
Central Valley Regional Water Quality Control Board

13 September 2016

Mr. Gary Foster
Compost Solutions, Inc.
4446 County Road N
Chico, CA 95927

NOTICE OF APPLICABILITY WATER QUALITY ORDER 2015-0121-DWQ GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS COMPOST SOLUTIONS, INC. COMPOST SOLUTIONS, INC. COMPOST FACILITY GLENN COUNTY

On 26 July 2016, Compost Solutions, Inc. (Discharger) submitted a Report of Waste Discharge (ROWD) for the Compost Solutions Composting Facility (Facility). The ROWD includes a Technical Report and Report of Composting Site Information (Technical Report), Notice of Intent (NOI), and a Filing Fee, to obtain coverage under Water Quality Order 2015-0121-DWQ, General Waste Discharge Requirements for Composting Operations (hereafter General Order) for composting operations at the above-referenced site. The complete General Order can be accessed at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2015/wqo2015_0121_dwq.pdf

This Notice of Applicability (NOA) was developed after the review of your NOI and Technical Report as described in the attached Staff Memorandum which is a part of this NOA. Based on staff's review, the Site meets the conditions of the General Order, and is hereby covered under General Order **2015-0121-DWQ-R5R003** as a **Tier II** composting operation. The Discharger must comply with all Tier II requirements of the General Order. In conjunction with the enrollment under the General Order, the Central Valley Water Board will rescind Waste Discharge Requirements Order No. R5-2007-0088.

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff determined that the appropriate filing fee for your operation is \$4,699. As per our 13 June 2016 letter, you submitted an initial filing fee of \$2,088 with your NOI and Technical Report. **Please submit the remaining balance (\$2,611) to complete coverage for the first year.** The Discharger shall submit the required annual fee (as specified in the annual billing issued by the State Water Resources Control Board) until the NOA is officially terminated.

To fully comply with this NOA, please familiarize yourself with the contents of this NOA, the enclosed Staff Memorandum and all of the requirements of the General Order. The Discharger is responsible for implementing all operations in a manner that complies with the General Order.

Any noncompliance with the General Order constitutes a violation of the Water Code, and is grounds for enforcement action, and/or termination of enrollment under the General Order. Conditions of the Composting General Order include but are not limited to:

- No timeline for compliance with the General Order or for the proposed improvements was submitted with the Technical Report. The Discharger must review the General Order requirements, submit a Revised Timeline for Compliance/Proposed Improvements by **15 October 2016**.
- Installation of the previously approved Runoff Management System must be completed by **31 August 2017**.
- The Site must be brought into full compliance with the General Order no later than **26 July 2022**, which is six years from submittal of NOI.
- Technical reports must be submitted at least 90 days prior to each construction activity, while post-construction reports must be submitted within 60 days after the completion of each construction activity.
- A revised NOI is required at least 90 days prior to: adding a new feedstock, changing the biosolids source, additive, or amendment; changing material or construction specifications; changing a monitoring program; or changing an operation or activity not described in the approved NOI and technical report.

Attachment B of the General Order includes specific monitoring and reporting requirements that you must comply with, including routine monitoring with reporting to the Central Valley Water Board. The first year Annual Monitoring and Maintenance Report as identified in the General Order must be submitted to the Central Valley Water Board no later than **1 April 2017**.


All monitoring and technical reports submitted to this Office must be converted to searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50 MB are to be emailed to: centralvalleyredding@waterboards.ca.gov. Documents that are 50 MB or larger are to be transferred to a portable data storage device and mailed to this office at the address provided on the cover page, Attention: ECM Mailroom.

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the body of the email or any documentation submitted to the mailing address for this office:

Central Valley Water Board
Attention: Melissa Buciak
364 Knollcrest Drive, Suite 205
Redding, CA 96002

If you have any questions regarding this letter or the attached Staff Memorandum, please contact Melissa Buciak at (530) 224-4854 or by email at Melissa.Buciak@waterboards.ca.gov or Kate Burger at (530) 223-2081 or by email at Kate.Burger@waterboards.ca.gov. If you have

questions regarding the rescission of WDR Order R5-2007-0088, please contact Mr. George Low at (530) 224-3208 or by email at George.Low@waterboards.ca.gov.


