



Water Protection Bureau  
 P.O. Box 200901  
 Helena, MT 59620-0901

## PERMIT FACT SHEET

### MONTANA GROUND WATER POLLUTION CONTROL SYSTEM (MGWPCS)

Permittee:	Montana Innovations, LLC
Permit Number:	MTX000232
Permit Type:	Domestic wastewater
Application Type:	Renewal
Facility Name:	Belgrade #4 Truck Stop and Convenience Store Wastewater Facility Town Pump - Belgrade
Facility Location:	Southeast ¼ of Section 2, Township 1 South, Range 4 East, Gallatin County Latitude: 45.77382°, Longitude: -111.19897°
Facility Address:	Intersection of Interstate 90 Exit 298 and Amsterdam Road, Belgrade, MT
Facility Contact:	Thomas Kenneally, Manager
Treatment Type:	Level 2
Receiving Water:	Class I Ground Water
Number of Outfalls:	1
Outfall / Type:	001 / subsurface pressurized drainfield
Effluent Type:	Domestic strength wastewater
Mixing Zone:	Department modified
Effluent Limit Type:	WQBEL
Effluent Limits:	Total nitrogen: 3.7 lbs/day
Flow Rate:	Design maximum: 7900 gpd Average flow: 2637 gpd (2014 – 2019), 2860 (2018), 2990 (2017)
Effluent sampling:	Quarterly, dose tank
Ground water sampling:	Quarterly, MW-1, MW-3
Fact Sheet Date:	June 2019
Prepared By:	Darryl Barton

## 1.0 PERMIT INFORMATION

DEQ issues MGWPCS permits for a period of five years. The permit may be reissued at the end of the period, subject to reevaluation of the receiving water quality and permit limitations. This fact sheet provides the basis for DEQ's decision to renew a MGWPCS wastewater discharge permit to Montana Innovations, LLC (applicant) for the Belgrade #4 Truck Stop and Convenience Store Wastewater Facility (Town Pump – Belgrade).

### 1.1 APPLICATION

DEQ received an application for renewal of the permit on November 2, 2018. Renewal fees were received December 5, 2018. DEQ reviewed the submittal and issued a completeness letter on December 14, 2018.

### 1.2 PERMIT HISTORY

The original permit became effective May 1, 2014. This is the first renewal of the permit. Effluent limitation was set for Total Nitrogen at 4.6 lbs/day.

### 1.3 CHANGES TO THIS PERMIT

Effluent limitation has been changed based on updated ambient groundwater data. Effluent limitation based on updated groundwater data is 3.7 lbs/day Total Nitrogen.

Groundwater monitoring is crucial to ensuring that the wastewater system is functioning properly and not having a negative impact on groundwater health. Groundwater monitoring has been added to this permit.

## 2.0 FACILITY INFORMATION

### 2.1 LOCATION

The Town Pump - Belgrade is located just off Interstate 90 at Exit 298 about one mile west of Belgrade. The property sits at the intersection of I-90 and Amsterdam Road (**Figure 1**). **Figure 1** is a map of the location of the store in relation to Belgrade and its place in Montana. **Figure 2a** shows the entire property with location of the store and components of the wastewater system. **Figure 2b** is an aerial photograph which concentrates on the wastewater system.

### 2.2 COMPLIANCE

DEQ conducted a compliance evaluation inspection (CEI) on November 16, 2017. Physical facilities were evaluated, and records reviewed. There were no findings of deficiency in the physical facilities. There were, however, violations noted in the records as several DMRs were submitted late from 2014 – 2016.

There have been no violations due to water quality effluent limit exceedance for the duration of the permit. The effluent limit for Total Nitrogen was set at 4.6 lbs/day. Discharge of Total Nitrogen averaged 0.68 lbs/day from 2014 – 2018, 0.67 lbs/day 2018, and 0.92 lbs/day 2017.

