Optimizing Site Locations to Reduce Long-Term Environmental Liabilities

Sheila Duchek, M.Sc., P.Geo.
Greg Potter, M.Sc., P.Geo., P.Eng.

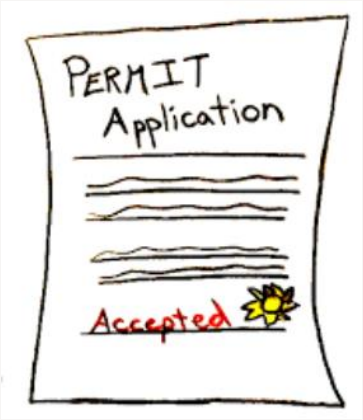
EnviroTech

Our vision

We strive to be the premier engineering solutions partner, committed to delivering complex projects from vision to reality for a sustainable lifespan.

SNC·LAVALIN

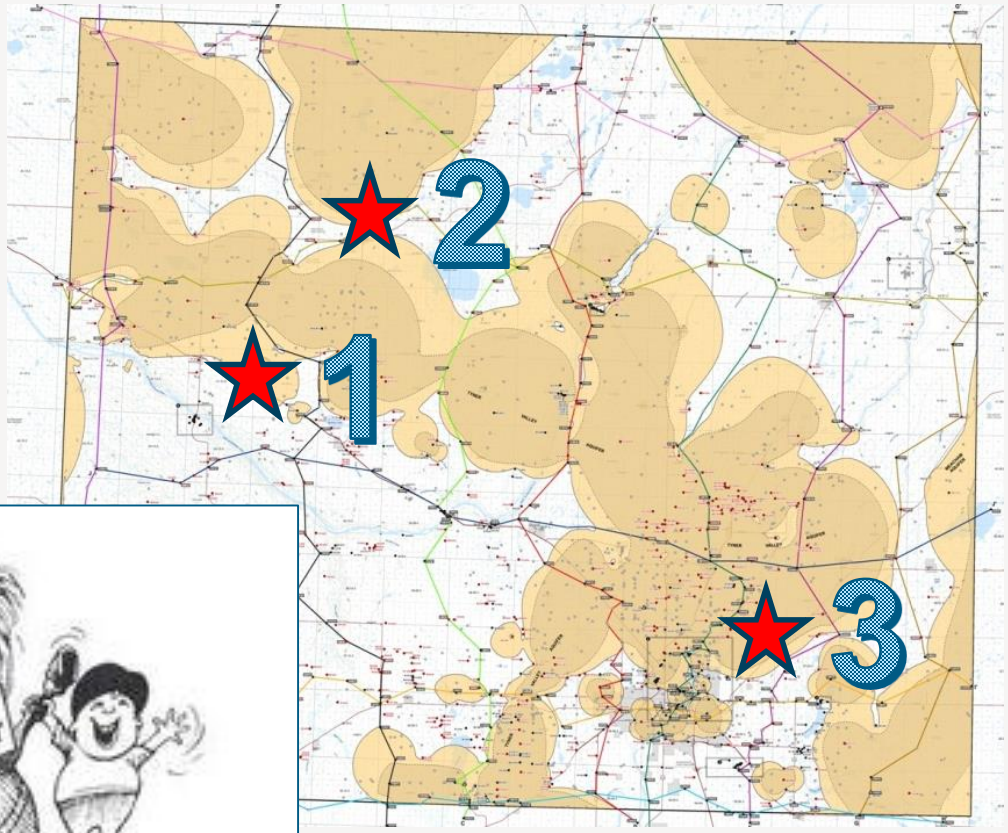
Introduction: Yay! New Project!



SNC·LAVALIN

Presentation Outline

- Define What is a Siting Study
- Siting Study Methods
- Considerations
- Fatal Flaws
- Siting Study Matrix
- Weighting Factors
- Example



SNC·LAVALIN

What is a Siting Study?

A decision analysis procedure to facilitate quantitative ranking of potential project site locations, with the goal of ruling out unfavourable sites and identifying ideal locations.

Outcomes of decision analysis include: an order of preference, ranking criteria and weighting factors.

Ranking criteria and weighting factors determined prior to assessment to avoid bias in the results.

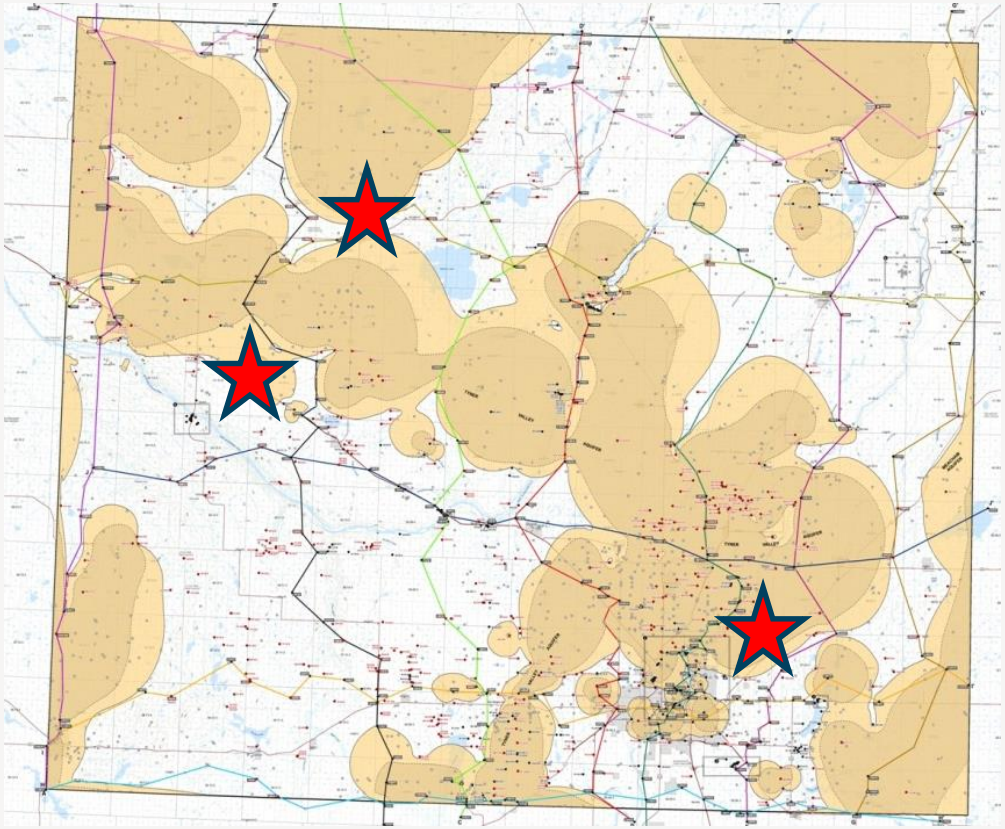
Goals:

- Minimize environmental impact
- Preserve important historic, cultural, and natural areas
- Achieve a balance between costs and potential impacts
- Identify a ‘best’ location considering often conflicting factors

SNC·LAVALIN

Siting Study Methods

› Identify possible areas for site placement



SNC·LAVALIN

Siting Study Methods

- Identify possible areas for site placement
- Identify attributes to be considered
- Develop ranking criteria and weighting factors to be applied equally to all potential areas

Category
Environmental and Social Considerations
Potential Contamination Considerations
Geotechnical Considerations
Operational and Cost Considerations
Total

SNC·LAVALIN

Siting Study Methods

- Identify possible areas for site placement
- Identify attributes to be considered
- Develop ranking criteria and weighting factors to be applied equally to all potential areas
- Collect and compile information for each area

SNC·LAVALIN

Siting Study Methods

- Identify possible areas for site placement
- Identify attributes to be considered
- Develop ranking criteria and weighting factors to be applied equally to all potential areas
- Collect and compile information for each area
- Infill site ranking matrix for each area

Environmental and Social Considerations

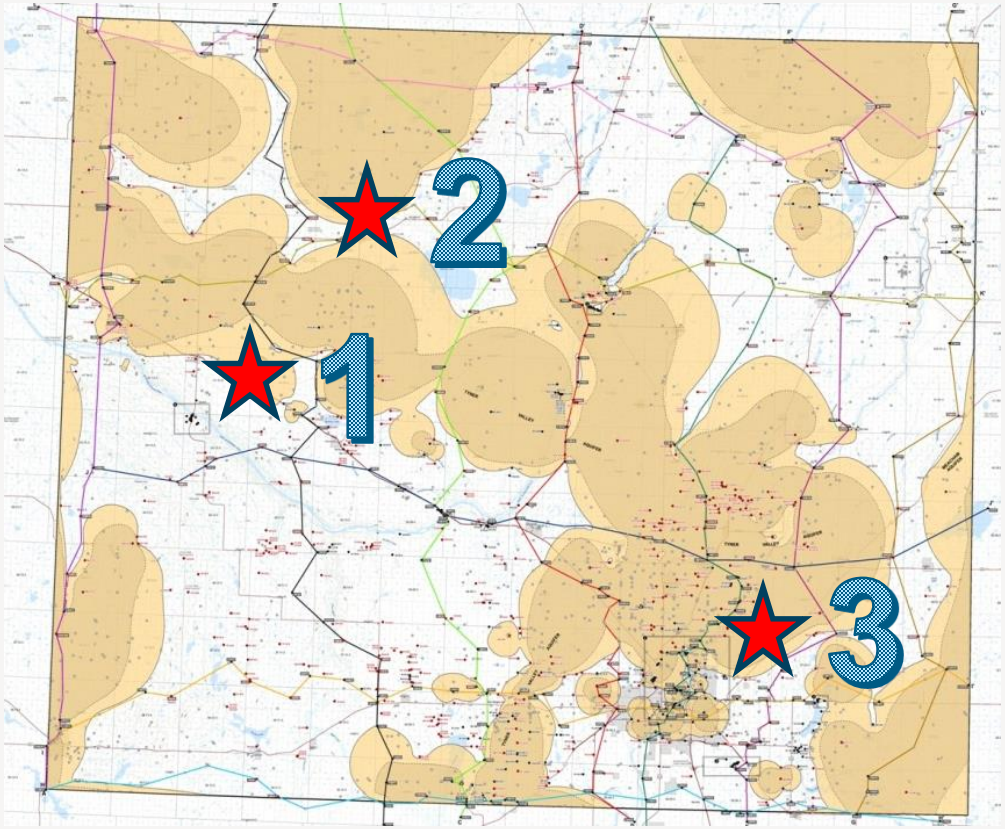
Category	Factors to Consider	Description	Significance of Impact on Environment and Society (A)					Effort Required to Mitigate (B)			Fatal Flaw
			Minor (Best)	Slight	Moderate	High	Extreme (Worst)	Minor (Best)	Moderate	Major (Worst)	
			0	2	4	6	8	1	3	5	(Yes or No)
Visibility	Prominence	Topographic locations and area from which the site is visible	Not visible from any communities, highways, roads, parks, etc.	Visible from a relatively small area (<25,000 ha)	Visible from a relatively moderate area (>25,000 ha and <100,000 ha)	Visible from a relatively large area (>100,000 ha)	Visible from a large area (>200,000 ha), from all communities, highways, parks, roads, etc. in the area			5	
	Proximity to the Public	Location relative to permanent habitation or areas used by the public, roads, parks, trails, etc.	Not located within 50 km of any human habitation	Located within 50 km of individual houses only and/or near local public roads	Located within close proximity (<5 km) to individual housing, and within 20 km of a hamlet or village. Located near commonly used public roads	Located within close proximity (<5 km) to hamlets or villages and/or located within 10 km of a major highway	Located within 25 km of a city or within 5 km of a town and/or adjacent to a major highway, collector or [illegible]			5	
Land Use	Protected areas or designated wildlife habitat	Lands with provincial or federal protection under various Acts	No federal or provincial designation	Provincial designation that requires special permission (i.e. Agricultural Crown Lands)	Provincial designation that restricts activities (i.e. Wildlife Habitat Protection Lands)	Provincially protected land designated for [illegible]	[illegible]			5	
	Other Mineralization Potential	Potential presence of other economic ore other than potash	No prospecting activity	Similar geology but no evidence of claims or prospecting interest	Possible ore, similar geology, and/or some prospecting claims	Known [illegible]	Conflict over ore [illegible], mineral rights, etc.	1			
	Aesthetic Value	Deemed to have aesthetic value by known concerned parties	No response from adjacent communities	A few concerned members of adjacent communities	Some concerned members of adjacent communities	Many concerned members of adjacent communities	Public outcry			5	
	Archaeological and Historical Value	Distance of the facility from known heritage resources or heritage sensitive areas present	No significant archaeological features and no potential to be discovered; no heritage sensitive areas identified	Significant archaeological features found within 2km of the site; majority of site considered to be on heritage sensitive land	Significant archaeological features found within 2km of the site; majority of site considered to be on heritage sensitive land	Significant archaeological features found within 2km of the site; majority of site considered to be on heritage sensitive land	Large archaeological site with many significant features in the immediate vicinity of the site; majority of site considered to be on heritage sensitive land		3		
	Area of Disturbance	Size of the disturbance and TMA and [illegible]	Presumed to be the same for all sites and therefore not ranked							5	
	Proximity of Human Habitat	Distance to nearest community, town [illegible]	[illegible]	Only individual homesteads and no densely populated areas within 10 km of the site	Presence of concentrated housing (towns, or villages) within 10 km of the site	Presence of concentrated houseing (towns or villages) within 2-5 km of the site	Presence of concentrated houseing (towns or villages) within 0-2 km of the site			5	
	Economic and [illegible]	Percentage of each [illegible] km radius	No economic land uses	<25% of land used for agricultural or other economic purposes	25-75% of land used for agricultural or other economic purposes	>75% of land used for agricultural or other economic purposes	Highly productive agricultural land or other highly economic land use		3		
	[illegible]	Presence of designated or undesignated recreational land use in the area	No designated areas of recreational land use and negligable undesignated recreational land use	No designated areas of recreational land use, but occasional informal recreational land use (e.g. atv traffic, snow mobile traffic, hunting, etc.)	No designated areas of recreational land use, but frequent informal recreational land use (e.g. atv traffic, snow mobile traffic, hunting, etc.)	No designated areas of recreational land use, but widely used for informal recreational activities (e.g. atv traffic, snow mobile traffic, hunting, etc.)	Formal recreational areas in the immediate area and extensive use for informal recreational activities (e.g. atv traffic, snow mobile traffic, hunting, etc.)			5	
	Surface Land Ownership *	Ownership of the land and/or prospect of acquisition of the land from private owners	Surface rights owned by CanPacific	Surface rights not owned by CanPacific but existing owners willing to sell land	Surface rights not owned by CanPacific but existing owners receptive to selling	Surface rights not owned by CanPacific but existing owners not receptive to selling	Surface rights not owned by CanPacific but existing owners refusing to sell		3		

