

Curle, Mary Beth

From: Ard, Howard
Sent: Friday, September 28, 2012 8:13 AM
To: Curle, Mary Beth
Subject: FW: Roads Inc Cantonment Asphalt Plant, Application Project No: 7775744-001-AC
Attachments: p20.pdf

Howard A. Ard
Engineering Specialist III, Northwest District Air Program
850/595-0622; fax 850/595-8096

Please Note: Florida has a very broad public records law. Most written communications to or from state officials regarding state business are public records available to the public and media upon request. Your e-mail communications may therefore be subject to public disclosure.

From: Debbie Hitchcock [<mailto:dhitchcock@ascendantllc.net>]
Sent: Thursday, September 27, 2012 5:10 PM
To: Ard, Howard
Subject: Roads Inc Cantonment Asphalt Plant, Application Project No: 7775744-001-AC

Hi Howard,

Please find attached the revised page 20 of the permit application. If you have any questions, please feel free to call me.

Again, thank you for all your help with this!

Regards,
Debbie Hitchcock, PE
Ascendant Solutions, LLC
2019 N 12th Ave
Pensacola, FL 32503
Cell: (850) 232-8871
Email: dhitchcock@ascendantllc.net
www.ascendantsolutionsllc.com



EMISSIONS UNIT INFORMATION

Section [1] of [1]

D. SEGMENT (PROCESS/FUEL) INFORMATION**Segment Description and Rate:** Segment 1 of 4

1. Segment Description (Process/Fuel Type): Mineral Products; Asphaltic Concrete; Conventional Continuous Mix Plant; Rotary Dryer		
2. Source Classification Code (SCC): 3-05-002-01		3. SCC Units: Tons produced
4. Maximum Hourly Rate: 300 TPH	5. Maximum Annual Rate: 500,000 TPY	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: N/A	8. Maximum % Ash: N/A	9. Million Btu per SCC Unit: N/A
10. Segment Comment:		

Segment Description and Rate: Segment 2 of 4

1. Segment Description (Process/Fuel Type): In process fuel use: distillate oil Asphalt Dryer		
2. Source Classification Code (SCC): 3-90=005-01		3. SCC Units: 1,000 gallons (TG)
4. Maximum Hourly Rate:	5. Maximum Annual Rate: 1.1 MM Gallons	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.6	8. Maximum % Ash:	9. Million Btu per SCC Unit: 135 MM BTU/TG
10. Segment Comment: SCC used for No. 2 distillate 1.		

Curle, Mary Beth

From: Ard, Howard
Sent: Thursday, September 27, 2012 8:25 AM
To: Curle, Mary Beth
Cc: Sarasua, Armando
Subject: FW: Roads Inc Cantonment Asphalt Plant, Application Project No: 7775744-001-AC
Attachments: Roads Inc Corrected Permit App Pages.pdf; Air Construction Permit Narrative.doc; FIG 1 - FACILITY PLOT PLAN.pdf

Howard A. Ard
Engineering Specialist III, Northwest District Air Program
850/595-0622; fax 850/595-8096

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From: Debbie Hitchcock [<mailto:dhitchcock@ascendantllc.net>]
Sent: Thursday, September 27, 2012 8:07 AM
To: Ard, Howard
Cc: crawson@roadsinc.com; Tom Hammond (tom@selanddesign.com)
Subject: Roads Inc Cantonment Asphalt Plant, Application Project No: 7775744-001-AC

Good morning Mr. Ard,

Please find attached the revised narrative with emissions calculations, corrected application pages 21, 25 and 29, and a facility plot plan for the Roads Inc. Cantonment Asphalt Plant permit application. The narrative now includes the following information:

- There will be two liquid asphalt storage tanks: one 20,000-gallon and one 30,000-gallon
- The silos will be heated through electric cones and will have insulated walls
- The facility will periodically bring a portable crusher on site to crush RAP
- Fuel oil usage will not exceed 1.1 million gallons in any rolling consecutive 12-month period
- Natural gas will be the primary fuel source; the facility will run no more than 400 hours on fuel oil in any rolling consecutive 12-month period
- Emission calculations for PM, PM10, NOX, and SO2 were corrected as discussed

If you have any questions regarding this information, please do not hesitate to call me at 850-232-8871.

