

MEMORANDUM

FROM: Dave Coleman, P.E.

SUBJECT: Description of Proposed Wastewater Treatment and Subsurface Disposal System with Mendocino County Fairground Camping Area Alternative
B&R File No. 4154.51

DATE: January 11, 2021

The feasibility study for a wastewater collection and treatment system is being prepared for the Boonville community. One site currently under consideration for siting of the treatment system and treated effluent subsurface disposal location is the camping area (field) at the Mendocino County Fairgrounds at 14400 Highway 128 in Boonville. This memorandum describes the physical layout, process operation, and potential impacts of the proposed wastewater treatment and effluent disposal system that would be proposed at the Fair Grounds alternative site.

PROPOSED LAYOUT

A conceptual layout for the wastewater treatment and disposal system is shown in Figure 1. The layout consist of the treatment system building and subsurface disposal area. The treatment system would be housed in a steel clear-span building with approximate dimensions of 50 feet wide by 100 feet long, and approximately 16 to 18 feet at the eaves with a roof pitch of approximately 12:1. A conceptual layout for the treatment building is shown in Figure 2. The building would contain an approximately 60,000 gallon steel equalization tank, an approximately 55,000 gallon treatment system, blowers, and space for an office, lab, and storage. No equipment would be placed outside of the building for security purposes.

The treated wastewater (effluent) would be disposed of in buried infiltration chambers, as shown in Figure 3. The chambers, constructed of high-density polyethylene (HDPE) would be installed in rows at a minimum depth of at least three feet between the top of the chamber and the ground surface. Based on published soil characteristics, the buried chambers may occupy a large portion of the current field. The number of chamber rows would be based on actual infiltration tests performed in the field. The only aboveground structure would be the steel treatment system building. With the exception of valve boxes and monitoring ports, the infiltration chambers would have no surface features and would not be visible. The system would be designed so that the topsoil remains dry at all times (with the exception of natural precipitation).

The location of the treatment system building could be revised to suit Fairground needs; however, the northwest corner of the field was chosen for the conceptual layout as the soils there are less suitable for infiltration (subsurface effluent disposal) than the remainder of the field. The location is also several hundred feet from the nearest residences and has established vegetation on two sides providing visual cover.

PROPOSED PROCESS

The process proposed to be used to treat the sewage collected in the Boonville community wastewater collection system is called an activated sludge process. This aerobic process has been used to treat municipal wastewater for 100 years and is found in the majority of municipal treatment plants. The activated sludge process would occur in a treatment unit called a Membrane Bioreactor (MBR). “Membrane” refers to the sheet filters in the tank through which the wastewater is drawn, effectively filtering it and leaving the microbes in the treatment tank which is referred to as the “bioreactor.” The MBR system would have an equalization tank that would be aerated to prevent odors as wastewater is metered into the reactor at a constant rate.

PROPOSED OPERATIONS

The operation of the collection and sewer system would likely require resources such as a potable water service, three-phase 480-volt power, all-weather access, and an operator who can make daily site visits to monitor and maintain the treatment system. Operator activities may include:

- Monitoring of dissolved oxygen levels and blower operation
- Calibration of meters used for system operation.
- Maintenance of membranes (every 6 months).
- Coordinating sludge removal (biweekly).
- Screened solids disposal removal (weekly).
- Monitoring of water levels in infiltration chambers.
- Maintenance of collection system grinder pumps.

CONTINUED USE OF CAMPGROUND

The subsurface disposal area would continue to be used for summertime event camping with the following caveats:

- The treatment plant building is secure and inaccessible to campers.
- Valve boxes and monitoring wells in the field would remain covered and secured against tampering.

08-01-17 Kayne \4154\dwg\4154_51\4154.51 DESIGN - CAMPGROUND SUBSURFACE.dwg TAB: campground layout

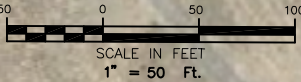


TREATMENT SYSTEM BUILDING
(LOCATION FLEXIBLE)

80 FT x 3 FT EXFILTRATION
TRENCHES (TYP OF 100)
MINIMUM 3 FT OF COVER

ABANDONED WELL
(PIPING IN USE)

EXISTING BATHHOUSE



Brelje & Race
CONSULTING ENGINEERS
475 Aviation Boulevard, Suite 120
Santa Rosa, CA 95403
v: 707-576-1322
f: 707-576-0469
www.brce.com



**ANDERSON VALLEY
COMMUNITY
SERVICES DISTRICT**

WW TREATMENT SYSTEM

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05/14/2019

REVISIONS		
NO.	DATE	DESCRIPTION

ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.



