



Bella Bella – Denny Island Emergency Management Plan

HAZARD ANNEX – TSUNAMI & STORM SURGE RESPONSE PLAN

*Central Coast Regional District
&
Heiltsuk Nation*

*Updated by Frontier Resource Management Ltd
January, 2018*

Tsunami Emergency Response Plan

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1 Tsunami Emergency Contact List

- See **Bella Bella/Denny Island EOC call out list**
- Marine Emergency : 1-800-567-5111
- Coast Guard – Denny Island: 250-957-5706
- DFO - Bella Bella: 250- 957-2363
- Shearwater Marine: 250-957-2305
- Lama Pass Fuels: 250-957-2440
- Bella Bella Hospital: 250- 957-2314
- Western Marine Response: 1-855-294-9116
- Call out to residences and businesses in tsunami zone.

Tsunami Watch Bulletin Issued

Contact:

Local Emergency Team (LET) - Denny Island Deputy EPC
- Heiltsuk Emergency Rep

Emergency Executive Committee – Coordinator
- CCRD Rep
- Secretary
- Nuxalk Rep

Emergency Response Core Team – RCMP
- Ambulance
- Communication Officer
- Public Information Officer
- ESS Officer
- Hospital

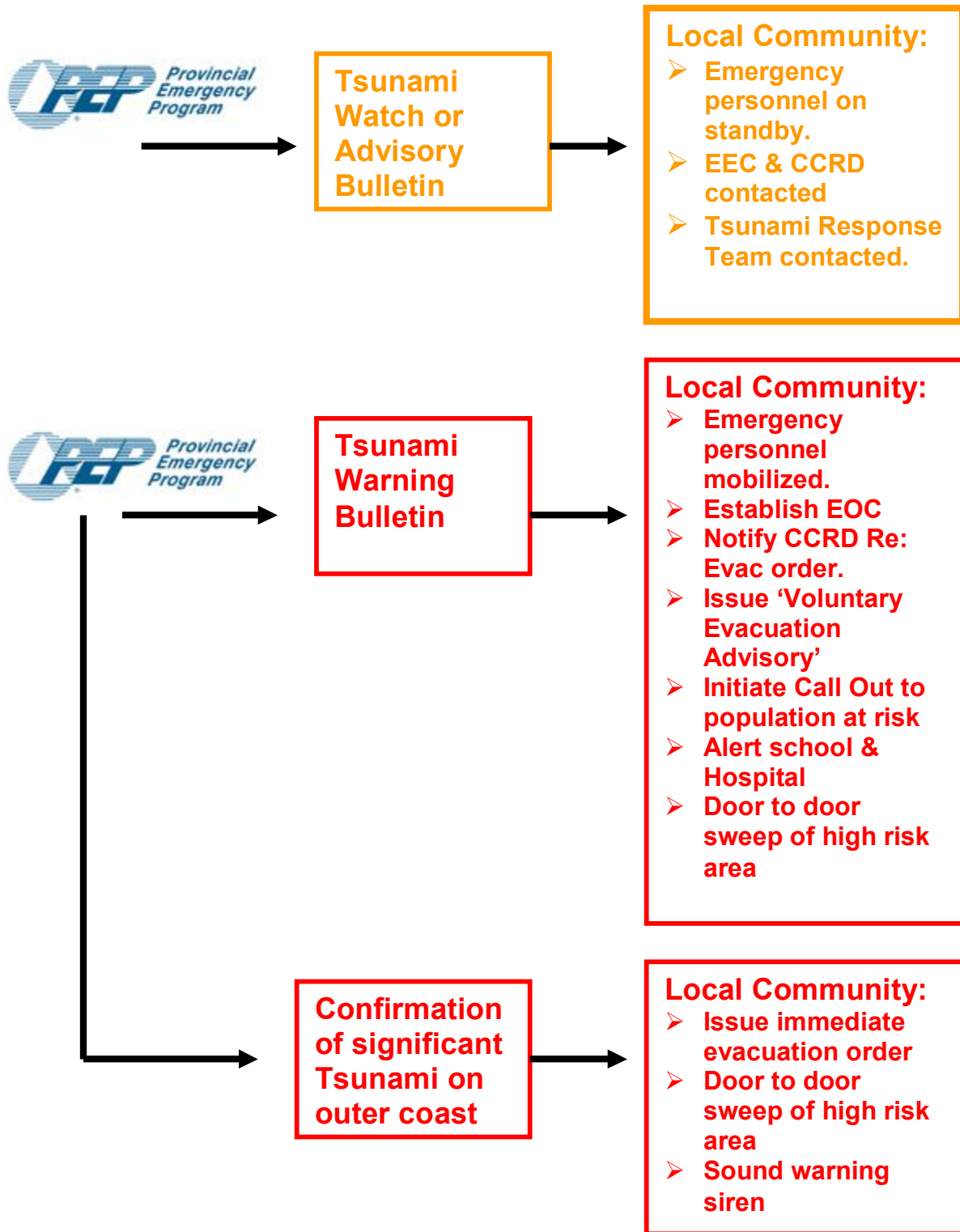
Emergency Response Operations – Fire Halls
- Harbour contacts
- Fuel depots
- Marine facilities
- BC Hydro
- Airport
- Coast Guard/DFO
- School District (all Schools)

