

Highway 1 Wildlife Overpass

March 11, 2024

DIALOG[®]

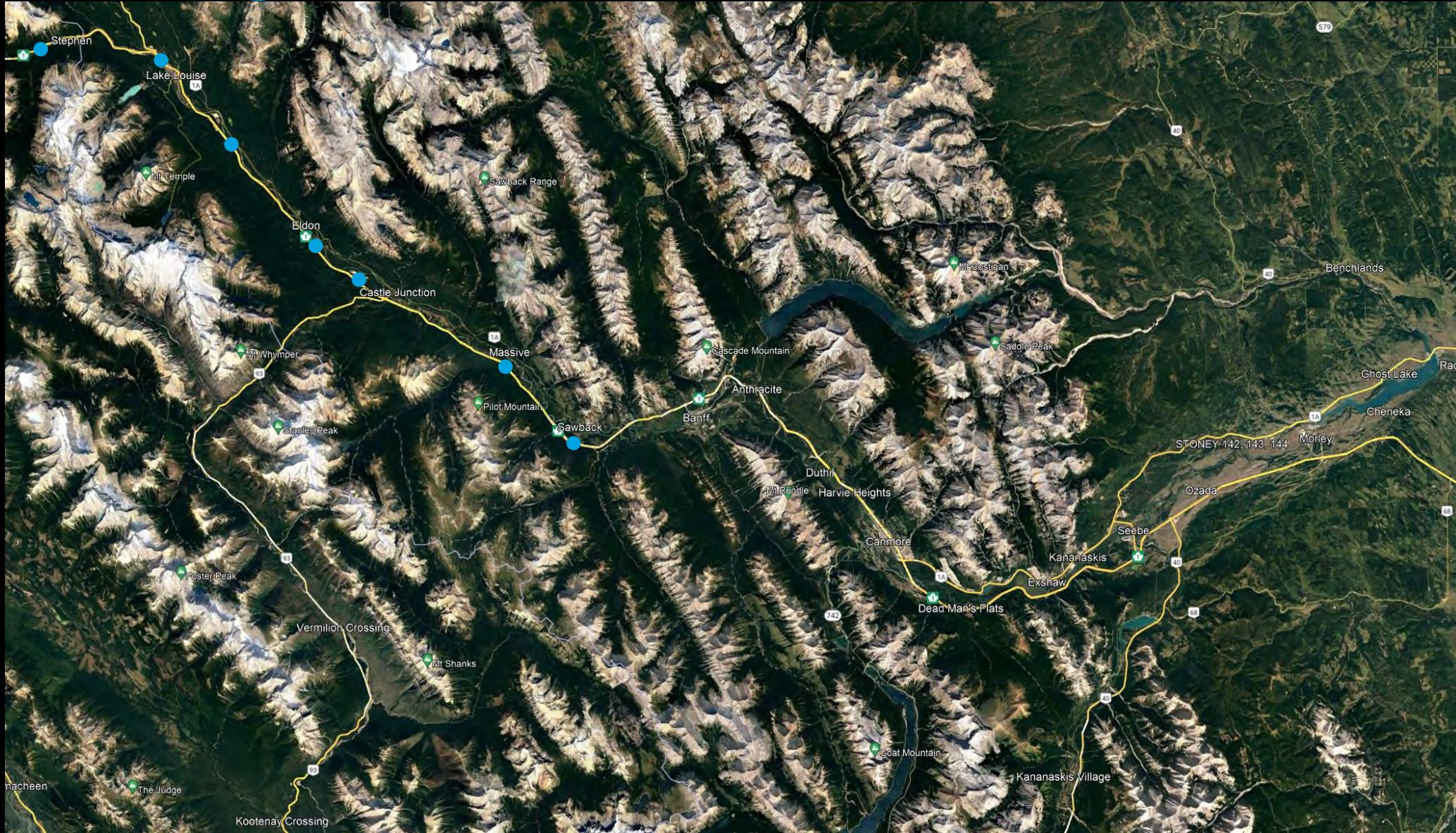
Alberta 
Transportation and
Economic Corridors