(for) Pamela C. Creedon
Executive Officer

MB:reb

Enclosure: Staff Memorandum

cc by email
w/encl:

Mr. George Low, Regional Water Quality Control Board, Redding
Ms. Leslie Graves, State Water Resources Control Board, Sacramento
Mr. John Wells, Glenn County Department of Environmental Health, Willows
Mr. John Loane, CalRecycle, Permits and Assistance Branch, Sacramento
Ms. Bonnie Lampley, Lawrence & Associates, Redding

Central Valley Regional Water Quality Control Board

STAFF MEMORANDUM

TO: Kate Burger, P.G., PhD
Senior Engineering Geologist

FROM: Melissa Buciak, P.G.
Engineering Geologist



Katie Gilman
Student Engineering Aide

DATE: 13 September 2016

SUBJECT: **APPLICABILITY OF COVERAGE UNDER STATE WATER RESOURCES CONTROL BOARD WATER QUALITY ORDER 2015-0121-DWQ, COMPOST SOLUTIONS, INC., COMPOST FACILITY, GLENN COUNTY**

REPORT OF WASTE DISCHARGE

On 26 July 2016, Compost Solutions, Inc. (Discharger) submitted a Report of Waste Discharge (ROWD) for the Compost Solutions Composting Facility (Facility). The ROWD includes a Notice of Intent (NOI) and a Technical Report and Report of Composting Site Information (Technical Report), and Filing Fee to obtain coverage under Water Quality Order 2015-0121-DWQ, General Waste Discharge Requirements for Composting Operations (hereafter General Order) for composting operations at the Facility.

The Facility has been operating its composting operations since the summer of 2007 under individual Waste Discharge Requirements (WDR) Order R5-2007-0088. The Technical Report was originally submitted in June 2012 to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) in order to revise WDR Order R5-2007-0088 to (1) allow year-round composting, (2) incorporate drilling mud as a potential additive, (3) incorporate biosolids composting, and (4) increase the tonnage processed each year. Another purpose was to obtain a full Solid Waste Facilities Permit (SWFP) from the Local Enforcement Agency [Glenn County Environmental Health Department (GCEHD)].

SITE DESCRIPTION

The Facility is located approximately four miles south of the town of Orland in Glenn County, at 6900 County Road 27, Assessor's Parcel Number 024-030-031. It is situated on 28-acres in the northeast quadrant of the intersection of County Roads N and 27.

The parcel currently contains approximately three acres of parking and storage area, four acres of vegetated area to act as a filter strip, and 21 acres of seasonal compost-turning area. Site features are shown in Attachment A. The topography of the surrounding area is relatively flat with a slope to the southeast. Additionally, the Facility has been graded to prevent run-on, runoff from the compost piles, and to further promote drainage to the southeast. Subsurface lithology observed during well installation consists primarily of clayey sands with gravel to approximately

20 feet below ground surface (bgs). Land use within one mile of the facility is agricultural and low density rural residential. Almond orchards are located on adjacent properties to the north, south and west. The adjacent property to the east is farmed for annual crops.

According to Orland Station Number A00650600, the 100-year, 24-hour precipitation event for the Facility is 4.07 inches. The 100- and 25-year annual rainfall is 35.98 and 29.90 inches, respectively. According to Flood Insurance Rate Map number 0600570375B, issued by the Federal Emergency Management Agency, the Facility is in Zone C and outside of the 500-year flood plain. Zone C is considered an area of minimum flood hazard, which is outside of a Special Flood Hazard Area and higher than the elevation of the 0.2-percent-annual-chance flood.

Based on groundwater measurements by the DWR in a well located about 0.5 miles northeast of the Facility (state well number 21N03W12C002M), the depth to groundwater in the vicinity of the Facility is estimated to be approximately 15 feet bgs during a wet winter and over 40 feet bgs during the summer. According to the Technical Report, there are approximately 33 wells (agricultural and domestic) within one mile of the Facility. There is an agricultural well located in the northwest corner of the Facility. The closest downgradient domestic well is at least 100 feet from composting operations, which is the required set back per the General Order.

