



SAY LANDS OFFICE
**GENERAL ENGINEERING REQUIREMENTS FOR
LAND DEVELOPMENT ON SKOWKALE RESERVE LANDS**

Skowkale First Nation requires that a Conceptual Design be deemed satisfactory by Skowkale Council before any development may proceed. A Final Design must be deemed satisfactory by Skowkale Council before the **Skowkale First Nation Consent to Construct** is issued.

Information items to be provided at the **Conceptual Design** stage are indicated by **[Conceptual]**, and those to be provided at the **Final Design** stage are indicated by **[Final]**.

The applicant is advised that the requirements below are general in nature and are meant to be a guide for submission only. It is possible that some listed requirements may be waived and other requirements may become applicable as more information on the development is submitted. If the applicant or their consultant or agent regards any of the listed items to be not applicable, they may request a waiver and provide sufficient justifications to support their request.

The applicant is further advised that a **Skowkale First Nation Consent to Construct** must be obtained before any improvement or construction work on Skowkale First Nation Lands may begin, irrespective of whether or not a lease is applicable or has been executed. Any work constructed before obtaining the **Skowkale First Nation Consent to Construct** is done at the applicant's or developer's own risk. And if the applicant cannot produce satisfactory evidence to prove that the constructed work meets all Skowkale laws and standards and *AANDC Standards* as defined in the *AANDC Codes Standards and Guidelines*, such work has to be removed and replaced, all at the applicant's own cost.

GENERAL

1. Professional Seal and Signature [Conceptual and Final]

All submission reports, designs, drawings, calculations, specifications and technical documents shall bear the seal and signature of a Registered Professional (Professional Engineer or Registered Architect) qualified for the work.

- Provided for Conceptual*
- Provided for Final*

2. AANDC Standards [Conceptual and Final]

State on the design drawings that all work is designed to meet or exceed the *AANDC Standards* as defined in the *AANDC Codes Standards and Guidelines*. A copy of the *AANDC Codes-Standards and Guidelines* is contained in this Application Package. If work is proposed to be designed to standards other than the *AANDC Standards*, provide certifications of equivalence from a Registered Professional and obtain pre-approval from Skowkale by providing justifications and a copy of the relevant section of the standard used.

- Provided for Conceptual*
- Provided for Final*

3. General Plans [Conceptual and Final]

Provide:

- (a) a Location Plan showing the geographical area of the proposed development and surrounding roads, highways and topographic features;
- Provided for Conceptual*
 - Provided for Final*

- (b) a Layout Plan showing the Lease Area and legal description of the lands to be developed and the boundaries of the Skowkale First Nation Reserve and an outline of the footprint of the proposed development project, and
- Provided for Conceptual*
 - Provided for Final*

- (c) a detailed Site Plan showing all existing and proposed works, buildings, streets, lanes, highways, intersections, driveways, parking and loading areas, sidewalks, street lighting, utilities and utility easements, streams and other topographic features of the site, and
- Provided for Conceptual*
 - Provided for Final*

4. Geotechnical Assessment [Conceptual]

Provide a geotechnical assessment to verify the viability of the development on site. Include the existing and proposed grades and their relations to the elevations on adjoining properties, and details of any necessary excavations.

- Provided for Conceptual*

5. Off-Site Work [Conceptual and Final]

If work relating to the development is required to be constructed outside of the Lease Area or will encroach into private or other CP properties, obtain rights-of-way or other legal permissions to accommodate the work. Show such rights-of-way or other permissions on design drawings.

- Provided for Conceptual*
- Provided for Final*

Building

6. Building Plans [Conceptual and Final]

Provide conceptual plan and elevations of proposed buildings [*Conceptual*] and detailed design drawings of architectural, structural, mechanical, plumbing, fire protection and electrical works [*Final*].

- Provided for Conceptual*
- Provided for Final*

7. Schedule [Conceptual]

Provide a proposed schedule of construction and an estimated start and completion date.

- Provided for Conceptual*

8. Professional Certifications [Final]

Provide copy of relevant signed and sealed BC Building Code Schedules A, B-1 and B-2, or equivalent letters of assurance, on architectural, structural, mechanical, plumbing, fire suppression systems, electrical and geotechnical works for the proposed buildings.

- Provided for Final*

Water Service

9. Conceptual Water Design [Conceptual]

Indicate domestic and fire flow requirements, and the proposed water source to meet these demands. Indicate the minimum fire flow available to the development and the minimum pressure available under Maximum Day Plus Fire Flow conditions.