Tsunami Warning Bulletin Issued:

All of above.

Initiate Call out to residents in Danger zone.

1.1 Tsunami Bulletin Action Plan



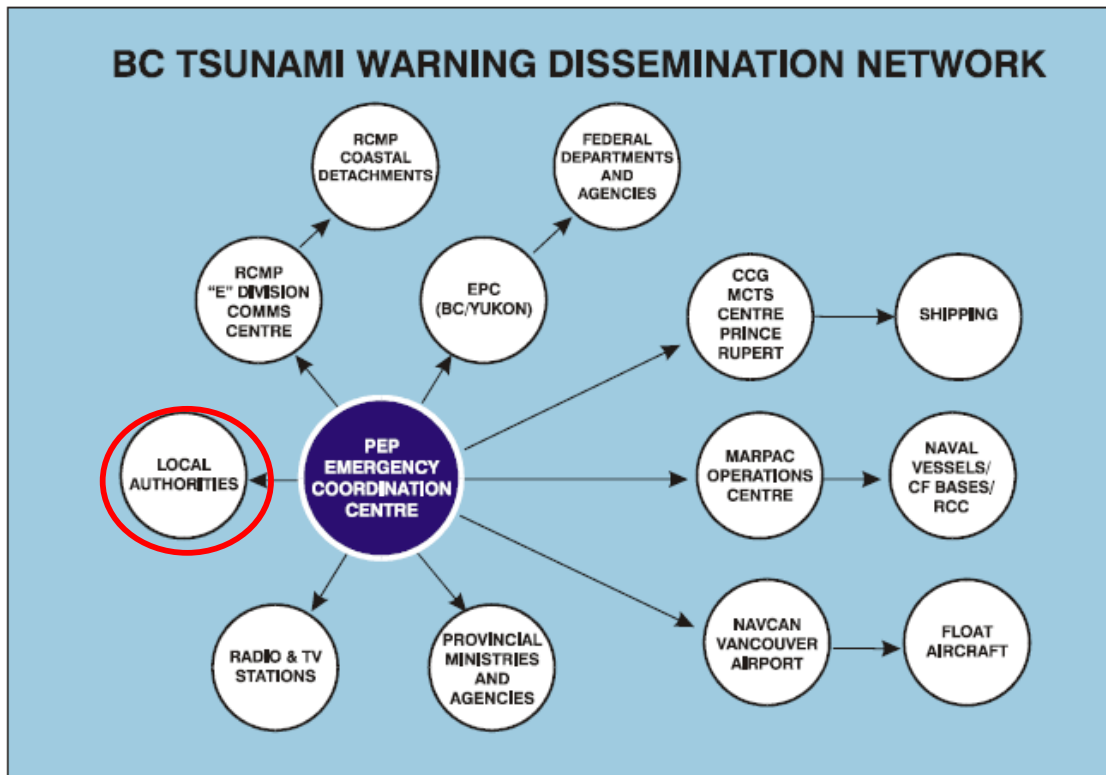
1.2 Tsunami Danger Area

See the Tsunami Zone Map in Appendix 1 for depiction of tsunami danger zones. The high danger area is based on the Provincial 20 m elevation guideline for coastal areas. High tide is used as the base to measure from.

