

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

March 8, 2019

**PERMIT TO INSTALL**  
40-19

**ISSUED TO**  
21<sup>st</sup> Century Salvage, Inc.

**LOCATED AT**  
10750 Martz Road  
Ypsilanti, Michigan

**IN THE COUNTY OF**  
Wayne

**STATE REGISTRATION NUMBER**  
P1004

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: <b>February 27, 2019</b>	
DATE PERMIT TO INSTALL APPROVED: <b>March 8, 2019</b>	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

**PERMIT TO INSTALL**

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## COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department	Michigan Department of Environmental Quality
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MDEQ	Michigan Department of Environmental Quality
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

### POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO <sub>2e</sub>	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter equal to or less than 10 microns in diameter
PM <sub>2.5</sub>	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO <sub>2</sub>	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

## GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

## FGFACILITY CONDITIONS

**DESCRIPTION:** The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment and exempt equipment.

### **POLLUTION CONTROL EQUIPMENT**

NA

#### **I. EMISSION LIMIT(S)**

NA

#### **II. MATERIAL LIMIT(S)**

NA

#### **III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not operate FGFACILITY unless the fugitive dust control plan specified in Appendix A, or an alternate approvable plan submitted to the AQD District Supervisor, for all plant roadways, the plant yard, all material storage piles, and all material handling operations has been implemented and is maintained. **(R 336.1371, R 336.1372, Act 451 324.5524)**

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

NA

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep, in a satisfactory manner, records showing the annual potential to emit calculations for PM, in tons per year, for FGFACILITY. The permittee shall update the potential to emit calculation whenever a new permitted or exempt emission unit is installed, or whenever a permitted, exempt, or grandfathered emission unit is modified or removed. Potential to emit calculations shall be based on the maximum operational capacity of the equipment operated for the entire year, except they may account for applicable permit requirements or applicable laws or rules limiting the potential to emit. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(Act 451 324.5524)**

#### **VII. REPORTING**

NA

#### **VIII. STACK/VENT RESTRICTION(S)**

NA

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**APPENDIX**

# MCL 324.55 24 Operating Program 21<sup>st</sup> Century Salvage, Inc.

886 Terminal/Crown Yard  
866 Terminal Street, Detroit, Michigan 48214

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Figure 1 – Site Plan with Equipment - Process Details

Figure 2 – Site Layout

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Appendix A – 886 Terminal/Crown Yard PM10 Potential-to-Emit (PTE) Calculations

## Introduction

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This Operating Program has been developed and implemented for 885 Terminal/Crown Yard located at 886 Terminal Street, Detroit, Michigan 4821,4 (Facility/Site). The purpose of this program is to describe the tools and methods used to control fugitive dust emissions in accordance Section 5524 of the Natural Resources and Environmental Protection Act, being MCL 324.5524, Fugitive dust sources or emissions.

21<sup>st</sup> Century Salvage, Inc.

- Leases the specified property from Crown Enterprises Inc. (the Crown Yard): and
- Stores, processes and handles bulk solid materials on the property

A large portion of these materials are slabs/pieces of waste concrete transported to the yard from off-site demolition projects where the materials are initially stored until sufficient amounts are present for crushing and processing with a portable plant whose services are contracted. The portable plant used to crush and process the specified materials has been issued an appropriate General Permit by the MDEQ-AQD. The processed materials (crushed and screened concrete) are then stored on-site and subsequently transported as needed for use by 21<sup>st</sup> Century Salvage at off-site locations.

21<sup>st</sup> Century Salvage, Inc. does not utilize any of its own crushing, screening or material conveying equipment at the Crown Yard. This equipment is part of the portable plant and its fugitive emission control requirements are covered by the General Permit issued the contracted services.

Trucks are used to deliver waste concrete and asphalt bulk materials to the 886 Terminal/Crown Yard and transfer the processed materials to off-site locations. Railcars and ships are not used to receive or deliver unprocessed (raw) and processed materials. Received waste concrete and asphalt bulk materials are placed in stockpiles with the use of frontend loaders. Front-end loaders, are also used to load the processed materials from product stockpiles into outbound delivery trucks. Waste concrete bulk materials are feed to the portable plant with a front-end loader(s). These frontend loaders are owned and operated by 21<sup>t</sup> Century Salvage.

