

Appendix C

Record of Non-Applicability

RECORD OF NON-APPLICABILITY

In Accordance with the Clean Air Act-General Conformity Rule
for the
Proposed Construction of a Columbarium
St Albans Community Living Center and Hospital
St Albans, Queens County, New York

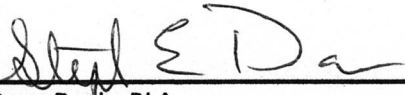
July 15, 2019

The National Cemetery Administration proposes to construct and operate a columbarium located on its property at the St Albans Community Living Center. As a result of action, the construction and operation activities will generate new direct and indirect emissions. Queens County is designated as an "unclassifiable/attainment" area for the NAAQS of CO, Lead, NO₂, PM₁₀, PM_{2.5} and SO₂. Queens County is designated as moderate nonattainment for ozone (8-hour NAAQS) and is classified as a maintenance area for PM_{2.5} due to a previous non-attainment designation. The temporary construction emissions and long-term operation emissions of NO_x and VOC, as ozone precursors, and PM_{2.5} thresholds apply (GHD 2018).

General Conformity under the Clean Air Act, Section 176, has been evaluated according to the requirements of Title 40 of the Code of Federal Regulations, Part 93, Subpart B. The requirements of this rule are not applicable to this action because of the results of emissions calculations for both construction and operation, emissions from the Preferred Alternative has been estimated at below the applicability threshold values.

Queens County is in attainment for all other criteria pollutants and therefore not subject to a further general conformity analysis. Supporting documentation and emission estimates:

- ☒ (X) Are Attached
- ☐ () Appeared in the National Environmental Policy Act documentation
- ☐ () Other (not necessary)


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4-29-2020
Date

Appendix A

Emission Calculations

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Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

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Table A-1
Project Emissions Summary
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Construction Emissions

Location	Type	Emissions (tons)							Emissions (metric tons)
		CO	NOx	PM10	PM2.5	SO2	VOC	CO2	CO2
On-Site	Non-Road Construction Equipment	1.8	1.5	0.06	0.06	0.0012	0.14	177	161
	Fugitive Dust			0.23	0.02				
Off-Site	On-Road Vehicles	2.6	1.1	0.30	0.09	0.0023	0.30	206	186
TOTAL		4.4	2.6	0.59	0.18	0.0035	0.44	383	347

Operational Emissions

Location	Type	Emissions (tons/yr)							Emissions (metric tons)
		CO	NOx	PM10	PM2.5	SO2	VOC	CO2	CO2
On-Site	Stationary Sources	0.2	0.2	0.015	0.015	0.001	0.01	235	213
	Maintenance Equipment	0.3	0.03	0.001	0.001	0.00003	0.01	4	3
Off-Site	On-Road Vehicles	11.6	1.0	1.1	0.27	0.006	1.3	486	441
TOTAL		12.1	1.3	1.1	0.29	0.007	1.3	725	657

Table A-2
Construction - Non-Road Equipment
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Construction Activity	Equipment Type	Equipment Size ¹ (hp)	Fuel Type	Operating Load ² (%)	No. of Units	Average Daily Operation ³ (hr/day)	Site Duration ³ (days)	Total Operation ³ (hr)
Relocation/removal of underground utilities	Hoe ram (Bore/drill rig)	209	diesel	75%	1	7	20	140
	Backhoe	77	diesel	55%	1	7	20	140
	Generator Set	22	diesel	74%	1	7	20	140
Top soil stocking	Power shovel (Excavator)	183	diesel	57%	1	7	30	210
	Bulldozer (Crawler tractor)	157	diesel	58%	1	7	30	210
	Front end loader (Rubber tired loader)	158	diesel	54%	1	7	30	210
Rough Grading	Front end loader (Rubber tired loader)	158	diesel	54%	1	7	20	140
	Grader	172	diesel	61%	1	7	20	140
	Dump Truck (Off-highway trucks)	489	diesel	57%	1	7	20	140
Road way base development	Dump Truck (Off-highway trucks)	489	diesel	57%	1	7	10	70
	Grader	172	diesel	61%	1	7	10	70
	Roller	99	diesel	56%	1	7	10	70
Excavation	Power shovel (Excavator)	183	diesel	57%	1	7	20	140
	Front end loader (Rubber tired loader)	158	diesel	54%	1	7	20	140
	Dump Truck (Off-highway truck)	489	diesel	57%	1	7	20	140
Concrete footings and foundations	Concrete truck (Off-highway truck)	489	diesel	57%	1	7	15	105
	Concrete finisher (Concrete Paver)	130	diesel	68%	1	7	15	105
Building construction/Columbarium installation	Concrete mixer	11	diesel	56%	1	7	15	105
	Concrete saw	13	gasoline	73%	1	7	15	105
Building and Columbarium cladding	Concrete mixer	11	diesel	56%	1	7	20	140
	Concrete saw	13	gasoline	73%	1	7	20	140
Final grading	Front end loader (Rubber tired loader)	158	diesel	54%	1	7	5	35
	Grader	172	diesel	61%	1	7	5	35
Road/parking paving	Roller	99	diesel	56%	1	7	10	70
	Asphalt paver	91	diesel	62%	1	7	10	70

