



Canada Creosote Site Environmental Update Investigation

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Presentation Overview



1. Introduction
2. Project history
3. Remedial actions
4. Geology/hydrogeology
5. Conceptual site model
6. Preliminary waste delineation

Historic Uses



Air Photo of CCS 1930's

The Study Area has been used for a variety of industrial and commercial uses since the early 1900s, including:

- Wood treating operation;
- Petroleum bulk tank farms;
- Possible oil depot;
- Warehousing; and
- Car dealerships & maintenance facilities.

The Canada Creosote Company operated an 18 hectare wood preserving facility for approximately 40 years (1924 to mid-1960s)



Chemicals of Concern

Glendon Archives 1919-1924

ALBERTA'S NEW Wood Preserving Plant

NOW IN OPERATION



VIEW OF ALBERTA WOOD PRESERVING CO., LTD., MODERN PLANT

TIMBER PROPERLY CREOSOTED

LASTS FOR GENERATIONS. OUR NEW PLANT IS EQUIPPED TO TREAT ANY OF THE FOLLOWING, USING ANY PROCESS OR PRESERVATIVE DESIRED: TELEPHONE, TELEGRAPH AND ELECTRIC LIGHT POLES, CROSS ARMS, CONDUITS, PAVING BLOCKS, FENCE POSTS, BRIDGE TIMBERS, STRUCTURAL TIMBERS, PILING, SILOS, WATER TANKS, SIDEWALKS, SWITCH TIES, FACTORY FLOORS, SHINGLES, WHARF TIMBERS, MINE TIMBERS, ETC., ETC.

CREOSOTED TIMBER OUTLASTS CONCRETE OR STEEL

The cost of preserving is small—Write for quotations.
PRESERVE WOOD—SAVE MONEY AND THE FORESTS

Alberta Wood Preserving Co. Ltd.

1919 NINTH AVENUE WEST
CALGARY, CANADA

The plant used coal tar, creosote and creosote mixtures to treat raw lumber and poles.

- Pentachlorophenol (dissolved in a diesel-like carrier oil) was added in the 1950s.
- Zinc chloride was used for a brief period during WWII.

Based on these substances, chemicals driving risk in soil & groundwater are:

- PAHs
- Pentachlorophenol
- Dioxins and furans
- Other petroleum hydrocarbons.



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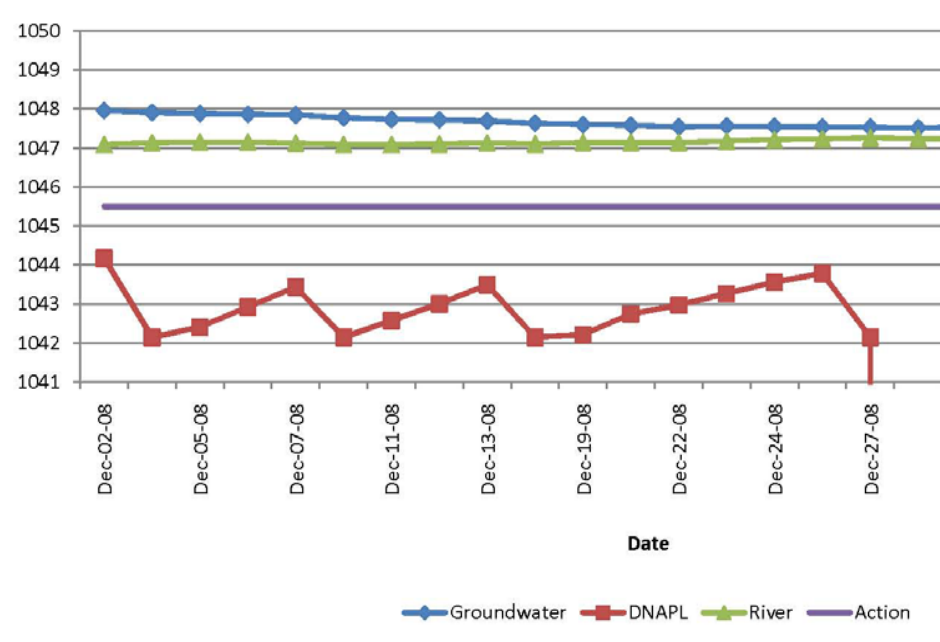
2. Project History and Site Development



- The current land use is a mix of low intensity uses such as automobile sales and service, bus depot and open spaces.
- The former CCS site is part of the Area Structure Plan for the West Village development

3. Remedial Actions and Containment

Dirty Well #4 - December 2008

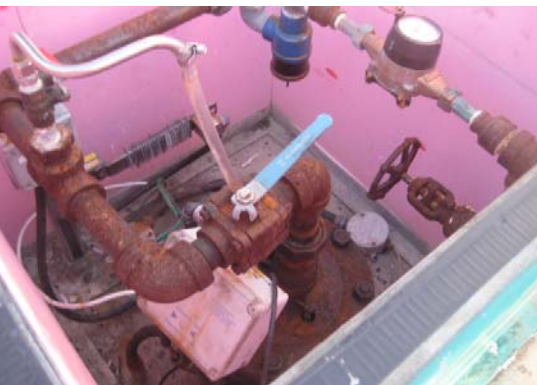


A series of remedial actions were undertaken at the Site between 1990 and 1995.

- Containment was selected as the management strategy.

A total of 640 m of low permeability barriers were installed through the alluvium into bedrock (slurry wall and secant pile wall).