Thank you,
Debbie Hitchcock, PE
Ascendant Solutions, LLC
2019 N 12th Ave
Pensacola, FL 32503
Cell: (850) 232-8871
Email: dhitchcock@ascendantllc.net
www.ascendantsolutionsllc.com

EMISSIONS UNIT INFORMATION

Section [1] of [1]

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3_ of 4_

1. Segment Description (Process/Fuel Type): Industrial process, in process fuel use: distillate oil, Grade 4 oil		
2. Source Classification Code (SCC): 3-90-005-98		3. SCC Units: 1,000 gallons (TG)
4. Maximum Hourly Rate:	5. Maximum Annual Rate: 1.1MM Gallons	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.6	8. Maximum % Ash:	9. Million Btu per SCC Unit: 145 MM BTU/TG
10. Segment Comment:		

Segment Description and Rate: Segment 4_ of 4_

1. Segment Description (Process/Fuel Type): Industrial process, in process fuel use: natural gas, general		
2. Source Classification Code (SCC): 3-90-006-89		3. SCC Units: MM CF burned
4. Maximum Hourly Rate:	5. Maximum Annual Rate: N/A	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: N/A	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1000
10. Segment Comment:		

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: NOX		2. Total Percent Efficiency of Control: -0-	
3. Potential Emissions: lb/hour 16.5 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year N/A			
6. Emission Factor: 0.12 lb/T Reference: AP42 11.1-7		7. Emissions Method Code: 3	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: See "Emissions Calculations"			
11. Potential, Fugitive, and Actual Emissions Comment:			

COMMENCING AT THE NORTHEAST CORNER OF SECTION 14, TOWNSHIP 1 NORTH, RANGE 31 WEST, ESCAMBIA COUNTY, FLORIDA; THENCE SOUTH 33 DEGREES 15'05" EAST ALONG THE EAST LINE OF THE SAID SECTION 14 FOR A DISTANCE OF 1894.36 FEET; THENCE SOUTH 61 DEGREES 01'23" WEST FOR A DISTANCE OF 2872.34 FEET TO THE EASTERLY RIGHT OF WAY LINE OF THE SEABOARD SYSTEM RAILROAD (R/W VARIES); THENCE NORTH 27 DEGREES 38'07" WEST ALONG SAID EASTERLY RIGHT OF WAY LINE FOR A DISTANCE OF 1570.12 FEET TO THE NORTH LINE OF PARCEL "A" DESCRIBED IN OFFICIAL RECORDS BOOK 5708 AT PAGE 434 OF THE PUBLIC RECORDS OF SAID COUNTY, POINT BEING ON A CIRCULAR CURVE CONCAVE TO THE NORTH, HAVING A RADIUS OF 455.00 FEET, ALSO BEING THE POINT OF BEGINNING. THENCE EASTERLY ALONG THE NORTH LINE OF SAID PARCEL "A" AND CURVE FOR AN ARC DISTANCE OF 613.51 FEET (CHORD DISTANCE OF 568.05 FEET, DELTA ANGLE OF 77 DEGREES 15'20", CHORD BEARING OF SOUTH 85 DEGREES 20'40" EAST) TO THE POINT OF TANGENCY; THENCE NORTH 56 DEGREES 01'40" EAST ALONG THE NORTH LINE OF SAID PARCEL "A" FOR A DISTANCE OF 283.14 FEET TO THE WEST RIGHT OF WAY LINE OF STONE BOULEVARD (66' R/W) AS RECORDED IN OFFICIAL RECORDS BOOK 2198 AT PAGE 68 OF THE PUBLIC RECORDS OF SAID COUNTY; THENCE NORTH 30 DEGREES 28'58" WEST ALONG THE WEST RIGHT OF WAY LINE OF SAID STONE BOULEVARD FOR A DISTANCE OF 608.51 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF BECKS LAKE ROAD (66' R/W) AS RECORDED IN OFFICIAL RECORDS BOOK 1150 AT PAGE 97 OF THE PUBLIC RECORDS OF SAID COUNTY; THENCE SOUTH 56 DEGREES 01'57" WEST ALONG THE SOUTHERLY RIGHT OF WAY LINE OF SAID BECKS LAKE ROAD FOR A DISTANCE OF 735.70 FEET TO THE AFORESAID EASTERLY RIGHT OF WAY LINE OF SEABOARD SYSTEMS RAILROAD; THENCE SOUTH 27 DEGREES 38'07" EAST ALONG SAID EASTERLY RIGHT OF WAY LINE FOR A DISTANCE OF 254.39 FEET TO THE POINT OF BEGINNING. ALL LYING AND BEING IN (SECTION 11, AND) SECTION 14, TOWNSHIP 1 NORTH, RANGE 31 WEST, ESCAMBIA COUNTY, FLORIDA AND CONTAINING 9.39 ACRES, MORE OR LESS.

