City of Albuquerque

Environmental Health Department

Tim Keller, Mayor

Interoffice Memorandum **May 12, 2022**

To: **Elizabeth Pomo, Senior Environmental Health Scientist**

From: **Kyle Tumpane, Environmental Health Scientist** KT

Subject: **Review of model for Black Rock Services, LLC – HP-2 HMA Plant**

Permit # **3443**

Site Location

Northwest corner of Carmony Ln NE and Alexander Blvd NE
Easting: 352,000m Northing: 3,888,500m Zone:13

Overview of Facilities

Black Rock Services, LLC proposes to construct a 400 tons per hour (tph) hot mix asphalt (HMA) plant to produce asphalt for use in road and highway projects. The facility will be powered by commercial line power and will consist of the following emission sources: five aggregate storage piles, one recycled asphalt pavement (RAP) storage pile, five cold aggregate feed bins, one cold aggregate scalping screen, two RAP feed bins, one RAP scalping screen, one RAP crusher, one mineral filler silo with baghouse, one drum dryer/mixer with baghouse, one asphalt drag conveyor, six asphalt storage silos, three asphalt cement storage tanks, an asphalt cement heater, 7 other conveyors and four paved haul roads. The drum dryer/mixer and asphalt cement heater will only burn pipeline quality natural gas.

Conclusions of Dispersion Modeling

Modeling was performed for PM_{10}, $PM_{2.5}$, NO_2, CO, SO_2, H_2S and Pb using AERMOD. Compliance was demonstrated for NAAQS and NMAAQS.

Modeling conducted in-house demonstrates compliance with applicable regulatory requirements. Modeling files are archived, are part of the public record for this permit application, and are available for printing. Two modeling protocols were submitted and reviewed. The first protocol was submitted on December 23, 2020 and denied on January 26, 2021. The second protocol was submitted on February 1, 2021 and denied on March 15, 2021. Only two modeling protocols are reviewed before the consultant/facility is asked to submit the application and modeling.

Assumptions used in the modeling review

1. The HMA Asphalt Cement Heater (Unit 20 – HMAHEAT) can operate 24/7 year round. All other sources are limited as listed below.
2. Operating hours: January: 7 AM – 5:30 PM, December: 7 AM – 5 PM, 7 days/week
   February, October, November: 5 AM – 10 PM, 7 days/week
   March – September: 24 hours/day, 7 days/week
3. Asphalt production is limited to 400 tons/hour and 1,450,000 tons/year (per modeling report)

4. Asphalt production is limited to: January: 4000 tons/day
   February: 4000 tons/day
   March: 4800 tons/day
   April-August: 6000 tons/day
   September: 4800 tons/day
   October, November: 4000 tons/day
   December: 4000 tons/day
5. The Asphalt Silo Loading (Unit 17 – DRUMUNL), also called the Asphalt Drag Conveyor, must be controlled by a recirculation system (Unit 17b) at all times.
6. The limits for haul trucks are as follows: 32 trucks/hour total may enter and leave the facility based on the emission calculations and modeling that was performed. Of those 32 trucks/hour, 16 trucks/hour may be asphalt trucks traveling on the Haul Road Paved Asphalt (AS) (Fig. 1 & 3) to be loaded with asphalt and 16 trucks/hour may be aggregate, asphalt cement, Evotherm, mineral filler or RAP trucks traveling on the Haul Road Paved AG, CM or MF (Fig. 1, 2 & 3).
7. The mineral filler trucks travel on the road identified as Haul Road Paved MF (Fig. 1 & 2). The aggregate trucks travel on the road identified as Haul Road Paved AG (Fig. 1 & 2). The asphalt cement, Evotherm and RAP trucks all travel on the road identified as Haul Road Paved CM (Fig. 1 & 3).
8. Total aggregate (RAP and/or aggregate) throughput may be a maximum of 370 tons/hour.
9. The RAP material handling, including the RAP crusher (Unit 12), throughput may be a maximum of 140 tons/hour.
10. The drum dryer/mixer (Unit 16) particulate emissions are controlled by a baghouse (Unit 16b). The baghouse stack has a height of at least 23.2 feet, a diameter of no more than 4.6 feet and an exit velocity of at least 74.89 feet/second. The baghouse stack must be located at least 200 feet from the western fence, at least 300 feet from the northern fence, at least 340 feet from the eastern fence and at least 230 feet from the southern fence as modeled and shown in Figure 1.
11. The mineral filler silo (Unit 15) must be controlled by a baghouse dust collector and can be loaded at a maximum rate of 25 tons/hour.
12. Water sprays must wet material at the unloading drop points from the aggregate feed bins and RAP feed bins onto the respective conveyors (Units 3 & 9). An additional water spray or a single water spray must be located at the unloading drop point from the RAP crusher (Unit 12) onto the RAP feed conveyor (Unit 9) The remaining aggregate and RAP handling steps (screens and transfer points, Units 4, 5, 6, 10, 11, 13, 14) must be controlled by water sprays and/or roofed enclosures.
13. The five aggregate storage piles must be located in the northern part of the facility but south of the AG haul road. The westernmost aggregate storage pile must be located at least 100 feet from the western Black Rock fence. The one RAP storage pile must be located in the eastern part of the facility at least 45 feet from the northern boundary and at least 100 feet from the closest part of the curved eastern boundary.
14. All haul roads are one lane traffic. Trucks can travel in one direction on a roadway at any given time.
15. All haul roads must be paved.
16. TLC permit #2184 must be canceled because it was not included in cumulative modeling.
17. A fence restricts access to the property.

Modeling Parameters

Rural dispersion coefficients
Hourly emission factors to specify hours of operation
Reduced hourly emission factors for annual $PM_{2.5}$ models based on 1,450,000 tons/year annual throughput limit
Temporally-varying NO_2 background for 1 hour NO_2 model
ARM2 for both 1-hour and annual NO_2 models

Emission rates used in the review can be seen below in **Tables 1, 2 & 3**.