- Four (4) contaminated groundwater extraction wells south of barriers and seven (7) up-gradient clean groundwater extraction wells were installed.



Site Assessment Update



The 2010 investigation documented the current nature and extent of upland soil, NAPL and groundwater contamination in the Study Area.

Chemical data was compared to AENV Tier 2 Residential/Parkland and AENV Tier 2 Industrial guidelines, both with an exclusion for FWAL and DUA.

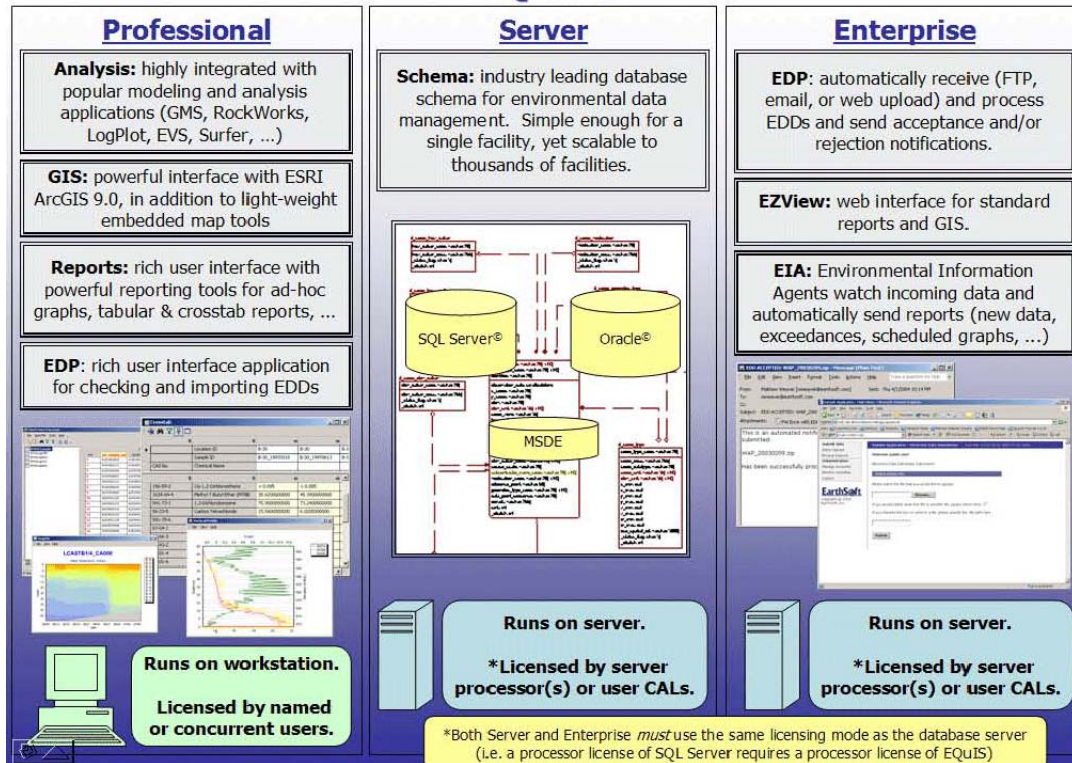


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Data Management QA/QC and EQuIS

EQuIS 5



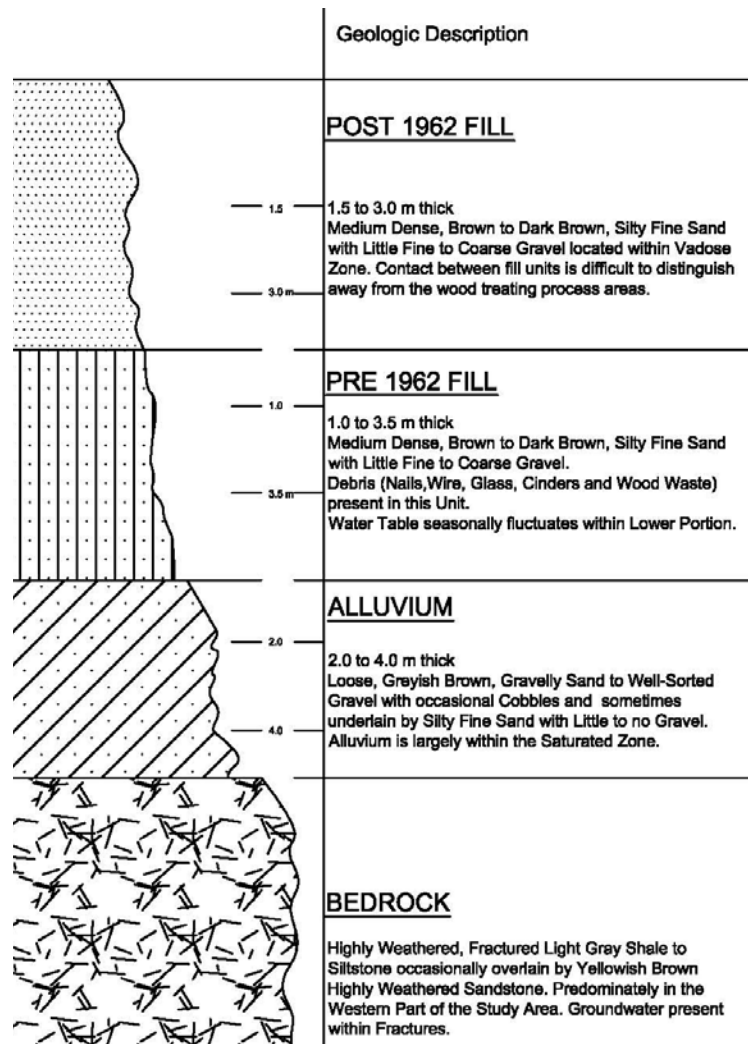
Previous geological and hydrogeological data was utilized to the extent possible. There was very little analytical data on soils due to the type of drilling equipment utilized in previous investigations (Becker Hammer)

Field and laboratory data from the 2010 sampling events were managed using the EQuIS® Chemistry database model from EarthSoft.