CURVE DATA "A"
 RADIUS = 455.00' (D&F)
 DELTA = 77°15'20"(D) 77°15'05"(F)
 LENGTH = 613.51(D) 613.47(F)
 CHORD BEARING = S85°20'40"E(D) S85°20'47"E(F)
 CHORD DISTANCE = 568.05(D)

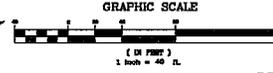
CURVE DATA "B"
 RADIUS = 455.00' (F)
 DELTA = 05°19'17"(F)
 LENGTH = 42.26(F)
 CHORD BEARING = S49°22'53"E(F)
 CHORD DISTANCE = 42.24(F)

CURVE DATA "C"
 RADIUS = 455.00' (F)
 DELTA = 71°58'45"(F)
 LENGTH = 571.22(F)
 CHORD BEARING = S88°00'28"E(F)
 CHORD DISTANCE = 534.44(F)

THE NORTH LINE OF PARCEL 5,
 (O.R. BOOK 5708, PAGE 434)

PLEASE SEE ATTACHED PLAN SCHEMATIC
 FOR DETAILS AND DIMENSIONS

SEE CURVE DATA "A"



BLACK GOLD OF NWF, LLC
 PROPOSED ASPHALT PLANT
 15 BECKS LAKE ROAD
 CANTONMENT, FLORIDA 32533
 PROPERTY I.D.#: 14-1N-30-1001-000-002
 OWNER/DEVELOPER:
 BLACK GOLD OF NWF, LLC
 106 STONE BLVD.
 CANTONMENT, FL 32533
 850-968-0991
 ZONING DESIGNATION: ID-2
 SURROUNDING ZONING: ID-2
 FLU: I
 SURROUNDING FLU: I

