POST-WILDFIRE NATURAL HAZARD RISK ASSESSMENT (WHITE ROCK LAKE WILDFIRE)

Regional District of Central Okanagan

Presentation to the RDCO Board of Directors: February 10, 2022

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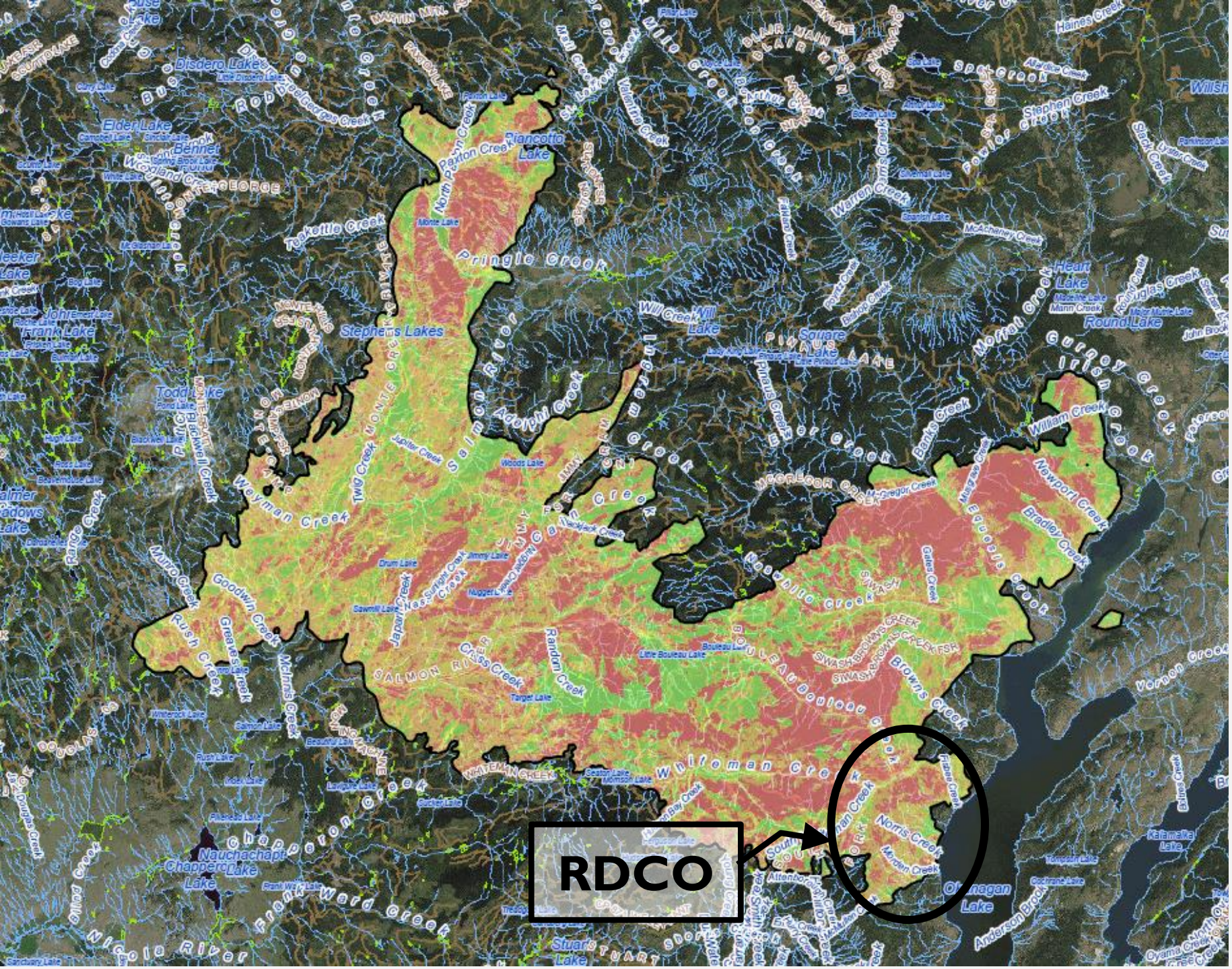
PURPOSE

