

British Columbia Energy Regulator

6534 100th Ave, Fort St. John, B.C
V1J 8C5

APPROVAL
AE-111346

Under the Provisions of the Environmental Management Act

LNG Canada Development Inc.
Suite 4000 – 500 Centre Street SE
Calgary, Alberta
T2G 1A6

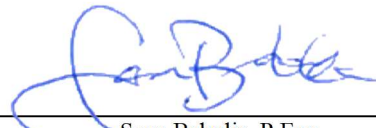
is authorized to discharge effluent to the environment from the LNG tank hydrostatic test dewatering, commissioning activities and construction stormwater management from within the certified project area of a-5-B/103-I-02 near the town of Kitimat, B.C, subject to the conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may result in prosecution.

1. DEFINITIONS

For the purpose of this Approval, the following definitions apply:

- 1.1. **Act** means the *Environmental Management Act*;
- 1.2. **Approval Holder** means LNG Canada Development Inc;
- 1.3. **BCER** means the BC Energy Regulator;
- 1.4. **Discharge** means the total mass of a solid, liquid or gaseous material introduced into the environment;
- 1.5. **Manager** means a BCER employee authorized to exercise the powers of the BCER under Section 15 of the *Environmental Management Act*;

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Sean Babulic, P.Eng.
Manager, Environmental Support

2. AUTHORIZED DISCHARGES

2.1. This subsection applies to the discharge of effluent from **ONE (1) LNG TANK HYDROSTATIC TEST DISCHARGE**. The site reference number for this discharge is E329651.

2.1.1. The maximum authorized discharge rate is 1000 m³/hr.

2.1.2. The authorized discharge period is continuous for approximately 15 hours per day, 7 days a week for a duration of 22 days.

2.1.3. The effluent quality at the point of discharge shall meet the following discharge criteria:

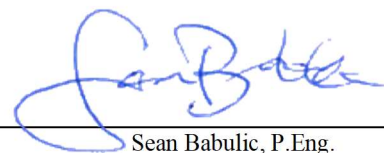
Table 1. Hydrostatic Test Discharge Criteria

Contaminants of Concern	Minimum Concentration	Maximum Concentration
Total Suspended Solids	NA	75 mg/L
Chlorine	NA	0.02 mg/L
pH	6.0	8.7
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment	

2.1.4. The authorized works are those which are involved in the discharge of effluent from the LNG tank, the holding and treatment basins, the treatment and discharge works, and related appurtenances.

2.1.5. The location from which the discharge originates is within the immediate vicinity of the certified project boundary of a-5-B/103-I-02, as outlined within Figure 1_Site Plan.

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2.2. This subsection applies to the discharge of effluent from **STORMWATER DISCHARGE**. The site reference number for this discharge is E329652.

2.2.1. The maximum authorized discharge rate is 4000 m³/hr.

2.2.2. The authorized discharge period is continuous, up to 24 hours per day, 7 days a week.

2.2.3. The effluent quality at the point of discharge shall meet the following discharge criteria:

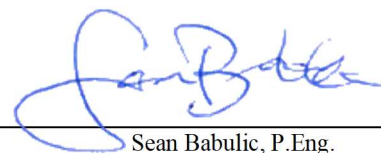
Table 2. Stormwater Discharge Criteria

Contaminants of Concern	Minimum Concentration	Maximum Concentration
Total Suspended Solids	NA	75 mg/L
Extractable Petroleum Hydrocarbons	NA	15 mg/L
pH	6.0	8.7
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment	

2.2.4. The authorized works are those which are involved in the collection, containment, treatment, and discharge of stormwater collected during construction activities.

2.2.5. The location from which the discharge originates is within the immediate vicinity of the certified project boundary of a-5-B/103-I-02, as outlined within Figure 1_Site Plan.

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2.3. This subsection applies to the discharge of effluent from **BATCH COMMISSIONING DISCHARGE**. The site reference number for this discharge is E333111.