The Department of Water Resources groundwater elevation contour map for Glenn County shows a general flow to the southeast at an approximate gradient of 0.0017 feet/foot. The contours show a depth to static water level beneath the property of about 95 feet bgs. Water level data from facility monitoring wells MW-1 through MW-3 indicate that the depth to water ranges between about 35 and 50 feet bgs and flows towards the southwest at between 0.015 and 0.018 feet/foot. Limited groundwater monitoring data indicate that wells MW-1 (downgradient) and MW-3 (upgradient) exceed the water quality objective for nitrate of 10 milligrams per liter (mg/L). In 2013, the Discharger voluntarily collected groundwater samples from wells MW-1 and MW-3 for stable isotope analysis. Results suggest that the downgradient well MW-1 is impacted by leachate from composting operations. Water quality data for shallow background groundwater is available from a DWR well approximately two miles northwest of the Facility (well number 21N03W08A002M). The water is generally of good quality except for elevated nitrate content (38 mg/L).

Nearby surface-water bodies consist primarily of irrigation ponds and ditches, drainage ditches for roads, and surface streams. Beyond the northeast corner of the Facility there is a seasonal pond fed by a drainage ditch. This pond is only full during the rainy season. Runoff flows across the property to its south end and into a roadside ditch. The roadside ditch flows into a swale about 300 feet to the east of the property. The swale drains to the south through a culvert under Road 27 and continues to the south through several small reservoirs until it reaches the Colusa Drain, 10 miles to the south. Per the General Order, composting operations shall be setback at least 100 feet from the nearest surface water body. Since the adjacent irrigation pond and drainage ditches are seasonal, the Facility is in compliance with the General Order.

In August 2006, five test pits were excavated to depths of eight feet bgs each during the design of the composting pad. Two types of soils were identified with permeability ranging from 1.4×10^{-6} to 3×10^{-7} centimeters per second (cm/sec) when remolded to 90% of maximum dry density. The pad was subsequently disked and recompactd to 90% of the maximum dry density and the existing relatively flat slope was maintained. Based on testing of undisturbed soil samples from the completed pads, the post-construction permeabilities (ASTM D5804)

ranged from 3.5×10^{-6} to 5.9×10^{-7} cm/sec. The completed pads are able to meet the General Order requirements of lower than 1×10^{-6} cm/sec for compost pad permeability, provided proper compaction and moisture content is maintained.

COMPOSTING OPERATIONS

Based on the information provided in the June 2012 Technical Report, a full SWFP (11-AA-0034) was issued by GCEHD on 17 July 2012. The input capacity of compost feedstock was increased from 30,000 tons per year to 50,000 tons per year. The facility is also permitted to receive up to 12,000 tons of biosolids per year or 1,500 tons per month. Compost feedstocks and biosolids composting are discussed below.

Compost Feedstocks

According to the Technical Report, the compost will be made primarily of dairy manure, dairy bedding, green waste, wood chips, and clay. The dairy products will be obtained from local dairies, the green waste will come from commercial green waste collection operations, and the wood chips will be from local orchards. No more than 40% of the feedstock by weight will be from manure.

The agricultural and green waste will be stacked into windrows approximately 16 to 18 feet wide, six feet deep, and up to 1,400 feet long (the length of the compost pad). The Facility has capacity for about 20 rows or about 50,000 loose cubic yards (25,000 tons of feedstock or finished compost). An access way roughly 10 to 15 feet wide will be left between windrows.

Feedstock and compost will be visually inspected for non-decomposable materials during unloading, spreading, turning, and preparation for shipment. Finished compost will be run through a trommel to remove material over one-inch in diameter. Trash and large sticks will be picked out of this material and disposed appropriately.

Additives will either be placed in a row on the pad prior to the feedstock and incorporated into the feedstock during forming, or spread on top of the formed row and incorporated during tilling. According to the Technical Report, the following additives may be added at the specified maximum percentages by weight: manure (40%), co-generation ash (5%), bone char (10%), potassium sulfate (10%), dry urea (5%), and drilling mud (10%). Post-composting amendments may include fertilizers described above and/or lime and gypsum to adjust the pH. These amendments will be added at the end of the process before the final turning.