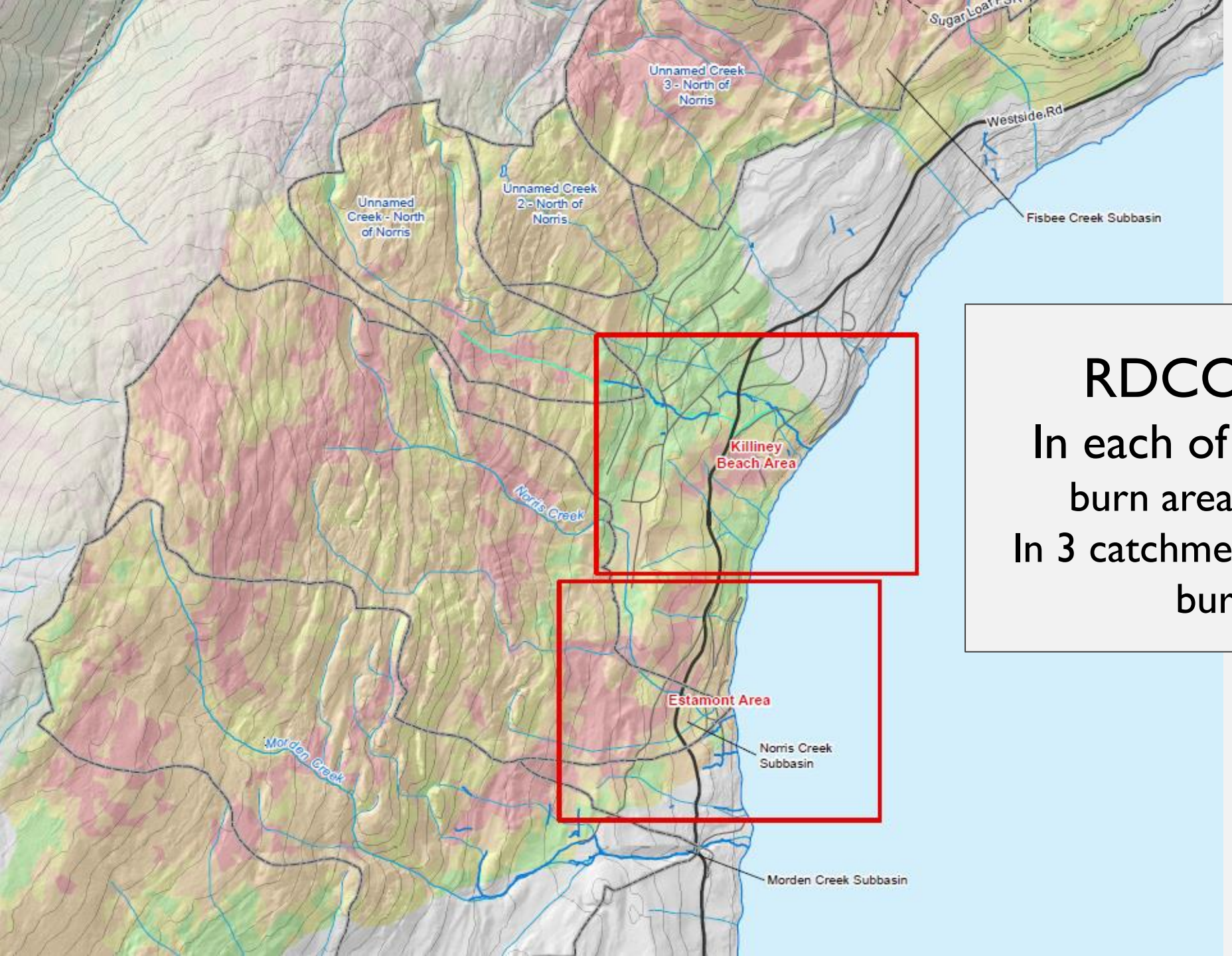
- MFLNRORD Project
  - Area included all affected watersheds draining into Okanagan Lake
  - Identify post-wildfire hazards, evaluate risk, provide recommendations for mitigation