Table 1: Particulate Emission Rates

Source ID	Emission Unit Description	PM_{10} (lbs/hr) 65% aggregate	PM_{10} (lbs/hr)* 100% aggregate	$PM_{2.5}$ (lbs/hr) 65% aggregate	$PM_{2.5}$ (lbs/hr)* 100% aggregate
HMASTK	Baghouse Stack Unit 16	9.20		9.20	
HMAHEAT	Asphalt Cement Heater Unit 20	0.020		0.020	
HMAFILL	Mineral Filler Silo Loading Unit 15	0.12		0.027	
DRUMUNL	Asphalt Silo Loading Unit 17	0.094		0.094	
HMASILO	Asphalt Silo Unloading Unit 18	0.12		0.12	
HMAPILE1	Storage Pile Handling 1 Unit 1	0.10	0.17	0.016	0.025
HMAPILE2	Storage Pile Handling 2 Unit 1	0.10	0.17	0.016	0.025
HMAPILE3	Storage Pile Handling 3 Unit 1	0.10	0.17	0.016	0.025
HMAPILE4	Storage Pile Handling 4 Unit 1	0.10	0.17	0.016	0.025
HMAPILE5	Storage Pile Handling 5 Unit 1	0.10	0.17	0.016	0.025
HMABIN1	Bin Loading Bin 1 Unit 2	0.10	0.17	0.016	0.025
HMABIN2	Bin Loading Bin 2 Unit 2	0.10	0.17	0.016	0.025
HMABIN3	Bin Loading Bin 3 Unit 2	0.10	0.17	0.016	0.025
HMABIN4	Bin Loading Bin 4 Unit 2	0.10	0.17	0.016	0.025
HMABIN5	Bin Loading Bin 5 Unit 2	0.10	0.17	0.016	0.025
HMATP1	Bin Unloading Unit 3	0.011	0.017	0.0030	0.0048
HMASCR	Scalping Screen Unit 4	0.17	0.27	0.012	0.019
HMATP2	Scalping Screen Unloading Unit 5	0.011	0.017	0.0030	0.0048
HMATP3	Conveyor to Sling Conveyor Unit 6	0.011	0.017	0.0030	0.0048
RAPPILE	RAP Storage Pile Handling Unit 7	0.094	0	0.014	0
RAPBIN1	RAP Bin 1 Loading Unit 8	0.047	0	0.0071	0
RAPBIN2	RAP Bin 2 Loading Unit 8	0.047	0	0.0071	0
RAPTP1	RAP Bin Unloading Unit 9	0.0064	0	0.0018	0
RAPSCR	RAP Screen Unit 10	0.10	0	0.0070	0
RAPTP2	RAP Screen Recycle Unloading Unit 11	0.0064	0	0.0018	0
RAPCRH	RAP Crusher Unit 12	0.076	0	0.014	0
RAPTP3	RAP Screen Unloading Unit 13	0.0064	0	0.0018	0
RAPTP4	RAP Transfer Point Unit 14	0.0064	0	0.0018	0
AS_0001-12	Haul Road Paved Asphalt Volume 1-12	0.066		0.016	
CM_0001-17	Haul Road Paved Asphalt Cement, RAP Volume 1-17	0.038	0.0056	0.0094	0.0014
MF_0001-14	Haul Road Paved Mineral Filler Volume 1-14	0.0011		0.00028	
AG_0001-8	Haul Road Paved Aggregate Volume 1-8	0.048	0.077	0.012	0.019
	Totals	**11.30**	**11.72**	**9.74**	**9.78**

*These emissions are for the 100% aggregate scenario, which is unlikely. The 65% aggregate/35% RAP ratio is typical.

Table 2: Combustion Gas Emission Rates

Source ID	Source Description	NO_x (lbs/hr)	CO (lbs/hr)	SO_2 (lbs/hr)
HMASTK	Baghouse Stack Unit 16	10.40	52.00	1.36
HMAHEAT	Asphalt Cement Heater Unit 20	0.26	0.22	0.0056
	Totals	**10.66**	**52.22**	**1.37**

Table 3: Other Emission Rates

Source ID	Source Description	H_2S (lbs/hr)	CO (lbs/hr)	Pb (lbs/hr)
HMASTK	Baghouse Stack Unit 16	0.021		0.0025
DRUMUNL	Asphalt Silo Loading Unit 17	0.00058	0.19	
HMASILO	Asphalt Silo Unloading Unit 18	0.00058	0.17	
HMAHEAT	Asphalt Cement Heater Unit 20			0.0000013
AS_0007-12	Haul Road Paved Asphalt Volume 7-12		0.14	
	Totals	**0.022**	**0.50**	**0.0025**

Receptor Grid

Receptor spacing was 25 meters along the fence line. Beyond the fence, receptor spacing was 50 meters out to 500 meters, 100 meters out to 1 kilometer and 250 meters out to 3 kilometers for the particulate ROI models. The combustion ROI model included additional receptors spaced at 500 meters out to 5 kilometers and 1,000 meters out to 20 kilometers. The receptor field was reduced for cumulative modeling based on significant receptors, except for the H_2S and Pb models, which did not use reduced receptor fields and the fields matched the particulate ROI models.

Meteorological Data

Albuquerque Sunport (KABQ) 2014-2018 processed with AERMET v.19191 and AERMINUTE v.15272.

Adjacent Sources

HollyFrontier – permit #0559-M3-4TR
Bimbo Bakeries – permit #2095-M1
Vulcan Interchange Facility – permit #1479-M3-5AR
Vulcan Osuna HMA – permit #0104-M2-4AR
Vulcan RAP Plant – permit #1626-7AR
ABCWUA North Valley Stockpile – permit #3278-M1
GCC Terminal – permit #0902-M3-RV2

Terrain Used

USGS 1 arc-second NED files

Modeling Results

Table 4: Impact of Emissions vs. Ambient Air Quality Standards

Pollutant	Averaging Time	Modeled Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Model + Background ($\mu g/m^3$)	Most stringent Standard ($\mu g/m^3$)	Pass/Fail
NO_2	1-hour	64.8	66.4	131.2	188	P
NO_2	Annual	3.5	19	22.5	94	P
CO	1-hour	505.5	Modeled impact below significant impact levels		15007	P
CO	8-hour	298.0			9967	P
SO_2	1-hour	10.0	13.1	23.1	196.4	P
PM_{10}	24-hour (H6H)	112.4	31	143.4	150	P
$PM_{2.5}$	24-hour	17.4 + 0.034	16	33.4**	35	P
$PM_{2.5}$	Annual	4.5 + 0.0015	5.8	10.3**	12	P
H_2S	1-hour	3.8	N/A	3.8	13.9	P
Pb	Monthly*	0.00077	Modeled impact below significant impact level		0.15	P

*Standard is quarterly but model was run using a monthly averaging period, which is more conservative.
**Includes secondary $PM_{2.5}$ contributions: 0.034 $\mu g/m^3$ for 24-hour $PM_{2.5}$ model and 0.0015 $\mu g/m^3$ for annual $PM_{2.5}$ model.

Discussion

Black Rock Services, LLC proposes to construct a 400 tons per hour (tph) hot mix asphalt (HMA) plant to produce asphalt for use in road and highway projects. The facility will be powered by commercial line power and will consist of the following emission sources: five aggregate storage piles, one recycled asphalt pavement (RAP) storage pile, five cold aggregate feed bins, one cold aggregate scalping screen, two RAP feed bins, one RAP scalping screen, one RAP crusher, one mineral filler silo with baghouse, one drum dryer/mixer with baghouse, one asphalt drag conveyor, six asphalt storage silos, three asphalt cement storage tanks, an asphalt cement heater, 7 other conveyors and four paved haul roads. The drum dryer/mixer and asphalt cement heater will only burn pipeline quality natural gas.

NO_X and SO_2 emissions are both less than 40 tons/year. However, direct $PM_{2.5}$ emissions are 17.7 tons/year, which is above the 10 tons/year significant emission rate (SER) for $PM_{2.5}$ so to be conservative and to follow recent EPA guidance[1] from 2021, Black Rock's consultant (Montrose) used the EPA document "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program" and NMED modeling guidance to calculate annual and 24-hour secondary $PM_{2.5}$ concentrations that were added to the modeled results and background. The addition of secondary $PM_{2.5}$ concentrations to the 24-hour and annual $PM_{2.5}$ modeled impacts is conservative. It is conservative because the values calculated, even though they are small, are overestimates of secondary particulate formation at the fence of Black Rock. The modeled impacts shown in Table 4 are along the fence for both the 24-hour and annual direct $PM_{2.5}$ emissions (Fig. 7 & 8). EPA guidance[2] from May 2014 states, "Formation of secondary sulfate and nitrate particulate is a fairly slow process with conversion rates taking many hours to days." As with the example in the EPA guidance where the highest primary emissions impacts occur on the project border, "the peak secondary impacts are expected to occur well downwind of the peak primary impacts."