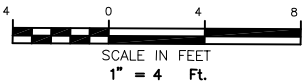
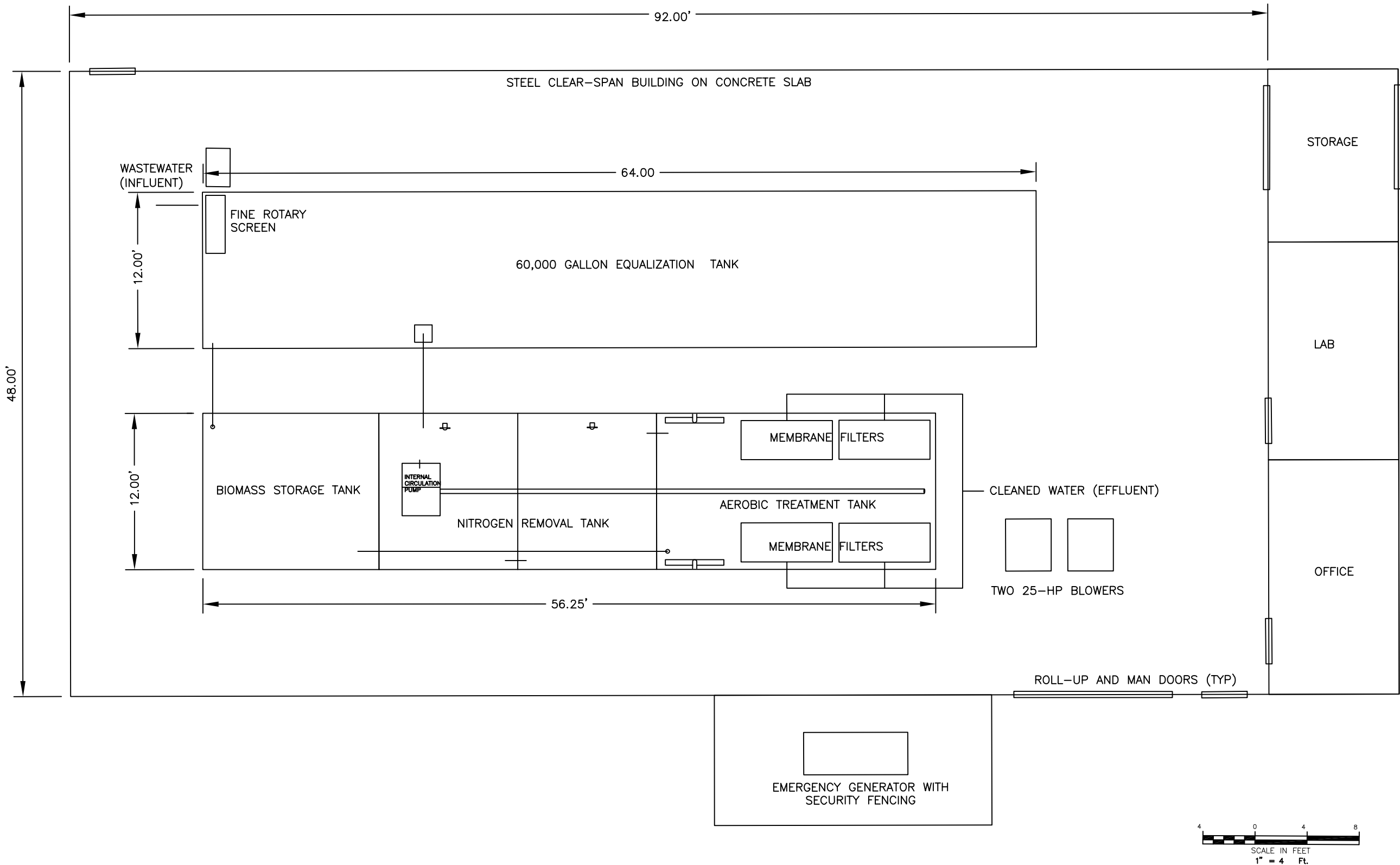
PROJECT 4154.51	DATE JUNE 2019
DRAWN BY JSK	CHECKED BY DC

**CAMPGROUND
SUBSURFACE
DISPOSAL LAYOUT**

SHEET NO.

1 OF **3**

08-01-17 Kayne \4154\dwg\4154_51\4154.51 DESIGN - TREATMENT BUILDING LAYOUT (CAMPGROUND).dwg TAB: TREAT BLDG DETAIL



**ANDERSON VALLEY
COMMUNITY
SERVICES DISTRICT**
WW TREATMENT SYSTEM

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05/14/2019

REVISIONS		
NO.	DATE	DESCRIPTION

ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.



