neighbourhood to the east and Lake Okanagan shoreline to the west (Figure 1.2).

2.2 Background

The North Clifton lands have long been identified in the City of Kelowna Official Community Plan as having future development potential, subject to the completion of an Area Structure Plan demonstrating viable development opportunities. Various development opportunities have been explored for the site, including large lot residential and a golf course. However, the most sustainable development opportunity is the provision of a variety of single/two family lots.

In September 2010, MMM Group Ltd., on behalf of Lakeside Communities, formally requested authorization from the City of Kelowna (City) Municipal Council to proceed with the preparation of an Area Structure Plan (ASP) for lands located between the Clifton North and McKinley Landing neighbourhoods. Following review and consideration of the submitted request, City Council authorized the preparation of this ASP in June 2011. The preparation of the ASP was to be developed in accordance with the Kelowna Official Community Plan 2030 and Council Policy No. 247.

In September 2011, the City of Kelowna provided the Terms of Reference (ToR) to Lakeside Communities and MMM Group that sets the framework and guidelines for the ASP development and corresponding process. The proposed North Clifton ASP is being prepared for formal application submission in accordance with the content and format requirements set out under the ToR. As per the City's ToR, the ASP process involves two phases: 1) acceptance of the ToR and baseline information review; and 2) development of the ASP.

2.3 Land Ownership

The North Clifton ASP area encompasses four different parcels. Each of the four parcels is owned privately by Lakeside Communities Inc., a Joint Venture where Melcor Developments Ltd. has a majority interest. For the purpose of this document, land ownership of the ASP area will be referred to as Lakeside Communities.

Melcor Developments is one of Western Canada's premier Community Developers with over 90 years in the Real Estate business. Melcor owns and develops land throughout Alberta, British Columbia, and USA.

Melcor Developments Ltd. and its predecessor companies have operated in the real estate industry under the direction and principal ownership of the Melton family since 1923. The company was operated as a family real estate firm and carried on the real estate related business as Melton Real Estate Ltd. until 1976, at which time it shifted its principal operations to land development and the ownership and management of investment properties.


Table 2.1, Land Ownership, provides the legal and civic address for each of the four parcels and is visually identified within Figure 1.2.

Table 2.1: Land Ownership

Land Owner	Legal Address	Civic Address
Lakeside Communities Inc.	Lot 1, Plan 65503, Section 17, Township 23, ODYD	1855 Bennett Road, Kelowna, BC
Lakeside Communities Inc.	Lot 2, Plan 65503, Section 17, Township 23, ODYD	1005 Clifton Road N., Kelowna, BC
Lakeside Communities Inc.	S½ NE¼, Section 17, Township 23, ODYD	E of Paly Road, Kelowna, BC
Lakeside Communities Inc.	N½ NE¼, Section 17, Township 23, ODYD	E of Paly Road, Kelowna, BC

2.4 Site Context

The North Clifton lands are located between the McKinley Landing and Clifton Highlands residential neighbourhoods. Both neighbourhoods are well established within Kelowna, contain modest size lots



supporting single family homes, offer a quiet atmosphere, and provide a range of passive recreation activities through the use of parks and trails in the surrounding area.


The average lot size within the McKinley Landing and Clifton Highlands neighbourhoods is 0.30 acres (1,214 m²). Lots within Clifton Highlands are serviced with City water and City sanitary sewer as far north as Sheerwater. The remaining lots are on City water but rely on septic disposal for sewer. Lots in McKinley are serviced with GEID water and are all on septic disposal systems. Lots within each neighbourhood are primarily accessed via minor collector and local road standards. Presently, neither the McKinley Landing nor Clifton Highlands are serviced by transit.

While the ASP area is bordered by the McKinley Landing and Clifton Highlands neighbourhoods, there are no roads that connect the two neighbourhoods. Access to the Clifton Highlands neighbourhood is obtained via Clifton Road North and access to McKinley Landing is obtained via McKinley Road. However, the City of Kelowna has communicated to Lakeside Communities that any development within the ASP area requires a connector road. It is proposed that the existing Clifton Road North be extended through the ASP area and connect with the existing Arthur Court in McKinley Landing. The extension of Clifton Road North will be completed in multiple phases.

The ASP lands are predominantly in their natural state and existing landscape consists of hilly Ponderosa Pine forest located on a west-facing slope along Okanagan Lake. The area is subject to a diverse range of slope gradients, ranging from 0% to 30% or greater, with various localized benches providing ideal development potential (**Figure 2.1**).

There is evidence of limited past agricultural activity along the moderately sloping western bench adjacent to the lake. It is likely past agricultural activity was limited to a forage crop, such as hay or alfalfa. One existing single-family residence is located in the south western portion of the property, adjacent to Okanagan Lake. This residence is accessed by a partially paved driveway off the terminus point of Bennett Road within the McKinley Landing neighbourhood. The home will likely be removed as development of the site progresses.

Two abandoned cabins and one pump house or outhouse are also present at the south end of the property near the lake shoreline. The state of both cabins and outhouse / pumphouse are presently so dilapidated that it is difficult to determine the original use and timeline associated with the use. Notwithstanding, representatives from the Kelowna Museum were invited to view the cabins to determine if they held any historical significance. Following the review, it was deemed the cabins have no historical significance.



The balance of the land shows historical evidence of limited timber harvesting and has been informally (i.e. without authorization) used for hiking and mountain bike trails. Evidence of an old single lane road exists from the terminus point of Clifton Road North down a very steep draw to the south western portion of the property. This road would not be passable except by a very capably equipped off-road vehicle or construction equipment.

Several areas of the site have been subjected to Pine Beetle infestation. In response to this, Lakeside Communities has undertaken a comprehensive wildfire hazard mitigation plan, which includes the removal of infected vegetation. This plan is discussed in more detail within Section 4.0.

2.4.1 Geotechnical Conditions


Beacon Geotechnical Engineering, on behalf of Lakeside Communities, completed a formal geotechnical investigation. The purpose of the investigation was two-fold: 1) to determine the physical and engineering properties of the soil, bedrock, and groundwater profile in the area with the objective to offer recommendations for design and construction of the site; and 2) identify any geo-hazard areas within the site. To complete the investigation, three primary tasks were completed including investigation of soil profiles through excavated test pits; collection of soil samples; and sample analysis and geotechnical report development.

The ASP area is situated on a topographic ridge separating the Glenmore Valley from Okanagan Lake. The northern area is an extension of a long slope down to Okanagan Lake. Gradients vary from 20% to 80%. Rock outcroppings are abundant and there is an existing scree slope located approximately in the centre of the property. Two large, deep ravines are located within the slope, near the middle of this area. At the east end, the ravines are approximately 15 metres deep and 30 metres across.

The topography of the southern ASP area consists of benches separated by steeper slopes. Two main benches were noted. The first bench is located north of Clifton Road North. The second bench is located west of the first bench, in the general vicinity of where the existing single family home is situated. Both benches will be used as future development areas for single family homes.

2.4.1.1 Hydrological & Hydro-Geological Conditions

A subsurface profile was conducted for the ASP area. Upon investigation it was discovered that the development area included a veneer of overburden, including topsoil and organic material, glaciofluvial sand and gravel, glaciolacustrine silts and glacial till and colluvium material, including talus. Bedrock was encountered nearly exclusively throughout the investigation, and bedrock outcrops were noted over the majority of the ASP area.



No groundwater seepage was encountered at any of the test pits. However, groundwater seepage should be anticipated during construction of underground utilities along preferential seams at the overburden bedrock contact. Further to this, no surface water or seepage was noted during site reconnaissance. However, the gullying located on the west facing slope in the northern area are drainage relics from the retreat of the last glacial period. No evidence of recent flow was noted, however, ground water seepage should be expected in these areas during construction as well.

Overall, no significant discoveries were made during the geotechnical investigation that would limit residential development of the site.

Further detailed surrounding geotechnical, hydrological, and hydro-geological conditions can be found within the Beacon Geotechnical Ltd. Geotechnical Investigation (dated October 5, 2012) located in **Appendix A, Geotechnical Assessment**.


2.4.2 Existing Terrestrial & Aquatic Ecology

In an effort to better understand the site's ecology and potential environmental sensitive areas, Makonis Consulting, in conjunction with Okanagan Wildlife Consulting, completed a comprehensive Environmental Assessment. The Environmental Assessment included site visits, review of recent orthophotos from the City of Kelowna, reports and independent studies for the area, and recent Terrestrial Ecosystem Mapping (TEM) undertaken by City of Kelowna. Subsequent site visits were made to confirm and identify plant communities, to confirm any changes to landscape, and to confirm and make appropriate changes to TEM /SEI mapping. The Environmental Assessment inventory was conducted in spring 2012 and completed in August 2012. The vegetation assessment utilized the "Biogeoclimatic Ecosystem Classification" (BEC) used extensively throughout British Columbia to report and describe terrestrial ecosystems.

The subject property is located in the Okanagan very dry hot Ponderosa Pine biogeoclimatic subzone variant occurring at lower elevations along the bottom of the Okanagan Valley. The area is characterized as one of the warmest and driest forested variants for this subzone in British Columbia, due to its' southerly latitude, and the pronounced rain shadow.

In general, ecological communities on existing natural features of the North Clifton Plan Area were typical of the rock escarpments and forested conditions of the central Okanagan region. **No wetlands, streams, surface flows or surface seepages are found in the plan area.**

Forest structure varied throughout the plan area; however multiple forest health impacts were noted. No old growth forests were found in the plan area. Several had been mapped in the Kelowna TEM/SEI as old growth but none were seen during the ground truth exercise of the project. Although, larger trees



were in the plan area, nearly all had succumb to beetle or related health problems and are standing snags. Historically this area had been logged in the early 1900's as seen by many of the older stumps still visible throughout the site. Recent fire mitigation has now opened the forest canopy and understorey has responded with lush growth. Still, pockets of the areas outside of mitigation remain suppressed and in poorer condition.

The ponderosa pine – bluebunch wheatgrass - fescue dominated vegetation community that comprises the property is relatively undisturbed and contains sensitive features or specialized habitats, including undeveloped Okanagan Lake shoreline with gravel beach and vegetated foreshore habitat, rocky outcrops, and talus slope. The Okanagan Lake shoreline contains 'black' and 'red' fish spawning areas and recommendations for appropriate mitigation have been made within the Environmental Assessment.

2.4.2.1 **Wildlife**

All provincially Red- and Blue-listed vertebrate wildlife species as well as Species-at-Risk Act scheduled species were assessed for possible occurrence in the plan area. A short list of these species that could be on the site was developed for more detailed assessment. Habitat suitability was assessed for the wildlife species for which habitat models were prepared within the Kelowna and Central Okanagan Terrestrial Ecosystem Mapping (Haney and Iverson 2009).

All vertebrate wildlife and wildlife signs were recorded on all visits. In total 12 hours were spent on site. On the evening of May 8, 2012, 30 minutes was spent on the south end of the site doing call playbacks to determine if Flammulated Owls were present. Results of the call playbacks determined no owls were present.

2.4.2.2 **Environmental Significant Areas**

The North Clifton Environmental Assessment includes identification of environmental significant areas (ESA's). Protocols were developed to determine ESA's, including general mitigation and recommended guidelines. The procedure for designating ESA's was based on wildlife, ecosystem, and other natural values. The ESA designations were applied to be consistent with earlier ESA reporting in the adjacent plan area of the McKinley Landing ASP, previously known as Vintage Landing. A graphical representation of the ESA's identified within the North Clifton ASP area can be found in **Appendix B, Environmental Assessment**.

The Environmental Assessment presents a number of strategies to mitigate effects of development on environmental features such as those mentioned. Maintenance of wildlife movement corridors, refuge areas, pockets of representative vegetation and riparian buffers can, in many instances, be incorporated into the project at detail design stages.



Findings, results, and Environmental Significant Areas are described at length within Appendix B.

2.4.3 Historical, Cultural, Archaeological Buildings, and Sites

2.4.3.1 Building Sites

The North Clifton lands are predominantly in their natural condition. There is evidence of limited past agricultural activity along the moderately sloping western bench adjacent to the lake, but was likely limited to a forage crop such as hay or alfalfa. There is one existing residence in the south western portion of the property adjacent to the lake. This residence is accessed by a partially paved driveway off the end of Bennett Road from the McKinley Landing Neighbourhood. In addition two abandoned cabins and one pumphouse / outhouse are present at the south end of the property near the lake shoreline. The cabins and outhouse / pumphouse are presently in such a dilapidated state that it is difficult to determine the original use and timeline associated with each structure. It is logical the cabins were used as seasonal hunting shelter.

The balance of the land shows historical evidence of limited timber harvesting and has been informally (i.e. without authorization) used for hiking and mountain bike trails. Evidence of an old single lane road exists from the end of Clifton Road down a very steep draw to the south western portion of the property.

2.4.3.2 Archaeological Sites

A formal Archaeological Assessment was not conducted on the North Clifton lands as part of the ASP process. However, the Ministry of Forests, Lands and Natural Resource Operations - Archaeology Branch communicated to the City of Kelowna that a protected archaeological site, referenced as 'DIQu-17', consists of a single stone artifact find. The stone artifact find is located immediately adjacent to the western boundary of the ASP area, along the Okanagan Shoreline (**Figure 2.2**). The Ministry indicated additional archaeological materials may exist on the beach and upland area where the 'DIQu-17' archaeological site is recorded. Further to this, Provincial archaeological potential data suggests there may be potential for additional unknown, but protected archaeological sites to occur at the western edges of the ASP adjacent to the shoreline. The same archaeological potential data indicates there is only moderate to low potential for unknown archaeological sites to occur throughout the rest of the subject parcels.

Figure 2.2: Archaeological Discovery




At the present time, the ASP site is being planned at a high level for future development and no physical earthworks are proposed as part of the planning process. However, Lakeside Communities will continue to monitor and protect heritage resources during high level planning stages and will follow the requirements of the Heritage Conservation Act (1996). Upon commencement of physical earthworks and land development, Lakeside Communities will work with contractors to protect 'chance finds' of archaeological remains that are found during site excavation, servicing, and development. Any archaeological discoveries made in the future will be reported to the Ministry of Forests, Lands and Natural Resource Operations - Archaeology Branch.

2.4.4 Landscape & Visually Significant Features

The existing landscape consists of hilly Ponderosa Pine forest located on a west-facing slope along Okanagan Lake. The ASP area is subject to a diverse range of slope gradients, ranging from 0% to 30% or greater, with various localized benches providing ideal development potential. Furthermore, these naturally occurring bench site features enable sensitive design approaches that will minimize site disturbance, vegetation removal, and intrusive 'cut and fill' techniques.

Each of the rich and diverse natural characteristics of the study area – talus slope, rock outcrops, localized benches, peaks and ridges, open forest and grasslands, mature trees, and Okanagan Lake shoreline – will be embraced as assets to development plans and be sensitively incorporated in the



overall planning design of future development areas. While an array of landscape and visually significant features encompass the ASP area, there are no wetlands, creeks, or streams present.

The landscape and visually significant features are an integral part of the lands and contribute to the character and form of the North Clifton ASP. The following pages include brief descriptions of the identified landscape and visually significant features and corresponding photos. **Figure 2.3 Site Features** further identifies the various site features within the ASP area. It should be noted that although some of the landscape and visually significant features have been identified as ESA's, the North Clifton Environmental Assessment provides a description and recommends ESA preservation / mitigation measures. The Environmental Assessment report can be found within Appendix B.

2.4.4.1 Localized Benches

Several localized benches are present within the North Clifton ASP boundary. Each of the benches have been targeted as the most feasible areas for land development, including associated roads and infrastructure, single/two family residential homes, parks and open space. The nine benches identified for residential development are well separated visually and topographically from each other, providing a natural sense of privacy within each bench area.



2.4.4.2 Rock Outcrops and Talus Slopes

A number of rock outcroppings and talus rock areas are present within the North Clifton area and are found primarily on steeper, west facing slopes. Both rock outcrops and talus slopes are considered specialized habitats where vegetation cover can be sparse and usually interspersed within bedrock or rock pieces. Many species use the steep slopes, cracks, pockets of soil vegetation as shelter.

Given the importance of the rock outcrops and talus rock areas, efforts will be made to preserve such areas. In some cases, where talus slope is not disturbed by construction of Clifton Road North, these features will be protected as open space and natural areas. Further to this, both rocky outcrops and talus slopes were identified as Environmentally Significant Areas (ESA). ESA-1 areas (+30% slope) within private lands will be protected. However, ESA-1 areas outside private lands will form part of the dedicated open space areas.