2 Provincial Tsunami Warning & Emergency Procedures

The Provincial tsunami emergency procedures are detailed in the British Columbia “Tsunami Notification Process Plan” (2013) a copy of which is contained in Appendix 2. EMBBC is responsible for warning and alerting all of the Province, including ships and float planes in accordance with following schematic. The Bella Bella/Denny Island Emergency Response Plan is designed to address the Local Authorities warning dissemination responsibilities for the Bella Bella/Denny Island area.

Figure 1 BC Tsunami Warning Dissemination Network.



EMBC may issue any one or a combination of the following tsunami advisory bulletins. The bulletins have been designed to provide warning

of possible tsunami conditions based on scientific observation of previous earthquake effects.

- **Tsunami Warning** status means that a tsunami was or may have been generated which could cause damage. Travel time is less than three hours away. Purpose is to activate local plans and low lying locations in the areas warned are strongly advised to evacuate.
- **Tsunami Watch** status means that a tsunami was or may have been generated but is more than three hours travel time away from warned area. Purpose is to put emergency personnel on standby and local officials should prepare for possible evacuation if their area is upgraded to Warning.
- **Advisory** bulletins are issued when an earthquake greater than 7.5 magnitude has occurred in the Pacific Basin which might generate a tsunami. The tsunami is over six hours travel time to nearest point on the West Coast.
- **Tsunami Information** bulletin may be issued to advise public about an earthquake event that is not expected to generate a tsunami along the BC coast.
- **Cancellation Message** will be sent to indicate if any Warning or Watch bulletins have been cancelled or the threat has ended.
- **Tsunami All Clear** bulletins are issued when the threat is over and no more waves are expected. Local authorities may issue their own 'all clear' in accordance with instructions on the bulletin.

Tsunami warnings are issued by different regions and ones affecting Bella Bella/Denny Island are:

- **Entire BC Coastline-** This area will be described as “Haida Gwai and the entire coastline from Port Renfrew on Vancouver Island north to Stewart on the Alaska border.
- **Zone B – Central Coast and North East Vancouver Island:**
Including Kitimat, Bella Coola, Port Hardy, Bella Bella, Ocean Falls

2.1 **Local Notification and Warning**

Once a **Tsunami Watch or Advisory** bulletin has been issued for the Mid Coast area, local emergency personnel will be contacted in accordance with the Communication Plan. This will put emergency personnel on stand-by alert. CCRD directors and Heiltsuk Council are advised to prepare to issue Emergency Declaration.

2.1.1 Remote camps and residences

It is generally accepted that marine-based commercial operations and residences that are situated in remote areas monitor marine radio and will receive notification through emergency radio broadcasts. The response plans for these must be individually managed and are not known to the CCRD emergency program. Any individual or organization that requires direct notification may arrange this through the Emergency Program Coordinator or ENBC.

2.2 *Tsunami Emergency Evacuation Plan*

- Once a **Tsunami Warning** has been issued, the Emergency Evacuation Plan will be initiated. School buses and ambulances put on standby.
- **Evacuation Alert:** People in the specified tsunami risk area will be notified of potential evacuation and people should prepare for likelihood of quick evacuation.
 - Fuel Agencies advised to secure fuel depots.
 - Boat owners advised to remove powerboats to high ground if possible.
- **Evacuation Order:** Based on reports of actual tsunami occurrence from more coastal areas, an evacuation order may be issued and immediate evacuation of risk area would commence.
 - CCRD advised to issue Emergency Declaration.
 - Heiltsuk Tribal Council to issue Emergency Declaration.
 - Phone callout initiated for evacuation.
 - Manual door to door sweep initiated of high risk areas: harbour and lower Bella Bella, shoreline homes on Denny Island
 - Bella Bella and Denny Island alarm sirens triggered (as available).
- **All Clear:** Given when danger has passed.

