

Reviewer Comments and Proponent Responses

Project: Liard South

Board: Mackenzie Valley Land and Water Board

Organization: Paramount Resources Ltd.

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response	Board Decision
MVLWB - Heather Scott					
1	Directives 9 and 13, , March 14, 2022 letter from the Mackenzie Valley Land and Water Board. Treatment and/or disposal of contaminated soils.	Table 2 of the Waste Management Plan Version 3 outlines options for the remediation of hydrocarbon-contaminated material from the project and Table 5 indicates that the Paramount Environmental Department should be contacted regarding the disposal of contaminated soils. As such, it is not clear which option the project is exactly proposing for approval under the plan, as Directive 13 of the Board's March 2022 letter requires specific treatment options for each waste type. It is also not clear if or how the landfill or landfarm will be constructed to treat or manage hydrocarbon-contaminated material. Paramount indicates that no landfill will be constructed on site, but Table 2 infers that some remediation may be proposed on site. Also, ECCC requested that the WMP should demonstrate that the bioremediation methods proposed in Table 2 have been proven in northern climates. Paramount responded that no landfill will be constructed on site and remediation techniques and outcomes	Can Paramount clarify that no contaminated soils will be bio-remediated on-site or in-situ?	All sites within this plan have been or will be remediated or meet the applicable guidelines. The only site that could potentially require remediation is F-36 in and around the riser location. No bioremediation is planned. The referenced table has been removed. If any additional contaminated soils are identified, they will be removed.	<p>Noted.</p> <p>The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required revisions.</p> <p>The Board requires all references to bioremediation be removed and clarify that all contaminated soils are to be removed from site for Board staff conformity.</p>

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		are discussed in the project Closure and Reclamation Plan. The Closure and Reclamation Plan (CRP) proposes the closure objectives, criteria and post-closure monitoring; however, specific designs for the facilities to bio-remediate soils are not included in the CRP. Table 5 articulates that the disposal of contaminated soils is in a landfill location, as per the Paramount Environment Department.			
2	Directives 9 and 13, , March 14, 2022 letter from the Mackenzie Valley Land and Water Board.	As above.	If soils are bioremediated on site, please provide the details of how bioremediation is proposed, including all techniques and methods employed.	All sites within this plan have been or will be remediated or meet the applicable guidelines. The only site that could potentially require remediation is F-36 in and around the riser location. No bioremediation is planned. The referenced table has been removed. If any additional contaminated soils are identified, they will be removed.	<p>Noted.</p> <p>The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required revisions.</p> <p>The Board requires all references to bioremediation be removed and clarify that all contaminated soils are to be removed from site for Board staff conformity.</p>
3	Directives 9 and 13, March 14, 2022 letter from the Mackenzie	As above.	Board staff note that general information about the staging of waste is included in Section 4 of the plan, but can Paramount clarify if any	No soil storage is contemplated going forward.	<p>Noted.</p> <p>The Board requires Paramount submit an updated Waste</p>

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	Valley Land and Water Board.		contaminated soils have been or will be staged or stored on-site awaiting transport to a treatment facility? If so, how are they designed and where are they located?		Management Plan with a conformity table which includes all required revisions. The Board requires all references to bioremediation be removed and clarify that all contaminated soils are to be removed from site for Board staff conformity.
4	Directives 9 and 13, March 14, 2022 letter from the Mackenzie Valley Land and Water Board.	As above.	Have any soil amendments been added to the soils to facilitate remediation on-site? If so, what?	See Closure and Reclamation Plan for details https://new.onlinereviewssystem.ca/review/1F192E5A-AF33-ED11-AE83-CC60C843D440	Noted.
5	Directive 15, March 14, 2022 letter from the Mackenzie Valley Land and Water Board.	Paramount was to elaborate on the specific turnkey approach for each waste stream. Paramount refers to Section 5 for Directive 15; however, no specific explanation of the approach used for each waste stream is provided. Only a high-level list is included in Table 5 and only general information is provided for staging and disposal of waste in included in Section 4. Section 4.4 notes that Paramount 'will identify where waste will be stored in a given activity season to Inspectors and the MVLWB as part of the commencement	Does Paramount then plan to update the Waste Management Plan with specific information of waste storage prior to commencement of waste management activities?	Waste will only be temporarily stored in years when activity occurs. Given the limited remaining work scope that will likely only occur at F-36 and potentially I-02	Noted. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required revisions. The Board requires Paramount to clarify what waste may be staged/stored on site and where for Board staff conformity.

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		of the land- use operation notification.'			
6	Directive 2, , March 14, 2022 letter from the Mackenzie Valley Land and Water Board.	Paramount was to provide written confirmation from all waste management facilities that have indicated their willingness to accept waste generated by the project. Paramount has provided a link to information on Secure Fort Nelson British Columbia but has not included written confirmation.	Can Paramount provide written confirmation that Secure will accept all waste from the project?	See attached	Noted.
GNWT-ENR - EAM (Environmental Assessment and Monitoring) - Erin Goose					
1	ENR Cover Letter	See Cover Letter	N/A		
2	References to Appendices	ENR notes that not all the references to appendices are incorrect (i.e., references to Appendix A rather than Appendix 1, residual references to Appendices 4 and 5).	ENR recommends that Paramount Resources Ltd. (Paramount) revise the Waste Management Plan (WMP) to ensure that all references to appendices are correct.	See revised plan	Adequate response. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required revisions. The Board requires Paramount ensure all references and appendices are correct for Board staff conformity.
3	Table 2 Footnotes	Table 2 of the WMP has the superscript 1 for the "Class" and "Description" columns. ENR notes that there is no corresponding footnote.	ENR recommends that Paramount either include a footnote corresponding to superscript 1 for Table 2 or remove the superscript if no footnote is needed.	See revised plan	Adequate response. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required revisions.

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					The Board requires Paramount to include edits to Table 2 and associated footnotes for Board staff conformity.
4	Figure 3	Figure 3 of the WMP is labelled “Segregation diagram for generated waste (see table 2 for details).” ENR notes that Figure 3 only includes a legend, there is no corresponding diagram. The shades in the legend seem to match what is used in Figure 2, but the descriptions for the shades would not make sense if applied to Figure 2. Additionally, the figure label refers to Table 2, while the text within the figure points to Table 3. Table 2 outlines treatment/disposal options and Table 3 covers waste segregation details. ENR notes that the label for Figure 3 should likely refer to details in Table 3.	ENR recommends that Paramount ensure the segregation diagram is provided as part of Figure 3 to accompany the legend. ENR recommends that Paramount ensure the correct Table is referenced both in the label for Figure 3 and in the text of the figure.	Figure 3 was removed as a number of the waste streams are no longer applicable to Liard South. Figure 2 provides relevant information to Liard South	Adequate response. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required edits. The Board requires Paramount to include edits to figure 2 and 3 and the appropriate table is referenced that is associated with the appropriate figure for Board staff conformity.
5	Incineration	In response to Item 12 of the Board Directive, Paramount indicated that “Incineration is no longer be [sic] considered as a waste management. References have been removed from the plan”. ENR notes that Figure 3 of the WMP still includes local incineration as an option.	ENR recommends that Paramount remove references to incineration from Figure 3 of the WMP.	Figure 3 has been removed	Adequate response. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required edits. The Board requires Paramount to remove figure 3 from their WMP for Board staff conformity.
6	Section 4.5 – Reference to	Section 4.5 of the WMP states that “Table 4 lists waste management	ENR recommends that Paramount update Section 4.5	See revised plan	Adequate response. The Board requires

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	Table 4	facilities currently closest to the Fort Liard, NWT Project area that may be used by Paramount.” ENR notes that Table 4 provides the Movement Document completion instructions, not a list of waste management facilities.	of the WMP to ensure that the reference to potential waste management facilities points to the correct section of the document.		<p>Paramount submit an updated Waste Management Plan with a conformity table which includes all required edits.</p> <p>The Board requires Paramount to include revisions to Section 4.5 of the WMP to ensure that the reference to potential waste management facilities points to the correct section of the document for Board staff conformity.</p>
7	Waste Disposal Locations	The Board Directive asks that Paramount “provide more detail on the final disposal locations for all waste types”, and that Paramount “Provide written confirmation from all waste management facilities that have indicated their willingness to accept waste generated by the project” (Items 3 and 14 respectively). Section 5 of the WMP indicates that waste will be “primarily treated or disposed off-site at Secure Fort Nelson British Columbia.” ENR notes that if treatment or off-site disposal at Secure Fort Nelson British Columbia is only the primary method for managing waste, it is not clear what wastes would not be managed in this manner, or whether any alternative waste disposal facilities may be used. Additionally, Paramount	<p>ENR recommends that Paramount clarify which wastes would not be managed according to the primary method outlined in Section 5 of the WMP and provide detail on how these wastes would be managed. This should include details about other off-site waste disposal facilities that may be used (if any).</p> <p>ENR recommends that Paramount provide written confirmation from all waste disposal facilities that will be used to confirm their willingness to accept waste from the Liard South Project.</p>	See attached.	<p>Noted.</p> <p>The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required edits.</p> <p>The Board requires Paramount to include revisions to section 5 providing detail on which wastes would not be managed according to the primary method and provide detail on how these wastes would be managed for Board staff conformity.</p>

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		indicates that the link for Secure Fort Nelson British Columbia in Section 5 provides written confirmation that the facility can accept waste from the project. ENR notes that the link only provides a general description of the types of waste that are accepted by the facility, it does not specifically confirm willingness to accept waste from the Liard South Project.			
8	Waste Contractor	Item 15 of the Board Directive requires additional detail on the turnkey management approach for each waste stream. ENR notes that Table 5 of the WMP indicates that turnkey management will be provided by a contractor. As per Board Directives, additional detail on the turnkey management approach for each waste stream should be provided by the contractor and added to the WMP once the contractor is selected.	ENR recommends that Paramount update the WMP with additional detail on the turnkey management approach as provided by the contractor once the contractor is selected.		The Board requires Paramount to update their WMP to include the turnkey management approach once the contractor is selected.
Environment and Climate Change Canada (ECCC) - Mrs. Stephinie Mallon					
1	ECCC Cover Letter	ECCC Cover Letter	N/A		
2	Topic: Open Burning References: Waste Management Plan, Fort Liard South, Northwest Territories,	Figure 3: Segregation Diagram for General Waste, in the Waste Management Plan (WMP) indicates that non-hazardous waste will be open burned locally with a permit. The Government of the Northwest Territories guidance document Municipal Solid Wastes Suitable for Open Burning states that open burning	ECCC recommends that open burning not be an option for waste management.	Paramount does not foresee the need for open burning	Adequate response. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required edits. The Board requires Paramount to remove any

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	October 2022, Version 3	is restricted to paper products, paperboard packaging and untreated wood wastes. It furthermore states that this is subject to several conditions, including the proper separation of materials to be burned, and that open burning is conducted in a controlled manner away from the community, and when winds are light. The ECCC guidance document Solid Waste Management for Northern and Remote Communities, Planning and Technical Guidance Document, March 2017, Environment and Climate Change Canada, available at http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=97182135-1 , discourages open burning.			reference to open burning for Board staff conformity.
3	Topic: Bioremediation Reference: Waste Management Plan, Fort Liard South, Northwest Territories, October 2022, Version 3	Table 2: Treatment / Disposal Options for the Fort Liard Project of the WMP presents various bioremediation options to manage contaminated soil, including bio-cell, bio-pile, biodegradation facility, and landfarming. ECCC notes that landfarming has been successfully implemented under Northern conditions. However, the other bioremediation methods (bio-cell, bio-pile, and biodegradation facility) are uncommon in the North.	ECCC reiterates its previous recommendation that the WMP should demonstrate that the bioremediation methods proposed in Table 2 of the plan have been proven to work in Northern climates. In particular, the plan should provide examples of successful implementation in a Northern climate for the following proposed methods: Bio-cell, Bio-pile, and Biodegradation Facility.	All sites within this plan have been or will be remediated or meet the applicable guidelines. The only site that could potentially require remediation is F-36 in and around the riser location. No bioremediation is planned. The referenced table has been removed. If any additional contaminated soils are identified, they will be removed.	Adequate response. The Board requires Paramount submit an updated Waste Management Plan with a conformity table which includes all required edits. The Board requires Paramount to remove any reference to bioremediation for Board staff conformity.
4	Topic: Monitoring Reference	The WMP does not contain monitoring information, but indicates that monitoring details are provided in the	ECCC recommends that the Closure and Reclamation Plan provide comprehensive	The Closure and Reclamation Plan is available at https://new.onlinereviewssystem.ca/review/1F192E5A-AF33-ED11-AE83-CC60C843D440	Noted. Monitoring is being reviewed as a component of the Closure and Reclamation

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	References: Waste Management Plan, Fort Liard South, Northwest Territories, October 2022, Version 3	Closure and Reclamation Plan, which is not part of the current review. Consequently, monitoring aspects have not been assessed.	monitoring details, including how the progress and success of remediation activities will be monitored and verified.		Plan.



November 1, 2022

Andy Wheeler
Regulatory Specialist
Mackenzie Valley Land and Water Board
P.O. Box 2130
4922 - 48th STREET 7th FLOOR
YELLOWKNIFE, NT X1A 2P6

Dear Andy Wheeler,

Environment and Natural Resources' recommendations on Paramount Resources Ltd's Liard South Waste Management Plan V3 (MV2021A0006 and MV2021L1-0006)

The Department of Environment and Natural Resources, Government of the Northwest Territories has reviewed the application at reference based on its mandated responsibilities and has included comments and recommendations on the Online Review System for the consideration of the Board.

Please contact Celena Hoeve, Waters Management and Monitoring Division, at celena.hoeve@gov.nt.ca if you have any technical questions.

Should you have any general questions or concerns, please do not hesitate to contact gnwt_ea@gov.nt.ca.

Sincerely,

Jeffrey Cederwall
Environmental Assessment Analyst
Department of Environment and Natural Resources

Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5410 000 003/047
MVLWB File: MV2021L1-0006



November 1, 2022

via online review system

Andy Wheeler
Regulatory Specialist
Mackenzie Valley Land and Water Board
7th Floor, 4922 48th Street
P.O. Box 2130
Yellowknife, NT X1A 2P6

Dear Andy Wheeler

RE: MV2021L1-0006 – Paramount Resources Ltd. – Liard South Project – Waste Management Plan – Version 3

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Mackenzie Valley Land and Water Board (MVLWB) regarding the above mentioned Waste Management Plan Version 3 review.

ECCC is providing technical, science-based information and knowledge based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*. These comments are intended to inform the assessment of this project's potential effects in the receiving environment and on valued ecosystem components. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

If you need more information, please contact Stephinie Mallon at Stephinie.Mallon@ec.gc.ca.

Sincerely,

[original signed by]

Stephinie Mallon
Environmental Assessment Officer

Attachment(s): ECCC Comments Excel Sheet

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)



November 4th, 2022

Paramount Resources Ltd.
421 7th Ave SW, Suite 2800
Calgary, AB, T2P 4K9

Attention: Ian Keir

Re: SECURE Energy – Silverberry and Northern Rockies Landfills – Waste Acceptability

SECURE Energy Services Incorporated (SECURE) is writing this letter to confirm that the below landfills can accept select hazardous and non-hazardous waste from in province and out of province sources.

- 1) Silverberry Landfill
Location – A-08-088-20 W6M
Authorizations:
 - Permit 17150 (Attachment 1)
 - Registered Site (RS) 109968 (Attachment 2)

- 2) Northern Rockies Landfill
Location – A-77-G/94-J-10
Authorizations:
 - Permit 16078 (Attachment 3)
 - Registered Site (RS) 109394 (Attachment 4)

Prohibited waste for Silverberry is outlined in Section 3.3 of RS 109968 and for Northern Rockies in Section 6 of Permit 17150.

If you have any questions regarding this submission, please do not hesitate to contact the undersigned at (403) 234-4875 or pnelson@secure-energy.com

Sincerely,

SECURE ENERGY

Peter Nelson | Environment and Regulatory Specialist

pnelson@secure-energy.com

**Waste Management Plan
Fort Liard South
Northwest Territories
November 2022
Version 4**



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Glossary

Dangerous Goods

Any product, substance or organism included by its nature or by the *Transportation of Dangerous Goods Regulations* (TDGR) in any of the classes listed in the schedule provided in the *Transportation of Dangerous Goods Act* (TDGA) [Transportation of Dangerous Goods Act (Canada)]

- Class 1: Explosives, including explosives within the meaning of the *Explosives Act* (Canada).
- Class 2: Gases; compressed, deeply refrigerated, liquefied or dissolved under pressure.
- Class 3: Flammable and combustible liquids.
- Class 4: Flammable solids; substances liable to spontaneous combustion and substances that on contact with water emit flammable gases.
- Class 5: Oxidizing substances; organic peroxides.
- Class 6: Poisonous (toxic) and infectious substances.
- Class 7: Radioactive materials and prescribed substances within the meaning of the *Atomic Energy Control Act* (Canada).
- Class 8: Corrosives.
- Class 9: Miscellaneous products, substances or organisms that are considered by the Lieutenant Governor in Council to be dangerous to life, health, property or the environment when transported and are prescribed to be included in this class.