Conveyors and stackers operated with the portable plant are used to transport the processed materials (product) to onsite storage piles.

The 866 Terminal / Crown Yard typically operates 5 days/week in the summer months and on a very limited based during winter months (e.g., the facility is typically closed for business during winter months).

The following sections of this Operating Program are organized in order of the requirements of MCL 324.5524.

## Applicability – MCL 324.5524(1)

The provisions of MCL 324.5524 apply to fugitive dust sources at the 886 Terminal/Crown Yard because the Facility operations meet the Standard Industrial Classification (SIC) code and locational requirements established in MCL 324.5524. Solid bulk materials operations are defined with a SIC major group L4 (i.e., 1499 for miscellaneous nonmetallic minerals) and the Facility is located within the area described in Table 36 of R 336.1371.

## Fugitive Dust Opacity Limits – MCL 324.5524(2)

In accordance with MCL324.5524(2), best practices and operational controls are implemented at the Facility to limit fugitive dust emissions from paved and unpaved roads, lots, construction aggregate storage piles, and material handling activities to an opacity no greater than 5%. Emissions from any other source are limited to an opacity that is no greater than 20%. Specific procedures and methods used to control fugitive dust emissions are discussed in the following sections of this Operating Program.

## Fugitive Dust Controls – MCL 324.5524(3)(a)

- **Stockpile, Conveyor Loading, and Traffic Patterns – MCL 324.5524(3)(a)(i)–(iii)**

MCL 324.5524(3)(a)(i) through 324.5524(3)(a)(iii) requires specific controls to limit fugitive dust emission from stockpiles, conveyor loading activities, and traffic pattern access areas surrounding stockpiles. As specified in MCL 324.5523(3)(a)(i), most of these controls are applicable to facilities where:

- a) Total uncontrolled emissions of fugitive dust from material storage piles are greater than 50 tons per year  
and
- b) Potential particulate emissions from all sources, including fugitive dust sources, exceeds L00 tons per year.

The 886 Terminal/Crown Yard total uncontrolled fugitive dust emissions do not exceed 50 tons per year. Therefore, the requirements of MCL 324.5524(3)(a)(i) - (iii) do not apply to this Facility.

Appendix A of this program provides uncontrolled and controlled PM10 potential-to-emit (PTE) calculations for the sources operated at the Facility.

- **Material Handling with Pollution Control Equipment – MCL 324.5524(3)(a)(iv)**

The 886 Terminal/Crown Yard operations do not utilize pollution control equipment to collect particulate emission from material unloading and transport operations. Therefore, the requirements of MCL 324.5523(3)(a)(iv) do not apply to the Facility.

- **Other Activity Controls – MCL 324.5524(3)(a)(v)**

The 886 Terminal/Crown Yard operations do not utilize crushers, grinding mills, screening operations, bucket elevators, conveyor transfer points, conveyor bagging operations, storage bins, and fine product truck and railcar loading operations. Therefore, the requirements of MCL 324.5523(3)(a)(v) do not apply to the Facility.

- **Particulate Collection Equipment – MCL 324.5524(3)(b)**

The 886 Terminal/Crown Yard does not use particulate collection equipment to control fugitive dust emissions. Therefore, MCL 324.5524(3)(b) is not applicable to the Facility.

- **Vehicle Transport of Materials with High Silt Content – MCL 324.5524(3)(c)**

The 886 Terminal/Crown Yard complies with the requirements of MCL 324.5524(3)(c) by using either of the following emission control requirements for vehicle operations in transporting bulk materials:

- a) Use of completely enclosed truck tarps, or other covers.
- b) Loading trucks so that no part of the load makes contact with any sideboard side panel, or rear part of the load comes within 6 inches of the top part of the enclosure.