Site Ranking Matrix

SNC·LAVALIN

Siting Study Methods

- Identify possible areas for site placement
- Identify attributes to be considered
- Develop ranking criteria and weighting factors to be applied equally to all potential areas
- Collect and compile information for each area
- Infill site ranking matrix for each area
- Area with lowest ranking matrix score is preferred option (considering evaluated factors)



SNC·LAVALIN

Communication is Key

- From Project Initiation through Final Selection
- Understand project-specific information and critical elements
- Assess available regional information – geology, hydrogeology, surface water maps
- Discipline experts provide guidance to develop site-specific field programs to close data gaps
- Identify footprint with utilities and transportation layouts
- Engage stakeholders early and often
- Clear, effective communication is critical

SNC·LAVALIN

Considerations

- Environmental and Social
- Potential Contamination
- Geotechnical
- Operational and Cost

SNC·LAVALIN

Environmental and Social Considerations

- Visibility
  - Prominence and Proximity to the Public
- Land Use
  - Protected areas
  - Other mineralization potential
  - Aesthetic value
  - Archeological value
  - Areas of disturbance
  - Proximity of human habitat
  - Economic land use
  - Recreation land use
  - Land ownership

SNC·LAVALIN

Environmental and Social Considerations

- Ecology
  - Rare, endangered or threatened species
  - Fishery habitat quality
  - Sensitive habitat
  - Watershed quality
  - Vegetation type
- Stakeholder Acceptance
  - Regulatory agencies
  - Local communities
  - Landowners
  - Non-governmental organizations

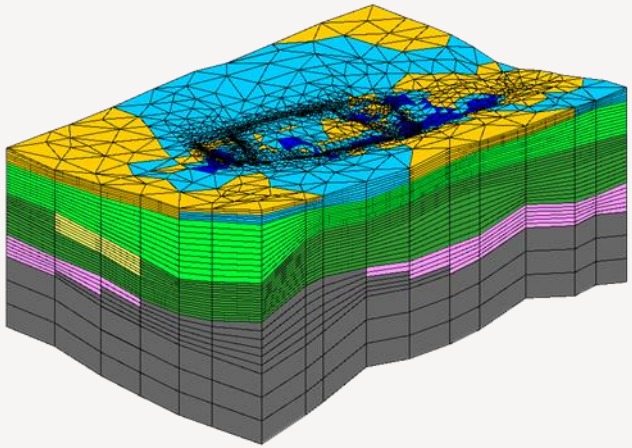
Potential Contamination Considerations

- Airborne Release
  - Exposure to wind
  - Wind speed
  - Containment surface area
- Contaminant Release
  - Underlying geology
  - Surficial sediments
  - Hydraulic conductivity of foundation materials
  - Groundwater recharge / discharge
  - Depth and extent of groundwater resources
  - Water quality of groundwater resource
  - Surface water quality
  - Watercourse proximity