Hazardous Waste

A contaminant which is a dangerous good that is no longer used for its original purpose and is intended for storage, recycling, treatment or disposal. Materials that do not meet the criteria in schedules I, III or IV, or the standards for dioxins and furans, of the Guideline for Industrial Waste Discharges in the NWT.

A hazardous waste does not include a contaminant that is:

- (a) household in origin,
- (b) included in class 1, Explosives or class 7, Radioactive materials of TDGR,
- (c) exempted as a small quantity,
- (d) an empty container, or
- (e) intended for disposal in a sewage system or by land filling that meet the applicable standards set out in schedules I, III or IV of the Guideline for Industrial Waste Discharges in the NWT.

Household Hazardous Waste

Common everyday products that people use in and around their homes including paint, paint thinner, herbicides, and pesticides that, due to their chemical nature, can be hazardous if not properly disposed.

**Non-
hazardous
Waste**

Wastes that do not fall into the “Hazardous Waste” category.

Run off

In this document, excessive rain or snowmelt can produce overland flow to retention ponds.

**Testing
Required**

Occasionally, laboratory analysis may be required to fully characterize and classify a waste product.

1. Introduction

Paramount Resources Ltd. (Paramount) is the operator of the Liard South Project, which encompasses winter access roads; well sites, decommissioned pipeline, camp and decking sites; and various borrow pits, sumps and other clearings. Three wells (F-36, O-35 and N-01) were tied-in to the pipeline system, the main stem of which runs 26km from well site F-36 to a compressor station in British Columbia (Maxhamish d-36-I) and is known as the Shiha Pipeline (see Appendix 1) for Fort Liard South As-built June 2017 map). This trans-border pipeline is operated by Shiha Energy Transmission Ltd., a partnership between the Acho Dene Koe Band and Paramount.

Poor economic conditions (*i.e.* low gas production rates and market value) prompted Paramount to suspend production late in 2007 and then to formally deactivate the project in April 2008 (according to National Energy Board (NEB) miscellaneous order MO-09-2008, which allows the deactivation of the pipeline until such time as the NEB approves its abandonment). In the 2016-2017 Paramount abandoned and decommissioned numerous sites. In the winter of 2022 Paramount abandoned the last well at I-02 and completed the cut and cap of F-36. The only remaining abandonment or decommissioning activities is the removal of the riser at F-36. Significant reclamation work was also undertaken in the winter of 2022 leaving limited remaining activities at the project area. All activities contemplated will continue to be on crown land.

Remaining activities will include monitoring, revegetation and additional reclamation activities as required, details are available in the project Closure and Reclamation Plan. Waste generation, salvage opportunities and movement are expected to be limited. Projected waste generation for the remaining life of the project is 2 to 20 trucks worth, depending on final reclamation at I-02. At a minimum 2 truckloads will be needed to remove the riser at F-36.

2. Environmental Overview

2.1 Terrain, Soil and Permafrost

The Project areas occur within the Liard Plains MB Ecoregion; immediately to the south and east lies the Liard Upland MB Ecoregion and, further to the west, the Central Mackenzie Plain Boreal Northern Cordilleran (Ecosystem Classification Group 2007). In the Project areas local terrain, soils and vegetation are directly representative of the Liard Plains MB Ecoregion, and to varying degrees the adjacent Liard Upland. In general, the Liard Plain MB Ecoregion exhibits one of the warmest climatic conditions in the NT. Productive deciduous, mixed-wood and conifer forests occur on the broad low-lying alluvial terraces of the Liard River (Ecosystem Classification Group 2007). Meander scrolls have developed on the Liard River floodplain, indicating an environment of active deposition and change. East of the Liard River plain are the gently undulating lacustrine deposits and lacustrine veneers of the Trout Uplands.

Soils of the Liard Plain, mainly poorly drained Regosols, are relatively young, due to ongoing deposition by the Liard River. Gleysols and Luvisols occur with lacustrine and till materials, while Organic soils occur under wetlands (Ecosystem Classification Group 2007). Permafrost is uncommon and is defined as being discontinuous sporadic.

Terrain, soils and permafrost in the Project areas have experienced relatively low levels of impacts prior to clearing and development undertaken for previously approved Project components; these include well leases, pipeline right-of-ways, access roads, sumps, camps and other facilities. Typical sources of potential impacts included contamination resulting from spills and/or poorly managed waste; altered, local terrain features (surface topography, site elevation, drainage patterns) resulting from soil movement; soil erosion resulting from the removal of vegetative ground cover; and disruption of permafrost resulting in slumping and erosion.

2.2 Vegetation

Vegetation characteristic of the Liard Plain MB Ecoregion reflects the relatively warm climate and moist, rich site conditions (Ecosystem Classification Group 2007). Willow shrublands occur on recently flooded areas along the Liard River. Drier upland sites on alluvial terraces contain mixed deciduous and mixed wood forest of trembling aspen, balsam poplar and white spruce. Forest understories are often lush, and include species such as low-bush cranberry, prickly rose, red osier dogwood, dwarf red raspberry, meadow-horsetail and other herbs. On low-lying areas, rich willow-sedge fens occur.

2.3 Water and Aquatic Species

In the Liard Plain Ecoregion, water covers approximately 5% of the total land base, with the Liard River being the dominant aquatic feature (Ecosystem Classification Group 2007). Numerous ponds, channel marshes, and fens occur along the Liard River plain. The Muskeg River and Rabbit Creek, along with numerous other small permanent and intermittent streams, drain into the Liard Plain MB Ecoregion from the adjacent Liard Upland and Trout Upland ecoregions. Small shallow lakes occur in undulating areas, mainly in the south half of the Ecoregion.

Both ground and surface water have the potential to be impacted through changes in water quality and water volumes. Primary sources of impacts may include spills and/or releases, soil erosion, and water withdrawal from specified lake sources. Water withdrawals, and the effects and management of withdrawals, will continue to be addressed and managed as part of the new Type-B Water Licenses. To mitigate the ongoing risk of impacts from erosion, spills, and releases, Paramount will continue to employ specific industry best management practices and applicable mitigation measures along with the associated Project Spill Contingency Plan.

2.4 Wildlife

Wildlife species that occur in the region encompassing the Project area are those adapted generally and/or more specifically with the topography, hydrologic systems and vegetation communities occurring in the Liard Plain and Liard Upland ecoregions. Characteristic mammal species include moose, black bear, beaver, fox, wolf, lynx, marten, mink, snowshoe hare, wolverine, weasel and red squirrel. To a lesser degree species such as woodland caribou occur throughout the region. Common bird species include bald

eagles, hawks, falcons, chickadees, northern shrike, redpolls, ravens, Canada jays, woodpeckers, sandhill cranes, grouse and owls. Common fish species include northern pike, grayling, walleye, burbot, suckers, whitefish, and a number of species of forage fish (i.e. minnows).

Overall, wildlife species' habitats and populations have been exposed to relatively low levels of impacts from approved developments that comprise the existing Projects. Sources of impacts have included the clearing and construction for well leases, the battery site, access roads, sumps, camps and other facilities.

3. Regulatory Framework

Managing oil and gas wastes in the NWT is challenging, due in part to the complex regulatory regime. Minimal waste facilities add to the complexity: if waste must be moved outside of the NWT for disposal, the regulatory regime becomes even more complex (see CAPP, 2009). In the past for the Liard South project area Paramount received oil and gas approvals from the National Energy Board (NEB). Since devolution and the creation of the Oil and Gas Regulator for Oil and Gas Operations ("OROGO") in the NWT, Paramount receives oil and gas approvals from OROGO. Paramount still holds an NEB approval related to the Shiha Pipeline. The Mackenzie Valley Land and Water Board (MVLWB) regulates the use of land and water and the deposit of waste through the issuance of Land Use Permits (LUPs) and Water Licences (WLs).

3.1 Assessment Processes

The Liard South project area has been the subject of an Environmental Assessment processes and preliminary screening prior to licencing and permitting of activity. In 1998 an Environmental Impact Assessment (EIA) focusing on two exploratory wells (F-36 and I-03); using existing cut lines for access and locating work camps/staging area was conducted. Also, in 1998 an Environmental Impact Assessment (EIA) focusing on four exploratory wells (A-01, K-46, C-02 and P-57); it included winter access roads, all on existing cut lines; siting four temporary work camps and using borrow pits. In 1999 an Environmental Impact Assessment (EIA) focusing on ten exploratory wells (O-35, G-35, E-37, M-25, I-46, G-47, I-23, L-24, C-58, C-02 and I-02); the barge landing, nine camp sites; 34.6km access plus 3.3km winter road; a water well; surface water withdrawal and borrow pits. A Heritage Resources Impact Assessment was conducted by Paramount for Fort Liard Drilling Project and NWT Portion of the Shiha Pipeline Project NWT Archaeologist's Permit 99-890 in 2000. It is important to note that several of the components that were assessed were never permitted, licenced or built.

3.2 Regulatory Approvals

Table 1 below lists Paramount's current LUPs and WLs for the Liard South Project Area. Given the current state of the projects (built and in some instances decommissioned and/or suspended) the scope of the LUPs and WLs are very limited. Activities contemplated include maintenance, access, suspensions and abandonments, reclamation and remediation. It is important to note that OROGO is the regulator for the down-hole activities of suspension and abandonment: however, surface use, waste disposal and water use for these activities is within the jurisdiction of the MVLWB.

Table 1: Current LUPs and WLs

Liard South	Registry Link
MV2021A0006	https://mvlwb.com/registry/MV2021A0006
MV2021L1-0006	https://mvlwb.com/registry/MV2021L1-0006

4. Waste Management Strategy

Poor waste management practices can result in direct or indirect adverse environmental effects and can pose health and safety risks to employees and members of the general public. Furthermore, poor waste management practices can ultimately result in substantial financial and legal liabilities. To prevent poor waste management practices and minimize potential adverse effects to environment, health and safety, Paramount Resources Ltd. (Paramount) has developed this Waste Management Plan (WMP), which falls under Paramount's Health, Safety and Environment Policy (Appendix 2).

The basis of Paramount's waste management system is the waste management hierarchy (Figure 1). The overriding principle of the waste management hierarchy is the reduction, if not the elimination, of both the volume and toxicity of waste. In the waste management hierarchy, disposal is the least preferred waste management option. Disposal also involves the greatest potential liability.

Project personnel and contractors are expected to adhere to the Waste Management Plan along with Permit and Licence conditions related to waste management and disposal. Paramount further reduces operational risk by using a management framework called the Paramount Operational Excellence Management System (POEMS). Issues of non-compliance discovered by Paramount or by regulators will be addressed quickly and appropriately. Paramount onsite field supervisors and HSE advisor are responsible to ensure compliance by contractors. Paramount onsite field supervisors and HSE advisor report to the appropriate office staff (identified in Appendix 3).

4.1 Waste Minimization

Waste minimization includes source reduction (reducing the amount and/or toxicity of waste generated). In some cases, reduction at the source will not yet be technically possible or economically feasible. Therefore, opportunities for reuse (reusing materials without changing the physical properties), recycling (reusing materials by changing the physical properties) and recovery (extracting a useful component) will be investigated for all wastes that are unavoidably generated.

The concept of waste minimization is a cornerstone to the Environmental Protection Plan: waste that is not generated need not be managed. Waste that is generated but is of the lowest possible volume and/or toxicity, can be managed most cost-effectively. Potential benefits to a waste minimization program are:

- increased revenue;
- reduced costs of operating, materials, waste management and disposal,
- energy, and facility cleanup;
- improved operating efficiency;

- reduced regulatory compliance concerns;
- reduced potential for both civil and criminal liability; and
- enhanced public perception of the company and the industry as a whole.

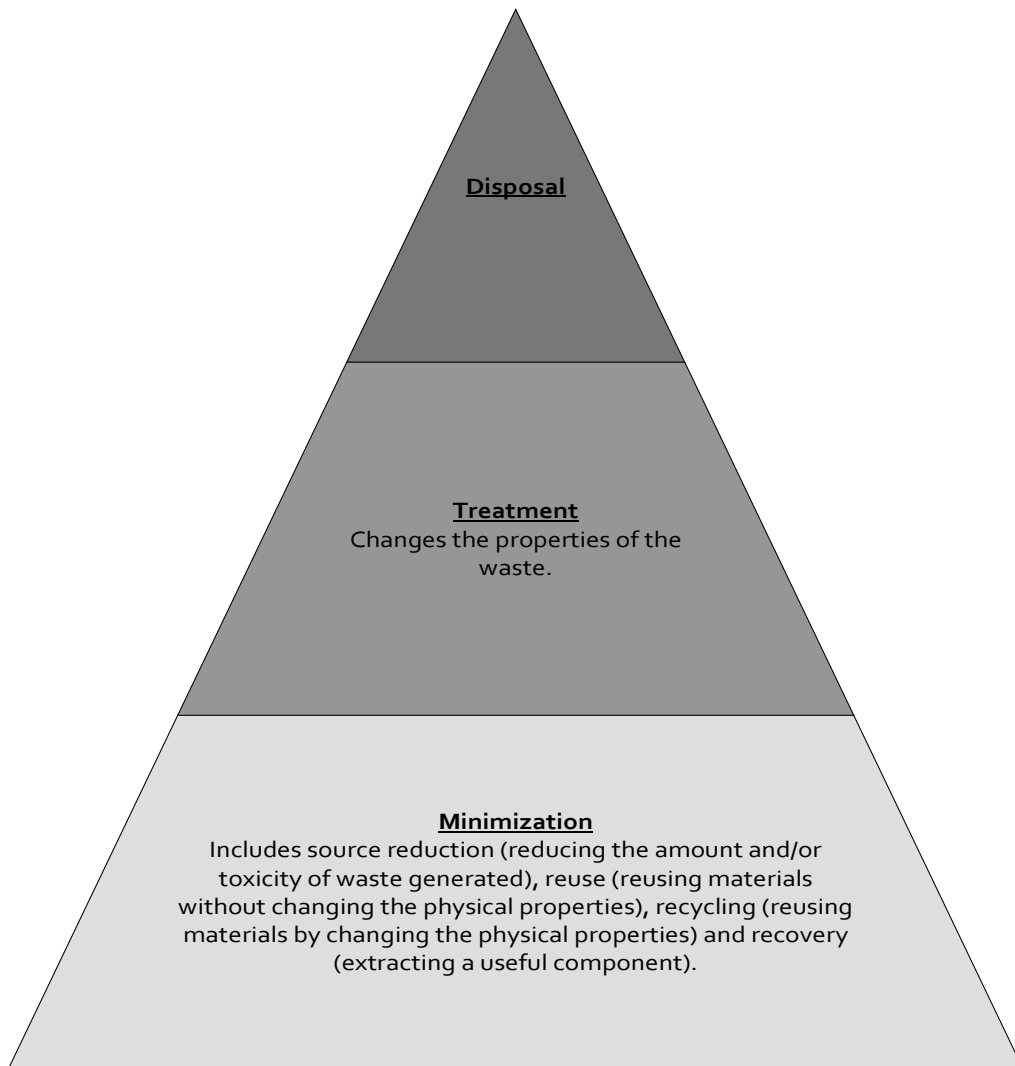


Figure 1: The waste management hierarchy presents options to minimize the amounts and hazard of waste.

4.2 Waste Treatment and Disposal

Waste treatment is any method, technique, or process that changes the physical, chemical, or biological character of a waste. Treatment renders the waste less hazardous and, therefore, recyclable or safer to

transport, store, and dispose of. Treatment should be investigated for any waste that is unavoidably generated and that cannot be reused, recycled or recovered. Waste disposal generally is the discharge, deposition, injection, dumping or placing of any waste into or on land, water or air. Waste removed from the project area will be sent to an approved facility in British Columbia (near Fort Nelson) located at A-77-G/94-J-10, approval numbers PR 16078, PS 15866 and PE 17942.

4.3 Waste Characterization and Classification

Waste characterization is the assessment of the physical, chemical and toxicological characteristics (e.g., properties) of the waste. Refer to and Directive 58: Oilfield Waste Management Requirements for the Upstream Petroleum Industry (AER, 1996); Waste Profile Sheets (CAPP, 2006) and Oilfield Waste Management in the Northwest Territories (CAPP, 2009) to assist with the characterization of common waste. Once a waste has been characterized, it can be classified into one of two classes: hazardous waste and non-hazardous waste (Figure 2).

Given that the project areas are in states of reclamation or abandonment waste generation is limited. Waste will be created during further short-term activities such as suspension, abandonment and reclamation. The majority of wastes created will be from reclamation. Waste could be stored for a short amount of time at F-36 and I-02, then transported to an approved facility outside of the Northwest Territories.

