ENSO SOLUTIONS LLC
DEQ MODIFICATION APPLICATION REVIEW CHECKLIST
(Numbers and Headers below correspond to "Compost Checklist")

Applicant: Enso Solutions LLC (signed off by Matthew Golladay, President)
Facility Name: Enso One
Facility Address: 2701 Haindl Oklahoma City, OK 73129
Legal Description of Permitted Area: All of Lots one (1), two (2), three (3), four (4) in the Block three (3) of Akin Addition, Oklahoma City, Oklahoma according to the recorded plat thereof.
Current Composting Class: Class I
Current Tier: Tier I
**Modified Composting Class: Class III**
**Modified Tier: Tier III**
County: Oklahoma
Date: 10/23/2020 (Revised 3/23/2021)

**PLANS & PERMITS**

1. NA

2. NA – Not a Special Event facility

3. No construction to be completed. We are applying for a CLASS III & TIER III COMPOSTING FACILITY.

**PUBLIC PARTICIPATION**

4. See Document 4A for a copy of draft publication. The notice filing was published in The Oklahoman on November 25, 2020. No requests for a public meeting were made. See Document 4B for affidavit of publication.

5. Included in Existing Permit Application.

**VERIFICATION/CERTIFICATION**

6. Application can be found at Document 6A. Legal Rights to the Property are all included in Existing Permit Application.

7. NA – total population served equates to 1,136 (based on calculation provided in 252:515 3-36(a)(10)

**GENERAL INFORMATION**
8. Enso Solutions LLC is applying for a modification to its existing Class I permit to accept food waste and greater than 100 tons per year of feedstock. According to OAC 252:515-43-4(c), Enso Solutions will change from a Class I to a Class III facility. This modification application is to receive, process, and compost source separated organics such as marijuana-based food waste, a Type 2 Feedstock, from dispensaries and processors. All feedstock received from customers will be required to be source separated prior to acceptance.

9. Enso Solutions LLC is applying for a permit to operate a Class III Composting Facility

10. Included in Existing Permit Application.

11. Included in Existing Permit Application.

12. See Document 12A.

13. Included in Existing Permit Application.

14. Included in Existing Permit Application.

15. Enso Solutions LLC is going to operate a cannabis composting site at 2701 Haindl Drive, OKC, OK 73129. The facility (Enso One) has a License from OMMA (Oklahoma Medical Marijuana Authority) #WAAA-NKR2-CRLO to be able to pick up waste from growers, labs and processors. Enso Solutions is a permitted Class I composting facility applying for a permit modification to accept food waste and greater than 100 tons per year of feedstock, and therefore according to OAC 252-515-43-4(c) Enso Solutions will change from a Class I to a Class III facility. The type 1 and 2 feedstock, which will be cannabis trimmings, biomass (non-food plant matter, Type 1 feedstock), paper products (Type 2, from all customers), food waste (including edibles and other marijuana based food waste, Type 2 feedstock, from dispensaries and processors) and cannabis crop residuals such as stalks, stems, and leaves, will be brought to the facility by way of truck or customer drop off. At that point, feedstock will be weighed, weight documented on a manifest and then composted (processing method) using an Intermodal Earth Flow composting system (in-vessel method) which shreds any materially exceeding the recommended 1 inch in size, all within 48 hours of receipt. The thermophilic composting process will take 14-20 days depending on the temperature control and volume. The composting vessel(s) will be kept inside of the processing area to prevent moisture on the processing floor. Also, any water produced from the system will be contained/placed back on the compost pile inside of the vessel. The in-vessel method was chosen to primarily allow for the management and maintenance of the facility along with the odor minimization. At the same time, the vessel allows for ease of vermin, temperature, moisture, humidity, and air-borne emissions control. The composting process will take an estimated 14-20 days inside of the vessel and set into a curing pile (inside the facility) which will take 25-45 days to fully cure. After curing, the compost will be donated to local farmers, Oklahoma City parks, and possible
sold (although currently only donating). Please see the Certificate of Soil Amendment Registration from the Department of Agriculture (Document 15). No compost will be stored on site for longer than 12 months. Also, see Operational Plan (Document 47).