Changes to Modeling

The modeling and application were ruled incomplete two times prior to being accepted on the revised third submittal after a number of changes were made. The corrections that were made included revisions to modeled emission rates based on adding additional calculations and modeling scenarios to account for the possibility that 100% aggregate/0% RAP could be used in the mix. Handling aggregate produces more particulate emissions that handling RAP so it was requested that Montrose provide emission calculations for a 0% RAP mix and also provide a separate set of Uncontrolled and Controlled Emissions Tables in the Application Form to account for this possibility. The Environmental Health Department (EHD) requested that Montrose update the modeling to account for these potentially higher particulate emissions by adding two additional PM_{10} and $PM_{2.5}$ models. These would be the two highest modeled impact scenarios for PM_{10} and $PM_{2.5}$ for the standard mix and would include the higher particulate emissions for a 0% RAP mix. Montrose provided three or four additional models for 24-hour PM_{10}, 24-hour $PM_{2.5}$ and annual $PM_{2.5}$ with the higher particulate emissions. These are referred to as Aggregate or Agg models or scenarios later in this discussion and they showed the highest modeled impacts as expected.

Changes were also made to correct emission rates of Black Rock sources and surrounding sources, to correct factor sets to match requested hours of operation, to correct NO_2/NO_x in-stack ratios (ISRs) for surrounding sources, to correct modeled haul road parameters and to add an MF haul road to allow delivery of material to the Mineral Filler Silo. There were additional corrections required for the dimensions and storage capacity of the three asphalt cement tanks, the dimensions of Unit 15 – HMAFILLS (Mineral Filler Silo) and to add it to all models as a structure for downwash analysis, and the dimensions of the asphalt storage silos and to add all six potential asphalt storage silos to the models as structures for downwash analysis. There were various inaccuracies in the heights or diameters of the asphalt cement tanks, mineral filler silo and asphalt storage silos in different models that needed to be corrected so the values were consistent and accurate.

A change with the 3rd submittal was that TLC was not included as a surrounding source as requested by EHD because the TLC facility is immediately adjacent to the proposed Black Rock facility. Clarification was requested for this change and Montrose/Black Rock stated that TLC committed to canceling their permit. If this is true, then

[1] Revised DRAFT Guidance for Ozone and Fine Particulate Matter Permit Modeling, EPA-454/P-21-001, September 2021, Sections II.2, II.5 and Table III-2

[2] Guidance for $PM_{2.5}$ Permit Modeling, EPA-454/B-14-001, May 2014, page D-3

those permitted sources would not be required to be included in the modeling. It was confirmed that the TLC permit #2184 cancelation paperwork was submitted on Oct. 28, 2021, the EHD Enforcement & Compliance Division confirmed that the equipment was removed, and the permit was closed on May 3, 2022.

EHD did not request that lead (Pb) be modeled because of the very low emission rates associated with natural gas combustion. Montrose modeled Pb anyway as a conservative measure and the emission rate used for the drum dryer/mixer was incorrectly high, which makes the modeled result even more conservative. The modeled emission rate was 0.00248 lb/hr but it should have been 0.000248 lb/hr according to the application calculations based on the facility throughput and the emission factor from AP-42 Section 11.1, Table 11.1-12. This means the modeled Pb emission rate was 10 times higher than the correct value and yet the modeled impact was well below the Pb significant impact level of 0.03 $\mu g/m^3$.

The submitted H_2S model showed two receptors on the southern Black Rock fence that exceeded the significant impact level of 1.0 $\mu g/m^3$. This technically requires a cumulative model but none was submitted. To be as thorough as possible and to allay any concerns, EHD reran the H_2S model after adding emissions from the Vulcan Osuna and Big-I HMA facilities, as well as HollyFrontier. The Vulcan Osuna and Big-I HMA facilities are ~2km to the northeast and southwest, respectively, and will have H_2S emission rates similar to Black Rock so their modeled impacts are also expected to be on the facility fence lines and unlikely to extend ~2km from those facilities. The HollyFrontier facility is closer and could potentially have an impact near the proposed Black Rock facility.

Differences in Modeled Results

Differences in modeled results between EHD and Montrose are possibly due to a few reasons. The first possible source of difference is that EHD used 1 arc-second National Elevation Dataset (NED) files, whereas Montrose used 1/3 arc-second NED files. This could lead to slight differences in source and receptor elevations, which could lead to slight differences in modeled results. EHD also condensed the 12 PM ROI (radius of impact) models into a single PM ROI model to simplify the receptor grid for cumulative PM modeling so that there was just one set of receptors for each pollutant and averaging period instead of a different set for every scenario. This was done by changing the BRS factor set hours to cover the full operating hours: Jan-7A-5:30P; Dec-7A-5P; Feb, Oct, Nov-5A-10P; Mar-Sep-24/7. This could potentially have added some more significant receptors to the EHD cumulative PM receptor grids, which may have altered the location or value of the highest modeled impact, however this does not appear to have had much of an effect.

The annual NO_2 background value was changed from 30 $\mu g/m^3$ to 19 $\mu g/m^3$ to reflect the updated background value released on 05Nov2021. This was after the submittal of this application so the background value used by Montrose was correct when submitted and is more conservative. The PM_{10} background was also changed from 28 $\mu g/m^3$ to 31 $\mu g/m^3$ in each 24-hour PM_{10} model to reflect the updated Jefferson monitor background value for this pollutant and averaging period. This led to slightly higher modeled 24-hour PM_{10} results for EHD.

The annual $PM_{2.5}$ modeled results that were compared to the standard were the highest values with a significant contribution from Black Rock. The use of a single PM ROI model to simplify the receptor grid for cumulative modeling could have led to the inclusion of receptors that were above the significance level in the PM ROI model but are not above the significance level when a single cumulative scenario model is run. However, the results match those presented by Montrose and all receptors in ambient air are below the standard.

There was one receptor near the center of the GCC Terminal that showed a modeled exceedance of the annual $PM_{2.5}$ standard. However, when GCC's own impacts are removed, the exceedance no longer occurs. The impacts of GCC's emissions within their own property cannot be held against any other source.

The revised H_2S model run by EHD showed maximum modeled impacts west of HollyFrontier but there was no significant contribution from Black Rock at these receptors. The highest 1st high modeled impact at a receptor with a significant contribution from Black Rock was 3.8 $\mu g/m^3$ on the southern Black Rock fence at the receptor with the highest modeled impact from Black Rock. This is the same location as the high modeled result submitted by Montrose but the value is higher due to the inclusion of surrounding sources as described above and the high modeled result is almost all contributed by HollyFrontier.

Cumulative Modeling Methodology

The cumulative models included numerous sources within ~2.2 kilometers of Black Rock's proposed location. The emissions from each of the facilities listed above in Adjacent Sources were included in each of the cumulative models except for the PM_{10} models. No surrounding sources were included in the PM_{10} models because none of the sources are close enough with enough PM_{10} emissions to have an impact around Black Rock. PM_{10} settles faster than $PM_{2.5}$. TLC would have been included as a PM_{10} surrounding source but as noted above they have canceled their permit. The particulate matter backgrounds came from Jefferson monitor data for PM_{10} and Del Norte monitor data for $PM_{2.5}$. The Jefferson and Del Norte monitors are located approximately 1.5 and 2.2 miles, respectively, from the proposed Black Rock fence and are representative of the area near the proposed facility. The NO_2 and SO_2 backgrounds came from the monitor at Del Norte High School, which is located approximately 2.2 miles from the proposed Black Rock site. The primary source of NO_2 at the Del Norte monitor is most likely from traffic. The monitored backgrounds should conservatively account for I-25 and other vehicle traffic, as well as industrial emissions near the Black Rock site, while the surrounding sources included in the cumulative models provide additional conservatism to account for nearby industrial emissions.

