THE CORPORATION OF THE TOWNSHIP OF NORTH STORMONT

REQUEST FOR QUOTATION

FOR

Backup Generators for Water Plants

RFQ-PW-004-2024

CLOSING

DATE: July 5th, 2024
TIME: 1:00 P.M.
LOCATION: TOWNSHIP OF NORTH STORMONT
15 Union Street, Berwick, ON
Phone: 613-984-2821
LATE QUOTATIONS WILL NOT BE ACCEPTED

The Corporation of the Township of North Stormont reserves the right to accept or reject all or part of any Quotation and also reserves the right to accept other than the lowest Quotation and to cancel this Request for Quotation at any time.

1. Scope of Project and Specification

The Township of North Stormont is seeking quotations for the sale, delivery, and installation of three backup generators for use at three local water plants. See below for specifications. (Entire specification sheets attached at end of document). All generators must be in full compliance with CSA regulations. **All generators must be installed following EVB Engineering Design specifications attached at end of document.**

The Township of North Stormont is also requesting a site viewing with all contactors who plan on submitting a quotation at a time agreed upon before the closing date.

Generator 1:
Location: Finch Water Plant
Specifications:
MTU 125KW Diesel Genset-Enclosed With 30hr Fuel Tank (MTU 4R0120 DS125)
OR
Generac SD130 6.7L 130KW Industrial Diesel Generator Set with Level 1 Closure and Minimum 24hr Fuel Tank

Generator 2:
Location: Crysler Water Plant
Specifications:
MTU 60KW Diesel Genset-Enclosed with 35hr Fuel Tank (MTU 4R0113 DS60)
OR
Generac SD060 4.5L 60KW Industrial Diesel Generator Set with Level 1 Closure and Minimum 24hr Fuel Tank

Generator 3:
Location: Moose Creek Water Plant
Specifications:
MTU 60KW Diesel Genset-Enclosed with 35hr Fuel Tank (MTU 4R0113 DS60)
OR
Generac SD060 4.5L 60KW Industrial Diesel Generator Set with Level 1 Closure and Minimum 24hr Fuel Tank

2. Timeline

Proponents must sign and submit their bids in a sealed envelope addressed as follows, and bids must be submitted under the following instructions:

THE CORPORATION OF THE TOWNSHIP OF NORTH STORMONT
REQUEST FOR QUOTATION
FOR
Backup Generators for Water Plants
RFQ-PW-004-2024

CLOSING DATE & TIME:
July 5th, 2024 at 1:00pm

LOCATION:
Business Address
15 Rue Union St.,
Berwick, ON. K0C 1G0
Mailing Address
PO Box 40
Finch, ON K0C 1K0
P: (613) 984-2821 x 227
F: (613) 984-2908

a) Opening and Notification of Acceptance:
   - Quotations will be opened by Municipal staff following the closing date and time as stated in this QUOTATION. Notification of acceptance shall be made by Phone/email, addressed to the winning Proponent at the address contained in the Quotation, following the awarding by the Municipality. Upon such notification of acceptance, the successful proposal shall constitute the contract between the parties. Therefore, it is anticipated that no agreement or other separate document will be required.
   - Quotations shall be open for acceptance for a period of 30 days after the closing date. After this time the Quotation may only be accepted with the consent of the successful bidder/contractor.

3. Submission Format

a) Forms to be submitted with the document must be completed in their entirety in hard copy. Proponents must complete the Form of Quotation and References fields located at the end of this document.
b) All entries shall be clear and legible and made in a non-erasable medium and signed in ink.
c) Submissions may be mailed, couriered or hand-delivered to the appropriate location. The Township will not accept electronic or digitally transmitted submissions. Delivery of Quotations through a third-party mail courier service shall be at the risk of the Bidder and must be arranged in due time for the Quotation to arrive at the specified location before the Quotation closing time.
d) All submissions shall be accompanied by a bid deposit in the amount of 10% of the total contract price (before HST). These can take the form of a bid bond, cash, money order or certified cheque.

4. Basis of Rejection

The Corporation of the Township of North Stormont reserves the right to reject any or all proposals for any reason whatsoever including but not limited to the following:

a) Quotations received after the closing date.
b) Quotations received on other than the Request for Quotation form supplied.
c) Qualified or conditional Quotations.
d) Quotation forms not properly signed and sealed.

Note: The Township has the authority and discretion to terminate this Quotation at any time, without giving reason and to accept any proposal considered best for its interest.

5. Basis of Payment

The Proponent shall provide an invoice to the Township for payment after the contract work has been completed. Payment shall be made within thirty (30) days upon receiving the proponent's invoice.

6. Terms and Conditions

General Conditions

o The Proponent shall provide competent workers to carry out the work in a safe and responsible manner.
o Township inspection staff shall confirm acceptance of work performed prior to issuance of payment.
o The successful Proponent shall indemnify and save harmless The Township of North Stormont from and against all claims, actions, losses, expenses, costs, or damages of every nature and kind whatsoever which The Township of North Stormont, its employees, officers, or agents may suffer because of the negligence of the Contractor, his employees, officers, or agents in the performance of the contract.
oThe hours of work shall be determined by the Public Works Superintendent.
o A permit Application for a Work in Right of Way is required through our partnered software Transnomis. Listed below is the link:
https://twpnorthstormont.permits.transnomis.com/Even/TWPNS

Regulations/Policy

- The Contractor shall abide, if applicable, by the requirements of the Industrial Standards Act, Employment Standards Act and any other Acts or By-Laws including Provincial and Federal Legislation which are relative to the performance of work. All contractors and sub-contractors must comply with all Health and Safety requirements as well as the Violence and Harassment policy for The Township of North Stormont.

Public Works Superintendent or Designate

- The Public Works Superintendent or designate shall mean any such person, partnership or corporation, appointed by the Council, to act on their behalf in any particular capacity.

Damage by Vehicle and Other Equipment

- If at any time, in the opinion of the Public Works Superintendent, damage is done or is likely to be done to any highway, parking lot, sidewalks, surrounding sodden areas or any property thereon by the Contractor's vehicles or other equipment whether licensed or unlicensed, the Contractor shall, on the direction of the Public Works Superintendent and at the Contractor's own expense make changes in or substitutions for such vehicles or other equipment or shall alter loadings or shall in some other manner remove the cause of damage and complete the necessary clean up and repairs to the satisfaction of the Public Works Superintendent.

The successful bidder shall at their own expense within 10 days of notification of acceptance and prior to the commencement of work, obtain and maintain until the termination of the contract or otherwise stated, provide the Township with evidence of:

Commercial General Liability Insurance

- Commercial General Liability Insurance issued on an occurrence basis for an amount of not less than $5,000,000 per occurrence/$5,000,000 annual aggregate for any negligent acts or omissions by the contractor relating to its obligations under this agreement. Such insurance shall include, but is not limited to bodily injury and property damage including loss of use; personal injury; contractual liability; premises, property & operations; non-owned automobile; broad form property damage; broad form completed operations; owners & contractors protective; occurrence property damage; products; employees as Additional Insured(s); contingent employers liability; tenants legal liability; cross liability and severability of interest clause. Such insurance shall add the Township of North Stormont as Additional Insured subject to a waiver of subrogation with respect to the operations of the contractor. This insurance shall be contributing with and apply as primary and not as excess of any insurance available to the Township.

Automobile Liability Insurance

- Automobile liability insurance with respect to owned or leased vehicles used directly or indirectly in the performance of the services covering liability for bodily injury, death and damage to property with a limit of not less than $2,000,000 inclusive for each and every loss. The policies shown above shall not be cancelled unless the Insurer notifies the Township in writing at least thirty (30) days prior to the effective date of the cancellation. The insurance policy will be in a form and with a company which are, in all respects, acceptable to the Township.
- The policies shown above shall not be cancelled unless the Insurer notifies the Township in writing at least thirty (30) days prior to the effective date of the cancellation. The insurance policy will be in a form and with a company which are, in all respects, acceptable to the Township.
- Any and all deductibles applicable to the above noted insurance shall be the sole responsibility of the bidder and the Township shall bear no cost towards such deductible.
- The bidder is responsible to keep their property / assets insured – failure to do so shall not impose any liability on the Township.
- The bidder shall provide the Township with a certificate of insurance in compliance with the insurance requirements as stipulated in the agreement.

Indemnification

- The successful bidder shall defend, indemnify and save harmless the Corporation of the Township of North Stormont, their elected officials, officers, employees and agents from and against any and all claims, actions, losses, expenses, fines, costs (including legal costs), interest or damages of every nature and kind whatsoever, including but not limited to bodily injury or to damage to or destruction of tangible property including loss of revenue arising out of or allegedly attributable to the negligence, acts, errors, omissions, whether willful or otherwise by bidder, their officers, employees, agents, or others who the bidder is legally responsible. This indemnity shall be in addition to and not in lieu of any insurance to be provided by the bidder in accordance with this agreement and shall survive this agreement.

Workers Compensation

- The successful bidder shall comply with the regulations of the Workers Safety Insurance Board of Ontario (WSIB). *The Contractor shall provide proof of coverage to the Township prior to the commencement of work.*

7. Note to the Proponent

The Proponent has carefully examined the provisions, specifications and conditions of this document and has carefully examined the site and location of the work to be done under this contract. The Proponent also understands and accepts the said provisions, specifications and conditions and for the price set forth in this quotation, hereby offers to furnish all labour, equipment, and so on, except as otherwise specified in the contract, and to complete the work in strict accordance with the provisions, specifications and conditions of this quotation. Quotations shall be open for acceptance for a period of 30 (thirty) days after the closing date. After this time the quotation may only be accepted with the consent of the successful Proponent.

8. Project Contact

For any questions, comments, clarifications or concerns regarding this Quotation, please contact:

Blake Henderson
Public Works Superintendent
15 Union St. Berwick Ont.
Email: bhenderson@northstormont.ca
Cell: 613-551-0498
Phone: 613-984-2821 ext.227

9. Form of Quotation

Generator 1:

Generator Cost: $_____._____
HST $_____._____
SUB TOTAL: $_____._____

Generator 2:

Generator Cost: $_____._____
HST $_____._____
SUB TOTAL: $_____._____

Generator 3:

Generator Cost: $_____._____
HST $_____._____
SUB TOTAL: $_____._____

Total Cost: $_____._____

I/We (the Proponent) have reviewed the specifications for the RFQ for the Township of North Stormont and agree to undertake the work in a good and workmanlike manner by the specified completion date. I/We have reviewed all the terms and conditions of the forms in this RFQ.

Expected delivery date:_____

COMPANY NAME: _____

CONTACT: _____

ADDRESS: _____

TELEPHONE: _____ **Cell** _____

FAX: _____

E-MAIL:_____

_____ ____

_____ _____

Signature **Witness**

Fench

Diesel Generator Set

MTU 4R0120 DS125

125 kWe/60 Hz/Standby/208 - 600V
Reference MTU 4R0120 DS125 (111 kWe) for Prime Rating Technical Data

System ratings

Voltage (L-L)	240V †	240V †	208V †	240V †	380V †	480V †	600V
Phase	1	1	3	3	3	3	3
PF	1	1	0.8	0.8	0.8	0.8	0.8
Hz	60	60	60	60	60	60	60
kW	125	125	125	125	125	125	125
kVA	125	125	156	156	156	156	156
Amps	521	521	434	376	237	188	150
skVA@30% voltage dip	184	196	323	323	191	430	334
Generator model	431PSL6208	431PSL6224	363CSL1607	363CSL1607	431CSL6202	363CSL1607	363PSL1658
Temp rise	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C
Connection	12 LEAD DOUBLE DELTA	4 LEAD	12 LEAD WYE	12 LEAD DELTA	12 LEAD WYE	12 LEAD WYE	4 LEAD WYE

† UL 2200 offered

Certifications and standards

- Emissions
  - EPA Tier 3 certified
- Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004
- Seismic certification – optional
  - IBC certification
  - OSHPD pre-approval
- Power rating
  - Accepts rated load in one step per NFPA 110
- UL 2200 – optional (refer to *System ratings* for availability)
- CSA – optional
  - CSA C22.2 No. 100
  - CSA C22.2 No. 14
- CE marking provided
- Performance Assurance Certification (PAC)
  - Generator set tested to ISO 8528-5 for transient response
  - Verified product design, quality and performance integrity
  - All engine systems are prototype and factory tested

A Rolls-Royce solution

Standard features*

- MTU is a single source supplier
- Global product support
- 2 year standard warranty
- OM924LA diesel engine
  - 4.8 liter displacement
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Cooling system
  - Integral set-mounted
  - Engine-driven fan
- Generator
  - Brushless, rotating field generator
  - 2/3 pitch windings
  - 300% short circuit capability with optional Permanent Magnet Generator (PMG)
- Digital control panel(s)
  - UL recognized, CSA certified, NFPA 110
  - Complete system metering
  - LCD display

Standard equipment*

Engine

- Air cleaners
- Oil pump
- Oil drain extension and S/O valve
- Full flow oil filter
- Fuel filter with water separator
- Jacket water pump
- Thermostat
- Blower fan and fan drive
- Radiator - unit mounted
- Electric starting motor - 12V
- Governor – electronic isochronous
- Base - formed steel
- SAE flywheel and bell housing
- Charging alternator - 12V
- Battery box and cables
- Flexible fuel connectors
- Flexible exhaust connection
- EPA certified engine

Generator

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting
- Self-ventilated and drip-proof
- Superior voltage waveform
- Solid state, volts-per-hertz regulator
- ±1% voltage regulation no load to full load
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- 130 °C maximum standby temperature rise
- 1-bearing, sealed
- Flexible coupling
- Full amortisseur windings
- 125% rotor balancing
- 3-phase voltage sensing
- 100% of rated load - one step
- 5% maximum total harmonic distortion

Digital control panel(s)

- Digital metering
- Engine parameters
- Generator protection functions
- Engine protection
- SAE J1939 Engine ECU Communications
- Windows®-based software
- Multilingual capability
- Remote communications to RDP-110 remote annunciator
- Programmable input and output contacts
- UL recognized, CSA certified, CE approved
- Event recording
- IP 54 front panel rating with integrated gasket
- NFPA 110 compatible

* Represents standard product only. Consult the factory/MTU Distributor for additional configurations.