According to the Technical Report, agricultural and/or green waste feedstock may be received during any time of the year when there is no significant rain (defined as less than 0.25 inches per day or 0.05 inches per hour). During the winter months (November 1 through April 1), feedstock will be placed in bunkers constructed of straw bales and covered with plastic (or similar containment).

Compost operations are performed in uncovered areas during the dry season (April 1 through October 1). Composting may be performed in the covered year-round composting area (not yet constructed) any time of the year.

Biosolids Composting

Appendix P of the Technical Report collectively defines biosolids as primary and secondary wastewater (sewage) sludge and decanted septic tank sludge. Waste removed from septic tanks (septage) is prohibited as a feedstock under the General Order. On 3 June 2016, the Discharger notified the Central Valley Water Board that they would not be accepting septage.

Central Valley Water Board staff understands that the Discharger would like to obtain process biosolids from the City of Chico Waste Water Pollution Control Plant (WPCP).

According to the Technical Report, biosolids will only be composted on the covered concrete pad (to be constructed) in the year-round composting area. The purpose of the concrete pad is to provide an open area upon which biosolids can be unloaded and mixed with bulking agents. The covered area will allow construction of aerated static piles (ASP) year-round. Attachment B provides a conceptual drawing for the proposed biosolids composting pad. However, also per the Technical Report, biosolids may be composted outside of the covered area during the summer months (April 1 through October 1) and only beneath the covered area during winter months (October 1 to April 1). Central Valley Water Board staff is unclear if the Discharger plans to compost biosolids only on the covered concrete pad (to be constructed) or if during the summer months, compost biosolids outside the covered area. Biosolids composting practices need to be clarified in a revised Technical Report.

Biosolids will be mixed with a bulking agent, such as wood chips, agricultural waste, green-waste or cogeneration ash, select agricultural waste, green waste, or compost from these materials. The loader will be used to build approximately 20-foot wide by 80-foot long piles. Either prior to or during the filling process, a vent duct consisting of perforated polyethylene pipe will be placed under or within the pile. After the pile is constructed, it will be covered with a tarp. Air will be pulled through the pile using a vacuum exhaust, which is the ASP method.

Storm Water Detention Area

In general, water detention is provided by an unlined, gravel berm in the southeast corner of the facility as shown on the site map in Attachment A. The berm is designed to detain storm water runoff within a grass filter strip for the purpose of peak-flow and sediment control. The storm water detention area is not considered to be a retention leachate pond. Because historically the agricultural and green waste were composted seasonally, the Discharger has considered the Facility to be a closed system during the operating season, with no water running on or discharging off the property. However, because the Technical Report proposes year-around composting, improvements are needed for the storm water detection at the facility.

Central Valley Water Board staff conducted a compliance inspection in March 2014. Staff observed storm water management in a manner inconsistent with the operations described in the WDR Order R5-2007-0088. Staff observed that the Discharger had recently pumped surface water from the composting pad to the storm water detention area. The stable isotope data results suggest nitrate impacts from composting operations are present in the area monitored by well MW-1 (down-gradient). Due to these concerns, Central Valley Water Board staff requested further management of runoff. In response to this request, the Discharger's consultant Lawrence & Associates submitted a *Response to CVRWQCB Request for Work Plan Related to Runoff Control and Treatment* (Plan) dated 30 May 2014 and a *Technical Memo: Runoff Control and Treatment* (Technical Memo) dated 30 June 2014. The proposed runoff controls and treatment have not yet been implemented.