2.3 *Safe Evacuation Zone*

- The general, EMBC recommended, evacuation instruction for coastal BC is to move to areas 20 m in elevation above sea level.
- In the Bella Bella Community, the safe zone is the school and community hall area. This is well outside of the danger area and suitable for large populations.
- People on Denny Island should also evacuate to the school building or the Community Recreation Hall.

- **Action Item: Evacuation routes and refuge areas should be identified with signage.**

Forewarned Tsunami Alert:

- In the case of an ocean generated Tsunami, there will be a few hours time to evacuate people to safe areas.

No Official Pre-Warning of Tsunami (local landslide in inlets):

- In case of massive landslide in local inlets, there will not be time for issuance of warning and survival will depend on people heading to higher ground on their own accord.
- People in lower area experiencing a hard shaking earthquake for more than 15-20 seconds, should immediately head for high ground at least 20 m. elevation above sea level.
- Denny Island alarm siren triggered. (Bella Bella should work to get warning sirens installed)
- A land slide caused tsunami may be extremely high and fast and people near shoreline areas should head to areas as high as 50 m or more in elevation above sea level.

2.4 Establishment of Road Block

Location

- Upon issuance of evacuation order, road blocks may be set up preventing unauthorized access to shoreline areas.

Procedures

- Heiltsuk Emergency Coordinator and RCMP will oversee the establishment and staffing of the road block as well as specifying safe work practices and access permission criteria (as required).

2.5 Special Evacuation Requirements

Special evacuation assistance will be necessary for the:

- Bella Bella Hospital – ambulatory patients, specialized equipment (see Hospital Evacuation Plan).
- Disabled or elders with mobility concerns.

3 Pre-Event Response and Preparedness

Pre-event preparedness is to ensure Tsunami Watch and Warning bulletins are communicated to emergency personnel and preparations are made for rapid evacuation, if necessary.

- Set up 'door to door' notification of critical areas by notifying and assigning emergency personnel to areas.
- Prepare to establish EOC once Tsunami Warning is issued.
- Recommended EOC location is the Heiltsuk band administration building and on Denny Island, the Community Recreation Hall.

3.1 **High Risk Areas**

A tsunami wave can cause dire consequences to people and damage infrastructure along low level areas close to the ocean. The following areas are at high risk and people in these areas need to be notified to be prepared to leave immediately.

Human Populations at Risk

- People at harbour and marinas.
- People living along shorelines.
- People at Hospital.
- People in lower Bella Bella townsite.
- People on neighbouring small islands.

Marine Based Installations at Risk

- Boat harbours and marinas
- Bella Bella Fish plant.
- Ferry dock.
- Fuel Depots
- Coast Guard facility
- DFO facility

Access and Transport Structures at Risk

- Docks and ferry terminal.

Power and Utilities at Risk

- BC Hydro and Telus transmission lines in low areas.

4 **Immediate Response Following Event**

Tsunamis may be a single wave or a series of waves 10 – 15 minutes apart that can last up to an hour after the first wave arrived. Therefore, people should not rush back in after the first tsunami wave arrives. Emergency Coordinator will direct emergency personnel when to enter the flood risk zone. Once it is safe to enter, search and rescue shall begin immediately along with damage assessment.

4.1 **Search & Rescue**

- As directed by Emergency Coordinator search and rescue shall be initiated immediately and conducted by Coast Guard, DFO, RCMP, Firemen, S&R team, competent volunteers.
- Boat and air search initiated to look for people swept out to sea.

4.2 **Damage Assessment**

- In order to coordinate search & rescue and repair of lifeline services, the affected area should be quickly assessed to determine priorities for response with limited resources.
- Bella Bella Hospital is first priority to check.
- High priority is to check the Fuel Oil facilities at the harbours. Initiate spill response immediately if necessary.

5 **Extended Response Following Event**

After immediate search and rescue is well underway and critical lifeline infrastructure has been checked and priority repairs initiated, Extended Response initiated.

5.1 **Critical Infrastructure Repair**

- Hospital
- Wharves/ramps
- Power lines
- Roadways
- Communications
- Fuel Tanks

5.2 **Water and Sewage System**

Water systems may become disrupted or contaminated along with sewage disposal systems and this can lead to longer term health effects and impede disaster recovery.