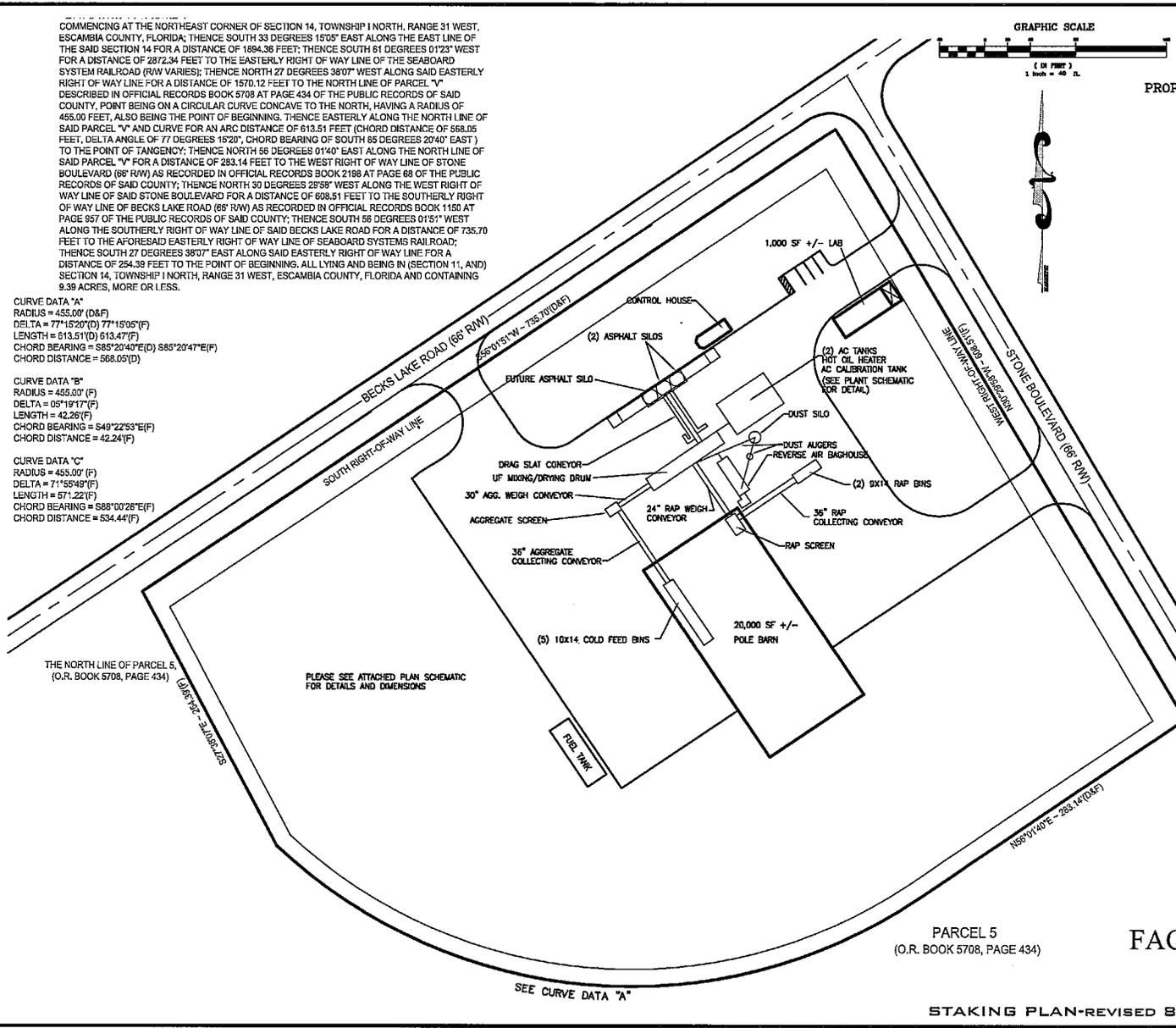


FIGURE 1
 FACILITY PLOT PLAN

PARCEL 5
 (O.R. BOOK 5708, PAGE 434)

STAKING PLAN-REVISED 8-16-12

DATE	BY	REVISION
11/7/12	JL	AS PER ESCAMBIA COUNTY
HAMMOND ENGINEERING, INC. ALABAMA AUTHORIZATION NO. 3237 PENNSYLVANIA AUTHORIZATION NO. 0000000000 3802 NORTH 13 TH STREET PENSACOLA, FLORIDA 32505 FAX 850-413-2650 TOMB@BELANDDESIGN.COM		
SITE PLANS FOR BLACK GOLD OF NWF ASPHALT PLANT STAKING PLAN ESCAMBIA COUNTY FLORIDA		
DESIGNED BY	DATE	BY
ENGINEERED BY	DATE	BY
CHECKED BY	DATE	BY
NOT RECORDED	DATE	BY
FILE NO.	LAYOUT	DATE
PROJECT NO. 11-0226		
SHEET: 1	OF: 1	

**Florida Department of Environmental Protection
Division of Air Resources Management
Application for Air Permit – Non-Title V Source
Construction Application**

September 2012

**Applicant:
ROADS, INC.
CANTONMENT, FLORIDA**

Prepared by:



**Ascendant Solutions, LLC
2019 N. 12th Ave
Pensacola, FL 32503**

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Appendix A – Application for Air Permit – Long Form

Appendix B – Plant Specifications and Emission Factors

Appendix C – Precautions to Prevent Emissions of Unconfined Particulate Matter

Appendix D – Environmental Compliance Plan

1.0 INTRODUCTION

The purpose of this application is to obtain a construction permit for one hot mix asphalt plant to be located at the southwest corner of Becks Lake Road and Stone Boulevard in Cantonment, Florida. The proposed asphalt plant will be located across Stone Boulevard from the existing Roads, Inc. asphalt plant (FAC ID 7775285). The existing plant will shut down and decommissioned when the new plant begins operation.