- Historical data used where applicable was also entered into the EQuIS® database.



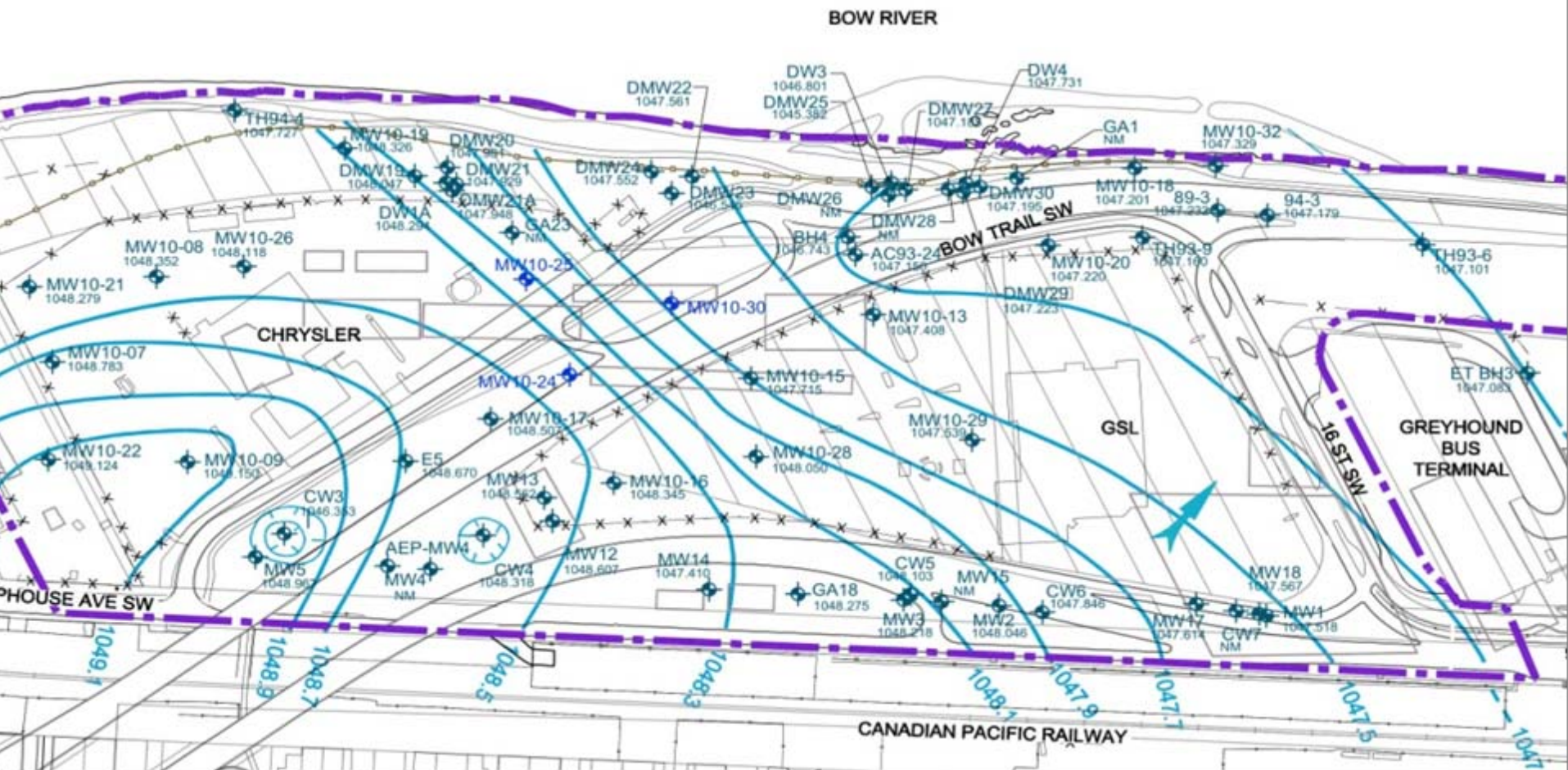
Geology



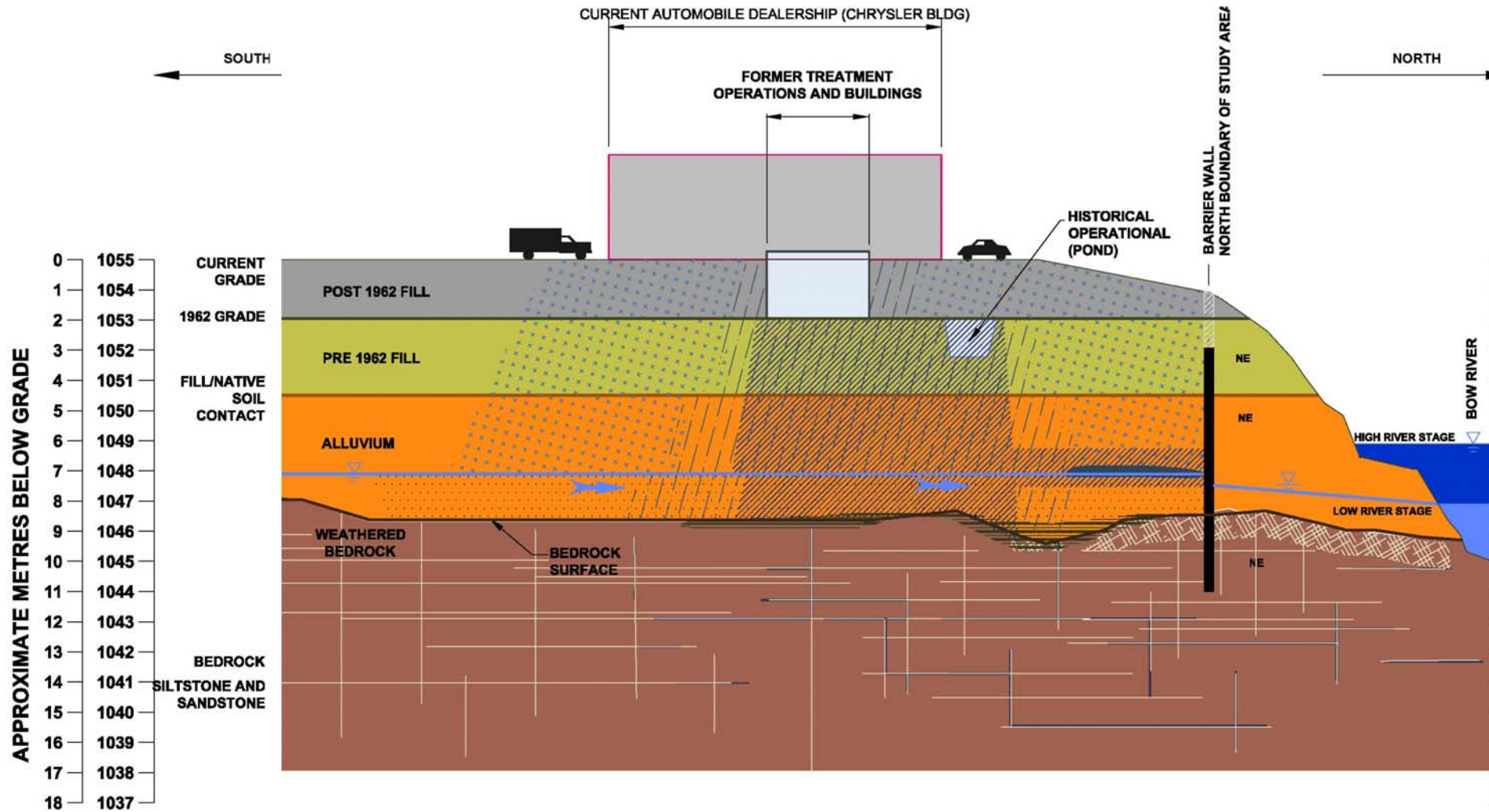
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Hydrogeology