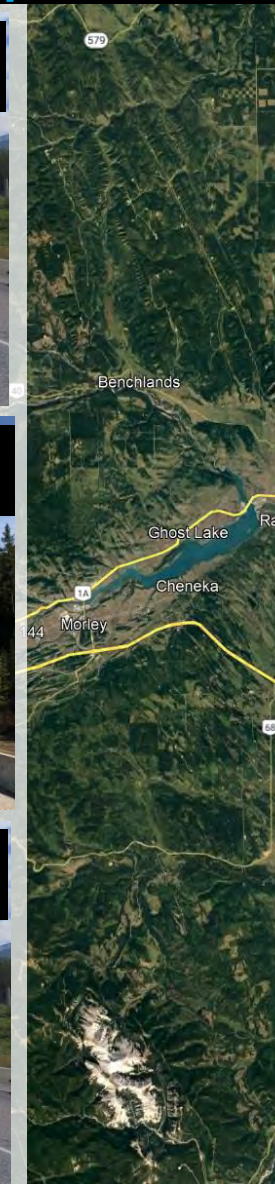
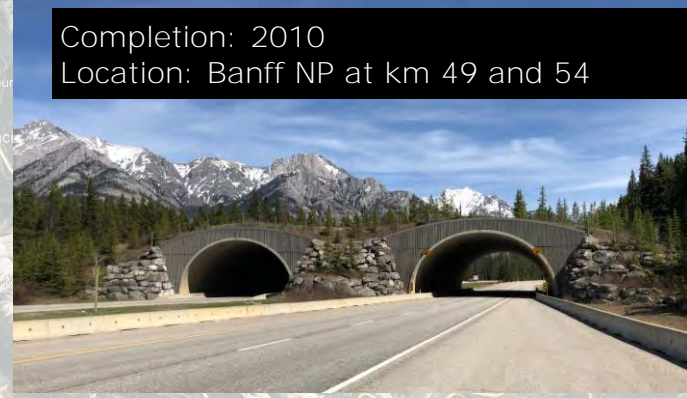
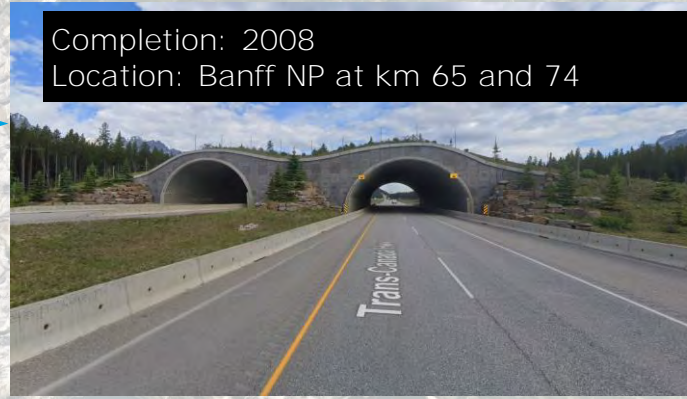
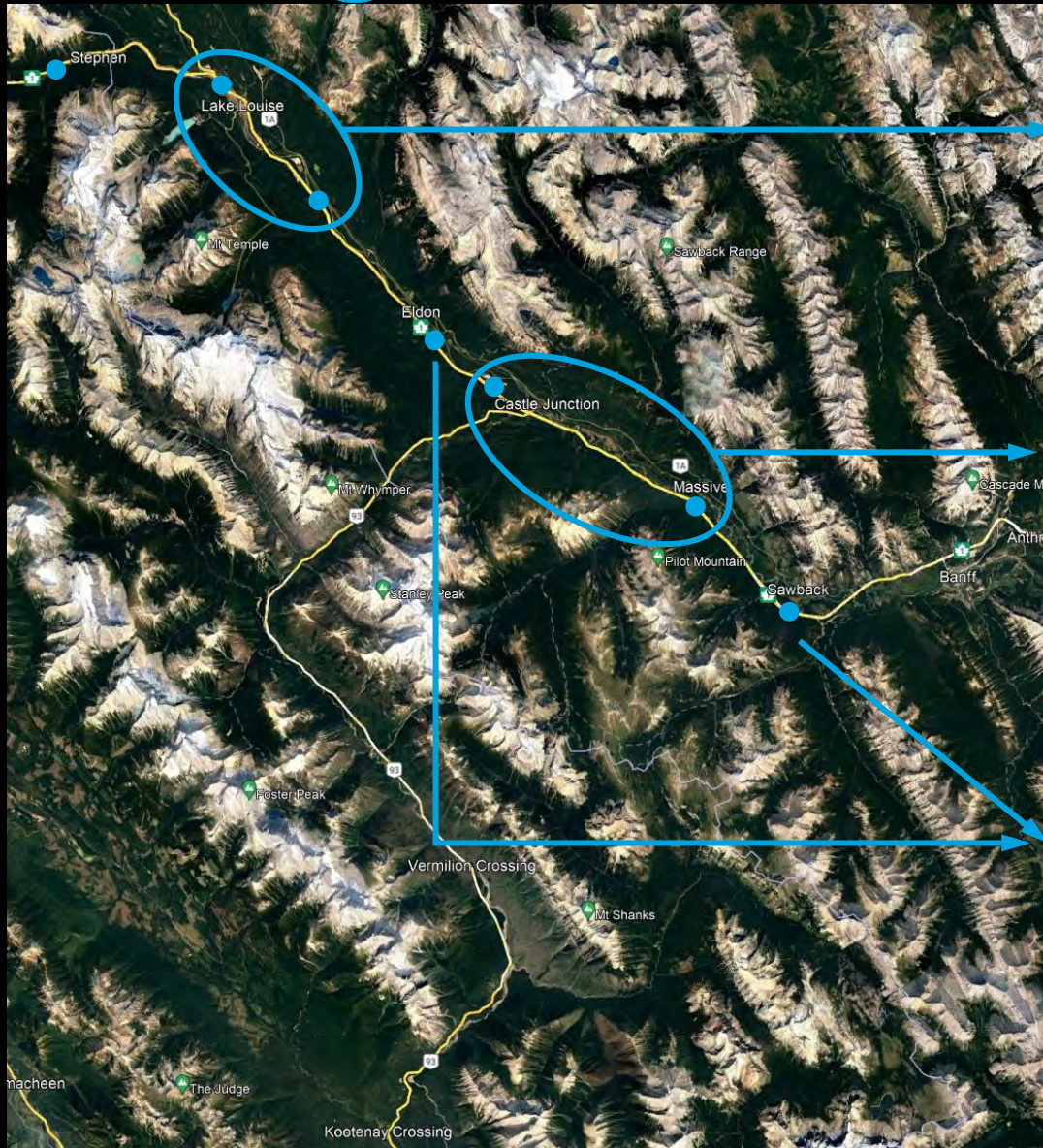
Background – wildlife overpasses

- Wildlife needs to move to find food, mates, shelter, and adapt to weather and climate
- Highways and railways create barriers to this movement – impacts wildlife health and genetic diversity
- Wildlife-vehicle collisions are increasing
- Mortality for people and wildlife results in direct costs to drivers, insurers, and the province