Qualified personnel to check that water and sewage systems are functioning as a priority.

5.3 **Volunteer Management**

It is anticipated that there will be many volunteers arriving to the impacted area offering to help.

A Volunteer Coordinator will be specified to control and direct volunteer help to priority areas and dispatch people with appropriate skills to needed areas.

5.4 ***Security of Property***

For areas with forced evacuations or areas suffering major damage, security of property needs to be addressed. RCMP is responsible for ensuring security and EOC will aid in dispatching personnel to aid with security.

6 **Storm Surge**

Extremely high water levels can be associated with large storm activity. Typically, not as immediate or as potentially large as tsunamis, storm surges can cause damage to low lying shoreline areas. Warnings of storm surges should accompany severe weather notices. Associated with large storms, the surges will also come with heavy pounding wave action that can cause damage to shoreline installations and boat vessels.

Preparation and response is similar to actions taken to safeguard against tsunamis.

7 **Records and Accounting**

A tsunami can be expected to cause significant deployment of emergency response resources and damage can be severe at a localized level, therefore a person will be designated to initiate accounting and record keeping as the EOC is established.

8 **Recovery**

Recovery from tsunami may take a few days to a number of months.

8.1 ***Debris Clearing***

Debris resulting from tsunami damage is not expected to significantly impede recovery beyond localized site clean up.

8.2 ***Essential Services Repair***

The priority essential service at risk from tsunami is the hospital which has its own Emergency Plan.

8.3 ***Private and Business Repair***

See ESS Plan.

8.4 ***Reporting and Follow-Up***

Subsequent to the event, an assessment of emergency response performance and debriefing of emergency personnel should be carried out in order to identify areas of emergency response performance.