SNC·LAVALIN

Geotechnical Considerations

- Constructability
  - Topography
  - Watershed characteristics
  - Foundation compressibility
  - Foundation strength
  - Hydraulic conductivity of foundation materials
  - Water table
  - Ancillary structures / facilities

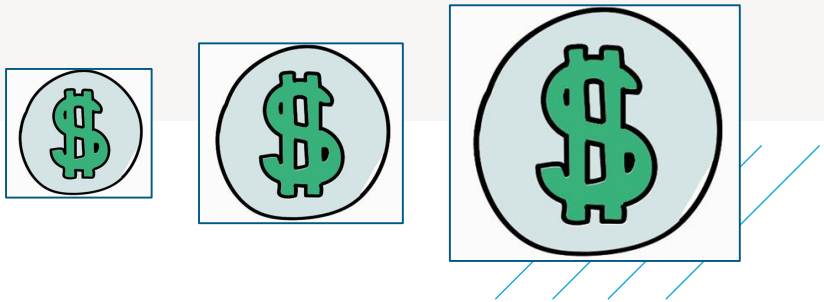


SNC·LAVALIN

Operational and Cost Considerations

- Operational Factors
  - Operational layout efficiency
  - Elevation changes
  - Access
  - Waste disposal
  - Groundwater source
  - Surface water source
  - Availability of construction and reclamation materials
  - Expansion capacity

- Costs
  - Capital costs
  - Water supply costs
  - Transportation infrastructure costs
  - Utility infrastructure supply costs
  - Waste containment costs
  - Other environmental mitigation costs
  - Ongoing operating costs



Fatal Flaws

Fatal Flaws:

Areas that should be eliminated because of fundamentally flawed characteristics, which are sufficiently unfavourable (or so severe) that they preclude the use of the area (e.g. endangered species, sensitive ecosystems, unfavourable geology, unstable foundation soils, etc.).

Considerations:

- Environmental and Social
- Potential Contamination
- Geotechnical
- Operational and Cost

SNC·LAVALIN

Examples of Fatal Flaws

- Provincially or Federally protected land – Protected Recreational Area
- Significant potential to impact groundwater quality or major stream / river
- Actual or potential urban area
- Protected ecosystem
- Endangered species present
- Government opposition to project
- Unsuitable foundation soils
- Access to Site to difficult
- Water sources not obtainable
- Technical feasibility not implementable
- Expansion capacity not implementable
- Development cost is not economical

SNC·LAVALIN

Considerations Independent of Siting

Some factors are deemed to have the same characteristics, regardless of siting options.

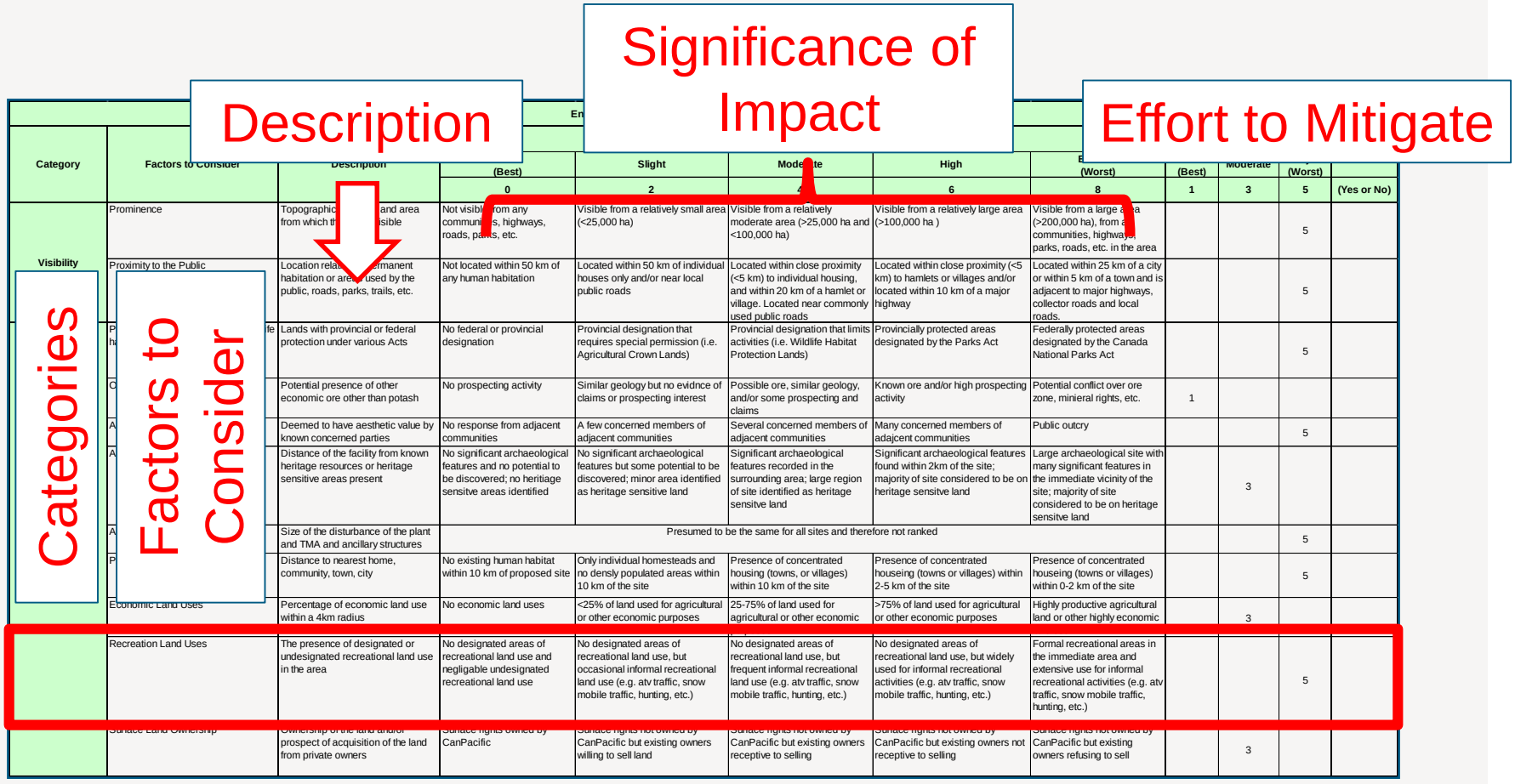
Examples:

- Technical feasibility
- Expansion capacity
- Distances between facilities
- Operating costs

Key is to identify these early, so they can be removed from assessment and ranking.