Provided for Conceptual

10. Conceptual Water Design Drawings [Conceptual]

Provide conceptual design drawings to show the existing and the proposed water works to service the development.

Provided for Conceptual

11. Water Supply from Own Well [Conceptual]

If water supply is to be obtained from the development's own well, provide test data from the well to show that the well water meets the Guidelines for Canadian Drinking Water Quality and that the well has sufficient yield to supply the domestic and fire flow needs.

Provided for Conceptual

12. Water Supply from Surface Water [Conceptual]

If water supply is to be obtained from a surface water body, a Water License is required from the provincial government. Provide conceptual design of water treatment facilities.

Provided for Conceptual

13. Water Supply from Existing System [Conceptual]

If water supply is to be obtained from an existing water distribution system, verify by network analysis calculations or other means that the existing water distribution system has the capacity to deliver the required domestic and fire flow to the development.

Provided for Conceptual

14. Hydrant Locations [Conceptual]

Indicate sufficient hydrants on the conceptual design drawings such that no current or future proposed building is more than 75 m from a hydrant.

Provided for Conceptual

15. Watermain Looping [Conceptual]

Loop watermains whenever possible to provide redundancy and improve fire flow.

Provided for Conceptual

16. Water Service Agreement [Conceptual and Final]

Provide letter of intent or draft servicing agreement [*Conceptual*] and signed servicing agreement [*Final*] with the owner of the existing water system (either Skowkale or the City of Chilliwack) for providing water service to the development.

Provided for Conceptual

17. Decommissioning Plan for Abandoning Existing Well [Conceptual]

Provide a decommissioning plan if any existing well is to be abandoned.

Provided for Conceptual

18. Detailed Water Design Drawings [Final]

Provide detailed design drawings for all proposed water works and treatment facilities to service the development. In particular, show details of connection point to an off-site distribution system, horizontal and vertical profiles of watermains, offsets of watermain from reference objects, horizontal and vertical separation with a sewer, material specifications, trench details, water meters, and details of appurtenances such as valves, air valves, chambers, hydrants, thrust blocks and bearing areas.

Provided for Final

19. Disinfection of New Watermain [Final]

Indicate on design drawing method and procedure for disinfecting a new watermain (de-bugging). Indicate on design drawing method of disposal of chlorinated water after completing watermain disinfection such that aquatic life will not be adversely impacted.

Provided for Final

20. Service Connection Details, Standards and Identification [Final]

Show on design drawings water service connection details and specify service connections to meet the appropriate standards. Specify on design drawings blue marker stakes for identification of any future water service connections.

Provided for Final

Sanitary and Sewer Service

21. Conceptual Sanitary and Sewer Design Drawings [Conceptual]

Provide conceptual design drawings to show the existing and the proposed sanitary facilities to service the development.

Provided for Conceptual

22. Sanitary and Sewer Service from Existing System [Conceptual]

Verify, through network analysis calculations or other means, that the existing sewer system has the spare capacity to service the development.

Provided for Conceptual

23. Sanitary and Sewer Service Agreement [Conceptual and Final]

Provide a letter of intent or draft servicing agreement [*Conceptual*] and signed servicing agreement [*Final*] with the owner of the existing sewer system for providing sanitary and sewer service to the development.

Provided for Conceptual

Provided for Final

24. In-Ground Sewage Disposal [Conceptual]

Ensure the in-ground sewage disposal system is compliant with Health Canada and the First Nations Health Authority regulations.

Provided for Conceptual

25. Oil Separator [Conceptual]

Provide oil separator for discharge to either the sanitary or the storm system from restaurant, gas station, machine shop, and any place where oil can be discharged or spilled.

Provided for Conceptual

26. Decommissioning Plan for Abandoning Existing Septic Facilities [Conceptual]

Provide a decommissioning plan if any existing septic facilities are to be abandoned.

Provided for Conceptual

27. Detailed Sanitary and Sewer Design Drawings [Final]

Provide detailed design calculations and drawings for all proposed sanitary and sewer works to service the development. In particular, show horizontal and vertical profiles of the sewers and forcemains, offsets of sewer and forcemain from reference objects, material specifications, sewer slopes, invert elevations, manhole rim elevations, sewer trench details, forcemain thrust block bearing areas, and details of manholes, cleanouts, oil separators, air valves and chambers.