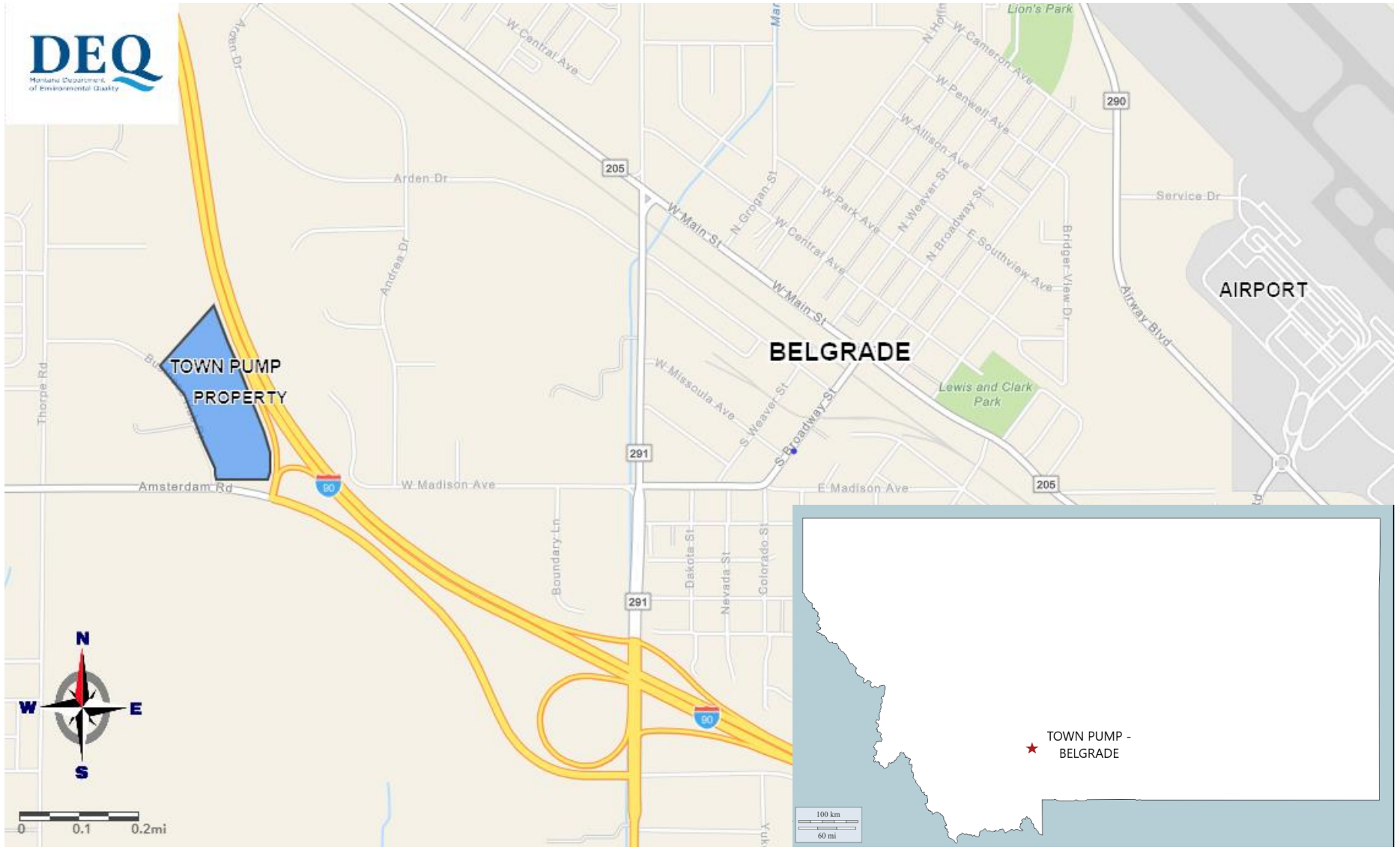


Figure 1. Location of the TOWN PUMP - BELGRADE

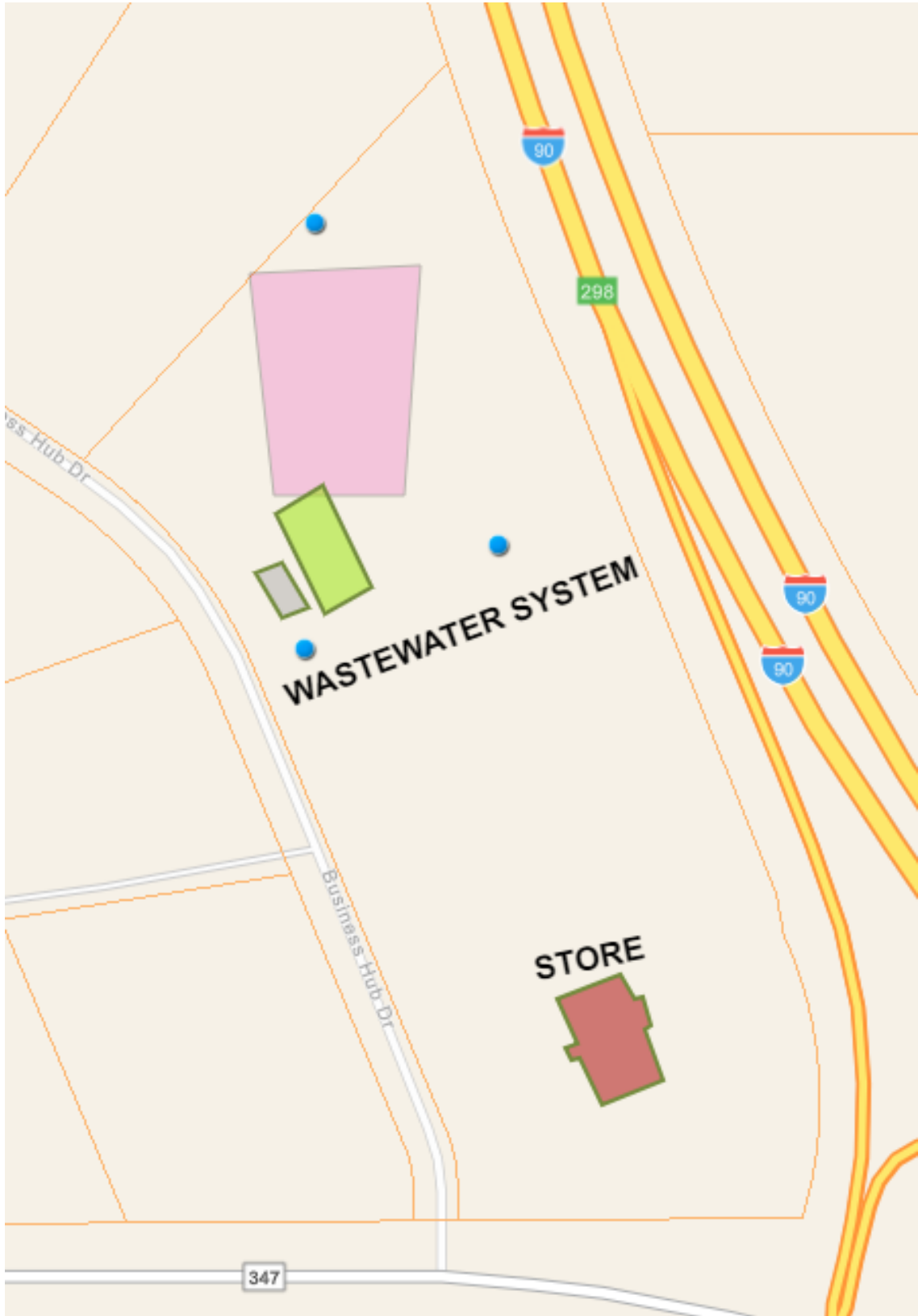


Figure 2a. TOWN PUMP – BELGRADE Store & Wastewater System Map



Figure 2b. TOWN PUMP – BELGRADE Wastewater System Aerial Photograph Map



### 2.3 OPERATIONS

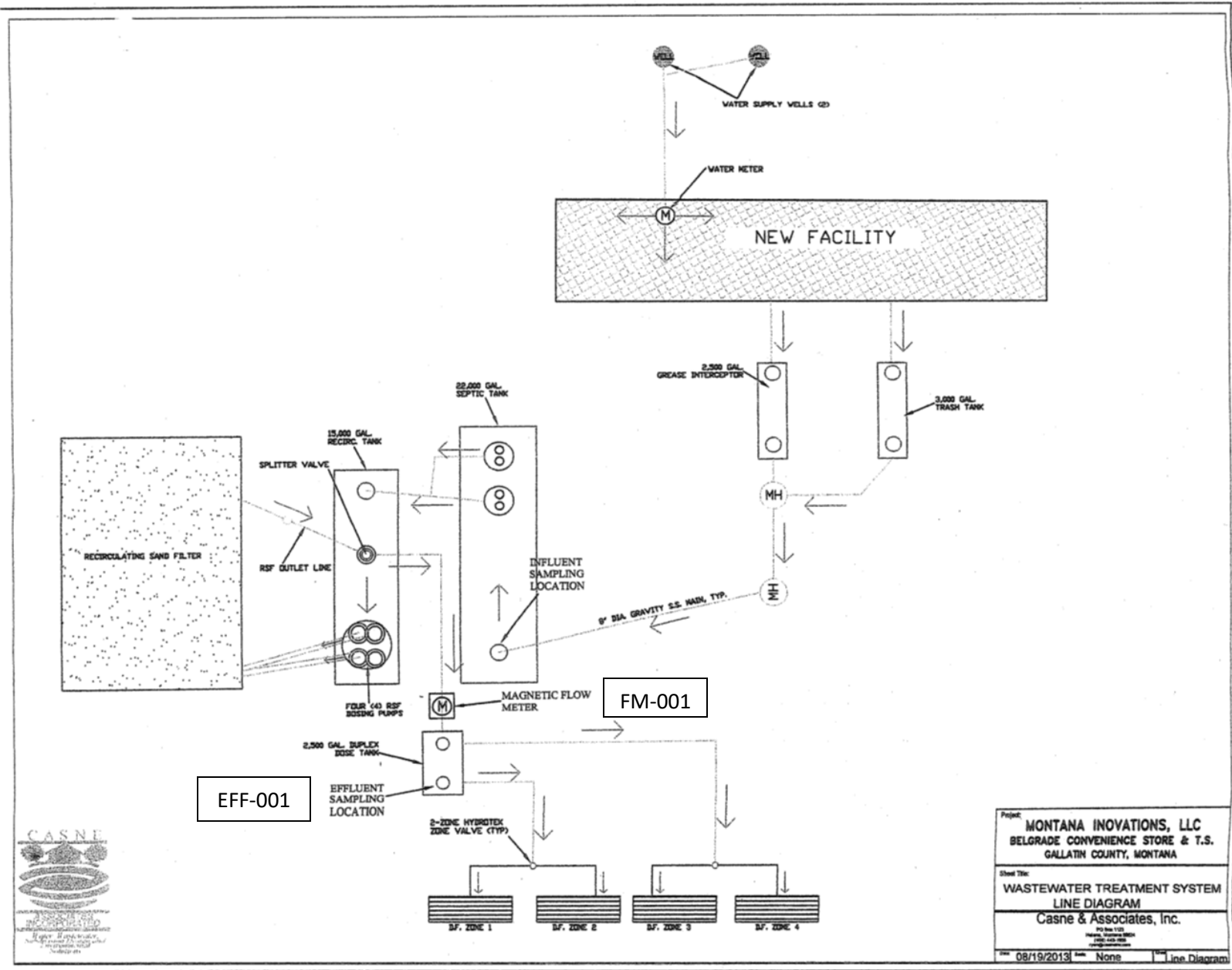
System operations are summarized in **Table 1**.

<b>Table 1: Collection, Treatment, and Disposal System Summary</b>	
<b>Inflows</b>	
Contributing Sources of Wastewater: Commercial In-Nature Standard Industrial Code(s) (SIC) of sources: 5499 - Misc. Food Stores; 5541 - Gasoline Service Station The number of connected residences: 0 The number of connected business: 1	
<b>Treatment</b>	
Trash, grease and septic tanks, recirculating sand filter	
Treatment Level: Level II	
Location: Latitude: 45.77543°, Longitude: – 111.20073°	
<b>Disposal System</b>	
Disposal Structure: Outfall 001	
Method of Disposal: Pressure-dosed drainfield - Infiltration to ground water	
Location: Latitude: 45.77547°, Longitude: – 111.20042°	
Average Daily Design Flow (gpd): 2662 gpd                      Daily Maximum Design Flow (gpd): 7900 gpd	
Effluent Sampling Location: EFF-001: Dose tank	
Flow Monitoring Equipment, FM-001: Master Meter Octave flow meter, between recirculation tank & dose tank.	