Figure 2: Waste identification, classification and segregation flowchart

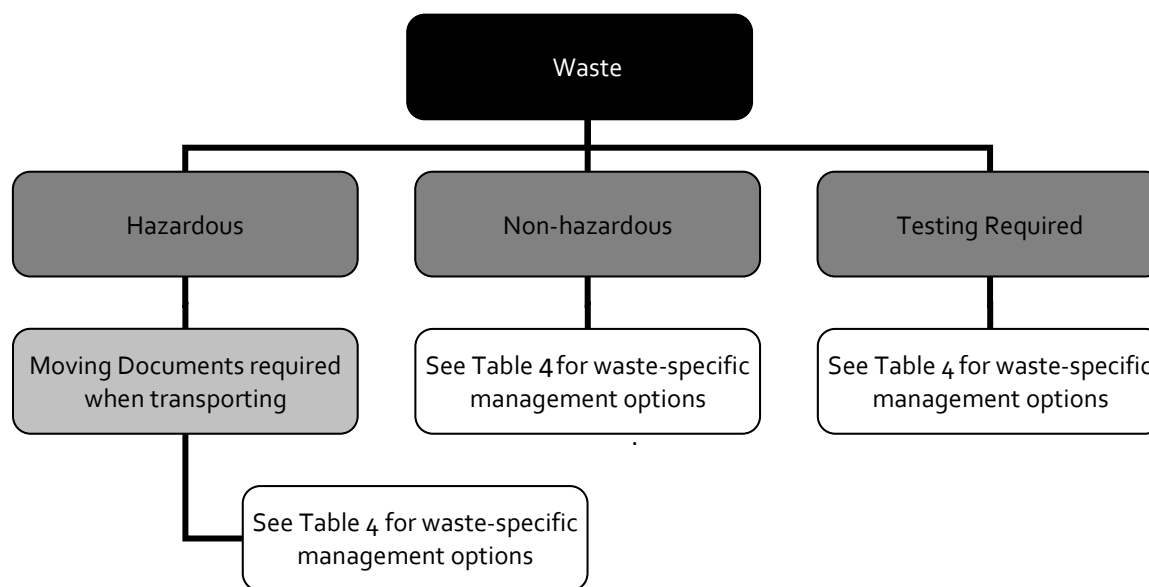


Table 2: Waste Segregation Details

Container Label		Container Type	Details
General & Industrial Non-hazardous Waste	Various	Wildlife proof waste Receptacle	General & Industrial Non-hazardous Waste
	Untreated Wood	Temporary stockpiles	Excess slash, construction material, etc.
General Recyclables	Beverage Containers	Wildlife proof waste Receptacles	General Recyclables
	Various	Wildlife proof waste Receptacles	Household hazardous waste [aerosol paint/sprays; acetone; air fresheners (aerosol); ammonia; all-purpose cleaners; antifreeze; barbeque starters; batteries (household and vehicle); brake fluid and lining; butane refills; degreasers; car waxes/polishes; disinfectants; furniture polish/wax; gasoline; drain cleaners; insecticides; kerosene; lacquers; nail polish and remover; oven cleaners; paint thinners; photographic chemicals; paint and varnish; rust remover; turpentine; smoke detectors; spa and pool chemicals; waxes; wood preservatives/finishes]; cell phones; electronics; ink cartridges; milk jugs and cartons and tires
Industrial Hazardous Waste	--	Oilfield waste bin	Industrial Hazardous Waste
Industrial Recyclables	Plastic	Oilfield waste bin	Industrial Recyclables
	Scrap Metal	Oilfield waste bin	--
	Used Oil	Oilfield Waste Bin;	--
	Used Oil Filters	Oilfield Waste Bin	--

4.4 Waste Storage

Because of local treatment/disposal and access limitations, waste may need to be stored for short periods while awaiting transport to appropriate and approved facilities. Wastes could be stored at any location in the project areas where activities are taking place. Paramount will identify where waste will be stored in a given activity season to Inspectors and the MVLWB as part of the commencement of the land-use operation notification. Waste should be removed from project locations and areas as soon as practical and in the same season as activities when feasible. Therefore, storage areas and containers become important considerations. General principles for the storage of non-hazardous waste are listed below.

1. The regular collection, grading and sorting of waste contribute to good housekeeping practices.
2. Placing scrap containers near where the waste is produced encourages orderly waste disposal and makes collection easier. The location of the stockpiles should not interfere with work but they should still be readily available when required.
3. All waste receptacles should be clearly labeled and in good condition, not leaking and protected from the weather.
4. Inspect waste receptacles weekly and note any deterioration or corrosion in an inspection log. Clean-up any messes immediately.

General principles for the storage of hazardous waste are listed below [from the *Guideline for Hazardous Waste Management* (GNWT, 2017)].

1. Drainage into and from a waste storage site should be controlled to prevent spills or leaks from leaving the site and to prevent run off from entering the site.
2. Access to a waste storage site should be controlled. Only persons authorized to enter and trained in waste handling procedures should have access to the waste storage site.
3. Waste storage sites should have emergency response equipment appropriate for the waste stored on site. Furthermore, hazardous waste storage sites are expected to meet all local bylaw and zoning requirements. It is recommended that the local Fire Chief be advised of the storage facility and its content for emergency planning and response purposes.
4. Where long term storage of hazardous waste is required, quantity requirements (see Schedule I *Guideline for the General Management of Hazardous Waste in the NWT*) should be recognized. If quantity requirements are exceeded, the hazardous waste storage site should be registered in accordance with Section 3.4 of *Guideline for the General Management of Hazardous Waste in the NWT*.
5. Be sure that waste storage containers are compatible with chemical waste. Use containers that are made of or lined with materials which will not react with, and are otherwise compatible with, the waste to be stored. The original containers should be used, where possible.
6. Be sure that waste storage containers are sound, sealable and not damaged or leaking. Regular inspections for signs of leaks or deterioration should be performed and recorded.
7. Any container used to store hazardous waste must be labeled according to the requirements of the *Work Site Hazardous Materials Information System* (WHMIS) of the Safety Act (2006) or the relevant Transport Authority, if transport is planned.

8. Waste containers must be closed at all times, except when being filled. Do not leave funnels in the containers.
9. Maintain a record of the type and amount of waste in storage.

Waste will be temporary stored at locations where it is generated, this includes I-02 and F-36 identified on the Project Maps found in Appendix A. Waste will be removed in the same season during and at the conclusion of operations.

4.5 Determining Destinations for Waste

Since local treatment and disposal options are limited, distance and shipping become the key considerations when determining the best waste management options. Table 4 lists waste management facilities currently closest to the Fort Liard, NWT Project area that may be used by Paramount.

4.6 Waste Transporting and Tracking

4.6.1 Waste Contractors

Transportation means will be carefully selected and checked with respect to health, safety and environment (HSE) requirements. Transporters of waste will be provided with instructions on how to handle emergency situations. When using waste contractors, the following details will be verified.

- Contracts with waste contractors contain appropriate provisions regarding HSE.
- Equipment provided for the storage and transport of wastes, such as waste bins or containers and trucks, are in good working order prior to being accepted by Paramount.
- Waste materials transferred to contractors are packaged and labeled appropriately.
- Shipping documentation is completed in accordance with approved procedures and rests with Paramount at the end of the project.
- Waste consignments reach the specified final disposal site and are disposed of at an approved facility.
- Transportation costs and tipping fees are a major component of the waste management program and require close monitoring and control.

4.6.2 Trucking

At its most efficient, trucking occurs on a “back haul” when goods have been transported to Fort Liard. The ideal situation is to take advantage of the back haul. Therefore, anyone responsible for arranging the transport of goods to Fort Liard will be responsible for arranging a back-haul load. The Operations Manager (see Appendix 4 for contact information) can be consulted for assistance in identifying back haul loads.

4.6.3 Tracking Hazardous and Non-Hazardous Waste

Paramount’s hazardous waste generator registration number is NTG 000104. The Federal Transportation of Dangerous Goods Act and Regulations (TDG) identify requirements for the transportation of dangerous goods. According to these regulations, Paramount is responsible for the safe handling and transport of all hazardous material. It is Paramount’s responsibility to ensure that anyone involved in the handling,

offering for transport or transporting dangerous goods must be trained and certified or working under the direct supervision of a trained and certified individual.

MOVEMENT DOCUMENTS

When completed, project produced Movement Documents provide:

- detailed information on the types and amounts of wastes being shipped;
- a record of various firms or individuals involved in the shipment; and
- information on the treatment storage, and/or disposal of wastes when they reach their final destination.

A Movement Document must be used for all shipment of hazardous wastes as defined in the province or territory of destination or origin and Interprovincial Movement of Hazardous Waste Regulations. Paramount will utilize Movement Documents for non-hazardous wastes as well.

Movement Document completion instructions are provided in Figure 4 and Table 3 as well as on the reverse side of each Movement Document. Further assistance in completing a Moving Document may be obtained by referring to the DRAFT - Instructions for Completing Each Item on the Movement Document (Environment Canada, 2017) or by contacting the Motor Carrier Services of the GNWT Department of Transportation.

MOVEMENT DOCUMENT DISTRIBUTION

All Movement Documents must be tracked through their cycle by the waste generator. Movement Documents must be kept on file for a minimum period of two (2) years.

- Consignor (i.e., Paramount) forwards copy 1 (white) to the appropriate territorial authority and retains copy 2 (green).
- The carrier takes copies 3, 4, 5 and 6 with the shipment to give to consignee/receiver (i.e., facility).
- The consignee completes part C and forwards copy 3 (yellow) to the appropriate authority.
- The consignee gives copy 4 (pink) to the carrier, retains copy 5 (blue) and forwards copy 6 (brown) to the consignor. The consignor forwards a photocopy of copy 6 (or faxes copy 6) to Paramount's Environmental Specialist, HSE Department (see Appendix 5 for contact information). Once the HSE Department receives a photocopy of copy 6, information is entered and stored in a database for Paramount's use.

5. Waste Specific Management Options

Management options for wastes generated by the oil and gas sector in the Northwest Territories are very limited because of little to no waste infrastructure. Therefore, waste generated by the Fort Liard Project is primarily treated or disposed off-site at [Secure Fort Nelson British Columbia](#) . Turnkey solutions for minor waste include associated with closure include providing proper storage containers, mobilizing and demobilizing storage items and sending waste to the identified receiver,

Figure 3 Movement Document Completion Instructions

**MOVEMENT DOCUMENT / MANIFEST
DOCUMENT DE MOUVEMENT / MANIFESTE**

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement et le transport.

SAMPLE FOR ILLUSTRATION ONLY

2486089-2

Movement Document / Manifest Reference No.
N° de référence du document de mouvement/manifeste

A Generator / consigneur Producteur / expéditeur				B Carrier Transporteur				C Receiver / consignee Réceptionnaire / destinataire			
Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial				Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial				Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial			
Company name / Nom de l'entreprise				Company name / Nom de l'entreprise				Company name / Nom de l'entreprise			
Mailing address / Adresse postale City / Ville Province Postal code / Code postal				Mailing address / Adresse postale City / Ville Province Postal code / Code postal				Mailing address / Adresse postale City / Ville Province Postal code / Code postal			
E-mail / Courriel électronique Tel. No. / N° de tél. ()				E-mail / Courriel électronique Tel. No. / N° de tél. ()				E-mail / Courriel électronique Tel. No. / N° de tél. ()			
Shipping site address / Adresse du lieu de l'expédition City / Ville Province Postal code / Code postal				Vehicle / Véhicule Trailer - Rail car No. 1 1 ^{re} remorque - wagon				Registration No. / N° d'immatriculation			
Intended Receiver / consignee Réceptionnaire / destinataire prévu				Port of entry / Point d'entrée International use only				Port of exit / Point de sortie International use only			
Mailing address / Adresse postale City / Ville Province Postal code / Code postal				Carrier Certification: I certify that I have received waste or recyclable material from the generator / consigneur for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. Attestation du transporteur: J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.				Name of authorized person (print): Nom de l'agent autorisé (caractères d'imprimerie):			
E-mail / Courriel électronique Tel. No. / N° de tél. ()				Signature:				Tel. No. / N° de tél. ()			
Receiving site address / Adresse du lieu de l'expédition City / Ville Province Postal code / Code postal				Year / Année Month / Mois Day / Jour				Date received / Date de réception Year / Année Month / Mois Day / Jour			
Shipping name / Appellation réglementaire				Class / Classe Sub. class(es) / Sous-classe(s)				Quantity shipped / Quantité expédiée			
UN No. / N° UN				Packing / Risk gr. Gr. d'emballage / de danger				Units / L or / ou Kg Unités			
Customs code / Code douane				Packaging / Conteneur No. / N°				Phys. state / État phys.			
Quantity received / Quantité reçue				Comments / Commentaires				Handling / Code de manutention			
Shipments / Envoi				Accepted / Accepté				Refused / Refusé			
Decort. / Vth.				Pack. / Vth.				Decort. / Vth.			
Notice No. / N° de notification				Notice Line No. / N° de ligne de la notification				Shipment / Envoi			
Date / Date				D or R code / Code D ou R				C code / Code C			
Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE				H code / Code H				Y code / Code Y			
National code in country of / Code du pays				Export / Exportation				Import / Importation			
Customs code(s) / Code(s) de douanes				Signature				Tel. No. / N° de tél. ()			
Generator / consigneur certification: I certify that the information contained in Part A is correct and complete. Attestation du producteur / expéditeur: J'atteste que tous les renseignements à la partie A sont exacts et complets.				Name of authorized person (print): Nom de l'agent autorisé (caractères d'imprimerie):				Signature			
Date / Date				Year / Année Month / Mois Day / Jour				Date of shipment / Date d'expédition Year / Année Month / Mois Day / Jour			
Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour				Special handling / Manutention spéciale <input type="checkbox"/> Attached / C-join: <input type="checkbox"/> As follows / C-contre:				Time / Heure Year / Année Month / Mois Day / Jour			

Table 3: Movement Document Completion Instructions

BOX #	Box label	Instructions for Box Entries		
1	Generator & Registration No.	Paramount Resources Ltd. Suite 2800 421 7 th Avenue SW Calgary, AB T2P 4K9 Telephone No.: 403.290.3600	Registration No.: NTG000104	
2	Intended Receiver	Secure Northern Rockies	See Link in Section 5.	
3	Provincial Code	See Table 4		
4	Shipping Name			
5	Class			
6	UN No.			
7	Packing Risk Group			
8	Quantity Shipped and Units	Enter the quantity of waste being shipped in metric units. Indicate the units used as with either kilograms (kg) or litres (L). If the exact amount of waste is not known enter "est." Before the number for an estimated amount.		
9	Packaging	Enter the number of individual packages used to ship waste in the column head "No."		
		Enter the codes for the type of packaging used in the shipment in the column headed "Codes".	Code	Container
			01	Drum
			02	Tank
			03	Bulk (e.g., Vac Truck, End Dump, etc.)
			04	Carton
			05	Bag
			06	Roll off or lugger
		07	Other (e.g., pail, palette, etc.)	
10	Physical state	Enter the physical state of the waste as solid (s), liquid (l) or gas (g).		

Table 4 Paramount Resources Ltd. NWT Abandonment Waste Stream and Waste Management Plan.