2.4.4.3 Mature Trees and Grasslands

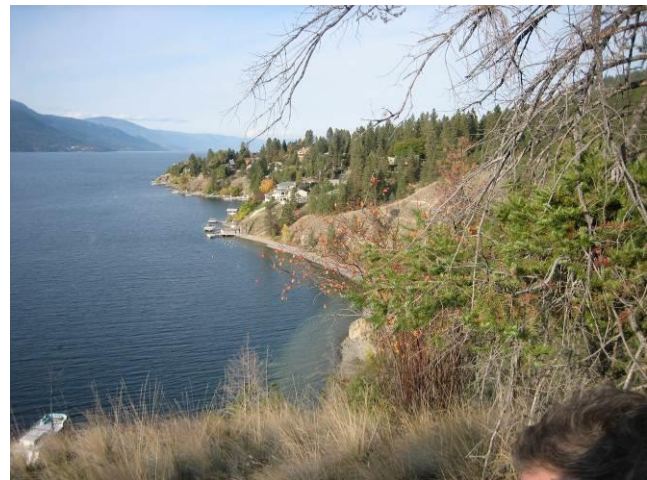
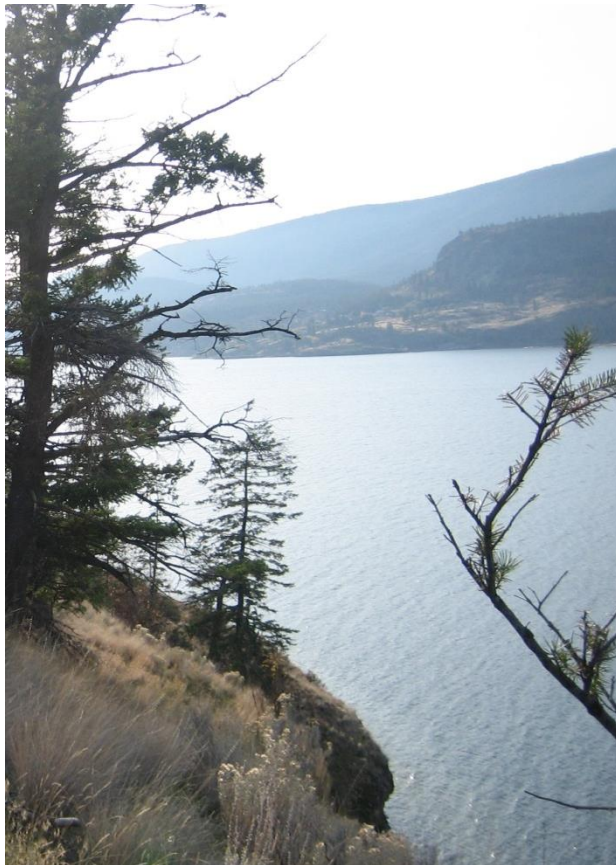
The North Clifton site consists of a large area that is covered by mature tree stands and grassland areas. Trees offer an array of benefits to neighbourhoods and existing ecosystems. Specifically, the benefits include, water and energy conservation, social (neighbourhood and community), health, air quality, wildlife habitat, and climate change mitigation. For these reasons, mature tree stands within ESA-1 areas on private lands will be protected. However, ESA-1 areas outside private lands will form



part of the dedicated open space areas. Similar to mature tree stands, grasslands also provide ecosystems, climate change mitigation, and social benefits. Of particular note, some grassland species have been identified as environmentally significant, as noted within the North Clifton Environmental Assessment (**Appendix B**). Recognizing that grasslands contribute to the social, economic, and environmental character of the area, grasslands within ESA-1 areas will be preserved where possible. Preservation of grassland areas will primarily be achieved through open space areas.

2.4.4.4 Peaks and Ridges

There are no true ridges within the ASP area. There is, however, one peak within the North Clifton ASP boundary. The peak is located at the most eastern boundary of the site within an area that consists of various rock outcrops. At the present time, an unofficial / unauthorized trail has been used to access the peak and its surrounding area by neighbourhood residents. This trail may be formally developed in the future as a formal trail link from the North Clifton area to the Wilden neighbourhood



2.4.4.5 West Facing Slope

The entire length of the ASP is located on a west facing slope. The highest point of the site is located at the east ASP boundary leading down to the west ASP boundary and Okanagan Lake, at the lowest point.

As noted, hillside slopes within the ASP area vary in steepness, but provide highly suitable development potential. As the ASP area is located on a west-facing slope, this slope will receive additional sunlight hours and will generally be warmer than an east-facing slope. Accordingly, the area may be dryer during spring and summer months but will remain a host for a diverse range of vegetation.

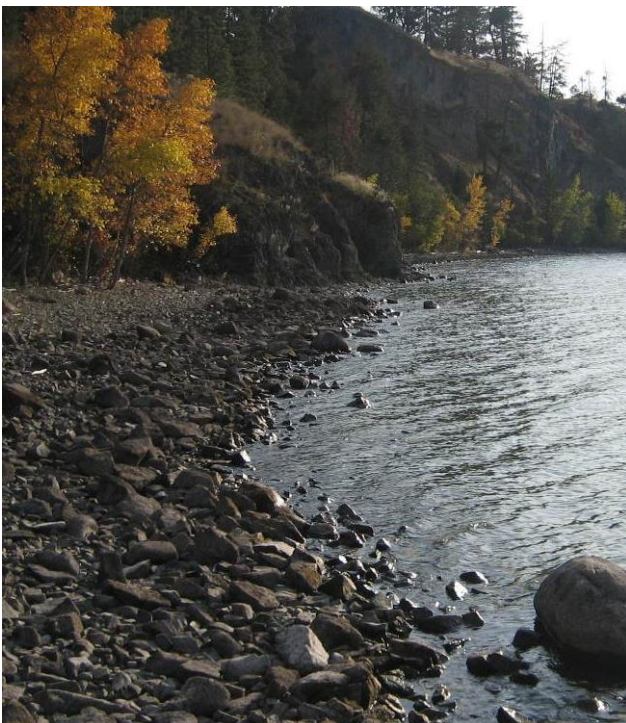


2.4.4.6 Okanagan Lake Shoreline

The most western boundary of the ASP area is immediately adjacent the Okanagan Lake shoreline. The shoreline provides an array of social and environmental benefits including passive recreation pursuits, natural amenity areas for area residents, and natural habitat for various aquatic and terrestrial species. Identification and conservation of environmentally sensitive areas will contribute to the overall quality of life of the area.

The North Clifton Environmental Assessment has identified the shoreline as a fish spawning area. It is highly unlikely the shoreline will sustain any development disruption. Given the topography of the land, residential development will not occur immediately adjacent to the shoreline. Where residential lots are located above the shoreline on a bench, development will be set back from the bank. An emphasis will be placed on ensuring that seasonal and permanent residential development along the shoreline occurs in a manner which complements the lake environment.

Where feasible, waterfront lots could host private docks. However, future private docks on the waterfront will be subject to applicable municipal, provincial, and federal regulations as it relates to private moorage opportunities.



2.4.4.7 View Analysis

The North Clifton ASP area is situated on west-facing hillside slopes. As such various view points, vistas, and corridors exist both on and off the site.

Within the ASP area, viewing areas and points exist from the peak of the site, each of the development benches, and other various points throughout the ASP area. Although several viewpoints are present within various areas of the site, the primary view corridors occur from each of development benches. While the development benches within the site can be open and sparsely vegetated, the site is quite unique in that there will be minimal visual overlooking of development from adjacent development benches. This will be made possible by harnessing the site's natural topography opportunities, minimizing 'cut and fill' approaches, unnecessary removal of vegetation, and strategic site design.

Looking inward towards the ASP area, it is clear that certain aspects of proposed development will be visible. However, given the sensitive planning approach for the area, strategic site design, and using the natural topography of the site – tree stands, tree lines, and natural hillside draws – visual impacts will be minimal.

A full evaluation of potential visual hillside impacts from an east vantage point has been conducted through a visual impact analysis. Results of the Visual Impact Analysis can be found within **Appendix E**.



2.4.5 Adjacent Neighbourhoods

A total of three neighbourhoods are within immediate proximity to the North Clifton ASP area – McKinley Landing, Clifton Highlands, and Wilden – and each neighbourhood is serviced with water and stormwater infrastructure. However, residential lots north of Lochview Road within the Clifton Highlands neighbourhood and the entire McKinley Landing neighbourhood are not serviced with municipal sanitary sewer infrastructure. Both McKinley Landing and Clifton Highlands are well established areas located immediately adjacent to the site. The Wilden neighbourhood is located approximately 1,000 metres east and south of the ASP boundary and is relatively new. Adjacent portions of Wilden remain undeveloped and will likely be developed towards the final stages of that development.

The average lot size within the McKinley Landing and Clifton Highlands neighbourhoods is 0.30 acres (1,214 m²), whereas lots within the Wilden neighbourhood are more typical of standard city-size lots. All lots have been designed to host a range of single family homes. While the dominant choice of housing architecture is primarily the ‘craftsman’ style, several lots showcase a modern ‘west coast’ style.

McKinley Landing, to the north, will be directly accessible via internal service roads, the Clifton Road North extension, emergency access lanes (non-vehicle access), and various trails and pathways. The existing Clifton Highlands neighbourhood is currently accessed via Clifton Road North, in addition to various existing trails and pathways. However, the extension of Clifton Road North will enable the Clifton Highlands neighbourhood access via the McKinley neighbourhood. The Wilden neighbourhood is located east and south of the ASP area at a significantly higher elevation. There is potential to access the Wilden neighbourhood through future potential trail / pathway system. However, direct vehicular access to Wilden from the North Clifton Area is not possible. On a broader accessibility level, all three neighbourhoods are not currently serviced by transit.

2.4.6 Existing Infrastructure

The ASP area is not serviced with any existing municipal water, wastewater, or stormwater infrastructure. While water service is available at the terminus point of Clifton Road North, upgrades would be required. As such, new infrastructure will be required to connect and service the area by extending sewer trunk mains, water trunk mains, and road networks, including the extension of Clifton Road North. MMM Group has reviewed and evaluated the preliminary servicing needs to provide the North Clifton ASP area with potable water, stormwater management, and sanitary sewer servicing. Both engineering, environmental, and geotechnical studies demonstrate infrastructure servicing methods are feasible.

2.4.6.1 Water

The Area Structure Plan area is not currently serviced with a formal water supply connection from either the City of Kelowna or Glenmore Ellison Irrigation District (GEID). Recognizing future development within the area will require a water connection from the City or GEID, discussions with agency representatives were undertaken. Future water servicing connections via City of Kelowna, GEID, or a combination of both were considered. After investigation, it was determined that connecting with the City of Kelowna water supply would be more feasible and desirable than connecting with the GEID water source.

The City of Kelowna water supply connection to the ASP area will extend from the Clifton Road North corridor. Initial investigation has revealed water main improvements will be required at the developers cost and other various upgrades to the pumping and storage facilities that should be recoverable through Development Cost Charges (DCC) credits. At the present time, the diameter of the existing water pipe where future connection points and extensions will occur is unknown and requires confirmation by the City of Kelowna. The length of water main needing to be replaced will have to be confirmed as there are conflicting records of the pipe diameter that has been installed to date.


While it is anticipated the primary water supply extension will occur from City of Kelowna, there may be the need to design the water system for future interconnection with GEID.

2.4.6.2 Storm Drainage

At present, the North Clifton ASP area does not have any formal storm drainage system. As such, all onsite drainage follows a natural drainage pattern. There are, however, adequate drainage connection points available to the site through neighbouring development (i.e. McKinley Landing residential neighbourhood).

Past experience in the Magic Estates neighbourhood to the south has demonstrated that storm drainage methods must be examined carefully to avoid environmental damage. Both site drainage and storm sewer connection opportunities are currently being examined. While various opportunities exist for the site, a logical and practical choice for drainage and storm connections will be determined based upon investigation and supporting data. Preliminary site stormwater design indicates lands within the northern portion of the ASP will drain west into an underground infiltration / detention area with an outlet to a new 450mm diameter offsite storm. Lands within the south portion of the ASP will drain west into an underground infiltration / detention area with surface overflow to the lake.

All stormwater will be addressed in accordance with City of Kelowna bylaw requirements and will match pre-development conditions through the use of the aforementioned infiltration / detention areas. Where



possible, the ASP area and proposed development may utilize low impact development (LID) practices including in-ground recharge system and minimize hard surface areas.

2.4.6.3 Sanitary Sewer

Similar to water and storm drainage servicing, there is no formal sanitary sewer service within the ASP area or immediately adjacent to the areas. Therefore, as development progresses, servicing will be required. Previously, the City's 50 year servicing plan for sanitary sewer contemplated service being provided from Clifton Road and some downstream infrastructure has been put in place for this service routing.

Sanitary sewer connection and servicing options have been considered for the ASP area. Given the sloping topography of the area, the most logical method for a servicing is to connect and dispose through the use of a gravity system. The anticipated site connection point is the existing Clifton Road North sanitary system. While costs to install additional infrastructure would be incurred, the net cost would potentially be reduced by benefiting properties between Lochview Road and the end of Clifton Road.

As stated, the ASP area gravity sewage collection and disposal system will be utilized. Flows from each development area will be directed to new lift stations, which will be pumped to the Clifton Road North gravity system and delivered to a downstream City sewage treatment plant.

2.4.6.4 Road Network

The City has communicated that the ASP must show routing for the extension of Clifton Road North through to existing Arthur Court in McKinley Landing. Preliminary engineering has been undertaken to determine if the Clifton Road North connection is feasible. The results of the investigation found the road extension is possible.

An internal road network for the area has also been considered, while being mindful of hillside design requirements. The objective of road design is focused on working with the natural topography and minimizing 'cut and fill' approaches. Excluding access via the Clifton Road North extension, an additional secondary access point will be provided to McKinley Landing via the ASP internal road network. Furthermore, emergency access lanes have been considered as part of the road network. On-site mobility will place an emphasis on minimizing vehicle use and encouraging active transportation methods through the use of walking lanes, trails, and cycling paths.



2.4.7 Existing Utility Corridors & Utility Rights of Ways

There are no known existing utility and utility rights of ways. However, as land development progresses, typical utilities, including hydro, telephone, cable television, and fiber –optic systems will service the site through underground systems. It is also anticipated that natural gas will be distributed throughout the ASP area.



2.4.8 Other Site Constraints

As noted earlier, there is an existing residence in the south western portion of the property adjacent to the lake. With the exception of this residence, the ASP area is primarily in its natural state. There are no known additional site areas or elements that would require investigation (i.e. telecommunications aerial / cellular towers, contaminated sites, etc).



PART III – LAND USE, TRANSPORTATION, AND SERVICING

The City of Kelowna Official Community Plan (OCP) 2030 identifies the ASP lands as a growth area for additional housing units and as a development area suitable area for up to 200 single/two family residential units.

The Official Community Plan 2030 identifies community goals, projected future requirements, and objectives and policies for those activities that may affect neighbourhood environments. The OCP further discusses the social and economic health of individuals, and the community as a whole. Recognizing the unique qualities of North Clifton, the goal is to create a high quality, comprehensively designed neighbourhood that is, first and foremost, complimentary to its natural setting. The ASP is founded on the City's objective of achieving sustainable development principles while balancing the needs of a healthy neighbourhood. These qualities have been respected through the ASP design process.

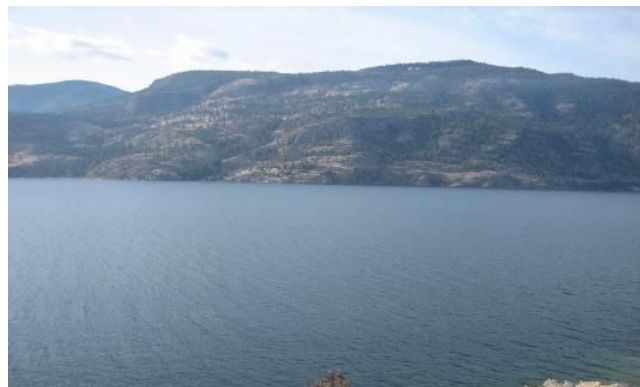
3.0 NORTH CLIFTON NEIGHBOURHOOD

The North Clifton Area Structure Plan (ASP) represents an opportunity to establish a planning framework to guide sensitive integration of the development plans with long-term social and environmental health of its site. The vision for the North Clifton neighbourhood is founded on two primary elements: 1) the historical and background information outlined within Part II of this document; and 2) the broader goals and objectives found within City of Kelowna formal policy documents.

3.1 Vision & Guiding Principles


Vision

The North Clifton neighbourhood will be a lakefront single/two family residential neighbourhood dedicated to respect for the land, topography, nature, ecology, and careful consideration of residential development design within it. The neighbourhood will be inter-connected by a series of roads, trails, pathways, and Waterfront Park with lake access providing a diverse range of amenity needs. Interconnected trails and pathways will be specifically designed to link with all components of the North Clifton area, while offering seamless connections to the surrounding neighbourhoods.



Guiding Principles

- Recognize the importance of the City's goal of creating and enhancing neighbourhoods as a key objective to the Official Community Plan.
- Recognize that existing neighbourhoods such as McKinley Landing, Clifton Highlands, and Wilden provide direct and indirect links to North Clifton and contribute to the area as a whole.

- 
- ▶ Recognize that North Clifton is a social and economic catalyst for land use, parks and open space, transportation, and servicing opportunities within the City.
 - ▶ Encourage unique architectural form and character that respects the sloping topography, view corridors, and existing single-family residential form and character.
 - ▶ Encourage and enhance the preservation and protection of the sites ecology and wildlife.
 - ▶ Design the neighbourhood that encourages walking, cycling, and passive recreation use.
 - ▶ Ensure connectivity throughout the North Clifton neighbourhood, in addition to established neighbourhoods.
 - ▶ Support an active residential population through high quality parks, pedestrian-oriented streets, and trail networks.
 - ▶ Demonstrate the importance of sustainability through building design, public realm design, transportation and servicing choices.
 - ▶ Design the neighbourhood that can adapt to transit needs.

Development within hillside environments and on lakefronts demands solutions that are as specific as each individual property. By responding to the guiding principle established for the North Clifton area, the ASP addresses character of the land by ensuring that built form represents minimum land modifications required to achieve a balance of built form and open space.

The established ASP guiding principles promote neighbourhood design which integrates natural features and systems to create a sense of place and community that is respectful of its natural hillside environment. The neighbourhood encompasses single and two family housing forms arranged within nine separate housing enclaves. Each housing enclave will have convenient access to pathways, trails, and parkland through various transportation modes, including walking, cycling, and automobile. The public areas are designed as an integrated network including parkland, walkways, viewpoints, trails, and pathways.