There are two sewer lines that collect wastewater from the facility; one sewer line flows to a 3,000-gallon trash tank; the second sewer line flows to a 2,500-gallon grease interceptor. The two lines combine, and gravity feed all wastewater to a 23,000-gallon septic tank for primary treatment. The wastewater then undergoes secondary treatment in a recirculating sand filter (RSF). A 15,000-gallon recirculation tank directs wastewater flow through the RSF and a 3,000-gallon dose tank discharges the effluent to a four-zone pressurized subsurface drainfield (Outfall 001). A Master Meter Octave ultrasonic flow meter is used to measure effluent flow rates between the recirculation tank and the drainfield dose tank. Quarterly effluent samples are collected from the dose tank. Routine maintenance includes monthly pumping of the trash tank and grease interceptor.

Monitoring and sampling requirements are further discussed in **Section 6**.

**Figure 3** is a line drawing of the collection, treatment, and disposal process.



Project:	MONTANA INOVATIONS, LLC BELGRADE CONVENIENCE STORE & T.S. GALLATIN COUNTY, MONTANA
Sheet Title:	WASTEWATER TREATMENT SYSTEM LINE DIAGRAM
	Casne & Associates, Inc.
Date:	08/19/2013
Scale:	None
Sheet Type:	Line Diagram

Figure 3. Wastewater Treatment System Line Diagram

## 2.4 EFFLUENT CHARACTERISTICS

DEQ requires a permit applicant to disclose the quality of the effluent so that DEQ may evaluate the potential for pollution of state water. During the previous permit cycle, the facility sampled and reported effluent quality criteria to DEQ in the form of discharge monitoring reports (DMRs). These data are summarized in **Table 2**. Most concentrations are reported in units of milligrams per liter (mg/L), which is equivalent to one part per million.

<b>Table 2: Effluent Quality – Outfall 001 (per DMR)</b>							
<b>Parameter<sup>(1)</sup></b>	<b>Location</b>	<b>Units</b>	<b>Reported Minimum Value</b>	<b>Reported Average Value</b>	<b>Reported Maximum<sup>(2)</sup> Value</b>	<b># of Samples</b>	<b>2014 Permit Limit</b>
Biochemical Oxygen Demand (BOD <sub>5</sub> )	EFF-001	mg/L	3.0	5.5	23.0	19	
Flow rate, Discharge	FM-001	gpd	596.0	2636.5	4253.3	19	
Nitrite + nitrate, Total (as N)	EFF-001	mg/L	0.02	24.8	54.0	19	
Nitrogen, Total Ammonia (as N)	EFF-001	mg/L	0.37	4.2	21.0	19	
Nitrogen, Total Kjeldahl (as N)	EFF-001	mg/L	1.8	5.9	21.1	19	
Nitrogen, Total (as N)	EFF-001	mg/L	11.7	32.5	58.5	19	
		lbs/day	0.11	0.68	1.49	19	4.6
Total Suspended Solids (TSS)	EFF-001	mg/L	10.0	14.6	26.0	5	

Footnotes:  
 DMR = Self-Reported Discharge Monitoring Reports  
 EFF-001: Effluent sample site located at dose tank  
 FM-001 = Effluent flow meter located between the recirculation tank and dose tank  
 Period of Record: September 2014 through March 2019  
 (1) Conventional and nonconventional pollutants only, table does not include all possible toxics.  
 (2) Maximum value recorded of all quarterly reported Daily Maximum Values.

## 2.5 GEOLOGY

The Natural Resources Conservation Service (NRCS) Soil Survey indicates the wastewater system site falls in the Beaverell - Beavwan complex (NRCS 2019 Soil Map: **Appendix C**). Slopes range from 0 – 2%. Depth to a restrictive feature is more than 80-inches. Test pits on this site showed gravelly sandy loam to cobbly sand with gravel and cobble concentration increasing with depth. These soils drain well and contain components that provide adequate filtration of wastewater.

Beaverell - Beavwan complex typical soil profile:

- A – 0 to 7 inches: cobbly loam
- B – 7 to 20 inches: very cobbly clay loam
- 2Bk1 – 20 to 24 inches: extremely cobbly coarse sandy loam
- 2Bk2 – 24 to 60 inches: extremely cobbly loamy coarse sand

## 2.6 HYDROGEOLOGY

The Gallatin Valley is an intermontane basin drained by the Gallatin River and its tributaries. The Belgrade subarea consists of alluvium covering Tertiary strata. Cobbles and coarse gravel mix with sand, silt, and clay to



compose the overlying alluvium. Near Belgrade the alluvium reaches depths to 400-feet. In general, the alluvium is characterized as permeable and homogenous.

The initial application reported a hydraulic gradient of 0.00876 ft/ft with ground water flowing due North. Casne & Associates calculated an average hydraulic conductivity of 292 ft/day using Razack and Huntley equation and well data from 11 nearby wells within Montana Bureau of Mines and Geology Ground Water Information Center.

Minimum depth to ground water is 26 feet below ground surface (ft-bgs) with an average of 53 ft-bgs and a maximum value of 80 ft-bgs. In total 11 test pits, with total depths 6 to 8 feet, excavated during the system design exposed no bedrock or limiting layer. Well logs from the area documented no bedrock at depths up to 173 ft-bgs. NRCS soil report notes that depth to water table is more than 80 inches.

Important hydrogeologic characteristics are summarized in **Table 3**.

**Table 3. Hydrogeologic Summary**

Average depth to ground water	53 feet
General ground water flow direction	North
Hydraulic conductivity	292 feet per day
Hydraulic gradient	0.00876 ft/ft
Nearest downgradient surface water	Story Creek tributary (1,150 feet)

## 2.7 GROUND WATER MONITORING WELLS

There are 3 monitoring wells associated with this permit: MW-1, MW-2 and MW-3. These wells are plotted on **Figure 2b**. Monitoring well details are provided in **Table 4**. Driller's logs are attached as **Appendix A**.

**Table 4: Monitoring Well Summary**

Monitoring Well: MW-1
MBMG GWIC #: 275931
Status: Active. Constructed on 11/18/2013
Location: 50-feet south of the RSF and drainfield. Latitude: 45.77519° Longitude: -111.20063°
Representation: Ambient quality of the shallow receiving ground water, upgradient of Outfall 001.
Monitoring Well: MW-2
MBMG GWIC #: 275940
Status: Active. Constructed on 11/19/2013
Location: 200-feet east of the drainfield just north of the parking lot Latitude: 45.77556° Longitude: -111.19960°
Representation: Ground water quality side gradient of Outfall 001.
Monitoring Well: MW-3
MBMG GWIC #: 275998
Status: Active. Constructed on 11/22/2013
Location: North boundary of property about 300-feet north of the drainfield Latitude: 45.77673° Longitude: - 111.20058°
Representation: Ground water downstream of mixing zone for Outfall 001.

If a DEQ-approved monitoring well is abandoned, destroyed or decommissioned, or is no longer able to be sampled due to fluctuations in the ground water table, the permittee must install or designate a new well to replace the abandoned, destroyed, decommissioned, or non-viable well.

### 2.8 GROUND WATER QUALITY CHARACTERISTICS

Water sampling results from MW-1 are provided in **Table 5**. Based on the **432 microsiemens per centimeter (µS/cm)** specific conductance, the receiving water is **Class I** ground water. Data reported in the table is taken from the renewal application.