For runoff management, the Plan proposes to retain runoff in sumps for further treatment prior to discharge. Two sumps, about 280 gallons in total capacity, will collect runoff south of the compost turning area pad. From the sumps, water will flow toward a filter where cited technical literature indicates that the filter media (rice hulls or sawdust) should develop a bio-film to denitrify flow. To monitor treatment, the Plan proposes weekly samples, up-flow and down-flow of the filter, for pH, specific conductance, nitrate, nitrite, and Total Kjeldahl Nitrogen analyses. To mitigate pollutant mass loading, the Plan proposes to discharge filtrate in the detention basin

from a moveable distribution system. To enhance denitrification, the Plan proposes to seed the detention basin with rye grass and irrigate during the dry season. To assess the effects of further treatment on groundwater quality, the Plan proposes appropriate statistical analyses of down-gradient monitoring well MW-1. (Note: Monitoring and Reporting Requirements R5-2007-0088 also require monitoring of the other, crossgradient MW-2 and MW-3.) If proposed improvements prove ineffective, the Plan has contingencies for increasing pre-filter retention time, and decreasing detention area permeability.

The Technical Memo provides further details on the proposed runoff management system. For biological de-nitrification, the Technical Memo proposes a collection and treatment system with options for small and larger rainfall events. For small events, the system will collect runoff by gravity into the proposed sumps, and then pump water up to 300 gallons/minute for even distribution onto an above-ground filter media bed with total capacity of about 24,000 cubic feet. Filtrate will drain to a lined trough with a second pump, and then evenly discharge to the irrigated detention area. For larger events that overwhelm the sumps, overflow, with likely dilute nitrate, will drain unfiltered to the lined trough. If flows exceed the total system, sheet wash will discharge to the detention area. If future monitoring shows that the system is ineffective, the Discharger will design a lined detention pond. Central Valley Water staff concurred with the Plan and Technical Memo on 14 July 2014.

TIMELINE FOR COMPLIANCE

Full compliance with Order 2015-0121-DWQ must be completed by **26 July 2022**, which is six years from submittal of the NOI.

The Technical Report was to include a proposed schedule for achieving compliance with this General Order. However the Discharger did not provide either a compliance schedule or a schedule for the proposed improvements. The table below shows a proposed improvement plan schedule which incorporates improvements presented in the Technical Report such as the covered concrete biosolids pad and the improvement of the runoff management system proposed in the 2014 Plan and Technical Memo.

Improvement	Completion Date
Revised Timeline for Compliance/Proposed Improvements	15 October 2016
Technical Report Revision – including updated Water and Wastewater Management Plan	31 March 2017
Installation of Runoff Management System	31 August 2017
Covered Concrete Biosolids Pad – if needed	31 August 2018
Detention Ponds – if needed	31 October 2019

MONITORING AND REPORTING

The Discharger will regularly inspect and maintain all containment, control, monitoring structures, and monitoring systems pursuant to the submitted Technical Report and the Attachment B of General Order Monitoring and Reporting requirements. The frequency of inspections will be sufficient to prevent discharges of feedstocks, additives, amendments, compost (active, curing, or final product), or wastewater from creating, threatening to create, or contributing to conditions of contamination, pollution, or nuisance.

The Discharger will conduct a monitoring program as prescribed in the Attachment B of General Order Monitoring and Reporting requirements. Sections that apply are A.1., A.3., A.4., A.5., B, and C. Results of monitoring will be reported annually in the Annual Monitoring and Maintenance Report which will be submitted by **1 April** of each year as long as the Notice of Applicability is in effect.

Storm/Surface Water

The working surface in which the composting occurs is one to ten feet above the surrounding properties. Therefore, there is no run-on. The down slope edges of the property to the east and south have 12-foot wide roads that prevent uncontrolled runoff onto adjacent properties. Runoff flows to the southeast corner of the property, where it flows into a roadside ditch along County Road 27. A site specific sampling point for storm/surface water (SW-1) is shown on the site map in Attachment A.

Biosolids Monitoring

The facility is permitted to receive up to 12,000 tons of biosolids per year or 1,500 tons per month as per SWFP 11-AA-0034. The General Order requires biosolids that are used as a feedstock to comply, at a minimum, with the ceiling concentrations listed in Table 1 of Code of Federal Regulations, title 40, part 503 and class B pathogen and vector requirements. Biosolids may be characterized by the entity that generates or otherwise processes the material.