Application data

Engine	
Manufacturer	Mercedes-Benz
Model	OM924LA
Type	4-cycle
Arrangement	4-inline
Displacement: L (in^3)	4.8 (293)
Bore: cm (in)	10.6 (4.17)
Stroke: cm (in)	13.6 (5.35)
Compression ratio	17.5:1
Rated rpm	1,800
Engine governor	MR2 / CPC4-ECAN
Maximum power (LP): kWm (bhp)	147 (197)
Speed regulation	± 0.25%
Air cleaner	dry

Liquid capacity (Lubrication)	
Total oil system: L (gal)	15.8 (4.2)
Engine jacket water capacity: L (gal)	7 (1.8)
System coolant capacity: L (gal)	20.8 (5.5)

Electrical	
Electric volts DC	12
Cold cranking amps under -17.8 °C (0 °F)	950

Fuel system	
Fuel supply connection size	-6 JIC
Fuel supply hose size	3/8" ID
Fuel return connection size	-6 JIC
Fuel return hose size	3/8" ID
Maximum fuel lift: m (ft)	2.7 (9)
Recommended fuel	diesel #2
Total fuel flow: L/hr (gal/hr)	328.2 (86.7)

Fuel consumption*	
At 100% of power rating: L/hr (gal/hr)	34.4 (9.1)
At 75% of power rating: L/hr (gal/hr)	25.7 (6.8)
At 50% of power rating: L/hr (gal/hr)	18.2 (4.8)

* Based on 363CSL1607 480 volt generator set

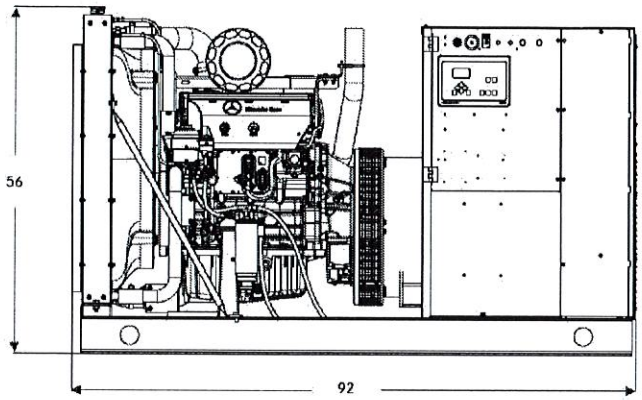
Cooling - radiator system	
Ambient capacity of radiator: °C (°F)	50 (122)
Maximum restriction of cooling air: intake and discharge side of radiator: kPa (in. H_2O)	0.12 (0.5)
Water pump capacity: L/min (gpm)	143 (37)
Heat rejection to coolant: kW (BTUM)	54 (3,071)
Heat rejection to air to air: kW (BTUM)	28.5 (1,621)
Heat radiated to ambient: kW (BTUM)	29.3 (1,666)
Fan power: kW (hp)	3.3 (4.4)

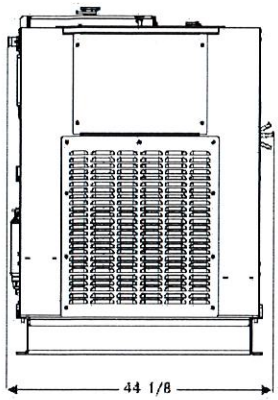
Air requirements	
Aspirating: *m^3/min (SCFM)	9.3 (328)
Air flow required for radiator cooled unit: *m^3/min (SCFM)	209 (7,381)
Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise: *m^3/min (SCFM)	107 (3,779)

* Air density = 1.184 kg/m^3 (0.0739 lbm/ft^3)

Exhaust system	
Gas temp. (stack): °C (°F)	470 (877)
Gas volume at stack temp: m^3/min (CFM)	26.3 (929)
Maximum allowable back pressure at outlet of engine, before piping: kPa (in. H_2O)	6.5 (26)

Weights and dimensions





Drawing above for illustration purposes only, based on standard open power 480 volt generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

System	Dimensions (LxWxH)	Weight (less tank)
Open power unit (OPU)	2,336 x 1,121 x 1,422 mm (92 x 44.1 x 56 in)	1,216-1,830 kg (2,682-4,034 lb)

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific generator set.

Sound data

Unit type	Standby full load
Level 0: Open power unit: dB(A)	83.1

Sound data is provided at 7 m (23 ft). Generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

Emissions data

NO_x + NMHC	CO	PM
3.61	1.42	0.08

- All units are in g/hp-hr and shown at 100% load (not comparable to EPA weighted cycle values). Emission levels of the engine may vary with ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data was obtained in compliance with US EPA regulations. The weighted cycle value (not shown) from each engine is guaranteed to be within the US EPA standards.

Rating definitions and conditions

- Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 3046-1, BS 5514, and AS 2789. Average loadfactor: ≤ 85%.
- Consult your local MTU Distributor for derating information.

Subject to change. | 23925 | 2020-02

SD130 | 6.7L | 130 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Standby Power Rating
130 kW, 163 kVA, 60 Hz

Prime Power Rating*
117 kW, 146 kVA, 60 Hz

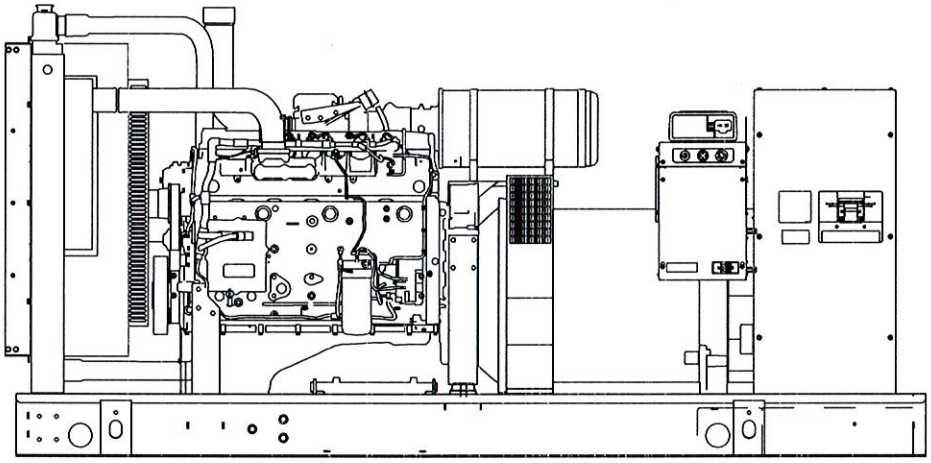


Image used for illustration purposes only

*Assembled in the USA using domestic and foreign parts

* EPA Certified Prime ratings are not available in the US or its Territories

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL6200, UL1236, UL489, UL142

CSA C22.2, ULC S601

BS5514 and DIN 6271

SAE J1349

NFPA 37, 70, 99, 110

NEC700, 701, 702, 708

ISO 3046, 7637, 8528, 9001

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 60 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD130 | 6.7L | 130 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Level 1 Fan and Belt Guards (Open Set Only)
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Engine Coolant Heater
- Critical Silencer

Fuel System

- Fuel Lockoff Solenoid
- Primary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene Glycol Antifreeze
- Engine Coolant Heater

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- 12 Leads (3-Phase, Non 600V)
- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power Winding
- Brushless Excitation
- Sealed Bearing
- Automated Manufacturing (Winding, Insertion, Lacing, Varnishing)
- Rotor Dynamically Spin Balanced
- Amortisseur Winding
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Units Only)

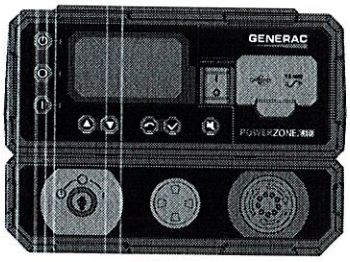
ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

FUEL TANKS (If Selected)

- UL 142/ULC S601
- Double Wall
- Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested - 2 psi
- Rupture Basin Alarm
- Fuel Level
- Check Valve In Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

CONTROL SYSTEM



Power Zone® 410 Controller

Features

- Programmable Auto Crank
- Selectable Low Speed Exercise
- RS-232 x2
- RS-485 x2
- All-Phase Sensing Digital Voltage Regulator
- Time
- Date
- On/Off/Manual Switch
- Not in Auto Flashing Light
- Emergency Stop
- Modbus® RTU
- Remote Ports
- CANbus
- Full Range Standby Operation
- 3-Phase AC Volts
- 3-Phase Amps
- kW
- Power Factor
- Ruptured Tank Detection
- Auxiliary Shutdown Switch
- Remote Communications
- Compatible with NFPA 110, Level 1 or 2 (When Optional Modules Selected)
- Line Power/Gen Power
- I^2T Function for Full Generator Protection

Full System Status Display

- Multilingual 128x64 Graphical Display with Heater
- Easy Status View LED Screen
- Full System Status
- Run Hours
- Service Reminders
- Fault History (Alarm Log)
- Oil Pressure
- Oil Temperature Indication and Alarm
- Oil Level (Optional/When Equipped)
- Output for Fuel Level High/Low Warning
- Water Temperature
- Water Level
- Fuel Pressure/Level
- Engine Speed
- Battery Voltage
- Alternator Frequency

Alarms and Warnings

- Common Alarm Output

SD130 | 6.7L | 130 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

CONFIGURABLE OPTIONS

ENGINE SYSTEM

- Oil Heater
- Level 1 Fan and Belt Guards (Enclosed Units Only)
- Air Filter Restriction Indicator
- Radiator Stone Guard

FUEL SYSTEM

- Flexible Fuel Line - NPT Connection

ELECTRICAL SYSTEM

- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating
- Permanent Magnet Excitation

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

GENERATOR SET

- Extended Factory Testing
- IBC Seismic Certification
- 8 Position Load Center
- Spring Vibration Isolators
- Pad Vibration Isolators

ENCLOSURE

- Level 0 Sound Attenuated
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Enclosure Heater (with Motorized Dampers Only)

FUEL TANKS (Size On Last Page)

- 8 in (203.2 mm) Fill Extension
- 13 in (330.2 mm) Fill Extension
- Overfill Protection Valve
- Return Hose
- Tank Risers
- 90% Fuel Level Switch and Alarm
- 12 in (304.8 mm) Vent System
- Fire Rated Stainless Steel Fuel Hose

CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- 100 dB Alarm Horn
- Ground Fault Annunciation
- 120V GFCI and 240V Outlet
- 10A Engine Run Relay
- Damper Alarm Contacts (with Motorized Dampers Only)

WARRANTY

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

ALTERNATOR SYSTEM

- 3rd Breaker System

GENERATOR SET

- Special Testing

FUEL TANKS

- UL2085 Tank
- Special Fuel Tanks

SD130 | 6.7L | 130 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Iveco/FPT
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	6
Type	In-Line
Displacement - in^3 (L)	408.86 (6.7)
Bore - in (mm)	4.09 (104)
Stroke - in (mm)	5.2 (128)
Compression Ratio	16.5:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head Type	2-Valve
Piston Type	Aluminum Alloy
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - qt (L)	18 (17)

Cooling System

Cooling System Type	Closed Recovery
Water Pump Type	Belt Driven Centrifugal
Fan Type	Pusher
Fan Speed - RPM	2,538
Fan Diameter - in (mm)	23.6 (599)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel #2
Fuel Specifications	ASTM
Fuel Filtering (Microns)	5
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line - in (mm)	0.5 (12.7) NPT
Fuel Return Line - in (mm)	0.5 (12.7) NPT

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0130124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase Only)
Telephone Interference Factor (TIF)	< 50

Standard Excitation	Synchronous Brushless
Bearings	Single Seated Cartridge
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SD130 | 6.7L | 130 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

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OPERATING DATA

POWER RATINGS

		Standby
Single-Phase 120/240 VAC @1.0pf	130 kW	Amps: 542
Three-Phase 120/208 VAC @0.8pf	130 kW	Amps: 451
Three-Phase 120/240 VAC @0.8pf	130 kW	Amps: 391
Three-Phase 277/480 VAC @0.8pf	130 kW	Amps: 195
Three-Phase 346/600 VAC @0.8pf	130 kW	Amps: 156

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

277/480 VAC	30%	208/240 VAC	30%
K0130124Y21	327	K0130124Y21	327
K0150124Y21	326	K0150124Y21	244
K0200124Y21	478	K0200124Y21	361

FUEL CONSUMPTION RATES*

Fuel Pump Lift - ft (m)
3 (1)

Total Fuel Pump Flow (Combustion + Return) - gph (Lph)
29.1 (110.2)

Diesel - gph (Lph)

Percent Load	Standby
25%	2.9 (11.0)
50%	5.4 (20.4)
75%	7.7 (29.1)
100%	9.6 (36.3)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow	gpm (Lpm)	44.6 (168.8)
Coolant System Capacity	gal (L)	5.7 (21.4)
Heat Rejection to Coolant	BTU/hr (kW)	353,900 (103.6)
Inlet Air	cfm (m^3/hr)	7,900 (223.7)
Maximum Operating Radiator Air Temperature	°F (°C)	122 (50)
Maximum Ambient Temperature (Before Derate)		See Bulletin No. 0199280SSD
Maximum Additional Radiator Backpressure	in H_2O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power - cfm (m^3/min)	390 (11.1)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	198
Piston Speed	ft/min (m/min)	1,559 (475)
BMEP	psi (kPa)	213 (1,469)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	910 (25.8)
Maximum Allowable Backpressure	inHg (kPa)	1.5 (5.1)
Exhaust Temperature (Rated Output)	°F (°C)	960 (516)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Derate – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 10000018933
Prime - See Bulletin 10000018926

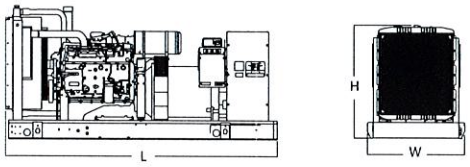
SD130 | 6.7L | 130 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

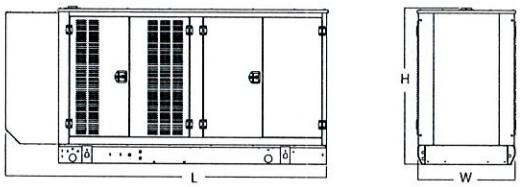
GENERAC | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*



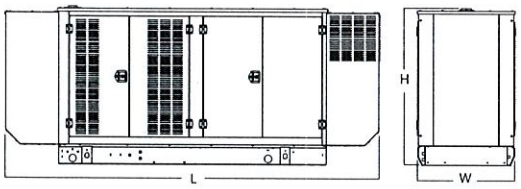
OPEN SET

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	110 (2,794) x 40 (1,016) x 65 (1,651)	3,104 (1,408)
9	90 (341)	110 (2,794) x 40 (1,016) x 77 (1,956)	3,813 (1,730)
23	220 (833)	110 (2,794) x 40 (1,016) x 89 (2,261)	4,146 (1,881)
36	350 (1,325)	110 (2,794) x 40 (1,016) x 101 (2,565)	4,488 (2,036)
53	510 (1,931)	110 (2,794) x 40 (1,016) x 105 (2,667)	4,469 (2,029)
61	589 (2,230)	128 (3,251) x 49 (1,245) x 107 (2,718)	4,948 (2,244)
72	693 (2,623)	136 (3,454) x 53 (1,346) x 107 (2,718)	4,667 (2,117)



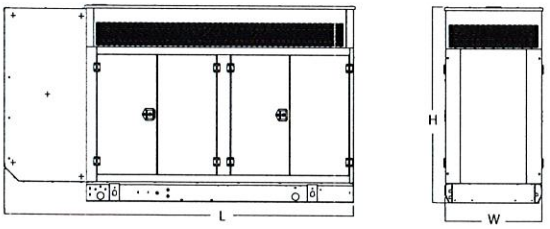
LEVEL 0 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only: Steel	Weight - lbs (kg) Enclosure Only: Aluminum
No Tank	-	133 (3,378) x 40 (1,016) x 64 (1,626)	500 (227)	165 (75)
9	90 (341)	133 (3,378) x 40 (1,016) x 77 (1,956)		
23	220 (833)	133 (3,378) x 40 (1,016) x 89 (2,261)		
36	350 (1,325)	133 (3,378) x 40 (1,016) x 101 (2,565)		
53	510 (1,931)	133 (3,378) x 47 (1,194) x 105 (2,667)		
61	589 (2,230)	133 (3,378) x 49 (1,125) x 107 (2,718)		
72	693 (2,623)	133 (3,378) x 53 (1,346) x 107 (2,718)		



LEVEL 1 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only: Steel	Weight - lbs (kg) Enclosure Only: Aluminum
No Tank	-	154 (3,912) x 40 (1,016) x 64 (1,626)	750 (340)	250 (112)
9	90 (341)	154 (3,912) x 40 (1,016) x 77 (1,956)		
23	220 (833)	154 (3,912) x 40 (1,016) x 89 (2,261)		
36	350 (1,325)	154 (3,912) x 40 (1,016) x 101 (2,565)		
53	510 (1,931)	154 (3,912) x 47 (1,194) x 105 (2,667)		
61	589 (2,230)	154 (3,912) x 49 (1,225) x 107 (2,718)		
72	693 (2,623)	154 (3,912) x 53 (1,346) x 107 (2,718)		



LEVEL 2 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only: Steel	Weight - lbs (kg) Enclosure Only: Aluminum
No Tank	-	145 (3,683) x 40 (1,016) x 81 (2,057)	1000 (454)	330 (150)
9	90 (341)	145 (3,683) x 40 (1,016) x 84 (2,134)		
23	220 (833)	145 (3,683) x 40 (1,016) x 106 (2,692)		
36	350 (1,325)	145 (3,683) x 40 (1,016) x 118 (2,997)		
53	510 (1,931)	145 (3,683) x 47 (1,194) x 122 (3,099)		
61	589 (2,230)	145 (3,683) x 49 (1,245) x 124 (3,150)		
72	693 (2,623)	145 (3,683) x 53 (1,346) x 124 (3,150)		