- **Vehicle Transport of Materials – MCL 324.5524(3)(d)**

The 886 Terminal/Crown Yard complies with the requirements of MCL 324.5524(3)(d) as follows:

- a) Material transportation trucks owned by 21<sup>st</sup> Century Salvage, Inc. are maintained to prevent leakage or spillage as presented in requirements of section 720 of the Michigan vehicle code, Act No. 300 of the Public Acts of 1949, being section 257.720 of the MCL, and with R28.1457 of the Michigan administration code.
- b) It is the responsibility of trucks owned by other customers who access the Facility to ensure their Vehicles are maintained in good operating condition and comply with Michigan laws and regulations. However, if a 21<sup>st</sup> Century Salvage employee observes a customer vehicle is not equipped to transport materials without spillage or leakage (e.g., the truck does not have a tarp), then this information is communicated to the vehicle driver, and it is not loaded.

- **Vehicle Transport of Materials – MCL 324.5524(3)(e)**

The 886 Terminal/Crown Yard does not receive or process sand, gravel, stones, peat, or topsoil. Therefore, the requirements of MCL 324.5524(3)(e) are not applicable to the Facility.

- **Vehicle Transport of Materials – MCL 324.5524(3)(f)**

The 886 Terminal/Crown Yard does not receive fly ash. Therefore, the requirements of MCL 324.5524(3)(f) are not applicable to the Facility.

- **Vehicle Transport of Materials – MCL 324.5524(3)(g)**

The 886 Terminal/Crown Yard does not receive iron or steel slag. Therefore, the requirements of MCL 324.5524(3)(g) are not applicable to the Facility.

## **Requirement to Prepare an Operating Program – MCL 324.5524(4)**

This Operating Program has been prepared in accordance with MCL 324.5524, *Fugitive dust sources or emissions*, to document the methods and controls implemented at the 866 Terminal/Crown Yard to control fugitive dust emissions from the Site's construction aggregate material storage and handling activities. This program has been designed to reduce fugitive dust emissions to the lowest level possible through the application of reasonably available and economically feasible controls.

## **Operating Program Contents – MCL 324.5524(5)**

- **Facility Contact Information – MCL 324.5524(5)(a)-(b)**

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Facility Name:	886 Terminal/Crown Yard
Facility Address	866 Terminal Street Detroit, Michigan 48214
Facility Manger:	Marty Huffman (313) 930-6892
Owner/Operator:	21 <sup>st</sup> Century Salvage, Inc. 10750 Martz Road Ypsilanti, Michigan, 48197
Environmental Contact:	Marty Huffman Project Manager/Estimator 21 <sup>st</sup> Century Salvage, Inc. 10750 Martz Road Ypsilanti, Michigan, 48197 (313) 930-6892

The Facility Manager, Marty Huffman, is responsible for implementation of the Operating Program

- **Facility Maps and Diagrams – MCL 324.5524(5)(c)**

Maps and diagrams of the 865 Terminal/Crown yard are provided as Figure 1 and Figure 2 in accordance with the requirements of MCL 234.5524(5)(c).

Figure 1 illustrates the general Facility location and its surroundings.

Figure 2 illustrates the general Facility layout, including the following details:

- a) Approximate storage pile locations.
- b) Traffic patterns within the Facility property

- **Material Handling Pollution Control Equipment Locations – MCL 324.5524(5)(d)**

The 886 Terminal/Crown Yard operations do not use particulate collection equipment to control fugitive dust emissions. Therefore, the requirements of MCL 324.5524(3)(d) are not applicable to the Facility.

- **Fugitive Dust Control Best Management Practices – MCL 324.5524(5)(e) •**

*Material Processing and Conveying*

When materials are loaded into and unloaded from storage piles and transportation containers, drop heights at the material transfer locations are minimized to the maximum extent practicable to control the production and release of fugitive dust emissions.

Water is applied to materials, in quantities and at frequencies determined to be appropriate for the conditions, in order to add moisture and minimize emissions of fugitive dust produced during material transfer processes.

- *Traffic Management*

Vehicle and truck traffic at the Facility are normally restricted to maximum speeds of 8 mph. Signs posted at appropriate locations at the Facility are used to communicate vehicle speed restrictions to 21<sup>st</sup> Century Salvage, Inc. employees and visitors.

