

**FINAL  
FISCAL YEAR 2022 ANNUAL OPERATION AND  
MAINTENANCE REPORT AT OPERABLE UNIT-4,  
LINE 1 IMPOUNDMENT, AND LINE 800 LAGOON**

OPERATION AND MAINTENANCE ENVIRONMENTAL SERVICES  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA

VOLUME I OF II

EnSafe Project Number  
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Prepared for:



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**CONTRACTOR STATEMENT OF TECHNICAL REVIEW**

EnSafe Inc., along with its subcontractor Montrose Environmental Group, Inc., has completed the Final Fiscal Year 2022 Operation and Maintenance Report for Operable Unit-4 (the Inert Disposal Area), Line 1 Impoundment and Line 800 Lagoon at the Iowa Army Ammunition Plant in Middletown, Des Moines County, Iowa. Notice is hereby given that an independent technical review (ITR) has been conducted that is appropriate to the level of risk and complexity inherent in the project. All comments resulting from the ITR have been resolved and incorporated into the document. During the ITR, compliance with established policy principles and procedures was verified.

08/07/2023

Michael Johnson, PE  
EnSafe Project Engineer and Independent Technical Review Team Leader

08/07/2023

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**CONTRACTOR CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows:

*No major technical concerns were identified during the Independent Technical Review.*

08/07/2023

B Venky Venkatesh, CHMM  
EnSafe Project Manager



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## ACRONYMS

AFC	after first carbon
AO	American Ordnance, LLC
ASL	Aerostar SES, LLC
EWI	Environmental Work Instruction
FFWTP	Fixed Facility Water Treatment Plant
FY	fiscal year
GAC	granular activated carbon
gpm	gallons per minute
IAAAP	Iowa Army Ammunition Plant
IDA	Inert Disposal Area
ILF	inert landfill
ITR	independent technical review
JV	Joint Venture
LDS	leak detection system
LCS	leachate collection system
LUC	land use control
LUCIP	Land Use Controls Implementation Plan
µg/L	micrograms per liter
O&M	operation and maintenance
OU	operable unit
psi	pounds per square inch
T6L	Trench 6 landfill
U	non-detect
USACE	United States Army Corps of Engineers
U.S. EPA	United States Environmental Protection Agency



## **1.0 INTRODUCTION**

EnSafe Inc. is under contract with the United States Army Corps of Engineers (USACE), Louisville District to perform land use control (LUC) and operation and maintenance (O&M) tasks at Operable Unit (OU)-4 (the Inert Disposal Area (IDA), Line 1 Impoundment, and Line 800 Lagoon at the Iowa Army Ammunition Plant (IAAAP) located in Middletown, Iowa, hereinafter the "Site". A Site Location Map is included as Figure 1. EnSafe has teamed with Montrose Environmental (Montrose, formerly PARS Environmental, the incumbent contractor) to perform the O&M tasks specified in the USACE-approved Final Project Management Plan/Contractor Quality Control Plan (EnSafe 2021).

IAAAP is a government-owned facility operated by contractor, American Ordnance, LLC (AO), under the U.S. Army Joint Munitions Command, Rock Island, Illinois. IAAAP occupies approximately 19,000 acres of Middletown located in Des Moines County, Iowa, and is bordered by Highway 34 to the north, upland agricultural farms to the east and west, and the Skunk River Valley to the south (Figure 1). Production of munitions at IAAAP began in 1941, and the facility remains in operation. Production activities at IAAAP include loading, assembling, and packaging explosive munitions, such as projectiles, mortar rounds, and warheads (Tetra Tech 2014).

This report documents LUC and O&M activities conducted at the IAAAP by EnSafe's contractor, Montrose, during fiscal year 2022 (FY22). Implementation of LUCs is described in the Final OU-4 Land Use Controls Implementation Plan (LUCIP) for the Inert Disposal Area (Tetra Tech, September 2014a), which was developed to comply with the IAAAP OU-4 Interim Record of Decision, dated September 30, 2008; Tab B — Operation and Maintenance Plan in the OU-4 RACR, Volume 4 (Tetra Tech, October 2014); and the Defense Environmental Restoration Program Management Manual (Department of Defense, March 2012).

Although LUCs are only applicable to OU-4 (Inert Disposal Area), O&M activities were conducted in accordance with the Final Operation & Maintenance Plan, OU-4 Fixed Facility Water Treatment Plant (FFWTP) (PARS Environmental and Gannett Fleming Joint Venture, October 2017a) for the FFWTP at OU-4 and the Final Operation & Maintenance Plan, OU-1 — Line 1 Impoundment and Line 800 Lagoon (PARS Environmental and Gannett Fleming Joint Venture, October 2017b) for Line 1 Impoundment and Line 800 Lagoon.



## 2.0 LAND USE CONTROLS

LUCs are rules, directives, policies, barriers and other measures intended to prevent exposure to contaminants that are unsafe for unlimited use or unrestricted exposure. LUCs may be implemented in conjunction with other remedial measures and are intended to protect human health and the environment after risk-based cleanup.

LUCs were developed for OU-4 in the LUCIP, which complies with the IAAAP OU-4 Interim Record of Decision, selecting source containment, LUCs, and monitoring (including groundwater monitoring) as the remedy for the capped landfill cells that comprise OU-4. Procedures for documenting review of, and compliance with, LUCs needed to manage activities in areas of potential contamination at IAAAP are provided in an Environmental Work Instruction (EWI) prepared by AO (EWI Number E01-012, Revision AO-6, September 21, 2021). Section 8.4.1 of the EWI (see Appendix A) describes LUC implementation and responsibility at OU-4, which include engineering (physical) and institutional (administrative, legal) controls that restrict access, prohibit certain types of land use, limit unauthorized intrusive activities, and prevent the use of groundwater as a drinking water supply within the landfill boundary. The area of OU-4 that is subject to LUCs is presented on Figure 2.

The Army is responsible for ensuring the effectiveness of the LUCs at IAAAP, as long as the Army controls the property or until LUCs are no longer required. The Army's commanding officer at IAAAP is responsible for enforcing the LUCs. The Army's remedial project manager assists the commanding officer in enforcing, inspecting, and maintaining LUCs. The United States Environmental Protection Agency (U.S. EPA) is responsible for regulatory review of LUC effectiveness.

The performance objectives of the LUCs are to:

- Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities, and playgrounds;
- Prevent intrusive activity into or near the cap system;
- Maintain the integrity of the cover/cap system;
- Restrict property access to only authorized individuals for approved commercial, industrial, and remedy O&M purposes;



- Maintain the integrity of any current or future remedial or monitoring system; and
- Prevent the use of groundwater as a drinking water supply within the landfill boundary.

Table 2-1 lists the Army’s responsibilities as described in Section 8.4.1 of the EWI (Appendix A), which include implementation of land use, access, construction and groundwater restrictions; as well as associated inspection activities, frequency, and documentation. LUCs and responsibilities are further detailed in the following sections.

<b>Table 2-1 Land Use Control Implementation and Responsibility</b>					
<b>Control Type</b>	<b>LUC Inspection Activity</b>	<b>Frequency</b>	<b>Documentation</b>	<b>Inclusion in Annual LUC Report</b>	<b>Documentation with Report</b>
Land Use Restrictions	Land transfer/ lease terms review	Annual	LUC checklist	LUC checklist	Appendix B
Access Restrictions	Review access key sign out list				
		Review hunter education materials			
Construction Restrictions	New projects review	As needed	Review/complete land use approval form in AO EWI	Signed approval forms	Appendix C
	Physical OU-4 inspection	Annual	Compliance inspection checklist	Compliance inspection checklist	Appendix D
	Review LUC maintenance requests for completion				
Groundwater Restrictions	Inspect and maintain groundwater monitoring wells		Monitoring well inspection log	Monitoring well inspection log	Appendix E

**Notes:**

- LUC = land use control
- AO = American Ordnance, LLC
- EWI = environmental work instruction
- OU = operable unit

## 2.1 Engineering Controls

Engineering controls are the physical mechanisms that prevent or restrict access or exposure to a contaminated area.

## 2.2 Fencing

A perimeter fence for OU-4 was installed in May 2016, in accordance with the Final Revision 1 OU-4 Remedial Action Work Plan Inert Disposal Area Boundary Fence Installation at the Iowa Army Ammunition Plant (Aerostar SES, LLC [ASL], January 2016). Fence installation activities are documented in the Final OU-4 After Action Report for Boundary Fence Installation at the





Inert Disposal Area, Iowa Army Ammunition Plant, Middletown, Iowa (ASL, February 2017). The fence restricts general access to OU-4. Signs have been installed along the fence and around OU-4, as shown on Figure 2. In accordance with the latest EWI, inspection and maintenance of the fence and signs are performed by the OU-4 operator as described in Section 2.6.3.

### **2.3 Institutional Controls**

Institutional controls are the administrative mechanisms that prevent or restrict access or exposure to a contaminated area. Institutional controls are further described in the following sections.

### **2.4 Access Restrictions**

IAAAP is a secure Department of Defense facility; only authorized access to the facility is allowed. Facility activities are confined to military (ordnance production and testing areas), commercial/industrial (leased, developed areas), agricultural (leased, undeveloped areas), and permitted hunting (undeveloped areas). A fence restricts unauthorized vehicular traffic to OU-4. Entry through the fence is controlled by AO security and the operator of OU-4.

#### **2.4.1 Review Access Key Sign Out List**

OU-4 is within the secured boundaries of IAAAP and the OU-4 fence is secured. During the reporting period, OU-4 entrance gates were kept closed and locked to prevent unauthorized personnel entry. The IAAAP security office controls issuance of OU-4 gate keys. The Army authorized and reviewed all gate key requests and the key authorization request process. No unauthorized access was noted during the reporting period. Therefore, the key access authorization process does not require modification at this time.

#### **2.4.2 Review Hunter Educational Materials**

The IAAAP natural resources manager maintains hunter education materials, issues various public access permits (hunting, mushroom harvesting, etc.), and informs holders of permits about restricted-access areas within IAAAP. The Army reviewed the IAAAP hunter education materials and concluded that the information provided to hunters is accurate and does not require modification at this time.



## **2.5 Land Use Restrictions**

### **2.5.1 Land Lease Terms Review**

There are no known or planned leases for OU-4, and the land use is to remain nonresidential and industrial.

### **2.5.2 Property Transfer Restrictions**

OU-4 is a federally owned facility. No federal transfer or ownership has been conducted, and no transfer of ownership is planned.

## **2.6 Construction Restrictions**

### **2.6.1 New Projects Review**

The operating contractor at IAAAP, AO has established project review and approval procedures that require Army review and approval when a project involves, or is encumbered by, potential contamination of environmental media, possible impacts to remedial actions, or potential changes to the current project land use. During the reporting period, there were no new projects triggering the New Projects Review process (Appendix C).

### **2.6.2 Review Land Use Control Maintenance Requests for Completion**

The annual inspection of OU-4 was performed by EnSafe's professional engineer, in cooperation with the OU-4 operator, in September 2022. LUC-related maintenance requests were reviewed during the annual inspection. There are no outstanding maintenance requests.

### **2.6.3 Physical Operable Unit-4 Inspection**

In addition to a document/record review, the annual inspection included a walkover of OU-4 to inspect the landfill cover, access roads, signage, fencing and gates, survey monuments, erosion controls, the treatment system, and other physical characteristics that comprise OU-4. No significant issues were identified during the inspection. Results of the physical inspection are included on the Compliance Inspection Checklists in Appendix D.

## **2.7 Groundwater Use Restrictions**

### **2.7.1 Potable Well Restrictions**

In accordance with Section 8.4 of the EWI, groundwater use as potable water is restricted within OU-4. IAAAP purchases all its water from Burlington Municipal Water Works, who sources water from the Mississippi River. No potable wells have been installed during the reporting period.



### **2.7.2 Monitoring Well Inspection and Maintenance**

Groundwater monitoring wells located at OU-4 are inspected and maintained by the OU-4 operator. Results of the monitoring well inspection are detailed on the Monitoring Well Inspection Logs located in Appendix E.

The following well maintenance activities were completed at OU-4 in September 2022 by the OU-4 operator:

- The rusted bollards and protective casings on monitoring wells were repainted.
- At well C-00-2, the well cap was replaced and the broken concrete for the bollard was repaired.
- The concrete pads at wells C95-2 and G-5 have been replaced.
- The leaking flush-mount vault at well IDA-TT-MW-1 has been replaced.
- The well riser and protective casing has been extended by about 2.5 feet above ground surface for well JAW-65.
- The well cap at well T-6 has been replaced.



### 3.0 OPERATIONS AND MAINTENANCE AT OPERABLE UNIT-4

O&M activities performed at OU-4 include, but are not limited to: O&M of the treatment system (the FFWTP) and associated components used to treat leachate collected from Trench 6; landfill cap inspection and maintenance; mowing; tree and vegetation removal; inspection and repair of erosion controls; access road maintenance including snow removal; fencing, gate, signage, gas vent and monitoring well inspection and maintenance; IDA office maintenance; etc. More information regarding O&M activities that are performed at OU-4 is provided in the following sections.

#### 3.1 Trench 6 Leachate Collection and Leak Detection Systems

Leachate from Trench 6 is collected from the leachate collection system (LCS) and leak detection system (LDS) and pumped to the FFWTP influent tank for treatment. During the reporting period, O&M for the FFWTP was conducted following the Final Operation and Maintenance Plan, Operable Unit 4 Fixed Facility Water Treatment Plant, Iowa Army Ammunition Plant, Middletown, Iowa (PARS Environmental and Gannett Fleming Joint Venture, October 2017a). As-built drawings showing the process equipment of the FFWTP are included in Appendix G.

##### 3.1.1 Inspections

The visible components of the LCS and LDS were observed, and any findings were recorded on the landfill operations daily logs provided in Appendix F. The components that can be visually inspected include the pipe extensions, surface completions, aboveground transfer pipelines, flow meters, and the Coyote pump controllers. The annual inspection was conducted in September 2022. Observations are presented in Table 3-1.

Table 3-1 Leachate Collection System and Leak Detection System Inspection Observations			
Item	Area	Inspection Observations	Resolved
1	T6L	Continue to monitor the LCS pump controller (Coyote) and replace if necessary.	Continue monthly monitoring

**Notes:**

- LCS = leachate collection system
- T6L = Trench 6 landfill

##### 3.1.2 Operation

Leachate levels in the Trench 6 LCS and LDS were maintained at, or below, the regulatory action level of 1-foot above the landfill’s primary and secondary liner bottom elevations of 668 feet above mean sea level. Two Coyote pump controllers, located in FFWTP, monitor leachate levels and activate



the pumps as necessary to lower levels at the LCS and LDS. Both pump controllers were in continuous operation. Additionally, the controllers briefly activate the pumps every hour to protect them from deadhead operation (pumping air). The controllers for the Trench 6 LDS and LCS pumps are adjacent to the motor control cabinet within the FFWTP.

### **3.1.3 Maintenance**

The leachate pumps are maintained in accordance with manufacturer recommendations. Periodically, the pump screens are cleaned to ensure adequate intake flow. There are no outstanding maintenance issues related to the LCS or LDS. Leachate pumps were online the whole year and were not required to be taken out of service due to maintenance in FY22.

## **3.2 Fixed Facility Water Treatment Plant**

The FFWTP treats leachate and leak detection water from the Trench 6 Landfill within OU-4. In FY18, major components of the FFWTP's treatment system were upgraded. These components included the granular activated carbon (GAC) vessels, bag filter housing, pumps, piping, and the treatment system control panel. The new components were installed between November 2017 and January 2018, and the FFWTP was put back into operation on January 16, 2018. As-built drawings of the new system components are included in Appendix G.

### **3.2.1 Inspections**

Because the FFWTP treatment system runs intermittently based on the elevation of leachate in the LCS, the treatment system was observed daily during operation and observations were recorded on the operator logs provided in Appendix F. The FFWTP FY22 annual inspection was conducted in September 2022. Based on the review of operation records and the characteristics and quantities of leachate treated at the time of the inspection, it appears that the leachate levels in the Trench 6 LCS and LDS are being maintained at, or below, the regulatory action level of 1-foot above the landfill's primary and secondary liner bottom elevations of 668 feet. At the time of the inspection, the components were operating properly. During the inspection, treatment system components were checked, and no signs of leakage or damage were observed. Both effluent pumps were checked, and no vibration or sounds of cavitation were noted. The flow rate through each effluent pump, set at 30% throttle, was measured, and determined to be operating at about 60 to 65 gallons per minute (gpm), which is within the expected flow rate of 60 gpm  $\pm$  10 gpm. Bag filter changeout was not observed during the inspection, but it was conducted as shown on the landfill operations daily log (Appendix F). The bag filters are changed when there is a pressure differential of greater than



20 pounds per square inch (psi) between the influent and effluent lines. Inspection observations are presented in Table 3-2.

Item	Area	Inspection Observations	Resolved
1	FFWTP	Continue to monitor hoses, fittings and effluent pumps and replace/repair as needed.	Continue monthly monitoring

**Note:**  
 FFWTP = Fixed Facility Water Treatment Plant

### 3.2.2 Operations

FFWTP operational notes are recorded in the landfill operations daily log and the FFWTP meter readings form, provided in Appendix F. During operation, the pump flow rates are monitored to identify if there are any operational losses in pressure or flow. Table 3-3 presents the release volumes for the reporting period. During the FY22 reporting period, 39,091 gallons of leachate were treated and released through the FFWTP.

Year	Month	Release Volume (gallons)
2021	October	1,332
	November	3,340
	December	1,168
2022	January	1,780
	February	2,422
	March	6,888
	April	9,568
	May	5,773
	June	1,808
	July	570
	August	3,034
	September	1,408
<b>Grand Total</b>		<b>39,091</b>

#### 3.2.2.1 System Shutdown

The FFWTP did not experience any operational shut down during FY22. The FFWTP was last shut down from October 1, 2017, to January 16, 2018, while major components were replaced and other treatment system modifications were made.



### 3.2.2.2 Discharge Sampling

Treated water effluent from the FFWTP is routed to a ditch that discharges to a tributary of Long Creek (former Sediment Pond 6). During the reporting period, three types of samples were collected at the FFWTP: influent samples, after first carbon (AFC) unit samples, and effluent samples. During the reporting period, three influent samples, three AFC unit samples, and three effluent samples were collected and analyzed for explosives via U.S. EPA Method 8330A. Results are summarized on Table 3-4.

Because the FFWTP runs intermittently, the influent, AFC, and effluent samples are only collected when the system is operating. Effluent samples were collected from the discharge sampling port during each treatment event. Based on the Final O&M Plan (PARS Environmental and Gannett Fleming Joint Venture, October 2017a), FFWTP sample results for royal demolition explosive (RDX) are compared to health advisory level of 2 micrograms per liter ( $\mu\text{g/L}$ ), as presented in Table 3-4. None of the explosives analyzed via U.S. EPA Method 8330A were detected in any of the effluent samples. The data validation report is provided in Appendix H and the laboratory reports are included as Volume II of this report.

Date	Influent ( $\mu\text{g/L}$ )*	After First Carbon Unit ( $\mu\text{g/L}$ )*	Effluent ( $\mu\text{g/L}$ )*	Laboratory Report Number (Appendix H)
2/16/2022	0.098 U	0.098 U	0.099 U	FA93240 and FA93241
4/04/2022	0.097 U	0.096 U	0.10 U	FA94531 and FA94534
5/10/2022	5.1	0.094 U	0.098 U	FA95572 and FA95576

**Notes:**

\* Reported to the method detection limit

$\mu\text{g/L}$  = micrograms per liter

U = non-detect

### 3.2.2.3 Backwash

Backwashing was not conducted at the FFWTP in FY22 because the system did not exhibit a pressure differential of greater than 20 psi between the influent and effluent lines, nor did a carbon vessel require new carbon replacement. Backwashing operations were successfully tested in January 2018 prior to putting the new system components into service.



#### **3.2.2.4 Spent Carbon and Filter Disposal**

Based on sample results presented in Table 3-4, none of the AFC samples exceeded the RDX health advisory level of 2 µg/L; therefore, the FFWTP treatment system's GAC did not require replacement during FY22 and continues to perform as intended. Bag filters are replaced infrequently due to limited volume and low turbidity of the treated water.

There has not been a change out at the GAC media since the 2017 upgrade to the system. The previous O&M Contractor (PARS Environmental) had sampled the carbon in the past and submitted a waste profile to Peoria Disposal Company (Hickory Ridge Landfill). When changeout occurs, the spent carbon and bag filters is placed in the roll-off container at Building BG-199-4. It is our understanding that if there is no change in the system, we can continue to use the same waste profile for disposal.

In coordination with AO, used bag filters from FFWTP are handled by Area Disposal Service, Inc., and disposed as non-hazardous non-special waste under permit #31-2833 at the Hickory Ridge Landfill located at 32246 375th Street, Baylis, Illinois. Disposal records are included in Appendix I.

#### **3.2.3 Maintenance**

The FFWTP operator completed checks including, but not limited to:

- Observing/repairing leaky fittings and hoses as necessary;
- Observing/repairing any damage to the GAC unit vessel, fittings, and distribution manifold;
- Observing/repairing any damage to the filter housing, strainer, gasket, and connections;
- Servicing the treatment and leachate pumps per the manufacturer's recommendations; and
- Observing/troubleshooting email/text alerts and other communications from the treatment system.

Operator notes are recorded on the landfill operations daily log and the FFWTP meter readings form provided in Appendix F. At the time of this report, there were no outstanding maintenance issues regarding the FFWTP.





### 3.3 General Site and Landfill Operations and Maintenance

Post-closure activities are detailed in this section. Specifics regarding inspection and reporting requirements can be found in the LUCIP (Tetra Tech, September 2014a). Landfill operations daily logs are maintained in the IDA Office, Building 500-70-3, and contain information regarding O&M activities. The FY22 inspection was conducted in September 2022 by EnSafe’s professional engineer with onsite O&M operator. Observations of the inspection are provided in Table 3-5.

<b>Table 3-5 Operable Unit-4 Inspection Observations</b>			
Item	Area	Inspection Observations	Resolved
<b>Trench 6 Landfill</b>			
1	T6L	Continue to monitor for animal burrowing in landfill cap and notify the project engineer of signs of active burrowing.	Continue monthly monitoring
<b>Cap Extension Area</b>			
1	CEA	Continue to monitor animal burrowing in landfill cap and notify the project engineer of signs of active burrowing.	Continue monthly monitoring
<b>Inert Landfill</b>			
1	ILF	Continue to monitor animal burrowing in landfill cap and notify the project engineer of signs of active burrowing.	Continue monthly monitoring
2	ILF	Continue to mow grass.	Continue mowing grass at least twice a year
3	ILF	Survey monuments in poor condition.	Replacement of survey monuments recommended

**Notes:**

- T6L = Trench 6 landfill
- CEA = cap extension area
- ILF = inert landfill

#### 3.3.1 Security

OU-4 is entirely within the secured boundaries of IAAAP; therefore, additional security measures are minimal. The OU-4 entrance gates remained closed and secured to keep unauthorized personnel from entering OU-4 by access roads. Signs regarding unauthorized entry and site access are posted on the access gates and at select locations around the perimeter.

##### 3.3.1.1 Inspections

There was no significant damage to the OU-4 perimeter fencing, gates, or access roads during the reporting period. Locks and gates are in good condition. Documentation of signage at OU-4 is presented on Figure 2.



### **3.3.1.2 Maintenance**

During the reporting period, there were no major maintenance issues associated with the fencing and gates that control access to OU-4. However, a routine repair of the fence was performed in April and August of 2022 due to downed trees. Vegetation control was conducted as needed along the fence line by mowing. New signage was installed in 2016. There are no outstanding repairs on the fencing, gates, or signs.

### **3.3.2 Site Roadways**

Unpaved access roads exist on OU-4 to support vehicle traffic in the OU-4 area, as necessary.

#### **3.3.2.1 Operations**

The access roads were designed to accommodate light traffic at low speeds. Vehicle operators were instructed to remain on the aggregate surfaces as much as possible. Vehicles other than service trucks, mowers and light equipment were not allowed on the landfill caps. Currently, there are no outstanding operational issues regarding the roadways.

#### **3.3.2.2 Inspections**

Roadways and parking areas are visually inspected for rutting, ponding of water, erosion or loss of aggregate material that may restrict vehicle access or potentially affect cap integrity. There are no outstanding repairs for the site roadways or parking areas.

#### **3.3.2.3 Maintenance**

If damage to roadways is noted, the roads or ruts are built up with aggregate and compacted by rolling with a rubber tire vehicle (tractor or pickup truck). Snow and ice are removed from the roadways in the winter months as needed to maintain site access. A salt and sand mixture was applied to OU-4 roadways to increase road friction when snow and ice could not be adequately removed. Currently there are no outstanding maintenance issues related to the OU-4 roadways.

### **3.3.3 Grass-Covered Diversion Berms and Ditches**

Grass-covered berms and ditches exist within OU-4 and serve to convey storm water away from the engineered landfill features to protect those features from scouring and erosion often caused by heavy surface water runoff.



### **3.3.3.1 Inspections**

Grass-lined diversion berms and ditches were checked during mowing activities and following large rainfall events (greater than 2 inches in 24 hours). Rain gauge information is provided on the elevations and rain gauge form in Appendix F. Signs of erosion, sediment, or debris accumulation and vegetative growth requiring attention are noted on the landfill operations daily log (Appendix F).

### **3.3.3.2 Maintenance**

The berms and ditches are mowed at least twice a year. Mowing activities were conducted twice during the growing season, as indicated in the landfill operations daily log (Appendix F) to control vegetative growth. During the reporting period, no repairs of the diversion berms or ditches were needed.

### **3.3.4 Riprap Channels and Rock Toe Drains**

Riprap channels and toe drains are integral features of the engineered landfill. These features serve to drain surface waters away from the engineered landfill features, protecting those features from scouring and erosion often caused by heavy surface water runoff.

#### **3.3.4.1 Inspections**

Riprap channels and rock toe drains were inspected in September 2022 and were observed during mowing season. Any signs of erosion; sediment or debris accumulation; displaced or sparse riprap; or vegetative growth along drainage channels, toe drains, or culverts are noted on the landfill operations daily log (Appendix F).

#### **3.3.4.2 Maintenance**

Vegetative growth in the riprap ditches and toe drains are periodically sprayed with a broad-spectrum herbicide, such as Roundup (or equivalent), in accordance with the manufacturer's recommendations. Special emphasis is given to vegetation control around the toe drains to prevent clogging of the Geonet drainage layer. Erosion was not noted during the September 2022 inspection.

### **3.3.5 Landfill Covers**

#### **3.3.5.1 Inspections**

The landfill cap was inspected in September 2022 by EnSafe's professional engineer with the onsite O&M operator. The annual inspection consisted of a walkover of the cap areas and is documented on the annual compliance inspection checklist (Appendix D). Bare areas, stressed



vegetation, dead vegetation (not dormant), discolored vegetation, sparse vegetation, leachate seeps, differential settlement (localized depressions), sloughing, cracking, bulging, erosion, exposure of geosynthetic materials, and signs of burrowing animals (rodent holes) are evaluated as part of the annual inspection.

### **3.3.5.2 Maintenance**

Vegetation on the caps and surrounding areas is mowed semiannually (late spring/early summer and late summer). The mowing schedule is adjusted as site-specific conditions warrant. Woody plant species growing on the cap are manually removed. Currently, there are no outstanding maintenance issues on the landfill covers.

### **3.3.6 Settlement Monuments**

Areas of significant settlement within the landfill cap boundaries may indicate damage to the underlying cap components and are repaired according to industry practices and procedures under the supervision of the project engineer. Settlement monuments were installed at OU-4 in April 1998. Elevations of these concrete monuments are periodically measured by a licensed surveyor and compared to previous elevations to evaluate landfill cap settlement, as described in Section 3.3.6.2.

#### **3.3.6.1 Inspections**

The settlement monuments and guard posts are inspected annually for damage. During the FY22 settlement monument survey, it was noted that the concrete monuments are deteriorating and may require repair. A photograph of a monument is included in Appendix D.

#### **3.3.6.2 Elevation Measurement**

Settlement monument elevations and locations were initially measured in April 1998. Subsequent survey elevations are presented in Table 3-6 and are currently measured every 5 years as documented in Tab B — Operation and Maintenance Plan in the OU-4 RACR, Volume 4 (Tetra Tech, October 2014). The differential settlement between the last two survey dates is equal to or less than 0.03 feet, and the total % settlement is less than the 10.5% specification (noted as acceptable at the 10-year mark) presented in Section IIa of the Closure and Post-closure Plans for Trench No. 5 of the Inert Landfill (ILF) (USACE, April 1998).

#### **3.3.6.3 Maintenance**

The professional surveyor that performed the FY20 settlement monument survey indicated that due to weathering of the concrete monuments since their installation in 1998, some repairs may be



required for continued use. During the FY22 inspection in September 2022, the O&M operator noted the poor condition of several survey monuments and recommends replacement of damaged monuments. Table 3-6 provides a summary of settlement monument survey data. The next survey of the settlement monuments will be performed in FY25.

### **3.3.7 Gas Vents**

A dewatering system of passive gas vents was installed to minimize groundwater contact with the landfill waste. Eight passive gas vents within the ILF were designed to allow gas and leachate removal from the six original landfill trenches (Trenches 1 through 6). The gas vents were connected through underground piping to the FFWTP and water that accumulated in the passive gas vents was pumped to the FFWTP for treatment and discharge using an automatic airlift pump system. The dewatering system was operated for 1-year, as recommended in the 5-year review (USACE, December 2004), and deactivated in 2006.

#### **3.3.7.1 Inspections**

Gas vents, perimeter gas probes, and guard posts were inspected in September 2022. There was no damage or excessive wear that required maintenance. The results of the inspection are summarized in Appendix D.

#### **3.3.7.2 Maintenance**

Currently there are no outstanding maintenance issues related to landfill gas vents.

### **3.3.8 Monitoring Wells**

Twenty-seven monitoring wells are associated with OU-4. A log of the monitoring wells is provided in Appendix E.

#### **3.3.8.1 Inspections**

Monitoring wells in OU-4 were inspected in September 2022. The results of the inspection are summarized on the monitoring well log provided in Appendix E. Lockable OU-4 monitoring wells have locks pursuant to the IAAAP-wide patented security lock system.

#### **3.3.8.2 Maintenance**

Government locks have been placed on OU-4 monitoring wells that can be locked. There are no imminent maintenance needs for OU-4 monitoring wells.



**Table 3-6  
 Settlement Monument Evaluation**

Monument ID	April 1998 Initial Elev. (ft.)	Nov. 1999 Elev. (ft.)	Oct. 2000 Elev. (ft.)	Nov. 2002 Elev. (ft.)	April 2012 Elev. (ft.)	April 2015 Elev. (ft.)	Sept. 2020 Elev. (ft.)	Total Settlement 2015-2020 (ft.)	Total Settlement (ft.)	Total Settlement* (%)
SM-1	723.71	723.61	723.67	723.63	723.15	723.14	723.17	0.03	-0.54	1.8
SM-2	720.4	720.31	720.35	720.3	719.81	719.8	719.83	0.03	-0.57	1.9
SM-3	715.82	715.71	715.78	715.73	715.27	715.26	715.29	0.03	-0.53	1.8
SM-4	711.82	711.71	711.76	711.68	711.14	711.12	711.15	0.03	-0.67	2.2
SM-5	706.36	706.22	706.28	706.17	705.58	705.55	705.55	0	-0.81	2.7
SM-6	700.32	700.28	700.36	700.3	699.86	699.88	699.91	0.03	-0.41	1.4
SM-7	719.75	719.64	719.7	719.66	719.16	719.15	719.17	0.02	-0.58	1.9
SM-8	715.44	715.31	715.35	715.3	714.74	714.72	714.73	0.01	-0.71	2.4
SM-9	707.87	707.71	707.86	707.78	707.26	707.25	707.26	0.01	-0.61	2
SM-10	716.75	716.66	716.73	716.68	716.17	716.16	716.19	0.03	-0.56	1.9
SM-11	713.89	713.71	713.74	713.65	713.01	712.97	712.94	-0.03	-0.95	3.2
SM-12	710.11	709.93	709.92	709.81	709.14	709.11	709.08	-0.03	-1.03	3.4
SM-13	714.51	714.37	714.42	714.36	713.82	713.8	713.81	0.01	-0.7	2.3

**Notes:**

\* Based on assumed 30-foot landfill depth

ID = identification

ft. = foot or feet



#### **4.0 OPERATION AND MAINTENANCE AT LINE 1 AND LINE 800**

The Line 1 Impoundment and Line 800 Lagoon were built in the 1940s to serve as settling ponds to reduce particulates before discharge into a tributary of Brush Creek. This practice was discontinued in the 1970s and engineered wetlands with hydraulic controls were established for controlled releases to a tributary of Brush Creek. In 1997, remedial action was conducted and wetland plants were established naturally, providing local ecological enhancement.

O&M activities at Line 1 and Line 800 include, but are not limited to: O&M of the treatment system used to treat water discharged from the Line 1 Impoundment, O&M of the mobile treatment system used to treat water discharged from the Line 800 Lagoon, hydraulic control of surface water elevations via treated or direct release from Line 1 Impoundment and Line 800 Lagoon, access road maintenance including snow removal, mowing and other clearing of vegetation, inspection and repair of erosion controls; and repair of erosion or animal-related damage to land features. More detail regarding O&M activities is provided in the following section.

##### **4.1 Inspections**

Water levels in the Line 1 Impoundment and the Line 800 Lagoon are monitored weekly by onsite operations staff. Water levels are tabulated on the treatment release log and the elevations and rain gauge form provided in Appendix F. As water levels rise, water is released into Brush Creek and/or its tributaries. One annual inspection was conducted by EnSafe's professional engineer with the onsite O&M operator during the reporting period, in September 2022.

The Line 1 Impoundment relies on a GAC treatment system to treat and discharge. The onsite operator observes the treatment system components daily when the system is operating and weekly otherwise. Observations are recorded on the operator logs and Line 1 Impoundment treatment release log provided in Appendix F.



## **5.0 OBSERVATIONS AND RECOMMENDATIONS**

### **5.1 Annual Inspections**

Annual inspections of OU-4, Line 1 Impoundment, and Line 800 Lagoon were conducted on September 8, 2022. The compliance inspection checklists completed during the inspection visit and the associated photograph logs are provided in Appendix D. Results of the inspections were discussed within the relevant portions of Sections 3 and 4. No significant issues were identified during the FY22 annual inspections.

While not identified during the annual inspection, the professional surveyor that performed the ILF settlement monument survey, in September 2020, indicated the monuments are becoming weathered and may require repair for continued use. The recommended repair/replacement of settlement monuments has not been completed.

### **5.2 Fixed Facility Water Treatment Plant**

The FFWTP operated normally during FY22. There are no recommendations for the FFWTP.

### **5.3 Line 1 Impoundment**

No issues were noted throughout FY22. There are no recommendations for Line 1 Impoundment.

### **5.4 Line 800 Lagoon**

No issues were noted throughout FY22. The Line 800 mobile treatment trailer requires storage over the winter, it is recommended that a storage structure be constructed at Line 1 Impoundment or IDA to store the mobile treatment trailer while it is not in use.





## 6.0 REFERENCES

- Aerostar SES, LLC, January 2016. Final Revision 1 Operable Unit (OU)-4 Remedial Action Work Plan Inert Disposal Area (IDA) Boundary Fence Installation at the Iowa Army Ammunition Plant Middletown, Iowa.
- Aerostar SES, LLC, October 2016. Final OU-4 Fixed Facility Water Treatment Plant Operations and Maintenance Plan, Iowa Army Ammunition Plant, Middletown, Iowa.
- Aerostar SES, LLC, February 2017. Final OU-4 After Action Report for Boundary Fence Installation at the Inert Disposal Area, Iowa Army Ammunition Plant, Middletown, Iowa.
- American Ordnance, 2014. Environmental Work Instructions. Department of Defense, March 2012, DODM 4715.20, Defense Environmental Restoration Program Management.
- American Ordnance, September 2021. Environmental Work Instructions, Number E01-012, Revision AO-6, Iowa Army Ammunition Plant, Middletown, Iowa.
- EnSafe, September 2021. Final Project Management Plan/Contractor Quality Control Plan, Operation and Maintenance Environmental Services, Iowa Army Ammunition Plant, Middletown, Iowa.
- PARS Environmental and Gannett Fleming Joint Venture, October 2017a. Final Operation and Maintenance Plan, OU-4 Fixed Facility Water Treatment Plant, Iowa Army Ammunition Plant, Middletown, Iowa.
- PARS Environmental and Gannett Fleming Joint Venture, October 2017b. Final O&M Plan, OU-1 — Line 1 Impoundment and Line 800 Lagoon, Iowa Army Ammunition Plant, Middletown, Iowa.
- PARS Environmental and Gannett Fleming Joint Venture, July 2020. Final Annual FY19 LUC and Operation and Maintenance Report, Iowa Army Ammunition Plant, Middletown, Iowa.
- Tetra Tech, October 2014. Tab B — Operation and Maintenance Plan in the OU-4 RACR, Volume 4. Finalized by letter to the U.S. EPA on 2014, October 29.



Tetra Tech, September 2014a. Final OU-4 Land Use Controls Implementation Plan (LUCIP) for the IDA.

Tetra Tech, September 2014b. Final OU-4 Remedial Action Work Plan IDA Boundary Fence Installation at the Iowa Army Ammunition Plant Middletown, Iowa.

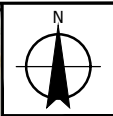
URS, 2002. Draft Final Facility-Wide Work Plan Iowa Army Ammunition Plant Middletown, Iowa.

United States Army Corps of Engineers (USACE), April 1998. Closure and Post-closure Plans for Trench No. 5 of the Inert Landfill

USACE, December 2004. Five-Year Review Report for Iowa Army Ammunition Plant, Middletown, Iowa, Volume I.



## Figures



**FIGURE 1**  
**SITE LOCATION MAP**  
**IOWA ARMY AMMUNITION PLANT**  
**MIDDLETOWN, IOWA**

**LEGEND**

-  PROJECT LOCATION
-  INSTALLATION BOUNDARY

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DRAWN BY:	KMB
DATE:	3/09/2023
PROJECT:	0888830221

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Source: FFWTP O&M Plan (AEROSTAR, OCTOBER 2016)

I:\G00\_PROJECTS\SUSAC\2021\Plan\30221\_8001\_SITE\_LOC\_IAMP\_IDVA.dwg



- LEGEND**
- FWTP POINT OF DISCHARGE
  - EXISTING BARBED WIRE FENCE TO ACTIVE RANGE
  - GATE
  - EXISTING FENCE

**FIGURE 2  
INERT DISPOSAL AREA  
SITE PLAN  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA**

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DRAWN BY:	KMB
DATE:	3/09/2023
PROJECT:	0888830221

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Source: Pars Environmental, Inc. - 500 Horizon Drive, Suite 540 - Robbinsville, New Jersey



**LEGEND**

- DIRECT RELEASE MONITORING LOCATION
- TREATMENT DISCHARGE PIPE
- CREEK
- LINE 1 IMPOUNDMENT
- LINE 1 ACCESS ROAD

0      100      200  
SCALE IN FEET

**FIGURE 3**  
**LINE 1 IMPOUNDMENT SITE PLAN**  
**IOWA ARMY AMMUNITION PLANT**  
**MIDDLETOWN, IOWA**

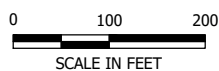
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DATE:	3/09/2023
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- LEGEND**
- DIRECT RELEASE MONITORING LOCATION
  - LINE 800 LAGOON
  - APPROXIMATE LOCATION OF THE MOBILE TREATMENT TRAILER WHEN BEING USED

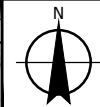
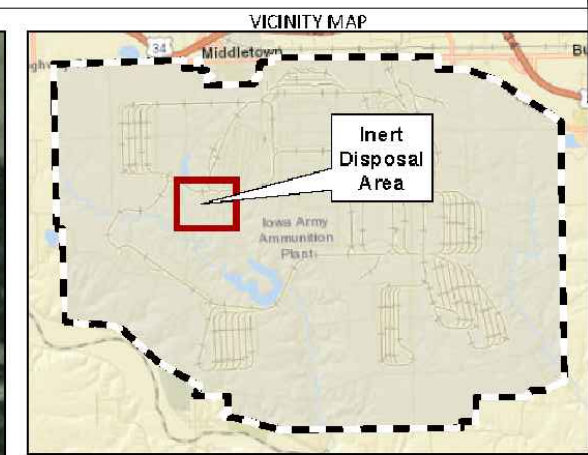
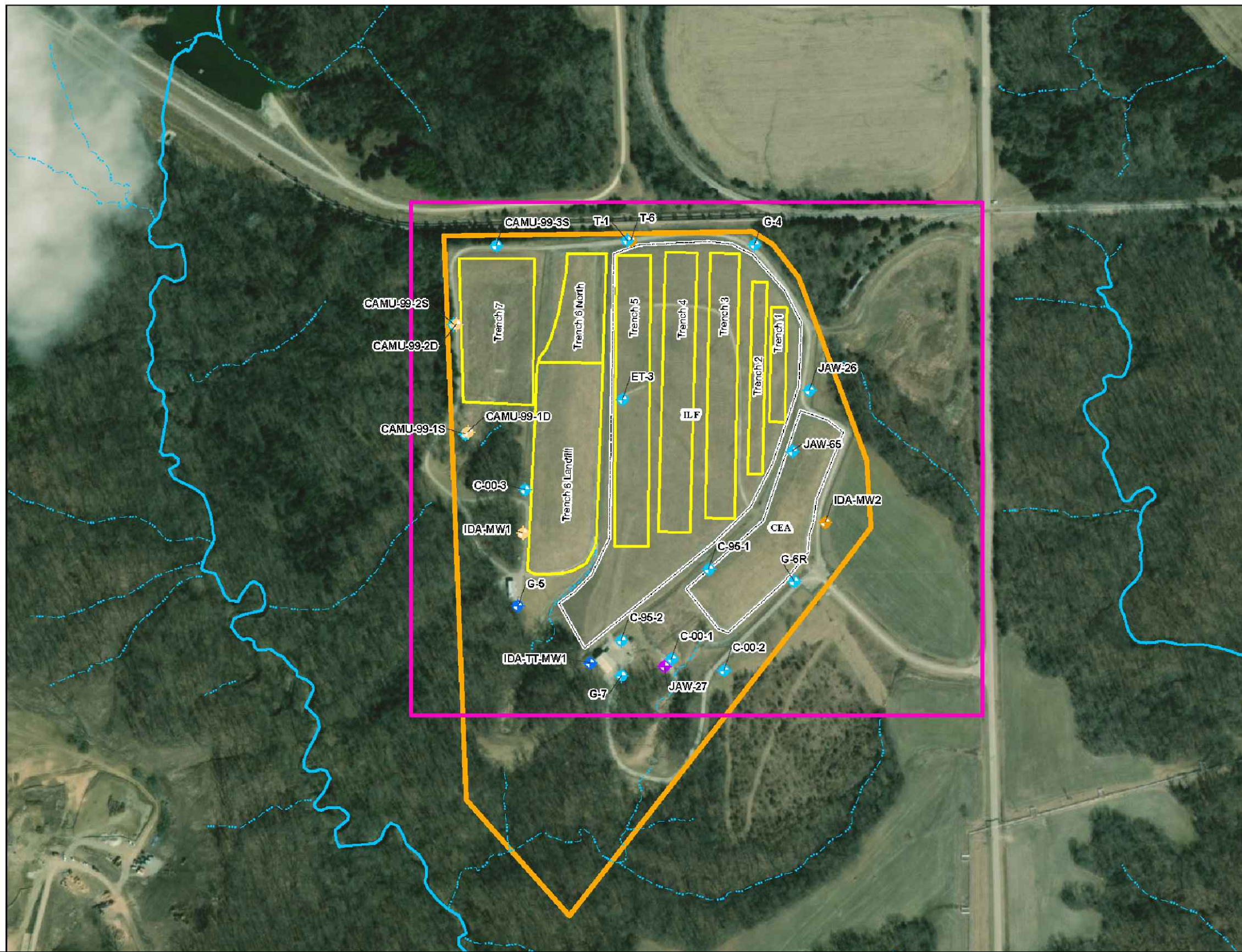


**FIGURE 4**  
**LINE 800 LAGOON SITE PLAN**  
**IOWA ARMY AMMUNITION PLANT**  
**MIDDLETOWN, IOWA**

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DATE:	3/09/2023
PROJECT:	0888830221



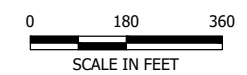
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- LEGEND**
- Shallow Overburden Well
  - Intermediate Overburden Well
  - Shallow Bedrock Well
  - Deep Bedrock Well
  - Interface Well
  - Intermittent Stream
  - Perennial Stream
  - AOPI
  - Inert Disposal Area IRP Site Boundary (HOAES # IAAP-020/020G)
  - Plant Boundary
  - CEA & ILF Boundary

Note:  
1. 2020 Esri World Imagery Basemap

**FIGURE 5  
MONITORING WELLS AT  
INSERT DISPOSAL AREA  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA**

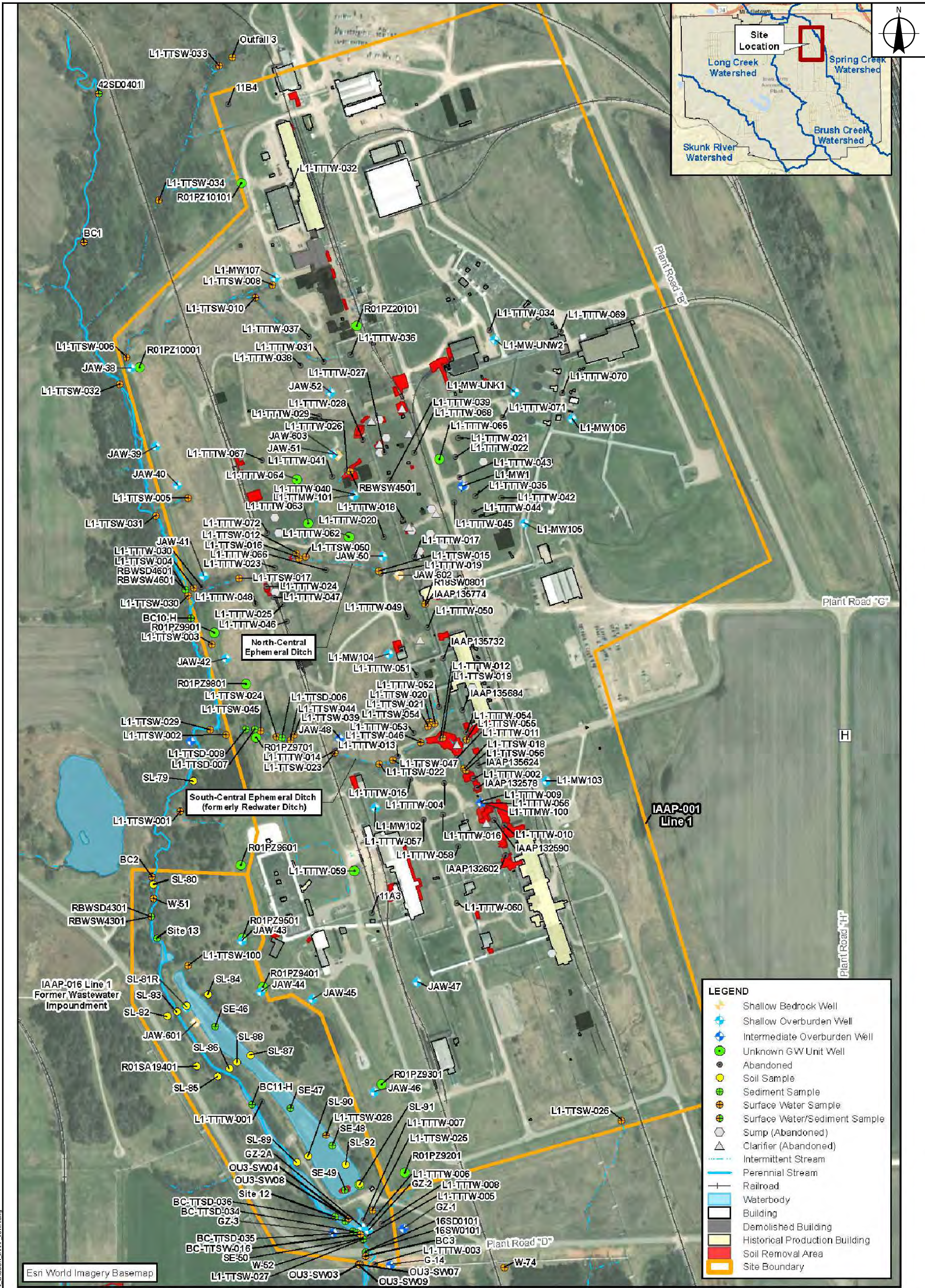


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PROJECT:	0888830221	

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Source: Jacobs



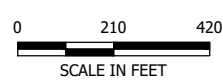


**NOTES**

- SUMP AND CLARIFIER LOCATIONS ARE APPROXIMATED BASED ON HISTORICAL INFORMATION.
- SL-79 THROUGH SL-92 SOIL SAMPLES ARE APPROXIMATED BASED ON THE BASELINE HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT FOR THE FORMER LINE 1 IMPOUNDMENT AND PINK WATER LAGOON (JAYCOR, 1994b).

**FIGURE 6**  
**MONITORING WELLS AT**  
**LINE 1 IMPOUNDMENT**  
**IOWA ARMY AMMUNITION PLAN**  
**MIDDLETOWN, IOWA**

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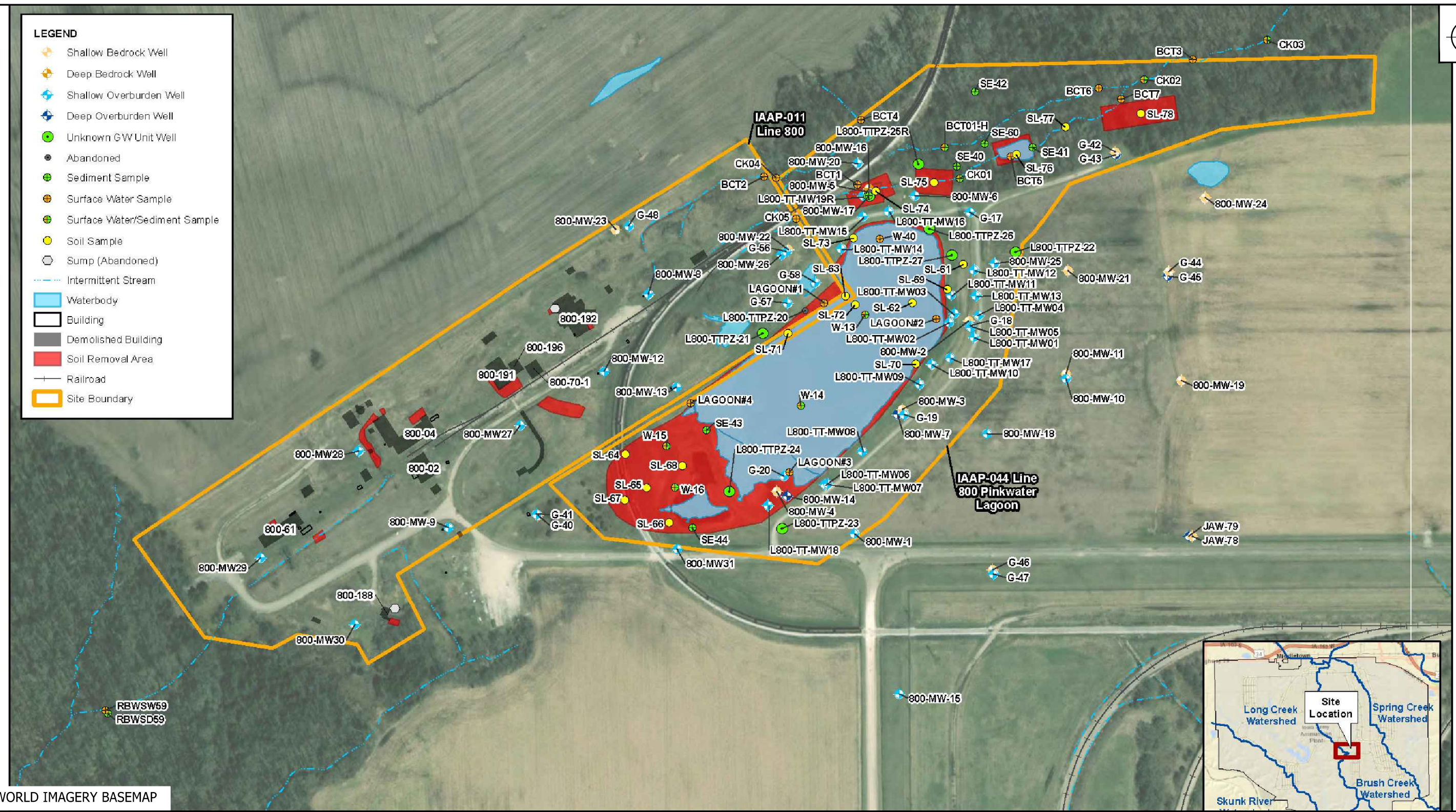
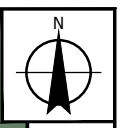


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Source: Jacobs

**LEGEND**

- Shallow Bedrock Well
- Deep Bedrock Well
- Shallow Overburden Well
- Deep Overburden Well
- Unknown GW Unit Well
- Abandoned
- Sediment Sample
- Surface Water Sample
- Surface Water/Sediment Sample
- Soil Sample
- Sump (Abandoned)
- Intermittent Stream
- Waterbody
- Building
- Demolished Building
- Soil Removal Area
- Railroad
- Site Boundary

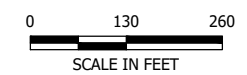


ESRI WORLD IMAGERY BASEMAP

**NOTE**  
 - SUMP LOCATIONS ARE APPROXIMATED BASED ON HISTORICAL INFORMATION.

**FIGURE 7**  
 MONITORING WELLS AT LINE 800  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA

REQUESTED BY:	VV	
DRAWN BY:	KMB	
DATE:	3/09/2023	
PROJECT:	0888830221	



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Source: Jacobs



**Appendix A**  
**Environmental Work Instruction E01-012**

# ENVIRONMENTAL WORK INSTRUCTIONS

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SUBJECT: Incorporating Land Use Controls in Project Planning

NUMBER: E01-012

REVISION: AO-6

DATE ISSUED:9/21/21

Responsibility & Authority: Environmental Department Manager

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## 1. PURPOSE

- 1.1. The intent of this instruction is to outline the procedures for documenting review of, and compliance with, the Land Use Controls (LUC) needed to manage activities in areas of potential contamination at the Iowa Army Ammunition Plant. LUCs are developed and implemented to avoid damage to remedial systems (e.g., landfill caps). LUCs may include administrative and/or, institutional controls including, but not limited to restrictions on soil disturbance as well as physical access to and use of capped landfills, surface water and ground water. This applies to sites where environmental hazards remain in place and residual concentrations are unsafe for unrestricted exposure.
- 1.2. This Environmental Work Instruction (EWI) supports the NEPA, SHPO, and CERCLA process to ensure that restrictions on activities involving capped landfills, soil, surface water and groundwater are integrated into the project planning process. Elements of the project planning process include:
  - 1.2.1. Defines the project scope (e.g. demolition, new construction, maintenance) and work elements (e.g. materials lay down areas, soil excavation, water management, waste management).
  - 1.2.2. Defines the physical location of the activity including map locations showing horizontal extents and proposed design depths of any intrusive activities.
  - 1.2.3. Review project scope and activities with the Army environmental staff to Identify potential LUC issues (e.g., worker exposure, waste management, disruption of remedial systems).
  - 1.2.4. Documents AO and Army review of LUC requirements noting resolution of any issues.
  - 1.2.5. Documents AO and Army review consensus resolutions of any field design changes that may affect LUCs.
- 1.3. The objectives of LUCs are:
  - 1.3.1. Limit exposures of the worker, general public, and the environment to contaminants left in place.
  - 1.3.2. Prohibit unrestricted development and use of property.
  - 1.3.3. Restrict property access to only authorized individuals for approved commercial, industrial, and remedy O&M purposes.
- 1.4. The objectives of this instruction are:
  - 1.4.1. Ensure the AO project planning process incorporates review of LUCs.

1.4.2. Document AO and Army review of project planning documents for compliance with LUCs.

1.4.3. Document AO and Army review of field design changes for compliance with LUCs.

## 2. DEFINITIONS

2.1. **Land Use Controls**- are rules, directives, policies, and other administrative, legal, or institutional measures adopted by the appropriate authorities in a manner consistent with applicable federal, state, and local laws.

2.2. **Contaminated Areas**- Locations on the Installation where the soil or groundwater has been contaminated by explosives, metals, PCBs, asbestos or other hazardous substances or pollutants.

2.3. **Soil Disturbance**-Any activity that disturbs or removes soil. Typical dirt work activities include land clearing, grubbing, digging and trenching. Typical soil disturbance activities may be associated with new construction, demolition, and/or maintenance projects.

2.4. **Wetlands**- Areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils.

2.5. **NEPA** - the US statute that requires all Federal agencies to consider potential effects of proposed actions on human and natural environment.

2.6. **SHPO**- State Historic Preservation Officer The official appointed or designated pursuant 101(b)(1).

2.7. **CERCLA**- Comprehensive Environmental Response, Compensation, and Liability Act- Federal Government program to clean up the nations uncontrolled hazardous waste sites.

## 3. PRECEDENCE

3.1. If this document conflicts with any other AO controlled Document relative to Land Use Controls this document will take precedence.

## 4. APPLICABILITY

4.1.1. Land Use Controls needed to meet legal as well as facility-specific requirements

4.1.1.1. Sites needed to support the IAAAP mission.

4.1.1.2. Sites with known MEC (UXO, discarded munitions) hazards.

4.1.1.3. Sites with groundwater known or suspected to be contaminated.

4.1.1.4. Sites with soils known or suspected to be contaminated with hazardous substances or pollutants.

4.1.1.5. Sites with functioning remedial systems (e.g. landfill caps).

4.1.1.6. Sites identified as archeologically sensitive.

4.1.1.7. Sites that qualify as wetlands.

4.1.1.8. Sites that require COE construction permits for working in ditches/creeks or streams.

- 4.1.1.9. Sites that are managed by the IAAAP Natural Resources program, including possible impacts to migratory birds, eagles, threatened or endangered species, prairie, forest, hunting zones and agricultural leases.
- 4.1.1.10. Any site that falls under land use agreements between the Army and regulatory agencies or natural resource trustees.
- 4.1.1.11. Historically significant sites required to be addressed under SHPO.
- 4.1.1.12. Sites controlled for safety and/ or security reasons.

## 5. **PROCEDURE**

- 5.1. AO Engineering Department and/or Facilities Maintenance identify a new project that includes potential disturbance of environmental media (soil, surface water, and groundwater).
- 5.2. AO Environmental Department reviews the early planning documents for the new project and identifies requirements for completing a LUC review (e.g., detailed scope of work, work area map layout)
- 5.3. AO Engineering Department prepares detailed project planning documents.
- 5.4. AO Environmental Department reviews the detailed planning documents and identifies any additional information needs to complete the LUC review.
- 5.5. AO Environmental Department reviews the detailed planning documents with Army for LUC compliance
- 5.6. AO and Army document LUC review and any remaining issues with the Project LUC Review form (attachment 1).
- 5.7. AO Environmental Department provides the Army with materials to resolve any remaining issues in the LUC review.
- 5.8. AO and Army sign the Project Review Form signifying project plans are in compliance with current LUCs.
- 5.9. AO Environmental Department and Army retain copies of the completed Project LUC Review Form as permanent records.

## 6. **RESPONSIBILITY**

- 6.1. It is the responsibility of all AO departments to notify the AO Environmental Department of any project that includes new structure construction, structure demolition, structural changes to existing buildings, soil disturbance, changes in the flow (volume and /or direction) of surface water or groundwater, or accesses the groundwater in any way anywhere on the facility.
- 6.2. Environmental Department
  - 6.2.1. It is the responsibility of the AO Environmental Department to assure land at the IAAAP is used to support the mission of the Army. The land use control document must also meet legally required controls pursuant all agreements between the Army and regulatory agencies or natural resource trustees.
  - 6.2.2. It is the responsibility of the AO Environmental Department to initiate reviews of this

document and attachments on an annual basis to assure that it is current and applicable. This review must be coordinated with the Army for their concurrence. Results will be presented to the Army by 1 April of each year.

**6.3.** It is the responsibility of the AO Environmental Department to review Environmental Cleanup Records of Decision for land use control objectives and Remedial Design/Remedial Action Plans and appropriate and applicable environmental documents. Coordination with the respective Army project managers to establish effective site specific land use controls is required. Site specific land use controls may be found as an attachment to this document.

**6.4. AO Facilities Management Engineering**

**6.4.1.** It is the responsibility of the Facilities Management Engineering to use the land use control document as part of the project planning process. This document is designed to be a working tool used to identify areas of the facility that have or suspected to have hazards that may restrict land use and impact the ability of Facilities Engineering to disturb soil, vegetation surface and or ground water during construction.

**6.5. DERP, FUSRAP & NRP**

**6.5.1.** It is the responsibility of the DERP, FUSRAP and NRP to provide AO with the information required identifying the restrictions necessary to keep the land use control document current. The specific procedure for DERP to initiate modification and include this EWI as part of its CERCLA documentation is presented below. Procedures for other programs will be included in this EWI as they become available.

**6.5.2. DERP**

**6.5.2.1.** The Army will develop the Land Use Controls Plan for environmental cleanup sites as part of CERCLA documentation. This usually occurs in the Record of Decision.

**6.5.2.2.** The Army will provide the Land Use Control Plan to AO.

**6.5.2.3.** AO will develop Draft Implementation Procedures to be included as appendices to this EWI.

**6.5.2.4.** AO, the Army, and /or other Army contractors will work together to finalize the Implementation Procedures

**6.5.2.5.** The Army will develop the Land Use Control Implementation Plan (LUCIP) that will be included in CERCLA documentation. The LUCIP will reference the most current EWI and appropriate appendix as the Army's controlling internal procedure.

**6.5.3.** FUSRAP will be developed and added later.

**6.5.4.** NRP will be developed and added later.

**6.6. ARMY**

**6.6.1.** It will be the responsibility of the Army to notify the EPA and the State of Iowa at least six (6) months prior to the transfer or sale of any part or all of the IAAAP so the EPA or State of Iowa can be involved in the discussions to ensure land use changes.

**6.6.2.** It will be responsibility of the Army to maintain the integrity of any current or future

remedial or monitoring system.

**6.6.3.** It will be the responsibility of the Army to identify all security restrictions required for the controlled areas. The restrictions will be identified in Annex 13 of the Physical Security Plan.

## **7. ACRONYMS**

**7.1. DERP-** Defense Environmental Restoration Program (includes IRP, CC and MMRP).

**7.2. EMO** Engineering, Modernization, Optimization Department

**7.3. IRP** - Installation Restoration Program

**7.4. NRP-** Natural Resources Program

**7.5. MMRP-** Military Munitions Program

**7.6. CC-** Compliance- Related Cleanup

**7.7. EDA** – Explosive Demolition Area

**7.8. EWI-** Environmental Work Instruction

**7.9. HUD-** Department of Housing and Urban Development

**7.10. MEC-** Munitions and Explosives of Concern

**7.11. NEPA-** National Environmental Policy Act

**7.12. PCBs** – Polychlorinated Biphenyls

**7.13. FUSRAP-** Formerly Utilized Sites for Remedial Action Program

**7.14. MEC** - Munitions and Explosives of Concerns

**7.15. MC-** Munitions Constituents

**7.16. MD-** Munitions Debris

**7.17. SHPO** – State Historic Preservation Office

## **8. EPA ESTABLISHED LAND USE CONTROLS (LUCs)**

**8.1. Operable Unit 1 – Soils:** The LUCs necessary to ensure long-term protectiveness of the remedy will be specifically defined and described in a Land Use Controls Implementation Plan (LUCIP) to be developed after finalization of the ESD as part of the Land Use Controls Remedial Design (LUCRD).



**8.1.1. LUC Implementation and Responsibility**

LUC Restrictions	OU1 - LUC Implementation and Responsibility		
	Applicable Areas (Listed in Section 8.1.2.)	Engineering Controls (Physical)	Institutional Controls (Administrative)
<p><b>Land Use Restrictions</b></p> <p>Land use at each applicable site will remain commercial/industrial (i.e., non-residential);</p>	All areas listed in Section 8.1.2.	<p><b>AO Security:</b> Maintain log of recreational use violations and identify violations to the Environmental Restoration Manager for LUCs monitoring.</p> <p><b>Natural Resources:</b> Conduct safety briefing for recreational users including locations of restricted areas and signage.</p>	<p><b>USACE Real Estate Division:</b> Remove OU-1 Areas from list of available land for residential land use.</p> <p><b>AO:</b> Enforce the provisions of <i>Regulation 420-1 Hunting and Fishing</i>.</p> <p><b>Natural Resources:</b> Ensure that the hunting/fishing zone map provided in <i>Regulation 420-1</i> is maintained as necessary to prevent use of OU-1 Areas for recreational use.</p> <p><b>Army Engineering:</b> Create/update the GIS layer for OU-1 Area LUCs.</p>
<p><b>Access Restrictions</b></p> <p>Access restrictions (i.e., authorized activities, dig permit requirements);</p>	All areas listed in Section 8.1.2.	<p><b>AO Security:</b> Maintain log of recreational use violations and identify violations to Environmental Restoration Manager for LUCs monitoring.</p> <p><b>AO Security:</b> Maintain distribution and log any keys to OU-1 areas and monitoring wells. Report to the Army Environmental Restoration Manager annually by 1 February.</p>	<p><b>AO Engineering:</b> Review new and continuing projects for access issues. Report to the Army Environmental Restoration Manager annually by 1 February.</p> <p><b>Army:</b> Review new and continuing projects for access issues; Review and verify OU-1 Area gate key requests; Ensure <i>IAAAP Regulation 420-1 Hunting and Fishing</i> are updated for OU-1 Area LUCs.</p>
<p><b>Groundwater Restrictions</b></p>	All areas listed in Section 8.1.2.	<p><b>AO:</b> Report any groundwater use violations in OU-1 areas to the Environmental Restoration Manager.</p>	<p><b>USACE Real Estate Division:</b> Add groundwater use restriction language to leases.</p>
<p><b>Project LUC Review:</b></p> <p>Activities involving potentially intrusive ground work for utilities, buildings or grounds maintenance,</p>	All areas listed in Section 8.1.2.		<p><b>AO Engineering:</b> Identify projects that include potential disturbance of environmental media for all operational requirements.</p> <p><b>Army:</b> Identify projects that include potential disturbance of environmental</p>

<p>construction, soil excavation, or groundwater well installation, subsurface investigations.</p> <p>Drilling, sawing, or otherwise penetrating concrete or removal of concrete interior areas of the buildings at the OU-1 Areas where potentially or known contaminated soil may exist below the foundations will require evaluation.</p>			<p>media for all facility management actions.</p> <p><b>AO Environmental Department:</b> Conduct all Project LUC Reviews in accordance with EWI E01-012.</p> <p><b>Army:</b> Approve completed Project Review LUC Forms.</p>
<p><b>Fencing and Signs</b></p>	<p>IAAAP Boundary Site specific at: Excavation areas where contamination concentrations remain at levels greater than industrial remediation goals (RGs).</p>	<p><b>AO Maintenance:</b> Inspect and maintain IAAAP perimeter and OU-1 area specific fencing and signage. Take photos before repairs and after repairs. Since Items 7, 12, 13, and 20 in Table 8.1.2. Operable Unit 1 on Page 8 of 31 are the same units as Operable Unit 05 on Page 10 of 31 take only before repair photos as the OU-5 contractor will take photos after repairs are made.</p>	
<p><b>Soil Cover</b></p>	<p>Site specific at:</p> <ul style="list-style-type: none"> <li>- Line 1</li> <li>- Line 2</li> <li>- Line 3</li> <li>- Line 3A</li> <li>- Line 800</li> </ul> <p><i>*Refer to Table 1 in the OU-1 LUCIP (Nov 20 19)</i></p>	<p><b>AO Maintenance:</b> Inspect and maintain soil cover to ensure vegetative growth, inspect and repair damage due to settling, exposure to the weather, erosion. (Mowing needs to be conducted at the areas semi-annually, with re-seeding and brush/tree removal conducted as necessary)</p>	<p><b>AO Engineering:</b> Identify all operational requirements that would penetrate soil cover at OU-1 Areas.</p> <p><b>AO Environmental Department:</b> Conduct all Project LUC Reviews in accordance with EWI E01-012.</p> <p><b>Army:</b> Approve completed Project Review LUC Forms.</p>
<p><b>Stakeholder Outreach</b></p>	<p>All areas listed in Section 8.1.2.</p>		<p><b>AO:</b> Conduct annual LUC training for workers in maintenance, grounds keeping, and engineering</p> <p><b>Natural Resources:</b> Inform recreational users of restricted access areas and LUCs relevant to recreational use areas.</p> <p><b>Army:</b> Provide LUC information to RAB and other community groups as appropriate.</p>

<p><b>LUC Monitoring</b> Requirement for routine inspections to ensure LUCs remain in place and effective.</p>	<p>All areas listed in Section 8.1.2.</p>	<p><b>AO:</b> Implement modifications to engineering controls as deemed necessary by monitoring.</p>	<p><b>AO Environmental Department:</b> Complete Form ENV-0014 (Attachment 1) and turn into Army. Complete annual OU-1 Land Use Control Implementation Report and turn into Army for review prior to submittal to EPA. Due to the Army Environmental Restoration Manager annually by 1 February.</p> <p><b>Army:</b> Conduct annual site inspections of OU-1 Areas. Evaluate effectiveness of LUCs and summarize in an annual report. Provide annual report to USEPA and RAB.</p>
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**8.1.2. Operable Unit 1 – Applicable Areas:**

1. IAAP-001\_LINE 1 AMMO LAP (MISSILE/FORMER AEC)
2. IAAP-002\_LINE 2 AMMO LAP (ARTILLERY/SHAPE)
3. IAAP-003\_LINE 3 AMMO LAP (ARTILLERY)
4. IAAP-004\_LINE 3A AMMO LAP (ARTILLERY)
5. IAAP-005\_LINE 4A AND 4B AMMO ASSEMBLY
6. IAAP-006\_LINE 5A AND 5B AMMO ASSEMBLY
7. IAAP-007\_LINE 6 AMMO PRODUCTION (DETONATOR)
8. IAAP-009\_LINE 8 AMMO LAP (FUZE/ROCKET)
9. IAAP-010\_LINE 9 AMMO LAP (MINE)
10. IAAP-012\_EXPLOSIVE DISPOSAL AREA/EAST BURN PADS
11. IAAP-013\_INCENDIARY DISPOSAL SITE
12. IAAP-018\_POSSIBLE DEMOLITION AREA
13. IAAP-021\_DEMOLITION AREA/DEACTIVATION FURNACE
14. IAAP-032\_BURN CAGES/WEST BURN PADS
15. IAAP-036\_NORTH BURN PADS
16. IAAP-037\_NORTH BURN PADS LANDFILL
17. IAAP-039\_FIRE TRAINING PIT
18. IAAP-040\_ROUNDHOUSE TRANSFORMER STORAGE AREA
19. IAAP-044\_LINE 800/PINKWATER LAGOON
20. IAAP-047\_CENTRAL TEST AREA

**8.2. Operable Unit 2 – Not Used**

**8.3. Operable Unit 3 – Off-site Groundwater:** The U.S. Army and U.S. EPA have agreed on the following LUCs including to prevent use of groundwater contaminated with RDX above 2ug/L as a residential potable water source, to prevent installation/construction of groundwater wells for potable water in contaminated groundwater associated with the Off-Site area, and to protect integrity of the prescribed remedy of ED/MNA and prevent the migration of the RDX groundwater plume. The Army or its representative will be responsible for implementation, inspection, periodic reporting, and enforcement of the LUCs.

**8.3.1. OU3 Sites: IAAP-046\_Off-Post Contamination (plume)**

**8.3.2. LUC Implementation and Responsibility**

LUC Restrictions	OU3 - LUC Implementation and Responsibility	
	Engineering Controls (Physical)	Institutional Controls (Administrative)
Monitoring well access		<b>AO Security:</b> restricted key access for monitoring wells
Private Property Well Leases	<b>Army:</b> Annual monitoring	<b>USACE Real Estate Division:</b> Well lease terms review

**8.4. Operable Unit 4:** The U.S. Army and the U.S. EPA have selected LUCs for the OU4 remedy that include engineering (physical) and institutional (administrative, legal) controls that restrict access, prohibit certain types of land use, limit unauthorized intrusive activities, and prevent the use of groundwater as a drinking water supply within the landfill boundary. A perimeter fence for OU4 was installed in May 2016 in accordance with the Final Revision 1 OU4 Remedial Action Work Plan Inert Disposal Area (IDA) Boundary Fence Installation at the IAAAP.

**8.4.1. LUC Implementation and Responsibility**

**8.4.2. Operable Unit 4 – Applicable Areas: IAAP-020\_INERT DISPOSAL AREA**

LUC Restrictions	OU4 - LUC Implementation and Responsibility		
	Applicable Areas (Listed in Section 8.4.2.)	Engineering Controls (Physical)	Institutional Controls (Administrative)
<b>Land Use Restrictions</b> Land Use at the IDA will remain non-residential and industrial	All areas listed in Section 8.4.2		<b>USACE Real Estate Division:</b> Remove OU-4 Areas from list of available land for residential land use.
<b>Access Restrictions</b> (i.e., authorized activities, dig permit requirements)	All areas listed in Section 8.4.2	<b>AO Security:</b> Maintain distribution and log any gate keys to OU-4 area and monitoring wells.	<b>AO Engineering:</b> Review new and continuing projects for access issues. <b>Army:</b> Review new and continuing projects for access issues; Review and verify OU-4 Area gate key requests; Ensure <i>IAAAP Regulation 420-1 Hunting and Fishing</i> are updated for OU-4 Area LUCs.
<b>Construction Restrictions</b>	All areas listed in Section 8.4.2	<b>OU-4 Contractor:</b> will inspect and maintain landfill cap boundary fence.	<b>AO Engineering:</b> Review new and continuing projects for intrusive activities, report to Army Env. Restoration Mgr annually by <b>1 February.</b> <b>USACE Real Estate Division:</b> Add

			construction restriction language to leases.
<b>Groundwater Restrictions</b>	All areas listed in Section 8.4.2	<b>OU-4 Contractor:</b> Inspect and maintain groundwater monitoring wells.	<b>USACE Real Estate Division:</b> Add groundwater use restriction language to leases.
<b>Fencing and signs</b>	IAAAP Boundary and site specific at: - Inert Disposal Area	<b>OU-4 Contractor:</b> Inspect and maintain IAAAP perimeter and OU-4 area specific fencing and signage.	
<b>LUC Monitoring</b> Requirement for routine inspections to ensure LUCs remain in place and effective.	All areas listed in Section 8.4.2		<b>Army:</b> Ensure current OU4 Contractor completes requirement for inspections and reports to EPA.

**8.5. Operable Unit 5 – Military Munitions Response Sites**

**8.5.1. Operable Unit 5 Sites:** (All four sites are fenced and have warning signage).

1. IAAP-001-R-01\_CENTRAL TEST AREA
2. IAAP-002-R-01\_LINE 6 AMMO PRODUCTION (Inside Blast Radii)
3. IAAP-004-R-01\_POSSIBLE DEMOLITION SITE (South of Yard G)
4. IAAP-006-R-01\_INCENDIARY DISPOSAL AREA (East of Yard D)

**8.5.2. LUC Implementation and Responsibility** (*Reference: Final Land Use Control Implementation Plan for the Central Test Area, Incendiary Disposal Area, Line 6 Ammo Production, and the Possible Demolition Site Munitions Response Sites – Military Munitions Response Program – July 2017.*)

LUC Restrictions	OU5 - LUC Implementation and Responsibility		
	Applicable Areas (Listed in Section 8.5.1.)	Engineering Controls (Physical)	Institutional Controls (Administrative)
<b>Land Use Restrictions</b> Land Use at the IDA will remain non-residential and industrial	All areas listed in 8.5.1.		<b>USACE Real Estate Division:</b> Remove OU-5 Areas from list of available land for residential land use.

<p><b>Access Restrictions</b></p> <p>Access restrictions; control unauthorized access into the MMRP fenced areas</p>	<p>All areas listed in 8.5.1.</p>	<p><b>AO Security:</b> Maintain distribution and log MMRP gate keys.</p> <p><b>Natural Resources:</b> Inform hunters of restricted access.</p>	<p><b>AO Engineering:</b> Review new and continuing projects for access issues and report to the Army Environmental Restoration Manager annually by 1 February.</p> <p><b>Army:</b> Review and verify gate key requests.</p>
<p><b>Construction Restrictions</b></p> <p>Prevent ground intrusive activities, development and/or use of the MRS unless MEC hazards are adequately controlled</p>	<p>All areas listed in 8.5.1.</p>	<p><b>AO Maintenance:</b> Inspect fencing and warning signage at the four sites noted in Section 8.5.1. – AO to provide photos of needed repairs to Army Environmental Restoration Mgr. –Army OU-5 maintenance contractor will perform all repairs.</p>	<p><b>AO Engineering:</b> review new and continuing projects for intrusive activities and report to the Army Environmental Restoration Manager annually by 1 February.</p> <p><b>Army:</b> review new and continuing projects for intrusive activities.</p>
<p><b>LUC Monitoring</b></p> <p>Requirement for routine inspections to ensure LUCs remain in place and effective.</p>	<p>All areas listed in 8.5.1.</p>		<p><b>AO Maintenance:</b> Report to Army Environmental Restoration Manager annually by 1 February that inspections have been completed.</p>

**8.6. Operable Unit 6 – On Site Groundwater**

- 8.6.1 Land Use Controls will be required
- 8.6.2 No LUC established at this time

**8.7. Operable Unit 7 – Installation Wide**

- 8.7.1 Land Use Controls will be required
- 8.7.2 No LUC established at this time

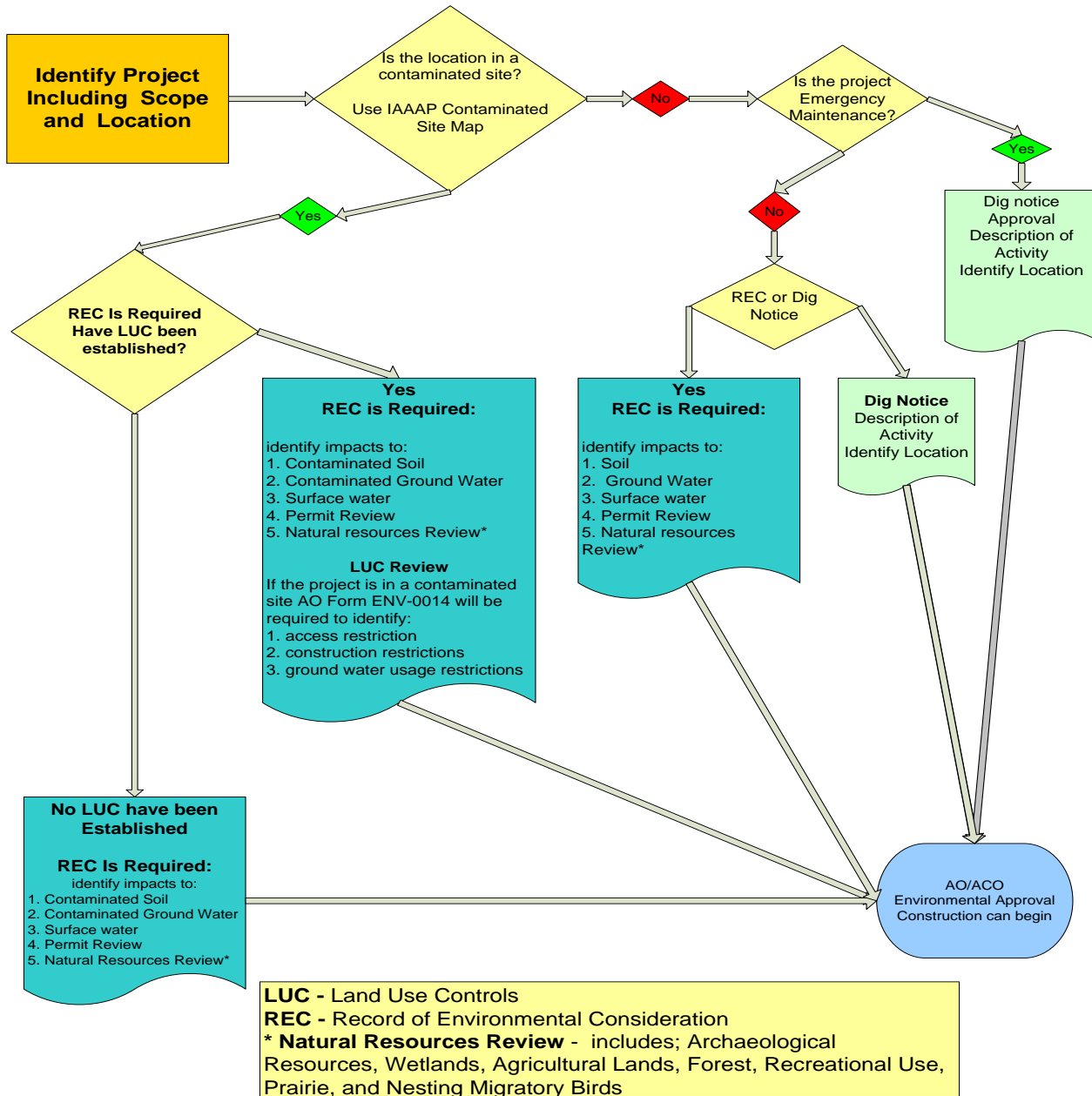
**8.8. Operable Unit 8 – FUSRAP:** The LUCs necessary to ensure long-term protectiveness of the remedy will be specifically defined and described in a Land Use Controls Implementation Plan (LUCIP) to be developed after finalization of the ESD as part of the Land Use Controls Remedial Design (LUCRD).

- 8.8.1 OU8 FUSRAP SOIL SITES – Land Use Controls will be required.
- 8.8.2 No LUC established at this time.

**8.9. Operable Unit 9 – Construction Debris Sites**

- 8.9.1 Land Use Controls are not required.