* All measurements are approximate and for estimation purposes only. Measurements may change with an upsized alternator. Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

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Part No. A0002195573
Rev. A 02/28/2022

Crystler + Moose Creek

Diesel Generator Set

MTU 4R0113 DS60

60 kWe/60 Hz/Standby/208 - 600V
Reference MTU 4R0113 DS60 (55 kWe) for Prime Rating Technical Data

System ratings

Voltage (L-L)	240V †	240V †	208V †	240V †	380V †	480V †	600V
Phase	1	1	3	3	3	3	3
PF	1	1	0.8	0.8	0.8	0.8	0.8
Hz	60	60	60	60	60	60	60
kW	60	60	60	60	60	60	60
kVA	60	60	75	75	75	75	75
Amps	250	250	208	180	114	90	72
skVA@30% voltage dip	127	130	200	200	172	172	172
Generator model	362CSL1604	361CSL1613	361CSL1602	361CSL1602	361CSL1602	361CSL1601	361PSL1633
Temp rise	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C
Connection	12 LEAD DOUBLE DELTA	4 LEAD	12 LEAD WYE	12 LEAD DELTA	12 LEAD WYE	12 LEAD WYE	4 LEAD WYE

† UL 2200 offered

Certifications and standards

- Emissions
  - EPA Tier 3 certified
- Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004
- Seismic certification – optional
  - IEC certification
- UL 2200 – optional (refer to *System ratings* for availability)
- CSA – optional
  - CSA C22.2 No. 100
  - CSA C22.2 No. 14
- Performance Assurance Certification (PAC)
  - Generator set tested to ISO 8528-5 for transient response
  - Verified product design, quality, and performance integrity
  - All engine systems are prototype and factory tested
- Power rating
  - Accepts rated load in one step per NFPA 110

A Rolls-Royce solution

Standard features*

- MTU is a single source supplier
- Global product support
- 2 year standard warranty
- 4045HF280 diesel engine
  - 4.5 liter displacement
  - Mechanical injection pump
  - 4-cycle
- Engine-generator resilient mounted
- Complete range of accessories
- Cooling system
  - Integral set-mounted
  - Engine-driven fan
- Generator
  - Brushless, rotating field generator
  - 2/3 pitch windings
  - 300% short circuit capability with optional Permanent Magnet Generator (PMG)
- Digital control panel(s)
  - UL recognized, CSA certified, NFPA 110
  - Complete system metering
  - LCD display

Standard equipment*

Engine

- Air cleaner
- Oil pump
- Oil drain extension and S/O valve
- Full flow oil filter
- Fuel filter with water seperator
- Jacket water pump
- Thermostat
- Blower fan and fan drive
- Radiator - unit mounted
- Electric starting motor - 12V
- Governor - mechanical droop
- Base - formed steel
- SAE flywheel and bell housing
- Charging alternator - 12V
- Battery box and cables
- Flexible fuel connectors
- Flexible exhaust connection
- EPA certified engine

Generator

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting
- Self-ventilated and drip-proof
- Superior voltage waveform
- Solid state, volts-per-hertz regulator
- ±1% voltage regulation no load to full load
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- 130 °C maximum standby temperature rise
- 1-bearing, sealed
- Flexible coupling
- Full amortisseur windings
- 125% rotor balancing
- 3-phase voltage sensing
- 100% of rated load - one step
- 5% maximum total harmonic distortion

Digital control panel(s)

- Digital metering
- Engine parameters
- Generator protection functions
- Engine protection
- Windows®-based software
- Multilingual capability
- Remote communications to RDP-110 remote annunciator
- Programmable input and output contacts
- UL recognized, CSA certified, CE approved
- Event recording
- IP 54 front panel rating with integrated gasket
- NFPA 110 compatible

* Represents standard product only. Consult the factory/MTU Distributor for additional configurations.

Application data

Engine	
Manufacturer	John Deere
Model	4045HF280
Type	4-cycle
Arrangement	4-inline
Displacement: L (in^3)	4.5 (275)
Bore: cm (in)	10.6 (4.19)
Stroke: cm (in)	12.7 (5)
Compression ratio	19:1
Rated rpm	1,800
Engine governor	mechanical droop
Maximum power: kWm (bhp)	74 (99)
Speed regulation	± 0.5%
Air cleaner	dry

Liquid capacity (Lubrication)	
Total oil system: L (gal)	13 (3.4)
Engine jacket water capacity: L (gal)	8.5 (2.3)
System coolant capacity: L (gal)	16.7 (4.4)

Electrical	
Electric volts DC	12
Cold cranking amps under -17.8 °C (0 °F)	925

Fuel system	
Fuel supply connection size	3/8" NPT
Fuel return connection size	3/8" NPT
Maximum fuel lift: m (ft)	1.8 (6)
Recommended fuel	diesel #2
Total fuel flow: L/hr (gal/hr)	113 (29.9)

Fuel consumption	
At 100% of power rating: L/hr (gal/hr)	19.3 (5.1)
At 75% of power rating: L/hr (gal/hr)	14.8 (3.9)
At 50% of power rating: L/hr (gal/hr)	10.6 (2.8)

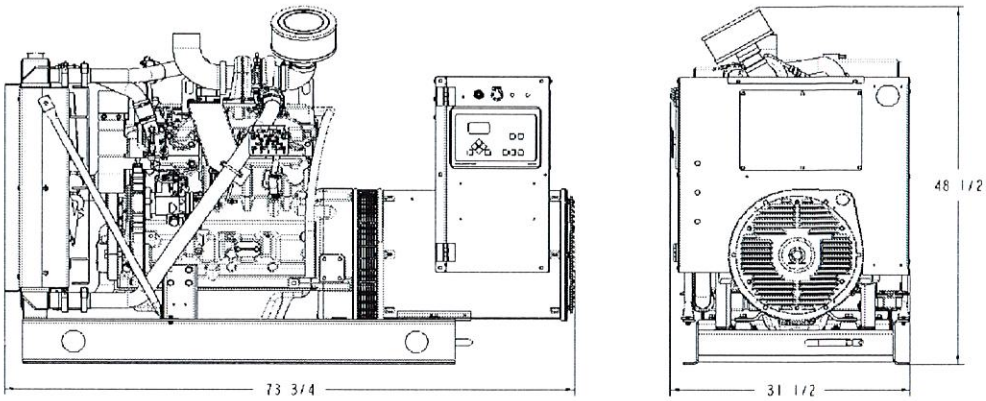
Cooling - radiator system	
Ambient capacity of radiator: °C (°F)	50 (122)
Maximum restriction of cooling air: intake and discharge side of radiator: kPa (in. H_2O)	0.12 (0.5)
Water pump capacity: L/min (gpm)	144 (38)
Heat rejection to coolant: kW (BTUM)	35 (1,979)
Heat rejection to air to air: kW (BTUM)	5 (278)
Heat radiated to ambient: kW (BTUM)	10.9 (619)
Fan power: kW (hp)	1.16 (1.55)

Air requirements	
Aspirating: *m^3/min (SCFM)	5.4 (191)
Air flow required for radiator cooled unit: *m^3/min (SCFM)	91 (3,162)
Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise: *m^3/min (SCFM)	40 (1,396)

* Air density = 1.184 kg/m^3 (0.0739 lbm/ft^3)

Exhaust system	
Gas temp. (stack): °C (°F)	545 (1,013)
Gas volume at stack temp: m^3/min (CFM)	14.4 (508)
Maximum allowable back pressure at outlet of engine, before piping: kPa (in. H_2O)	7.5 (30)
Minimum allowable back pressure: kPa (in H_2O)	N/A

Weights and dimensions



Drawing above for illustration purposes only, based on standard open power 480 volt generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

System	Dimensions (LxWxH)	Weight (dry/less tank)
Open power unit (OPU)	1,873 x 800 x 1,232 mm (73.8 x 31.5 x 48.5 in)	943-1,404 kg (2,078-3,095 lb)

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific generator set.

Sound data

Unit type	Standby full load
Level 0: Open power unit: dB(A)	73

Sound data is provided at 7 m (23 ft). Generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

Emissions data

NO_x + NMHC	CO	PM
3.5	0.97	0.32

All units are in g/hp-hr and shown at 100% load (not comparable to EPA weighted cycle values). Emission levels of the engine may vary with ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data was obtained in compliance with US EPA regulations. The weighted cycle value (not shown) from each engine is guaranteed to be within the US EPA standards. 5-mode emission data per 40 CFR 89 or 40 CFR 1039 (as applicable) is available upon request.

Rating definitions and conditions

- Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 3046-1, BS 5514, and AS 2789. Average load factor: ≤ 85%.
- Consult your local MTU Distributor for derating information.

Subject to change. | 23460 | 2020-02

SD060 | 4.5L | 60 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Standby Power Rating
60 kW, 75 kVA, 60 Hz

Prime Power Rating*
54 kW, 68 kVA, 60 Hz

*Assembled in the USA using domestic and foreign parts

* EPA Certified Prime ratings are not available in the US or its Territories

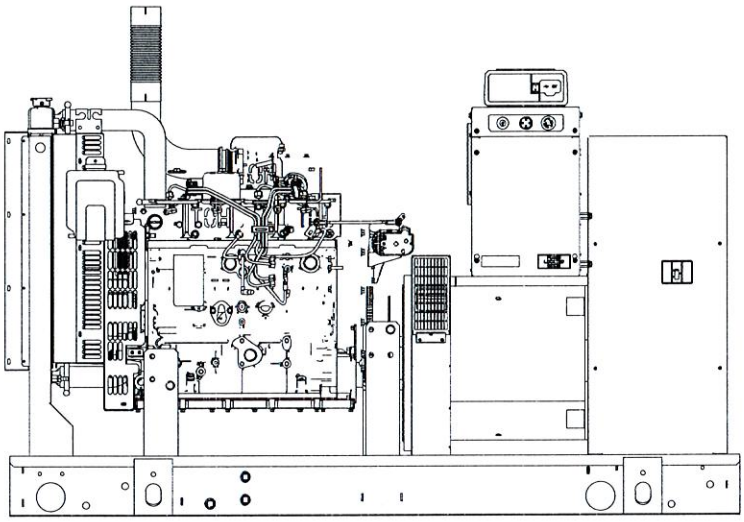


Image used for illustration purposes only

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL6200, UL1236, UL489, UL142

CSA C22.2, ULC S601

BS5514 and DIN 6271

SAE J1349

NFPA 37, 70, 99, 110

NEC700, 701, 702, 708

ISO 3046, 7637, 8528, 9001

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

Powering Ahead

For over 60 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD060 | 4.5L | 60 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

ENGINE SYSTEM

- Engine Block Heater
- Oil Drain Extension
- Air Cleaner
- Level 1 Fan and Belt Guards (Open Set Only)
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)

Fuel System

- Fuel Lockoff Solenoid
- Primary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- 12 Leads (3-Phase, Non 600V)
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power Winding
- Brushless Excitation
- Sealed Bearing
- Rotor Dynamically Spin Balanced
- Amortisseur Winding
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)

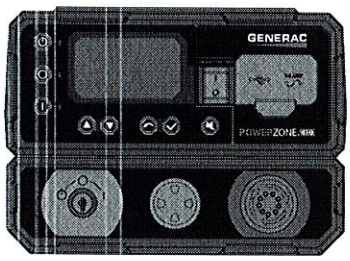
ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

FUEL TANKS (If Selected)

- UL 142/ULC S601
- Double Wall Construction
- Normal and Emergency Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested - 2 psi
- Rupture Basin Alarm
- Fuel Level
- Check Valve in Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

CONTROL SYSTEM



Power Zone® 410 Controller

Features

- Programmable Auto Crank
- Selectable Low Speed Exercise
- RS-232 x2
- RS-485 x2
- All-Phase Sensing Digital Voltage Regulator
- Time
- Date
- On/Off/Manual Switch
- Not in Auto Flashing Light
- Emergency Stop
- Modbus® RTU
- Remote Ports
- CANbus
- Full Range Standby Operation
- 3-Phase AC Volts
- 3-Phase Amps
- kW
- Power Factor
- Ruptured Tank Detection
- Auxiliary Shutdown Switch
- Remote Communications
- Compatible with NFPA 110, Level 1 or 2 (When Optional Modules Selected)
- Line Power/Gen Power
- I^2T Function for Full Generator Protection

Full System Status Display

- Multilingual 128x64 Graphical Display with Heater
- Easy Status View LED Screen
- Full System Status
- Run Hours
- Service Reminders
- Fault History (Alarm Log)
- Oil Pressure
- Oil Temperature Indication and Alarm
- Oil Level (Optional/When Equipped)
- Output for Fuel Level High/Low Warning
- Water Temperature
- Water Level
- Fuel Pressure/Level
- Engine Speed
- Battery Voltage
- Alternator Frequency

Alarms and Warnings

- Common Alarm Output

SD060 | 4.5L | 60 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

CONFIGURABLE OPTIONS

ENGINE SYSTEM

- Oil Heater
- Industrial Silencer
- Level 1 Fan and Belt Guards (Enclosed Units Only)
- Critical Grade Silencer (Open Set Only)
- Air Filter Restriction Indication
- Radiator Stone Guard (Open Set Only)

FUEL SYSTEM

- NPT Flexible Fuel Line

ELECTRICAL SYSTEM

- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating
- Permanent Magnet Excitation

GENERATOR SET

- 8 Position Load Center
- Extended Factory Testing (3-Phase Only)

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Door Open Alarm Horn
- Pad Vibration Isolation
- Enclosure Heater (with Motorized Dampers Only)
- IBC Seismic Certification

WARRANTY (Standby Gensets Only)

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- E-Stop Terminal
- 10A Engine Run Relay
- Ground Fault Annunciator
- Damper Alarm Contacts (with Motorized Dampers Only)
- 120V GCFI and 240V Outlets
- 100 dB Alarm Horn

FUEL TANKS (Size On Last Page)

- 8 in (203.2 mm) Fill Extension
- 13 in (330.2 mm) Fill Extension
- Emergency Vents
- 12 ft Vent Extensions
- Overfill Protection Valve
- Fuel Drop Tube
- 5 Gallon Spill Box
- 5 Gallon Spill Box Return Hose
- Tank Risers
- Fire Rated Stainless Steel Fuel Hose
- 90% High Fuel Alarm

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

ALTERNATOR SYSTEM

- 3rd Breaker System

FUEL TANKS

- UL2085 Tank
- Stainless Steel Tanks

SD060 | 4.5L | 60 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Iveco/FPT
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	4
Type	In-Line
Displacement - in^3 (L)	274.6 (4.5)
Bore - in (mm)	4.1 (105)
Stroke - in (mm)	5.2 (132)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head	2 Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear Driven
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - qt (L)	14.4 (13.6)

Cooling System

Cooling System Type	Closed
Water Pump Type	Belt Driven Centrifugal
Fan Type	Pusher
Fan Speed - RPM	2,538
Fan Diameter - in (mm)	26 (660)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel #2
Fuel Specifications	ASTM
Fuel Filtering (Microns)	5
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line - in (mm)	0.5 (12.7) NPT
Fuel Return Line - in (mm)	0.5 (12.7) NPT

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0060124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase Only)
Telephone Interference Factor (TIF)	< 50

Standard Excitation	Brushless
Bearings	One Pre-Lubed and Sealed
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SD060 | 4.5L | 60 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

OPERATING DATA

POWER RATINGS - DIESEL

		Standby
Single-Phase 120/240 VAC @1.0pf	60 kW	Amps: 250
Three-Phase 120/208 VAC @0.8pf	60 kW	Amps: 208
Three-Phase 120/240 VAC @0.8pf	60 kW	Amps: 180
Three-Phase 277/480 VAC @0.8pf	60 kW	Amps: 90
Three-Phase 346/600 VAC @0.8pf	60 kW	Amps: 72