16. The anticipated waste volume is greater than 100 tons/year. Estimated volume is around 1/2 ton/day with a maximum of 3 tons/day. We will track very closely to see how our estimates are tracking towards this number. Enso began picking up feedstock in June 2020 and have accepted >20 tons to date (11/11/2020). The feedstock will include any cannabis trimmings, biomass, food waste, and may include cannabis crop residuals such as stalks, stems, and leaves. Enso Solutions’ vessel is currently set up to accommodate up to 255.5 Tons in a year span of time (0.7 tons/day). This modification will present new operational challenges to Enso, however, Enso is currently set up to accommodate these changes operationally. We have 96-gallon, 32 gallon, and 5 gallon bins that are left at the customers facility. That material will be sorted the same way all of the feedstock is currently sorted and trucked in the same manner. No design changes will need to be made to accommodate the new feedstock nor the change in volume. Enso is currently working with Green Mountain Technologies to determine if/when they will need an additional vessel, which is what would need to be done once exceeding that 255.5 tons/year becomes a concern.

17. Enso Solutions will cover most counties in Oklahoma.

18. Based on the calculation method described in 252:515 3-36(a)(10), we will serve approximately 1,136 people (5,000 lbs./day max divided by 4.4)

19. NA as the road to our facility is gravel or concrete, therefore there is no concern about inclement weather impacting entry.

20. A minimum 1-5K warehouse forklift, Bobcat S450 or S550 skid steer for unloading compost, and Intermodal Earth Flow EF-20-IM System (See Document R for additional information).

21. Included in Existing Permit Application.

22. See #33-39

23. Class I, Tier I Financial Assurance was received by the DEQ on 5/8/2020 and was approved to begin accepting feedstock as of 5/12/2020. Enso Solutions is a permitted Class I composting facility applying for a permit modification to accept food waste and greater than 100 tons per year of feedstock, and therefore according to OAC 252-515-43-4(c) Enso Solutions will change from a Class I to a Class III facility. See Document 23A for the modified numbers and revised Financial Assurance including the estimated costs for additional waste.
24. We will operate out of an existing building with trees, shrubs, etc. that are aesthetically pleasing. If the DEQ determines additional placement of any such items, we will comply. Also, any modifications that are deemed necessary to comply will be implemented, but at this time no construction of the site is needed.

MAPS AND DRAWINGS

25. Included in Existing Permit Application.

26. Included in Existing Permit Application.

27. Included in Existing Permit Application.

28. Included in Existing Permit Application.

29. Included in Existing Permit Application.

30. Included in Existing Permit Application.

31. Included in Existing Permit Application.

32. Included in Existing Permit Application.

LOCATION STANDARDS

33. Included in Existing Permit Application.

34. OAC 252:515-5-31(b) states that "no area within the permit boundary of a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency." See letter from Parks and Recreation (Document 34A for waiver from Parks and Rec department pertaining to two parks; Schilling & Top of the Town)

35. Included in Existing Permit Application.

36. Included in Existing Permit Application.

37. Included in Existing Permit Application.

38. Included in Existing Permit Application.
39. Included in Existing Permit Application.

**OPERATIONAL STANDARDS**

40. Enso Solutions is a permitted Class I composting facility applying for a permit modification to accept food waste and greater than 100 tons per year of feedstock, and therefore according to OAC 252-515-43-4(c) Enso Solutions will change from a Class I to a Class III facility. Enso will be accepting feedstock types 1 and 2 and weigh upon pickup/drop off, documented on our Enso Solutions manifest, and documented in the operating record at the time of billing in accordance with 252:515-43-52. The operating record will reflect the time, date, customer name, pickup/drop off, amount of waste (weighed in pounds, converted to tonnage for reporting), and the type of feedstock. This will be done every day.

41. In accordance with 252:515-43-52 & materials stated in 252:515-19-31(a), (b), and (c), we will not accept any prohibited materials. All feedstock not approved will be rejected in accordance with our Waste Exclusion Plan (See Document 41A).

42. Per 252:515-43-54, we will have two (2) receptacles for both refuse generated on site along with refuse unacceptable to dispose of as part of the waste exclusion plan. See Document 41A.

43. Solid waste will not come into contact with any waters of the state located outside of the permit boundary. All waste is maintained, processed, and composting inside of a warehouse using the in-vessel method further preventing any solid waste coming into contact with any waters of the state.

44. NA as we will not be accepting any biosolids.

45. NA as we do not intend to compost Class B biosolids.

46. During our sort process, we will identify any and all “wet” material. Any and all “wet” material, will be mixed with dry material to absorb any liquid on the “wet” material. This is in accordance with 252:515-43-56

47. See Operational Plan (Document 47)

48. See Operational Plan (Document 47)

49. See Operational Plan (Document 47)

50. See Operational Plan (Document 47)
51. See Operational Plan (Document 47)
52. See Operational Plan (Document 47)
53. See Operational Plan (Document 47)
54. See Operational Plan (Document 47)

55. In accordance with 252:515-43-59, Enso will manage the processing time to ensure no feedstock is left uncovered overnight as we will keep in Enso’s bin until processed. All bins and the composting system are kept inside a locked enclosed warehouse. All feedstock will be processed into the active composting unit or transferred to a covered, leak proof containment (inside of the warehouse) immediately.