LUC Flowchart is used as a guideline to assure proper steps are completed:



**ATTACHMENT 1 - AMERICAN ORDNANCE ANNUAL LUC VERIFICATION APPROVAL FORM ENV-0014**

OPERABLE UNIT 1 (OU1) – SOIL SITES		
<input type="checkbox"/> AO Security: maintain distribution and log gate key access and monitoring well keys. List any access/key issues:		
SITES	Number of Gates	<b>Fencing/signs Inspected/Maintained Any Issues?</b> <i>At the following sites: 7, 12, 13 and 20 AO will take only before photos of damage to fences/signs as OU-5 Contractor will make repairs &amp; take photos after repairs. At all other OU-1 sites AO will inspect fences signs for damage, make repairs and take before/after photos of down/damaged fences and signs.</i>
1. Line 1 ( <i>2 required signs</i> )	2	
2. Line 2	2	
3. Line 3	1	
4. Line 3A	1	
5. Line 4A/4B	1	
6. Line 5A/5B	1	
7. Line 6 ( <i>inside blast radii</i> )	3	
8. Line 8		
9. Line 9		
10. Line 800 & Pinkwater Lagoon ( <i>1 required sign</i> )	0	No fencing
11. East Burn Pads Area	0	No fencing
12. Incendiary Disposal Area (East of Yard D)	2	
13. Possible Demolition Site (South of Pistol Range)	6	
14. Demolition Area/ Deactivation Furnace	1	Site boundary fencing to be installed.
15. Burn Cages/West Burn Pads	0	No fencing
16. North Burn Pads	0	No fencing
17. North Burn Pad Landfill	0	No fencing
18. Fire Training Pit (located southeast of Bldg. No. BG 199-3)	0	No fencing
19. Roundhouse Transformer Storage Area (SW of Roundhouse Bldg. No. 400-138)	0	No fencing
20. Central Test Area (near Bldg. No. 600-84 former AET site)	3	



**ATTACHMENT 1 - AMERICAN ORDNANCE ANNUAL LUC VERIFICATION APPROVAL FORM ENV-0014**  
**Page 2 of 3**

<b>TOTAL OU1 WORK PERMITS ISSUED FOR POTENTIALLY INTRUSIVE GROUNDWORK</b> <i>(Include any issues)</i>	
<b>ANY RECREATIONAL USE VIOLATIONS? YES/NO</b> <i>(If yes, please explain)</i>	
<b>CONTAMINATED SOIL COVER INSPECTION</b> - Inspect and maintain soil cover to ensure vegetative growth, inspect and repair damage due to settling, exposure to the weather, erosion. (Mowing needs to be conducted at the areas semi-annually, with re-seeding and brush/tree removal conducted as necessary) See OU1 LUCIP table 1 for specific soil locations. Report findings:	
Line 1	
Line 2	
Line 3	
Line 3A	
Line 800	
<b>OPERABLE UNIT 3 (OU3) – OFFSITE GROUNDWATER</b>	
<input type="checkbox"/> AO Security: restrict key access for monitoring wells. List any access/key issues.	
<b>OPERABLE UNIT 4 (OU4) – INERT DISPOSAL AREA</b>	
<p style="background-color: yellow;"><b>AO Maintenance will not perform inspection of Operable Unit 4 (OU-4. Army OU-4 contractor will perform inspection, make repairs and take before/after photos of repairs.</b></p> <input type="checkbox"/> AO Security: maintain distribution and log gate key access and monitoring well keys. List any access/key issues:	

**ATTACHMENT 1 - AMERICAN ORDNANCE ANNUAL LUC VERIFICATION APPROVAL FORM ENV-0014**  
**Page 3 of 3**

<b>OPERABLE UNIT 5 (OU5) – Military Munition Response Program (MMRP) SITES</b>		
<b>MMRP Sites</b>	<b>Number of Gates</b>	<b>AO Maintenance: inspect fence/signage. List any issues: (trees down/damage) AO will inspect and forward photos of needed repairs to the Army Environmental Restoration Mgr. who will forward to OU-5 Contractor to make repairs and document repairs with photos. AO Maintenance will not perform repairs at OU-5 sites.</b>
1. Central Test Area	3	
2. Line 6	3	
3. Possible Demolition Site (South of Yard G)	6	
4. Incendiary Disposal Area (East of Yard D)	2	
<input type="checkbox"/> AO Security: maintain distribution and log gate key access and monitoring well keys. List any access/key issues:		

<b>AO Engineering - Annual review of new and continuing projects for access issues or intrusive activities at LUCs</b>

AO Environmental Approval Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Army Approval Signature: \_\_\_\_\_ Date: \_\_\_\_\_

ATTACHMENT 2 – FY22 IAAP ENVIRONMENTAL RESTORATION SITES BY OPERABLE UNITS

FY22 IAAP ENVIRONMENTAL RESTORATION AREAS BY OPERABLE UNITS

Revised 5/10/22

OPERABLE UNIT - 1 (OU1) SOILS	
HQAES ID	HQAES ID NAME
19105.1001	IAAP-001 Line 1 Ammo LAP (Missile/Former AFC)
19105.1002	IAAP-002 Line 2 Ammo LAP (Artillery/Shape)
19105.1004	IAAP-003 Line 3 Ammo LAP (Artillery)
19105.1006	IAAP-004 Line 3A Ammo LAP (Artillery)
19105.1008	IAAP-005 Line 4A and 4B Ammo Assembly
19105.1009	IAAP-006 Line 5A and 5B Ammo Assembly
19105.1010	IAAP-007 Line 5 Ammo Production (Detonator)
19105.1012	IAAP-009 Line 8 Ammo LAP (Fuze/Rocket)
19105.1013	IAAP-010 Line 9 Ammo LAP (Mine)
19105.1016	IAAP-012 Explosive Disposal Area (East Burn Pads)
19105.1018	IAAP-013 Incineratory Disposal Area (East Yard D)
19105.1023	IAAP-018 Possible Demolition Site (South Yard G)
19105.1027	IAAP-021 Demolition Area/ Deactivation Furnace
19105.1037	IAAP-032 Burn Cages, BCLF, West Burn Pads, WBPLF
19105.1039	IAAP-036 North Burn Pads (2) (Near IAAP-024)
19105.1040	IAAP-037 North Burn Pads Landfill
19105.1042	IAAP-039 Fire Training Pit
19105.1044	IAAP-040 Roundhouse Transformer Storage Area
19105.1048	IAAP-044 Line 800 & Pinkwater Lagoon
19105.1052	IAAP-047 Central Test Area

OPERABLE UNIT - 3 (OU3) OFFSITE GROUNDWATER	
HQAES ID	HQAES ID NAME
19105.1051	IAAP-046 Off Post Contamination

OPERABLE UNIT - 4 (OU4) INERT DISPOSAL AREA	
HQAES ID	HQAES ID NAME
19105.1025	IAAP-020 Inert Disposal Area (soil)
19105.1026	IAAP-020G Inert Disposal Area Groundwater

OPERABLE UNIT - 5 (OU5) MMRP AREAS	
HQAES ID	HQAES ID NAME
19105.1055	IAAP-002-R-01 Line 6 Ammo Production (inside Blast Radr)
19105.1056	IAAP-001-R-01 Central Test Area
19105.1057	IAAP-004-R-01 Possible Demolition Site (PDS)
19105.1059	IAAP-006-R-01 Incineratory Disposal Area (IDA)

OPERABLE UNIT - 6 (OU6) ONSITE GROUNDWATER	
HQAES ID	HQAES ID NAME
19105.1003	IAAP-002G Line 2 Ammo LAP (Artillery/Shape) Groundwater
19105.1005	IAAP-003G Line 3 Ammo LAP (Artillery) Groundwater
19105.1007	IAAP-004G Line 3A Ammo LAP (Artillery) Groundwater
19105.1014	IAAP-010G Line 9 Ammo LAP (Mine) Groundwater
19105.1065	CC-001G Line 1 Groundwater
19105.1067	IAAP-006G Line 5A and 5B Ammo Assembly Groundwater

OPERABLE UNIT - 7 (OU7) INSTALLATION-WIDE	
HQAES ID	HQAES ID NAME
19105.1020	IAAP-015 Old Fly Ash Waste Pile (soil,ash,SW,SD)
19105.1021	IAAP-016 Line 1 Former Wastewater Impoundment (soil,SW,SD)
19105.1036	IAAP-031 Ammunition Box Chipper Disposal Pit (soil,ash)
19105.1041	IAAP-038 Building 600-86 Septic System (soil)
19105.1045	IAAP-041 Line 3A Pond (soil)
19105.1047	IAAP-043 Fly Ash Disposal Area (soil, ash)
19105.1049	IAAP-044G Line 800 & Pinkwater Lagoon Groundwater (SD,SW)
19105.1075	IAAP-016G Line 1 Former Wastewater Impoundment GW
19105.1076	IAAP-017G Pesticide Pit Groundwater
19105.1082	IAAP-030G Firing Sites Area Groundwater
19105.1083	IAAP-031G Ammunition Box Chipper Disposal Pit Groundwater
19105.1086	IAAP-041G Line 3A Pond Groundwater
19105.1096	CC-06 Demolition Area/ Deactivation Furnace

OPERABLE UNIT - 9 (OU9) CONSTRUCTION DEBRIS AREAS	
HQAES ID	HQAES ID NAME
19105.1062	CC-IAAP-001 Construction Debris Site 1 (soil, GW,SW,SD)
19105.1063	CC-IAAP-002 Construction Debris Site 2 (soil, GW,SW,SD)

OPERABLE UNIT - 10 (OU10) EXPLOSIVE DISPOSAL AREA GROUNDWATER	
HQAES ID	HQAES ID NAME
19105.1017	IAAP-012G Explosive Disposal Area (East Burn Pads) Groundwater
19105.1038	IAAP-032G Burn Cages, BCLF, West Burn Pads, WBPLF GW (WBPLF of the Road)
19105.1043	IAAP-039G Fire Training Pit Groundwater
19105.1084	IAAP-036G North Burn Pads (2) (Near IAAP-024) Groundwater
19105.1087	IAAP-037G North Burn Pads Landfill Groundwater

OPERABLE UNIT - 11 (OU11) NO FURTHER ACTION AREAS	
HQAES ID	HQAES ID NAME
19105.1022	IAAP-017 Pesticide Pit
19105.1030	IAAP-025 Explosive Waste Incinerator
19105.1033	IAAP-028 Construction Debris Disposal Area
19105.1066	IAAP-005G Line 4A and 4B Ammo Assembly Groundwater
19105.1068	IAAP-007G Line 6 Ammo Production (Detonator) Groundwater
19105.1069	IAAP-008G Line 7 AMMO LAP (Fuze/Blank) Groundwater
19105.1070	IAAP-009G Line 8 Ammo LAP (Fuze/Rocket) Groundwater
19105.1071	IAAP-013G Incineratory Disposal Area (East Yard D) Groundwater
19105.1072	IAAP-014G Boxcar Unloading Area Groundwater
19105.1073	IAAP-047G Central Test Area Groundwater
19105.1074	IAAP-015G Old Fly Ash Waste Pile Groundwater
19105.1077	IAAP-018G Possible Demolition Site (South Yard G) Groundwater
19105.1078	IAAP-022G Unidentified Substance Waste Site Groundwater
19105.1079	IAAP-025G Explosive Waste Incinerator Groundwater
19105.1080	IAAP-028G Construction Debris Disposal Area Groundwater
19105.1081	IAAP-043G Fly Ash Disposal Area Groundwater
19105.1085	IAAP-042G Abandoned Coal Storage Yard Groundwater
19105.1088	IAAP-038G Building 600-86 Septic System Groundwater
19105.1089	IAAP-040G Roundhouse Transformer Storage Area Groundwater

OPERABLE UNIT - 12 (OU12) FORMER COMPLIANCE CLEANUP AREAS	
HQAES ID	HQAES ID NAME
19105.1024	IAAP-019 Contaminated Clothing Laundry (soil,GW)
19105.1029	IAAP-024 Contaminated Waste Processor (soil,GW)
19105.1032	IAAP-027 Fly Ash Landfill (soil,GW)
19105.1034	IAAP-029 Line 3A Sewage Treatment Plant/Drying Beds (soil,GW)

COMPLIANCE RELATED CLEANUP (CC) - Included w/OU7	
HQAES ID	HQAES ID NAME
19105.1096	CC-06 Demolition Area/ Deactivation Furnace

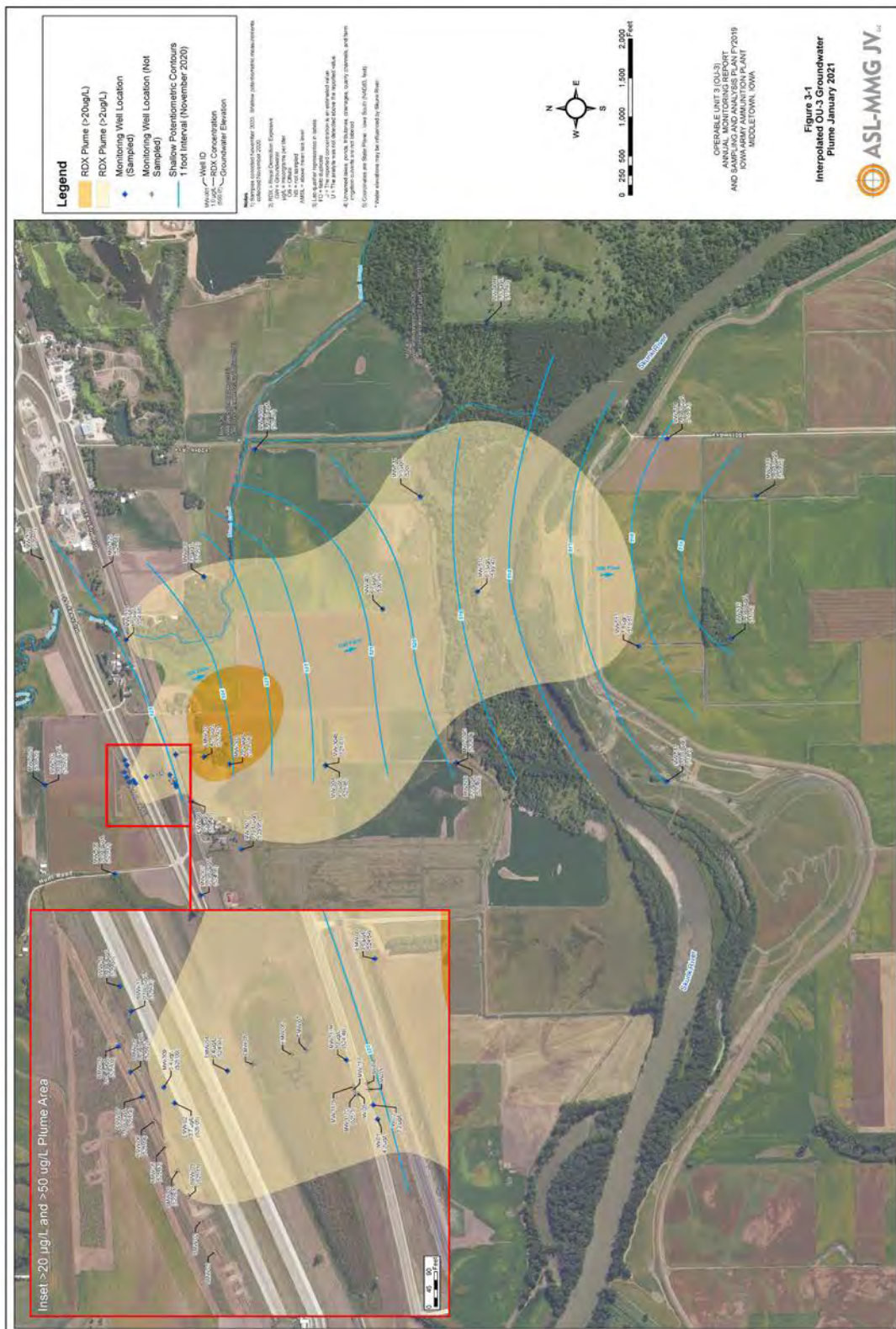
UNASSIGNED Operable Unit	
HQAES ID	HQAES ID NAME
19105.1090	Former Fire Station 200-181-3 (PFAS) Fire Training Pit (PFAS) Inert Disposal Area (PFAS) Current Fire Station (PFAS)

TOTAL OPEN IR SITES: 72  
TOTAL OPEN MR SITES: 4  
TOTAL OPEN CC SITES: 1  
TOTAL OPEN SITES: 77





ATTACHMENT 5 – OU3 OFF-POST





Line 1 Impoundment



Figure 3-1 Line 1 Impoundment Sign Locations and Photographs



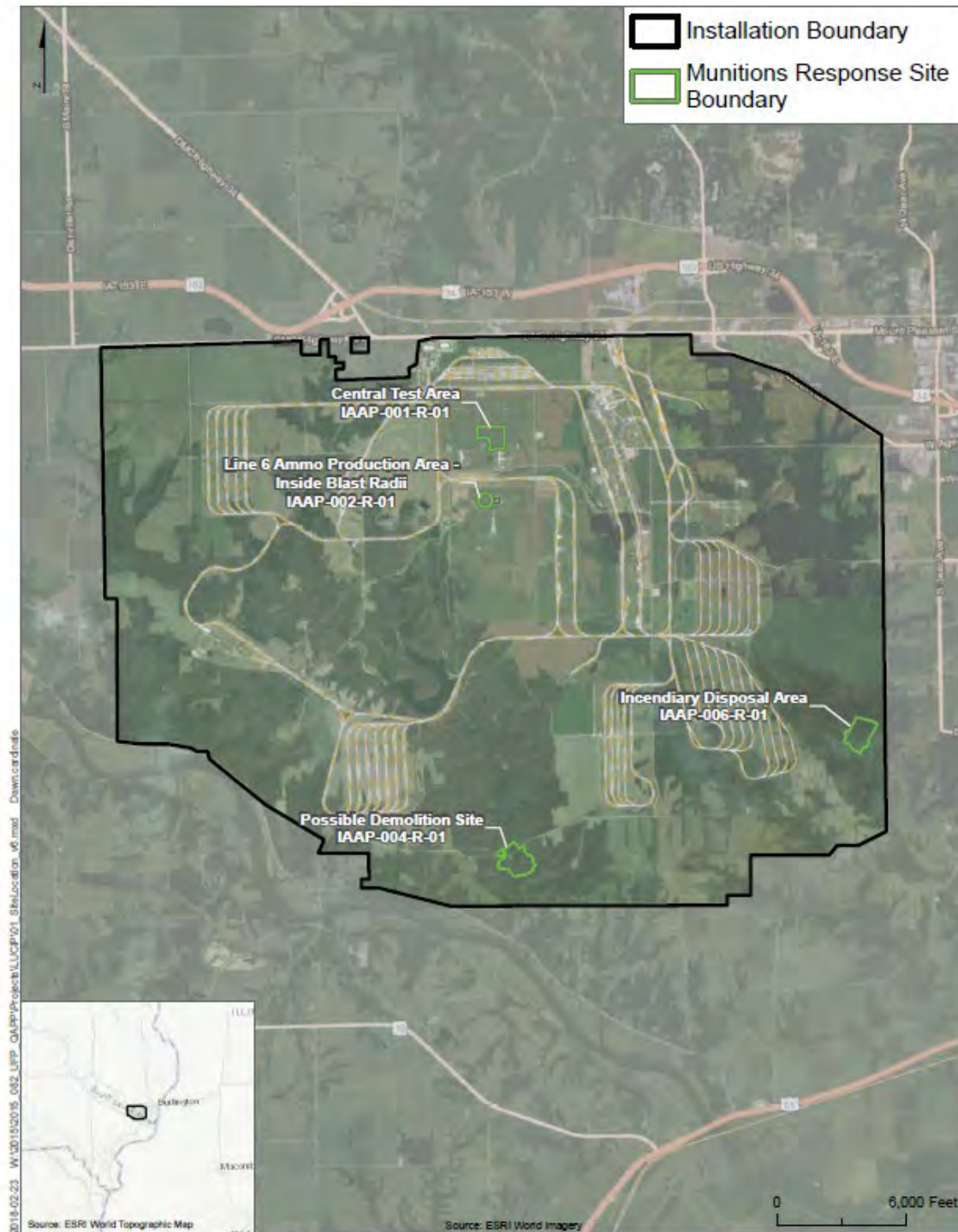
Line 800 Lagoon



G:\Iowa\_AAP\AES\_Products\X12\IUC\_CM\_Report\Nov2017\IUC\_CM\_Report\Nov2017\IUC\_CM\_Report\Nov2017.mxd: 12/1/2017: L.Nitkov

Figure 3-2 Line 800 Lagoon Sign Locations and Photographs

ATTACHMENT 7 – OU5 MMRP SITES



**Figure 1. Installation and Munitions Response Sites Locations Map**  
Annual Land Use Control Implementation Report, Operable Unit 5 Munitions Response Sites  
Iowa Army Ammunition Plant, Middletown, Iowa





**Figure 2. As-Built Fencing Layout for the Central Test Area**  
Annual Land Use Control Implementation Report, Operable Unit 5 Munitions Response Sites  
Iowa Army Ammunition Plant, Middletown, Iowa





**Figure 3. As-Built Fencing Layout for the Line 6 Ammo Production Area - Inside Blast Radii**  
Annual Land Use Control Implementation Report, Operable Unit 5 Munitions Response Sites  
Iowa Army Ammunition Plant, Middletown, Iowa





**Figure 5. As-Built Fencing Layout for the Incendiary Disposal Area**  
Annual Land Use Control Implementation Report, Operable Unit 5 Munitions Response Sites  
Iowa Army Ammunition Plant, Middletown, Iowa

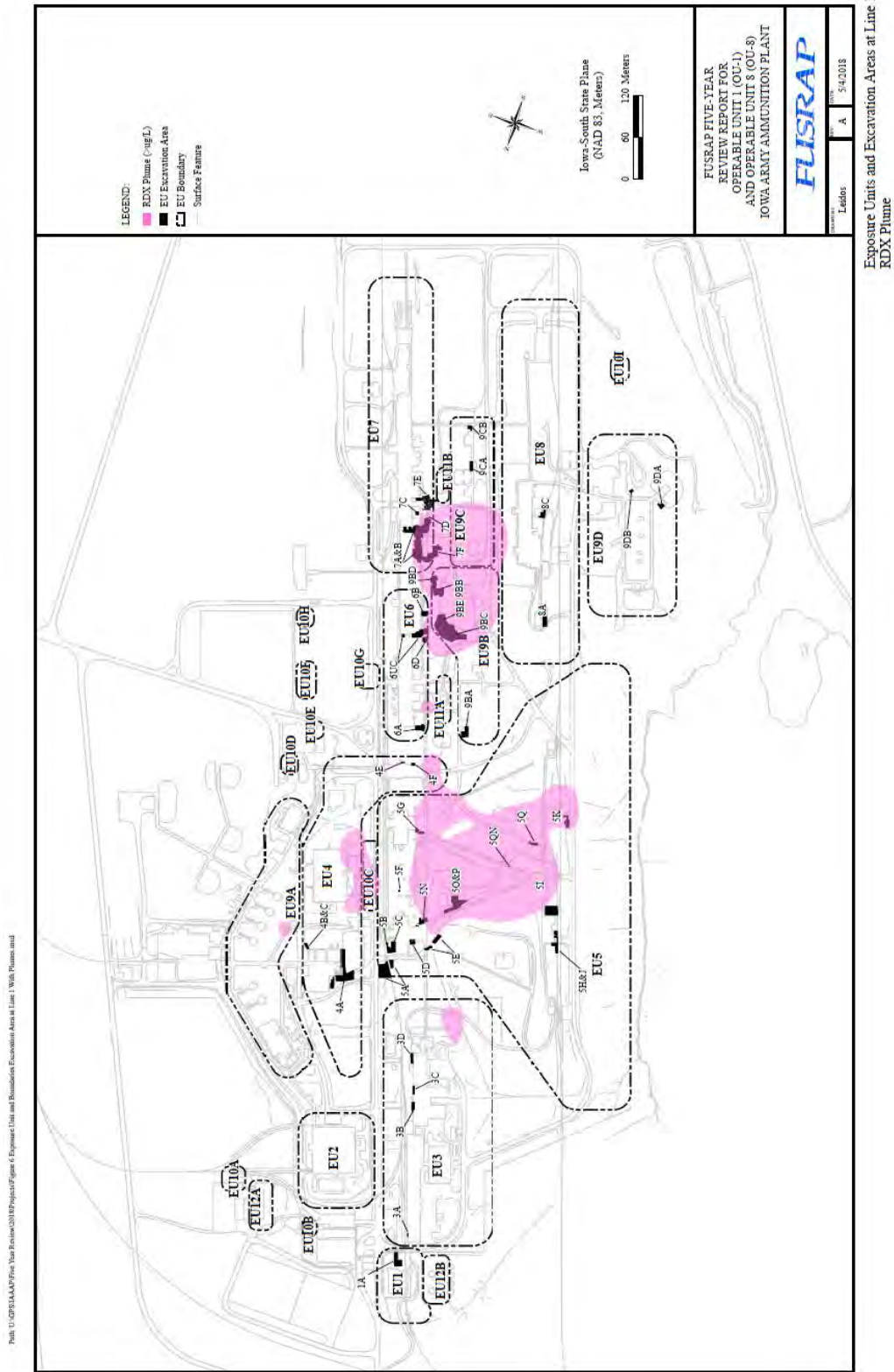




**Figure 4. As-Built Fencing Layout for the Possible Demolition Site**  
Annual Land Use Control Implementation Report, Operable Unit 5 Munitions Response Sites  
Iowa Army Ammunition Plant, Middletown, Iowa



ATTACHMENT 8 – OU8 FUSRAP SITES









**Appendix B**  
**Land Use Control Inspection Checklist**

**Operable Unit 4 (CU-4) – Inert Disposal Area Land Use  
Control Inspection Checklist 2021**

**Inspected By:** Mike Johnson, P.E.  
**Company (Organization):** Ensafe, Inc.  
**Date:** 9/8/2022

Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
Has site or adjacent end use changed since the last inspection	N	Property remains industrial/non-residential; no known or anticipated property transfers or leases.	None. Refer to Section 2.2.2
Is the visual or administrative evidence of excavation or soil disturbance? If so, determine if the site approval process has been followed.	N	Site walkover conducted in September 2022. No evidence of soil disturbance noted.	None. Refer to Section 2.2.2
Has access control been maintained? (Review security reports)	Y	Yes. Fence repairs conducted in a time manner. Key access approval process followed and access restricted.	None. Refer to Section 2.2.1.2
Has the cover/cap system been maintained? (Review annual O&M inspections and maintenance records)	Y	Yes; inspected facility and reviewed daily maintenance records.	None. Refer to Section 3.0
Have remedy monitoring systems been maintained? (Review well inspection forms, settlement monument measurements)	Y	Yes; settlement is acceptable. Required painting and maintenance of some monitoring wells was observed; required work was completed following the inspection.	None. Refer to Section 3.3

I certify that the conditions of Operable Unit 4 Inert Disposal Area on the inspection date were as reported above.

Michael A. Johnson  
Name

October 10, 2022  
Date

*Michael A. Johnson*  
Signature





## **Appendix C**

### **New Project Review Forms**

**(During the reporting period, no new projects triggered the  
“New Project Review Process”)**



**Appendix D**  
**Compliance Inspection Checklists**

# COMPLIANCE INSPECTION CHECKLIST

Date: 09/07/2022

Time: 14:00

Facility Name: Line 800 Lagoon (AKA Pinewater Lagoon)

County: Des Moines, IA Weather & Site Conditions: Low 80s, Sunny

Impoundment Level: <677 feet

Inspectors: Mike Johnson, P.E.

Others: Dean Johnson, Operator

Check Area As Inspected	<u>EMBANKMENT</u>		<u>Action</u>		
	Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
X	X vegetation	Acceptable			
U/S Slope	X beaching/slides/cracks	None observed			
	X undermining/erosion	None			
	X riprap	Not required			
	X rodent burrows	None observed			
	X trees/brush	Acceptable			
Crest	X ruts/erosion	No			
	X cracks/settlement	No			
	X poor alignment	No			
	X trees/brush	No			
D/S Slope	X vegetation	Acceptable			
	X rodent burrows	No			
	X sloughs/slides/cracks	No			
	X Seepage/wetness	No			
	X erosion	No			
	X trees/brush	No			
Groins	X vegetation / riprap	Acceptable; riprap not needed			
	X erosion	No			
	X seepage/wetness	No			
Abutments	X vegetation/erosion	Acceptable; riprap not needed			
	X sloughs/slides/cracks	No			
	X seepage/wetness	No			
Toe	cracks/slumps	Vegetation; acceptable; riprap not needed			
	embankment drains	No			
	seepage/wetness	No			
Fouled Drain	obstructions	N/A			
	flow	N/A			
	sediment	N/A			
Toe Drain	flow rate	N/A			
	clear/muddy flows	N/A			

# COMPLIANCE INSPECTION CHECKLIST

Date: 9/7/2022

Time: 14:00

Facility Name: Line 800 Lagoon

County: Des Moines, IA

Check Area As Inspected	<b><u>SPILLWAYS * DRAINS * OUTLETS</u></b>		<b>Action</b>		
	<input checked="" type="checkbox"/> Check/Circle Condition Noted	Observations	Repair	Monitor	Investigate
<b>Principal Spillway:</b>		<b>Type:</b> None			
Inlet Riser	<input checked="" type="checkbox"/> trashrack/debris	N/A			
	gates/flashboards	N/A			
	cracks/deterioration	N/A			
	corrosion	N/A			
	anti-vortex devices	N/A			
Flow-way	<input checked="" type="checkbox"/> improper alignment	N/A			
	cracks/deterioration	N/A			
	joint deterioration	N/A			
	corrosion	N/A			
Stilling Basin / Outlet	type	None			
	cracks/deterioration	N/A			
	seepage/piping	N/A			
	undercutting	N/A			
	erosion	N/A			
	debris	N/A			
	weep holes/drainage	N/A			
<b>Emergency Spillway</b>		<b>Type:</b> 12-inch overflow pipe			
All Area	<input checked="" type="checkbox"/> vegetation / riprap	Vegetation acceptable			
	<input checked="" type="checkbox"/> erosion	No			
	<input checked="" type="checkbox"/> obstructions	No			
<b>Lake Drains/Other Outlets</b>		<b>Type:</b> Siphon line			
Drains, Outlets	gates/valves	N/A			
	joins/flow surface	N/A			
	inlet tower	N/A			
	outlet area	N/A			
	operability	N/A			

**General Comments, Sketches & Field Measurements:**

- There is no inlet structure. Storm water runoff enters lagoon by overflow.
- The water level in the lagoon was lower than normal due to a hot, dry summer.
- The piping used for siphoning water from the lagoon is a 12-inch buried siphon line with riprap at the discharge end near a ditch. The line discharges beyond the abutment.
- A 12-inch emergency overflow pipe is present on the NW side of the lagoon with riprap

# COMPLIANCE INSPECTION CHECKLIST

Date: 09/07/2022

Time: 14:00

Facility Name: Building 800 Lagoon

County: Des Moines, IA

	<b>Check Area As Inspected</b>	<b><u>MISCELLANEOUS AREAS</u></b>		<b><u>Action</u></b>			
				Repair	Monitor	Investigate	
			<b>Check/Circle Condition Noted</b>	<b>Observations</b>			
<input checked="" type="checkbox"/>	Monit	<input checked="" type="checkbox"/>	piezometers	Not required			
		<input checked="" type="checkbox"/>	weirs	None present			
		<input checked="" type="checkbox"/>	monuments	Not required			
<input checked="" type="checkbox"/>	Gages	<input checked="" type="checkbox"/>	rainfall				
		<input checked="" type="checkbox"/>	pool level	<675 foot staff guage			
		<input checked="" type="checkbox"/>	stream	None required			
<input checked="" type="checkbox"/>	Pool and Shoreline	<input checked="" type="checkbox"/>	erosion/ground cover	Ground cover acceptable			
		<input checked="" type="checkbox"/>	development	None required			
		<input checked="" type="checkbox"/>	reservoir crossing	None required			
		<input checked="" type="checkbox"/>	sedimentation	Slight siltation			
		<input checked="" type="checkbox"/>	water quality	Clear			
<input checked="" type="checkbox"/>	Water		slopes	Moderate			
			land use	Wooded area			
			other impoundments	None			
<input checked="" type="checkbox"/>	D/S Area		stream channel	Acceptable			
			channel crossings	None			
			flood plain	N/A			
			development	N/A			
<input checked="" type="checkbox"/>	Emerg. Plan		notification list	N/A			
			evacuation plan	N/A			
			materials/equipment	N/A			
			access road to dam	N/A			

General Comments, Sketches & Field Measurements:

**Compliance Inspection Form  
Iowa Army Ammunition Plant**

Permit #:

Page 1

Facility Name: IDA

Responsible Official: Dean Johnson

County: Des Moines

Address: 17571 DMCHWY 79 Middletown, IA 52639

Facility Operator: Dean Johnson

Phone: (319) 759-9098

Address: 17571 DMCHWY 79 Middletown, IA 52639

Date Last Inspection: 08/05/2021

Phone: (319) 759-9098

Date This Inspection:

Waste Amount:

**At the Time of this Inspection:**

Facility personnel present: Dean Johnson

Surface conditions: Good, dry

Active unit(s):

Ambient temperature: 33°F

Wind direction and speed: NE 13

**Yes** – compliance was being achieved; **No** – compliance was not being achieved,  
**N/A** – not applicable or not observed; **PND** – previously noted deficiency (PND).

**I. Documents and Record Keeping:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Permit/Amendment documents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Financial assurance
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Site exploration report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Storm water permit
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Plans/Specs and QC&A Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. SWA/SWAC documentation
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Waste screening inspection records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Operator Certification
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Leachate recirculation authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. DOPs
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Gas monitoring/remediation results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. ERRAP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Groundwater monitoring results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Other
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Closure/Postclosure plans/results	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**II. Operating Procedures:**

Yes	No	N/A	PND	Item	Yes	No	N/A	PND	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. All weather access road to facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Scavenging and Salvaging
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Controlled Access at facility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. scavenging prohibited
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. fencing or other perimeter barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. salvaging authorized
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. entrance gate with lock	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. salvaged material orderly
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. safe/proper on-site traffic patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. salvage removal adequate
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Signage	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Animal feeding and grazing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. facility name and permit number	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. animal feeding prohibited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. days and hours of operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. grazing on final cover limited
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. wastes accepted/not accepted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Survey controls and monuments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. telephone # of resp. official	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. facility and waste boundaries surveyed and marked
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. All weather access road in facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. survey monuments established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Adequate vehicle queuing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. stakes clearly marked
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Certified scale used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Fill Sequencing
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Waste Screening	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. liner system protected
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. random inspections performed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. slope failure controlled
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. inspection records	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. differential settlement controlled
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. trained personnel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. run-on and runoff controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. EPA notification procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. Control of Workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Prohibited materials listing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. size of area controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Open Burning and Fire Hazards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. slope is stable
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. open burning prohibited	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. litter control devices used
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. vehicle fueling prohibited within 50 feet of workface	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. vectors controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Special Waste Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. operator at workface
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. operator familiar with SWAC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Run-on/Runoff Control Systems
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. ponding controlled



<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. Waste Fill Cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. dikes, ditches, berms & terraces intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. daily cover adequate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. tile lines maintained
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. alternative cover authorized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Landfill Equipment
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. scarification of daily cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. working properly
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. intermediate cover adequate (30/180 day)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. backup equipment available
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. final cover maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25. Groundwater Monitoring Wells
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. Leachate seeps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. wells intact
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. seeps identified and controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. caps and locks
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. Leachate recirculation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26. Gas Monitoring Wells/Points
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. composite liner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27. Emergency Procedures
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. RD&D authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. ERRAP available to staff
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. personnel protected	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. emergency numbers posted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. erosion controlled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. Final Cover System
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. vegetation maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. final cover over completed areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. Site Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. seeded
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. on-site litter picked up daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c. vegetation established
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. offsite litter picked up daily	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. run-on, runoff, and ponding controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. record of why litter not picked up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e. differential settlement controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Dust Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29. Other
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. dust controlled as vehicles enter/exit facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. dust controlled on internal roads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. dust controlled at the workface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Mud Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. mud controlled as vehicles enter/exit facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Leachate Control and Treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a. system operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b. head measurement device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	c. seeps controlled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d. leachate tank maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. leachate lagoon maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	f. POTW agreement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	g. sanitary sewer discharge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	h. NPDES discharge permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. NPDES on-site treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments:

- Survey monument in bad shape
- Grass recently mowed
- continue to monitor for animal burrowing in landfill areas, notify Project Engineer if activity is observed.

AUTHENTICATION

INSPECTOR		Date:
REVIEWER		

## Fixed Facility Water Treatment Plant

### QUARTERLY TESTING/INSPECTION OF SYSTEM CONTROLS

Technician Name Dean Johnson

Date 8 Sep 22

Time 1000

**Instructions**

1. Inspection should be performed quarterly at minimum. If this is an unscheduled inspection it should be noted on the form
2. Operator shall perform a thorough inspection of all instrumentation.
3. Note any deficiencies in appropriate section below
4. Operator shall perform Float/Level Transmitter System Control Testing in accordance with section 4.2.2.6 of the Operation and Maintenance Plan

**FFWTP**

Instrumentation	Inspected	Comments
FT 100A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
FT 100B	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
FQIT 100	<input type="checkbox"/> Yes <input type="checkbox"/> No	
PI 131	<input type="checkbox"/> Yes <input type="checkbox"/> No	
PI 132	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PI 140	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PI 161	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PI 170	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PI 187	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
FT 180	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

FFWTP Controls	Tested	Comments
LSLL 110	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LSL 110	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LSH 110	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LSHH 110	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LT 110	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PT 130	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PT 161	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LSH 190A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
LSH 190B	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

General Comments system was working in normal operation




**Appendix E**  
**Monitoring Well Inspection Logs**

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	14-C	(Line 800/Pink water Lagoon; SSW of)	Yes	Stick-up	Needs paint
Sep-22	800-MW-10	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-12	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs Signage
Sep-22	800-MW-13	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint, sign post bent.
Sep-22	800-MW-3	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-26	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-20	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-14	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-15	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-2	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-23	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs signage repairs
Sep-22	800-MW-9	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	G-19	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-46	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-41	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-57	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-20	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-43	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-56	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-42	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	G-44	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-18	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-48	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs signage
Sep-22	G-58	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-47	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-17	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-45	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	JAW-79	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-6	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-18	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-24	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-11	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-19	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-21	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-25	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-8	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs Signage
Sep-22	JAW-78	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Ballards
Sep-22	800-MW-1	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-7	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-22	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	800-MW-16	Line 800/Pink water Lagoon	Yes	Flush Mount	Needs signage.
Sep-22	G-40	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-4	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	L800-TT-MW01	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW05	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW03	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW02	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW04	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW06	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW07	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW08	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW09	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW10	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW11	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW12	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW13	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW14	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW15	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW16	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid and sign.
Sep-22	L800-TT-MW17	Line 800/Pink water Lagoon	Yes	Flush Mount	

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	L800-TT-MW18	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW19R	Line 800/Pink water Lagoon	Yes	Flush Mount	Needs signage.
Sep-22	800-MW27	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800-MW28	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800MW\29	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800-MW30	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800-MW31	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.

## Inert Disposal Area Monitoring Well Inspection Log

Date	Name	Area	Government lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	G-7	Inert Disposal Area	Yes	Stick up	
Sep-22	G-4	Inert Disposal Area	Yes	Stick up	
Sep-22	T-1	Inert Disposal Area	Yes	Stick up	
Sep-22	ET-3	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-1D	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-1S	Inert Disposal Area	Yes	Stick up	
Sep-22	T-6	Inert Disposal Area	Yes	Stick up	
Sep-22	JAW-26	Inert Disposal Area	Yes	Stick up	
Sep-22	JAW-65	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-2S	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-3S	Inert Disposal Area	Yes	Stick up	
Sep-22	C-00-3	Inert Disposal Area	Yes	Stick up	
Sep-22	IDA-MW2	Inert Disposal Area	Yes	Stick up	
Sep-22	IDA-MW1	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-2D	Inert Disposal Area	Yes	Stick up	
Sep-22	C-95-1	Inert Disposal Area	Yes	Stick up	
Sep-22	G-5	Inert Disposal Area	Yes	Stick up	
Sep-22	C-00-1	Inert Disposal Area	Yes	Stick up	
Sep-22	C-95-2	Inert Disposal Area	Yes	Stick up	



## Inert Disposal Area Monitoring Well Inspection Log

Date	Name	Area	Government lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	IDA-TT-MW1	Inert Disposal Area	Yes	Flush Mount	
Sep-22	JAW-27	Inert Disposal Area	Yes	Stick up	
Sep-22	G-6R	Inert Disposal Area	Yes	Stick up	
Sep-22	C-00-2	Inert Disposal Area	Yes	Stick up	
Sep-22	GP-1	Inert Disposal Area	Yes	Stick up	
Sep-22	GP-3	Inert Disposal Area	Yes	Stick up	
Sep-22	GP-5	Inert Disposal Area	Yes	Stick up	
Sep-22	MW20-01	Inert Disposal Area	Yes	Stick up	

## Line 1 Impoundment Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	GZ-3	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-3
Sep-22	JAW-601	Line 1 Impoundment	Yes	Stick-up	Need paint.
Sep-22	GZ-1	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-1
Sep-22	G-14	Line 1 Impoundment	Yes	Stick-up	Need paint.
Sep-22	GZ-2A	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-2A
Sep-22	SL-81R	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads SL-81
Sep-22	GZ-2	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-2

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	14-C	(Line 800/Pink water Lagoon; SSW of)	Yes	Stick-up	Needs paint
Sep-22	800-MW-10	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-12	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs Signage
Sep-22	800-MW-13	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint, sign post bent.
Sep-22	800-MW-3	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-26	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-20	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-14	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-15	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-2	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-23	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs signage repairs
Sep-22	800-MW-9	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	G-19	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-46	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-41	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-57	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-20	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-43	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-56	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-42	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	G-44	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-18	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-48	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs signage
Sep-22	G-58	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-47	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-17	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	G-45	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	JAW-79	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-6	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-18	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-24	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-11	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-19	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-21	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-25	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-8	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Needs Signage
Sep-22	JAW-78	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint. Ballards
Sep-22	800-MW-1	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-7	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.
Sep-22	800-MW-22	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint.

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	800-MW-16	Line 800/Pink water Lagoon	Yes	Flush Mount	Needs signage.
Sep-22	G-40	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	800-MW-4	Line 800/Pink water Lagoon	Yes	Stick-up	Needs paint
Sep-22	L800-TT-MW01	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW05	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW03	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW02	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW04	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW06	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW07	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW08	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW09	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW10	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW11	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW12	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW13	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW14	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW15	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid.
Sep-22	L800-TT-MW16	Line 800/Pink water Lagoon	Yes	Flush Mount	Missing bolt in lid and sign.
Sep-22	L800-TT-MW17	Line 800/Pink water Lagoon	Yes	Flush Mount	

## Line 800 Lagoon Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	L800-TT-MW18	Line 800/Pink water Lagoon	Yes	Flush Mount	
Sep-22	L800-TT-MW19R	Line 800/Pink water Lagoon	Yes	Flush Mount	Needs signage.
Sep-22	800-MW27	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800-MW28	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800MW\29	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800-MW30	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.
Sep-22	800-MW31	Line 800/Pink water Lagoon	Yes	Stick up	Needs signage.

## Inert Disposal Area Monitoring Well Inspection Log

Date	Name	Area	Government lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	G-7	Inert Disposal Area	Yes	Stick up	
Sep-22	G-4	Inert Disposal Area	Yes	Stick up	
Sep-22	T-1	Inert Disposal Area	Yes	Stick up	
Sep-22	ET-3	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-1D	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-1S	Inert Disposal Area	Yes	Stick up	
Sep-22	T-6	Inert Disposal Area	Yes	Stick up	
Sep-22	JAW-26	Inert Disposal Area	Yes	Stick up	
Sep-22	JAW-65	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-2S	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-3S	Inert Disposal Area	Yes	Stick up	
Sep-22	C-00-3	Inert Disposal Area	Yes	Stick up	
Sep-22	IDA-MW2	Inert Disposal Area	Yes	Stick up	
Sep-22	IDA-MW1	Inert Disposal Area	Yes	Stick up	
Sep-22	CAMU-99-2D	Inert Disposal Area	Yes	Stick up	
Sep-22	C-95-1	Inert Disposal Area	Yes	Stick up	
Sep-22	G-5	Inert Disposal Area	Yes	Stick up	
Sep-22	C-00-1	Inert Disposal Area	Yes	Stick up	
Sep-22	C-95-2	Inert Disposal Area	Yes	Stick up	


## Inert Disposal Area Monitoring Well Inspection Log

Date	Name	Area	Government lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	IDA-TT-MW1	Inert Disposal Area	Yes	Flush Mount	
Sep-22	JAW-27	Inert Disposal Area	Yes	Stick up	
Sep-22	G-6R	Inert Disposal Area	Yes	Stick up	
Sep-22	C-00-2	Inert Disposal Area	Yes	Stick up	
Sep-22	GP-1	Inert Disposal Area	Yes	Stick up	
Sep-22	GP-3	Inert Disposal Area	Yes	Stick up	
Sep-22	GP-5	Inert Disposal Area	Yes	Stick up	
Sep-22	MW20-01	Inert Disposal Area	Yes	Stick up	



## Line 1 Impoundment Monitoring Well Inspection Log

Date	Name	Area	Government Lock (Y/N)	Stick-up or Flush mount	Remarks
Sep-22	GZ-3	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-3
Sep-22	JAW-601	Line 1 Impoundment	Yes	Stick-up	Need paint.
Sep-22	GZ-1	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-1
Sep-22	G-14	Line 1 Impoundment	Yes	Stick-up	Need paint.
Sep-22	GZ-2A	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-2A
Sep-22	SL-81R	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads SL-81
Sep-22	GZ-2	Line 1 Impoundment	Yes	Stick-up	Need paint. Sign reads Z1-2



## Appendix F Operator Logs

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	January 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Jan 2022</b>	Off
<b>2 Jan 2022</b>	Off
<b>3 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and went to clear snow from the roads.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment. Checked and made sure the heat is on in the building at the Line 1 Impoundment.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to get my annual physical.</li> <li>• Took the site truck in to have a check engine light out. The oil pressure sensor had to be replaced.</li> <li>• Left the site for the day.</li> </ul>
<b>5 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to clear the snow drifts from the roads at the IDA.</li> <li>• Worked in the office and bay.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Left the site for the day.</li> </ul>
<b>6 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office and bay. Refilled the mouse poison bait stations.</li> <li>• Checked to make sure the heater was working in the building at the Line 1 Impoundment, refilled the bait stations.</li> <li>• Refilled the bait stations in the FFWTP.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Jan 2022</b>	Off
<b>9 Jan 2022</b>	Off
<b>10 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment. Checked the heat in the building at the Line 1 Impoundment.</li> <li>• Went to the FFWTP and collected a sample from the Jacobs IDW drum.</li> <li>• Returned to the office and made a COC for the sample collected and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point</li> <li>• Left the site for the day.</li> </ul>
<b>11 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Attended the RAB meeting.</li> <li>• Went to the Line 1 Impoundment and made sure the heat was working.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>12 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Worked on training modules.</li> <li>• Went to see Phil Rupp and get the annual AO Safe Work Permit.</li> <li>• Left the site for the day</li> </ul>
<b>13 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP, emptied batch tank reset alarm</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and installed winch system at the Line 1 Impoundment. Broke a bolt off mounting the winch.</li> <li>• Went to town to get a new bolt and an easy out to remove the broken bolt.</li> <li>• Returned to the Line 1 Impoundment and fixed the broken bolt.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and put a cover opening of the structure.</li> <li>• Cleaned up in the bay.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Jan 2022</b>	Off
<b>16 Jan 2022</b>	Off
<b>17 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and cleared snow from the roads at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>18 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and went to clear snow from the roads at Line 800 and the Line 1 Impoundment.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked to make sure the heater is still working in the building at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>20 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>21 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Jan 2022</b>	Off
<b>23 Jan 2022</b>	Off
<b>24 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked the heat in the building at the Line 1 Impoundment.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Returned to the office and made a COC for the samples I collected this morning and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>25 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>26 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Went to town and picked up supplies needed for the site.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Went to town and had the site truck washed.</li> <li>• Started cleaning the tractor.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Continued to clean the tractor and UTV.</li> <li>• Worked in the bay and office.</li> <li>• Left the site for the day.</li> </ul>
<b>29 Jan 2022</b>	Off
<b>30 Jan 2022</b>	Off
<b>31 Jan 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went to the Line 1 Impoundment and made sure the heater is running in the building.</li> <li>• Worked in the office bay.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	February 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Updated the monthly spreadsheets for Venky.</li> <li>• Worked in the office bay.</li> <li>• Left the site for the day.</li> </ul>
<b>2 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Went to town to bend up some metal for a shelf in the bay.</li> <li>• Left the site for the day.</li> </ul>
<b>5 Feb 2022</b>	Off
<b>6 Feb 2022</b>	Off
<b>7 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Walked the capped area and cut small cedar tree sprouts.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked on training in the office.</li> <li>• Worked in the office bay.</li> <li>• Left the site for the day.</li> </ul>
<b>10 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the building at the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Walked the capped area and cut small cedar tree sprouts</li> <li>• Went to town to bend up some metal for a shelf in the bay.</li> <li>• Left the site for the day.</li> </ul>
<b>11 Feb 2022</b>	Off
<b>12 Feb 2022</b>	Off
<b>13 Feb 2022</b>	Off

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>14 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Worked in the office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and hooked the winch up to the pump. Reinstalled the pump and run it in a recirculation mode to clean out any sediment that any have built up in the structure. Hooked the clean water up to the treatment system and filled the vessels with clean water. I will backflush the vessels and start the system up tomorrow.</li> <li>• Took pictures of the winch system and took to get approved.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and backflushed the system. Ran the system with clean water for 2hrs before hooking the pump up and treating the water in the pool.</li> <li>• Worked in the office.</li> <li>• Went to the Security office and got the OPSEC approval for the pictures I took of the winch system.</li> <li>• Went to the FFWTP and collected a sample of the Influent, After the First Carbon and Discharge of the system.</li> <li>• Went to the Line 1 Impoundment and collected a sample of the Influent, After the First Carbon and Discharge of the system.</li> <li>• Returned to the office and mad COC's for the samples and packed them up to ship to the Lab for analysis.</li> <li>• Checked the system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>17 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the water levels at Line 800 and the Line 1 Impoundment.</li> <li>• Cleaned in the office bay.</li> <li>• Uploaded sample logs to the folder in Teams.</li> <li>• Checked the system at the Line 1 Impoundment. Added a hog house heater to the building to maintain the heat.</li> <li>• Left the site for the day.</li> </ul>
<b>18 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and cleared the snow drifts from the roads at the IDA.</li> <li>• Worked in the office.</li> <li>• Left the site for a while.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Left the site for a while.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>20 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment. Shut the system down for the day.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>21 Feb 2022</b>	Off
<b>22 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Went to the Line 1 Impoundment and started the treatment system up.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Collected a sample of the Discharge of the treatment system at the Line 1 Impoundment.</li> <li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Worked in the office.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office and bay.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Washed the site tractor.</li> <li>• Cleaned up in the bay.</li> <li>• Checked the treatment system at the line 1 Impoundment.</li> <li>• Left the site for the day</li> </ul>
<b>25 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the tractor out and cleared snow from the roads at the IDA.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the treatment system at the Line 1 Impoundment and shut the system down for the weekend.</li> <li>• Left the site for the day.</li> </ul>
<b>26 Feb 2022</b>	Off
<b>27 Feb 2022</b>	Off
<b>28 Feb 2022</b>	<ul style="list-style-type: none"> <li>• Went to the Line 1 Impoundment and started the treatment system up.</li> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Went to the Line 1 Impoundment and collected a sample from the Discharge. Changed the bag filters.</li> <li>• Went to the truck stop and picked up ice for the samples.</li> <li>• Returned to the office.</li> <li>• Made COC's for the samples I collected today and packed them up to ship to the Lab for analysis.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample coolers to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>



<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	March 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office. Updated the monthly spreadsheets for Ensafe.</li> <li>• Went to the Line 1 Impoundment and backflushed the treatment system.</li> <li>• Went to town for supplies.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>2 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to town for supplies.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment, shut the system down.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Mar 2022</b>	Off
<b>4 Mar 2022</b>	Off
<b>5 Mar 2022</b>	Off
<b>6 Mar 2022</b>	Off
<b>7 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the tractor out and cleared snow from the roads at the IDA.</li> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Started the treatment system up at the Line 1 Impoundment.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment collected a sample of the Discharge of the system.</li> <li>• Returned to the office and made a COC for the sample I collected today and packed the sample up to ship to the Lab for analysis.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Walked the capped areas and removed cedar sprouts.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system, shut the system down for the day.</li> <li>• Left the site for the day.</li> </ul>
<b>10 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Went to the Line 1 Impoundment and started the system up.</li> <li>• Checked the FFWTP. Emptied the batch tank and reset the alarm.</li> <li>• Checked the tractor out and went to the Line 1 Impoundment and pulled rock back from the edge of the road where it was pushed moving snow.</li> <li>• Went to the truck stop and put fuel in the tractor.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>11 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWTP.</li> <li>• Left the site for the day.</li> </ul>
<b>12 Mar 2022</b>	Off
<b>13 Mar 2022</b>	Off
<b>14 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Called LaVeine Sanitation to empty the dumpster.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Backflushed the treatment system at the Line 1 Impoundment.</li> <li>• Went to town for supplies to repair the backflush line at the Line 1 Impoundment.</li> <li>• Walked the capped area and removed cedar sprouts.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment to repair the backflush line.</li> <li>• Went to town to pick up another tool needed for the repair.</li> <li>• Returned to the Line 1 Impoundment and finished the repair of the backflush line outside of the building.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Removed cedar sprouts from the capped area at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>17 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Removed cedar sprouts from the capped area at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>18 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to start grading the roads at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Mar 2022</b>	Off
<b>20 Mar 2022</b>	Off
<b>21 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Started the treatment system up at the Line 1 Impoundment.</li> <li>• Worked in the office.</li> <li>• Returned to the Line 1 Impoundment and collected samples from the Influent, After the First Carbon and Discharge of the system.</li> <li>• Returned to the office and made COC's for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Checked the tractor out and continued to grade the road at the IDA.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>22 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to grade the roads at the Line 1 Impoundment and Line 800.</li> <li>• Worked in the office.</li> <li>• Returned to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the water levels at the Line 1 Impoundment and Line 800.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the water level at Line 800.</li> <li>• Worked in the FFWTP, took some old pipework out that the mice have been living in.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>25 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Left the site for a while.</li> <li>• Returned to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>26 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Left the site for a while.</li> <li>• Returned to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Left the site for a while.</li> <li>• Returned to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Mar 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Collected a sample from the Discharge of the treatment system at the Line 1 Impoundment.</li> <li>• Returned to the office and made a COC for the sample I collected and put it in the fridge to ship tomorrow.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>

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<b>29 Mar 2022</b>	<ul style="list-style-type: none"><li>• Checked the treatment system at the Line 1 Impoundment.</li><li>• Checked the FFWTP.</li><li>• Loaded up the equipment and went to collect the BC-OFF samples.</li><li>• Picked up ice for the samples.</li><li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li><li>• Went to the Line 1 Impoundment and checked the treatment system.</li><li>• Took the sample cooler to the FedEx drop point.</li><li>• Left the site for the day.</li></ul>
<b>30 Mar 2022</b>	<ul style="list-style-type: none"><li>• Checked the treatment system at the Line 1 Impoundment.</li><li>• Checked the FFWTP.</li><li>• Returned to the Line 1 Impoundment and backflushed the treatment system.</li><li>• Worked in the office.</li><li>• Went to the Line 1 Impoundment and checked the treatment system.</li><li>• Left the site for the day.</li></ul>
<b>31 Mar 2022</b>	<ul style="list-style-type: none"><li>• Checked the treatment system at the Line 1 Impoundment.</li><li>• Checked the FFWTP.</li><li>• Worked in the office.</li><li>• Went to the Line 1 Impoundment and checked the treatment system.</li><li>• Left the site for the day.</li></ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	April 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>2 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Collected a sample of the Discharge of the treatment system at the Line 1 Impoundment.</li> <li>• Collected samples of the Influent, After the First Carbon and Discharge of the FFWTP.</li> <li>• Returned to the office and made COC's for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Cut trees off fence and around the FFWTP</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>5 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to town for supplies.</li> <li>• Finished cutting downed trees off fence.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>6 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Started to clean up the downed trees</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Conference call with Jacobs for the OU-3 well installation.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>

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<b>8 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Conference call with Jacobs for the OU-3 Injection work coming up.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Left the site for a while.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>10 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Left the site for a while.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>11 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment. Installed the rain gauges.</li> <li>• Collected a sample of the Discharge of the treatment system at the Line 1 Impoundment.</li> <li>• Backflushed the treatment system at the Line 1 Impoundment.</li> <li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Went to the truck stop and picked up ice for the samples.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>12 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went to meet with Venky at administration to get his badge.</li> <li>• Took Venky on a site tour. Went by the IDA area, Line 800 and the Line 1 Impoundment.</li> <li>• Went to the RAB meeting.</li> <li>• Went on a site tour of the facility with the government staff.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>13 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went to meet with Jacobs and look at the off-site area where the new injection wells will be installed.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP, emptied the batch tank and reset the alarm.</li> <li>• Worked in the office.</li> <li>• Started to move trees that I cut last week. I will have to hold off until the ground dries up some.</li> <li>• Went to Central stores to pick up supplies that arrived.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>15 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked on an online training module.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system, shut the system down for the weekend.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Apr 2022</b>	Off
<b>17 Apr 2022</b>	Off
<b>18 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Worked in the office.</li> <li>• Checked the FFWPT, emptied the batch tank and reset the alarm.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Backflushed the treatment system at the Line 1 Impoundment. After back flushing I started to drain the system getting ready for the carbon change out.</li> <li>• Went to the IDA to pick up a ladder, then returned to the Line 1 Impoundment.</li> <li>• Took the pipe off the top of both carbon vessels so they get air to help them dry.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Started to take equipment to the Line 1 Impoundment to get started on the carbon change out.</li> <li>• Went to the off-site area for a kickoff meeting with Jacobs for the injection well work.</li> <li>• Returned to the site and finished hauling equipment to the Line 1 Impoundment.</li> <li>• Started to remove the carbon from the vessels and put the spent carbon into a super sack.</li> <li>• Left the site for the day.</li> </ul>
<b>20 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Took the shade tent to the Jacobs crew off-site.</li> <li>• Returned to the site and went to the Line 1 Impoundment and continued the carbon change out.</li> <li>• Left the site for the day.</li> </ul>
<b>21 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check, checked the Rain gauges at the IDA, Line 800 and the Line 1 Impoundment. All areas look good.</li> <li>• Continued with the carbon change out at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and continued with the carbon change out.</li> <li>• Met with the delivery driver and escorted him to the Line 1 Impoundment road and off loaded the new carbon.</li> <li>• There weren't any new empty carbon super sacks with the delivery. Went and found an old super sack to put the carbon so I can finish the changeout.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the offsite area to work with Jacobs installing the new injection wells.</li> <li>• Finished offsite and went with the drillers to empty the purge water at the FFWTP into the open top tank to settle out before treatment.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWTP, changed the bag filters.</li> </ul>

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<b>25 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went offsite to work with Jacobs sampling wells with short hold times.</li> <li>• Returned to the site with the drillers and emptied the purge water into the open top tank in the FFWTP.</li> <li>• Left the site for the day.</li> </ul>
<b>26 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Finished up removing carbon from the last vessel at the Line 1 Impoundment and put the new carbon in the vessels. Filled the vessels with water to soak.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to help Jacobs sample the new injection wells</li> <li>• Returned to the FFWTP with the drillers when they emptied the purge water tank in the open top tank in the FFWTP.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Went to the Line 1 Impoundment and put the top pipework back on the vessels and backflushed them until the water was clear.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples for Aerostar.</li> <li>• Returned to the office and made a COC for the samples and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> </ul>
<b>29 Apr 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Apr 2022</b>	Off



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<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	May 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 May 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWPT. Emptied the batch tank and reset the alarm.</li> </ul>
<b>2 May 2022</b>	<ul style="list-style-type: none"> <li>• Went to the Line 1 Impoundment and started the treatment system up.</li> <li>• Checked the FFWPT.</li> <li>• Went on a site check. Checked the Staff gauges and rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went to the Line 1 Impoundment and collected a sample from the</li> <li>• Took supplies to the Jacobs crew in the off-site area.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>3 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>4 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>5 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>6 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>7 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>8 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>9 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWPT.</li> <li>• Went on a site check. Checked the Staff gauges and rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Took supplies to the Jacobs crew in the off-site area.</li> <li>• Returned to the site and checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>

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<b>10 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and backflushed the treatment system.</li> <li>• Went to the FFWTP and collected a sample of the Influent, After First Carbon and Discharge.</li> <li>• Returned to the office and made a COC for todays sample and packed them up with yesterday's samples to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>11 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Sprayed roundup around IDA.</li> <li>• Checked the tractor out and started to grade the roads at the IDA.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>12 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Sprayed roundup around the IDA</li> <li>• Graded the roads at the IDA.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>13 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters. Shut the system down for the weekend.</li> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and went to the Line 1 Impoundment and graded the road.</li> <li>• Moved the super sack of carbon to a pallet and covered it with plastic.</li> <li>• Took 2 bags of bag filters to the roll off container at BG-199-4 and sent Zach Hill an email to let him know.</li> <li>• Went to the truck stop and put fuel in the tractor.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>14 May 2022</b>	Off
<b>15 May 2022</b>	Off
<b>16 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to meet with Erin from Jacobs and take her to get badged and Safety trained.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Started getting things ready to sample the Trench 5 wells.</li> <li>• Left the site for the day.</li> </ul>
<b>17 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Helped Jacobs with the Trench 5 sampling.</li> <li>• Checked the tractor out and mowed around the wells we will be sampling.</li> <li>• Left the site for the day.</li> </ul>
<b>18 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Helped Jacobs with the Trench 5 sampling.</li> <li>• Left the site for the day.</li> </ul>
<b>19 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Helped Jacobs with the Trench 5 sampling.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>20 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Helped Jacobs with the Trench 5 sampling.</li> <li>• Left the site for the day.</li> </ul>
<b>21 May 2022</b>	Off
<b>22 May 2022</b>	Off
<b>23 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Backflushed the treatment system at the Line 1 Impoundment.</li> <li>• Checked the tractor out and mowed along the roads and fences at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>24 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and mowed along the roads at the IDA, Line 800 and the Line Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>25 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check to see how much rain we received. IDA-3/4", Line 800- 3/4 "&amp; Line 1 Impoundment- 1/2"</li> <li>• Worked in the office.</li> <li>• Cleaned up in the bay.</li> <li>• Went to pick up roundup for weed control at the site.</li> <li>• Left the site for the day.</li> </ul>
<b>26 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Had flat tire on site truck and stopped and had it repaired</li> <li>• Returned to the office and made a COC for the sample and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>27 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check to see how much rain we received last night.</li> <li>• Left the site for the day.</li> </ul>
<b>28 May 2022</b>	Off
<b>29 May 2022</b>	Off
<b>30 May 2022</b>	Off
<b>31 May 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went to the Line 1 Impoundment and plastic wrapped the super sacks of carbon.</li> <li>• Returned to the IDA. Checked the tractor out and went to the Line 1 Impoundment and took the super sacks of spent carbon to the AO roll off container at the BG-199-4. Sent Zach Hill (AO Environmental) an email to let him know.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	June 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and picked up the monthly spreadsheet.</li> <li>• Updated the monthly spreadsheets for Ensafe.</li> <li>• Cleaned up the tree top that fell along the road to the office.</li> <li>• Checked the tractor out and graded the roads at the IDA.</li> <li>• Left the site for a day.</li> </ul>
<b>2 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Loaded up the sprayer tank and went to spray for weed control at Line 800 and the Line 1 Impoundment.</li> <li>• Sprayed for weed control at the IDA until it got too windy.</li> <li>• Started to wire brush the bollards on the wells at the IDA to prep them to be painted.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Loaded up the sprayer tank and sprayed for weed control around the IDA.</li> <li>• Worked in the office.</li> <li>• Went to town and washed the site truck.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Jun 2022</b>	Off
<b>5 Jun 2022</b>	Off
<b>6 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Made a spill containment for the site fuel transfer tank.</li> <li>• Loaded up the site fuel transfer tank into the site truck and went to town to pick up a new filter for it and fill it up.</li> <li>• Took the fuel transfer tank out of the site truck.</li> <li>• Took the forks and box blade off the site truck and put the bucket and mower on.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Took the forks and box blade off the tractor and put the batwing mower back on.</li> <li>• Prepped the C-95-1 well to be painted and put the first coat on.</li> <li>• Cleaned up the brush and cleaned up.</li> <li>• Worked on my expense report.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check to see how much rain we received. IDA:0.25", Line 1 Impoundment:0.20" and Line 800:0.20"</li> <li>• Went to the Line 1 Impoundment and washed the building out.</li> <li>• Went to the ladder to the FFWTP and cleaned in the building.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>9 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out to go mow, found a hydraulic line leaking. Took the line off and went to town to have a new end put on.</li> <li>• Returned to the site and put the repaired hydraulic line back on the mower.</li> <li>• Mowed around the roads at the IDA.</li> <li>• Checked the drums out and made sure the labels are correct. Made labels and relabeled the Aerostar drums. Made labels for the TLL and put them on.</li> <li>• Left the site for the day.</li> </ul>
<b>10 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out to mow. It started raining before I could get started mowing.</li> <li>• Went to town for supplies for the site.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>11 Jun 2022</b>	Off
<b>12 Jun 2022</b>	Off
<b>13 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Started the treatment system up at the Line 1 Impoundment. After a couple of hours, I returned to collect a sample from the Influent, After the First Carbon and Discharge of the system.</li> <li>• Checked the tractor out and started to mow the capped areas at the IDA.</li> <li>• Made a COC for the samples I collected today and packed them up to ship to the Lab for analysis.</li> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and continued to mow the capped area at the IDA.</li> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and continued to mow the capped areas at the IDA.</li> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and continued to mow the capped areas at the IDA.</li> <li>• Checked the treatment system at the Line 1 Impoundment. Shut the system down.</li> <li>• Left the site for the day.</li> </ul>
<b>17 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and finished mowing the capped areas at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>18 Jun 2022</b>	Off
<b>19 Jun 2022</b>	Off
<b>20 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWTP.</li> <li>• Took chairs offsite to the Jacobs crew.</li> <li>• Left the site for the day</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>21 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went offsite to support Jacobs with the injection work.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and went to mow at Line 800.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and went to mow at Line 800.</li> <li>• One of the turnbuckles broke on the mower. I drilled a hole through it and put a roll pin in.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWTP</li> <li>• Left the site for the day.</li> </ul>
<b>25 Jun 2022</b>	Off
<b>26 Jun 2022</b>	Off
<b>27 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Loaded up the equipment and went to collect the BC-OF samples.</li> <li>• The UTV broke down. I caught a ride back to the IDA and then went to pick up my trailer. Returned to the site and loaded up the UTV and took it back to the IDA office.</li> <li>• Made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the offsite area for the kickoff meeting with the new crew from Cascade.</li> <li>• Cleaned the fuel filter on the UTV.</li> <li>• Checked the tractor out. Repaired the turnbuckle on the batwing mower.</li> <li>• Mowed along the fence lines at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>29 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Checked the tractor out and went to the Line 1 Impoundment to mow along the roads and building.</li> <li>• Went to the truck stop and put fuel in the site tractor.</li> <li>• Worked on online training.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Jun 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Took a FedEx envelope to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	July 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Jul 2022</b>	Off
<b>2 Jul 2022</b>	Off
<b>3 Jul 2022</b>	Off
<b>4 Jul 2022</b>	Off
<b>5 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Updated the monthly spreadsheets for Venky and uploaded them to the folders in Teams.</li> <li>• Worked on Montrose training online</li> <li>• Left the site for the day.</li> </ul>
<b>6 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went off-site to meet with Jacobs and give them their supplies.</li> <li>• Stopped in town and picked up supplies for the site.</li> <li>• Returned to the IDA and pressure washed the site tractor and mower.</li> <li>• Repaired the turnbuckle on the mower.</li> <li>• Mowed along the ditches at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Pressure washed the office building.</li> <li>• Went to town and picked up roundup for weed control at the site.</li> <li>• Worked on my expense report.</li> <li>• Checked on the status of the HMI ordered from Crescent.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to meet with Jacobs and pick up the supplies that are leaving during while they are between shifts.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and continued to mow along the fence lines.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Jul 2022</b>	Off
<b>10 Jul 2022</b>	Off
<b>11 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Worked in the office.</li> <li>• Got the sprayer tank ready in the UTV so I can spray for weed control tomorrow.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>12 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Finished loading the chemicals in the sprayer tank and went to spray for weed control around the IDA.</li> <li>• The UTV quit because of a fuel problem. I went to town and picked up a new fuel filter. Returned to the site and replaced the fuel filter. The unit still wont run. I went home and picked up my trailer and returned to the site and loaded the UTV on it.</li> <li>• I talked the Kevin at AC McCartney and he said they could look at it if I bring it over to their shop.</li> <li>• Went to AC McCartney and they repaired the UTV. It had a bug stuck in the pickup line inside of the fuel tank.</li> <li>• Returned home, I will stop and fuel the UTV and site truck up in the morning on my way in.</li> <li>• Left the site for the day.</li> </ul>
<b>13 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Went to the truck stop and fueled the UTV and site truck.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Continued to spray for weed control until it got to windy.</li> <li>• Sat through Montrose training.</li> <li>• Went to put a coat of paint on the wells and bollards.</li> <li>• Cleaned up the brush.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to spray for weed control at Line 800 and the Line 1 Impoundment.</li> <li>• Went offsite to support Jacobs with the injection work.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went offsite to help Jacobs with the injection work.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Jul 2022</b>	Off
<b>17 Jul 2022</b>	Off
<b>18 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Loaded up the equipment and went to continue cleaning up the well casings and bollards and painted them.</li> <li>• Cleaned up the brush and put the batteries on the chargers.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the RAB meeting.</li> <li>• Returned to the site and continued to clean up the wells and paint them.</li> <li>• Left the site for the day.</li> </ul>
<b>20 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Met with Darlene at the Administration office and got her a temporary badge.</li> <li>• Took her the site and showed her the Bio-reactor area. Took her to the offsite area and showed her where the injection work in happening.</li> <li>• Returned to the site and continued to clean up the wells and paint them.</li> <li>• Left the site for the day.</li> </ul>



<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>21 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Continued to clean up the wells and paint the wells.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went offsite to support Jacobs with the injection work. Loaded up their equipment that they are leaving in the office.</li> <li>• Returned to the site and put the Jacobs equipment into their area.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Jul 2022</b>	Off
<b>24 Jul 2022</b>	Off
<b>25 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Loaded up the equipment and went to continue cleaning up the well casings and bollards and painted them.</li> <li>• Cleaned up the brush and put the batteries on the chargers.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>26 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Cleaned up outside the office.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked on wire wheeling the wells and bollards.</li> <li>• Worked in the office.</li> <li>• Went to meet with the Jacobs crew in the offsite area to help load out the rest of the equipment.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Took the tractor to the offsite area to load the empty totes onto the truck for Jacobs.</li> <li>• Fueled to the site tractor on my way back to the site.</li> <li>• Continued to wire wheel and paint the wells and bollards.</li> <li>• Left the site for the day.</li> </ul>
<b>29 Jul 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWTP.</li> </ul>
<b>30 Jul 2022</b>	Off
<b>31 Jul 2022</b>	Off

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	August 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went to Guard Headquarters and picked up a water well key.</li> <li>• Went to meet with the BCZ surveyors in the offsite area so they could survey the new wells Jacobs had installed for the injection work.</li> <li>• Took the water well key back to Guard Headquarters.</li> <li>• Updated the monthly spreadsheets for Venky and uploaded them to the folders in Teams.</li> <li>• Worked around the office.</li> <li>• Left the site for the day.n</li> </ul>
<b>2 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the truck stop to meet with the EMS driver that is picking up the soil cutting drums for Aerostar. Called AO Disposal (Zach Hill) and let them know I would have the truck and driver at the IDA. Zach met us and signed the manifest.</li> <li>• Worked around the IDA office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWPT.</li> <li>• Put the brush mower on the tractor and went over by the FFWTP to clean up some tree limbs that have fallen by the fence.</li> <li>• Went and had keys to the buildings made and took them to the AO Fire Department.</li> <li>• Worked in the office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Finished mowing in the area where the tree branches that fell on the fence need cleaned up.</li> <li>• Returned to the office to get the chain saw and clean up the limbs.</li> <li>• While I was at the office another tree fell on the fence in the same area.</li> <li>• Started to cut up the tree that fell on the fence.</li> <li>• Left the site for the day.</li> </ul>
<b>5 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Continued to cut up the tree that fell on the fence and move it out of the way.</li> <li>• Left the site for the day.</li> </ul>
<b>6 Aug 2022</b>	Off
<b>7 Aug 2022</b>	Off
<b>8 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Continued to clean up the tree that I cut up last week.</li> <li>• Started to repair the fence.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to town for supplies to repair the fence.</li> <li>• Continued to repair the fence.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>10 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to town for supplies to complete the fence repairs.</li> <li>• Continued to repair the fence.</li> <li>• Left the site for the day.</li> </ul>
<b>11 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Finished up the fence repairs.</li> <li>• Left the site for the day.</li> </ul>
<b>12 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Painted wells around the IDA.</li> <li>• Checked the tractor out and mowed Sedam 6 area and moved tree branches that have fallen across the road.</li> <li>• Left the site for the day.</li> </ul>
<b>13 Aug 2022</b>	Off
<b>14 Aug 2022</b>	Off
<b>15 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went to Central Stores and picked up supplies for Jacobs.</li> <li>• Cleaned up around the office/bay.</li> <li>• Went to mark locations with the Trimble unit for Jacobs.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to meet with Jacobs and the AO Utilities locate guy (Jim) at the Line 3A sewage.</li> <li>• Put another coat of paint on the wells I have ready.</li> <li>• Trimmed tree branches back from the edge of the road at the IDA.</li> <li>• Left the site for the day</li> </ul>
<b>17 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Worked on painting the wells.</li> <li>• Left the site for the day.</li> </ul>
<b>18 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Took the pole saw and trimmed the tree branches back from the side of the roads and fence lines.</li> <li>• Checked the tractor out and went to mow along the roads at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and continued to mow along the roads and fence lines.</li> <li>• Left the site for the day.</li> </ul>
<b>20 Aug 2022</b>	Off
<b>21 Aug 2022</b>	Off
<b>22 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked the tractor out and went to mow along the roads and Toe drains at the IDA.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>23 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to mow the capped areas at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and continued to mow the capped areas at the IDA.</li> <li>• The hitch broke on the mower. I returned to the office and called and ordered a new one.</li> <li>• Went to wire brush the wells/well bollards and continue painting.</li> <li>• Left the site for the day.</li> </ul>
<b>25 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Loaded up the sprayer and went to spray weeds around the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>26 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Pressure washed the FFWTP building.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Aug 2022</b>	Off
<b>28 Aug 2022</b>	Off
<b>29 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Returned to the office and made labels and COC for the sample I collected and packed it up to ship to the Lab for analysis.</li> <li>• Worked in the office.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Went to Morning Sun Farm Implement and picked up the part to repair the mower.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the part for the mower and it is the wrong part. I called and talked to them and we ordered the correct part.</li> <li>• Checked the tractor out and put the brush mower on to finish mowing the capped areas for the annual inspection.</li> <li>• Left the site for the day.</li> </ul>
<b>31 Aug 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to the truck stop to get fuel.</li> <li>• Returned to the IDA and mowed along the fence lines.</li> <li>• Worked around the FFWTP.</li> <li>• Went to town and picked up supplies for the site.</li> <li>• Put mouse poison out in the FFWTP and Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	September 2022
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Cleaned around the office and bay.</li> <li>• Left the site for the day.</li> </ul>
<b>2 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• AO Utilities called and said they had to shut the power down at the IDA for maintenance and have it back on.</li> <li>• Checked the FFWTP. Reset all the alarms for the system.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Sep 2022</b>	Off
<b>4 Sep 2022</b>	Off
<b>5 Sep 2022</b>	Off
<b>6 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked the tractor out and continued mowing at the IDA.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWPT.</li> <li>• Worked around the IDA.</li> <li>• Met Mike Johnson (Ensafe) and took him to get his badge and Safety briefing.</li> <li>• Started the annual engineer's inspection at the IDA.</li> <li>• Went to Line 800 and then the Line 1 Impoundment.</li> <li>• Escorted Mike back to the gate, he will review his notes and let me know if he needs to look at anything again tomorrow.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Went to town and met with Mike to go over anything he has question with.</li> <li>• Returned to the site.</li> <li>• Checked the FFWTP.</li> <li>• Continued to take the pictures of the site for Mike, and then labeled them.</li> <li>• Went to Morning Sun Farm Implement and picked up the part for the mower.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Repaired the broken part on the mower.</li> <li>• Checked the tractor out and hooked up the mower. Went to the Line 1 Impoundment to mow.</li> <li>• Went to Line 800 and mowed.</li> <li>• Left the site for the day.</li> </ul>
<b>10 Sep 2022</b>	Off
<b>11 Sep 2022</b>	Off

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>12 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Completed taking the pictures for the annual inspection.</li> <li>• Took the pictures to be approved by AO security.</li> <li>• Returned to the office and continued to label the pictures and put them in folders.</li> <li>• Left the site for the day.</li> </ul>
<b>13 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked around the IDA.</li> <li>• Mixed up concrete and repaired the pad on C-95-2.</li> <li>• Looked up supplies to repair IDA-TTMW-1 and JAW-65.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked on repairing JAW-65. Blocked off the uphill part on the well location and dug the rock and soil out from around the well down to the concrete pad.</li> <li>• Went and found a plastic 55-gallon drum to hold the soil and rock back and use as a form when I pour the new concrete pad.</li> <li>• Cut the bottom on the drum out and went and put it in place.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to town to pick up supplies for the site.</li> <li>• Took the site truck to get serviced and new tires.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Removed a tree branch from the fence over by the FFWTP.</li> <li>• Worked around the office bay.</li> <li>• Took the site tractor to the truck stop and fueled it up.</li> <li>• Left site for the day.</li> </ul>
<b>17 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• AO Utilities called and said there was a power failure last night and there is no power at the IDA. They will call when the power is back on.</li> <li>• Came to the site after AO Utilities called to reset the power. The power isn't back on. After I called and told them they will have to do some more investigation and figure out why there is no power and call me again.</li> <li>• After AO Utilities called again I returned to the site and reset the alarms for the system.</li> </ul>
<b>18 Sep 2022</b>	Off
<b>19 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked after office.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at the Line 1 Impoundment and Line 800.</li> <li>• Went to town to pick up supplies to repair the wells.</li> <li>• Returned to the site and made forms for the concrete around the wells that need repaired.</li> <li>• Went to the G-5 well and dug out the soil and put the form down. Poured the concrete for the well.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log</b> <b>Iowa Army Ammunition Plant</b> <b>PARS Environmental</b>	
<b>20 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to repair IDA-TTMW-1. Removed the old concrete pad and dug out the soil to set a new form and vault box. Mixed the concrete and poured the new pad for the well.</li> <li>• Found an aluminum monument and stamped the well name in at and installed it.</li> <li>• Left the site for the day.</li> </ul>
<b>21 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check to see how much rain we received over night.</li> <li>• Went to the offsite area where Jacobs is storing the soil cutting drums and helped with the loadout.</li> <li>• Returned to the site and pumped the water out of JAW-65.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Pumped the water out of JAW-65 again.</li> <li>• Went to town and picked up more concrete to complete the repairs on JAW-65.</li> <li>• Returned to the site and mixed up the concrete and poured it at JAW-65. Covered the concrete up with plastic so the rain doesn't hurt it.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Sep 2022</b>	Off
<b>25 Sep 2022</b>	Off
<b>26 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Pulled the pump at JAW-65 and took it to the office bay to install new longer tubing to the pump. I had to add 38 1/2" of pipe to the well for the repairs so the pump will need longer tubing to remain in the screened interval.</li> <li>• Worked with IT to get access to Microsoft TEAMS so I can upload the pictures of the annual inspection.</li> <li>• Worked in the office uploading the pictures.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the JAW-65 well and cleaned up around it. Cut the form around the concrete down so it will not hold water and moved the rock back in place by the well.</li> <li>• Went to IDA-TTMW-1 and G-5 wells and dug the soil out around the forms and placed rock so the samplers aren't standing in mud when they sample.</li> <li>• Took pictures of the well repairs and sent to AO security for OPSEC review.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log</b> <b>Iowa Army Ammunition Plant</b> <b>PARS Environmental</b>	
<b>28 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Went to Line 800 and collected a surface water sample of the big pool to see if I can possibly release water and lower the level.</li> <li>• Went to the office and made a COC for the samples I collected today and packed them up to ship to the Lab for analysis.</li> <li>• Received an email from the Lab saying they are going to shut down because of the hurricane and will most likely not be receiving samples until at least Friday.</li> <li>• Talked to Darlene and Venky and let them know about the Lab and that I will not be shipping the samples this week. I will hold off until Monday.</li> <li>• Left the site for the day.</li> </ul>
<b>29 Sep 2022</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went back to the FFWTP and cleaned the mouse nest out of the old control panel.</li> <li>• Went to town and washed the site truck.</li> <li>• Finished sealing up the holes in the old control panel at the FFWTP.</li> <li>• Put the samples I collected in the fridge to ship on Monday.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Sep 2022</b>	Off



<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	October 2021
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Oct 2021</b>	Off
<b>2 Oct 2021</b>	Off
<b>3 Oct 2021</b>	Off
<b>4 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the staff gauges and rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Worked in the office.</li> <li>• Went to town to pick up tools needed to remove the blades on the mower.</li> <li>• Worked on training.</li> <li>• Left the site for the day.</li> </ul>
<b>5 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Replaced the broken circuit breaker on the air compressor.</li> <li>• Checked the tractor out and took the fuel transfer tank out of the site truck.</li> <li>• Hooked onto the mower and lifted up the wings to sharpen the blades.</li> </ul>
<b>6 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked out the site tractor and went to mow along the roads and fence lines at the IDA.</li> <li>• Went to the Line 1 Impoundment and drained the Treatment Trailer and picked up the hoses.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and started to mow the capped areas at the IDA. Had to quit when it started to rain.</li> <li>• Replaced the light bulbs in the office that were not working.</li> <li>• Sprayed for bugs around the office.</li> <li>• Went to the Line 1 Impoundment and sprayed for bugs.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and continued to mow the capped areas at the IDA. Finished the Trench 6 and CEA caps, then started on the ILF cap.</li> <li>• Went to town for DEF for the tractor.</li> <li>• Returned to the site and continued to mow.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Oct 2021</b>	Off
<b>10 Oct 2021</b>	Off
<b>11 Oct 2021</b>	<p>Checked the FFWTP. Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment. Worked in the office. Left the site for the day.</p>

<b>Landfill Operations Daily Log</b> <b>Iowa Army Ammunition Plant</b> <b>PARS Environmental</b>	
<b>12 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Rain gauges at the IDA (0.50"0, Line 1 Impoundment (1") and Line 800 (1.25").</li> <li>• Loaded up some hoses and the pump and went to Line 800 to start getting the siphon ready to go. Couldn't get the LP pump running and noticed the regulator has a crack in it.</li> <li>• Returned to the IDA and picked up the 3" pump.</li> <li>• Went to the truck stop and got gas for the pump.</li> <li>• Returned to Line 800 and hooked the pump up to prime the siphon. After priming the siphon, I loaded the pump back up.</li> <li>• Checked the flow meter and had to change the batteries out.</li> <li>• Returned to the IDA and unloaded the pump.</li> <li>• Left the site for the day.</li> </ul>
<b>13 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to mow the ILF.</li> <li>• Went to Central Stores and picked up a shipment that arrived.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to Line 800 to start the Release. Checked the PH and Turbidity Upstream, Downstream and in the pool to make sure the levels were within the range to start up. Everything checked out within requirements.</li> <li>• Used the 3" trash pump to prime the Siphon line to start the Siphon.</li> <li>• Waited 2 hours and started the composite sample for the Release.</li> <li>• Worked in the office bay.</li> <li>• Returned to Line 800 and completed the composite sample and returned to the office.</li> <li>• Made a COC for the sample collected and packed it up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Looked at the 2" trash pump to see what I needed to repair the LP regulator. The manufacturer said that I should try and find one locally and if I couldn't they would help me out.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Left the site for the day.</li> </ul>
<b>17 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings. Collected a sample of the Discharge.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>18 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Talked to Ensafe about what's going on at the site and the RAB meeting.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Worked in the office.</li> <li>• Made a COC for the sample I collected yesterday and packed it up to ship to the Lab for analysis.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Worked with IT to get the printer/scanner working on my computer again.</li> <li>• Attended the RAB meeting.</li> <li>• Checked the tractor out and went to mow the ILF.</li> <li>• Left the site for the day.</li> </ul>
<b>20 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Checked the tractor out and continued to mow the ILF.</li> <li>• Left the site for the day.</li> </ul>
<b>21 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Checked the tractor out and finished mowing the ILF.</li> <li>• Washed the mower off.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to Line 800 and shut the Release down because of heavy rains.</li> <li>• Left the site for the day.</li> </ul>
<b>25 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to the Line 1 Impoundment and started the treatment system up.</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at the Line 1 Impoundment and Line 800.</li> <li>• Checked the PH and Turbidity for the Line 800 release Upstream, Downstream and in the pool. The Turbidity levels Upstream and Downstream are too high to restart the release.</li> <li>• Worked in the office.</li> <li>• Returned to the Line 1 Impoundment and collected samples for the system.</li> <li>• Returned to the office and made COC's for the samples I collected today and yesterday. Then packed the samples up to ship to the Lab for analysis.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>26 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Loaded the trash pump into UTV.</li> <li>• Went to Line 800 and hooked the trash pump up to flush the vegetation off of the end of the siphon line.</li> <li>• Checked the PH and Turbidity Upstream, Downstream and Pool. The levels are low enough to start the Release back up. Started the release back up.</li> <li>• Returned to the office and unloaded the trash pump.</li> <li>• Loaded the wench system for the Line 1 Impoundment up to take and get repaired.</li> <li>• Went to Line 800 and collected a sample of the Discharge.</li> <li>• Returned to the office and made a COC for the sample I collected and packed it up to ship to the Lab for analysis.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>27 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to Line 800 and checked the PH and Turbidity Upstream, Downstream and in the Discharge of the siphon.</li> <li>• Worked in the office.</li> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Went to get my COVID vaccine shot.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment, changed the bag filters.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Went to the Line 1 Impoundment and recollected the samples from Monday that were delayed by FedEx. Collected an Influent, After the First Carbon and Discharge sample.</li> <li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>29 Oct 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site checked to see how much rain we have received. IDA-0.5" Line 1 Impoundment-0.5" and Line 800-0.75"</li> <li>• Returned to the IDA and worked in the office.</li> <li>• Went and put out mouse poison in the buildings.</li> <li>• Checked the treatment system at the Line 1 Impoundment and shut it down for the weekend.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Oct 2021</b>	Off
<b>31 Oct 2021</b>	Off