Table B-2 in the Attachment B of General Order (Monitoring and Reporting) lists the specific metal constituents required. Central Valley Water Board will require one sample for metals analysis per 1,000 tons of biosolids received at the facility. Furthermore, Central Valley Water Board staff requests to be copied on the report that demonstrates that pathogen and vector reduction meets Class B requirements.

The Central Valley Water Board understands that the Discharger would like to utilize the process biosolids from the City of Chico WPCP as feedstock for their composting operations. The surface water discharge from the City of Chico WPCP is regulated pursuant to WDRs R5-2016-0023 (NPDES Permit No. CA0079081). Currently, the City of Chico WPCP dries their biosolids onsite and disposes of the biosolids at a nearby landfill. Per section VI.C.7.b.iv of the NPDES permit, the City of Chico WPCP is required to report "any proposed change in biosolids use or disposal practice from a previously approved practice ... to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change." Additionally, the City of Chico WPCP would be required to update their biosolids use or disposal plan per section VI.C.7.b.v of the NPDES permit prior to hauling biosolids to the Discharger to be used as feedstock for their composting operations.

The Discharger provides additional instructions for biosolids screening in Appendix O of the Technical Report. These additional sampling protocol and analyses are not required under the General Order. If the Discharger would like to require entities such as City of Chico WPCP to

analyze for constituents beyond what is required in the General Order, the Central Valley Water Board does not object.

Groundwater Protection Monitoring

When the Facility was initially developed by the Discharger, groundwater monitoring was not required for the facility. The Discharger included groundwater monitoring in their operation in order to be proactive. Three monitoring wells (MW-1 through MW-3) were installed in July 2007. MW-1 is downgradient of the facility and MW-2 and MW-3 are upgradient and crossgradient, respectively. Their locations are shown on the site map in Attachment A. As outlined in the Technical Report, groundwater monitoring is conducted on a semi-annual basis (in the spring and fall) when water is present.

The General Order specifies that in lieu of meeting hydraulic conductivity (i.e., permeability) specifications for Tier II working surfaces and drainage ditches, the Discharger may implement a groundwater protection monitoring program. The test pit results indicate that the permeability specifications for Tier II working surfaces are met. However, given the observed water quality impacts, Central Valley Water Board requests that the Discharger continue with semi-annual groundwater monitoring program and sample for the constituents shown in Table B-3 in the Attachment B of General Order Monitoring and Reporting requirements.

SITE CLOSURE

At least 90 days prior to ceasing composting operations, the Discharger shall submit a Site Closure Plan to the Central Valley Water Board for approval. The site restoration shall include work necessary to protect public health, safety, and the environment.