SNC·LAVALIN

Siting Study Matrix



Category	Factors to Consider	Description	(Best)	Slight	Moderate	High	(Worst)	(Best)	Moderate	(Worst)	(Yes or No)
			0	2	4	6	8	1	3	5	
Visibility	Prominence	Topographic and area from which th sible	Not visibl rom any communi s, highways, roads, pa ks, etc.	Visible from a relatively small area (<25,000 ha)	Visible from a relatively moderate area (>25,000 ha and <100,000 ha)	Visible from a relatively large area (>100,000 ha)	Visible from a large a a (>200,000 ha), from a communities, highway parks, roads, etc. in the area			5	
	Proximity to the Public	Location rela ermanent habitation or are used by the public, roads, parks, trails, etc.	Not located within 50 km of any human habitation	Located within 50 km of individual houses only and/or near local public roads	Located within close proximity (<5 km) to individual housing, and within 20 km of a hamlet or village. Located near commonly used public roads	Located within close proximity (<5 km) to hamlets or villages and/or located within 10 km of a major highway	Located within 25 km of a city or within 5 km of a town and is adjacent to major highways, collector roads and local roads.			5	
	P lfe	Lands with provincial or federal protection under various Acts	No federal or provincial designation	Provincial designation that requires special permission (i.e. Agricultural Crown Lands)	Provincial designation that limits activities (i.e. Wildlife Habitat Protection Lands)	Provincially protected areas designated by the Parks Act	Federally protected areas designated by the Canada National Parks Act			5	
	C	Potential presence of other economic ore other than potash	No prospecting activity	Similar geology but no evidnce of claims or prospecting interest	Possible ore, similar geology, and/or some prospecting and claims	Known ore and/or high prospecting activity	Potential conflict over ore zone, minieral rights, etc.	1			
	A	Deemed to have aesthetic value by known concerned parties	No response from adjacent communities	A few concerned members of adjacent communities	Several concerned members of adjacent communities	Many concerned members of adjacent communities	Public outcry			5	
	A	Distance of the facility from known heritage resources or heritage sensitive areas present	No significant archaeological features and no potential to be discovered; no heritiage sensitve areas identified	No significant archaeological features but some potential to be discovered; minor area identified as heritage sensitive land	Significant archaeological features recorded in the surrounding area; large region of site identified as heritage sensitve land	Significant archaeological features found within 2km of the site; majority of site considered to be on heritage sensitve land	Large archaeological site with many significant features in the immediate vicinity of the site; majority of site considered to be on heritage sensitve land		3		
	A	Size of the disturbance of the plant and TMA and ancillary structures	Presumed to be the same for all sites and therefore not ranked							5	
	P	Distance to nearest home, community, town, city	No existing human habitat within 10 km of proposed site	Only individual homesteads and no densly populated areas within 10 km of the site	Presence of concentrated housing (towns, or villages) within 10 km of the site	Presence of concentrated houseing (towns or villages) within 2-5 km of the site	Presence of concentrated houseing (towns or villages) within 0-2 km of the site			5	
	Economic Land Uses	Percentage of economic land use within a 4km radius	No economic land uses	<25% of land used for agricultural or other economic purposes	25-75% of land used for agricultural or other economic	>75% of land used for agricultural or other economic purposes	Highly productive agricultural land or other highly economic		3		
	Recreation Land Uses	The presence of designated or undesignated recreational land use in the area	No designated areas of recreational land use and negligable undesignated recreational land use	No designated areas of recreational land use, but occasional informal recreational land use (e.g. atv traffic, snow mobile traffic, hunting, etc.)	No designated areas of recreational land use, but frequent informal recreational land use (e.g. atv traffic, snow mobile traffic, hunting, etc.)	No designated areas of recreational land use, but widely used for informal recreational activities (e.g. atv traffic, snow mobile traffic, hunting, etc.)	Formal recreational areas in the immediate area and extensive use for informal recreational activities (e.g. atv traffic, snow mobile traffic, hunting, etc.)			5	
	Surface Land Ownership	Ownership of the land and/or prospect of acquisition of the land from private owners	Surface rights owned by CanPacific	Surface rights not owned by CanPacific but existing owners willing to sell land	Surface rights not owned by CanPacific but existing owners receptive to selling	Surface rights not owned by CanPacific but existing owners not receptive to selling	Surface rights not owned by CanPacific but existing owners refusing to sell		3		

SNC·LAVALIN

Matrix: Potential Contamination Example

Category: Contaminant Release

Factor to Consider: Groundwater Recharge / Discharge Area

Description: Proximity and relative importance of groundwater discharge

Significance of Impact:

Minor (Best)	Slight	Moderate	High	Extreme (Worst)
0	2	4	6	8
Not a groundwater discharge area	Near surface groundwater flow discharge to intermittent sloughs or surface water drainage courses	Groundwater discharge to a major watercourse or waterbody within 10 km	Groundwater discharge to a major watercourse or waterbody within 5 km	Major groundwater discharge area

SNC·LAVALIN

Matrix: Potential Contamination Example

Category: Contaminant Release

Factor to Consider: Groundwater Recharge / Discharge Area

Description: Proximity and relative importance of groundwater discharge

Significance of Impact:

not a groundwater discharge area to major groundwater discharge area.

Effort Required to Mitigate:

Effort Required to Mitigate (B)			Fatal Flaw
Minor (Best)	Moderate	Major (Worst)	
1	3	5	(Yes or No)

SNC·LAVALIN

Effort Required to Mitigate

Major (Worst):

a major groundwater discharge area could require significant effort to mitigate, such as use of a slurry cut-off wall to protect nearby water course.