- RDCO Project
  - Completed for **34 affected properties** in the Killiney Beach and Estamont areas
  - Document environmental and hazardous conditions, evaluate risk, identify need for mitigation and/or further assessment for recovery

WHITE ROCK LAKE WILDFIRE



HIGH SEVERITY BURN CAN LEAD TO DEVELOPMENT OF WATER REPELLENT SOILS

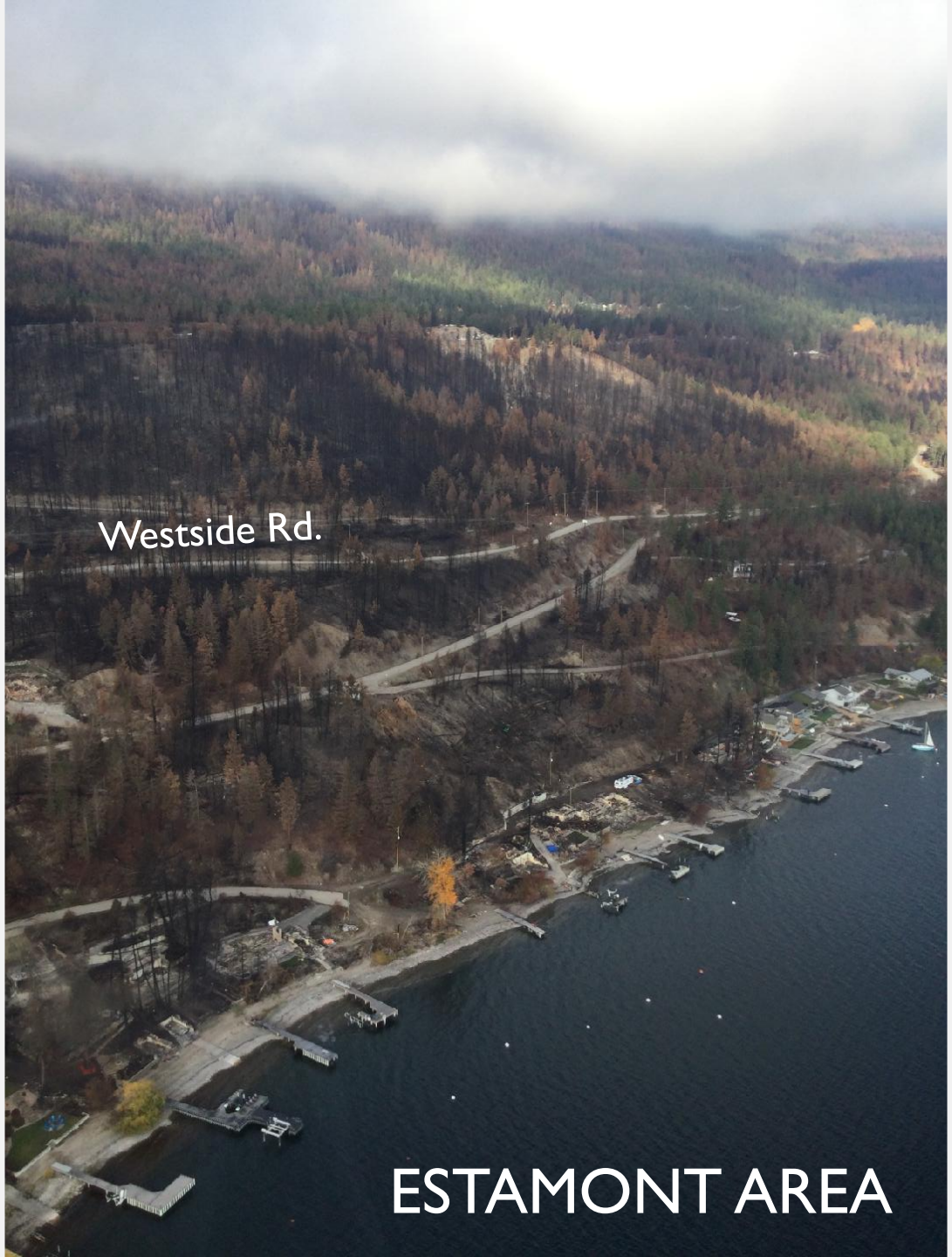


RDCO STUDY AREA

In each of 6 small catchments,

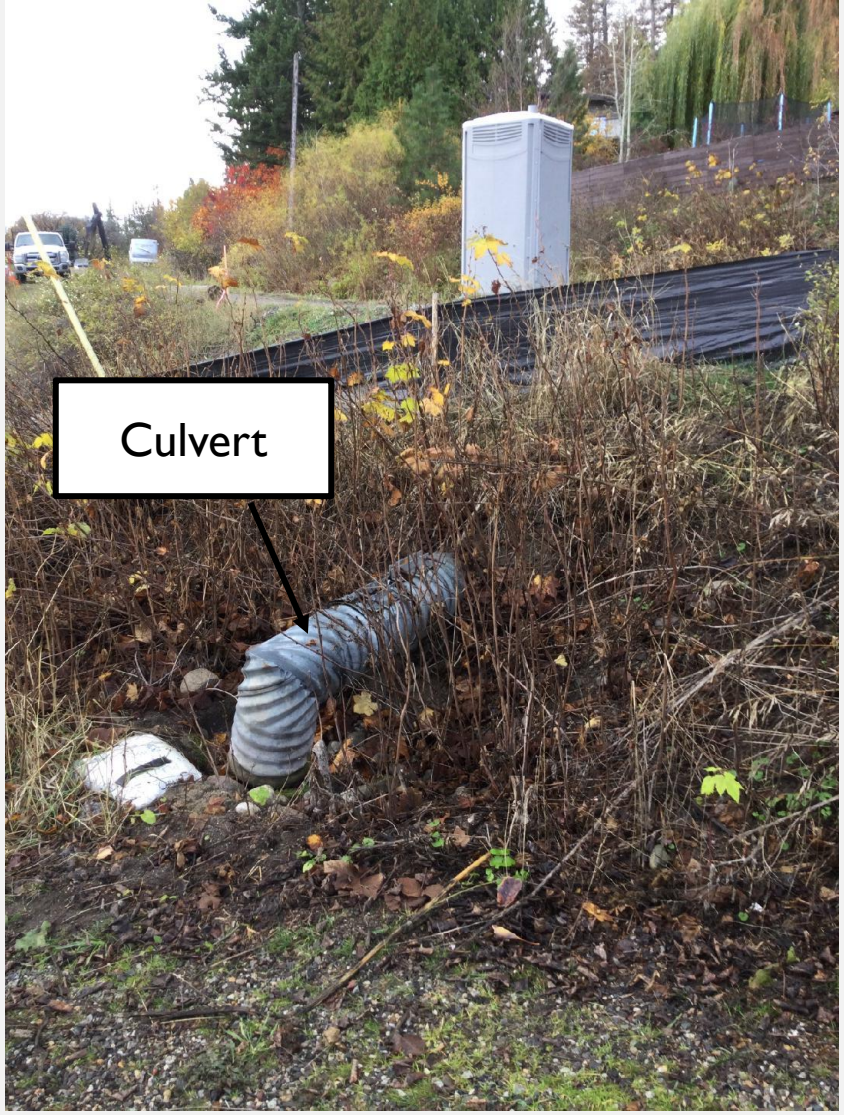
burn area is high (73% to 99%)

