GGI JOHNSTOWN PLANT EXPANSION PROJECT

Site Plan Approval Application

Supplementary Information

VHQ0-EST-RPT-0003, REVISION 00

April 14, 2021

SIGNATURES

PREPARED BY:

14-Apr-2021

Iain Crawford, P. Eng.,
Director, Industrial Projects

Date

APPROVED BY:

14 -Apr-2021

Jie Chen Architect OAA OAQ MRAIC
Practice Lead

Date

This document has been prepared by WSP Canada Inc ('WSP') for the sole use of Greenfield Global Inc. ('GGI') and the project team on the VHQ Johnstown Expansion project

1 Background

In response to the recent surging demand for alcohol-derived products, Greenfield Global Inc (GGI) intends to expand its Johnstown plant through the addition of an ethanol distillation unit for producing food grade VHQ ethanol on a permanent basis. The project requires a fast-track approach given the market demands, timelines and funding availability from government sources. GGI established the project would proceed based on the following key souring options for the VHQ process:

- Process Technology Supplier: Katzen International, Inc., USA – Process Consultant ('Katzen')
- Plant Construction: Modular construction with potential vendor being The Chempro Group, USA – Modular Fabricator ('Chempro')
- Additional facilities and utilities to be upgrade or provided to support to overall production requirements for the VHQ alcohol

This document contains additional information on the project requested by TWPEC or its designated reviewer to support the Application for Site Plan Approval.

2 Reference Documents

The following documents, included in the appendices, have been developed to further define the project scope:

- 6000-41D0-0002, Rev. B - General Site Arrangement
- 0000-44D1-0001, Rev 0 – Site Plan Approval and Permit Status (incl. setbacks)
- Ron M. Jason Surveying Ltd,, Plan 15R-10769, Dec. 16, 2006

3 Project Areas

3.1 Item No. 1 – Rail Expansion [1]

The rail expansion includes the installation of new sidings for receiving and shipping of rail cars. It also includes an additional section of new track for the new ethanol loading and unloading stations. With the plant now shipping and receiving ethanol, the existing curvature of the incoming line will not meet the minimum requirements for handling ethanol. As a result, the mainline switch will be reconstructed to the west and the existing switch. CN approval has been received for the proposed changes.

Expected rail movements (current and future) are as follows:

- CN's rail service is currently 3 times per week on Monday, Wednesday, and Friday. Each week, GGI receives / ships 6 to 8 railcars
- The existing rail facility consists of a dedicated lead off the CN Kingston Subdivision, Mi 111.08, to an inbound track and an outbound track to stage railcars.
- The proposed rail service includes adding 24 outbound Alcohol railcars per week, with 3 shunts per week and 8 railcars per shunt, in addition to the existing rail service.

Rail loading and unloading are required to be in service by August 31st, 2021

[1] Item location of areas on site plan refer to item number on drawing 6000-41D0-0002, Rev. B .

3.2 Item No. 2 – Lunchroom Relocation

The proposed expansion requires the relocation of the existing lunchroom. The current location of the lunchroom is in the existing Process Building adjacent to the laboratory. As part of the laboratory expansion, the lunchroom will be relocated, and the laboratory expanded. Along with an area for eating, office and washrooms will also be provided. Utilities will be supplied from the main process building. Sanitary waste will be discharged to the sanitary sewer which passes close to the proposed building location.

The construction room should be completed by the end of July 2021. Drawings will be submitted for the building permit application in May.

3.3 Item No. 3 – Aqueous Ammonia System

A new aqueous ammonia system will be installed. The system will include a truck unloading station, storage tank and pumping system. The tank and pumping system will be installed within a containment area. The truck unloading area will also drain to the tank containment area.

The aqueous ammonia system will be operational by September 2021. Foundation drawings will be submitted for the building permit application in May 2021.

3.4 Item No. 4 – Fusel Tank

A new fusel storage tank will be installed. The tank will be located in the existing distillation process area. The tank will be installed in its own containment area.

The Fusel Tank will be operational by October 2021.

3.5 Item No. 5 – Boiler Building

The VHQ process will require additional steam which will be provided from a new boiler including:

- Boiler and primary ancillaries
- Boiler building (extension to existing Energy Centre)
- Boiler chemical treatment

The new boiler building extension has been located to the north of the Energy Centre.

Construction of the new boiler is scheduled to be completed by January 2022. Permitting for the new boiler building will occur in June 2021.