2.3.1. The maximum authorized discharge rate is 1200 m³/hr.

2.3.2. The authorized discharge period is intermittent, up to 12 hours per day, 7 days a week.

2.3.3. The effluent quality at the point of discharge shall meet the following discharge criteria:

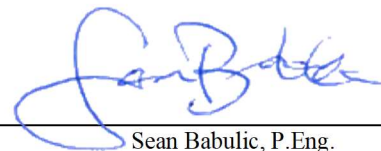
Table 3. Batch Commissioning Discharge Criteria

Contaminants of Concern	Minimum Concentration	Maximum Concentration
Total Suspended Solids	NA	75 mg/L
Extractable Petroleum Hydrocarbons	NA	15 mg/L
pH	6.0	8.7
Total Iron	NA	5 mg/L
Temperature	NA	23 °C
BOD ₅	NA	45 mg/L
Total Ammonia	NA	10 mg/L
Total Phosphorus	NA	2 mg/L
Total Coliform Bacteria	NA	40 MPN/100 mL
Total Residual Chlorine	NA	0.02 mg/L
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment	

2.3.4. The authorized works are those which are involved in the discharge of effluent from the commissioning activities including the flushing of carbon steel piping, degreasing of Acid Gas Units, commissioning, and start-up of the Effluent Treatment Plant. Components of these activities will include holding ponds, treatment equipment, and related appurtenances.

2.3.5. The location from which the discharge originates is within the immediate vicinity of the certified project boundary of a-5-B/103-I-02, as outlined within Figure 1_Site Plan.

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3. GENERAL REQUIREMENTS

3.1 Maintenance of Works and Emergency Procedures

The Approval Holder shall inspect the authorized works regularly and maintain them in good working order. Records of inspection shall be maintained and made available to BCER upon request.

In the event of an emergency or condition beyond the control of the Approval Holder, which prevents continuing operation of the authorized works, the Approval Holder shall immediately notify the Manager and take appropriate remedial action.

Instances of approval noncompliance shall be self-disclosed upon discovery, as outlined within Chapter 3 of the BCER Compliance & Enforcement Manual; Waste.Management@bc-er.ca shall also be informed of the self-disclosure.

3.2 Bypasses

The discharge of contaminants, which have bypassed the authorized works, is prohibited unless the consent of the Manager is obtained and confirmed in writing.

3.3 Process Modifications

The Approval Holder shall notify the Manager prior to implementing changes to any process that may affect the quality and/or quantity of the discharge.

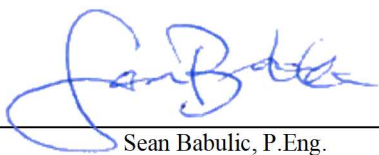
3.4 Post Disposal

The Approval Holder shall ensure that all temporary equipment associated with the discharge is removed from the work area in a manner as to minimize environmental impact.

3.5 Sampling Procedures

The Approval Holder must carry out sampling in accordance with the procedures described in the latest version of the “*B.C Field Sampling Manual*”.

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3.6 Analytical Procedures

The Approval Holder must carry out analyses in accordance with the procedures described in the latest version of the “*British Columbia Environmental Laboratory Manual*”.

4. MONITORING AND REPORTING REQUIREMENTS

The Manager may alter the monitoring and reporting program as needed. The need for changes to the program will be based upon the results submitted as well as any other information obtained by the BCER and the Ministry of Environment in connection with the discharges.

4.1 Discharge and Compliance Monitoring

4.1.1 The Approval Holder shall maintain information, analytical data and flow measurements as described in this approval for inspection by BCER.

4.1.2 The Approval Holder shall retain a qualified professional to implement the monitoring and sampling program as detailed in sections 5.2, 5.3 and 5.4 of the Technical Assessment Report documents L001-09900-HE-7180-4441_R0 and section 5.2 of L001-06400-HE-7180-2210_RB as outlined below.

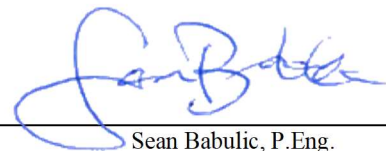
Table 4. Hydrostatic Test Water Discharge Quality Monitoring Parameters and Sampling Frequency at the Point of Discharge into the Effluent Pipelines/ Marine Outfall

Parameter	Frequency
In situ chlorine, pH, temperature, turbidity, conductivity & dissolved oxygen	Daily during discharge
Flow	Continuous during discharge
Toxicity Testing 96-hr LC50 Rainbow trout	Once

Table 5. Stormwater Discharge Quality Monitoring Parameters and Sampling Frequency at the Point of Discharge into the Effluent Pipelines/ Marine Outfall