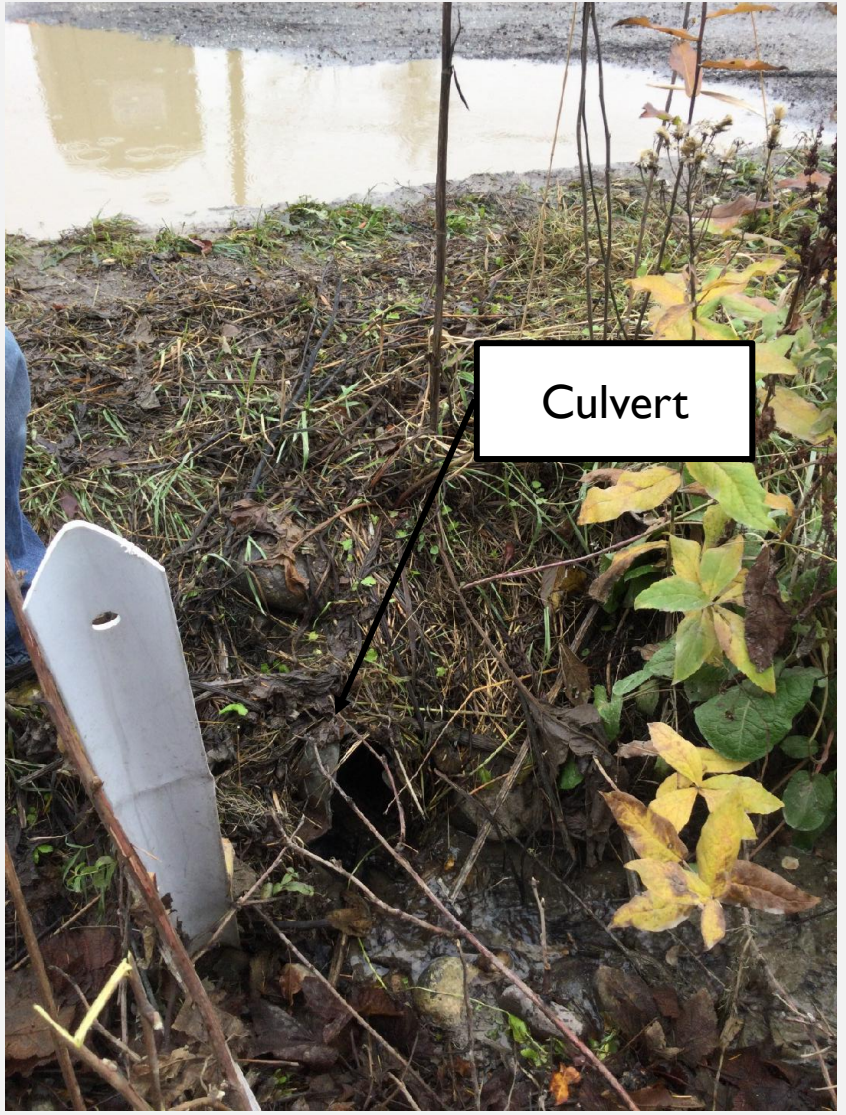
In 3 catchments >30% burned at high burn severity level


Westside Rd.
ESTAMONT AREA


Westside Rd.
KILLINEY BEACH AREA

Hazards associated with flooding due to increased peak flows on small streams flowing through the area