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

277/480 VAC	30%	208/240 VAC	30%
K0060124Y2	124	K0060124Y2	95
K0080124Y21	172	K0080124Y21	132
K0100124Y21	227	K0100124Y21	171

FUEL CONSUMPTION RATES*

Fuel Pump Lift - ft (m)
3 (1)

Total Fuel Pump Flow (Combustion + Return) - gph (Lph)
13.6 (51.5)

Diesel - gph (Lph)

Percent Load	Standby
25%	1.4 (5.3)
50%	2.7 (10.2)
75%	3.8 (14.4)
100%	4.8 (18.2)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow	gpm (Lpm)	32.7 (123.8)
Coolant System Capacity	gal (L)	4.5 (17.4)
Heat Rejection to Coolant	BTU/hr (kW)	123,000 (36.0)
Inlet Air	cfm (m^3/hr)	6,360 (180)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Ambient Temperature (Before Derate)	See Bulletin No. 0199280SSD	
Maximum Additional Radiator Backpressure	in H_2O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power - cfm (m^3/min)	247 (7.0)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	93
Piston Speed	ft/min (m/min)	1,559 (475)
BMEP	psi (kPa)	154 (1,062)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	534 (15.1)
Maximum Allowable Backpressure (Post Silencer)	inHg (kPa)	1.5 (5.1)
Exhaust Temperature (Rated Output - Post Turbo)	°F (°C)	930 (499)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 0187500SSB
Prime - See Bulletin 0187510SSB

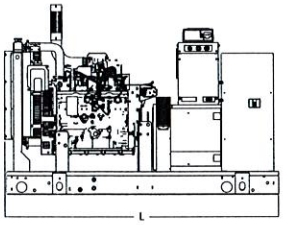
SD060 | 4.5L | 60 kW

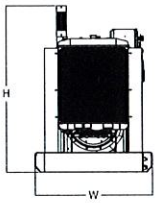
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

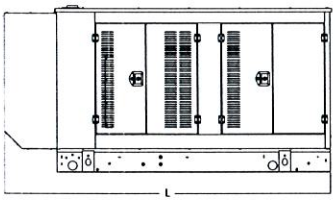
DIMENSIONS AND WEIGHTS*

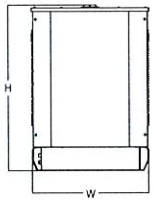




OPEN SET

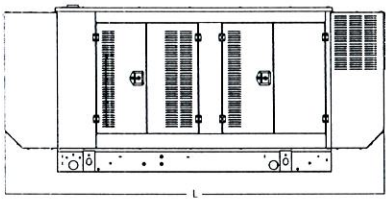
Run Time - Hours	Usable Capacity - gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	92.9 (2,360) x 40.0 (1,016) x 49.2 (1,250)	2,488 (1,128)
16	79 (299)	92.9 (2,360) x 40.0 (1,016) x 62.2 (1,580)	3,010 (1,365)
39	189 (716)	92.9 (2,360) x 40.0 (1,016) x 74.2 (1,885)	3,246 (1,472)
59	285 (1078)	135.4 (3,438) x 40.0 (1,016) x 74.2 (1,885)	3,963 (1,798)
63	305 (1,134)	92.9 (2,360) x 40.0 (1,016) x 86.2 (2,190)	3,470 (1,573)
72	350 (1,325)	110.0 (2,794) x 40.0 (1,016) x 86.2 (2,190)	3,872 (1,756)
106	510 (1,930)	116.5 (2,960) x 46.5 (1,180) x 91.8 (2,333)	3,853 (1,749)
122	589 (2,227)	128.0 (3,250) x 46.8 (1,190) x 89.7 (2,279)	4,332 (1,954)

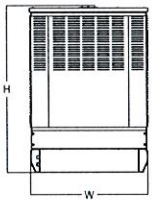




LEVEL 0 SOUND ATTENUATED ENCLOSURE

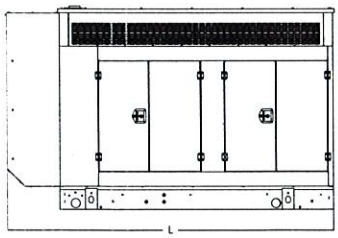
Run Time - Hours	Usable Capacity - gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only: Steel	Weight - lbs (kg) Enclosure Only: Aluminum
No Tank	-	111.8 (2,840) x 40.5 (1,028) x 56.2 (1,427)	529 (240)	260 (118)
16	79 (299)	111.8 (2,840) x 40.5 (1,028) x 69.2 (1,757)		
39	189 (716)	111.8 (2,840) x 40.5 (1,028) x 81.2 (2,062)		
59	285 (1,078)	135.4 (3,438) x 40.5 (1,028) x 81.2 (2,062)		
63	305 (1,134)	111.8 (2,840) x 40.5 (1,028) x 93.2 (2,367)		
72	350 (1,325)	111.8 (2,840) x 40.5 (1,028) x 93.2 (2,367)		
106	510 (1,930)	116.5 (2,960) x 46.5 (1,180) x 98.8 (2,510)		
122	589 (2,227)	128.0 (3,250) x 46.8 (1,190) x 96.7 (2,456)		

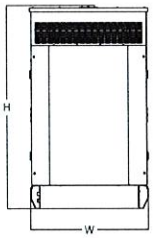




LEVEL 1 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only: Steel	Weight - lbs (kg) Enclosure Only: Aluminum
No Tank	-	129.4 (3,287) x 40.5 (1,028) x 56.2 (1,427)	690 (313)	329 (150)
16	79 (299)	129.4 (3,287) x 40.5 (1,028) x 69.2 (1,757)		
39	189 (716)	129.4 (3,287) x 40.5 (1,028) x 81.2 (2,062)		
59	285 (1,078)	135.4 (3,438) x 40.5 (1,028) x 81.2 (2,062)		
63	305 (1,134)	129.4 (3,287) x 40.5 (1,028) x 93.2 (2,367)		
72	350 (1,325)	129.4 (3,287) x 40.5 (1,028) x 93.2 (2,367)		
106	510 (1,930)	129.4 (3,287) x 46.5 (1,180) x 98.8 (2,510)		
122	589 (2,227)	129.4 (3,287) x 46.8 (1,190) x 96.7 (2,456)		





LEVEL 2 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only: Steel	Weight - lbs (kg) Enclosure Only: Aluminum
No Tank	-	111.8 (2,840) x 40.5 (1,028) x 68.6 (1,743)	818 (371)	384 (175)
16	79 (299)	111.8 (2,840) x 40.5 (1,028) x 81.6 (2,073)		
39	189 (716)	111.8 (2,840) x 40.5 (1,028) x 93.6 (2,378)		
59	285 (1,078)	135.4 (3,438) x 40.5 (1,028) x 93.6 (2,378)		
63	305 (1,134)	111.8 (2,840) x 40.5 (1,028) x 105.6 (2,683)		
72	350 (1,325)	111.8 (2,840) x 40.5 (1,028) x 105.6 (2,683)		
106	510 (1,930)	116.5 (2,960) x 46.5 (1,180) x 111.2 (2,826)		
122	589 (2,227)	128.0 (3,250) x 46.8 (1,190) x 109.1 (2,772)		

* All measurements are approximate and specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

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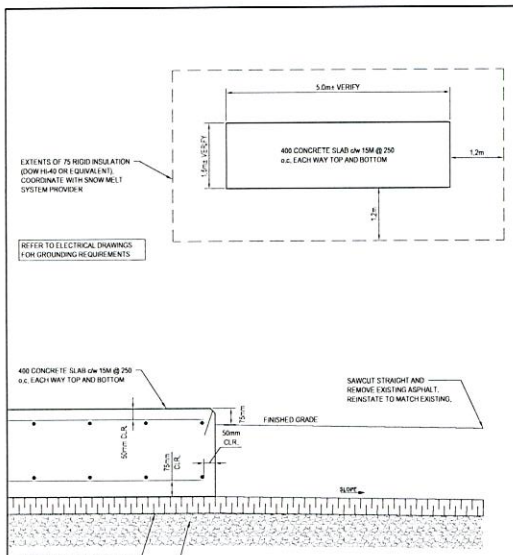
Part No A0002195516
Rev. A 03/18/2022



1 C1.1 GENERATOR PAD DETAIL
SCALE: N.T.S.

GENERAL NOTES

1. DESIGN WORK IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE. CONSTRUCT IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE AND THE APPLICABLE REQUIREMENTS ON BY-LAWS OF THE AUTHORITY HAVING JURISDICTION.
2. SITE VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS. REPORT DISCREPANCIES TO THE CONSULTANT.
3. ALL LABOUR AND MATERIALS IN ACCORDANCE WITH THE LATEST EDITION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND 2012 ONTARIO BUILDING CODE.
4. ANCHOR GENSET TO SLAB IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

CONCRETE

1. ALL CONCRETE SHALL BE NORMAL WEIGHT DESIGNED TO MEET THE PERFORMANCE CRITERIA INDICATED IN THE CONCRETE TYPE SCHEDULE (SEE BELOW).
2. PROVIDE CERTIFICATION THAT THE PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH THE REQUIREMENTS OF CAN CSA-A23.1/A23.2 (CURRENT EDITION) AND THAT THE MIX IS ADJUSTED TO PREVENT ALKALI AGGREGATE REACTIVITY PROBLEMS.
3. WET CURE: CONCRETE COMMENCING IMMEDIATELY AFTER CONCRETE HARDENING. USE NON-STAINING GEOTEXTILE COVERING. ALTERNATIVELY, A COMPATIBLE CURING COMPOUND IN ACCORDANCE WITH CSA A23.1/A23.2 (CURRENT EDITION) AND ASTM C309 WILL BE CONSIDERED - 7 DAYS.
4. CONCRETE HAULING TIME: MAXIMUM ALLOWABLE TIME FOR CONCRETE TO BE DELIVERED TO SITE AND DISCHARGED NOT TO EXCEED 120 MINUTES AFTER BATCHING (UNLESS NOTED AS LESS BY CONCRETE SUPPLIER).
5. CONCRETE SLABS TO HAVE NON-SLIP BROOMED FINISH.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CAN/CSA G30.18 (CURRENT EDITION).
2. REINFORCING STEEL: GRADE 60 (400MPa).
3. REINFORCING SHALL BE SUPPORTED AND HELD FIRMLY IN PLACE SO AS NOT TO MOVE DURING POURING OPERATIONS.
4. MINIMUM REINFORCING CLEAR COVER:
   SLAB BOTTOM = 75mm
   SLAB SIDES AND TOP = 50mm

CONCRETE FORMWORK

1. ALL FORMWORK SHALL BE DESIGNED, ERECTED, SUPPORTED, BRACED AND MAINTAINED IN ACCORDANCE WITH CSA S269.1-16 FALSEWORK AND FORMWORK.

FOUNDATIONS

1. GEOTECHNICAL CONSULTANT TO VERIFY BEARING CAPACITY AND GRANULAR COMPACTION IN WRITING PRIOR TO POURING CONCRETE. SLS = 75kPa ; ULS = 125kPa

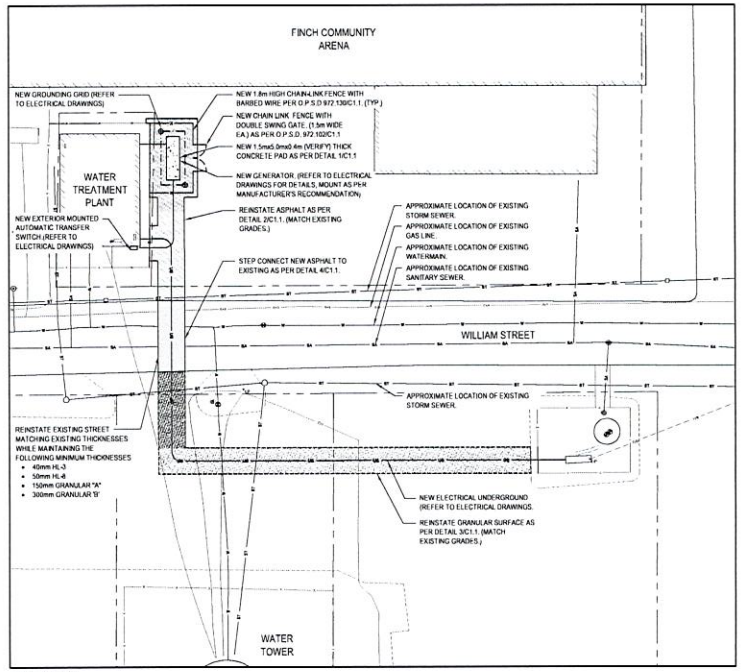
DESIGN LOADS

1. GENERATOR PLUS ENCLOSURE WEIGHT =34 kN (TO BE VERIFIED BY SUPPLIER)

CONCRETE TYPES SCHEDULE

MINIMUM 56 DAY COMPRESSIVE STRENGTH	SLUMP	EXPOSURE CLASS	W/C RATIO	AIR CONTENT
MIX 1 - GENERATOR SLAB				
35 MPa *	SEE NOTE 2	C-1	0.40	5-8%

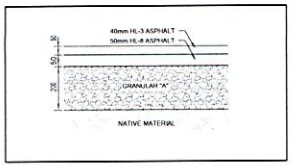
NOTES:
1. MAXIMUM AGGREGATE SIZE OF ALL CONCRETE TO BE 20mm.
2. FOR MIX 1, PROVIDE A CONCRETE MIX DESIGN WITH A SLUMP OF 50mm. ADD SUPER PLASTICIZER TO PRODUCE A CONCRETE SLUMP OF 125±25mm
3. WHERE NOTED *, COMPRESSIVE STRENGTH MEASURED AT 56 DAYS.



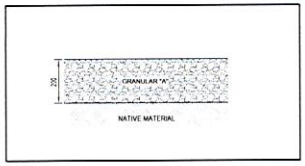
SITE PLAN
SCALE: 1:250

NOTES:

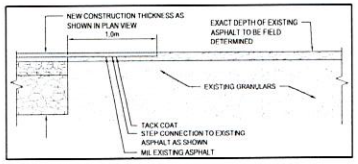
1. CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO START OF CONSTRUCTION.
2. TOPOGRAPHIC INFORMATION PROVIDED BY EVB ENGINEERING AND ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC (CGVD 2013) AND ARE DERIVED FROM CAN-NET SYSTEM NETWORK USING THE CGG2013 GEOID MODEL."
3. ALL DISTURBED AREAS TO BE REINSTATED WITH 100mm TOPSOIL AND SEED UNLESS OTHERWISE NOTED.



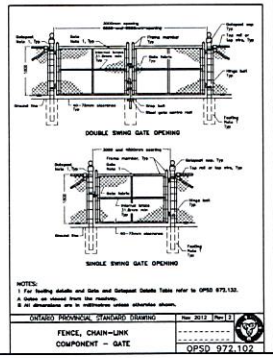
2 C1.1 ASPHALT DRIVEWAY REINSTATEMENT
SCALE: N.T.S.

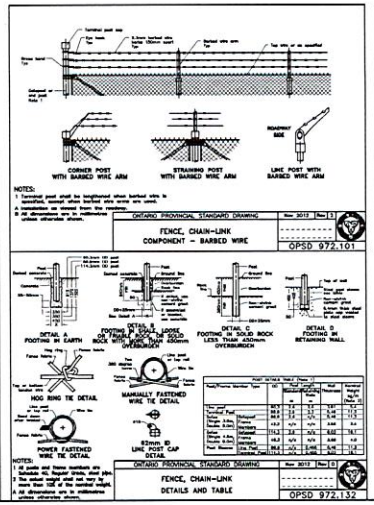


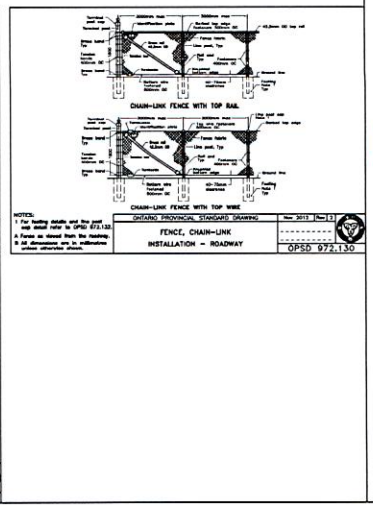
3 C1.1 GRANULAR DRIVEWAY REINSTATEMENT
SCALE: N.T.S.