56. NA as this only pertains to Windrow composting method

57. In accordance with 252:515-43-60(2), All composting through the in-vessel method will be maintained inside the bin at a temperature of at least 131 degrees (F) for the first three (3) days, followed by 113 degrees (F) for the following 11-14 days. Enso checks the temperature, at a minimum, twice per day in 2 separate areas of the vessel to ensure compliance with the thermophilic requirements.

58. NA as this only pertains to passive piles

59. NA as this only pertains to Windrow composting method

60. Per 252:515-43-62, Enso will conduct temperature monitoring in accordance with said procedure. Enso’s procedure for monitoring the temperature inside of the vessel will be to use a pole thermometer to check the internal temperature of the compost. The vessel has a manual temperature measurement port for ease of manually testing the internal temperature. The temperature will be checked twice daily and recorded on a vessel log during the morning and afternoon routine of the managers. After the temperature is measured, recorded, (if needed) we will auger the system or add carbon to generate more heat to the compost. If management notices a drop of temperature due to unforeseen circumstances, our contingency plan will be to add some additional carbon source to increase the heat inside of the compost pile. The vessel manages the temperatures and will not begin curing until it has been at the required temperature for 3 days of the thermophilic process to remove all of the pathogens.

61. As specifically stated in 252:515-43-63, the composting process shall be considered complete when the internal temperature reaches below 70 degrees (F) or the temperature permitted by the DEQ.
62. With the use of in-vessel composting and being kept inside, the likelihood of odors is minimized outside of the facility. That being said, if there is an odor outside of the facility, mitigation will be identifying the source of the excess odor, ensure no leak is present in the composting vessel (will immediately halt operation and no new material will enter), and eliminate the source of the odor by disposing in landfill. Per the Earth Flow material, "adequate in-vessel retention provides assurance that discharged compost will not produce odors, be an attractant to vectors, or require additional active composting." Furthermore, the compost vessel has an airflow system that removes the CO2 exerted from the pile and is transferred to a 6’ by 9’ bio-filter comprised of pine bark nuggets to assist in converting the CO2 to oxygen AND further reducing odors. The bio-filter removes the odors and the CO2 released from the compost pile by way of an exhaust fan, through an 8-inch PVC pipe that leaves the vessel and is moved to the bio-filter (which is directly outside of the warehouse). This organic filter mechanism is one of the major factors for eliminating odors and other emissions.

63. See Operational Plan (Document 47)

64. NA as we will not burn solid waste.

65. In accordance with 252:515-19-36(c), Enso will monitor dust creation at all times. The building will be ventilated, fans, and an industrial shop vac (if necessary).

66. With the use of the in-vessel method of composting, the compost pile will be inside of the container, therefore, mitigating the risk of diseased vectors. If vectors are identified inside of the bin, at the completion of the compost process, the bins will be cleaned out with OSHA approved method of cleaning (multipurpose, anti-bacterial cleaner). Per the Earth Flow material, "adequate in-vessel retention provides assurance that discharged compost will not produce odors, be an attractant to vectors, or require additional active composting."

67. Included in Existing Permit Application.

68. Class III Design Standards. In accordance with 252:515-43-72 and 252:515-43-58, all composting activities will be taking place inside a vessel inside of an enclosed warehouse. The flooring of the warehouse is concrete. All of these controls will eliminate the risk of direct contact water.

a. Location restrictions. The proposed facility meets all location restrictions per items Nos. 33-39 outlined herein.

b. Contact water control. Contact water must be segregated and directed to containment, recycling, and/or treatment systems. "Contact water" means water that has come in contact with raw feedstocks or active composting piles. The proposed system has a valve to release any contact water (if any, which is highly
unlikely due to stem containment). Any released contact water will be placed back into the composting system to add moisture to current compost. Contact water regulations will be met as the compost is stored inside of the facility and feedstock is processed inside of the composting vessel, minimizing the potential for contact water.

c. **Stormwater run-on / run-off control.** Enso Solutions, LLC will be using “In-vessel composting”, with the vessel(s) located indoors, which will eliminate the need for stormwater run-on / run-off control. Stormwater regulations will be met as the compost is stored inside of the facility and feedstock is processed inside of the composting vessel, eliminating the potential for stormwater infiltration.