Because of the small volume of various wastes which may be generated during this activity, a combination waste bin will be provided, and a specialized waste management contractor will handle disposal of the contents at the end of the project

Waste	Storage	NWT Classification	BC Classification	AB Classification	AER Code	Shipping Name	Class	UN #	Packing Group	Disposal
Aerosol Cans	Waste Bin-HAZ	HAZ	HAZ	DOW	WSTCGS	AEROSOLS, flammable	2.1	UN1950	-	Turnkey management of HAZ waste provided by contractor
Batteries (Dry Cell)	General Recyclable – Various [see <i>Guideline for the Management of Waste Batteries</i> (GNWT, 1998) for recommendation]	Non-HAZ	Non-HAZ	Non-DOW	BATT	-	-	-	-	Turnkey management of non-HAZ waste provided by contractor
Batteries (Dry Cell)		HAZ	HAZ	DOW	BATT	Batteries, dry, containing potassium hydroxide solid, electric storage	8	UN3028	III	Turnkey management of non-HAZ waste provided by contractor
Chemicals (inorganic)	Original Containers	HAZ	HAZ	DOW	INOCHM	Dependent on specific waste characteristics (consult TDG Regulations)				Contact Chemical Waste Exchange
Construction and Demolition Material (uncontaminated)	Stockpile	Non-HAZ	Non-HAZ	Non-DOW	CONMAT	-	-	-	-	Turnkey management of non-HAZ waste provided by contractor
Contaminated Debris and Soil (Chemical/Solvent/Oil/Produced Water)	Contact Paramount Environmental Dept				SOILCH SOILCO SOILPW	Dependent on specific waste characteristics (consult TDG Regulations)				Contact Paramount Environmental Dept for approved landfill location
Filters – Lube Oil	Waste Bin-HAZ	HAZ (depending on flash point and BTEX content)	HAZ (depending on flash point and BTEX content)	DOW (depending on flash point and BTEX content)	FILLUB	Environmentally Hazardous Substance, Solid N.O.S. (lead)	9	UN3077	III	Turnkey management of HAZ waste provided by contractor
Grease Cartridges (Completely Empty)	Waste Bin- non HAZ	Non-HAZ	Non-HAZ	Non-DOW	EMTCON	-	-	-	-	Turnkey management of non-HAZ waste provided by contractor
Hydraulic and Transmission Oil	Waste Bin- non HAZ				HYDOIL	-	-	-	-	Turnkey management of non-HAZ waste provided by contractor
Incinerator (kitchen waste)	General & Industrial non- HAZ Waste	Non-HAZ	Non-HAZ	Non-DOW	INCASH	-	-	-	-	Turnkey management of non-HAZ waste (ash) provided by contractor
Lubricating Oil (Hydrocarbon and Synthetic)	Above ground disposal tanks; L&P Disposal Receptacles	Non-HAZ (unless containing heavy metals such as Vanadium or Lead)	Non-HAZ (unless containing heavy metals such as Vanadium or Lead)	Non-HAZ (unless containing heavy metals such as Vanadium or Lead)	LUBOIL	-	-	-	-	Turnkey management of HAZ waste provided by contractor
Metal (Scrap) (uncontaminated)	Industrial Recyclable – Scrap Metal	Non-HAZ	Non-HAZ	Non-DOW	SMETAL	-	-	-	-	Recycle location - TBD

DOW: Dangerous Oilfield Waste

HAZ: Hazardous

Packing Group: A group in which dangerous goods are included based on the inherent danger of the dangerous goods.

Packing Group I indicates great danger

Packing Group II indicates medium danger

Packing Group III indicates minor danger

6. References

Canadian Association of Petroleum Producers (CAPP). 2006. Waste Profile Sheets. Prepared by Wotherspoon Environmental Inc., Calgary, AB. 59pp.

Canadian Association of Petroleum Producers (CAPP). 2009. Oil and Natural Gas Waste Management – Northwest Territories. Prepared by Priddis Environmental Solutions Ltd., Calgary, AB.

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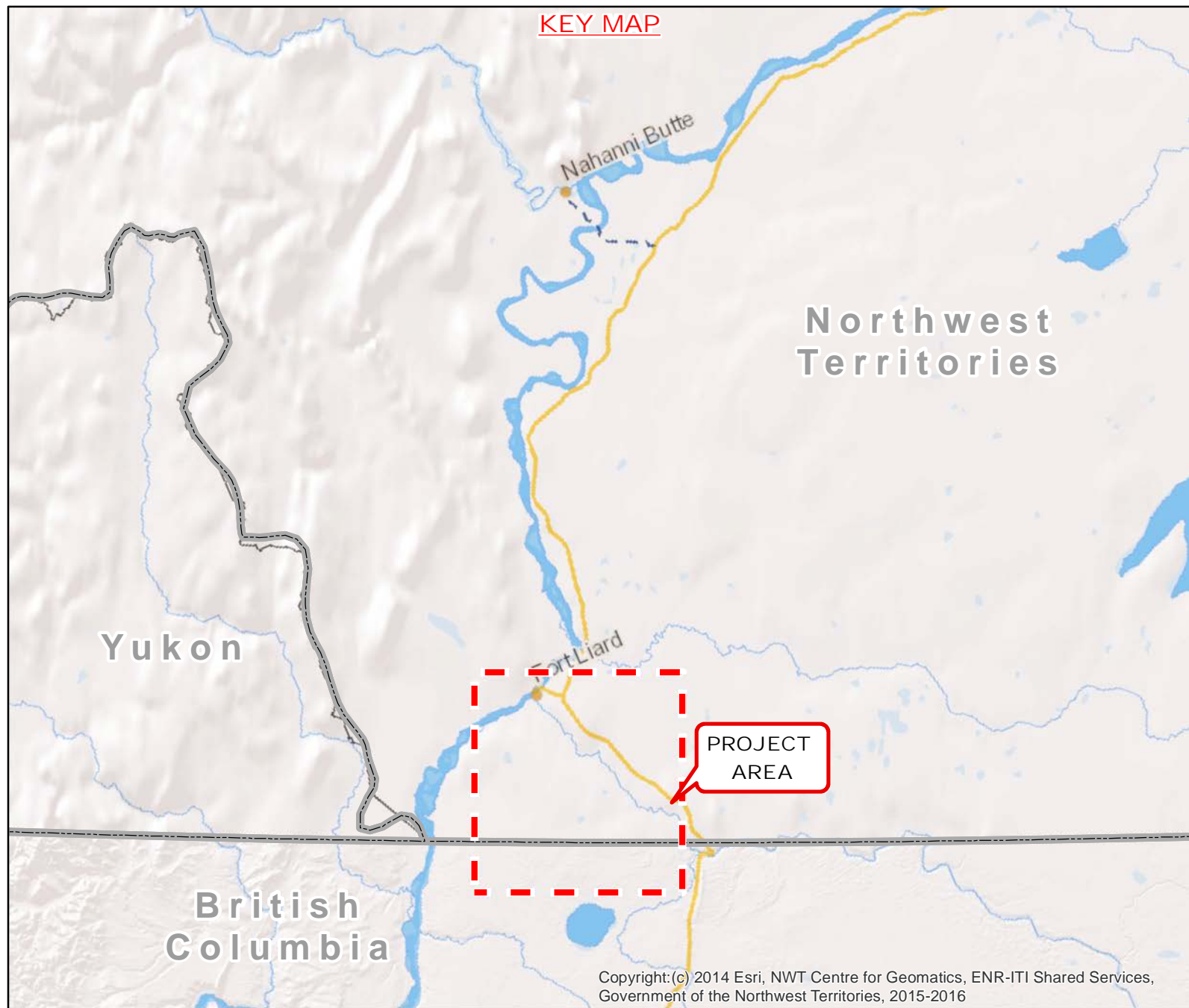
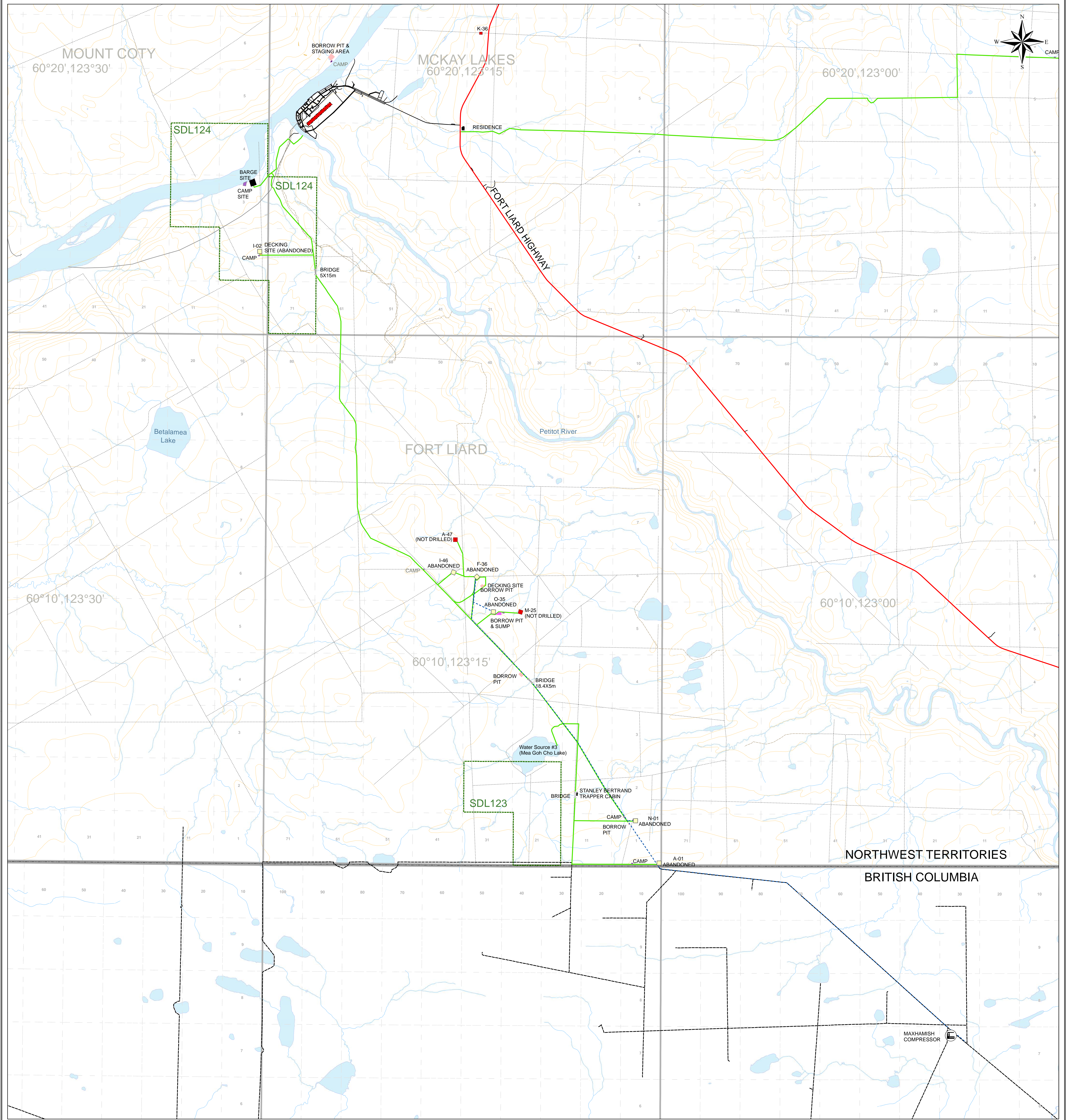
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Government of the Northwest Territories. 1998. Guideline for the Management of Waste Batteries. Available online at: <https://www.enr.gov.nt.ca/sites/enr/files/guidelines/batteryguideline.pdf>

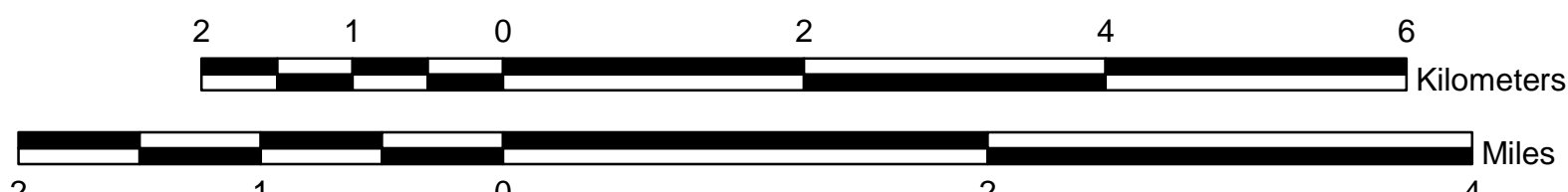
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Appendix 1: Project Maps and Surveys



FORT LIARD SOUTH

As-Built March 2022
60°20', 123°30" to 60°10', 123°00'
NORTHWEST TERRITORIES



Scale: 1:50,000

- Legend**
- Leases**
 - Abandoned
 - Built
 - Built - Tied-in
 - Foreign
 - Reclaimed
 - Suspended
 - Facilities**
 - Camp - Built
 - Camp - Foreign
 - Battery - Built
 - Sump - Built
 - Borrow Pit - Built
 - Decking Site - Built
 - Gathering System**
 - Built
 - Not Used
 - Not Built
 - Foreign
 - Access Roads**
 - Access Built
 - Access Foreign
 - Transportation**
 - Highway
 - Old Paramount Ice Road
 - Road
 - Trail
 - Cut Line
 - Boundaries**
 - SDL Lands
 - Provincial Boundaries
 - Contours
 - Hydrography**
 - Waterbody
 - Watercourse
 - Other**
 - Road
 - Built
 - Foreign
 - Bridge
 - Gas Plant / Compressor
 - Cabins

DISCLAIMER:
The information contained herein is compiled from various government and industry sources. Universal Geomatics Solutions and its data suppliers provide no warranty regarding the accuracy or completeness of this information. No liability can be assumed by Universal Geomatics Solutions or its data suppliers resulting from the use or interpretation of this information, or from any decisions made based on this information.

REVISION	DESCRIPTION	DRAWN BY	DATE
00	Original Map Created	KDG	2017-06-27
01	Map Updated	SRH	2022-03-15





Wellsite control established using differentially corrected GPS observations. Coordinate transformation from NAD83 to NAD27 was performed using the following values, +0.856 " N. and -6.257" W. Transformation values were provided by NRCAN from a comparison of NAD27 coordinates for MON 10 NWT-B36 by GSD (S3HT010) as shown on plan No. 51003 CLSR and published NAD83 values, by virtue of Section 16, Canada Oil and Gas Regulations.

Geodetic Survey of Canada published coordinate for monument 'Petitot' were held fixed. Adjusted values for Fort Nelson ACP GCM#602904 and comparison to Government of British Columbia published coordinates are shown.

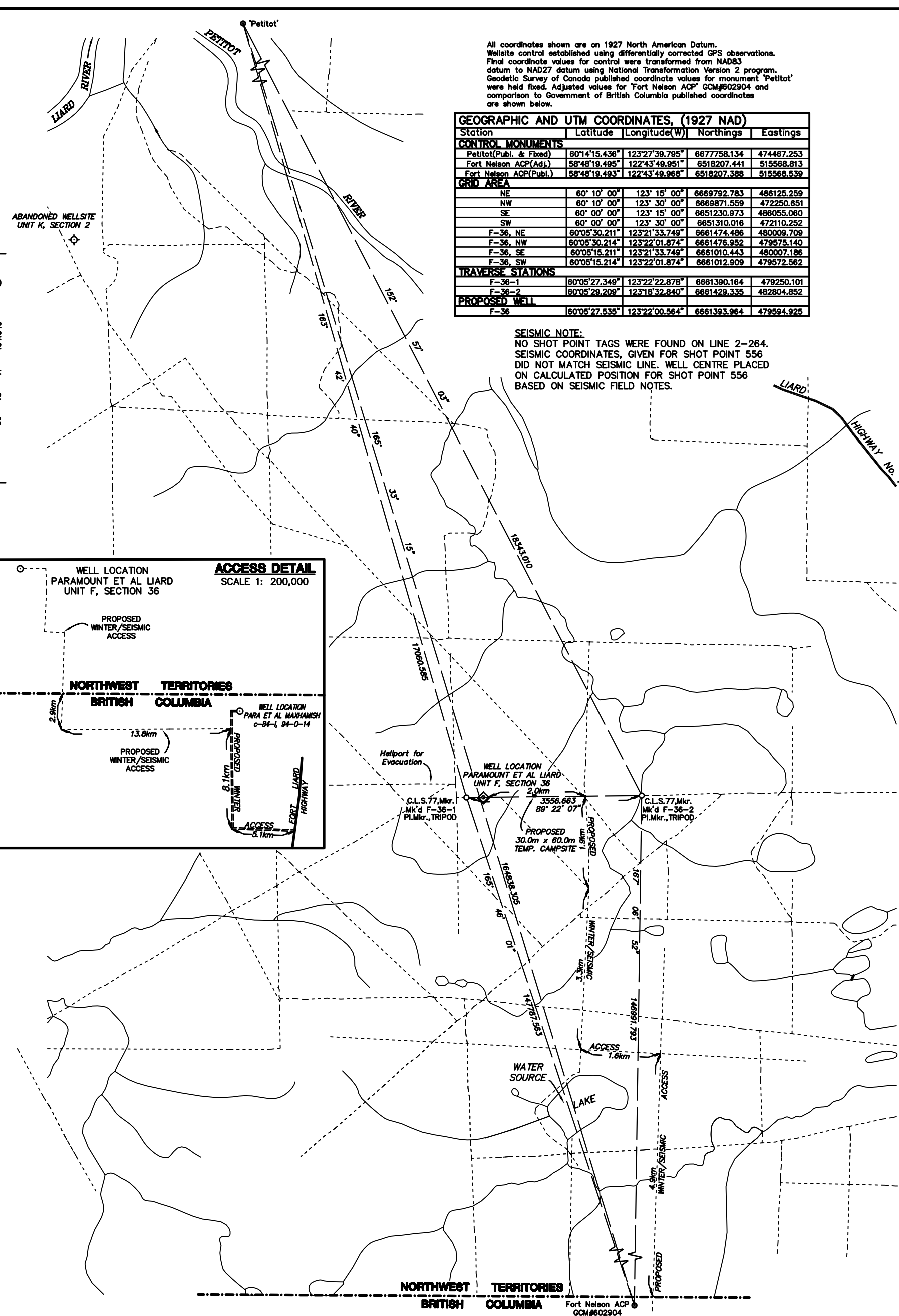
GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
GRID AREA	Latitude	Longitude	Northings	Eastings
NE	60° 10' 00"	123° 15' 00"	6669792.783	486125.259
NW	60° 10' 00"	123° 30' 00"	6669871.559	4722250.651
SE	60° 00' 00"	123° 15' 00"	6651230.973	486055.060
SW	60° 00' 00"	123° 30' 00"	6651310.016	472110.252
A-01, NE			6651695.018	486056.815
A-01, NW			6651697.488	485621.095
A-01, SW			6651233.443	485619.285
A-01, SE			6651230.973	486055.060
PROPOSED WELL				
A-01	60°00'05.043"	123°15'04.769"	6651387.263	485981.760

GEOGRAPHIC AND UTM COORDINATES, (1983 NAD CSRS)						
Station	Latitude	Longitude	Northings	Eastings	Elev.	
CONTROL MONUMENTS						
Pettit (ACB + Flied)	60°14'51.610"	123°27'45.458"	6677970.159	474381.175	218.241	
Fort Nelson ACP(Adj.)	58°48'10.006"	122°43'55.382"	6518401.082	515481.116	453.578	
Fort Nelson ACP	58°48'19.008"	122°43'55.373"	6518401.051	515481.256	452.877	
TRAVERSE STATIONS						
A-01-1	60°00'02.205"	123°14'59.878"	6651505.746	486057.747	517.391	
A-01-2	60°00'07.971"	123°15'01.287"	6651684.210	486036.900	517.319	
TH 'A'	60°00'02.303"	123°14'06.468"	6651505.744	486885.289	517.391	
TH '1'	60°00'02.193"	123°15'07.727"	6651505.744	486885.289	517.391	
BC-NWT Mon#12	60°00'01.541"	123°15'07.792"	6651485.674	485935.060	517.391	
PROPOSED WELL						
A-01	60°00'04.187"	123°15'11.026"	6651467.574	485885.268	517.391	

PARAMOUNT RESOURCES LTD.