Notes:

1. Rated horsepower estimated from Table 2-04, *Nonroad Engine and Vehicle Emission Study Report* (EPA 460-3-91-02).
2. Operating load estimated from Table 2-05, *Nonroad Engine and Vehicle Emission Study Report* (EPA 460-3-91-02).
3. Preliminary engineering estimate

Table A-3
Construction - On-Road Vehicles
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Vehicle Type	Fuel Type	Average Daily Vehicles (vehicles/day)	Average Daily Mileage¹ (miles/day)	Duration (days)	Total Mileage (miles)
Cars	Gasoline	10	50	180	90,000
Light Duty Trucks	Gasoline	10	50	180	90,000
Heavy Duty Trucks	Diesel	8	60	180	86,400
	Gasoline	2	60	180	21,600

Notes:

1. Assumed average round-trip distance.

Table A-4
Construction - Non-Road Equipment Emissions
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Construction Activity	Equipment Description	Fuel Type	Emissions (tons)						
			CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Relocation/removal of underground utilities	Hoe ram (Bore/drill rig)	diesel	0.06	0.11	0.004	0.004	0.00009	0.010	13
	Backhoe	diesel	0.02	0.03	0.002	0.002	0.00002	0.003	3
	Generator Set	diesel	0.01	0.01	0.002	0.002	0.00001	0.002	1
Top soil stocking	Power shovel (Excavator)	diesel	0.06	0.11	0.004	0.004	0.00009	0.010	13
	Bulldozer (Crawler tractor)	diesel	0.08	0.09	0.005	0.005	0.00008	0.008	11
	Front end loader (Rubber tired loader)	diesel	0.07	0.09	0.004	0.004	0.00007	0.008	10
Rough Grading	Front end loader (Rubber tired loader)	diesel	0.05	0.06	0.003	0.003	0.00005	0.005	7
	Grader	diesel	0.06	0.07	0.004	0.004	0.00006	0.006	8
	Dump Truck (Off-highway trucks)	diesel	0.11	0.19	0.006	0.006	0.00016	0.013	22
Road way base development	Dump Truck (Off-highway trucks)	diesel	0.06	0.10	0.003	0.003	0.00008	0.006	11
	Grader	diesel	0.03	0.04	0.002	0.002	0.00003	0.003	4
	Roller	diesel	0.02	0.02	0.001	0.001	0.00002	0.002	2
Excavation	Power shovel (Excavator)	diesel	0.04	0.07	0.002	0.002	0.00006	0.006	8
	Front end loader (Rubber tired loader)	diesel	0.05	0.06	0.003	0.003	0.00005	0.005	7
	Dump Truck (Off-highway truck)	diesel	0.11	0.19	0.006	0.006	0.00016	0.013	22
Concrete footings and foundations	Concrete truck (Off-highway truck)	diesel	0.08	0.15	0.005	0.005	0.00012	0.010	17
	Concrete finisher (Concrete Paver)	diesel	0.04	0.05	0.002	0.002	0.00004	0.004	5
Building construction/Columbarium installation	Concrete mixer	diesel	0.003	0.004	0.0004	0.0004	0.000003	0.000	0.4
	Concrete saw	gasoline	0.32	0.003	0.000	0.000	0.00001	0.01	1
Building and Columbarium cladding	Concrete mixer	diesel	0.005	0.005	0.001	0.001	0.000003	0.001	0.5
	Concrete saw	gasoline	0.43	0.004	0.000	0.000	0.00001	0.01	1
Final grading	Front end loader (Rubber tired loader)	diesel	0.01	0.015	0.0007	0.0007	0.00001	0.001	2
	Grader	diesel	0.01	0.018	0.0009	0.0009	0.00001	0.002	2
Road/parking paving	Roller	diesel	0.02	0.019	0.0013	0.0013	0.00002	0.002	2
	Asphalt paver	diesel	0.02	0.020	0.0013	0.0013	0.00002	0.002	2
TOTAL			1.8	1.5	0.06	0.06	0.001	0.1	177

Table A-5
Construction - Fugitive Dust Emissions
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Construction Activity	Average Daily Operation ¹ (miles/day)	Site Duration ¹ (days)	Total Operation ¹ (miles)	Emissions (tons)	
				PM10	PM2.5
Vehicles on Unpaved Surfaces	10	180	190	0.180	0.018
Grading	1	30	31	0.047	0.006
TOTAL				0.23	0.02