Background – wildlife overpasses



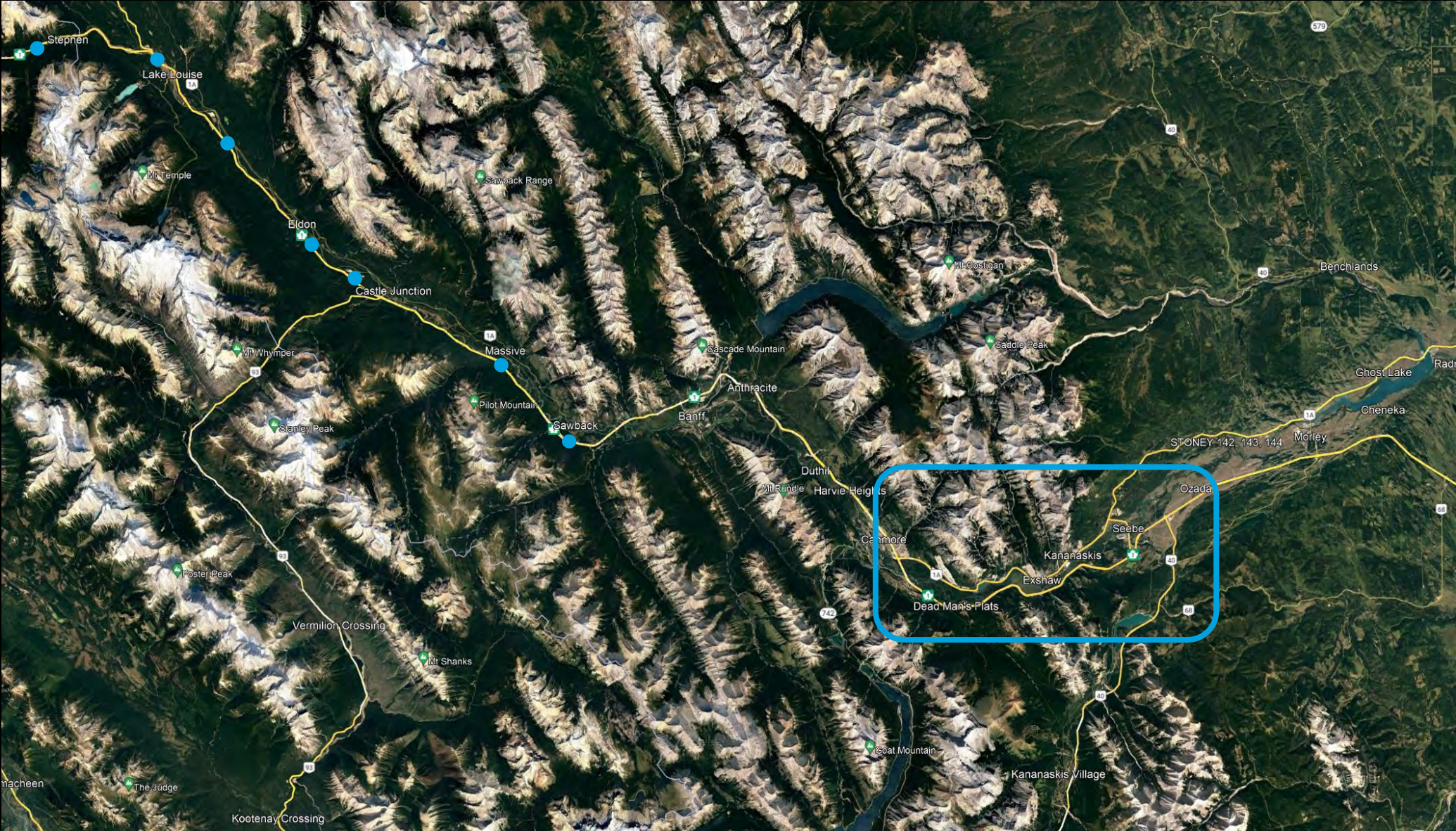
Background – wildlife overpasses



Background – wildlife overpasses

- Highway fencing in Banff National Park has reduced WVCs by >80% (more than 96% for elk and deer alone)
- Large mammals have been recorded using wildlife crossings more than 150,000 times since 1996
 - Grizzly and black bears, wolves, coyotes, cougars, moose, elk, deer, bighorn sheep, and more recently wolverine and lynx
- There is a learning curve for animals to begin using wildlife crossings after construction
 - Wary animals like grizzly bears and wolves, take up to five years before they feel secure using new crossings.
 - Elk were the first large species to use the crossings, even using some while they were under construction!

Project Overview

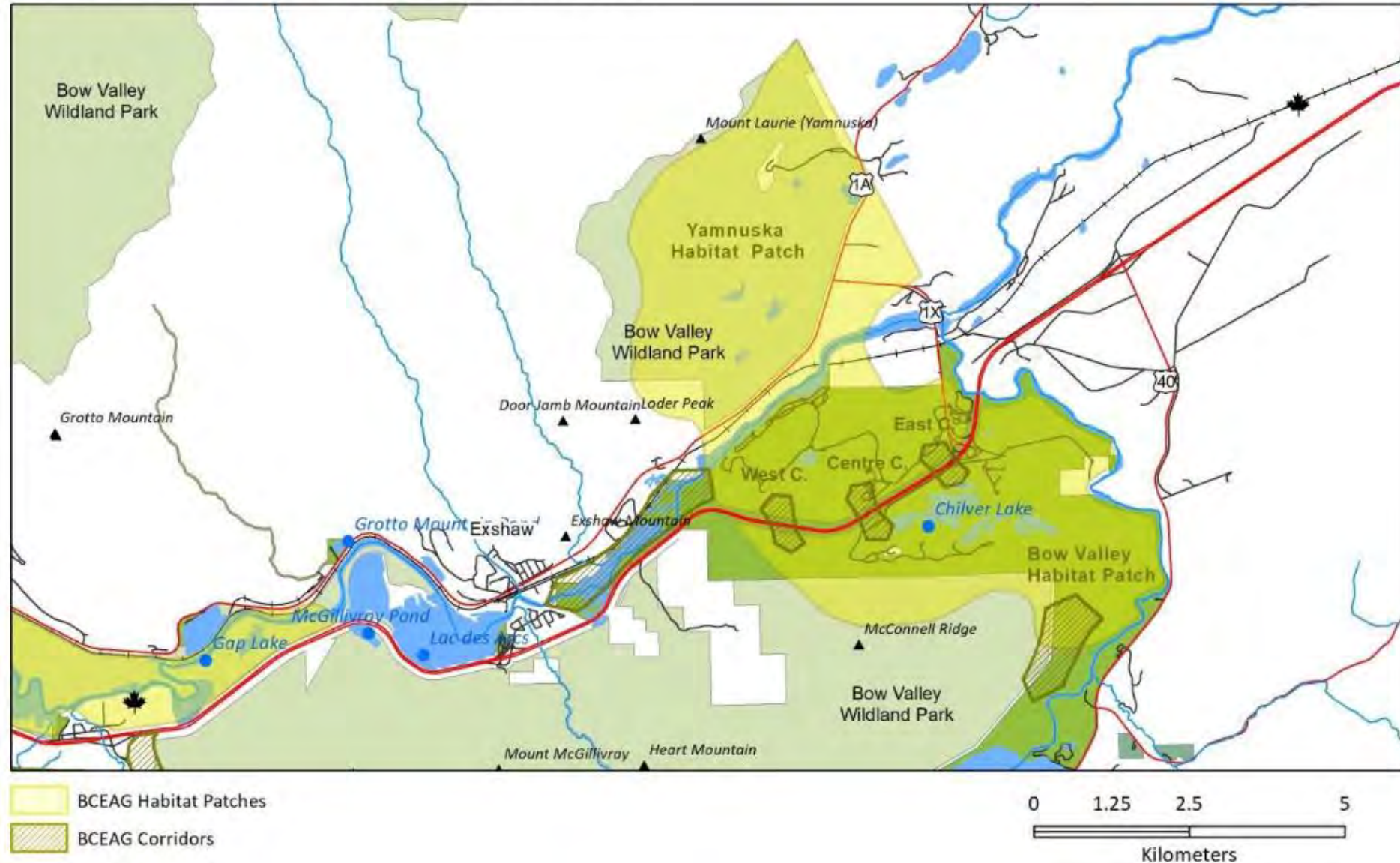


Project Overview

- 2018 - Alberta Transportation issued an RFP for the design of a wildlife overpass
- Project team:
 - **DIALOG** (structural engineering, construction administration, landscape architecture, stakeholder engagement)
 - **Miistakis Institute** (wildlife experts)
 - **Egis** (roadway/grading design, site survey, utilities)
 - **Ecofor Consulting** (environmental)
 - **Thurber Engineering** (geotechnical engineering)