North Clifton raises environmental awareness and interest through environmental preservation and enhancement, and by demonstrating the potential for long-term sustainability. Tree stands and natural areas are preserved and enhanced. The development concept further respects the sites' natural characteristics ensuring that natural drainage patterns are used and eco-friendly design approaches are utilized when possible.

4.0 NORTH CLIFTON DEVELOPMENT CONCEPT

The North Clifton development concept is based entirely on the natural features and unique characteristics of a typical Okanagan hillside site. With over 1.5 kms of sweeping lake views, diverse terrain, and ecological features, the site lends itself to an array of residential development opportunities. The Land Use Concept (**Figure 3.1**) incorporates the guiding principles established in Section 3.0, while responding to the sensitive characteristics of the plan area.

A comprehensive understanding and appreciation of the site was obtained through multiple walkabouts of the entire site. Property owners, in addition to a diverse range of technical professionals, explored and evaluated the site with efforts to reveal its potential. The result of the walkabouts, site investigations and evaluations is a development concept centered on achieving balanced solutions. Hillsides, and topography attributes are largely preserved as open space features ensuring the site's dramatic lake and mountain vistas belong to neighbourhood residents and those living in surrounding areas.

At its maturity, North Clifton is envisioned to be home to approximately 200 units (460 residents) within a neighbourhood that is innovatively designed, walkable, connected, and, environmentally healthy.

4.1 Single/Two Family Residential

The proposed scale of low-density residential development will complement the existing neighbourhood areas with opportunities for creative residential development design. Similar to the McKinley Landing and Clifton Highlands neighbourhoods, North Clifton endeavors to develop localized benches into single/two family residential housing enclaves (**Figure 3.2 Residential Enclaves**) that will be available for a range of demographics. Development of each housing enclave responds to the development directions established by the City's OCP policies and a site sensitive planning approach to the creation of a vibrant neighbourhood community. Through architectural housing expression and site location, each housing enclave will be distinct and characterized with its' own unique attributes. Each residential enclave will function as part of the neighbourhood as a whole through its cohesive inclusion and easy access to parkland and open space areas. Neighbourhood elements, including architecturally designed homes, trails, parks, landscaping, views and vistas will be respected and seamlessly transition with the McKinley Landing and Clifton Highland neighbourhoods. In some cases, the design has made pedestrian connection to Wilden possible. Similar to the existing neighbourhoods, internal service roads will gently meander throughout the proposed residential benches and link at multiple locations within the McKinley Landing neighbourhood.

Detailed Design Guidelines will be developed and/or modified at each future phase of subdivision for the



ASP Area.

4.1.1 Potential Unit Count

The North Clifton ASP was approved by City Council for a maximum of 200 units. Achieving 200 residential units within the site is possible by reducing lot sizes considering cluster housing and two family housing formats, and increasing overall site coverage. However, the design of North Clifton embraces the established guiding principles and was mindful of the Clifton Highlands and McKinley Landing neighbourhood design, form, and character. Where possible, the overall character, environment, and ambiance, including lot configuration and size, of existing neighbourhoods are reflected.

The North Clifton development concept includes a preliminary residential lot layout (**Figure 3.3**). Based on the preliminary lot layout, it is anticipated the North Clifton neighbourhood will produce approximately 175 units. While Figure 3.3 is strictly conceptual, the unit count is a result of a process that identified areas to be preserved for parks and open space, slopes over 30%, and environmentally sensitive areas resulting in a variety of potential “development clusters”, in addition to a desire of maintaining consistency among the surrounding neighbourhoods. The advent of comprehensive hillside zoning may enable slightly different housing formats. However, the overall threshold of 200 units will be respected.

The projected population for North Clifton is 460 persons, assuming 2.7 persons per family household. The expected school generation projection is 60 students. The neighbourhood school student population will be accommodated by School District No. 23 (SD 23) defined catchment areas. School generation factors are assumed to be 0.3 students per family housing unit. The source for the school generation factors is SD 23.

A summary of North Clifton's land use areas and projected population is provided in **Table 3.1**.

Table 3.1: Land Use Areas

	Area (acres)	Length (m)
Total Site Area	197	---
Gross Residential Land Use Area	114	---
Net Developable Area	91	---
Dedicated Open Space (Natural Area)	60	---
Dedicated Parkland (City-Wide Park)	4.0	---
Public Roadways	---	4,600
Trails / Pathways Length	---	8,800

* land use areas used within Table 3.1 have been rounded

Final unit counts will be determined at the detailed design and subdivision development stage.

4.1.2 Residential Enclaves

The North Clifton neighbourhood is designed with the characteristics of the sites topography, environmental features, view corridors, and development benches, which are predominately situated on plateaus where slopes are less than 30%. The nine development benches create a collection of residential enclaves capturing the character and essence of the Okanagan. Each enclave is unique through the varying topography, landform, view corridors, and open space offerings.

The areas of low density residential will consist of ground-oriented detached dwellings and semi-detached. Buildings will range from one to 2.5 storeys in height to match the character of the adjoining residential neighbourhoods. In some cases, the lot layouts within existing neighbourhoods were duplicated within North Clifton. For example, lot configuration and dimensions on Paly Road will closely mirror existing lot layout and dimensions in McKinley Landing (**Figure 3.2**).

In an effort to preserve and protect the sites environmental sensitive areas, lot building envelopes and coverage will be established and will not exceed or encroach into overly sensitive areas. Confirmation of site coverage details will be addressed at the rezoning and subdivision phases.

Residential enclaves 1, 5, 7, and 8 of plan area (Figure 3.2) include a range of topography with moderately dense tree cover. The terrain within these areas suits modest size residential lot sizes of

approximately 0.35 acres. These lots will be suitable for smaller building footprints within the sloped areas.

Residential enclaves 2, 3, 4, and 6 are primarily open with a gently sloped meadow area flanking Okanagan Lake. Most lots within this area will have unobstructed views of Okanagan Lake and mountain ranges beyond. Lot size will vary between 1 – 3 acres with larger building envelopes and possible lake access. Where feasible, waterfront lots could host private docks. However, future private docks on the waterfront will be subject to applicable municipal, provincial, and federal regulations as it relates to private moorage opportunities.

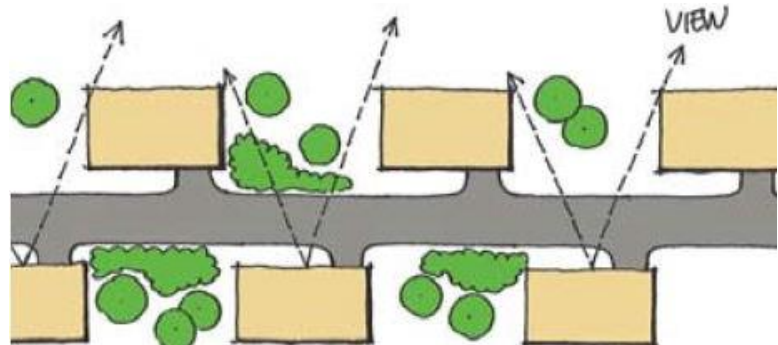
Enclave 4 represents the best and largest contiguous development mode within the ASP. As such, Lakeside Communities will give this area further review as development proceeds to ensure the best design possible. The final form of development in Enclave 4 will still respect the development threshold for the ASP.

Residential enclave 9, located along the east ASP border, is situated at one of the highest elevations within the plan area on relatively steep terrain and moderately dense tree cover. Of all the residential enclaves, it is anticipated this area will have less than 10 lots. Notwithstanding, each lot will have sweeping views of Okanagan Lake. While each lot will be approximately five acres, the terrain is conducive to smaller building envelopes as this area of the Plan is located on steep slopes. The lots will have large building envelopes but will not be proportionate to the actual lot size, but rather estate type. All lots within residential enclave nine will be access via a shared lane. The shared lane will be accessed via a road reserve located in the northeast section of the site.

In addition to the nine residential enclaves, an opportunity exists for an additional development enclave (Figure 3.1). At the present time, access cannot be obtained to the Future Urban Reserve area via the North Clifton transportation network. However, access to this area is possible through an expansion of the Wilden neighbourhood. The Wilden Ownership Group has indicated that this area will be reviewed when development proceeds in this area. For this reason, this Future Urban Reserve area will remain as part of the open space and trail network area until future plans are complete.



While each residential enclave is characterized with uniqueness, development will assume similar character, form, and housing styles. The steeper slope areas create a buffer between the individual residential enclaves and combine to form the basis of the trail networks and preservation corridors. The trail network and preservation corridors provide open space and various trail opportunities for neighbourhood residents as well as preserving wildlife habitat and wildlife movement corridors. This creative approach to design enables each residential enclave to have limited or no visual overlooking of development areas, thus enhancing lot privacy and decreasing visual impact. At the time of the preparation of this ASP, the City was still in the process of developing a set of comprehensive Hillside Zoning regulations. Draft copies of these new standards have indicated some flexibility in housing form, lot size, building height, lot coverage, etc. It is expected that Lakeside Communities will use these new standards which may allow housing forms not previously described. Where possible, Lakeside Communities will consider the use of the new Hillside Zone regulations.



4.2 Environment and Ecology

Preliminary environmental survey work was completed to identify significant environmental features to be addressed and honoured through the design of appropriate residential enclaves. In general, ecological communities within existing natural features of the site were typical of the rock escarpments and forested conditions of the central Okanagan region. A variety of forested vegetation is present within the site and ongoing fire mitigation has opened the forest canopy and enabled the understory to respond

with lush growth. No wetlands, streams, surface flows or surface seepages were found within the ASP area.

The ponderosa pine – bluebunch wheatgrass - fescue dominated vegetation community contains sensitive features or specialized habitats, including undeveloped Okanagan Lake shoreline with gravel beach and vegetated foreshore habitat, rocky outcrops, and talus slope. The Okanagan Lake shoreline also contains fish spawning areas.

Many of the discovered natural features are considered sensitive and environmentally significant areas and have been identified accordingly. In keeping with North Clifton's commitment to environmental protection and preservation, it is encouraged that impact of sensitive areas are minimized. All designated Environmentally Significant Areas (ESA) can be found within Figure 3.4 and a description of the ESA rating system can be found in the Appendix B.

The North Clifton neighbourhood has been developed within a framework of ensuring environmental compatibility within development areas. Accordingly, the land use concept identifies large areas of the site that will remain in their natural state. However, in an effort to achieve a neighbourhood where the resident experience can be complementary to the unique natural characteristics of the site, development areas have been carefully placed to minimize disruption of sensitive areas. The intent is to create a sense of harmony between the built environment and the existing topography while maintain the safety and integrity of sensitive areas.



Figure 3.4 shows potential lot layout within the ESA areas. However, the Land Use Concept is conceptual only and is presented as a demonstration of how various elements could be distributed throughout the site, which could require further refinement at the time of detail design.

The environmental report makes reference to necessary mitigation and compensation requirements should development occur within the Environmental Sensitive Areas (ESAs). While it is anticipated development will occur within ESA-2 areas pending the resolution of adequate environmental measures

as determined at the time of Environmental Development Permit, development within ESA-1 areas will be avoided to the fullest extent possible.

4.2.1 No-Disturb and Limits of Disturbance Areas

4.2.1.1 No Disturb Areas

The North Clifton ASP demonstrates an environmentally responsible commitment to the site through the protection and preservation of undeveloped areas. This includes preservation and protection of environmentally sensitive areas (**Figure 3.4**), parks and open space areas, and portions of future residential lots.

Figure 3.4 includes the North Clifton Environmentally Significant Areas, including the preliminary lot layout concept. At first glance it appears a significant portion of the site will be impacted by residential lots. In reality, only a small portion of the residential lots will be impacted by site development as each lot will be identified with a building envelope. It is anticipated that all residential lots within the preliminary layout identified with an ESA-1 should not be impacted. While some residential lots are shown to incorporate ESA-1 areas, site development will be regulated to ensure impacts are avoided or mitigated. To ensure this, the areas will be protected through 'no-disturbance' covenants. Where possible, 'no-disturbance' covenants may be applied to other specific ESA's of the site with the intention to limit site disturbance.

In addition to the residential no-disturbance areas, the open space areas, wildlife corridors, and parkland areas will be dedicated to the City of Kelowna. It is anticipated these areas will also be protected through various approaches.



4.2.1.2 Limits of Disturbance

The North Clifton ASP provides sound guidance and direction for all future site development. Sufficient land use planning and engineering has been completed to provide preliminary locations of the road network, infrastructure servicing, and shallow utilities.

The servicing and shallow utilities lines will run parallel with the roads within the proposed transportation network. As such, the disturbance area will generally be limited to the road network. The exception to the foregoing is a small portion of the sanitary system and drainage system. At this time, it is anticipated a portion of the sanitary system traversing the ninth residential enclave (Figure 3.2) may impact an ESA-2. Where overland drainage paths shift from open space areas to private development lots, specifically within the 'gully / drainage course' (Figure 3.10), drainage from the gully will be directed into a storm sewer which will flow into the detention system and overflow from the underground detention will be piped. In addition to this, it is possible a drainage line may impact the foreshore area in the most southwest portion of the site. In each case, the design approach includes two primary steps:

- ▶ Select servicing alignment that minimizes environmental impact; and
- ▶ Design with the least impact to environmental section.

The ultimate goal is to keep site disturbance to an absolute minimum. Currently the development concept is only able to identify disturbance and no-disturbance areas at a high level as the figures are conceptual in nature and may be subject change or refinement. Notwithstanding, additional details and identification of these areas will be identified at the rezoning and subdivision stage.

4.3 Parks and Open Space

Well-designed neighbourhoods place high values on community access to natural systems, trail networks and parks. The parks and open space network for North Clifton has been designed to provide residents with ample pedestrian, recreational, and leisure opportunities through the provision of trail connections, proximity to programmed park areas, and the open space network. The design and interface between home sites, parks, trails, and open space strongly determines the character and livability of the overall neighbourhood and it has been an important criterion in the development of this ASP. It was equally important to consider the fragile balance and integration of residential homes within the natural open space areas. The overall goal of the parks and open space within North Clifton is to promote:

- ▶ Healthy and active residents;
- ▶ Social engagement;
- ▶ Community spirit; and

► Environmental responsibility.



With the exception of programmed parks, open space areas will primarily be undisturbed lands that remain in their natural state. These areas, in addition to the programmed park areas, provide physical and visual amenity to the neighbourhood. In addition, they preserve and protect significant landscape features. Generally, the North Clifton ASP designates a number of hillside areas as dedicated open space, which includes a vast nature trail network. In doing so, the development concept offers an unprecedented 60 acres of the total site area to be designated as dedicated parkland and open space **(Figure 3.5)**.

The development of the formal trail network for North Clifton was primarily completed through the establishment of existing informal trails used by area residents. Where possible, the informal trails have been integrated into the ASP area as a formal amenity. The purpose of this was to provide existing residents with the continued use and enjoyment of such an amenity and offer new residents of the neighbourhood a valuable amenity feature

A significant portion of the trails are located within the open space areas. These trails, however, do not fully extend to the northern boundary of the site. Recognizing the importance to have adequate connections extend throughout the entire site, the road network has been designed with the pedestrian in mind, which includes pedestrian connections and linkages to surrounding neighbourhoods. Connections are offered in the form of roadside corridors, including dedicated pedestrian crossing points, pathways, multi-use trails, and nature trails.

A full complement of active transportation amenities is offered as part of the North Clifton area. This also includes a formal parkland area with access to the beach. A full description of the parkland area, trails, and open space network, as identified within Figure 3.5 are described in the following sections.

4.3.1 City-Wide Park (Neighbourhood Park)

North Clifton's neighbourhood park, officially a City-wide park, will be dedicated to the City of Kelowna by way of a combination of Development Cost Charge (DCC) credits and acquisition. The proposed park is centrally located within the ASP area adjacent Okanagan Lake with multiple access points to the trail network. It is nearly 4.0 acres and specifically responds to the local outdoor recreation needs of the immediate neighbourhood. However, given its city-wide park status, the park may be used by the general public.



The waterfront park is bounded by McKinley Landing neighbourhood to the north, proposed Bennett Road extension to the east, and the Okanagan shoreline to the west. The features and facilities within this area may include vehicle parking area, informal open space, playgrounds, picnic facilities, passive recreation amenities, turf area, and beach access to the Okanagan Lake. Access to the beach and lake was a popular comment noted within the initial March 2012 Open House. The beach access will be made available via right-of-public-access along the foreshore (below the high water mark). A concept plan illustrating how the northern portion of the waterfront park site could be developed is shown below. Notwithstanding, Lakeside Communities will work with the City and stakeholders through the development approval process to refine the park development plan and will seek to partner with the City for the physical park development.



Bennett Park concept sketch

4.3.2 Open Space

The open space area within North Clifton encompasses over 60 acres and will be dedicated to the City of Kelowna. This area is primarily one that serves to protect important landscapes of the site, provides opportunities for outdoor activities that will attract residents, and provides a natural greenway system for wildlife habitat linkages.

The dedicated open space area is largely located within the southern area of the ASP, but provides ample connection points that link the immediate and surrounding area.



4.3.3 Roadside Corridor

Roadside corridors are heavily utilized, hard-surfaced wheel and pedestrian pathways with universal accessibility for walking, jogging, cycling, and wheelchairs by residents of all ages. They may include sidewalks or cycling corridors that are physically connected or separated to the roadway. These walkways and corridors will be designed as part of the North Clifton roadway network and enable easy linkages and connection points to the trails within the park and open space areas, and surrounding neighbourhoods.



4.3.4 Multi-Use Trails

The multi-use trails are moderately utilized, non-motorized hard or soft-surfaced secondary trails for the purpose of walking, jogging, hiking, cycling and wheelchair use (where possible) within open space areas that provide residents with access to viewpoints and nature areas. Integrating multi-use trails within the neighbourhood was primarily possible in those areas with less aggressive slopes and terrain. Although limited to the southwest portion of the site, they will provide access to adjacent neighbourhoods and viewing areas.