3.6 Item No. 6 - RO Tank

The new reverse osmosis (RO) system for the boiler plant will be provided. The RO system will be located near the new Boiler Building. No modifications to the existing building are required to facilitate the installation of the new RO system.

Construction of the RO tank foundation will occur in May 2021. Permitting for the new tank foundation will occur in April 2021.

3.7 Item No. 7 – Cooling Towers

New cooling Towers are required for the VHQ process. The new cooling towers will be installed next to the existing cooling towers.

Construction of the new cooling towers is scheduled to be completed by November 2021. Permitting for the new cooling tower foundations will occur in May 2021.

3.8 Item No. 8 – New Transformer

A new transformer will be installed to accommodate the additional loads for the VHQ process. The overall load increase to the plant has been coordinated through Hydro One. Changes to the incoming overhead line on GGI's property is required. No changes to the incoming overhead line are required outside GGI property limit.

The new transformer will be located next to one of the existing transformers. The foundation for the new MCC will include containment in case of oil spill.

Construction and installation of the new transformer is scheduled to be completed by June 2021. Permitting for the transformer foundations will occur in early April 2021.

3.9 Item No. 9 – Electrical Room

A new building will be constructed for the new electrical equipment required for the VHQ process upgrade. The electrical room will contain switchgear, MCC, DCS cabinets, UPS and other electrical equipment.

Construction of the new electrical room is scheduled to be completed by June 2021. Permitting for the transformer foundations will occur in early April 2021.

3.10 Item No. 10 – VHQ Alcohol Surge Tanks

The VHQ Alcohol Surge Tanks are used to stage finished ethanol product prior to pumping the ethanol to the tank farm. The Surge Tanks will be installed within a containment area. The ED Tower Feed Tank will also be located in the same containment area.

Construction of the new containment area will be completed in September 2021. Permitting for the foundations is expected to occur in May 2021.

3.11 Item No. 11 – VHQ Alcohol Unit

The VHQ process is used to produce very high-quality ethanol. The plant will be supplied as a modular installation. It will be shipped as a series of modules that will be assembled on site. The VHQ Plant is a steel structure open to the environment (i.e., no walls (cladding) or roofs). For control of spills, the VHQ process will require a trench and small curb around the perimeter of the area. The trench will be connected with the emergency underground sewer pipe that discharges to the emergency pond (impounding pond).

Construction of the VHQ Alcohol Unit will be completed in late 2021. Permitting for the VHQ structure is expected to occur in June 2021.

3.12 Item No. 12 – Rail Loading/Unloading and Spill Containment

The rail loading and unloading facility includes the following:

- Ethanol loading stations (four)
- Ethanol unloading stations (one); located in the same section of track as one of the loading stations
- Blending / in-line metering system
- Pipe racks and piping between tank farm and rail loading area
- Rail scale
- Rail spill collection trays connected to a spill containment area located near the tracks

Construction of the Rail Loading area will be completed by August 31, 2021. Permitting for the foundations is expected to occur in April 2021.

3.13 Item No. 13- Locker Room Expansion

To support the larger workforce required for the new VHQ process, GGI will expand the existing locker room. This expansion will be constructed to the west of the existing Administration building.

Construction of the Locker Room expansion will be completed by September 31, 2021. Permitting for the expansion is expected to occur in May 2021.

3.14 Item No. 14 – VHQ Shipping Office

To facilitate and coordinate shipping of ethanol by truck and rail, a new shipping office will be constructed near the new tank farm and the truck loading facility. The office will include an area for loading personnel and shipping coordinator. Additionally, a washroom, electrical room and two mechanical rooms (one for a tempered water system for emergency showers and one for a warming room for totes) will be provided.

Construction of the VHQ Shipping Office will be completed by August 31, 2021. Permitting for the Office is expected to occur in May 2021.

3.15 Item No. 15 – Denaturant Storage Tank

In shipping out ethanol from the facility, certain batches will include the addition of a denaturant. The denaturant storage tank will be located near the Shipping Office and Truck Loading area.

Construction of the Denaturant Storage Tank will be completed by August 31, 2021. Permitting for the foundation for the denaturant storage tank is expected to occur in May 2021.