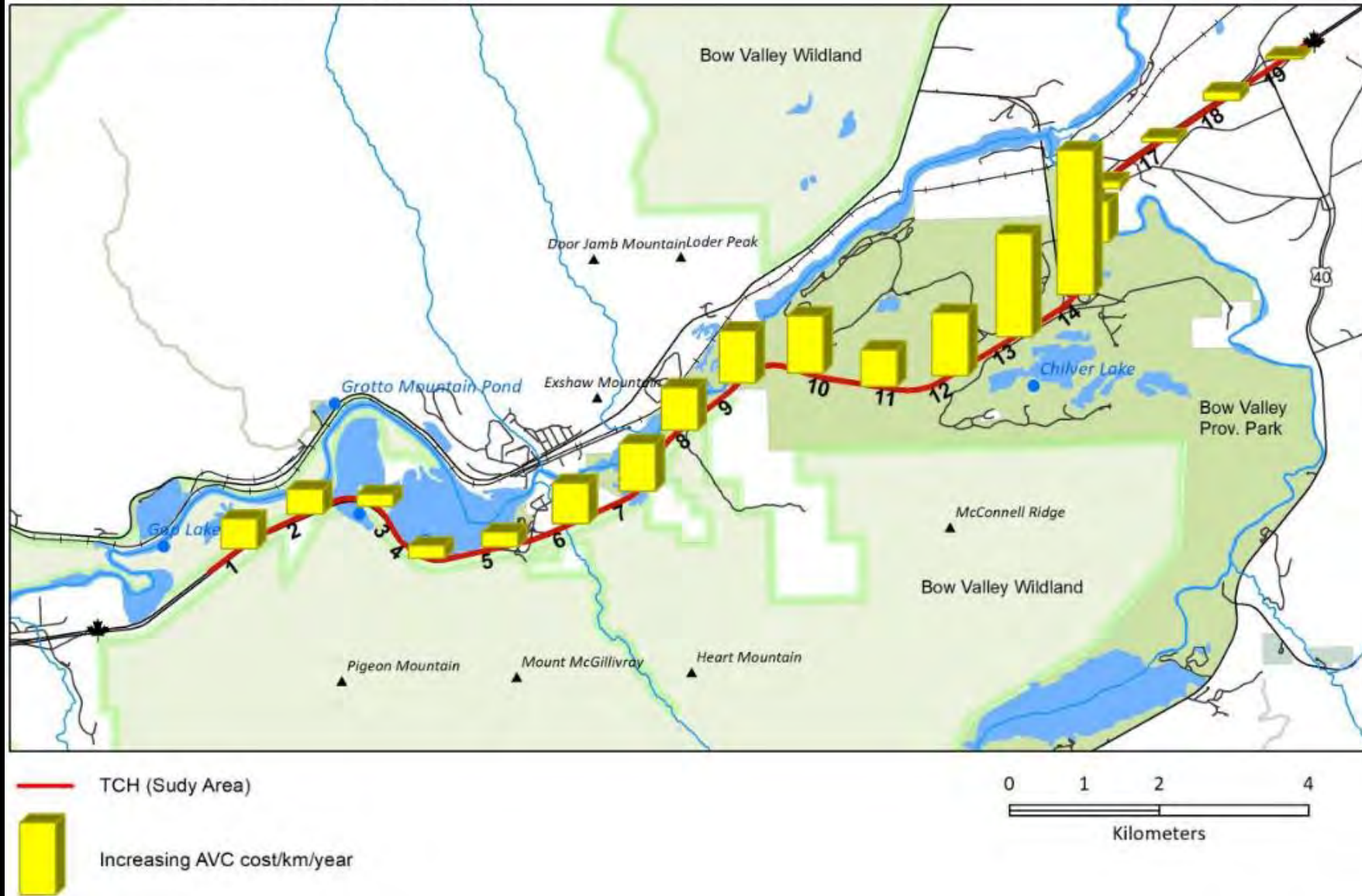
Location Selection

TRANS-CANADA HIGHWAY ECOLOGICAL CONNECTIVITY



Location Selection

TRANS-CANADA HIGHWAY STUDY AREA

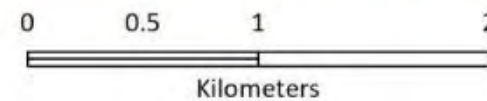


Location Selection

TRANS-CANADA HIGHWAY MITIGATION PLAN



- Fence end
- ✚ Mitigation structure



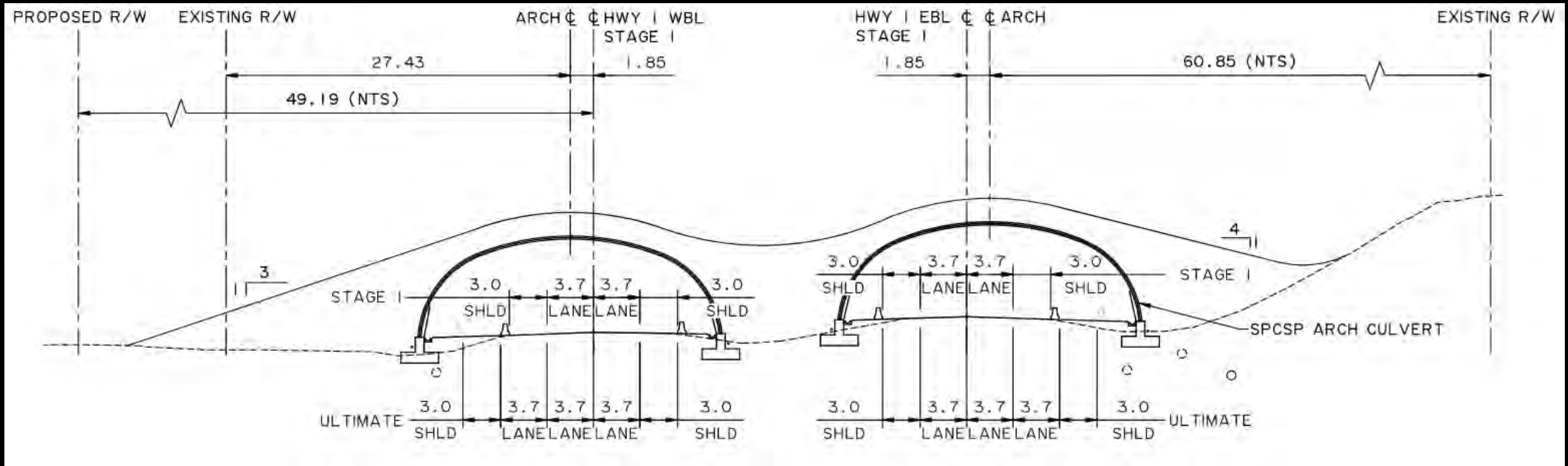