4.3.5 Nature Trail

The nature trails within North Clifton are located within the dedicated open space areas. Although they are predominantly passage areas with more aggressive slopes and terrain, they help form an important component of the area. These trails are primarily used by residents for walking, mountain biking, and hiking. The nature trails also form an integral part of the wildlife habitat corridor. In many cases, the existing nature trails are game trails that have been expanded by human use.



4.3.6 Dedicated Crossing Point

Dedicate crossing points will be located at select points within the North Clifton road network. The purpose of the crossing point is to provide pedestrians and cyclists safe passage across roads. To increase the safety of crossing points for pedestrians and cyclists, the use of coloured and textured treatments can be used. The use of textured surface treatments is further supported in the North Clifton Road Safety Audit. Specifically, it is recommended the road design process identify key pedestrian crossings as pedestrian routings of sidewalks and walkways are established.

Collectively, the parks and open space system, as illustrated within the Parks and Open Space figure, identifies a variety of park and open space sites integrated by a trail network that will provide pedestrian connections between the residential enclaves, the park site and open space areas, and adjacent neighbourhoods (i.e. Clifton Highlands, McKinley Landing, Wilden). These areas will also integrate with its surrounding context ensuring adequate corridors are preserved for wildlife movement. The opportunity for a wide range of nature trails, lookouts and viewpoints has been conceptually designed to complement the roadway system as integral elements of the pedestrian network. Trail design will be developed with consideration of the standards established in the City's Linear Parks Master Plan. All final details will be developed on an individual site basis in consultation with City Parks staff.



4.4 Guiding Architecture and Neighbourhood Design Patterns

No specific architectural style has been determined at this stage. However, design, construction and landscape guidelines common to all development within the North Clifton neighbourhood will be established at the detailed design and subdivision development stage. Recognizing the site is surrounded by both new and established neighbourhoods, architectural design requires a compliment of design elements. At the subdivision stage, design guidelines for building sites, parks and open space areas, and roadways will be developed seeking a middle ground between conformity and individual expression.

Acceptable home architectural styles will be consistent with the Okanagan's history, traditions and unique climate. Potential variations are anticipated to be within the core "vocabulary" of west coast contemporary style, while incorporating the classic 'craftsman' design and encouraging the use of earth tone colours. Fundamental to all allowable stylistic expressions will be a focus on "four-sided architecture" in which the design and detailing is visible from all vantage points and consistent with the topography of the land. Taking cues from historically successful neighbourhood precedents, the North Clifton development will encourage a variety of housing forms within each housing enclave.



Similar to the housing architecture, the overall neighbourhood design patterns, including roadways are inspired from Okanagan's landscape and culture. A strong focus will be placed on the pedestrian scale with special attention paid to ensure the area is not dominated by the automobile. To reinforce this, accesses to the trail and pathway network will be available throughout each of the residential enclaves and at various points. Multiple pedestrian crossing points will also be designed into the road network to create visual cues for the driver and promote an active neighbourhood, and various areas throughout the neighbourhood will be developed with textured treatments as an alternative to concrete or asphalt.

4.5 Transportation Network

The transportation network for North Clifton consists of a full range of transportation facilities to accommodate the movement of automobiles, pedestrians, bicycles and transit. The network is primarily composed of local roads that will provide all traffic modes effective and efficient movement. A major collector road – Clifton Road North extension - will provide a roadway connection between the existing Clifton Highlands and McKinley Landing neighbourhoods.



Providing residents and patrons with a variety of transportation mode choices represents a strategic component of the transportation system envisioned for North Clifton. The design of the network sought to provide a balance of transportation facilities to encourage people to utilize various forms of transportation modes with the purpose to access the neighbourhood and the amenities within it. It was equally important to achieve a road network that was well connected throughout the site and minimized 'cut and fill' road development approaches. Doing so presented significant challenges due to the sites topographic constraints. However, this goal was achieved through the use of sensitive planning and design approaches (**Figure 3.6**).

4.5.1 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) was completed to assess and evaluate potential off-site road impacts as a result of new development. The study area, identified by the City of Kelowna, is bounded by Glenmore Road North to the east, Okanagan Lake to the west, McKinley neighbourhood to the north and Clement Avenue to the south that encompassed a total of 17 intersections.

In short, the North Clifton TIA concluded development of the site will not produce any major impacts to off-site roads. Given the target or design parameters provided by the City, modifications to the roadway or changes to the traffic control devices are not required for any of the study area intersections based upon the capacity analysis results.

The detailed Transportation Impact Assessment, including appendices, can be found within **Appendix**



C.

4.5.2 Clifton Road North Extension

Primary access to the North Clifton neighbourhood is obtained via an extension of Clifton Road North. Existing Clifton Road North, which terminates at the north end of the Clifton Highlands neighbourhood, will extend northward. As development of the area progresses over time, the road extension will continue to traverse north and eventually connect to existing Arthur Court, located within the McKinley Landing neighbourhood. It is expected Clifton Road North will be designed to the City of Kelowna's major-collector road standard.

The extension of Clifton Road North is a requirement of the City of Kelowna. However, this requirement will add significant benefits to the overall area. Specifically, safety will be a considerable benefit to the area in terms of emergency evacuation, as both the McKinley Landing and Clifton Highlands neighbourhoods only have 'one-way in – one-way out' access.

Pursuant to the North Clifton Road Safety Audit it is suggested the section of Clifton Road North between the Clifton Highlands and McKinley Landing neighbourhood be constructed to a 50 km/h design

speed (with the exception of intersection sightlines, which should be based on 60 km/h design speed). This section of road should also utilize a two lane cross-section with bike lanes, and incorporate traffic calming measures, where feasible, to encourage appropriate speeds. Traffic calming measures may include, but are not limited to, a roundabout, traffic 'button's, chicanes, and prominent gateway features at entry points to the neighbourhood. The Road Safety Audit further suggests that strategic design and use of gateway features at each terminus point of the development, supplemented by raised medians, promote vehicle deflection and provide a narrowing effect to encourage lower speeds. The integration of traffic calming measures at strategic points of Clifton Road North extension will increase safety for area residents. Integration of traffic calming features will be carefully selected so as not to create safety hazards or hinder snow clearing and operational activities.

The goal was to have all residential lots access off local roads. In some cases, however, steep hillsides prevented this. As such, some residential lots will be accessed directly off Clifton Road North.



4.5.3 Internal Road Network

The road network was specifically designed to utilize low speed design standards and the integration of traffic calmed areas. Given the sites topographical characteristics, the internal road network is predominantly north – south directional access. Where residential enclaves are situated in the higher elevated portions of the site, road switchbacks are utilized to gain access. It is expected all internal roads will be designed at a local hillside road standard.

The development of the North Clifton Road extension enables strategic access to those residential enclaves within the northeast, southeast, and southwest areas of the ASP. A total of three local roads will be accessed from Clifton Road North and each of those residential lots will be directly accessed from the local roads. While the residential lots located within the southwest portion of the site are accessed off Clifton Road North, the road network design has specifically included an extension of McKinley

Landing's Bennett Road. The extension of Bennett Road will connect the neighbourhoods and be beneficial in creating a physical and social link.

Unlike the residential areas accessed off Clifton Road North, the residential enclave located within the most northwest portion of the ASP will be accessed through the McKinley Landing neighbourhood. These lots will be accessed through the development of a new local road that flows off of the existing Paly Road. The creation of this local road terminates as a cul-de-sac. It will, however, provide an opportunity for an emergency access route to Clifton Road North.

It is anticipated that, the combination of a collector supported by local roadways within and adjacent to the plan area will provide an efficient and effective roadway framework to support the development associated with the proposed plan amendment. On-street parking may be available close to residential lots, near parks, and trails where road cross-sections will enable it.



4.5.4 Emergency Access

The North Clifton site is west-facing receiving significant sunshine during spring and summer seasons, resulting in dry conditions that lead to wild fires. In addition to the three-phase wildfire mitigation program undertaken on the site, the transportation network has been designed to provide clear, pre-determined emergency access routes. Two emergency access lanes are provided within the neighbourhood. The first is access off the Clifton Road North extension and the second is located near the western boundary of the ASP (Figure 3.6). Both emergency access routes double as a pedestrian connection which links directly to the neighbouring McKinley Landing road network.



4.5.5 Pedestrian Connectivity

Placing an emphasis on pedestrian connectivity and walkability within the area supports sustainable design and development through the promotion of alternative modes of transportation. The North Clifton neighbourhood encourages the development of pedestrian corridors and linkages. A number of trails, pathways, and multi-use corridors are planned to connect with each residential enclave, amenity area and surrounding neighbourhoods. Although portions of the open space network may not completely extend throughout the entire site, the roadside corridor and sidewalks will provide connection points throughout the site and link with the Clifton Highlands and McKinley Landing neighbourhoods. Inclusion of multi-use trails and corridors in the plan area will facilitate and promote alternative modes of transportation (walking, running, cycling) while developing an interactive sustainable community. These corridors may be situated adjacent to the internal roadways.

4.5.6 Road Safety Audit

In addition to the Transportation Impact Assessment, a formal Road Safety Audit was completed. The purpose of the Road safety Audit was two-fold: 1) investigate the safety implications associated with the proposed North Clifton residential development; and 2) investigate the safety of the adjacent areas that may be impacted by the proposed residential development.

While the onsite North Clifton conceptual design was not designed to a level where a traditional road safety audit would be beneficial, safety issues that would be generated with hillside development were reviewed. Typical hillside safety issues were identified. While these potential safety issues should be mitigated during the detail design process, it is anticipated that completing road design and construction to the City of Kelowna's standards will circumvent road safety issues.

Potential off-site safety road issues within existing Clifton Road North and McKinley road network were investigated. A review of historical collision records suggested that both Clifton North and McKinley Road corridors have a safety performance that does not exceed an average safety performance benchmark. The collision rate on McKinley Road is slightly less than the provincial average, when compared to similar types of roadways. The Clifton Road North also has a collision rate that is significantly less than the provincial average.

Despite collision histories, safety issues were identified on both road networks. The safety issues elevate the level of safety risk for road users, which will be impacted with an increase in traffic volume. However, it is noted that these safety issues currently exist on both corridors and these safety issues will continue to be safety issues, with or without the proposed North Clifton residential development.

The complete Road Safety Audit report can be found within **Appendix D**.

4.6 Infrastructure and Servicing

The North Clifton infrastructure system will supply the immediate neighbourhood with water, sanitary and stormwater services. The proposed system will meet high design standards and be environmentally responsible.




4.6.1 Water Supply

The North Clifton property is adjacent to both the City of Kelowna and Glenmore Ellison Irrigation District (GEID) service areas. The GEID McKinley Reservoir is located at the North end of the property and is accessed via a utility lot (Figure 3.1). This reservoir has a top water level of 470 metres geodetic, which means that it could service the lower portions of the property (about 1/3 of the property) without pumping. In discussions with GEID it was advised that there would likely be limitations in this part of their water system regarding available domestic supply and the ability to transmit fire flows.

The adjacent City of Kelowna water system operates at a hydraulic grade line of 540 metres geodetic. This means it can service about 2/3 of the property without pumping. The 250 mm watermain at the end of Clifton Road is expected to have adequate capacity for a Fire Underwriters Survey fire flow of 60 L/s. Consequently, due to the better system pressure and distribution system capability, North Clifton will utilize the City of Kelowna water system to service the site.

Figure 3.7, Proposed Water System identifies the proposed water system for the North Clifton development. The water system will include a series of 250 mm and 200 mm watermains to distribute the water and a Booster Pump Station to create a 560 metre pressure zone that will service the upper portion of the site. Ultimately, this booster pump station will feed a proposed reservoir near the northeast corner of the property. The water system will also include pressure reducing stations as



required. The pressure reducing stations will create 530 metre and 470 metre pressure zones in the lower portion of the site.

It is expected that the water system will be designed and constructed to the City of Kelowna Subdivision, Development and Servicing Bylaw.

It is noted that the North Clifton ASP proposed water servicing deviates from the City of Kelowna's OCP Map 7.4 – Water Supply System. However, the provision of future water supply for the ASP area was undertaken with direction from Glenmore Ellison Irrigation District and the City of Kelowna. Accordingly, applications to formally amend existing OCP water supply boundary mapping will be submitted as development progresses.

4.6.2 Sanitary System


The proposed on-site sanitary collection system is illustrated in **Figure 3.8, On-site Sanitary**. The onsite sanitary system will include gravity sewers to service each proposed lot and a lift station at the low end of the site near the end of Bennett Road. This lift station will pump via forcemain to the gravity sewer on the extension of Clifton Road. In addition to the foregoing, a lift station will be installed near Paly Road, which will pump via forcemain to the proposed off-site sanitary sewer.

The proposed off-site sanitary sewer is shown on **Figure 3.9, Off-site Sanitary**. The off-site sanitary system is expected to include a short length of forcemain at the north end of existing Clifton Road North and a gravity sewer running south to the existing Clifton Road Lift Station near Lochview Road. The existing Clifton Road Lift Station forcemain and gravity sewer to Magic Drive currently has adequate capacity for the North Clifton Development. However, a new gravity sewer will extend south along Clifton Road North, such that the Hillsborough Lift Station will be bypassed. This new gravity sewer will connect to an existing 250 mm gravity sewer. Please note the *Sheerwater Sanitary Sewer Connection* report submitted to the City of Kelowna by Bel-MK Engineering Ltd (now MMM Group Ltd.) in May 2006 demonstrates system capacity.

Both the on-site and off-site sanitary sewer systems will be designed and constructed in accordance with the City of Kelowna Subdivision, Development and Servicing Bylaw.

4.6.3 Stormwater Management

The proposed drainage system is illustrated on **Figure 3.10**. Per City of Kelowna requirements, post-development drainage patterns will match the pre-development pattern. As well, through a combination of infiltration and detention, the post-development flows will match the pre-development flows.



There are two primary drainage catchments for North Clifton. A description of these catchment areas are described, as follows:

- ▶ South catchment – drainage is collected and directed to an underground detention and infiltration system with an extreme event overflow to Okanagan Lake. This is near the south end of the proposed Bennett Rd
- ▶ Middle, west catchment – drainage from the emergency access lane will be directed to existing dry wells at the south end of Dewdney Road. It is anticipated above-ground drainage methods will be utilized, unless it is determined that sub-surface approaches are required for erosion protection purposes. Also, drainage from a portion of the Bennett Road extension will be directed to existing drywells in Bennett Road

The on-site system will consist of a series of swales, ditches, culverts and storm sewers. Stormwater treatment systems will be provided where the bylaws and environmental approvals dictate their use. The stormwater management system will be designed and constructed in accordance with the City of Kelowna Subdivision Servicing Bylaw.

4.7 Shallow Utilities

Standard shallow utilities, including natural gas, hydro, telephone, and cable will be installed as part of the development. Right-of-ways, as they relate to shallow utilities, have not been illustrated within an ASP figure as their exact location and placement is unknown. They will, however, be identified at the rezoning and subdivision stages.

4.7.1 Natural Gas


Fortis BC (natural gas division) will extend the existing natural gas system from the existing Clifton Road North and the Bennett / Paly Road area as required for each phase of development.

4.7.2 Hydro

Fortis BC has an overhead three phase line along Clifton Road North and Bennett / Paly Road. This system will be extended underground as required for each development phase.

4.7.3 Telephone

Telus will utilize the same underground alignment as Fortis BC with a separate duct system to service the area. As off-site works on Clifton Road North progress, Telus may relocate some of their utility



underground. The cost to relocate the utility underground off-site will be not be borne by Lakeside Communities.

4.7.4 Cable

Shaw Cable will follow the same routing as Fortis BC and Telus, with separate ducting for the underground portion. Further to this, Shaw Cable may choose to relocate their utility underground as off-site works progress along Clifton Road North. The cost to relocate the utility underground off-site will be not be borne by Lakeside Communities.

4.8 Wildfire Mitigation and Fire Protection

The City of Kelowna 2030 Official Community Plan identifies the North Clifton site as a Wildfire Development Permit Area (DPA). This DPA was created within areas that could potentially cause hazards to property and human safety through wildfires and serves as a tool to protect against possible wildfire hazards. In response to this, a qualified professional was engaged to evaluate potential wildfire hazards. The purpose of this was two-fold: 1) complete a wildfire risk assessment; and 2) Undertake a wildland fire implementation plan.

Additional objectives included:

- ▶ Outlining appropriate actions to reduce, mitigate, and maintain a lower hazard rating;
- ▶ Identifying and treating forest health issues that constitute a fire hazard (i.e. Western Pine Beetle, Douglas Fir Tussock Moth, etc.); and
- ▶ Encouraging a balance of vegetation and maximizing tree retention without compromising fire suppression safety and increasing fire hazard ratings.

Following the completion of the wildfire hazard assessment, a wildfire hazard assessment of 'extreme' was assigned to the area. Over a period of three years, the site has undergone three phases of various prescription treatments, including mechanical treatment, slash / log disposal, and reforestation / re-vegetation, with efforts to achieve the recommended objectives. The applied treatments have significantly reduced the wildfire hazard rating from extreme to low. Further to this, a fire break between existing residential homes and North Clifton will be created.

Despite the three-phase wildfire mitigation measures undertaken, additional fire protection services are available. Currently, the McKinley Landing Volunteer Fire Department provides fire protection services within the area and will continue to provide such services into the foreseeable future.



4.9 Combined Development Concept

Various figures have been identified to illustrate how the North Clifton ASP will progress. A combined development concept of land use, preliminary lot layout, parks and open space, and the transportation network can be found within **Figure 3.11**.