Blocks of Time Modeling Technique

The particulate emissions were modeled using a blocks of time technique to allow for operational flexibility. This is accomplished using scenarios, in this case 12 scenarios or 12 modeling files for each particulate standard and averaging time, which shift the operating times of the equipment. For example, scenario 1 has HMA operations from Midnight to 3 PM for April through August, then scenario 2 has HMA operations from 2 AM through 5 PM for April through August, then scenario 3 has HMA operations from 4 AM through 7 PM for April through August, and so on for 12 scenarios until the entire 24 hour period is covered. This ensures that the worst case hours are modeled and allows Black Rock the flexibility to operate 24 hours/day, 7 days/week from March through September. This means that the hot mix asphalt plant can only operate at maximum production of 400 tons/hour for a certain number of hours but could operate at a lower throughput for longer each day as long as production does not exceed the designated tons per day limit for each month. There are five months that also have limitations on hours of operation regardless of whether the facility operates at lower throughputs. Operations during the months of January and December are limited to 7 AM – 5:30 PM and 7 AM – 5 PM, respectively, and operations during the months of February, October and November are limited to 5 AM – 10 PM. The hours and daily throughput limits at 400 tons/hour are as follows: January, December – 10 hours, 4000 tons/day; February, October, November – 10 hours, 4000 tons/day; March, September – 12 hours, 4800 tons/day; April – August – 15 hours, 6000 tons/day. The source HMAHEAT, the Asphalt Cement Heater (Unit 20), was modeled as operating all hours, i.e. 24/7/365 without blocks of time, in every scenario. This source will not be restricted in its operating hours.

Equipment Setbacks and Control Requirements

Setback conditions will be needed for the storage piles and HMA plant to ensure that those sources do not end up close to the fence at a later date. The five aggregate storage piles must be located in the northern part of the facility but south of the AG haul road. The westernmost aggregate storage pile must be located at least 100 feet from the western Black Rock fence. The one RAP storage pile must be located in the eastern part of the facility at least 45 feet from the northern boundary and at least 100 feet from the closest part of the curved eastern boundary. The HMA baghouse stack must have a height of at least 23.2 feet, a diameter of no more than 4.6 feet and an exit velocity of at least 74.89 feet/second. The baghouse stack must be located at least 200 feet from the western fence, at least 300 feet from the northern fence, at least 340 feet from the eastern fence and at least 230 feet from the southern fence as modeled and shown in Figure 1. The Asphalt Silo Loading (Unit 17 – DRUMUNL), also called the Asphalt Drag Conveyor, must be controlled by a recirculation system (Unit 17b) at all times. Total aggregate (RAP and/or aggregate) throughput may be a maximum of 370 tons/hour. Aggregate throughput may vary from 230 tph to 370 tph. RAP throughput may vary from 140 tph to 0 tph. The RAP crusher (Unit 12) throughput may be a maximum of 140 tons/hour. There does not appear to be a separate unloading drop point for the RAP crusher (Unit 12) so that means the crusher unloading is accounted for in RAP bin unloading (Unit 9) and therefore the total throughput of the RAP material handling emission points can be a maximum of 140 tons/hour. The facility may have up to three asphalt cement storage tanks and up to six asphalt storage silos according to the equipment list and modeling files. The mineral filler silo (Unit 15) must be controlled by a baghouse dust collector and can be loaded at a maximum rate of 25 tons/hour.

Water sprays must wet material at the unloading drop points from the aggregate feed bins and RAP feed bins onto the respective conveyors (Units 3 & 9). An additional water spray or a single water spray that covers the RAP feed bins drop point and the RAP crusher drop point must be located at the unloading drop point from the RAP crusher (Unit 12) onto the RAP feed conveyor (Unit 9) because moisture does not carry over through a crusher according to AP-42 Table 11.19.2-2, footnote b, and therefore without a water spray after the crusher the transfer points and screen that come after the crusher could not be considered controlled. The scalping screen (Unit 4) and RAP screen (Unit 10) had emissions calculated as controlled screening per AP-42 Table 11.19.2-2. The RAP crusher (Unit 12) had emissions calculated as crusher controlled per AP-42 Table 11.19.2-2. Therefore, there must be a water spray in the process prior to material entering the RAP crusher. This could be covered by the water sprays at the unloading drop points from the RAP feed bins or the single set of water sprays that cover the RAP feed bins unloading drop points and the RAP crusher drop point. The scalping screen unloading to screen conveyor (Unit 5), screen conveyor transfer to slinger conveyor (Unit 6), RAP screen unloading to recycle conveyor (Unit 11), RAP screen unloading to transfer conveyor (Unit 13), and RAP transfer conveyor to drum (Unit 14) all had emissions calculated as controlled transfer points per AP-42 Table 11.19.2-2. Therefore all the remaining aggregate and RAP handling steps (4, 5, 6, 10, 11, 13, 14) must be controlled by water sprays and/or roofed enclosures.

The Black Rock sources used reduced hourly emission factors for the annual $PM_{2.5}$ models. The reduced hourly emission factor was 0.799 based on the requested annual permit limit of 1,450,000 tons/year divided by the potential annual production of 1,814,800 tons/year based on the daily throughput limits discussed above. This is acceptable since those limits will be permit conditions.

Haul Roads/Truck Traffic

All haul roads were modeled as one lane traffic. That means that haul trucks can travel in one direction on a roadway at any given time. All haul roads must be paved. Up to 32 trucks/hour may enter and leave the facility based on the emission calculations and modeling that was performed. Of those 32 trucks/hour, 16 trucks/hour may be asphalt trucks traveling on the Haul Road Paved Asphalt (AS) (Fig. 1 & 3) to be loaded with asphalt and 16 trucks/hour may be aggregate, asphalt cement, Evotherm, mineral filler or RAP trucks traveling on the Haul Road Paved AG, CM or MF (Fig. 1, 2 & 3). The mineral filler trucks travel on the road identified as Haul Road Paved MF (Fig. 1 & 2). The aggregate trucks travel on the road identified as Haul Road Paved AG (Fig. 1 & 2), whereas the asphalt cement, Evotherm and RAP trucks all travel on the road identified as Haul Road Paved CM (Fig. 1 & 3).

The Technical Analysis Section recommends accepting this model.