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	November 2021
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Went to the Line 1 Impoundment and started the treatment system up.</li> <li>• Checked the FFWTP.</li> <li>• Went to Line 800 and started the Release up after checking the PH and Turbidity in the Upstream, Downstream and Pool</li> <li>• Went on a site check. Checked the Staff gauges and Rain gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Collected a sample of the Discharge of the treatment system at the Line 1 Impoundment.</li> <li>• Went to Line 800 and collected a sample of the Discharge of the siphon.</li> <li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Talked with Dan Jensen from the Montrose IT department to see who is maintaining the server for the notification systems at the site.</li> <li>• Dan worked on the HMI for the FFWTP and couldn't figure out what is wrong with it. I went to the FFWTP and cut the power and still did not receive an alarm.</li> <li>• Went to the Line 1 Impoundment and checked the treatment system.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>2 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to Line 800 and checked the PH and Turbidity Upstream, Downstream and in the Discharge of the siphon.</li> <li>• Checked the tractor out and went to start grading the roads at the IDA.</li> <li>• Montrose followed up with Tim Hoenke (T&amp;M) to try and fix the HMI for the FFWTP. It is taking more time than they thought and T&amp;M will need a contract to get paid for there help.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went to Line 800 and checked the PH and Turbidity Upstream, Downstream and in the Discharge of the siphon.</li> <li>• Checked the site tractor out and went to grade the roads at the IDA.</li> <li>• Went to Central Stores and picked up a cooler that arrived.</li> <li>• Worked in the office.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went to Line 800 and checked the PH and Turbidity Upstream, Downstream and in the Discharge of the siphon. Collected a sample of the Discharge of the Siphon.</li> <li>• Checked the site tractor out and went to finish grading the roads at the IDA.</li> <li>• Made COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Went to the truck stop and picked up ice to ship the samples.</li> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log</b> <b>Iowa Army Ammunition Plant</b> <b>PARS Environmental</b>	
<b>5 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the treatment system at the Line 1 Impoundment.</li> <li>• Checked the FFWTP.</li> <li>• Went to Line 800 and checked the PH and Turbidity Upstream, Downstream and in the Discharge of the siphon.</li> <li>• Worked in the office.</li> <li>• Checked the treatment system at the Line 1 Impoundment and shut it down for the weekend.</li> <li>• Left the site for the day.</li> </ul>
<b>6 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Left the site for the day.</li> </ul>
<b>7 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings. Collected a sample from the Discharge of the Release and put it in the sample fridge at the IDA office.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Met with Aerostar and went to Central stores and picked up the packages that arrived on Thursday.</li> <li>• Went to Guard Headquarters and picked up a water well key and went offsite to get started sampling the wells.</li> <li>• Finished up the sampling and returned the key to Guard Headquarters.</li> <li>• Took the buckets of purge water to the FFWTP and emptied the buckets into the floor drain.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Went to Guard Headquarters and picked up a water well key and went offsite to get started sampling the wells.</li> <li>• Finished up the sampling and returned the key to Guard Headquarters.</li> <li>• Took the buckets of purge water to the FFWTP and emptied the buckets into the floor drain.</li> <li>• Left the site for the day.</li> </ul>
<b>10 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings. Collected a sample of the Release.</li> <li>• Returned to the IDA and made a COC for the sample and packed it up to ship to the Lab for analysis.</li> <li>• Went to Guard Headquarters and picked up a water well key and went offsite to get started sampling the wells.</li> <li>• Finished up the sampling and returned the key to Guard Headquarters.</li> <li>• Took the buckets of purge water to the FFWTP and emptied the buckets into the floor drain.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>11 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check Line 800 and shut the release down because of rain.</li> <li>• Went to Guard Headquarters and picked up a water well key and went offsite to get started sampling the wells.</li> <li>• Finished up the sampling and returned the key to Guard Headquarters.</li> <li>• Took the buckets of purge water to the FFWTP and emptied the buckets into the floor drain.</li> <li>• Left the site for the day.</li> </ul>
<b>12 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to check the PH and Turbidity Upstream, Downstream and in the Discharge of the Release at Line 800. Recorded the flow meter readings.</li> <li>• Went to Guard Headquarters and picked up a water well key and went offsite to get started sampling the wells.</li> <li>• Talked with Tim Landes (T&amp;M) and he had me reboot the MiFi and HMI for the FFWPT. He worked remotely on the systems and wasn't able to get the systems fixed.</li> <li>• Finished up the sampling and returned the key to Guard Headquarters.</li> <li>• Took the buckets of purge water to the FFWTP and emptied the buckets into the floor drain.</li> <li>• Left the site for the day.</li> </ul>
<b>13 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to Line 800 to check the Release and the siphon line was out of the water and the siphon had stopped. I will need to return with the boat to get the siphon line pulled off of the concrete structure that holds the Staff gauge.</li> <li>• Returned to the FFWTP and cut the power to the building. I did not receive an alarm. I sent Tim Landes an email to let him know.</li> <li>• Left the site for the day.</li> <li>• Went and met with Aerostar and picked up the table they still had in their truck.</li> </ul>
<b>14 Nov 2021</b>	Off
<b>15 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went to Casey's and met with the Jacobs crew that is here for the Trench 5 sampling and took them to Administration to get badged.</li> <li>• After getting badged I took them to the IDA office and showed them the coolers and equipment that I picked up last week for them.</li> <li>• I then took them and showed them where Guard Headquarters is at and where to go for Safety training.</li> <li>• Took them and showed them where Central Stores is at if they get shipments in, then back to the IDA.</li> <li>• I left the site.</li> <li>• Tim Landes is trying to install the program on the HMI but can't get it to finish because of a slow connection. He will send me the program so I can load it.</li> <li>• I returned to the site to check on the Jacobs crew and everything was going well.</li> <li>• I left the site for the day.</li> </ul>
<b>16 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Talked with the Jacobs crew to see what they need me to do today.</li> <li>• Worked with Montrose IT to install Crimson so they can access the HMI for the FFWTP. We couldn't figure out what the problem is and reached out to Tim Landes (T&amp;M) for assistance.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>17 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Talked with the Jacobs crew to see what they need me to do today.</li> <li>• Dan and Tim worked remotely on the HMI for the FFWTP. They had me use a cable and load the program onto the HMI. After I got it loaded the system would not finish rebooting.</li> <li>• Left the site for the day.</li> </ul>
<b>18 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Talked with the Jacobs crew to see what they need me to do today.</li> <li>• Dan and Tim continued to work on the HMI and couldn't come up with a solution. It appears that we will need a new HMI for the office.</li> <li>• Tim remotely worked on the system at the Line 1 Impoundment and was unsuccessful getting it to work correctly.</li> <li>• Left the site for the day.</li> </ul>
<b>19 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Talked to Tim about the system at the Line 1 Impoundment not giving me notifications. He remoted in and tried to simulate a notification. I didn't receive any notifications.</li> <li>• Left the site for the day.</li> <li>• Talked with the Jacobs crew to see if they need me to do anything after they leave, Bruce said he would leave me a note if they did.</li> </ul>
<b>20 Nov 2021</b>	Off
<b>21 Nov 2021</b>	Off
<b>22 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Gathered up the site Fire Extinguishers and took them to ABC Fire to get the annual inspection done on them.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Checked the tractor out and went to grade the roads at the IDA.</li> <li>• Returned the Fire Extinguishers to the buildings.</li> <li>• Left the site for the day.</li> </ul>
<b>24 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to get my second COVID shot.</li> <li>• Returned to the site and uploaded my Vaccine card into the Montrose system.</li> <li>• Drove around the IDA capped areas, didn't notice any problems.</li> <li>• Left the site for the day.</li> </ul>
<b>25 Nov 2021</b>	Off
<b>26 Nov 2021</b>	Off
<b>27 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Off</li> <li>• Checked the FFWTP. Emptied the batch tank and reset the alarm.</li> </ul>
<b>28 Nov 2021</b>	Off



<b>Landfill Operations Daily Log</b> <b>Iowa Army Ammunition Plant</b> <b>PARS Environmental</b>	
<b>29 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Went to the Line 1 Impoundment and hooked my computer up to the HMI. Montrose IT (Dan Jensen) and Tim Landes (T&amp;M) remoted in and worked on the HMI system at the Line 1 Impoundment. They were able to figure out how to get the system to send out alarms again.</li> <li>• Worked in the office.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Nov 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples. Returned to the office and put the samples in the fridge.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>Landfill Operator</b>	Dean Johnson
<b>Action Items</b>	December 2021
<b>Date</b>	<b>Activity/Notes</b>
<b>1 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and picked up the flow meter sheet for November.</li> <li>• Returned to the office and continued updating the monthly logs.</li> <li>• Collected a sample of the soil cuttings in the drums staged by the IDA gate for Aerostar.</li> <li>• Returned to the office and made a COC for the samples collected and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>2 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Worked on the notification system for the Line 1 Impoundment with Dan Jensen (Montrose IT).</li> <li>• Went to town and picked up a new pair of Safety boots.</li> <li>• Worked on my expense report.</li> <li>• Left the site for the day.</li> </ul>
<b>3 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Drove around the capped areas at the IDA. I never notice any damage, everything looks good.</li> <li>• Inspected the drum of purge water Jacobs has stored in the FFWTP.</li> <li>• Emailed Venky the monthly spread sheets.</li> <li>• Left the site for the day.</li> </ul>
<b>4 Dec 2021</b>	Off
<b>5 Dec 2021</b>	Off
<b>6 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment. Made sure the heat was on in the building.</li> <li>• Worked in the office.</li> <li>• Sent Security an email to inquire about remote viewing in the FFWTP.</li> <li>• Reviewed the monthly documents Ensafe will be submitting to the USACE.</li> <li>• Left the site for the day,</li> </ul>
<b>7 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Moved some of the file cabinets.</li> <li>• Worked with the Red Lion tech troubleshooting the FFWTP HMI.</li> <li>• Left the site for the day.</li> </ul>
<b>8 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to the Line 1 Impoundment and washed out the building.</li> <li>• Cleaned around the office.</li> <li>• Left the site for the day.</li> </ul>
<b>9 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Took the winch system for the Line 1 Impoundment to get taken apart. We got everything taken apart and polished up. I will drill and tap it and install grease fittings.</li> <li>• Returned to the IDA and put the winch system in the bay.</li> <li>• Left the site for the day.</li> </ul>

<b>Landfill Operations Daily Log Iowa Army Ammunition Plant PARS Environmental</b>	
<b>10 Dec 2021</b>	Off
<b>11 Dec 2021</b>	Off
<b>12 Dec 2021</b>	Off
<b>13 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked the heater in the Line 1 Impoundment building.</li> <li>• Worked in the office.</li> <li>• Walked the ILF cap and started to cut the small cedar trees.</li> <li>• Left the site for the day.</li> </ul>
<b>14 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Continued to cut the seedling cedars from the capped area.</li> <li>• Left the site for the day.</li> </ul>
<b>15 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went by the Line 1 Impoundment and Line 800 and made sure there wasn't anything there that could blow away in the strong winds we are supposed to get this afternoon and evening.</li> <li>• Left the site for the day.</li> </ul>
<b>16 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check to make sure there wasn't any trees down or anything blown away. Everything looks good, there are a couple of trees down that can be cleaned up later.</li> <li>• Took my 8hr refresher class.</li> <li>• Left the site for the day.</li> </ul>
<b>17 Dec 2021</b>	Off
<b>18 Dec 2021</b>	Off
<b>19 Dec 2021</b>	Off
<b>20 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked the to make sure the heat is still working in the Line 1 Impoundment building.</li> <li>• Moved files around the in the filing cabinets and started cleaning out old paperwork.</li> <li>• Left the site for the day.</li> </ul>
<b>21 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Continued to clean old documents out of the filing cabinets.</li> <li>• Left the site for the day.</li> </ul>
<b>22 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Continued to clean old documents out of the filing cabinets.</li> <li>• Left the site for the day.</li> </ul>
<b>23 Dec 2021</b>	Off
<b>24 Dec 2021</b>	Off
<b>25 Dec 2021</b>	Off
<b>26 Dec 2021</b>	Off

<b>Landfill Operations Daily Log</b> <b>Iowa Army Ammunition Plant</b> <b>PARS Environmental</b>	
<b>27 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Went on a site check. Checked the Staff gauges at Line 800 and the Line 1 Impoundment.</li> <li>• Checked to make sure the heat is still working at the Line 1 Impoundment.</li> <li>• Loaded up the equipment and went to collect the BC-OFF samples.</li> <li>• Returned to the office and made a COC for the samples I collected and packed them up to ship to the Lab for analysis.</li> <li>• Took the sample cooler to the FedEx drop point.</li> <li>• Left the site for the day.</li> </ul>
<b>28 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Went to town for supplies.</li> <li>• Returned to the office.</li> <li>• Worked on sanding the winch system for the Line 1 Impoundment and put a coat of primer on it.</li> <li>• Left the site for the day.</li> </ul>
<b>29 Dec 2021</b>	<ul style="list-style-type: none"> <li>• Checked the FFWTP.</li> <li>• Worked in the office.</li> <li>• Worked on the winch system for the Line 1 Impoundment. Took the base to the Line 1 Impoundment and made sure the bolt holes lined up. Took back to the office bay and used a file to make the holes bigger. Took the base back and checked the bolt holes and they fit this time.</li> <li>• Returned to the IDA and put another coat of primer on the winch system.</li> <li>• Left the site for the day.</li> </ul>
<b>30 Dec 2021</b>	Off
<b>31 Dec 2021</b>	Off

# Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change	Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop			
1-Jan-21											
2-Jan-21											
3-Jan-21											
4-Jan-21	920										669.7
5-Jan-21											
6-Jan-21											
7-Jan-21											
8-Jan-21											
9-Jan-21											
10-Jan-21											
11-Jan-21	815										669.9
12-Jan-21											
13-Jan-21											
14-Jan-21											
15-Jan-21											
16-Jan-21											
17-Jan-21											
18-Jan-21	915									Backflushed the system.	670.2
19-Jan-21											
20-Jan-21											
21-Jan-21											
22-Jan-21											
23-Jan-21											
24-Jan-21											
25-Jan-21	700	1415	0	13052	9631090	964414	36.3	28.6	1	Started the system up. Collected samples from the Influent, After the First Carbon and Discharge of the system.	673.3 *
26-Jan-21	615	1430	9818	22176	9669554	9681908	24.9	35.3	1		673.3 *
27-Jan-21	545	1430	10278	24516	9709658	9723820	27.4	27.6	1	Shut down for the night.	673.3 *
28-Jan-21	745	1350	0	10460	9723820	9734326	30.6	26.1	0	Started the system up in the morning and shut it down in the afternoon	673.3 *
29-Jan-21											
30-Jan-21											
31-Jan-21											

\* Indicates ice and snow on pool and Staff gauges cant be read.

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change	Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop			
1-Feb-21	545	1425	0	19026	9734338	9753552	37.8	36.1	1	Collected a sample from the Discharge of the system.	670.3*
2-Feb-21	550	1400	12914	29634	9787316	9804042	34.8	34.8	0		670.3*
3-Feb-21	550	1425	11654	25882	9836038	9850262	30.8	15.1	1	Shut down for the day.	670.3*
4-Feb-21											
5-Feb-21											
6-Feb-21											
7-Feb-21											
8-Feb-21	1000										670.3*
9-Feb-21											
10-Feb-21											
11-Feb-21											
12-Feb-21											
13-Feb-21											
14-Feb-21											
15-Feb-21	900										670.3*
16-Feb-21											
17-Feb-21											
18-Feb-21											
19-Feb-21											
20-Feb-21											
21-Feb-21											
22-Feb-21	800										670.3*
23-Feb-21	550	1500	0	19470	9850262	9869758	36.1	36.5	1	Started the system up. Collected a sample from the Influent, After the First Carbn and Discharge of the system.	670.3*
24-Feb-21	555	1400	11972	26192	9899744	9913968	32	28.7	0		670.3*
25-Feb-21	600	1555	9408	29010	9940004	9959612	36.4	28.7	1		670.8
26-Feb-21	600	1530	10070	23942	9983130	9997002	28.6	27	1		671.1
27-Feb-21	550	1445	10012	24454	10024116	10038570	28.7	28.3	0		671.1
28-Feb-21	600	1405	8572	23900	10050916	10076246	34.5	29.6	1		671.1
<b>* ICE AT STAFF GAUGE LEVELS ARE AN ESTIMATE</b>											

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop				
1-Mar-21	550	1535	9060	23636	10101644	10116226	25	41.2		1	Backflushed the system	671.1
2-Mar-21	550	1755	10486	34534	10145714	10169962	30	33.3		1	1 Micron filter was the only one changed.	671.1
3-Mar-21	555	1345	11072	27872	10192610	10209406	36.4	36.8		1	Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.9
4-Mar-21	550	1500	11288	29676	10241256	10259688	33.3	34		1	1 Micron filter was the only one changed.	670.9
5-Mar-21	555	1500	9926	32144	10235798	10308022	38.1	40.7		1	Shut the system down	670.5
6-Mar-21												
7-Mar-21	1535			24538		10406125		13.8		1	Started the system up.	669.9
8-Mar-21	750	1600	12758	25640	10457484	10450368	11.7	11.8		1	1 Micron filter was the only one changed.	669.7
9-Mar-21	800		0	12200	10450386	10452604	33.3	30.8		1	1 Micron filter was the only one changed.	669.5
10-Mar-21	710	1500	0	11164	10450986	10473804	32	15.1		0		669.4
11-Mar-21	730	1600	0	14182	10473809	10487990	34.1	17.4		1	Changed 2-1 Micron and 1-10 Micron filters	669.2
12-Mar-21	730		0	3164	10487990	10491154	33.1			1		669.2
13-Mar-21												
14-Mar-21												
15-Mar-21	1400		0		10491154		40				Backflushed the system for 45 minutes.	670.2
16-Mar-21	600	1425	5774	21130	10517500	10532862	15.7	47.1		1	Collected a sample from the Influent, Afetr the First Carbon and Discharge of the system and the pool. Tested the hydrant water flow (96GPM) and using the backflush pump (113GPM) Backflushed	670.4
17-Mar-21	550	1445	10270	27440	10567300	10584456	36.1	44.4		2		670.2
18-Mar-21	550	1500	9648	30004	10619352	10639802	42.1	44.5		2		671
19-Mar-21	555	1540	3610	19178	10663064	10678736	40	34.5		2		671.1
20-Mar-21	600	1500	6230	25234	10706160	10725250	38.1	40		2		671.1
21-Mar-21	635	1610	4954	20946	10751084	10767076	30.8	32		2		671
22-Mar-21	550	1530	1556	13458	10778048	10789950	32	35.3		3	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon for 30 min., 2nd for 20 min. and ran clean water through the system for 30 minutes.	670.9
23-Mar-21	555	1530	2388	7892	10800756	10806262	40	33.1		2		670.9
24-Mar-21	555	1520	20	2696	10809404	10812082	38.1	38.1		2		671
25-Mar-21	555	1530	16	4906	10814154	10819048	33.3	36.9		2		671
26-Mar-21	550	1500	4	4286	10820368	10824652	35.3	30.2		3		671.1
27-Mar-21	615	1520	92	1474	10825526	10827896	36.9	33.3		2		671.1
28-Mar-21	525	1525	8	2548	10828802	10831340	36.4	33.3		2		671.2
29-Mar-21	550	1515	6	7296	10833432	1080720	34.6	34.8		2	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon for 1hr., 2nd for 30 min. and ran clean water through the system for 30 minutes.	671.2
30-Mar-21	555	1440	970	9836	10847138	10856006	33.8	33.1		3		671.2
31-Mar-21	530	1520	230	10512	10860948	10871222	38.1	34.8		3		671.1

# Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Apr-21	600	1515	484	16570	10877238	10893332	32	32	1	2	Reinstalled the MiFi	671.1
2-Apr-21	600	1540	304	9410	10904252	10913356	32.2	32	1	2		671
3-Apr-21	600	1515	4534	23752	10936118	10955232	34.8	33.3	1	2		670.9
4-Apr-21	615	1610	4476	25608	10975202	10996342	38.1	32.4	1	1		670.8
5-Apr-21	550	1440	4414	24236	11014166	11033990	40	40	1	1	Collected a sample form the Influent, After the First Carbon and Discharge of the system. Backflushed the system: 1st-30 min. 2nd-25 min. Cleanwater-30min.	670.7
6-Apr-21	555	1500	4376	25790	11057004	11078814	42.1	38.1	1	1		670.6
7-Apr-21	550	1500	5940	25526	11103226	11123606	40	34.8	1	1	Took 9 bags of bag filters to the AO rolloff container.	670.4
8-Apr-21	540	1500	362	22338	11136924	11158904	40	38.7	1	1		670.7
9-Apr-21	550	1500	6354	28612	11184522	11203786	36.3	42.1	1	1		670.7
10-Apr-21	600	1510	7436	20914	11235466	11248936	40	42.1	2	2		670.6
11-Apr-21	700	1550	7388	28620	11277756	11299000	40	40.7	1	1		672.9
12-Apr-21	650	1500	10578	31386	11330562	11351376	35.7	44.4	1	1	Collected a sample from the Discharge of the system. Backflushed the system: 1st-30min. 2nd- 20 Clean water-45min.	673
13-Apr-21	530	1620	11624	35762	11389438	11413566	40	42.1	1	1		672.9
14-Apr-21	545	1650	12622	39690	11448182	11475248	41.8	44.4	1	1		672.8
15-Apr-21	525	1500	11646	35196	11507272	11530810	42.1	42.1	1	1		672.7
16-Apr-21	535	1600	12022	37290	11568876	11594134	42.1	42.1	1	1		672.6
17-Apr-21	520	1600	11720	34350	11629026	11657642	42.1	42.1	1	1		672.5
18-Apr-21	620	1550	14308	38558	11688910	11713160	42.1	42.5	0	0		672.4
19-Apr-21	545	1415	9918	29558	11744486	11764130	32	47	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st-30min. 2nd- 20min. Clean water- 40min.	672.3
20-Apr-21	600	1430	12724	31850	11804950	11824072	40	44.4	1	1		672.2
21-Apr-21	545	1525	12555	37090	11863756	11888170	42.1	40.7	0	0		672.1
22-Apr-21	600	1640	5426	33282	11910022	11937880	44.5	43	1	1		672
23-Apr-21	600	1630	12804	37654	11971386	11996230	42.1	44.5	1	1		671.9
24-Apr-21	330	1600	6758	36076	12024460	12053778	42.1	42.1	1	1		671.8
25-Apr-21	330	1330	6534	21022	12082846	12097328	40	42.1	1	1		671.7
26-Apr-21	550	1530	9684	19842	12135214	1215378	25	46.3	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st-30min. 2nd- 20min. Clean water- 60min. 1130 shut the system down to run the Treatment trailer and collected a	671.5
27-Apr-21	330	1410	6156	20296	12175258	12189398	36.4	40	1	1		671.4
28-Apr-21	610	1450	11786	31818	12225738	12246766	40	36.4	2	2		671.3
29-Apr-21	600	1430	9614	27320	11278908	12297565	40.7	40	2	2		671.7
30-Apr-21	600	1530	9614	33212	12332756	12356154	41.7	40.7	1	1		671.5



## Line 1 Impoundment Treatment System Log 2021

Date	Time		8592		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-May-21	650	1550	4676	25904	1278340	12399578	42.1	38.1	1	1		671.5
2-May-21	650	1530	7028	28032	1242436	12445374	40	40	1	1		671.3
3-May-21	550	830	6742	12710	12471914	12477876	41	39.2	1	1	Backflushed the system and started to drain in preparation for a carbon change out. Started treating with the Mobile Treatment Trailer.	671.2
4-May-21												671.3
5-May-21												671.2
6-May-21											Took 5 bags of bag filters to the AO rolloff container for disposal.	671.1
7-May-21												671
8-May-21												670.9
9-May-21												671.5
10-May-21												671.5
11-May-21											Started to remove the carbon from the Lead vessel.	671.4
12-May-21											Finished removing the Carbon and put the new carbon back in the vessel. Filled the vessel with water to soak the carbon.	671.3
13-May-21	1500		0			12477876	33.7				Backflushed the new carbon and started treatment system up to treat through both systems.	671.2
14-May-21	600	1645	9370	21422	12506194	12523250	36.2	24.1	1	1		671
15-May-21	545	1515	4656	20986	12538098	12554438	14.5	28.9	1	1		670.9
16-May-21	600	1545	8216	25344	12578522	12595652	258	29.6	1	1		671
17-May-21	555	1520	8966	20186	12620532	12631642	296	21.9	1	1	Collected a sample from the Discharge of the system.	671
18-May-21	555	1530	7088	20578	12650532	12664122	23.7	19	1	1		671.4
19-May-21	550	1430	6740	18212	12683150	126946612	22.4	24.2	1	1		672.2
20-May-21	600	1400	7150	18018	12715918	12726778	22.2	22.7	1	1		672.1
21-May-21	600	1445	6612	18930	12747604	12759922	20.6	23.4	1	1		672
22-May-21	600	1430	7160	18076	12781132	12792048	22.2	21	1	1		671.9
23-May-21	650	1505	6040	11196	12815476	12810318	22.6	21	1	1		671.8
24-May-21	550	1405	6016	13162	12833222	12840372	19.1	22.1	1	1	Collected a sample from the Influent, After the First Carbon and Discharge of the system.	671.7
25-May-21	600	1500	6286	19694	12857312	12870722	21.6	32	1	1	Backflushed the vessels: 1st- 45 min., 2nd- 30min and Clean water - 60 min.	671.5
26-May-21	545	1500	5672	23896	12893058	12911288	15.4	36.4	1	1		671.5
27-May-21	605	1715	6448	26810	12934128	12954492	16.6	28.6	1	1		671.3
28-May-21	555	1515	5624	17864	12971188	12963425	16.3	28.6	1	1		671.2
29-May-21	600	1515	5766	21348	13004106	13019686	148	29.7	1	1		671.1
30-May-21	630	1630	7178	23734	13041218	13057782	17.4	27.6	1	1		670.9
31-May-21	600	1410	4906	18496	13073978	13087568	13.4	27.9	1	1		670.7

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
									10 Micron	1 Micron		
1-Jun-21	535	1425	4588	20666	13106756	13122844	12.5	30.8	1	1	Collected a sample of the Discharge of the sytem. Backflushed the system: 1st - 30min, 2nd - 10 min and clean water - 45min	670.6
2-Jun-21	600	1525	8312	17230	13149799	13158712	26.1	19.8	1	1	Took 4 bags of bag filters to the AO roll off container at the BG-199-4	670.4
3-Jun-21	550	1600	7544	12534	13178880	13183866	23.5	193	1	1		670.1
4-Jun-21	06+00	1545	8100	12808	13205324	13210026	24.9	19.4	1	1		669.7
5-Jun-21	530	1400	7228	13668	13229638	13236276	23.1	3.9	1	1		Under the Staff gauge
6-Jun-21												
7-Jun-21	930	1030	0	2318	13236280	13236600			1	1	Backflushed the system: 1st - 20min, 2nd - 35min and Clean water 60min	
8-Jun-21												
9-Jun-21												
10-Jun-21												
11-Jun-21												
12-Jun-21												
13-Jun-21												
14-Jun-21												
15-Jun-21												
16-Jun-21												
17-Jun-21												
18-Jun-21												
19-Jun-21												
20-Jun-21												
21-Jun-21	600											670.2
22-Jun-21	730											670.2
23-Jun-21	530										Removed the carbon from the Lead vessle of the system.	670.2
24-Jun-21	550											670
25-Jun-21	550											670.2
26-Jun-21	600											670.1
27-Jun-21	645											670
28-Jun-21	550											669.8
29-Jun-21	600											669.8
30-Jun-21	600											669.8

# Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Jul-21	630											669.5
2-Jul-21												
3-Jul-21												
4-Jul-21												
5-Jul-21												
6-Jul-21	800											669.3
7-Jul-21												
8-Jul-21	600				1328666	13241600	58.7		1	1	Backflushed the new Carbon, then ran clean water through the system for 1 hour.	669.7
9-Jul-21	600											669.5
10-Jul-21	540	1600	0	748	13241600	13242343	24.2	26.7	2	2	Started the system back up.	670.8
11-Jul-21	630	1615	1898	23216	13262480	13277858	23.4	24.5	1	1		671.2
12-Jul-21	600	1430	6754	18736	13297162	13309142	22.2	20.2	1	1	Collected a sample of the Discharge.	672.1
13-Jul-21	600	1500	5902	17700	13327596	13339400	19	21.6	1	1		672.1
14-Jul-21	600	1530	6010	15542	13357138	13367674	18.6	24.5	1	1		672
15-Jul-21	600	1440	4970	15750	13384116	13394902	7.5	20.6	1	1		672
16-Jul-21	600	1445	4276	14412	13408746	13418892	14	20.1	1	1		672.2
17-Jul-21	645	1610	3986	14496	13431342	13441804	10.7	15.7	1	1		672.1
18-Jul-21	650	1600	3800	12514	13452754	13451576	9.5	25.9	1	1		672
19-Jul-21	600	1500	3050	14340	13471366	13482662	10.6	23.1	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st carbon-40 min. 2nd carbon-30min. And ran clean water through the system for 50 min.	672
20-Jul-21	555	1625	5852	21334	13503314	13518796	16.1	29.5	1	1	Took 5 bags of bag filters to the AO rolloff container at BG-194-4	671.9
21-Jul-21	650	1515	2318	15710	13528270	13541662	5.9	16	2	2		671.8
22-Jul-21	700	1545	3904	13008	13555722	13564828	9.3	8.1	2	2		671.7
23-Jul-21	700	1535	3572	12310	13578446	13589182	15.3	22.9	2	1		671.6
24-Jul-21	645	1510	2586	10712	13598410	13605538	6.4	4.1	2	1		671.5
25-Jul-21	630	1515	1432	7310	13616130	13622008	0	7.9	2	1		671.4
26-Jul-21	700	1525	2050	11464	13631202	13640578	1.3	36.4	2	1	Collected a sample of the Influent, After the First Carbon and Discharge of the system. Backflushed the system: 1st carbon-40 min. 2nd carbon-30 min and ran clean water through the system for 50	671.4
27-Jul-21	730	1520	80	8596	13647798	13656326	0	26.8	2	1		671.3
28-Jul-21	700	1430	954	9324	13665792	13674116	25.6	25.3	1	1	Finished dredging the pool area and loading out the material.	671.2
29-Jul-21	600	1430	2952	15248	13688570	13700976	5.5	22.8	1	1		671.1
30-Jul-21	600	1430	4146	16554	13714230	13726646	24.2	15.2	1	1		671
31-Jul-21	645	1430	6716	16392	13747124	13756808	17.8	20.4	1	1		670.8

# Line 1 Impoundment Treatment System Log

## 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Aug-21	645	1600	7142	20050	13776430	13789350	19.2	25.6	1	1		670.8
2-Aug-21	555	1435	7278	22052	13809296	13824080	23.6	28.6	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 30min. And ran clean water through the system for 60min.	670.6
3-Aug-21	600	1500	6388	12528	13545920	13852060	20.7	7.9	1	1		670.5
4-Aug-21	550	1520	6276	16305	13869634	13879660	21.2	12.1	1	1		670.4
5-Aug-21	600	1345	5964	14100	13896546	13904654	20.5	122	1	1		670.2
6-Aug-21	600	1430	6670	15616	13925158	13934102	15.5	16.3	2	2		670
7-Aug-21	645	1730	7100	17532	13953590	13964018	15.9	12.5	2	2		669.9
8-Aug-21	645	1500	7384	15424	13981422	13969466	13	25	1	1	Shut the system down for the day.	669.6
9-Aug-21												
10-Aug-21												
11-Aug-21	1045	1500	0	3500	13969466	13989496	15.6	0	1	1	Replaced the pump in the structure. Started the systems back up.	671.6
12-Aug-21	600	1500	6814	19270	14011620	14024084	6	22.9	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 25min. And ran clean water through the system for 60min.	671.8
13-Aug-21	600	1520	4044	14918	14040172	14051044	10.7	22.6	2	2		671.9
14-Aug-21	615	1615	5814	17805	14057604	14079596	18.2	20.1	2	2		671.8
15-Aug-21	620	1430	15618	6036	14096226	14105818	15.3	20.3	2	2		671.6
16-Aug-21	600	1500	4576	17132	1421608	14134168	14	28.6	1	1	Collected a sample from the Influent, After the First Carbon and Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 25min. And ran clean water through the system	671.6
17-Aug-21	600	1700	3348	13086	14144732	14154472	13.8	11.8	2	2		671.5
18-Aug-21	600	1515	3612	13626	14165130	14175842	12.2	10.2	2	2		671.4
19-Aug-21	600	1400	4036	14142	14189236	14199344	12.9	15.5	2	2	Took 6 bags of bag filters to the AO rolloff container at BG-194-4	671.3
20-Aug-21	600	1430	2880	13864	14213508	14224500	18.7	7.8	2	2		671.2
21-Aug-21	600	1500	4986	16850	14242236	14254105	14.3	20.4	1	1		671
22-Aug-21	630	1500	2714	12914	14265580	14275782	7.3	16.3	2	2		671
23-Aug-21	600	1515	5514	19652	14292632	14305770	17.3	27.9	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 30min. And ran clean water through the system for 60min.	670.8
24-Aug-21	600	1500	1738	13392	14519158	14330814	5.4	18.1	2	2		670.8
25-Aug-21	600	1445	5212	15748	14346750	14357284	17	18.8	2	2		670.6
26-Aug-21	600	1500	5004	18360	14373494	14386852	14.5	22.9	1	1		670.5
27-Aug-21	550	1820	2808	17022	14398643	14412850	8.8	11.6	2	2		670.5
28-Aug-21	620	1500	4156	15505	14425342	14436686	9.4	20.4	2	2		670.2
29-Aug-21	630	1535	1584	16850	14446382	14461154	4.2	21.1	1	1		669.9
30-Aug-21	600	1430	978	10778	14466994	14476804	3.5	26.7	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-35min., 2nd Carbon - 25min. And ran clean water through the system for 45min.	669.7
31-Aug-21	600	1530	2790	13264	14491072	14501550	9.9	11.8	1	1	Shut the system down for the day.	669.4

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Sep-21	600	1500	0	6036	14501560	14507596	22.4	5.6	1	1	Shut down for the day.	669.2
2-Sep-21												
3-Sep-21												
4-Sep-21												
5-Sep-21												
6-Sep-21												
7-Sep-21	730	1000	0	4278	14507634	14511882	60	60	1	1	Backflushed the 1st Carbon-35min., 2nd Carbon-20min., and ran clean water through the system for 60min. Took 3 bags of bag filters to the AO roll off container at BG-194-4.	669
8-Sep-21												
9-Sep-21												
10-Sep-21												
11-Sep-21												
12-Sep-21												
13-Sep-21	1100										Used hydrant water to flush out the structure.	669
14-Sep-21												
15-Sep-21												
16-Sep-21												
17-Sep-21												
18-Sep-21												
19-Sep-21												
20-Sep-21	800											669
21-Sep-21												
22-Sep-21												
23-Sep-21												
24-Sep-21												
25-Sep-21												
26-Sep-21												
27-Sep-21	800	1500	0	14154	14511882	14526048	33.5	34.8	1	1	Started the system up. Collected a sample from the Influent, After the First Carbon and Discharge of the sysetm.	669.8
28-Sep-21	555	1430	7820	25474	14552210	14569876	23.4	33.4	1	1	Shut the system down for the day.	669.6
29-Sep-21	555	1430	0	16962	14570104	14587054	34.8	26.7	1	1	Shut the system down for the day.	669.4
30-Sep-21												

# Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Oct-21												
2-Oct-21												
3-Oct-21												
4-Oct-21	800											669.2
5-Oct-21												
6-Oct-21												
7-Oct-21												
8-Oct-21												
9-Oct-21												
10-Oct-21												
11-Oct-21	830											669.2
12-Oct-21												
13-Oct-21												
14-Oct-21												
15-Oct-21												
16-Oct-21												
17-Oct-21												
18-Oct-21												
19-Oct-21												
20-Oct-21												
21-Oct-21												
22-Oct-21												
23-Oct-21												
24-Oct-21												
25-Oct-21	740	1415	0	12754	14587082	14599846	33.7	32.4	1	1	Started up the system. Collected a sample from the Influent, After the First Carbon and Discharge of the system. (samples got lost by FedEx in shipping, so there will be no results. Recollected the	670.8
26-Oct-21	600	1400	4318	19280	14617686	14632650	28.4	30	1	1		670.8
27-Oct-21	605	1130	9150	18176	14661410	14670434	28.4	28.6	1	1		670.7
28-Oct-21	605	1400	10392	25990	14708014	14723616	33.5	34.1	1	1	Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.6
29-Oct-21	600	1335	8220	18558	14751282	14761584	25.8	16.8	1	1	Shut the system down for the weekend.	670.6
30-Oct-21												
31-Oct-21												

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Nov-21	550	1515	0	18194	14761594	14779792	28.6	33.2	1	1	Started the system back up. Collected a sample of the Discharge.	670.6
2-Nov-21	550	1435	9958	27018	14808506	14855663	33.8	32.2	0	0		670.5
3-Nov-21	600	1415	9266	24166	14853652	14868552	30.4	29.6	0	0		670.4
4-Nov-21	555	1405	8254	21240	14894778	14907758	27.5	26.8	0	0		670.2
5-Nov-21	600	1040	6558	12176	14929366	14934972	21.2	21.3	0	0	Shut the system down for the weekend.	670
6-Nov-21												
7-Nov-21												
8-Nov-21	800											670
9-Nov-21												
10-Nov-21												
11-Nov-21												
12-Nov-21												
13-Nov-21												
14-Nov-21												
15-Nov-21	600											670.1
16-Nov-21												
17-Nov-21												
18-Nov-21											Tim remotely worked on the system at the Line 1 Impoundment and was unsuccessful getting it to work correctly.	
19-Nov-21												
20-Nov-21												
21-Nov-21												
22-Nov-21	800											670.1
23-Nov-21												
24-Nov-21												
25-Nov-21												
26-Nov-21												
27-Nov-21												
28-Nov-21												
29-Nov-21	730										Trouble shot the HMI with Montrose IT and Tim Landes (T&M), they were able to resolve the issue.	670.1
30-Nov-21												

# Line 1 Impoundment Treatment System Log

## 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Dec-21												
2-Dec-21	1000										I cut the power to the building to simulate a power loss and initiate an alarm, I didn't receive an alarm.	
3-Dec-21												
4-Dec-21												
5-Dec-21												
6-Dec-21												
7-Dec-21	800											670.1
8-Dec-21											Washed out the building	
9-Dec-21												
10-Dec-21												
11-Dec-21												
12-Dec-21												
13-Dec-21	730											670.1
14-Dec-21												
15-Dec-21											Took 1 bag of bag filters to the AO rolloff container at BG-199-4.	
16-Dec-21												
17-Dec-21												
18-Dec-21												
19-Dec-21												
20-Dec-21	830											670.1
21-Dec-21												
22-Dec-21												
23-Dec-21												
24-Dec-21												
25-Dec-21												
26-Dec-21												
27-Dec-21	900											670.2
28-Dec-21												
29-Dec-21												
30-Dec-21												
31-Dec-21												



**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Jan-22												
2-Jan-22												
3-Jan-22	1000											670.3
4-Jan-22												
5-Jan-22												
6-Jan-22												
7-Jan-22												
8-Jan-22												
9-Jan-22												
10-Jan-22	800											670.3
11-Jan-22												
12-Jan-22												
13-Jan-22												
14-Jan-22												
15-Jan-22												
16-Jan-22												
17-Jan-22												
18-Jan-22	800											670.3
19-Jan-22												
20-Jan-22												
21-Jan-22												
22-Jan-22												
23-Jan-22												
24-Jan-22	800											670.4
25-Jan-22												
26-Jan-22												
27-Jan-22												
28-Jan-22												
29-Jan-22												
30-Jan-22												
31-Jan-22	800											670.4

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Feb-22												
2-Feb-22												
3-Feb-22												
4-Feb-22												
5-Feb-22												
6-Feb-22												
7-Feb-22	800											670.3
8-Feb-22												
9-Feb-22												
10-Feb-22												
11-Feb-22												
12-Feb-22												
13-Feb-22	800											670.6
14-Feb-22												
15-Feb-22	1015	1025	0	134	149349881	14935122	27	27	1	1	Turned pump on and ran in a recirculation mode back to the pool to flush sediment out of the structure. Ran clean water through the system to fill the vessels so they can soak overnight and I can backflush tomorrow.	670.6
16-Feb-22	900	1500	0	14522	149349881	14949654	50.3	45.3			Backflushed the system. 1st Carbon-70min, 2nd carbon-40min and then ran clean water through the system for 120 min. Hook the pump up and started treatment of pool water, flow meter was 14941406. After 2 hours collected a sample of the Influent, After the First Carbon and Discharge of the system.	670.6
17-Feb-22	600	1405	12752	29160	14935122	14997314	35.3	33.1				671
18-Feb-22	600	1430	11194	26192	14980908	15042722	30.5	28.6	1	1		671
19-Feb-22	600	1500	13174	31650	15027724	15094972	36.9	34				670.9
20-Feb-22	800		14960		15127998		30.6				Shut the system down for the day.	670.9
21-Feb-22												
22-Feb-22	600	1415	0	16050	15127998	15144096	31.6	31.8			Started the system back up. Collected a sample of the Discharge of the system.	670.8
23-Feb-22	600	1400	11208	25940	15173702	15188440	30.8	31.6				670.8
24-Feb-22	600	1400	9936	26802	15215442	15232322	36.3	35.9	1	1		670.8
25-Feb-22	600	1430	11806	28218	15264824	15281236	33.8	32				670.8
26-Feb-22	600	1420	4138	4976	15303828	15304660	31.2	0	1	1	Shut the system down for the day.	670.8
27-Feb-22												
28-Feb-22	600	1415	0	14506	15304660	15319780	30.1	33.5	2	2	Started the system back up. Collected a sample of the Discharge of the system.	670.8

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Mar-22	555	1400	5926	15844	15345294	15355208	31.9	37.8	1	1	Backflushed the system. 1st carbon - 40min, 2nd carbon - 25min, then ran clean water through the system for 60min.	70.6
2-Mar-22	600	1145	12494	16754	15390748	15396000	20.5	8.1			Shut the system down	670.4
3-Mar-22												
4-Mar-22												
5-Mar-22												
6-Mar-22												
7-Mar-22	1020	1410	0	8044	15396000	15403056	33.3	34.8	1	1	Started the system back up. Collected a sample from the Discharge.	670.2
8-Mar-22	430	1450	9844	29964	15434418	15454544	35.3	28.4				670.1
9-Mar-22	600	1515	5740	25714	15474002	15493960	33.1	36.4	1	1	Shut the system down for the night.	669.9
10-Mar-22	600	1440	0	17514	15493960	15511558	28.6	32			Started the system back up., then shut it back off at the end of the day.	669.8
11-Mar-22												
12-Mar-22												
13-Mar-22												
14-Mar-22	800	1000	0	2986	15511558	15514568	56	56	1	1	Backflushed the system. 1st carbon - 40min, 2nd carbon - 20min, then ran clean water through the system for 50min.	669.8
15-Mar-22												
16-Mar-22												
17-Mar-22												
18-Mar-22												
19-Mar-22												
20-Mar-22												
21-Mar-22	730	1450	15910	15910	15514568	1550482	36.4	36.4	1	1	Started the system up. Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.4
22-Mar-22	550	1440	25800	25800	15561956	15577864	33.8	27.6				670.4
23-Mar-22	550	1400	22962	22962	15595820	15613858	35.8	38.1	1	1		670.6
24-Mar-22	555	1445	24340	24340	15648822	15662934	32	38.4	1	1		671.1
25-Mar-22	535	1700	33736	33736	1563654	15719742	38.8	19.5	1	1		671
26-Mar-22	400	1415	13600	13600	15729044	15740478	25.4	23.5	2	2		671
27-Mar-22	420	1530	24026	24026	15764872	15783118	28.6	25.8	1	1		670.9
28-Mar-22	555	1515	20136	20136	15803030	15817150	19	26.6	1	1	Collected a sample of the Discharge of the system.	670.8
29-Mar-22	605	1320	18340	18340	15839860	15850564	25.1	23.4				670.7
30-Mar-22	550	1615	24696	24696	15873734	15891854	22.4	30.8	1	1	Backflushed the system. 1st Carbon - 25min, 2nd Carbon - 15, then ran clean water trough the system for 60min.	670.7
31-Mar-22	550	1430	23240	23240	15916582	15931252	28.6	26.5	1	1		670.8

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Apr-22	555	1415	7226	17864	15954722	15965410	24.3	27.6	1	1		670.7
2-Apr-22	600	1400	9568	23466	15994880	16008776	31.6	29.7	1	1		670.6
3-Apr-22	630	1530	7544	21066	16032984	16046516	28.1	28.4	1	1		670.5
4-Apr-22	600	1420	7838	19322	16070358	16081834	25.7	17.4	1	1	Collected a sample of the Discharge of the system.	670.5
5-Apr-22	600	1500	8	15492	16087072	16103010	27.6	29.6	1	1		670.4
6-Apr-22	555	1430	8026	19320	16128532	16139924	26.1	31.3	1	1		670.6
7-Apr-22	555	1615	9024	27988	16168224	16187188	32	29.6	1	1		670.5
8-Apr-22	625	1520	8968	21470	16211310	16223806	26.7	30.8	1	1		670.4
9-Apr-22	625	1615	9198	24676	16249256	16254740	28.4	25	1	1		670.3
10-Apr-22	700	1530	202	15460	16272976	16288240	30.8	29.6	1	1		670.2
11-Apr-22	600	1500	6780	22188	16310786	16325204	20.5	34.4	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st carbon - 35 min., 2nd carbon - 20 min and ran clean water for 60 min.	670
12-Apr-22	545	1700	8104	16756	16354708	16363350	25.8	25	1	1		669.8
13-Apr-22	545	1515	9098	18960	16387958	16397816	31.2	27.6	1	1		669.6
14-Apr-22	550	1415	7558	20504	16421936	16434882	26.8	23.5	1	1		670
15-Apr-22	600	1300	360	12522	16444320	16456484	27.6	27.6	1	1	Shut the system down for the weekend.	669.9
16-Apr-22												
17-Apr-22												
18-Apr-22	830										Received lab results and the carbon in the vessels is spent. Backflushed the system and then drained it in preparation for a carbon change out.	
19-Apr-22											Moved equipment to start the carbon change out. Removed the top pipework and started to remove the carbon from the vessels.	
20-Apr-22											Continued to remove carbon from the vessels.	
21-Apr-22											Continued to remove carbon from the vessels.	
22-Apr-22											Continued to remove carbon from the vessels. New carbon arrived, staged it outside of the building.	
23-Apr-22												
24-Apr-22												
25-Apr-22												
26-Apr-22											Continued to remove carbon from the vessels.	
27-Apr-22											Finished the carbon change out and soaked the carbon.	
28-Apr-22											Put the influent pipe back on the tops of the vessels and backflushed them until the discharge was clear.	
29-Apr-22												
30-Apr-22												

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-May-22									1	1	Started the sytem up. Collected a sample from the Influent, After the First Carbon and Discharge of the system.	671
2-May-22	550	1445	0	16756	16456792	16473550	33.3	32.5	1	1		671
3-May-22	600	1520	8054	27792	16500848	16520582	36.4	33.3	1	1		670.9
4-May-22	540	1650	8872	22174	16549040	16562348	29.6	31.4	1	1		670.8
5-May-22	550	1500	8928	25256	16587122	16603444	30.6	27.3	1	1		670.8
6-May-22	600	1510	5090	23362	16623170	16641472	38.4	33.3	1	1		670.7
7-May-22	530	1700	8430	25136	16668804	16685512	29.6	33.3	1	1		670.6
8-May-22	730	1515	12568	25156	16713714	16726202	30.8	30.8	1	1		670.4
9-May-22	550	1515	9658	25088	16755504	16770938	32	29.6	1	1	Collectd a sample from the Discharge of the system	670.2
10-May-22	545	1630	8882	32740	16799514	16823386	27.6	44.5	1	1	Backflushed the system. 1st Carbon - 30min, 2nd - 20min & ran clean water through the system for 40min.	670.1
11-May-22	600	1445	9696	28208	16853254	16871764	257	32	1	1		669.9
12-May-22	600	1430	434	20400	16883202	16903228	296	34.8	1	1		669.8
13-May-22	600		352		16913368						Shut the system down for the weekend. Tool 2 bags of bag fiters to the AO rolloff caontainer at BG-199-4.	
14-May-22												
15-May-22												
16-May-22	900											
17-May-22												
18-May-22												
19-May-22												
20-May-22												
21-May-22												
22-May-22												
23-May-22	800	940	0	2248	16913380	16915632	47.1	47.1	1	1	Backflushed the system. 1st Carbon - 30min, 2nd - 20min & ran clean water through the system for 40min.	
24-May-22												
25-May-22												
26-May-22												
27-May-22												
28-May-22												
29-May-22												
30-May-22												
31-May-22											Took the 2 super sacks of spent carbon to the AO rolloff container at BG-199-4.	

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
									10 Micron	1 Micron		
1-Jun-22												
2-Jun-22												
3-Jun-22												
4-Jun-22												
5-Jun-22												
6-Jun-22	730											669.9
7-Jun-22												
8-Jun-22												
9-Jun-22												
10-Jun-22												
11-Jun-22												
12-Jun-22												
13-Jun-22	710	1515	0	16200	16915658	16931864	32	30.8	1	1	Started the sytem up. Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.2
14-Jun-22	650	1450	3428	22760	16950054	16969394	32	33.4	1	1		670
15-Jun-22	650	1525	82	16284	16980328	16996534	23.5	25.7	1	1		669.7
16-Jun-22	650	1515	3014	20854	17009336	17027170	28.4	25	1	1	Shut the system down due to lack of water.	669.5
17-Jun-22												
18-Jun-22												
19-Jun-22												
20-Jun-22												
21-Jun-22	800	1000	0	4368	17027194	17031564	50.6	50.6	1	1	Backflushed the system. 1st Carbon - 30min, 2nd - 20min & ran clean water through the system for 75min.	669.3
22-Jun-22												
23-Jun-22												
24-Jun-22												
25-Jun-22												
26-Jun-22												
27-Jun-22	715											669.2
28-Jun-22												
29-Jun-22												
30-Jun-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Jul-22												
2-Jul-22												
3-Jul-22												
4-Jul-22												
5-Jul-22	730											669
6-Jul-22												
7-Jul-22												
8-Jul-22												
9-Jul-22												
10-Jul-22												
11-Jul-22												
12-Jul-22	700											669
13-Jul-22												
14-Jul-22												
15-Jul-22												
16-Jul-22												
17-Jul-22												
18-Jul-22	730											669
19-Jul-22												
20-Jul-22												
21-Jul-22												
22-Jul-22												
23-Jul-22												
24-Jul-22												
25-Jul-22	700											669
26-Jul-22												
27-Jul-22												
28-Jul-22												
29-Jul-22												
30-Jul-22												
31-Jul-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Aug-22	800											669
2-Aug-22												
3-Aug-22												
4-Aug-22												
5-Aug-22												
6-Aug-22												
7-Aug-22												
8-Aug-22	730											669
9-Aug-22												
10-Aug-22												
11-Aug-22												
12-Aug-22												
13-Aug-22												
14-Aug-22												
15-Aug-22	715											669
16-Aug-22												
17-Aug-22												
18-Aug-22												
19-Aug-22												
20-Aug-22												
21-Aug-22												
22-Aug-22	730											669
23-Aug-22												
24-Aug-22												
25-Aug-22												
26-Aug-22												
27-Aug-22												
28-Aug-22												
29-Aug-22	730											669
30-Aug-22												
31-Aug-22												



**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Sep-22												
2-Sep-22												
3-Sep-22												
4-Sep-22												
5-Sep-22												
6-Sep-22	730											669.1
7-Sep-22												
8-Sep-22												
9-Sep-22												
10-Sep-22												
11-Sep-22												
12-Sep-22	800											669.5
13-Sep-22												
14-Sep-22												
15-Sep-22												
16-Sep-22												
17-Sep-22												
18-Sep-22												
19-Sep-22	730											669.8
20-Sep-22												
21-Sep-22												
22-Sep-22												
23-Sep-22												
24-Sep-22												
25-Sep-22												
26-Sep-22	730											669.8
27-Sep-22												
28-Sep-22												
29-Sep-22												
30-Sep-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Oct-22												
2-Oct-22												
3-Oct-22	830											669.7
4-Oct-22												
5-Oct-22												
6-Oct-22												
7-Oct-22												
8-Oct-22												
9-Oct-22												
10-Oct-22												
11-Oct-22	700											669.7
12-Oct-22												
13-Oct-22												
14-Oct-22												
15-Oct-22												
16-Oct-22												
17-Oct-22	800											669.7
18-Oct-22												
19-Oct-22												
20-Oct-22												
21-Oct-22												
22-Oct-22												
23-Oct-22												
24-Oct-22	730											669.6
25-Oct-22												
26-Oct-22												
27-Oct-22												
28-Oct-22												
29-Oct-22												
30-Oct-22												
31-Oct-22	830											669.7

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Nov-22												
2-Nov-22												
3-Nov-22												
4-Nov-22												
5-Nov-22												
6-Nov-22												
7-Nov-22	630											670.2
8-Nov-22												
9-Nov-22												
10-Nov-22												
11-Nov-22												
12-Nov-22												
13-Nov-22												
14-Nov-22	800											670.2
15-Nov-22												
16-Nov-22												
17-Nov-22												
18-Nov-22												
19-Nov-22												
20-Nov-22												
21-Nov-22	740											670.2
22-Nov-22												
23-Nov-22												
24-Nov-22												
25-Nov-22												
26-Nov-22												
27-Nov-22												
28-Nov-22	745											670.7
29-Nov-22												
30-Nov-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Dec-22												
2-Dec-22												
3-Dec-22												
4-Dec-22												
5-Dec-22												
6-Dec-22												
7-Dec-22												
8-Dec-22												
9-Dec-22												
10-Dec-22												
11-Dec-22												
12-Dec-22												
13-Dec-22												
14-Dec-22												
15-Dec-22												
16-Dec-22												
17-Dec-22												
18-Dec-22												
19-Dec-22												
20-Dec-22												
21-Dec-22												
22-Dec-22												
23-Dec-22												
24-Dec-22												
25-Dec-22												
26-Dec-22												
27-Dec-22												
28-Dec-22												
29-Dec-22												
30-Dec-22												
31-Dec-22												

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jan-21						
2-Jan-21						
3-Jan-21	730	121376	61214	151081		121376 Emptied the batch tank and reset the alarm.
4-Jan-21	1030	121742	61352	151632		
5-Jan-21	800	121742	61461	152072		
6-Jan-21	730	122350	61585	152566		
7-Jan-21	730	122350	61701	153033		
8-Jan-21	730	122960	61838	153540		
9-Jan-21						
10-Jan-21	430	123252	62102	154545		123252 Emptied the batch tank and reset the alarm
11-Jan-21	745	123645	62249	155017		
12-Jan-21	730	124264	62386	155155		
13-Jan-21	815	124264	62578	155317		
14-Jan-21	730	124880	62796	155484		
15-Jan-21	600	125136	63026	155663		125136 Emptied the batch tank and reset the alarm.
16-Jan-21						
17-Jan-21						
18-Jan-21	830	126814	63728	156648		
19-Jan-21	745	126814	63929	157193		127360 Emptied the batch tank and reset the alarm.
20-Jan-21	730	127456	64132	157726		
21-Jan-21	730	128092	64358	158316		
22-Jan-21						
23-Jan-21						
24-Jan-21						
25-Jan-21	815	128952	65224	160593		128952 Emptied the batch tank and reset the alarm.
26-Jan-21	1000	129736	65421	161223		
27-Jan-21	745	130316	65566	161706		Collected a sample of the Influent, After the First Carbon and Discharge of the system.
28-Jan-21	710	130316	65683	162172		
29-Jan-21	715	130316	65788	162629		130316 Emptied the batch tank and reset the alarm.
30-Jan-21						
31-Jan-21						

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Feb-21	615	131340	66261	164229		
2-Feb-21	745	131482	66494	164833		
3-Feb-21	1815	132070	66713	165462		
4-Feb-21	550	132140	66901	166025		132140 Emptied the batch tank and reset the alarm.
5-Feb-21	1000	132708	67196	166804		
6-Feb-21						
7-Feb-21						
8-Feb-21	1000	133958	67827	168548		133958 Emptied the batch tank and reset the alarm.
9-Feb-21	700	134514	67983	169000		
10-Feb-21	700	135104	68143	169522		
11-Feb-21	700	135104	68265	170002		
12-Feb-21	600	135696	68365	170077		
13-Feb-21						
14-Feb-21	1400	135778	68558	170123		135778 Emptied the batch tank and reset the alarm.
15-Feb-21	600	136286	68558	170123		
16-Feb-21	700	136546	68606	170133		
17-Feb-21	715	136870	68684	170149		
18-Feb-21	645	136870	68759	170168		
19-Feb-21						
20-Feb-21						
21-Feb-21	650	137450	68970	170216		
22-Feb-21	615	137450	69079	170234		
23-Feb-21	615	137612	69214	170250		137612 Emptied the batch tank.
24-Feb-21	620	138225	69394	170269		
25-Feb-21	620	138812	69586	170339		
26-Feb-21	605	139412	69785	170445		139412 Emptied the batch tank.
27-Feb-21	625	139412	69802	170461		
28-Feb-21						

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Mar-21	615	140034	70717	170474		
2-Mar-21	610	140674	70250	170930		
3-Mar-21	615	140674	70317	171201		Collected a sample from the Influent, After the First Carbon and Discharge of the system. 141310 Emptied the batch tank and drier the alarm.
4-Mar-21	615	141310	70375	171708		
5-Mar-21	620	141316	70422	172175		
6-Mar-21						
7-Mar-21						
8-Mar-21	605	142560	70493	173591		Shut off batch tank 2 and Turned on batch tank 1. Emptied 1300 gallons from tank 2.
9-Mar-21	605	142560	70526	174052		
10-Mar-21	645	143172	70555	174381		
11-Mar-21	640	143170	70587	174595		
12-Mar-21	630	143170	70618	175049		
13-Mar-21	750	143780	70642	175516		
14-Mar-21						
15-Mar-21	610	143780	70642	175516		
16-Mar-21	620	144396	70746	176303		144396 Emptied the batch tank and reset the alarm.
17-Mar-21	800	144446	70827	176659		
18-Mar-21	800	145072	70900	177082		
19-Mar-21	630	145290	70961	177496		
20-Mar-21	800	145662	71028	177935		
21-Mar-21	710	146048	71085	178330		146048 Emptied the batch tank and reset the alarm.
22-Mar-21	615	146218	71159	178748		
23-Mar-21	620	146540	71227	179180		
24-Mar-21	810	146540	71303	179632		
25-Mar-21	610	146692	71362	180031		
26-Mar-21	625	146704	71426	180479		146704 Emptied the batch tank and drier the alarm.
27-Mar-21	700	146734	71470	180923		
28-Mar-21	545	146742	71506	181359		
29-Mar-21	620	146742	71552	181847	X	147052 Emptied the batch tank and reset the alarm.
30-Mar-21	620	147408	71616	182238		
31-Mar-21	625	148064	71678	182491		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Apr-21	620	148004	71739	182622		
2-Apr-21	630	148598	71784	182957		
3-Apr-21	645	148598	71815	183329		
4-Apr-21	700	148886	71837	183694		148886 Emptied the batch tank and reset the alarm
5-Apr-21	615	149284	71919	183930		
6-Apr-21	620	149284	71982	184026		
7-Apr-21	620	149284	72038	184101		
8-Apr-21	600	149284	72098	184173		
9-Apr-21	610	149284	72188	184265		
10-Apr-21	630	150454	72225	184368		
11-Apr-21	735	150454	72272	184488		
12-Apr-21	605	150722	72312	184618		150722 Emptied the batch tank and reset the alarm. Collected a sample from the Influent, After the First Carbon and Discharge of the system.
13-Apr-21	550	151286	72459	184786		
14-Apr-21	605	151878	72551	185141		
15-Apr-21	540	151878	72634	185504		
16-Apr-21	550	152470	72694	185872		152470 Emptied the batch tank.
17-Apr-21	700	152470	72738	186240		
18-Apr-21	700	153048	72758	186562		
19-Apr-21	605	153058	72782	186856		
20-Apr-21	625	153058	72822	187150		
21-Apr-21	605	153644	72852	187433		
22-Apr-21	640	153644	72879	187712		
23-Apr-21	615	153644	72900	187856		
24-Apr-21	400	153644	72913	187907		
25-Apr-21	350	154100	72994	187946		
26-Apr-21	610	154230	72962	187985		
27-Apr-21	350	154230	72978	188011		
28-Apr-21	640	154230	72997	188038		
29-Apr-21	630	154230	73023	188063		
30-Apr-21	800	154230	73066	188093		154312 Emptied the batch tank and reset the alarm.



## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-May-21	820	154816	73101	188150		
2-May-21	710	154816	73120	188213		
3-May-21	620	154816	73141	188278		
4-May-21	620	154816	73167	188334		
5-May-21	615	155400	73204	188399		
6-May-21	610	155400	73277	188548		
7-May-21	615	155400	73294	188608		
8-May-21	820	155400	73328	188658		
9-May-21	600	155988	73373	188705		
10-May-21	610	155988	73435	188788		
11-May-21	610	156144	73482	189032		156144 Emptied the batch tank and reset the alarm.
12-May-21	620	156648	73515	189270		
13-May-21	625	156648	73542	189517		
14-May-21	630	156648	73555	189751		
15-May-21	630	157236	73568	189819		
16-May-21	620	157236	73645	189902		
17-May-21	640	157236	73832	190010		
18-May-21	620	157828	74018	190213		
19-May-21	620	157828	74207	190582		157988 Emptied the batch tank and reset the alarm.
20-May-21	620	158424	74383	190972		
21-May-21	625	158424	74541	191361		
22-May-21	730	159008	74709	191745		
23-May-21	615	159008	74855	192091		
24-May-21	620	159588	74971	192434		
25-May-21	615	159588	75073	192601		
26-May-21	630	159588	75148	192690		
27-May-21	620	159588	75224	192767		159816 Emptied the batch tank and reset the alarm.
28-May-21	630	160182	75304	192846		
29-May-21	700	160182	75378	192930		
30-May-21	700	160182	75443	192992		
31-May-21						

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jun-21	600	160182	75503	193047		
2-Jun-21	620	160770	75563	193094		
3-Jun-21	620	160770	75617	193141		
4-Jun-21	630	160770	75667	193179		
5-Jun-21	600	160770	75712	193211		
6-Jun-21						
7-Jun-21	550	160770	75814	193266		
8-Jun-21	550	160770	75854	193295		
9-Jun-21	555	160770	75897	193321		
10-Jun-21	600	161344	75934	193350		
11-Jun-21	1040	161344	75990	193374		
12-Jun-21						
13-Jun-21						
14-Jun-21	600	161344	76108	193428		
15-Jun-21	600	161344	76153	193450		
16-Jun-21	550	161344	76194	193471		
17-Jun-21	600	161344	76231	193489		
18-Jun-21	610	161344	76211	193505		
19-Jun-21	600	161344	76321	193523		Received an alarm for loss of power.
20-Jun-21	630		76321	193528		Tried to reset the alarm and restart the system. I was unable to get things started, think there may be a problem with the power supply and will trouble shoot more on Monday or Tuesday.
21-Jun-21	600		76431	193528		Tim did some troubleshooting and thinks it is the power supply also. I called Millard and had them send out an electrician. When they arrived they found the 24v power supply was bad and will need replaced. The electrician called and ordered the new power supply and will return and install it when it comes in.
22-Jun-21	900	161566	76431	193538		The Millard electrician called and said the power supply was in. Met him at the FFWTP and he installed the new power supply. After it was installed I reset the alarms and the system is back up and running. 161656 Emptied the batch tank and reset the alarm.
23-Jun-21	600	162046	76431	193559		
24-Jun-21	610	162046	76431	193596		Collected a sample from the Influent, After the First Carbon and Discharge of the system.
25-Jun-21	625	162046	76431	193606		
26-Jun-21	640	162046	76431	193613		
27-Jun-21	720	162622	76431	193619		

## FFWTP Treatment Log 2021

28-Jun-21	620	162622	76431	193628		
29-Jun-21	630	162622	76431	193646		
30-Jun-21	630	162622	76431	193657		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jul-21	710	163208	76475	193667		
2-Jul-21	615	63208	76552	193667		
3-Jul-21						
4-Jul-21	700	163484	76579	193798		163484 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
5-Jul-21						
6-Jul-21	600	163878	76583	193816		
7-Jul-21	600	163878	76585	193825		
8-Jul-21	635	163878	76588	193835		
9-Jul-21	630	163878	76590	193840		
10-Jul-21	700	164448	76590	193845		
11-Jul-21	700	164448	76660	193858		
12-Jul-21	620	164448	76861	193879		
13-Jul-21	700	165044	77028	193901		
14-Jul-21	635	165044	77233	193946		
15-Jul-21	635	165312	77440	194035		165312 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
16-Jul-21	630	165738	77731	194137		
17-Jul-21	710	166356	78034	194245		
18-Jul-21	720	166966	78302	194335		
19-Jul-21	625	166966	78566	194407		
20-Jul-21	625	167138	78749	194490		167138 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
21-Jul-21	600	167660	78932	194565		
22-Jul-21	615	167660	79067	194622		
23-Jul-21	620	168268	79175	194659		
24-Jul-21	700	168268	79251	194677		
25-Jul-21	700	168268	79297	194691		
26-Jul-21	605	168268	79338	194698		
27-Jul-21	600	168846	79373	194708		
28-Jul-21	600	168846	79426	194718		
29-Jul-21	630	168846	79474	194725		
30-Jul-21	635	168846	79503	194735		
31-Jul-21	715	168846	79541	194736		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Aug-21	710	168846	79570	194738		
2-Aug-21	620	168846	79594	194738		
3-Aug-21	620	168980	79634	194711		168980 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
4-Aug-21	615	169432	79668	194742		
5-Aug-21	630	169432	79696	194742		
6-Aug-21	625	169432	79733	194743		
7-Aug-21	715	169432	79759	194744		
8-Aug-21	710	169432	79803	194744		
9-Aug-21	605	169432	79832	194744		
10-Aug-21	615	169432	79859	194747		
11-Aug-21	600	169432	79917	194749		Received a Loss of Power Alarm.
12-Aug-21	625	169432	79920	194750		Power went out yesterday, reset the alarms and turn the pumps back on.
13-Aug-21	625	170024	80115	194754		
14-Aug-21	640	170024	80281	194763		
15-Aug-21	645	170024	80407	194788		
16-Aug-21	620	170620	80533	194812		
17-Aug-21	630	170620	80655	194827		
18-Aug-21	630	170620	80754	194845		
19-Aug-21	630	170810	80841	194857		170810 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
20-Aug-21	630	171214	80893	194866		
21-Aug-21	635	171214	80966	194873		
22-Aug-21	700	171214	81066	194878		
23-Aug-21	620	171214	81156	194886		
24-Aug-21	625	171214	81234	194891		
25-Aug-21	625	171214	81296	194896		
26-Aug-21	630	171790	81375	194904		
27-Aug-21	620	171790	81436	194907		
28-Aug-21	645	171790	81472	194909		
29-Aug-21	650	171790	81517	194912		
30-Aug-21	615	171790	81579	194915		
31-Aug-21	630	171790	81615	194916		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Sep-21	630	171790	81677	194918		
2-Sep-21	600	171790	81716	194922		
3-Sep-21						
4-Sep-21						
5-Sep-21						
6-Sep-21						
7-Sep-21	600	172368	81940	194930		Collected samples from the Influent, After the First Carbon and Discharge of the system
8-Sep-21						
9-Sep-21						
10-Sep-21	600	172368	82045	194943		
11-Sep-21						
12-Sep-21						
13-Sep-21	600	172368	82115	194946		
14-Sep-21	550	172368	82159	194946		
15-Sep-21	600	172368	82176	194950		
16-Sep-21	1200	172444	82207	194951		
17-Sep-21	600	172642	82236	194953		
18-Sep-21						
19-Sep-21						
20-Sep-21	600	172642	82315	194956		
21-Sep-21	600	172642	82330	194960		172642 Emptied the batch tank.
22-Sep-21	600	173136	82350	194962		
23-Sep-21	600	173136	82366	194963		
24-Sep-21	600	173136	82387	194965		
25-Sep-21						
26-Sep-21						
27-Sep-21	600	173136	82443	194971		
28-Sep-21	620	173136	82468	194972		
29-Sep-21	615	173136	82509	194974		
30-Sep-21	550	173136	82571	194975		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Oct-21						
2-Oct-21						
3-Oct-21						
4-Oct-21	550	173136	82792	194979		
5-Oct-21	600	173710	82862	194980		
6-Oct-21	550	173710	82922	194983		
7-Oct-21	555	173710	82974	194984		
8-Oct-21	600	173710	83039	194985		
9-Oct-21						
10-Oct-21						
11-Oct-21	600	173710	83203	194988		
12-Oct-21	600	173710	83253	194989		
13-Oct-21	550	173710	83268	194989		
14-Oct-21	600	173710	83331	194991		
15-Oct-21	600	173710	83386	194991		
16-Oct-21	430	173710	83438	194992		
17-Oct-21	410	173710	83491	194997		
18-Oct-21	545	173710	83550	195003		
19-Oct-21	600	173710	83596	195008		
20-Oct-21	600	174294	83650	195014		
21-Oct-21	600	174294	83693	195018		
22-Oct-21	600	174294	83709	195024		
23-Oct-21	405	174294	83738	195026		
24-Oct-21	720	174294	83785	195029		
25-Oct-21	600	174294	83807	195033		
26-Oct-21	620	174294	83937	195046		
27-Oct-21	625	174294	84050	195103		
28-Oct-21	625	174294	84140	195163		
29-Oct-21	620	174468	84251	195208		174468 Emptied the batch and and reset the alarm.
30-Oct-21						
31-Oct-21						
		<b>1332</b>				

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Nov-21	620	174994	84729	195269		Talked with Dan Jensen from the Montrose IT department to see who is maintaining the server for the notification systems at the site. Dan worked on the HMI for the FFWTP and couldn't figure out what is wrong with it. I went to the FFWTP and cut the power and still did not receive an alarm.
2-Nov-21	615	174994	84858	195501		Montrose followed up with Tim Hoenke (T&M) to try and fix the HMI for the FFWTP. It is taking more time than they thought and T&M will need a contract to get paid for there help.
3-Nov-21	615	175716	85026	195589		
4-Nov-21	615	175716	85167	195666		
5-Nov-21	615	176300	85338	195943		
6-Nov-21	425	176300	85136	196200		
7-Nov-21	700	176300	85536	196534		
8-Nov-21	635	176300	85658	196809		Emptied 20 gallons of purge into the floor drain from the off-site well sampling.
9-Nov-21	700	176300	85802	196906		Emptied 28 gallons of purge into the floor drain from the off-site well sampling.
10-Nov-21	615	176314	85932	196907		176314 Emptied the batch tank and reset the alarm. Emptied 28 gallons of purge into the floor drain from the off-site well sampling.
11-Nov-21	615	177038	86061	196907		Emptied 30 gallons of purge into the floor drain from the off-site well sampling.
12-Nov-21	615	177038	86211	197243		Talked with Tim Landes (T&M) and he had me reboot the MiFi and HMI for the FFWPT. He worked remotely on the systems and wasn't able to get the systems fixed. Emptied 29 gallons of purge into the floor drain from the off-site well sampling.
13-Nov-21	630	177038	86409	197367		Simulated a power failure alarm and never received a notification.
14-Nov-21	845	177038	86566	197488		
15-Nov-21	550	177038	86706	197585		Tim Landes is trying to install the program on the HMI but can't get it to finish because of a slow connection. He will send me the program so I can load it.
16-Nov-21	600	177626	86795	197684		Worked with Montrose IT to install Crimson so they can access the HMI for the FFWTP. We couldn't figure out what the problem is and reached out to Tim Landes (T&M) for assistance.
17-Nov-21	555	177626+	86908	197761		Dan and Tim worked remotely on the HMI for the FFWTP. They had me use a cable and load the program onto the HMI. After I got it loaded the system would not finish rebooting.
18-Nov-21	555	177626	87065	197832		Dan and Tim continued to work on the HMI and couldn't come up with a solution. It appears that we will need a new HMI for the office. Tim remotely worked on the system at the Line 1 Impoundment and was unsuccessful getting it to work correctly.
19-Nov-21	600	177626	87131	197909		
20-Nov-21						
21-Nov-21						
22-Nov-21	600	177626	87290	198053		
23-Nov-21	600	177626	87322	198097		
24-Nov-21	600	177626	87365	198136		
25-Nov-21						
26-Nov-21						



## FFWTP Treatment Log 2021

27-Nov-21	1445	178156	87584	198244		178156 Emptied the batch tank and reset the alarm.
28-Nov-21						
29-Nov-21	550	178334	87686	198304		
30-Nov-21	550	178334	87737	198336		
		<b>3340</b>				

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Dec-21	555	178334	87795	198374		
2-Dec-21	550	178334	87842	198403		
3-Dec-21	600	178334	87902	198436		
4-Dec-21						
5-Dec-21						
6-Dec-21	550	178334	88063	198530		
7-Dec-21	555	178334	88094	198564		
8-Dec-21	600	178334	88121	198597		
9-Dec-21	600	178334	88160	198627		
10-Dec-21						
11-Dec-21						
12-Dec-21						
13-Dec-21	600	178918	88331	198745		
14-Dec-21	600	178918	88373	198777		
15-Dec-21	600	178918	88420	198806		
16-Dec-21	600	178918	88473	198836		
17-Dec-21						
18-Dec-21						
19-Dec-21						
20-Dec-21	550	178918	88665	198949		
21-Dec-21	550	178918	88710	198984		
22-Dec-21	555	178918	88753	199014		
23-Dec-21	1130	178918	88802	199055		
24-Dec-21						
25-Dec-21						
26-Dec-21						
27-Dec-21	700	178918	88974	199164		
28-Dec-21	600	179502	89022	199194		
29-Dec-21	600	179502	89063	199219		
30-Dec-21	1000	179502	89109	199250		
31-Dec-21						
		<b>1168</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jan-22						
2-Jan-22						
3-Jan-22	550	179502	89253	199353		
4-Jan-22	530	179502	89285	199370		
5-Jan-22	600	179502	89331	199411		
6-Jan-22	550	179502	89374	199475		
7-Jan-22	800	179502	89390	199519		
8-Jan-22						
9-Jan-22						
10-Jan-22	555	179502	89494	199547		
11-Jan-22	550	179502	89539	199596		
12-Jan-22	550	179502	89589	199622		
13-Jan-22	555	180002	89626	199671		180002 Emptied the batch tank and reset the alarm.
14-Jan-22	600	180100	89660	199731		
15-Jan-22						
16-Jan-22						
17-Jan-22	600	180100	89797	199848		
18-Jan-22	600	180100	89863	189942		
19-Jan-22	700	180100	89940	200102		
20-Jan-22	550	180100	90021	200227		
21-Jan-22	555	180100	90085	200340		
22-Jan-22						
23-Jan-22						
24-Jan-22	600	180694	90312	200719		
25-Jan-22	730	180694	90379	200847		
26-Jan-22	730	180694	90427	200946		
27-Jan-22	730	180694	90486	201034		
28-Jan-22	715	181282	90553	201138		
29-Jan-22						
30-Jan-22						
31-Jan-22	700	181282	90745	201325		
		<b>1780</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Feb-22	700	181282	90809	201367		
2-Feb-22	700	181282	90878	201420		
3-Feb-22	700	181282	90936	201454		
4-Feb-22	700	181848	90978	201471		181848 Emptied the batch tank and reset the alarm.
5-Feb-22						
6-Feb-22						
7-Feb-22	715	181926	91107	201511		
8-Feb-22	715	181926	911067	201533		
9-Feb-22	700	181926	91225	201556		
10-Feb-22	715	181926	91287	201979		
11-Feb-22						
12-Feb-22						
13-Feb-22						
14-Feb-22	600	182514	91502	201665		
15-Feb-22	700	182514	91558	201685		
16-Feb-22	700	182514	91607	201700		Collected a sample from the Influent, After the First Carbon and Discharge of the system.
17-Feb-22	730	182514	91666	201720		
18-Feb-22	730	182514	91723	201739		
19-Feb-22	615	182514	91784	201761		
20-Feb-22	730	193102	91867	201791		
21-Feb-22						
22-Feb-22	730	183102	92038	201870		
23-Feb-22	715	183102	92127	201945		
24-Feb-22	730	183692	92217	202054		
25-Feb-22	730	183692	92302	202145		
26-Feb-22	630	183962	92377	202245		
27-Feb-22						
28-Feb-22	700	183704	92551	202381		183704 Emptied the batch tank and reset the alarm.
		<b>2422</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Mar-22	715	184290	92646	202440		
2-Mar-22	730	184290	92739	202521		
3-Mar-22						
4-Mar-22						
5-Mar-22						
6-Mar-22						
7-Mar-22	730	184878	93192	203197		
8-Mar-22	1100	185470	93306	203330		
9-Mar-22	700	185470	93413	203458		
10-Mar-22	710	185554	93558	203606		185554 Emptied the batch tank and reset the alarm
11-Mar-22	600	186106	93701	203794		
12-Mar-22						
13-Mar-22						
14-Mar-22	630	186714	94141	204423		
15-Mar-22	700	186714	94271	204563		
16-Mar-22	700	187316	94373	204699		
17-Mar-22	645	187316	94481	204814		
18-Mar-22	700	187316	94585	204927		
19-Mar-22						
20-Mar-22						
21-Mar-22	645	187430	94988	205319		187430 Emptied the batch tank and reset the alarm
22-Mar-22	700	188466	94996	205557		
23-Mar-22	715	188466	94996	205677		
24-Mar-22	715	189088	95823	205803		
25-Mar-22	550	189232	96123	205932		189232 Emptied the batch tank reset the alarm
26-Mar-22	415	189740	96428	206062		
27-Mar-22	430	190358	96744	206314		
28-Mar-22	640	190358	97066	206589		
29-Mar-22	715	190976	97346	206868		
30-Mar-22	730	190976	97586	207184		
31-Mar-22	730	191178	97833	207301		191178 Emptied the batch tank and reset the alarm.
		<b>6888</b>				
Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes

**FFWTP Treatment Log  
2022**

1-Apr-22	715	191616	98107	207491		
2-Apr-22	630	191616	98368	207749		
3-Apr-22	745	192244	98649	208042		
4-Apr-22	715	192696	98926	208328		Collected a sample from the Discharge of the system.
5-Apr-22	700	192880	99211	208633		
6-Apr-22	700	193086	99522	208973		193086 Emptied the batch tank and reset the alarm.
7-Apr-22	700	193536	99861	209118		
8-Apr-22	730	194174	100213	209336		
9-Apr-22	700	194174	100520	209645		
10-Apr-22	730	194814	100839	209959		
11-Apr-22	715	194814	101141	210148		
12-Apr-22	700	194996	101395	210304		
13-Apr-22	700	194996	101669	210614		
14-Apr-22	700	194996	101842	210688		194996 Emptied the batch tank and reset the alarm.
15-Apr-22	715	196194	102281	210904		
16-Apr-22						
17-Apr-22						
18-Apr-22	700	196890	103214	211802		196890 Emptied the batch tank and reset the alarm.
19-Apr-22	600	197532	103469	212074		
20-Apr-22	550	197532	103727	212351		
21-Apr-22	550	198162	103993	212663		
22-Apr-22	700	198162	104318	212977	X	198802 Emptied the batch tank.
23-Apr-22	600	198802	104634	213297	X	Added 220 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
24-Apr-22	1600	198944	105128	213611		Decanted water from the tank. Added 375 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
25-Apr-22	530	199318	105329	213681		Decanted water from the tank. Added 200 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
26-Apr-22	600	199422	105632	213990		Decanted water from the tank. Added 250 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
27-Apr-22	545	200010	105894	214273		Decanted water from the tank. Added 380 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
28-Apr-22	555	200592	106129	214551		
29-Apr-22	700	201184	106346	214744		Decanted water from the tank.
30-Apr-22						
		<b>9568</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-May-22	1500	201283	106844	214962		214962 Emptied the batch tank and reset the alarm.
2-May-22	715	201948	107017	215047		
3-May-22	620	201948	107243	215161		
4-May-22	600	202542	107515	215276		
5-May-22	1400	202542	107908	215470		
6-May-22	630	203116	108107	215554		203116 Emptied the batch tank and reset the alarm.
7-May-22	550	203308	108418	215687		
8-May-22	745	203904	108741	215820		
9-May-22	610	204496	109034	215937		
10-May-22	605	204970	109312	215987		204970 Emptied the batch tank and reset the alarm. Collected a sample from the Influent, After the First Carbon and Discharge of the system.
11-May-22	620	205162	109534	215987		
12-May-22	620	205756	109710	216243		
13-May-22	615	205756	109869	216320		
14-May-22						
15-May-22						
16-May-22	550	206346	110203	216527		
17-May-22	545	206346	110298	216580		
18-May-22	610	206346	110389	216618		
19-May-22	550	206346	110470	216644		
20-May-22	545	206346	110531	216673		
21-May-22						
22-May-22						
23-May-22	545	206830	110703	216736		206830 Emptied the batch tank and reset the alarm.
24-May-22	545	207056	110754	216755		
25-May-22	550	207056	110795	216773		
26-May-22	700	207056	110840	216791		
27-May-22	645	207056	110879	216806		
28-May-22						
29-May-22						
30-May-22						
31-May-22	555	207056	111080	216901		
		<b>5773</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jun-22	550	207056	111132	216912		
2-Jun-22	550	207056	111138	216927		
3-Jun-22	555	207648	111138	216937		
4-Jun-22						
5-Jun-22						
6-Jun-22	550	207648	111138	216964		
7-Jun-22	620	207648	111141	216974		
8-Jun-22	550	207648	111144	216982		
9-Jun-22	555	207648	111148	216993		
10-Jun-22	605	207648	111153	217005		
11-Jun-22						
12-Jun-22						
13-Jun-22	550	208236	111167	217027		
14-Jun-22	605	208236	111170	217030		
15-Jun-22	605	208236	111173	217043		
16-Jun-22	610	208236	111177	217052		
17-Jun-22	610	208236	111182	217057		
18-Jun-22						
19-Jun-22						
20-Jun-22	545	208236	111191	217085		
21-Jun-22	550	208236	111195	217094		
22-Jun-22	545	208236	111198	217101		
23-Jun-22	600	208236	111200	217110		
24-Jun-22	815	208236	111204	217124		
25-Jun-22						
26-Jun-22						
27-Jun-22	530	208682	111214	217141		
28-Jun-22	545	208864	111216	217147		
29-Jun-22	555	208864	111219	217152		
30-Jun-22	550	208864	111222	217165		
		<b>1808</b>				



## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jul-22						
2-Jul-22						
3-Jul-22						
4-Jul-22						
5-Jul-22	550	208864	111233	217199		
6-Jul-22	545	208864	111236	217201		
7-Jul-22	555	208864	111239	217209		
8-Jul-22	550	208864	111243	217219		
9-Jul-22						
10-Jul-22						
11-Jul-22	550	208864	111253	217256		
12-Jul-22	550	208864	111260	217263		
13-Jul-22	800	208864	111263	217284		
14-Jul-22	555	208864	111265	217286		
15-Jul-22	555	209434	111268	217289		
16-Jul-22						
17-Jul-22						
18-Jul-22	550	209434	111271	217293		Noticed it looked like the power had been out over the weekend. Checked and reset all the alarms for the system.
19-Jul-22	555	209434	111283	217297		
20-Jul-22	550	209434	111295	217302		
21-Jul-22	600	209434	111313	217309		
22-Jul-22	715	209434	111326	217315		
23-Jul-22						
24-Jul-22						
25-Jul-22	545	209434	111367	217332		
26-Jul-22	545	209434	111377	217340		
27-Jul-22	545	209434	111387	217345		
28-Jul-22	550	209434	111397	217351		
29-Jul-22	550	209434	111417	217360		
30-Jul-22						
31-Jul-22						
		<b>570</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Aug-22	550	209434	111441	217379		
2-Aug-22	550	209990	111457	217385		
3-Aug-22	550	209990	111461	217389		
4-Aug-22	545	209990	111471	217396		
5-Aug-22	555	209990	111482	217402		
6-Aug-22						
7-Aug-22						
8-Aug-22	550	209990	111506	217421		
9-Aug-22	545	210660	111516	217427		
10-Aug-22	550	210660	111524	217433		
11-Aug-22	545	210660	111534	217437		
12-Aug-22	600	210660	111544	217442		
13-Aug-22						
14-Aug-22						
15-Aug-22	550	211236	111595	217459		
16-Aug-22	545	211236	111606	217465		
17-Aug-22	550	211236	111620	217469		
18-Aug-22	555	211236	111632	217476		
19-Aug-22	550	211236	111646	217481		
20-Aug-22						
21-Aug-22						
22-Aug-22	550	211886	111676	217500		211886 Emptied the batch tank and reset the alarm
23-Aug-22	555	211886	111683	217506		
24-Aug-22	550	211886	111692	217513		
25-Aug-22	555	212468	111701	217518		
26-Aug-22	550	212468	111709	217521		
27-Aug-22						
28-Aug-22						
29-Aug-22	550	212468	111750	217535		
30-Aug-22	550	212468	111764	217543		
31-Aug-22	550	212468	111775	217548		
		<b>3034</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Sep-22	550	212468	111790	217553		
2-Sep-22	1545	212468	111799	217580		AO Utilities called and said they need to shut the power down to the IDA for maintenance and would call when it was turned back on. I returned to the site and reset the alarms for the system.
3-Sep-22						
4-Sep-22						
5-Sep-22						
6-Sep-22	550	212468	111839	217586		Used the hydrant water to fill the Influent tank for the engineers inspection tomorrow.
7-Sep-22	550	212468	111852	217590		Performed tests to show Ensafes how the system works. Everything worked like it should.
8-Sep-22	700	213426	111861	217596		
9-Sep-22	555	213426	111870	217603		
10-Sep-22						
11-Sep-22						
12-Sep-22	550	213426	111905	217622		
13-Sep-22	550	213426	111917	217629		
14-Sep-22	550	213426	111927	217637		
15-Sep-22	555	213426	111935	217640		
16-Sep-22	1030	213426	111945	217647		
17-Sep-22						
18-Sep-22						
19-Sep-22	550	213426	111967	217660		
20-Sep-22	555	213426	111985	217668		
21-Sep-22	550	213426	111999	212683		
22-Sep-22	550	213426	112014	217701		
23-Sep-22	550	213426	112031	217718		
24-Sep-22	1615	213876	112054	217728		0650-AO Utilites called and said there was a power outage at the IDA from the storm last night. They will call when the power is restored. Returned the the site to reset the alarms for the system. Reset the alarms. 213876 Emptied the batch tank and reset the alarms.
25-Sep-22						
26-Sep-22	550	213876	112087	217751		
27-Sep-22	550	213876	112103	217760		
28-Sep-22	555	213876	112117	217768		
29-Sep-22	550	213876	112128	217776		
30-Sep-22						
		<b>1408</b>				

**FFWTP Treatment Log  
2022**

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Oct-22						
2-Oct-22						
3-Oct-22	550	213876	112182	217804		
4-Oct-22	555	213876	112191	217810		
5-Oct-22	550	214468	112201	217814		
6-Oct-22	550	214468	112211	217823		
7-Oct-22	600	214468	112231	217830		
8-Oct-22						
9-Oct-22						
10-Oct-22	550	214468	112273	217849		
11-Oct-22	555	214468	112290	217854		
12-Oct-22	555	214468	112296	217861		
13-Oct-22	550	214468	112309	217867		
14-Oct-22	555	214468	112324	217874		
15-Oct-22	630	214468	112337	217878		
16-Oct-22	800	214468	112348	217885		
17-Oct-22	530	214468	112360	217890		
18-Oct-22	530	215072	112371	217896		
19-Oct-22	535	215072	112382	217905		
20-Oct-22	535	215072	112394	217911		
21-Oct-22	535	215072	112412	217918		
22-Oct-22						
23-Oct-22						
24-Oct-22	535	215072	112444	217938		Collected a sample from the Influent, After the First Carbon and Discharge of the system.
25-Oct-22	540	215072	112469	217938		
26-Oct-22	535	215072	112514	217938		
27-Oct-22	550	215072	112558	217948		
28-Oct-22	550	215072	112590	217962		
29-Oct-22						
30-Oct-22						
31-Oct-22	555	215590	112636	217963		
		<b>1714</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Nov-22	620	215590	112637	217963		
2-Nov-22	550	215590	112639	217963		
3-Nov-22	1000	215590	112644	217963		
4-Nov-22	550	215590	1126801	217963		
5-Nov-22						
6-Nov-22						
7-Nov-22	615	215590	112794	217966		
8-Nov-22	550	215590	112826	217969		
9-Nov-22	600	215590	112853	217977		126374 Emptied the batch tank and reset the alarm.
10-Nov-22	550	216650	112881	217977		
11-Nov-22	555	216650	112913	217978		
12-Nov-22						
13-Nov-22						
14-Nov-22	550	216650	112995	218005		
15-Nov-22	545	216650	113021	218022		
16-Nov-22	545	216650	113042	218046		
17-Nov-22	600	216650	113070	218051		
18-Nov-22	600	216650	113090	218057		
19-Nov-22						
20-Nov-22						
21-Nov-22	545	216650	113168	218103		
22-Nov-22	550	216650	113186	218118		
23-Nov-22	550	216650	113208	218121		
24-Nov-22						
25-Nov-22	1015	217248	113256	218135		
26-Nov-22						
27-Nov-22						
28-Nov-22	550	217248	113319	218141		
29-Nov-22	550	217248	113336	218146		
30-Nov-22	550	217248	113358	218148		
		<b>1658</b>				

**FFWTP Treatment Log  
2022**

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Dec-22						
2-Dec-22						
3-Dec-22						
4-Dec-22						
5-Dec-22						
6-Dec-22						
7-Dec-22						
8-Dec-22						
9-Dec-22						
10-Dec-22						
11-Dec-22						
12-Dec-22						
13-Dec-22						
14-Dec-22						
15-Dec-22						
16-Dec-22						
17-Dec-22						
18-Dec-22						
19-Dec-22						
20-Dec-22						
21-Dec-22						
22-Dec-22						
23-Dec-22						
24-Dec-22						
25-Dec-22						
26-Dec-22						
27-Dec-22						
28-Dec-22						
29-Dec-22						
30-Dec-22						
31-Dec-22						

FFWTP Purge Water Log  
2022

Date	Amount Added To Poly Tank (Gallons)	Area Working	Emptied Into Floor Drain (Gallons)
22-Apr-22	220	Off-Site area OU3	
23-Apr-22	150	Off-Site area OU3	220
23-Apr-22	225	Off-Site area OU3	
24-Apr-22	170	Off-Site area OU3	375
25-Apr-22	200	Off-Site area OU3	170
26-Apr-22	250	Off-Site area OU3	200
27-Apr-22	130	Off-Site area OU3	250
27-Apr-22	250	Off-Site area OU3	
28-Apr-22			380
6-May-22	218	Off-Site area OU3	
7-May-22	239	Off-Site area OU3	218
8-May-22	194	Off-Site area OU3	239
9-May-22	220	Off-Site area OU3	194
10-May-22	18	Off-Site area OU3	220
20-May-22	36	IDA/Trench 5 wells	Trench 5 water is being stored in a 55 gallon drum kept inside the FFWTP.
18-Aug-22	15	Line 3A and CWP decon water	
18-Aug-22	30	Line 6 Purge water	
18-Aug-22	26	Line 6 Purge water	
19-Aug-22	132	Line 6 Purge water	
19-Aug-22	54	Line 6 Purge water	
20-Aug-22	69	Line 6 Purge water	
21-Aug-22	45	Line 6 Purge water	
22-Aug-22	15	Line 6 Purge water	
19-Oct-22	30	Off-site ground water sampling	
8-Nov-22	26	Off-site ground water sampling	
9-Nov-22	13	Off-site ground water sampling	
10-Nov-22	23	Off-site ground water sampling	
11-Nov-22	25	Off-site ground water sampling	

# Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change	Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop			
1-Jan-21											
2-Jan-21											
3-Jan-21											
4-Jan-21	920										669.7
5-Jan-21											
6-Jan-21											
7-Jan-21											
8-Jan-21											
9-Jan-21											
10-Jan-21											
11-Jan-21	815										669.9
12-Jan-21											
13-Jan-21											
14-Jan-21											
15-Jan-21											
16-Jan-21											
17-Jan-21											
18-Jan-21	915									Backflushed the system.	670.2
19-Jan-21											
20-Jan-21											
21-Jan-21											
22-Jan-21											
23-Jan-21											
24-Jan-21											
25-Jan-21	700	1415	0	13052	9631090	964414	36.3	28.6	1	Started the system up. Collected samples from the Influent, After the First Carbon and Discharge of the system.	673.3 *
26-Jan-21	615	1430	9818	22176	9669554	9681908	24.9	35.3	1		673.3 *
27-Jan-21	545	1430	10278	24516	9709658	9723820	27.4	27.6	1	Shut down for the night.	673.3 *
28-Jan-21	745	1350	0	10460	9723820	9734326	30.6	26.1	0	Started the system up in the morning and shut it down in the afternoon	673.3 *
29-Jan-21											
30-Jan-21											
31-Jan-21											

\* Indicates ice and snow on pool and Staff gauges cant be read.



## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change	Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop			
1-Feb-21	545	1425	0	19026	9734338	9753552	37.8	36.1	1	Collected a sample from the Discharge of the system.	670.3*
2-Feb-21	550	1400	12914	29634	9787316	9804042	34.8	34.8	0		670.3*
3-Feb-21	550	1425	11654	25882	9836038	9850262	30.8	15.1	1	Shut down for the day.	670.3*
4-Feb-21											
5-Feb-21											
6-Feb-21											
7-Feb-21											
8-Feb-21	1000										670.3*
9-Feb-21											
10-Feb-21											
11-Feb-21											
12-Feb-21											
13-Feb-21											
14-Feb-21											
15-Feb-21	900										670.3*
16-Feb-21											
17-Feb-21											
18-Feb-21											
19-Feb-21											
20-Feb-21											
21-Feb-21											
22-Feb-21	800										670.3*
23-Feb-21	550	1500	0	19470	9850262	9869758	36.1	36.5	1	Started the system up. Collected a sample from the Influent, After the First Carbn and Discharge of the system.	670.3*
24-Feb-21	555	1400	11972	26192	9899744	9913968	32	28.7	0		670.3*
25-Feb-21	600	1555	9408	29010	9940004	9959612	36.4	28.7	1		670.8
26-Feb-21	600	1530	10070	23942	9983130	9997002	28.6	27	1		671.1
27-Feb-21	550	1445	10012	24454	10024116	10038570	28.7	28.3	0		671.1
28-Feb-21	600	1405	8572	23900	10050916	10076246	34.5	29.6	1		671.1
										<b>* ICE AT STAFF GAUGE LEVELS ARE AN ESTIMATE</b>	

# Line 1 Impoundment Treatment System Log

## 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop				
1-Mar-21	550	1535	9060	23636	10101644	10116226	25	41.2		1	Backflushed the system	671.1
2-Mar-21	550	1755	10486	34534	10145714	10169962	30	33.3		1	1 Micron filter was the only one changed.	671.1
3-Mar-21	555	1345	11072	27872	10192610	10209406	36.4	36.8		1	Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.9
4-Mar-21	550	1500	11288	29676	10241256	10259688	33.3	34		1	1 Micron filter was the only one changed.	670.9
5-Mar-21	555	1500	9926	32144	10235798	10308022	38.1	40.7		1	Shut the system down	670.5
6-Mar-21												
7-Mar-21	1535			24538		10406125		13.8		1	Started the system up.	669.9
8-Mar-21	750	1600	12758	25640	10457484	10450368	11.7	11.8		1	1 Micron filter was the only one changed.	669.7
9-Mar-21	800		0	12200	10450386	10452604	33.3	30.8		1	1 Micron filter was the only one changed.	669.5
10-Mar-21	710	1500	0	11164	10450986	10473804	32	15.1		0		669.4
11-Mar-21	730	1600	0	14182	10473809	10487990	34.1	17.4		1	Changed 2-1 Micron and 1-10 Micron filters	669.2
12-Mar-21	730		0	3164	10487990	10491154	33.1			1		669.2
13-Mar-21												
14-Mar-21												
15-Mar-21	1400		0		10491154		40				Backflushed the system for 45 minutes.	670.2
16-Mar-21	600	1425	5774	21130	10517500	10532862	15.7	47.1		1	Collected a sample from the Influent, Afetr the First Carbon and Discharge of the system and the pool. Tested the hydrant water flow (96GPM) and using the backflush pump (113GPM) Backflushed	670.4
17-Mar-21	550	1445	10270	27440	10567300	10584456	36.1	44.4		2		670.2
18-Mar-21	550	1500	9648	30004	10619352	10639802	42.1	44.5		2		671
19-Mar-21	555	1540	3610	19178	10663064	10678736	40	34.5		2		671.1
20-Mar-21	600	1500	6230	25234	10706160	10725250	38.1	40		2		671.1
21-Mar-21	635	1610	4954	20946	10751084	10767076	30.8	32		2		671
22-Mar-21	550	1530	1556	13458	10778048	10789950	32	35.3		3	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon for 30 min., 2nd for 20 min. and ran clean water through the system for 30 minutes.	670.9
23-Mar-21	555	1530	2388	7892	10800756	10806262	40	33.1		2		670.9
24-Mar-21	555	1520	20	2696	10809404	10812082	38.1	38.1		2		671
25-Mar-21	555	1530	16	4906	10814154	10819048	33.3	36.9		2		671
26-Mar-21	550	1500	4	4286	10820368	10824652	35.3	30.2		3		671.1
27-Mar-21	615	1520	92	1474	10825526	10827896	36.9	33.3		2		671.1
28-Mar-21	525	1525	8	2548	10828802	10831340	36.4	33.3		2		671.2
29-Mar-21	550	1515	6	7296	10833432	1080720	34.6	34.8		2	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon for 1hr., 2nd for 30 min. and ran clean water through the system for 30 minutes.	671.2
30-Mar-21	555	1440	970	9836	10847138	10856006	33.8	33.1		3		671.2
31-Mar-21	530	1520	230	10512	10860948	10871222	38.1	34.8		3		671.1

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Apr-21	600	1515	484	16570	10877238	10893332	32	32	1	2	Reinstalled the MiFi	671.1
2-Apr-21	600	1540	304	9410	10904252	10913356	32.2	32	1	2		671
3-Apr-21	600	1515	4534	23752	10936118	10955232	34.8	33.3	1	2		670.9
4-Apr-21	615	1610	4476	25608	10975202	10996342	38.1	32.4	1	1		670.8
5-Apr-21	550	1440	4414	24236	11014166	11033990	40	40	1	1	Collected a sample form the Influent, After the First Carbon and Discharge of the system. Backflushed the system: 1st-30 min. 2nd-25 min. Cleanwater-30min.	670.7
6-Apr-21	555	1500	4376	25790	11057004	11078814	42.1	38.1	1	1		670.6
7-Apr-21	550	1500	5940	25526	11103226	11123606	40	34.8	1	1	Took 9 bags of bag filters to the AO rolloff container.	670.4
8-Apr-21	540	1500	362	22338	11136924	11158904	40	38.7	1	1		670.7
9-Apr-21	550	1500	6354	28612	11184522	11203786	36.3	42.1	1	1		670.7
10-Apr-21	600	1510	7436	20914	11235466	11248936	40	42.1	2	2		670.6
11-Apr-21	700	1550	7388	28620	11277756	11299000	40	40.7	1	1		672.9
12-Apr-21	650	1500	10578	31386	11330562	11351376	35.7	44.4	1	1	Collected a sample from the Discharge of the system. Backflushed the system: 1st-30min. 2nd- 20 Clean water-45min.	673
13-Apr-21	530	1620	11624	35762	11389438	11413566	40	42.1	1	1		672.9
14-Apr-21	545	1650	12622	39690	11448182	11475248	41.8	44.4	1	1		672.8
15-Apr-21	525	1500	11646	35196	11507272	11530810	42.1	42.1	1	1		672.7
16-Apr-21	535	1600	12022	37290	11568876	11594134	42.1	42.1	1	1		672.6
17-Apr-21	520	1600	11720	34350	11629026	11657642	42.1	42.1	1	1		672.5
18-Apr-21	620	1550	14308	38558	11688910	11713160	42.1	42.5	0	0		672.4
19-Apr-21	545	1415	9918	29558	11744486	11764130	32	47	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st-30min. 2nd- 20min. Clean water- 40min.	672.3
20-Apr-21	600	1430	12724	31850	11804950	11824072	40	44.4	1	1		672.2
21-Apr-21	545	1525	12555	37090	11863756	11888170	42.1	40.7	0	0		672.1
22-Apr-21	600	1640	5426	33282	11910022	11937880	44.5	43	1	1		672
23-Apr-21	600	1630	12804	37654	11971386	11996230	42.1	44.5	1	1		671.9
24-Apr-21	330	1600	6758	36076	12024460	12053778	42.1	42.1	1	1		671.8
25-Apr-21	330	1330	6534	21022	12082846	12097328	40	42.1	1	1		671.7
26-Apr-21	550	1530	9684	19842	12135214	1215378	25	46.3	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st-30min. 2nd- 20min. Clean water- 60min. 1130 shut the system down to run the Treatment trailer and collected a	671.5
27-Apr-21	330	1410	6156	20296	12175258	12189398	36.4	40	1	1		671.4
28-Apr-21	610	1450	11786	31818	12225738	12246766	40	36.4	2	2		671.3
29-Apr-21	600	1430	9614	27320	11278908	12297565	40.7	40	2	2		671.7
30-Apr-21	600	1530	9614	33212	12332756	12356154	41.7	40.7	1	1		671.5

## Line 1 Impoundment Treatment System Log 2021

Date	Time		8592		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-May-21	650	1550	4676	25904	1278340	12399578	42.1	38.1	1	1		671.5
2-May-21	650	1530	7028	28032	1242436	12445374	40	40	1	1		671.3
3-May-21	550	830	6742	12710	12471914	12477876	41	39.2	1	1	Backflushed the system and started to drain in preparation for a carbon change out. Started treating with the Mobile Treatment Trailer.	671.2
4-May-21												671.3
5-May-21												671.2
6-May-21											Took 5 bags of bag filters to the AO rolloff container for disposal.	671.1
7-May-21												671
8-May-21												670.9
9-May-21												671.5
10-May-21												671.5
11-May-21											Started to remove the carbon from the Lead vessel.	671.4
12-May-21											Finished removing the Carbon and put the new carbon back in the vessel. Filled the vessel with water to soak the carbon.	671.3
13-May-21	1500		0			12477876	33.7				Backflushed the new carbon and started treatment system up to treat through both systems.	671.2
14-May-21	600	1645	9370	21422	12506194	12523250	36.2	24.1	1	1		671
15-May-21	545	1515	4656	20986	12538098	12554438	14.5	28.9	1	1		670.9
16-May-21	600	1545	8216	25344	12578522	12595652	258	29.6	1	1		671
17-May-21	555	1520	8966	20186	12620532	12631642	296	21.9	1	1	Collected a sample from the Discharge of the system.	671
18-May-21	555	1530	7088	20578	12650532	12664122	23.7	19	1	1		671.4
19-May-21	550	1430	6740	18212	12683150	126946612	22.4	24.2	1	1		672.2
20-May-21	600	1400	7150	18018	12715918	12726778	22.2	22.7	1	1		672.1
21-May-21	600	1445	6612	18930	12747604	12759922	20.6	23.4	1	1		672
22-May-21	600	1430	7160	18076	12781132	12792048	22.2	21	1	1		671.9
23-May-21	650	1505	6040	11196	12815476	12810318	22.6	21	1	1		671.8
24-May-21	550	1405	6016	13162	12833222	12840372	19.1	22.1	1	1	Collected a sample from the Influent, After the First Carbon and Discharge of the system.	671.7
25-May-21	600	1500	6286	19694	12857312	12870722	21.6	32	1	1	Backflushed the vessels: 1st- 45 min., 2nd- 30min and Clean water - 60 min.	671.5
26-May-21	545	1500	5672	23896	12893058	12911288	15.4	36.4	1	1		671.5
27-May-21	605	1715	6448	26810	12934128	12954492	16.6	28.6	1	1		671.3
28-May-21	555	1515	5624	17864	12971188	12963425	16.3	28.6	1	1		671.2
29-May-21	600	1515	5766	21348	13004106	13019686	148	29.7	1	1		671.1
30-May-21	630	1630	7178	23734	13041218	13057782	17.4	27.6	1	1		670.9
31-May-21	600	1410	4906	18496	13073978	13087568	13.4	27.9	1	1		670.7

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
									10 Micron	1 Micron		
1-Jun-21	535	1425	4588	20666	13106756	13122844	12.5	30.8	1	1	Collected a sample of the Discharge of the sytem. Backflushed the system: 1st - 30min, 2nd - 10 min and clean water - 45min	670.6
2-Jun-21	600	1525	8312	17230	13149799	13158712	26.1	19.8	1	1	Took 4 bags of bag filters to the AO roll off container at the BG-199-4	670.4
3-Jun-21	550	1600	7544	12534	13178880	13183866	23.5	193	1	1		670.1
4-Jun-21	06+00	1545	8100	12808	13205324	13210026	24.9	19.4	1	1		669.7
5-Jun-21	530	1400	7228	13668	13229638	13236276	23.1	3.9	1	1		Under the Staff gauge
6-Jun-21												
7-Jun-21	930	1030	0	2318	13236280	13236600			1	1	Backflushed the system: 1st - 20min, 2nd - 35min and Clean water 60min	
8-Jun-21												
9-Jun-21												
10-Jun-21												
11-Jun-21												
12-Jun-21												
13-Jun-21												
14-Jun-21												
15-Jun-21												
16-Jun-21												
17-Jun-21												
18-Jun-21												
19-Jun-21												
20-Jun-21												
21-Jun-21	600											670.2
22-Jun-21	730											670.2
23-Jun-21	530										Removed the carbon from the Lead vessle of the system.	670.2
24-Jun-21	550											670
25-Jun-21	550											670.2
26-Jun-21	600											670.1
27-Jun-21	645											670
28-Jun-21	550											669.8
29-Jun-21	600											669.8
30-Jun-21	600											669.8

# Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Jul-21	630											669.5
2-Jul-21												
3-Jul-21												
4-Jul-21												
5-Jul-21												
6-Jul-21	800											669.3
7-Jul-21												
8-Jul-21	600				1328666	13241600	58.7		1	1	Backflushed the new Carbon, then ran clean water through the system for 1 hour.	669.7
9-Jul-21	600											669.5
10-Jul-21	540	1600	0	748	13241600	13242343	24.2	26.7	2	2	Started the system back up.	670.8
11-Jul-21	630	1615	1898	23216	13262480	13277858	23.4	24.5	1	1		671.2
12-Jul-21	600	1430	6754	18736	13297162	13309142	22.2	20.2	1	1	Collected a sample of the Discharge.	672.1
13-Jul-21	600	1500	5902	17700	13327596	13339400	19	21.6	1	1		672.1
14-Jul-21	600	1530	6010	15542	13357138	13367674	18.6	24.5	1	1		672
15-Jul-21	600	1440	4970	15750	13384116	13394902	7.5	20.6	1	1		672
16-Jul-21	600	1445	4276	14412	13408746	13418892	14	20.1	1	1		672.2
17-Jul-21	645	1610	3986	14496	13431342	13441804	10.7	15.7	1	1		672.1
18-Jul-21	650	1600	3800	12514	13452754	13451576	9.5	25.9	1	1		672
19-Jul-21	600	1500	3050	14340	13471366	13482662	10.6	23.1	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st carbon-40 min. 2nd carbon-30min. And ran clean water through the system for 50 min.	672
20-Jul-21	555	1625	5852	21334	13503314	13518796	16.1	29.5	1	1	Took 5 bags of bag filters to the AO rolloff container at BG-194-4	671.9
21-Jul-21	650	1515	2318	15710	13528270	13541662	5.9	16	2	2		671.8
22-Jul-21	700	1545	3904	13008	13555722	13564828	9.3	8.1	2	2		671.7
23-Jul-21	700	1535	3572	12310	13578446	13589182	15.3	22.9	2	1		671.6
24-Jul-21	645	1510	2586	10712	13598410	13605538	6.4	4.1	2	1		671.5
25-Jul-21	630	1515	1432	7310	13616130	13622008	0	7.9	2	1		671.4
26-Jul-21	700	1525	2050	11464	13631202	13640578	1.3	36.4	2	1	Collected a sample of the Influent, After the First Carbon and Discharge of the system. Backflushed the system: 1st carbon-40 min. 2nd carbon-30 min and ran clean water through the system for 50	671.4
27-Jul-21	730	1520	80	8596	13647798	13656326	0	26.8	2	1		671.3
28-Jul-21	700	1430	954	9324	13665792	13674116	25.6	25.3	1	1	Finished dredging the pool area and loading out the material.	671.2
29-Jul-21	600	1430	2952	15248	13688570	13700976	5.5	22.8	1	1		671.1
30-Jul-21	600	1430	4146	16554	13714230	13726646	24.2	15.2	1	1		671
31-Jul-21	645	1430	6716	16392	13747124	13756808	17.8	20.4	1	1		670.8

# Line 1 Impoundment Treatment System Log

## 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Aug-21	645	1600	7142	20050	13776430	13789350	19.2	25.6	1	1		670.8
2-Aug-21	555	1435	7278	22052	13809296	13824080	23.6	28.6	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 30min. And ran clean water through the system for 60min.	670.6
3-Aug-21	600	1500	6388	12528	13545920	13852060	20.7	7.9	1	1		670.5
4-Aug-21	550	1520	6276	16305	13869634	13879660	21.2	12.1	1	1		670.4
5-Aug-21	600	1345	5964	14100	13896546	13904654	20.5	122	1	1		670.2
6-Aug-21	600	1430	6670	15616	13925158	13934102	15.5	16.3	2	2		670
7-Aug-21	645	1730	7100	17532	13953590	13964018	15.9	12.5	2	2		669.9
8-Aug-21	645	1500	7384	15424	13981422	13969466	13	25	1	1	Shut the system down for the day.	669.6
9-Aug-21												
10-Aug-21												
11-Aug-21	1045	1500	0	3500	13969466	13989496	15.6	0	1	1	Replaced the pump in the structure. Started the systems back up.	671.6
12-Aug-21	600	1500	6814	19270	14011620	14024084	6	22.9	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 25min. And ran clean water through the system for 60min.	671.8
13-Aug-21	600	1520	4044	14918	14040172	14051044	10.7	22.6	2	2		671.9
14-Aug-21	615	1615	5814	17805	14057604	14079596	18.2	20.1	2	2		671.8
15-Aug-21	620	1430	15618	6036	14096226	14105818	15.3	20.3	2	2		671.6
16-Aug-21	600	1500	4576	17132	1421608	14134168	14	28.6	1	1	Collected a sample from the Influent, After the First Carbon and Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 25min. And ran clean water through the system	671.6
17-Aug-21	600	1700	3348	13086	14144732	14154472	13.8	11.8	2	2		671.5
18-Aug-21	600	1515	3612	13626	14165130	14175842	12.2	10.2	2	2		671.4
19-Aug-21	600	1400	4036	14142	14189236	14199344	12.9	15.5	2	2	Took 6 bags of bag filters to the AO rolloff container at BG-194-4	671.3
20-Aug-21	600	1430	2880	13864	14213508	14224500	18.7	7.8	2	2		671.2
21-Aug-21	600	1500	4986	16850	14242236	14254105	14.3	20.4	1	1		671
22-Aug-21	630	1500	2714	12914	14265580	14275782	7.3	16.3	2	2		671
23-Aug-21	600	1515	5514	19652	14292632	14305770	17.3	27.9	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-45min., 2nd Carbon - 30min. And ran clean water through the system for 60min.	670.8
24-Aug-21	600	1500	1738	13392	14519158	14330814	5.4	18.1	2	2		670.8
25-Aug-21	600	1445	5212	15748	14346750	14357284	17	18.8	2	2		670.6
26-Aug-21	600	1500	5004	18360	14373494	14386852	14.5	22.9	1	1		670.5
27-Aug-21	550	1820	2808	17022	14398643	14412850	8.8	11.6	2	2		670.5
28-Aug-21	620	1500	4156	15505	14425342	14436686	9.4	20.4	2	2		670.2
29-Aug-21	630	1535	1584	16850	14446382	14461154	4.2	21.1	1	1		669.9
30-Aug-21	600	1430	978	10778	14466994	14476804	3.5	26.7	1	1	Collected a sample from the Discharge of the system. Backflushed the 1st Carbon-35min., 2nd Carbon - 25min. And ran clean water through the system for 45min.	669.7
31-Aug-21	600	1530	2790	13264	14491072	14501550	9.9	11.8	1	1	Shut the system down for the day.	669.4

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Sep-21	600	1500	0	6036	14501560	14507596	22.4	5.6	1	1	Shut down for the day.	669.2
2-Sep-21												
3-Sep-21												
4-Sep-21												
5-Sep-21												
6-Sep-21												
7-Sep-21	730	1000	0	4278	14507634	14511882	60	60	1	1	Backflushed the 1st Carbon-35min., 2nd Carbon-20min., and ran clean water through the system for 60min. Took 3 bags of bag filters to the AO roll off container at BG-194-4.	669
8-Sep-21												
9-Sep-21												
10-Sep-21												
11-Sep-21												
12-Sep-21												
13-Sep-21	1100										Used hydrant water to flush out the structure.	669
14-Sep-21												
15-Sep-21												
16-Sep-21												
17-Sep-21												
18-Sep-21												
19-Sep-21												
20-Sep-21	800											669
21-Sep-21												
22-Sep-21												
23-Sep-21												
24-Sep-21												
25-Sep-21												
26-Sep-21												
27-Sep-21	800	1500	0	14154	14511882	14526048	33.5	34.8	1	1	Started the system up. Collected a sample from the Influent, After the First Carbon and Discharge of the sysetm.	669.8
28-Sep-21	555	1430	7820	25474	14552210	14569876	23.4	33.4	1	1	Shut the system down for the day.	669.6
29-Sep-21	555	1430	0	16962	14570104	14587054	34.8	26.7	1	1	Shut the system down for the day.	669.4
30-Sep-21												



## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Oct-21												
2-Oct-21												
3-Oct-21												
4-Oct-21	800											669.2
5-Oct-21												
6-Oct-21												
7-Oct-21												
8-Oct-21												
9-Oct-21												
10-Oct-21												
11-Oct-21	830											669.2
12-Oct-21												
13-Oct-21												
14-Oct-21												
15-Oct-21												
16-Oct-21												
17-Oct-21												
18-Oct-21												
19-Oct-21												
20-Oct-21												
21-Oct-21												
22-Oct-21												
23-Oct-21												
24-Oct-21												
25-Oct-21	740	1415	0	12754	14587082	14599846	33.7	32.4	1	1	Started up the system. Collected a sample from the Influent, After the First Carbon and Discharge of the system. (samples got lost by FedEx in shipping, so there will be no results. Recollected the	670.8
26-Oct-21	600	1400	4318	19280	14617686	14632650	28.4	30	1	1		670.8
27-Oct-21	605	1130	9150	18176	14661410	14670434	28.4	28.6	1	1		670.7
28-Oct-21	605	1400	10392	25990	14708014	14723616	33.5	34.1	1	1	Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.6
29-Oct-21	600	1335	8220	18558	14751282	14761584	25.8	16.8	1	1	Shut the system down for the weekend.	670.6
30-Oct-21												
31-Oct-21												

## Line 1 Impoundment Treatment System Log 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Nov-21	550	1515	0	18194	14761594	14779792	28.6	33.2	1	1	Started the system back up. Collected a sample of the Discharge.	670.6
2-Nov-21	550	1435	9958	27018	14808506	14855663	33.8	32.2	0	0		670.5
3-Nov-21	600	1415	9266	24166	14853652	14868552	30.4	29.6	0	0		670.4
4-Nov-21	555	1405	8254	21240	14894778	14907758	27.5	26.8	0	0		670.2
5-Nov-21	600	1040	6558	12176	14929366	14934972	21.2	21.3	0	0	Shut the system down for the weekend.	670
6-Nov-21												
7-Nov-21												
8-Nov-21	800											670
9-Nov-21												
10-Nov-21												
11-Nov-21												
12-Nov-21												
13-Nov-21												
14-Nov-21												
15-Nov-21	600											670.1
16-Nov-21												
17-Nov-21												
18-Nov-21											Tim remotely worked on the system at the Line 1 Impoundment and was unsuccessful getting it to work correctly.	
19-Nov-21												
20-Nov-21												
21-Nov-21												
22-Nov-21	800											670.1
23-Nov-21												
24-Nov-21												
25-Nov-21												
26-Nov-21												
27-Nov-21												
28-Nov-21												
29-Nov-21	730										Trouble shot the HMI with Montrose IT and Tim Landes (T&M), they were able to resolve the issue.	670.1
30-Nov-21												

# Line 1 Impoundment Treatment System Log

## 2021

Date	Time		Daily total		Accumulated total		GPM		Bag filter change		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Dec-21												
2-Dec-21	1000										I cut the power to the building to simulate a power loss and initiate an alarm, I didn't receive an alarm.	
3-Dec-21												
4-Dec-21												
5-Dec-21												
6-Dec-21												
7-Dec-21	800											670.1
8-Dec-21											Washed out the building	
9-Dec-21												
10-Dec-21												
11-Dec-21												
12-Dec-21												
13-Dec-21	730											670.1
14-Dec-21												
15-Dec-21											Took 1 bag of bag filters to the AO rolloff container at BG-199-4.	
16-Dec-21												
17-Dec-21												
18-Dec-21												
19-Dec-21												
20-Dec-21	830											670.1
21-Dec-21												
22-Dec-21												
23-Dec-21												
24-Dec-21												
25-Dec-21												
26-Dec-21												
27-Dec-21	900											670.2
28-Dec-21												
29-Dec-21												
30-Dec-21												
31-Dec-21												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Jan-22												
2-Jan-22												
3-Jan-22	1000											670.3
4-Jan-22												
5-Jan-22												
6-Jan-22												
7-Jan-22												
8-Jan-22												
9-Jan-22												
10-Jan-22	800											670.3
11-Jan-22												
12-Jan-22												
13-Jan-22												
14-Jan-22												
15-Jan-22												
16-Jan-22												
17-Jan-22												
18-Jan-22	800											670.3
19-Jan-22												
20-Jan-22												
21-Jan-22												
22-Jan-22												
23-Jan-22												
24-Jan-22	800											670.4
25-Jan-22												
26-Jan-22												
27-Jan-22												
28-Jan-22												
29-Jan-22												
30-Jan-22												
31-Jan-22	800											670.4

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Feb-22												
2-Feb-22												
3-Feb-22												
4-Feb-22												
5-Feb-22												
6-Feb-22												
7-Feb-22	800											670.3
8-Feb-22												
9-Feb-22												
10-Feb-22												
11-Feb-22												
12-Feb-22												
13-Feb-22	800											670.6
14-Feb-22												
15-Feb-22	1015	1025	0	134	149349881	14935122	27	27	1	1	Turned pump on and ran in a recirculation mode back to the pool to flush sediment out of the structure. Ran clean water through the system to fill the vessels so they can soak overnight and I can backflush tomorrow.	670.6
16-Feb-22	900	1500	0	14522	149349881	14949654	50.3	45.3			Backflushed the system. 1st Carbon-70min, 2nd carbon-40min and then ran clean water through the system for 120 min. Hook the pump up and started treatment of pool water, flow meter was 14941406. After 2 hours collected a sample of the Influent, After the First Carbon and Discharge of the system.	670.6
17-Feb-22	600	1405	12752	29160	14935122	14997314	35.3	33.1				671
18-Feb-22	600	1430	11194	26192	14980908	15042722	30.5	28.6	1	1		671
19-Feb-22	600	1500	13174	31650	15027724	15094972	36.9	34				670.9
20-Feb-22	800		14960		15127998		30.6				Shut the system down for the day.	670.9
21-Feb-22												
22-Feb-22	600	1415	0	16050	15127998	15144096	31.6	31.8			Started the system back up. Collected a sample of the Discharge of the system.	670.8
23-Feb-22	600	1400	11208	25940	15173702	15188440	30.8	31.6				670.8
24-Feb-22	600	1400	9936	26802	15215442	15232322	36.3	35.9	1	1		670.8
25-Feb-22	600	1430	11806	28218	15264824	15281236	33.8	32				670.8
26-Feb-22	600	1420	4138	4976	15303828	15304660	31.2	0	1	1	Shut the system down for the day.	670.8
27-Feb-22												
28-Feb-22	600	1415	0	14506	15304660	15319780	30.1	33.5	2	2	Started the system back up. Collected a sample of the Discharge of the system.	670.8

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Mar-22	555	1400	5926	15844	15345294	15355208	31.9	37.8	1	1	Backflushed the system. 1st carbon - 40min, 2nd carbon - 25min, then ran clean water through the system for 60min.	70.6
2-Mar-22	600	1145	12494	16754	15390748	15396000	20.5	8.1			Shut the system down	670.4
3-Mar-22												
4-Mar-22												
5-Mar-22												
6-Mar-22												
7-Mar-22	1020	1410	0	8044	15396000	15403056	33.3	34.8	1	1	Started the system back up. Collected a sample from the Discharge.	670.2
8-Mar-22	430	1450	9844	29964	15434418	15454544	35.3	28.4				670.1
9-Mar-22	600	1515	5740	25714	15474002	15493960	33.1	36.4	1	1	Shut the system down for the night.	669.9
10-Mar-22	600	1440	0	17514	15493960	15511558	28.6	32			Started the system back up., then shut it back off at the end of the day.	669.8
11-Mar-22												
12-Mar-22												
13-Mar-22												
14-Mar-22	800	1000	0	2986	15511558	15514568	56	56	1	1	Backflushed the system. 1st carbon - 40min, 2nd carbon - 20min, then ran clean water through the system for 50min.	669.8
15-Mar-22												
16-Mar-22												
17-Mar-22												
18-Mar-22												
19-Mar-22												
20-Mar-22												
21-Mar-22	730	1450	15910	15910	15514568	1550482	36.4	36.4	1	1	Started the system up. Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.4
22-Mar-22	550	1440	25800	25800	15561956	15577864	33.8	27.6				670.4
23-Mar-22	550	1400	22962	22962	15595820	15613858	35.8	38.1	1	1		670.6
24-Mar-22	555	1445	24340	24340	15648822	15662934	32	38.4	1	1		671.1
25-Mar-22	535	1700	33736	33736	1563654	15719742	38.8	19.5	1	1		671
26-Mar-22	400	1415	13600	13600	15729044	15740478	25.4	23.5	2	2		671
27-Mar-22	420	1530	24026	24026	15764872	15783118	28.6	25.8	1	1		670.9
28-Mar-22	555	1515	20136	20136	15803030	15817150	19	26.6	1	1	Collected a sample of the Discharge of the system.	670.8
29-Mar-22	605	1320	18340	18340	15839860	15850564	25.1	23.4				670.7
30-Mar-22	550	1615	24696	24696	15873734	15891854	22.4	30.8	1	1	Backflushed the system. 1st Carbon - 25min, 2nd Carbon - 15, then ran clean water trough the system for 60min.	670.7
31-Mar-22	550	1430	23240	23240	15916582	15931252	28.6	26.5	1	1		670.8

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Apr-22	555	1415	7226	17864	15954722	15965410	24.3	27.6	1	1		670.7
2-Apr-22	600	1400	9568	23466	15994880	16008776	31.6	29.7	1	1		670.6
3-Apr-22	630	1530	7544	21066	16032984	16046516	28.1	28.4	1	1		670.5
4-Apr-22	600	1420	7838	19322	16070358	16081834	25.7	17.4	1	1	Collected a sample of the Discharge of the system.	670.5
5-Apr-22	600	1500	8	15492	16087072	16103010	27.6	29.6	1	1		670.4
6-Apr-22	555	1430	8026	19320	16128532	16139924	26.1	31.3	1	1		670.6
7-Apr-22	555	1615	9024	27988	16168224	16187188	32	29.6	1	1		670.5
8-Apr-22	625	1520	8968	21470	16211310	16223806	26.7	30.8	1	1		670.4
9-Apr-22	625	1615	9198	24676	16249256	16254740	28.4	25	1	1		670.3
10-Apr-22	700	1530	202	15460	16272976	16288240	30.8	29.6	1	1		670.2
11-Apr-22	600	1500	6780	22188	16310786	16325204	20.5	34.4	1	1	Collected a sample of the Discharge of the system. Backflushed the system: 1st carbon - 35 min., 2nd carbon - 20 min and ran clean water for 60 min.	670
12-Apr-22	545	1700	8104	16756	16354708	16363350	25.8	25	1	1		669.8
13-Apr-22	545	1515	9098	18960	16387958	16397816	31.2	27.6	1	1		669.6
14-Apr-22	550	1415	7558	20504	16421936	16434882	26.8	23.5	1	1		670
15-Apr-22	600	1300	360	12522	16444320	16456484	27.6	27.6	1	1	Shut the system down for the weekend.	669.9
16-Apr-22												
17-Apr-22												
18-Apr-22	830										Received lab results and the carbon in the vessels is spent. Backflushed the system and then drained it in preparation for a carbon change out.	
19-Apr-22											Moved equipment to start the carbon change out. Removed the top pipework and started to remove the carbon from the vessels.	
20-Apr-22											Continued to remove carbon from the vessels.	
21-Apr-22											Continued to remove carbon from the vessels.	
22-Apr-22											Continued to remove carbon from the vessels. New carbon arrived, staged it outside of the building.	
23-Apr-22												
24-Apr-22												
25-Apr-22												
26-Apr-22											Continued to remove carbon from the vessels.	
27-Apr-22											Finished the carbon change out and soaked the carbon.	
28-Apr-22											Put the influent pipe back on the tops of the vessels and backflushed them until the discharge was clear.	
29-Apr-22												
30-Apr-22												

## Line 1 Impoundment Treatment System Log 2022

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-May-22									1	1	Started the sytem up. Collected a sample from the Influent, After the First Carbon and Discharge of the system.	671
2-May-22	550	1445	0	16756	16456792	16473550	33.3	32.5	1	1		671
3-May-22	600	1520	8054	27792	16500848	16520582	36.4	33.3	1	1		670.9
4-May-22	540	1650	8872	22174	16549040	16562348	29.6	31.4	1	1		670.8
5-May-22	550	1500	8928	25256	16587122	16603444	30.6	27.3	1	1		670.8
6-May-22	600	1510	5090	23362	16623170	16641472	38.4	33.3	1	1		670.7
7-May-22	530	1700	8430	25136	16668804	16685512	29.6	33.3	1	1		670.6
8-May-22	730	1515	12568	25156	16713714	16726202	30.8	30.8	1	1		670.4
9-May-22	550	1515	9658	25088	16755504	16770938	32	29.6	1	1	Collectd a sample from the Discharge of the system	670.2
10-May-22	545	1630	8882	32740	16799514	16823386	27.6	44.5	1	1	Backflushed the system. 1st Carbon - 30min, 2nd - 20min & ran clean water through the system for 40min.	670.1
11-May-22	600	1445	9696	28208	16853254	16871764	257	32	1	1		669.9
12-May-22	600	1430	434	20400	16883202	16903228	296	34.8	1	1		669.8
13-May-22	600		352		16913368						Shut the system down for the weekend. Tool 2 bags of bag fiters to the AO rolloff caontainer at BG-199-4.	
14-May-22												
15-May-22												
16-May-22	900											
17-May-22												
18-May-22												
19-May-22												
20-May-22												
21-May-22												
22-May-22												
23-May-22	800	940	0	2248	16913380	16915632	47.1	47.1	1	1	Backflushed the system. 1st Carbon - 30min, 2nd - 20min & ran clean water through the system for 40min.	
24-May-22												
25-May-22												
26-May-22												
27-May-22												
28-May-22												
29-May-22												
30-May-22												
31-May-22											Took the 2 super sacks of spent carbon to the AO rolloff container at BG-199-4.	



**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
									10 Micron	1 Micron		
1-Jun-22												
2-Jun-22												
3-Jun-22												
4-Jun-22												
5-Jun-22												
6-Jun-22	730											669.9
7-Jun-22												
8-Jun-22												
9-Jun-22												
10-Jun-22												
11-Jun-22												
12-Jun-22												
13-Jun-22	710	1515	0	16200	16915658	16931864	32	30.8	1	1	Started the sytem up. Collected a sample from the Influent, After the First Carbon and Discharge of the system.	670.2
14-Jun-22	650	1450	3428	22760	16950054	16969394	32	33.4	1	1		670
15-Jun-22	650	1525	82	16284	16980328	16996534	23.5	25.7	1	1		669.7
16-Jun-22	650	1515	3014	20854	17009336	17027170	28.4	25	1	1	Shut the system down due to lack of water.	669.5
17-Jun-22												
18-Jun-22												
19-Jun-22												
20-Jun-22												
21-Jun-22	800	1000	0	4368	17027194	17031564	50.6	50.6	1	1	Backflushed the system. 1st Carbon - 30min, 2nd - 20min & ran clean water through the system for 75min.	669.3
22-Jun-22												
23-Jun-22												
24-Jun-22												
25-Jun-22												
26-Jun-22												
27-Jun-22	715											669.2
28-Jun-22												
29-Jun-22												
30-Jun-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Jul-22												
2-Jul-22												
3-Jul-22												
4-Jul-22												
5-Jul-22	730											669
6-Jul-22												
7-Jul-22												
8-Jul-22												
9-Jul-22												
10-Jul-22												
11-Jul-22												
12-Jul-22	700											669
13-Jul-22												
14-Jul-22												
15-Jul-22												
16-Jul-22												
17-Jul-22												
18-Jul-22	730											669
19-Jul-22												
20-Jul-22												
21-Jul-22												
22-Jul-22												
23-Jul-22												
24-Jul-22												
25-Jul-22	700											669
26-Jul-22												
27-Jul-22												
28-Jul-22												
29-Jul-22												
30-Jul-22												
31-Jul-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Aug-22	800											669
2-Aug-22												
3-Aug-22												
4-Aug-22												
5-Aug-22												
6-Aug-22												
7-Aug-22												
8-Aug-22	730											669
9-Aug-22												
10-Aug-22												
11-Aug-22												
12-Aug-22												
13-Aug-22												
14-Aug-22												
15-Aug-22	715											669
16-Aug-22												
17-Aug-22												
18-Aug-22												
19-Aug-22												
20-Aug-22												
21-Aug-22												
22-Aug-22	730											669
23-Aug-22												
24-Aug-22												
25-Aug-22												
26-Aug-22												
27-Aug-22												
28-Aug-22												
29-Aug-22	730											669
30-Aug-22												
31-Aug-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Sep-22												
2-Sep-22												
3-Sep-22												
4-Sep-22												
5-Sep-22												
6-Sep-22	730											669.1
7-Sep-22												
8-Sep-22												
9-Sep-22												
10-Sep-22												
11-Sep-22												
12-Sep-22	800											669.5
13-Sep-22												
14-Sep-22												
15-Sep-22												
16-Sep-22												
17-Sep-22												
18-Sep-22												
19-Sep-22	730											669.8
20-Sep-22												
21-Sep-22												
22-Sep-22												
23-Sep-22												
24-Sep-22												
25-Sep-22												
26-Sep-22	730											669.8
27-Sep-22												
28-Sep-22												
29-Sep-22												
30-Sep-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Oct-22												
2-Oct-22												
3-Oct-22	830											669.7
4-Oct-22												
5-Oct-22												
6-Oct-22												
7-Oct-22												
8-Oct-22												
9-Oct-22												
10-Oct-22												
11-Oct-22	700											669.7
12-Oct-22												
13-Oct-22												
14-Oct-22												
15-Oct-22												
16-Oct-22												
17-Oct-22	800											669.7
18-Oct-22												
19-Oct-22												
20-Oct-22												
21-Oct-22												
22-Oct-22												
23-Oct-22												
24-Oct-22	730											669.6
25-Oct-22												
26-Oct-22												
27-Oct-22												
28-Oct-22												
29-Oct-22												
30-Oct-22												
31-Oct-22	830											669.7

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Nov-22												
2-Nov-22												
3-Nov-22												
4-Nov-22												
5-Nov-22												
6-Nov-22												
7-Nov-22	630											670.2
8-Nov-22												
9-Nov-22												
10-Nov-22												
11-Nov-22												
12-Nov-22												
13-Nov-22												
14-Nov-22	800											670.2
15-Nov-22												
16-Nov-22												
17-Nov-22												
18-Nov-22												
19-Nov-22												
20-Nov-22												
21-Nov-22	740											670.2
22-Nov-22												
23-Nov-22												
24-Nov-22												
25-Nov-22												
26-Nov-22												
27-Nov-22												
28-Nov-22	745											670.7
29-Nov-22												
30-Nov-22												

**Line 1 Impoundment Treatment System Log  
2022**

Date	Time		Daily total		Accumulated total		GPM		Changed Bag Filters		Notes	Pool Evaluation
	Start	Stop	Start	Stop	Start	Stop	Start	Stop	10 Micron	1 Micron		
1-Dec-22												
2-Dec-22												
3-Dec-22												
4-Dec-22												
5-Dec-22												
6-Dec-22												
7-Dec-22												
8-Dec-22												
9-Dec-22												
10-Dec-22												
11-Dec-22												
12-Dec-22												
13-Dec-22												
14-Dec-22												
15-Dec-22												
16-Dec-22												
17-Dec-22												
18-Dec-22												
19-Dec-22												
20-Dec-22												
21-Dec-22												
22-Dec-22												
23-Dec-22												
24-Dec-22												
25-Dec-22												
26-Dec-22												
27-Dec-22												
28-Dec-22												
29-Dec-22												
30-Dec-22												
31-Dec-22												

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jan-21						
2-Jan-21						
3-Jan-21	730	121376	61214	151081		121376 Emptied the batch tank and reset the alarm.
4-Jan-21	1030	121742	61352	151632		
5-Jan-21	800	121742	61461	152072		
6-Jan-21	730	122350	61585	152566		
7-Jan-21	730	122350	61701	153033		
8-Jan-21	730	122960	61838	153540		
9-Jan-21						
10-Jan-21	430	123252	62102	154545		123252 Emptied the batch tank and reset the alarm
11-Jan-21	745	123645	62249	155017		
12-Jan-21	730	124264	62386	155155		
13-Jan-21	815	124264	62578	155317		
14-Jan-21	730	124880	62796	155484		
15-Jan-21	600	125136	63026	155663		125136 Emptied the batch tank and reset the alarm.
16-Jan-21						
17-Jan-21						
18-Jan-21	830	126814	63728	156648		
19-Jan-21	745	126814	63929	157193		127360 Emptied the batch tank and reset the alarm.
20-Jan-21	730	127456	64132	157726		
21-Jan-21	730	128092	64358	158316		
22-Jan-21						
23-Jan-21						
24-Jan-21						
25-Jan-21	815	128952	65224	160593		128952 Emptied the batch tank and reset the alarm.
26-Jan-21	1000	129736	65421	161223		
27-Jan-21	745	130316	65566	161706		Collected a sample of the Influent, After the First Carbon and Discharge of the system.
28-Jan-21	710	130316	65683	162172		
29-Jan-21	715	130316	65788	162629		130316 Emptied the batch tank and reset the alarm.
30-Jan-21						
31-Jan-21						



## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Feb-21	615	131340	66261	164229		
2-Feb-21	745	131482	66494	164833		
3-Feb-21	1815	132070	66713	165462		
4-Feb-21	550	132140	66901	166025		132140 Emptied the batch tank and reset the alarm.
5-Feb-21	1000	132708	67196	166804		
6-Feb-21						
7-Feb-21						
8-Feb-21	1000	133958	67827	168548		133958 Emptied the batch tank and reset the alarm.
9-Feb-21	700	134514	67983	169000		
10-Feb-21	700	135104	68143	169522		
11-Feb-21	700	135104	68265	170002		
12-Feb-21	600	135696	68365	170077		
13-Feb-21						
14-Feb-21	1400	135778	68558	170123		135778 Emptied the batch tank and reset the alarm.
15-Feb-21	600	136286	68558	170123		
16-Feb-21	700	136546	68606	170133		
17-Feb-21	715	136870	68684	170149		
18-Feb-21	645	136870	68759	170168		
19-Feb-21						
20-Feb-21						
21-Feb-21	650	137450	68970	170216		
22-Feb-21	615	137450	69079	170234		
23-Feb-21	615	137612	69214	170250		137612 Emptied the batch tank.
24-Feb-21	620	138225	69394	170269		
25-Feb-21	620	138812	69586	170339		
26-Feb-21	605	139412	69785	170445		139412 Emptied the batch tank.
27-Feb-21	625	139412	69802	170461		
28-Feb-21						

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Mar-21	615	140034	70717	170474		
2-Mar-21	610	140674	70250	170930		
3-Mar-21	615	140674	70317	171201		Collected a sample from the Influent, After the First Carbon and Discharge of the system. 141310 Emptied the batch tank and drier the alarm.
4-Mar-21	615	141310	70375	171708		
5-Mar-21	620	141316	70422	172175		
6-Mar-21						
7-Mar-21						
8-Mar-21	605	142560	70493	173591		Shut off batch tank 2 and Turned on batch tank 1. Emptied 1300 gallons from tank 2.
9-Mar-21	605	142560	70526	174052		
10-Mar-21	645	143172	70555	174381		
11-Mar-21	640	143170	70587	174595		
12-Mar-21	630	143170	70618	175049		
13-Mar-21	750	143780	70642	175516		
14-Mar-21						
15-Mar-21	610	143780	70642	175516		
16-Mar-21	620	144396	70746	176303		144396 Emptied the batch tank and reset the alarm.
17-Mar-21	800	144446	70827	176659		
18-Mar-21	800	145072	70900	177082		
19-Mar-21	630	145290	70961	177496		
20-Mar-21	800	145662	71028	177935		
21-Mar-21	710	146048	71085	178330		146048 Emptied the batch tank and reset the alarm.
22-Mar-21	615	146218	71159	178748		
23-Mar-21	620	146540	71227	179180		
24-Mar-21	810	146540	71303	179632		
25-Mar-21	610	146692	71362	180031		
26-Mar-21	625	146704	71426	180479		146704 Emptied the batch tank and drier the alarm.
27-Mar-21	700	146734	71470	180923		
28-Mar-21	545	146742	71506	181359		
29-Mar-21	620	146742	71552	181847	X	147052 Emptied the batch tank and reset the alarm.
30-Mar-21	620	147408	71616	182238		
31-Mar-21	625	148064	71678	182491		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Apr-21	620	148004	71739	182622		
2-Apr-21	630	148598	71784	182957		
3-Apr-21	645	148598	71815	183329		
4-Apr-21	700	148886	71837	183694		148886 Emptied the batch tank and reset the alarm
5-Apr-21	615	149284	71919	183930		
6-Apr-21	620	149284	71982	184026		
7-Apr-21	620	149284	72038	184101		
8-Apr-21	600	149284	72098	184173		
9-Apr-21	610	149284	72188	184265		
10-Apr-21	630	150454	72225	184368		
11-Apr-21	735	150454	72272	184488		
12-Apr-21	605	150722	72312	184618		150722 Emptied the batch tank and reset the alarm. Collected a sample from the Influent, After the First Carbon and Discharge of the system.
13-Apr-21	550	151286	72459	184786		
14-Apr-21	605	151878	72551	185141		
15-Apr-21	540	151878	72634	185504		
16-Apr-21	550	152470	72694	185872		152470 Emptied the batch tank.
17-Apr-21	700	152470	72738	186240		
18-Apr-21	700	153048	72758	186562		
19-Apr-21	605	153058	72782	186856		
20-Apr-21	625	153058	72822	187150		
21-Apr-21	605	153644	72852	187433		
22-Apr-21	640	153644	72879	187712		
23-Apr-21	615	153644	72900	187856		
24-Apr-21	400	153644	72913	187907		
25-Apr-21	350	154100	72994	187946		
26-Apr-21	610	154230	72962	187985		
27-Apr-21	350	154230	72978	188011		
28-Apr-21	640	154230	72997	188038		
29-Apr-21	630	154230	73023	188063		
30-Apr-21	800	154230	73066	188093		154312 Emptied the batch tank and reset the alarm.

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-May-21	820	154816	73101	188150		
2-May-21	710	154816	73120	188213		
3-May-21	620	154816	73141	188278		
4-May-21	620	154816	73167	188334		
5-May-21	615	155400	73204	188399		
6-May-21	610	155400	73277	188548		
7-May-21	615	155400	73294	188608		
8-May-21	820	155400	73328	188658		
9-May-21	600	155988	73373	188705		
10-May-21	610	155988	73435	188788		
11-May-21	610	156144	73482	189032		156144 Emptied the batch tank and reset the alarm.
12-May-21	620	156648	73515	189270		
13-May-21	625	156648	73542	189517		
14-May-21	630	156648	73555	189751		
15-May-21	630	157236	73568	189819		
16-May-21	620	157236	73645	189902		
17-May-21	640	157236	73832	190010		
18-May-21	620	157828	74018	190213		
19-May-21	620	157828	74207	190582		157988 Emptied the batch tank and reset the alarm.
20-May-21	620	158424	74383	190972		
21-May-21	625	158424	74541	191361		
22-May-21	730	159008	74709	191745		
23-May-21	615	159008	74855	192091		
24-May-21	620	159588	74971	192434		
25-May-21	615	159588	75073	192601		
26-May-21	630	159588	75148	192690		
27-May-21	620	159588	75224	192767		159816 Emptied the batch tank and reset the alarm.
28-May-21	630	160182	75304	192846		
29-May-21	700	160182	75378	192930		
30-May-21	700	160182	75443	192992		
31-May-21						

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jun-21	600	160182	75503	193047		
2-Jun-21	620	160770	75563	193094		
3-Jun-21	620	160770	75617	193141		
4-Jun-21	630	160770	75667	193179		
5-Jun-21	600	160770	75712	193211		
6-Jun-21						
7-Jun-21	550	160770	75814	193266		
8-Jun-21	550	160770	75854	193295		
9-Jun-21	555	160770	75897	193321		
10-Jun-21	600	161344	75934	193350		
11-Jun-21	1040	161344	75990	193374		
12-Jun-21						
13-Jun-21						
14-Jun-21	600	161344	76108	193428		
15-Jun-21	600	161344	76153	193450		
16-Jun-21	550	161344	76194	193471		
17-Jun-21	600	161344	76231	193489		
18-Jun-21	610	161344	76211	193505		
19-Jun-21	600	161344	76321	193523		Received an alarm for loss of power.
20-Jun-21	630		76321	193528		Tried to reset the alarm and restart the system. I was unable to get things started, think there may be a problem with the power supply and will trouble shoot more on Monday or Tuesday.
21-Jun-21	600		76431	193528		Tim did some troubleshooting and thinks it is the power supply also. I called Millard and had them send out an electrician. When they arrived they found the 24v power supply was bad and will need replaced. The electrician called and ordered the new power supply and will return and install it when it comes in.
22-Jun-21	900	161566	76431	193538		The Millard electrician called and said the power supply was in. Met him at the FFWTP and he installed the new power supply. After it was installed I reset the alarms and the system is back up and running. 161656 Emptied the batch tank and reset the alarm.
23-Jun-21	600	162046	76431	193559		
24-Jun-21	610	162046	76431	193596		Collected a sample from the Influent, After the First Carbon and Discharge of the system.
25-Jun-21	625	162046	76431	193606		
26-Jun-21	640	162046	76431	193613		
27-Jun-21	720	162622	76431	193619		

## FFWTP Treatment Log 2021

28-Jun-21	620	162622	76431	193628		
29-Jun-21	630	162622	76431	193646		
30-Jun-21	630	162622	76431	193657		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jul-21	710	163208	76475	193667		
2-Jul-21	615	63208	76552	193667		
3-Jul-21						
4-Jul-21	700	163484	76579	193798		163484 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
5-Jul-21						
6-Jul-21	600	163878	76583	193816		
7-Jul-21	600	163878	76585	193825		
8-Jul-21	635	163878	76588	193835		
9-Jul-21	630	163878	76590	193840		
10-Jul-21	700	164448	76590	193845		
11-Jul-21	700	164448	76660	193858		
12-Jul-21	620	164448	76861	193879		
13-Jul-21	700	165044	77028	193901		
14-Jul-21	635	165044	77233	193946		
15-Jul-21	635	165312	77440	194035		165312 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
16-Jul-21	630	165738	77731	194137		
17-Jul-21	710	166356	78034	194245		
18-Jul-21	720	166966	78302	194335		
19-Jul-21	625	166966	78566	194407		
20-Jul-21	625	167138	78749	194490		167138 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
21-Jul-21	600	167660	78932	194565		
22-Jul-21	615	167660	79067	194622		
23-Jul-21	620	168268	79175	194659		
24-Jul-21	700	168268	79251	194677		
25-Jul-21	700	168268	79297	194691		
26-Jul-21	605	168268	79338	194698		
27-Jul-21	600	168846	79373	194708		
28-Jul-21	600	168846	79426	194718		
29-Jul-21	630	168846	79474	194725		
30-Jul-21	635	168846	79503	194735		
31-Jul-21	715	168846	79541	194736		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Aug-21	710	168846	79570	194738		
2-Aug-21	620	168846	79594	194738		
3-Aug-21	620	168980	79634	194711		168980 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
4-Aug-21	615	169432	79668	194742		
5-Aug-21	630	169432	79696	194742		
6-Aug-21	625	169432	79733	194743		
7-Aug-21	715	169432	79759	194744		
8-Aug-21	710	169432	79803	194744		
9-Aug-21	605	169432	79832	194744		
10-Aug-21	615	169432	79859	194747		
11-Aug-21	600	169432	79917	194749		Received a Loss of Power Alarm.
12-Aug-21	625	169432	79920	194750		Power went out yesterday, reset the alarms and turn the pumps back on.
13-Aug-21	625	170024	80115	194754		
14-Aug-21	640	170024	80281	194763		
15-Aug-21	645	170024	80407	194788		
16-Aug-21	620	170620	80533	194812		
17-Aug-21	630	170620	80655	194827		
18-Aug-21	630	170620	80754	194845		
19-Aug-21	630	170810	80841	194857		170810 Received a High Bach Tank alarm. Emptied the batch tank an dreset the alarm.
20-Aug-21	630	171214	80893	194866		
21-Aug-21	635	171214	80966	194873		
22-Aug-21	700	171214	81066	194878		
23-Aug-21	620	171214	81156	194886		
24-Aug-21	625	171214	81234	194891		
25-Aug-21	625	171214	81296	194896		
26-Aug-21	630	171790	81375	194904		
27-Aug-21	620	171790	81436	194907		
28-Aug-21	645	171790	81472	194909		
29-Aug-21	650	171790	81517	194912		
30-Aug-21	615	171790	81579	194915		
31-Aug-21	630	171790	81615	194916		



## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Sep-21	630	171790	81677	194918		
2-Sep-21	600	171790	81716	194922		
3-Sep-21						
4-Sep-21						
5-Sep-21						
6-Sep-21						
7-Sep-21	600	172368	81940	194930		Collected samples from the Influent, After the First Carbon and Discharge of the system
8-Sep-21						
9-Sep-21						
10-Sep-21	600	172368	82045	194943		
11-Sep-21						
12-Sep-21						
13-Sep-21	600	172368	82115	194946		
14-Sep-21	550	172368	82159	194946		
15-Sep-21	600	172368	82176	194950		
16-Sep-21	1200	172444	82207	194951		
17-Sep-21	600	172642	82236	194953		
18-Sep-21						
19-Sep-21						
20-Sep-21	600	172642	82315	194956		
21-Sep-21	600	172642	82330	194960		172642 Emptied the batch tank.
22-Sep-21	600	173136	82350	194962		
23-Sep-21	600	173136	82366	194963		
24-Sep-21	600	173136	82387	194965		
25-Sep-21						
26-Sep-21						
27-Sep-21	600	173136	82443	194971		
28-Sep-21	620	173136	82468	194972		
29-Sep-21	615	173136	82509	194974		
30-Sep-21	550	173136	82571	194975		

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Oct-21						
2-Oct-21						
3-Oct-21						
4-Oct-21	550	173136	82792	194979		
5-Oct-21	600	173710	82862	194980		
6-Oct-21	550	173710	82922	194983		
7-Oct-21	555	173710	82974	194984		
8-Oct-21	600	173710	83039	194985		
9-Oct-21						
10-Oct-21						
11-Oct-21	600	173710	83203	194988		
12-Oct-21	600	173710	83253	194989		
13-Oct-21	550	173710	83268	194989		
14-Oct-21	600	173710	83331	194991		
15-Oct-21	600	173710	83386	194991		
16-Oct-21	430	173710	83438	194992		
17-Oct-21	410	173710	83491	194997		
18-Oct-21	545	173710	83550	195003		
19-Oct-21	600	173710	83596	195008		
20-Oct-21	600	174294	83650	195014		
21-Oct-21	600	174294	83693	195018		
22-Oct-21	600	174294	83709	195024		
23-Oct-21	405	174294	83738	195026		
24-Oct-21	720	174294	83785	195029		
25-Oct-21	600	174294	83807	195033		
26-Oct-21	620	174294	83937	195046		
27-Oct-21	625	174294	84050	195103		
28-Oct-21	625	174294	84140	195163		
29-Oct-21	620	174468	84251	195208		174468 Emptied the batch and and reset the alarm.
30-Oct-21						
31-Oct-21						
		<b>1332</b>				

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Nov-21	620	174994	84729	195269		Talked with Dan Jensen from the Montrose IT department to see who is maintaining the server for the notification systems at the site. Dan worked on the HMI for the FFWTP and couldn't figure out what is wrong with it. I went to the FFWTP and cut the power and still did not receive an alarm.
2-Nov-21	615	174994	84858	195501		Montrose followed up with Tim Hoenke (T&M) to try and fix the HMI for the FFWTP. It is taking more time than they thought and T&M will need a contract to get paid for there help.
3-Nov-21	615	175716	85026	195589		
4-Nov-21	615	175716	85167	195666		
5-Nov-21	615	176300	85338	195943		
6-Nov-21	425	176300	85136	196200		
7-Nov-21	700	176300	85536	196534		
8-Nov-21	635	176300	85658	196809		Emptied 20 gallons of purge into the floor drain from the off-site well sampling.
9-Nov-21	700	176300	85802	196906		Emptied 28 gallons of purge into the floor drain from the off-site well sampling.
10-Nov-21	615	176314	85932	196907		176314 Emptied the batch tank and reset the alarm. Emptied 28 gallons of purge into the floor drain from the off-site well sampling.
11-Nov-21	615	177038	86061	196907		Emptied 30 gallons of purge into the floor drain from the off-site well sampling.
12-Nov-21	615	177038	86211	197243		Talked with Tim Landes (T&M) and he had me reboot the MiFi and HMI for the FFWPT. He worked remotely on the systems and wasn't able to get the systems fixed. Emptied 29 gallons of purge into the floor drain from the off-site well sampling.
13-Nov-21	630	177038	86409	197367		Simulated a power failure alarm and never received a notification.
14-Nov-21	845	177038	86566	197488		
15-Nov-21	550	177038	86706	197585		Tim Landes is trying to install the program on the HMI but can't get it to finish because of a slow connection. He will send me the program so I can load it.
16-Nov-21	600	177626	86795	197684		Worked with Montrose IT to install Crimson so they can access the HMI for the FFWTP. We couldn't figure out what the problem is and reached out to Tim Landes (T&M) for assistance.
17-Nov-21	555	177626+	86908	197761		Dan and Tim worked remotely on the HMI for the FFWTP. They had me use a cable and load the program onto the HMI. After I got it loaded the system would not finish rebooting.
18-Nov-21	555	177626	87065	197832		Dan and Tim continued to work on the HMI and couldn't come up with a solution. It appears that we will need a new HMI for the office. Tim remotely worked on the system at the Line 1 Impoundment and was unsuccessful getting it to work correctly.
19-Nov-21	600	177626	87131	197909		
20-Nov-21						
21-Nov-21						
22-Nov-21	600	177626	87290	198053		
23-Nov-21	600	177626	87322	198097		
24-Nov-21	600	177626	87365	198136		
25-Nov-21						
26-Nov-21						

## FFWTP Treatment Log 2021

27-Nov-21	1445	178156	87584	198244		178156 Emptied the batch tank and reset the alarm.
28-Nov-21						
29-Nov-21	550	178334	87686	198304		
30-Nov-21	550	178334	87737	198336		
		<b>3340</b>				

## FFWTP Treatment Log 2021

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Dec-21	555	178334	87795	198374		
2-Dec-21	550	178334	87842	198403		
3-Dec-21	600	178334	87902	198436		
4-Dec-21						
5-Dec-21						
6-Dec-21	550	178334	88063	198530		
7-Dec-21	555	178334	88094	198564		
8-Dec-21	600	178334	88121	198597		
9-Dec-21	600	178334	88160	198627		
10-Dec-21						
11-Dec-21						
12-Dec-21						
13-Dec-21	600	178918	88331	198745		
14-Dec-21	600	178918	88373	198777		
15-Dec-21	600	178918	88420	198806		
16-Dec-21	600	178918	88473	198836		
17-Dec-21						
18-Dec-21						
19-Dec-21						
20-Dec-21	550	178918	88665	198949		
21-Dec-21	550	178918	88710	198984		
22-Dec-21	555	178918	88753	199014		
23-Dec-21	1130	178918	88802	199055		
24-Dec-21						
25-Dec-21						
26-Dec-21						
27-Dec-21	700	178918	88974	199164		
28-Dec-21	600	179502	89022	199194		
29-Dec-21	600	179502	89063	199219		
30-Dec-21	1000	179502	89109	199250		
31-Dec-21						
		<b>1168</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jan-22						
2-Jan-22						
3-Jan-22	550	179502	89253	199353		
4-Jan-22	530	179502	89285	199370		
5-Jan-22	600	179502	89331	199411		
6-Jan-22	550	179502	89374	199475		
7-Jan-22	800	179502	89390	199519		
8-Jan-22						
9-Jan-22						
10-Jan-22	555	179502	89494	199547		
11-Jan-22	550	179502	89539	199596		
12-Jan-22	550	179502	89589	199622		
13-Jan-22	555	180002	89626	199671		180002 Emptied the batch tank and reset the alarm.
14-Jan-22	600	180100	89660	199731		
15-Jan-22						
16-Jan-22						
17-Jan-22	600	180100	89797	199848		
18-Jan-22	600	180100	89863	189942		
19-Jan-22	700	180100	89940	200102		
20-Jan-22	550	180100	90021	200227		
21-Jan-22	555	180100	90085	200340		
22-Jan-22						
23-Jan-22						
24-Jan-22	600	180694	90312	200719		
25-Jan-22	730	180694	90379	200847		
26-Jan-22	730	180694	90427	200946		
27-Jan-22	730	180694	90486	201034		
28-Jan-22	715	181282	90553	201138		
29-Jan-22						
30-Jan-22						
31-Jan-22	700	181282	90745	201325		
		<b>1780</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Feb-22	700	181282	90809	201367		
2-Feb-22	700	181282	90878	201420		
3-Feb-22	700	181282	90936	201454		
4-Feb-22	700	181848	90978	201471		181848 Emptied the batch tank and reset the alarm.
5-Feb-22						
6-Feb-22						
7-Feb-22	715	181926	91107	201511		
8-Feb-22	715	181926	911067	201533		
9-Feb-22	700	181926	91225	201556		
10-Feb-22	715	181926	91287	201979		
11-Feb-22						
12-Feb-22						
13-Feb-22						
14-Feb-22	600	182514	91502	201665		
15-Feb-22	700	182514	91558	201685		
16-Feb-22	700	182514	91607	201700		Collected a sample from the Influent, After the First Carbon and Discharge of the system.
17-Feb-22	730	182514	91666	201720		
18-Feb-22	730	182514	91723	201739		
19-Feb-22	615	182514	91784	201761		
20-Feb-22	730	193102	91867	201791		
21-Feb-22						
22-Feb-22	730	183102	92038	201870		
23-Feb-22	715	183102	92127	201945		
24-Feb-22	730	183692	92217	202054		
25-Feb-22	730	183692	92302	202145		
26-Feb-22	630	183962	92377	202245		
27-Feb-22						
28-Feb-22	700	183704	92551	202381		183704 Emptied the batch tank and reset the alarm.
		<b>2422</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Mar-22	715	184290	92646	202440		
2-Mar-22	730	184290	92739	202521		
3-Mar-22						
4-Mar-22						
5-Mar-22						
6-Mar-22						
7-Mar-22	730	184878	93192	203197		
8-Mar-22	1100	185470	93306	203330		
9-Mar-22	700	185470	93413	203458		
10-Mar-22	710	185554	93558	203606		185554 Emptied the batch tank and reset the alarm
11-Mar-22	600	186106	93701	203794		
12-Mar-22						
13-Mar-22						
14-Mar-22	630	186714	94141	204423		
15-Mar-22	700	186714	94271	204563		
16-Mar-22	700	187316	94373	204699		
17-Mar-22	645	187316	94481	204814		
18-Mar-22	700	187316	94585	204927		
19-Mar-22						
20-Mar-22						
21-Mar-22	645	187430	94988	205319		187430 Emptied the batch tank and reset the alarm
22-Mar-22	700	188466	94996	205557		
23-Mar-22	715	188466	94996	205677		
24-Mar-22	715	189088	95823	205803		
25-Mar-22	550	189232	96123	205932		189232 Emptied the batch tank reset the alarm
26-Mar-22	415	189740	96428	206062		
27-Mar-22	430	190358	96744	206314		
28-Mar-22	640	190358	97066	206589		
29-Mar-22	715	190976	97346	206868		
30-Mar-22	730	190976	97586	207184		
31-Mar-22	730	191178	97833	207301		191178 Emptied the batch tank and reset the alarm.
		<b>6888</b>				
Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes



**FFWTP Treatment Log  
2022**

1-Apr-22	715	191616	98107	207491		
2-Apr-22	630	191616	98368	207749		
3-Apr-22	745	192244	98649	208042		
4-Apr-22	715	192696	98926	208328		Collected a sample from the Discharge of the system.
5-Apr-22	700	192880	99211	208633		
6-Apr-22	700	193086	99522	208973		193086 Emptied the batch tank and reset the alarm.
7-Apr-22	700	193536	99861	209118		
8-Apr-22	730	194174	100213	209336		
9-Apr-22	700	194174	100520	209645		
10-Apr-22	730	194814	100839	209959		
11-Apr-22	715	194814	101141	210148		
12-Apr-22	700	194996	101395	210304		
13-Apr-22	700	194996	101669	210614		
14-Apr-22	700	194996	101842	210688		194996 Emptied the batch tank and reset the alarm.
15-Apr-22	715	196194	102281	210904		
16-Apr-22						
17-Apr-22						
18-Apr-22	700	196890	103214	211802		196890 Emptied the batch tank and reset the alarm.
19-Apr-22	600	197532	103469	212074		
20-Apr-22	550	197532	103727	212351		
21-Apr-22	550	198162	103993	212663		
22-Apr-22	700	198162	104318	212977	X	198802 Emptied the batch tank.
23-Apr-22	600	198802	104634	213297	X	Added 220 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
24-Apr-22	1600	198944	105128	213611		Decanted water from the tank. Added 375 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
25-Apr-22	530	199318	105329	213681		Decanted water from the tank. Added 200 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
26-Apr-22	600	199422	105632	213990		Decanted water from the tank. Added 250 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
27-Apr-22	545	200010	105894	214273		Decanted water from the tank. Added 380 gallons of purge water from the offsite area (OU3) into the open topped tank to settle out.
28-Apr-22	555	200592	106129	214551		
29-Apr-22	700	201184	106346	214744		Decanted water from the tank.
30-Apr-22						
		<b>9568</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-May-22	1500	201283	106844	214962		214962 Emptied the batch tank and reset the alarm.
2-May-22	715	201948	107017	215047		
3-May-22	620	201948	107243	215161		
4-May-22	600	202542	107515	215276		
5-May-22	1400	202542	107908	215470		
6-May-22	630	203116	108107	215554		203116 Emptied the batch tank and reset the alarm.
7-May-22	550	203308	108418	215687		
8-May-22	745	203904	108741	215820		
9-May-22	610	204496	109034	215937		
10-May-22	605	204970	109312	215987		204970 Emptied the batch tank and reset the alarm. Collected a sample from the Influent, After the First Carbon and Discharge of the system.
11-May-22	620	205162	109534	215987		
12-May-22	620	205756	109710	216243		
13-May-22	615	205756	109869	216320		
14-May-22						
15-May-22						
16-May-22	550	206346	110203	216527		
17-May-22	545	206346	110298	216580		
18-May-22	610	206346	110389	216618		
19-May-22	550	206346	110470	216644		
20-May-22	545	206346	110531	216673		
21-May-22						
22-May-22						
23-May-22	545	206830	110703	216736		206830 Emptied the batch tank and reset the alarm.
24-May-22	545	207056	110754	216755		
25-May-22	550	207056	110795	216773		
26-May-22	700	207056	110840	216791		
27-May-22	645	207056	110879	216806		
28-May-22						
29-May-22						
30-May-22						
31-May-22	555	207056	111080	216901		
		<b>5773</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jun-22	550	207056	111132	216912		
2-Jun-22	550	207056	111138	216927		
3-Jun-22	555	207648	111138	216937		
4-Jun-22						
5-Jun-22						
6-Jun-22	550	207648	111138	216964		
7-Jun-22	620	207648	111141	216974		
8-Jun-22	550	207648	111144	216982		
9-Jun-22	555	207648	111148	216993		
10-Jun-22	605	207648	111153	217005		
11-Jun-22						
12-Jun-22						
13-Jun-22	550	208236	111167	217027		
14-Jun-22	605	208236	111170	217030		
15-Jun-22	605	208236	111173	217043		
16-Jun-22	610	208236	111177	217052		
17-Jun-22	610	208236	111182	217057		
18-Jun-22						
19-Jun-22						
20-Jun-22	545	208236	111191	217085		
21-Jun-22	550	208236	111195	217094		
22-Jun-22	545	208236	111198	217101		
23-Jun-22	600	208236	111200	217110		
24-Jun-22	815	208236	111204	217124		
25-Jun-22						
26-Jun-22						
27-Jun-22	530	208682	111214	217141		
28-Jun-22	545	208864	111216	217147		
29-Jun-22	555	208864	111219	217152		
30-Jun-22	550	208864	111222	217165		
		<b>1808</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Jul-22						
2-Jul-22						
3-Jul-22						
4-Jul-22						
5-Jul-22	550	208864	111233	217199		
6-Jul-22	545	208864	111236	217201		
7-Jul-22	555	208864	111239	217209		
8-Jul-22	550	208864	111243	217219		
9-Jul-22						
10-Jul-22						
11-Jul-22	550	208864	111253	217256		
12-Jul-22	550	208864	111260	217263		
13-Jul-22	800	208864	111263	217284		
14-Jul-22	555	208864	111265	217286		
15-Jul-22	555	209434	111268	217289		
16-Jul-22						
17-Jul-22						
18-Jul-22	550	209434	111271	217293		Noticed it looked like the power had been out over the weekend. Checked and reset all the alarms for the system.
19-Jul-22	555	209434	111283	217297		
20-Jul-22	550	209434	111295	217302		
21-Jul-22	600	209434	111313	217309		
22-Jul-22	715	209434	111326	217315		
23-Jul-22						
24-Jul-22						
25-Jul-22	545	209434	111367	217332		
26-Jul-22	545	209434	111377	217340		
27-Jul-22	545	209434	111387	217345		
28-Jul-22	550	209434	111397	217351		
29-Jul-22	550	209434	111417	217360		
30-Jul-22						
31-Jul-22						
		<b>570</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Aug-22	550	209434	111441	217379		
2-Aug-22	550	209990	111457	217385		
3-Aug-22	550	209990	111461	217389		
4-Aug-22	545	209990	111471	217396		
5-Aug-22	555	209990	111482	217402		
6-Aug-22						
7-Aug-22						
8-Aug-22	550	209990	111506	217421		
9-Aug-22	545	210660	111516	217427		
10-Aug-22	550	210660	111524	217433		
11-Aug-22	545	210660	111534	217437		
12-Aug-22	600	210660	111544	217442		
13-Aug-22						
14-Aug-22						
15-Aug-22	550	211236	111595	217459		
16-Aug-22	545	211236	111606	217465		
17-Aug-22	550	211236	111620	217469		
18-Aug-22	555	211236	111632	217476		
19-Aug-22	550	211236	111646	217481		
20-Aug-22						
21-Aug-22						
22-Aug-22	550	211886	111676	217500		211886 Emptied the batch tank and reset the alarm
23-Aug-22	555	211886	111683	217506		
24-Aug-22	550	211886	111692	217513		
25-Aug-22	555	212468	111701	217518		
26-Aug-22	550	212468	111709	217521		
27-Aug-22						
28-Aug-22						
29-Aug-22	550	212468	111750	217535		
30-Aug-22	550	212468	111764	217543		
31-Aug-22	550	212468	111775	217548		
		<b>3034</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Sep-22	550	212468	111790	217553		
2-Sep-22	1545	212468	111799	217580		AO Utilities called and said they need to shut the power down to the IDA for maintenance and would call when it was turned back on. I returned to the site and reset the alarms for the system.
3-Sep-22						
4-Sep-22						
5-Sep-22						
6-Sep-22	550	212468	111839	217586		Used the hydrant water to fill the Influent tank for the engineers inspection tomorrow.
7-Sep-22	550	212468	111852	217590		Performed tests to show Ensafes how the system works. Everything worked like it should.
8-Sep-22	700	213426	111861	217596		
9-Sep-22	555	213426	111870	217603		
10-Sep-22						
11-Sep-22						
12-Sep-22	550	213426	111905	217622		
13-Sep-22	550	213426	111917	217629		
14-Sep-22	550	213426	111927	217637		
15-Sep-22	555	213426	111935	217640		
16-Sep-22	1030	213426	111945	217647		
17-Sep-22						
18-Sep-22						
19-Sep-22	550	213426	111967	217660		
20-Sep-22	555	213426	111985	217668		
21-Sep-22	550	213426	111999	212683		
22-Sep-22	550	213426	112014	217701		
23-Sep-22	550	213426	112031	217718		
24-Sep-22	1615	213876	112054	217728		0650-AO Utilites called and said there was a power outage at the IDA from the storm last night. They will call when the power is restored. Returned the the site to reset the alarms for the system. Reset the alarms. 213876 Emptied the batch tank and reset the alarms.
25-Sep-22						
26-Sep-22	550	213876	112087	217751		
27-Sep-22	550	213876	112103	217760		
28-Sep-22	555	213876	112117	217768		
29-Sep-22	550	213876	112128	217776		
30-Sep-22						
		<b>1408</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Oct-22						
2-Oct-22						
3-Oct-22	550	213876	112182	217804		
4-Oct-22	555	213876	112191	217810		
5-Oct-22	550	214468	112201	217814		
6-Oct-22	550	214468	112211	217823		
7-Oct-22	600	214468	112231	217830		
8-Oct-22						
9-Oct-22						
10-Oct-22	550	214468	112273	217849		
11-Oct-22	555	214468	112290	217854		
12-Oct-22	555	214468	112296	217861		
13-Oct-22	550	214468	112309	217867		
14-Oct-22	555	214468	112324	217874		
15-Oct-22	630	214468	112337	217878		
16-Oct-22	800	214468	112348	217885		
17-Oct-22	530	214468	112360	217890		
18-Oct-22	530	215072	112371	217896		
19-Oct-22	535	215072	112382	217905		
20-Oct-22	535	215072	112394	217911		
21-Oct-22	535	215072	112412	217918		
22-Oct-22						
23-Oct-22						
24-Oct-22	535	215072	112444	217938		Collected a sample from the Influent, After the First Carbon and Discharge of the system.
25-Oct-22	540	215072	112469	217938		
26-Oct-22	535	215072	112514	217938		
27-Oct-22	550	215072	112558	217948		
28-Oct-22	550	215072	112590	217962		
29-Oct-22						
30-Oct-22						
31-Oct-22	555	215590	112636	217963		
		<b>1714</b>				