5.0 NORTH CLIFTON DEVELOPMENT POLICY

North Clifton ASP policy strives to minimize disruption of the natural setting, while maximizing opportunities to establish waterfront and traditional parks, and enhance passive recreation trail networks with added connections to Clifton North, McKinley Landing, and Wilden neighbourhoods. ASP policy further aims to establish a framework to guide sensitive integration of future development with long-term environmental health of the site.

The North Clifton residential neighbourhood strives to achieve an integrated area that is socially, environmentally, and economically responsible. The area encompasses formal and informal trails, pathways, parks, open space areas, and public lake access within short walking distances to the single-family residential area. Recognizing North Clifton's location between three existing neighbourhoods (Clifton Highlands, McKinley Landing, Wilden), specific policy statements have been included that address the need for future development to seamlessly transition with adjacent areas. The following sections identify the policies that will guide North Clifton future development, including:

- ▶ Land Use and Housing
- ▶ Environmental
- ▶ Parks, Trails, and Open Space
- ▶ Transportation
- ▶ Infrastructure and Servicing

5.1 Land Use and Housing

- ▶ The general intent and conceptualization of the residential areas should be maintained as identified within the nine development enclaves of the North Clifton land use concept plan, recognizing some flexibility may be exercised during detailed design stages of development.
- ▶ Lot clustering within development enclaves shall minimize physical and visual hillside disturbance and maximize trails, open space, parkland, and lake views.
- ▶ Identify and preserve the sites' natural features, maintaining the natural setting and character of the land as a backdrop for complementary development forms.
- ▶ Gross residential density shall not exceed 200 units.
- ▶ Common or shared driveways can be used where topography is challenging.

- ▶ Direct site development according to the location and relevance of views, natural features and topographic conditions.
- ▶ Create a cohesive residential development that integrates with surrounding neighbourhoods through road networks, trails, and pathways.
- ▶ Encourage an architectural form and character that is harmonious with the site's intrinsic nature through selective placement, architectural controls and use of complimentary construction materials.
- ▶ Develop site specific architectural forms that are appropriate to the hillside location, respects the natural topography, and retains existing landforms and vegetation to the greatest extent possible.
- ▶ Provide an interconnected transportation network which allows for cycling, pedestrian and other non-motorized means of travel as well as the requirements for vehicular traffic.
- ▶ Address the need for public (park spaces) linkages within the proposed development and connections to offsite open space systems both short and long term.
- ▶ Utilize dominant natural features and landscape to provide logical boundaries or definition to development enclaves.
- ▶ Consider alternative road standards that complement the terrain and features associated with the surrounding hillsides and that reduce site grading, overall site disturbance, and associated visual impacts without compromising public safety.
- ▶ Development will be directed to appropriate areas with slopes averaging less than 30%.
- ▶ Natural vegetation should be retained on slopes where possible in order to control potential erosion, land slip and rock falls.


5.2 Environment and Ecology

Large areas of North Clifton are to remain in their natural state. The environmental assessment identifies environmental features to be addressed and honoured through the design of appropriate residential areas.

The development areas have been carefully designed to minimize disruption to the steeper slope areas. The intent is to create a sense of harmony between built environment and the existing topography to reinforce the natural state of the site.

5.2.1 Environmental and Ecology Policies

- ▶ Wildlife corridors and habitat areas shall be protected and enhanced as per the recommendations of our environmental consultant.

- 
- ▶ Clifton Road North extension right-of-way (ROW) encroachment within the ESA 1 area shall minimize wildlife corridor and habitat disturbance to the greatest extent possible.
 - ▶ Disturbed ESA areas shall be remediated per recommendations within the North Clifton Environmental Assessment and compensated as per City of Kelowna requirements.

5.3 Parks, Trails, and Open Space

Collectively, the open space system will provide a comprehensive network of preserved natural landscape. In physical terms, these lands will accommodate trails that provide connections throughout the plan area and beyond the immediate ASP boundaries to adjacent neighbourhoods (i.e. Clifton Highlands, McKinley Landing, Wilden). Additionally, the open space system will be strategically located and appropriately sized to facilitate wildlife movement patterns through the ASP area. The development allocates over 60 acres of open space and dedicates nearly four acres as new park space.


5.3.1 Parks, Trails, and Open Space Policies

- ▶ Incorporate initiatives to restore any disturbed natural landscapes within North Clifton.
- ▶ A comprehensive site furniture and sign package including benches, human-scaled lighting, street trees and garbage receptacles are to be provided as key unifying neighbourhood elements in accordance with City of Kelowna standards.
- ▶ The dedicated parks, trails, and open space areas, where possible, are to connect with the City of Kelowna's existing network, forming seamless, interconnected network.
- ▶ Development of residential enclaves will ensure that residents have access to open space and trails within a five minute walking distance or 400 metres.

5.4 Transportation

5.4.1 Transportation Policies

- ▶ Develop entry and connection roadways that transition from adjacent neighbourhoods into North Clifton.
- ▶ Develop roadways that are pedestrian-oriented.
- ▶ Provide extensive landscape treatment for visual interest, shade and separation from the roadway.
- ▶ Alternative modes of transportation shall be promoted and accommodated in keeping with the City of Kelowna 2030 OCP.
- ▶ Wayfinding signage identifying pathways and linkages should be installed as appropriate.


- 
- ▶ The design of the internal road network should accommodate for future stormwater management facilities.
 - ▶ The design of the internal road network should accommodate for convenient connections and multiple route choices to origin/destination points within the neighbourhood.
 - ▶ The design of the internal road network should accommodate for interconnected pedestrian systems within the residential neighbourhood.
 - ▶ The design of the internal road network should accommodate for future transit stops and routes.
 - ▶ Development of appropriate roadway circulation should create opportunities for “transit friendly” development.
 - ▶ Direct connections and multiple route choices should be provided to allow for efficient movements within the neighbourhood, and to destination points outside of North Clifton.
 - ▶ Innovative road designs should be considered as it relates to site-specific development issues within hillside conditions.
 - ▶ Network roads will be located on the most favourable alignment to meet road, and emergency services design criteria while minimizing site disruption.

5.5 Servicing and Shallow Utilities

5.5.1 Servicing and Shallow Utility Policies

Servicing

- ▶ The water distribution system for the planning area shall be designed to adequately and efficiently serve the development of the area.
- ▶ The wastewater collection system for the planning area shall be designed to adequately and efficiently serve the development of the area.
- ▶ Land drainage and stormwater management facilities shall be designed to reduce the impact on the regional infrastructure system and shall be developed generally in conjunction with the road network system that serves as a connection through the neighbourhoods.
- ▶ Ensure that a stormwater management plan is provided to mitigate environmental impacts from storm runoff, erosion sedimentation and contains onsite drainage to pre-development levels.
- ▶ Stormwater management designs should incorporate natural drainage channels which provide for storm flows over the site to Okanagan Lake in accordance with applicable regulations.

- 
- ▶ Land and storm drainage systems should be designed to create a natural, rather than manufactured, appearance.
 - ▶ Industry best-practices and environmentally responsible design approaches, such as low impact development, should be integrated in all servicing designs.
 - ▶ Sharp cuts and fills and long linear slopes of uniform grade should be avoided, where possible.

Shallow Utilities

- ▶ Utility rights-of-way shall be provided to accommodate utilities as determined necessary. Where possible, utilities will be located within the same right-of-way area.
- ▶ Utility rights-of-way shall be provided to accommodate shallow utilities as determined necessary.
- ▶ Utility rights-of-way and public utility lots shall be provided as required to accommodate the development or the extension of municipal utilities necessary for development.
- ▶ A developer may be required to provide, or enter into an agreement to provide when required, the utility rights-of-way necessary to accommodate the extension of municipal utilities through or adjacent to a site in advance of development in order to allow for the servicing of a site.

6.0 DEVELOPMENT PERMIT AREAS

Pursuant to the Local Government Act Section 879 and 920, the City of Kelowna has included a number of Development Permit areas within the 2030 Kelowna Official Community Plan. The purpose of Development Permit Areas (DPA) is to provide protection to environmentally sensitive areas and hazard lands, wildfire interface protection basis, hillside development areas, and form and character.

North Clifton will primarily be located entirely within the following 2030 Kelowna Official Community Plan DPA's:

- Natural Environment
- Hazardous Conditions
- Wildfire
- Urban Design Development (Hillside 20% +)

Accordingly, development within North Clifton will be subject to the foregoing DPA's. The objectives and provisions for the guidelines are to be administered as a supplemental process to the 2030 Kelowna Official Community Plan. Further, development within North Clifton will be carried out in accordance with each of the applicable DPA guidelines, and objectives and policy set within the North Clifton ASP, while recognizing that the DPA guidelines take priority.



7.0 IMPLEMENTATION AND PHASING

The North Clifton ASP is at the first stage of the overall development process and must be accepted by City of Kelowna staff and Council prior to any further development planning. Following acceptance of the document, the implementation of the ASP process will be initiated through a series of development processes, including, but not limited to rezoning, subdivision, and development permits, and issuance of building permits.

The North Clifton general development phasing plan is illustrated in **Figure 3.12, Phasing Plan**. Although the first phase of development has been identified, no specific timeframe is applied to the ASP. The timing and development phasing sequence will be influenced by a number of contributing factors such as, but not limited to market changes, and supply and demand of housing. In addition to this, development phasing will respond to the logical extension of services to the site.

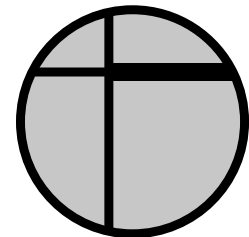
Although the exact development timing of site is unknown, it is expected that under current economic and market conditions, full build out of the North Clifton area could take between 10-15 years.





LEGEND:

--- ASP BOUNDARY



NORTH

SCALE 1:40,000
(METRIC)

Disclaimer:
This map is conceptual in nature. Any development
patterns including lots and transportation network
items identified may be subject to minor refinement
at the subdivision development phase.

MELCOR
DEVELOPMENTS LTD.

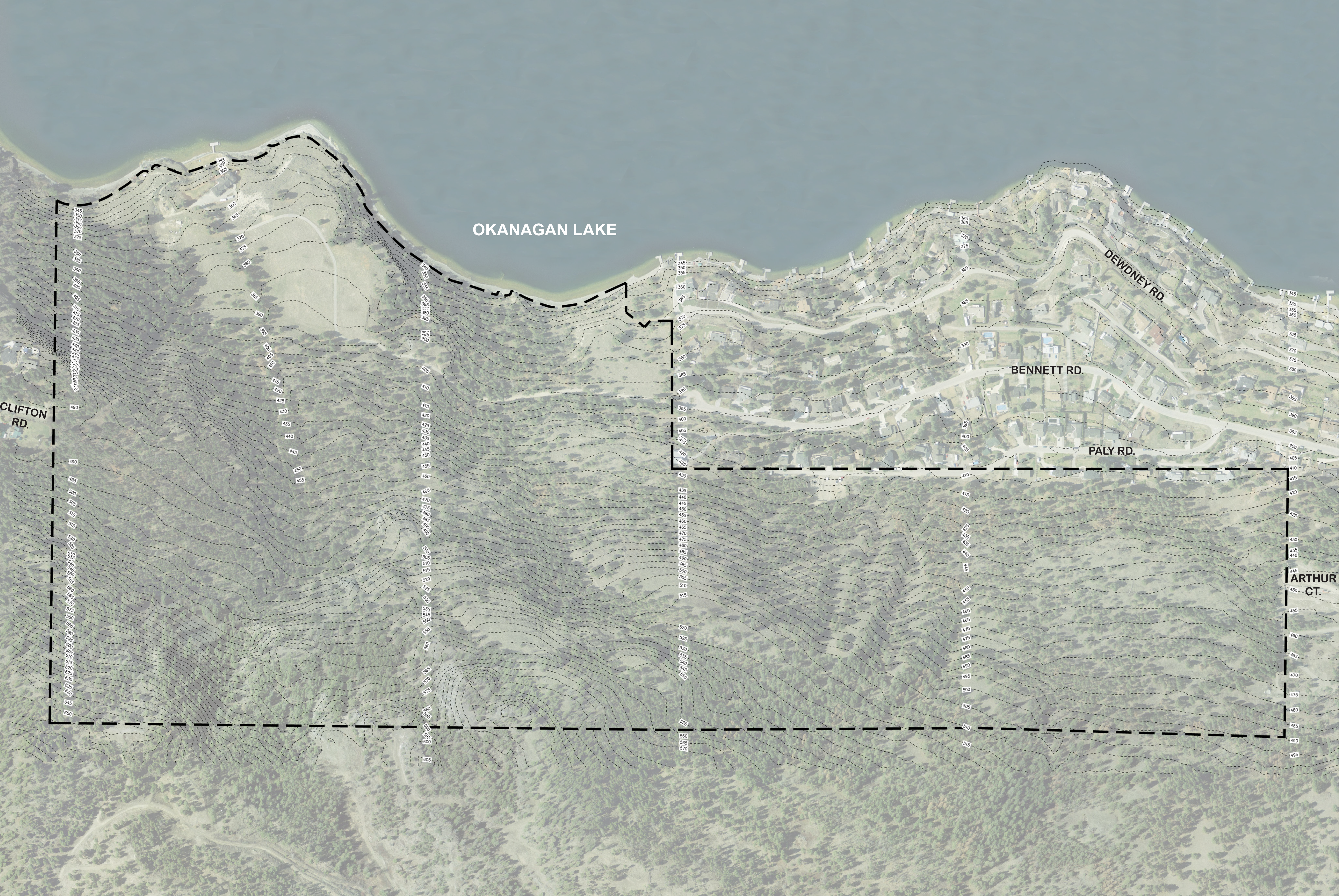
 **MMM GROUP**

NORTH CLIFTON ASP - KELOWNA, BC

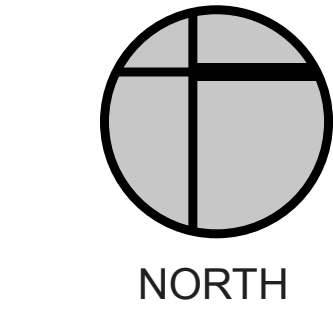
MARCH 2014

AREA CONTEXT

FIGURE 1.1



- LEGEND:**
- ASP BOUNDARY
 - CONTOURS (5m INTERVAL)



0m 50 100 150 200 250m
Scale 1:5000

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

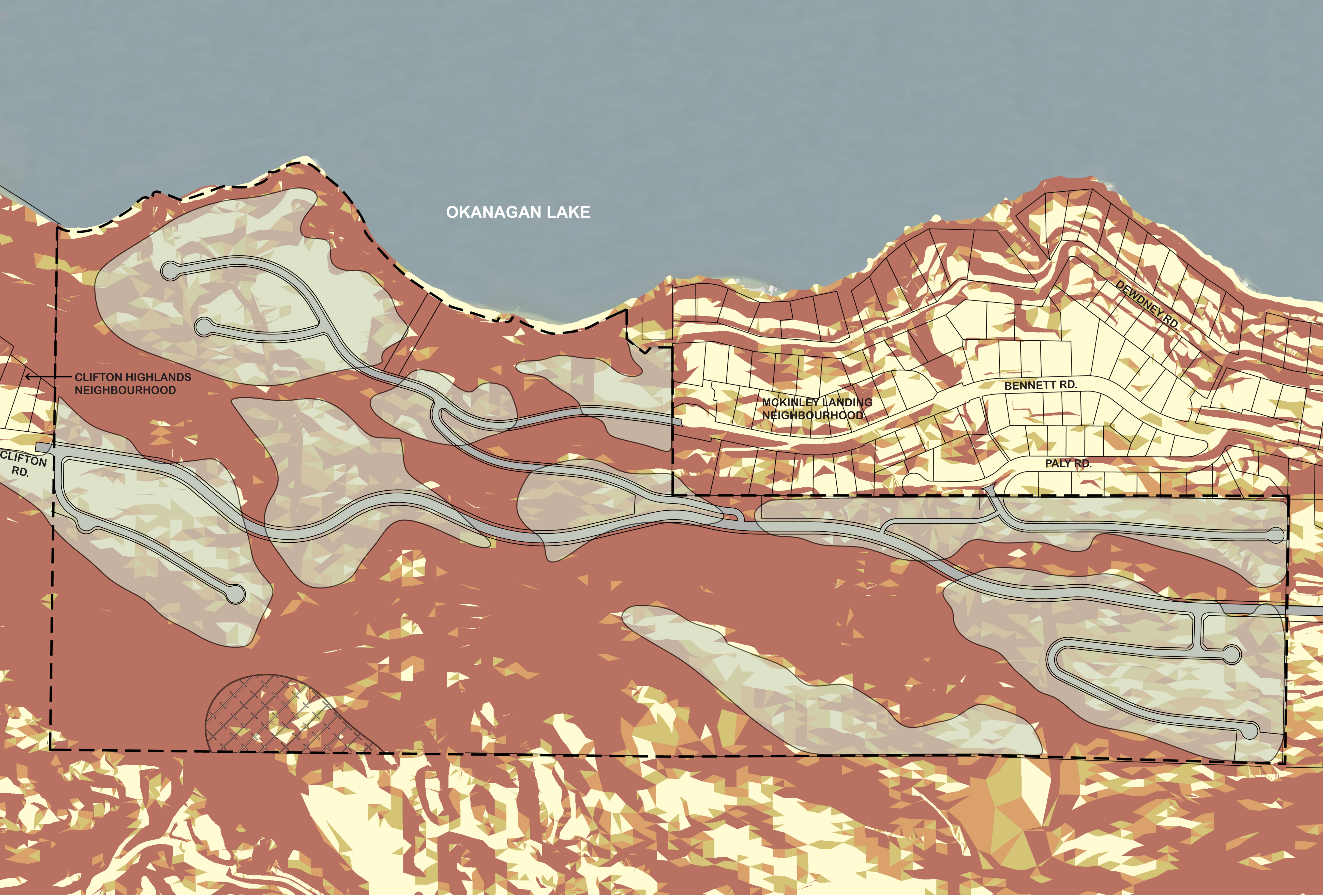


NORTH CLIFTON ASP - KELOWNA, BC

ASP BOUNDARY + TOPOGRAPHY

MARCH 2014

FIGURE 1.2



LEGEND:

--- ASP BOUNDARY

SLOPE ANALYSIS

0% - 20%

20% - 25%

25% - 30%

30% - VERTICAL

PROPOSED ROADWAY

PROPOSED DEVELOPMENT NODES

FUTURE DEVELOPMENT AREA

ARTHUR CT.