WITNESS

DATE _____



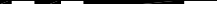
GEOGRAPHIC		UTM COORDINATES, (1927 NAD)			
Station		Latitude	Longitude	N	Eastings
CONTROL MONUMENTS					
Point (Publ. & Fixed)		60°14' 53.46"	123°27' 39.78"	6667758.134	4744667.677
Fort Nelson ACP (Adl.)		58°48' 19.495"	122°43' 49.951"	6518207.441	5155688.813
Fort Nelson ACP (Publ.)		58°48' 19.493"	122°43' 49.968"	6518207.398	5155688.539
GRID AREA					
NE		60° 10' 00" 00"	123° 15' 00" 00"	6668792.783	486125.259
NW		60° 00' 00" 00"	123° 30' 00" 00"	6669871.595	472260.551
SE		60° 00' 00" 00"	123° 15' 00" 00"	6651230.973	486055.060
SW		58° 50' 00" 00" 00"	123° 30' 00" 00"	6647141.967	472141.967
F-36, NE		60°05'30.211"	123°21'33.749"	6661474.486	489009.709
F-36, NW		60°05'30.214"	123°22'01.874"	6661476.952	489755.140
F-36, SE		60°05'21.211"	123°21'33.749"	6661010.443	489007.186
F-36, SW		60°05'15.214"	123°22'01.874"	6661012.909	489752.582
TRAVERSE STATIONS					
F-36-1		60°05'27.348"	123°22'22.878"	6661390.164	479250.101
F-36-2		60°05'29.709"	123°18'32.664"	6661429.333	482804.852
PROPOSED WELL					
		60°05'29.535"	123°22'07.580"	6661393.964	479594.925

SEISMIC NOTE:
NO SHOT POINT TAGS WERE FOUND ON LINE 2-264.
SEISMIC COORDINATES, GIVEN FOR SHOT POINT 556
DID NOT MATCH SEISMIC LINE. WELL CENTRE PLACED
ON CALCULATED POSITION FOR SHOT POINT 556
BASED ON SEISMIC FIELD NOTES.

NORTHWEST TERRITORIES
CANADA OIL AND GAS LAND REGULATIONS

SCALE 1:50,000

0m 500m 1000m 2000m 3000m 4000m 5000m



SURVEYED FOR
PARAMOUNT RESOURCES LTD

BY : W.V. JOHNSON, CLS
NOVEMBER, 1997.

LEGEND

UTM coordinates are computed for Zone 10, central meridian 123° W. Bearings were derived from differentially corrected GPS Observations and are referred to meridian 123° W. Distances are expressed in metres and decimals thereof. Distances shown in traverse are measured distances reduced to the horizontal at general ground level. For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.9995232.

I, W.V. Johnson, of the City of Fort St. John, British Columbia, Canada
 Lands Surveyor, make oath and say that I have in my own
 personal possession according to law and the instructions of the
 Surveyor General of Canada Lands, faithfully and correctly
 executed the survey shown by this plan and field notes, and that
 the said plan and field notes are correct and true to the best
 of my knowledge and belief.

SO HELP ME GOD

Sworn before me at Fort St. John,
this 23rd day of November, 1997.

Distances shown on grid area subdivisions are UTM plane.

Authorized control monuments found ● ○
Monuments placed ● ○
Traverse Hub placed Δ

Mkr. denotes metal marker post 2.0m long placed 0.30m N.
Elevations were derived from Geodetic Survey of Canada
Monument 'Petitot' Elev. = 218.241 m


Survey was completed prior to drilling; therefore well as drilled may
not necessarily agree with proposed location.

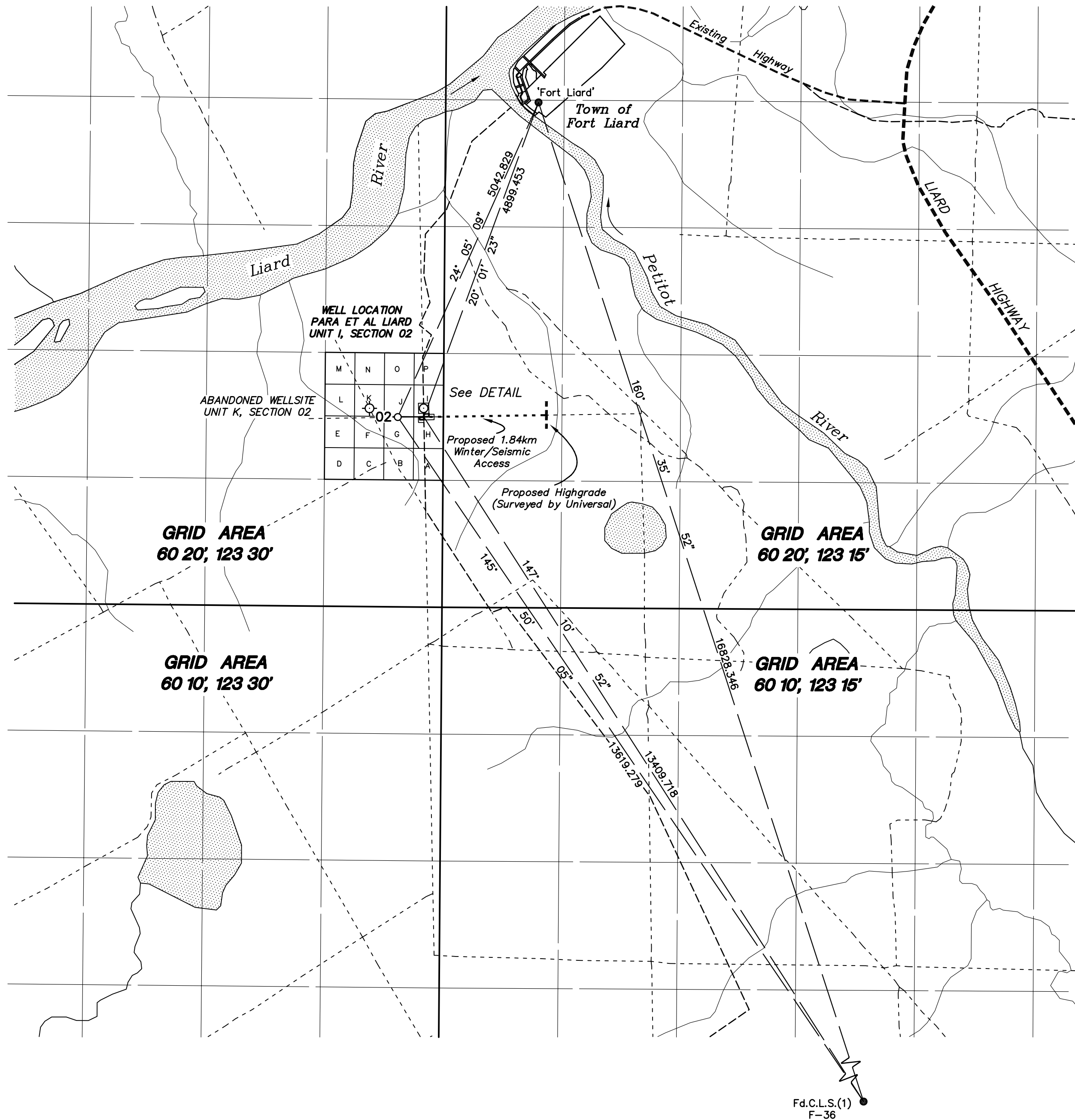
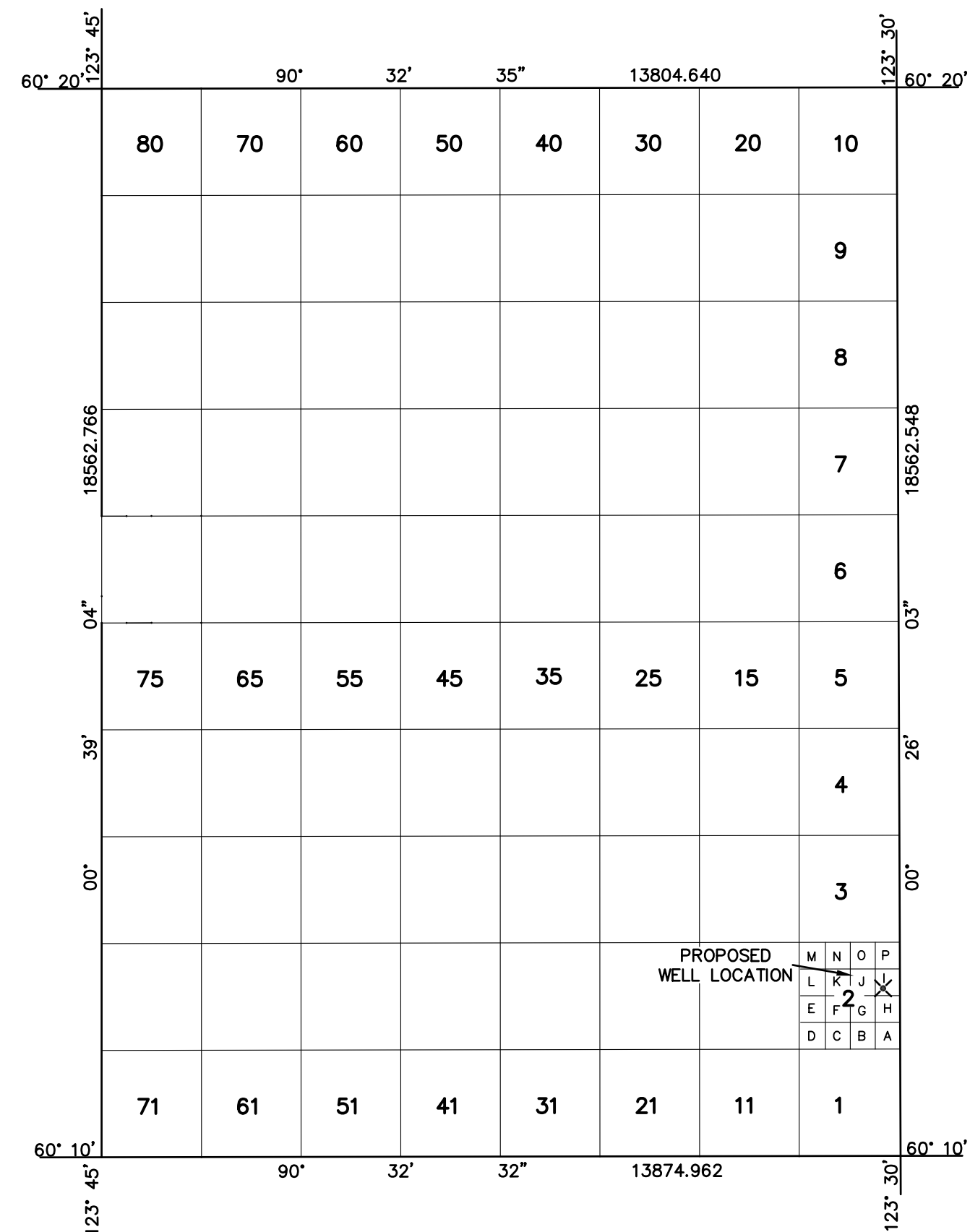
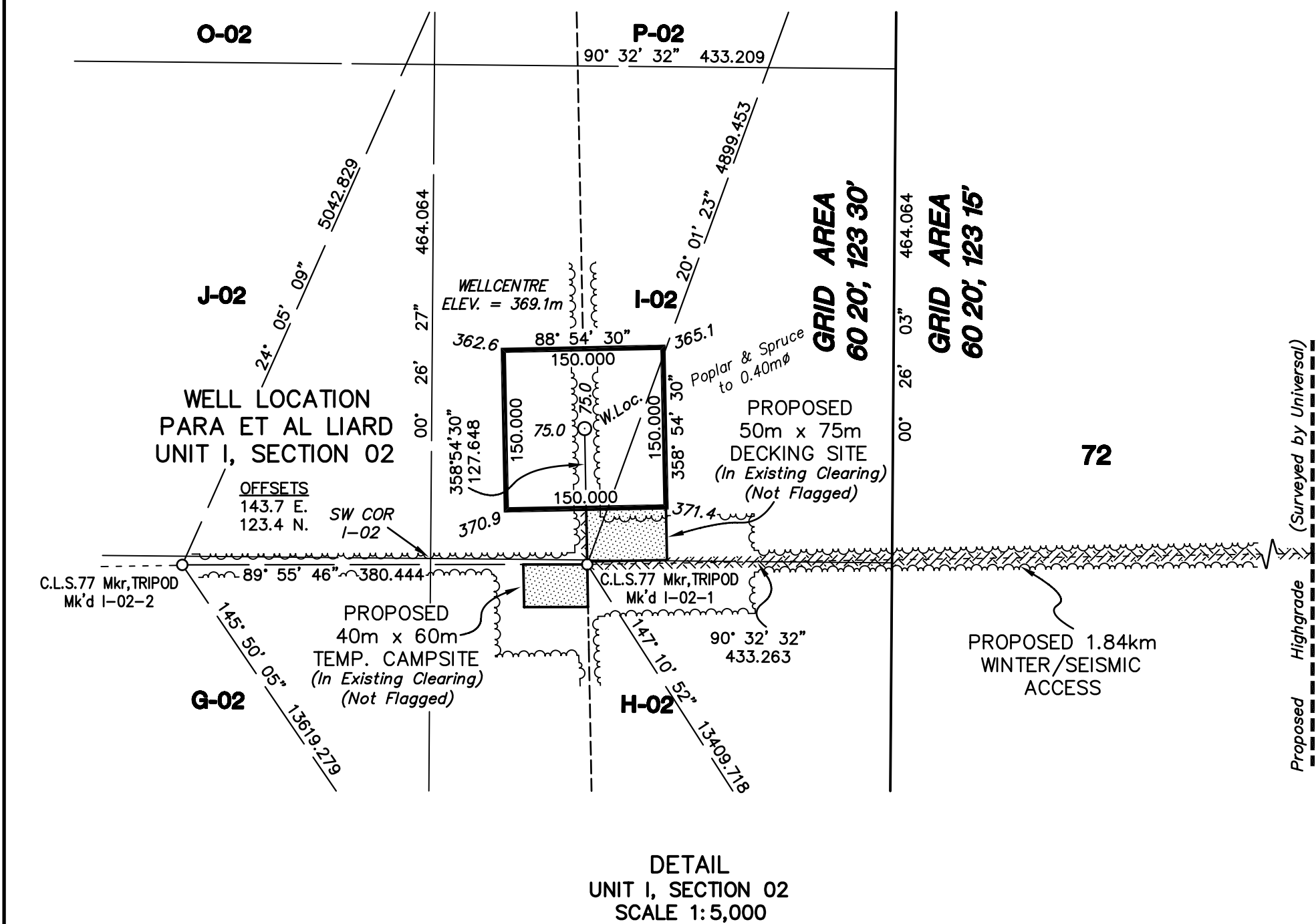
THIS SURVEY WAS EXECUTED DURING THE PERIOD
NOVEMBER 14th TO NOVEMBER 17th, 1997. BY W.V. JOHNSON, CLS

PARAMOUNT RESOURCES LTD.