<b>Table 5: Ground Water Monitoring Results</b>								
<b>Monitor Source<sup>(1)</sup></b>	<b>Representation</b>	<b>Parameter</b>	<b>Units</b>	<b>Reported Minimum Value</b>	<b>Reported Average Value</b>	<b>Reported Maximum<sup>(2)</sup> Value</b>	<b># of Samples</b>	<b>Source of Data</b>
MW1	Ambient Ground Water Quality	Chloride (as Cl)	mg/L	8	8	8	1	APP
		<i>Escherichia coli</i> Bacteria	CFU/100 ml	<1	<1	<1	1	APP
	Shallow ground water, 150 feet upgradient from Outfall 001	Nitrogen, Nitrate + Nitrite (as N)	mg/L	1.61	1.61	1.61	1	APP
		Nitrogen, Total Kjeldahl (as N)	mg/L	<0.5	<0.5	<0.5	1	APP
		Organic Carbon	mg/L	1	1	1	1	APP
		pH	s.u.	7.8	7.8	7.8	1	APP
		Specific Conductivity (@ 25°C)	µS/cm	432	432	432	1	APP
Total Dissolved Solids (TDS)	mg/L	260	260	260	1	APP		

APP = Application Form GW-2 and supplemental materials.  
 CFU = Colony Forming Units  
 Sampling Date: 9/18/2018  
 s.u. = standard units  
 (1) Refer to the Fact Sheet (Figure 2b and Table 4) for the location of the monitoring well.  
 (2) Maximum value recorded of all monthly or quarterly reported values.

### 3.0 WATER QUALITY STANDARDS AND NONDEGRADATION

Part of DEQ’s mission is to protect, sustain, and improve the quality of state waters. Water quality standards provide the basis for effluent limits that DEQ applies to discharge permits (**Section 5**). These standards include three components: designated uses, water quality criteria, and nondegradation policy. DEQ protects all designated uses of state water by basing effluent limits on the most restrictive water quality limitations, intended to protect the most sensitive uses.

#### 3.1 DESIGNATED USES

With a specific conductivity of 432 µS/cm (**Table 5**), the receiving water is Class I ground water and therefore a high-quality water of the State. Class I ground waters must be maintained suitable for the following uses with little or no treatment:

- Public and private drinking water supplies
- Culinary and food processing purposes
- Irrigation

- Drinking water for livestock and wildlife
- Commercial and industrial purposes

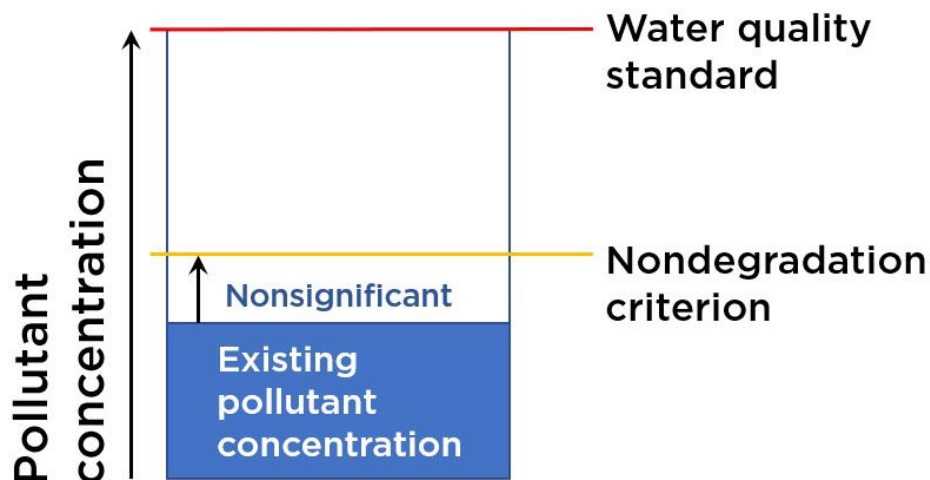
DEQ protects all the assigned beneficial uses by protecting the most sensitive. Drinking water is the most sensitive use of this receiving water.

### 3.2 WATER QUALITY CRITERIA

DEQ's ground water standard for nitrate is 10.0 mg/L, as is the standard for nitrate + nitrite (as nitrogen). Class I ground water must be maintained suitable for use as a drinking water supply with little or no treatment, and therefore must meet the corresponding human health standard of 10.0 mg/L total nitrogen. These water quality standards may not be exceeded outside a designated mixing zone (**Section 4**).

### 3.3 NONDEGRADATION

Montana's nondegradation policy is intended to preserve the existing condition of high-quality state waters. Any water whose existing condition is better than the water quality standards must be maintained in that high quality. Nondegradation policy allows discharges to cause only nonsignificant changes in water quality. Changes in water quality that are deemed significant require an authorization to degrade. An authorization to degrade is not an authorization to pollute; the water quality standard must not be exceeded.



DEQ must determine whether the proposed discharge will result in significant changes in water quality.

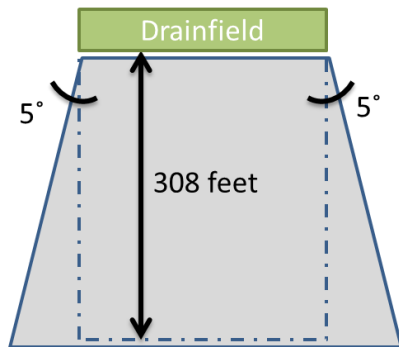
### 3.4 NONSIGNIFICANCE

When developing the previous permit (2014), DEQ determined that discharges in compliance with this permit result in nonsignificant changes in water quality. This discharge has not increased or changed in character since this determination, therefore DEQ did not perform a new significance determination for this permit renewal. DEQ determined that the discharge continues to meet ground water nonsignificance/nondegradation criteria at the end of the mixing zone (**Section 4**). DEQ used these criteria and updated ground water quality data to establish effluent limits (**Section 5**).

### 4.0 MIXING ZONE

DEQ authorizes a mixing zone for total nitrogen discharged from Outfall 001. A mixing zone is a specifically defined area of the receiving water where water quality standards may be exceeded. DEQ evaluates the suitability according to criteria established in the Administrative Rules of Montana.

A modified mixing zone extends 308-feet downgradient from the source. The upgradient boundary is equal to the width of the source (measured perpendicular to the of ground water flow direction). The mixing zone widens in the downgradient direction by 5° on either side. The width of the downgradient boundary is calculated by adding the increased width for each side (the tangent of 5° (0.0875) times the mixing zone length) to the width of the upgradient boundary. Standard mixing zones extend 15 feet below the ground water table.



The volume of ground water ( $Q_{GW}$ ) available to mix with the effluent is calculated using Darcy’s Equation:  $Q_{GW} = KIA$ .

Where:

- $Q_{GW}$  = ground water flow volume (feet<sup>3</sup>/day)
- K = hydraulic conductivity (feet/day)
- I = hydraulic gradient (feet/feet)
- A = cross-sectional area (feet<sup>2</sup>) at the downgradient boundary of the mixing zone.

**Table 6** summarizes the variables used in Darcy’s equation and the resulting volume of ground water available to mix at Outfall 001. These values are drawn from the previous fact sheet, and current permit application.

<b>Table 6: Hydrogeologic and Mixing Zone Information - Outfall 001</b>		
<b>Parameter</b>	<b>Units</b>	<b>Value</b>
Mixing Zone Type	-	Modified
Authorized Parameters	-	Total Nitrogen
Ambient Ground Water Concentrations, Nitrate + Nitrite	mg/L	1.61
Ground Water Flow Direction	azimuth/bearing	North
Length of Mixing Zone	feet	308
Thickness of Mixing Zone	feet	15
Outfall Width, Perpendicular to Ground Water Flow Direction	feet	176
Width of Mixing Zone at Down Gradient Boundary	feet	229.9
Cross Sectional Area of Mixing Zone (A)	ft <sup>2</sup>	3448.5
Hydraulic Conductivity (K)	feet/day	292
Hydraulic Gradient (I)	ft/ft	0.00876
Volume of Ground Water Available for Mixing ( $Q_{gw}$ )	ft <sup>3</sup> /day	8,821

In order to determine whether a mixing zone is allowable, DEQ calculates a predicted concentration at the downgradient end of the mixing zone. This mixing calculation follows the following procedure:

- Volume of ground water times the concentration of the parameter = existing load;
- Volume of discharge times the concentration of the parameter = waste load; and
- (Existing load + waste load) / total volume = predicted concentration.