- *Dust Suppression*

Water, calcium chloride or another acceptable chemical dust suppressant is applied to unpaved roads at the Facility, in quantities and at frequencies determined to be appropriate for conditions, in order to minimize emissions of fugitive dust produced by vehicle and truck traffic.

Water service (a hydrant) is available at the Facility and is used to supply the water application needs of activities to control emissions of fugitive dust produced by traffic on unpaved road and material handling operations.

- **Use of Waste or Recycled Oils for Fugitive Dust Control – MCL 324.5524(5)(f)**

The 886 Terminal/Crown Yard operations do not use waste or recycled oils for fugitive dust control. Therefore, the requirements of MCL 324.5524(5)(f) are not applicable to the Facility.

- **Dust Suppressant Recordkeeping – MCL 324.5524(5)(g)**

The 886 Terminal/Crown Yard operations applies water, with no chemical additives, as the primary liquid used to suppress/control dust emissions on unpaved roads, surfaces and stockpiles and material handling operations at the Facility. In the event of extremely dry weather conditions, the Facility may also have unpaved roads treated by a third party contractor with a chloride solution. The Facility maintains records of water (and chloride) applications to appropriate emission sources for at least 5 years.

- **Paved Road and Parking Facility Cleaning – MCL 324.5524(5)(h)**

The 886 Terminal/Crown Yard does not have paved roads or paved parking lots. Pavement ends at the entrance gate to the Facility. Therefore, the requirements of MCL 324.5524(5)(h) are not applicable to the Facility.

- **Other Information – MCL 324.5524(5)(i)**

21<sup>st</sup> Century Salvage, Inc. will provide the MDEQ-AQD with other information as necessary to facilitate the department's review of the operating program in accordance with requirements of MCL 324.5524(5)(i).

## **Operating Program Submittal – MCL 324.5524(6)**

This Operating Program has been submitted to the MDEQ-AQD for approval as part of a Permit-to-Install (PTI) Application in accordance with requirements of MCL 324.5524(6).

## **Operation Program Amendment – MCL 324.5524(7)**

This Operating Program will be amended and resubmitted to the MDEQ-AQD for approval in the event of operational changes that may result in significant increases of fugitive dust emissions from the Site in accordance with requirements of MCL 324.5524(7).

## **Alternate Provisions for Fugitive Dust Control – MCL 324.5524(8)**

21<sup>st</sup> Century Salvage, Inc. is not requesting MDEQ-AQD approve alternate fugitive dust controls for use in establishing compliance with the requirements of MCL 324.5524. Therefore, the requirements of MCL 324.5524(8) are not applicable to the 886 Terminal/Crown Yard.

## **Alternate Provision Submittal to USEPA – MCL 324.5524(9)**

21<sup>st</sup> Century Salvage, Inc. is not requesting MDEQ-AQD approve alternate fugitive dust controls for use in establishing compliance with the requirements of MCL 324.5524. Therefore, the requirements of MCL 324.5524(9) are not applicable to the 886 Terminal/Crown Yard (i.e., as an amendment to the state implementation plan).