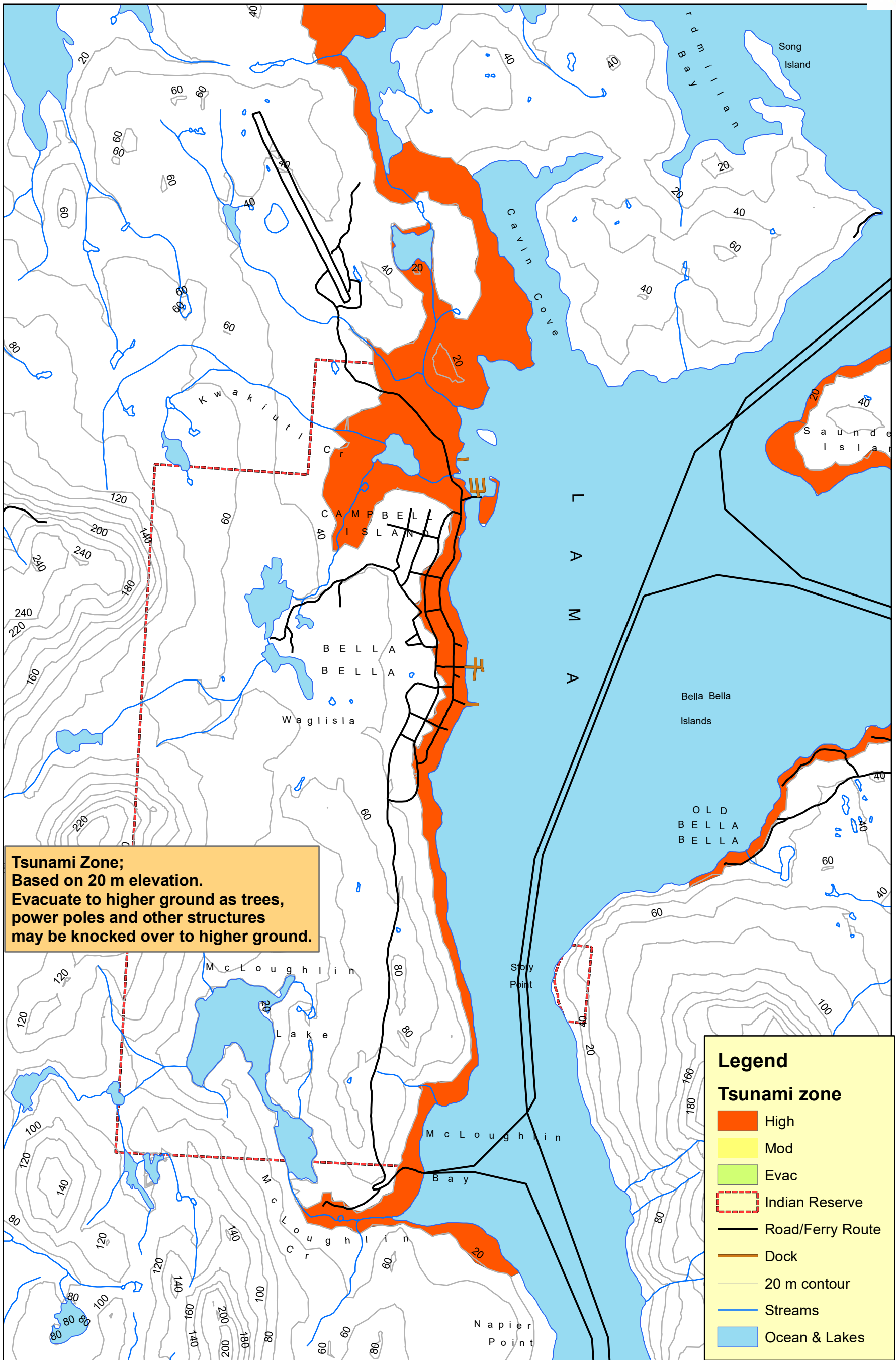
Appendices

App 1 - Tsunami Danger Zone Maps

App 2 - BC Tsunami Notification Process Plan

See CCRD EMP Annex D – EMBC Supporting Emergency Manuals

Bella Bella Tsunami Hazard



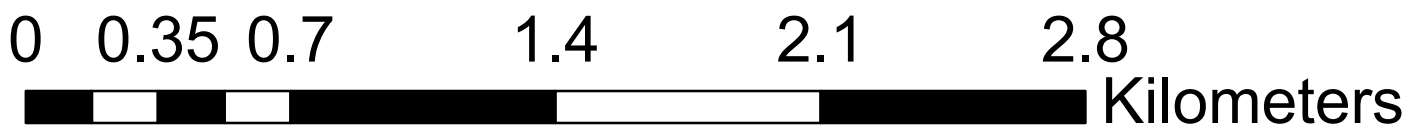
Tsunami Zone;
Based on 20 m elevation.
Evacuate to higher ground as trees,
power poles and other structures
may be knocked over to higher ground.

Legend

Tsunami zone

- High
- Mod
- Evac
- Indian Reserve
- Road/Ferry Route
- Dock
- 20 m contour
- Streams
- Ocean & Lakes