Parameter	Frequency
In situ pH, temperature, turbidity, conductivity, dissolved oxygen	Daily during discharge
Flow	Continuous during discharge
Grab samples for TSS, EPH, iron, manganese, benzene, toluene, xylene (BTX), PAHs	Weekly
Toxicity Testing 96-hr LC50 Rainbow trout	Twice per year

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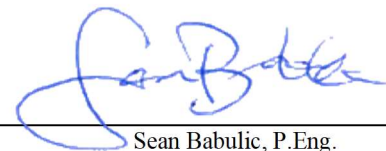
Table 6. Batch Commissioning Discharge Quality Monitoring Parameters and Sampling Frequency at the Point of Discharge into the Effluent Pipelines/ Marine Outfall

Parameter	Frequency
In situ pH, temperature, turbidity, conductivity, dissolved oxygen, total chlorine.	Daily during discharge
Flow	Continuous during discharge
Grab samples for total residual chlorine, pH, TSS, EPH, iron.	Once per batch of commissioning effluent from flushing and/or degreasing, prior to starting discharge
BOD ₅ , total ammonia, total phosphorus, TSS, EPH.	Weekly during start-up of effluent treatment plant
Total coliform bacteria, fecal coliform bacteria	Monthly during start-up of effluent treatment plant
Toxicity Testing 96-hr LC50 Rainbow trout	Twice during commissioning and concurrent with marine water quality sampling

Table 7. Receiving Environment Water Quality Monitoring Parameters and Sampling Frequency

Parameter	Frequency
In situ pH, temperature, turbidity, conductivity, dissolved oxygen, and chlorine	5 times in 30 days (February and August) 5 times in 15 days during the hydrostatic test
Grab samples for TSS, iron, BOD ₅ , total ammonia, total phosphorous, total and fecal coliform (1 m below surface, mid-plume, and 1 m above bottom sediments)	5 times in 30 days (February and August) 5 times in 15 days during the hydrostatic test
Grab samples for pH, TSS, Iron, BOD ₅ , Total ammonia, total phosphorous, total and fecal coliform	5 times in 30 days (February and August) 5 times in 15 days during commissioning activities

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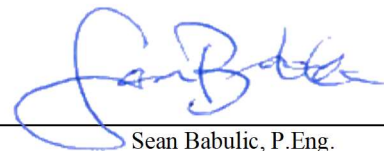


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Table 8. Preliminary Marine Monitoring Program Sampling Sites During Hydrostatic Test Water, Stormwater Discharges and Batch Commissioning Discharges as Outlined in Figure 5.1 Marine Monitoring Program Sampling Sites.

Sampling Site	Location (UTM ZONE 9U)		Rational for Selection	Background Data & Reference
	Easting	Northing		
Effluent	521091.44	5982675.40	Terminus of marine outfall	N/A
IDZ-N	521091.44	5982750.40	Exposure site, at the north edge of the IDZ	N/A
IDZ-E	521166.44	5982675.40	Exposure site, at the east edge of the IDZ	N/A
IDZ-S	521091.44	5982600.40	Exposure site, at the south edge of the IDZ	N/A
IDZ-W	521016.44	5982675.40	Exposure site, at the west edge of the IDZ	N/A
WQ1	521975.92	5982365.37	Reference site, - southeast of the discharge point	Water quality at WQ1 in 2019 and 2020 (GEM 2019; GEM 2020; Triton 2021a; Triton 2021b; Triton 2022); at Ref 1 (the closest baseline sampling site) in 2018 (Triton 2018)
WQ2	520085.88	5981848.34	Reference site - southwest of discharge point	Water quality at WQ2 in 2019 and 2020 (GEM 2019; GEM 2020; Triton 2021a; Triton 2021b; Triton 2022)
Kitamaat Village	522428.27	5980863.29	Reference site, - one site to be selected from 2018-2019 dredge monitoring program, based on completion of the dataset and consultation with the Haisla Nation	N/A

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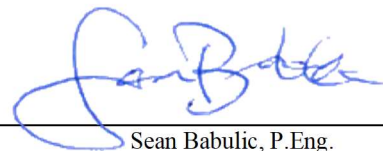
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- 4.1.3 If, in the opinion of the qualified professional responsible for the monitoring program, the discharge is or is likely causing adverse effects to the environment, the discharge shall be halted immediately.
- 4.1.4 If, in the opinion of the qualified professional responsible for the monitoring program, the discharge is or is likely causing adverse effect to the environment, the Manager shall be notified immediately at (250) 419-6604.
- 4.1.5 Photographs of the authorized works and authorized discharge shall be taken prior to, during and after the discharge. These shall be submitted upon request from the BCER and included within the monthly reports.