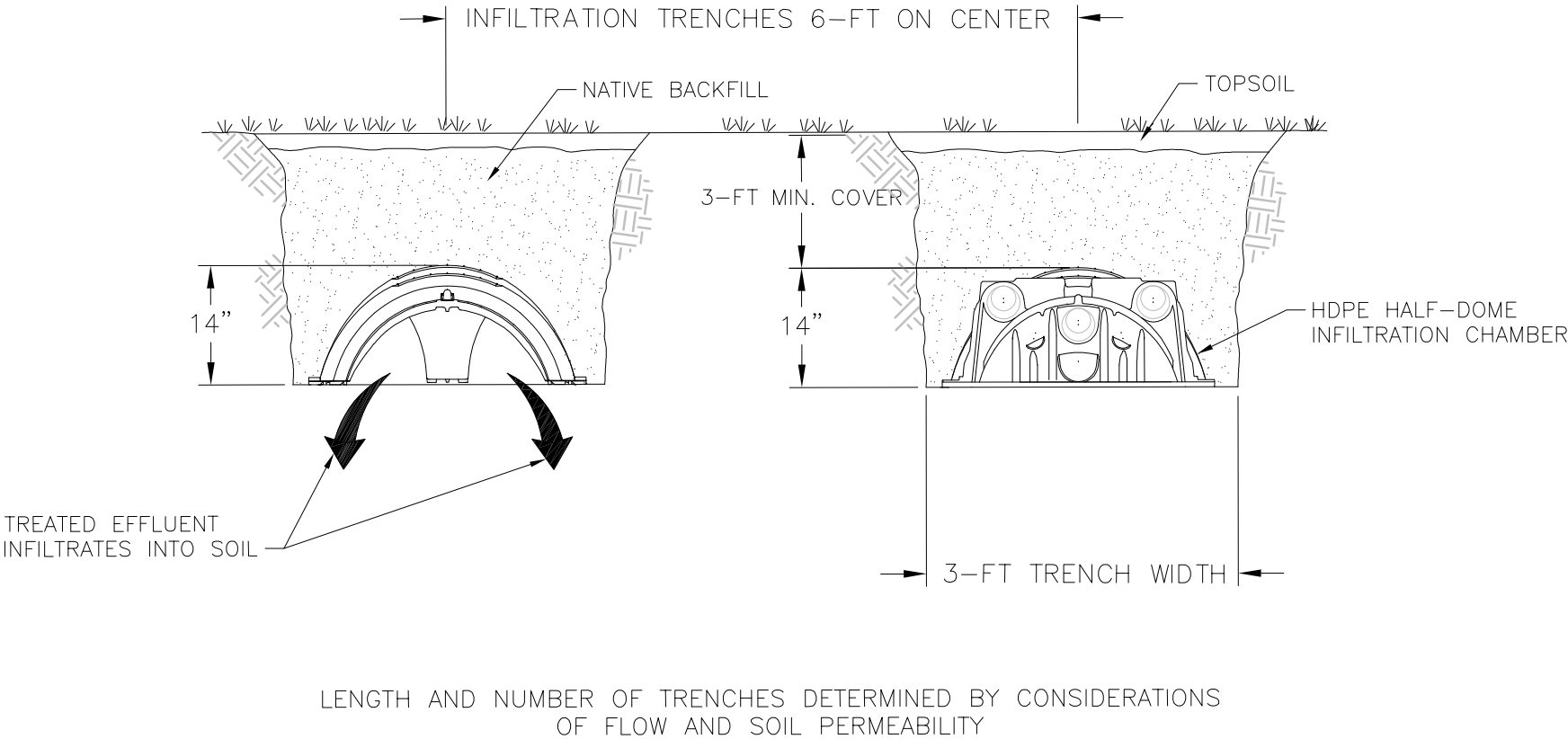
PROJECT 4154.51	DATE JUNE 2019
DRAWN BY JSK	CHECKED BY DC

**CONCEPTUAL
TREATMENT SYSTEM
BUILDING LAYOUT**

SHEET NO.
2 OF **3**

08-01-17 Kayne \4154\dwg\4154 51\4154.51 DESIGN - TREATMENT BUILDING LAYOUT (CAMPGROUND).dwg TAB: CHAMBER X-SEC

EXFILTRATION SYSTEM
TYPICAL TRENCH DETAIL
SECTION VIEW
(NOT TO SCALE)



Brelje & Race
CONSULTING ENGINEERS
475 Aviation Boulevard, Suite 120
Santa Rosa, CA 95403
v: 707-576-1322
f: 707-576-0469
www.brce.com



ANDERSON VALLEY
COMMUNITY
SERVICES DISTRICT
WW TREATMENT SYSTEM

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05/14/2019

REVISIONS		
NO.	DATE	DESCRIPTION

ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.



PROJECT 4154.51	DATE JUNE 2019
DRAWN BY JSK	CHECKED BY DC

SUBSURFACE
INFILTRATION
CHAMBERS
X-SECTION

SHEET NO.
3 OF **3**