Provided for Final

28. Effluent Permit Limits [Final]

Verify that the Effluent Quality Parameters discharged to a disposal or reclaimed water use facility do not exceed the Waste Management Act Municipal Sewage Regulation limits for the particular facility.

Provided for Final

29. Sewage Treatment Plant [Final]

Provide detailed design and specifications for sewage treatment plant and emergency storage basin.

Provided for Final

30. Service Connection Details, Standards and Identification [Final]

Show on design drawings sewer service connection details. Provide inspection chamber. Specify service connection to meet the Canadian Plumbing Code. Specify on design drawings red marker stakes for identification of any future sewer service connections.

Provided for Final

Drainage

31. Stormwater Management Plan [Conceptual]

Provide a stormwater management plan showing how the post-development Minor (1:2 Year) and Major (1:50 Year) flows are to be managed. Show grading of lot and in-conduit, in-ditch, and overland flow paths.

Provided for Conceptual

32. Stormwater Disposal by Drywell [Conceptual]

If stormwater runoff is proposed to be disposed of by drywells, verify by calculations that the drywells have the capacity to dispose of a Minor (1:2 year) storm flow.

Provided for Conceptual

33. Stormwater Disposal to Surface Water Body [Conceptual]

If any stormwater runoff is proposed to be discharged into an adjacent surface water body, provide details of sediment control devices and confirm permission with Department of Fisheries and Oceans and Environment Canada.

Provided for Conceptual

34. Stormwater Disposal to Roadside Ditch [Conceptual]

If any stormwater runoff is proposed to be discharged into an adjacent roadside ditch, confirm permission with the owner of the roadside ditch (either the Band, municipal, regional or provincial jurisdiction).

Provided for Conceptual

35. 200 Year Flood Level [Conceptual]

State on the conceptual design drawing that the building habitable floor slab elevation is not less than 0.6 m above the 1:200 year flood level.

Provided for Conceptual

36. Detailed Drainage Design Drawings [Final]

Provide detailed design drawings for all proposed drainage works servicing the development. In particular, show horizontal and vertical profiles of storm sewers and ditches, offsets of storm sewer from reference objects, material specifications, sewer slopes, invert elevations, manhole rim elevations, trench details, and details of manholes, cleanouts, oil and debris separators, drywells, silt traps and detention ponds.

Provided for Final

Total Estimated Cost of Works and Services

37. Total Estimated Cost of Works and Services [Conceptual]

Provide total estimated cost of works and services excluding off-site works and services which are the subject of a servicing agreement with the City of Chilliwack:

\$ _____

Provided for Conceptual

Roads, Access and Parking

38. Parking [Conceptual]

Provide the estimated number of parking spaces required for the development and the plans to accommodate them.

Provided for Conceptual

39. Traffic Volume [Conceptual]

Provide the estimated volume of traffic in trips per day that will be generated by the development.

Provided for Conceptual

40. Conceptual Road Design Drawings [Conceptual]

Provide conceptual design drawings to show the existing and the proposed access and road facilities to service the development, including entry and exit routes and access by fire and emergency vehicles.

Provided for Conceptual

41. Cul-de-Sac Length [Conceptual]

Limit length of any cul-de-sac to 150 m maximum in consideration of emergency access and deployment of fire fighting equipment.

Provided for Conceptual

42. Utilities in Adjacent or Public Roads [Conceptual]

If utilities servicing the development are to be laid crossing or within the fronting road allowance, confirm permission with the owner of the fronting road (adjacent CP-holder, Skowkale, the City of Chilliwack, or the provincial government)

Provided for Conceptual

43. Bridge Across Creek [Conceptual]

Confirm permission from Department of Fisheries and Oceans for access bridge across river or creek.

Provided for Conceptual

44. Access Permit [Conceptual and Final]

Provide letter of intent [**Conceptual**] and access permit, easement or right-of-way [**Final**] from the owner of the fronting road road (adjacent CP-holder, Skowkale, the City of Chilliwack, or the provincial government) for allowing access to the development.

Provided for Conceptual

Provided for Final

45. Detailed Parking Design [Final]

Provide detailed design calculations and drawings for all proposed parking areas and spaces.

Provided for Final

46. Detailed Road Design Drawings [Final]

Provide detailed design calculations and drawings for all proposed road and access to service the development.