VS

Minor (Best):

not a discharge area.

SNC·LAVALIN

Matrix Ranking: Weighted Score (A x B x C)

Environment and Social Considerations =

- Significance of Impact on Environment and Society (A) x Effort Required to Mitigate (B) x Weighting Factor (C)

Potential Contamination Considerations =

- Significance of Impact on Environment (A) x Effort Required to Mitigate (B) x Weighting Factor (C)

Geotechnical Considerations =

- Significance of Impact on Construction (A) x Effort Required to Mitigate (B) x Weighting Factor (C)

Cost Considerations =

- Significance of Impact on Operation or Development Costs (A) x Range of Impact on Costs (B) x Weighting Factor (C)

SNC·LAVALIN

Matrix Ranking: Weighted Score (A x B x C)

Environment and Social Considerations:

- *Significance of Impact* on Environment and Society (A) x Effort Required to Mitigate (B) x Weighting Factor (C)

Potential Contamination Considerations:

- *Significance of Impact* on Environment (A) x Effort Required to Mitigate (B) x Weighting Factor (C)

Geotechnical Considerations:

- *Significance of Impact* on Construction (A) x Effort Required to Mitigate (B) x Weighting Factor (C)

Cost Considerations

- *Significance of Impact* on Operation or Development Costs (A) x Range of Impact on Costs (B) x Weighting Factor (C)

:

SNC·LAVALIN

Matrix Ranking: Weighted Score (A x B x C)

Environment and Social Considerations:

- Significance of Impact on Environment and Society (A) x *Effort Required to Mitigate* (B) x Weighting Factor (C)

Potential Contamination Considerations:

- Significance of Impact on Environment (A) x *Effort Required to Mitigate* (B) x Weighting Factor (C)

Geotechnical Considerations:

- Significance of Impact on Construction (A) x *Effort Required to Mitigate* (B) x Weighting Factor (C)

Cost Considerations

- Significance of Impact on Operation or Development Costs (A) x *Range of Impact on Costs* (B) x Weighting Factor (C)

:

SNC·LAVALIN

Matrix Ranking: Weighted Score (A x B x C)

Environment and Social Considerations:

- Significance of Impact on Environment and Society (A) x Effort Required to Mitigate (B) x *Weighting Factor* (C)

Potential Contamination Considerations:

- Significance of Impact on Environment (A) x Effort Required to Mitigate (B) x *Weighting Factor* (C)

Geotechnical Considerations:

- Significance of Impact on Construction (A) x Effort Required to Mitigate (B) x *Weighting Factor* (C)

Cost Considerations

- Significance of Impact on Operation or Development Costs (A) x Range of Impact on Costs (B) x *Weighting Factor* (C)

:

SNC·LAVALIN

Site Selection Matrix: Weighting Factor

A weighting factor will be assigned to each factor considered, based on the importance of the factor to the overall siting of a project (as perceived by SNC-Lavalin), such as:

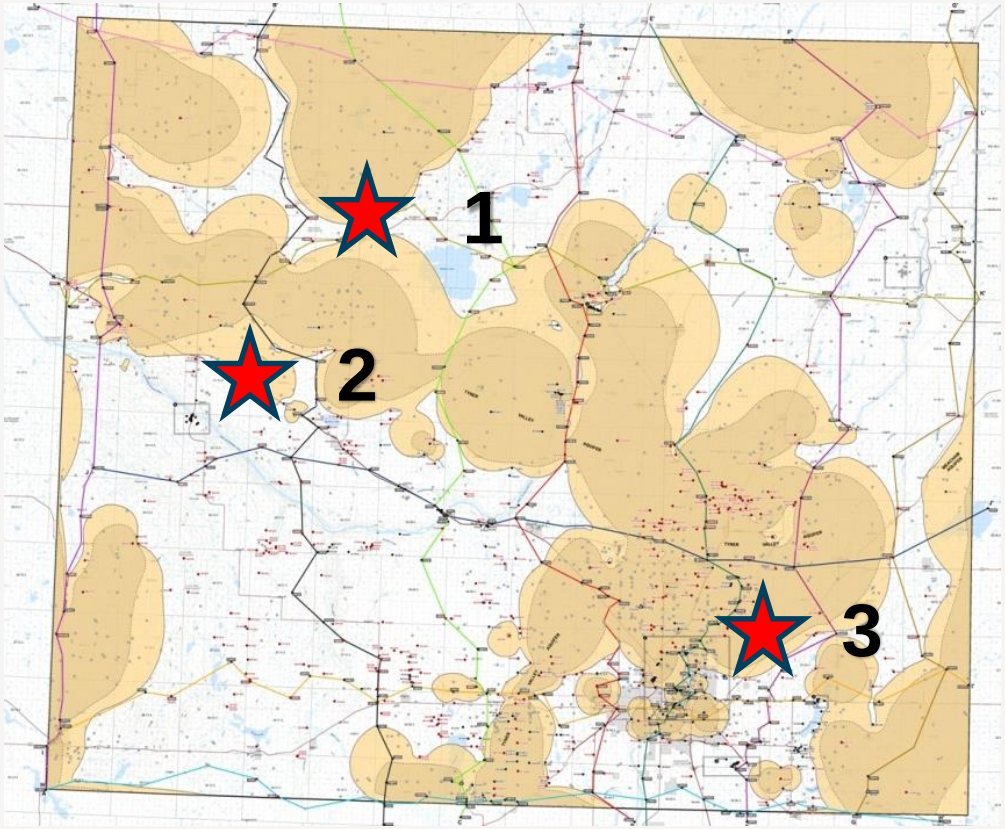
- 4% assigned to “protected areas or designated wildlife habitat”
- 1% assigned to “aesthetic value”
- 5% assigned to “fish-bearing streams”
- 1% assigned to “ephemeral water courses”

Based on ability and effort required to mitigate, short and long term environmental liabilities, associated costs, etc.