3.16 Item No. 16 – VHQ Storage Tanks and Spill Containment

The VHQ Storage Tanks and spill containment include:

- Tank farm storage tanks (three ethanol storage tanks, one ethanol rework tank)
- Tank farm containment
- Truck filling stations (two)
- Blending / in-line metering system
- Pipe racks

For control of spills from the loading area, the drainage from the truck unloading pad will flow into the storage tank containment area. A catwalk is provided between the new alcohol tanks and the truck loading station. Catwalk and storage tank area will be provided with lighting. Access to the top of the tanks will be provided by ladders supplied with the tanks.

Construction of the storage tank area will be completed by August 31, 2021. Permitting for the foundations related to the tank farm is expected to occur in May 2021.

3.17 Item No. 17 – Lab Expansion

The project includes the expansion of the existing laboratory facilities. To support the additional laboratory needs, the existing laboratory will be expanded into the current lunchroom and washroom areas. The lunchroom will be relocated to a new building. The change room will be relocated to into a building extension that will be constructed outside the west wall of the of the building near the laboratory.

Construction of the laboratory will be completed by August 31, 2021. Permitting for the lab expansion is expected to occur in May 2021.

SITE AND PARKING INFORMATION

TYPE OF BUILDINGS OR USE	PARKING REQUIREMENTS
INDUSTRIAL	**30 PARKING SPACES REQUIRED** 46 PARKING SPACES ARE PROVIDED BARRIER-FREE PARKING SPACES **PROVIDED:** 2 INCLUDED IN TOTAL ABOVE

ZONING REQUIREMENTS

ZONING (MP-1):
INDUSTRIAL ETHANOL FACILITY

MINIMUM LOT AREA:
1ha

MINIMUM LOT FRONTAGE:
30m

MINIMUM FRONT YARD:
10m

MINIMUM EXTERIOR SIDE YARD:
10m

MINIMUM INTERIOR SIDE YARD:
10m

MINIMUM YARD SETBACK COMMERCE DRIVE:
10m

MAXIMUM LOT COVERAGE:
35%

MAXIMUM BUILDING HEIGHT:
68.5m

MINIMUM NUMBER OF LOADING SPACES:
5

BUILDINGS AREA

TOTAL BUILDINGS AREA = 14, 453 m^2

EXISTING BUILDINGS AREA: 12,262 m^2

NEW BUILDINGS AREA: 2,191 m^2

SITE AREA

SITE AREA = 519, 631 m^2

SITE COVERAGE TOTAL NEW AND EXISTING BUILDING AREA 2.8%

SITE ACCESS ROUTES

NO NEW FIRE TRUCK ACCESS ROUTES ARE PLANNED (EXISTING).

BUILDINGS LEGEND

ID	DESCRIPTION	PERMIT NO.	APPLICATION DATE
01	RAIL EXPANSION		
02	LUNCH ROOM		
03	AQUEOUS AMMONIA		
04	FUSEL TANK		
05	BOILER BUILDING		
06	RO TANK		6 APR 2021
07	COOLING TOWERS		
08	NEW TRANSFORMER		6 APR 2021
09	ELECTRICAL ROOM		6 APR 2021
10	VHQ ALCOHOL SURGE TANKS		
11	VHQ ALCOHOL UNIT		
12	RAIL SPILL CONTAINMENT		
13	LOCKER ROOM		
14	VHQ SHIPPING OFFICE		
15	DENATURANT STORAGE TANK		
16	VHQ STORAGE TANKS AND SPILL CONTAINMENT		
17	LAB EXPANSION		

SITE PLAN LEGEND

- EXISTING COOLING TOWERS, TANKS, AND BUILDINGS
- NEW COOLING TOWERS, TANKS AND MISCELLANEOUS SYSTEMS
- VHQ PROCESS
- NEW BUILDINGS
- NEW ETHANOL TANKS
- RAIL LOADING/ UNLOADING

1 SITE PLAN
0000-44D1-0001 1 : 1000

ARCHITECTURE 49
1345 ROSEMOUNT AVENUE
CORNWALL, ONTARIO, CANADA K6J 3E5
TEL: 613-933-5602 | FAX: 613-936-0335 | ARCHITECTURE49.COM

CONSULTANT:

SEAL:

ONTARIO ASSOCIATION OF ARCHITECTS
JIE CHEN
LICENCE
8009

CLIENT:

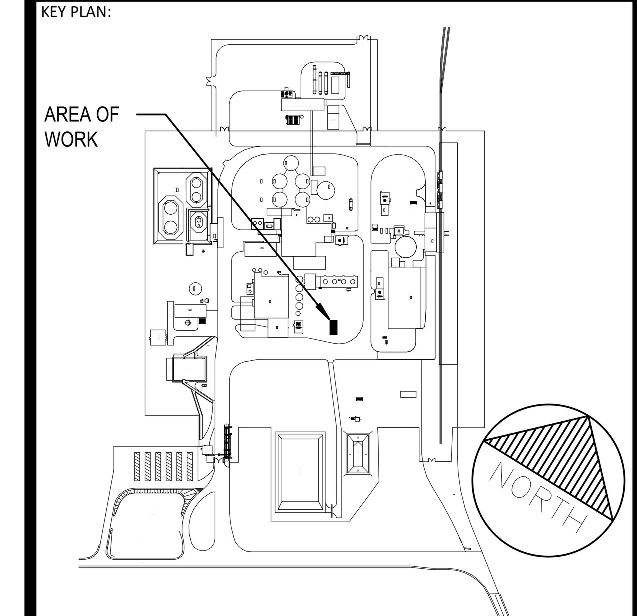
GREENFIELD GLOBAL

CLIENT REF. #:

PROJECT:

GREENFIELD ETHANOL JOHNSTOWN PLANT VHQ ALCOHOL

KEY PLAN:



ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION

PROJECT NO: 201-04879-01
DATE: 14 APR 2021
ORIGINAL SCALE: As indicated
DESIGNED BY: JC
DRAWN BY: KMS
CHECKED BY: MHG

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

DISCIPLINE: ARCHITECTURAL

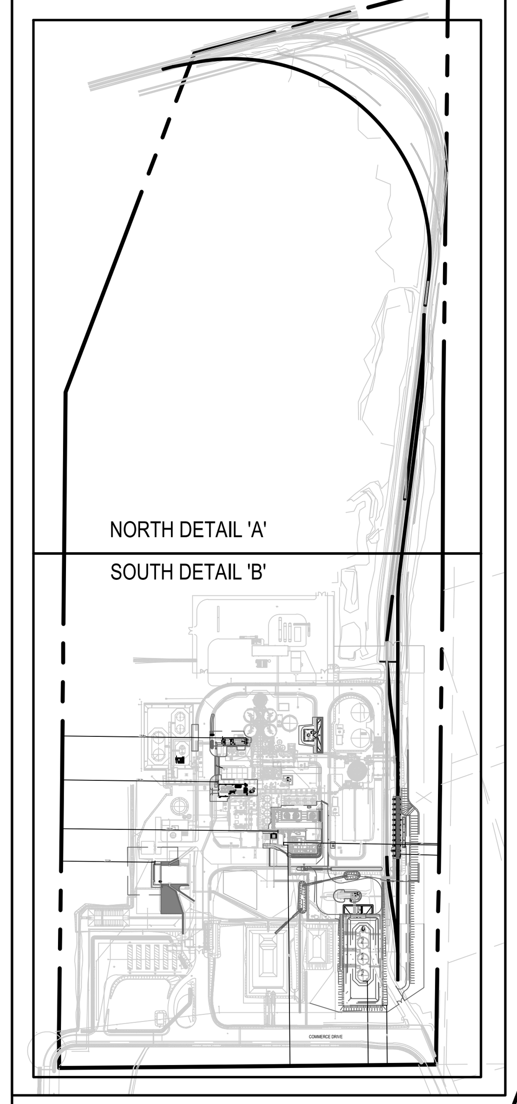
TITLE:

SITE PLAN APPROVAL AND PERMIT STATUS

SHEET NUMBER: 0000-44D1-0001
SHEET #: OF

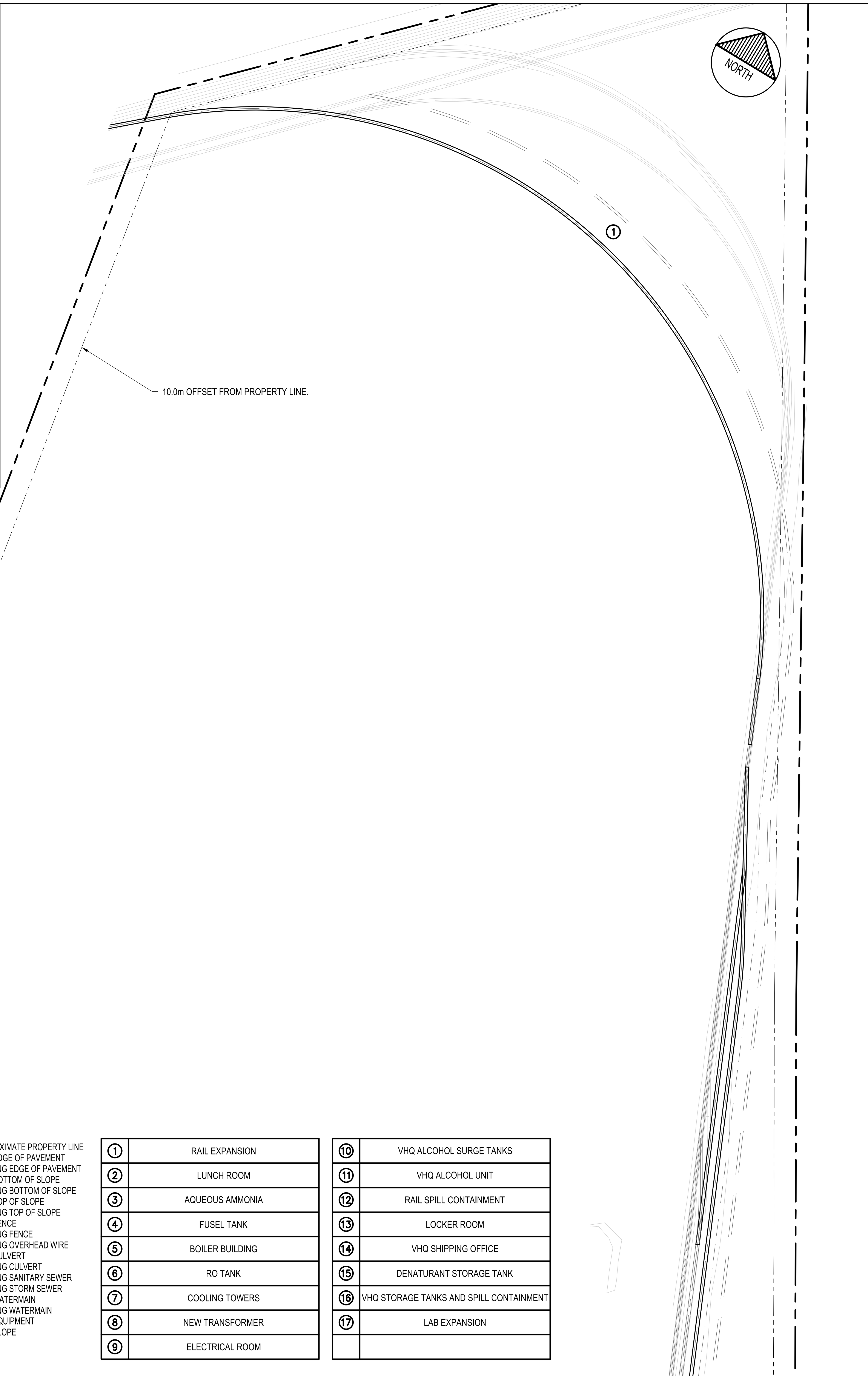
ISSUE: SITE PLAN APPROVAL APPLICATION
DATE OF: 14 APRIL 2021
REV # 0

2021-04-14 4:36:40 PM



KEY PLAN

SCALE: 1:7500



LEGEND:

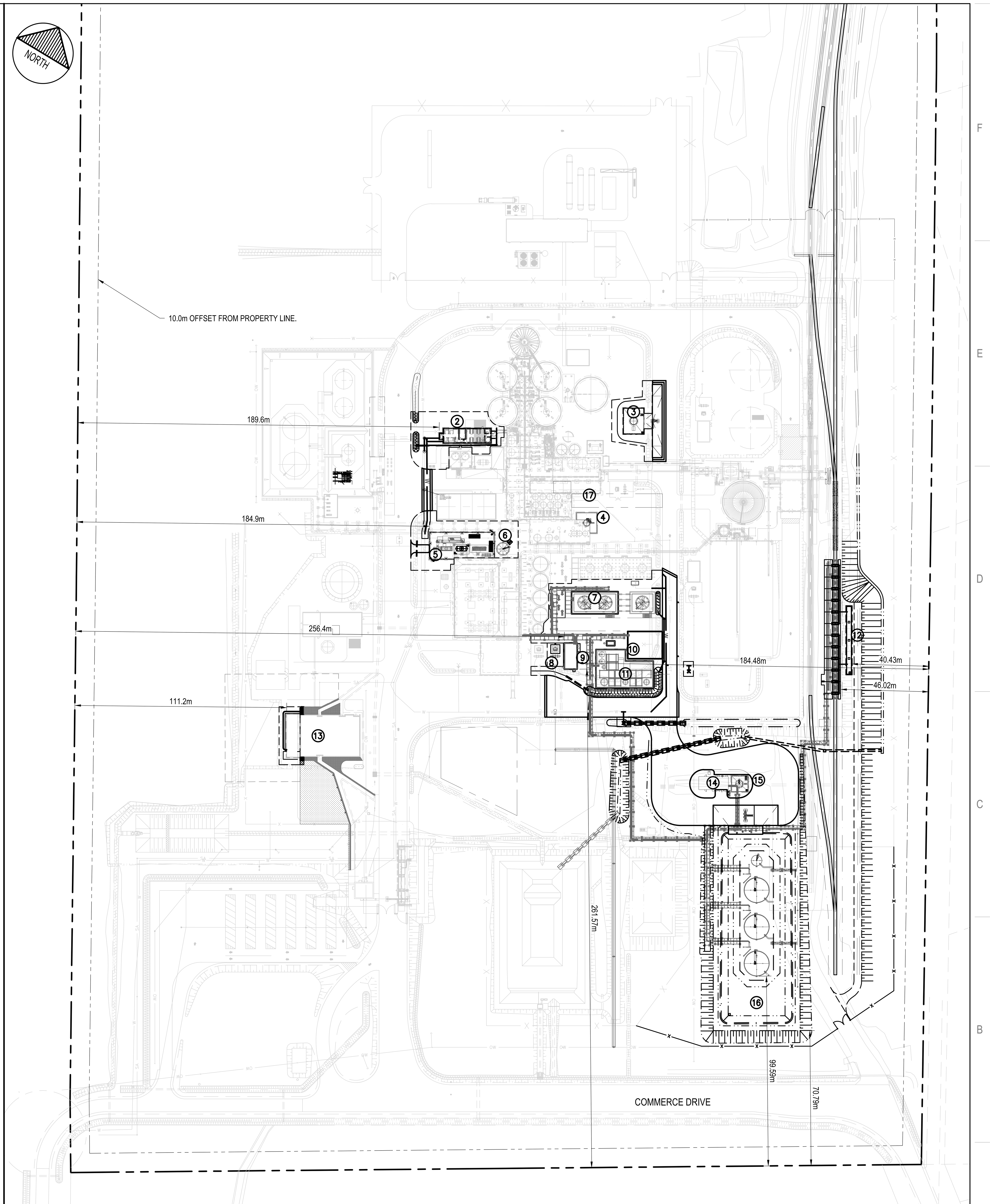
- APPROXIMATE PROPERTY LINE
- NEW EDGE OF PAVEMENT
- EXISTING EDGE OF PAVEMENT
- NEW BOTTOM OF SLOPE
- EXISTING BOTTOM OF SLOPE
- NEW TOP OF SLOPE
- EXISTING TOP OF SLOPE
- NEW FENCE
- EXISTING FENCE
- EXISTING OVERHEAD WIRE
- NEW CULVERT
- EXISTING CULVERT
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- NEW WATERMAIN
- EXISTING WATERMAIN
- NEW EQUIPMENT
- NEW SLOPE

1	RAIL EXPANSION
2	LUNCH ROOM
3	AQUEOUS AMMONIA
4	FUSEL TANK
5	BOILER BUILDING
6	RO TANK
7	COOLING TOWERS
8	NEW TRANSFORMER
9	ELECTRICAL ROOM

10	VHQ ALCOHOL SURGE TANKS
11	VHQ ALCOHOL UNIT
12	RAIL SPILL CONTAINMENT
13	LOCKER ROOM
14	VHQ SHIPPING OFFICE
15	DENATURANT STORAGE TANK
16	VHQ STORAGE TANKS AND SPILL CONTAINMENT
17	LAB EXPANSION