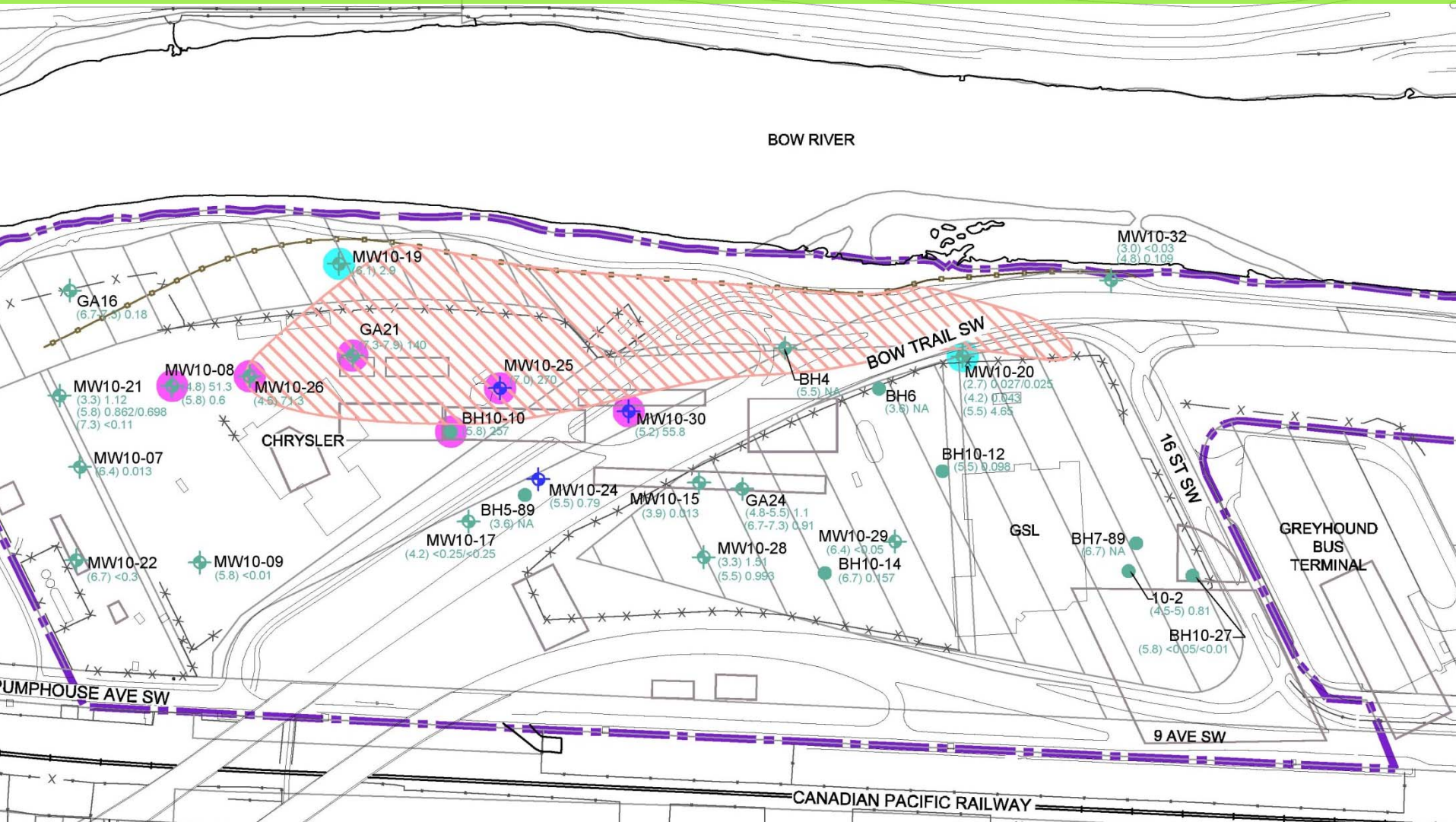
Conceptual Site Model



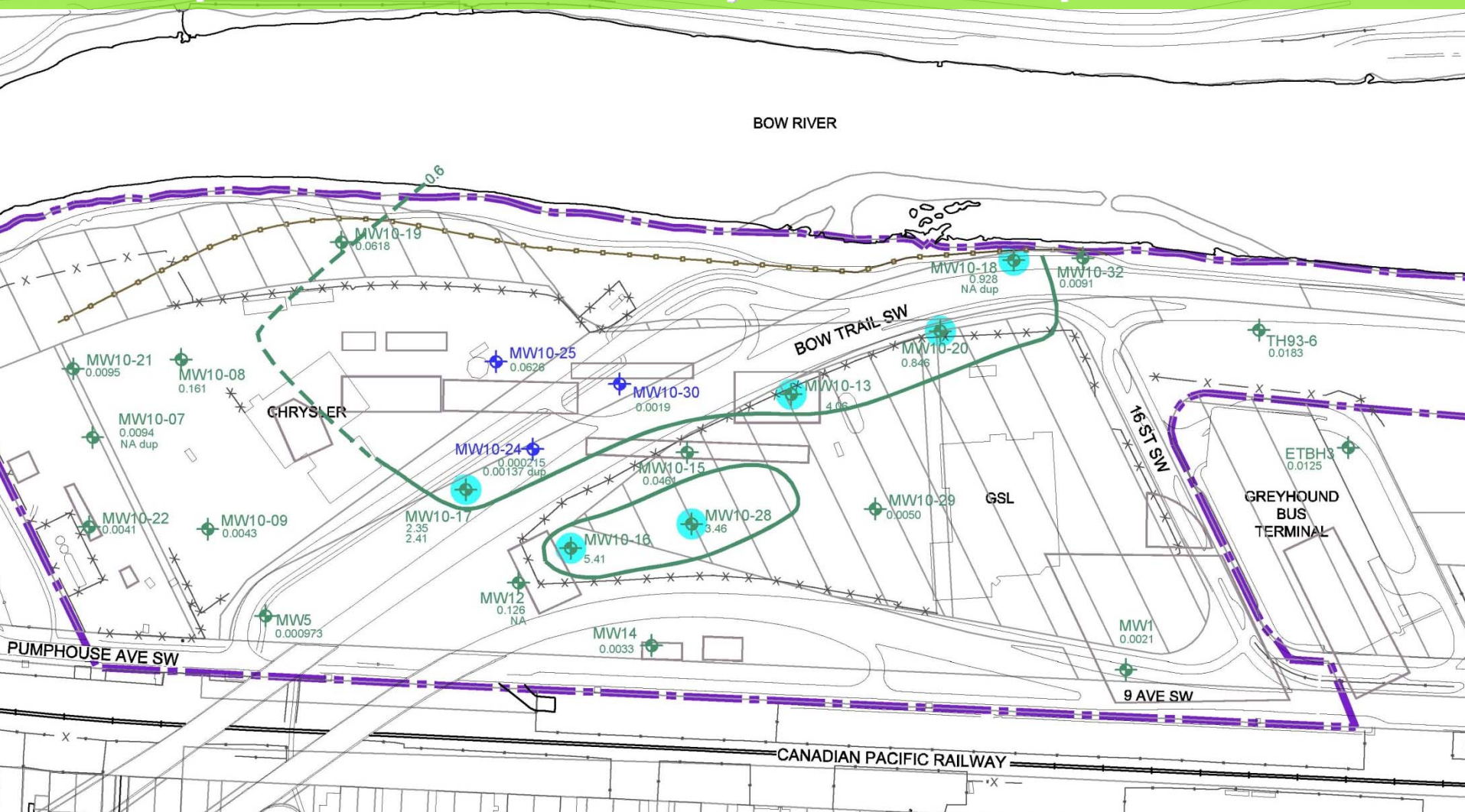