DEQ calculates water quality based effluent limits (WQBELs) by rearranging the equation and solving for the effluent concentration (**Section 5**).

## 5.0 PERMIT CONDITIONS

Discharge permits include conditions that ensure compliance with the Montana Water Quality Act and the regulations used to implement it. These conditions include effluent limits as well as any special conditions that DEQ deems necessary to protect the quality of the receiving water.

Montana’s numeric water quality standards are published in Circular DEQ-7. Water quality criteria applicable to this permit are summarized in **Table 7**. The permit establishes effluent limits that will meet water quality standards and nondegradation criteria, thereby protecting beneficial uses and existing high-quality waters. The most restrictive criteria in **Table 7** provide the basis for the effluent limits.

**Table 7. Applicable Ground Water Quality Criteria**

Parameter	Human Health Standard	Beneficial Use Support	Nondegradation Criteria
Nitrate plus nitrite (as Nitrogen[N])	10 mg/L	-	-
Total Nitrogen	-	10 mg/L	<b>7.5 mg/L</b>
Total Phosphorus	-	-	<b>&gt;50 year breakthrough</b>

This discharge permit includes numeric WQBELs that restrict the strength and volume of the discharge. DEQ calculates WQBELs by rearranging the mixing zone equation (**Section 4**) and solving for the effluent concentration that satisfies the water quality criteria. DEQ evaluates and recalculates the limits using updated water quality data as part of every permit renewal cycle. In this way, DEQ protects the receiving water quality by continually assessing cumulative impacts to the receiving water.

### 5.1 TOTAL NITROGEN EFFLUENT LIMIT

7.5 mg/L is the water quality criteria applicable to this permit. DEQ established the final WQBEL for this discharge by back-calculating the effluent concentration that results in 7.5 mg/L at the end of the mixing zone, given the available dilution. Available dilution is determined by recent ground water quality sampling of the receiving water. Ambient total nitrogen averaged 1.61 mg/L (**Section 2**). DEQ calculates an effluent limit according to the following equation, which has been rearranged to determine the allowable discharge expressed as a load:

$$L_{EFF} = [C_{STD}(Q_{GW} + Q_{EFF})]X - C_{AMB}Q_{GW}X$$

Where:

$L_{EFF}$  = daily maximum load (lbs/day)

$C_{STD}$  = most stringent applicable ground water quality standard (mg/L)

$C_{AMB}$  = ambient ground water concentration (mg/L) of nitrate + nitrite (as N)

$Q_{GW}$  = ground water volume (gpd) available for mixing at the end of the mixing zone

$Q_{EFF}$  = volume of effluent (gpd)

$X$  =  $8.34 \times 10^{-6}$ , the conversion factor that converts concentration (mg/L) and flow (gpd) into load (lbs/day)

$L_{EFF}$  = **3.7 lbs/day**

Using the values provided in **Table 6**, the result for  $L_{EFF}$  is **3.7 pounds per day**.

The limit calculations are provided in detail in **Appendix B**.

## 5.2 TOTAL PHOSPHORUS EFFLUENT LIMIT

DEQ previously determined in 2014 that phosphorous discharged to ground water would reach the surface water Story Creek in “excess of 1000 years”. A phosphorous breakthrough time of more than 50 years is considered nonsignificant. A phosphorus effluent limit is not necessary.

Based on the information and analyses presented, DEQ proposes the following numerical effluent limitations:

<b>Table 8: Final Effluent Limits – Outfall 001</b>		
<b>Parameter</b>	<b>Units</b>	<b>Daily Maximum<sup>(1)</sup></b>
Total Nitrogen (as N)	lbs/day	3.7
Footnotes:		
(1) See definition in Part V of permit.		

## 6.0 MONITORING AND REPORTING REQUIREMENTS

DEQ requires effluent and ground water monitoring to assure compliance with the effluent limitations and therefore water quality standards. Effluent monitoring and ground water monitoring is required as a condition of this permit. All monitoring and sampling required by this permit must be representative; therefore, the permit identifies specific monitoring locations.

### 6.1 EFFLUENT MONITORING

This permit includes numeric effluent limitations with specific magnitudes and durations to ensure the discharge will not cause or contribute to an exceedance of an applicable water quality standard (see **Section 3**).

Accordingly, the permittee is required to monitor and report at a specified frequency in order to demonstrate compliance with these limitations.

Effluent samples and discharge flow measurements must be representative of the nature and volume of the effluent. The effluent sample location (EFF-001) is located at the dose tank as shown in **Figure 3**. The permittee is required to install, maintain and report flow measurements using a flow-measuring device capable of



measurements that are within 10 percent of the actual flow. The flow measuring device (FM-001) is located before the dose tank (**Figure 3**). The flow measuring device must be in operating condition prior to discharge.

Effluent monitoring and reporting requirements are summarized in **Table 9**. All analytical methods must be in accordance with the Code of Federal Regulations, 40 CFR Part 136 for each monitored parameter.

<b>Table 9: Effluent Monitoring and Reporting Requirements</b>							
<b>Parameter</b>	<b>Monitoring Location</b>	<b>Units</b>	<b>Sample Type<sup>(1)(2)</sup></b>	<b>Minimum Sampling Frequency</b>	<b>Reporting Requirements<sup>(1)(3)</sup></b>	<b>Report Frequency</b>	<b>Rationale</b>
Flow Rate <sup>(4)(5)</sup>	Flow Meter	gpd	Continuous	Continuous	Daily Maximum & Quarterly Average	Quarterly	Permit Compliance/ Effluent Characterization
Biochemical Oxygen Demand (BOD <sub>5</sub> )	Dose tank	mg/L	Grab	1/Quarter	Quarterly Average	Quarterly	Proper O & M/ Effluent Characterization
Total Suspended Solids (TSS)	Dose tank	mg/L	Grab	1/Quarter	Quarterly Average	Quarterly	Proper O & M/ Effluent Characterization
Nitrate + Nitrite (as N)	Dose tank	mg/L	Grab	1/Quarter	Daily Maximum & Quarterly Average	Quarterly	Permit Compliance/ Proper O & M
Total Ammonia (as N)	Dose tank	mg/L	Grab	1/Quarter	Daily Maximum & Quarterly Average	Quarterly	Proper O & M
Total Kjeldahl Nitrogen (as N)	Dose tank	mg/L	Grab	1/Quarter	Daily Maximum & Quarterly Average	Quarterly	Permit Compliance
Total Nitrogen (N) <sup>(5)(6)</sup>	Dose tank	mg/L	Calculate	1/Quarter	Daily Maximum & Quarterly Average	Quarterly	Permit Compliance
		lbs/day <sup>(7)(8)</sup>	Calculate				

Footnotes:  
 (1) See definitions in Part V of the permit.  
 (2) Grab sample will represent concentration for a 24 hour period.  
 (3) Daily Maximum: Report highest measured daily value for the reporting period on Discharge Monitoring Report (DMR) form.  
 (4) If no discharge occurs throughout the reporting period, "No Discharge" shall be recorded on the DMR report form.  
 (5) Requires recording device or totalizing meter, must record daily effluent volume.  
 (6) Total Nitrogen is the sum of the Nitrate + Nitrite and Total Kjeldahl Nitrogen parameters.  
 (7) Load calculation: lbs/day = concentration (mg/L) x flow (gpd) x [8.34 x 10<sup>-6</sup>].  
 (8) Quarterly Average Load calculation: lbs/day = the average of all calculated individual daily average loads (lbs/day) recorded during the reporting period.

## 6.2 GROUND WATER MONITORING

A condition of this permit requires ground water monitoring to provide long term ambient and downgradient characterization of the aquifer. Ground water monitoring is required at monitoring wells MW-1 & MW-3. Data collected via ground water monitoring will be used for mixing zone evaluation, aquifer characterization in future permit renewals, and for compliance monitoring. Ground water monitoring and reporting requirements are summarized in **Table 10**. Sampling and reporting requirements begin on the effective date of the permit and continue through the duration of the permit. All analytical methods must be in accordance with the Code of Federal Regulations, 40 CFR Part 136 for each monitored parameter.