Design - existing overpasses



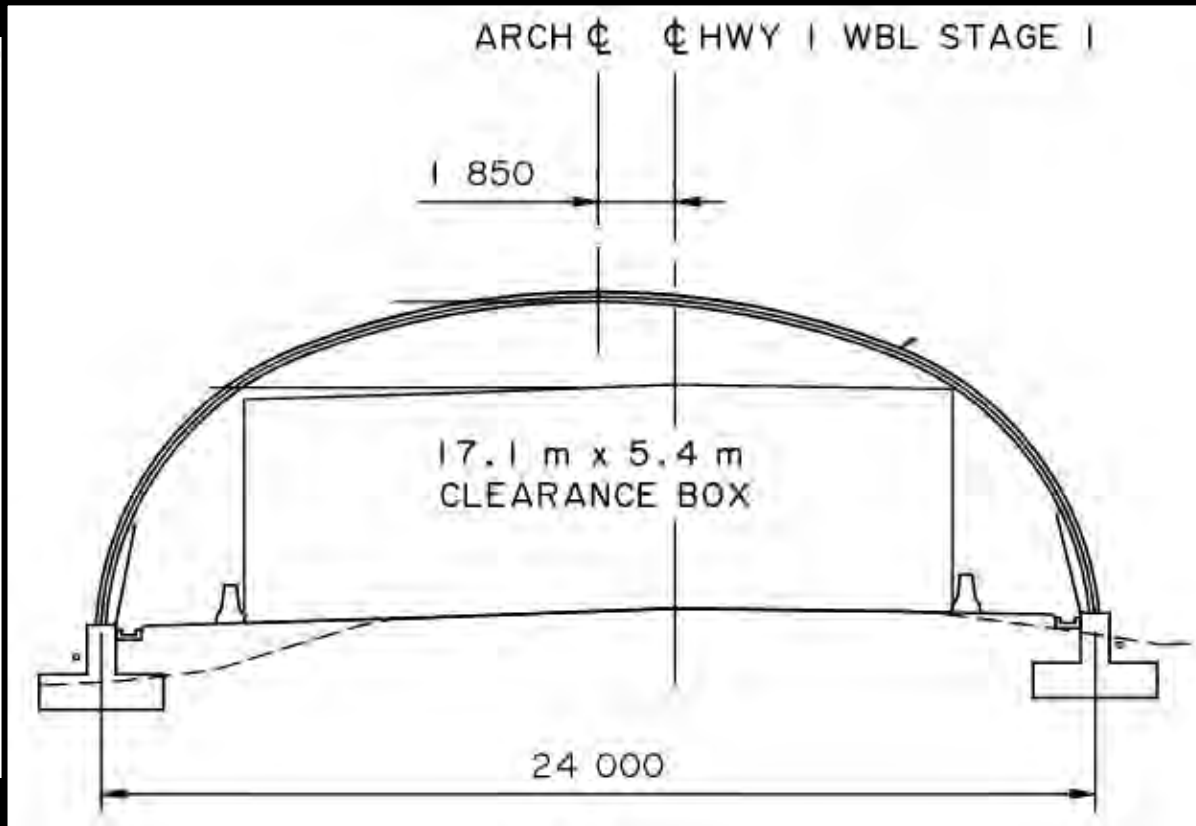
Design – new overpass

- Twin-barrel corrugated steel plate arches founded on cast-in-place concrete footings
- Clear span for 6 lanes (3 per direction)
- Minimum height of 5.4m above road surface
- Beveled end treatments
- 12 km of wildlife fencing (6 km on both sides of road)