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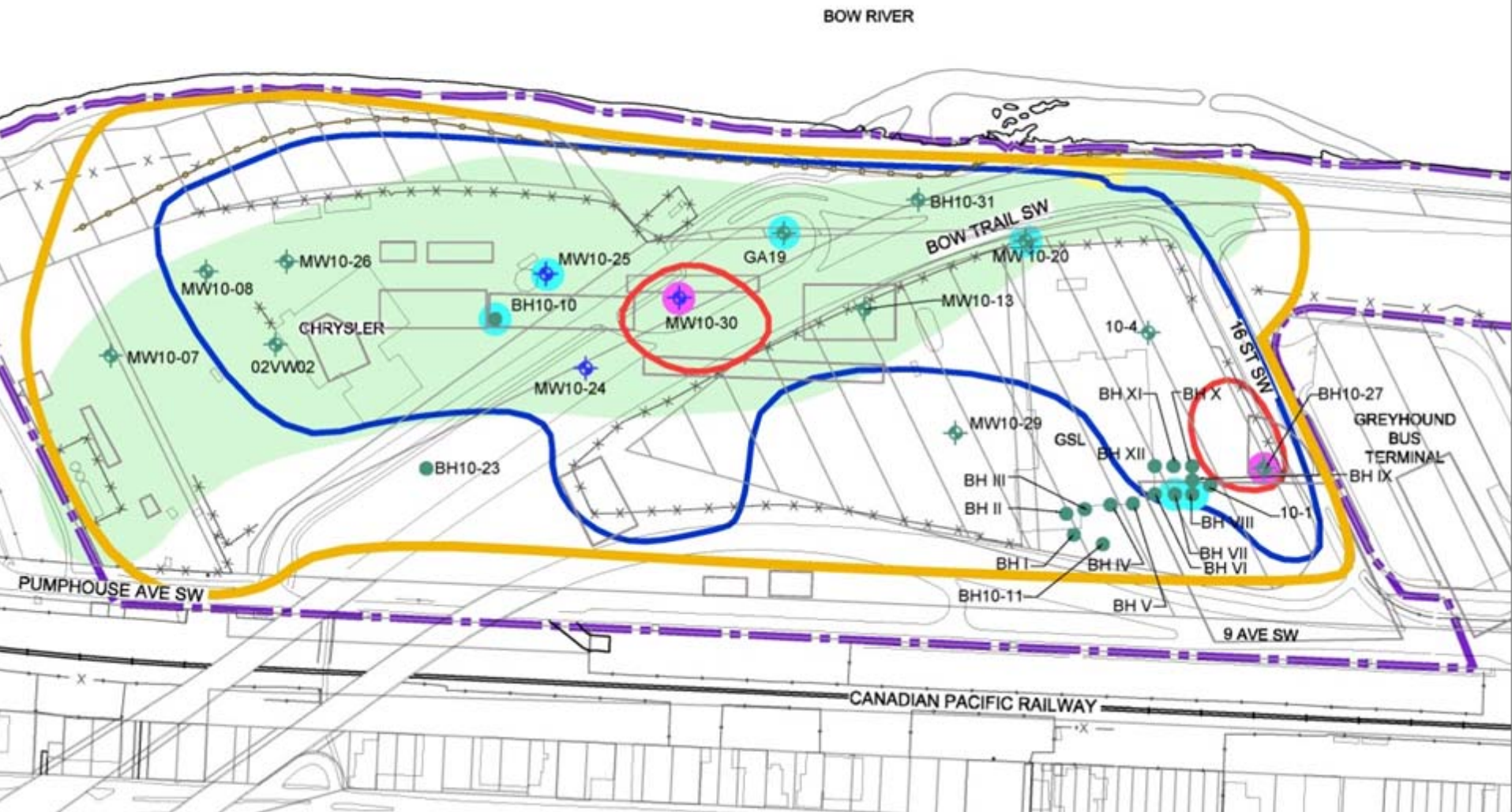
Example of Soil Analytical Data - Naphthalene