4 C1.1 TYPICAL STEP CONNECTION DETAIL
SCALE: 1:25







DATE	No	REVISION
2023/06/26	1	ISSUED FOR 100% REVIEW

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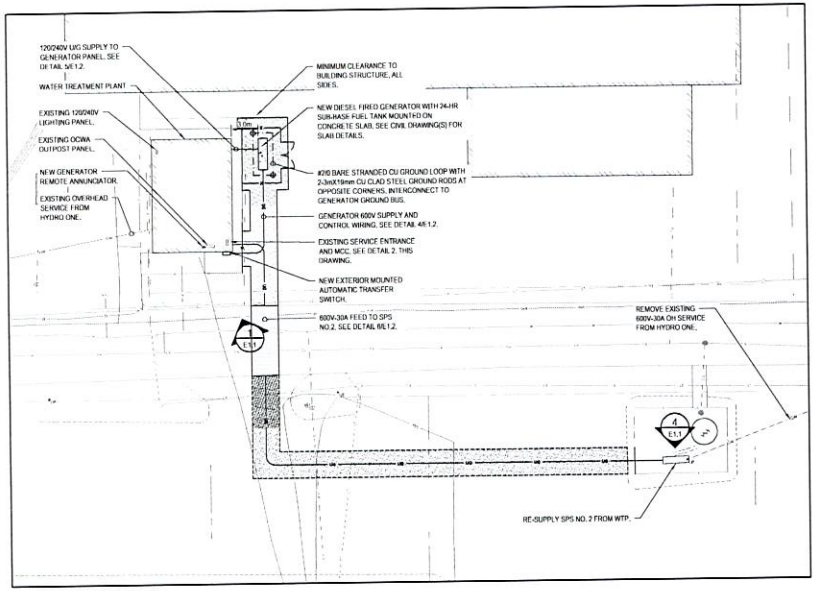
WEBSITE: EVBengineering.com

CLIENT:
ONTARIO CLEAN WATER AGENCY (OCWA)

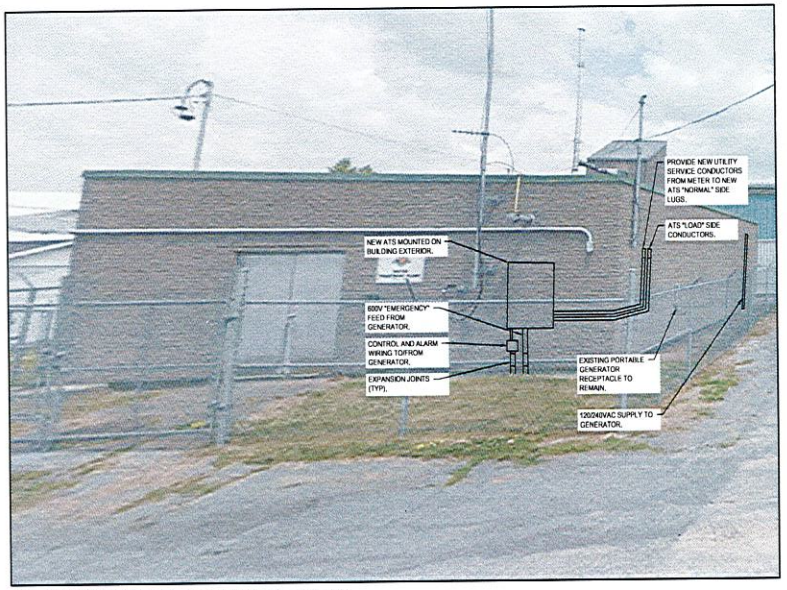
PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
FINCH WTP SITE PLAN

SCALE: AS SHOWN	JOB NO: 23074
DESIGNED BY: G.E.	DATE: 2023/06/01
DRAWN BY: K.B./WB.K.N.	DRAWING NO. C1.1
CHECKED BY: J.B.	

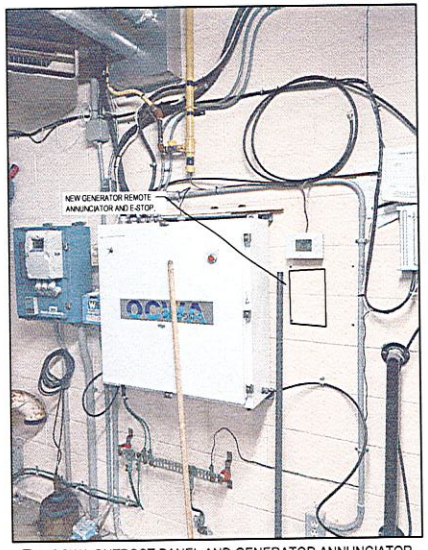


ELECTRICAL SITE PLAN
SCALE: 1:250

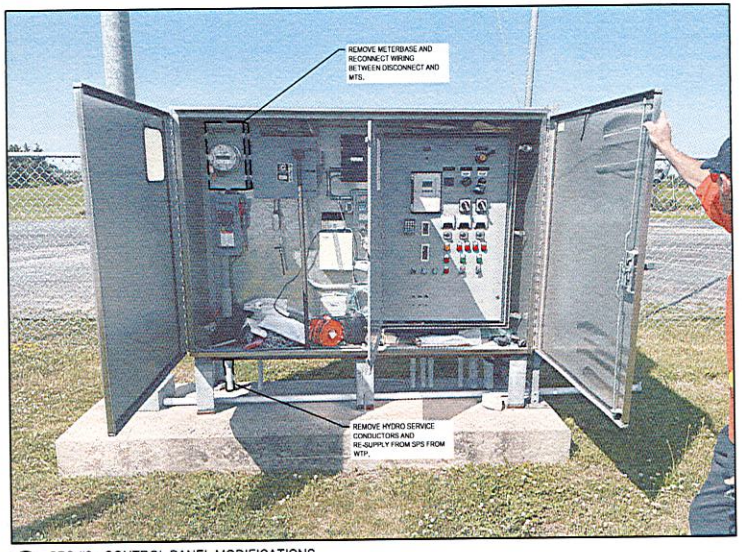


1 E1.1 NEW ATS LOCATION - FRONT OF WTP BUILDING
SCALE: NTS

2 E1.1 EXISTING SERVICE ENTRANCE AND MCC
SCALE: NTS



3 E1.1 OCWA OUTPOST PANEL AND GENERATOR ANNUNCIATOR
SCALE: NTS



4 E1.1 SPS #2 - CONTROL PANEL MODIFICATIONS
SCALE: NTS

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2023/09/28	1	ISSUED FOR 100% REVIEW

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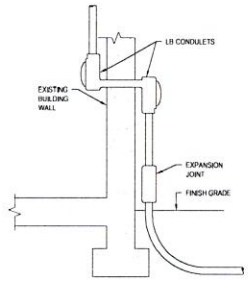
CLIENT:
ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
FINCH WTP
ELECTRICAL SITE PLAN

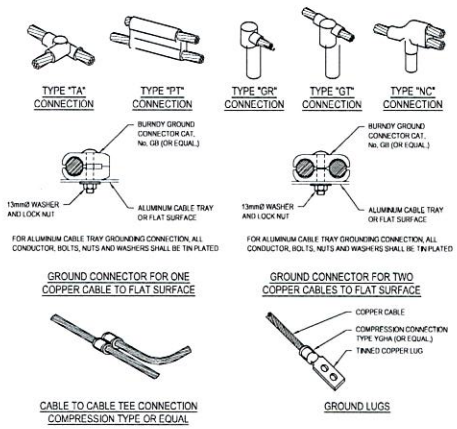
SCALE: AS NOTED	JOB NO. 23074
DESIGNED BY: BM	DATE: 2023/06/01
DRAWN BY: BM	DRAWING NO. E1.1
CHECKED BY: JES	



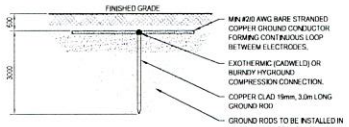
NOTES

1. INSTALL CONDUITS THROUGH EXISTING WALLS IN ACCORDANCE WITH THIS DETAIL IF NOT OTHERWISE INDICATED.
2. DRILL HOLE USING METHODS THAT LEAVE A SMOOTH OPENING. SEAL OPENING AROUND CONDUIT, INSIDE, AND OUTSIDE, WITH IMMERSIBLE POLYURETHANE SEALANT.

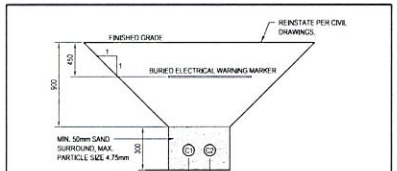
1 E1.2 CONDUIT ENTRANCE ABOVE GRADE FOR EXIST BLDG
SCALE: NTS



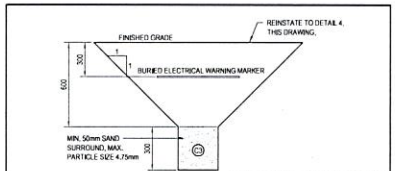
2 E1.2 TYPICAL GROUND CONNECTIONS
SCALE: N.T.S.



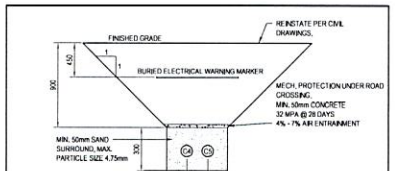
3 E1.2 TYPICAL GROUND ELECTRODE
SCALE: N.T.S.



4 E1.2 GENERATOR TRENCH #1
SCALE: N.T.S.



5 E1.2 GENERATOR TRENCH #2
SCALE: N.T.S.



6 E1.2 600V - 30AMP FEED TO SPS#2
SCALE: N.T.S.

DATE	No.	REVISION
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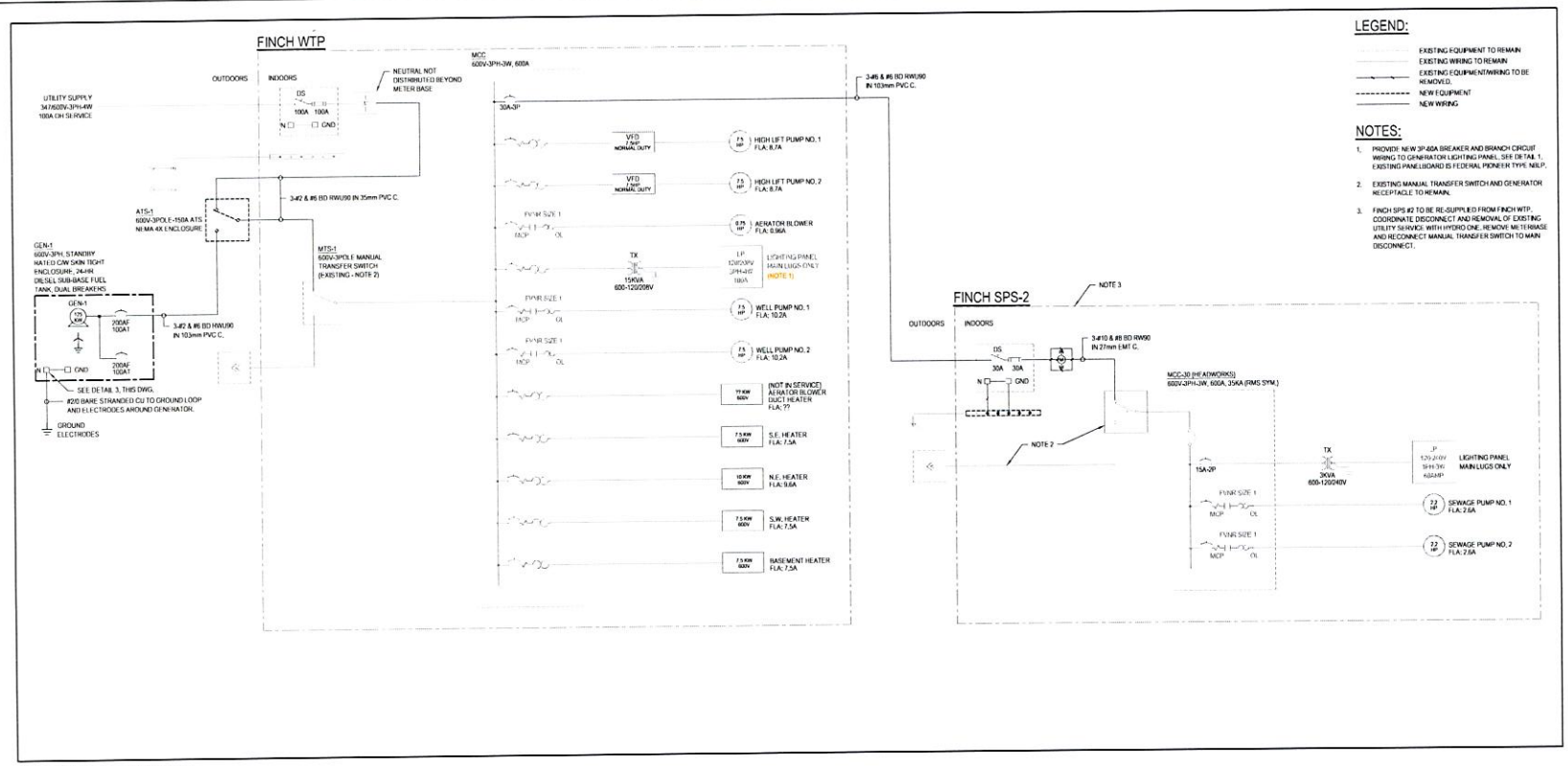
CLIENT:
ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
FINCH WTP
ELECTRICAL DETAILS

SCALE: AS NOTED	JOB NO. 23074
DESIGNED BY: B.M.	DATE: 2023/08/01
DRAWN BY: B.M.	DRAWING NO. E1.2
CHECKED BY: J.S.	



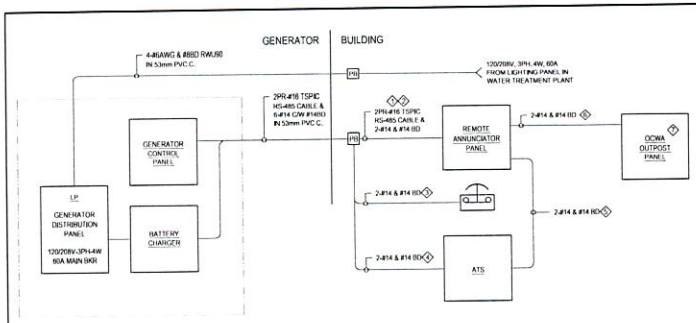
LEGEND:

- EXISTING EQUIPMENT TO REMAIN
- EXISTING WIRING TO REMAIN
- EXISTING EQUIPMENT/WIRING TO BE REMOVED.
- NEW EQUIPMENT
- NEW WIRING

NOTES:

1. PROVIDE NEW 3P-40A BREAKER AND BRANCH CIRCUIT WIRING TO GENERATOR LIGHTING PANEL. SEE DETAIL 1. EXISTING PANELBOARD IS FEDERAL PIONEER TYPE NBLP.
2. EXISTING MANUAL TRANSFER SWITCH AND GENERATOR RECEPTACLE TO REMAIN.
3. FINCH SPS #2 TO BE RE-SUPPLIED FROM FINCH WTP. COORDINATE DISCONNECT AND REMOVAL OF EXISTING UTILITY SERVICE WITH HYDRO ONE. REMOVE METERBASE AND RECONNECT MANUAL TRANSFER SWITCH TO MAIN DISCONNECT.