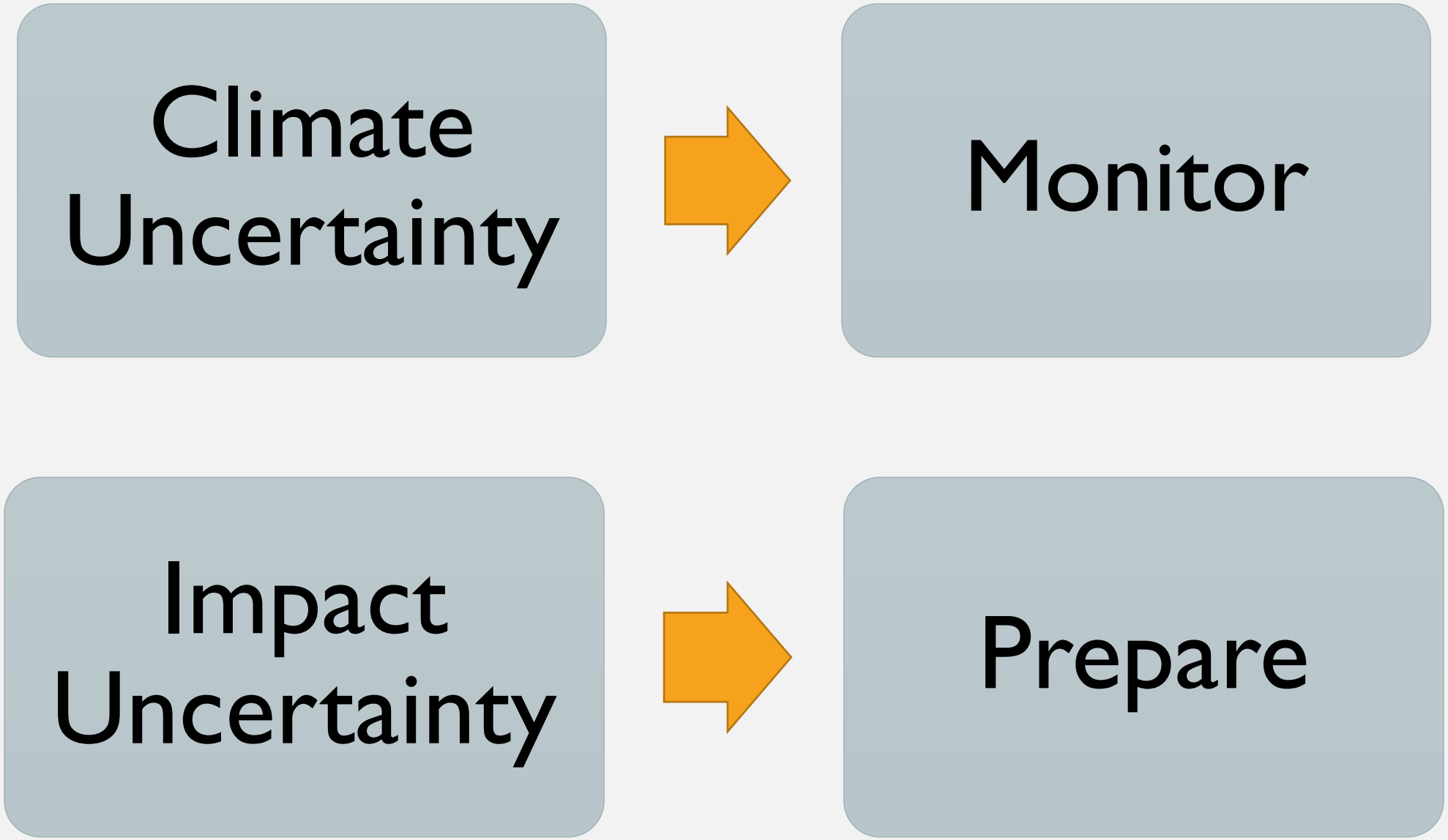




Hazards associated with flooding due to increased groundwater flows on springs in the area

Increased runoff leads to erosion and instability

Heat-shattered rock leads to instability


Climate Uncertainty
Monitor
Impact Uncertainty
Prepare

RECOMMENDATIONS - PRIOR TO SPRING FRESHET

- Public awareness
  - Distribute messaging and emergency response information
- Prepare for increased runoff
  - On private land, responsibility of private landowner
  - Along public roads, responsibility of MOTI road contractor
- Protect assets
  - Relocation or physical protection (ditches, berms, barriers)
  - Stockpile materials and equipment

RECOMMENDATIONS - LONG TERM

- Reduce potential for soil erosion by revegetation
- Reduce potential for sediment transport by ensuring safe passage of flows
- Increase understanding of stream pattern by improving stream mapping through area