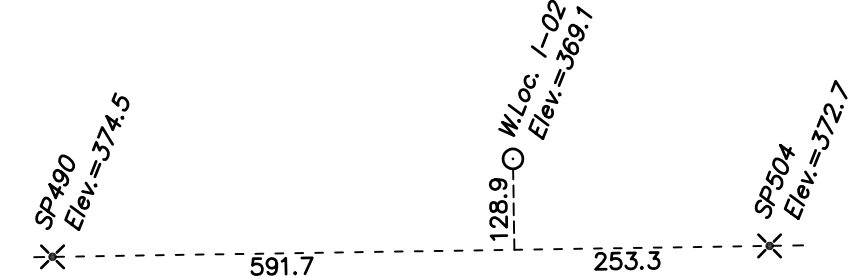
WITNESS

DATE _____

1	CHANGED WINTER ACCESS	97/12/10
REV.No.	DESCRIPTION	DATE
 McELHANNEY ASSOCIATES PROFESSIONAL LAND SURVEYORS 10014 - 97th Ave., Suite 202 Fort St. John, British Columbia Phone: (250)787-0356, Fax: (250)787-0310		
DATE : 97/11/21	JOB NO.: 3111-0615WS	RR



SHOT POINT DETAIL
NOT TO SCALE



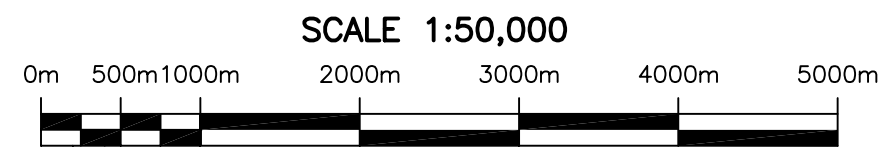
AREAS REQUIRED:

WELLSITE: 150mx150m = 2.25 ha.
DECKING SITE: 50mx75m = 0.38 ha.
TEMP. CAMPSITE: 40mx60m = 0.24 ha.
TOTAL: 2.87 ha.

All coordinates shown are on 1927 North American Datum.
Wellsite control established using differentially corrected GPS observations.
Final coordinate values for control were transformed from NAD83 datum to NAD27 datum using National Transformation Version 2 program.
Geodetic Survey of Canada published coordinate values for monument 'Fort Liard' were held fixed. Adjusted values for Fd.CLS(1) F-36 Grid Area 60°10', 123°15' and comparison to published coordinates are shown below.

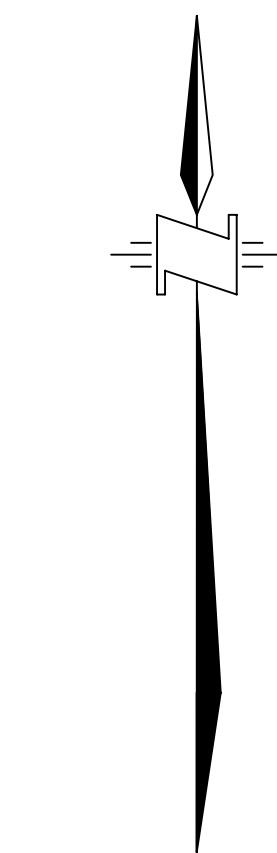
GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude(W)	Northings	Eastings
CONTROL MONUMENTS				
Fort Liard(Publ. & Fixed)	60°13'59.011"	123°28'31.881"	6677255.686	473662.363
Fd.CLS(1) F-36 (Adj.)	60°05'27.349"	123°22'22.874"	6661390.140	479250.165
CLS(1) F-36 (Pub.)	60°05'27.349"	123°22'22.878"	6661390.164	479250.101
GRID AREA				
NE	60° 20' 00"	123° 30' 00"	6688433.574	472391.290
NW	60° 20' 00"	123° 45' 00"	6688564.420	458587.270
SE	60° 10' 00"	123° 30' 00"	6669871.559	472250.652
SW	60° 10' 00"	123° 45' 00"	6670002.853	458376.311
I-02, NE	60°11'45.001"	123°29'59.999"	6673119.912	472275.264
I-02, NW	60°11'45.027"	123°30'28.124"	6673124.007	471842.074
I-02, SE	60°11'30.001"	123°29'59.999"	6672655.861	472271.748
I-02, SW	60°11'30.027"	123°30'28.124"	6672659.962	471838.504
TRAVERSE STATIONS				
I-02-1	60°11'29.885"	123°30'18.576"	6672654.446	471985.553
I-02-2	60°11'29.775"	123°30'43.260"	6672653.978	471605.280
PROPOSED WELL				
I-02	60°11'34.008"	123°30'18.797"	6672782.014	471983.122

PLAN AND FIELD NOTES
OF SURVEY OF
PROPOSED EXPLORATORY WELL
PARA ET AL LIARD
IN UNIT I, SECTION 02
GRID AREA 60° 20', 123° 30'
NORTHWEST TERRITORIES
CANADA OIL AND GAS LAND REGULATIONS



SURVEYED FOR
PARAMOUNT RESOURCES LTD.

BY : R.O. BLACKALL, CLS
JULY, 1999.



LEGEND
UTM coordinates are computed for Zone 10, central meridian 123° W.
Bearings were derived from differentially corrected GPS Observations and are referred to Meridian 123° W.
Distances are expressed in metres and decimals thereof.
Distances shown in traverse are measured distances reduced to the horizontal at general ground level.
For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.9995511. Coordinates were then adjusted to fit the control.
Distances shown on grid area subdivisions are UTM plane.
Authorized control monuments found ●
Monuments placed ○
Mkr. denotes metal marker post 2.0m long placed 0.30m N.
Elevations were derived from Geodetic Survey of Canada Monument 'Fort Liard' Elev. = 216.295m

Survey was completed prior to drilling; therefore well as drilled may not necessarily agree with proposed location.

*Certified Correct and completed on the 03rd day of July, 1999.

Canada Land Surveyor

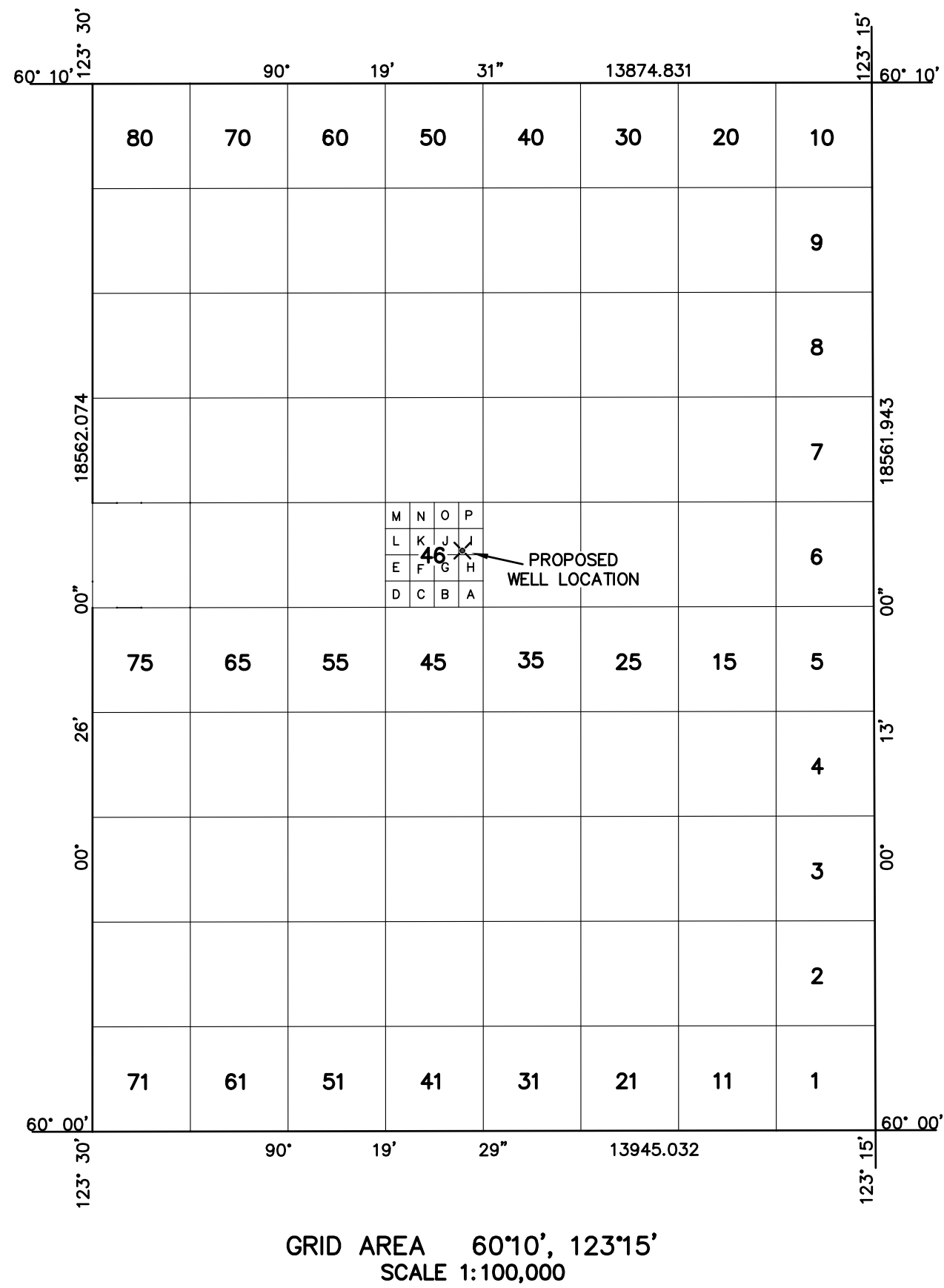
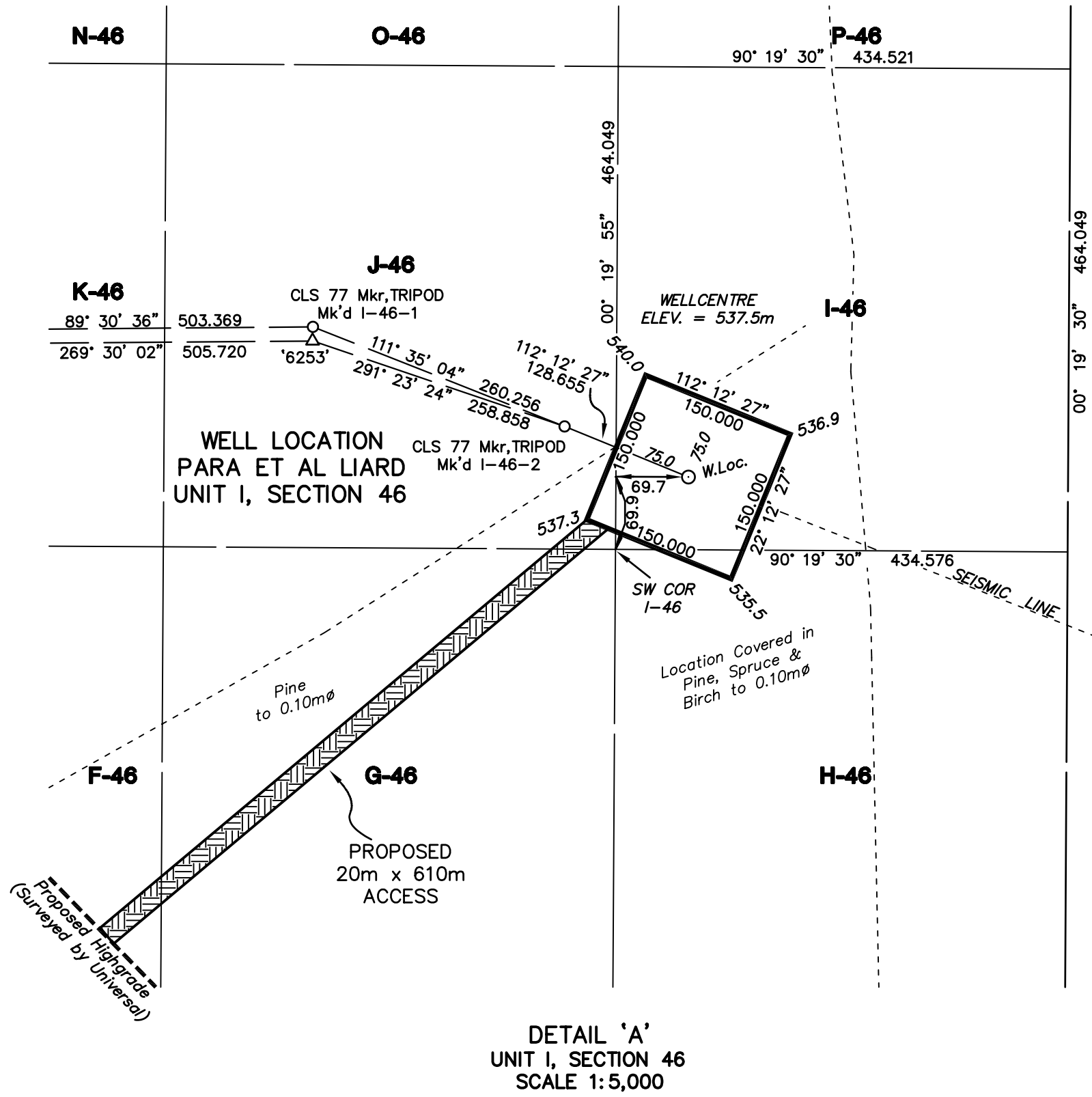
Date: _____



PARAMOUNT RESOURCES LIMITED

WITNESS

DATE

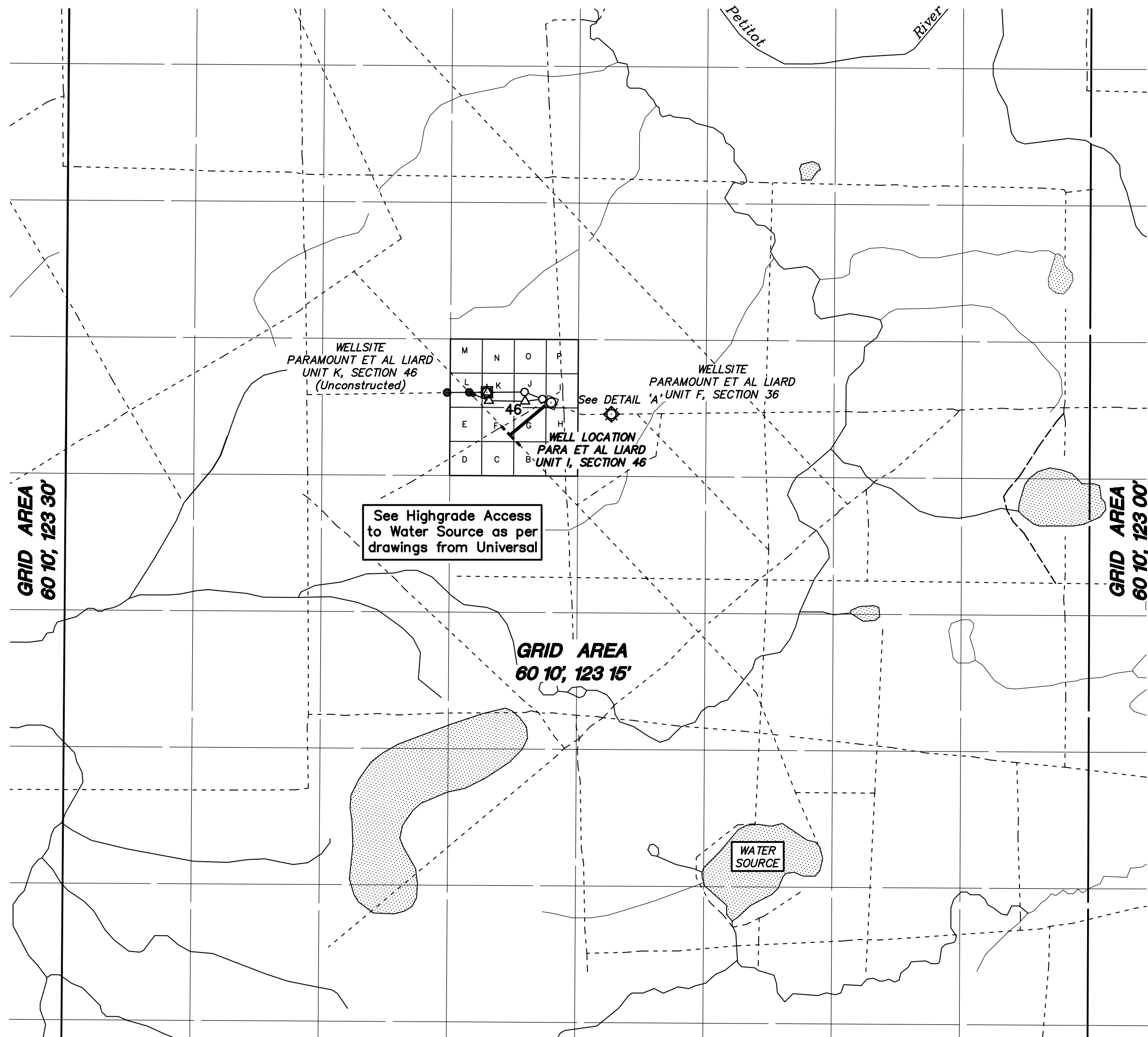
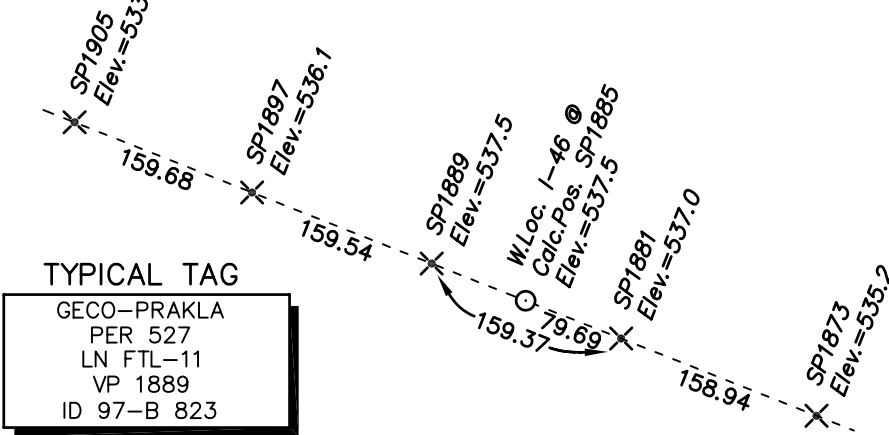


AREAS REQUIRED:

WELLSITE: 150mx150m = 2.25 ha.
ACCESS: 20mx610m = 1.22 ha.
CAMPSITE: 40mx60m = 0.24 ha.
TOTAL: 3.71 ha.