## FFWTP Treatment Log 2022

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Nov-22	620	215590	112637	217963		
2-Nov-22	550	215590	112639	217963		
3-Nov-22	1000	215590	112644	217963		
4-Nov-22	550	215590	1126801	217963		
5-Nov-22						
6-Nov-22						
7-Nov-22	615	215590	112794	217966		
8-Nov-22	550	215590	112826	217969		
9-Nov-22	600	215590	112853	217977		126374 Emptied the batch tank and reset the alarm.
10-Nov-22	550	216650	112881	217977		
11-Nov-22	555	216650	112913	217978		
12-Nov-22						
13-Nov-22						
14-Nov-22	550	216650	112995	218005		
15-Nov-22	545	216650	113021	218022		
16-Nov-22	545	216650	113042	218046		
17-Nov-22	600	216650	113070	218051		
18-Nov-22	600	216650	113090	218057		
19-Nov-22						
20-Nov-22						
21-Nov-22	545	216650	113168	218103		
22-Nov-22	550	216650	113186	218118		
23-Nov-22	550	216650	113208	218121		
24-Nov-22						
25-Nov-22	1015	217248	113256	218135		
26-Nov-22						
27-Nov-22						
28-Nov-22	550	217248	113319	218141		
29-Nov-22	550	217248	113336	218146		
30-Nov-22	550	217248	113358	218148		
		<b>1658</b>				




**FFWTP Treatment Log  
2022**

Date	Time	Accumulated total	Leachate Collection (A)	Leachate Detection (B)	Change bag filters	Notes
1-Dec-22						
2-Dec-22						
3-Dec-22						
4-Dec-22						
5-Dec-22						
6-Dec-22						
7-Dec-22						
8-Dec-22						
9-Dec-22						
10-Dec-22						
11-Dec-22						
12-Dec-22						
13-Dec-22						
14-Dec-22						
15-Dec-22						
16-Dec-22						
17-Dec-22						
18-Dec-22						
19-Dec-22						
20-Dec-22						
21-Dec-22						
22-Dec-22						
23-Dec-22						
24-Dec-22						
25-Dec-22						
26-Dec-22						
27-Dec-22						
28-Dec-22						
29-Dec-22						
30-Dec-22						
31-Dec-22						

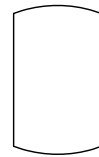


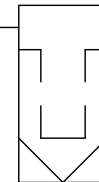






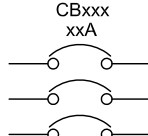
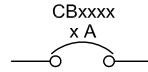
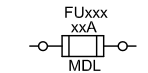

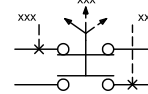
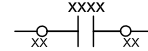
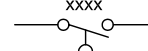
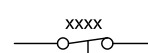
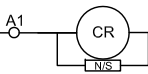







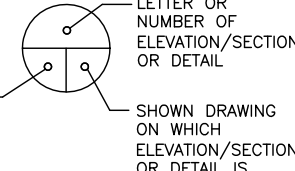
FFWTP Purge Water Log  
2022

Date	Amount Added To Poly Tank (Gallons)	Area Working	Emptied Into Floor Drain (Gallons)
22-Apr-22	220	Off-Site area OU3	
23-Apr-22	150	Off-Site area OU3	220
23-Apr-22	225	Off-Site area OU3	
24-Apr-22	170	Off-Site area OU3	375
25-Apr-22	200	Off-Site area OU3	170
26-Apr-22	250	Off-Site area OU3	200
27-Apr-22	130	Off-Site area OU3	250
27-Apr-22	250	Off-Site area OU3	
28-Apr-22			380
6-May-22	218	Off-Site area OU3	
7-May-22	239	Off-Site area OU3	218
8-May-22	194	Off-Site area OU3	239
9-May-22	220	Off-Site area OU3	194
10-May-22	18	Off-Site area OU3	220
20-May-22	36	IDA/Trench 5 wells	Trench 5 water is being stored in a 55 gallon drum kept inside the FFWTP.
18-Aug-22	15	Line 3A and CWP decon water	
18-Aug-22	30	Line 6 Purge water	
18-Aug-22	26	Line 6 Purge water	
19-Aug-22	132	Line 6 Purge water	
19-Aug-22	54	Line 6 Purge water	
20-Aug-22	69	Line 6 Purge water	
21-Aug-22	45	Line 6 Purge water	
22-Aug-22	15	Line 6 Purge water	
19-Oct-22	30	Off-site ground water sampling	
8-Nov-22	26	Off-site ground water sampling	
9-Nov-22	13	Off-site ground water sampling	
10-Nov-22	23	Off-site ground water sampling	
11-Nov-22	25	Off-site ground water sampling	



**Appendix G**  
**As-Built Drawings of Treatment Systems and**  
**Overflow Structures**



GENERAL EQUIPMENT	GENERAL INSTRUMENTS	ELETRICAL	ABBREVIATIONS																																																										
 VESSEL/TANK  CENTRIFUGAL PUMP  SUBMERSIBLE PUMP  BAG FILTER	 INSTRUMENT FOR SINGLE MEASURED VARIABLE AND ANY NUMBER OF FUNCTIONS. INSTRUMENT IS FIELD MOUNTED.  INSTRUMENT IS MOUNTED IN FRONT OF LOCAL PANEL. <p>SHARED DISPLAY OR VIRTUAL (SOFTWARE BASED) SYMBOLS AND SWITCH</p>  CENTRAL PLC OR CONTROL ROOM INDICATOR/CONTROLLER/RECORDER OR ANNUNCIATION POINT  INTERLOCK <p>(NOTE A)  E (NOTE B)  (NOTE A)</p> <p>NOTE A: TOP FIELD- INDICATES TYPE OF DEVICE SEE INSTRUMENT IDENTIFICATION  BOTTOM FIELD- INDICATES LOOP NUMBER  NOTE B: ADDITION DEVICE DETAILS</p>	 CBxxx xxA 3 POLE CIRCUIT BREAKER  CBxxxx x A 1 POLE CIRCUIT BREAKER  FUxxx xxA MDL FUSE  120V OUTLET  3 POSITION SELECTOR SWITCH  xxx xx RELAY CONTACT NORMALLY OPEN  xxx LEVEL FLOAT NORMALLY OPEN  xxx LEVEL FLOAT NORMALLY CLOSED  A1 (CR) A2 RELAY COIL	<p>BA - BALL  BWP - BACKWASH PUMP  CH - CHECK  CU - COPPER  EX - EXISTING  FFWTP - FIXED FACILITY WATER TREATMENT PLANT  FO - FIBER OPTIC  GAC - GRANULAR ACTIVATED CARBON  HDPE - HIGH-DENSITY POLYETHYLENE  I&amp;C - INSTRUMENTATIONS AND CONTROL  IDA - INERT DISPOSAL AREA  NTS - NOT TO SCALE  OVE - OVERHEAD ELECTRIC  PVC - POLYVINYL CHLORIDE  THHN - THERMOPLASTIC HIGH HEAT RESISTANT  TYP - TYPICAL</p> <p>LINETYPES</p> <p>— OHE — OVERHEAD ELECTRIC  — X — FENCE  — E — ELECTRIC</p>																																																										
GENERAL PIPING																																																													
 BALL VALVE NORMALLY OPEN  BALL VALVE NORMALLY CLOSED  CHECK VALVE  FLEXIBLE HOSE  CAM LOCK CONNECTION  FLOW METER  BACKFLOW PREVENTER	<p>INSTRUMENT IDENTIFICATION</p> <table border="1"> <tr><td>CB</td><td>CIRCUIT BREAKER</td></tr> <tr><td>CR</td><td>CONTROL RELAY</td></tr> <tr><td>FAH</td><td>FLOW ALARM HIGH</td></tr> <tr><td>FAL</td><td>FLOW ALARM LOW</td></tr> <tr><td>FT</td><td>FLOW TRANSMITTER</td></tr> <tr><td>FI</td><td>FLOW INDICATOR</td></tr> <tr><td>FQI</td><td>FLOW TOTALIZER INDICATOR</td></tr> <tr><td>HOA</td><td>HAND/OFF/AUTO SWITCH</td></tr> <tr><td>HS</td><td>HAND/OFF SWITCH</td></tr> <tr><td>KQI</td><td>RUN TIME INDICATOR</td></tr> <tr><td>LAH</td><td>LEVEL ALARM HIGH</td></tr> <tr><td>LAL</td><td>LEVEL ALARM LOW</td></tr> <tr><td>LI</td><td>LEVEL INDICATOR</td></tr> <tr><td>LIH</td><td>LEVEL INDICATOR HIGH</td></tr> <tr><td>LIL</td><td>LEVEL INDICATOR LOW</td></tr> <tr><td>LSH</td><td>LEVEL SWITCH HIGH</td></tr> <tr><td>LSHH</td><td>LEVEL SWITCH HIGH-HIGH</td></tr> <tr><td>LSL</td><td>LEVEL SWITCH LOW</td></tr> <tr><td>MS</td><td>MOTOR STARTER</td></tr> <tr><td>PAL</td><td>PRESSURE ALARM LOW</td></tr> <tr><td>PAH</td><td>PRESSURE ALARM HIGH</td></tr> <tr><td>PI</td><td>PRESSURE INDICATOR</td></tr> <tr><td>PS</td><td>POWER SUPPLY</td></tr> <tr><td>PT</td><td>PRESSURE TRANSMITTER</td></tr> <tr><td>SIC</td><td>SPEED INDICATOR/CONTROL</td></tr> <tr><td>UPS</td><td>UNINTERRUPTIBLE POWER SUPPLY</td></tr> <tr><td>VFD</td><td>VARIABLE FREQUENCY DRIVE</td></tr> <tr><td>XA</td><td>USER DEFINED ALARM</td></tr> <tr><td>XY</td><td>USER DEFINED EVENT</td></tr> </table>	CB	CIRCUIT BREAKER	CR	CONTROL RELAY	FAH	FLOW ALARM HIGH	FAL	FLOW ALARM LOW	FT	FLOW TRANSMITTER	FI	FLOW INDICATOR	FQI	FLOW TOTALIZER INDICATOR	HOA	HAND/OFF/AUTO SWITCH	HS	HAND/OFF SWITCH	KQI	RUN TIME INDICATOR	LAH	LEVEL ALARM HIGH	LAL	LEVEL ALARM LOW	LI	LEVEL INDICATOR	LIH	LEVEL INDICATOR HIGH	LIL	LEVEL INDICATOR LOW	LSH	LEVEL SWITCH HIGH	LSHH	LEVEL SWITCH HIGH-HIGH	LSL	LEVEL SWITCH LOW	MS	MOTOR STARTER	PAL	PRESSURE ALARM LOW	PAH	PRESSURE ALARM HIGH	PI	PRESSURE INDICATOR	PS	POWER SUPPLY	PT	PRESSURE TRANSMITTER	SIC	SPEED INDICATOR/CONTROL	UPS	UNINTERRUPTIBLE POWER SUPPLY	VFD	VARIABLE FREQUENCY DRIVE	XA	USER DEFINED ALARM	XY	USER DEFINED EVENT	<p>ELECTRICAL LINE SYMBOLS</p> <p>———— CONTROL PANEL WIRING  - - - - - FIELD WIRING</p> <p>ELEVATION/SECTION &amp; DETAIL KEY</p>  <p>TAKEN DRAWING ON WHICH ELEVATION/SECTION OR DETAIL IS</p> <p>LETTER OR NUMBER OF ELEVATION/SECTION OR DETAIL</p> <p>SHOWN DRAWING ON WHICH ELEVATION/SECTION OR DETAIL IS</p>	
CB	CIRCUIT BREAKER																																																												
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P&ID LINE SYMBOLS																																																													
<p>———— PROCESS LINE</p> <p>———— PLC LEVEL CONTROL</p> <p>----- SKID LIMITS</p> <p>----- ELECTRICAL LINE</p>																																																													

**PROJECT REQUIREMENTS**

- THE PRIME CONTRACTOR IS REQUIRED TO SUPPLY AND INSTALL ANY EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED BY LAW OR AS DIRECTED BY THE PROJECT OWNER.
- THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL COMPLY WITH BASIC PROVISIONS OF OSHA HEALTH AND SAFETY STANDARDS 29 CFR 1910 AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE TO THIS CONSTRUCTION.
- THE PRIME CONTRACTOR SHALL CONTACT AN UNDERGROUND UTILITY ORGANIZATION AT LEAST 48 HOURS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL LOCATE ALL CONFLICTS PRIOR TO CONSTRUCTION.
- THE PRIME CONTRACTOR'S ON-SITE PERSONNEL SHALL INSPECT AND APPROVE ALL PIPE BEFORE BACKFILLING.
- THE PRIME CONTRACTOR SHALL COMPLY WITH THE ENVIRONMENTAL PROTECTION AGENCY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER REQUIREMENTS ESTABLISHED FOR CONSTRUCTION ACTIVITIES AT CONSTRUCTION SITES.
- THE PRIME CONTRACTOR SHALL PROVIDE ARC FLASH WARNING LABELS PER NFPA 70E AND UFC 3-501-01 - ELECTRICAL ENGINEERING AND UFC 3-560-01 - ELECTRICAL SAFETY - O&M.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				
			DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR

**WTA** Los Alamos Technical Associates  
756 Park Meadow Road  
Westerville, OH 43081  
(614) 508-1200  
www.lata.com

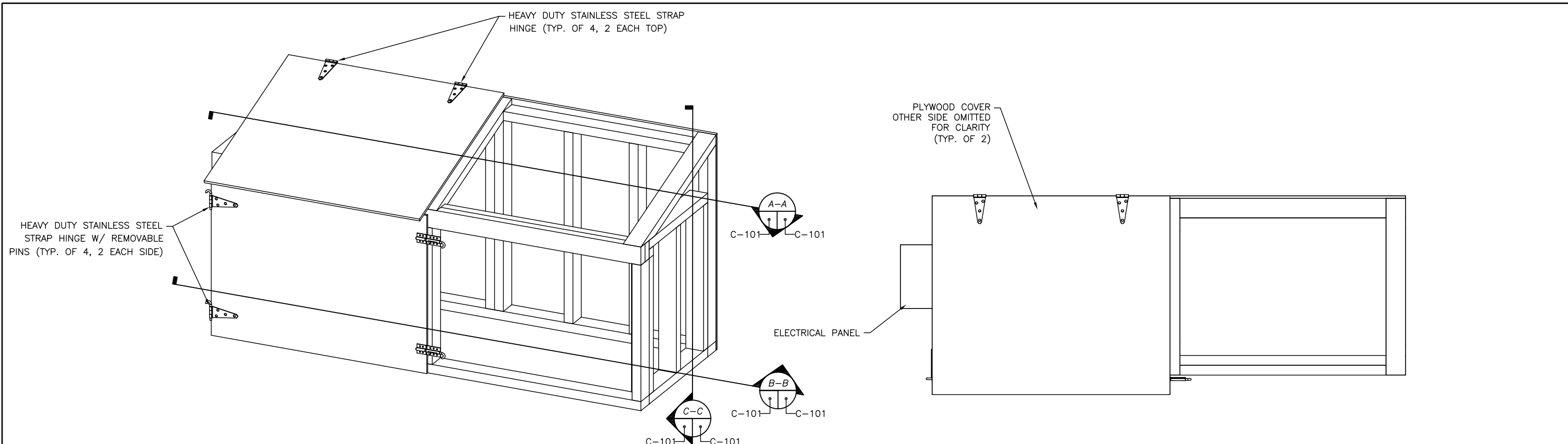
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

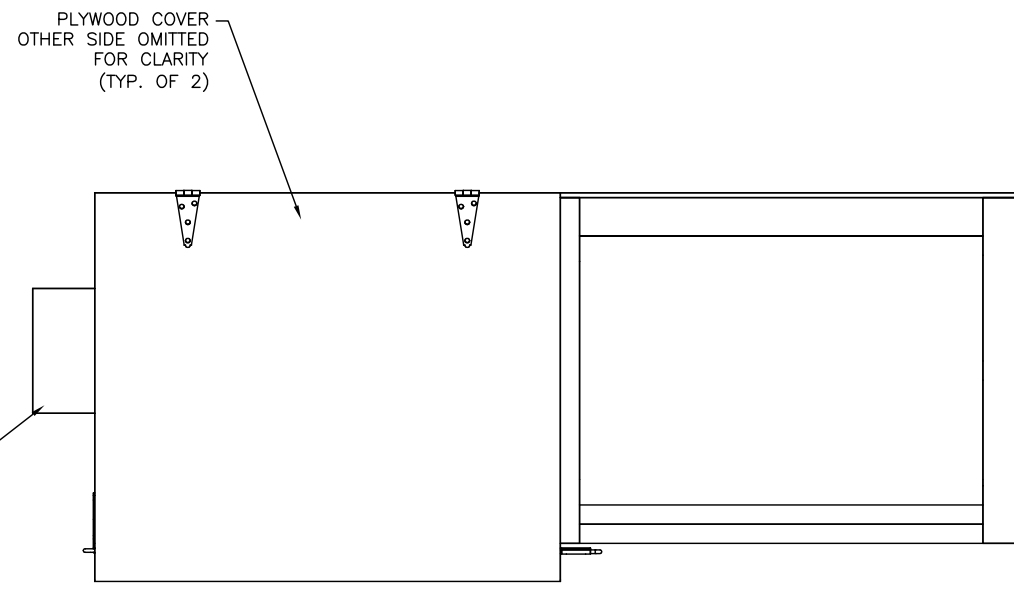
**GENERAL NOTES / LEGENDS AND ABBREVIATIONS**

PROJECT NO.:	11340
CADD DWG FILE:	G-102 LEGENDS AND ABBREVIATIONS
DESIGNED BY:	ERV DATE: 12/16/16
DRAWN BY:	TCW DATE: 12/16/16
CHECKED BY:	BK DATE: 12/16/16
<b>G-102</b>	
SHEET 2 OF 31	

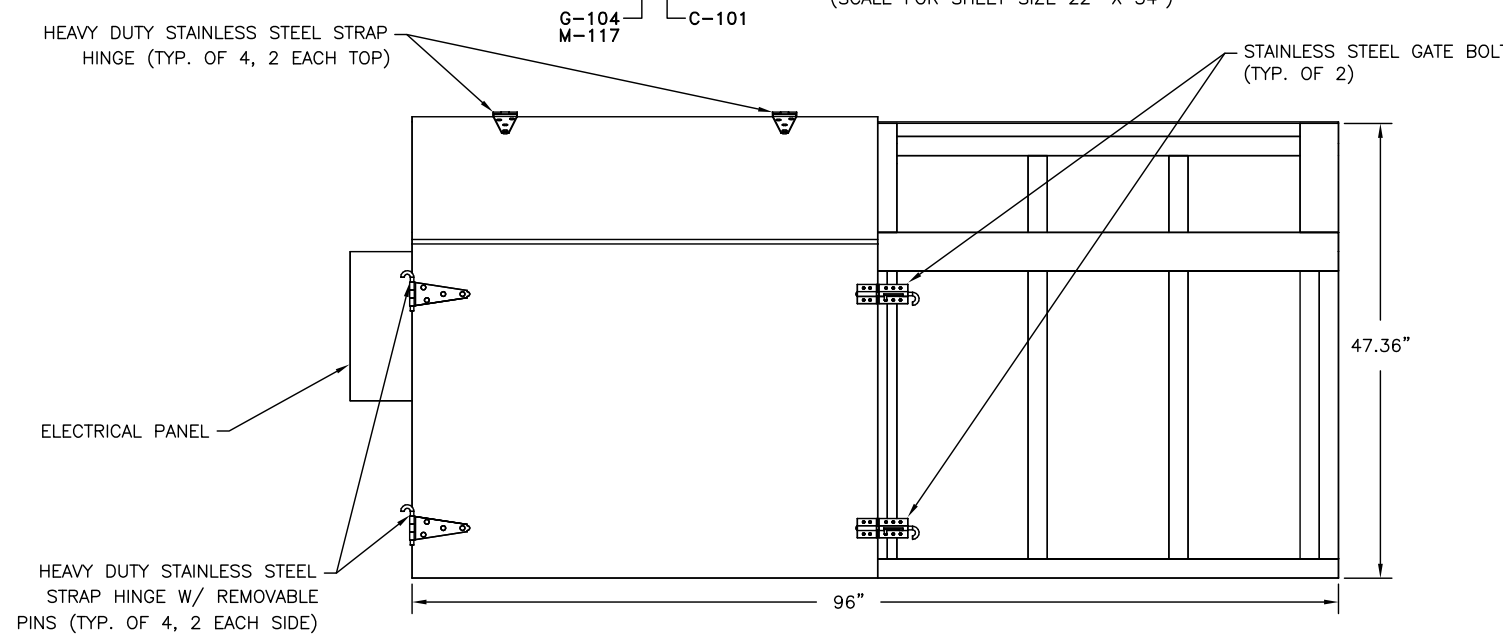




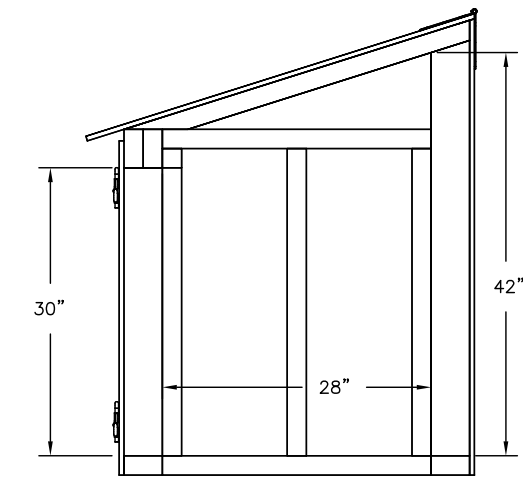
**PUMP ENCLOSURE DESIGN ISO VIEW**  
 Scale: 1" = 10"  
 (SCALE FOR SHEET SIZE 22" X 34")



**PUMP ENCLOSURE DESIGN PLAN VIEW**  
 Scale: 1" = 10"  
 (SCALE FOR SHEET SIZE 22" X 34")



**PUMP ENCLOSURE DESIGN FRONT ELEVATION VIEW**  
 Scale: 1" = 10"  
 (SCALE FOR SHEET SIZE 22" X 34")



**PUMP ENCLOSURE DESIGN SIDE ELEVATION VIEW**  
 Scale: 1" = 10"  
 (SCALE FOR SHEET SIZE 22" X 34")

**NOTES**

1. PUMP ENCLOSURE FRAMING TO BE CONSTRUCTED USING 2x4 TREATED LUMBER.
2. PLYWOOD EXTERIOR OF PUMP ENCLOSURE TO BE PAINTED WITH *RUST-OLEUM RESTORE 10X ADVANCED RESURFACER* (OR ENGINEER APPROVED EQUAL).
3. THE TRENCH 6 ENCLOSURE MATERIALS ARE TO BE SUPPLIED BY THE PRIME CONTRACTOR AND INSTALLED BY THE I&C CONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				

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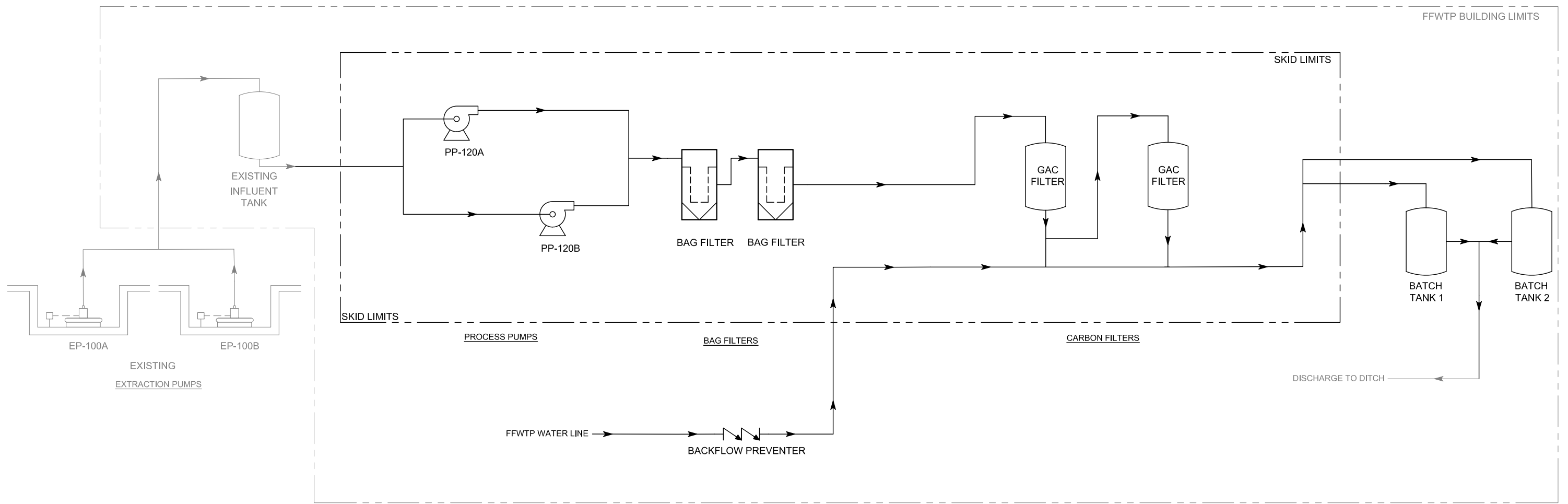
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA

**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**TRENCH 6 PUMP ENCLOSURE DESIGN**

PROJECT NO.:	11340
CADD DWG FILE:	C-101 TRENCH 6 PUMP ENCLOSURE DESIGN
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>C-101</b>	
SHEET 4 OF 31	



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
2. THE PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO LOCATION SHOWN ON DRAWING M-104.
3. THE PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSE AND CAM LOCK CONNECTORS.

1 PROCESS FLOW DIAGRAM

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
AS-BUILTS			DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS				

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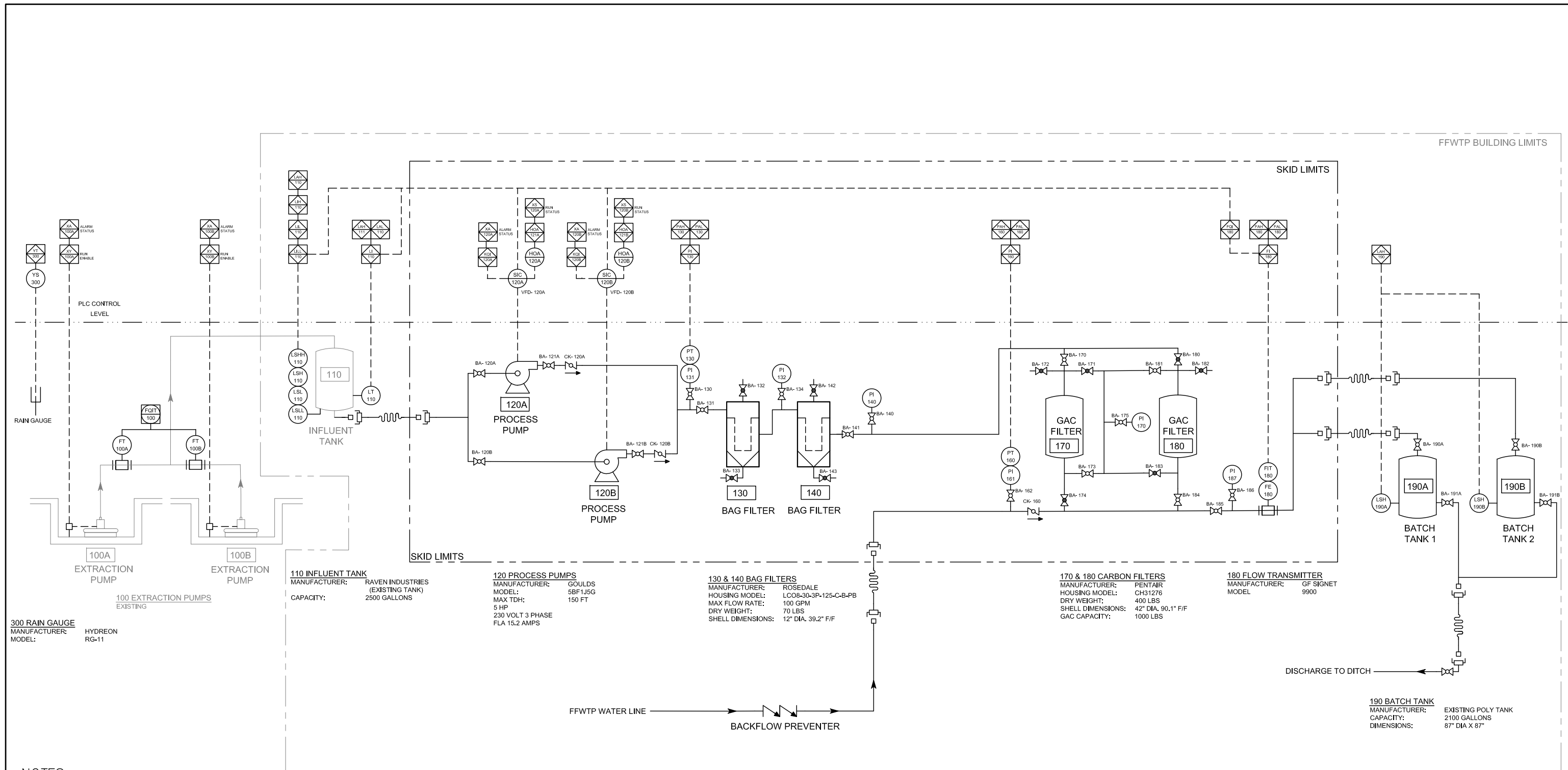
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**PROCESS FLOW DIAGRAM**

PROJECT NO.:	11340
CADD DWG FILE:	M-101 PROCESS FLOW DIAGRAM
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-101</b>	
SHEET 5 OF 31	





1 PIPING AND INSTRUMENTATION DIAGRAM

- NOTES**
1. FLEXIBLE HOSE AND CAM LOCK CONNECTORS WITHIN THE SKID LIMITS ARE NOT SHOWN FOR CLARITY.
  2. TREATMENT SKID TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR. THE PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO LOCATION SHOWN ON DRAWING M-102.
  3. THE PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSE AND CAM LOCK CONNECTORS.

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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**PARS**  
ENVIRONMENTAL INC.

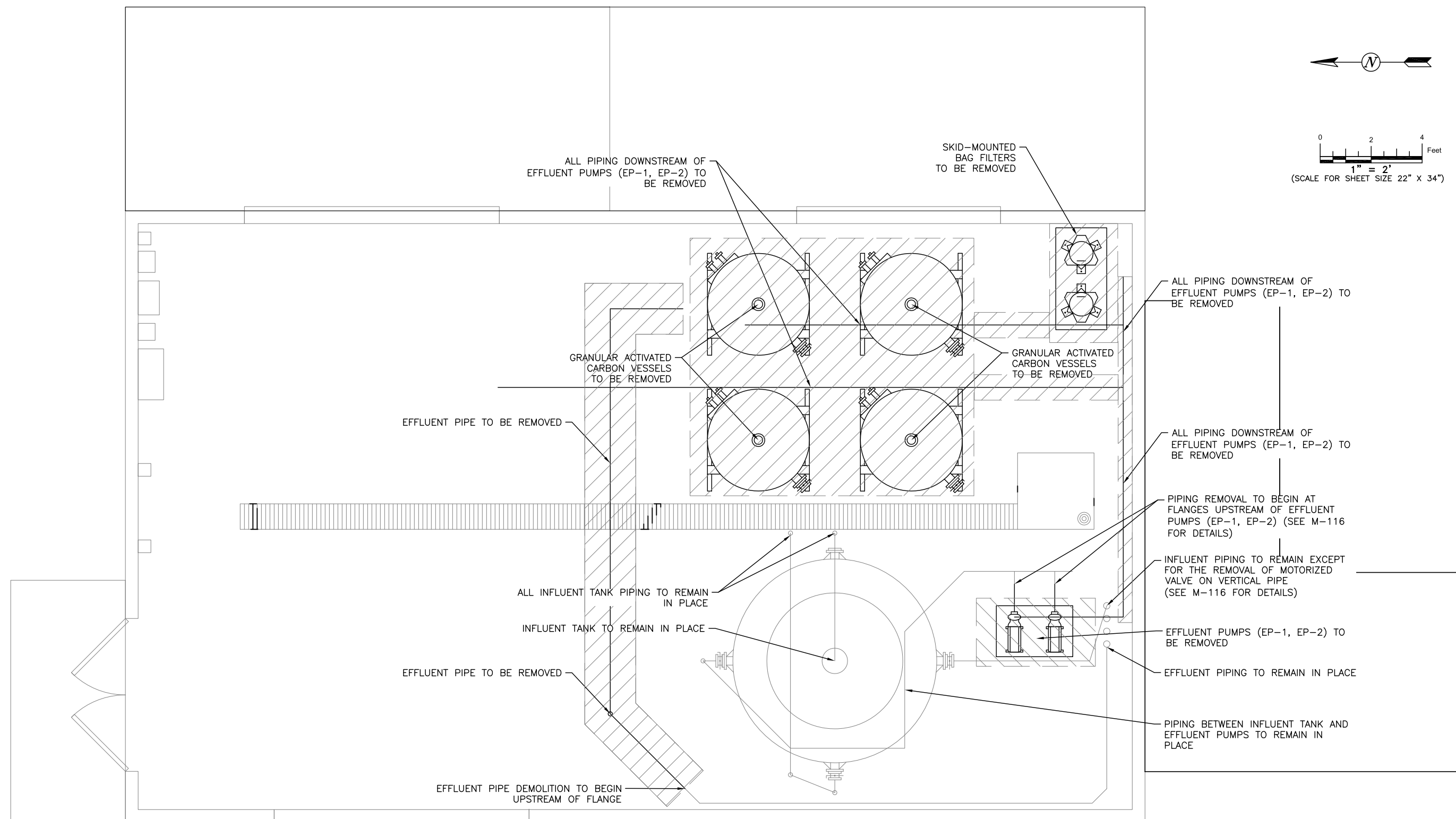
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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA

**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**PIPING & INSTRUMENTATION DIAGRAM**

PROJECT NO.:	11340
CADD DWG FILE:	M-102 PIPING & INSTRU DIAGRAM
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-102</b>	
SHEET 6 OF 31	



**NOTES**

1. THE PRIME CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
2. THE PRIME CONTRACTOR SHALL REVIEW EQUIPMENT AND MATERIALS DEMOLITION WITH THE OPERATOR OF THE SYSTEM PRIOR TO BEGINNING DEMOLITION ACTIVITIES.
3. THE PRIME CONTRACTOR SHALL DISPOSE OF ALL MATERIAL IN ACCORDANCE WITH ALL FEDERAL, STATE, LOCAL, AND OWNERS LAWS AND REGULATIONS.
4. SUMP PUMP PIPING TO REMAIN IN PLACE. NOT DISPLAYED ON THIS SHEET.
5. DEMOLITION WASTE, INCLUDING SPENT GAC, WILL BE DISPOSED AT THE DES MOINES COUNTY LANDFILL LOCATED AT 13758 WASHINGTON ROAD, WEST BURLINGTON, IOWA 52655.

**2 FIXED FACILITY WATER TREATMENT PLANT DEMOLITION PLAN**

Scale: 1" = 2'  
(SCALE FOR SHEET SIZE 22" X 34")

G-104 M-103

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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MIDDLETOWN, IOWA

**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

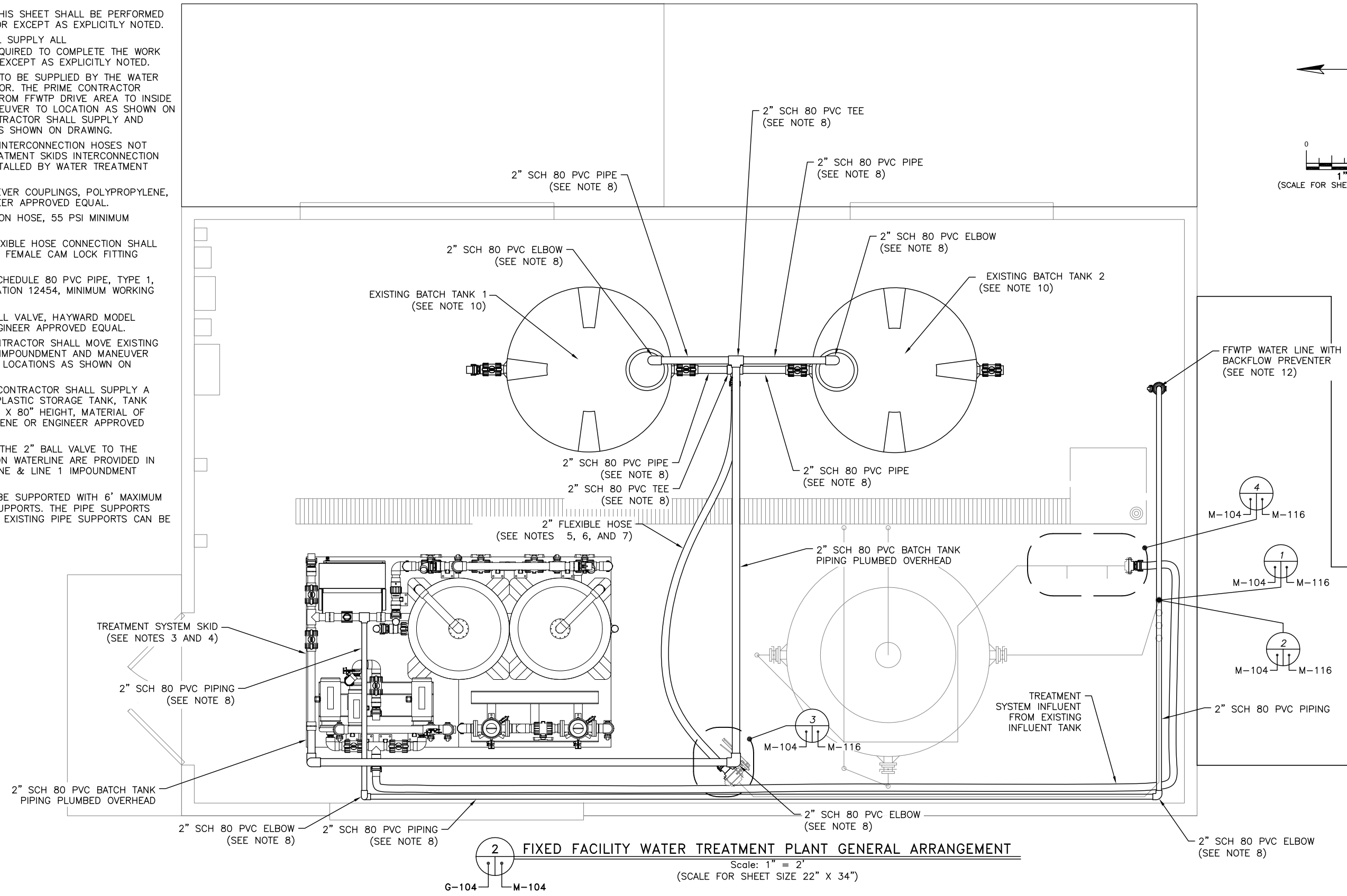
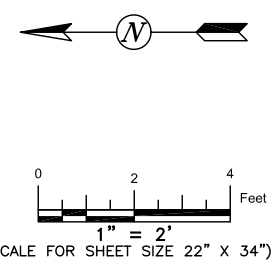
**SYSTEM DEMOLITION PLAN**

PROJECT NO.: 11340  
CADD DWG FILE: M-103 FFWTP DEMO PLAN  
DESIGNED BY: ERV DATE: 12/16/16  
DRAWN BY: TCW DATE: 12/16/16  
CHECKED BY: BK DATE: 12/16/16

**M-103**  
SHEET 7 OF 31

**NOTES**

1. ALL WORK DETAILED ON THIS SHEET SHALL BE PERFORMED BY THE PRIME CONTRACTOR EXCEPT AS EXPLICITLY NOTED.
2. PRIME CONTRACTOR SHALL SUPPLY ALL EQUIPMENT/MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
3. TREATMENT SYSTEM SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. THE PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO LOCATION AS SHOWN ON DRAWING. THE PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSE AS SHOWN ON DRAWING.
4. TREATMENT SYSTEM SKID INTERCONNECTION HOSES NOT SHOWN FOR CLARITY. TREATMENT SKIDS INTERCONNECTION HOSES SUPPLIED AND INSTALLED BY WATER TREATMENT SUBCONTRACTOR.
5. CAM LOCK: BANJO, CAM LEVER COUPLINGS, POLYPROPYLENE, EPDM GASKETS OR ENGINEER APPROVED EQUAL.
6. FLEXIBLE HOSE: PVC SUCTION HOSE, 55 PSI MINIMUM PRESSURE RATING.
7. FLEXIBLE HOSE: EACH FLEXIBLE HOSE CONNECTION SHALL HAVE ONE MALE AND ONE FEMALE CAM LOCK FITTING ATTACHED.
8. PVC PIPE AND FITTINGS: SCHEDULE 80 PVC PIPE, TYPE 1, GRADE 1, CELL CLASSIFICATION 12454, MINIMUM WORKING PRESSURE 250 PSI.
9. 2" BA3LL VALVE: PVC BALL VALVE, HAYWARD MODEL NUMBER TB1300TE OR ENGINEER APPROVED EQUAL.
10. BATCH TANKS: PRIME CONTRACTOR SHALL MOVE EXISTING TWO TANKS FROM LINE 1 IMPOUNDMENT AND MANEUVER BATCH TANK 1 AND 2 TO LOCATIONS AS SHOWN ON DRAWING.
11. BACKWASH TANK: PRIME CONTRACTOR SHALL SUPPLY A 1,000-GALLON VERTICAL PLASTIC STORAGE TANK, TANK DIMENSIONS 64" DIAMETER X 80" HEIGHT, MATERIAL OF CONSTRUCTION POLYETHYLENE OR ENGINEER APPROVED EQUAL.
12. WATERLINE DETAILS FROM THE 2" BALL VALVE TO THE EXISTING FIRE SUPPRESSION WATERLINE ARE PROVIDED IN THE IAAAP FFWTP WATERLINE & LINE 1 IMPOUNDMENT WATERLINE.
13. THE 2" PVC PIPE SHALL BE SUPPORTED WITH 6' MAXIMUM SPACING BETWEEN PIPE SUPPORTS. THE PIPE SUPPORTS SHALL BE FIELD LOCATED. EXISTING PIPE SUPPORTS CAN BE UTILIZED.



**2** FIXED FACILITY WATER TREATMENT PLANT GENERAL ARRANGEMENT

Scale: 1" = 2'  
(SCALE FOR SHEET SIZE 22" X 34")

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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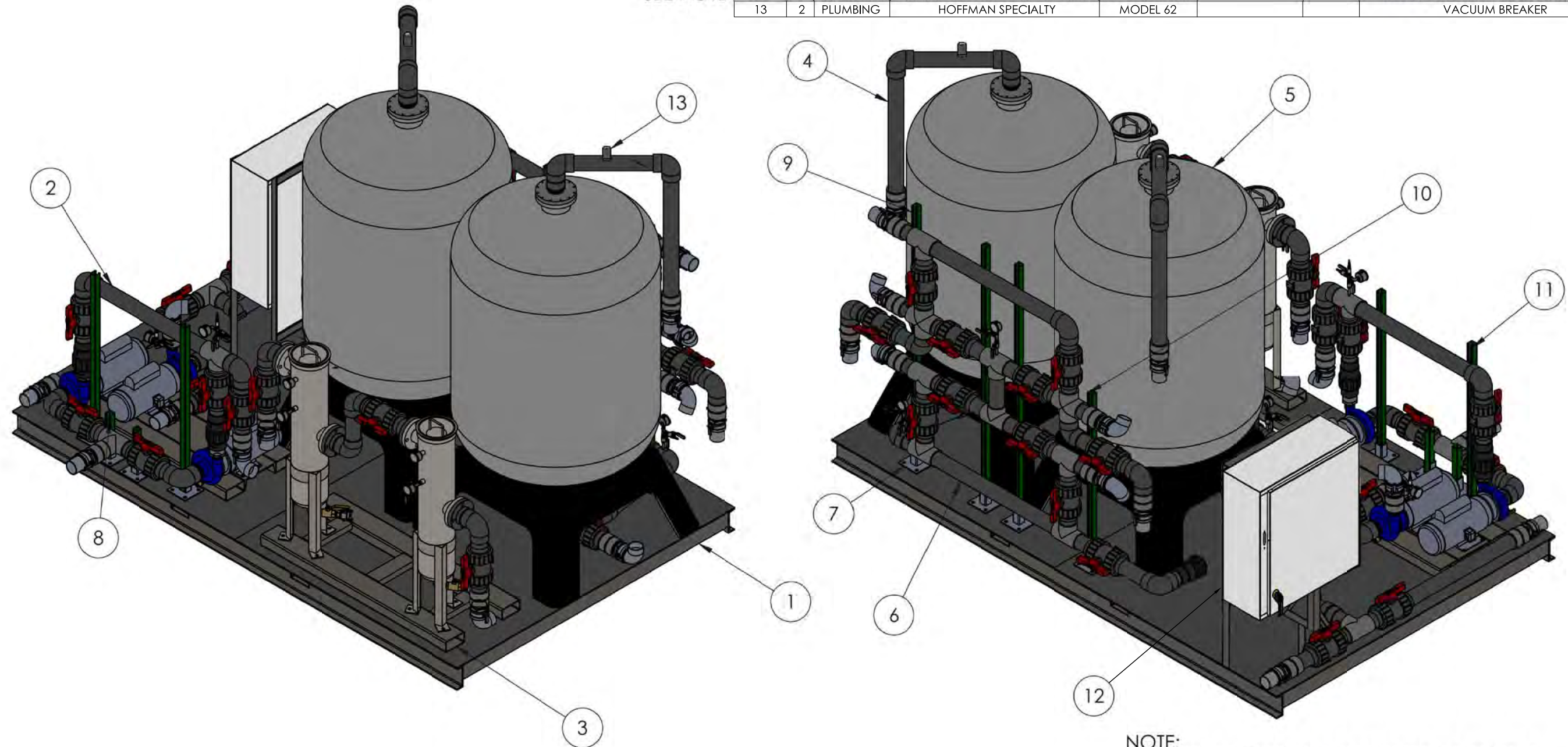
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**  
**SYSTEM GENERAL ARRANGEMENT**

PROJECT NO.:	11340
CADD DWG FILE:	M-104_SYSTEM_GENERAL_ARRANGEMENT
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-104</b>	
SHEET 8 OF 31	

ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	WELDING					SKID WELDMENT ASSEMBLY
2	1						DUAL TRANSFER PUMP, BW PUMP SKID ASSEMBLY
3	1						BAG FILTER ASSEMBLY LEAD LAG
4	1	PLUMBING					GAC VESSEL ASSEMBLY LH
5	1	PLUMBING					GAC VESSEL ASSEMBLY RH
6	1	PLUMBING					FFWTP MANIFOLD ASSEMBLY
7	9	PLUMBING	COOPER B-LINE	B280SQ			POST BASE FOR B22 UNISTRUT
8	3	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 12" LONG
9	3	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 72" LONG
10	1	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 48" LONG
11	2	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 46" LONG
12	1	ELECTRICAL	SAGINAW CONTROL & ENGINEERING	SCE-36XEL3112LP			XEL LP ENCLOSURE - 36"H X 31"W X 12"D
13	2	PLUMBING	HOFFMAN SPECIALTY	MODEL 62			VACUUM BREAKER

SEE NOTE



NOTE:  
ENCLOSURE ASSEMBLY PROVIDED BY OTHERS

NOTES

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

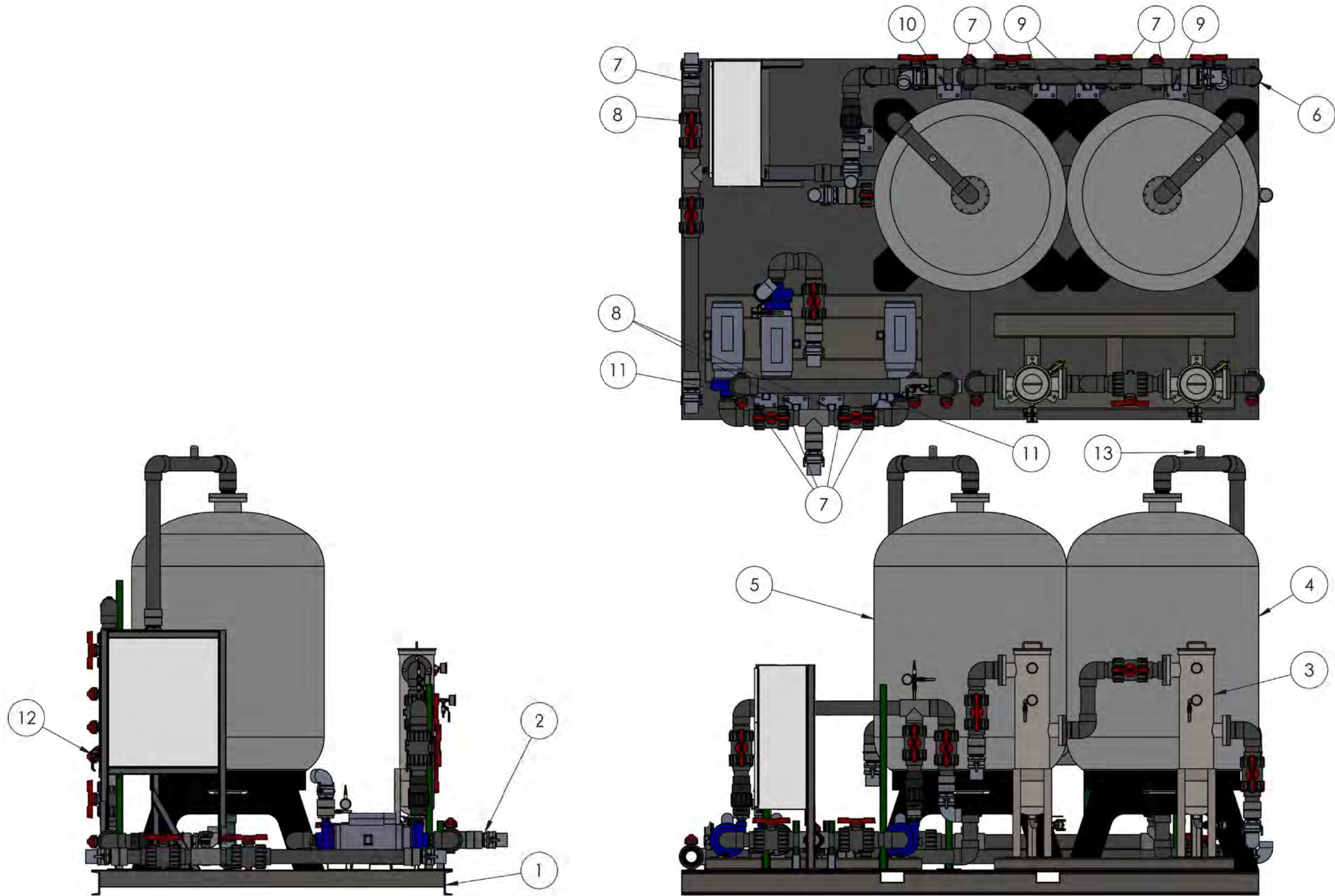
REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	DRAWN	DRAFT	PROJ	LEAD
	6/20/18	AS-BUILTS				

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**  
**TREATMENT SKID ISOMETRIC  
LAYOUT**

PROJECT NO.: 11340  
CADD DWG FILE: M-105 TREATMENT SKID ISO VIEW  
DESIGNED BY: ERV DATE: 12/9/16  
DRAWN BY: TCW DATE: 12/9/16  
CHECKED BY: BK DATE: 12/9/16  
**M-105**  
SHEET 9 OF 31



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK		DRAWN	DRAFT	PROJ	LEAD
			BY	CHK	ENGR	ENGR
1	6/20/18	AS-BUILTS				

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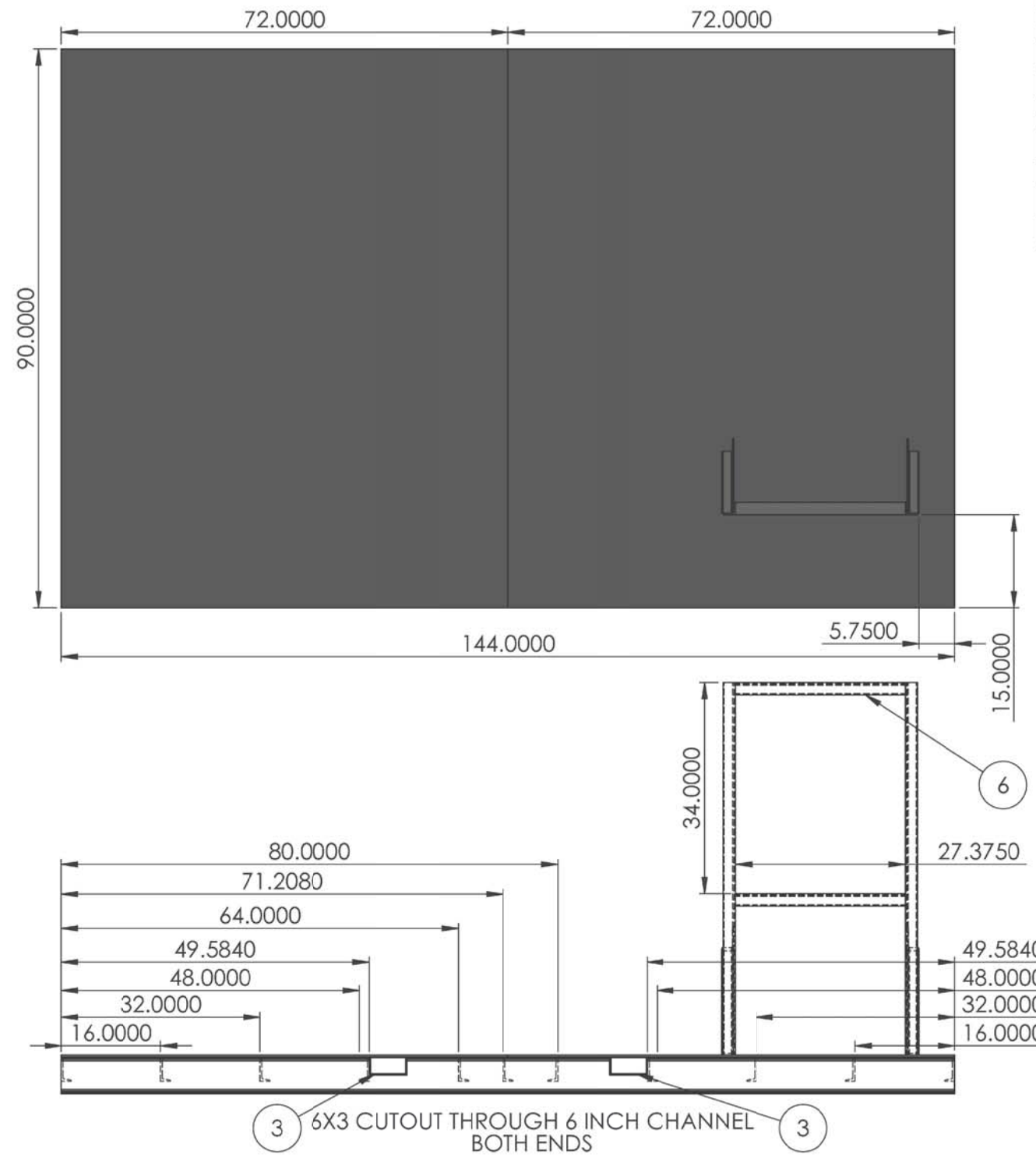
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 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
 TREATMENT PLANT OPTIMIZATION**

**TREATMENT SKID PLAN LAYOUT**

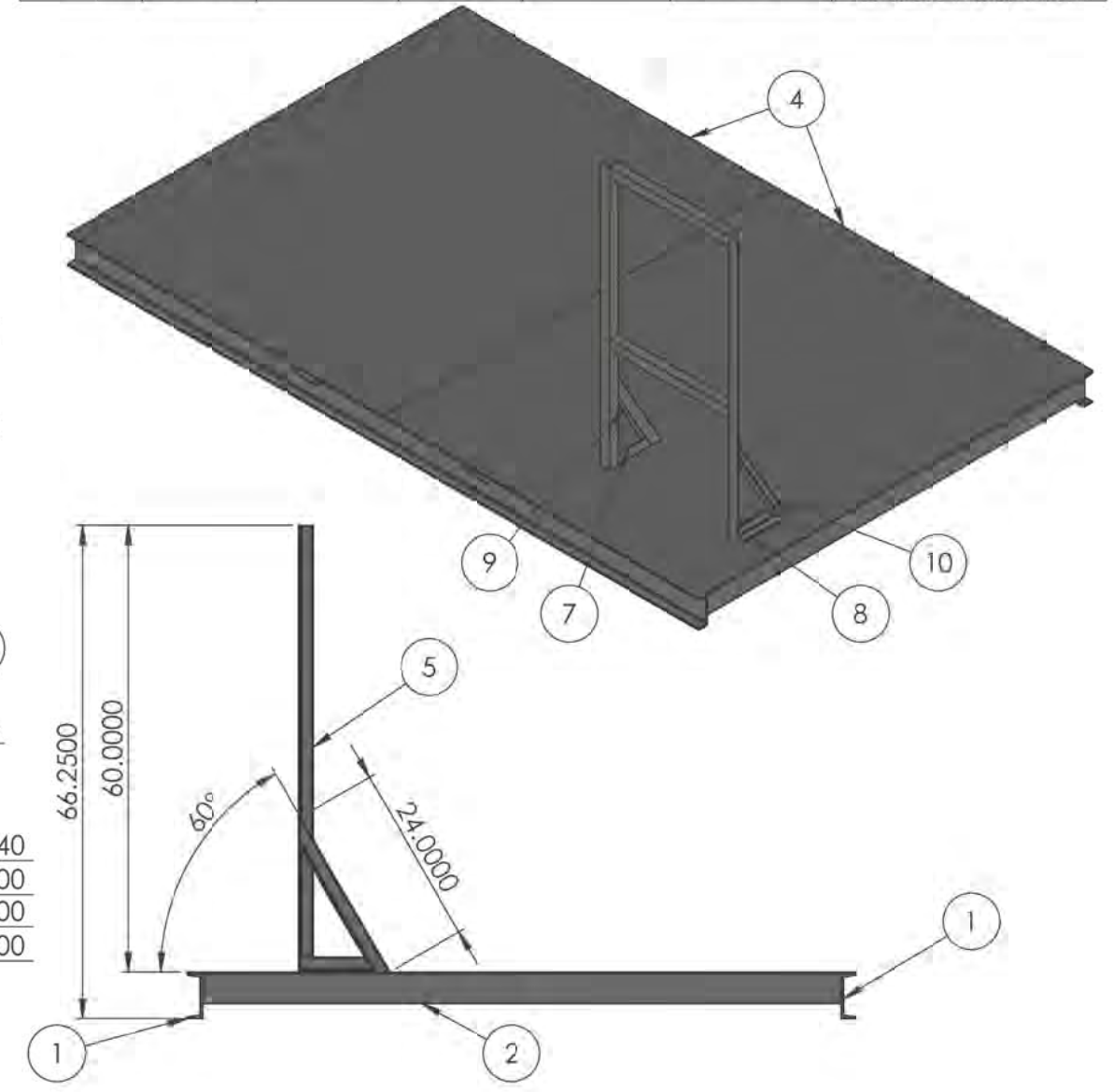
PROJECT NO.:	11340
CADD DWG FILE:	M-106 TREATMENT SKID PLAN LAYOUT
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

**M-106**

SHEET 10 OF 31



ITEM NO.	QTY	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	2	WELDING				CARBON STEEL	C-CHANNEL 6" - 144" LONG CS
2	11	WELDING				CARBON STEEL	C-CHANNEL 4" - 85.9375" LONG CS
3	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 6"X3"-86.5625" LONG
4	2	WELDING				ASTM A-36 HR CARBON STEEL	PLATE -0.25" THK X 72" X 90" CS
5	2	WELDING				CARBON STEEL	ANGLE 2"X2" - 60" LONG CS
6	2	WELDING				CARBON STEEL	ANGLE 2"X2" - 27.375" LONG CS
7	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 9.6875" LONG CS 30 DEG MITERED END LH
8	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 9.6875" LONG CS 30 DEG MITERED END RH
9	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 24" LONG CS 60 DEG 30 DEG MITERED ENDS LH
10	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 24" LONG CS 60 DEG 30 DEG MITERED ENDS RH



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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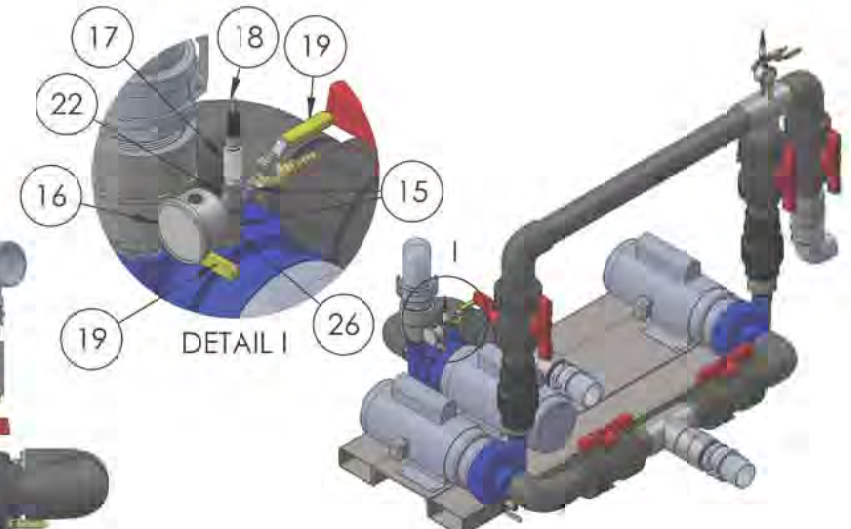
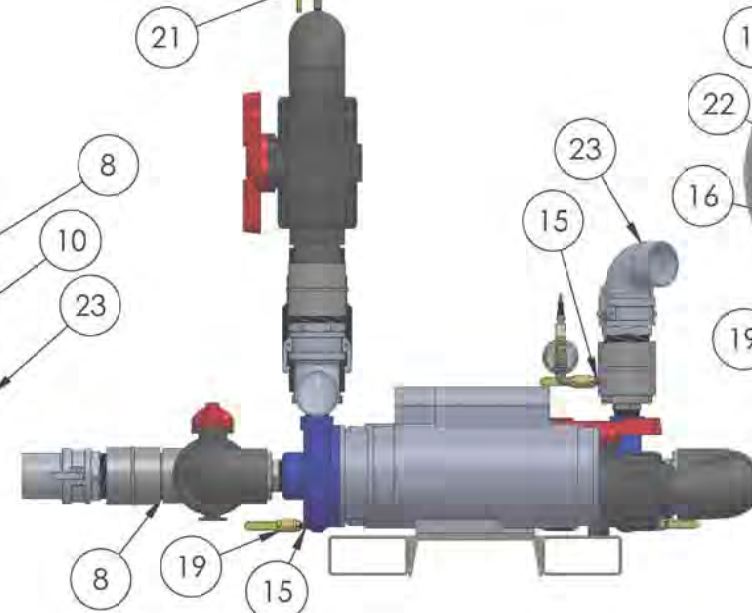
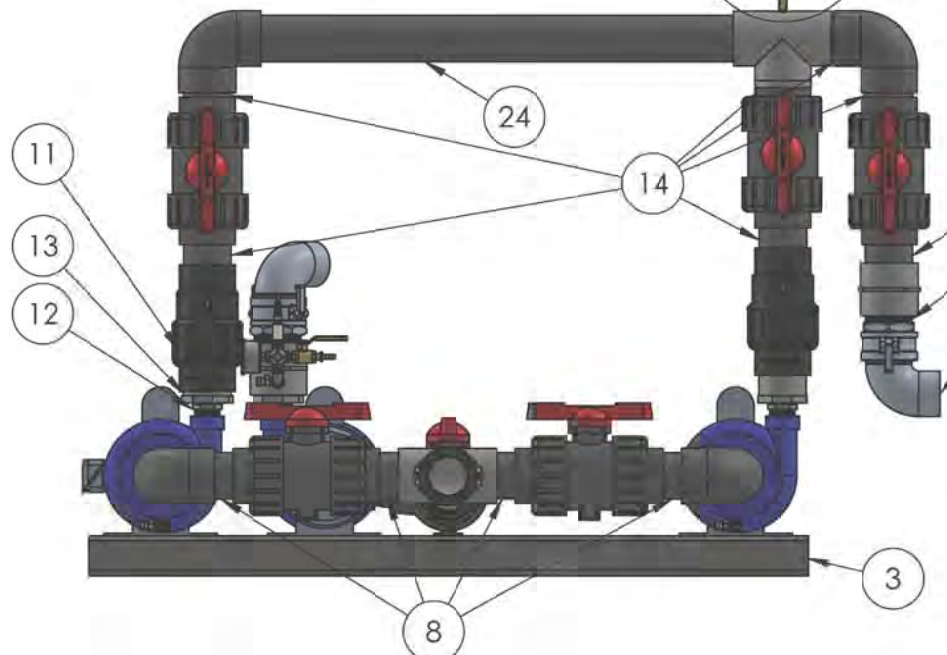
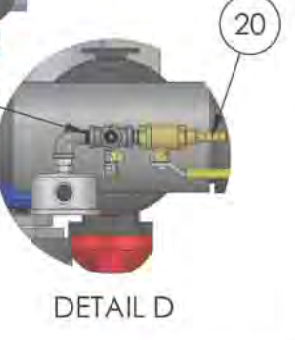
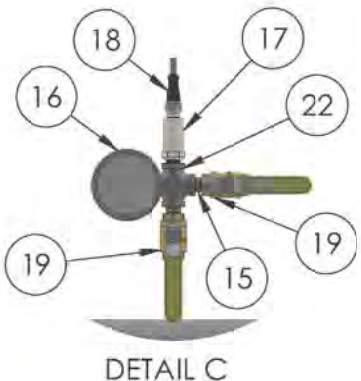
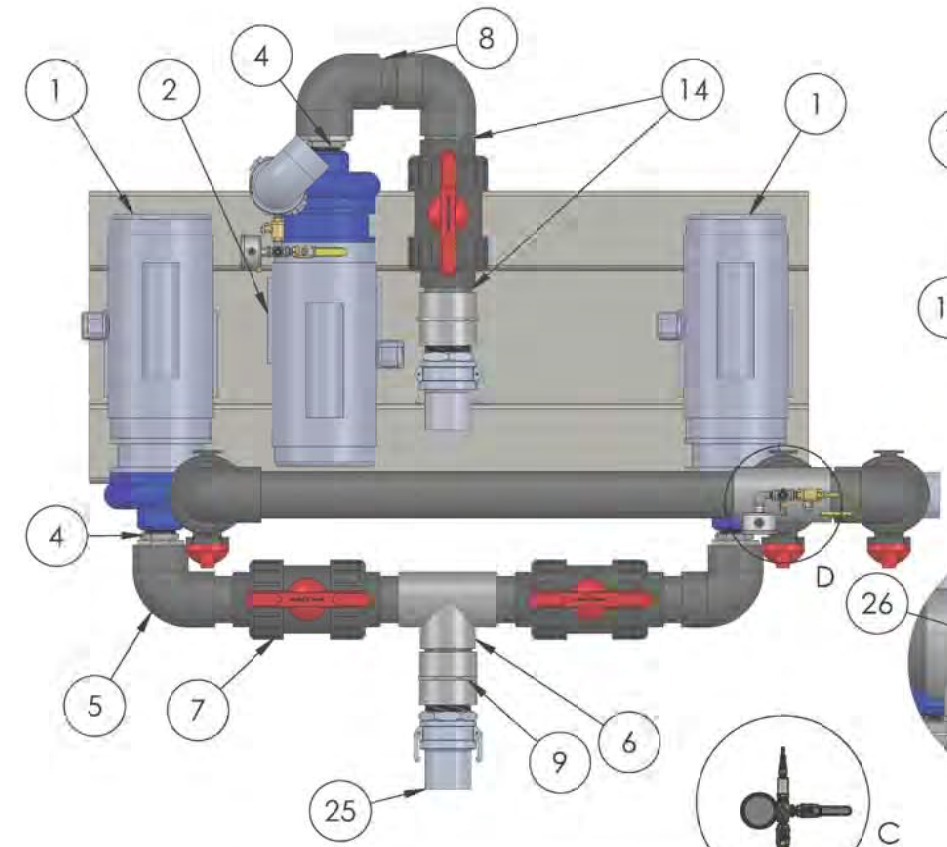
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
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**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**TREATMENT SKID WELDING ASSEMBLY - SYSTEM BASE**

PROJECT NO.:	11340
CADD DWG FILE:	M-107 TREATMENT SKID WELD - SYSTEM
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16
<b>M-107</b>	
SHEET 11 OF 31	



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	2	PLUMBING	GOULDS	38FTJ5A0			GOULDS PUMP 1.5"X2" NPT
2	1	PLUMBING	GOULDS	38FTH5C0			GOULDS PUMP 1.5"X2" NPT
3	1	WELDING					DUAL TRANSFER PUMP, BW PUMP SKID BASE ASSEMBLY
4	3	PLUMBING	IPEX	861-020		SCHEDULE 80 PVC	MALE ADAPTER -2" SLIP X MNPT PVC
5	6	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
6	2	PLUMBING	IPEX			SCHEDULE 80 PVC	TEE 2" SOCKET PVC
7	6	PLUMBING	ASAHI	1602030		PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
8	7	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
9	4	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
10	4	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
11	2	PLUMBING	ASAHI			PVC	CHECK VALVE 2" SOCKET SINGLE UNION PVC EPDM
12	3	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -1.5" SLIP X MNPT
13	3	PLUMBING	IPEX			SCHEDULE 80 PVC	BUSHING REDUCER 2" TO 1.5" SLIP X SOCKET PVC
14	8	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
15	8	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
16	2	PLUMBING	PRECISION INSTRUMENTS	202L-254E			PRESSURE GAUGE 0-100 PSI CENTER MOUNT
17	2	PLUMBING	PROSENSE	STPD25-20-0100H			PRESSURE TRANSDUCER 0-100 PSI 4-20mA 0.25" MNPT
18	2	ELECTRICAL	AUTOMATION DIRECT	CD12L-08-020-A0			CABLE M12 PVC JACKET 2 METER IP67 FOR PROSENSE TRANSMITTERS
19	7	PLUMBING	APOLLO	94A-101		BRASS	0.25" BRASS BALL VALVE
20	2	PLUMBING	INDUSTRIAL SPECIALTIES			BRASS	HOSE BARB 0.25" THREADED BRASS
21	1	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - 3" LONG THREADED GS
22	2	PLUMBING				GALVANIZED STEEL	CROSS 0.25" THREADED GS
23	2	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
24	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 39" LONG SLIP PVC
25	2	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
26	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 0.25" THREADED GS

**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA

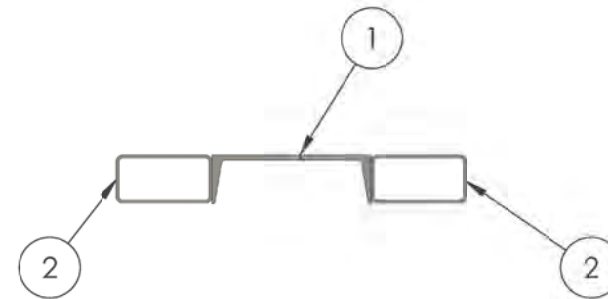
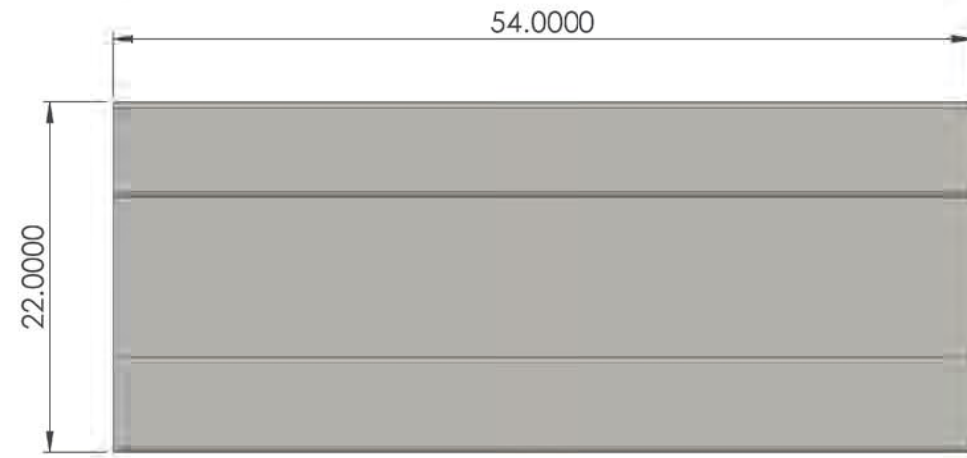
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**TREATMENT SKID PUMP ASSEMBLY**

PROJECT NO.: 11340  
 CADD DWG FILE: M-108 TREATMENT SKID PUMP ASSEMBLY  
 DESIGNED BY: ERV DATE: 12/9/16  
 DRAWN BY: TCW DATE: 12/9/16  
 CHECKED BY: BK DATE: 12/9/16

**M-108**  
 SHEET 12 OF 31

ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	WELDING				CARBON STEEL	C-CHANNEL 10" -54" LONG CS
2	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 6"X3"-54" LONG



**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFOTP DRIVE AREA TO INSIDE FFOTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	
0	6/20/18	AS-BUILTS				

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US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

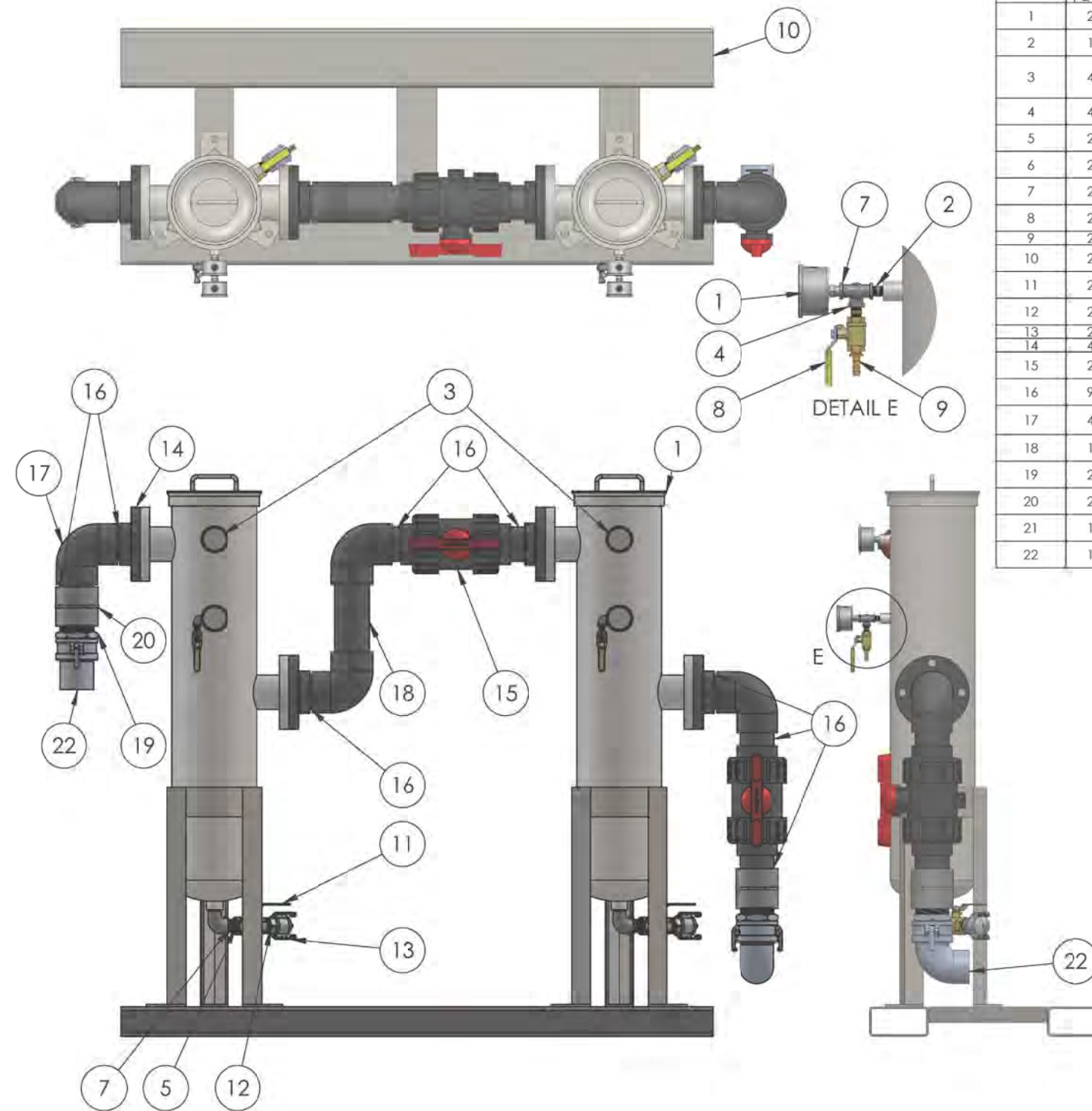
**TREATMENT SKID WELDING  
ASSEMBLY - PUMP BASE**

PROJECT NO.:	11340
CADD DWG FILE:	M-109 TREATMENT SKID WELD - PUMP
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

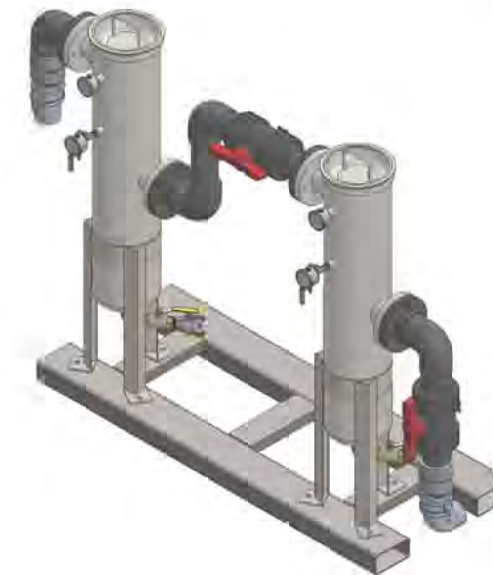
**M-109**

SHEET 13 OF 31





ITEM NO.	Default /QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROJCT PART NO.	MATERIAL	DESCRIPTION
1	2	PLUMBING	ROSEDALE			CARBON STEEL	BAG FILTER HOUSING 2" FLANGE INLET & OUTLET
2	1	WELDING					BAG FILTER BASE SKID ASSEMBLY
3	4	PLUMBING	PRECISION INSTRUMENTS	202L-254E			PRESSURE GAUGE 0-100 PSI CENTER MOUNT
4	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
5	2	PLUMBING				GALVANIZED STEEL	PIPE 1" - NEAR THREADED GS
6	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 0.25" THREADED GS
7	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 1" THREADED GS
8	2	PLUMBING				GALVANIZED STEEL	TEE 0.25" THREADED GS
9	2	PLUMBING	APOLLO INDUSTRIAL SPECIALTIES	74A-101		BRASS	0.25" BRASS BALL VALVE HOSE BARB 0.25" THREADED BRASS
10	2	PLUMBING	APOLLO	74A-105		BRASS	BALL VALVE 1" THREADED BRASS
11	2	PLUMBING	DIXON	G100-F-AL		ALUMINUM	MALE CAMLOCK 1" MALE THREADED AL
12	2	PLUMBING	DIXON	100-DC-AL		ALUMINUM	CAP 1" CAMLOCK AL
13	2	PLUMBING	IPEX	851-030		SCHEDULE 80 PVC	FLANGE 2" SOCKET PCV
14	4	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
15	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
16	9	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
17	4	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 10.5" LONG SLIP PVC
18	1	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
19	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
20	2	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
21	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
22	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL



**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR			
1	6/20/18	AS-BUILTS				

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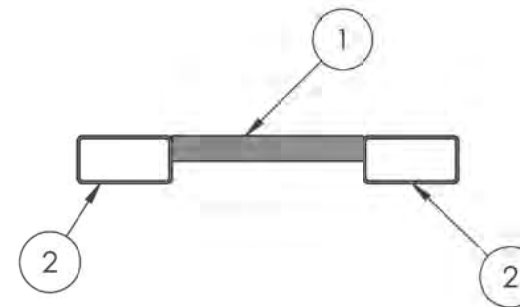
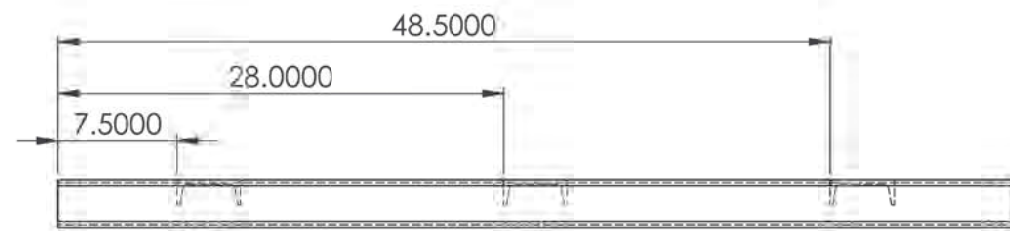
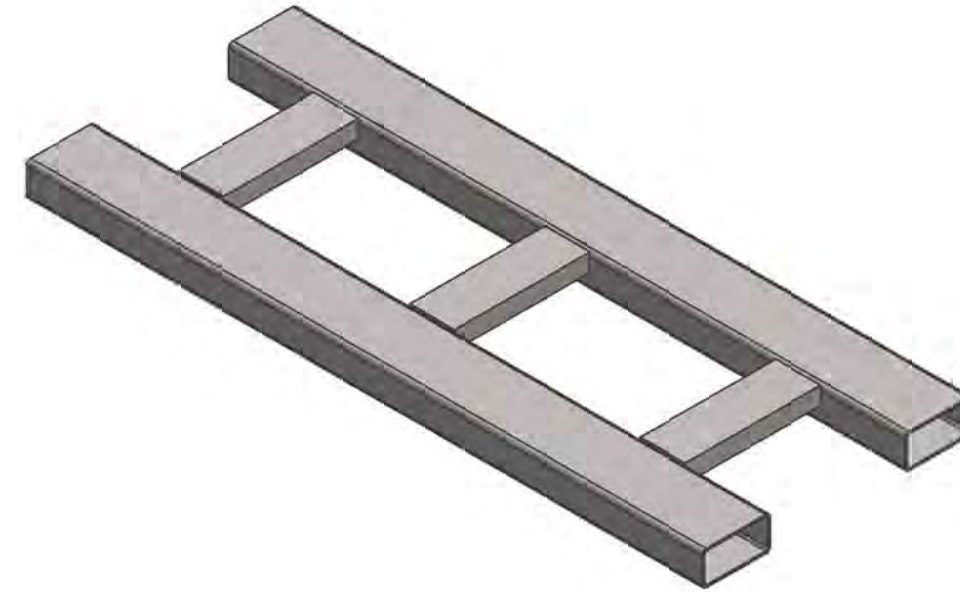
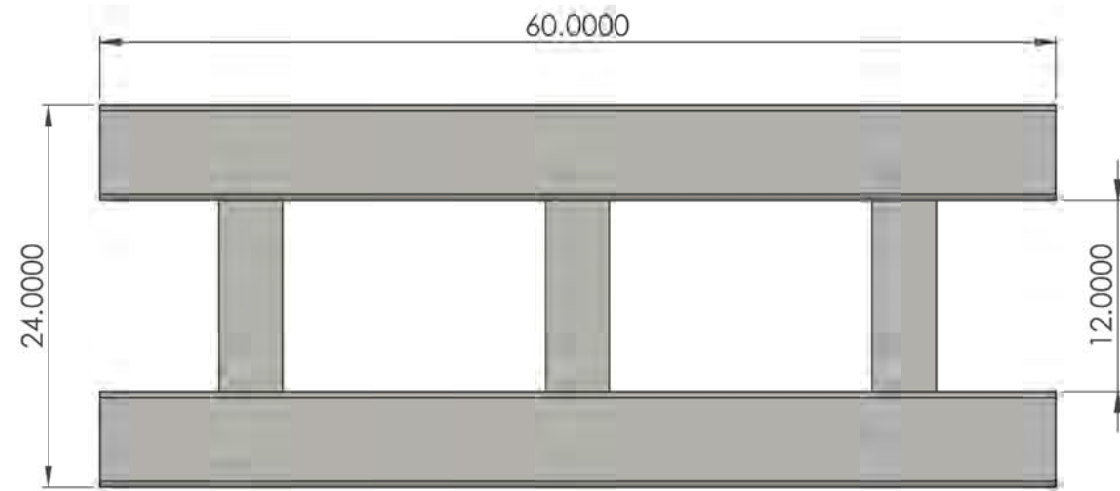
US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