A NORTH DETAIL

SCALE: 1:1250



B SOUTH DETAIL

SCALE: 1:1250

REFERENCE DRAWINGS

REFERENCE NUMBER	DESCRIPTION

REVISIONS

REV	YYYY-MM-DD	DESCRIPTION	DRAFTER	DESIGNER	PROJ MGR
B	2021-04-14	REISSUED FOR BUILDING PERMIT	JB/STR	JB/STR	IC
A	2021-04-01	ISSUED FOR BUILDING PERMIT	JB/STR	JB/STR	IC

SEAL

DISCLAIMER COPYRIGHT

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

25mm

CLIENT

GREENFIELD GLOBAL

141 Commerce Drive,
Prescott, ON

CLIENT PROJECT NUMBER

wsp

4502 HANNA DRIVE,
BROCKVILLE (ONTARIO)
CANADA K6T 1A9
TEL.: 613 342-8300 | FAX: 613 342-9400
wsp.com

WSP PROJECT NUMBER: 201-04879-01

ISSUE STATUS: FOR BUILDING PERMIT

	INITIALS	YYYY-MM-DD
DESIGNED BY	JB/STR	2021-04-14
DESIGN CHECKED BY	KC/WY	2021-04-14
DRAWN BY	JB/STR	2021-04-14
DRAWING CHECKED BY	KC/WY	2021-04-14
PROJECT MANAGER	IC	2021-04-14
SCALE: AS SHOWN	SHEET NUMBER: 1	OF: 1

PROJECT DESCRIPTION

GREENFIELD GLOBAL INC.
JOHNSTOWN PLANT VHQ ALCOHOL

DRAWING TITLE

GENERAL SITE ARRANGEMENT

DRAWING NUMBER

6000-41D0-0002 B

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE REGISTRY ACT.

December 16, 2006

RON M. JASON, O.L.S.

PLAN 15R-10769

RECEIVED AND DEPOSITED

December 15, 2006

Dep. Margo Kayner

LAND REGISTRAR FOR THE REGISTRY DIVISION OF GRENVILLE (No. 15)

SCHEDULE

PART	LOT	PLAN/CONC	INST. No.	AREA	REMARKS
1	31 & 32	CONC 1	PLAN 172	51.006 ha	
2	32			0.019 ha	PIRELLI DRIVE
3	ROAD		ROAD	0.067 ha	ROAD ALLOWANCE BETWEEN LOTS 30 & 31
4	4, RANGE 1	PLAN 6	PLAN 172	0.022 ha	

METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

PLAN OF SURVEY OF
PART OF LOTS 31 & 32
CONCESSION 1,
PART OF PIRELLI DRIVE,
PART OF ROAD ALLOWANCE
BETWEEN LOTS 30 & 31 &
PART OF PARK LOT 4, RANGE 1
WEST OF TOWN
REGISTERED PLAN No. 6
TOWN PLOT OF JOHNSTOWN
GEOGRAPHIC TOWNSHIP OF EDWARDSBURGH
NOW THE TOWNSHIP OF EDWARDSBURGH/CARDINAL
COUNTY OF EDWARDSBURGH
SCALE : 1:1250
RON M. JASON O.L.S.

0 10 20 30 40 50 100 150 METRES

NOTES

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHWESTERLY LIMIT OF PART 4 ON PLAN 15R-10453, HAVING A BEARING OF N48°57'00"W.

LEGEND

□	DENOTES PLANTED MONUMENT
■	DENOTES FOUND MONUMENT
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
RB	DENOTES ROCK BAR
CC	DENOTES CUT CROSS
IP	DENOTES IRON PIPE
Ø	DENOTES ROUND
WIT	DENOTES WITNESS
ACC	DENOTES ACCEPTED
MEAS	DENOTES MEASURED
INST	DENOTES INSTRUMENT
x–x	DENOTES FENCE
P1	DENOTES EXPROPRIATION PLAN No. 172
P2	DENOTES PLAN 15R-6203
P3	DENOTES PLAN 15R-6166
P4	DENOTES PLAN 15R-10453

SNC-LAVALIN INC.
REÇU/RECEIVED
CONTRÔLE DES DOCUMENTS
DOCUMENT CONTROL
1 FEV.
PROJET PROJECT 17313
CONTR/P.O./REF 01-0054-02

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGISTRY ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 15th. DAY OF SEPTEMBER, 2006.

December 16, 2006

R. M. JASON
ONTARIO LAND SURVEYOR

Ron M. Jason Surveying Ltd.
ONTARIO & CANADA LAND SURVEYORS
PRESCOTT – ALEXANDRIA
REF: 06-10-80