Example of Groundwater Analytical Data - Naphthalene



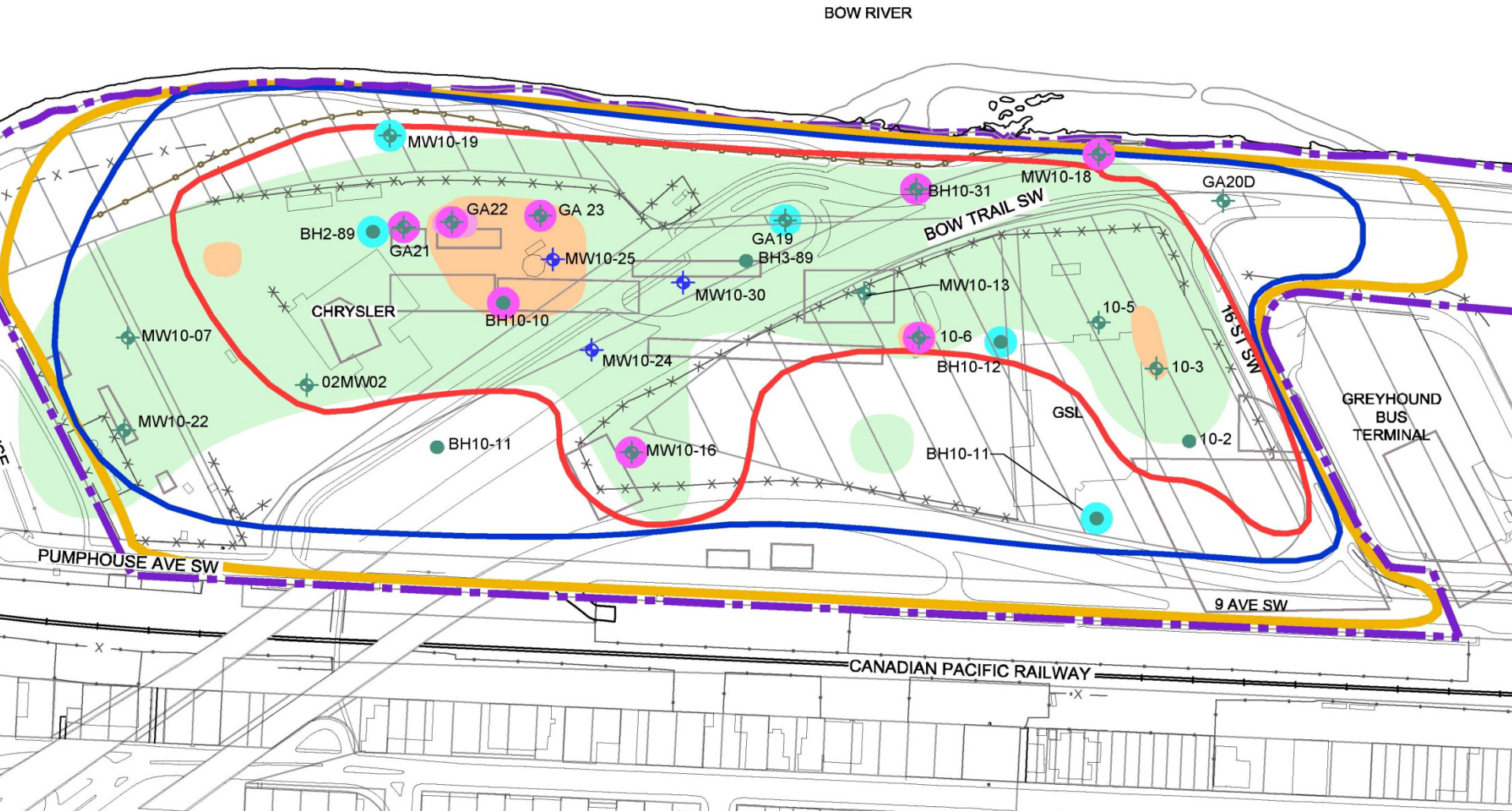
Preliminary Delineation of Waste Classification – Post 1962 Fill