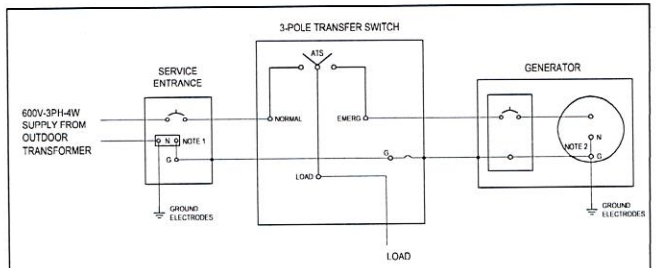
1 / E1.3 SINGLE LINE DIAGRAM
SCALE: NTS



NOTES:

1. NETWORK CONNECTION FROM GENSET CONTROLLER TO REMOTE ANNUNCIATOR.
2. BATTERY CHARGER A/C FAILURE TO REMOTE ANNUNCIATOR.
3. REMOTE E-STOP IN ELECTRICAL ROOM TO GENSET CONTROLLER.
4. REMOTE GENERATOR "START" SIGNAL FROM ATS TO GENSET CONTROLLER.
5. ATS ALARM SIGNAL TO REMOTE ANNUNCIATOR:
   - 5.1. "GENSET SUPPLYING LOAD"
6. ATS ALARM SIGNALS TO OCWA OUTPOST PANEL:
   - 6.1. "COMMON ALARM"
7. FINAL CONNECTIONS IN OCWA OUTPOST PANEL AND ASSOCIATED PROGRAMMING BY OWNER. PROVIDE SUFFICIENT SLACK AND COIL ALARM WIRING AT PANEL FOR TERMINATION BY OWNER.

2 / E1.3 GENERATOR CONTROLS INTERCONNECTION DIAGRAM
SCALE: NTS



NOTES:

1. SYSTEM NEUTRAL NOT DISTRIBUTED BEYOND METER BASE.
2. GENERATOR NEUTRAL TO BE BONDED TO FRAME AND GROUNDED. NEUTRAL IS NOT DISTRIBUTED. INSTALL LAMICOID TO GENERATOR SERVICE DOOR, READING "NEUTRAL BONDED TO FRAME".

3 / E1.3 GENERATOR NEUTRAL GROUNDING & BONDING
SCALE: NTS

DATE	No.	REVISION
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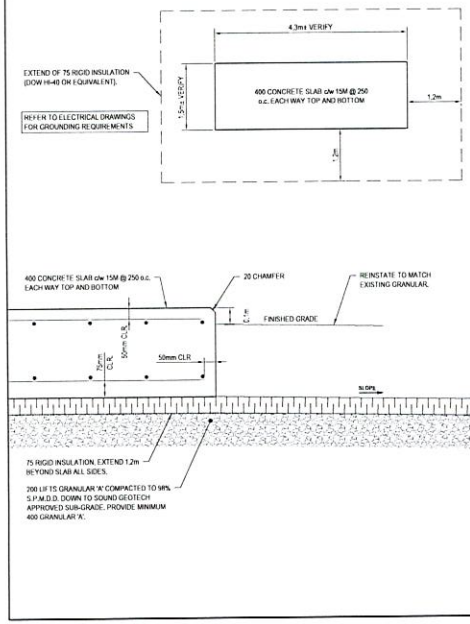
ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
FINCH WTP
SINGLE LINE DIAGRAM

SCALE: NTS	JOB NO. 23074
DESIGNED BY: BM	DATE: 2023/06/01
DRAWN BY: BM	DRAWING NO. E1.3
CHECKED BY: BM	



1 C1.2 GENERATOR PAD DETAIL
SCALE: N.T.S.

GENERAL NOTES

1. DESIGN WORK IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE. CONSTRUCT IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE AND THE APPLICABLE REQUIREMENTS OR BY-LAWS OF THE AUTHORITY HAVING JURISDICTION.
2. SITE VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS. REPORT DISCREPANCIES TO THE CONSULTANT.
3. ALL LABOUR AND MATERIALS IN ACCORDANCE WITH THE LATEST EDITION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND 2012 ONTARIO BUILDING CODE.
4. ANCHOR GENSET TO SLAB IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

CONCRETE

1. ALL CONCRETE SHALL BE NORMAL WEIGHT DESIGNED TO MEET THE PERFORMANCE CRITERIA INDICATED IN THE CONCRETE TYPE SCHEDULE (SEE BELOW).
2. PROVIDE CERTIFICATION THAT THE PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH THE REQUIREMENTS OF CAN CSA-A23.1/A23.2 (CURRENT EDITION) AND THAT THE MIX IS ADJUSTED TO PREVENT ALKALI AGGREGATE REACTIVITY PROBLEMS.
3. WET CURE CONCRETE COMMENCING IMMEDIATELY AFTER CONCRETE HARDENS. USE NON-STAINING GEOTEXTILE COVERING. ALTERNATIVELY, A COMPATIBLE CURING COMPOUND IN ACCORDANCE WITH CSA A23.1/A23.2 (CURRENT EDITION) AND ASTM C309 WILL BE CONSIDERED - 7 DAYS.
4. CONCRETE HAULING TIME: MAXIMUM ALLOWABLE TIME FOR CONCRETE TO BE DELIVERED TO SITE AND DISCHARGED NOT TO EXCEED 120 MINUTES AFTER BATCHING (UNLESS NOTED AS LESS BY CONCRETE SUPPLIER).
5. CONCRETE SLABS TO HAVE NON-SLIP BROOMED FINISH.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CANCSA G30.18 (CURRENT EDITION).
2. REINFORCING STEEL: GRADE 60 (400MPa).
3. REINFORCING SHALL BE SUPPORTED AND HELD FIRMLY IN PLACE SO AS NOT TO MOVE DURING POURING OPERATIONS.
4. MINIMUM REINFORCING CLEAR COVER:
   SLAB BOTTOM = 75mm
   SLAB SIDES AND TOP = 50mm

CONCRETE FORMWORK

1. ALL FORMWORK SHALL BE DESIGNED, ERECTED, SUPPORTED, BRACED AND MAINTAINED IN ACCORDANCE WITH CSA S269.1-16 FALSEWORK AND FORMWORK.

FOUNDATIONS

1. GEOTECHNICAL CONSULTANT TO VERIFY BEARING CAPACITY AND GRANULAR COMPACTION IN WRITING PRIOR TO POURING CONCRETE. SLS = 75kPa ; ULS = 125kPa

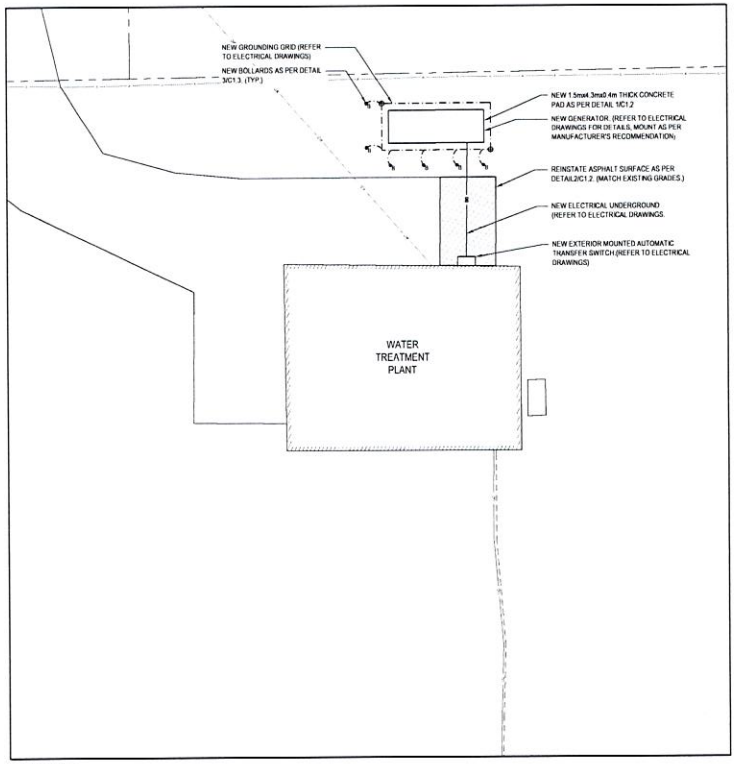
DESIGN LOADS

1. GENERATOR PLUS ENCLOSURE WEIGHT = 26 kN (TO BE VERIFIED BY SUPPLIER)

CONCRETE TYPES SCHEDULE

MINIMUM 56 DAY COMPRESSIVE STRENGTH	SLUMP	EXPOSURE CLASS	W/C RATIO	AIR CONTENT
MIX 1 - GENERATOR SLAB				
35 MPa *	SEE NOTE 2	C-1	0.40	5-8%
MIX 2 - BOLLARDS				
32 MPa	80±30	C-2	0.45	5-8%

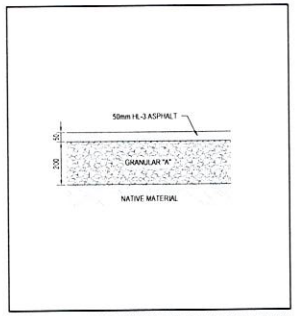
NOTES:
1. MAXIMUM AGGREGATE SIZE OF ALL CONCRETE TO BE 20mm.
2. FOR MIX 1, PROVIDE A CONCRETE MIX DESIGN WITH A SLUMP OF 50mm. ADD SUPER PLASTICIZER TO PRODUCE A CONCRETE SLUMP OF 125±25mm.
3. WHERE NOTED *, COMPRESSIVE STRENGTH MEASURED AT 56 DAYS.



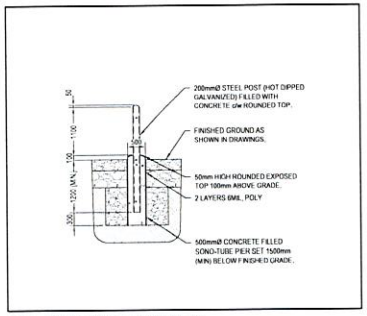
SITE PLAN
SCALE: 1:100

NOTES:

1. CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO START OF CONSTRUCTION.
2. TOPOGRAPHIC INFORMATION PROVIDED BY EVB ENGINEERING AND ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC (CGVD 2013) AND ARE DERIVED FROM CANNET SYSTEM NETWORK USING THE CGQ2013 GEOID MODEL.*
3. ALL DISTURBED AREAS TO BE REINSTATED WITH 100mm TOPSOIL AND SEED UNLESS OTHERWISE NOTED.



2 C1.2 ASPHALT DRIVEWAY REINSTATEMENT
SCALE: N.T.S.



3 C1.2 TYPICAL BOLLARD DETAIL
SCALE: N.T.S.

DATE	No.	REVISION
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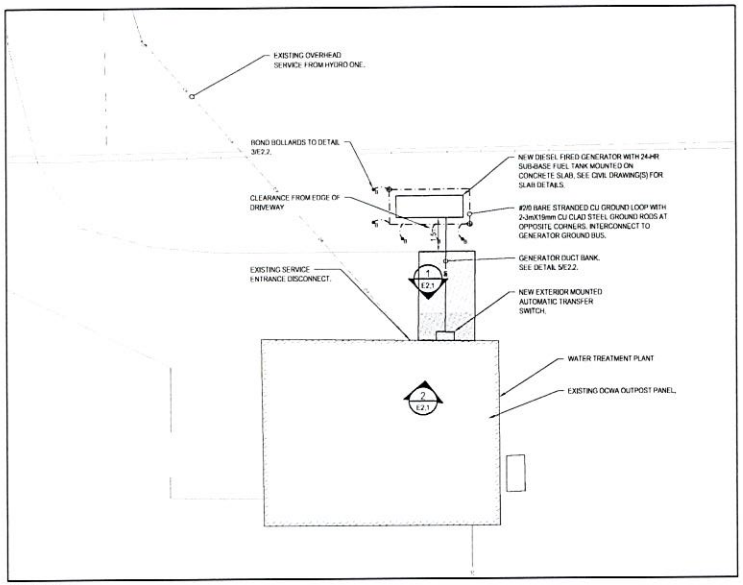
CLIENT
ONTARIO CLEAN WATER AGENCY (OCWA)

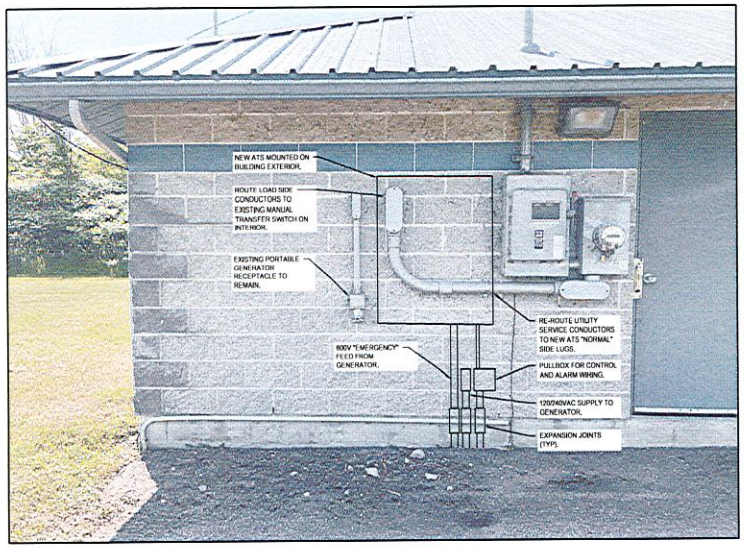
PROJECT
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE
CRYSLER WTP SITE PLAN

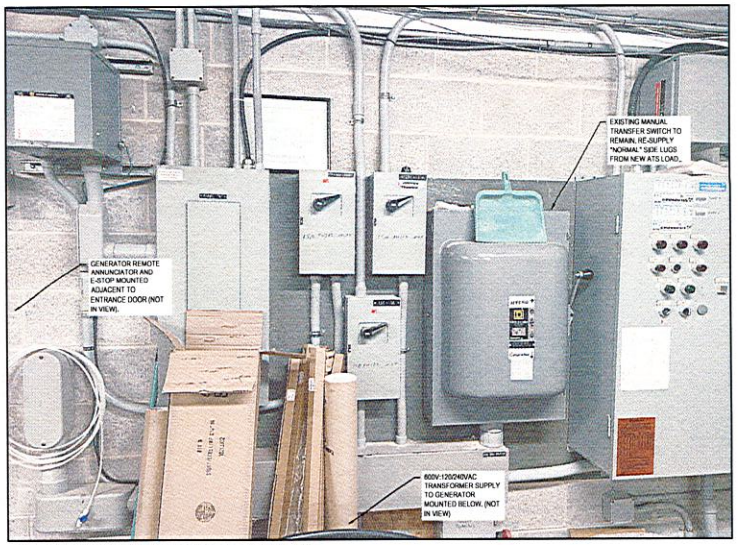
SCALE: AS SHOWN	JOB NO. 23074
DESIGNED BY: G.E.	DATE: 2023/06/01
DRAWN BY: K.B.W./B.K.N.	DRAWING NO. C1.2
CHECKED BY: J.B.	



SITE PLAN
SCALE: 1:100



1 / E2.1 NEW ATS LOCATION - FRONT OF BUILDING
SCALE: NTS



2 / E2.1 EXISTING SERVICE ENTRANCE - NEW WORK
SCALE: NTS

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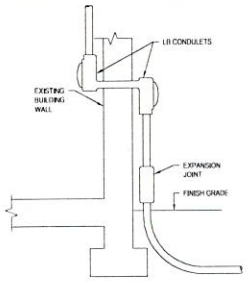
PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
CRYSLER WTP
ELECTRICAL SITE PLAN

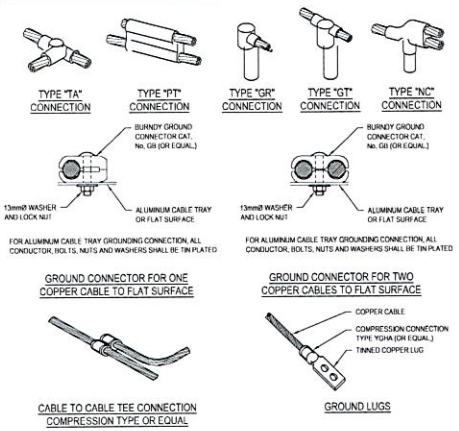
SCALE: AS NOTED	JOB NO. 23074
DESIGNED BY: BM	DATE: 2023/09/01
DRAWN BY: BM	DRAWING NO. E2.1
CHECKED BY: JFS	



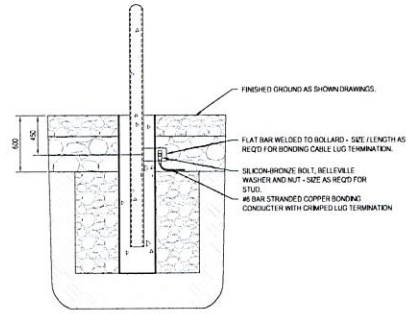
NOTES

1. INSTALL CONDUITS THROUGH EXISTING WALLS IN ACCORDANCE WITH THIS DETAIL IF NOT OTHERWISE INDICATED.
2. DRILL HOLE USING METHODS THAT LEAVE A SMOOTH OPENING. SEAL OPENING AROUND CONDUIT, INSIDE, AND OUTSIDE, WITH IMMERSIBLE POLYURETHANE SEALANT.