DISCUSSION

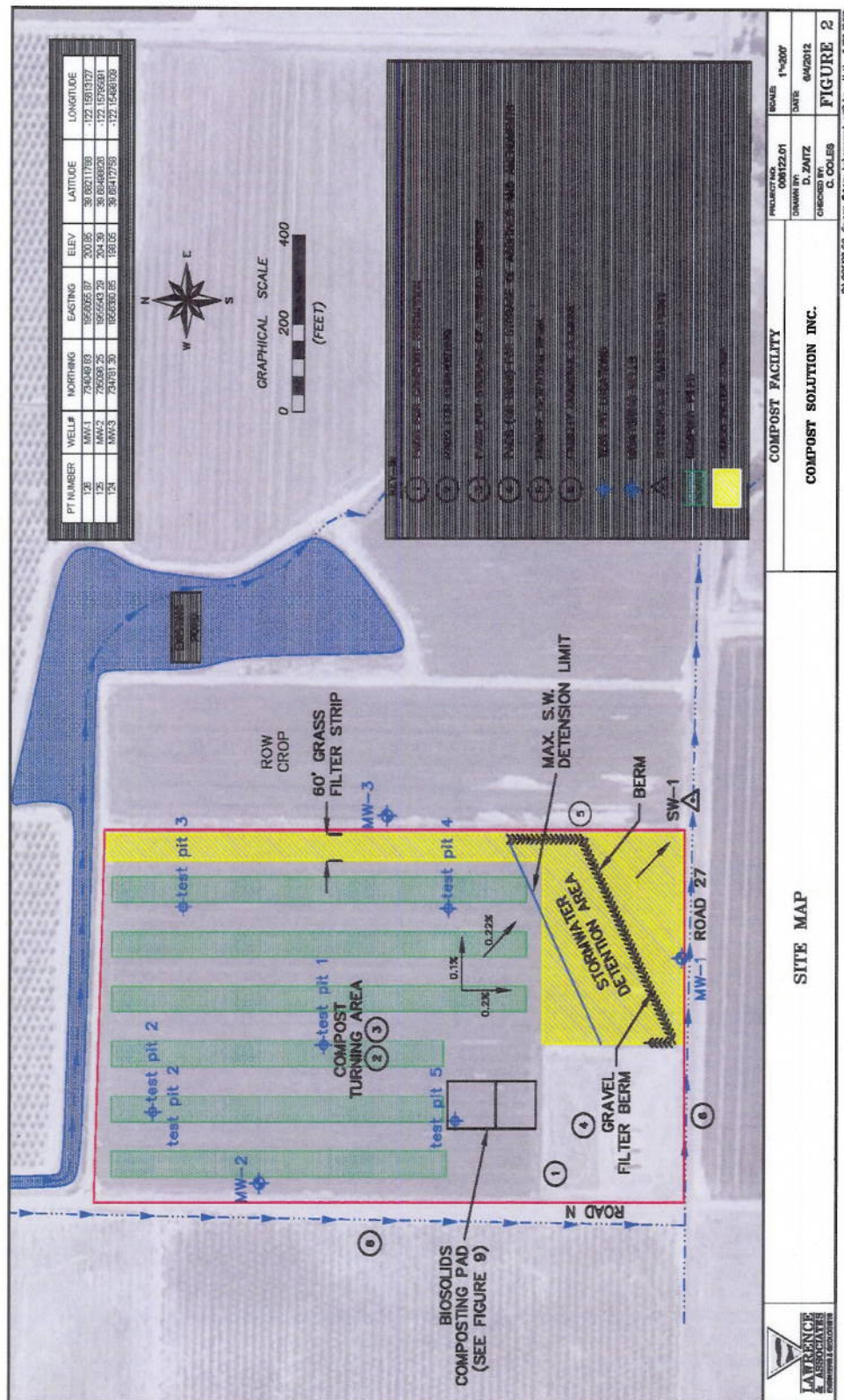
Staff conducted a site visit in March 2016 to confirm the Facility was adhering to the winterization plan outlined in the June 2012 Technical Report (resubmitted in July 2016). Approximately 60,000 cubic yards of compost were at the Facility. The compost piles were not covered as per the Technical Report. It appeared that the Discharger has been composting year-round. Furthermore, some improvements to the storm water management system have been implemented such as the trough to collect runoff and evenly discharge to the irrigated detention area. See Attachment C for photographs. Staff also noted a Dense-Out® Vibratory AIR Separator was located at the Facility, presumably to address previously noted concerns of feedstock and compost with non-decomposable materials. While the working surface meets the requirements of the General Order, staff remains concerned that storm water is not properly managed and may continue to impact water quality at and near the Facility. Hence, continuation of the semi-annual groundwater monitoring program is warranted.

This General Order is not a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Federal Clean Water Act. For composting operations where storm water discharges off-site, the Discharger may be required to enroll under the State Water Board's General Order No. 97-03-DWQ (new Industrial General Permit 2014-0057-DWQ was effective 1 July 2015), NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (Industrial General Permit), and/or future promulgations. If wastewater is discharged to surface water, the Discharger may be required to obtain an individual NPDES permit. Coverage under this General Order does not exempt a facility from the federal Clean Water Act. Any facility required to obtain such permits must notify the Regional Water Board.