SNC·LAVALIN

Siting Study Example

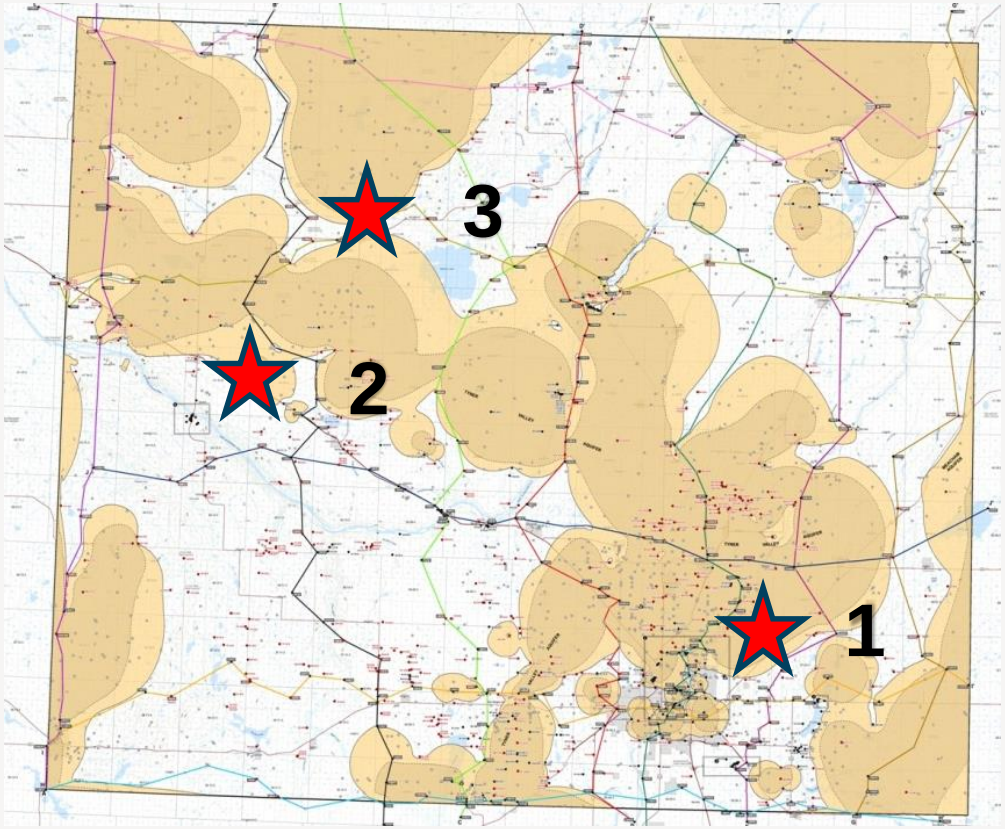
- Prominence:
  - Northern Location: not visible from any communities, highways, roads and parks.
  - Western Location: located within 5 km of individual housing and 20 km of hamlet
  - Eastern Location: located within 25 km of a city.



SNC·LAVALIN

Siting Study Example

- Prominence
- Other mineralization potential:
  - Northern Location: potential conflict over ore zone, mineral rights.
  - Western Location: similar geology but no evidence of claims or prospecting interest.
  - Eastern Location: no other prospecting activity.



SNC·LAVALIN

Siting Study Example

Environmental and Social Considerations								
Category	Factors to Consider	Description	Significance of Impact on Environment and Society (A)					Effort Req
			Minor (Best)	Slight	Moderate	High	Extreme (Worst)	Minor (Best)
			0	2	4	6	8	1
Visibility	Prominence	Topographic locations and area from which the site is visible	Not visible from any communities, highways, roads, parks, etc.	Visible from a relatively small area (<25,000 ha)	Visible from a relatively moderate area (>25,000 ha and <100,000 ha)	Visible from a relatively large area (>100,000 ha)	Visible from a large area (>200,000 ha), from all communities, highways, parks, roads, etc. in the area	
	Proximity to the Public	Location relative to permanent habitation or areas used by the public, roads, parks, trails, etc.	Not located within 50 km of any human habitation	Located within 50 km of individual houses only and/or near local public roads	Located within close proximity (<5 km) to individual housing, and within 20 km of a hamlet or village. Located near commonly used public roads	Located within close proximity (<5 km) to hamlets or villages and/or located within 10 km of a major highway	Located within 25 km of a city or within 5 km of a town and is adjacent to major highways, collector roads and local roads.	
Land Use	Protected areas or designated wildlife habitat	Lands with provincial or federal protection under various Acts	No federal or provincial designation	Provincial designation that requires special permission (i.e. Agricultural Crown Lands)	Provincial designation that limits activities (i.e. Wildlife Habitat Protection Lands)	Provincially protected areas designated by the Parks Act	Federally protected areas designated by the Canada National Parks Act	
	Other Mineralization Potential	Potential presence of other economic ore other than potash	No prospecting activity	Similar geology but no evidnce of claims or prospecting interest	Possible ore, similar geology, and/or some prospecting and claims	Known ore and/or high prospecting activity	Potential conflict over ore zone, minieral rights, etc.	1
	Aesthetic Value	Deemed to have aesthetic value by known concerned parties	No response from adjacent communities	A few concerned members of adjacent communities	Several concerned members of adjacent communities	Many concerned members of adajcent communities	Public outcry	
	Archaeological and Historical Value	Distance of the facility from known heritage resources or heritage sensitive areas present	No significant archaeological features and no potential to be discovered; no heritiage sensitve areas identified	No significant archaeological features but some potential to be discovered; minor area identified as heritage sensitive land	Significant archaeological features recorded in the surrounding area; large region of site identified as heritage sensitve land	Significant archaeological features found within 2km of the site; majority of site considered to be on heritage sensitve land	Large archaeological site with many significant features in the immediate vicinity of the site; majority of site considered to be on heritage sensitve land	
	Area of Disturbance	Size of the disturbance of the plant and TMA and ancillary structures	Presumed to be the same for all sites and therefore not ranked					
	Proximity of Human Habitat	Distance to nearest home, community, town, city	No existing human habitat within 10 km of proposed site	Only individual homesteads and no densly populated areas within 10 km of the site	Presence of concentrated housing (towns, or villages) within 10 km of the site	Presence of concentrated houseing (towns or villages) within 2-5 km of the site	Presence of concentrated houseing (towns or villages) within 0-2 km of the site	
	Economic Land Uses	Percentage of economic land use within a 4km radius	No economic land uses	<25% of land used for agricultural or other economic purposes	25-75% of land used for agricultural or other economic purposes	>75% of land used for agricultural or other economic purposes	Highly productive agricultural land or other highly economic land use	
	Recreation Land Uses	The presence of designated or undesignated recreational land use in the area	No designated areas of recreational land use and negligable undesignated recreational land use	No designated areas of recreational land use, but occasional informal recreational land use (e.g. atv traffic, snow mobile traffic, hunting, etc.)	No designated areas of recreational land use, but frequent informal recreational land use (e.g. atv traffic, snow mobile traffic, hunting, etc.)	No designated areas of recreational land use, but widely used for informal recreational activities (e.g. atv traffic, snow mobile traffic, hunting, etc.)	Formal recreational areas in the immediate area and extensive use for informal recreational activities (e.g. atv traffic, snow mobile traffic, hunting, etc.)	
	Surface Land Ownership *	Ownership of the land and/or prospect of acquisition of the land from private owners	Surface rights owned by CanPacific	Surface rights not owned by CanPacific but existing owners willing to sell land	Surface rights not owned by CanPacific but existing owners receptive to selling	Surface rights not owned by CanPacific but existing owners not receptive to selling	Surface rights not owned by CanPacific but existing owners refusing to sell	