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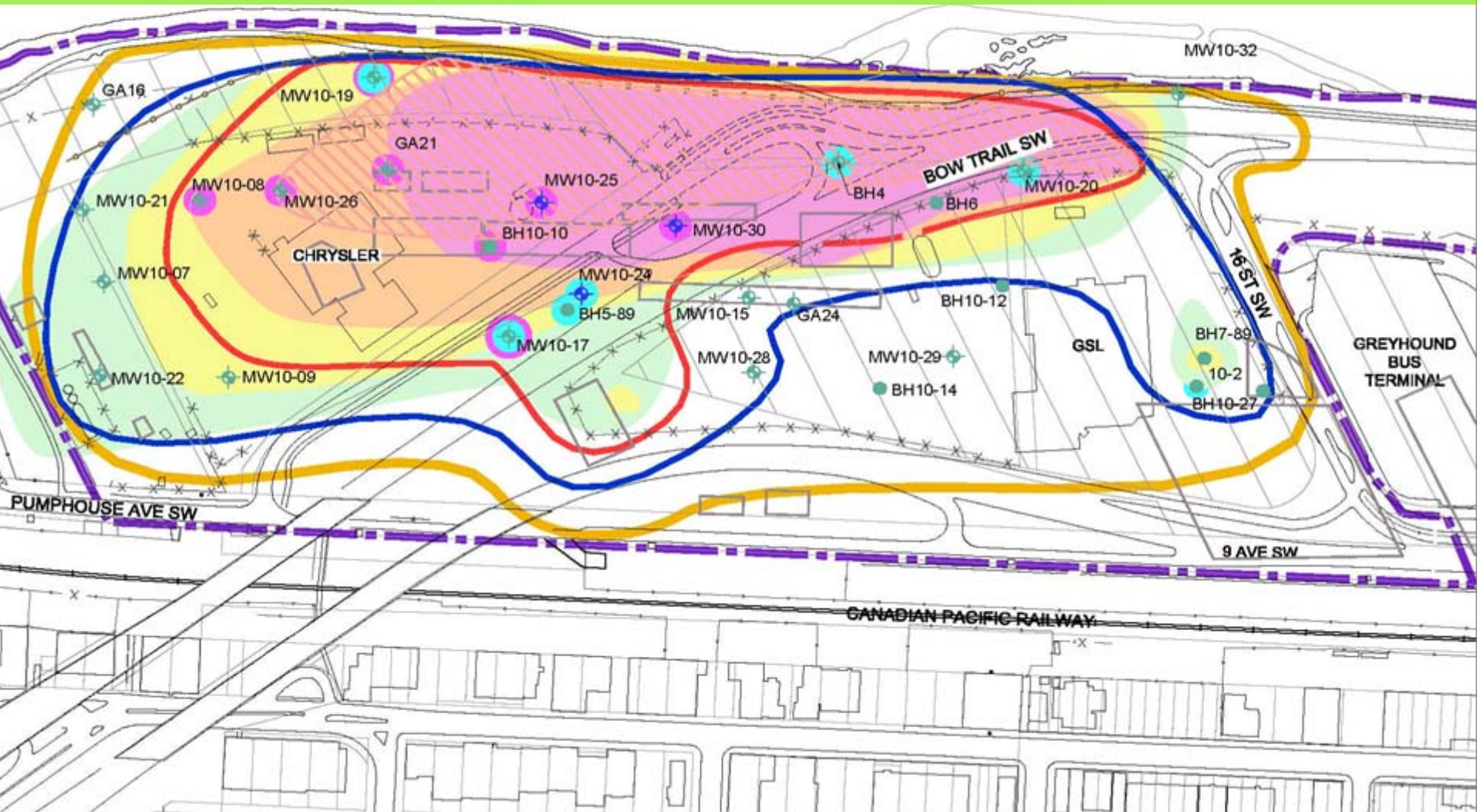
Preliminary Delineation of Waste Classification – Pre1962 Fill