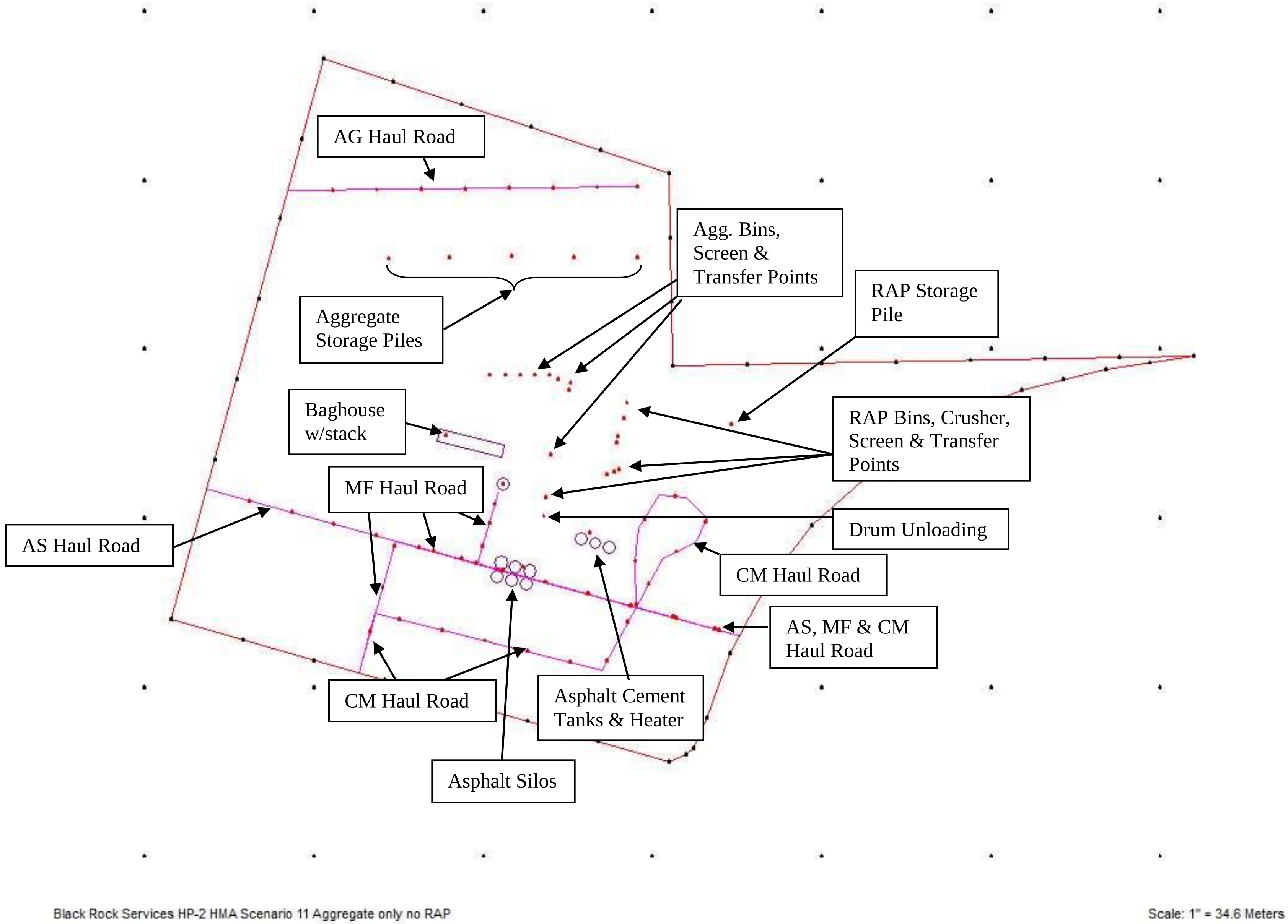

Figure 1. Black Rock Services HP-2 HMA source layout.

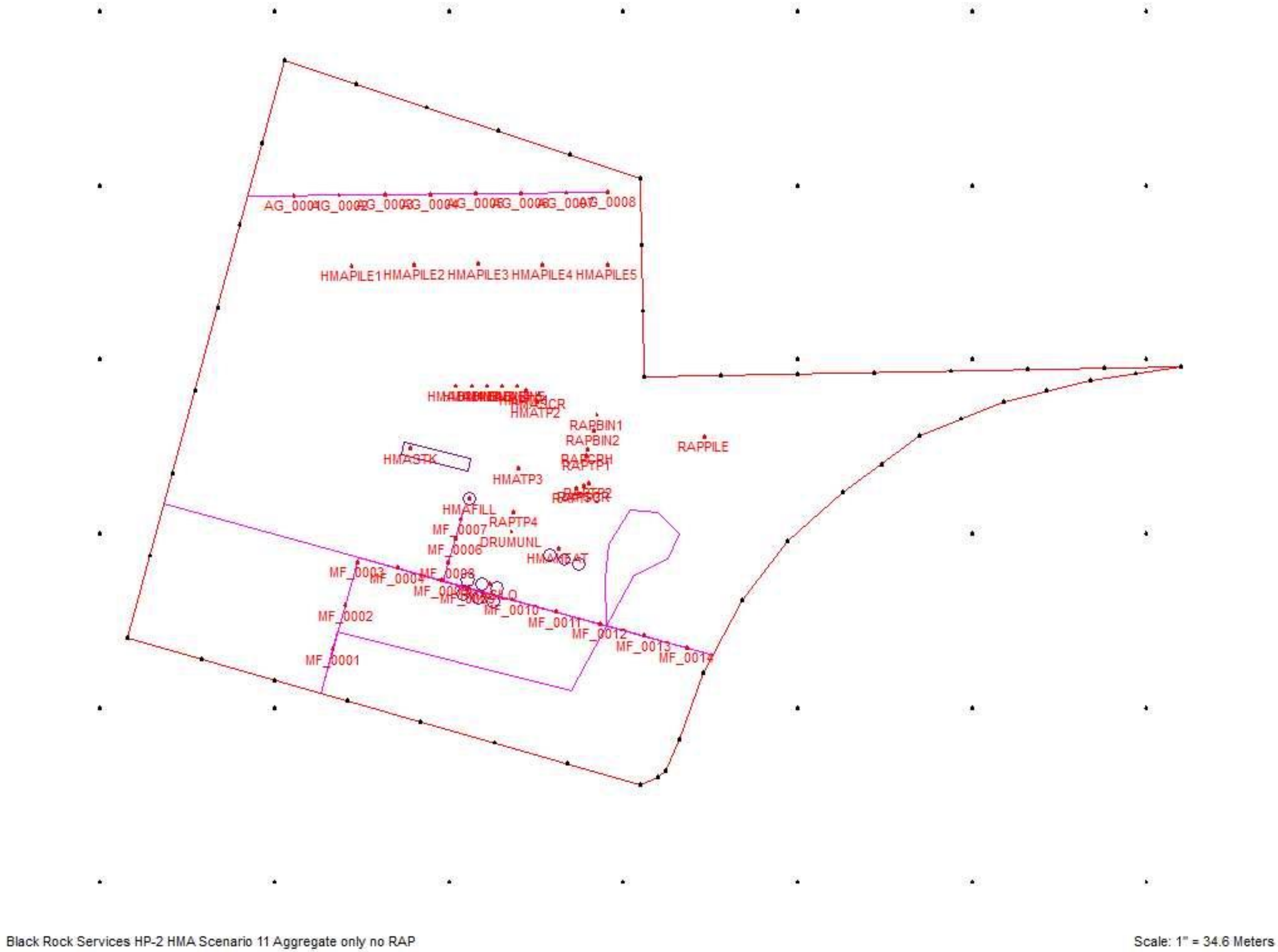

Figure 2. Paved haul roads AG and MF.