## Figures

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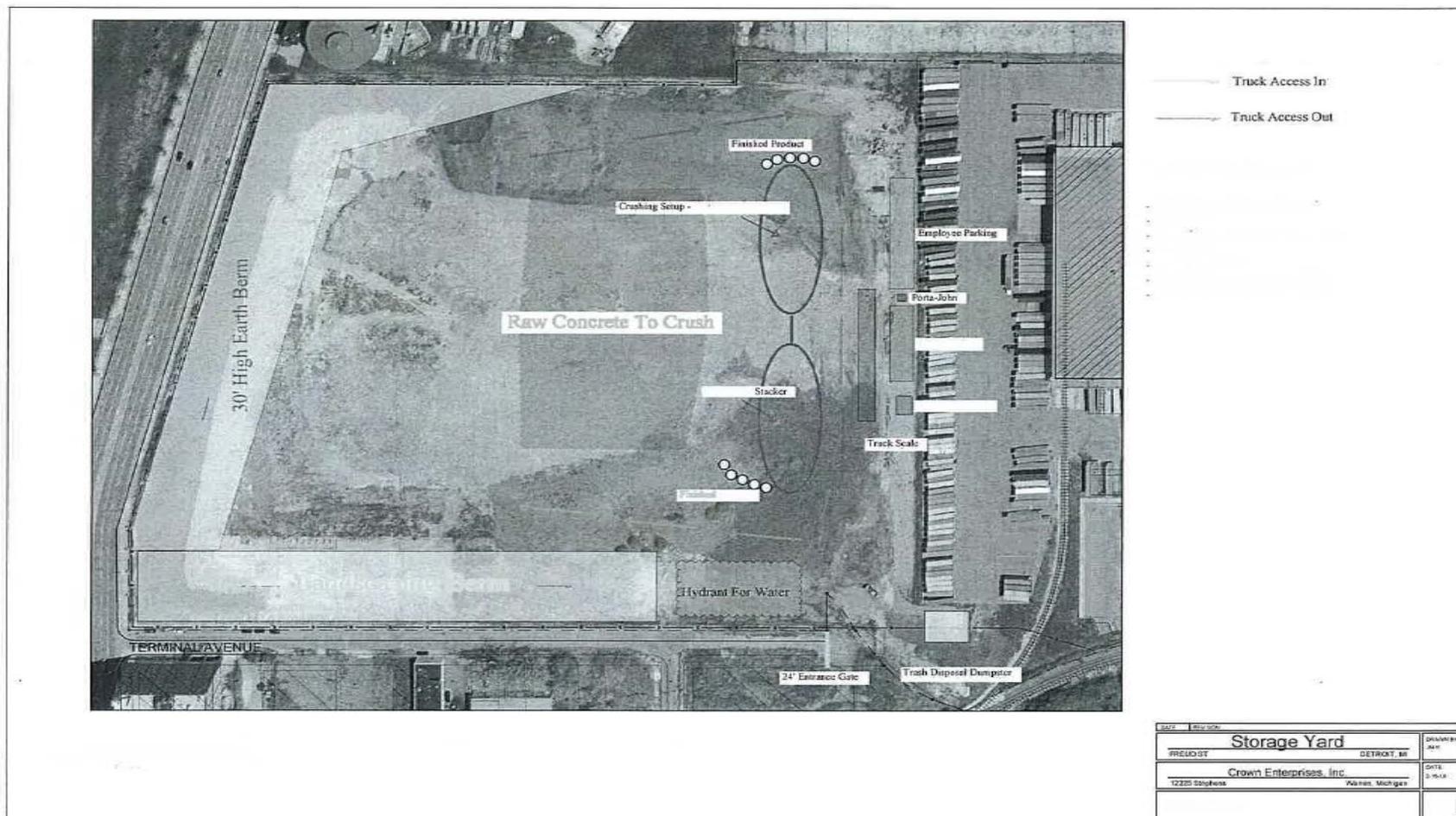