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Preliminary Delineation of Waste Classification - Alluvium



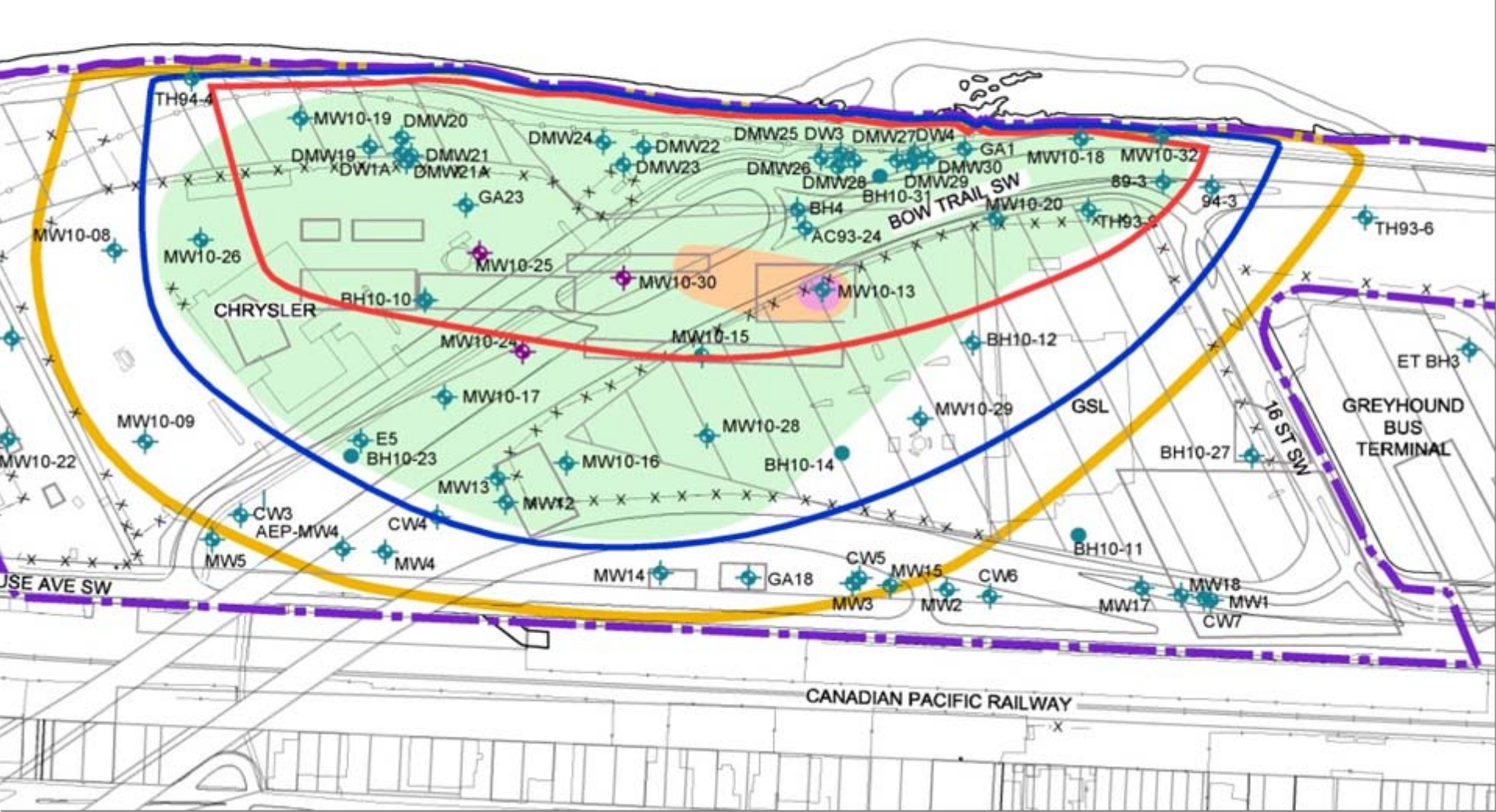
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Preliminary Delineation of Waste Classification - Bedrock

BOW RIVER



Summary



The potential waste classifications were delineated vertically and horizontally.

The NAPL distribution in the Study Area can be described as follows:

- The LNAPL footprint and associated volume is significantly smaller as a result of remedial actions to date.
- The overall volume of DNAPL has diminished associated with remedial actions; however, the footprint of the DNAPL zone has increased in areas.
- Bedrock observations indicate that DNAPL has penetrated the alluvium/bedrock contact in the vicinity of the free DNAPL pool.



Thank You | Questions??

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