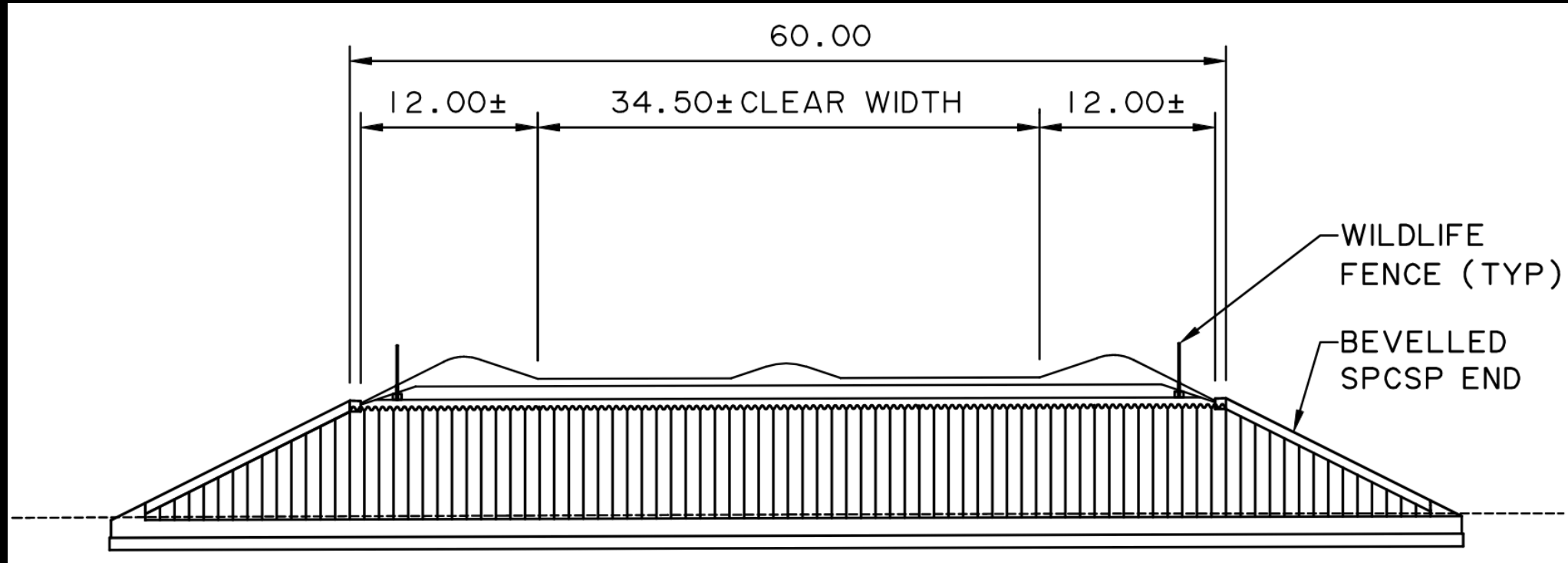
Design - cross-section



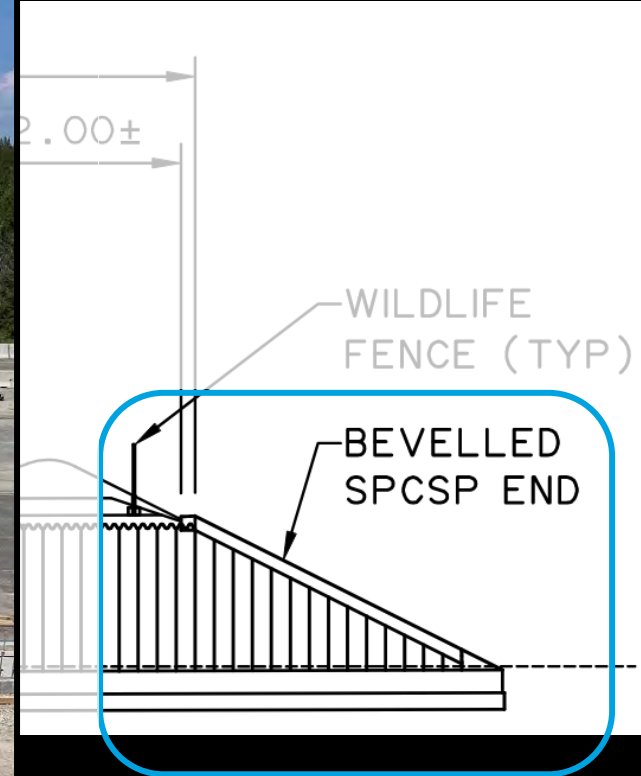
Design - cross-section



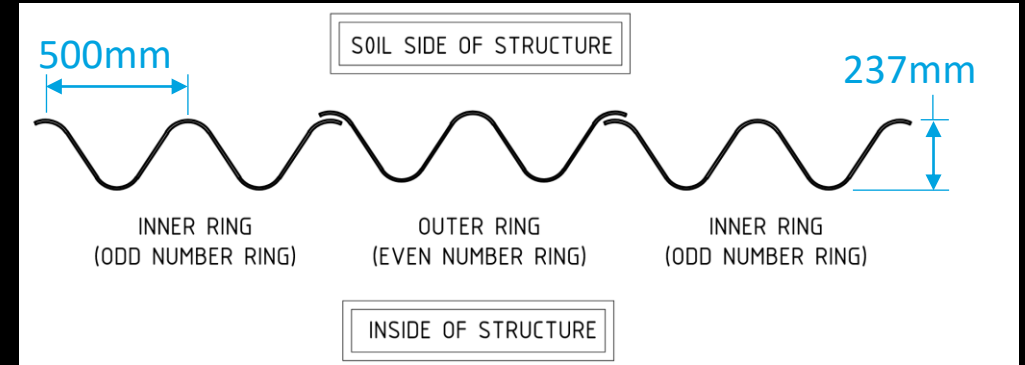
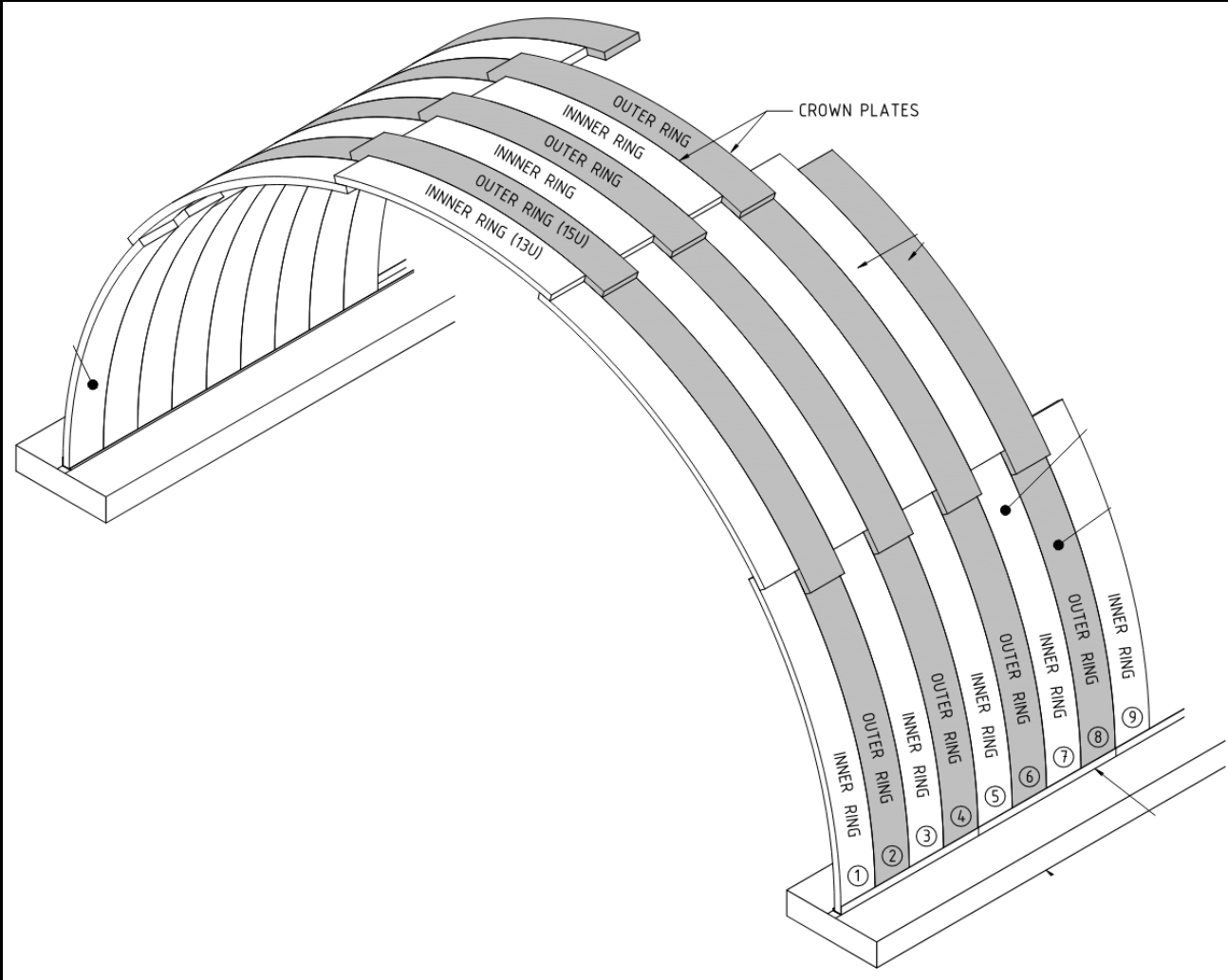
Design - elevation view