Figure 1: Facility Map 1

21<sup>st</sup> Salvage, Inc.  
 886 Terminal/Crown Yard

MCL 324.5524 Operating Program

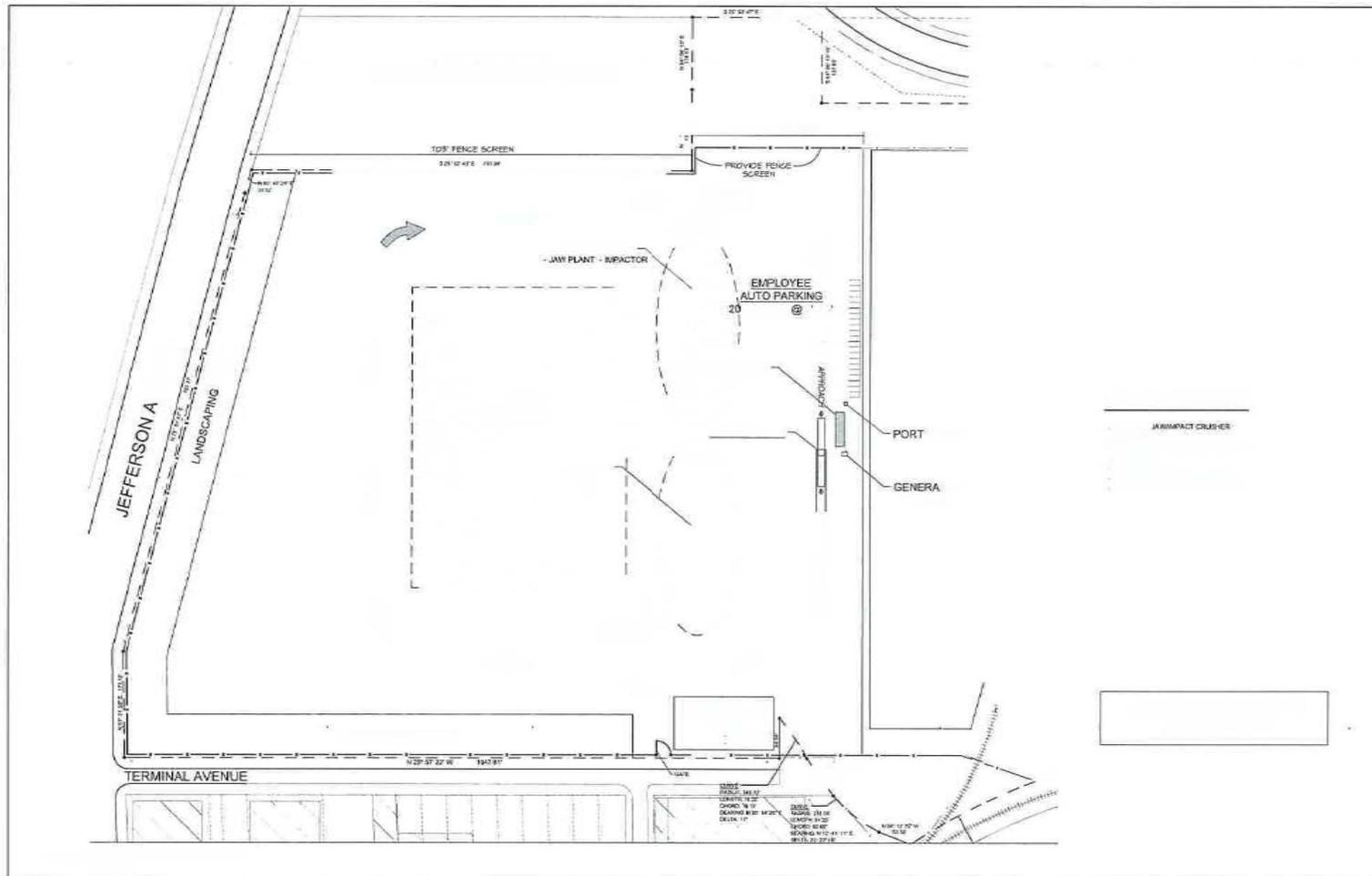


Figure 2: Facility Map 2

21<sup>st</sup> Salvage, Inc.  
886 Terminal/Crown Yard

MCL 324.5524 Operating Program

## Appendix A – N.S. Dock Potential-to-Emit (PTE) Calculations

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**866 Terminal/Crown Yard, MI Potential-to-Emit Summary**

<b>Fugitive PM Potential Emissions (tons per year)</b>		
<b>Emission Source</b>	<b>Uncontrolled PM10</b>	<b>Controlled PM10</b>
Unpaved Roads – Raw Material Delivery	0.94	0.19
Truck Unloading – Raw Materials	0.001	0.001
Truck Loading – Processed Materials	0.005	0.005
Unpaved Roads - Processed Material Delivery	0.69	0.14
Unpaved Roads – Loader Operations	1.3	0.26
Stockpile Loading – Portable Plant to Processed Material Pile	0.58	0.58
Wind Erosion – Processed Material Stockpile	1.8	1.8
<b>Total Potential Emissions</b>	<b>5.3</b>	<b>3.0</b>

**886 TERMINAL/CROWN YARD OPERATIONS**

Unpaved Roads (Incoming Raw Material Delivery Trucks)