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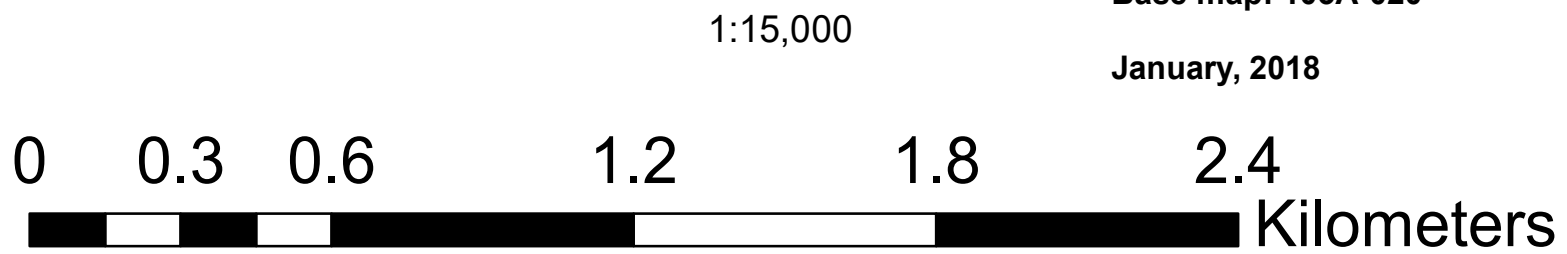
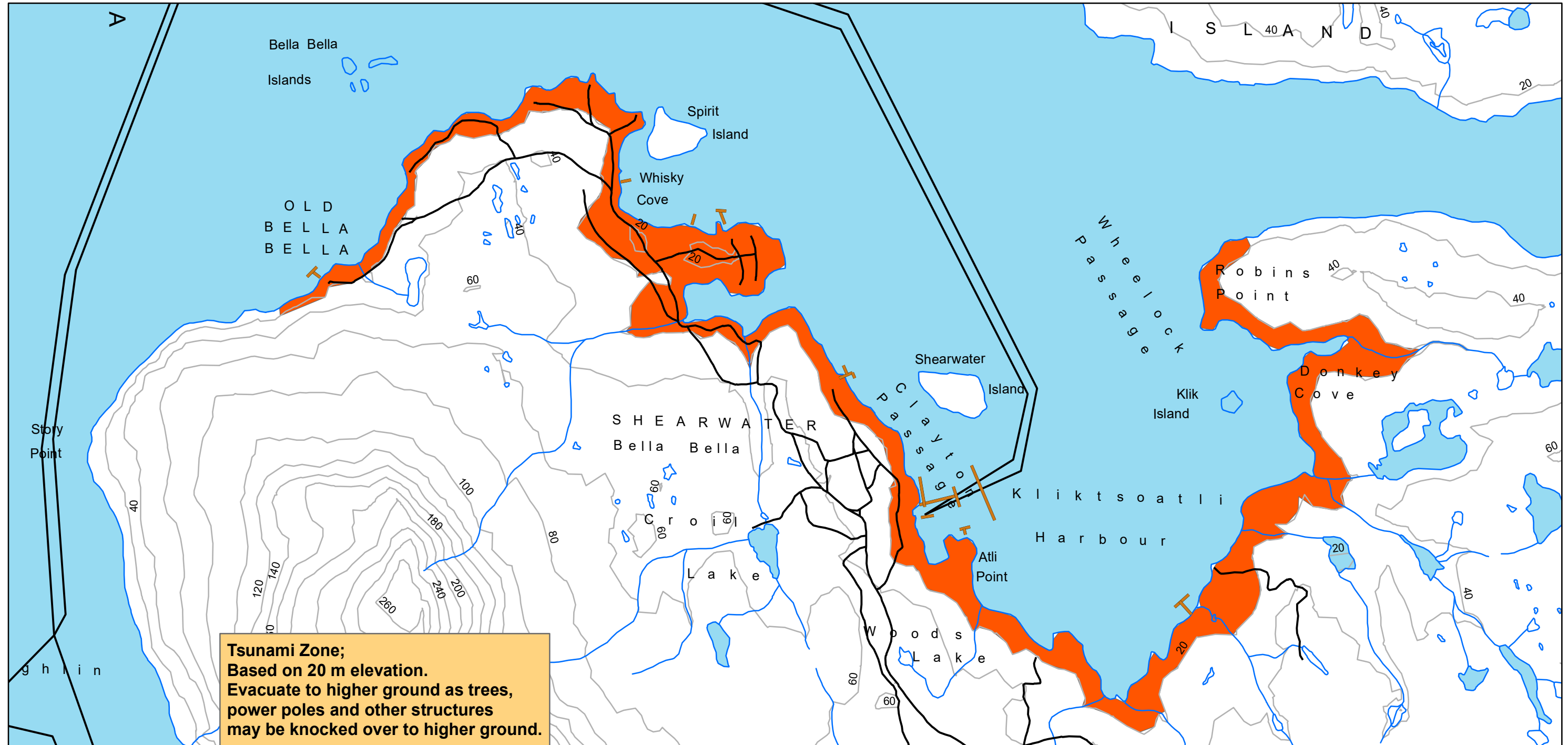


Base map: 103A-020

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Denny Island Tsunami Hazard



Legend

High	Dock
Mod	Streams
Evac	20 m contour
Road & Ferry Route	Ocean & Lakes