RECOMMENDATIONS - RECOVERY PROCESS FOR HIGH-RISK PROPERTIES

- Implement measures to reduce potential for soil erosion
- Further soils/geotechnical assessment
- Further groundwater assessment

Recovery challenges – structures within riparian setback

PROPERTY INSPECTION REPORT CARD EXAMPLE

Site Conditions
Soils & Slopes

Groundwater Obs
Foreshore Conditions

Post-Wildfire Risk Assessment
- Hazards noted
- Likelihood of impact

Recovery Response
- Short term & long term

Regional District of Central Okanagan
Post-Wildfire Environmental / Hazardous Conditions Assessment
Property Inspection Report

Civic Address:	37 Nerie Rd.	Date of Inspection:	11/5/2021
PID:	007-890-036	Author:	J. Clarke, P.Geo.
RDCO Area:	Estamont		

Domestic water supply source:	Estamont Community Water System
Nearest Waterbody (lake or stream) Element at Risk:	Okanagan Lake and seepage stream
Structures Lost:	All
Observed Site Conditions:	Burned, steep lot, exposed soils. Overland flow of seepage through lot.
Soils:	Clayey Silt and sand with gravel, high erosion potential
Slopes:	15% top, 60% bottom, steep and disturbed soils, small stream flows down property line, high pot for erosion and instability
Groundwater Observations:	Seepage through Nerie Rd noted and directed under driveway through culvert. Overland flow across top of lot along north property line. Flow associated with Buchanan Spring.
Foreshore Conditions:	Low landscape wall along toe of slope, low rock lines along beach, dock is damaged, otherwise no built structures
Setback Distance & Elevation from HWM* or Top of Bank (SHIM):	Est. >15 m setback from lake to residence; est. >1.5m elevation. Setbacks from unmapped watercourse to be confirmed.
Wildfire Effects Upslope/Upstream:	Terraced developed residential area, short slopes and terraced lots, scattered partial burn areas immediately upslope.

Hazards Noted:	Disturbed soils and seepage create potential for instability and soil erosion. Piped stream flow and drainage across mid-slope area.	
Spatial Likelihood:	Potential sediment delivery to lower property, moderate potential for sediment delivery to Okanagan Lake.	
Hazard Level: MODERATE	Spatial Likelihood: MODERATE	Risk Level: MODERATE

Recommended Recovery Response and Considerations for Future Development:	Short term: Be prepared for higher than usual runoff and groundwater seepage.
	Long term: Sediment and erosion control measures are recommended. Measures to manage onsite drainage may be needed. Consider geotechnical assessment for future development.

* HWM was visually identified in field and defined by 343m elevation on maps, distance is approximate and subject to confirmation by survey

SITE PHOTOS

Photo 1: View of upper part of lot at 37 Nerie Rd, culvert outlet and stream flow in foreground

Photo 2: View of foreshore area at 37 Nerie Rd.

POST-FIRE ORTHOPHOTO

Mapped Streams

Burned Structures

Estimated Setbacks

LEGEND

- Property Parcel
- Subject Property
- Watercourse (Source: RDCO)
- 343m Elevation - Highest Target Lake Level + 0.5m (approx. High Water Elevation of Okanagan Lake)
- 15 m Setback Distance (from 343m elevation)
- 30 m Setback Distance (from 343m elevation)

Maps are provided for information only. For permitting purposes, both riparian and floodplain setbacks are to be measured from the natural boundary and confirmed by a legal land survey.

Orthoimagery obtained from RDCO (acquisition date: Sept. 10, 2021).

Client: REGIONAL DISTRICT OF CENTRAL OKANAGAN (RDCO)

Project: ENVIRONMENTAL/HAZARDOUS CONDITIONS ASSESSMENT - NORTH WESTSIDE ROAD AREA

Title: 37 NERIE ROAD

5 2.5 0 5 10 metres

Scale: 1:500 NAD 1983 UTM Zone 11 U

Figure No. -

Project No: 21-0115 Date: January 28, 2022

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QUESTIONS?

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