AP-42 Table 13.2-2 Unpaved Roads

Maximum annual material processing capacity	100,000 tons/yr
Truck route length -round trip	0.28 miles (1,500 feet)
Truck loaded weight	50 tons
Truck unloaded weight	20 tons

$$E = k (s/12)^a (W/3)^b$$

- k = 1.5 for PM<sub>10</sub> AP-42 Table 13.2.2-2
- a = 0.9 for PM<sub>2.5</sub> and PM<sub>10</sub> AP-42 Table 13.2.2-2
- b = 0.45 for PM<sub>2.5</sub>, PM<sub>10</sub> and PM AP-42 Table 13.2.2-2
- s = 4.8 mean silt content of road surface (unpaved road at sand and gravel processing plant, Table 13.2.2-1)
- W = 35 tons, average vehicle weight

$$E_{PM10} = 1.99 \text{ lbs PM}_{10} \text{ per vehicle mile traveled}$$

M = total annual round trip miles traveled by incoming delivery trucks

$$M = (\text{maximum annual material processing capacity}) / (30 \text{ tons/load}) \times (0.28 \text{ miles per load, round trip})$$

$$M = 947 \text{ miles traveled per year (round trip) by incoming delivery trucks}$$

**Annual Emission Rates**

	PM <sub>10</sub>
	Uncontrolled
lbs/yr	1,881
<b>TpY</b>	<b>0.94</b>
	Controlled
80% water application PM <sub>10</sub> emissions control efficiency	
lbs/yr	376
<b>TpY</b>	<b>0.19</b>

**886 TERMINAL/CROWN YARD OPERATIONS**

Crushed Stone Processing and Pulverized Mineral Processing (unloading trucks with raw material)

AP-42 Table 11.19.2-2 Emission Factors For Crushed Stone Processing Operations

Truck Unloading - Fragmented Stone EF = 1.60E-05 lb PM10/ton raw material (uncontrolled EF)

	Throughput (tons/yr)	Annual Emission Rate	
		PM10 (lbs/yr)	PM10 (tons/yr)
Delivered raw materials	100,000	2	0.001

**886 TERMINAL/CROWN YARD OPERATIONS**

Crushed Stone Processing and Pulverized Mineral Processing (loading trucks with processed material)

AP-42 Table 11.19.2-2 Emission Factors For Crushed Stone Processing Operations

Truck Loading EF = . 1.00E-04 lb PM10/ton processed material (uncontrolled EF)

	Throughput (tons/yr)	Annual Emission Rate	
		PM <sub>10</sub> (lbs/yr)	(tons/yr)
From Processed Material Storage Pile	100,000	10	<b>0.005</b>

**886 TERMINAL/CROWN YARD OPERATIONS**

Unpaved Roads (Outgoing Processed Material Delivery Trucks)

AP-42 Table 13.2-2 Unpaved Roads

Maximum annual material processing capacity	100,000 tons/yr
Truck route length -round trip	0.28 miles (1,500 feet)
Truck loaded weight	80 tons
Truck unloaded weight	30 tons

$$E = k (s/12)^a (W/3)^b$$

- k = 1.5 for PM<sub>10</sub> AP-42 Table 13.2.2-2
- a = 0.9 for PM<sub>2.5</sub> and PM<sub>10</sub> AP-42 Table 13.2.2-2
- b = 0.45 for PM<sub>2.5</sub>, PM<sub>10</sub> and PM AP-42 Table 13.2.2-2
- s = 4.8 mean silt content of road surface (unpaved road at sand and gravel processing plant, Table 13.2.2-1)
- W = 55 tons, average vehicle weight

$$E_{PM10} = 2.43 \text{ lbs PM}_{10} \text{ per vehicle mile traveled}$$

M = total annual round trip miles traveled by outgoing delivery trucks

$$M = (\text{maximum annual material processing capacity}) / (50 \text{ tons/load}) \times (0.28 \text{ miles per load, round trip})$$

$$M = 568 \text{ miles traveled per year (round trip) by outgoing delivery trucks}$$

**Annual Emission Rates**

	PM	PM <sub>10</sub>
		Uncontrolled
lbs/yr		1,383
<b>TpY</b>		<b>0.69</b>
		Controlled
80% water application PM <sub>10</sub> emissions control efficiency		
lbs/yr		277
<b>TpY</b>		<b>0.14</b>