Provided for Final

47. Road Details [Final]

Show design speed, horizontal and vertical road profile, vertical curve data, cross sections, intersection details and pavement structure on design drawings.

Provided for Final

48. Signage [Conceptual and Final]

Show the proposed [**Conceptual**] and actual [**Final**] location, size, height, colour, lighting and orientation of all signs.

Provided for Conceptual

Provided for Final

Greenspace and Amenities

49. Greenspace [Conceptual and Final]

Show the proposed [*Conceptual*] and actual [*Final*] location and treatment of parks, green space, common areas, open spaces, trails, landscaping, fences, recreation features and any other public amenities.

- Provided for Conceptual*
- Provided for Final*

Fuel Handling

50. Fuel Storage and Dispensing [Final]

For gas station development, provide details of fuel storage tanks, connection piping, dispenser pumps, spill containment, alarm system and an emergency response plan.

- Provided for Final*

Fire Protection

51. Fire Protection Service Agreement [Conceptual and Final]

Provide letter of intent [*Conceptual*] and service agreement [*Final*] with either Skowkale or the City of Chilliwack for providing fire protection service to the development.

- Provided for Conceptual*
- Provided for Final*

52. Skowkale's Fire Fighting Capability [Conceptual]

If fire protection service is to be obtained Skowkale, verify the existing capability of Skowkale's equipment and resources to respond to and provide fire fighting service to the development.

- Provided for Conceptual*

Utilities

53. Utility Service Agreements [Conceptual and Final]

Provide letter of intent [*Conceptual*] and service agreement [*Final*] with utility companies for electricity, telephone, gas and solid waste disposal services.

- Provided for Conceptual*
- Provided for Final*

Completion Documentation

54. Health Canada Permits for Individual Homes [Final]

Provide written commitment from the Professional Engineer or Registered Architect to provide Health Canada permits for in-ground sewage disposal for individual homes [*Final*]. Actual permits are to be provided as part of the completion documentation.

- Provided for Final*

55. Restaurant Permit [Final]

Provide written commitment from the Proponent to provide a copy of Ministry of Health Permit to Operate A Food Service Establishment if kitchen or restaurant service is proposed **[Final]**. Actual permit is to be provided as part of the completion documentation.

Provided for Final

56. Registration of Rights of Way, Permits and Easements [Final]

Provide written commitment from the Professional Engineer or Registered Architect to provide copies of all registered rights of way plans, permits and easements **[Final]**. Actual plans and proof of registration must be provided as part of the completion documentation.

Provided for Final

57. Registration of Fuel Storage Tanks [Final]

Provide written commitment from the Professional Engineer or Registered Architect to provide a copy of the registration of all underground storage tanks and exterior aboveground storage tanks larger than 4000 litres **[Final]**. Actual registration documents are to be provided as part of the completion documentation.

Provided for Final

58. Construction Supervision [Final]

Provide written commitment from the Professional Engineer to provide all necessary construction supervision, inspection, site testing and record keeping during construction of the site work **[Final]**.

Provided for Final

59. O&M Manuals [Final]

Provide written commitment from the Professional Engineer or Registered Architect to provide Operation & Maintenance Manuals for the electrical and mechanical systems upon completion **[Final]**. Actual Operation & Maintenance Manuals are to be provided as part of the completion documentation.

Provided for Final

60. As-Built Drawings [Final]

Provide written commitment from the Professional Engineer or Registered Architect to provide accurate as-built drawings upon completion **[Final]**. Actual as-built drawings are to be provided as part of the completion documentation for all buildings, structures, roads, and works.

Provided for Final

61. Completion Report [Final]

Provide written commitment from the Professional Engineer or Registered Architect to provide a completion report detailing work progress, inspection records, testing results, and problems encountered on site **[Final]**. Actual completion report is to be provided as part of the completion documentation.

Provided for Final

62. Completion Certification [Final]

Provide written commitment from the Co-ordinating Registered Professional who signed the BC Building Code Schedule A for the building to provide the BC Building Code Schedules C-A and C-B **[Final]**.

Provided for Final

Provide written commitment from the Professional Engineer submitting the supporting services plans to provide an Engineer's Certificate certifying that all work is constructed in accordance with approved drawings and specifications *[Final]*.

- Provided for Final*

Actual Schedules C-A and C-B and Engineer's Certificate are to be provided as part of the completion documentation.

- Provided for Final*