**TREATMENT SKID EQUIPMENT  
ASSEMBLY - BAG FILTER**

PROJECT NO.:	11340
CADD DWG FILE:	M-110 TREATMENT SKID EQUIP - BAG
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

**M-110**  
SHEET 14 OF 31

ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	3	WELDING				CARBON STEEL	C-CHANNEL 4" - 12" LONG CS
2	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 6"X3"-60" LONG



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	
0	6/20/18	AS-BUILTS				

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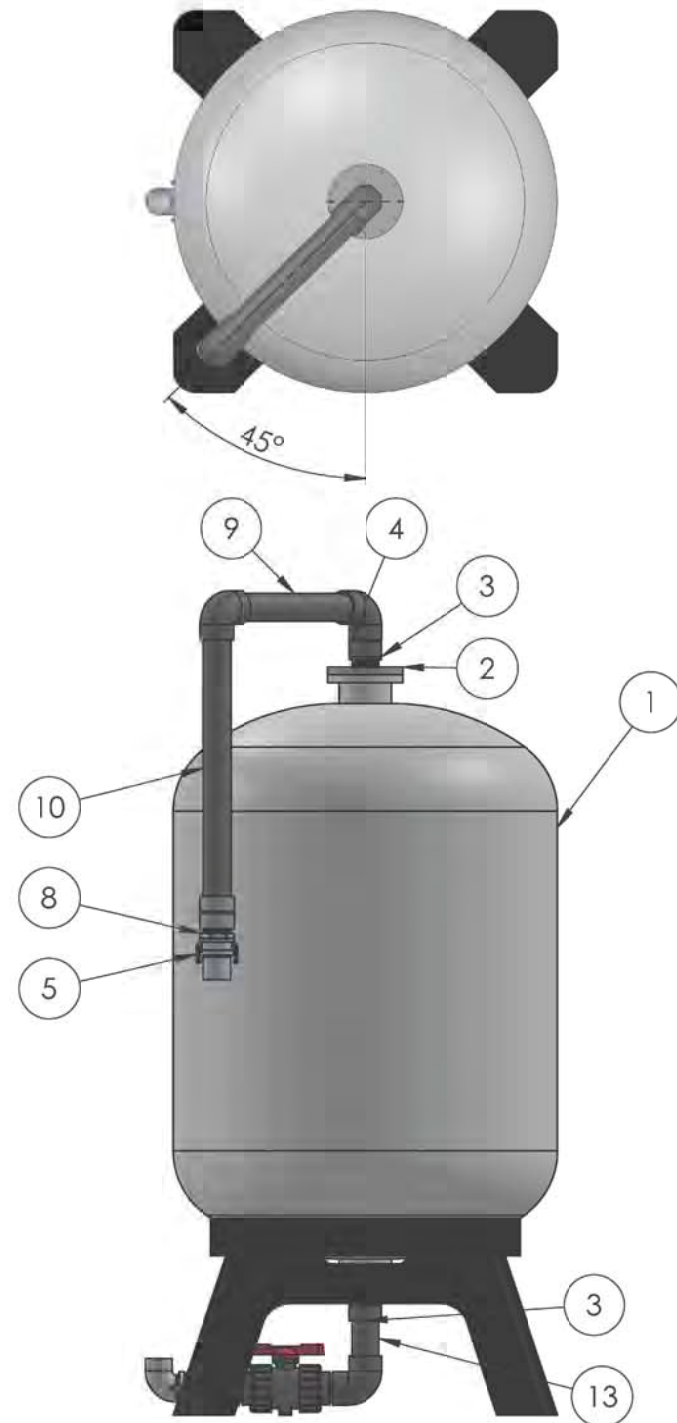
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

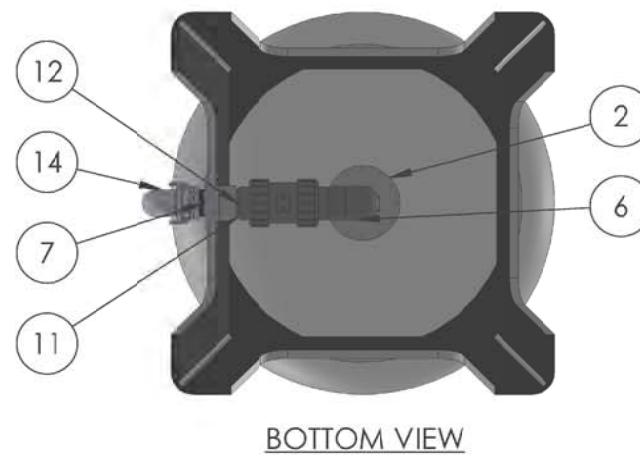
**TREATMENT SKID WELDING  
ASSEMBLY - BAG FILTER**

PROJECT NO.:	11340
CADD DWG FILE:	M-111 TREATMENT SKID WELD - BAG
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

**M-111**  
SHEET 15 OF 31



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	PENTAIR			FIBERGLASS	CARBON VESSEL 42" X 72" FG
2	2	PLUMBING				CPVC	FLANGE 6" SNA TO 2" THREADED CPVC
3	2	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SOCKET X MNPT PVC
4	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
5	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
6	3	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
7	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
8	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
9	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 22" LONG SLIP PVC
10	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
11	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
12	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8" LONG SLIP PVC
14	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL



BOTTOM VIEW



NOTES

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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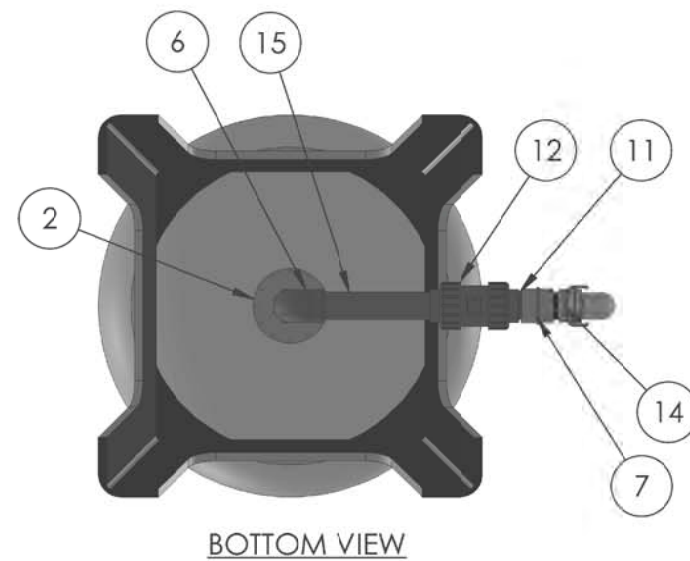
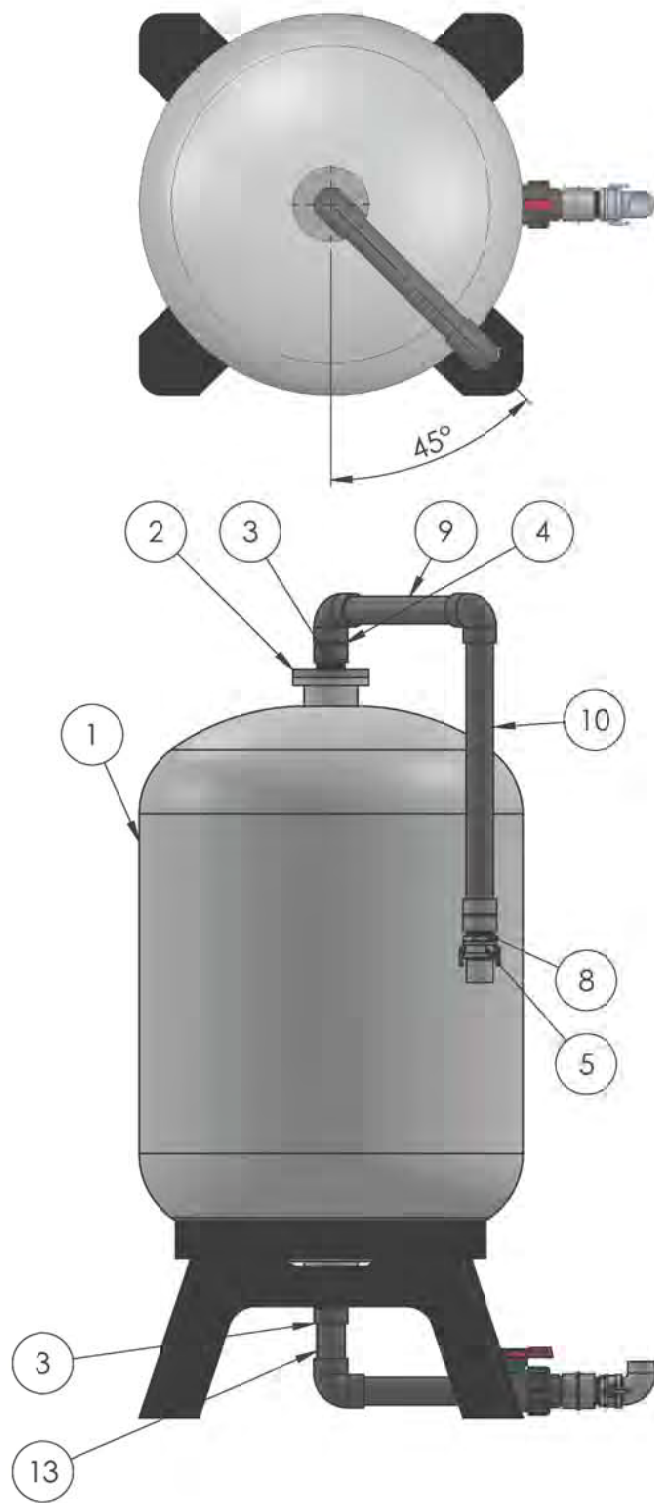
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

**TREATMENT SKID EQUIPMENT  
ASSEMBLY - GAC VESSEL LH**

PROJECT NO.:	11340
CADD DWG FILE:	M-112 TREATMENT SKID EQUIP - GAC LH
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

**M-112**  
SHEET 16 OF 31



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	PENTAIR			FIBERGLASS	CARBON VESSEL 42" X 72" FG
2	2	PLUMBING				CPVC	FLANGE 6" SNA TO 2" THREADED CPVC
3	2	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SOCKET X MNPT PVC
4	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
5	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
6	3	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
7	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
8	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
9	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 22" LONG SLIP PVC
10	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
11	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
12	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8" LONG SLIP PVC
14	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
15	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 16" LONG SLIP PVC

**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

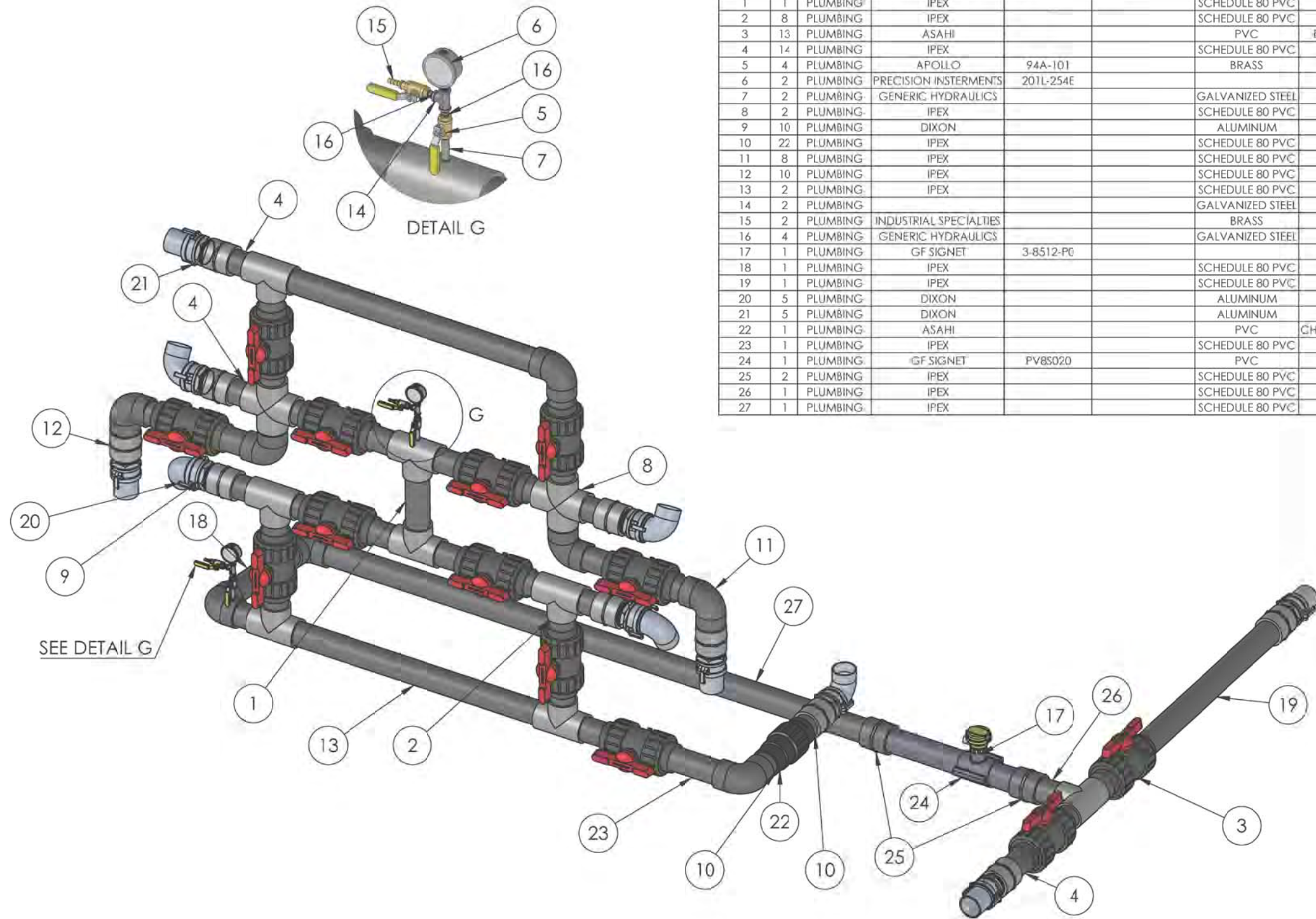
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MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

**TREATMENT SKID EQUIPMENT  
ASSEMBLY - GAC VESSEL RH**

PROJECT NO.:	11340
CADD DWG FILE:	M-113 TREATMENT SKID EQUIP - GAC RH
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16
<b>M-113</b>	
SHEET 17 OF 31	



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 12" LONG SLIP PVC
2	8	PLUMBING	IPEX			SCHEDULE 80 PVC	TEE 2" SOCKET PVC
3	13	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
4	14	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 6" LONG SLIP PVC
5	4	PLUMBING	APOLLO	94A-101		BRASS	0.25" BRASS BALL VALVE
6	2	PLUMBING	PRECISION INSTRUMENTS	201L-254E			PRESSURE GAUGE 0-100 PSI LOWER MOUNT
7	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - 2.5" LONG THREADED GS
8	2	PLUMBING	IPEX			SCHEDULE 80 PVC	CROSS 2" SOCKET PVC
9	10	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
10	22	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
11	8	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
12	10	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
13	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 42.75" LONG SLIP PVC
14	2	PLUMBING				GALVANIZED STEEL	TEE 0.25" THREADED GS
15	2	PLUMBING	INDUSTRIAL SPECIALTIES			BRASS	HOSE BARB 0.25" THREADED BRASS
16	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
17	1	PLUMBING	GF SIGNET	3-8512-P0			PADDLE WHEEL FLOW METER 0.5" TO 4" PIPE
18	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 20" LONG SLIP PVC
19	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
20	5	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
21	5	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
22	1	PLUMBING	ASAHI			PVC	CHECK VALVE 2" SOCKET SINGLE UNION PVC EPDM
23	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 10" LONG SLIP PVC
24	1	PLUMBING	GF SIGNET	PV8S020		PVC	TEE WITH PIPE INSTALLATION FITTING -2" PVC
25	2	PLUMBING	IPEX			SCHEDULE 80 PVC	COUPLER -2" SOCKET PVC
26	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 6.5" LONG SLIP PVC
27	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 90.75" LONG SLIP PVC

**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFOTP DRIVE AREA TO INSIDE FFOTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	ERV	PROJ ENGR	BK	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK		

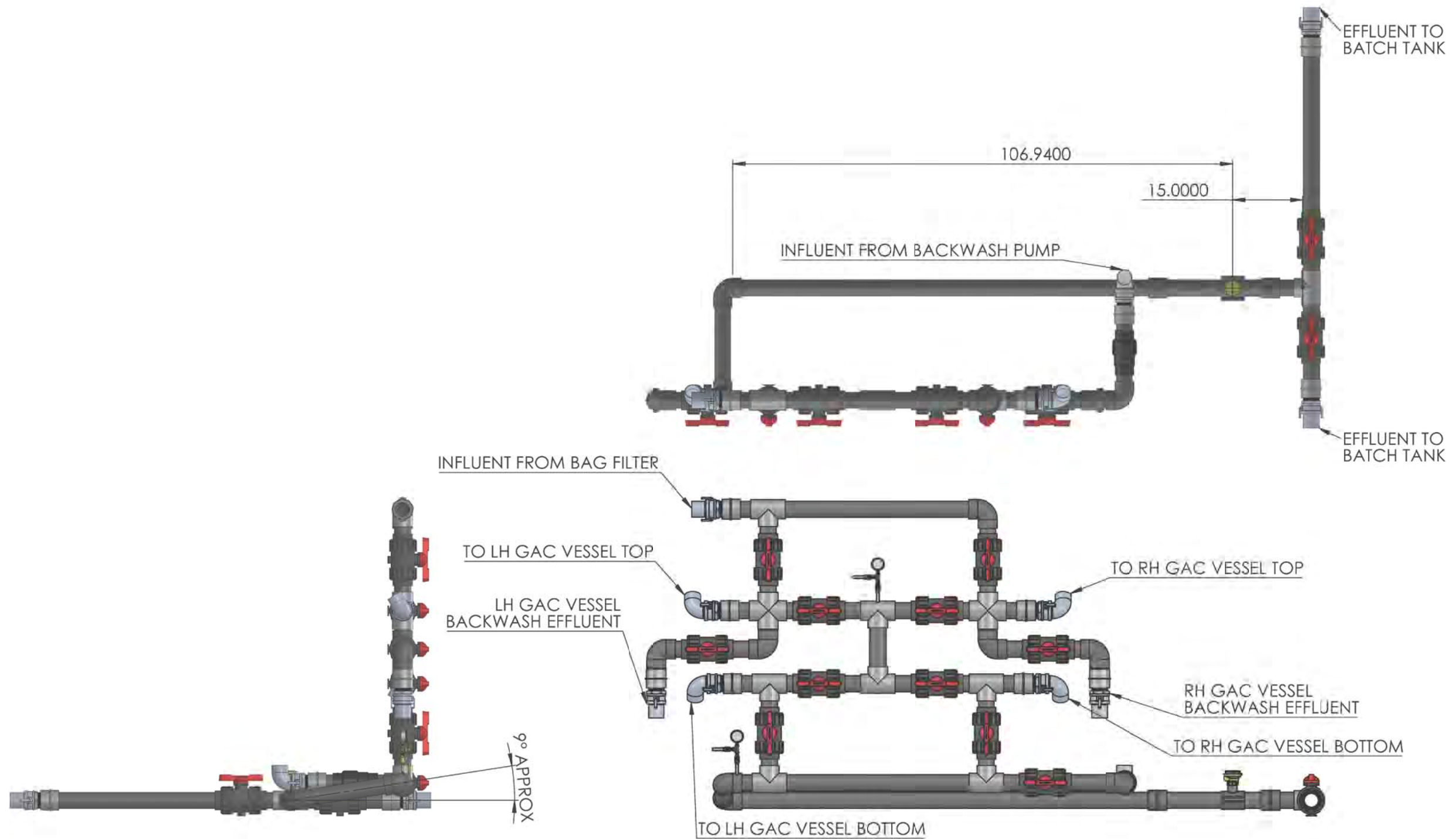
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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**  
**TREATMENT SKID ISOMETRIC  
MANIFOLD LAYOUT**

PROJECT NO.:	11340
CADD DWG FILE:	M-114_TREATMENT SKID_ISO MANIFOLD
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

**M-114**  
SHEET 18 OF 31



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM FFWTP DRIVE AREA TO INSIDE FFWTP BUILDING AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-104 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-104.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

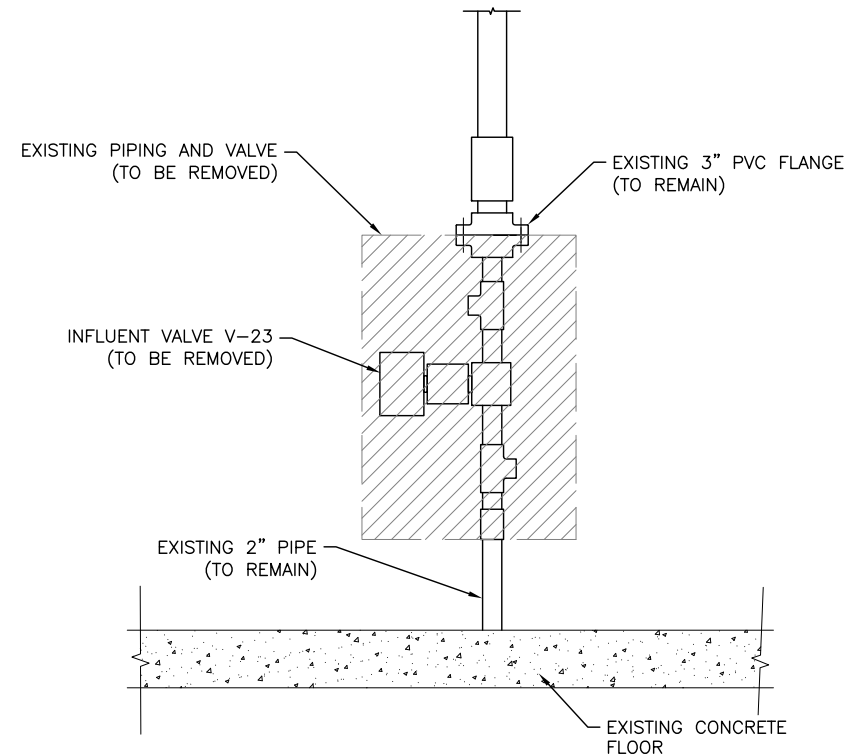
**TREATMENT SKID PIPING  
ASSEMBLY**

PROJECT NO.:	11340
CADD DWG FILE:	M-115 TREATMENT SKID PIPE ASSEMBLY
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16

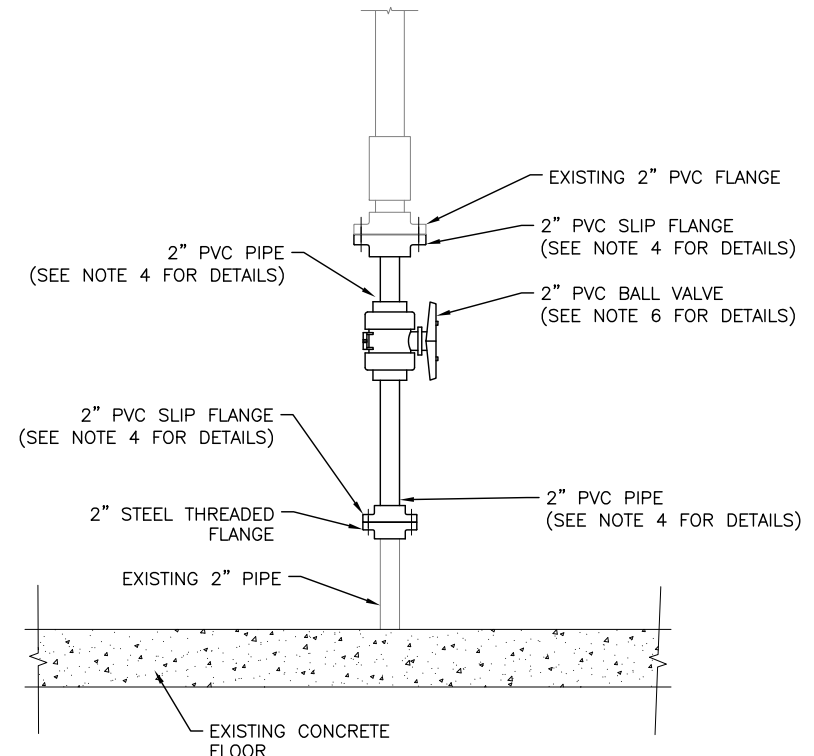
**M-115**  
SHEET 19 OF 31

**NOTES**

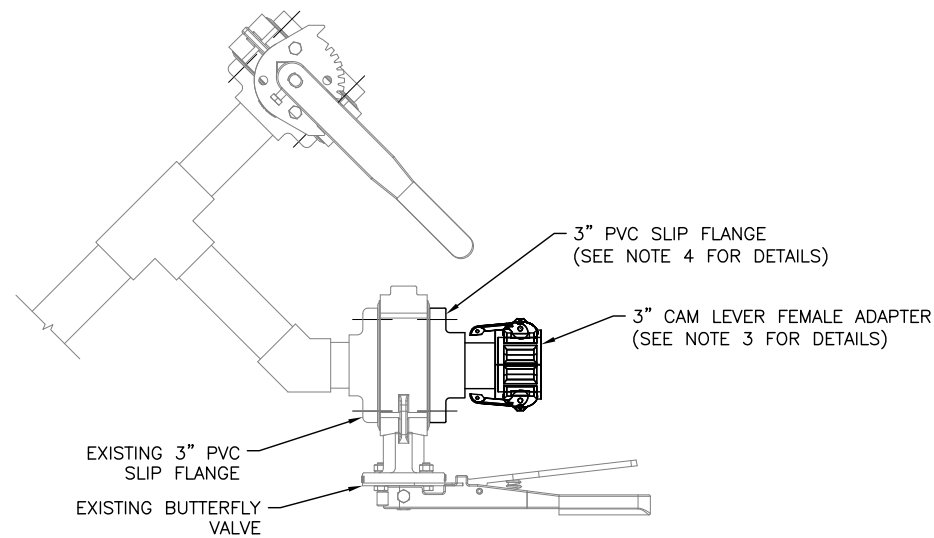
1. ALL WORK DETAILED ON THIS SHEET SHALL BE PERFORMED BY THE PRIME CONTRACTOR EXCEPT AS EXPLICITLY NOTED.
2. THE PRIME CONTRACTOR SHALL SUPPLY ALL EQUIPMENT/MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
3. CAM LOCK: BANJO, CAM LEVER COUPLINGS, POLYPROPYLENE, EPDM GASKETS OR ENGINEER APPROVED EQUAL.
4. PVC PIPE AND FITTINGS: SCHEDULE 80 PVC PIPE, TYPE 1, GRADE 1, CELL CLASSIFICATION 12454, MINIMUM WORKING PRESSURE 250 PSI.
5. STEEL FITTINGS: CARBON STEEL, CLASS 150, MEETING ASME B16.5 STANDARDS OR ENGINEER APPROVED EQUAL.
6. BALL VALVE: HAYWARD 3" TB PVC THD EPDM BALL VALVE OR ENGINEER APPROVED EQUAL.



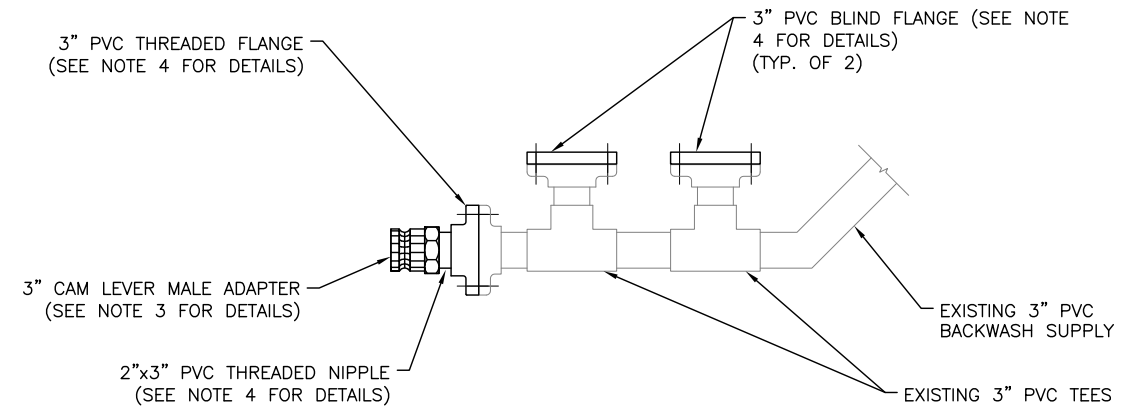
**1 INFLUENT PIPING DEMOLITION DETAIL**  
 Scale: NTS  
 (SCALE FOR SHEET SIZE 22" X 34")  
 M-104 M-116



**2 INFLUENT PIPING DETAIL**  
 Scale: NTS  
 (SCALE FOR SHEET SIZE 22" X 34")  
 M-104 M-116



**3 EFFLUENT DISCHARGE DETAIL**  
 Scale: NTS  
 (SCALE FOR SHEET SIZE 22" X 34")  
 M-104 M-116



**4 TREATMENT SKID INFLUENT DETAIL**  
 Scale: NTS  
 (SCALE FOR SHEET SIZE 22" X 34")  
 M-104 M-116

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
 www.lata.com

**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
 TREATMENT PLANT OPTIMIZATION**  
**SYSTEM CONNECTION DETAILS**

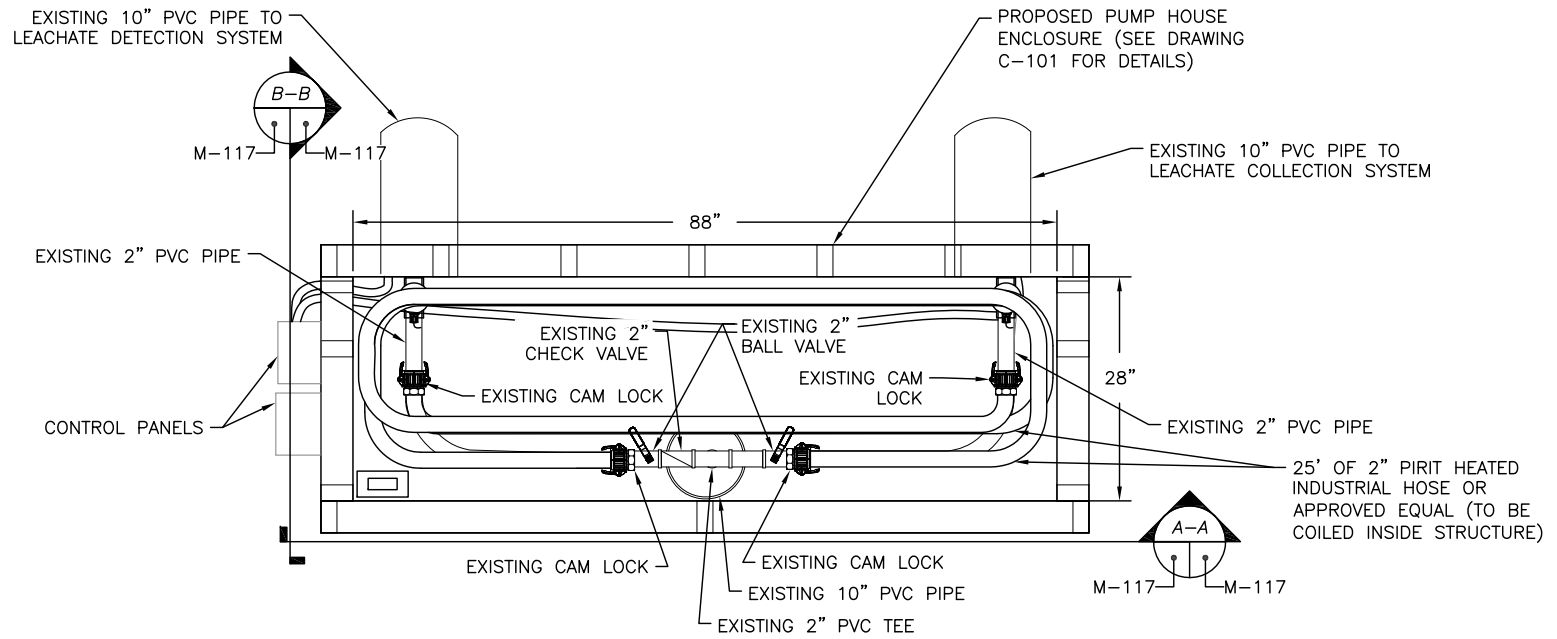
PROJECT NO.:	11340
CADD DWG FILE:	M-116 SYSTEM CONNECTION DETAILS
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-116**

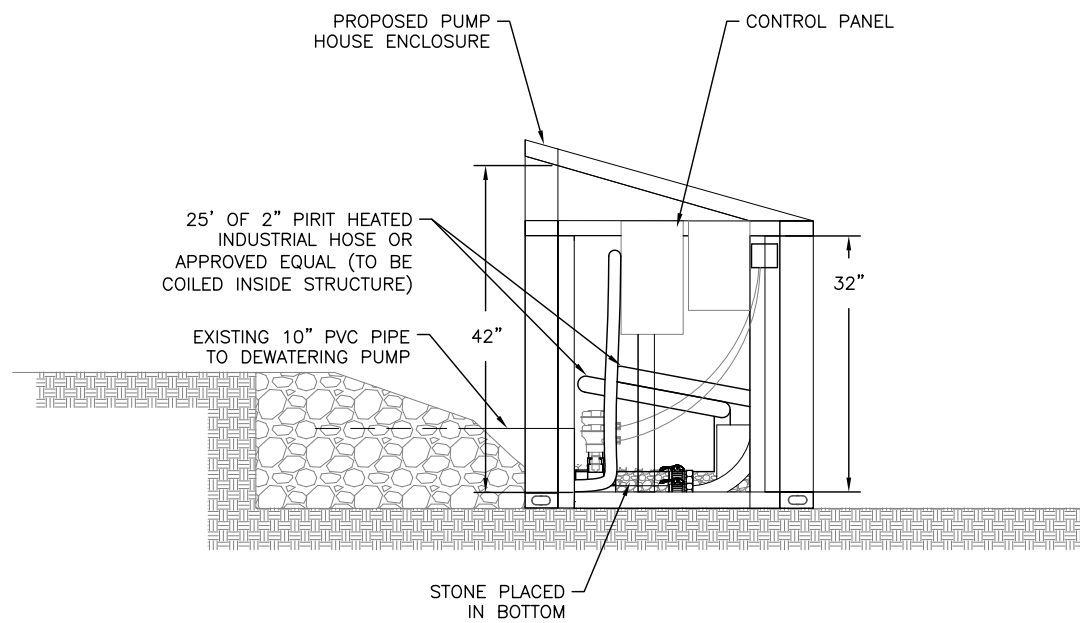
SHEET 20 OF 31

**NOTES**

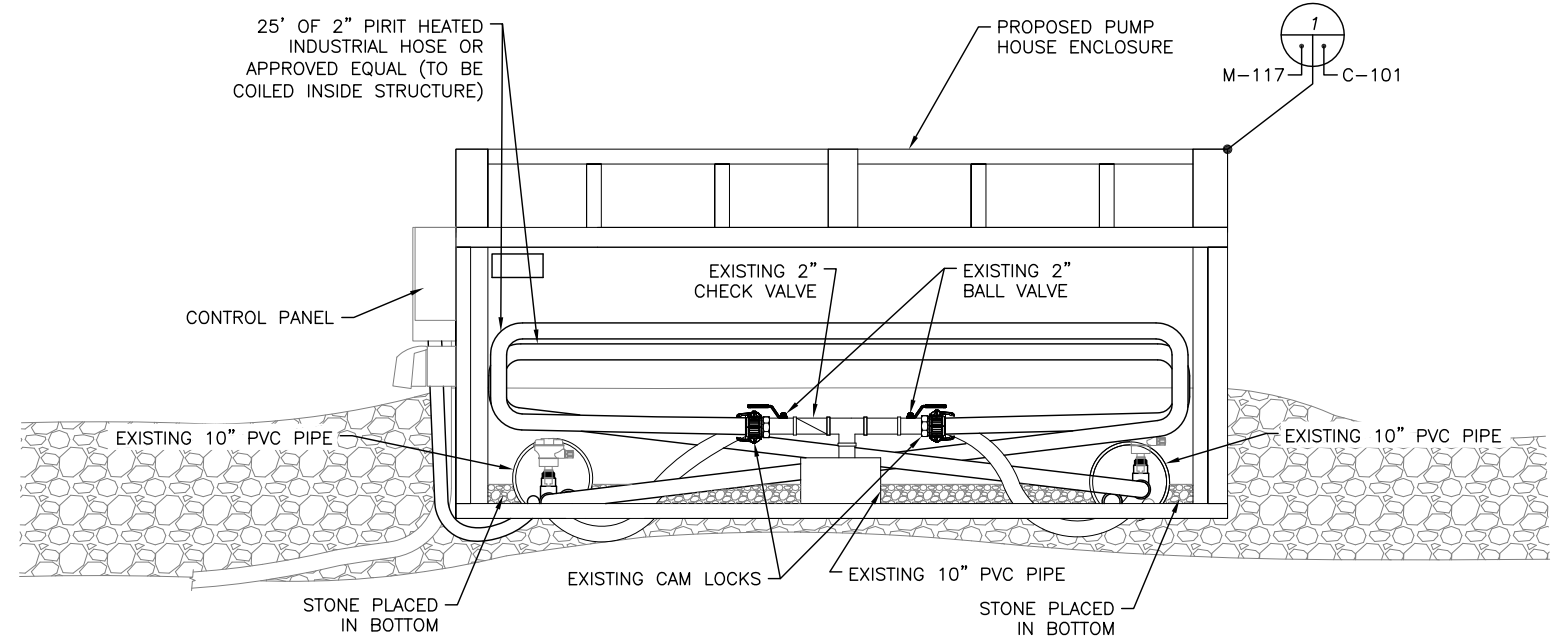
1. PRECISION DIGITAL ENCLOSURE TO BE MOUNTED INSIDE ENCLOSURE USING "L" BRACKETS
2. I&C SUBCONTRACTOR SHALL REROUTE EXISTING ELECTRIC UNDER ENCLOSURE.
3. 2" HEATED HOSE TO BE COILED INSIDE ENCLOSURE.
4. THE TRENCH 6 ENCLOSURE MATERIALS ARE TO BE SUPPLIED BY THE PRIME CONTRACTOR AND INSTALLED BY THE I&C CONTRACTOR.



**1 PUMP HOUSE ENCLOSURE PLAN VIEW**  
 Scale: 1" = 1'  
 (SCALE FOR SHEET SIZE 22" X 34")



**B-B SECTION B-B**  
 Scale: 1" = 1'  
 (SCALE FOR SHEET SIZE 22" X 34")



**A-A SECTION A-A**  
 Scale: 1" = 1'  
 (SCALE FOR SHEET SIZE 22" X 34")

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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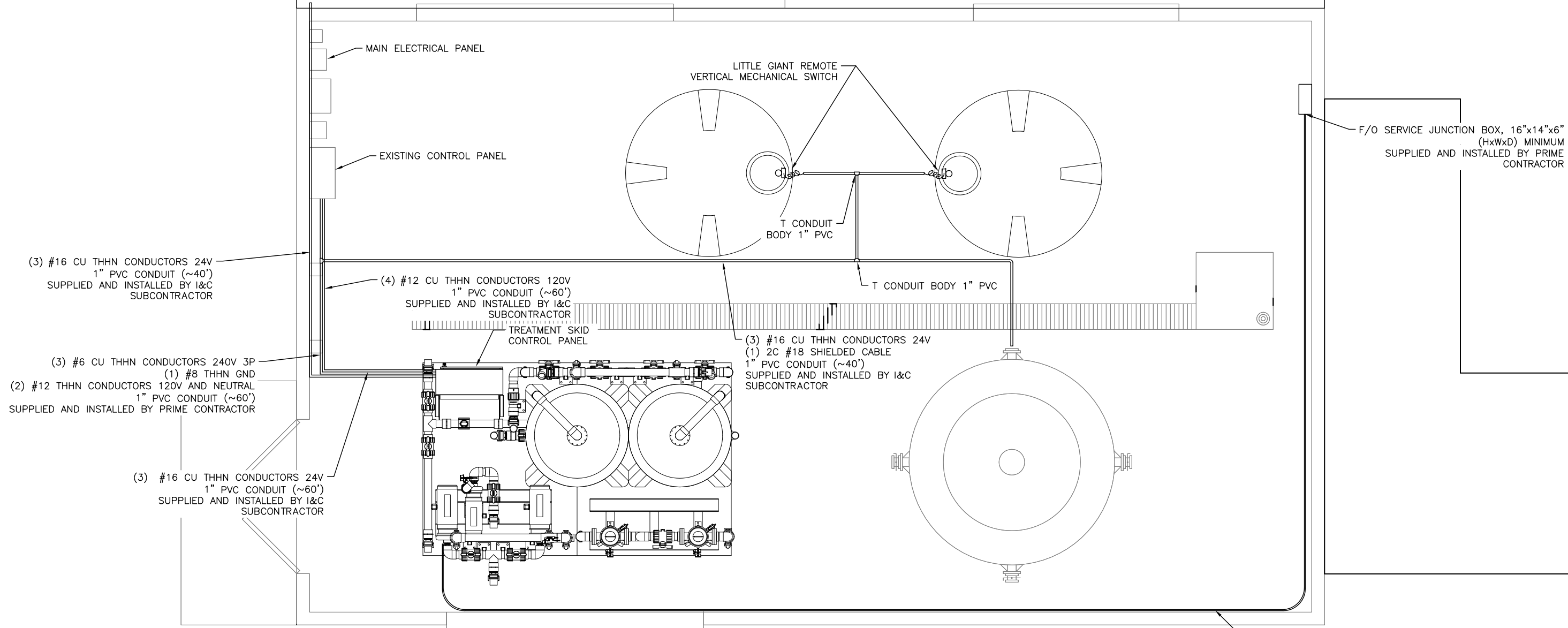
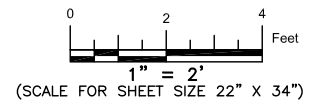
US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**  
**TRENCH 6 PUMP ENCLOSURE INTERIOR MECHANICAL DETAILS**

PROJECT NO.:	11340
CADD DWG FILE:	M-117 TRENCH 6 PUMP ENC INT DET
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16
<b>M-117</b>	
SHEET 21 OF 31	



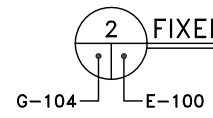
**NOTES**

1. THE PRIME CONTRACTOR SHALL FIELD VERIFY ROUTING OF ELECTRICAL CONDUIT AND MAKE ADJUSTMENTS IN THE FIELD. REVIEW WITH OPERATOR AND ENGINEER PRIOR TO INSTALL.
2. CONDUIT PENETRATIONS INTO PANELS SHALL BE MADE INTO THE BOTTOM OR THE SIDE.
3. THE PRIME CONTRACTOR SHALL PROVIDE A 60 AMP 3 POLE BREAKER AND A 10 AMP 1 POLE BREAKER IN THE MAIN ELECTRIC PANEL. THE BREAKERS SHALL BE INSTALLED IN ANY SPARE SLOT.
4. FINAL ONE FOOT OF CONDUIT RUNS INTO CONTROL PANELS CAN BE LIQUID TIGHT CONNECTIONS.
5. TREATMENT SYSTEM SKID CONTROL PANEL SUPPLIED AND INSTALLED BY I&C SUBCONTRACTOR



**2 FIXED FACILITY WATER TREATMENT PLANT ELECTRICAL ARRANGEMENT**

Scale: 1" = 2'  
(SCALE FOR SHEET SIZE 22" X 34")



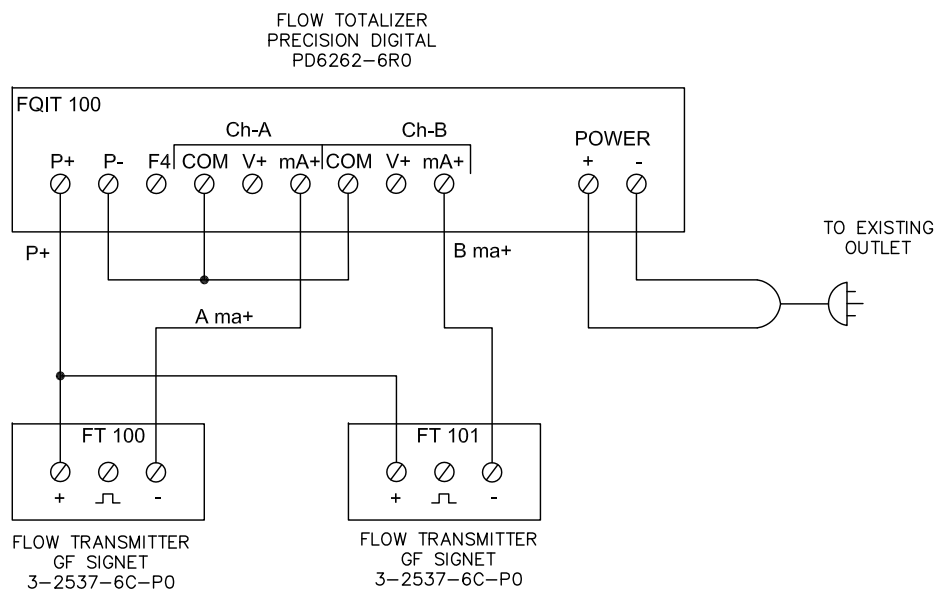
REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
	6/20/18	AS-BUILTS				

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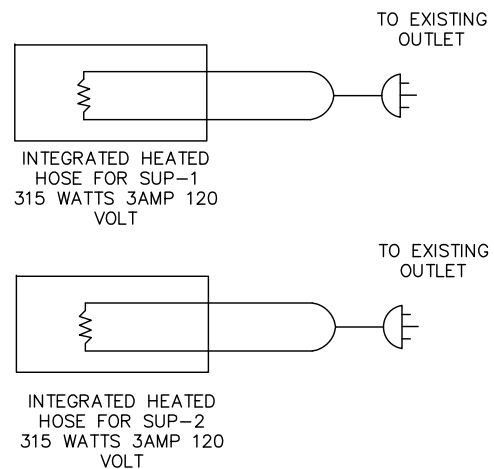
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**  
**ELECTRICAL ARRANGEMENT**

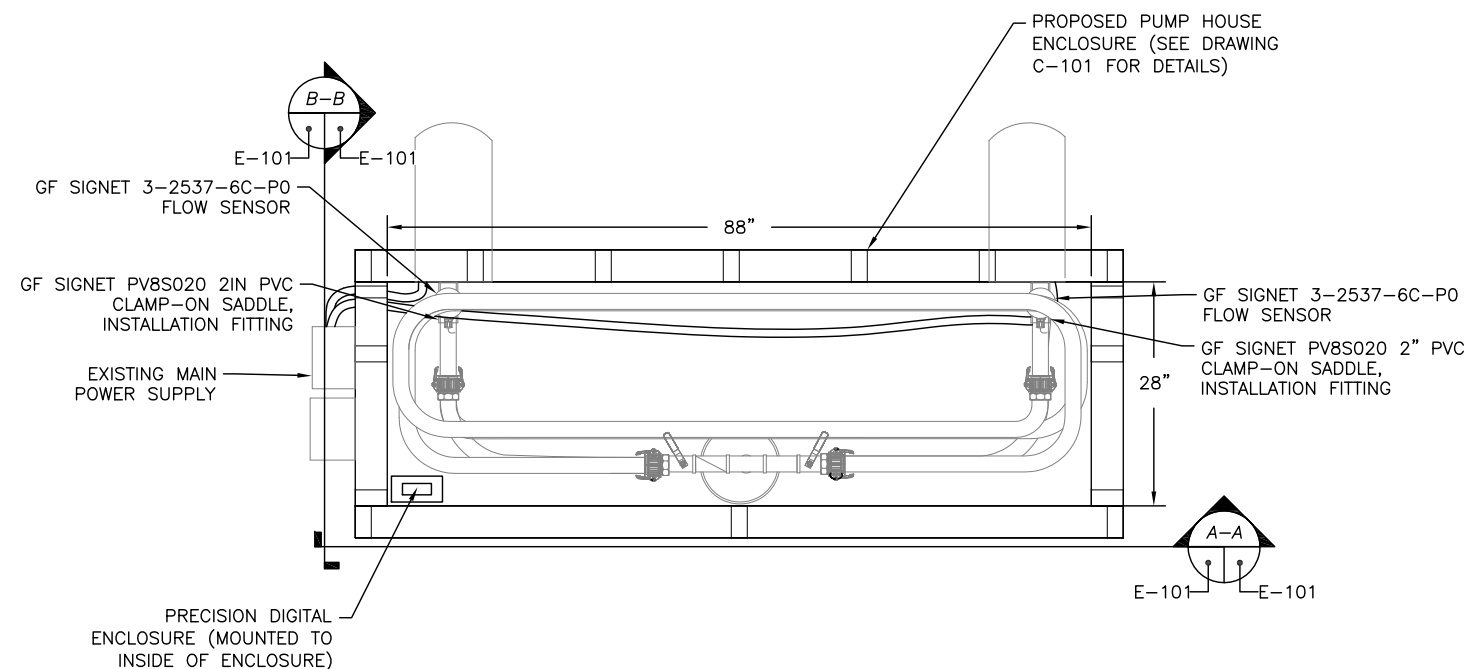
PROJECT NO.:	11340
CADD DWG FILE:	E-100_FFOTP_ELECTRICAL_ARRANGEMENT
DESIGNED BY:	TL
DATE:	12/16/16
DRAWN BY:	TL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-100</b>	
SHEET 22 OF 31	



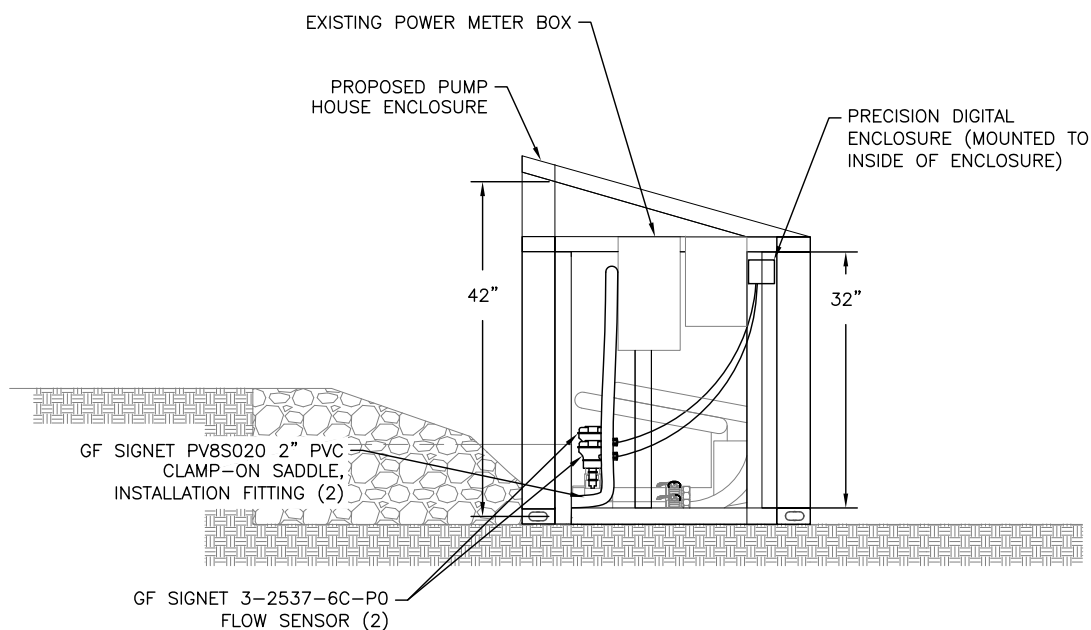
○ FLOW TRANSMITTER/TOTALIZER WIRING DIAGRAM



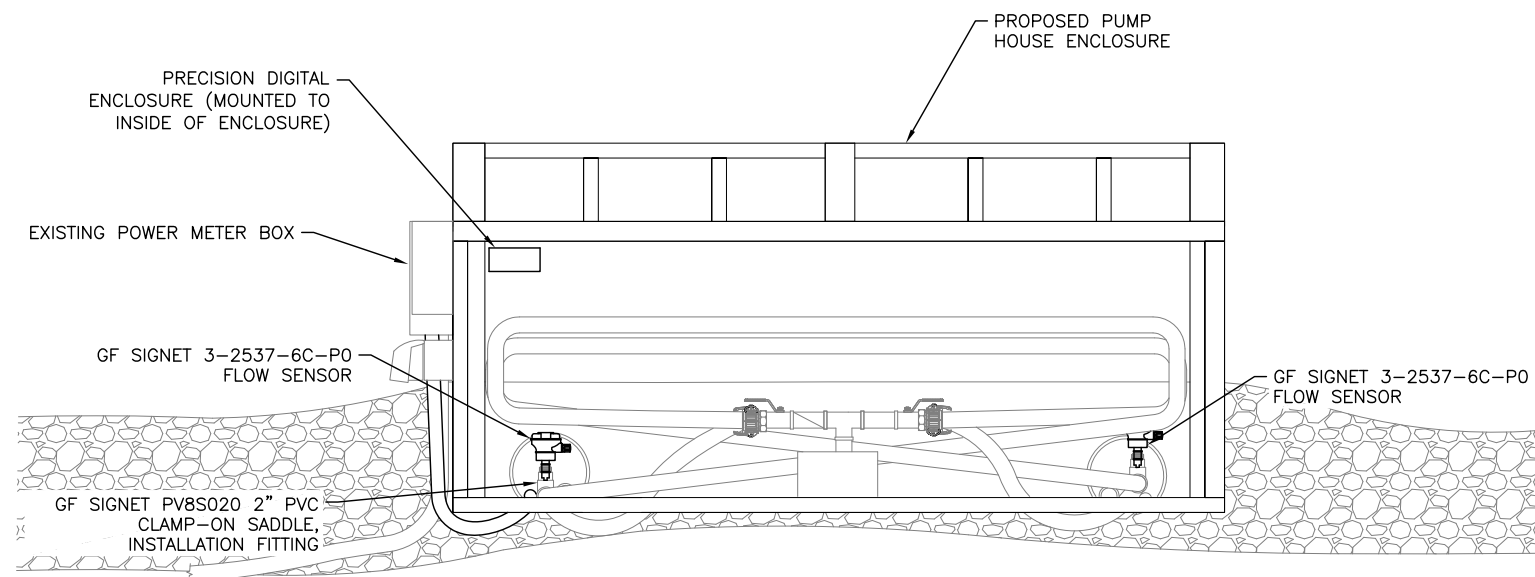
○ HEATED HOSE WIRING DIAGRAM



1 PUMP HOUSE ENCLOSURE PLAN VIEW  
Scale: 1" = 1'  
(SCALE FOR SHEET SIZE 22" X 34")



B-B SECTION B-B  
Scale: 1" = 1'  
(SCALE FOR SHEET SIZE 22" X 34")



A-A SECTION A-A  
Scale: 1" = 1'  
(SCALE FOR SHEET SIZE 22" X 34")

NOTES

1. PRECISION DIGITAL ENCLOSURE TO BE MOUNTED INSIDE ENCLOSURE USING "L" BRACKETS.
2. I&C SUBCONTRACTOR TO REROUTE EXISTING ELECTRIC UNDER ENCLOSURE.
3. THE TRENCH 6 ENCLOSURE MATERIALS ARE TO BE SUPPLIED BY THE PRIME CONTRACTOR AND INSTALLED BY THE I&C CONTRACTOR.

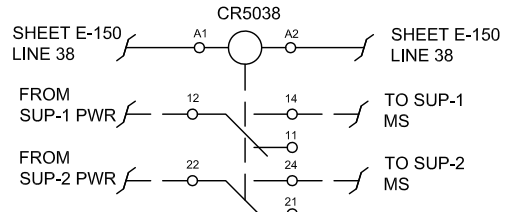
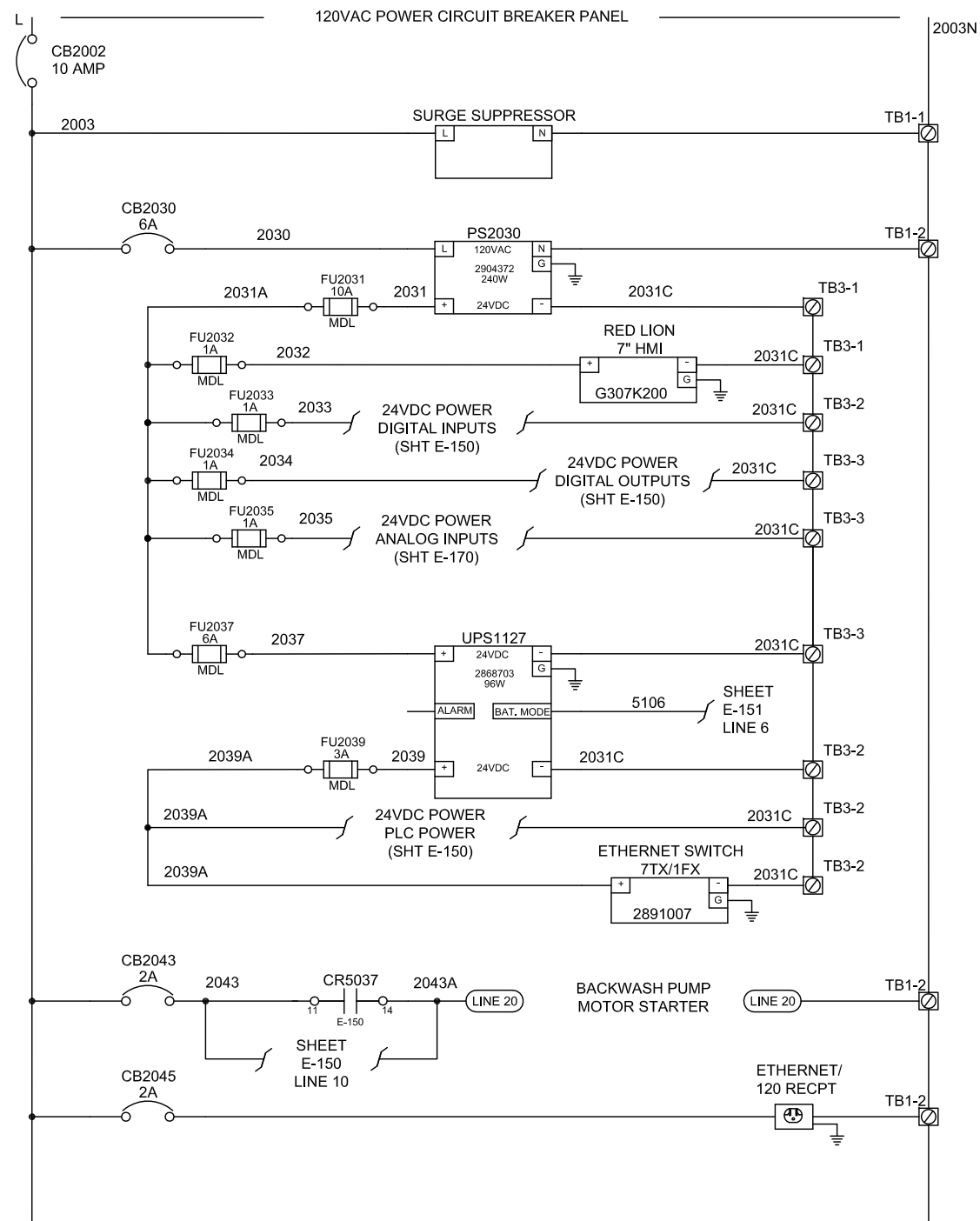
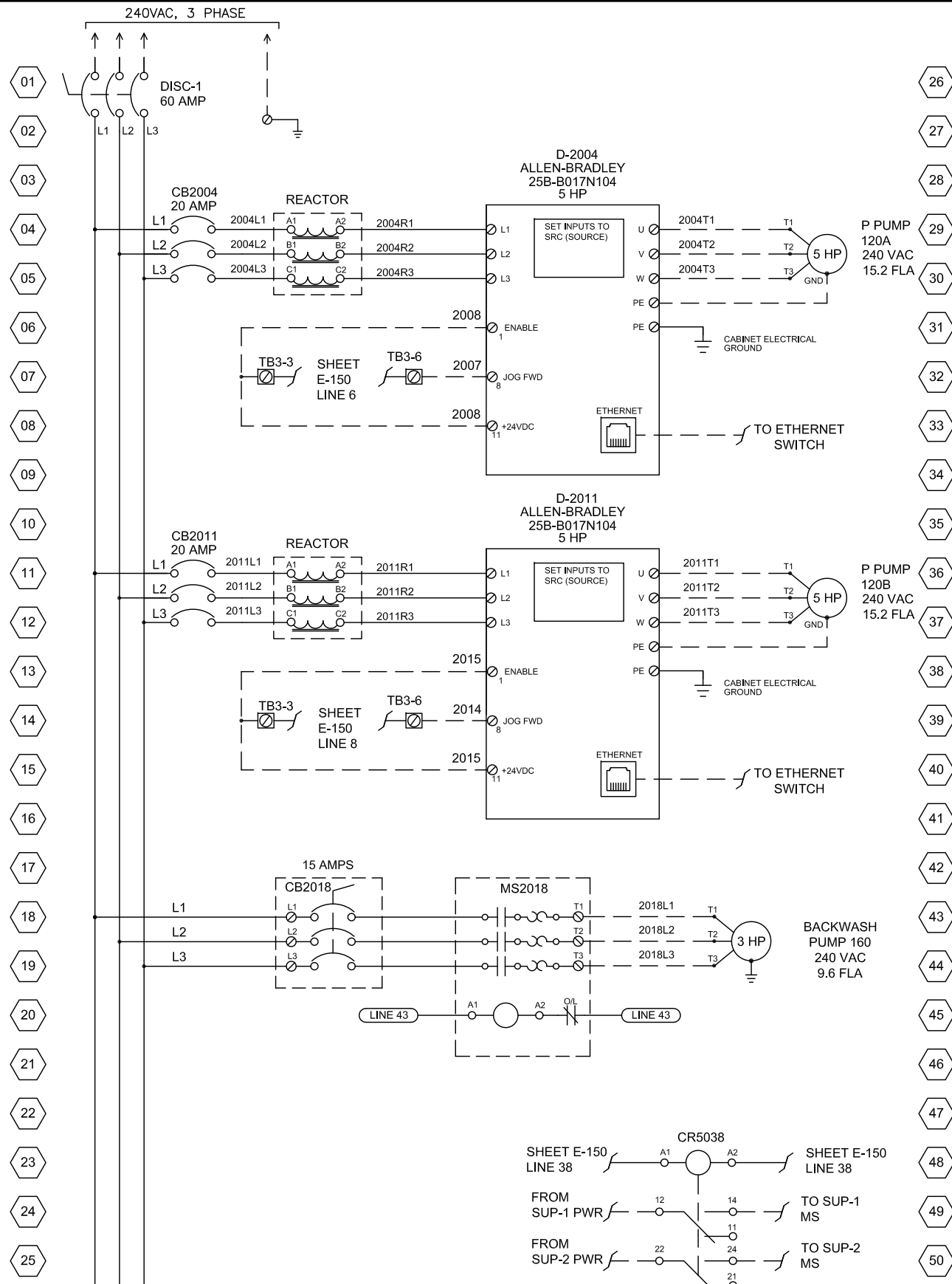
REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
1	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**  
**TRENCH 6 PUMP ENCLOSURE  
ELECTRICAL DETAILS**

PROJECT NO.:	11340
CADD DWG FILE:	E-101 TRENCH 6 PUMP ENC ELEC DET
DESIGNED BY:	ERV DATE: 12/16/16
DRAWN BY:	TCW DATE: 12/16/16
CHECKED BY:	BK DATE: 12/16/16
<b>E-101</b>	
SHEET 23 OF 31	



REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
1	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

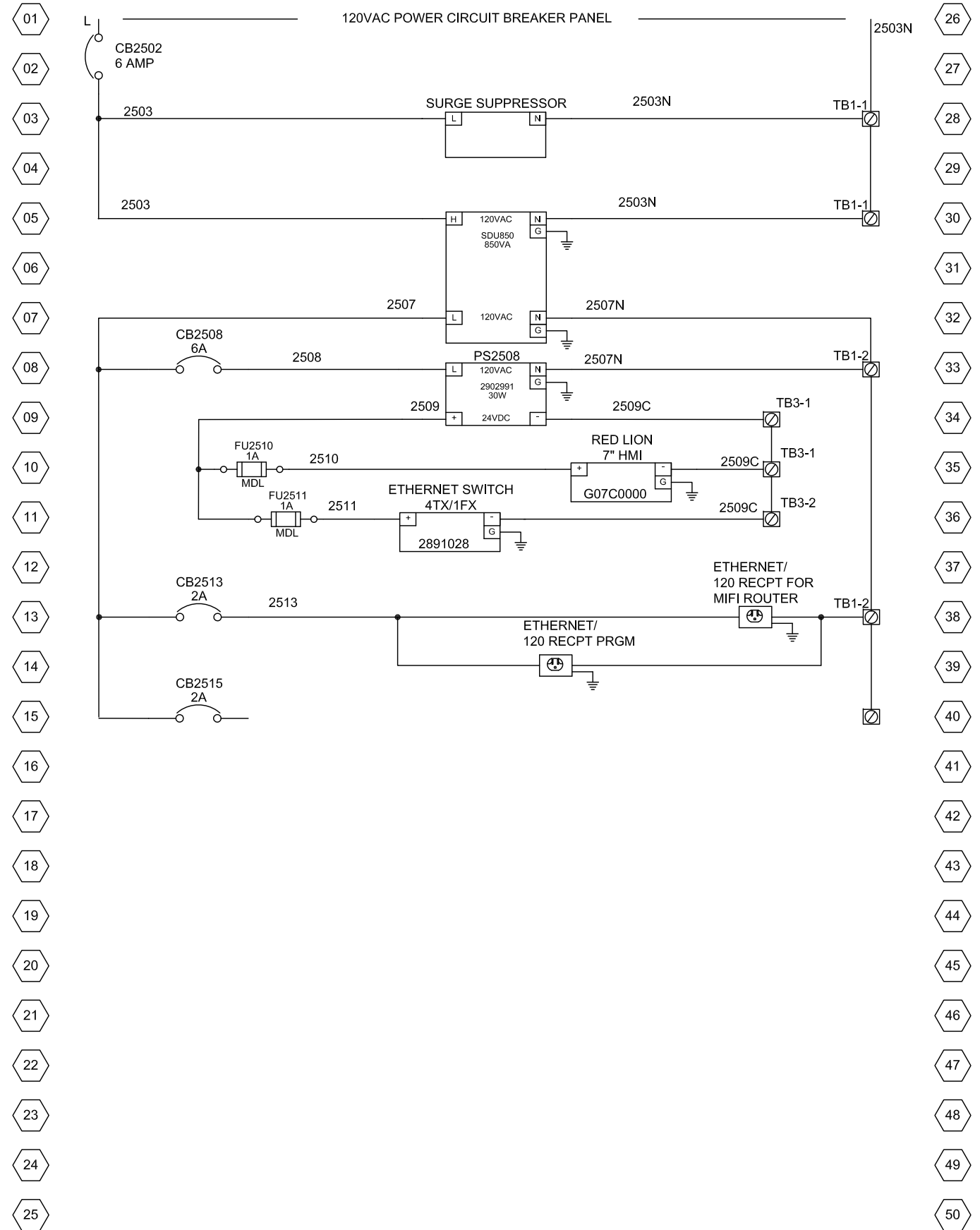
**WIA** Los Alamos Technical Associates  
 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
 TREATMENT PLANT OPTIMIZATION**

**480V 120V 24V POWER WIRING**

PROJECT NO.:	11340
CADD DWG FILE:	E-120 FFWTP 120 24 POWER
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-120</b>	
SHEET 24 OF 31	



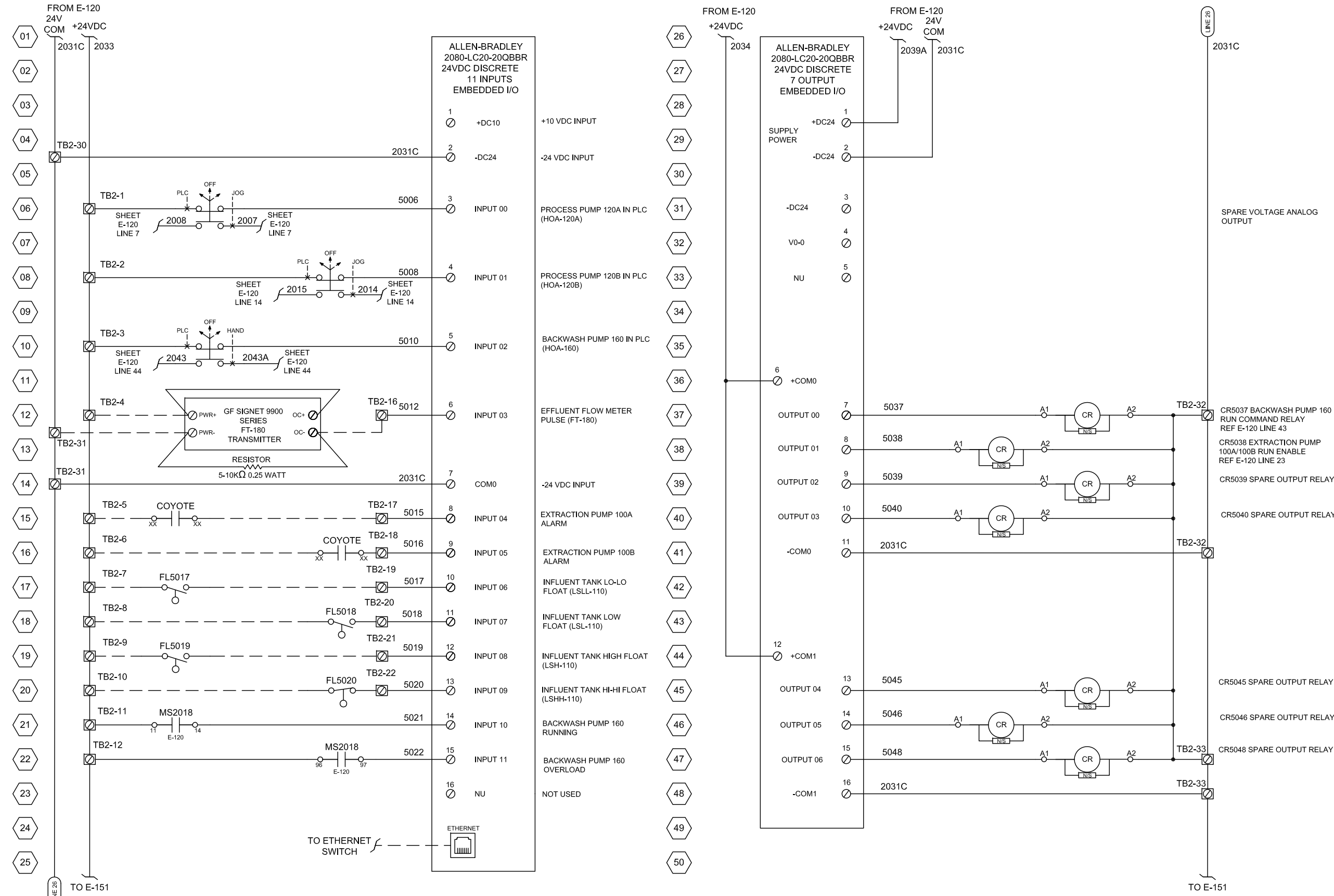
REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				

**WTA**  
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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**  
IDA OFFICE 120VAC/24VDC POWER  
DISTRIBUTION

PROJECT NO.:	11340
CADD DWG FILE:	E-125 IDA 120 24 POWER
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-125</b>	
SHEET 25 OF 31	



REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
1	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

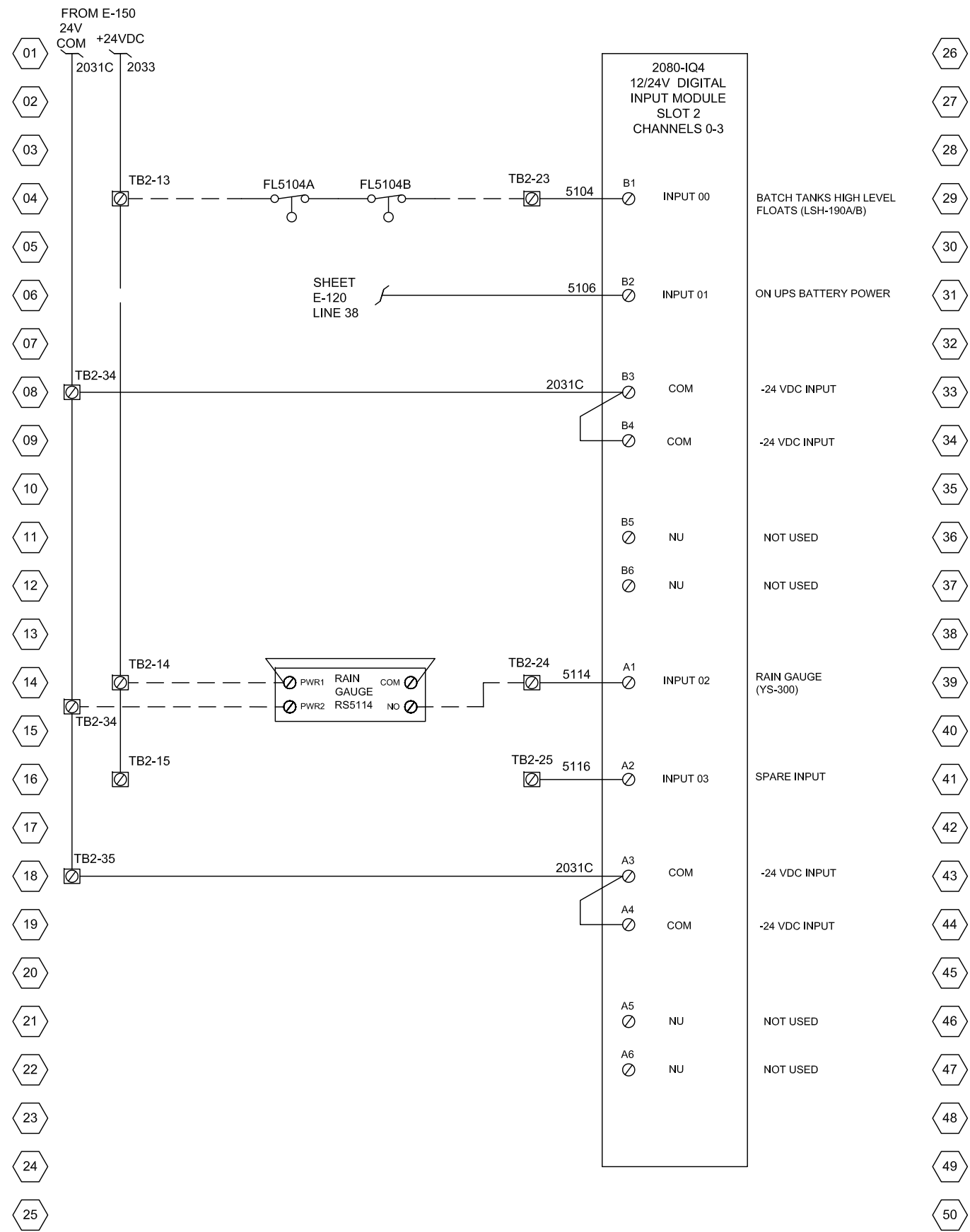
**LATA** Los Alamos Technical Associates  
 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
 www.lata.com

**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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 MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
 TREATMENT PLANT OPTIMIZATION**

**EMBEDDED DISCRETE  
 INPUTS/OUTPUTS**

PROJECT NO.:	11340
CADD DWG FILE:	E-150 FFWTP DISCRETE IN OUT
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-150</b>	
SHEET 26 OF 31	



REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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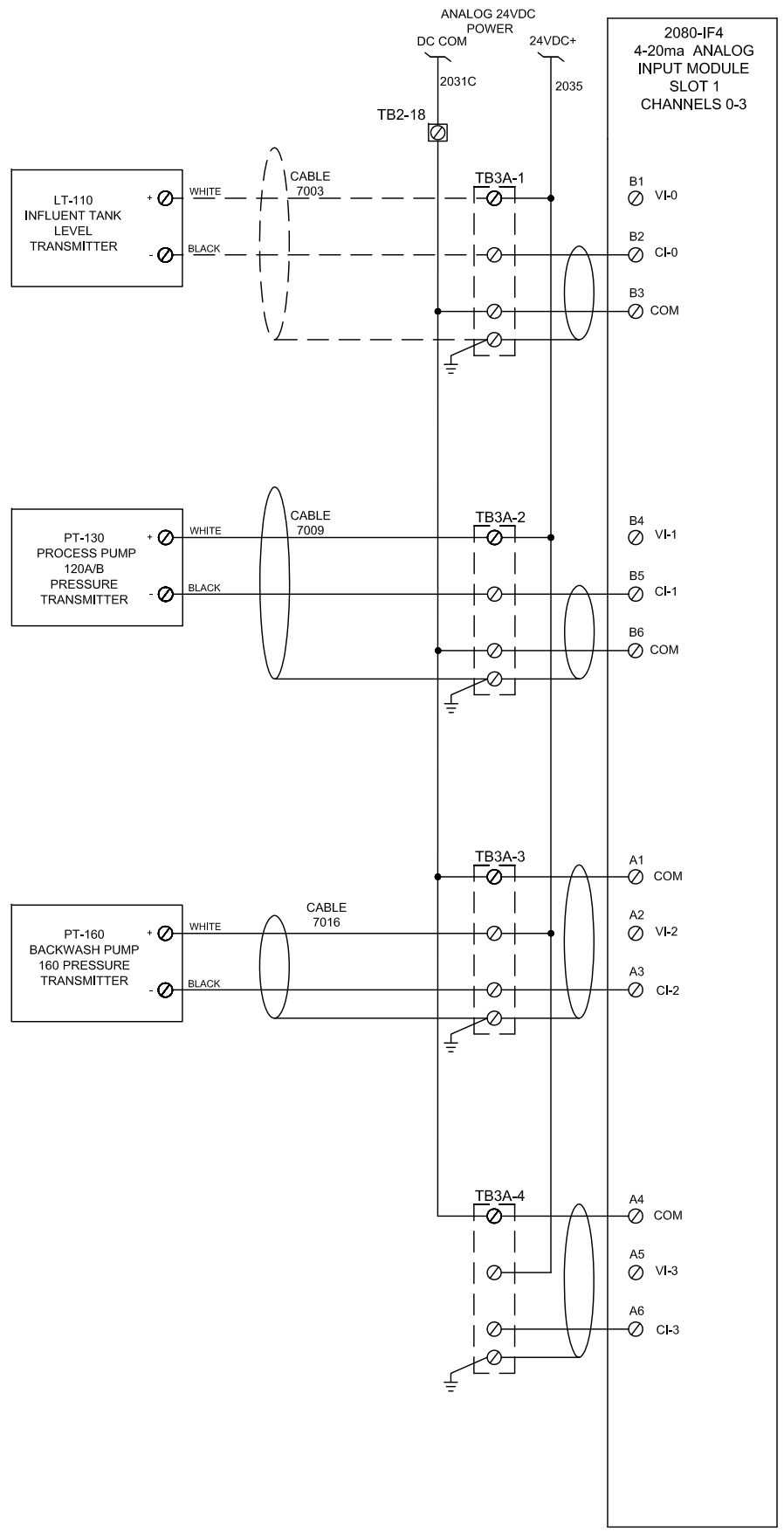
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**

**DISCRETE INPUTS**

PROJECT NO.:	11340
CADD DWG FILE:	E-151 FFWTP DISCRETE IN OUT 2
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-151</b>	
SHEET 27 OF 31	

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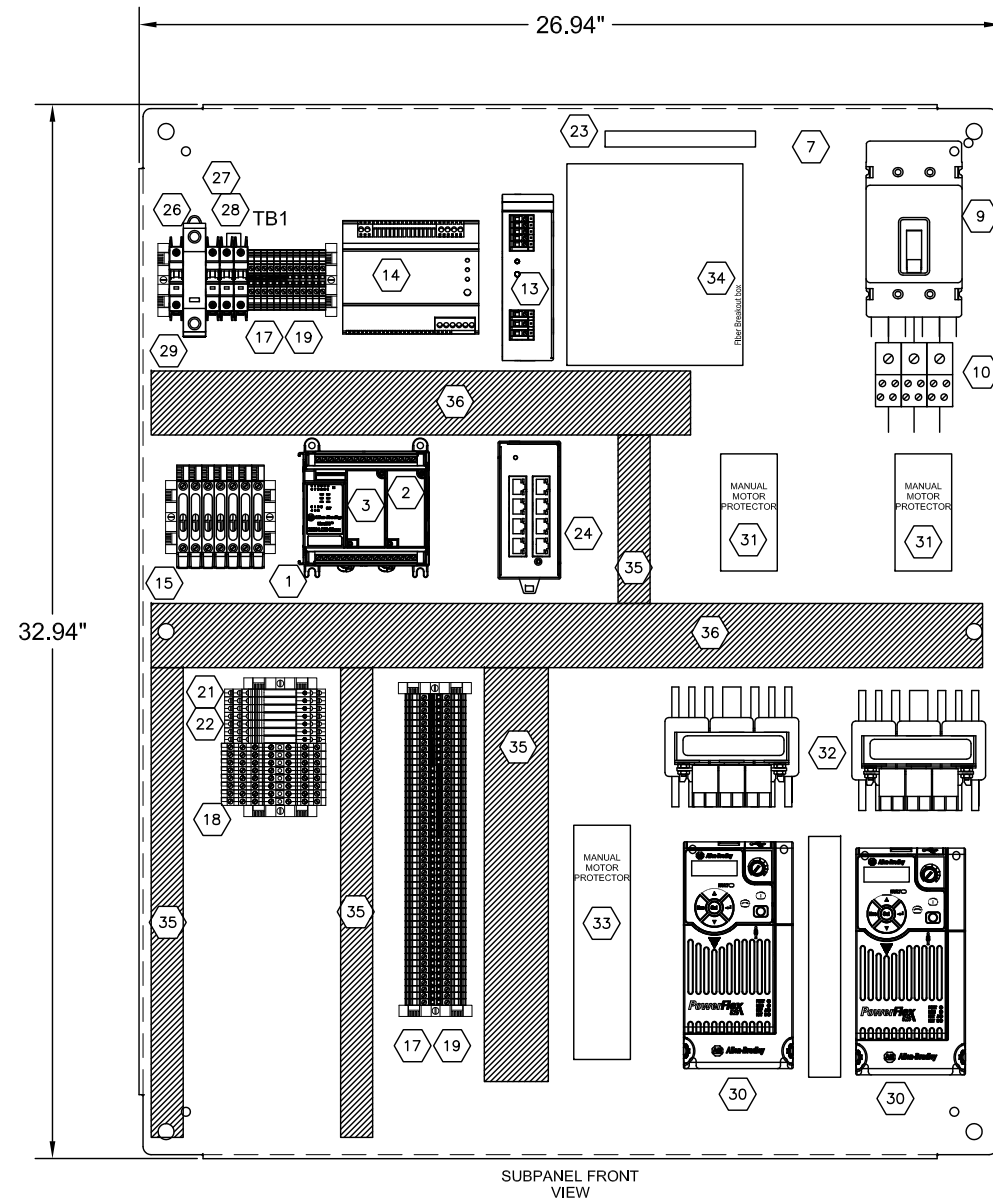
REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**  
**PLC 4-20MA ANALOG INPUTS**