The asphalt plant is a relocatable type designed and manufactured in its entirety by Almix. It is a new unit purchased for the site, Model Number 10048. This is a continuous mix plant with nominal capacity of 300 TPH. Fuel used in the dryer burner will be No. 2 or No. 4 fuel with maximum sulfur content of 0.6% by weight or natural gas. The facility will limit fuel oil consumption to 1.1 million gallons in any consecutive 12-month period. Natural gas will be the primary fuel source; the facility will not run on fuel oil more than 400 hours in any consecutive 12-month period. The liquid asphalt storage tanks (one 20,000-gallon and one 30,000-gallon) will be heated electronically.

This facility qualifies to be exempt from Title V air permitting under 62-213 F.A.C. because it will meet the following conditions:

- Production rate of asphaltic concrete shall not exceed 500,000 tons in any consecutive 12-month period.
- Fuel oil consumption shall not exceed 1.2 million gallons in any consecutive 12-month period.
- Fuel oil shall not exceed 1% sulfur content by weight.
- Particulate Matter (PM) emissions shall not exceed 0.04 grains/dscfu, averaged over a 3-hour period.
- Fugitive PM emissions shall be controlled in accordance with the requirements of Rule 62-296.320(4)(c).
- Visible emissions (VE) shall not be equal to greater than 20% capacity.
- The Owner/Operator shall maintain records to document the monthly and 12-month rolling totals of tons of asphaltic concrete produced, gallons of fuel oil consumed and hours of operation. Such records shall be contained for five (5) years.
- The Owner/Operator shall submit an Annual Operating Report for air pollutant emitting facility to the Florida Department of Environmental Protection (FDEP) annually pursuant to Rule 62-210.370(3).
- The Owner/Operator shall yearly submit a stack test using EPA reference Method 5 and VE test using EPA referenced Method 9 that demonstrate compliance with PM and VE standards.

The plant operates as a conventional drum mix type. Aggregate materials are transferred from a slinger conveyor into the drum. An aggregate belt scale located on the conveyor determines the rate (weight) of combined aggregate fed into the uni-flow drum mixer. Liquid asphalt is introduced at a rate of 5% to 7% based on the weight of the aggregate. The plant will be equipped with a recycle asphalt handling system which will allow it to use a maximum of 35% recycled asphalt product (RAP). RAP is added to the drum at a point past the burner nose along with returned baghouse fines. The combined dry aggregate, RAP, and baghouse fines move through a short preheat zone to bring the RAP up to temperature and to drive off moisture. The liquid asphalt cement is injected and the combined product moves through the mixing zone to be blended together. The final product is conveyed from the drum mixer via a drag conveyor to up to three holding silos for discharge into trucks.

The emissions from the drying process are pulled by an exhaust fan through a baghouse. The captured aggregate dust is returned to the drum mixer via enclosed "screw" type conveyors for use in the final product.

The Plant and/or process will consist of the following:

1. Aggregate storage yard. Aggregate will be delivered by trucks and stored on site in storage piles. Front loaders will be used to deliver such material to aggregate storage bins.
2. Aggregate storage bin will consist of five (5) 10' x 14' compartments (bins). Aggregate falls onto a 36" belt conveyor which delivers material to the aggregate screen. The aggregate screen is where oversized material is screened out; aggregate then falls onto a 30" weigh conveyor which delivers material to the mixing/drying drum.
3. The mixing/drying drum is manufactured by Asphalt Equipment Company (Model 10048UF) and is 100" diameter and 48' long. It is equipped with Hauck Eco Star burner Model ESII-100B, with a maximum heat input of 100 MMBTU/HR.
4. This plant will be equipped with a Recycled Aggregate Product (RAP) system. Crushed RAP will be delivered to the site by trucks and stored in piles. A portable crusher will be brought on site periodically on an as-needed basis to crush RAP. A front loader will deliver the RAP to two (2) 9' x 14' storage bins, equipped with a 36" belt conveyor that delivers the RAP to a screen where oversized material is screened out. The material is then transferred to a 24" belt conveyor that delivers it to the drying/mixing drum. Not all mixes will contain RAP.
5. Asphaltic concrete will be received from the mixing drum into a fully enclosed included chain conveyor, which will deliver it into one of three (3) 100-ton storage silos.