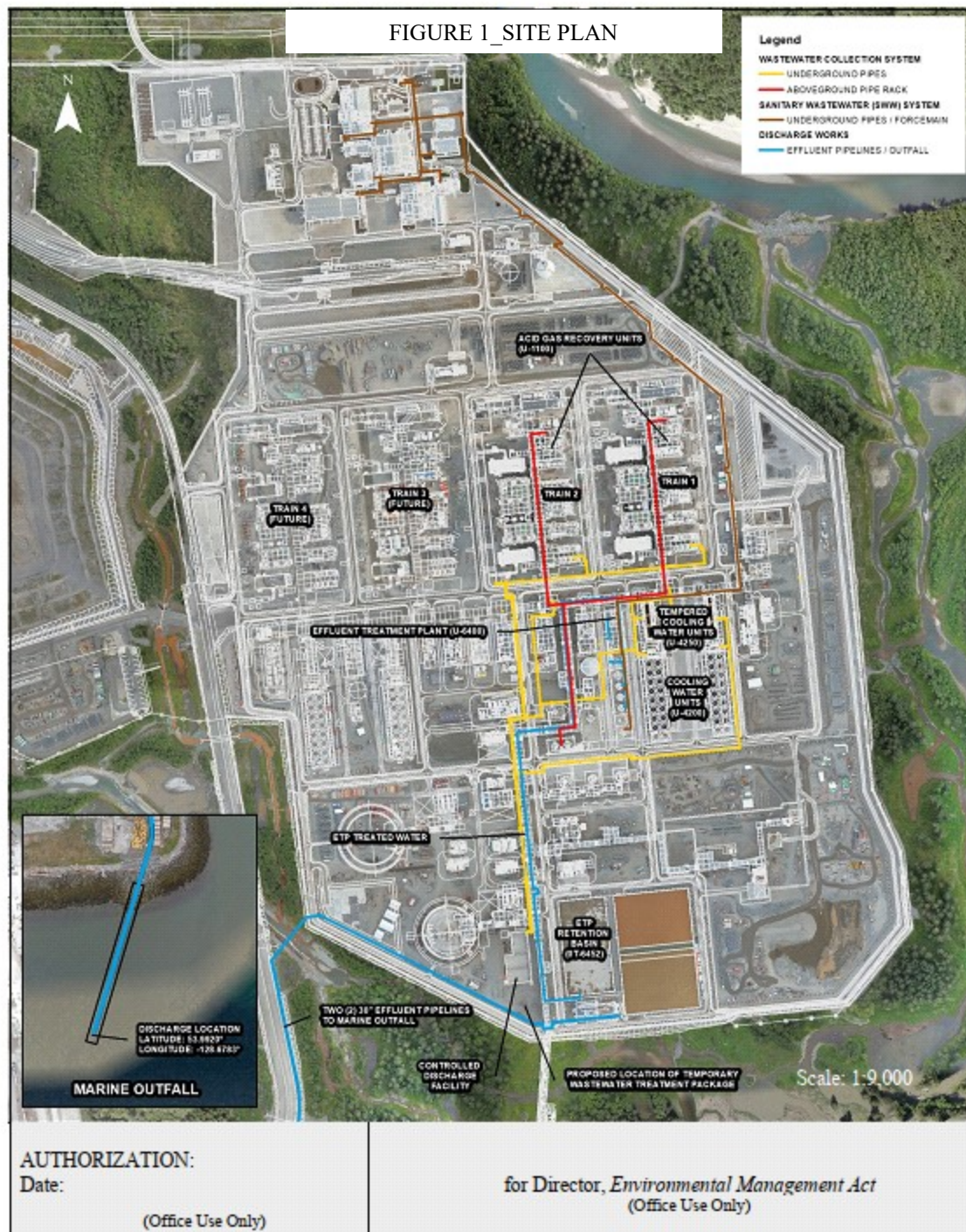
4.2 Reporting

- 4.2.1 The collected data shall be recorded, analyzed, and interpreted as detailed in section 5.5 of the Technical Assessment Report document L001-09900-HE-7180-4441_R0 and L001-06400-HE-7180-2210_RB. Results of the monitoring and sampling program shall be summarized in a letter report and submitted to the BCER every month. Reports shall be submitted to Waste.Management@bc-er.ca.
- 4.2.2 The Approval Holder shall submit a final report summarizing all monitoring and sampling activities within 60 days of the termination of the discharge. The final report shall be submitted to the BCER at Waste.Management@bc-er.ca.