Ground water monitoring and reporting requirements are summarized in **Table 10**.

<b>Table 10: Ground Water Monitoring and Reporting Requirements</b>						
<b>Parameter<sup>(1)</sup></b>	<b>Monitoring Location</b>	<b>Units</b>	<b>Sample Type<sup>(2)</sup></b>	<b>Minimum Sampling Frequency</b>	<b>Reporting<sup>(2)(3)(4)</sup> Requirements</b>	<b>Reporting Frequency</b>
Chloride (as Cl)	MW-1, MW-3	mg/L	Grab	1/Quarter	Quarterly Average	Quarterly
Nitrate + Nitrite (as N)	MW-1, MW-3	mg/L	Grab	1/Quarter	Daily Maximum & Quarterly Average	Quarterly
Total Kjeldahl Nitrogen (as N)	MW-1, MW-3	mg/L	Grab	1/Quarter	Daily Maximum & Quarterly Average	Quarterly
Static Water Level (SWL) <sup>(5)</sup>	MW-1, MW-3	ft-bmp	Instantaneous	1/Quarter	Quarterly Average	Quarterly
Specific Conductivity @ 25°C	MW-1, MW-3	µS/cm	Instantaneous	1/Quarter	Quarterly Average	Quarterly

Footnotes:

CFU = Colony Forming Units  
 ft-bmp = feet below measuring point

At no time shall the permittee mark or state “no discharge” on any monitoring well DMR form.

(1) Parameter analytical methods shall be in accordance with the Code of Federal Regulations, 40 CFR Part 136

(2) See definitions in Part V of the permit.

(3) Daily Maximum: Report highest measured daily value for the reporting period on Discharge Monitoring Report (DMR) form.

(4) The geometric mean must be reported if multiple samples are taken during a reporting period.

(5) Measuring point for SWL measurements shall be from top of casing and measured to within 1/100th of one foot.

## PUBLIC NOTICE

Legal notice information for water quality discharge permits are listed at the following website: <http://deq.mt.gov/Public/notices/wqnotices>. Public comments on this proposal are invited any time prior to close of business on **September 11, 2019**. Comments may be directed to:

[DEQWPBPublicComments@mt.gov](mailto:DEQWPBPublicComments@mt.gov)

or to:

Montana Department of Environmental Quality  
Water Protection Bureau  
PO Box 200901  
Helena, MT 59620

All comments received or postmarked prior to the close of the public comment period will be considered in the formulation of the final permit. DEQ will respond to all substantive comments pertinent to this permitting action and may issue a final decision within thirty days of the close of the public comment period.

All persons, including the applicant, who believe any condition of the draft permit is inappropriate, or that DEQ's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period (including any public hearing). All public comments received for this draft permit will be included in the administrative record and will be available for public viewing during normal business hours.

Copies of the public notice are mailed to the applicant, state and federal agencies, and interested persons who have expressed interest in being notified of permit actions. A copy of the distribution list is available in the administrative record for this draft permit. Electronic copies of the public notice, draft permit, fact sheet, and draft environmental assessment are available at the following website: <http://deq.mt.gov/Public/notices/wqnotices>.

Any person interested in being placed on the mailing list for information regarding this permit may contact the DEQ Water Protection Bureau at (406) 444-5546 or email [DEQWPBPublicComments@mt.gov](mailto:DEQWPBPublicComments@mt.gov). All inquiries will need to reference the permit number (MTX000232), and include the following information: name, address, and phone number.

During the public comment period provided by the notice, DEQ will accept requests for a public hearing. A request for a public hearing must be in writing and must state the nature of the issue proposed to be raised in the hearing.

## **APPENDIX A – MONITORING WELL LOGS**

**MW - 1**

Site Name: TOWN PUMP, INC.  
 GWIC Id: 275931

**Section 1: Well Owner(s)**

1) TOWN PUMP, INC. (WELL)  
 N/A  
 BELGRADE MT 59714 [11/18/2013]

**Section 2: Location**

Township	Range	Section	Quarter Sections
01S	04E	2	NW¼ SW¼
County		Geocode	
GALLATIN			
Latitude	Longitude	Geomethod	Datum
45.77639	-111.19917	NAV-GPS	NAD83
Ground Surface Altitude	Ground Surface Method	Datum Date	
Addition	Block	Lot	

**Section 3: Proposed Use of Water**

MONITORING (1)

**Section 4: Type of Work**

Drilling Method: ROTARY  
 Status: NEW WELL

**Section 5: Well Completion Date**

Date well completed: Monday, November 18, 2013

**Section 6: Well Construction Details**

**Borehole dimensions**

From	To	Diameter
0	100	6

**Casing**

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	99	6	0.25		WELDED	A53B STEEL
0	100	4			SPLINE	PVC-SCHED 40

**Completion (Perf/Screen)**

From	To	Diameter	# of Openings	Size of Openings	Description
85	99	6	112	5/16"	HOLTE PERFORATOR SLOTS
85	100	4		.033 SLOT	SCREEN-CONTINUOUS-PVC

**Annular Space (Seal/Grout/Packer)**

From	To	Description	Cont. Fed?
0	30	BENTONITE	Y
84	85	SHALE CATCHER	

**Section 7: Well Test Data**

Total Depth: 100  
 Static Water Level: 75  
 Water Temperature:

**Air Test \***

10 gpm with drill stem set at 90 feet for    hours.  
 Time of recovery 1 hours.  
 Recovery water level 75 feet.  
 Pumping water level    feet.

\* During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.

**Section 8: Remarks**

**Section 9: Well Log**

**Geologic Source**

Unassigned

From	To	Description
0	2	TOPSOIL
2	40	GRAVEL AND COBBLES
40	100	TIGHT GRAVEL AND CLAY

**Driller Certification**

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

<b>Name:</b> BRITT LINDSAY
<b>Company:</b> LINDSAY DRILLING CO INC
<b>License No:</b> MWC-337
<b>Date</b> 11/18/2013
<b>Completed:</b>

**MW - 3**

Site Name: **TOWN PUMP, INC.**  
GWIC Id: **275998**

**Section 1: Well Owner(s)**

1) TOWN PUMP, INC. (WELL)  
N/A  
BELGRADE MT 59714 [11/22/2013]

**Section 2: Location**

Township	Range	Section	Quarter Sections
01S	04E	2	NW¼ SW¼
County			Geocode

Latitude	Longitude	Geomethod	Datum
45.776667	-111.200556	NAV-GPS	NAD83
Ground Surface Altitude	Ground Surface Method	Datum Date	

Addition	Block	Lot
----------	-------	-----

**Section 3: Proposed Use of Water**

MONITORING (1)

**Section 4: Type of Work**

Drilling Method: ROTARY  
Status: NEW WELL

**Section 5: Well Completion Date**

Date well completed: Friday, November 22, 2013

**Section 6: Well Construction Details**

**Borehole dimensions**

From	To	Diameter
0	40	8
40	100	6

**Casing**

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	99	6	0.25		WELDED	A53B STEEL
0	100	4			SPLINE	PVC-SCHED 40

**Completion (Perf/Screen)**

From	To	Diameter	# of Openings	Size of Openings	Description
85	99	6	112	5/16"	HOLTE PERFORATOR SLOTS
85	100	4		.033 SLOT	SCREEN-CONTINUOUS-PVC

**Annular Space (Seal/Grout/Packer)**

From	To	Description	Cont. Fed?
0	40	BENTONITE	Y
84	85	SHALE-CATCHER	

**Section 7: Well Test Data**

Total Depth: 100  
Static Water Level: 70  
Water Temperature:

**Air Test \***

20 gpm with drill stem set at 90 feet for   hours.  
Time of recovery 1 hours.  
Recovery water level 70 feet.  
Pumping water level   feet.