**886 TERMINAL/CROWN YARD OPERATIONS**

Unpaved Roads (Loader Operations)

AP-42 Table 13.2-2 Unpaved Roads

Maximum annual raw material capacity	100,000 tons/yr
Maximum annual processed material capacity	100,000 tons/yr
Loader route length -round trip	0.06 miles (300 feet)
Loader w/payload weight	42 tons
Loader tar weight	33 tons

$$E = k (s/12)^a (W/3)^b$$

- k = 1.5 for PM<sub>10</sub> AP-42 Table 13.2.2-2
- a = 0.9 for PM<sub>2.5</sub> and PM<sub>10</sub> AP-42 Table 13.2.2-2
- b = 0.45 for PM<sub>2.5</sub>, PM<sub>10</sub> and PM AP-42 Table 13.2.2-2
- s = 4.8 mean silt content of road surface (unpaved road at sand and gravel processing plant, Table 13.2.2-1)
- W = 37.5 tons, average vehicle weight

$$E_{PM10} = 2.05 \text{ lbs PM}_{10} \text{ per vehicle mile traveled}$$

M = total annual round trip miles traveled by loader yard work

$$M = (\text{maximum annual raw material/processed material combined capacities}) / (9 \text{ tons/load}) \times (0.09 \text{ miles per load, round trip})$$

$$M = 1,263 \text{ miles traveled per year (round trip) for loader yard work}$$

**Annual Emission Rates**

	PM <sub>10</sub>
	Uncontrolled
lbs/yr	2,587
<b>TpY</b>	<b>1.3</b>
	Controlled
80% water application PM <sub>10</sub> emissions control efficiency	
lbs/yr	517
<b>TpY</b>	<b>0.26</b>

**886 TERMINAL/CROWN YARD OPERATIONS**

Aggregate Handling and Storage Piles - Loading From Portable Plant to Processed Material Storage Pile

AP-42 Table 13.4.2.3. Loading of Aggregate onto Storage Piles - Predictive Emission Factor Equations

Maximum material processing 100,000 tons/yr

$$E = \frac{k(0.0032) (U/5)^{1.3}}{(M/2)^{1.4}}$$

Where:

- E = 0.0115 particulate emission factor (lb/ton)
- k = 0.35 particle size multiplier (from AP-42 Section 13.4.2.3 for PM10 emissions)
- U = 9.7 mean wind speed (mph, from www.weatherbase.com, 30 years of data on record)
- M = 0.7 material moisture content (% from AP-42 Table 13.2.4-1 Crushed limestone)

PTE = (0.012 lb/ton PM10 emission factor) x (maximum material processing rate, tons/yr)

PTE =	1,153	lbs/yr PM10
	<b>0.58</b>	<b>tons/yr PM10</b>

**886 TERMINAL/CROWN YARD OPERATIONS**

Wind Emissions from Continuously Active Piles (USEPA Control of Open Fugitive Dust Sources)

(Presented in older AP-42 Table 11.19.2-2 Emission Factors For Crushed Stone Processing Operations)

Processed material storage pile area        5        acres

$$E = 1.7(s/1.5)[(365-p)/235](f/15)$$

$E_{TSP} =$	4.09	lbs PM/day/acre
$E_{PM10} =$	1.95	lbs PM10/day/acre = $E_{TSP}/2.1$ (PM = 2.1 * PM10 based on AP-42 PM/PM10 ratio for aggregate processing)
s =	1.6	silt content of the material (% , from AP-42 Table 13.2.4-1 Crushed limestone)
p =	138	number of days with >0.01" of precipitation per year (2010 through 2018 data obtained from www.current trends.com)
f =	35	% of time that the wind speed exceeds 12 mph at mean pile height (from MDEQ-AQD reviewed permit application for Detroit Salt No. 318-98A)

PTE = (1.95 lbs PM10/day/acre emission factor) x (total area) x (days per year)

PTE =	3,552	lbs/yr PM10
	<b>1.8</b>	<b>tons/yr PM10</b>