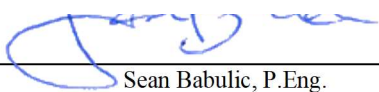
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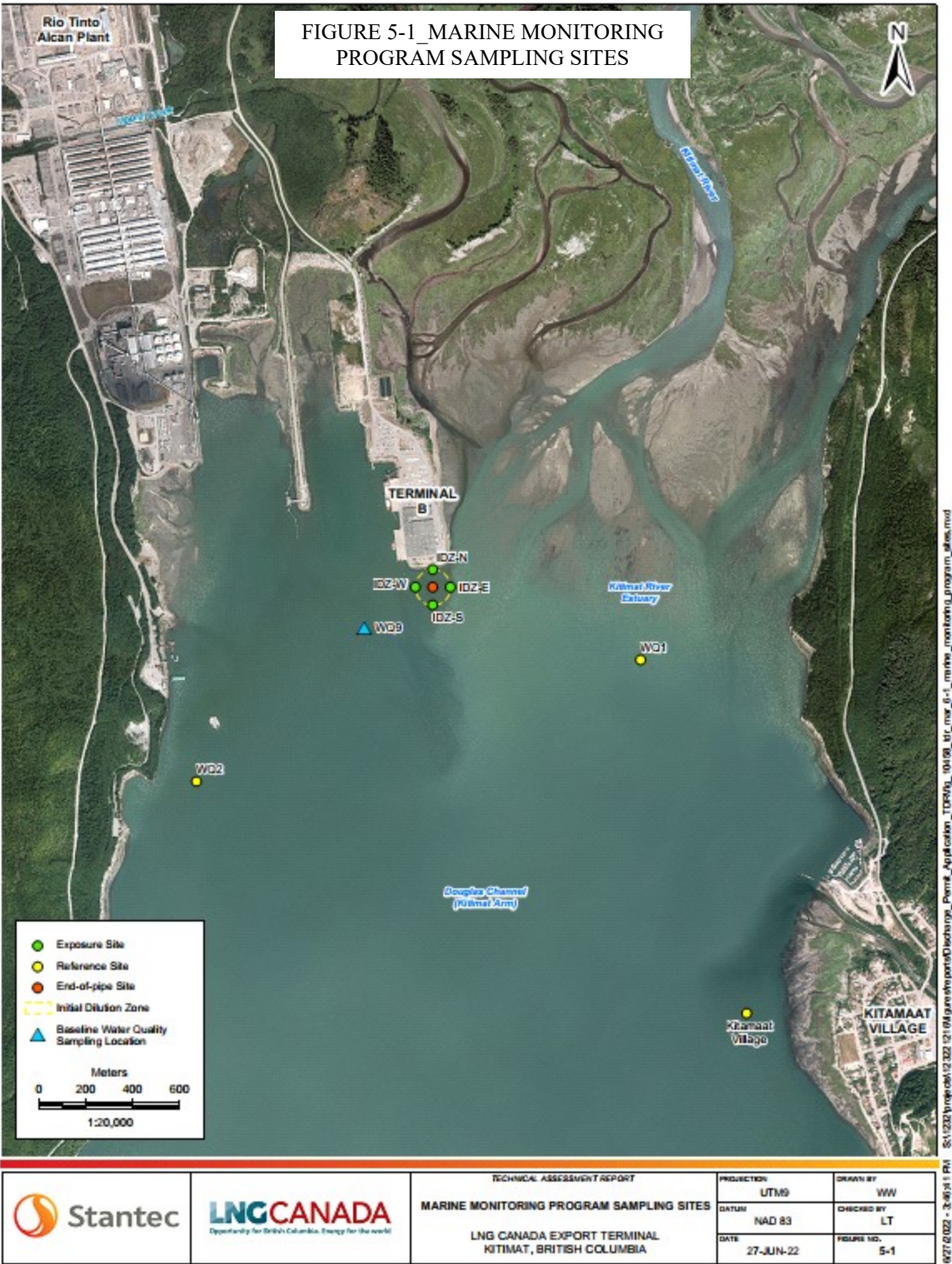


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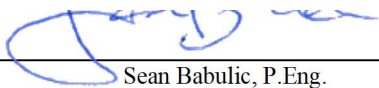


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Under the Provisions of the Environmental Management Act

LNG Canada Development Inc.
400 4th Avenue SW
Calgary, Alberta
T2P 0J4

is authorized to discharge effluent to the environment from the LNG tank hydrostatic test dewatering and construction stormwater management from within the certified project area of a-5-B/103-I-02 near the town of Kitimat, B.C, subject to the conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may result in prosecution.