Notes:

1. Preliminary engineering estimate

Table A-6
Construction - On-Road Vehicle Emissions
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Vehicle Type	Fuel Type	Emissions (tons)						
		CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Cars	Gasoline	0.93	0.07	0.088	0.022	0.0004	0.10	37
Light Duty Trucks	Gasoline	1.17	0.09	0.088	0.022	0.0006	0.12	51
Heavy Duty Trucks	Diesel	0.22	0.82	0.10	0.040	0.0010	0.04	97
	Gasoline	0.31	0.07	0.022	0.006	0.0002	0.04	21
TOTAL	Gasoline	2.64	1.05	0.30	0.09	0.002	0.3	206

Table A-7
Operations - Maintenance Equipment
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Activity	Equipment Type	Equipment Size ¹ (hp)	Fuel Type	Operating Load ² (%)	No. of Units	Average Daily Operation ³ (hr/day)	Site Duration ³ (days)	Total Operation ³ (hr)
Lawn Maintenance	Rear Riding Mower	9	gasoline	38%	1	4	50	200
Snow Removal	Off-highway truck	489	diesel	57%	1	2	10	20
	Snowblower	6	diesel	35%	1	4	20	80

Notes:

1. Rated horsepower estimated from Table 2-04, *Nonroad Engine and Vehicle Emission Study Report* (EPA 460-3-91-02).
2. Operating load estimated from Table 2-05, *Nonroad Engine and Vehicle Emission Study Report* (EPA 460-3-91-02).
3. Preliminary engineering estimate

Table A-8
Operations - On-Road Vehicles
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Vehicle Type	Fuel Type	Annual Vehicles^{1,2} (vehicles/year)	Average Travel per Vehicle (miles/vehicle)	Total Mileage (miles)
Cars	Gasoline	17500	50	875,000
Light Duty Trucks	Gasoline	3500	50	175,000
Heavy Duty Trucks	Diesel	250	60	15,000
	Gasoline	250	60	15,000

Notes:

1. No. of cars and light trucks is based on 700 inurnments per year.
2. No. of heavy duty trucks is based on 1 truck per day.

Table A-9
Operations - Stationary Source and Maintenance Equipment Emissions
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Stationary Source Type	Capacity ¹ (MMBtu/hr)	Operation ¹ (hr/yr)	Emissions (tons)						
			CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Rooftop Gas Heaters	1.0	4000	0.16	0.20	0.01	0.01	0.00	0.01	235
TOTAL			0.16	0.20	0.01	0.01	0.00	0.01	235

Notes:

1. Assumed size and operation

Activity	Equipment Type	Fuel Type	Emissions (tons)						
			CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Lawn Maintenance	Rear Riding Mower	diesel	0.221	0.002	0.00003	0.00003	0.000004	0.005	0.4
Snow Removal	Off-highway truck	diesel	0.016	0.028	0.0009	0.0009	0.00002	0.002	3.2
	Snowblower	diesel	0.054	0.0005	0.00001	0.00001	0.000001	0.001	0.1
TOTAL			0.3	0.03	0.0010	0.0010	0.00003	0.008	4

Table A-10
Operations - On-Road Vehicle Emissions
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Vehicle Type	Fuel Type	Emissions (tons)						
		CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Cars	Gasoline	9.07	0.67	0.85	0.22	0.00	1.00	355.32
Light Duty Trucks	Gasoline	2.28	0.18	0.17	0.043	0.00	0.24	99.05
Heavy Duty Trucks	Diesel	0.04	0.14	0.018	0.007	0.00	0.01	16.83
	Gasoline	0.22	0.05	0.015	0.004	0.00	0.03	14.69
TOTAL	Gasoline	11.6	1.0	1.1	0.27	0.006	1.3	486