The silos are vertical, self-standing and equipped with truck loading facility. They are heated by electric cones and have insulated walls.

6. Asphalt liquid will be delivered by tanker truck and pumped into a storage tank using electric heat to keep asphalt in liquid form. From the storage tank, liquid asphalt will be pumped into the mixing drum mixer. The facility will have two liquid asphalt storage tanks, one with a capacity of 20,000 gallons and one with a capacity of 30,000 gallons.
7. Fuel used in the drum dryer burner will be delivered by tanker truck and stored in an on-site fuel tank or piped in, if using natural gas.
8. PM emissions created by the mixing/drying drum will be controlled by an exhaust system consisting of exhaust duct work leading to a baghouse (BH-1), exhaust blower, and vertical stack discharging air from the blower. Exhaust from the dryer drum will be intercepted by a knockout box precleaner to eliminate larger particles from the aggregate. The baghouse is manufactured by Asphalt Equipment Company, Model 62KRA. It is rated 62,000 acfm at operating temperatures of 220 – 380 °F. It will be equipped with 780 87" long bags with total cloth area of 13,470 ft². The air to cloth ratio is 4.6 to 1; bags are made from 14 oz. virgin Nomex with 13% glass fiber. The method of cleaning is reverse air flow with a predicted pressure drop of 3" – 5" H₂O. The exhaust fan is manufactured by Twin City Fan and Blower, Model 490 BCS with a 200 HP motor. The exhaust stack will be equipped with sample ports required to conduct EPA Method 5 tests. Filtrates from the baghouse will be collected by a screw conveyor and delivered back to the mixing drum.

Potential emissions are calculated based on regulated activities associated with asphalt production as follows:

- a. ducted production emissions
- b. production related fugitive emissions from transport of asphalt concrete from drum mix to storage silo and from silo loading operations

Fugitive PM emissions from yard storage piles and vehicular traffic are not included.

This facility is not a major source of HAPs. The facility is regulated under NSPS – 40 CFR 60, Subpart 1 (Standards of Performance for Hot Mix Asphalt Facilities) and Rule 62-210.300(3)i, F.A.C (conditional exemptions from Title V permitting).

2.0 POTENTIAL EMISSIONS CALCULATIONS

The proposed hot mix asphalt plant emissions are based on the following assumptions:

- Production at 300 TPH, 500,000 TPY of hot asphalt mix.
- Drum mix burner will use No. 2 or No. 4 fuel with maximum sulfur content of 0.6% or natural gas.
- Plant is capable of producing 300 TPH and its overall yearly production is limited to 500,000 TPY. Plant will also be equipped with two (2) 100-ton asphaltic concrete storage silos, with a third optional silo, so that mix production will most likely be at maximum or near maximum rated capacity of 300 TPH to save fuel. If the plant operates at 300 TPH, required hours of operation would be $500,000 / 300 = 1667$ hr/yr. If the plant operates at 70% capacity, required hours of operation would be $500,000 \text{ TPY} / (0.7 \times 300 \text{ TPH}) = 2,381$ hr/yr.
- Roads, Inc. is asking for unlimited hours of operation for all aspects of the operation. However, potential emissions for asphaltic concrete production will be calculated on 2,381 hr/yr as shown above, 1.1 MM gallons/year of burned fuel or 500,000 tons of asphalt produced, whichever is applicable.