d. **All-weather pad.** Enso Solutions, LLC will be using “In-vessel composting”, with the vessel(s) located indoors on a concrete floor. No groundwater will ever be near any stored, processed, composting, or curing material as the facility is on a concrete pad inside of a warehouse. The composting is completed inside of the vessel and the curing is also completed indoors on a concrete pad. The nearest soils from the warehouse would far exceed 5 feet (approximately 15 feet from the warehouse), however, no material is kept at the edges of the warehouse and the vessel is approximately 50 feet from the nearest soil (and it is contained inside of the vessel).

e. **Windrow Construction.** NA as we are not doing windrow composting.

69. All-weather access. The entry to the facility is a compacted gravel road, followed by pavement all the way to the warehouse entry. The gate to the facility is kept locked at all times after hours and/or when no Enso employees are present at the facility. The facility is secure with barbed wire fencing, along with 5 full time monitored cameras that will alert the police of any unlawful entry into the facility. We do not have windrow piles so there is no need to address the perpendicular to the slope requirements.

70. NA as Class IV only

71. NA as Class IV only

**WATER MANAGEMENT**

72. The feedstock material will be kept in a 96 gallon, locking bin when on the truck, then kept in there until it is dropped off at the “receiving area” for the sorting process. Once in the receiving area until it is finished composting (entire processing process), it will be kept inside the and not be exposed to any of the elements. Once it is sorted and processed, it will immediately go in the composting vessel(s). Stormwater/contact water will not be an issue as the feedstock and/or the compost will not be exposed at any time. As previously mentioned, the containers will be placed inside of the trucks when
collecting at the customers facility, transported inside of an 16’ Box Truck, delivered to Enso One inside of the enclosed warehouse, and processed in the warehouse. Enso Solutions will meet the requirements related to contact water (Per 252:515-43-58(e) and 252:515-43-71) as the entire process is kept inside (processing & curing) and the feedstock is contained within the vessel, minimizing the potential for contact water.

73. Enso’s facility is indoors, so the concern of stormwater is eliminated. No material will ever be stored outside. All material will be processed inside of the warehouse, all composting will occur inside of the vessel, which is inside of the 5400 SF warehouse, and all curing takes place in the warehouse as well. Enso Solutions will meet the requirements related to stormwater (252:515-43-71(3)) as the entire process is kept inside (processing & curing) and the feedstock is contained within the vessel, minimizing the potential for stormwater infiltration.

GROUNDWATER MONITORING

74. At this time Enso Solutions is requesting a variance from 252:515-9-(All) and 252:515-43-91 as it relates to Groundwater Monitoring. Enso One’s process is completely indoors, in an enclosed warehouse, so the concern of groundwater monitoring is eliminated. Enso utilizes an in-vessel method (specifically an Earth Flow Intermodal by Green Mountain Technologies) which is on an all-weather pad (specifically, 5400 SF of 5-inch-thick concrete). No material will ever be stored, cured, or processed outside of the warehouse. Enso conducts in-vessel composting inside a building that has concrete flooring, and therefore the potential for feedstock, contact water, contaminants, or compost to come in contact with groundwater is minimal.

75. At this time Enso Solutions is requesting a variance from 252:515-9-(All) and 252:515-43-91 as it relates to Groundwater Monitoring. Enso One’s process is completely indoors, in an enclosed warehouse, so the concern of groundwater monitoring is eliminated. Enso utilizes an in-vessel method (specifically an Earth Flow Intermodal by Green Mountain Technologies) which is on an all-weather pad (specifically, 5400 SF of 5-inch-thick concrete). No material will ever be stored, cured, or processed outside of the warehouse. Enso conducts in-vessel composting inside a building that has concrete flooring, and therefore the potential for feedstock, contact water, contaminants, or compost to come in contact with groundwater is minimal.

76. At this time Enso Solutions is requesting a variance from 252:515-9-(All) and 252:515-43-91 as it relates to Groundwater Monitoring. Enso One’s process is completely indoors, in an enclosed warehouse, so the concern of groundwater monitoring is eliminated. Enso utilizes an in-vessel method (specifically an Earth Flow Intermodal by Green Mountain Technologies) which is on an all-weather pad (specifically, 5400 SF of 5-inch-thick concrete). No material will ever be stored, cured, or processed outside of the warehouse. Enso conducts in-vessel composting inside a building that has concrete flooring, and
therefore the potential for feedstock, contact water, contaminants, or compost to come in contact with groundwater is minimal.