Table A-11
Non-Road Equipment Emission Factors
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Equipment Type	Fuel Type	Size Range	Emission Factor ^{1,2} (g/hp-hr)						
			CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Bore/drill rig	Diesel	175 to <300	2.6	4.5	0.15	0.15	0.0037	0.4	522
Backhoe	diesel	50 to <100	3.7	4.5	0.30	0.30	0.0037	0.4	522
Generator Set	diesel	11 to <25	4.9	5.0	0.60	0.60	0.0037	0.6	522
Excavator	diesel	175 to <300	2.6	4.5	0.15	0.15	0.0037	0.4	522
Crawler tractor	diesel	100 to <175	3.7	4.5	0.22	0.22	0.0037	0.4	522
Rubber tired loader	diesel	100 to <175	3.7	4.5	0.22	0.22	0.0037	0.4	522
Grader	diesel	100 to <175	3.7	4.5	0.22	0.22	0.0037	0.4	522
Off-highway truck	diesel	300 to <600	2.6	4.5	0.15	0.15	0.0037	0.3	522
Roller	diesel	50 to <100	3.7	4.5	0.30	0.30	0.0037	0.4	522
Concrete Paver	diesel	100 to <175	3.7	4.5	0.22	0.22	0.0037	0.4	522
Concrete mixer	diesel	11 to <25	4.9	5.0	0.60	0.60	0.0037	0.6	522
Concrete saw	gasoline	11 to <25	293.01	2.45	0.04	0.04	0.0047	6.51	490
Asphalt paver	diesel	50 to <100	3.7	4.5	0.30	0.30	0.0037	0.4	522
Rear Riding Mower	gasoline	<11	293.01	2.45	0.04	0.04	0.0047	6.51	490
Snowblower	gasoline	<11	293.01	2.45	0.04	0.04	0.0047	6.51	490

Notes:

1. Emissions for diesel equipment from:

CO, PM10, PM2.5 : Table 1, *Exhaust & Crankcase Emission Factors for Nonroad Engine Modeling- Compression-Ignition* (EPA 420-R-10-018). Assume Tier 2.

NOx, VOC: Table 8, *Exhaust & Crankcase Emission Factors for Nonroad Engine - Compression-Ignition* (EPA 420-R-10-018). Assume Tier 2.

SO2: Table 3.3-1, AP-42 Section 3.3. Factor corrected to change from lb/hp-hr to g/hp-hr and S content from 2800 ppm to 11 ppm.

CO2: Table 3.3-1, AP-42 Section 3.3. Factor corrected to change from lb/hp-hr to g/hp-hr.

2. Emissions for gasoline equipment from:

NOx, VOC, CO, PM10, PM2.5 : Table 4, *Exhaust Emission Factors for Nonroad Engine Modeling- Spark-Ignition* (EPA 420-R-10-019). Assume G4N1O2.

SO2: Table 3.3-1, AP-42 Section 3.3. Factor corrected to change from lb/hp-hr to g/hp-hr and S content from 850 ppm to 15 ppm.

CO2: Table 3.3-1, AP-42 Section 3.3. Factor corrected to change from lb/hp-hr to g/hp-hr.

Table A-12
On-Road Vehicle Emission Factors
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Vehicle Type	Fuel Type	Exhaust Emission Factor ^{1,2,3,4} (g/mile)						
		CO	NOx	PM10	PM2.5	SO2	VOC	CO2
Cars	Gasoline	9.400	0.693	0.0041	0.0044	0.0045	1.034	368.4
Light Duty Trucks	Gasoline	11.84	0.95	0.0045	0.0049	0.0063	1.224	513.5
Heavy Duty Trucks	Diesel	2.311	8.613	0.219	0.202	0.010	0.447	1018
	Gasoline	13.130	2.914	0.044	0.051	0.010	1.586	888.7

Notes:

1. CO2, CO, PM10, PM2.5, NOx, and VOC Emissions for Cars and Light Trucks: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks (EPA 420-F-08-024).
2. SO2 emissions based on sulfur content of 15 ppm and typical fuel consumption rate.
3. CO, PM10, PM2.5, NOx, and VOC Emissions for Heavy Duty Trucks: Table 1, Average In-Use Emissions from Heavy Duty Trucks (EPA 420-F-08-027).
4. CO2 Truck Emissions from "Greenhouse Gas Emissions from a Typical Passenger Vehicle". Assume heavy duty trucks average 10 miles per gallon.

Vehicle Type	Fuel Type	Fugitive Dust Emission Factor ⁵ (g/mile)	
		PM10	PM2.5
All	All	0.88	0.22

Notes:

5. from AP-42 Section 13.2.1-Paved Roads, Equation 2.

Table A-13
Fugitive Dust Emission Factors
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Activity	Units	Emission Factor ^{1,2}	
		PM10	PM2.5
Vehicles on Unpaved Surfaces	lb/VMT	1.89	0.19
Grading	lb/VMT	3.06	0.39

Notes:

1. Vehicle on Unpaved Surfaces Emission Factors from AP-42 Section 13.2.2, Equation 1a.
2. Grading Emission Factors from AP-42 Section 11.9, Table 11.9-1.

Table A-14
Stationary Source Emission Factors
Air Quality Study Report
Columbarium - VA/National Cemetery Administration - St. Albans, Queens, NY

Stationary Source Type	Fuel Type	Emission Factor ¹ (lb/MMcf)						
		CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO ₂
Heaters	Natural Gas	84	100	7.6	7.6	0.6	5.5	120,000

Notes:

1. Emission Factors from AP-42 Section 1.4, Tables 1.4-1 and 1.4-2.