1. DEFINITIONS

For the purpose of this Approval, the following definitions apply:

- 1.1. *Act* means the *Environmental Management Act*;
- 1.2. *Approval Holder* means LNG Canada Development Inc;
- 1.3. *BCER* means the BC Energy Regulator;
- 1.4. *Discharge* means the total mass of a solid, liquid or gaseous material introduced into the environment;
- 1.5. *Manager* means a BCER employee authorized to exercise the powers of the BCER under Section 15 of the *Environmental Management Act*;



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Supervisor, Environmental Stewardship

2. AUTHORIZED DISCHARGES

2.1. This subsection applies to the discharge of effluent from **ONE (1) LNG TANK HYDROSTATIC TEST DISCHARGE**. The site reference number for this discharge is E329651.

2.1.1. The maximum authorized discharge rate is 1000 m³/hr.

2.1.2. The authorized discharge period is continuous for approximately 15 hours per day, 7 days a week for a duration of 15 days.

2.1.3. The effluent quality at the point of discharge shall meet the following discharge criteria:

Table 1. Hydrostatic Test Discharge Criteria

Contaminants of Concern	Minimum Concentration	Maximum Concentration
Total Suspended Solids	NA	75 mg/L
Chlorine	NA	0.02 mg/L
pH	6.0	8.7
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment	

2.1.4. The authorized works are those which are involved in the discharge of effluent from the LNG tank, the holding and treatment basins, the treatment and discharge works, and related appurtenances.

2.1.5. The location from which the discharge originates is within the immediate vicinity of the certified project boundary of a-5-B/103-I-02, as outlined within Figure 1.

2.2. This subsection applies to the discharge of effluent from **STORMWATER DISCHARGE**. The site reference number for this discharge is E329652.

2.2.1. The maximum authorized discharge rate is 4000 m³/hr.

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- 2.2.2. The authorized discharge period is continuous, up to 24 hours per day, 7 days a week.
- 2.2.3. The effluent quality at the point of discharge shall meet the following discharge criteria:

Table 2. Stormwater Discharge Criteria

Contaminants of Concern	Minimum Concentration	Maximum Concentration
Total Suspended Solids	NA	75 mg/L
Extractable Petroleum Hydrocarbons	NA	15 mg/L
pH	6.0	8.7
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment	

- 2.2.4. The authorized works are those which are involved in the collection, containment, treatment, and discharge of stormwater collected during construction activities.
- 2.2.5. The location from which the discharge originates is within the immediate vicinity of the certified project boundary of a-5-B/103-I-02, as outlined within Figure 2.

3. **GENERAL REQUIREMENTS**

3.1 **Maintenance of Works and Emergency Procedures**

The Approval Holder shall inspect the authorized works regularly and maintain them in good working order. Records of inspection shall be maintained and made available to BCER upon request.

In the event of an emergency or condition beyond the control of the Approval Holder, which prevents continuing operation of the authorized works, the Approval Holder shall immediately notify the Manager and take appropriate remedial action.

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Instances of approval noncompliance shall be self-disclosed upon discovery, as outlined within Chapter 3 of the BCER Compliance & Enforcement Manual; Waste.Management@bc-er.ca shall also be informed of the self-disclosure.

3.2 Bypasses

The discharge of contaminants, which have bypassed the authorized works, is prohibited unless the consent of the Manager is obtained and confirmed in writing.

3.3 Process Modifications

The Approval Holder shall notify the Manager prior to implementing changes to any process that may affect the quality and/or quantity of the discharge.

3.4 Post Disposal

The Approval Holder shall ensure that all temporary equipment associated with the discharge is removed from the work area in a manner as to minimize environmental impact.

3.5 Sampling Procedures

The Approval Holder must carry out sampling in accordance with the procedures described in the latest version of the "*B.C Field Sampling Manual*".