*\* During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

**Section 8: Remarks**

MONITORING WELL 3

**Section 9: Well Log**

**Geologic Source**

Unassigned

From	To	Description
0	2	TOPSOIL
2	60	GRAVEL AND COBBLES
60	100	CLAY AND TIGHT GRAVEL

**Driller Certification**

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

<b>Name:</b> BRITT LINDSAY
<b>Company:</b> LINDSAY DRILLING CO INC
<b>License No:</b> MWC-337
<b>Date:</b> 11/22/2013
<b>Completed:</b>



**MW- 2**

**Site Name: TOWN PUMP, INC.**  
**GWIC Id: 275940**

**Section 1: Well Owner(s)**

- 1) TOWN PUMP, INC. (WELL)  
N/A  
BELGRADE MT 59714 [11/19/2013]
- 2) TOWN PUMP, INC. (MAIL)  
600 S MAIN ST  
BUTTE MT 59701 [11/19/2013]

**Section 7: Well Test Data**

Total Depth: 100  
Static Water Level: 70  
Water Temperature:

**Air Test \***

15 gpm with drill stem set at 90 feet for   hours.  
Time of recovery 1 hours.  
Recovery water level 70 feet.  
Pumping water level   feet.

**Section 2: Location**

Township	Range	Section	Quarter Sections
01S	04E	2	NW¼ SW¼
County		Geocode	
GALLATIN			
Latitude	Longitude	Geomethod	Datum
45.775556	-111.199722	NAV-GPS	NAD83
Ground Surface Altitude	Ground Surface Method	Datum Date	

*\* During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Addition	Block	Lot

**Section 8: Remarks**

**Section 3: Proposed Use of Water**

MONITORING (1)

**Section 4: Type of Work**

Drilling Method: ROTARY  
Status: NEW WELL

**Section 5: Well Completion Date**

Date well completed: Tuesday, November 19, 2013

**Section 6: Well Construction Details**

**Borehole dimensions**

From	To	Diameter
0	40	8
40	100	6

**Casing**

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	99	6	0.25		WELDED	A53B STEEL
0	100	4			SPLINE	PVC-SCHED 40

**Section 9: Well Log**

**Geologic Source**  
Unassigned

From	To	Description
0	2	TOPSOIL
2	40	GRAVEL AND COBBLES
40	100	CLAY AND TIGHT GRAVEL

**Completion (Perf/Screen)**

From	To	Diameter	# of Openings	Size of Openings	Description
85	99	6	112	5/16"	HOLTE PERFORATOR SLOTS
85	100	4		.033 SLOT	SCREEN-CONTINUOUS-PVC

**Driller Certification**

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

<b>Name:</b> BRITT LINDSAY
<b>Company:</b> LINDSAY DRILLING CO INC
<b>License No:</b> MWC-337
<b>Date Completed:</b> 11/19/2013

**Annular Space (Seal/Grout/Packer)**

From	To	Description	Cont. Fed?
0	40	BENTONITE	Y
84	85	SHALE-CATCHER	

## APPENDIX B – EFFLUENT LIMIT CALCULATIONS

The system consists of a recirculating sand filter (RSF) system (Class 2 method for nitrogen treatment).

To protect beneficial uses [ARM 17.30.1006(1)(b)(ii)], there shall be no increase of a parameter to a level that renders the waters harmful, detrimental, or injurious to the beneficial uses. Therefore, no wastes may be discharged such that the waste either alone or in combination with other wastes will violate or can reasonably be expected to violate any standard. DEQ establishes the effluent limitations for nitrogen based on the projection that the entire nitrogen load in the wastewater stream may ultimately be converted to nitrate (USEPA, 2002a).

The allowable discharge concentrations are derived from a mass-balance equation (ARM 17.30.517) which is a simple steady-state model, used to determine concentration after accounting for other sources of pollution in the receiving water and any dilution as provided by a mixing zone. The mass-balance equation (Equation 1) derived for ground water is as follows:

7.5 mg/L is the most restrictive of the water quality criteria applicable to this permit; therefore, it is the water quality target for this effluent limit. DEQ established the final WQBEL for this discharge by back-calculating the effluent concentration that results in 7.5 mg/L at the end of the mixing zone, given the available dilution. Available dilution is determined by recent ground water quality sampling of the receiving water. Ambient total nitrogen averaged 1.61 mg/L (**Section 2**). DEQ calculates an effluent limit according to the following equation, which has been rearranged to determine the allowable discharge expressed as a load:

$$L_{EFF} = [C_{STD}(Q_{GW} + Q_{EFF})]X - C_{AMB}Q_{GW}X$$

Where:

$L_{EFF}$  = daily maximum load (lbs/day)

$C_{STD}$  = most stringent applicable ground water quality standard (mg/L) = **7.5 mg/L**

$C_{AMB}$  = ambient ground water concentration (mg/L) of nitrate + nitrite (as N) = **1.61 mg/L**

$Q_{GW}$  = ground water volume (gpd) available for mixing at the end of the mixing zone = **65,985 gpd**

$Q_{EFF}$  = volume of effluent (gpd) = **7900 gpd**

$X = 8.34 \times 10^{-6}$ , the conversion factor that converts concentration (mg/L) and flow (gpd) into load (lbs/day)

$$L_{EFF} = [7.5 (65,985 + 7900)] 8.34 \times 10^{-6} - (1.61 * 69,985 * 8.34 \times 10^{-6})$$

$L_{EFF} = 3.68 \text{ lbs/day}$

The Final Effluent Limits are summarized in **Table 8** for Outfall 001.

## APPENDIX C – SOILS INFORMATION



Soils map Town Pump – Belgrade MTX000232.

Source: NRCS 2019. National Cooperative Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.

Map Unit Legend			
Gallatin County Area, Montana (MT622)			
Gallatin County Area, Montana (MT622)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
43A	Beavwan loam, 0 to 2 percent slopes	49.8	33.9%
741A	Beaverell-Beavwan complex, 0 to 2 percent slopes	96.9	66.1%
<b>Totals for Area of Interest</b>		<b>146.6</b>	<b>100.0%</b>

**Report – Map Unit Description****Gallatin County Area, Montana****741A—Beaverell-Beavwan complex, 0 to 2 percent slopes****Map Unit Setting**

*National map unit symbol: 570q*  
*Elevation: 4,100 to 5,000 feet*  
*Mean annual precipitation: 10 to 14 inches*  
*Mean annual air temperature: 37 to 45 degrees F*  
*Frost-free period: 95 to 115 days*  
*Farmland classification: Farmland of local importance*

**Map Unit Composition**

*Beaverell and similar soils: 55 percent*  
*Beavwan and similar soils: 30 percent*  
*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Beaverell****Setting**

*Landform: Stream terraces*  
*Down-slope shape: Linear*  
*Across-slope shape: Linear*  
*Parent material: Alluvium*

**Typical profile**

*A - 0 to 7 inches: cobbly loam*  
*B - 7 to 20 inches: very cobbly clay loam*  
*2Bk1 - 20 to 24 inches: extremely cobbly coarse sandy loam*  
*2Bk2 - 24 to 60 inches: extremely cobbly loamy coarse sand*

**Properties and qualities**

*Slope: 0 to 2 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Natural drainage class: Well drained*  
*Capacity of the most limiting layer to transmit water (Ksat):*  
*Moderately high to high (0.57 to 1.98 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum in profile: 15 percent*  
*Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*  
*Available water storage in profile: Low (about 3.2 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 6e*  
*Land capability classification (nonirrigated): 6s*  
*Hydrologic Soil Group: B*  
*Ecological site: Shallow to Gravel (SwGr) 9-14" p.z. (R044XS338MT), Upland Grassland (R044BP818MT)*  
*Hydric soil rating: No*

## APPENDIX D – REFERENCES

40 CFR § 136 – Guidelines Establishing Test Procedures for the Analysis of Pollutants. 2017.

Administrative Rules of Montana, Title 17, Chapter 30, Water Quality:

- Subchapter 2 – Water Quality Permit Fees.
- Subchapter 5 – Mixing Zones in Surface and Ground Water.
- Subchapter 6 – Surface Water Quality Standards and Procedures.
- Subchapter 7 – Nondegradation of Water Quality.
- Subchapter 10 – Montana Ground Water Pollution Control System.
- Subchapter 13 – Montana Pollutant Discharge Elimination System.

Brady, N.C. and R. R. Weil. 2004. Elements of the Nature and Properties of Soils 2<sup>nd</sup> Edition. Prentice Hall. Upper Saddle River, NJ.