PROJECT NO.:	11340
CADD DWG FILE:	E-170 FFWTP 20MA ANALOG
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-170</b>	
SHEET 28 OF 31	



ITEM #	QTY	UNITS	DESCRIPTION	PART NUMBER	MANUFACTURER	VENDOR
1	1	EA	PROCESSOR Embedded IO 12 DI, 4 AI(0-10V) 7 DO (Source) 1 AO(0-10V) Ethernet	2080-LC20-20QBRR	Allen-Bradley	Mc-Mc
2	1	EA	INPUT MODULE, 4 CH DIGITAL IN 12/24VDC SINKING	2080-IQ4	Allen-Bradley	Mc-Mc
3	1	EA	INPUT MODULE, 4 CH ANLG IN VOLTAGE/CURRENT	2080-IF4	Allen-Bradley	Mc-Mc
4	0	EA	OUTPUT MODULE, 4 CH DIGITAL OUT 12/24VDC SOURCE	2080-OB4	Allen-Bradley	Mc-Mc
5	0	EA	OUTPUT MODULE, 2 CH ANLG OUT VOLTAGE/CURRENT	2080-OF2	Allen-Bradley	Mc-Mc
6	1	EA	36X31X12 PANEL WITH DISCONNECT	SCE-36XEL3112LP	SAGINAW	SAGINAW
7	1	EA	BACK PANEL	SCE-36P30	SAGINAW	SAGINAW
8	1	EA	DISCONNECT 3FT FLEXSHAFT	EHMFS03	EATON	CRESCENT
9	1	EA	MCCB 60A 3P 18 KAIC	EGB3060FFG	EATON	CRESCENT
10	1	EA	MCCB DISTRIBUTION BLOCK KIT FOR EG BREAKERS 6 TERMINALS	3TA125E6K	EATON	CRESCENT
11	3	EA	HOA SWITCH	800T-J5A	ALLEN-BRADLEY	Mc-Mc
12	1	EA	OPERATOR INTERFACE 7" Kadet	G307K200	RED LION	RED LION
13	1	EA	Power Supply, 24VDC 10A 240W	2907372	PHOENIX CONTACT	CRESCENT
14	1	EA	Uninterruptible power supply with integrated power supply unit, 5A	2868703	PHOENIX CONTACT	CRESCENT
15	7	EA	FUSEHOLDER W/ BLOWN FUSE LED 24V	XBUT4FBEL24	EATON	CRESCENT
16	40	EA	TERMINAL BLOCK, GRAY 4.0	XBUT4	EATON	CRESCENT
17	10	EA	TERMINAL BLOCK, GND 4.0	XBUT4PF	EATON	CRESCENT
18	4	EA	TERMINAL BLOCK, 3 TIER W/GND	XB3UKF25PE	EATON	CRESCENT
19	10	EA	TERMINAL BLOCK END CLAMP, GRAY	XBAES35C	EATON	CRESCENT
20	3	EA	10 POS JUMPERS	XBAFBS106	EATON	CRESCENT
21	6	EA	RELAY, PLC-RSC-24UC/21 6A CONTACT 11mA COIL SPDT	2966184	PHOENIX CONTACT	CRESCENT
22	1	EA	RELAY, PLC-RSC-24UC/21-21 6A CONTACT 17.5mA COIL DPDT	2967073	PHOENIX CONTACT	CRESCENT
23	1	EA	GROUND BAR KIT	PK12GTA	SQUARE D	CRESCENT
24	1	EA	ETHERNET SWITCH 7TX/1FX ST PANEL INTERFACE PORT, DUAL GFCI OUTLET W/ ETHERNET PORT	2891007	PHOENIX CONTACT	CRESCENT
25	1	EA	ZP-PGA-32-201	ZIP		AUTOMATION DIRECT
26	1	EA	CIRCUIT BREAKER	FAZ-D10-1-NA-SP	EATON	AUTOMATION DIRECT
27	1	EA	CIRCUIT BREAKER	FAZ-D6-1-NA-SP	EATON	AUTOMATION DIRECT
28	2	EA	CIRCUIT BREAKER	FAZ-D2-1-NA-SP	EATON	AUTOMATION DIRECT
29	1	EA	SURGE SUPPRESSOR 120V	BSPM1120S2GR	COPPER BUSSMANN	Mc-Mc
30	2	EA	Powerflex 525 240VAC 3P 5 HP VFDS	25B-B017N104	ALLEN BRADLEY	Mc-Mc
31	2	EA	MANUAL MOTOR PROTECTION	XTPR020BC1	EATON	CRESCENT
32	2	EA	LINE REACTOR	LR-23P0	AUTOMATION DIRECT	AUTOMATION DIRECT
33	1	EA	COMBINATION MOTOR STARTER W/ CIRCUIT PROTECTION	XTFC016BBA	EATON	CRESCENT
34	1	EA	FIBER BREAKOUT BOX	SPH01P	CORNING	CORNING
35			WIRE DUCT 1" x 2"			
36			WIRE DUCT 2" x 2"			
37			DIN RAIL 35mm			

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				
			BY	CHK	ENGR	LEAD ENGR

**LATA** Los Alamos Technical Associates  
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Westerville, OH 43081  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

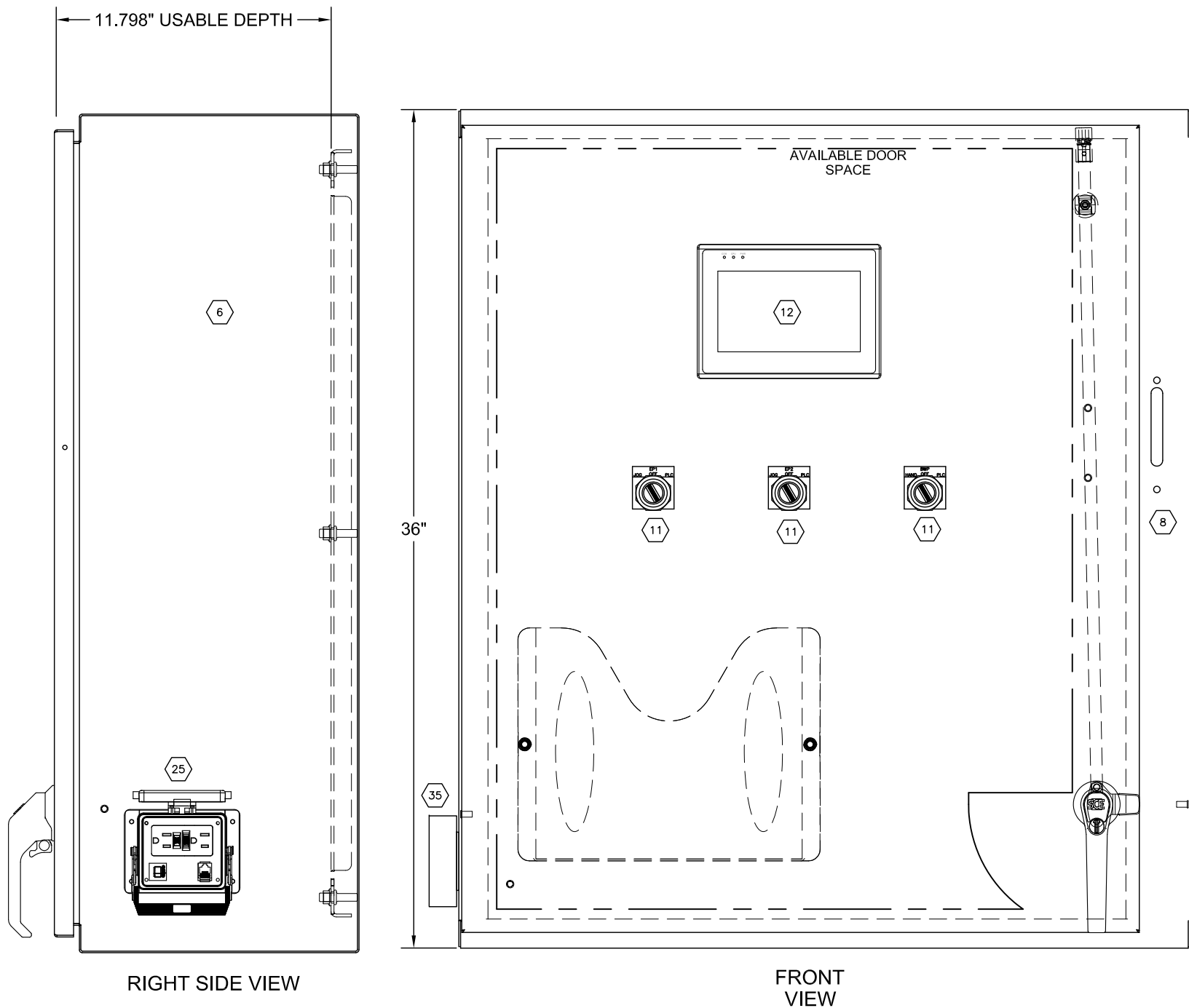
US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**INTERNAL PANEL LAYOUT**

PROJECT NO.: 11340  
CADD DWG FILE: E-190 FFWTP PANEL LAYOUT 1  
DESIGNED BY: TLL DATE: 12/16/16  
DRAWN BY: TLL DATE: 12/16/16  
CHECKED BY: TH DATE: 12/16/16

**E-190**  
SHEET 29 OF 31





ITEM #	QTY	UNITS	DESCRIPTION	PART NUMBER	MANUFACTURER	VENDOR
1	1	EA	PROCESSOR Embedded IO 12 DI, 4 AI(0-10V) 7 DO (Source) 1 AO(0-10V) Ethernet	2080-LC20-20QBRR	Allen-Bradley	Mc-Mc
2	1	EA	INPUT MODULE, 4 CH DIGITAL IN 12/24VDC SINKING	2080-IQ4	Allen-Bradley	Mc-Mc
3	1	EA	INPUT MODULE, 4 CH ANLG IN VOLTAGE/CURRENT	2080-IF4	Allen-Bradley	Mc-Mc
4	0	EA	OUTPUT MODULE, 4 CH DIGITAL OUT 12/24VDC SOURCE	2080-OB4	Allen-Bradley	Mc-Mc
5	0	EA	OUTPUT MODULE, 2 CH ANLG OUT VOLTAGE/CURRENT	2080-OF2	Allen-Bradley	Mc-Mc
6	1	EA	36X31X12 PANEL WITH DISCONNECT	SCE-36XEL3112LP	SAGINAW	SAGINAW
7	1	EA	BACK PANEL	SCE-36P30	SAGINAW	SAGINAW
8	1	EA	DISCONNECT 3FT FLEXSHAFT	EHMFS03	EATON	CRESCENT
9	1	EA	MCCB 60A 3P 18 KAIC	EGB3060FFG	EATON	CRESCENT
10	1	EA	MCCB DISTRIBUTION BLOCK KIT FOR EG BREAKERS 6 TERMINALS	3TA125E6K	EATON	CRESCENT
11	3	EA	HOA SWITCH	800T-J5A	ALLEN-BRADLEY	Mc-Mc
12	1	EA	OPERATOR INTERFACE 7" Kadet	G307K200	RED LION	RED LION
13	1	EA	Power Supply, 24VDC 10A 240W	2907372	PHOENIX CONTACT	CRESCENT
14	1	EA	Uninterruptible power supply with integrated power supply unit, 5A	2868703	PHOENIX CONTACT	CRESCENT
15	7	EA	FUSEHOLDER W/ BLOWN FUSE LED 24V	XBUT4FBEL24	EATON	CRESCENT
16	40	EA	TERMINAL BLOCK, GRAY 4.0	XBUT4	EATON	CRESCENT
17	10	EA	TERMINAL BLOCK, GND 4.0	XBUT4PF	EATON	CRESCENT
18	4	EA	TERMINAL BLOCK, 3 TIER W/GND	XB3UKF25PE	EATON	CRESCENT
19	10	EA	TERMINAL BLOCK END CLAMP, GRAY	XBAES35C	EATON	CRESCENT
20	3	EA	10 POS JUMPERS	XBAFBS106	EATON	CRESCENT
21	6	EA	RELAY, PLC-RSC-24UC/21 6A CONTACT 11mA COIL SPDT	2966184	PHOENIX CONTACT	CRESCENT
22	1	EA	RELAY, PLC-RSC-24UC/21-21 6A CONTACT 17.5mA COIL DPDT	2967073	PHOENIX CONTACT	CRESCENT
23	1	EA	GROUND BAR KIT	PK12GTA	SQUARE D	CRESCENT
24	1	EA	ETHERNET SWITCH 7TX/1FX ST	2891007	PHOENIX CONTACT	CRESCENT
25	1	EA	PANEL INTERFACE PORT, DUAL GFCI OUTLET W/ ETHERNET PORT	ZP-PGA-32-201	ZIP	AUTOMATION DIRECT
26	1	EA	CIRCUIT BREAKER	FAZ-D10-1-NA-SP	EATON	AUTOMATION DIRECT
27	1	EA	CIRCUIT BREAKER	FAZ-D6-1-NA-SP	EATON	AUTOMATION DIRECT
28	2	EA	CIRCUIT BREAKER	FAZ-D2-1-NA-SP	EATON	AUTOMATION DIRECT
29	1	EA	SURGE SUPPRESSOR 120V	BSPM1120S2GR	COPPER BUSSMANN	Mc-Mc
30	2	EA	Powerflex 525 240VAC 3P 5 HP VFDS	25B-B017N104	ALLEN BRADLEY	Mc-Mc
31	2	EA	MANUAL MOTOR PROTECTION	XTPR020BC1	EATON	CRESCENT
32	2	EA	LINE REACTOR	LR-25P0	AUTOMATION DIRECT	AUTOMATION DIRECT
33	1	EA	COMBINATION MOTOR STARTER W/ CIRCUIT PROTECTION	XTFC016BBA	EATON	CRESCENT
34	1	EA	FIBER BREAKOUT BOX	SPH01P	CORNING	CORNING
35	1	EA	FLOW TRANSMITTER/DISPLAY	3-9900.1P	GF SIGNET	GF SIGNET
36			WIRE DUCT 2" x 2"			
37			DIN RAIL 35mm			

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

**WTA** Los Alamos Technical Associates  
 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
 www.lata.com

**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA

**OU-4 FIXED FACILITY WATER TREATMENT PLANT OPTIMIZATION**

**EXTERNAL PANEL LAYOUT**

PROJECT NO.: 11340

CADD DWG FILE: E-191 FFWTP PANEL LAYOUT 2

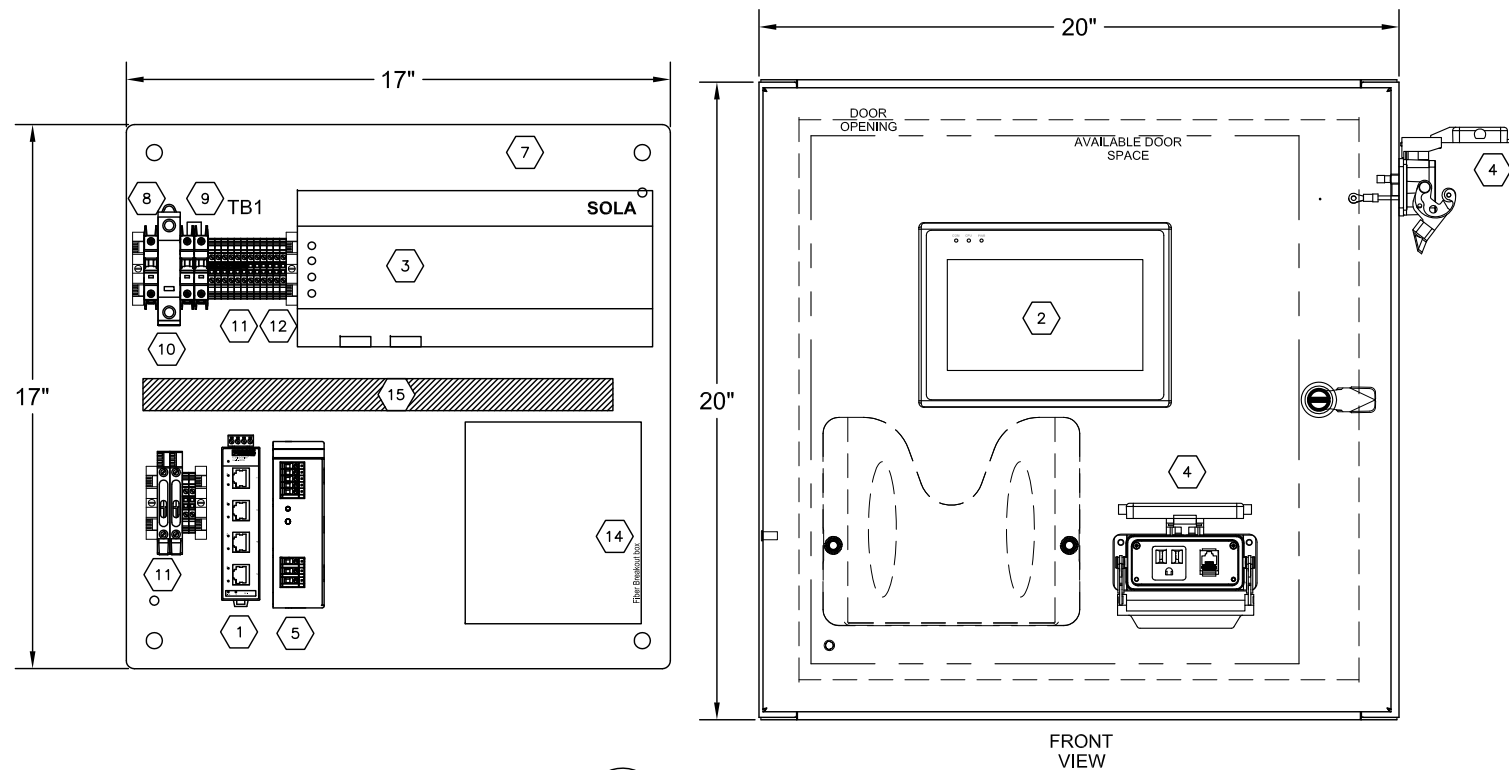
DESIGNED BY: TLL DATE: 12/16/16

DRAWN BY: TLL DATE: 12/16/16

CHECKED BY: TH DATE: 12/16/16

**E-191**

SHEET 30 OF 31



1 IDA OFFICE PANEL DETAIL  
NTS  
G-104 E-195

ITEM #	QTY	UNITS	DESCRIPTION	PART NUMBER	MANUFACTURER	VENDOR
1	1	EA	ETHERNET SWITCH 4TX/1FX ST	2891028	PHOENIX CONTACT	CRESCENT
2	1	EA	OPERATOR INTERFACE 7" Graphite	G07C0000	RED LION	RED LION
3	1	EA	Uninterruptible Power Supply 500VA 120AC	SDU500	SOLA	CRESCENT
4	2	EA	PANEL INTERFACE PORT, SINGAL OUTLET W/ ETHERNET PORT (NO GFCI)	ZP-PSA-16-101	ZIP	AUTOMATION DIRECT
5	1	EA	POWER SUPPLY, 24VDC, 1.25A 30W	2902991	PHOENIX CONTACT	CRESCENT
6	1	EA	20X20X10 PANEL	SCE-20EL2010LP	SAGINAW	SAGINAW
7	1	EA	BACK PANEL	SCE-20P20	SAGINAW	SAGINAW
8	1	EA	CIRCUIT BREAKER	FAZ-D6-1-NA-SP	EATON	AUTOMATION DIRECT
9	2	EA	CIRCUIT BREAKER	FAZ-D2-1-NA-SP	EATON	AUTOMATION DIRECT
10	1	EA	SURGE SUPPRESSOR 120V	BSPM1120S2GR	COPPER BUSSMANN	Mc-Mc
11	2	EA	FUSEHOLDER W/ BLOWN FUSE LED 24V	XBUT4FBEL24	EATON	CRESCENT
12	10	EA	TERMINAL BLOCK, GND 4.0	XBUT4PF	EATON	CRESCENT
13	4	EA	TERMINAL BLOCK END CLAMP, GRAY	XBAES35C	EATON	CRESCENT
14	1	EA	FIBER BREAKOUT BOX	SPH01P	CORNING	CORNING
15	1	EA	WIRE DUCT 1" x 2"			
16	1	EA	DIN RAIL 35mm			

NOTES:

- CONNECTION AND ROUTING REQUIREMENTS FOR THE F/O CABLE IS PROVIDED IN THE FIXED FACILITY WATER TREATMENT PLANT WATER LINE AND LINE 1 IMPOUNDMENT WATER LINE PLAN SET.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				

**LATA**  
Los Alamos Technical Associates  
756 Park Meadow Road  
Westerville, OH 43081  
(614) 508-1200  
www.lata.com

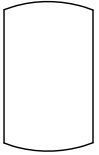


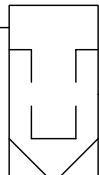






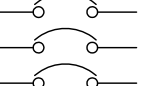
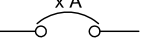


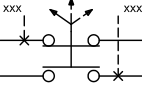
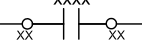
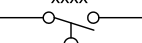
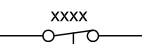
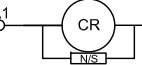







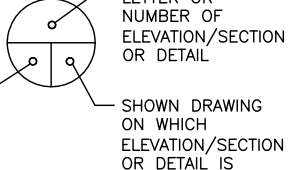
**PARS**  
ENVIRONMENTAL INC.

**Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**OU-4 FIXED FACILITY WATER  
TREATMENT PLANT OPTIMIZATION**  
**IDA OFFICE PANEL LAYOUT**

PROJECT NO.:	11340
CADD DWG FILE:	E-195 IDA PANEL LAYOUT
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-195</b>	
SHEET 31 OF 31	



GENERAL EQUIPMENT	GENERAL INSTRUMENTS	ELECTRICAL	ABBREVIATIONS																																																										
 VESSEL/TANK  CENTRIFUGAL PUMP  SUBMERSIBLE PUMP  BAG FILTER	 INSTRUMENT FOR SINGLE MEASURED VARIABLE AND ANY NUMBER OF FUNCTIONS. INSTRUMENT IS FIELD MOUNTED.  INSTRUMENT IS MOUNTED IN FRONT OF LOCAL PANEL. <p>SHARED DISPLAY OR VIRTUAL (SOFTWARE BASED) SYMBOLS AND SWITCH</p>  CENTRAL PLC OR CONTROL ROOM INDICATOR/CONTROLLER/RECORDER OR ANNUNCIATION POINT  INTERLOCK <p>(NOTE A)  E (NOTE B)  (NOTE A)</p> <p>NOTE A: TOP FIELD- INDICATES TYPE OF DEVICE SEE INSTRUMENT IDENTIFICATION          BOTTOM FIELD- INDICATES LOOP NUMBER          NOTE B: ADDITION DEVICE DETAILS</p>	<p>CBxxx xxA</p>  3 POLE CIRCUIT BREAKER <p>CBxxxx xA</p>  1 POLE CIRCUIT BREAKER <p>FUxxx xxA</p>  FUSE  120V OUTLET  3 POSITION SELECTOR SWITCH <p>xxxxx</p>  RELAY CONTACT NORMALLY OPEN <p>xxxxx</p>  LEVEL FLOAT NORMALLY OPEN <p>xxxxx</p>  LEVEL FLOAT NORMALLY CLOSED  RELAY COIL	<p>BA - BALL          BFP - BACK FLOW PREVENTION          BWP - BACKWASH PUMP          CH - CHECK          CU - COPPER          EX - EXISTING          FFWTP - FIXED FACILITY WATER TREATMENT PLANT          FO - FIBER OPTIC          GAC - GRANULAR ACTIVATED CARBON          HDPE - HIGH-DENSITY POLYETHYLENE          I&amp;C - INSTRUMENTATIONS AND CONTROL          IDA - INERT DISPOSAL AREA          NTS - NOT TO SCALE          OVE - OVERHEAD ELECTRIC          PVC - POLYVINYL CHLORIDE          THHN - THERMOPLASTIC HIGH HEAT RESISTANT          TYP - TYPICAL          VFD - VARIABLE FREQUENCY DRIVE</p> <p>LINETYPES</p> <p>— OHE — OVERHEAD ELECTRIC          — x — FENCE          — E — ELECTRIC</p>																																																										
<p>GENERAL PIPING</p>  BACKFLOW PREVENTION DEVICE  BALL VALVE NORMALLY OPEN  BALL VALVE NORMALLY CLOSED  CHECK VALVE  FLEXIBLE HOSE  CAM LOCK CONNECTION  FLOW METER	<p>INSTRUMENT IDENTIFICATION</p> <table border="1"> <tr><td>CB</td><td>CIRCUIT BREAKER</td></tr> <tr><td>CR</td><td>CONTROL RELAY</td></tr> <tr><td>FAH</td><td>FLOW ALARM HIGH</td></tr> <tr><td>FAL</td><td>FLOW ALARM LOW</td></tr> <tr><td>FT</td><td>FLOW TRANSMITTER</td></tr> <tr><td>FI</td><td>FLOW INDICATOR</td></tr> <tr><td>FQI</td><td>FLOW TOTALIZER INDICATOR</td></tr> <tr><td>HOA</td><td>HAND/OFF/AUTO SWITCH</td></tr> <tr><td>HS</td><td>HAND/OFF SWITCH</td></tr> <tr><td>KQI</td><td>RUN TIME INDICATOR</td></tr> <tr><td>LAH</td><td>LEVEL ALARM HIGH</td></tr> <tr><td>LAL</td><td>LEVEL ALARM LOW</td></tr> <tr><td>LI</td><td>LEVEL INDICATOR</td></tr> <tr><td>LIH</td><td>LEVEL INDICATOR HIGH</td></tr> <tr><td>LIL</td><td>LEVEL INDICATOR LOW</td></tr> <tr><td>LSH</td><td>LEVEL SWITCH HIGH</td></tr> <tr><td>LSHH</td><td>LEVEL SWITCH HIGH-HIGH</td></tr> <tr><td>LSL</td><td>LEVEL SWITCH LOW</td></tr> <tr><td>MS</td><td>MOTOR STARTER</td></tr> <tr><td>PAL</td><td>PRESSURE ALARM LOW</td></tr> <tr><td>PAH</td><td>PRESSURE ALARM HIGH</td></tr> <tr><td>PI</td><td>PRESSURE INDICATOR</td></tr> <tr><td>PS</td><td>POWER SUPPLY</td></tr> <tr><td>PT</td><td>PRESSURE TRANSMITTER</td></tr> <tr><td>SIC</td><td>SPEED INDICATOR/CONTROL</td></tr> <tr><td>UPS</td><td>UNINTERRUPTIBLE POWER SUPPLY</td></tr> <tr><td>VFD</td><td>VARIABLE FREQUENCY DRIVE</td></tr> <tr><td>XA</td><td>USER DEFINED ALARM</td></tr> <tr><td>XY</td><td>USER DEFINED EVENT</td></tr> </table>	CB	CIRCUIT BREAKER	CR	CONTROL RELAY	FAH	FLOW ALARM HIGH	FAL	FLOW ALARM LOW	FT	FLOW TRANSMITTER	FI	FLOW INDICATOR	FQI	FLOW TOTALIZER INDICATOR	HOA	HAND/OFF/AUTO SWITCH	HS	HAND/OFF SWITCH	KQI	RUN TIME INDICATOR	LAH	LEVEL ALARM HIGH	LAL	LEVEL ALARM LOW	LI	LEVEL INDICATOR	LIH	LEVEL INDICATOR HIGH	LIL	LEVEL INDICATOR LOW	LSH	LEVEL SWITCH HIGH	LSHH	LEVEL SWITCH HIGH-HIGH	LSL	LEVEL SWITCH LOW	MS	MOTOR STARTER	PAL	PRESSURE ALARM LOW	PAH	PRESSURE ALARM HIGH	PI	PRESSURE INDICATOR	PS	POWER SUPPLY	PT	PRESSURE TRANSMITTER	SIC	SPEED INDICATOR/CONTROL	UPS	UNINTERRUPTIBLE POWER SUPPLY	VFD	VARIABLE FREQUENCY DRIVE	XA	USER DEFINED ALARM	XY	USER DEFINED EVENT	<p>ELECTRICAL LINE SYMBOLS</p> <p>———— CONTROL PANEL WIRING          - - - - - FIELD WIRING</p> <p>ELEVATION/SECTION &amp; DETAIL KEY</p>  <p>TAKEN DRAWING ON WHICH ELEVATION/SECTION OR DETAIL IS</p> <p>LETTER OR NUMBER OF ELEVATION/SECTION OR DETAIL</p> <p>SHOWN DRAWING ON WHICH ELEVATION/SECTION OR DETAIL IS</p>	
CB	CIRCUIT BREAKER																																																												
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<p>P&amp;ID LINE SYMBOLS</p> <p>———— PROCESS LINE          - - - - - PLC LEVEL CONTROL          - - - - - SKID LIMITS          - - - - - ELECTRICAL LINE</p>																																																													

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				

**WTA** Los Alamos Technical Associates  
 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
 www.lata.com

**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
 LAGOON OPTIMIZATION**

**LEGENDS AND ABBREVIATIONS**

PROJECT NO.:	11340
CADD DWG FILE:	G-202 LEGENDS AND ABBREV
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>G-202</b>	
SHEET 2 OF 41	

**PROJECT REQUIREMENTS**

- A. THE PRIME CONTRACTOR IS REQUIRED TO SUPPLY AND INSTALL ANY EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED BY LAW OR AS DIRECTED BY THE PROJECT OWNER.
- B. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL COMPLY WITH BASIC PROVISIONS OF OSHA HEALTH AND SAFETY STANDARDS 29 CFR 1910 AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE TO THIS CONSTRUCTION.
- C. THE PRIME CONTRACTOR SHALL CONTACT AN UNDERGROUND UTILITY ORGANIZATION AT LEAST 48 HOURS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL LOCATE ALL CONFLICTS PRIOR TO CONSTRUCTION.
- D. THE PRIME CONTRACTOR'S ON-SITE PERSONNEL SHALL INSPECT AND APPROVE ALL PIPE BEFORE BACKFILLING.
- E. THE PRIME CONTRACTOR SHALL COMPLY WITH THE ENVIRONMENTAL PROTECTION AGENCY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER REQUIREMENTS ESTABLISHED FOR CONSTRUCTION ACTIVITIES ON CONSTRUCTION SITES.
- F. THE PRIME CONTRACTOR SHALL PROVIDE ARC FLASH WARNING LABELS PER NFPA 70E AND UFC 3-501-01 - ELECTRICAL ENGINEERING AND UFC 3-560-01 - ELECTRICAL SAFETY - O&M.

**HDPE PIPE SPECIFICATION:**

- A. MATERIAL: PE4710 RESIN CONFORMING TO ASTM D 3350 AND CELL CLASSIFICATION OF 345464C AND IS LISTED WITH THE PLASTIC PIPE INSTITUTE.
- B. TEMPERATURE RATING: 140°F.
- C. FITTINGS: SAME PRESSURE RATING, RESIN TYPE, AND CELL CLASSIFICATION AS ADJOINING PIPE. MOLDED FITTINGS SHALL BE IN ACCORDANCE WITH ASTM D2683, ASTM D3261 FOR BUTT-TYPE FITTINGS, OR ASTM F1055 FOR ELECTROFUSION-TYPE FITTINGS.
- D. JOINTS: BUTT FUSION IN ACCORDANCE WITH ASTM F 2620.
- E. TRACER WIRE IS REQUIRED FOR ALL UNDERGROUND UTILITIES. TRACER WIRE SHALL BE #12 POLYETHYLENE JACKETED, 45-MIL SOLID COPPER. TRACER WIRE SHALL BE TERMINATED TO THE SURFACE IN "SOUNDING" BOXES. THE PRIME CONTRACTOR SHALL FIELD LOCATE THE BOXES AND ENSURE THE INTEGRITY OF ALL TRACER WIRE.
- F. UNDERGROUND WARNING TAPE SHALL BE INSTALLED IN TRENCHES FOR ALL OPEN-CUT BURIED PIPING. TAPE SHALL BE 5 MILS THICK, 6 INCHES WIDE WITH ALUMINUM BACKING, AND SUITABLE FOR DIRECT BURIAL. TAPE SHALL READ "CAUTION PIPE BURIED BELOW" OR SIMILAR.

**HYDROSTATIC TEST SPECIFICATIONS:**

- A. THE PRIME CONTRACTOR SHALL CONDUCT A HYDROSTATIC LEAK TEST ON THE SIPHON AND EFFLUENT PIPING. THE HYDROSTATIC TEST SPECIFICATIONS ARE DESCRIBED BELOW.
- B. THE PRIME CONTRACTOR SHALL PROVIDE ALL WATER, VENTS, PIPING, PLUGS, TAPS, BULKHEADS, VALVES, BRACING, BLOCKING, PUMPS, MEASURING DEVICES, AND ALL OTHER NECESSARY EQUIPMENT FOR COMPLETION OF A HYDROSTATIC TEST OF ALL INSTALLED PIPING IN ACCORDANCE WITH ANSI/AWWA C600. NO TESTING SHALL BE PERFORMED AGAINST CLOSED VALVES. TESTING SHALL NOT BE PERFORMED "OUT OF TRENCH".
- C. THE TEST SETUP AND TEST PARAMETERS SHALL BE SUBMITTED TO THE PRIME CONTRACTOR AT LEAST 24 HOURS PRIOR TO ACTUAL TESTING. THE PRIME CONTRACTOR SHALL PROVIDE NOTIFICATION TO PROCEED WITH TESTING BASED ON THE PRIME CONTRACTOR'S SUBMITTAL. THE TEST SHALL ONLY BE CONDUCTED WITH THE PRIME CONTRACTOR PRESENT.
- D. THE HYDROSTATIC PRESSURE TESTING SHALL CONSIST OF PURGING THE LINE OF AIR AS IT IS FILLING COMPLETELY WITH POTABLE WATER. THE WATER, PIPE, AND SOIL TEMPERATURE SHALL BE ALLOWED TO EQUILIBRATE AND STABILIZE (24 HOURS AT SLIGHT PRESSURE). THE PIPE AND WATER SHALL THEN BE PRESSURIZED TO A MINIMUM OF 1.5 TIMES THE WORKING PRESSURE OF THE PIPE (SHALL NOT EXCEED THE PIPE DESIGNED PRESSURE) AND HELD AT THAT PRESSURE FOR AT LEAST 2 CONTINUOUS HOURS WITHOUT LOSING MORE THAN 5 PSI OR THE ALLOWABLE MAKEUP WATER (0.6 GALLONS PER 100' OF PIPE).
- E. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL DISPOSITION OF ALL MAKEUP WATER.
- F. THE TEST PRESSURE CANNOT VARY BY MORE THAN ±5 PSI FROM THE REQUIRED PRESSURE FOR THE DURATION OF THE TEST. IF AT ANY POINT DURING THE TEST THE PRESSURE LOSS EXCEEDS 5 PSI, THE TEST IS A FAILURE. MAKEUP WATER IN EXCESS OF THE CALCULATED VOLUME (SEE NOTE 3) CONSTITUTES A FAILED TEST.
- G. THE PRIME CONTRACTOR SHALL REPAIR AND RE-TEST ANY PORTION OF THE PIPELINE THAT DOES NOT MEET THE TEST REQUIREMENTS AT NO ADDITIONAL COST.
- H. THE PRIME CONTRACTOR SHALL PROVIDE DETAILED WRITTEN RECORDS OF THE TEST INCLUDING, BUT NOT LIMITED TO, A SKETCH OF THE SETUP, RECORDING OF PRESSURES, FILL AND MAKEUP WATER, RATE OF FILLING, AND TEST DURATION.

REV	DATE	DESCRIPTION	JMG DRAWN BY	ERV DRAFT CHK	ERV PROJ ENGR	BK LEAD ENGR
0	6/20/18	AS-BUILTS				



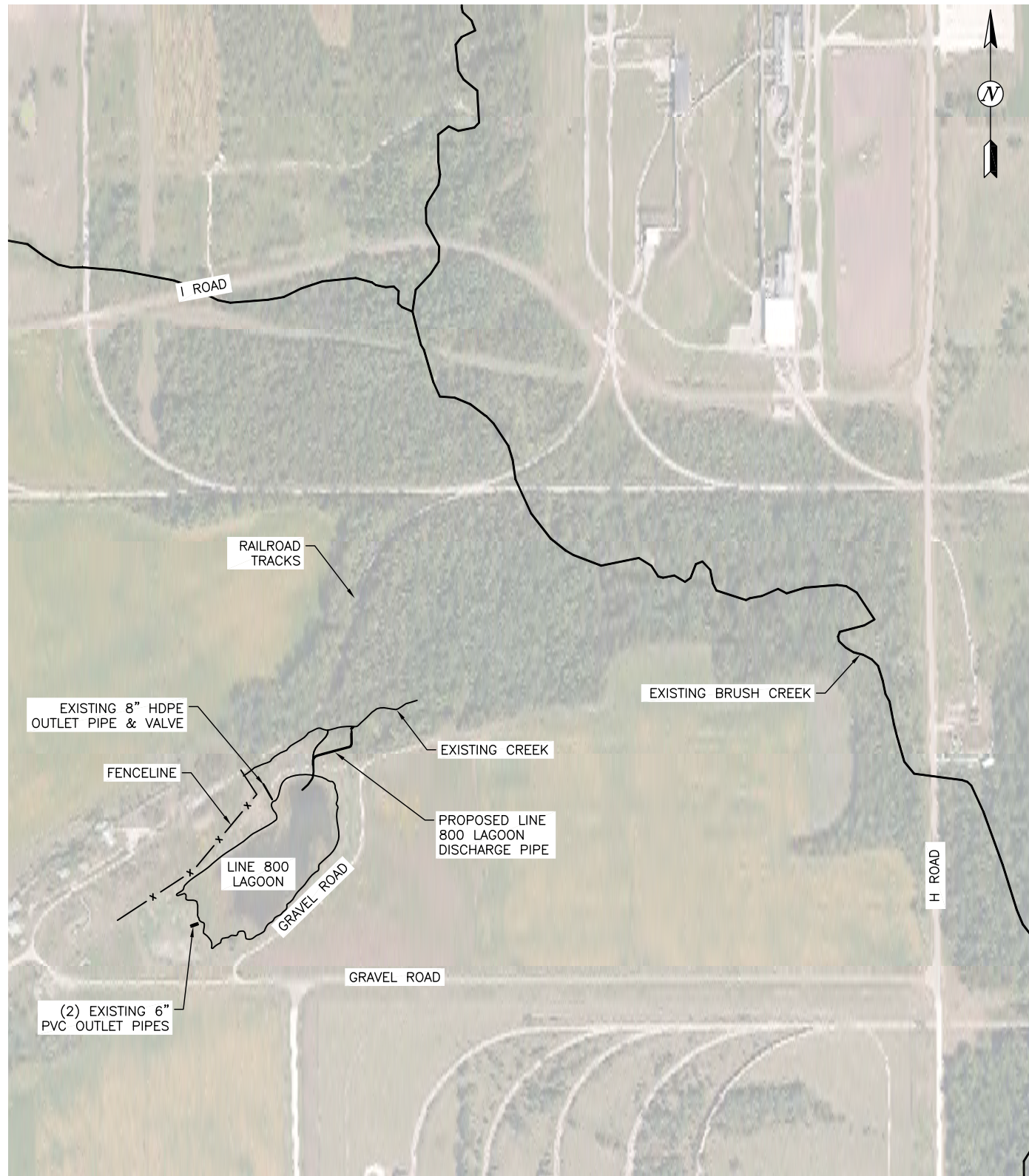
Los Alamos Technical Associates  
756 Park Meadow Road  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

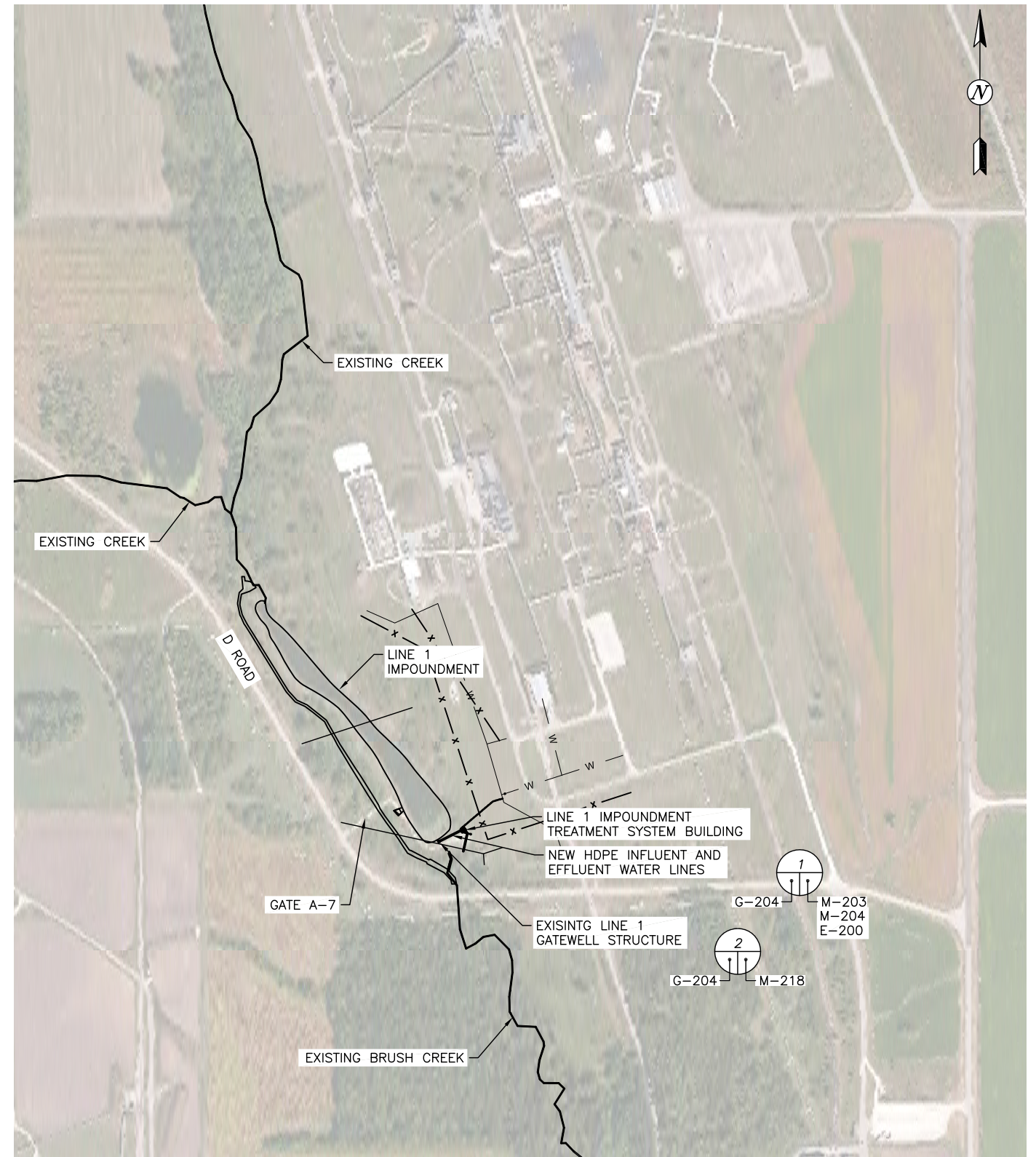
US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**GENERAL NOTES**

PROJECT NO.:	11340
CADD DWG FILE:	G-203 GENERAL NOTES
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>G-203</b>	
SHEET 3 OF 41	



1 **LINE 800 LAGOON WATER TREATMENT – SITE PLAN**  
 Scale: 1" = 300'  
 (SCALE FOR SHEET SIZE 22" X 34")



2 **LINE 1 IMPOUNDMENT – SITE PLAN**  
 Scale: 1" = 300'  
 (SCALE FOR SHEET SIZE 22" X 34")

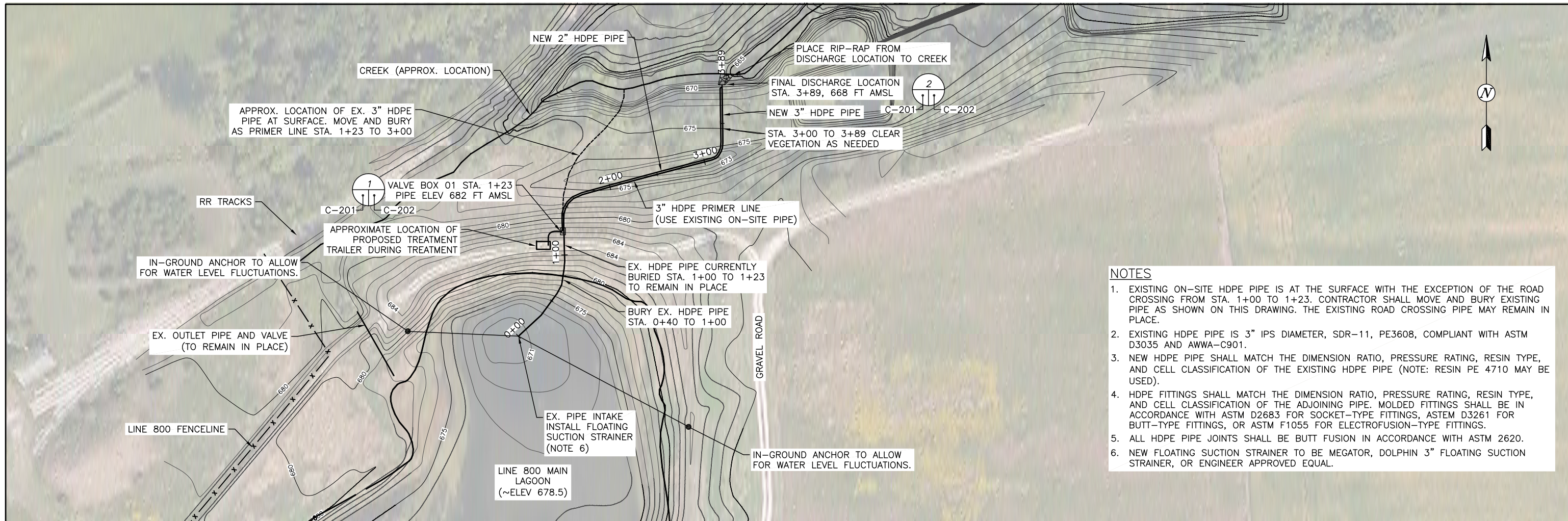
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DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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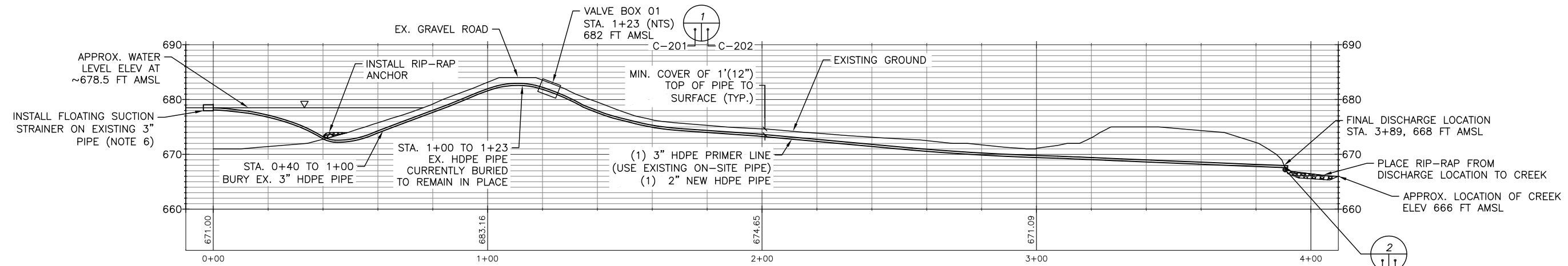
US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON SITE PLAN**

PROJECT NO.:	11340
CADD DWG FILE:	G-204 LINE 1 AND LINE 800 SITE PLAN
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>G-204</b>	
SHEET 4 OF 41	

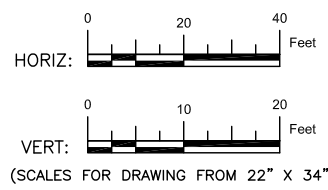


- NOTES**
- EXISTING ON-SITE HDPE PIPE IS AT THE SURFACE WITH THE EXCEPTION OF THE ROAD CROSSING FROM STA. 1+00 TO 1+23. CONTRACTOR SHALL MOVE AND BURY EXISTING PIPE AS SHOWN ON THIS DRAWING. THE EXISTING ROAD CROSSING PIPE MAY REMAIN IN PLACE.
  - EXISTING HDPE PIPE IS 3" IPS DIAMETER, SDR-11, PE3608, COMPLIANT WITH ASTM D3035 AND AWWA-C901.
  - NEW HDPE PIPE SHALL MATCH THE DIMENSION RATIO, PRESSURE RATING, RESIN TYPE, AND CELL CLASSIFICATION OF THE EXISTING HDPE PIPE (NOTE: RESIN PE 4710 MAY BE USED).
  - HDPE FITTINGS SHALL MATCH THE DIMENSION RATIO, PRESSURE RATING, RESIN TYPE, AND CELL CLASSIFICATION OF THE ADJOINING PIPE. MOLDED FITTINGS SHALL BE IN ACCORDANCE WITH ASTM D2683 FOR SOCKET-TYPE FITTINGS, ASTM D3261 FOR BUTT-TYPE FITTINGS, OR ASTM F1055 FOR ELECTROFUSION-TYPE FITTINGS.
  - ALL HDPE PIPE JOINTS SHALL BE BUTT FUSION IN ACCORDANCE WITH ASTM 2620.
  - NEW FLOATING SUCTION STRAINER TO BE MEGATOR, DOLPHIN 3" FLOATING SUCTION STRAINER, OR ENGINEER APPROVED EQUAL.

**1 SIPHON/EFFLUENT PIPING – PLAN VIEW**  
 Scale: 1" = 50'  
 (SCALE FOR SHEET SIZE 22" X 34")



**1 SIPHON/EFFLUENT PIPING – PROFILE VIEW**  
 Scale: 1" = 20' (HORIZ.) : 1" = 10' (VERT.)  
 (SCALE FOR SHEET SIZE 22" X 34")



REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

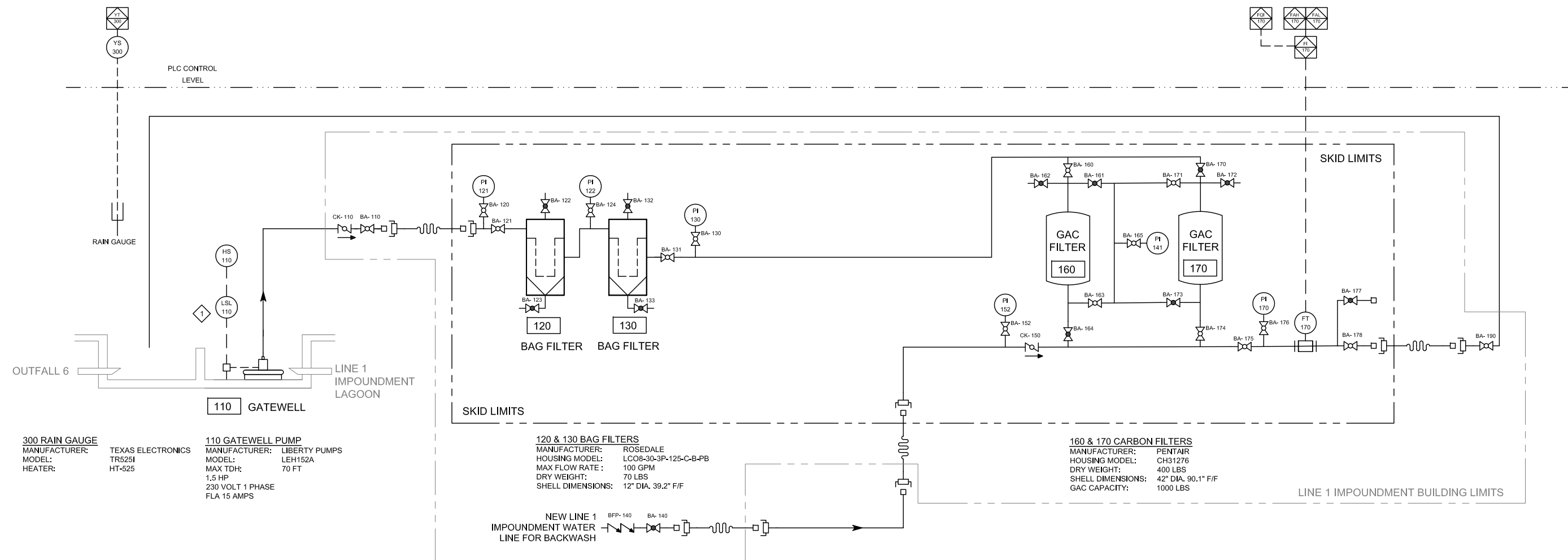
**LINE 800 LAGOON PIPING PLAN & PROFILE**

PROJECT NO.:	11340
CADD DWG FILE:	C-201 SIPHON - EFFLU PIPING P&P
DESIGNED BY:	ERV DATE: 12/16/16
DRAWN BY:	TCW DATE: 12/16/16
CHECKED BY:	BK DATE: 12/16/16
<b>C-201</b>	
SHEET 5 OF 41	









**300 RAIN GAUGE**  
 MANUFACTURER: TEXAS ELECTRONICS  
 MODEL: TR5251  
 HEATER: HT-525

**110 GATEWELL PUMP**  
 MANUFACTURER: LIBERTY PUMPS  
 MODEL: LEH152A  
 MAX TDH: 70 FT  
 1.5 HP  
 230 VOLT 1 PHASE  
 FLA 15 AMPS

**120 & 130 BAG FILTERS**  
 MANUFACTURER: ROSEDALE  
 HOUSING MODEL: LCO8-30-3P-125-C-B-PB  
 MAX FLOW RATE: 100 GPM  
 DRY WEIGHT: 70 LBS  
 SHELL DIMENSIONS: 12" DIA. 39.2" F/F

**160 & 170 CARBON FILTERS**  
 MANUFACTURER: PENTAIR  
 HOUSING MODEL: CH31276  
 DRY WEIGHT: 400 LBS  
 SHELL DIMENSIONS: 42" DIA. 90.1" F/F  
 GAC CAPACITY: 1000 LBS

**NEW LINE 1 IMPOUNDMENT WATER LINE FOR BACKWASH**  
 BFP-140 BA-140

- NOTES**
- TREATMENT SKID TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
  - THE PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT AREA TO INSIDE THE LINE 1 IMPOUNDMENT BUILDING AND MANEUVER TO LOCATION AS SHOWN ON DRAWING.
  - THE GENERAL SUBCONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES FROM GATEWELL INFLUENT TO TREATMENT SKID INFLUENT AND FROM TREATMENT SKID EFFLUENT TO GATEWELL EFFLUENT.

① PIPING AND INSTRUMENTATION DIAGRAM

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

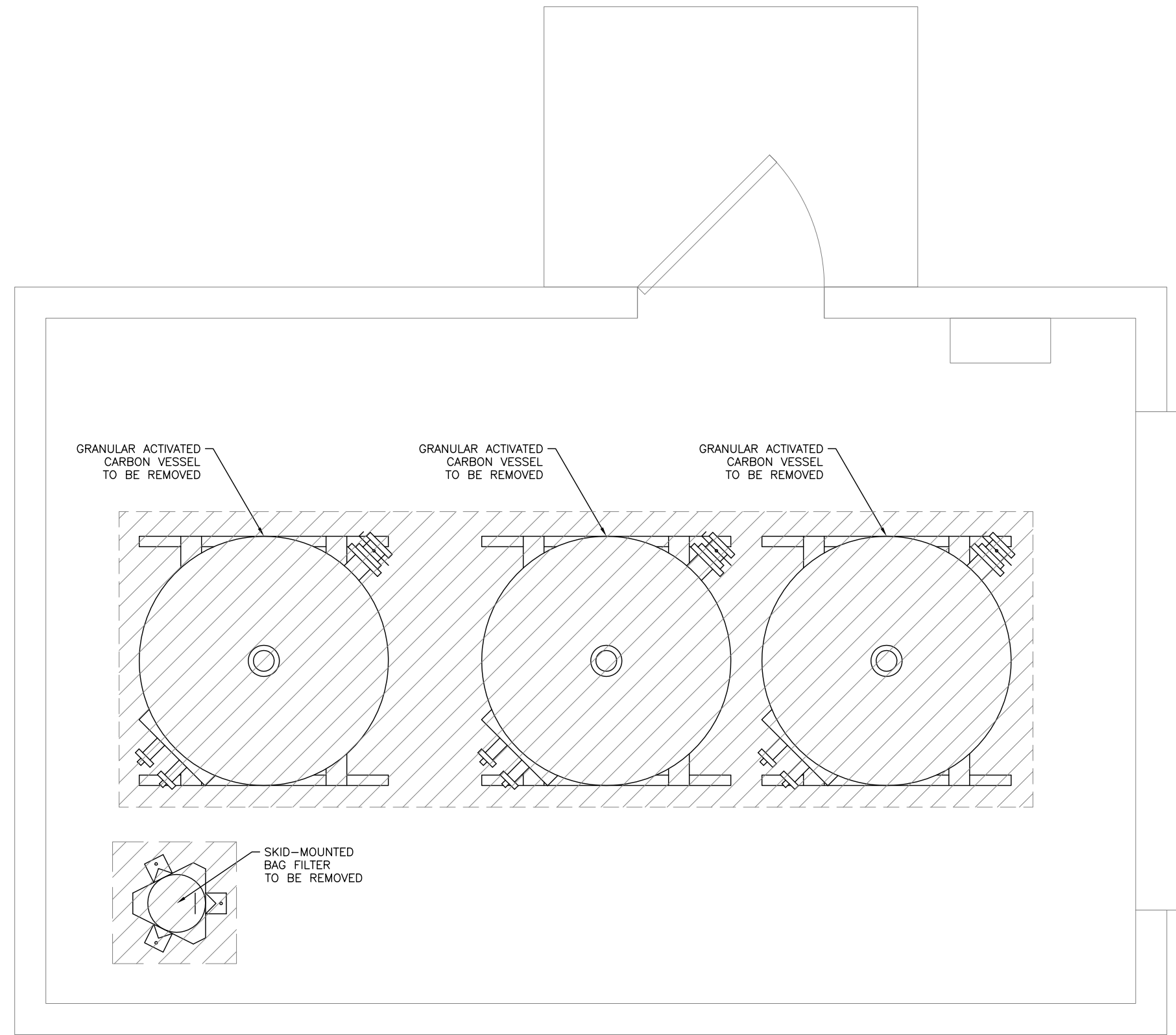
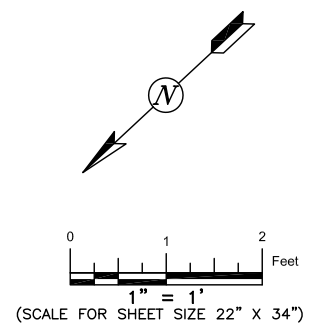
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 (614) 508-1200  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 1 IMPOUNDMENT PIPING & INSTRUMENTATION DIAGRAM**

PROJECT NO.:	11340
CADD DWG FILE:	M-202 LINE 1 PID
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-202</b>	
SHEET 8 OF 41	



**NOTES**

1. THE PRIME CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
2. THE PRIME CONTRACTOR SHALL REVIEW EQUIPMENT AND MATERIALS DEMOLITION WITH THE OPERATOR OF THE SYSTEM PRIOR TO BEGINNING DEMOLITION ACTIVITIES.
3. THE PRIME CONTRACTOR SHALL DISPOSE OF ALL MATERIAL IN ACCORDANCE WITH ALL FEDERAL, STATE, LOCAL, AND OWNERS LAWS AND REGULATIONS.
4. THE PRIME CONTRACTOR SHALL REMOVE ALL EXISTING HOSE.

**1 LINE 1 IMPOUNDMENT DEMOLITION PLAN**

Scale: 1" = 1'  
(SCALE FOR SHEET SIZE 22" X 34")



REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	DATE	DESCRIPTION	DRAWN	DRAFT	PROJ	LEAD
			BY	CHK	ENGR	ENGR
0	6/20/18	AS-BUILTS				

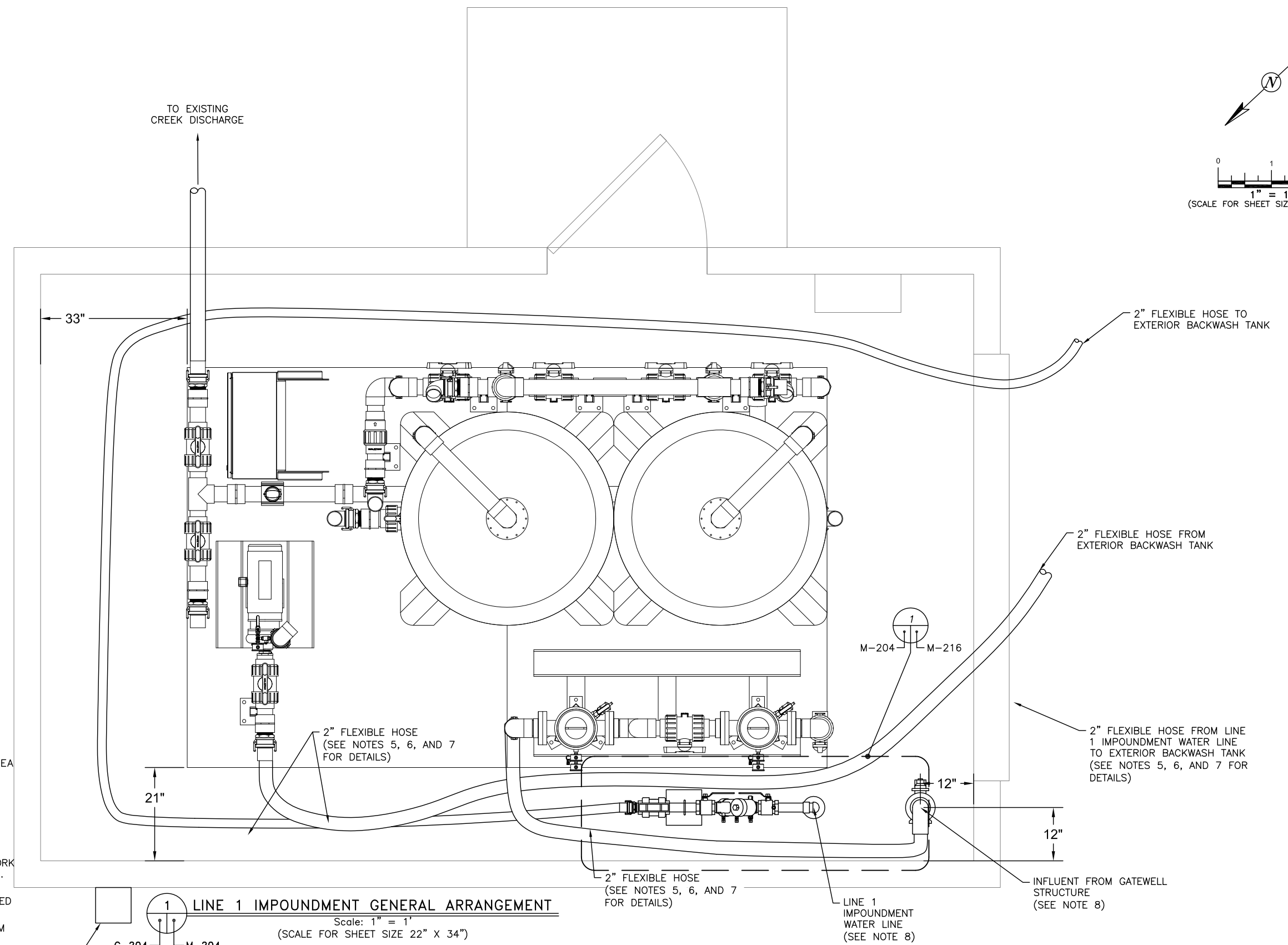
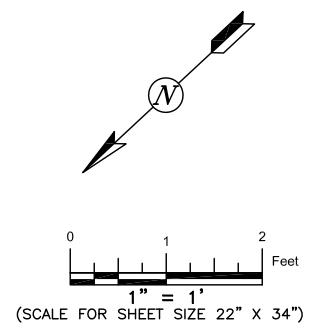
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MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 1 IMPOUNDMENT SYSTEM DEMOLITION PLAN**

PROJECT NO.:	11340
CADD DWG FILE:	M-203 SYSTEM DEMOLITION PLAN - LINE 1
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-203</b>	
SHEET 9 OF 41	



**NOTES**

1. ALL WORK DETAILED ON THIS SHEET SHALL BE PERFORMED BY THE PRIME CONTRACTOR EXCEPT AS EXPLICITLY NOTED.
2. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. THE PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT AREA TO INSIDE THE LINE 1 IMPOUNDMENT BUILDING AND MANEUVER TO LOCATION AS SHOWN ON DRAWING.
3. THE PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES FROM GATEWELL INFLUENT TO TREATMENT SKID INFLUENT AND FROM TREATMENT SKID EFFLUENT TO GATEWELL EFFLUENT.
4. THE PRIME CONTRACTOR SHALL SUPPLY ALL THE EQUIPMENT/MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
5. CAM LOCK: BANJO, CAM LEVER COUPLINGS, POLYPROPYLENE, EPDM GASKETS OR ENGINEER APPROVED EQUAL.
6. FLEX HOSE: 2-INCH PVC SUCTION HOSE, 40 PSI MINIMUM PRESSURE RATING.
7. FLEXIBLE HOSE: EACH FLEXIBLE HOSE CONNECTION SHALL HAVE ONE MALE AND ONE FEMALE CAM LOCK FITTING ATTACHED.
8. SIGNAGE SHALL BE PROVIDED ABOVE EACH LINE CLEARLY IDENTIFYING THE WATER LINE AND INFLUENT LINE.

**LINE 1 IMPOUNDMENT GENERAL ARRANGEMENT**  
 Scale: 1" = 1'  
 (SCALE FOR SHEET SIZE 22" X 34")

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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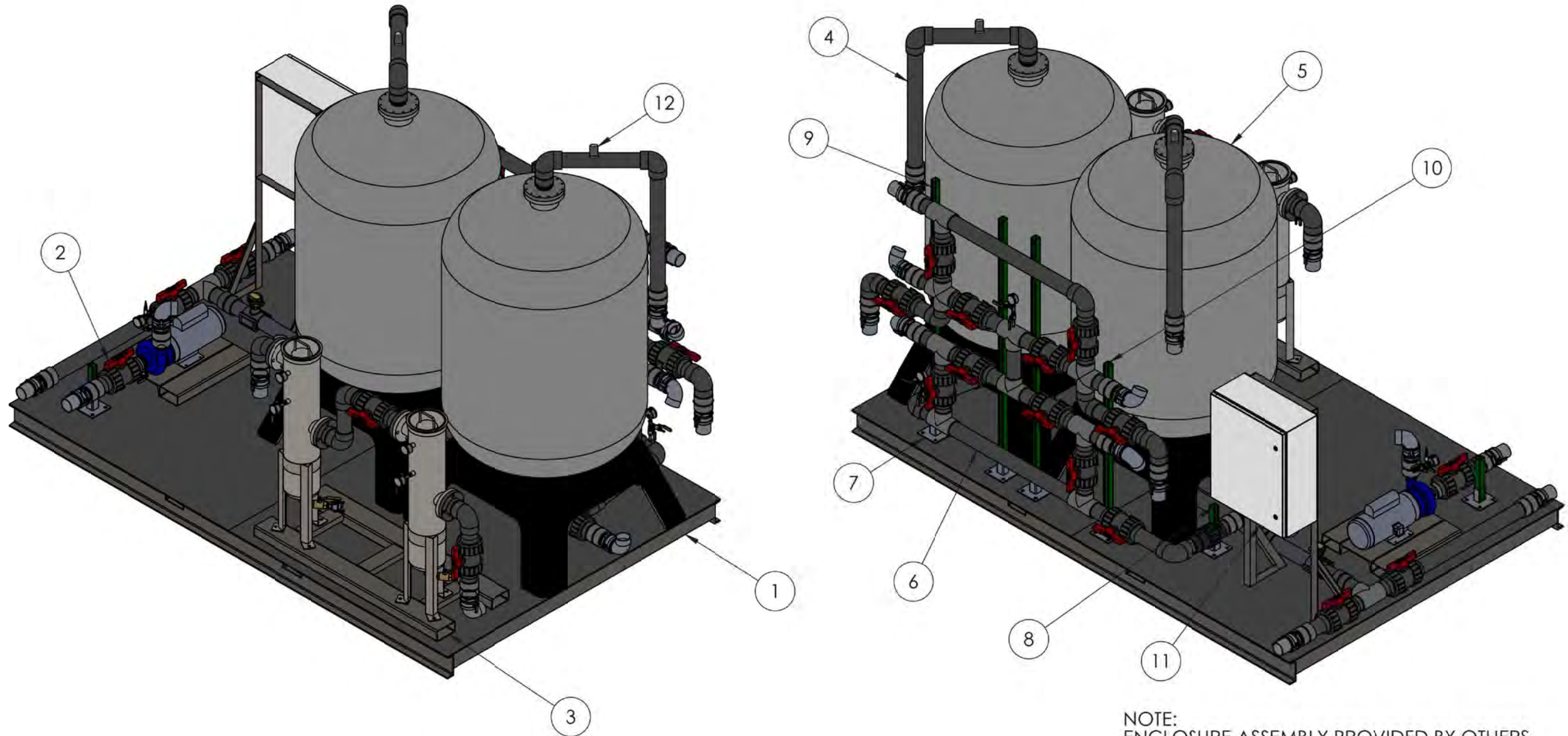
US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 1 IMPOUNDMENT SYSTEM GENERAL ARRANGEMENT**

PROJECT NO.:	11340
CADD DWG FILE:	M-204 LINE 1 SYS GEN ARRANGEMENT
DESIGNED BY:	ERV DATE: 12/16/16
DRAWN BY:	TCW DATE: 12/16/16
CHECKED BY:	BK DATE: 12/16/16
<b>M-204</b>	
SHEET 10 OF 41	

ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	WELDING					SKID WELDMENT ASSEMBLY LINE 1
2	1						BW PUMP SKID ASSEMBLY LINE 1
3	1						BAG FILTER ASSEMBLY LEAD LAG
4	1	PLUMBING					GAC VESSEL ASSEMBLY LH
5	1	PLUMBING					GAC VESSEL ASSEMBLY RH
6	1	PLUMBING					LINE 1 MANIFOLD ASSEMBLY
7	6	PLUMBING	COOPER B-LINE	B280SQ			POST BASE FOR B22 UNISTRUT
8	2	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 12" LONG
9	3	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 72" LONG
10	1	PLUMBING	COOPER B-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 48" LONG
11	1	ELECTRICAL	SAGINAW CONTROL & ENGINEERING	SCE-30EL2410LP			EL ENCLOSURE - 30"H X 24"W X 10"D
12	2	PLUMBING	HOFFMAN SPECIALTY	MODEL 62			VACUUM BREAKER

SEE NOTE



NOTE:  
ENCLOSURE ASSEMBLY PROVIDED BY OTHERS

**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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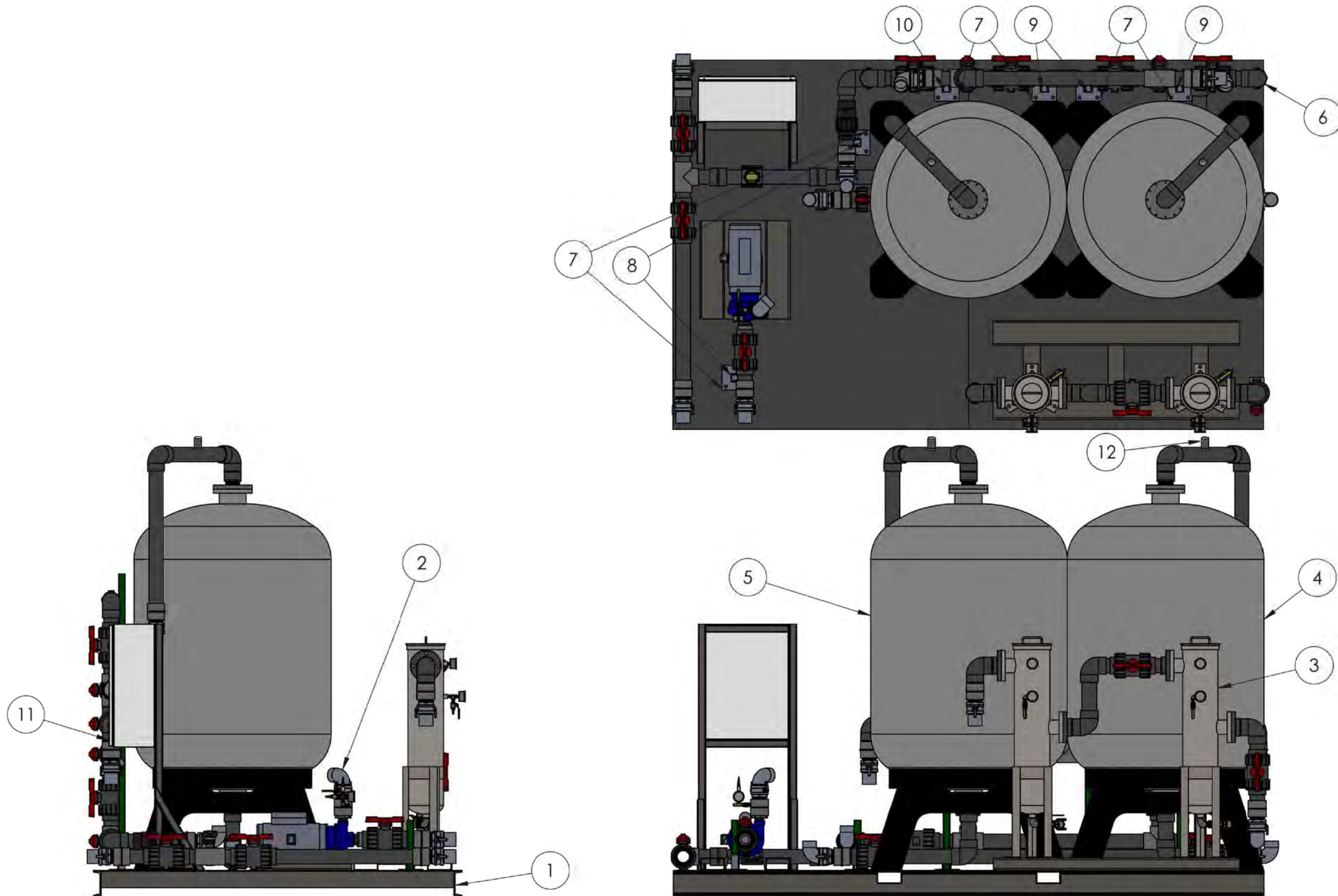
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MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 1 TREATMENT SKID  
ISOMETRIC LAYOUT**

PROJECT NO.:	11340
CADD DWG FILE:	M-205 LINE 1 SKID ISO LAYOUT
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-205**  
SHEET 11 OF 41



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG DRAWN BY	ERV DRAFT CHK	ERV PROJ ENGR	BK LEAD ENGR
0	6/20/18	AS-BUILTS				

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 Westerville, OH 43081  
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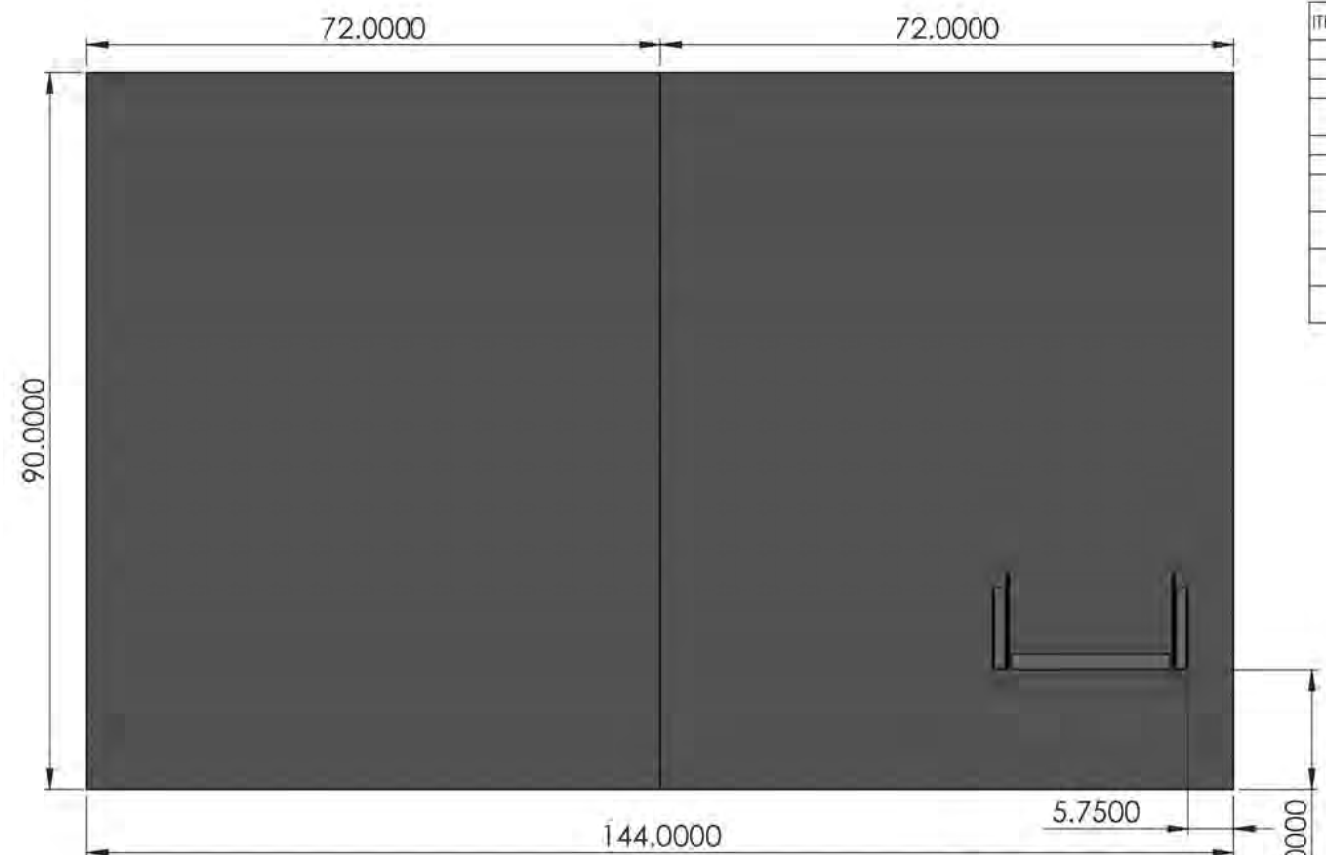
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 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
 LAGOON OPTIMIZATION**

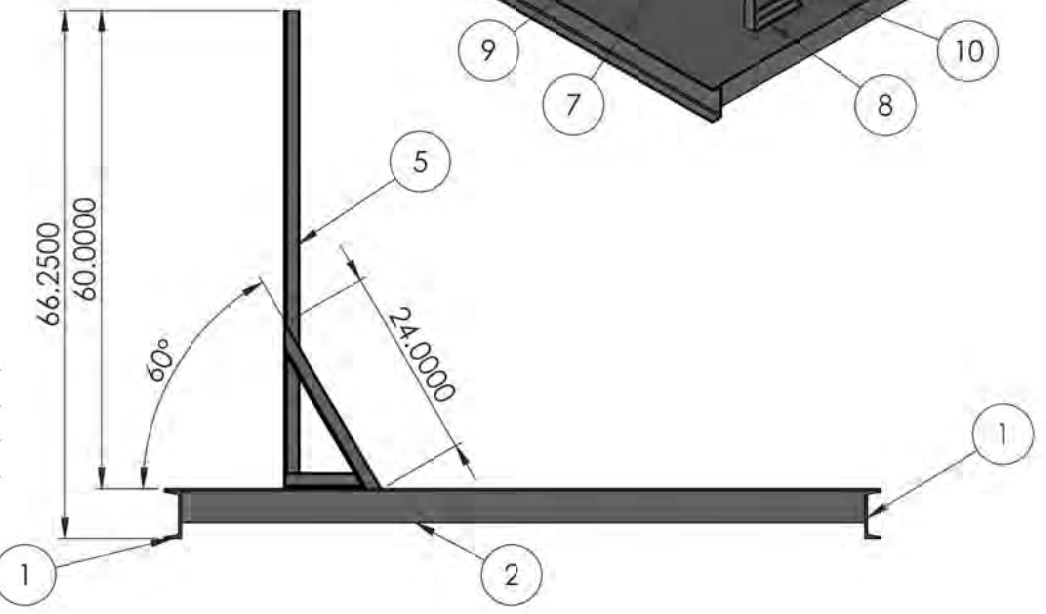
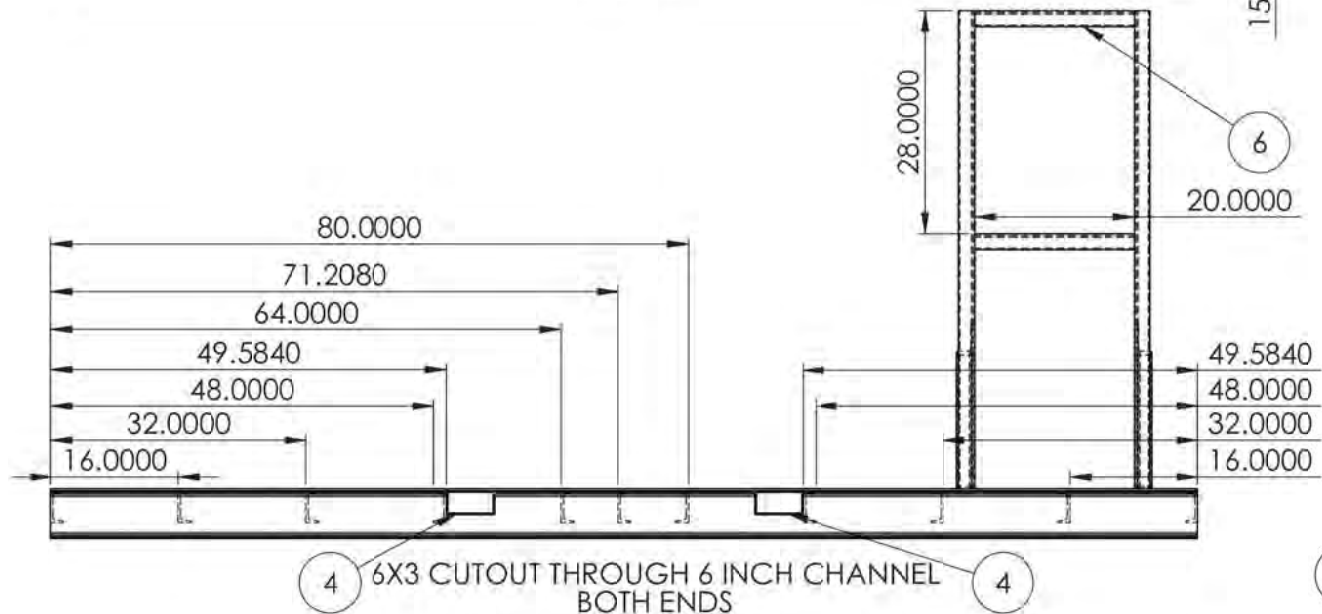
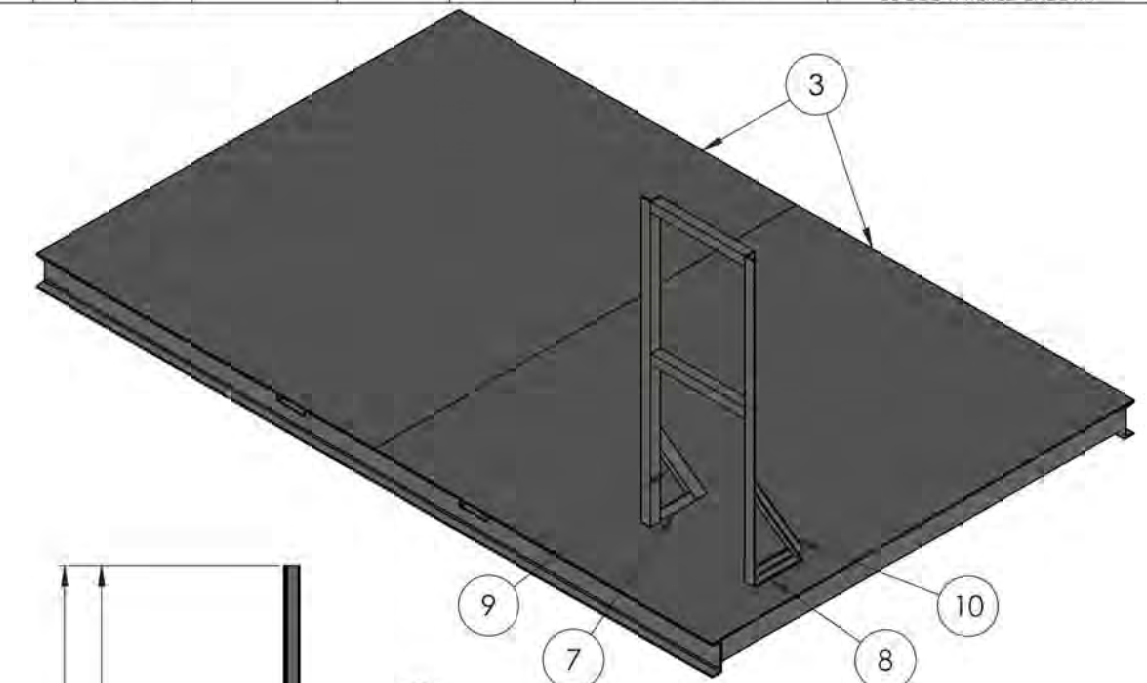
**LINE 1 TREATMENT SKID PLAN  
 LAYOUT**