3.6 Analytical Procedures

The Approval Holder must carry out analyses in accordance with the procedures described in the latest version of the "*British Columbia Environmental Laboratory Manual*".

4. MONITORING AND REPORTING REQUIREMENTS

The Manager may alter the monitoring and reporting program as needed. The need for changes to the program will be based upon the results submitted as well as any other information obtained by the BCER and the Ministry of Environment in connection with the discharges.

4.1 Discharge and Compliance Monitoring

4.1.1 The Approval Holder shall maintain information, analytical data and flow measurements as described in this approval for inspection by BCER.

- 4.1.2 The Approval Holder shall retain a qualified professional to implement the monitoring and sampling program as detailed in sections 5.2, 5.3 and 5.4 of the Technical Assessment Report document L001-09900-HE-7180-4441_R0 and as outlined below.

Table 3. Hydrostatic Test Water Discharge Quality Monitoring Parameters and Sampling Frequency at the Point of Discharge into the Effluent Pipelines/ Marine Outfall

Parameter	Frequency
In situ chlorine, pH, temperature, turbidity, conductivity & dissolved oxygen	Daily during discharge
Flow	Continuous during discharge
Toxicity Testing 96-hr LC50 Rainbow trout	Once

Table 4. Stormwater Discharge Quality Monitoring Parameters and Sampling Frequency at the Point of Discharge into the Effluent Pipelines/ Marine Outfall

Parameter	Frequency
In situ pH, temperature, turbidity, conductivity & dissolved oxygen	Daily during discharge
Flow	Continuous during discharge
Grab samples for TSS, EPH, iron, manganese, benzene, toluene, xylene (BTX), and PAHs	Weekly
Toxicity Testing 96-hr LC50 Rainbow trout	Twice per year

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Table 5. Receiving Environment Water Quality Monitoring Parameters and Sampling Frequency

Parameter	Frequency
In situ pH, temperature, turbidity, conductivity, dissolved oxygen, and chlorine	5 times in 30 days (February and August) 5 times in 15 days during the hydrostatic test
Grab samples for TSS (1 m below surface, mid-plume, and 1 m above bottom sediments)	5 times in 30 days (February and August) 5 times in 15 days during the hydrostatic test

Table 6. Preliminary Marine Monitoring Program Sampling Sites During Hydrostatic Test Water and Stormwater Discharges as Outlined in Figure 3.

Sampling Site	Location (UTM ZONE 9U)		Rational for Selection	Background Data & Reference
	Easting	Northing		
Effluent	521091.44	5982675.40	Terminus of marine outfall	N/A
IDZ-N	521091.44	5982750.40	Exposure site, at the north edge of the IDZ	N/A
IDZ-E	521166.44	5982675.40	Exposure site, at the east edge of the IDZ	N/A
IDZ-S	521091.44	5982600.40	Exposure site, at the south edge of the IDZ	N/A
IDZ-W	521016.44	5982675.40	Exposure site, at the west edge of the IDZ	N/A



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WQ1	521975.92	5982365.37	Reference site, - southeast of the discharge point	Water quality at WQ1 in 2019 and 2020 (GEM 2019; GEM 2020; Triton 2021a; Triton 2021b; Triton 2022); at Ref 1 (the closest baseline sampling site) in 2018 (Triton 2018)
WQ2	520085.88	5981848.34	Reference site - southwest of discharge point	Water quality at WQ2 in 2019 and 2020 (GEM 2019; GEM 2020; Triton 2021a; Triton 2021b; Triton 2022)
Kitamaat Village	522428.27	5980863.29	Reference site, - one site to be selected from 2018-2019 dredge monitoring program, based on completion of the dataset and consultation with the Haisla Nation	N/A

- 4.1.3 If, in the opinion of the qualified professional responsible for the monitoring program, the discharge is or is likely causing adverse effects to the environment, the discharge shall be halted immediately.
- 4.1.4 If, in the opinion of the qualified professional responsible for the monitoring program, the discharge is or is likely causing adverse effect to the environment, the Manager shall be notified immediately at (250) 794-5232.

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- 4.1.5 Photographs of the authorized works and authorized discharge shall be taken prior to, during and after the discharge. These shall be submitted upon request from the BCER and included within the monthly reports.