Final Ranking Matrix for Three Potential Sites

Category	Category Score (AxBxC)			
	Site 1	Site 2	Site 3	Weighting
Environmental and Social Considerations	7	10	2	42%
Potential Contamination Considerations	6	12	3	31%
Geotechnical Considerations	5	9	5	10%
Operational and Cost Considerations	6	7	7	17%

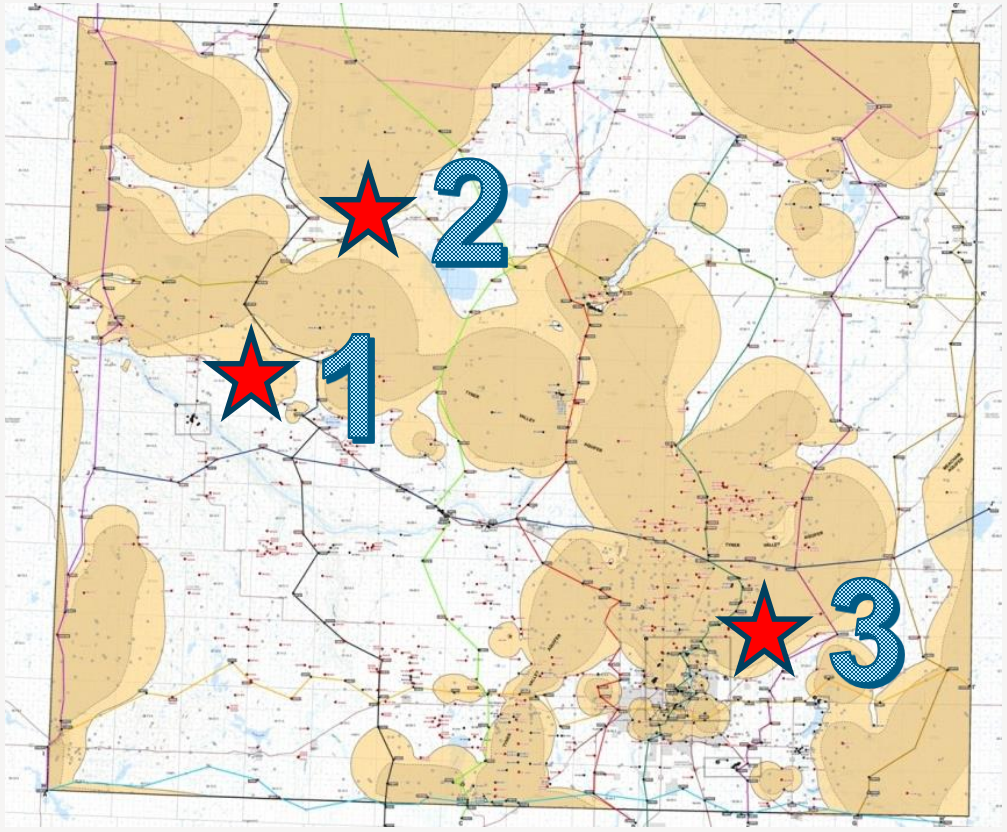
SNC·LAVALIN

Final Ranking Matrix for Three Potential Sites

Category	Category Score (AxBxC)			
	Site 1	Site 2	Site 3	Weighting
Environmental and Social Considerations	7	10	2	42%
Potential Contamination Considerations	6	12	3	31%
Geotechnical Considerations	5	9	5	10%
Operational and Cost Considerations	6	7	7	17%
Total	24	38	17	100%
Ranking	2	3	1	

SNC·LAVALIN

Final Ranking Matrix for Three Potential Sites



SNC·LAVALIN

Summary

Siting Study is a decision analysis tool used to optimize the Project locations, including placement of surface facilities for developing resources. The goal is to rule out unfavourable sites and identify ideal locations.

Outcomes include an order of preference, ranking and weighting.

Considerations include:

› Environmental and Social

› Potential Contamination

› Geotechnical

› Operational and Cost

SNC·LAVALIN

Our values are the essence of our company's identity. They represent how we act, speak and behave together, and how we engage with our clients and stakeholders.

SAFETY

We put safety at the heart of everything we do, to safeguard people, assets and the environment.

INTEGRITY

We do the right thing, no matter what, and are accountable for our actions.

COLLABORATION

We work together and embrace each other's unique contribution to deliver amazing results for all.

INNOVATION

We redefine engineering by thinking boldly, proudly and differently.

SNC·LAVALIN