2.1 Ducted Production Emissions

PM Emissions

Assumptions:

- 14% moisture content ($B_{ws} = 0.14$)
- Air flow through the process is 62,000 ACFM at 300 °F
- PM emissions are limited to 0.04 grains/DSCF
- Standard pressure and actual pressure are the same (roughly at sea level)

Convert to DSCFM:

$$\% \text{ Dry Wt} \times \text{ft}^3/\text{min}_{\text{act}} \times (T_{\text{std}}^{\circ}\text{R}/T_{\text{act}}^{\circ}\text{R})$$

$$(1 - 0.14) \times 62,000 \text{ ft}^3/\text{min}_{\text{act}} \times [(460 + 68)^{\circ}\text{R} / (460 + 300)^{\circ}\text{R}] = 37,043 \text{ dry ft}^3/\text{min}_{\text{std}} \text{ or DSCFM}$$

$$\begin{aligned} \text{PM} &= \text{max grains/ ft}^3_{\text{std}} \times \text{dry ft}^3_{\text{minstd}} \\ &= 0.04 \text{ grains/ ft}^3_{\text{std}} \times 37,043 \text{ dry ft}^3_{\text{minstd}} \times 60 \text{ min/hr} \times 1 \text{ lb/7,000 grains} = 12.7 \text{ lb/hr or } 12.7 \times \\ &2,381 / 2,000 = \mathbf{15.1 \text{ tons/rolling 12 months}} \end{aligned}$$

AP42 Table 11.1-3 provides an emission factor of 0.033 lb/t for fabric filter

Fabric Filter Emissions = emissions factor lb/tons x tons/year

$$0.033 \text{ lb/ton} \times 500,000 \text{ tons/year} \times 1 \text{ ton} / 2,000 \text{ lb} = 8.25 \text{ tons/rolling 12 months}$$

PM10 Emissions

Assumptions:

- AP42 Table 11.1-3 provides filterable PM10 emissions factor of 0.023 lb/ton for fabric filters.
- 20% Safety Factor Increase

PM10

20% increase x emissions factor (lb/ton) x ton/year

$$= 1.2 \times 0.023 \text{ lb/ton} \times 500,000 \text{ ton/year} \times 1 \text{ ton}/2,000 \text{ lb} = \mathbf{6.9 \text{ tons/rolling 12 months}}$$

NOX and CO Emissions

Assumptions:

- Plant will be limited to 500,000 tons/rolling 12 months
- AP42 Table 11.1-7 lists the following emission factors for drum mix asphalt plant:
 - Nox = 0.055 lb/ton for No. 2 and No. 4 fuels
 - Nox = 0.026 lb/ton for natural gas
 - CO = 0.13 lb/ton for all three fuel types
- 20% Safety Factor Increase

NOX

20% increase x highest emissions factor (lb/ton) x ton/year

$$= 1.2 \times 0.055 \text{ lb/ton} \times 500,000 \text{ ton/year} \times 1 \text{ ton}/2,000 \text{ lb} = \mathbf{16.5 \text{ tons/rolling 12 months}}$$

CO

20% increase x emissions factor (lb/ton) x ton/year

$$= 1.2 \times 0.13 \times 500,000 \text{ ton/year} \times 1 \text{ ton}/2,000 \text{ lb} = \mathbf{39 \text{ tons/rolling 12 months}}$$

VOC Emissions

Assumptions:

- Plant will be limited to 500,000 tons/rolling 12 months
- AP42 lists 0.032 lb/ton as emission factor for all three fuel types
- 20% Safety Factor Increase

VOC

20% increase x emissions factor (lb/ton) x ton/year
= $1.2 \times 0.032 \text{ lb/ton} \times 500,000 \text{ ton/year} \times 1 \text{ ton}/2,000 \text{ lb} = 9.6 \text{ tons/rolling 12 months}$

SO₂ Emissions

Assumptions:

- Fuel usage will be limited to 1.1 MM gallons/rolling 12 months
- AP42 Table 1.3-1 states uncontrolled fuel combustion emissions from fuel oil combustion (SCC 1-03-005-04) are:
SO₂ = 150 S lb/1,000 gal, "S" is the sulfur content % by weight for No. 4 fuel
(used in calculations)
SO₂ = 142 S lb/1,000 gal, "S" is the sulfur content % by weight for No. 2 fuel

SO₂

emission factor (S lb/1,000 gal) x annual fuel (gal) x % sulfur content in fuel
= $150 \text{ S lb}/1,000 \text{ gal} \times 1,100,000 \text{ gal} \times 0.6 \times 1 \text{ ton}/2,000 \text{ lb} = 49.5 \text{ ton/rolling 12 months}$