Cherry, J.A. and Freeze, R. A., 1979. Groundwater, Prentice-Hall Inc., Englewood Cliffs, J.J.

Department of Environmental Quality. 2014. Administrative Record of Montana Ground Water Pollution Control System (MGWPCS) permit application and supplemental materials, Montana Innovations, LLC, Belgrade #4 Truck Stop and Convenience Store Wastewater Facility (Town Pump – Belgrade) MTX000232.

Department of Environmental Quality. 2018. Administrative Record of Montana Ground Water Pollution Control System (MGWPCS) permit application and supplemental materials, Montana Innovations, LLC, Belgrade #4 Truck Stop and Convenience Store Wastewater Facility (Town Pump – Belgrade) MTX000232.

Department of Environmental Quality. 2018. Completeness Letter for , Montana Innovations, LLC, Belgrade #4 Truck Stop and Convenience Store Wastewater Facility (Town Pump – Belgrade) MTX000232. D. Barton. December 14, 2018.

Department of Environmental Quality, Water Quality Circulars:

- Circular DEQ-2 – Design Standards for Wastewater Facilities.
- Circular DEQ-4 – Montana Standards for On-Site Subsurface Sewage Treatment Systems.
- Circular DEQ-7 – Montana Numeric Water Quality Standards, Required Reporting Values, and Trigger Values.

Driscoll, F.G. 1986. Groundwater and Wells 2<sup>nd</sup> Edition. Johnson Division. St. Paul, Minnesota.

Fetter, C.W. 2001. Applied Hydrogeology 4<sup>th</sup> Edition. Prentice Hall. Upper Saddle River, NJ.

Ground-Water Information Center (GWIC), Montana Bureau of Mines and Geology. Retrieved 2019 from GWIC database, <http://mbmgwic.mtech.edu>.

Hackett, O.M. et al., 1960. Geology and Ground-water Resources of the Gallatin Valley Gallatin County Montana.

Montana Code Annotated (MCA), Title 75, Chapter 5, *Montana Water Quality Act*. 2017.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2019. National Cooperative Soil Survey. Retrieved from <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.

U.S. Environmental Protection Agency, Effluent Limitation Guidelines, <http://water.epa.gov/scitech/wastetech/guide/>, 2019.

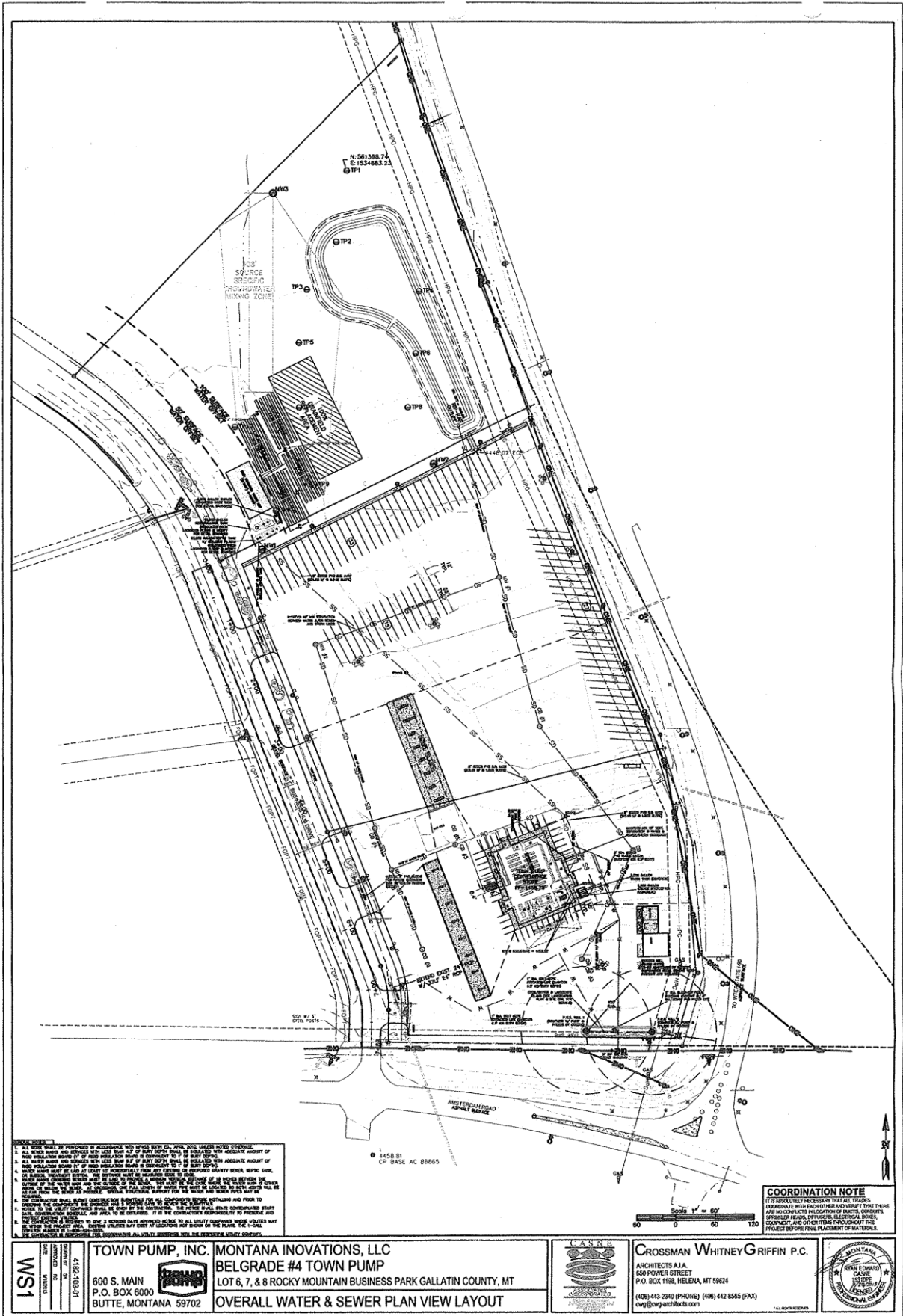
U.S. Environmental Protection Agency. 2002. Office of Water and Office of Research and Development. Onsite Wastewater Treatment Systems Manual. 625-R-00-008.

U.S. Environmental Protection Agency. 2010. Office of Wastewater Management. NPDES Permit Writers Manual. 833-K-10-001.

U.S. Geological Survey, Basic Ground Water Hydrology, <http://pubs.usgs.gov/wsp/2220/report.pdf>, 2010.

U.S. Geological Survey, Groundwater Resources, <http://water.usgs.gov/ogw/basics.html>, 2019.





**GENERAL NOTES:**

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE STATE OF MONTANA.
2. ALL TANKS SHALL BE PROVIDED WITH A MINIMUM OF 18" OF FREEBOARD ABOVE THE DESIGN WATER LEVEL.
3. ALL TANKS SHALL BE PROVIDED WITH A MINIMUM OF 18" OF FREEBOARD ABOVE THE DESIGN WATER LEVEL.
4. ALL TANKS SHALL BE PROVIDED WITH A MINIMUM OF 18" OF FREEBOARD ABOVE THE DESIGN WATER LEVEL.
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**TOWN PUMP, INC.**  
 600 S. MAIN  
 P.O. BOX 6000  
 BUTTE, MONTANA 59702

**MONTANA INNOVATIONS, LLC**  
**BELGRADE #4 TOWN PUMP**  
 LOT 6, 7, & 8 ROCKY MOUNTAIN BUSINESS PARK GALLATIN COUNTY, MT  
**OVERALL WATER & SEWER PLAN VIEW LAYOUT**



**CROSSMAN WHITNEY GRIFFIN P.C.**  
 ARCHITECTS A.L.A.  
 500 POWELL STREET  
 P.O. BOX 1198, HELENA, MT 59624  
 (406) 443-2340 (PHONE) (406) 442-8566 (FAX)  
 cwg@cwg-architects.com



**WS1**  
 CONTRACT NO. 4182-103-01  
 SHEET NO. 10