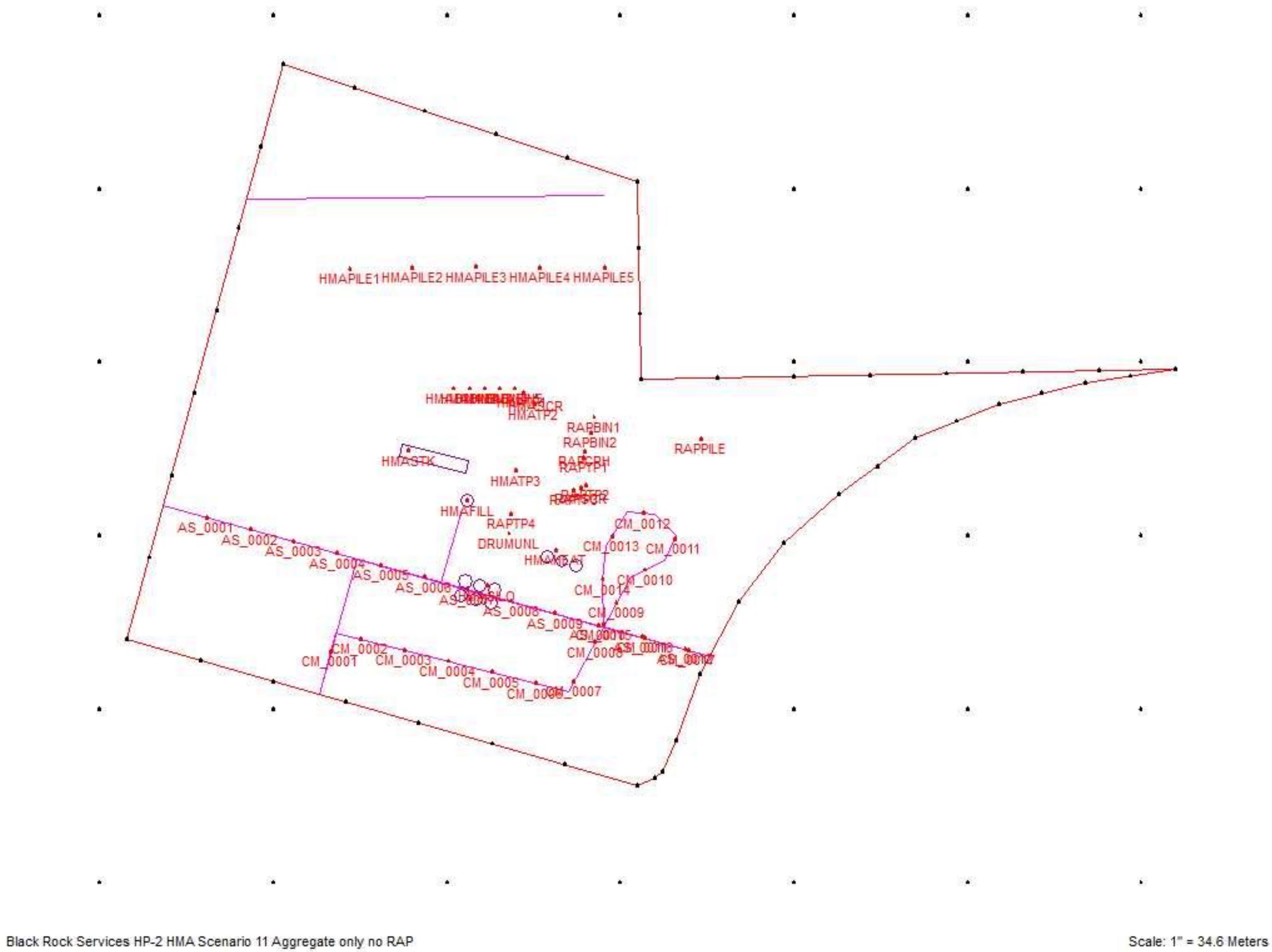

Figure 3. Paved haul roads AS and CM.

Figure 4. 1-hour NO_2 results: highest with significant contribution from Black Rock, background included.

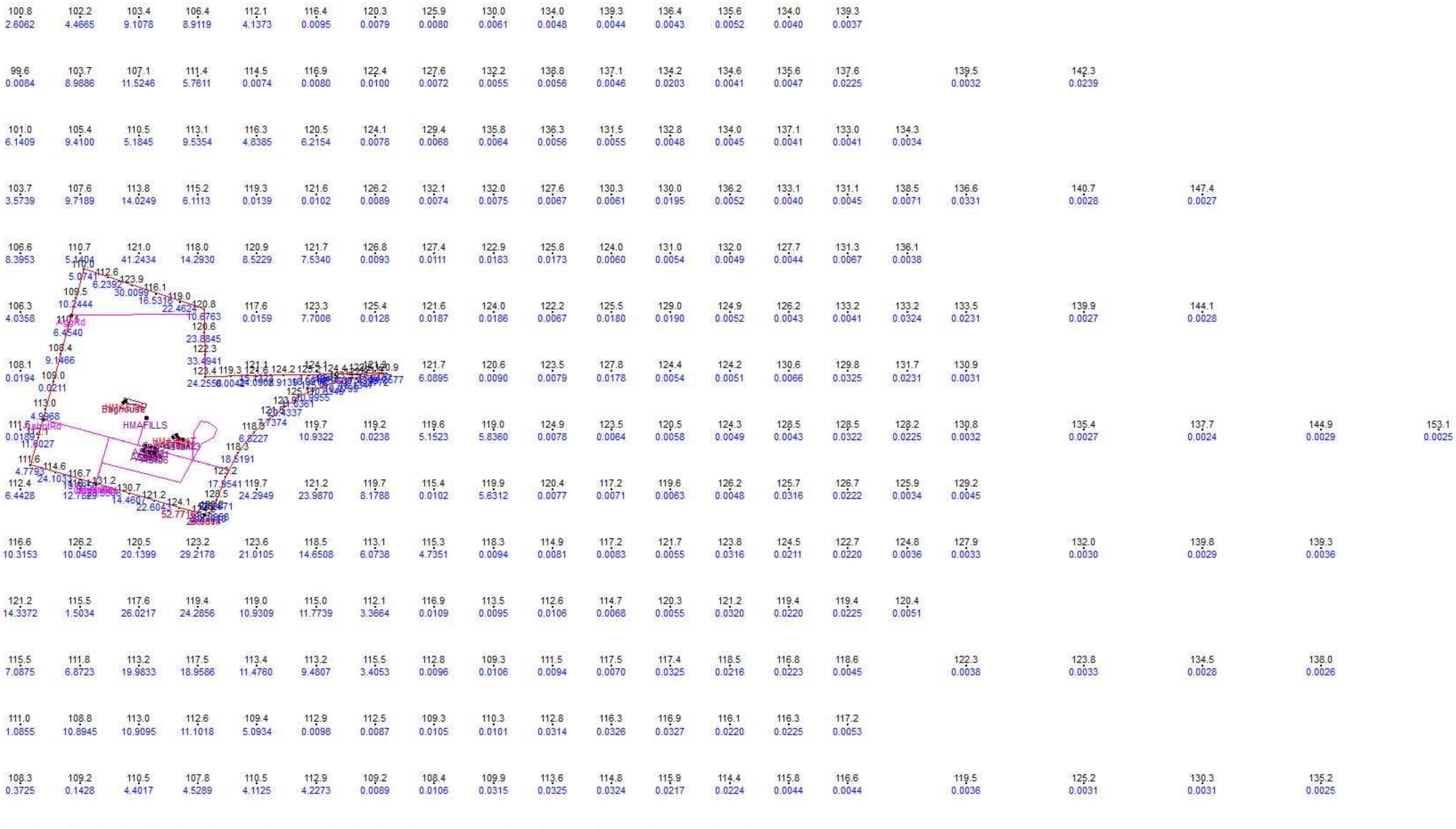

Figure 5. 1-hour NO_2 model MAXDCONT Viewer results – Black Rock contribution is lower value, background included in total upper value.