SHOT POINT DETAIL

NOT TO SCALE



PLAN AND FIELD NOTES

OF SURVEY OF

PROPOSED EXPLORATORY WELL

PARA ET AL LIARD

IN UNIT I, SECTION 46

GRID AREA 60° 10' , 123° 15'

NORTHWEST TERRITORIES

CANADA OIL AND GAS LAND REGULATIONS



SURVEYED FOR

PARAMOUNT RESOURCES LTD.

BY : R.O. BLACKALL, CLS
JUNE, 1999.

LEGEND

UTM coordinates are computed for Zone 10, central meridian 123° W. Bearings were derived from the bearing 89° 31' 25" computed between Fd. CLS 77 Wellsite Control Monuments L-46-1 Grid Area 60° 10', 123° 15' and L-46-2 Grid Area 60° 10', 123° 15' and are referred to the Meridian 123° W. Distances are expressed in metres and decimals thereof. Distances shown in traverse are measured distances reduced to the horizontal at general ground level. For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.9995214. Coordinates were then adjusted to fit the control. Distances shown on grid area subdivisions are UTM plane. Authorized control monuments found Monuments placed Mkr. denotes metal marker post 2.0m long placed 0.30m N. Elevations were derived from Geodetic of Canada Monument 'Petitot' Elev. = 218.241m. Survey was completed prior to drilling; therefore well as drilled may not necessarily agree with proposed location.

I, R.O. Blackall, of the City of Fort St. John, British Columbia, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Fort St. John, R.O. Blackall, CLS
this 06th day of July, 1999.

THIS SURVEY WAS EXECUTED DURING THE PERIOD
JUNE ___ TO JUNE ___, 1999. BY R.O. BLACKALL, CLS

PARAMOUNT RESOURCES LIMITED

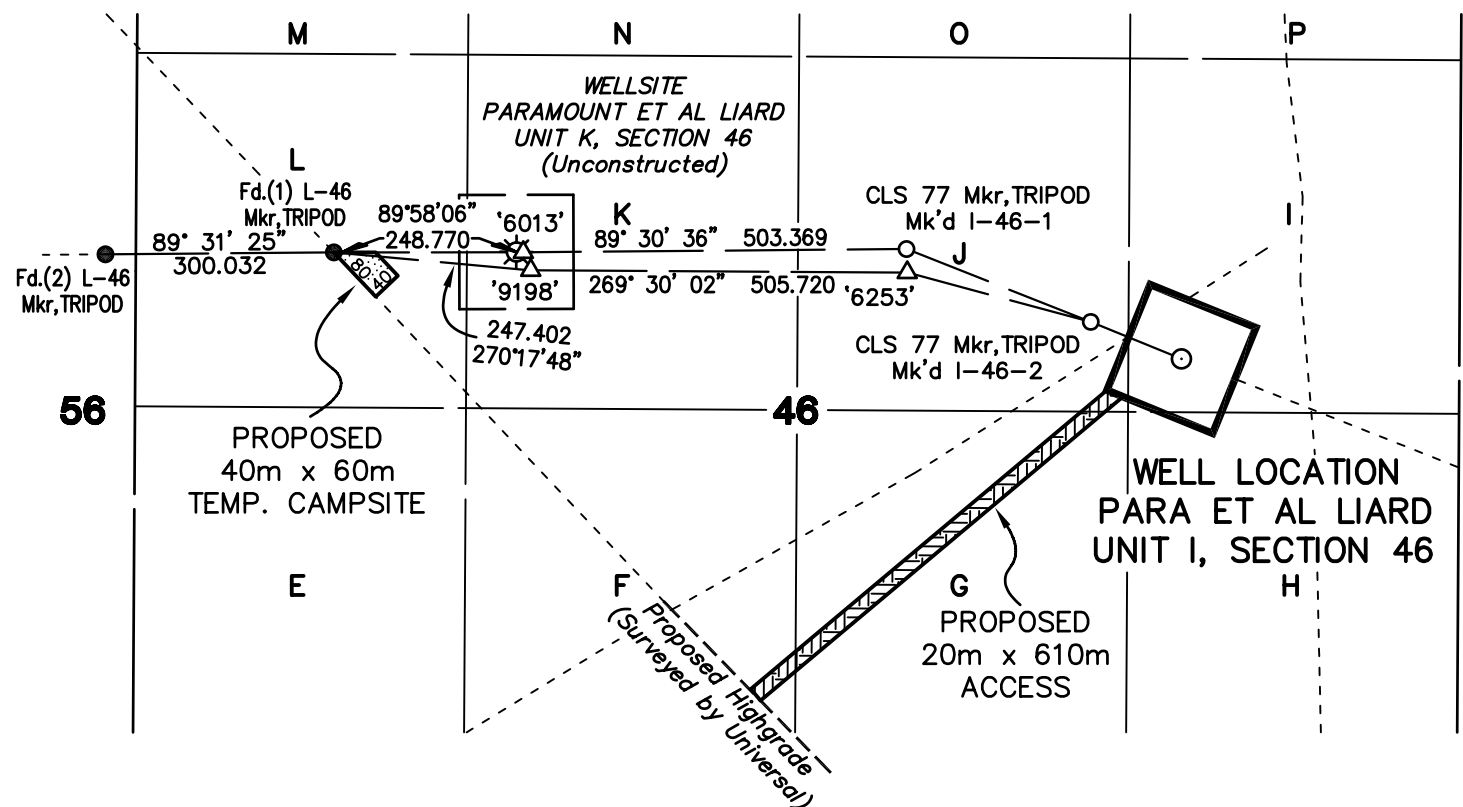
WITNESS

DATE

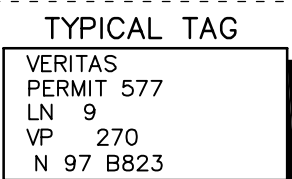
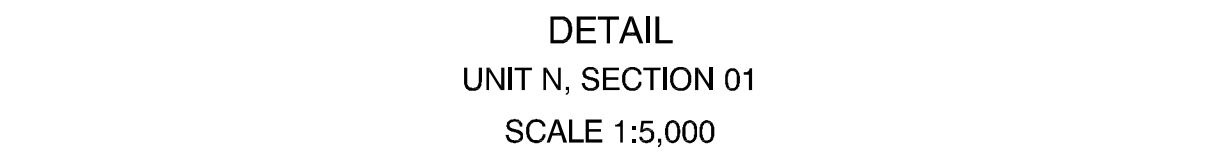
All coordinates shown are on 1927 North American Datum. They are based on values for Found Wellsite Monuments Fd.CLS(1) L-46 Grid Area 60° 10', 123° 15' and Fd.CLS(2) L-46 Grid Area 60° 10', 123° 15'.

DETAIL 'B'

SCALE 1:10,000



GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude(W)	Northings	Eastings
CONTROL MONUMENTS				
L-46-1	60°05'36.782"	123°24'05.680"	6661691.266	477663.419
L-46-2	60°05'36.642"	123°24'25.087"	6661688.773	477363.541
GRID AREA				
NE	60° 10' 00"	123° 15' 00"	6669792.783	486125.259
NW	60° 10' 00"	123° 30' 00"	6669871.559	472250.651
SE	60° 00' 00"	123° 15' 00"	6651230.973	486055.060
SW	60° 00' 00"	123° 30' 00"	6651310.016	472110.252
I-46, NE	60°05'45.214"	123°22'29.999"	6661943.459	479143.204
I-46, NW	60°05'45.214"	123°22'58.124"	6661945.924	478708.690
I-46, SW	60°05'30.214"	123°22'58.124"	6661481.882	478706.002
I-46, SE	60°05'30.214"	123°22'29.999"	6661479.417	479140.571
TRAVERSE STATIONS				
TH '5013'	60°05'36.835"	123°23'49.587"	6661691.405	477912.070
I-46-1	60°05'37.070"	123°23'17.027"	6661695.711	478415.180
I-46-2	60°05'34.023"	123°23'01.336"	6661600.018	478657.070
TH '6253'	60°05'37.028"	123°23'16.963"	6661694.384	478416.158
TH '9198'	60°05'36.788"	123°23'49.675"	6661689.983	477910.699
PROPOSED WELL				
I-46	60°05'32.474"	123°22'53.612"	6661551.415	478776.125




WELLSITE:	150m x 150m =	2.25 ha.
TEMP. CAMPSITE:	30m x 60m =	0.18 ha.
BORROW PIT:	40m x 60m =	0.24 ha.
ACCESS:	6m x 195m =	0.12 ha.
<hr/>		
TOTAL:		2.79 ha.

REV.No.	DESCRIPTION			DATE	
	 McElhanney 10012 - 97th Ave. Fort St John, British Columbia Phone: (250) 787-0356, Fax: (250) 787-0310				
DATE :	00/07/13	JOB NO :	3111-08117WS	AW	

SCALE 1:50,000

0m 500m 1000m 2000m 3000m 4000m 5000m



BY : W.V. JOHNSON, CLS
JUNE, 2000

LEGEND

UTM coordinates are computed for Zone 10. Bearings were derived from the bearing 13° 42' 31" computed between Fd. CLS 77, Post C-02-2 and Wellcentre Spike for Wellsite C-02, and are referred to meridian 123° W.

Distances are expressed in metres and decimals thereof.
Distances shown in traverse are measured distances reduced to the horizontal at general ground level.

For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.9995227.

Distances shown on grid area subdivisions are UTM plane.

Control monuments found ●

Monuments placed ○

Mkr. denotes metal marker post 2.0m long placed 0.30m away from Post.

Elevations were derived from Geodetic Survey of Canada Monument 'Fort Liard' Elev. = 216.299 m.

Survey was completed prior to drilling; therefore well as drilled may not necessarily agree with proposed location.

All coordinates shown are on 1927 North American Datum. Coordinates were derived from Fd. CLS Post C-02-2 and Fd. Wellcentre spike from Wellsite Plan Para et al Liard Unit C, Sec. 02, Grid Area 60° 10', 123° 15'.

GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude(W)	Northings	Eastings
CONTROL MONUMENTS				
Fd. CLS C-0-2	60° 00' 58.493"	123° 16' 02.685"	6653044.322	485091.105
WELL CENTRE C-02	60° 01' 05.336"	123° 15' 59.410"	6653255.788	485142.689
GRID AREA				
N-01, NE	60° 01' 00.551"	123° 15' 56.250"	6653092.092	485190.968
N-01, NW	60° 01' 00.073"	123° 16' 24.374"	6653034.181	484755.412
N-01, SE	60° 00' 45.050"	123° 15' 56.250"	6652678.047	485189.103
N-01, SW	60° 00' 45.073"	123° 16' 24.375"	6652630.517	484753.493
TRAVERSE STATIONS				
N-01-1	60° 00' 46.567"	123° 16' 08.305"	6652675.717	485002.570
TH100	60° 00' 52.322"	123° 15' 06.569"	6652853.584	485045.677
PROPOSED WELL				
N-01	60° 00' 52.339"	123° 15' 58.571"	6652853.670	485154.889

Certified Correct and completed on the 14th day of June, 2000.