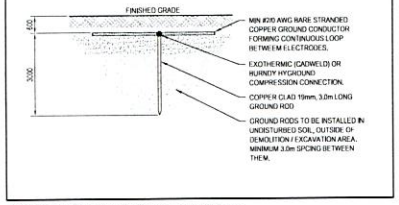
1 / E2.2 CONDUIT ENTRANCE ABOVE GRADE FOR EXIST BLDG
SCALE: NTS



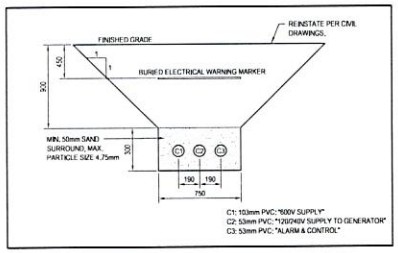
2 / E2.2 TYPICAL GROUND CONNECTIONS
SCALE: N.T.S.



3 / E2.2 TYPICAL BOLLARD BONDING DETAIL
SCALE: NTS



4 / E2.2 TYPICAL GROUND ELECTRODE
SCALE: N.T.S.



5 / E2.2 600V - 600AMP GENERATOR TRENCH
SCALE: N.T.S.

DATE	No.	REVISION
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PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
CRYSLER WTP ELECTRICAL DETAILS

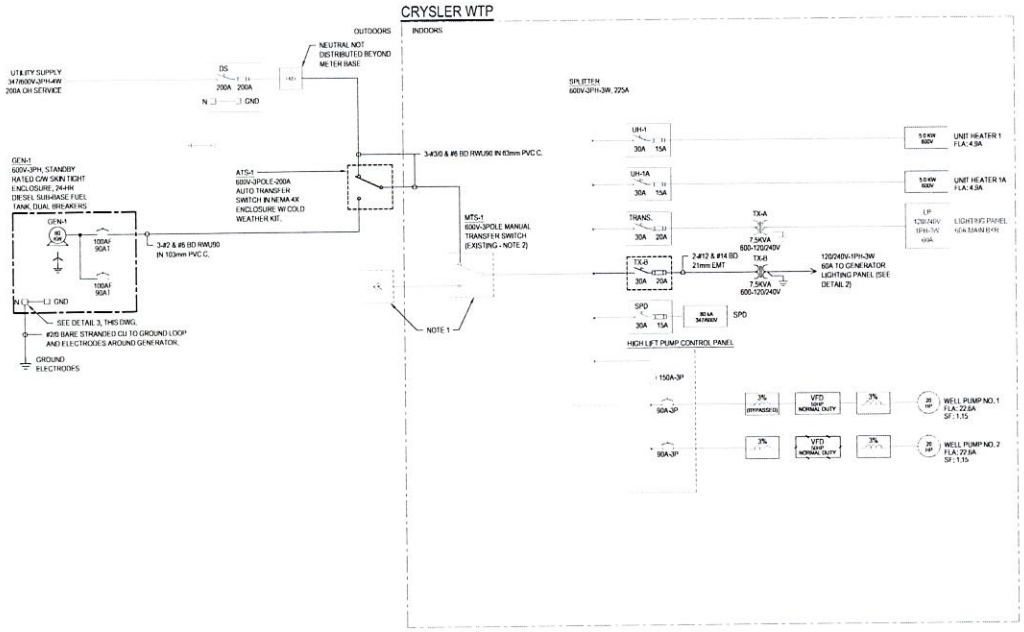
SCALE: AS NOTED	JOB NO: 23074
DESIGNED BY: B.M.	DATE: 2023/06/01
DRAWN BY: B.M.	DRAWING NO.: E2.2
CHECKED BY: J.S.	

LEGEND:

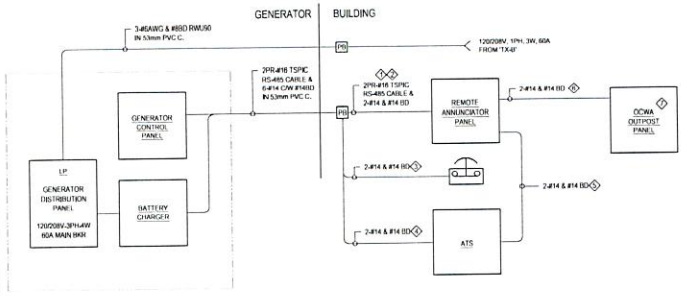
- EXISTING EQUIPMENT TO REMAIN
- EXISTING WIRING TO REMAIN
- EXISTING EQUIPMENT/WIRING TO BE REMOVED.
- NEW EQUIPMENT
- NEW WIRING

NOTES:

1. EXISTING MANUAL TRANSFER SWITCH AND GENERATOR RECEPTACLE TO REMAIN.



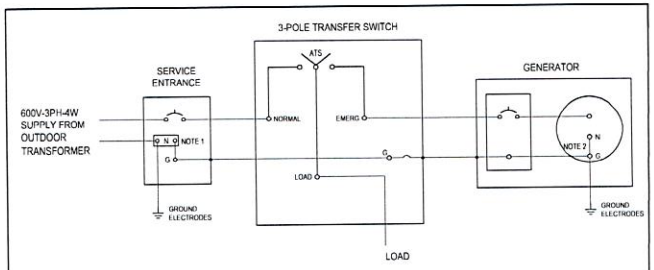
1 / E2.3 SINGLE LINE DIAGRAM
SCALE: NTS



NOTES:

1. NETWORK CONNECTION FROM GENSET CONTROLLER TO REMOTE ANNUNCIATOR.
2. BATTERY CHARGER A/C FAILURE TO REMOTE ANNUNCIATOR.
3. REMOTE E-STOP IN ELECTRICAL ROOM TO GENSET CONTROLLER.
4. REMOTE GENERATOR "START" SIGNAL FROM ATS TO GENSET CONTROLLER.
5. ATS ALARM SIGNAL TO REMOTE ANNUNCIATOR:
   - 5.1. "GENSET SUPPLYING LOAD"
6. ATS ALARM SIGNALS TO OCWA OUTPOST PANEL:
   - 6.1. "COMMON ALARM"
7. FINAL CONNECTIONS IN OCWA OUTPOST PANEL AND ASSOCIATED PROGRAMMING BY OWNER. PROVIDE SUFFICIENT SLACK AND COIL ALARM WIRING AT PANEL FOR TERMINATION BY OWNER.

2 / E2.3 GENERATOR CONTROLS INTERCONNECTION DIAGRAM
SCALE: NTS



1. SYSTEM NEUTRAL NOT DISTRIBUTED BEYOND METER BASE.
2. GENERATOR NEUTRAL TO BE BONDED TO FRAME AND GROUNDED. NEUTRAL IS NOT DISTRIBUTED. INSTALL LAMICOID TO GENERATOR SERVICE DOOR, READING "NEUTRAL BONDED TO FRAME".

3 / E2.3 GENERATOR NEUTRAL GROUNDING & BONDING
SCALE: NTS

DATE	No.	REVISION
2023/09/05	1	ISSUED FOR 100% REVIEW

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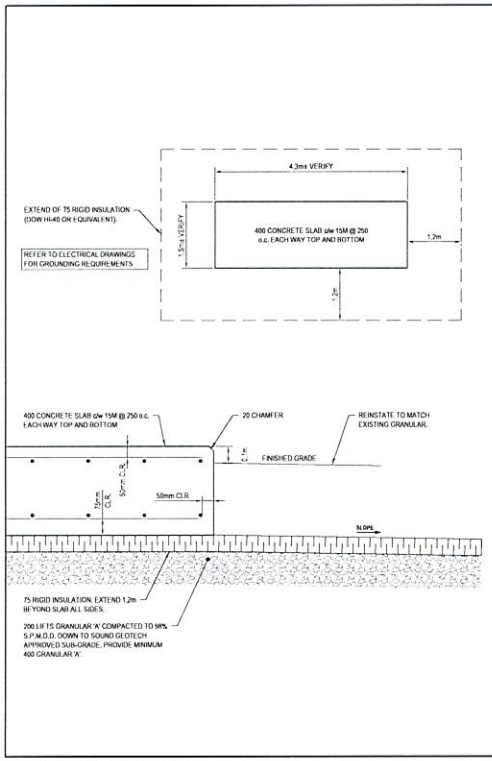
CLIENT:
ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
CRYSLER WTP
SINGLE LINE DIAGRAM

SCALE: NTS	JOB NO. 23074
DESIGNED BY: RM	DATE: 2023/09/01
DRAWN BY: BM	DRAWING NO. E2.3
CHECKED BY: RM	

W:\2023\23074 - North Stormont Water Supply Facilities\1 Dwg\E1 Electrical\Production\2023-09-01 E1 Dwg Set.dwg, 2023-09-01 11:39:42 AM, EVB\EVB



1 / C1.3 GENERATOR PAD DETAIL
SCALE: N.T.S.

GENERAL NOTES

1. DESIGN WORK IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE. CONSTRUCT IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE AND THE APPLICABLE REQUIREMENTS OF BY-LAWS OF THE AUTHORITY HAVING JURISDICTION.
2. SITE VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS. REPORT DISCREPANCIES TO THE CONSULTANT.
3. ALL LABOUR AND MATERIALS IN ACCORDANCE WITH THE LATEST EDITION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND 2012 ONTARIO BUILDING CODE.
4. ANCHOR GENSET TO SLAB IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

CONCRETE

1. ALL CONCRETE SHALL BE NORMAL WEIGHT DESIGNED TO MEET THE PERFORMANCE CRITERIA INDICATED IN THE CONCRETE TYPE SCHEDULE (SEE BELOW).
2. PROVIDE CERTIFICATION THAT THE PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH THE REQUIREMENTS OF CAN CSA-A23.1/A23.2 (CURRENT EDITION) AND THAT THE MIXES ADJUSTED TO PREVENT ALKALI AGGREGATE REACTIVITY PROBLEMS.
3. WET CURE CONCRETE COMMENCING IMMEDIATELY AFTER CONCRETE HARDENS. USE NON-STAINING GEOTEXTILE COVERING. ALTERNATIVELY, A COMPATIBLE CURING COMPOUND IN ACCORDANCE WITH CSA A23.1/A23.2 (CURRENT EDITION) AND ASTM C309 WILL BE CONSIDERED - 7 DAYS.
4. CONCRETE HAULING TIME: MAXIMUM ALLOWABLE TIME FOR CONCRETE TO BE DELIVERED TO SITE AND DISCHARGED NOT TO EXCEED 120 MINUTES AFTER BATCHING (UNLESS NOTED AS LESS BY CONCRETE SUPPLIER).
5. CONCRETE SLABS TO HAVE NON-SLIP BROOMED FINISH.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CAN/CSA G30.18 (CURRENT EDITION).
2. REINFORCING STEEL: GRADE 60 (400MPa).
3. REINFORCING SHALL BE SUPPORTED AND HELD FIRMLY IN PLACE SO AS NOT TO MOVE DURING POURING OPERATIONS.
4. MINIMUM REINFORCING CLEAR COVER:
   SLAB BOTTOM = 75mm
   SLAB SIDES AND TOP = 50mm

CONCRETE FORMWORK

1. ALL FORMWORK SHALL BE DESIGNED, ERECTED, SUPPORTED, BRACED AND MAINTAINED IN ACCORDANCE WITH CSA S269.1-16 FALSEWORK AND FORMWORK.

FOUNDATIONS

1. GEOTECHNICAL CONSULTANT TO VERIFY BEARING CAPACITY AND GRANULAR COMPACTION IN WRITING PRIOR TO POURING CONCRETE. SLS = 75kPa , ULS = 125kPa

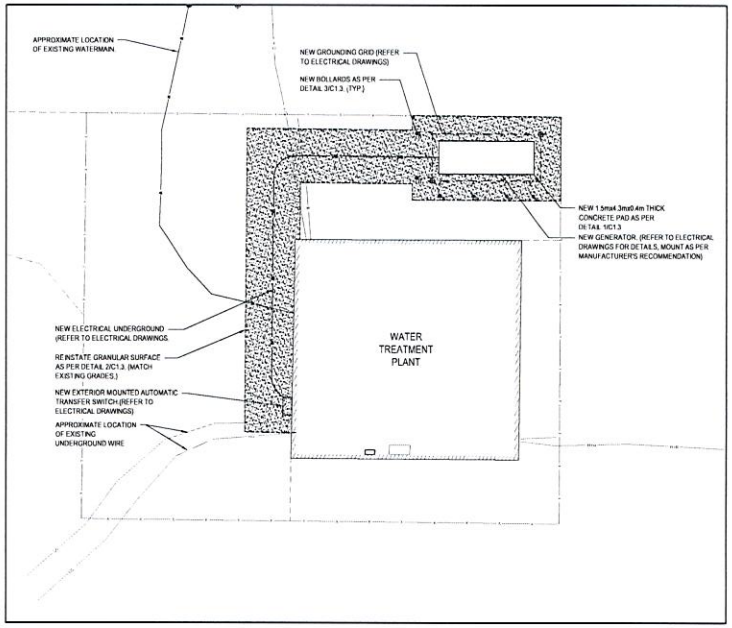
DESIGN LOADS

1. GENERATOR PLUS ENCLOSURE WEIGHT = 26kN (TO BE VERIFIED BY SUPPLIER)

CONCRETE TYPES SCHEDULE

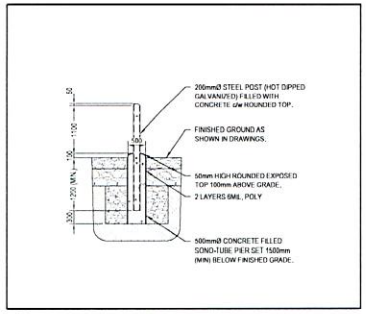
MINIMUM 56 DAY COMPRESSIVE STRENGTH	SLUMP	EXPOSURE CLASS	W/C RATIO	AIR CONTENT
MIX 1 - GENERATOR SLAB				
35 MPa *	SEE NOTE 2	C-1	0.40	5-8%
MIX 2 - BOLLARDS				
32 MPa	80±30	C-2	0.45	5-8%

NOTES:
1. MAXIMUM AGGREGATE SIZE OF ALL CONCRETE TO BE 20mm.
2. FOR MIX 1, PROVIDE A CONCRETE MIX DESIGN WITH A SLUMP OF 50mm. ADD SUPER PLASTICIZER TO PRODUCE A CONCRETE SLUMP OF 125±25mm.
3. WHERE NOTED *, COMPRESSIVE STRENGTH MEASURED AT 56 DAYS.



SITE PLAN
SCALE: 1:100

2 / C1.3 GRANULAR REINSTATEMENT
SCALE: N.T.S.



3 / C1.2 TYPICAL BOLLARD DETAIL
SCALE: N.T.S.