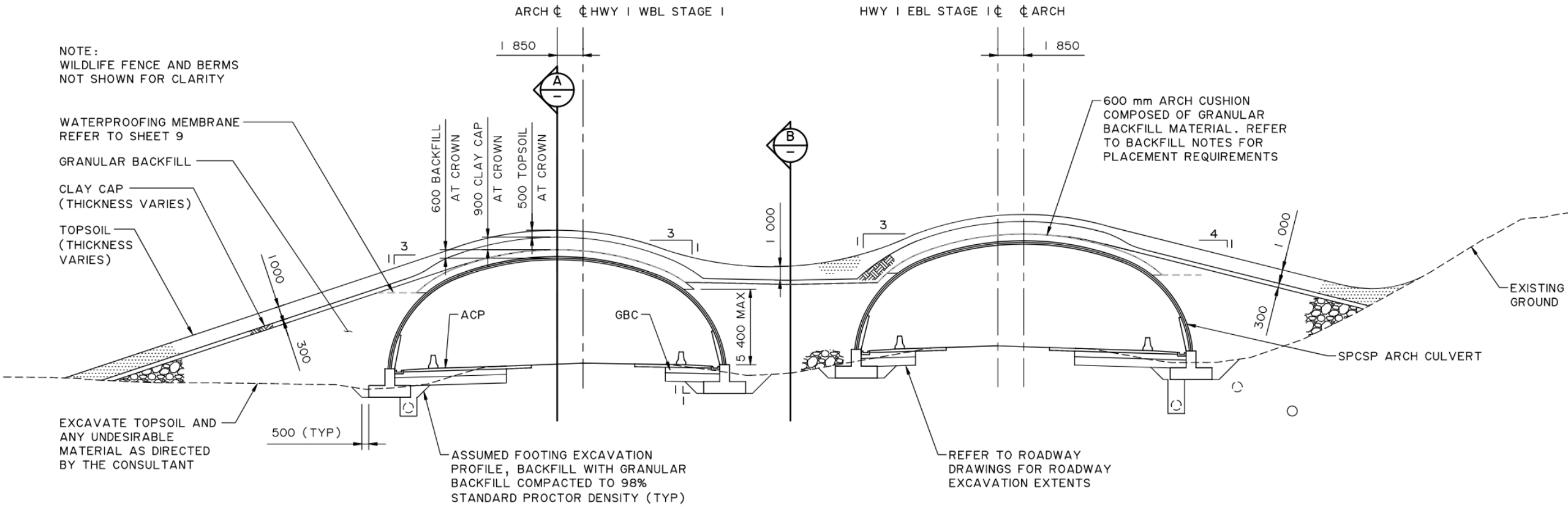
Design - elevation view



Design - SPCSP



Design - backfill



Design - backfill

NOTE:
WILDLIFE FENCE AND BERMS
NOT SHOWN FOR CLARITY

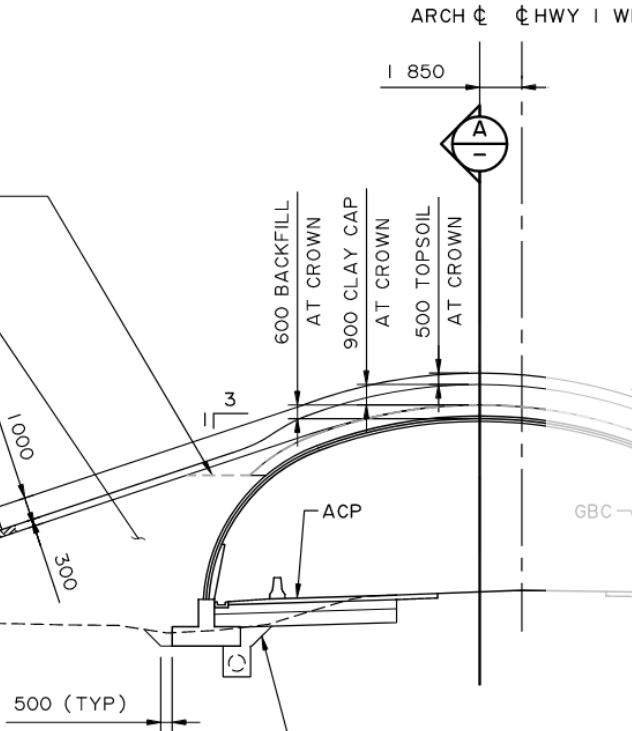
WATERPROOFING MEMBRANE
REFER TO SHEET 9

GRANULAR BACKFILL

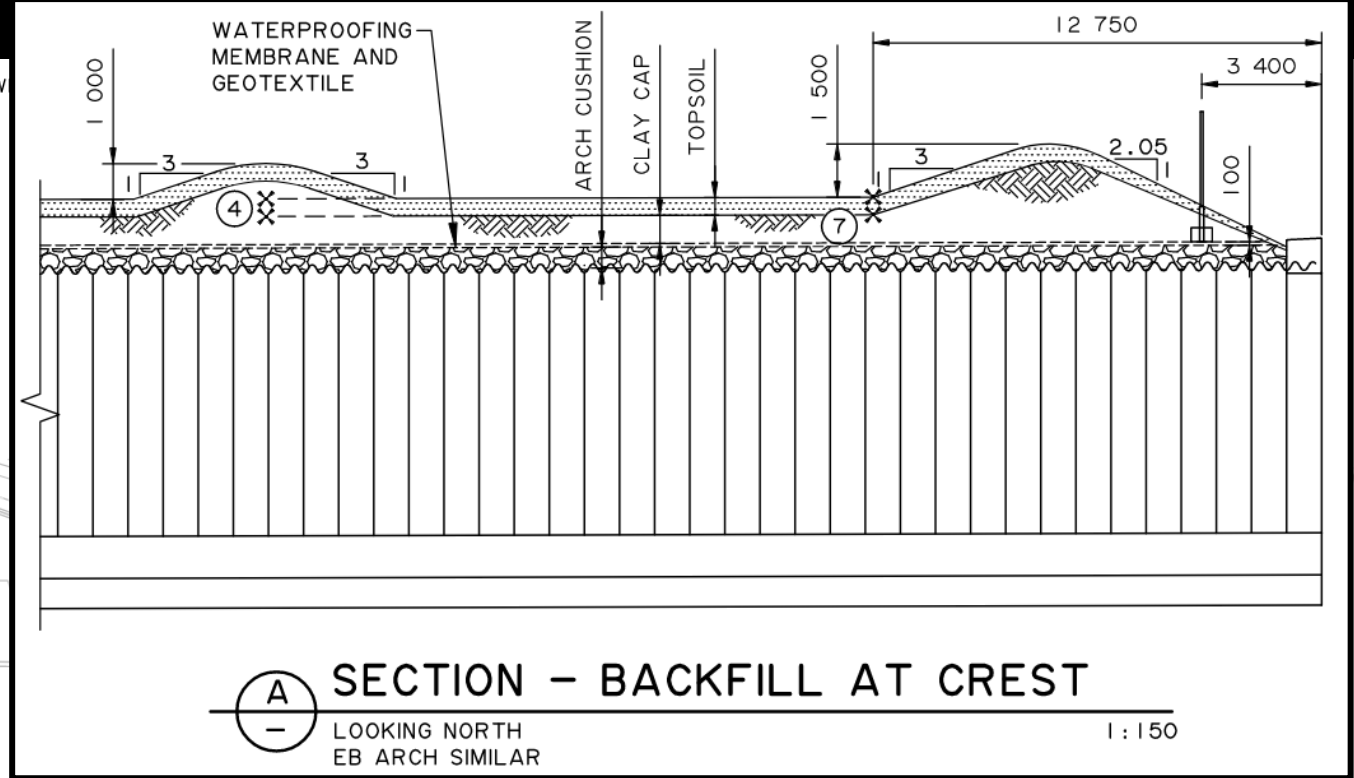
CLAY CAP
(THICKNESS VARIES)

TOPSOIL
(THICKNESS
VARIES)

EXCAVATE TOPSOIL AND
ANY UNDESIRABLE
MATERIAL AS DIRECTED
BY THE CONSULTANT



ASSUMED FOOTING EXCAVATION
PROFILE, BACKFILL WITH GRANULAR
BACKFILL COMPACTED TO 98%
STANDARD PROCTOR DENSITY (TYP)