NORTH

0m 50 100 150 200 250m

Scale 1:5000

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

MELCOR
DEVELOPMENTS LTD.

MMM GROUP

NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

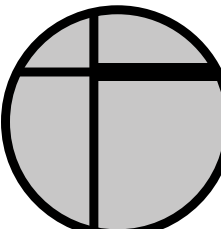
SLOPE ANALYSIS


FIGURE 2.1



LEGEND:

- ASP BOUNDARY
- SHORELINE
- BENCH
- RIDGE
- ROCK OUTCROP
- TALLUS SLOPE
- VIEW CORRIDOR


NORTH


Scale 1:5000

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

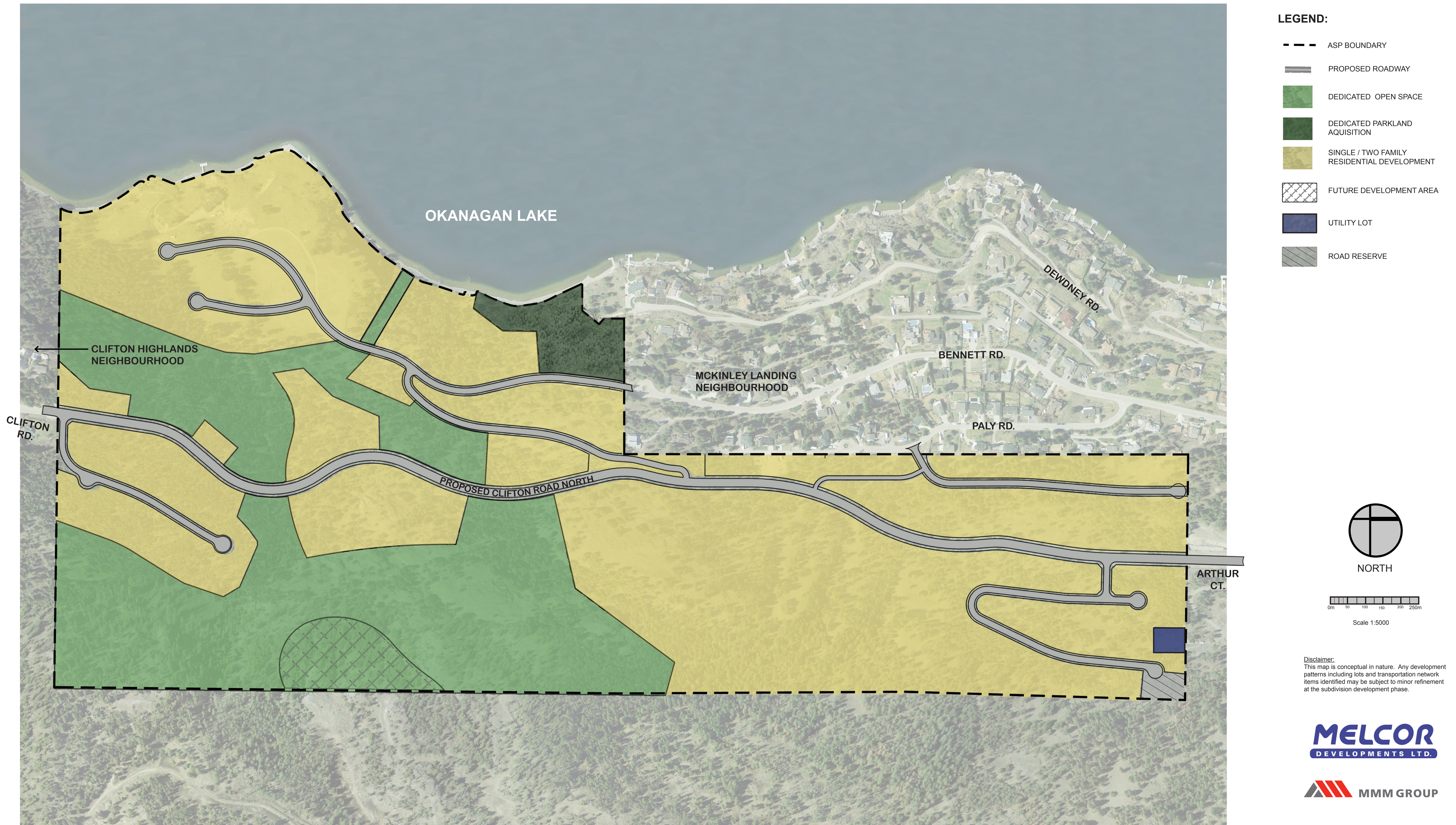


NORTH CLIFTON ASP - KELOWNA, BC

SITE FEATURES

MARCH 2014

FIGURE 2.3



NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

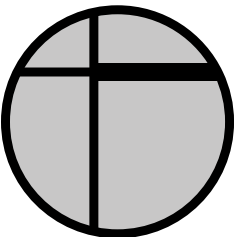
LAND USE CONCEPT


FIGURE 3.1



LEGEND:

- ASP BOUNDARY
- ===== PROPOSED ROADWAY
- 2 PROPOSED DEVELOPMENT ENCLAVE
- [Cross-hatched] FUTURE DEVELOPMENT AREA


NORTH


Scale 1:5000

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

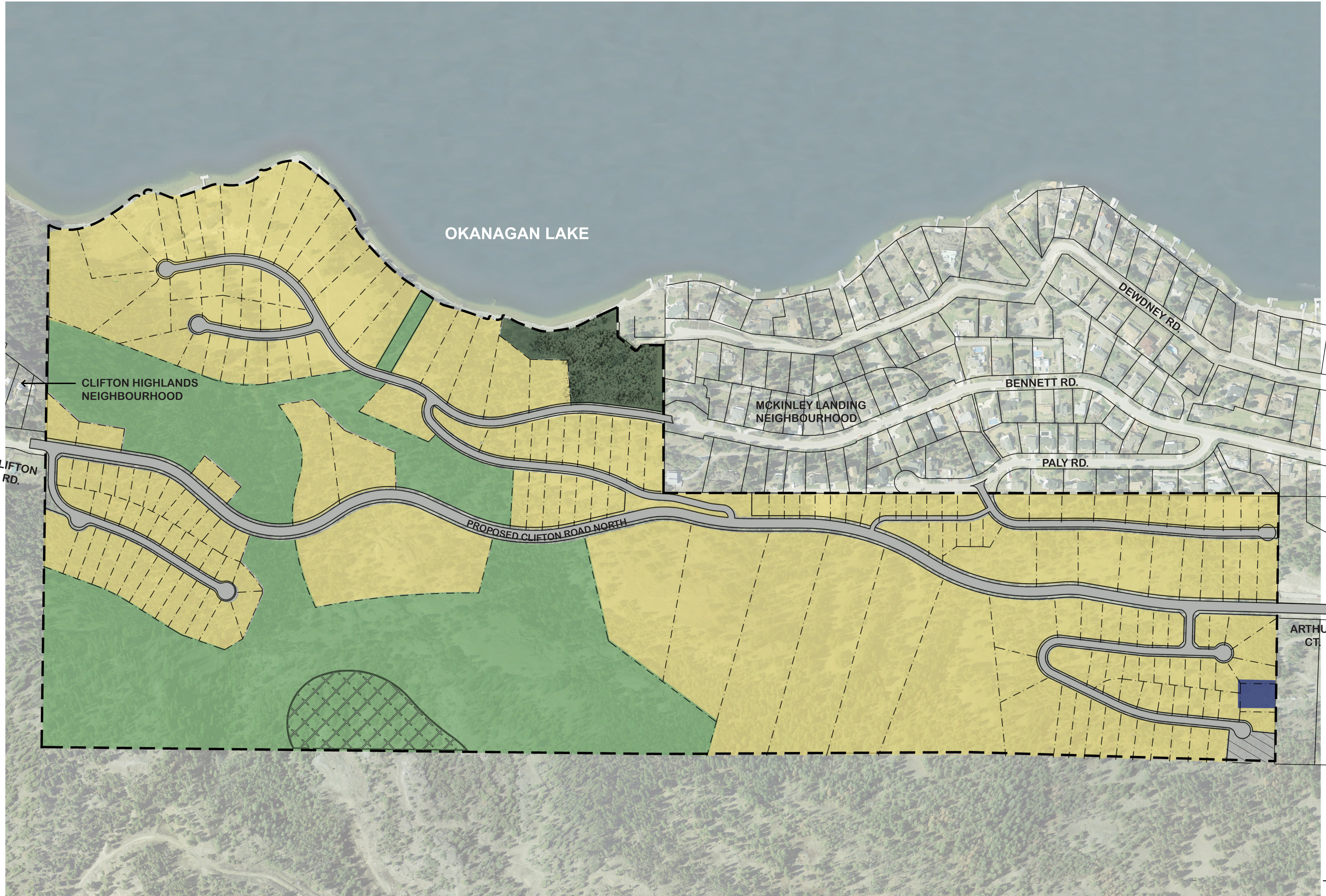


RESIDENTIAL ENCLAVES

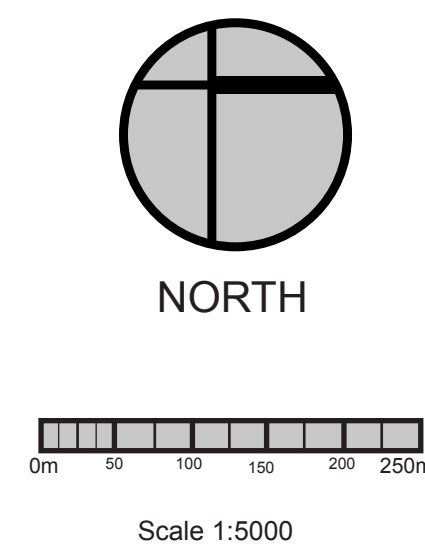
NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

FIGURE 3.2



- LEGEND:**
- ASP BOUNDARY
 - === PROPOSED ROADWAY
 - DEDICATED OPEN SPACE
 - DEDICATED PARKLAND ACQUISITION
 - SINGLE / TWO FAMILY RESIDENTIAL DEVELOPMENT
 - ▨ FUTURE DEVELOPMENT AREA
 - UTILITY LOT
 - ▨ ROAD RESERVE



Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

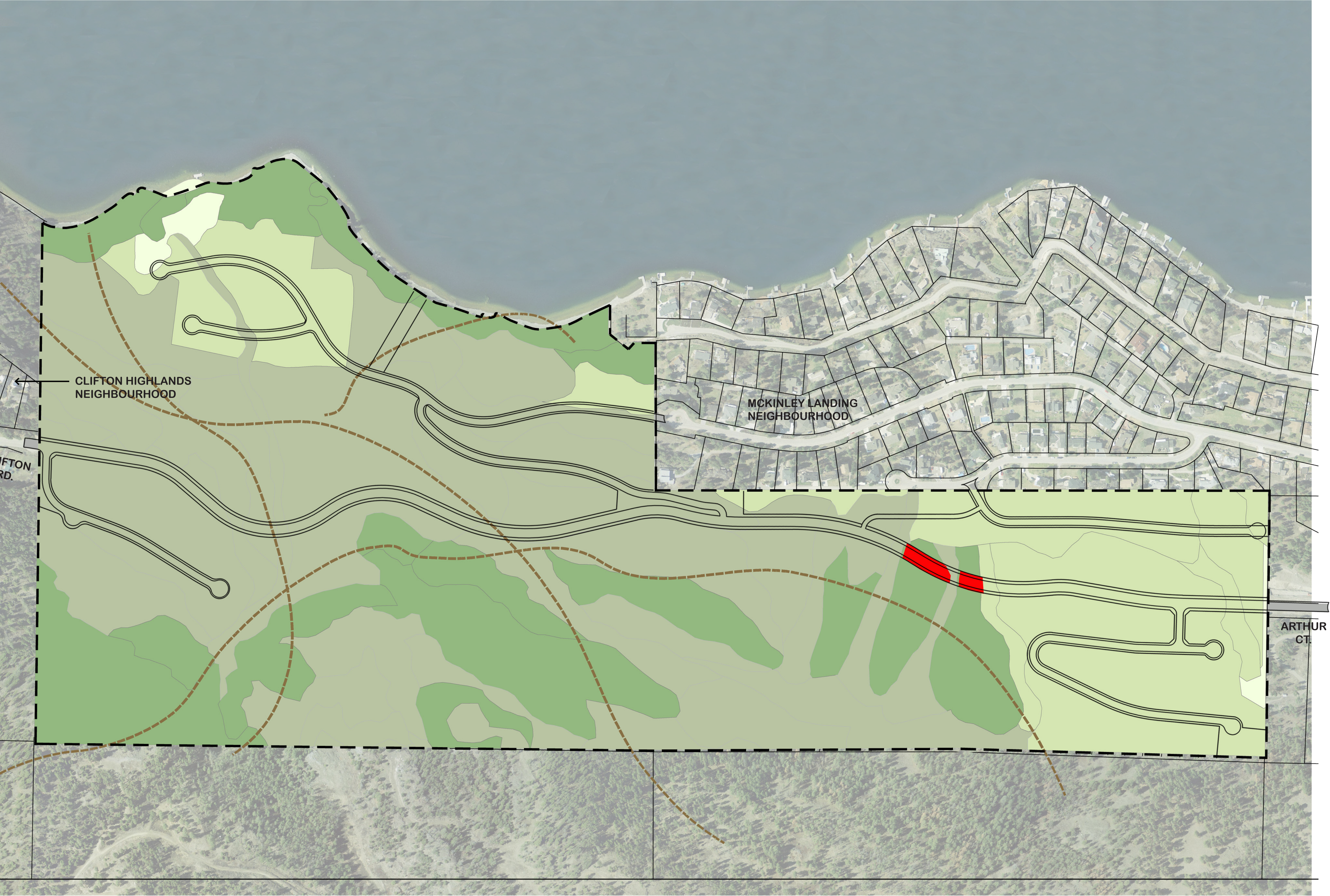


NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

PRELIMINARY LOT LAYOUT

FIGURE 3.3



LEGEND:

- ASP BOUNDARY
- ==== PROPOSED ROADWAY
- - - - WILDLIFE CORRIDORS
- ANTICIPATED 'ESA-1' IMPACT AREAS

ESA VALUES (MAKONIS)

- ESA-1 (VERY HIGH)
- ESA-2 (HIGH)
- ESA-3 (MODERATE)
- ESA-4 (LOW)

NORTH

Scale 1:5000

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

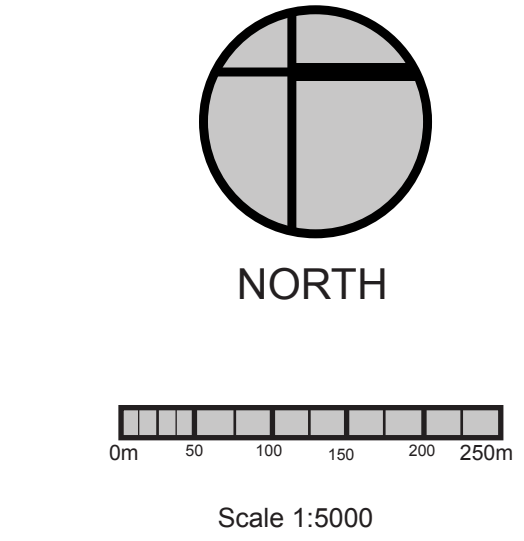


NORTH CLIFTON ASP - KELOWNA, BC

ENVIRONMENTALLY SENSITIVE AREAS



- LEGEND:**
- ASP BOUNDARY
 - ROADSIDE CORRIDOR
 - CLASS 5 NARROW MULTI-USE TRAIL
 - CLASS 6 NATURE TRAIL
 - STATUTORY RIGHT OF WAY ON TRAIL
 - DEDICATED OPEN SPACE (60 ACRES)
 - DEDICATED PARKLAND ACQUISITION (3.7 ACRES)
 - PROPOSED DEVELOPMENT NODES
 - DESIGNATED CROSSING POINT
 - LOOKOUT POINT
 - EXISTING BEACH ACCESS TRAIL
 - PEDESTRIAN CONNECTION (DEDICATED ROAD R.O.W. AS PER SUBDIVISION BYLAW)
 - FUTURE DEVELOPMENT AREA
 - POTENTIAL FUTURE LINK



Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

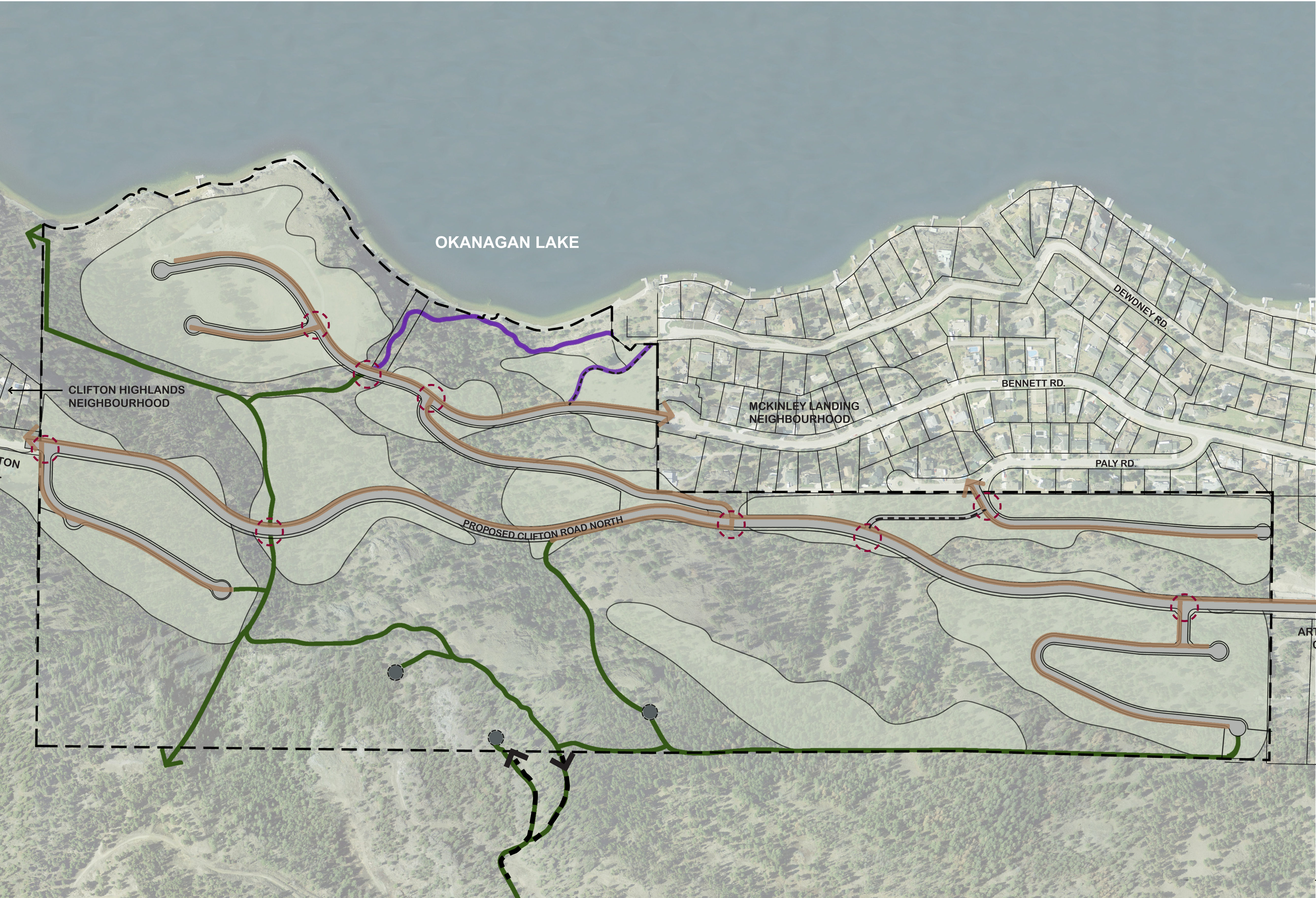


**PARKS +
OPEN SPACE**

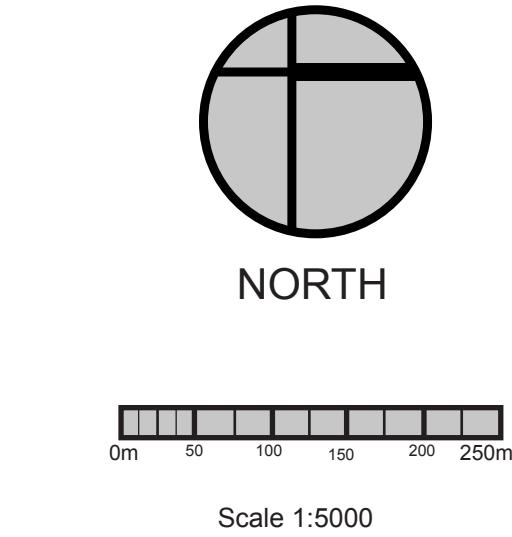
NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

FIGURE 3.5



- LEGEND:**
- ASP BOUNDARY
 - PROPOSED ROAD
 - COLLECTOR ROAD
 - EMERGENCY ACCESS
 - ROADSIDE CORRIDOR
 - CLASS 5 NARROW MULTI-USE TRAIL
 - CLASS 6 NATURE TRAIL
 - DESIGNATED CROSSING POINT
 - POTENTIAL FUTURE LINK



Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

MELCOR
DEVELOPMENTS LTD.

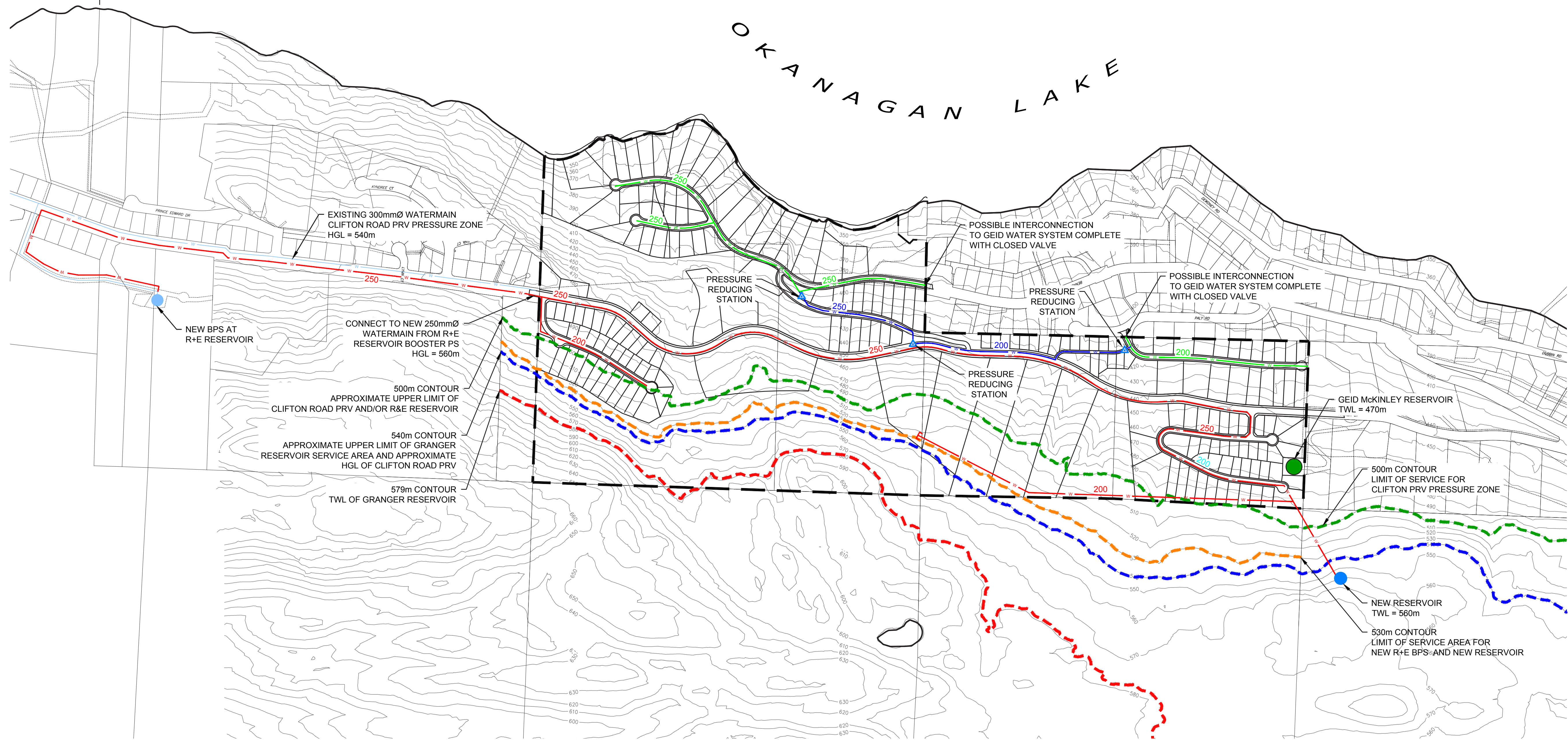
 **MMM GROUP**

**TRANSPORTATION
NETWORK**

NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

FIGURE 3.6

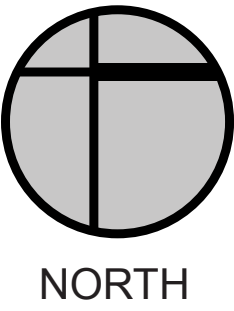


LEGEND:

— W —	WATER MAIN	⊗ CS	CURB STOP
— S —	SANITARY SEWER	⊕	HYDRANT
— D —	STORM SEWER	⊖	REDUCER
— G —	NATURAL GAS	⊙	LINE VALVE
— E —	ELECTRICAL POWER	●	MANHOLE
— T —	COMMUNICATIONS	⊞ CB	CATCH BASIN
—	PAVEMENT EDGE	⊞ DW	DRYWELL
—	GRAVEL EDGE		
— X —	FENCE	—○—	UTILITY POLE
—	CONTOUR	—○—	POLE ANCHOR
—	BOTTOM OF SLOPE	—E—	ELEC BOX
—	TOP OF SLOPE	—T—	TEL BOX
		—C—	CABLE BOX

NOTES:
 * OBJECTS WITH HEAVIER LINE WEIGHTS ARE DENOTING PROPOSED WORKS
 * THE CONTOUR INTERVAL DEPICTED IN THIS DRAWING IS XXX.XXXm

— W —	560m PRESSURE ZONE WATERMAIN AND SUPPLY LINE
— W —	530m PRESSURE ZONE WATERMAIN
— W —	470m PRESSURE ZONE DISTRIBUTION



Not to Scale

Disclaimer:
 This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.



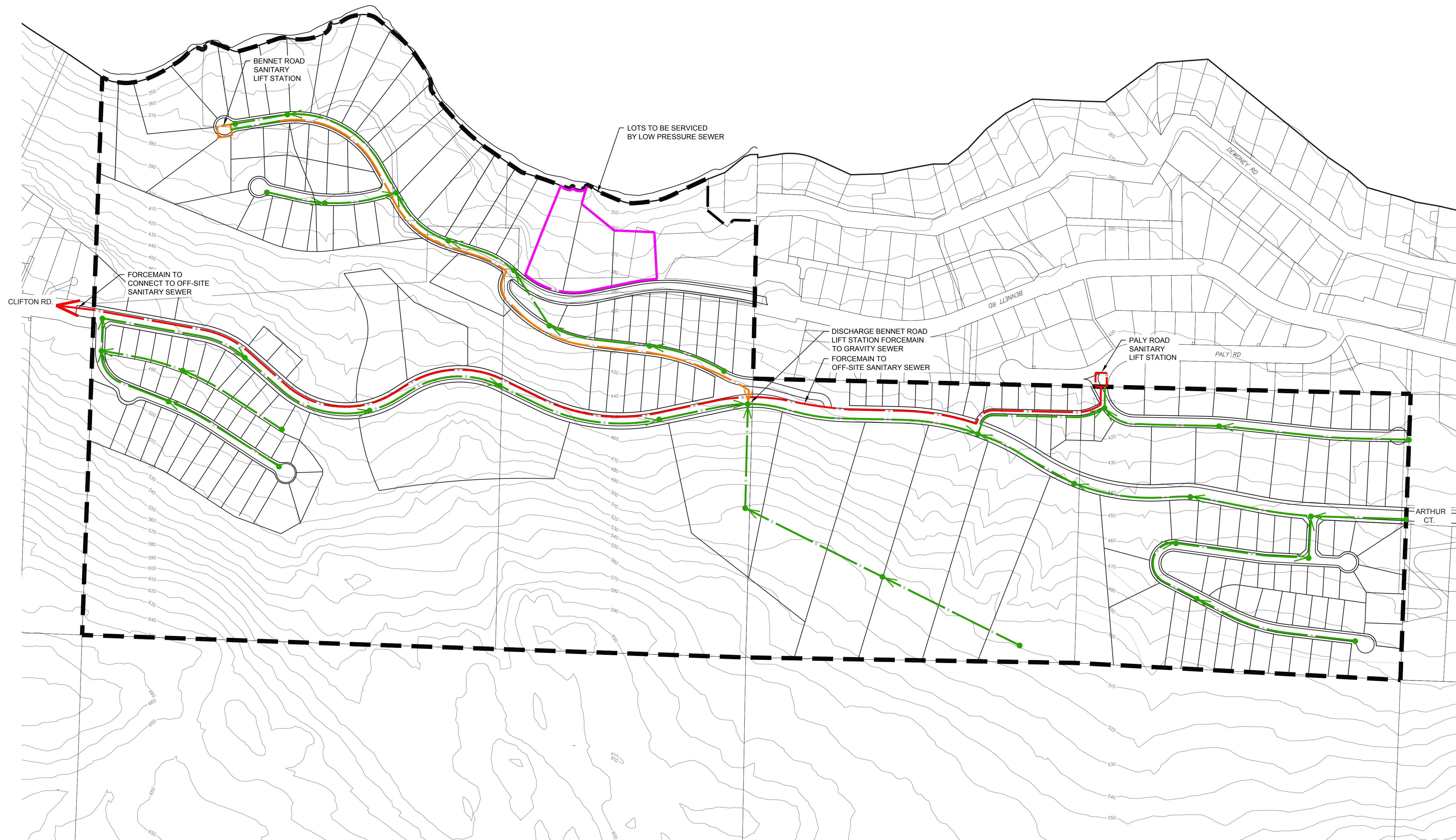
NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

WATER SYSTEM

FIGURE 3.7

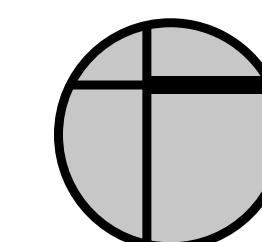
OKANAGAN LAKE



LEGEND:	
— W —	WATER MAIN
— S —	SANITARY SEWER
— D —	STORM SEWER
— G —	NATURAL GAS
— E —	ELECTRICAL POWER
— T —	COMMUNICATIONS
— P —	PAVEMENT EDGE
— G —	GRAVEL EDGE
— F —	FENCE
— C —	CONTOUR
— B —	BOTTOM OF SLOPE
— T —	TOP OF SLOPE
CS	CURB STOP
HY	HYDRANT
RED	REDUCER
LV	LINE VALVE
MH	MANHOLE
CB	CATCH BASIN
DW	DRYWELL
UP	UTILITY POLE
PA	POLE ANCHOR
EB	ELEC BOX
TB	TEL BOX
CB	CABLE BOX

NOTES:
• OBJECTS WITH HEAVIER LINE WEIGHTS ARE DENOTING PROPOSED WORKS.
• THE CONTOUR INTERVAL DEPICTED IN THIS DRAWING IS XXX.XXXm.

— S — GRAVITY SANITARY SEWER
— S — BENNETT ROAD SANITARY SEWER
— S — PALY ROAD SANITARY SEWER
— S — FORCEMAIN



NORTH

Not to Scale

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

MELCOR
DEVELOPMENTS LTD.