77. At this time Enso Solutions is requesting a variance from 252:515-9-(All) and 252:515-43-91 as it relates to Groundwater Monitoring. Enso One’s process is completely indoors, in an enclosed warehouse, so the concern of groundwater monitoring is eliminated. Enso utilizes an in-vessel method (specifically an Earth Flow Intermodal by Green Mountain Technologies) which is on an all-weather pad (specifically, 5400 SF of 5-inch-thick concrete). No material will ever be stored, cured, or processed outside of the warehouse. Enso conducts in-vessel composting inside a building that has concrete flooring, and therefore the potential for feedstock, contact water, contaminants, or compost to come in contact with groundwater is minimal.

78. At this time Enso Solutions is requesting a variance from 252:515-9-(All) and 252:515-43-91 as it relates to Groundwater Monitoring. Enso One’s process is completely indoors, in an enclosed warehouse, so the concern of groundwater monitoring is eliminated. Enso utilizes an in-vessel method (specifically an Earth Flow Intermodal by Green Mountain Technologies) which is on an all-weather pad (specifically, 5400 SF of 5-inch-thick concrete). No material will ever be stored, cured, or processed outside of the warehouse. Enso conducts in-vessel composting inside a building that has concrete flooring, and therefore the potential for feedstock, contact water, contaminants, or compost to come in contact with groundwater is minimal.

79. At this time Enso Solutions is requesting a variance from 252:515-9-(All) and 252:515-43-91 as it relates to Groundwater Monitoring. Enso One’s process is completely indoors, in an enclosed warehouse, so the concern of groundwater monitoring is eliminated. Enso utilizes an in-vessel method (specifically an Earth Flow Intermodal by Green Mountain Technologies) which is on an all-weather pad (specifically, 5400 SF of 5-inch-thick concrete). No material will ever be stored, cured, or processed outside of the warehouse. Enso conducts in-vessel composting inside a building that has concrete flooring, and therefore the potential for feedstock, contact water, contaminants, or compost to come in contact with groundwater is minimal.

COMPOST TESTING STANDARDS

80. In accordance with 252:515-43-111, testing is completed on compost by Midwest Labs (Omaha, NB) or OSU Department of Agriculture for metals and other nutrients. Compost is also sent to Verde Labs (Licensed OMMA Test Lab – Edmond OK) for THC content. Please see Documents W1 & W2 to see our recent test results and example of testing protocols. Enso’s testing protocol for testing will be every month or at the end of each batch over the first year of production. Once there are consistent results, Enso will be able to test quarterly to maintain health and environmental standards on an ongoing basis.
RECORDKEEPING REQUIREMENTS

81. Enso Solutions will submit and maintain all DEQ operating records in accordance with 252:515-19-40. Records shall be maintained on site until site closure or DEQ approves the facility to cease maintenance, whichever comes first.

82. In accordance with 252:515-43-66, Enso Solutions will maintain daily logs of total weight of incoming feedstocks and all outgoing compost. The daily logs will be readily available at all times for DEQ.

83. In accordance with 252:515-43-34, Enso Solutions will submit monthly reports of total weight of incoming feedstocks and all outgoing compost, along with the amount of non-compostable material shipped for disposal and the location said material was shipped to on a monthly basis. The monthly reports will be submitted to the DEQ.

84. Per the definition in 27A 2-10-103, Enso Solutions does meet the definition of a commercial composting facility and will submit monthly reports. Enso will pay fees quarterly to the DEQ in accordance with this statute.

CLOSURE/POST-CLOSURE

85. See attached the Closure Plan (Document 85) and #87 & #88 for Financial Assurance.

86. Enso Solutions' will not have any Post-Closure monitoring measures as there will not be any groundwater or soil contamination testing necessary (all of operations will be indoors).

FINANCIAL ASSURANCE

87. See Closure Costs estimate (Document 23A) and Closure Plan (Document 85). The difference between the existing financial assurance amount and the proposed would be placed in the DEQ Revolving Fund (Once completed – final assurance will be included as Document 87)

88. See Closure Costs estimate (Document 23A) and Closure Plan (Document 85). The difference between the existing financial assurance amount and the proposed would be placed in the DEQ Revolving Fund (Once completed – final assurance will be included as Document 87)

I, Matthew Golladay, certify that all of the information herein is true and accurate.

[Signature]

MATT GOLLADAY, PRESIDENT - ENSO SOLUTIONS