2.2 Production Related Fugitive Emissions

Drum Mix Plant Load-out Emissions (SCC3-05-002-14)

PM Emissions Factor (AP42 11.1.2.5)

$$EF = 0.000181 + 0.00141 (-V) e^{((0.0251)(1+406) - 20.43)}$$

Using asphalt loss-on heating of 0.41% and temperature of 290 °F

$$EF = 0.000181 + 0.00141 (-(-0.41)) e^{((0.0251)(1+406) - 20.43)} = 0.0003 \text{ lb/ton}$$

PM = $0.0003 \times 500,000 / 2,000 = 0.08 \text{ tons/rolling 12 months}$

TOC Emissions Factor (AP42 11.1.2.5)

$$EF = 0.01172 (-V) e^{(-1.605)}$$

$$EF = 0.01172 (-(-0.41)) e^{(-1.605)} = 0.0014 \text{ lb/ton}$$

$$\text{TOC} = 0.0014 \times 500,000 / 2,000 = \mathbf{0.35 \text{ tons/rolling 12 months}}$$

CO Emissions

AP42 11.1.2.5 - carbon monoxide emissions can be estimated by multiplying the TOC emission by 0.32 (the ratio of truck load-out CO emissions from truck load-out THC emissions).

$$\text{CO} = 0.32 \times 0.35 = \mathbf{0.11 \text{ tons/rolling 12 months}}$$

VOC Emissions

AP42 Table 11.1-16 – speciation profile for load out and yard emissions is 94% VOC compound/TOC

$$\text{VOC} = 0.94 \times 0.35 = \mathbf{0.33 \text{ tons/rolling 12 months}}$$

Fugitive Emissions for Aggregate Transfer from Aggregate Piles to Aggregate Bins, from Bins to Conveyor Belt and from Conveyor to Drum Mix

Assumptions:

- AP42 Table 11.12-2 (SCC 3-05-011-04, 21, 23) lists the emissions factors as:
PM = 0.0069 lb/ton
PM10 = 0.0033 lb/ton
- Having 3 transfers and assuming aggregate represents 90% of asphalt produced

$$\text{PM} = 3 \times 0.0069 \times 0.9 \times 500,000 / 2,000 = \mathbf{4.66 \text{ tons/rolling 12 months}}$$

$$\text{PM10} = 3 \times 0.0033 \times 0.9 \times 500,000 / 2,000 = \mathbf{2.23 \text{ tons/rolling 12 months}}$$

Summary of Production Related Fugitive Emissions

$$\text{PM} = 0.08 + 4.66 = 4.74 \text{ tons/rolling 12 months}$$

$$\text{PM10} = 2.23 \text{ tons/rolling 12 months}$$

$$\text{CO} = 0.11 \text{ tons/rolling 12 months}$$

$$\text{VOC} = 0.33 \text{ tons/rolling 12 months}$$

FIGURES

APPENDIX A
Application for Air Permit – Long Form

APPENDIX B
Plant Specifications and Emission Factors

APPENDIX C

Precautions to Prevent Emissions of Unconfined Particulate Matter

Precautions to Prevent Emissions of Unconfined PM

This is a conventional drum mix asphaltic concrete plant. Aggregate is stored in piles throughout the plant site. It is transferred from these piles to aggregate storage bins via front-end loader(s). From storage bins aggregate is fed through feeders onto conveyor, which carries it to drying drum. From drying drum, dried aggregate is conveyed into a mixing drum where liquid asphalt is added. From there, the mix is conveyed to storage silo. From storage silo, the asphaltic concrete is dropped into truck(s) and hauled to the job site.

Dust created from operations such as the mixing/drying drum is controlled by an exhaust system, which consists of the following: exhaust ductwork, baghouse, exhaust fan, and stack. Material collected by baghouse is fed back into the dryer.

Fugitive dust throughout the site is controlled by reducing the speed of vehicles and by use of water sprays. Aggregate piles will also be wetted with water to control dust when necessary.

APPENDIX D
Environmental Compliance Plan