Canada Lands Surveyor

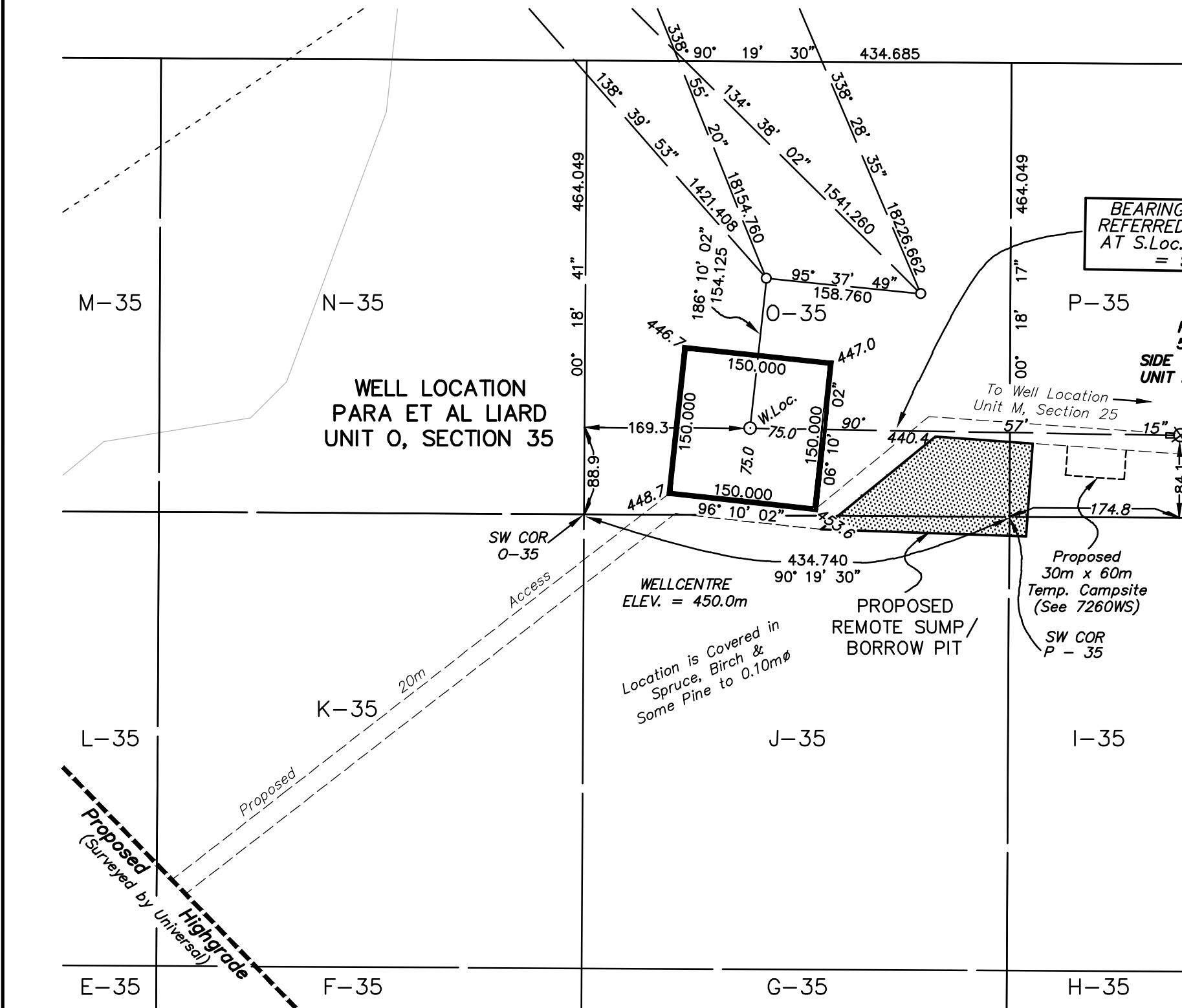
Date: _____



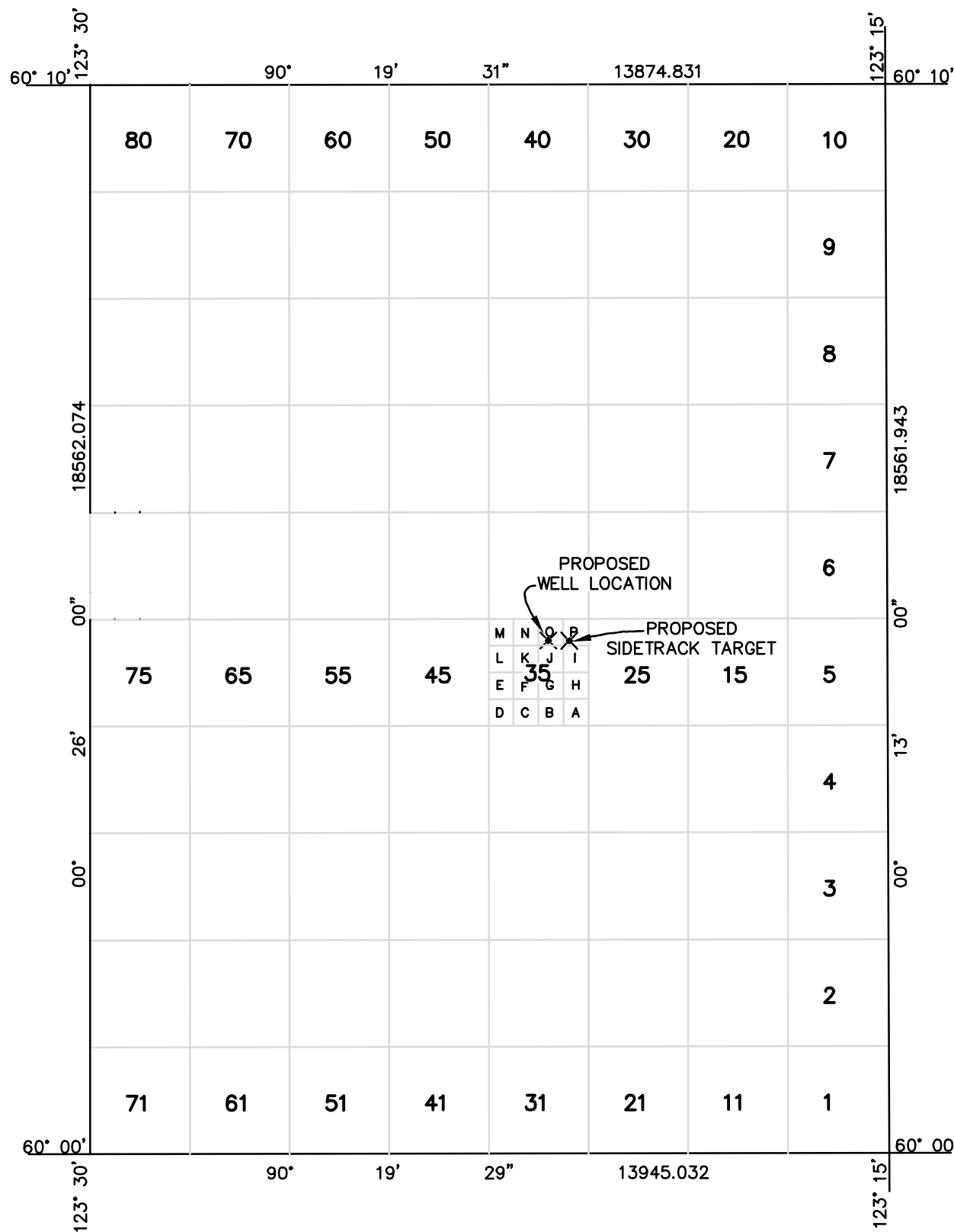
PARAMOUNT RESOURCES LTD

WITNESS

DATE _____



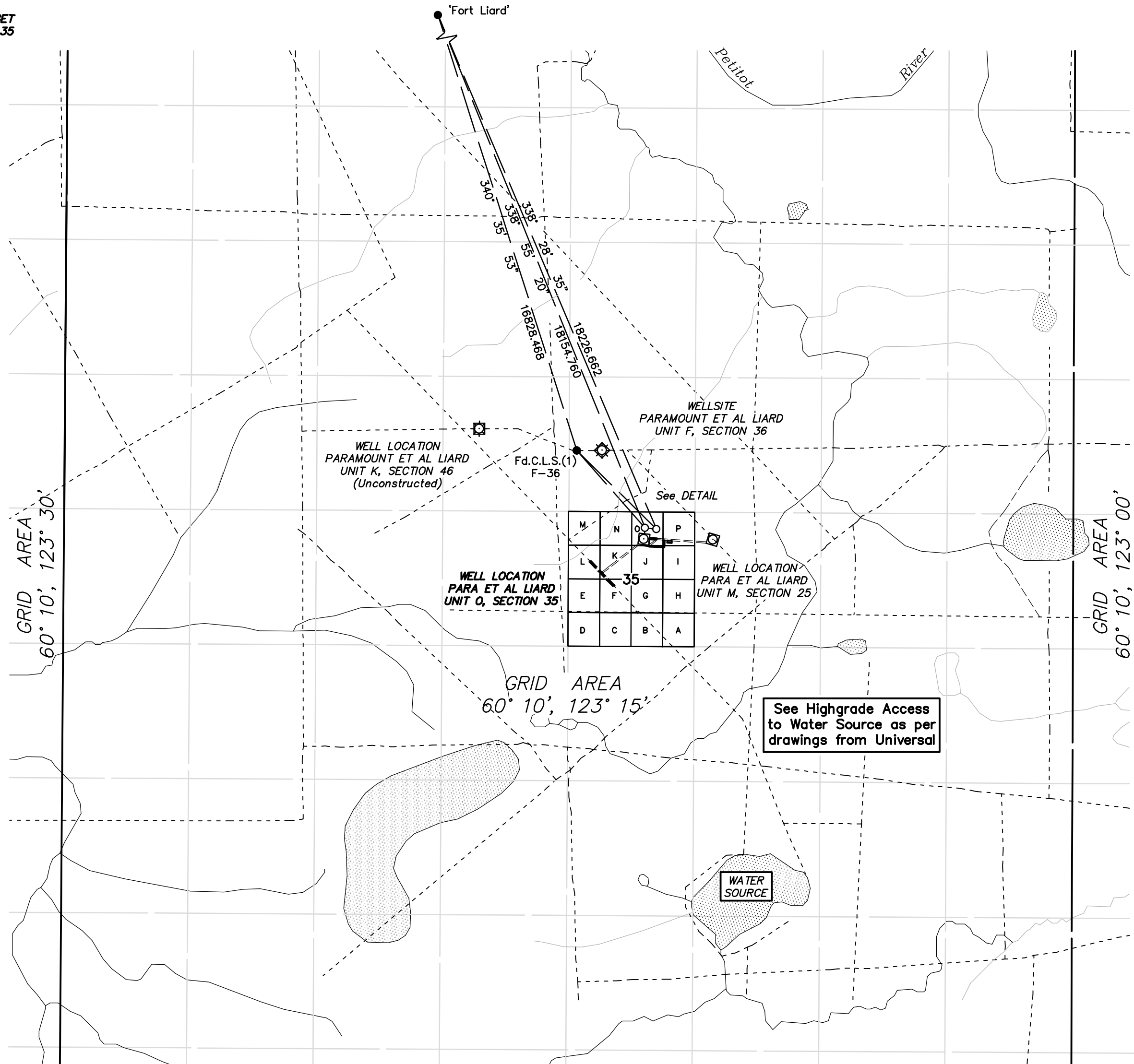
DETAIL
UNIT O, SECTION 35
SCALE 1:5,000



GRID AREA 60'10', 123'15'
SCALE 1:100,000

AREAS REQUIRED:

WELLSITE: 150mx150m = 2.25 ha.
REMOTE SUMP &
BORROW PIT: VARIABLE = 1.51 ha.
TOTAL: 3.76 ha.



All coordinates shown are on 1927 North American Datum.
Wellsite control established using differentially corrected GPS observations.
Final coordinate values for control were transformed from NAD83
datum to NAD27 datum using National Transformation Version 2 program.
Geodetic Survey of Canada published coordinate values for monument 'Fort Liard'
were held fixed. Adjusted values for Fd.CLS(1) F-36 Grid Area 60'10', 123'15'
and comparison to published coordinates are shown below.

GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude(W)	Northings	Eastings
CONTROL MONUMENTS				
Fort Liard (Pub. & Fixed)	60°13'59.011"	123°28'31.881"	6677255.686	473662.363
Fd.CLS(1) F-36 (Adj.)	60°14'15.436"	123°27'39.795"	6661390.271	479250.101
CLS(1) F-36 (Pub.)	60°05'27.349"	123°22'22.878"	6661390.164	479250.101
GRID AREA				
NE	60°10'00"	123°15'00"	6669792.783	486125.259
NW	60°10'00"	123°30'00"	6669871.559	472250.651
SE	60°00'00"	123°15'00"	6651230.973	486055.060
SW	60°00'00"	123°30'00"	6651310.016	472110.252
O-35, NE	60°05'00.207"	123°21'05.624"	6660543.935	480439.341
O-35, NW	60°05'00.211"	123°21'33.749"	6660546.401	480004.663
O-35, SE	60°04'45.207"	123°21'05.624"	6660079.893	480436.873
O-35, SW	60°04'45.211"	123°21'33.749"	6660082.359	480002.140
TRAVERSE STATIONS				
O-35-1	60°04'52.562"	123°21'11.558"	6660307.924	480346.367
O-35-2	60°04'53.038"	123°21'21.780"	6660323.492	480188.454
PROPOSED WELL				
O-35	60°04'48.084"	123°21'22.797"	6660170.331	480171.904
PROPOSED SIDETRACK TARGET				
P-35	60°04'47.923"	123°20'54.323"	6661063.000	480612.000

PLAN AND FIELD NOTES

OF SURVEY OF

PROPOSED EXPLORATORY WELL

PARA ET AL LIARD

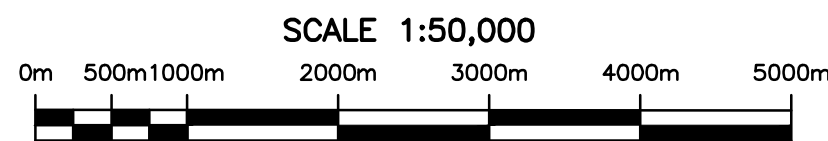
IN UNIT O, SECTION 35

GRID AREA 60' 10' , 123' 15'

(DIRECTIONALLY DRILLED TO SIDETRACK TARGET IN UNIT P, SECTION 35)

NORTHWEST TERRITORIES

CANADA OIL AND GAS LAND REGULATIONS



SURVEYED FOR
PARAMOUNT RESOURCES LTD.

BY : R.O. BLACKALL, CLS
JUNE, 1999.

LEGEND

UTM coordinates are computed for Zone 10, central meridian 123° W.
Bearings were derived from differentially corrected GPS Observations
and are referred to Meridian 123° W.
Distances are expressed in metres and decimals thereof.
Distances shown in traverse are measured distances reduced to
the horizontal at general ground level.
For the computation of coordinates measured distances have been
reduced to the UTM plane by multiplying them by an average combined
scale factor of 0.9995353. Coordinates were then adjusted to fit the
control.
Distances shown on grid area subdivisions are UTM plane.
Authorized control monuments found ●
Monuments placed ○
Mkr. denotes metal marker post 2.0m long placed 0.30m N.
Elevations were derived from Geodetic of Canada Monument
'Fort Liard' Elev. = 216.299m

Survey was completed prior to drilling; therefore well as drilled may
not necessarily agree with proposed location.

I, R.O. Blackall, of the City of Fort St. John, British Columbia, Canada
Lands Surveyor, make oath and say that I have in my own
proper person, according to law and the instructions of the
Surveyor General of Canada Lands, faithfully and correctly
executed the survey shown by this plan and field notes, and that
the said plan and field notes are correct and true to the best
of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Fort St. John, R.O. Blackall, CLS
this 06th day of July, 1999.

THIS SURVEY WAS EXECUTED DURING THE PERIOD
JUNE 25th TO JUNE 27th, 1999. BY R.O. BLACKALL, CLS

PARAMOUNT RESOURCES LIMITED

DATE

1	ADDED SIDETRACK TARGET	05/01/28
REV.No.	DESCRIPTION	DATE
McElhanney LAND SURVEYS LTD. 8808 - 72nd Street Fort St. John, British Columbia Phone:(250)787-0356, Fax:(250)787-0310		
DATE : 99/07/02	JOB No.: 3111-07257WS	RT BRC

Appendix 2: Paramount HSE Policy



Health, Safety and Environment Policy

Paramount Resources Ltd ("Paramount") is committed to a culture where prevention of incidents that may cause harm to people, property loss or an adverse impact on the environment is of the highest importance.

We believe that promoting operational discipline and consistency as detailed in the Paramount Operational Excellence Management System (**POEMS**) is of critical importance in fulfilling our commitments in the areas of health, safety and environmental protection. Our commitments include:

Worker Health and Safety: We will endeavor to ensure that all work performed for Paramount is done so in a safe manner by competent workers using appropriate equipment. It is a requirement that work should only proceed once hazards have been identified and appropriate controls put in place to prevent/minimize any potential incidents or loss.

All employees and contractors conducting work for Paramount have the right to stop or refuse work that they consider to be unsafe or environmentally irresponsible without fear of repercussion.

Environmental Protection: We are committed to achieving a high standard of environmental stewardship. We ensure that environmental protection is an integral component of our decision making by identifying the potential environmental impacts associated with our activities and taking prudent actions to prevent/minimize these impacts and reduce our environmental footprint.

Regulatory Compliance: We are committed to complying with all applicable Federal and Provincial laws and regulations and recognized industry standards and practices. Individuals who violate applicable laws and regulations will be held responsible for their actions.

Continuous Improvement: Incidents and potential incidents are reported and analyzed to determine causes and identify corrective actions and shared learnings in order to reduce the risk of recurrence. We review the adequacy and effectiveness of all our policies, processes, programs and procedures on a regular basis to ensure they remain appropriate and up to date.

Paramount believes that its interests and those of its stakeholders, including the communities in which we operate, are best served by diligently applying the principles, practices and procedures set out in POEMS in all of our operations, and we will take steps to ensure that everyone working for Paramount supports and conducts themselves in accordance with this management system.

A handwritten signature in black ink, appearing to read "J.H.T. Riddell", is positioned above a horizontal line.

J.H.T. Riddell
President and Chief Executive Officer

Appendix 3: Paramount Contact Information

Title	Name	Contact
Construction Supervisor	Boyd Stewart	Telephone: 587-315-7218 Email: boyd.stewart@paramountres.com
Director, Asset Management	John Hawkins	Telephone: 403-817-5074 Email: john.hawkins@paramountres.com
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Manager, Drilling and Completions	Tim Wood	Telephone: 403-290-2919 Email: tim.wood@paramountres.com
Regulatory and Community Affairs Advisor	Terence Hughes	Telephone: 403-206-3859 Email: terence.hughes@paramountres.com
Onsite Supervisor	TBD	Telephone: Email:

November 4th, 2022

Paramount Resources Ltd.
421 7th Ave SW, Suite 2800
Calgary, AB, T2P 4K9

Attention: Ian Keir

Re: SECURE Energy – Silverberry and Northern Rockies Landfills – Waste Acceptability

SECURE Energy Services Incorporated (SECURE) is writing this letter to confirm that the below landfills can accept select hazardous and non-hazardous waste from in province and out of province sources.

- 1) Silverberry Landfill
Location – A-08-088-20 W6M
Authorizations:
 - Permit 17150 (Attachment 1)
 - Registered Site (RS) 109968 (Attachment 2)

- 2) Northern Rockies Landfill
Location – A-77-G/94-J-10
Authorizations:
 - Permit 16078 (Attachment 3)
 - Registered Site (RS) 109394 (Attachment 4)

Prohibited waste for Silverberry is outlined in Section 3.3 of RS 109968 and for Northern Rockies in Section 6 of Permit 17150.

If you have any questions regarding this submission, please do not hesitate to contact the undersigned at (403) 234-4875 or pnelson@secure-energy.com

Sincerely,

SECURE ENERGY

Peter Nelson | Environment and Regulatory Specialist

pnelson@secure-energy.com