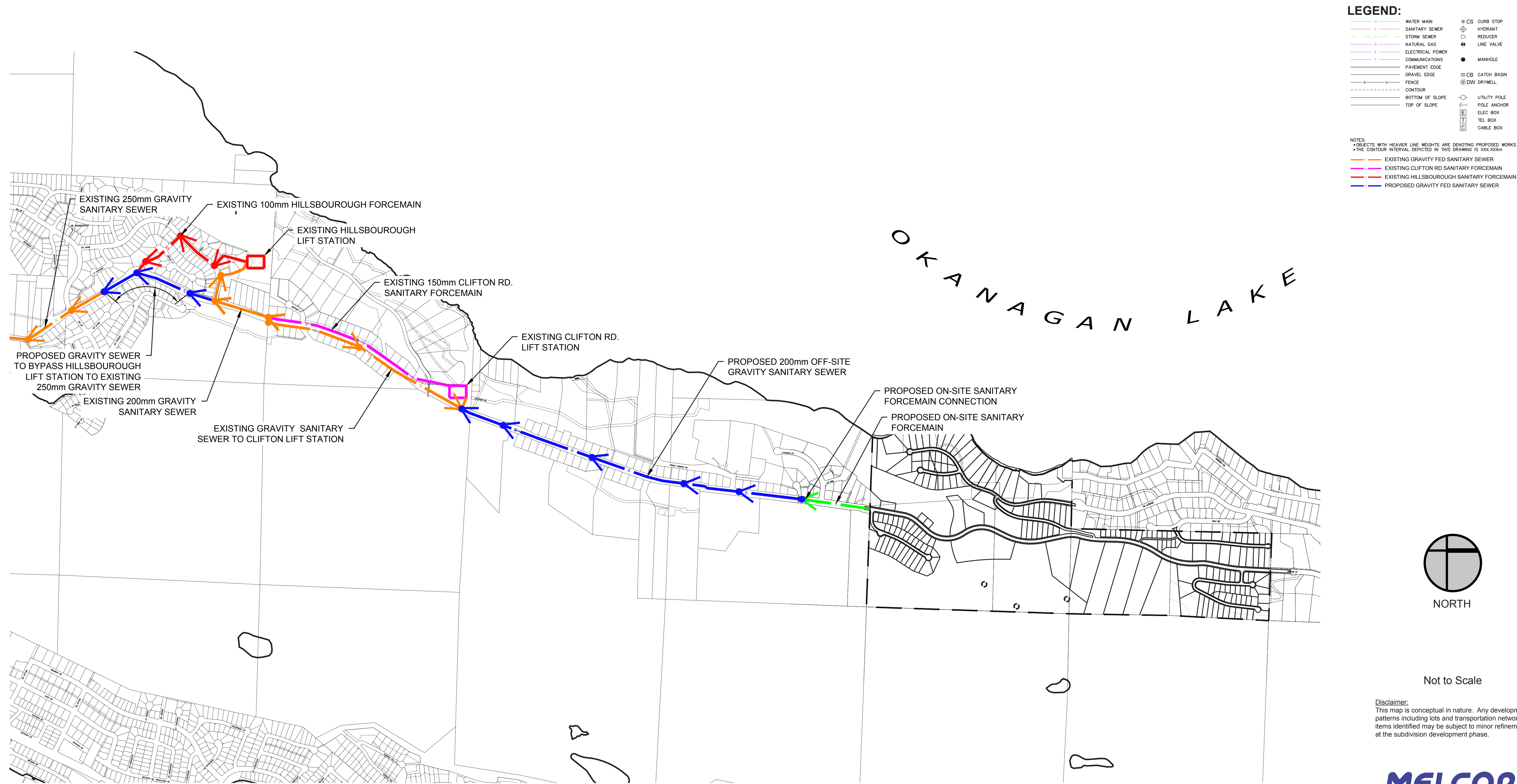
MMM GROUP

NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

ON-SITE
SANITARY

FIGURE 3.8

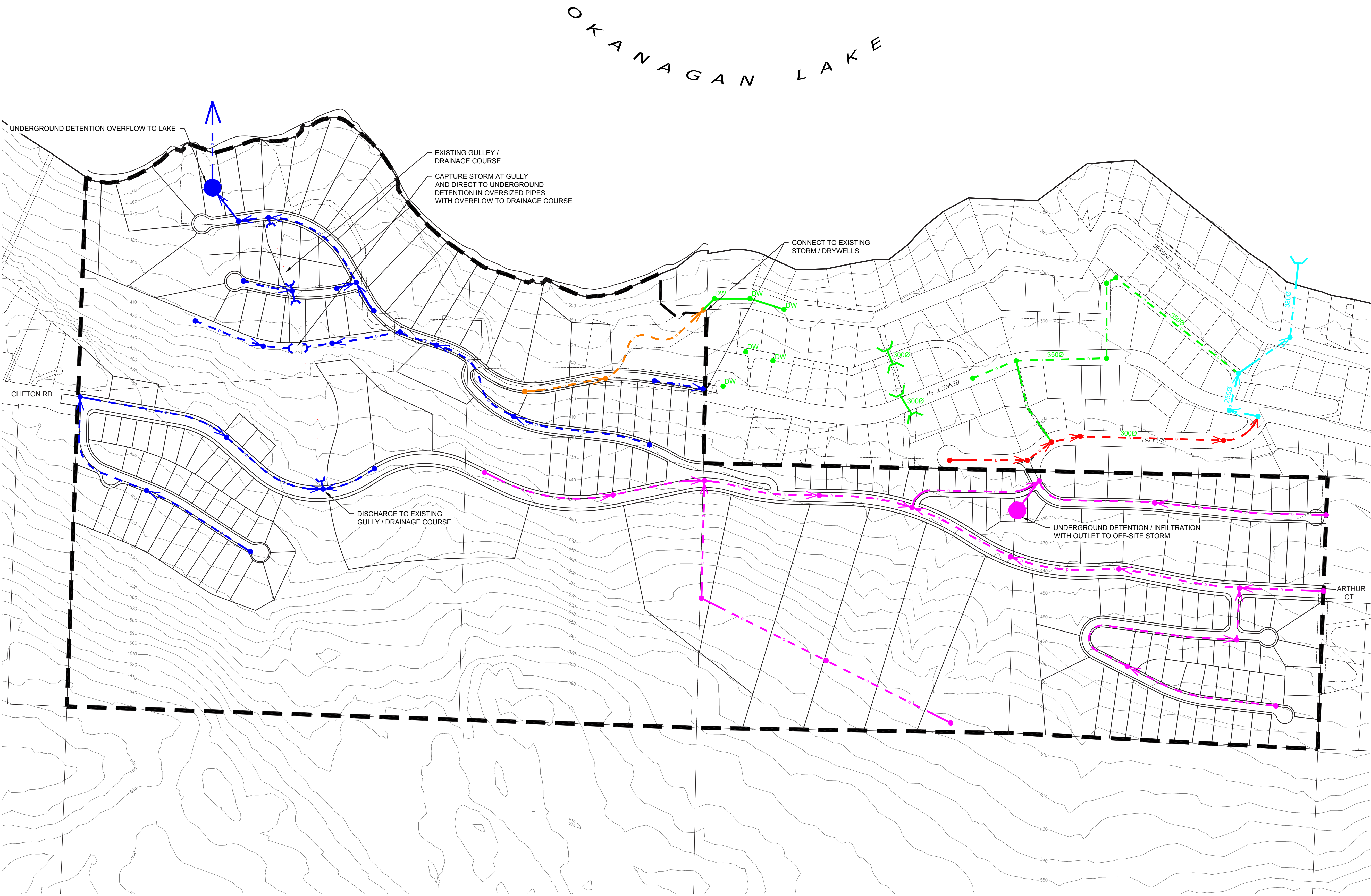


NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

OFF-SITE STORM + SANITARY

FIGURE 3.9

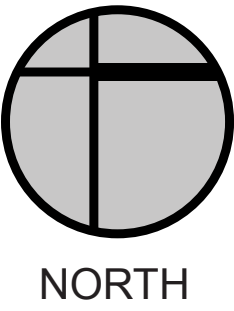


LEGEND:

— W —	WATER MAIN	⊗ CS	CURB STOP
— S —	SANITARY SEWER	⊕	HYDRANT
— D —	STORM SEWER	□	REDUCER
— G —	NATURAL GAS	●	LINE VALVE
— E —	ELECTRICAL POWER	●	MANHOLE
— T —	COMMUNICATIONS	■ CB	CATCH BASIN
—	PAVEMENT EDGE	⊗ DW	DRYWELL
—	GRAVEL EDGE	○	UTILITY POLE
—	FENCE	—	POLE ANCHOR
—	CONTOUR	—	ELEC BOX
—	BOTTOM OF SLOPE	—	TEL BOX
—	TOP OF SLOPE	—	CABLE BOX

NOTES:
• OBJECTS WITH HEAVIER LINE WEIGHTS ARE DENOTING PROPOSED WORKS.
• THE CONTOUR INTERVAL DEPICTED IN THIS DRAWING IS XXX.XXXm

— D — SOUTH OUTLET DRAINAGE (A)
— D — SOUTH OUTLET DRAINAGE (B)
— D — NORTH OUTLET DRAINAGE
— D — EXISTING STORM SEWER
— D — NEW OFF-SITE STORM SEWER
— D — UPGRADED EXISTING STORM SEWER



Not to Scale

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

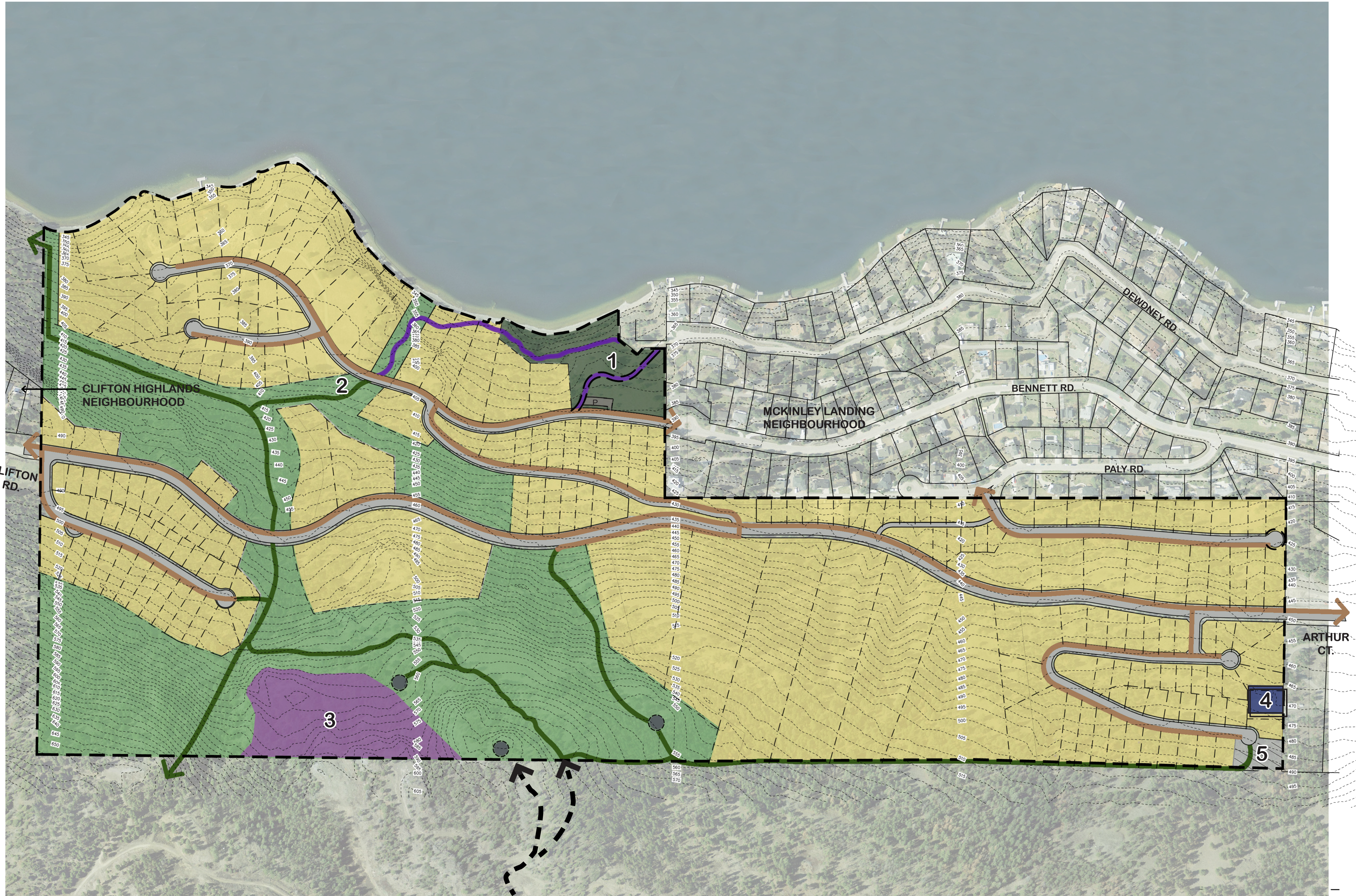


STORMWATER MANAGEMENT

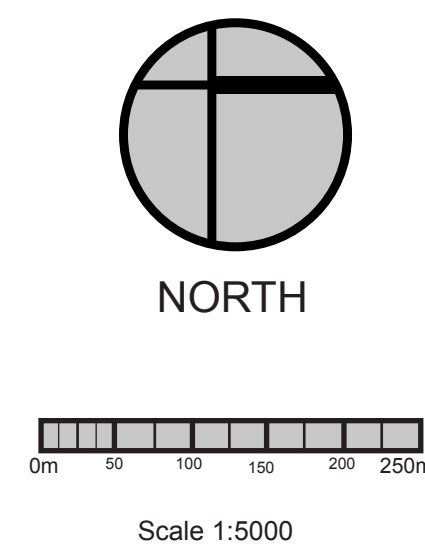
NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

FIGURE 3.10



- LEGEND:**
- ASP BOUNDARY
 - PROPOSED ROADWAY
 - DEDICATED OPEN SPACE
 - SINGLE/ MULTI FAMILY RESIDENTIAL DEVELOPMENT
 - ROADSIDE CORRIDOR
 - CLASS 5 MULTI-USE TRAIL
 - CLASS 6 NATURE TRAIL
 - SHARED USE TRAIL + BEACH (ROW ON PRIVATE LAND)
 - LOOKOUT POINT
 - POTENTIAL FUTURE LINK
 - POTENTIAL PARKING AREA (12-15 STALLS)
 - 1 PARKLAND AQUISITION/BENNETT PARK
 - 2 TRAIL HEAD PARKING
 - 3 FUTURE URBAN RESERVE
 - 4 UTILITY LOT (GEID RESERVOIR)
 - 5 ROAD RESERVE



Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.

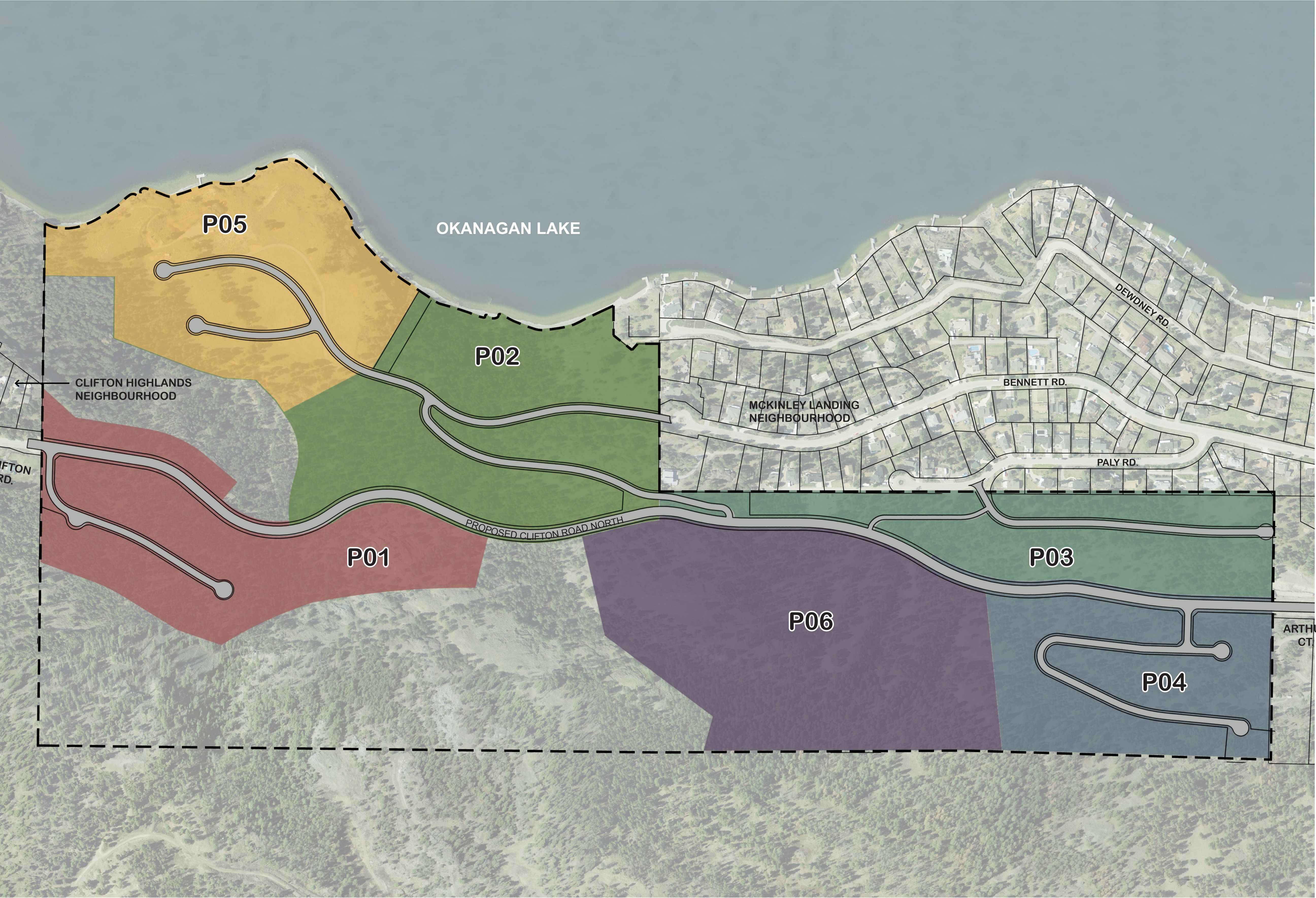


NORTH CLIFTON ASP - KELOWNA, BC

LAND USE CONCEPT + TRAIL NETWORK

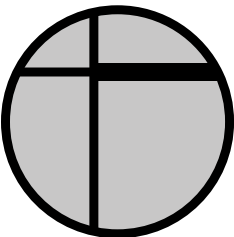
MARCH 2014

FIGURE 3.11

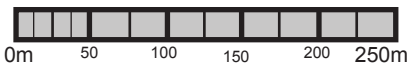


LEGEND:

- ASP BOUNDARY
- PHASE 01
- PHASE 02
- PHASE 03
- PHASE 04
- PHASE 05
- PHASE 06



NORTH



Scale 1:5000

Disclaimer:
This map is conceptual in nature. Any development patterns including lots and transportation network items identified may be subject to minor refinement at the subdivision development phase.



PHASING
PLAN

NORTH CLIFTON ASP - KELOWNA, BC

MARCH 2014

FIGURE 3.12



Appendix A

Geotechnical Study



Appendix B Environmental Assessment



Appendix C Traffic Impact Assessment



Appendix D

Road Safety Analysis



Appendix E

Visual Impact Analysis



Appendix F Public Consultation Summary