NOTES:

1. CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO START OF CONSTRUCTION.
2. TOPOGRAPHIC INFORMATION PROVIDED BY EVB ENGINEERING AND ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC (CGVD 2013) AND ARE DERIVED FROM CAN-NET SYSTEM NETWORK USING THE CGG2013 GEOID MODEL.*
3. ALL DISTURBED AREAS TO BE REINSTATED WITH 100mm TOPSOIL AND SEED UNLESS OTHERWISE NOTED.

DATE	No.	REVISION
2023/06/26	1	ISSUED FOR 100% REVIEW

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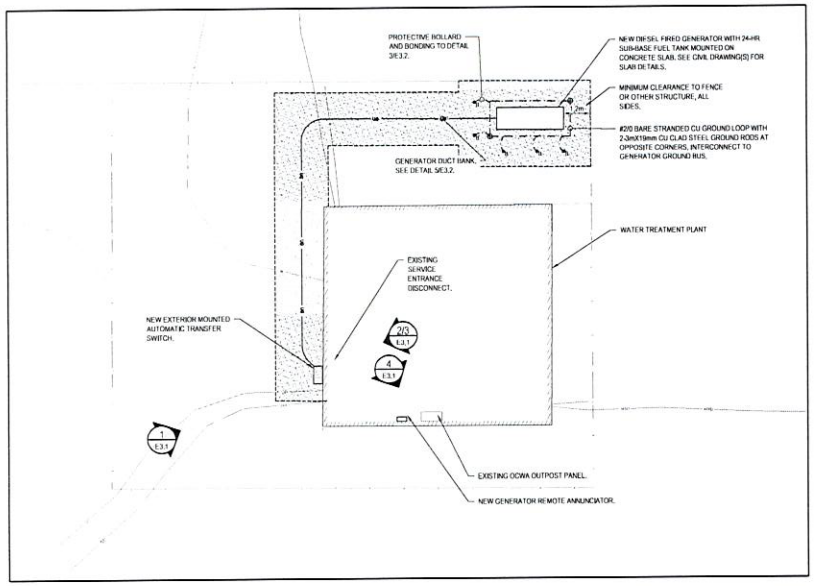
CLIENT
ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

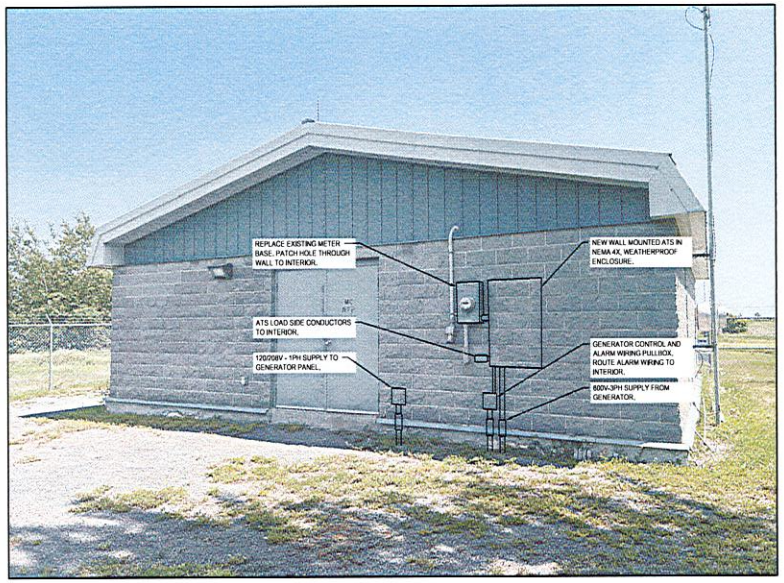
TITLE
MOOSE CREEK WTP SITE PLAN

SCALE: AS SHOWN	JOB NO: 23074
DESIGNED BY: G.E	DATE: 2023/06/01
DRAWN BY: K.B.W./B.K.N.	DRAWING NO: C1.3
CHECKED BY: J.R.	

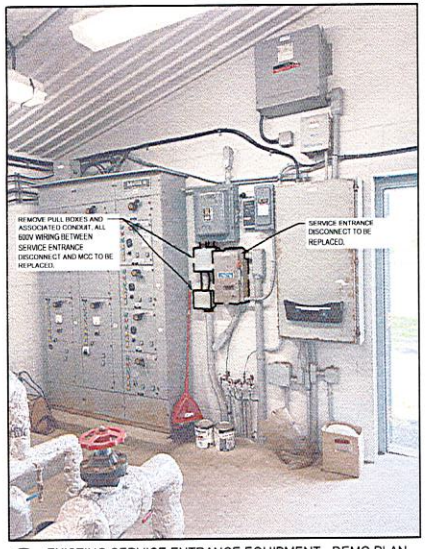
M:\2023\23074 North Stormont Water Supply Facilities\1 Dwg\C1 Site\C1.3 Site Plan.dwg Jun 27, 2023 Apr 27 Plot Write



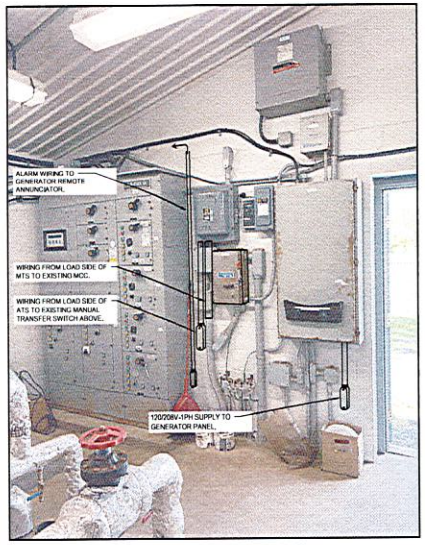
SITE PLAN
SCALE: 1:100



1 E3.1 NEW ATS LOCATION - FRONT OF BUILDING
SCALE: NTS



2 E3.1 EXISTING SERVICE ENTRANCE EQUIPMENT - DEMO PLAN
SCALE: NTS



3 E3.1 NEW SERVICE ENTRANCE ARRANGMENT
SCALE: NTS

4 E3.1 OCWA OUTPOST PANEL AND GENERATOR ANNUNCIATOR
SCALE: NTS

DATE	No.	REVISION
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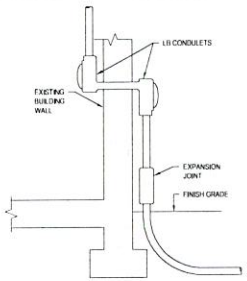
ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
MOOSE CREEK WTP ELECTRICAL SITE PLAN

SCALE: AS NOTED	JOB NO.: 23074
DESIGNED BY: BM	DATE: 2023/06/01
DRAWN BY: DM	DRAWING NO.: E3.1
CHECKED BY: JES	

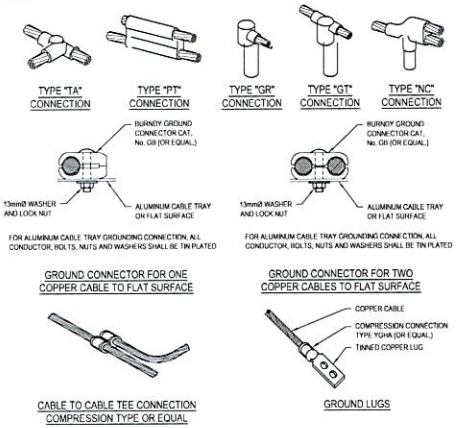


NOTES

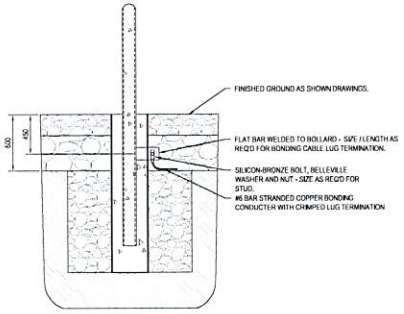
1. INSTALL CONDUITS THROUGH EXISTING WALLS IN ACCORDANCE WITH THIS DETAIL IF NOT OTHERWISE INDICATED.
2. DRILL HOLE USING METHODS THAT LEAVE A SMOOTH OPENING. SEAL OPENING AROUND CONDUIT, INSIDE, AND OUTSIDE, WITH IMMERSIBLE POLYURETHANE SEALANT.

1 / E3.2 CONDUIT ENTRANCE ABOVE GRADE FOR EXIST BLDG
SCALE: NTS

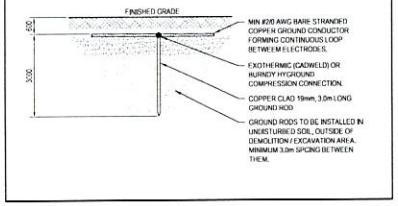
EXOTHERMIC WELDED CONNECTIONS



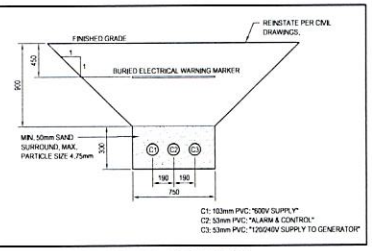
2 / E3.2 TYPICAL GROUND CONNECTIONS
SCALE: N.T.S.



3 / E3.2 TYPICAL BOLLARD BONDING DETAIL
SCALE: NTS



4 / E3.2 TYPICAL GROUND ELECTRODE
SCALE: N.T.S.



5 / E3.2 600V - 600AMP GENERATOR TRENCH
SCALE: N.T.S.

DATE	No.	REVISION
2023/06/05	1	ISSUED FOR 100% REVIEW

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ONTARIO CLEAN WATER AGENCY (OCWA)

PROJECT:
NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
MOOSE CREEK WTP ELECTRICAL DETAILS

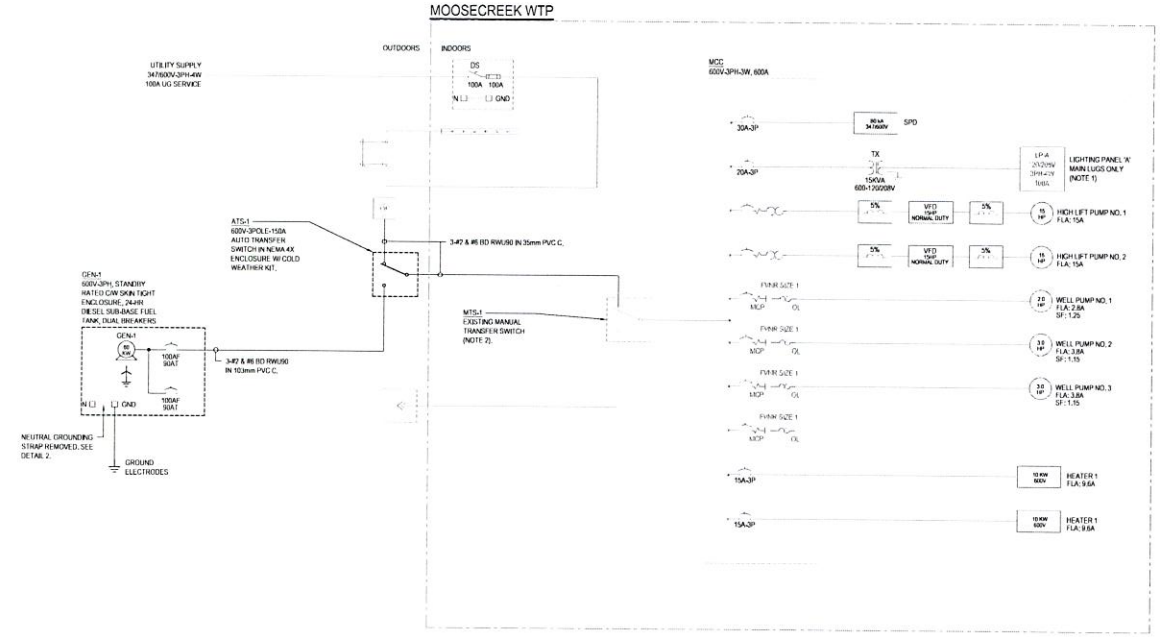
SCALE:	JOB NO:
AS NOTED	23074
DESIGNED BY: B.M.	DATE: 2023/06/01
DRAWN BY: B.M.	DRAWING NO.
CHECKED BY: J.S.	E3.2

LEGEND:

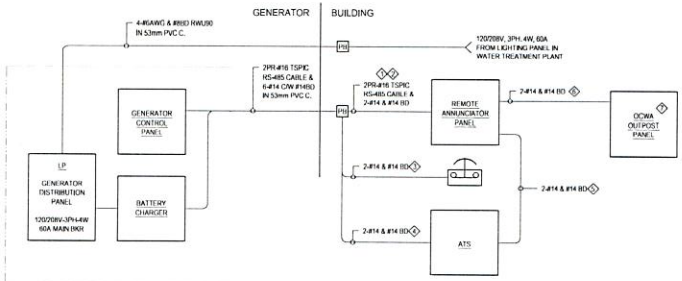
- EXISTING EQUIPMENT TO REMAIN
- EXISTING WIRING TO REMAIN
- NEW EQUIPMENT
- NEW WIRING

NOTES:

1. PROVIDE NEW 2P-60A BREAKER AND BRANCH CIRCUIT WIRING TO GENERATOR LIGHTING PANEL. SEE DETAIL 1. EXISTING PANELBOARD IS FEDERAL PIONEER CAT. NO: NBLP42B-4LCO.
2. EXISTING MANUAL TRANSFER SWITCH AND GENERATOR RECEPTACLE TO REMAIN.



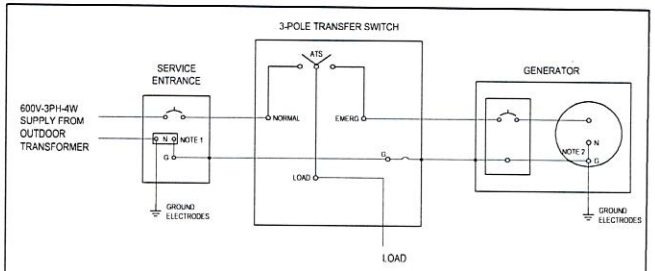
1 / E3.3 SINGLE LINE DIAGRAM
SCALE: NTS



NOTES:

1. NETWORK CONNECTION FROM GENSET CONTROLLER TO REMOTE ANNUNCIATOR.
2. BATTERY CHARGER A/C FAILURE TO REMOTE ANNUNCIATOR.
3. REMOTE E-STOP IN ELECTRICAL ROOM TO GENSET CONTROLLER.
4. REMOTE GENERATOR "START" SIGNAL FROM ATS TO GENSET CONTROLLER.
5. ATS ALARM SIGNAL TO REMOTE ANNUNCIATOR:
   - 5.1. "GENSET SUPPLYING LOAD"
6. ATS ALARM SIGNALS TO OCWA OUTPOST PANEL:
   - 6.1. "COMMON ALARM"
7. FINAL CONNECTIONS IN OCWA OUTPOST PANEL AND ASSOCIATED PROGRAMMING BY OWNER. PROVIDE SUFFICIENT SLACK AND COIL ALARM WIRING AT PANEL FOR TERMINATION BY OWNER.

2 / E3.3 GENERATOR CONTROLS INTERCONNECTION DIAGRAM
SCALE: NTS



1. SYSTEM NEUTRAL NOT DISTRIBUTED BEYOND METER BASE.
2. GENERATOR NEUTRAL TO BE BONDED TO FRAME AND GROUNDED. NEUTRAL IS NOT DISTRIBUTED. INSTALL LAMICOID TO GENERATOR SERVICE DOOR, READING "NEUTRAL BONDED TO FRAME".

3 / E3.3 GENERATOR NEUTRAL GROUNDING & BONDING
SCALE: NTS

DATE	No.	REVISION
2023/05/05	1	ISSUED FOR 100% REVIEW

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NORTH STORMONT WATER SUPPLY FACILITIES - BACKUP GENERATOR INSTALLATION

TITLE:
MOOSECREEK WTP
SINGLE LINE DIAGRAM

SCALE: NTS	JOB NO: 23074
DESIGNED BY: BM	DATE: 2023/05/01
DRAWN BY: BM	DRAWING NO: E3.3
CHECKED BY: BM	