SECTION - BACKFILL AT CREST

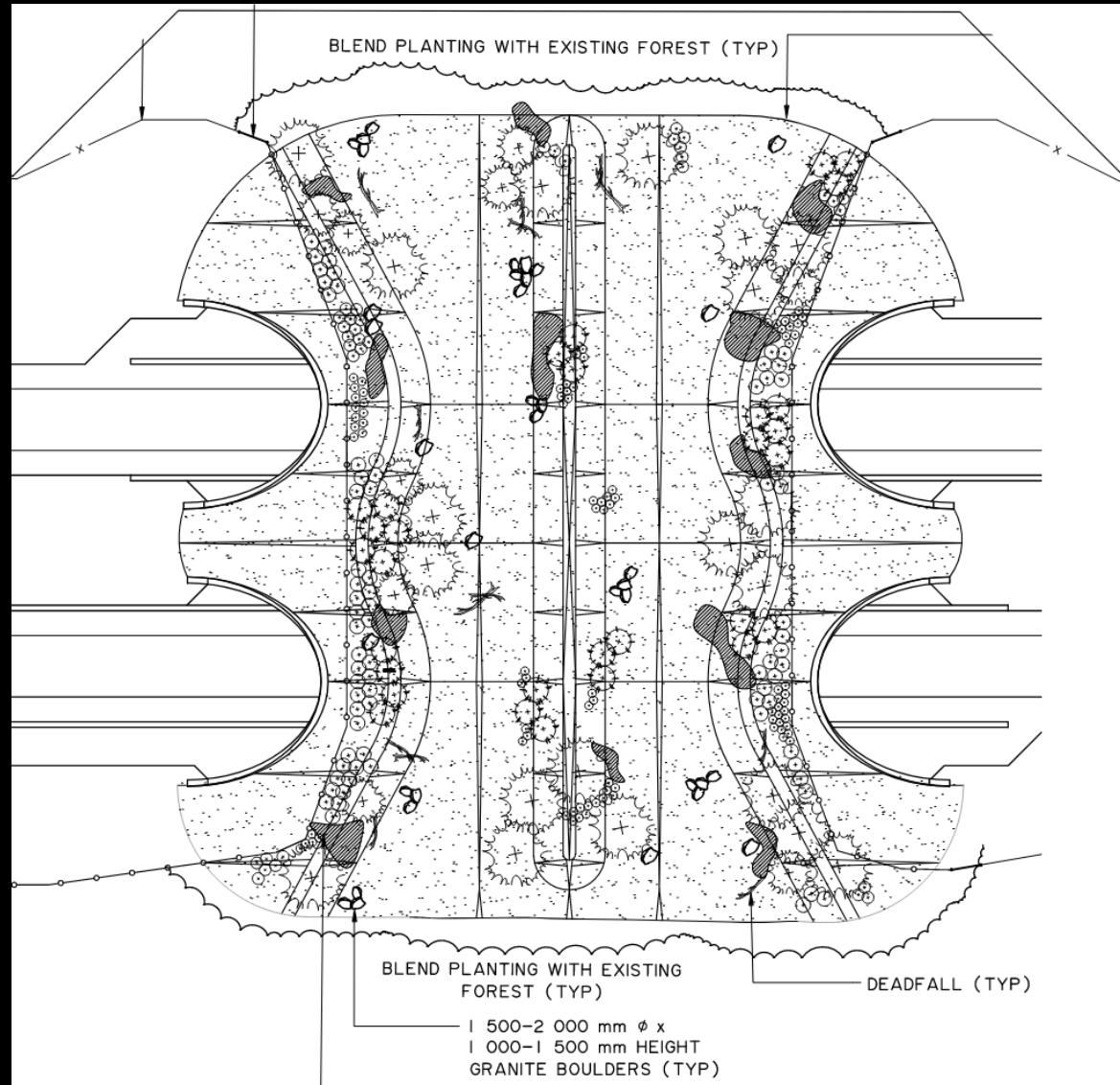
LOOKING NORTH
EB ARCH SIMILAR

1:150

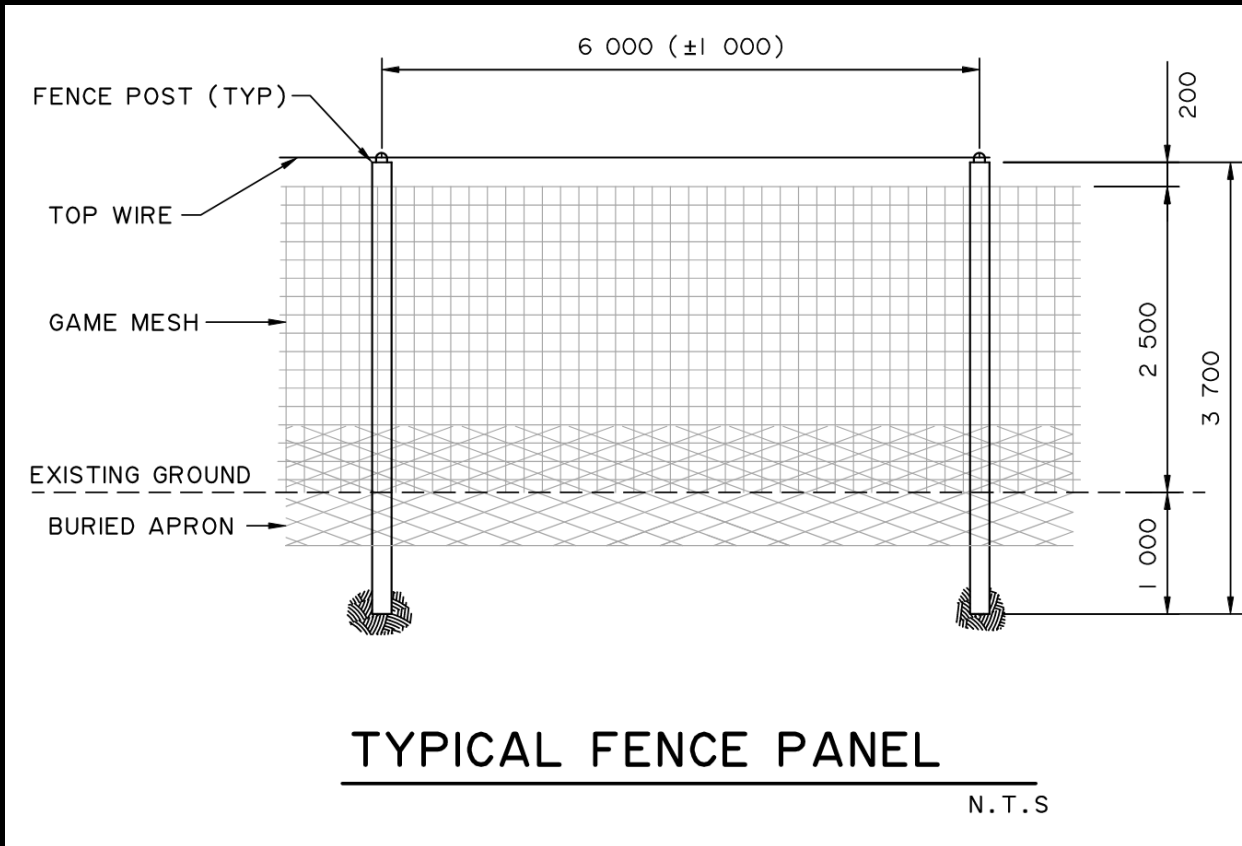
REFER TO ROADWAY
DRAWINGS FOR ROADWAY
EXCAVATION EXTENTS

EXISTING
GROUND

Design - landscaping



Design - wildlife fence



Design - wildlife fence



Construction – highlights

- Contractor team:
 - [PME Inc.](#) (general contractor)
 - [Atlantic Industries Ltd](#) (SPCSP designer and supplier)
 - [Wilco](#) (wildlife fencing subcontractor)
- Timeline: spring 2022 - present
- Quantities
 - >1,000m³ concrete for CIP footings
 - >18,000m³ granular backfill for arches
 - >12,000m of game mesh

Construction – spring 2023



Construction – spring 2023



Construction – summer 2023



Construction – fall 2023



Construction – fall 2023



Construction – fall 2023