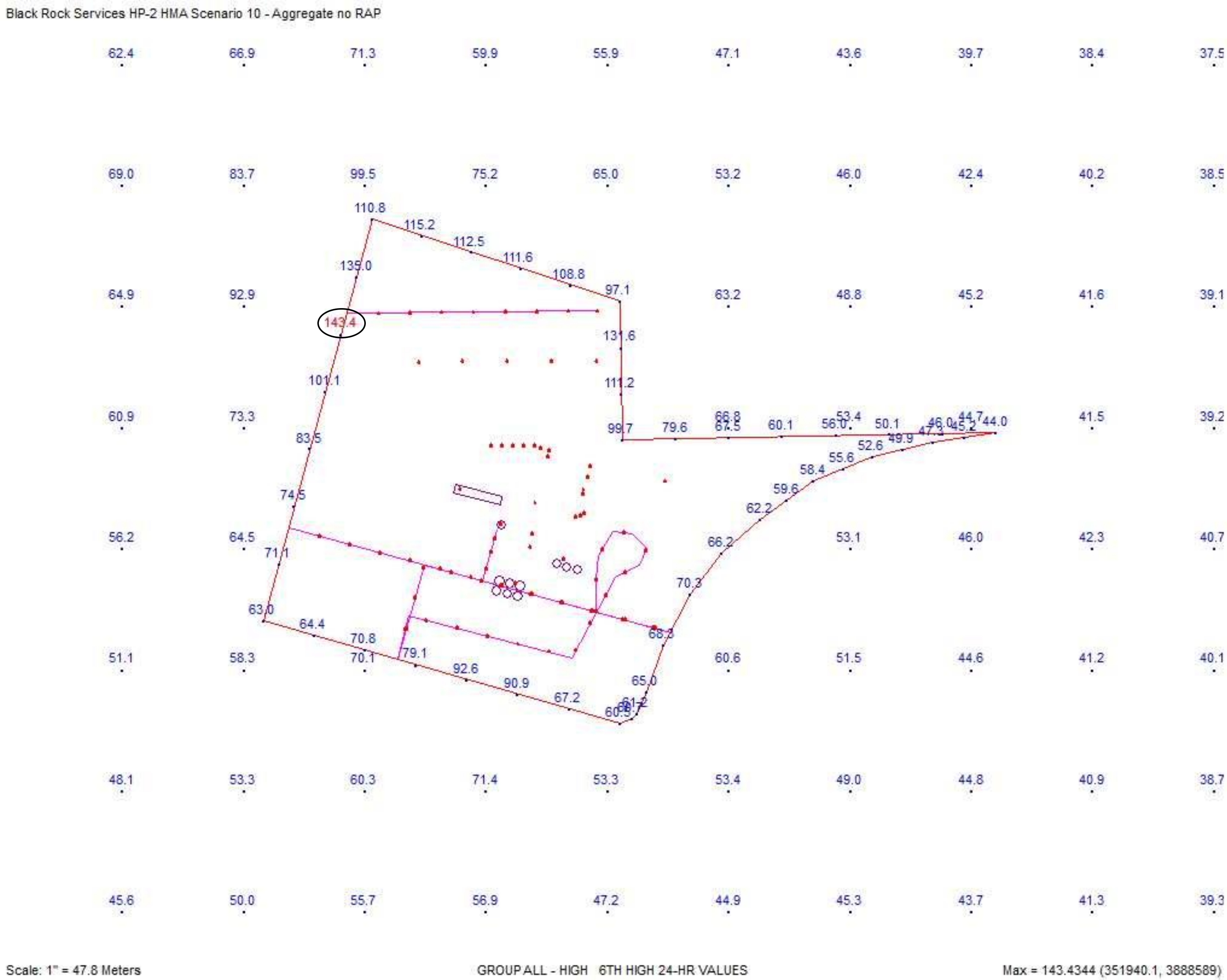

Figure 6. 24-hour PM_{10} Scenario 10 Aggregate results, background included.

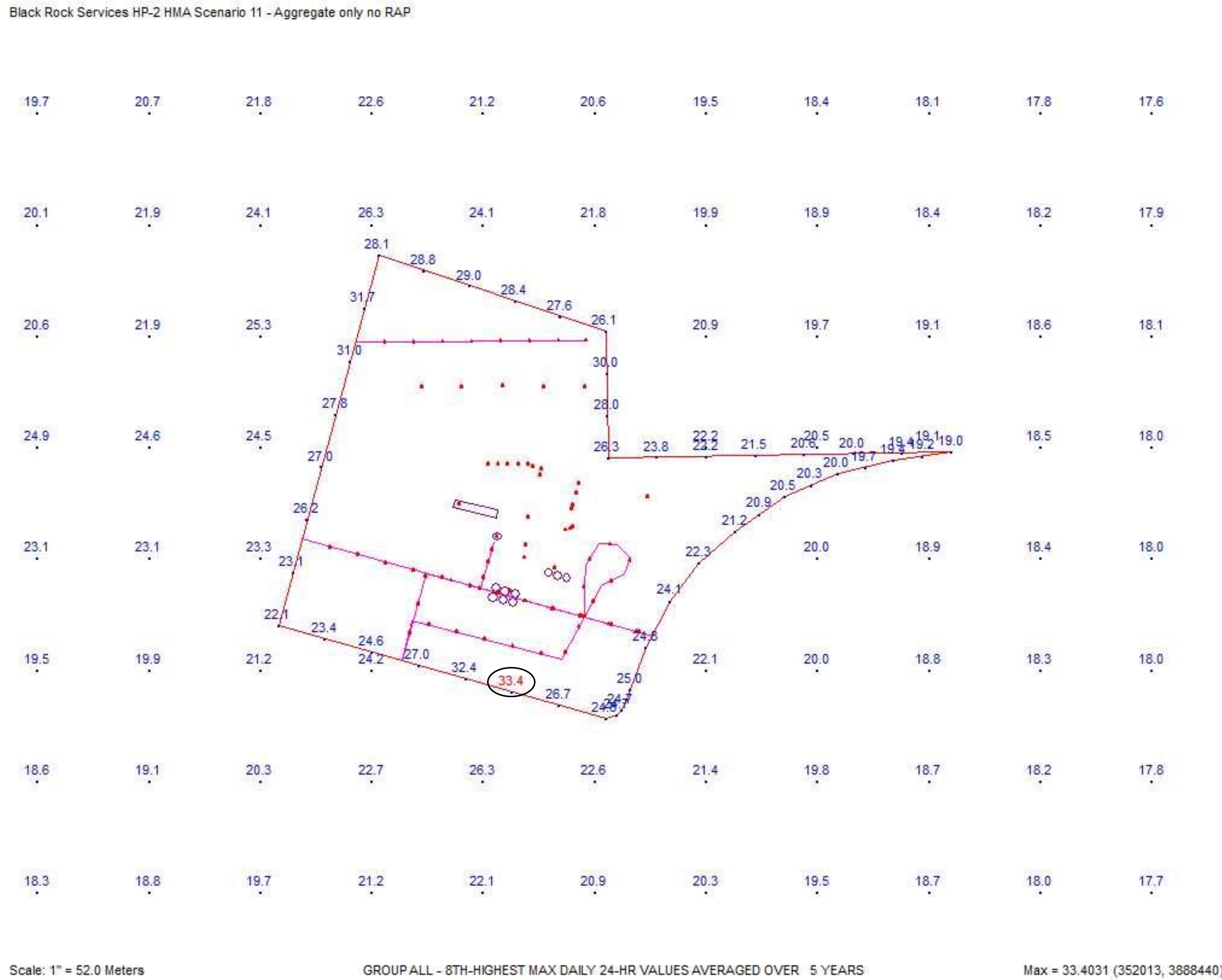

Figure 7. 24-hour $PM_{2.5}$ Scenario 11 Aggregate results, background included but not secondary $PM_{2.5}$.