4.2 Reporting

- 4.2.1 The collected data shall be recorded, analyzed, and interpreted as detailed in section 5.5 of the Technical Assessment Report document L001-09900-HE-7180-4441_R0. Results of the monitoring and sampling program shall be summarized in a letter report and submitted to the BCER every month. Reports shall be submitted to Waste.Management@bc-er.ca.
- 4.2.2 The Approval Holder shall submit a final report summarizing all monitoring and sampling activities within 60 days of the termination of the discharge. The final report shall be submitted to the BCER at Waste.Management@bc-er.ca.

Figure 1.



Figure 2.

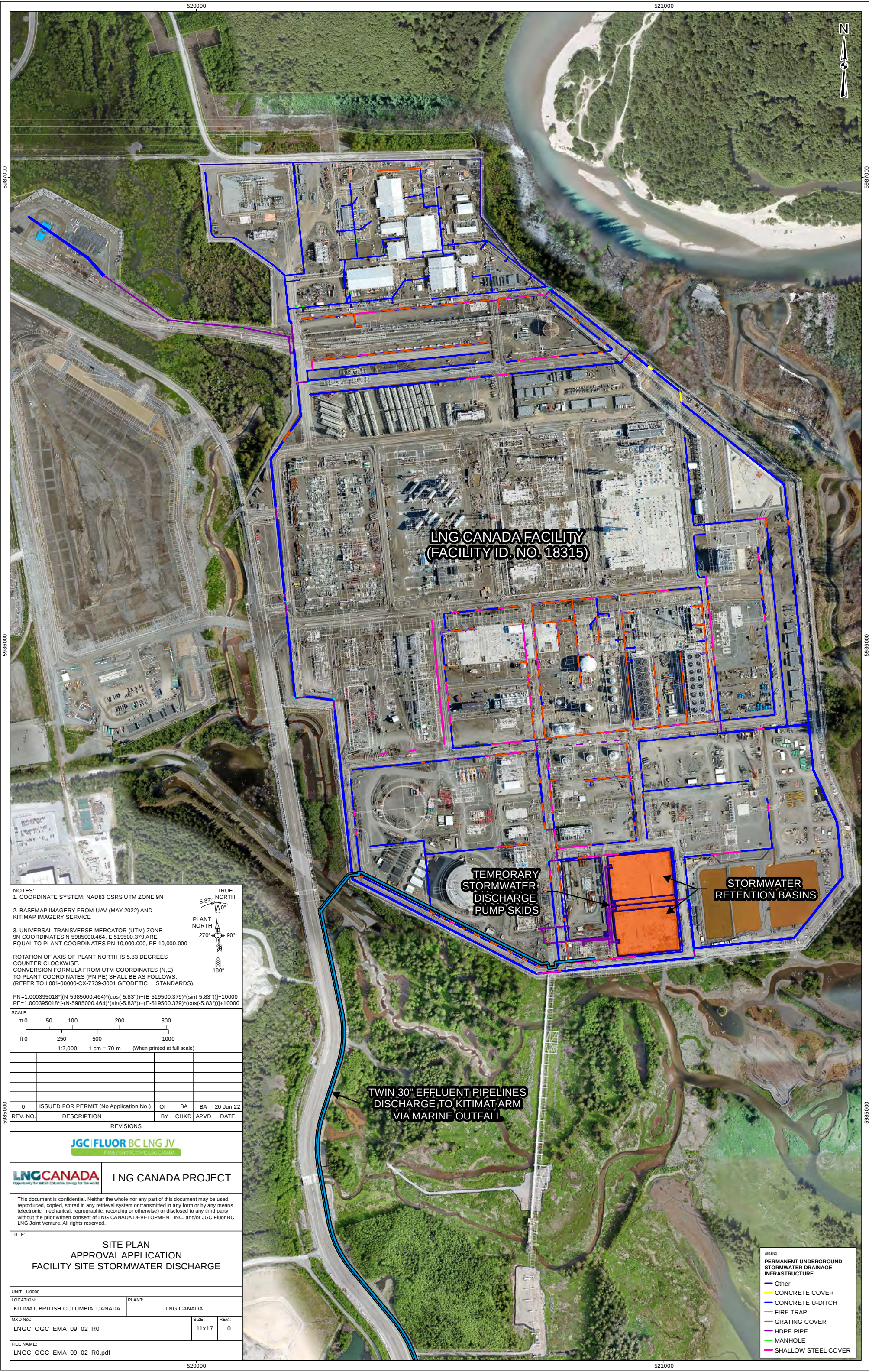


Figure 3.