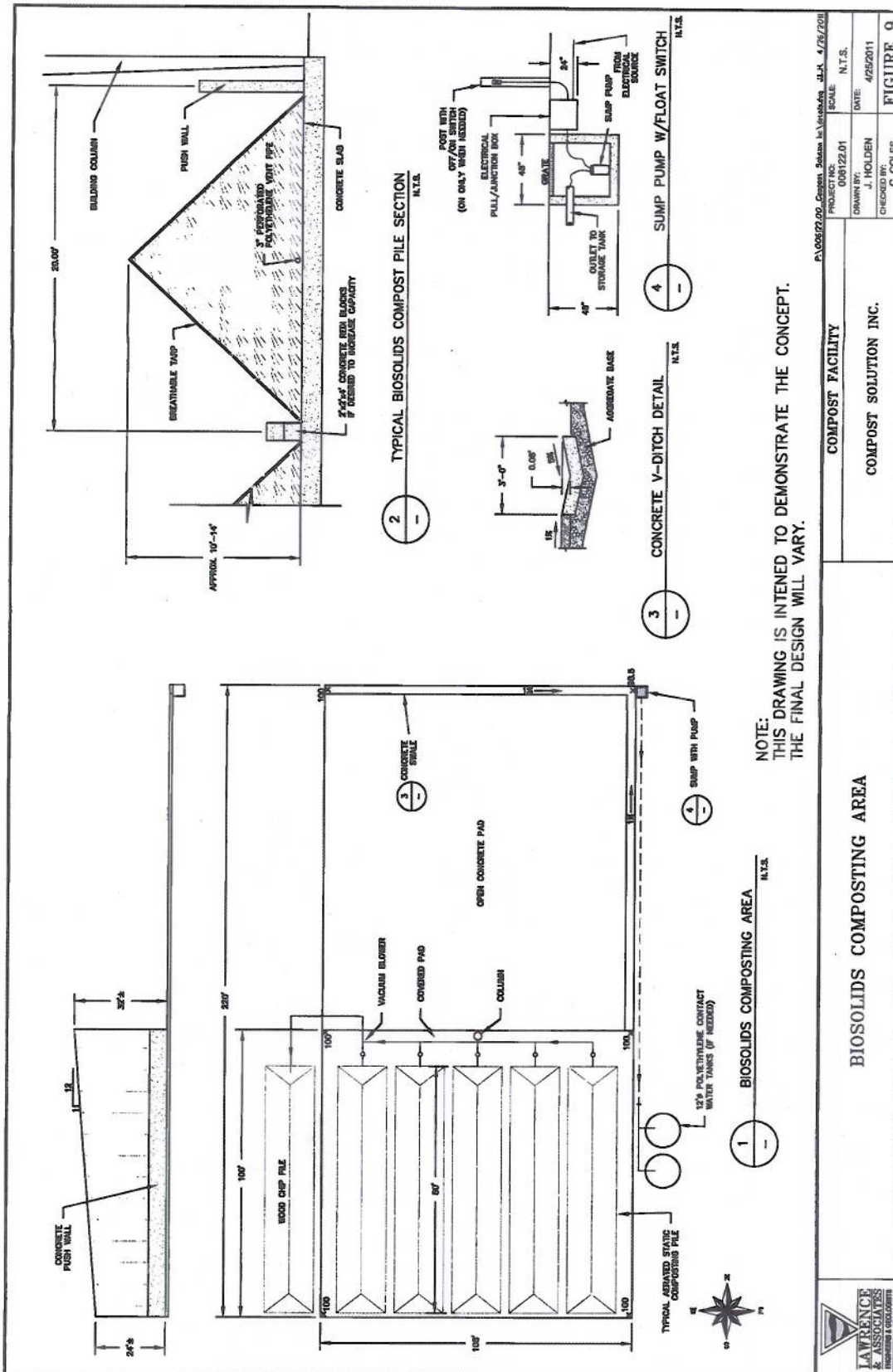
RECOMMENDATION

Based on staff review of the Technical Report and supporting documents, the Facility meets the minimum requirements of the General Order. The Notice of Applicability can be issued as long as the Discharger implements all operations in a manner that complies with the requirements of the General Order. In conjunction with the enrollment under the General Order, the Central Valley Water Board will rescind Waste Discharge Requirements Order. R5-2007-0088.

ATTACHMENT A



ATTACHMENT B



ATTACHMENT C



3/3/2016 – Compost pile with standing water.



3/3/2016 – Storm water management system.