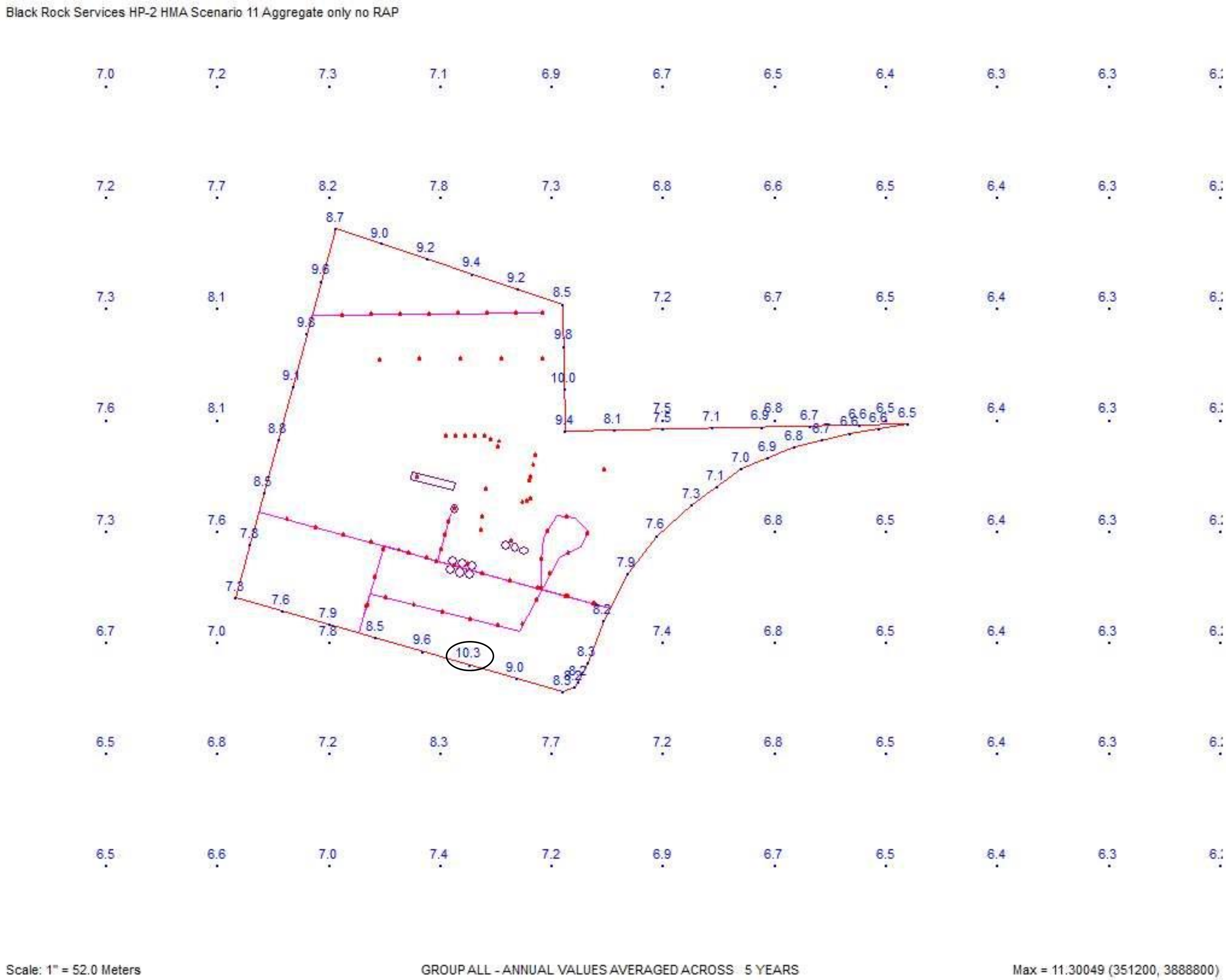

Figure 8. Annual $PM_{2.5}$ Scenario 11 Aggregate results, background included but not secondary $PM_{2.5}$.

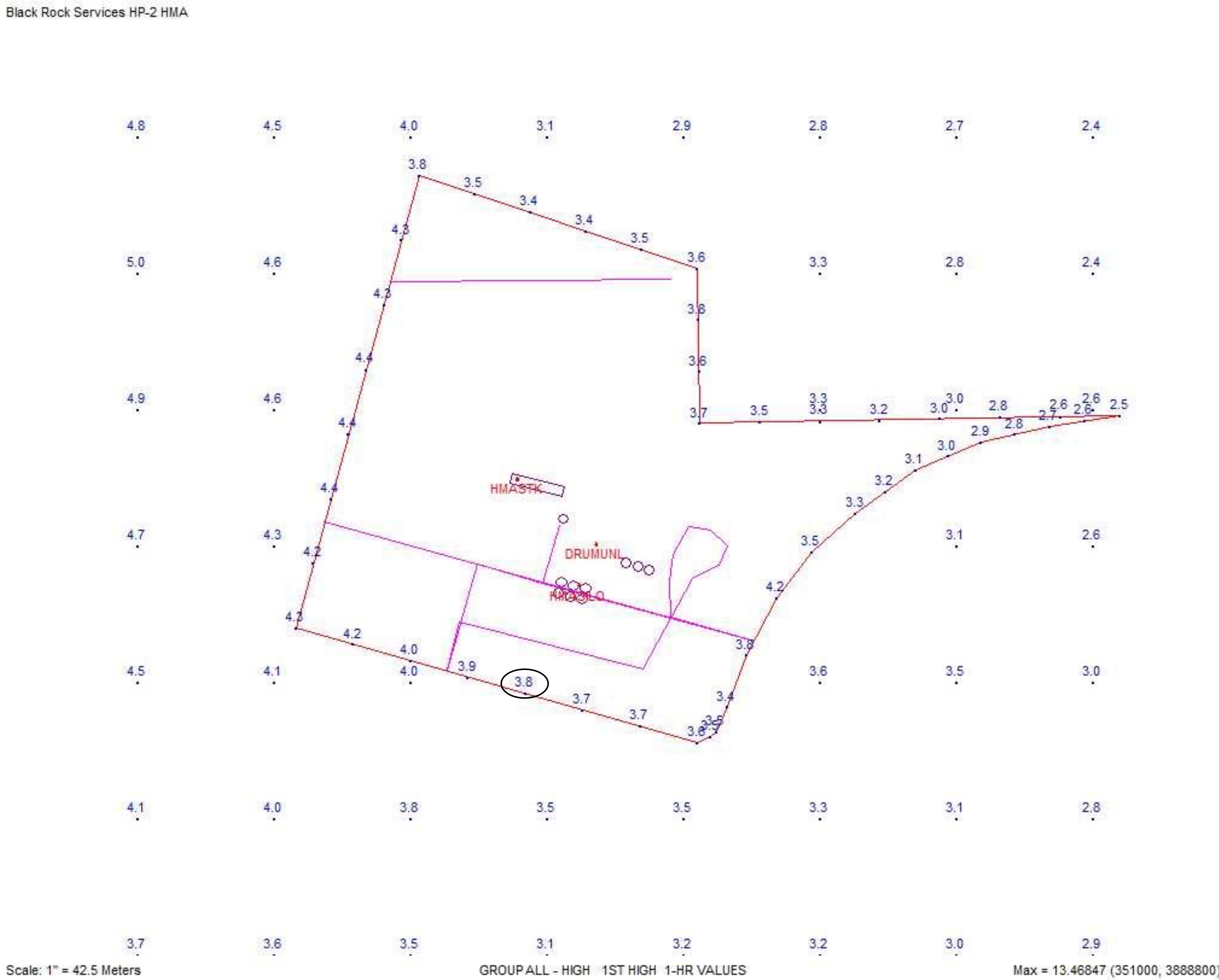

Figure 9. 1-hour H_2S results.