PROJECT NO.:	11340
CADD DWG FILE:	M-206 LINE 1 SKID PLAN LAYOUT
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-206**  
 SHEET 12 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	2	WELDING				CARBON STEEL	C-CHANNEL 6" - 144" LONG CS
2	11	WELDING				CARBON STEEL	C-CHANNEL 4" - 85.9375" LONG CS
3	2	WELDING				ASTM A-36 HR CARBON STEEL	PLATE -0.25" THK X 72" X 90" CS
4	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 6"X3"-86.5625" LONG
5	2	WELDING				CARBON STEEL	ANGLE 2"X2" - 60" LONG CS
6	2	WELDING				CARBON STEEL	ANGLE 2"X2" - 20" LONG CS
7	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 9.6875" LONG CS 30 DEG MITERED END LH
8	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 9.6875" LONG CS 30 DEG MITERED END RH
9	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 24" LONG CS 60 DEG 30 DEG MITERED ENDS LH
10	1	WELDING				CARBON STEEL	ANGLE 2"X2" - 24" LONG CS 60 DEG 30 DEG MITERED ENDS RH



**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
1	6/20/18	AS-BUILTS				

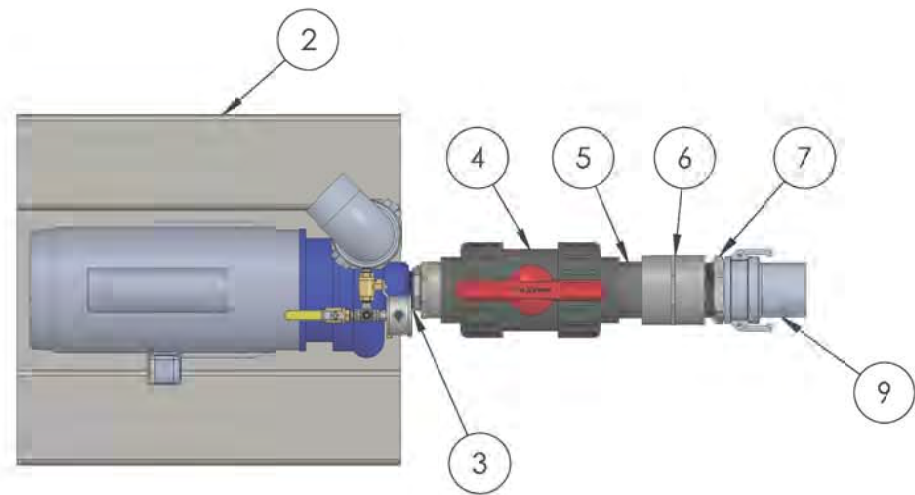
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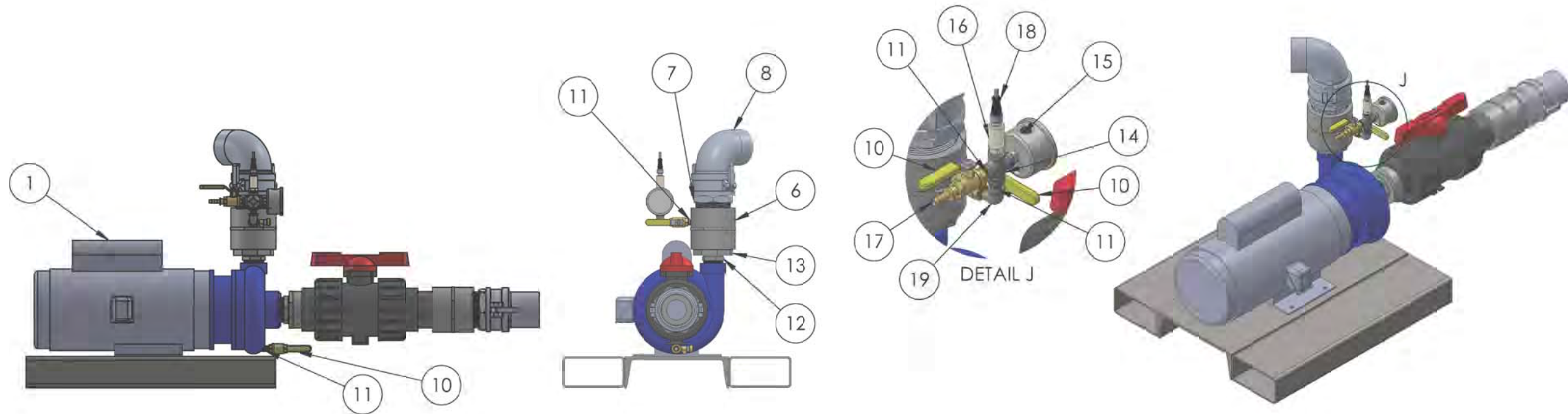
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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 1 TREATMENT SKID WELDING ASSEMBLY -SYSTEM BASE**

PROJECT NO.:	11340
CADD DWG FILE:	M-207 LINE 1 WELD SYSTEM BASE
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-207</b>	
SHEET 13 OF 41	



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	GOULDS	38F1H5C0			GOULDS PUMP 1.5"X2" NPT
2	1	WELDING					BW PUMP SKID BASE ASSEMBLY LINE 1
3	1	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SLIP X MNPT PVC
4	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
5	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
6	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
7	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
8	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
9	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
10	3	PLUMBING	APOLLO	94A-101		BRASS	0.25" BRASS BALL VALVE
11	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
12	1	PLUMBING	IPEX	861-015		SCHEDULE 80 PVC	MALE ADAPTER -1.5" SLIP X MNPT
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	BUSHING REDUCER 2" TO 1.5" SLIP X SOCKET PVC
14	1	PLUMBING				GALVANIZED STEEL	CROSS 0.25" THREADED GS
15	1	PLUMBING	PRECISION INSTRUMENTS	202L-254E			PRESSURE GAUGE 0-100 PSI CENTER MOUNT
16	1	PLUMBING	PROSENSE	STPD25-20-0100H			PRESSURE TRANSDUCER 0-100 PSI 4-20mA 0.25" MNPT
17	1	PLUMBING	INDUSTRIAL SPECIALTIES			BRASS	HOSE BARB 0.25" THREADED BRASS
18	1	ELECTRICAL	AUTOMATION DIRECT	CD12L-0B-020-A0			CABLE M12 PVC JACKET 2 METER IP67 FOR PROSENSE TRANSMITTERS
19	1	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 50 0.25" THREADED GS



**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

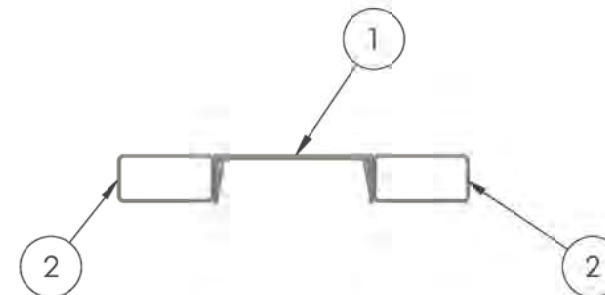
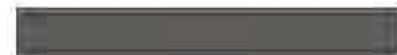
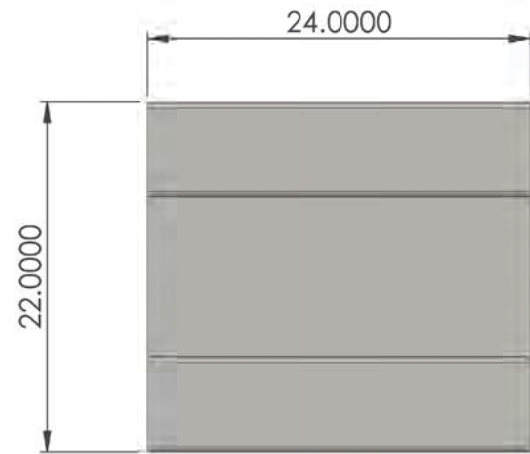
**LINE 1 TREATMENT SKID PUMP  
ASSEMBLY**

PROJECT NO.:	11340
CADD DWG FILE:	M-208 LINE 1 PUMP ASSEMBLY
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-208**  
SHEET 14 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	WELDING				CARBON STEEL	C-CHANNEL 10" -24" LONG CS
2	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 6"X3"-24" LONG



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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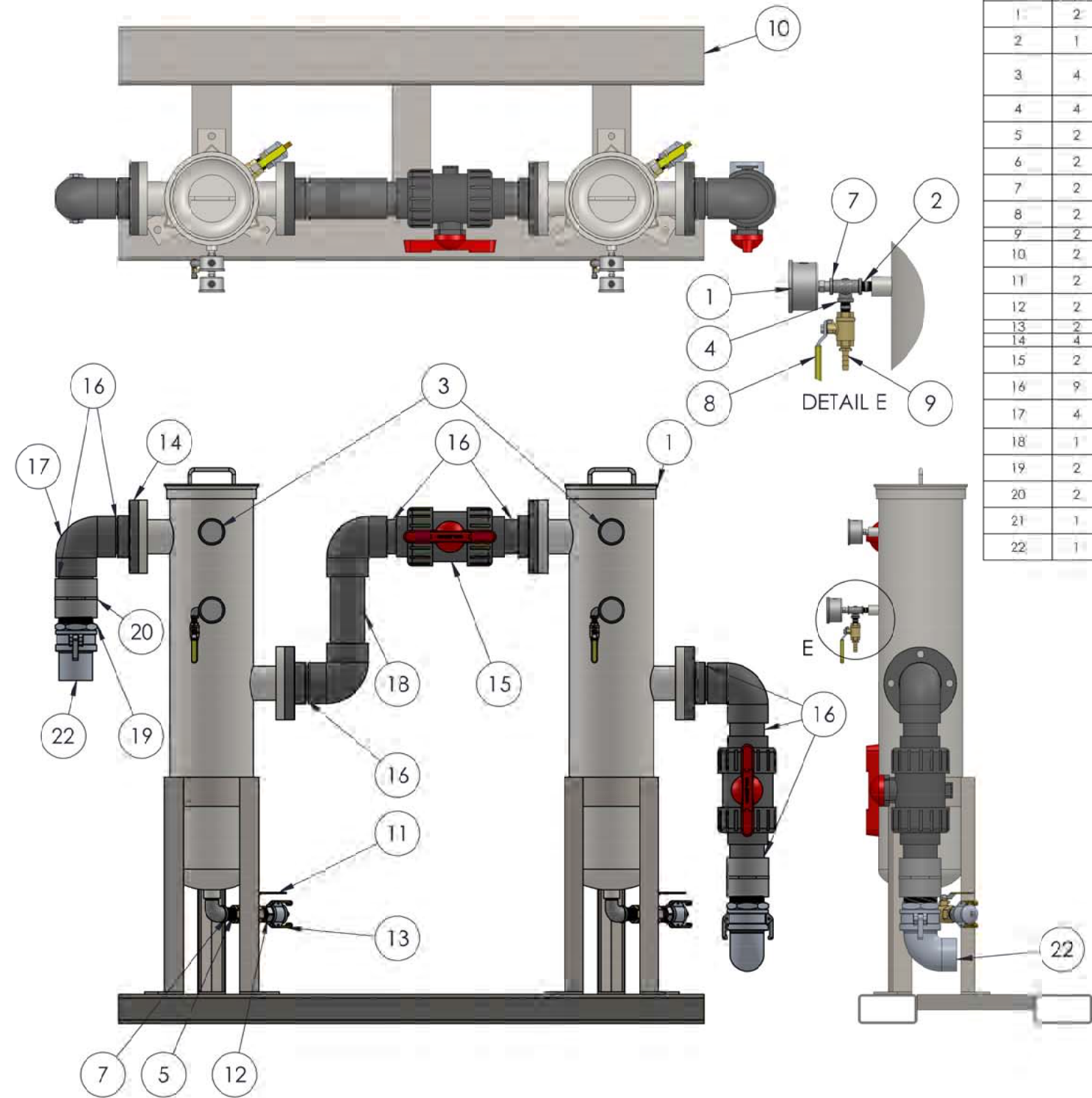
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

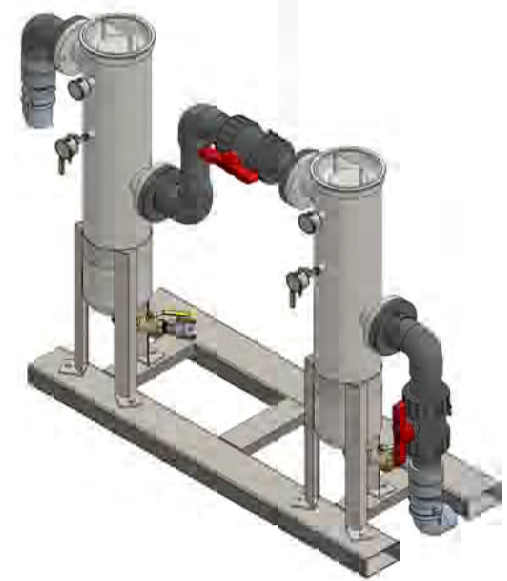
**LINE 1 TREATMENT SKID WELDING  
ASSEMBLY - PUMP BASE**

PROJECT NO.:	11340
CADD DWG FILE:	M-209 LINE 1 TREATMENT SKID WELDING ASSEMBLY - PUMP BASE
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-209**  
SHEET 15 OF 41



ITEM NO.	Default Qty.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROJECT PART NO.	MATERIAL	DESCRIPTION
1	2	PLUMBING	ROSEDALE			CARBON STEEL	BAG FILTER HOUSING 2" FLANGE INLET & OUTLET
2	1	WELDING					BAG FILTER BASE SKID ASSEMBLY
3	4	PLUMBING	PRECISION INSTRUMENTS	202L-254E			PRESSURE GAUGE 0-100 PSI CENTER MOUNT
4	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
5	2	PLUMBING				GALVANIZED STEEL	PIPE 1" - NEAR THREADED GS
6	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 0.25" THREADED GS
7	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 1" THREADED GS
8	2	PLUMBING				GALVANIZED STEEL	TEE 0.25" THREADED GS
9	2	PLUMBING	APOLLO INDUSTRIAL SPECIALTIES	94A-101		BRASS	0.25" BRASS BALL VALVE HOSE BARB 0.25" THREADED BRASS
10	2	PLUMBING	APOLLO	94A-105		BRASS	BALL VALVE 1" THREADED BRASS
11	2	PLUMBING	DIXON	G100-F-AL		ALUMINUM	MALE CAMLOCK 1" MALE THREADED AL
12	2	PLUMBING	DIXON	100-DC-AL		ALUMINUM	CAP 1" CAMLOCK AL
13	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FLANGE 2" SOCKET PCV
14	4	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
15	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
16	9	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
17	4	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 10.5" LONG SLIP PVC
18	1	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
19	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
20	2	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
21	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
22	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL



**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR			
0	6/20/18	AS-BUILTS				

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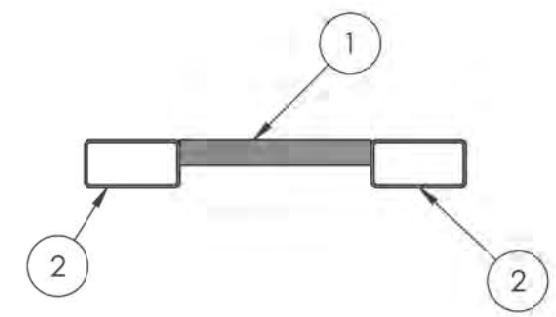
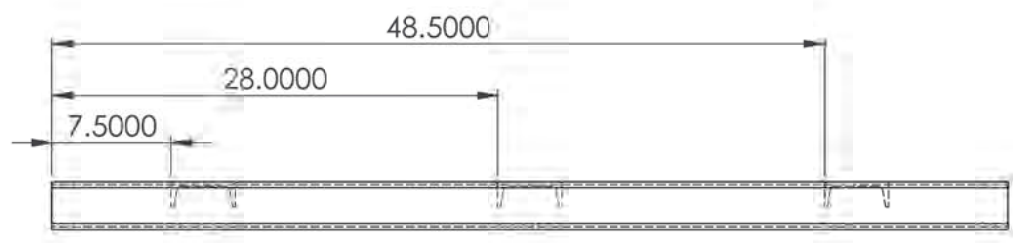
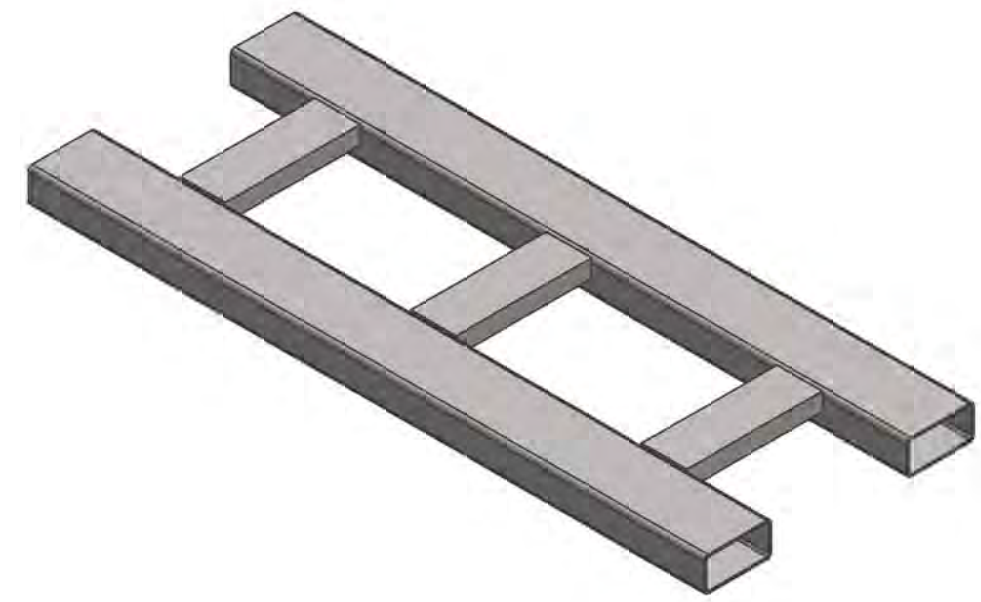
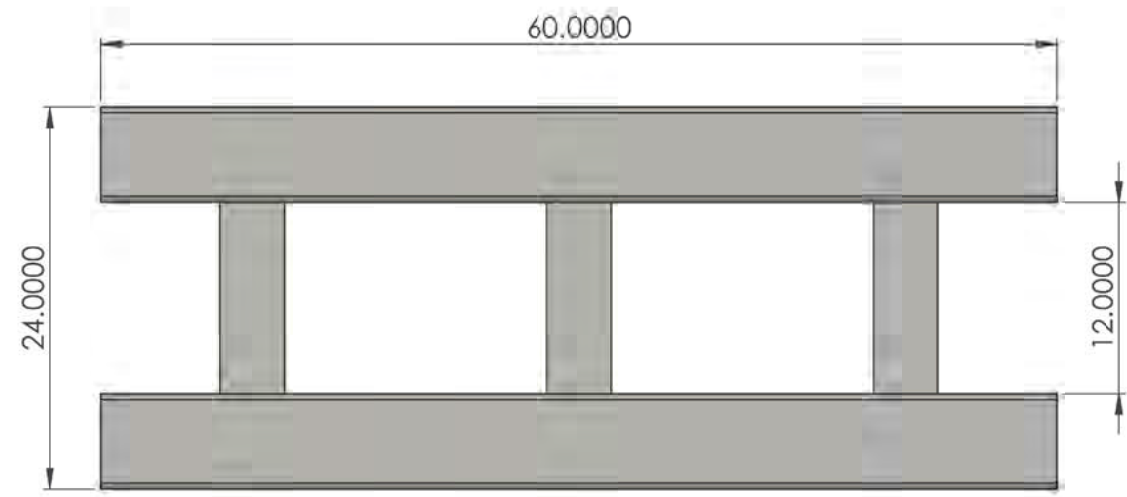
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 1 TREATMENT SKID EQUIPMENT ASSEMBLY FILTER - BAG FILTER**

PROJECT NO.:	11340
CADD DWG FILE:	M-210 LINE 1 EQUIP BAG FILTER
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	EK
DATE:	12/16/16
<b>M-210</b>	
SHEET 16 OF 41	

ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	3	WELDING				CARBON STEEL	C-CHANNEL 4" - 12" LONG CS
2	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 6"X3"-60" LONG



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

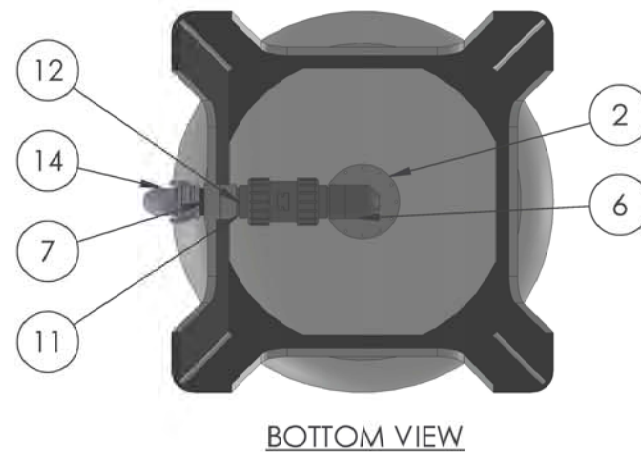
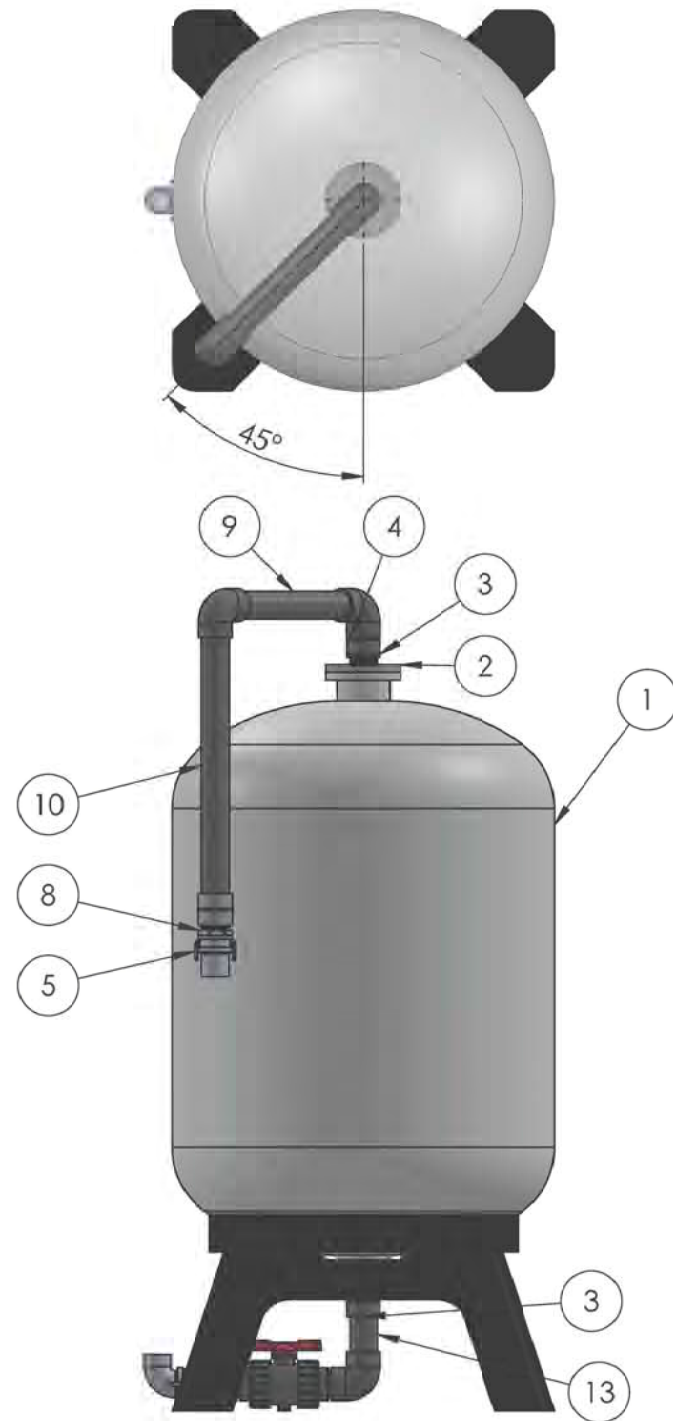
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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 1 TREATMENT SKID WELDING ASSEMBLY - BAG FILTER**

PROJECT NO.:	11340
CADD DWG FILE:	M-211 LINE 1 WELD BAG FILTER
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-211</b>	
SHEET 17 OF 41	



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	PENTAIR			FIBERGLASS	CARBON VESSEL 42" X 72" FG
2	2	PLUMBING				CPVC	FLANGE 6" SNA TO 2" THREADED CPVC
3	2	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SOCKET X MNPT PVC
4	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
5	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
6	3	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
7	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
8	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
9	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 22" LONG SLIP PVC
10	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
11	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
12	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8" LONG SLIP PVC
14	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL



**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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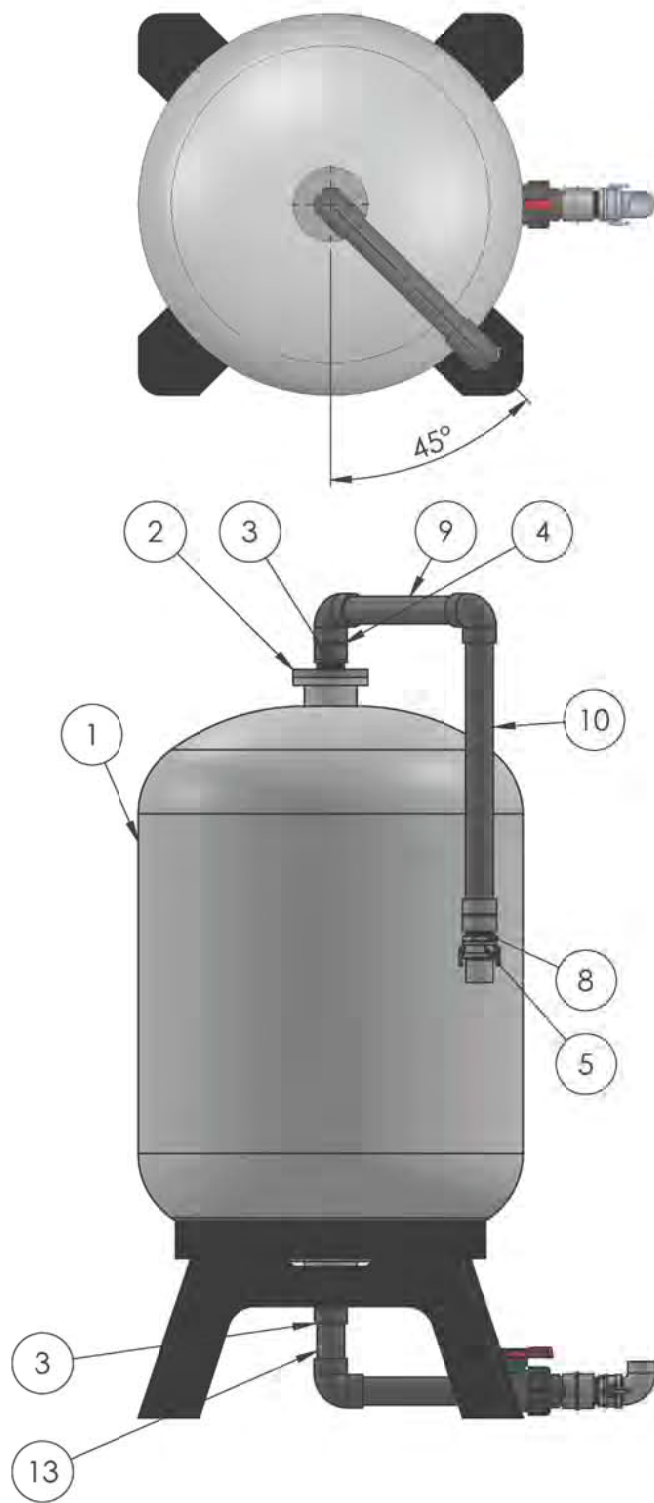
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

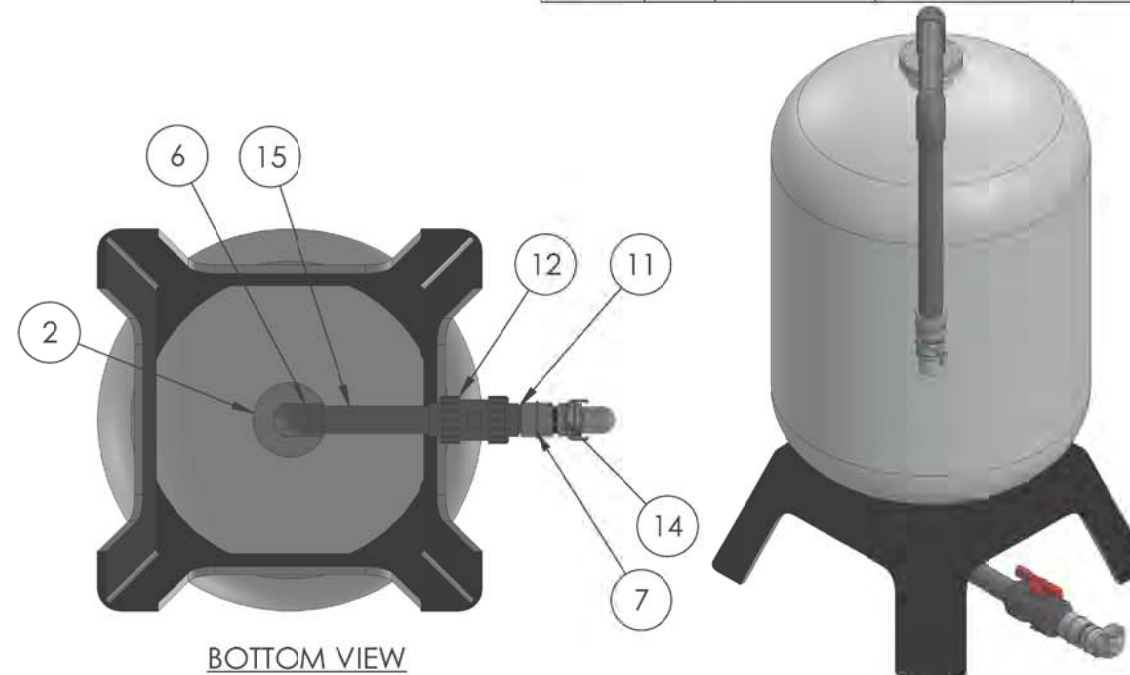
**LINE 1 TREATMENT SKID  
EQUIPMENT - GAC VESSEL LH**

PROJECT NO.:	11340
CADD DWG FILE:	M-212 LINE 1 EQUIP GAC LH
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	EK
DATE:	12/16/16

**M-212**  
SHEET 18 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	PENTAIR			FIBERGLASS	CARBON VESSEL 42" X 72" FG
2	2	PLUMBING				CPVC	FLANGE 6" SNA TO 2" THREADED CPVC
3	2	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SOCKET X MNPT PVC
4	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
5	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
6	3	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
7	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
8	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
9	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 22" LONG SLIP PVC
10	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
11	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
12	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8" LONG SLIP PVC
14	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
15	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 16" LONG SLIP PVC



BOTTOM VIEW

NOTES

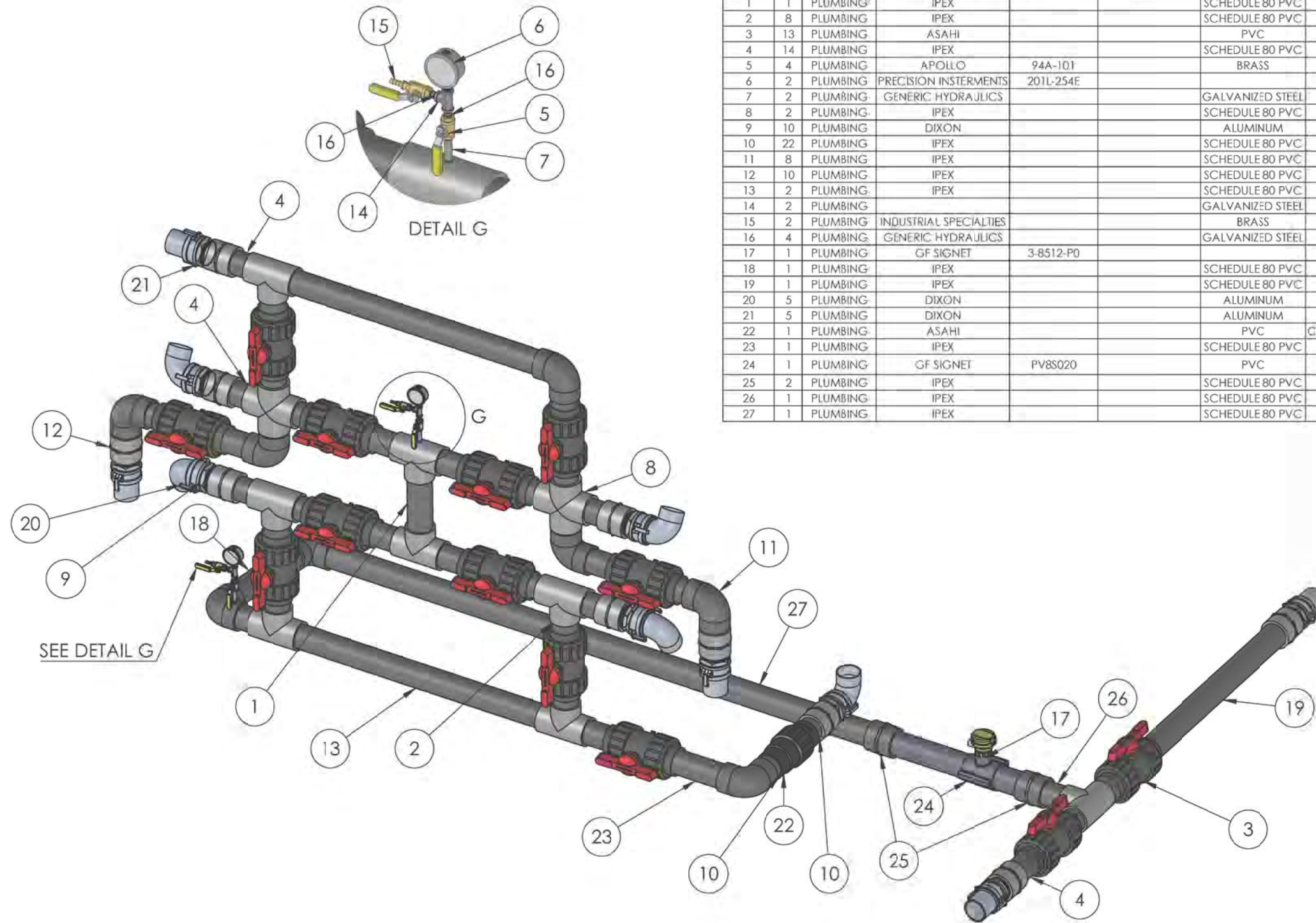
- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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US ARMY CORPS OF ENGINEERS IOWA ARMY AMMUNITION PLANT MIDDLETOWN, IOWA <b>LINE 1 IMPOUNDMENT &amp; LINE 800 LAGOON OPTIMIZATION</b>		PROJECT NO.: 11340
CADD DWG FILE: M-213 LINE 1 EQUIP GAC RH		DATE: 12/16/16
DESIGNED BY: ERV	DATE: 12/16/16	
DRAWN BY: TCW	DATE: 12/16/16	
CHECKED BY: BK	DATE: 12/16/16	
<b>LINE 1 TREATMENT SKID EQUIPMENT - GAC VESSEL RH</b>		<b>M-213</b> SHEET 19 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 12" LONG SLIP PVC
2	8	PLUMBING	IPEX			SCHEDULE 80 PVC	TEE 2" SOCKET PVC
3	13	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
4	14	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 6" LONG SLIP PVC
5	4	PLUMBING	APOLLO	94A-101		BRASS	0.25" BRASS BALL VALVE
6	2	PLUMBING	PRECISION INSTRUMENTS	201L-254E			PRESSURE GAUGE 0-100 PSI LOWER MOUNT
7	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - 2.5" LONG THREADED GS
8	2	PLUMBING	IPEX			SCHEDULE 80 PVC	CROSS 2" SOCKET PVC
9	10	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
10	22	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
11	8	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
12	10	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
13	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 42.75" LONG SLIP PVC
14	2	PLUMBING				GALVANIZED STEEL	TEE 0.25" THREADED GS
15	2	PLUMBING	INDUSTRIAL SPECIALTIES			BRASS	HOSE BARB 0.25" THREADED BRASS
16	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
17	1	PLUMBING	GF SIGNET	3-8512-P0			PADDLE WHEEL FLOW METER 0.5" TO 4" PIPE
18	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 20" LONG SLIP PVC
19	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
20	5	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
21	5	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
22	1	PLUMBING	ASAHI			PVC	CHECK VALVE 2" SOCKET SINGLE UNION PVC EPDM
23	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 10" LONG SLIP PVC
24	1	PLUMBING	GF SIGNET	PV8S020		PVC	TEE WITH PIPE INSTALLATION FITTING -2" PVC
25	2	PLUMBING	IPEX			SCHEDULE 80 PVC	COUPLER -2" SOCKET PVC
26	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 6.5" LONG SLIP PVC
27	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 90.75" LONG SLIP PVC

**NOTES**

- TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
- PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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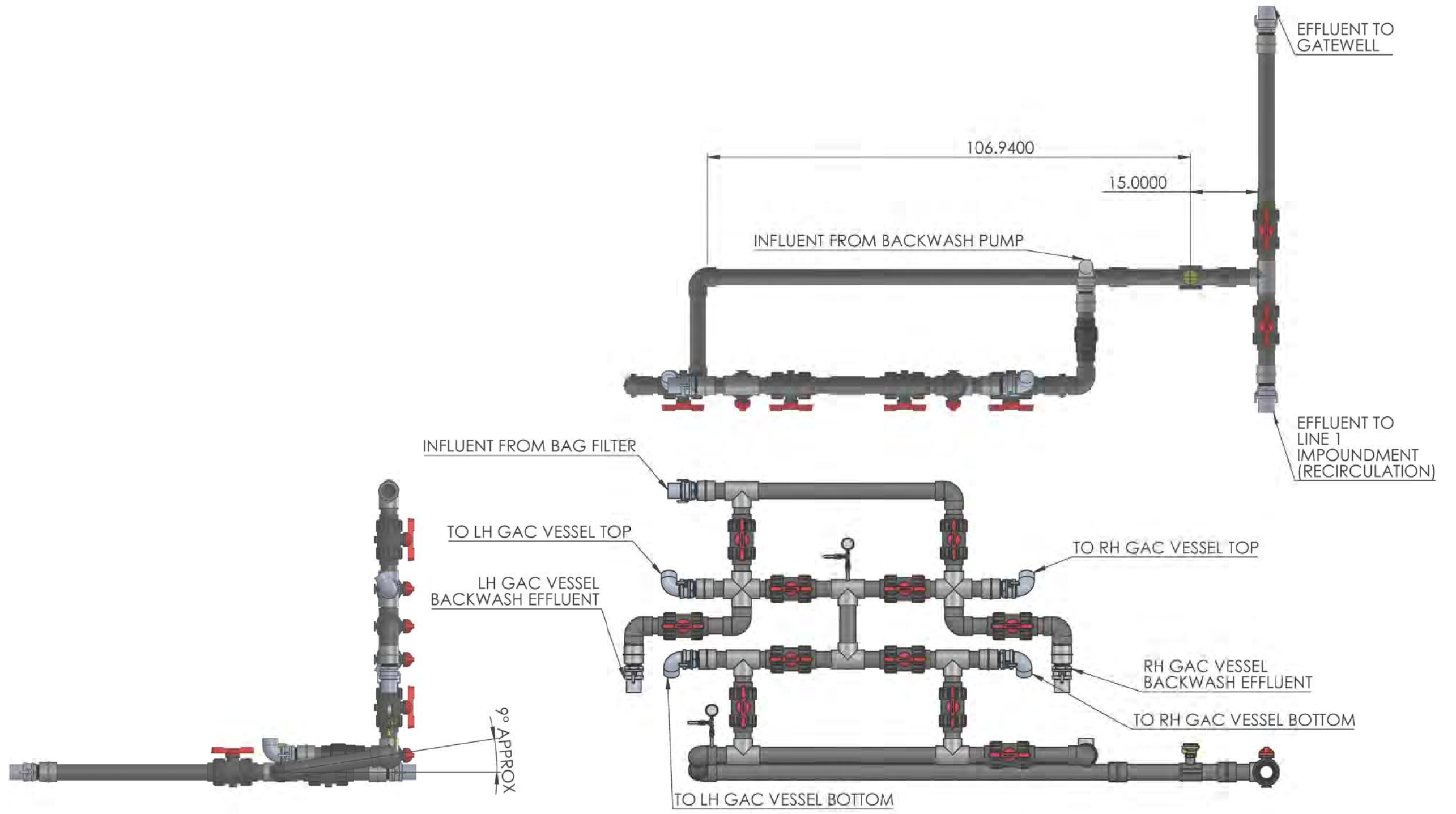
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 1 TREATMENT SKID  
ISOMETRIC MANIFOLD LAYOUT**

PROJECT NO.:	11340
CADD DWG FILE:	M-214 LINE 1 ISO MANIFOLD
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-214**  
SHEET 20 OF 41



**NOTES**

1. TREATMENT SKID TO BE SUPPLIED BY THE WATER TREATMENT SUBCONTRACTOR. PRIME CONTRACTOR SHALL TRANSPORT SKID FROM LINE 1 IMPOUNDMENT DRIVE AREA TO INSIDE LINE 1 IMPOUNDMENT AND MANEUVER TO THE LOCATION SHOWN ON MECHANICAL DRAWING M-204 OF THIS DESIGN PACKAGE.
2. PRIME CONTRACTOR SHALL SUPPLY AND INSTALL FLEXIBLE HOSES AS SHOWN ON DRAWING M-204.
3. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
 LAGOON OPTIMIZATION**

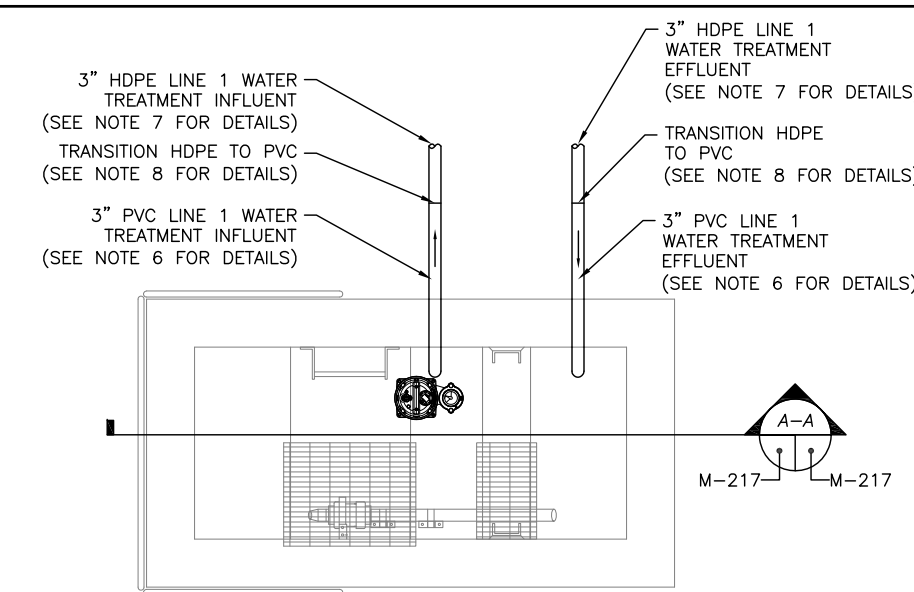
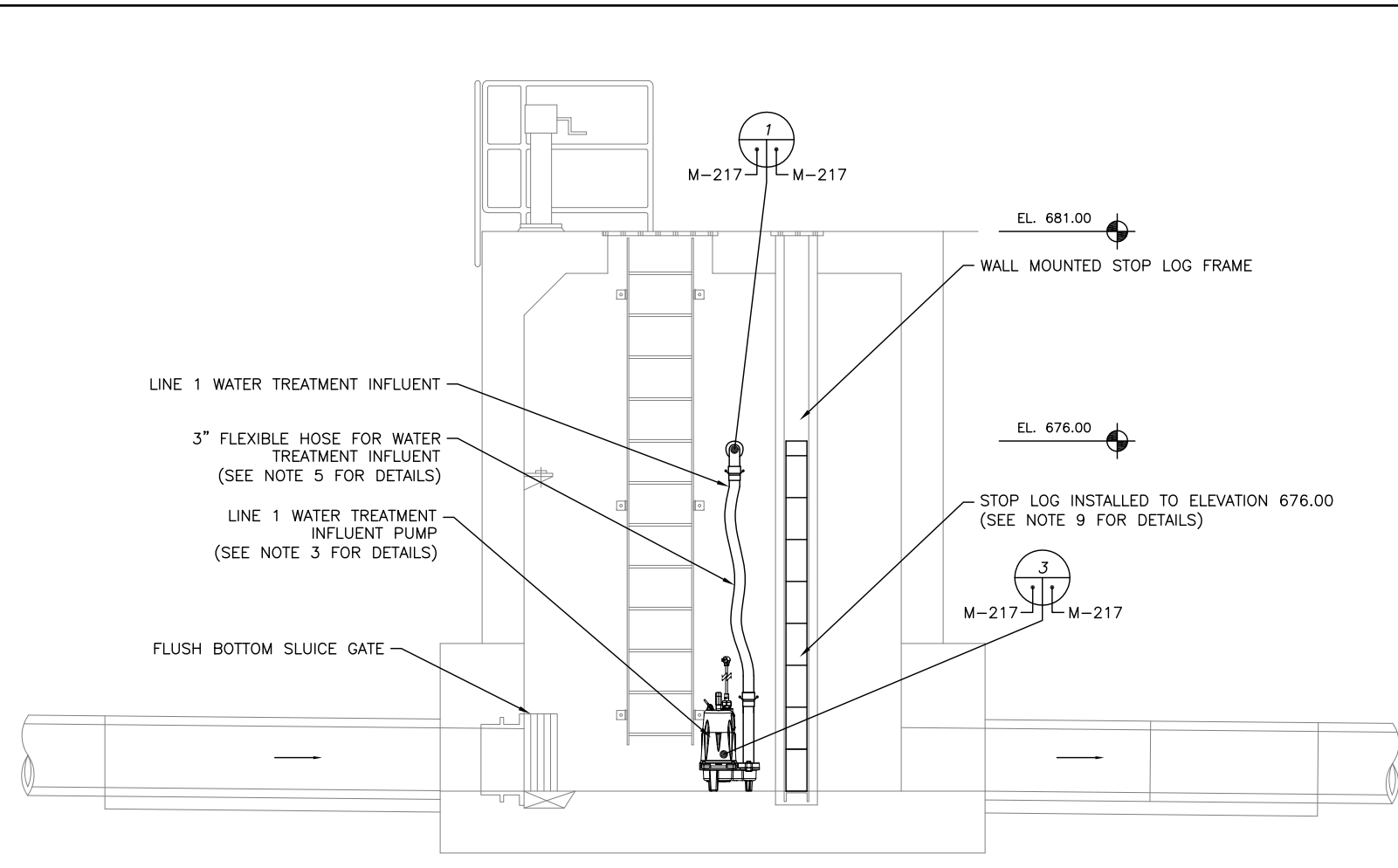
**LINE 1 TREATMENT SKID PIPING  
 ASSEMBLY**

PROJECT NO.:	11340
CADD DWG FILE:	M-215 LINE 1 PIPING ASSEMBLY
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-215**  
 SHEET 21 OF 41

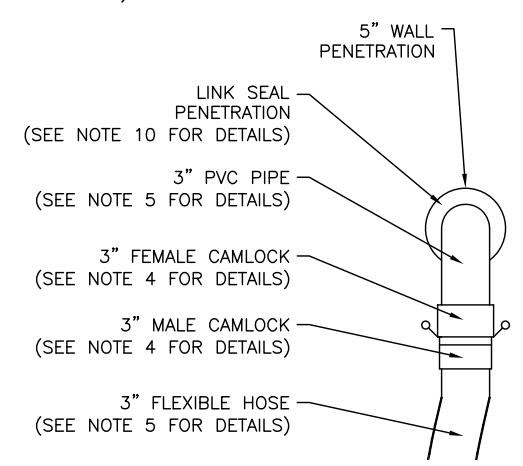




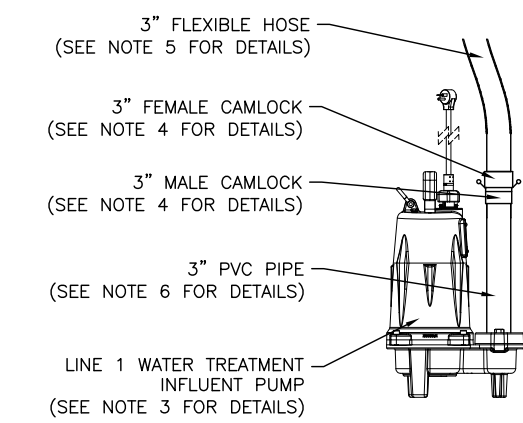


**2 GATEWELL PLAN VIEW**  
 Scale: 1" = 2'  
 (SCALE FOR SHEET SIZE 22" X 34")

**A-A SECTION A-A**  
 Scale: 1" = 2'  
 (SCALE FOR SHEET SIZE 22" X 34")



**1 INFLUENT DETAIL**  
 Scale: 2" = 1'  
 (SCALE FOR SHEET SIZE 22" X 34")



**3 INFLUENT PUMP DETAIL**  
 Scale: 1" = 1'  
 (SCALE FOR SHEET SIZE 22" X 34")

**NOTES**

1. ALL WORK DETAILED ON THIS SHEET SHALL BE PERFORMED BY THE PRIME CONTRACTOR EXCEPT AS EXPLICITLY NOTED.
2. PRIME CONTRACTOR SHALL SUPPLY ALL THE EQUIPMENT/MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
3. INFLUENT PUMP: LIBERTY PUMPS, LEH150-SERIES, MODEL LEH152A3, 208-230 VOLT, SINGLE PHASE, 15 AMP, 3-INCH DISCHARGE, AUTOMATIC
4. CAM LOCK: BANJO, CAM LEVER COUPLINGS, POLYPROPYLENE, EPDM GASKETS OR ENGINEER APPROVED EQUAL.
5. FLEX HOSE: 3-INCH PVC SUCTION HOSE, 40 PSI MINIMUM PRESSURE RATING.
6. PVC PIPE AND FITTINGS: 3-INCH SCHEDULE 80 PVC PIPE, TYPE 1, GRADE 1, CELL CLASSIFICATION 12454, MINIMUM WORKING PRESSURE 250 PSI.
7. HDPE PIPE: 3-INCH SDR 17 HDPE PIPE, PE4710 RESIN, JOINTS SHALL BE BUTT FUSED IN CONFORMANCE WITH ASTM F 2620.
8. HDPE TO PVC PIPE TRANSITION: ISCO INDUSTRIES, HDPE TO PVC TRANSITION FITTING, TRANSITION SHALL CARRY THE SAME PRESSURE RATING AS THE ADJOINING PIPE. TRANSITION SHALL BE MANUFACTURED FROM THE SAME RESIN TYPE AND CELL CLASSIFICATION AS THE PIPE ITSELF.
9. STOP LOG: GLASS STEEL, INC, FIBERGLASS COMPOSITE STOP LOG, 12-INCH BY 45-INCH PLATE TO BE FIELD VERIFIED BY CONTRACTOR, CONTRACTOR TO VERIFY MANUFACTURER'S INSTALLATION REQUIREMENTS AND RECOMMENDATIONS, BASE STOP LOG SHALL HAVE A 5" CAST IN PLACE PVC PIPE.
10. WALL PENETRATIONS: SHALL BE SEALED WITH LINK-SEAL MODEL "LS-300" OR ENGINEER APPROVED EQUAL.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR

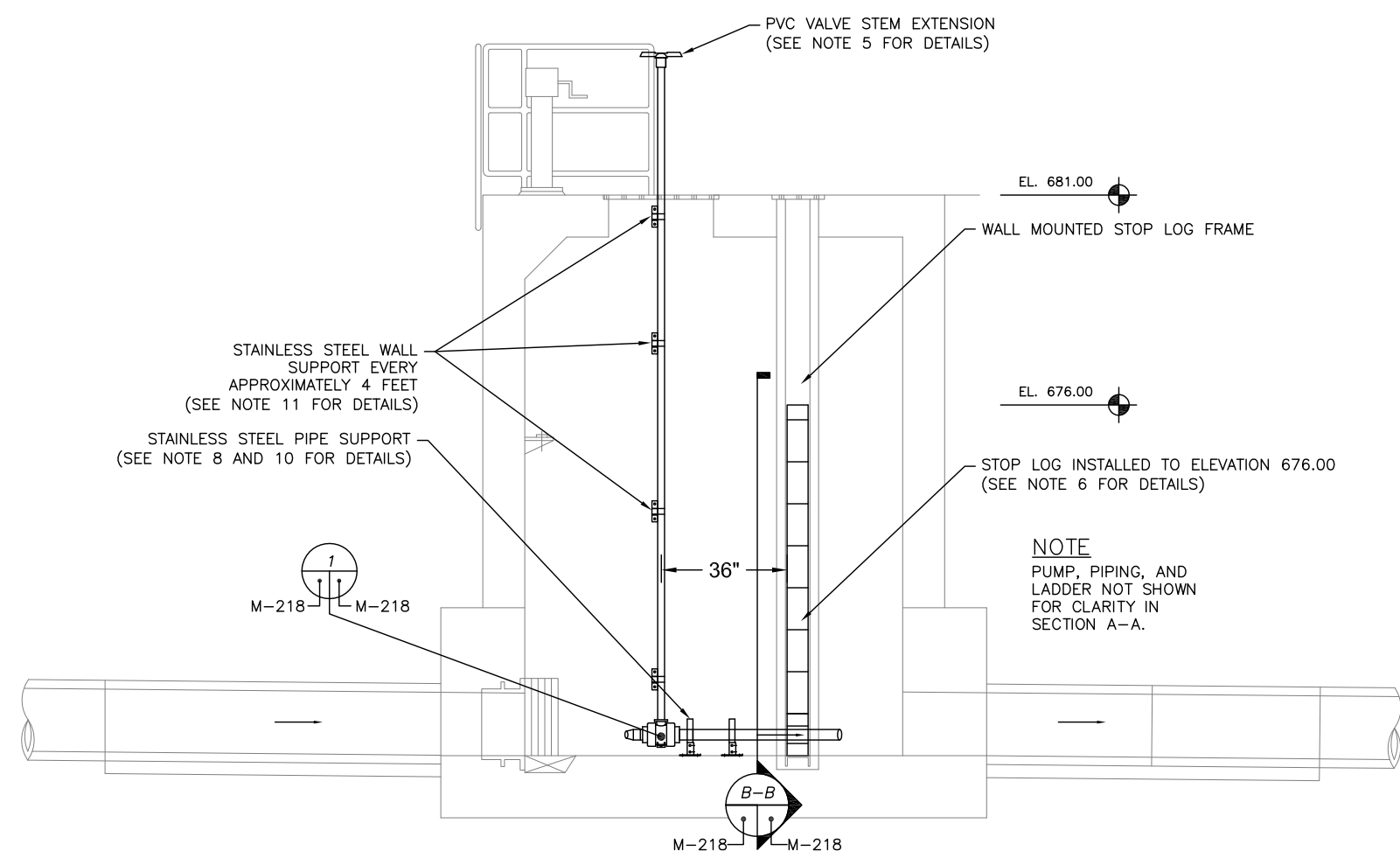
**LATA** Los Alamos Technical Associates  
 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
 www.lata.com

**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

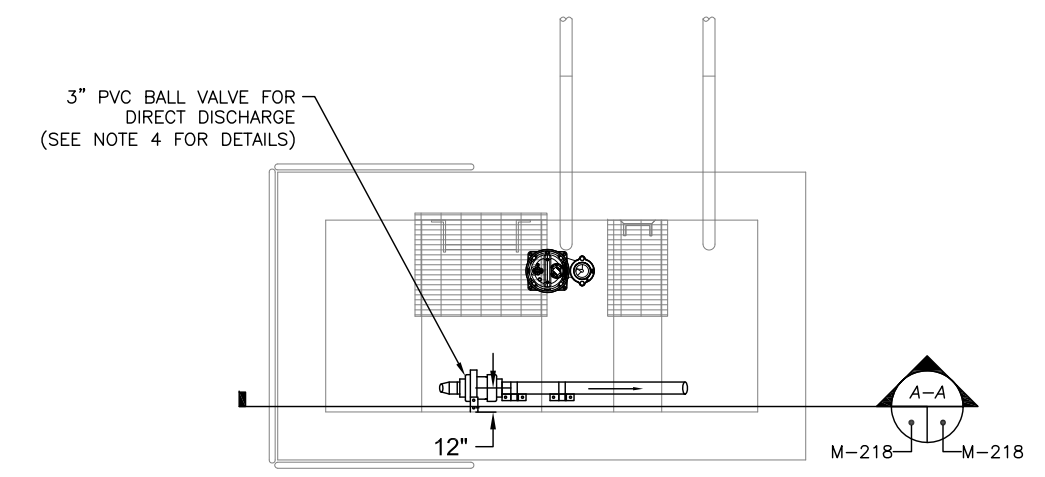
**LINE 1 GATEWELL STRUCTURE DETAILS 1**

PROJECT NO.:	11340
CADD DWG FILE:	M-217 GATEWELL STRUC DETAILS 1
DESIGNED BY:	ERV DATE: 12/16/16
DRAWN BY:	TCW DATE: 12/16/16
CHECKED BY:	BK DATE: 12/16/16
<b>M-217</b>	
SHEET 23 OF 41	

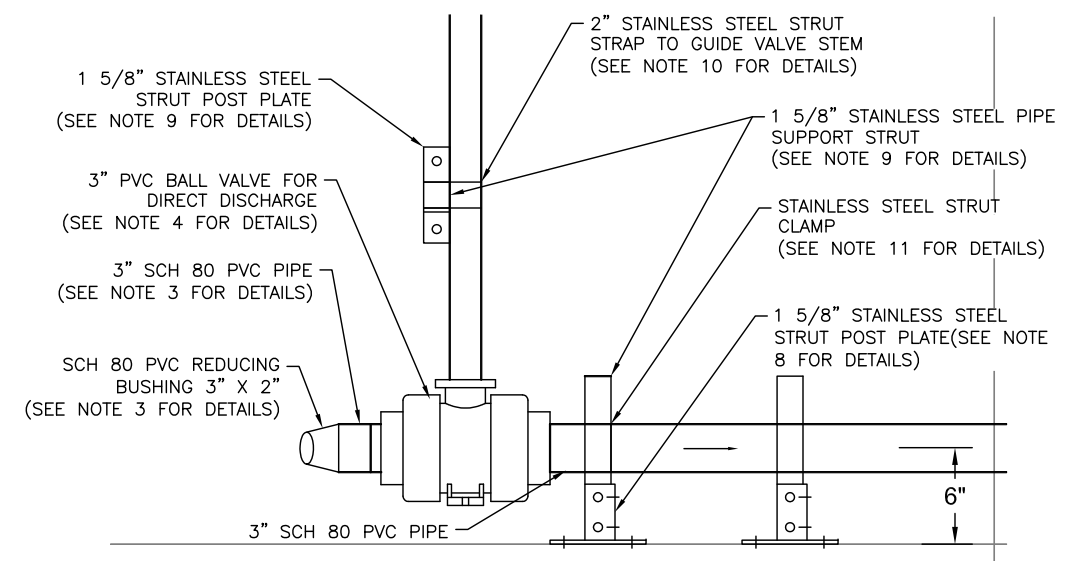


**SECTION A-A**  
Scale: 1" = 2'  
(SCALE FOR SHEET SIZE 22" X 34")

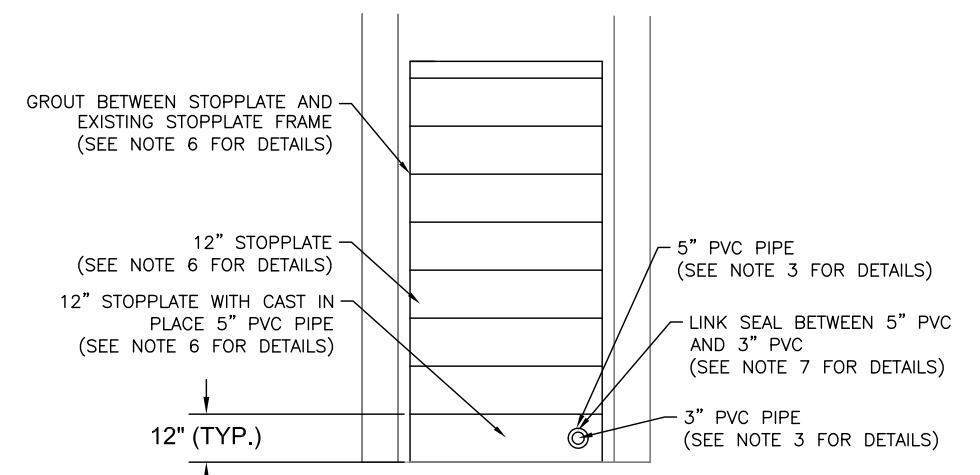
**NOTE**  
PUMP, PIPING, AND LADDER NOT SHOWN FOR CLARITY IN SECTION A-A.



**2 GATEWELL PLAN VIEW**  
Scale: 1" = 2'  
(SCALE FOR SHEET SIZE 22" X 34")



**1 GATEWELL VALVE DETAIL**  
Scale: 2" = 1'  
(SCALE FOR SHEET SIZE 22" X 34")



**SECTION B-B**  
Scale: 1" = 2'  
(SCALE FOR SHEET SIZE 22" X 34")

**NOTES**

- ALL WORK DETAILED ON THIS SHEET SHALL BE PERFORMED BY THE PRIME CONTRACTOR EXCEPT AS EXPLICITLY NOTED.
- THE PRIME CONTRACTOR SHALL SUPPLY ALL THE EQUIPMENT/MATERIALS REQUIRED TO COMPLETE THE WORK DETAILED ON THIS SHEET EXCEPT AS EXPLICITLY NOTED.
- PVC PIPE AND FITTINGS: SCHEDULE 80 PVC PIPE, TYPE 1, GRADE 1, CELL CLASSIFICATION 12454, MINIMUM WORKING PRESSURE 250 PSI.
- PVC VALVE: HAYWARD, MODEL TB1300, 3-INCH TRUE UNION BALL VALVE, EPDM SEAT, SOCKET END CONNECTIONS OR ENGINEER APPROVED EQUAL.
- PVC VALVE STEM EXTENSION: HAYWARD, BALL VALVE STEM EXTENSION KITS.
- STOPPLATE: GLASS STEEL, INC, FIBERGLASS COMPOSITE STOP LOG, 12-INCH BY 45-INCH PLATE TO BE FIELD VERIFIED BY CONTRACTOR, CONTRACTOR TO VERIFY MANUFACTURER'S INSTALLATION REQUIREMENTS AND RECOMMENDATIONS, BASE STOPPLATE SHALL HAVE A 5-INCH CAST IN PLACE PVC PIPE.
- PENETRATIONS: SHALL BE SEALED WITH LINK-SEAL MODEL LS-300 OR ENGINEER APPROVED EQUAL.
- STRUT POST BASE PLATE: UNISTRUT, PART NUMBER P2941, STAINLESS STEEL POST BASE, SINGLE CHANNEL, 2 HOLE BASE, 6 HOLE POST, OR ENGINEER APPROVED EQUAL.
- STRUT SUPPORTS: UNISTRUT, PART NUMBER P1000, 1-5/8-INCH STAINLESS STEEL STRUT CHANNEL OR ENGINEER APPROVED EQUAL.
- STRUT PIPE STRAP: UNISTRUT, PART NUMBER P2558-20, 2-INCH STAINLESS STEEL PIPE STRAP OR ENGINEER APPROVED EQUAL.
- STRUT CLAMP: UNISTRUT, PART NUMBER P2046, 3-INCH STAINLESS STEEL PIPE CLAMP OR ENGINEER APPROVED EQUAL.

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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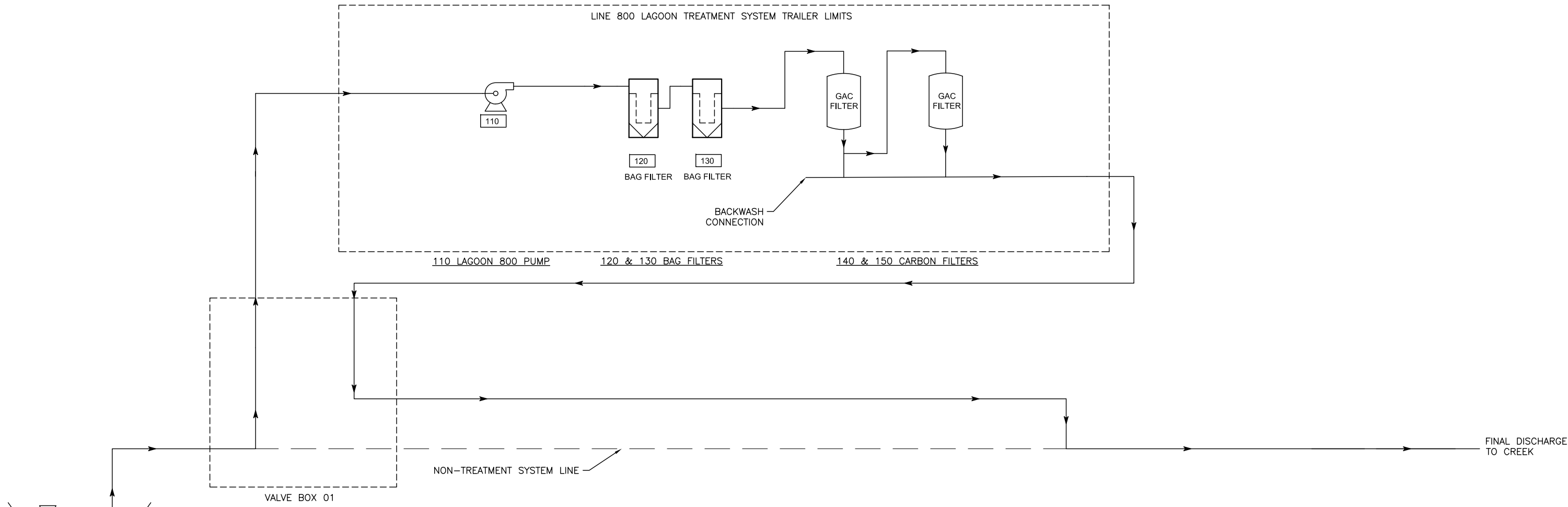
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

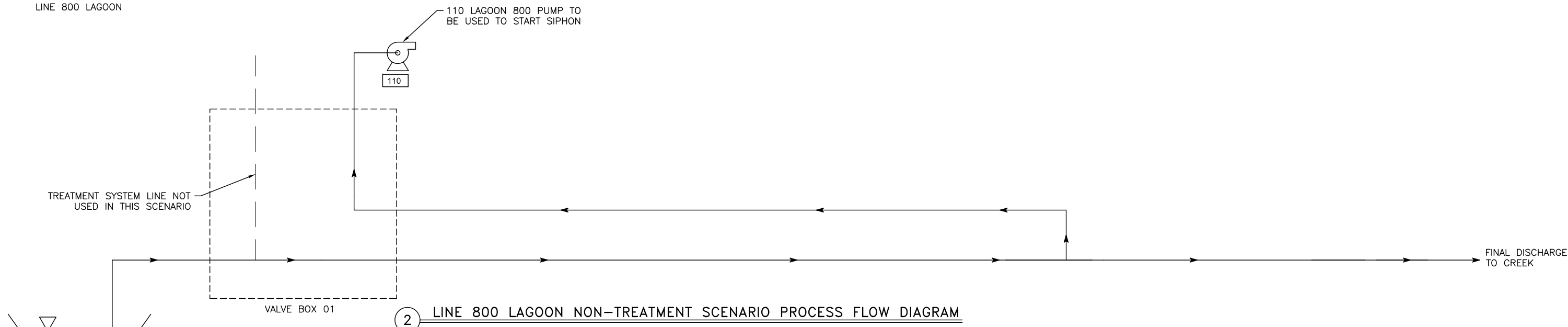
**LINE 1 GATEWELL STRUCTURE DETAILS 2**

PROJECT NO.:	11340
CADD DWG FILE:	M-218 GATEWELL STRUC DETAILS 2
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-218</b>	
SHEET 24 OF 41	





1 LINE 800 LAGOON TREATMENT SCENARIO PROCESS FLOW DIAGRAM



2 LINE 800 LAGOON NON-TREATMENT SCENARIO PROCESS FLOW DIAGRAM

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

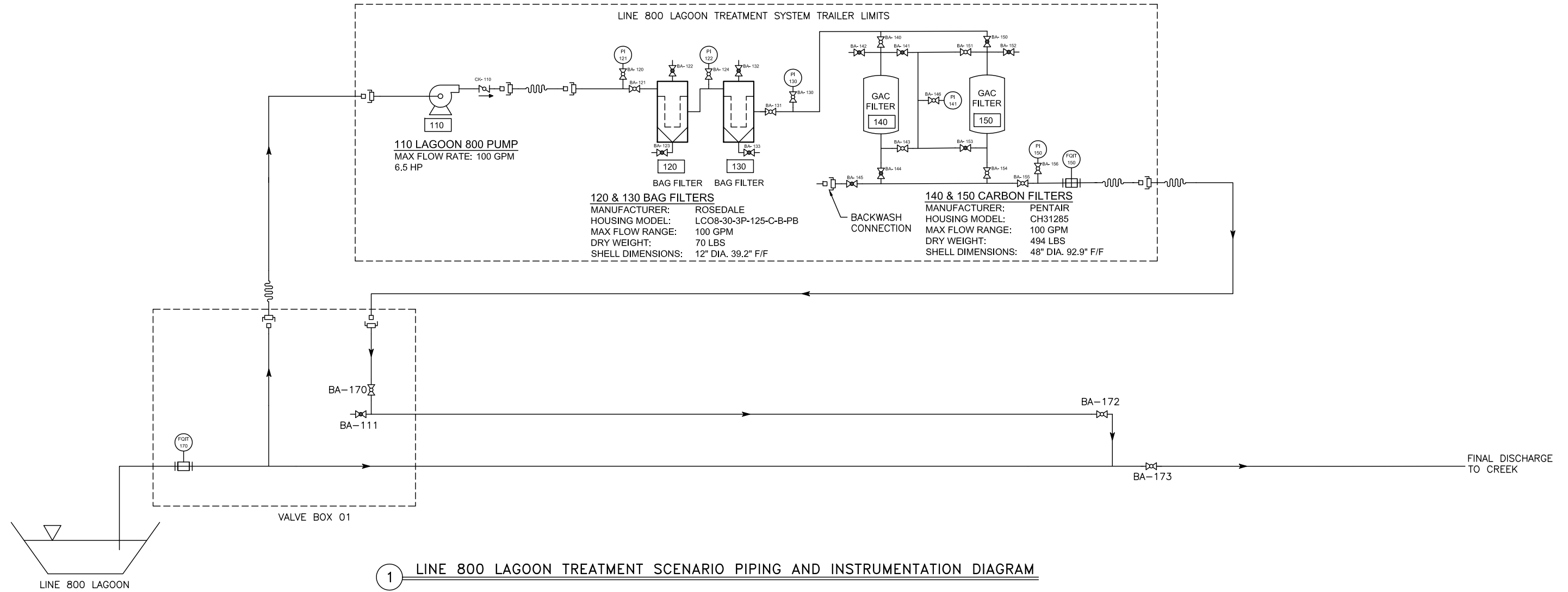
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

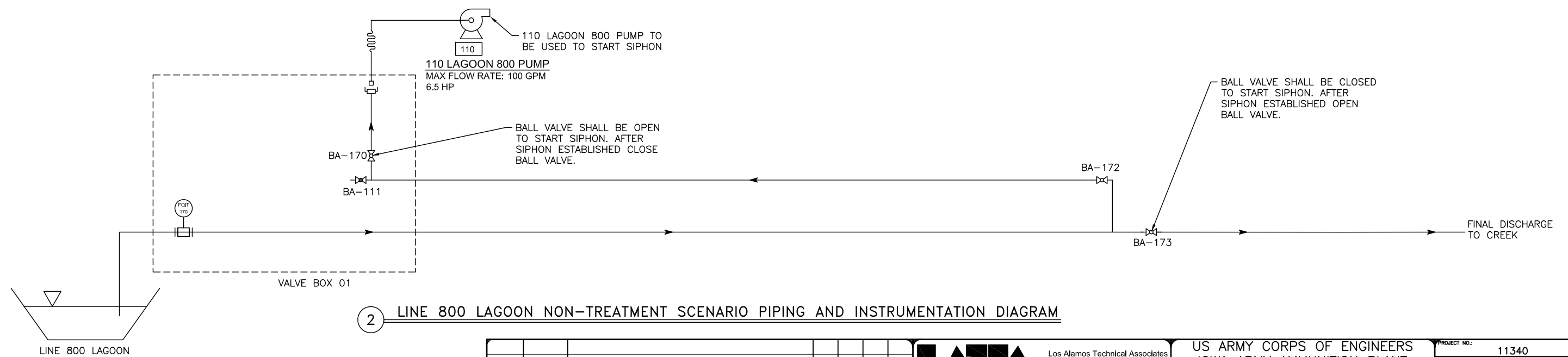
US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 800 PROCESS FLOW DIAGRAM**

PROJECT NO.:	11340
CADD DWG FILE:	M-220 LINE 800 PFD
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-220</b>	
SHEET 26 OF 41	



1 LINE 800 LAGOON TREATMENT SCENARIO PIPING AND INSTRUMENTATION DIAGRAM



2 LINE 800 LAGOON NON-TREATMENT SCENARIO PIPING AND INSTRUMENTATION DIAGRAM

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

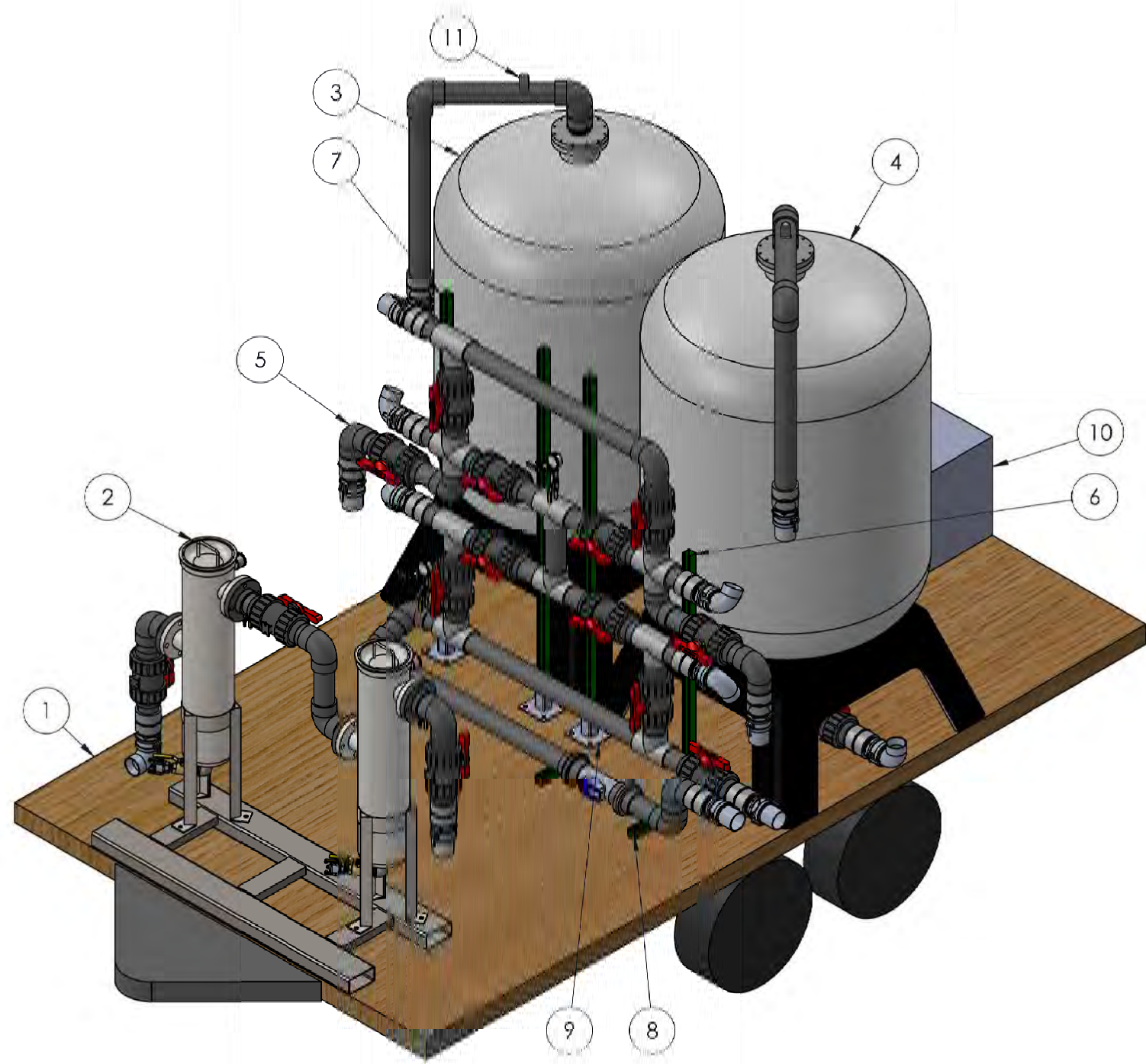
**LATA** Los Alamos Technical Associates  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 800 PIPING & INSTRUMENTATION DIAGRAM**

PROJECT NO.:	11340
CADD DWG FILE:	M-221 LINE 800 PID
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16
<b>M-221</b>	
SHEET 27 OF 41	



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	CONSTRUCTION					FLATBED TRAILER 14' X 8'
2	1						BAG FILTER ASSEMBLY LEAD LAG
3	1	PLUMBING					GAC VESSEL ASSEMBLY LH
4	1	PLUMBING					GAC VESSEL ASSEMBLY RH
5	1	PLUMBING					LINE 800 LAGOON TRAILER MANIFOLD ASSEMBLY
6	1	PLUMBING	COOPER 3-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 48" LONG
7	3	PLUMBING	COOPER 3-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 72" LONG
8	3	PLUMBING	COOPER 3-LINE	B22			UNISTRUT CHANNEL 1.625" X 1.625" - 8' LONG
9	4	PLUMBING	COOPER 3-LINE	B280SQ			POST BASE FOR B22 UNISTRUT
10	1	PLUMBING	GORMAN RUPP	2P5XAR LP			2 INCH PROPANE/GAS PUMP
11	2	PLUMBING	HOFFMAN SPECIALTY	MODEL 62			VACUUM BREAKER

**NOTES**

- TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR			
0	6/20/18	AS-BUILTS				

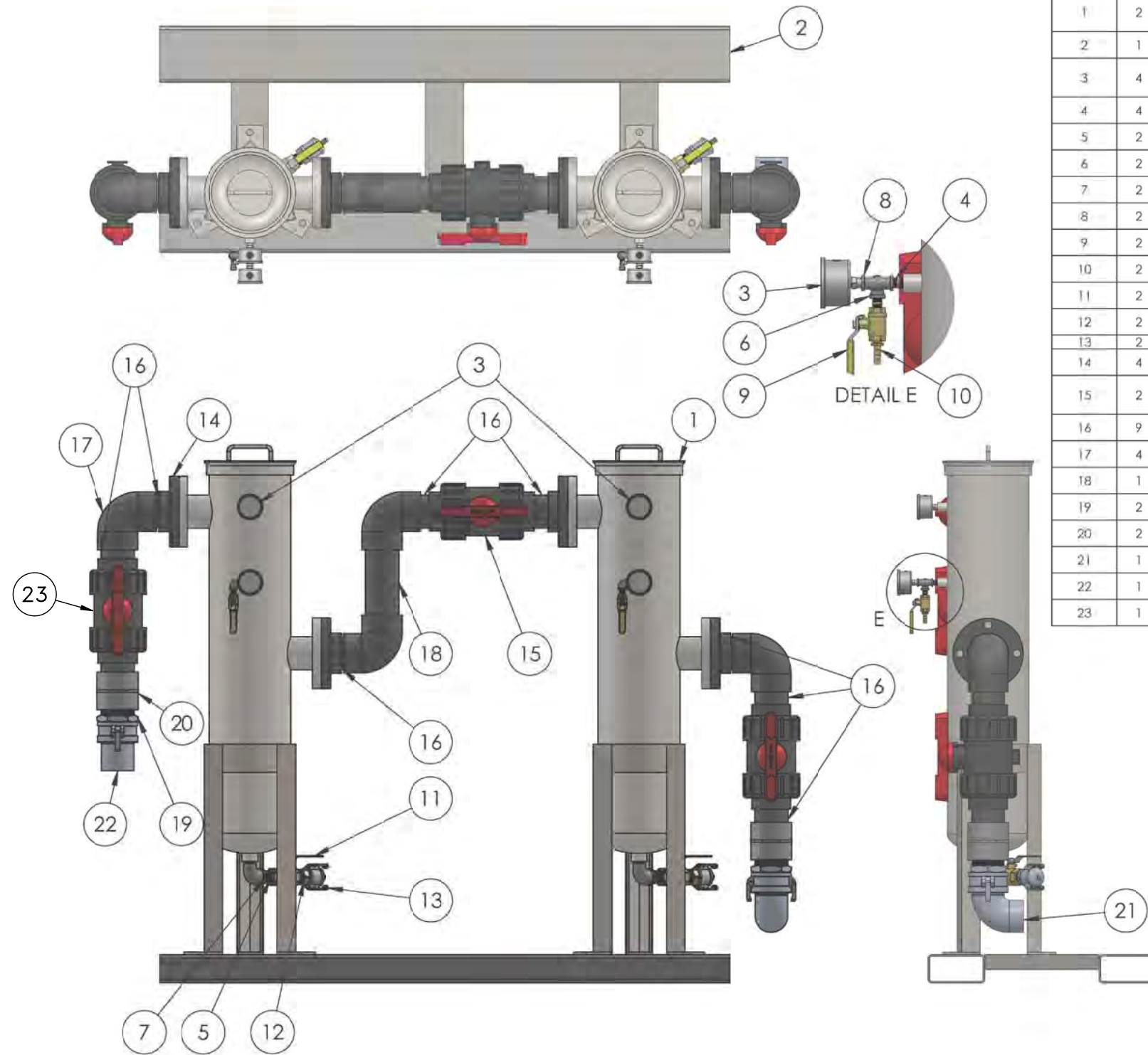
**LATA** Los Alamos Technical Associates  
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 Westerville, OH 43081  
 (614) 508-1200  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

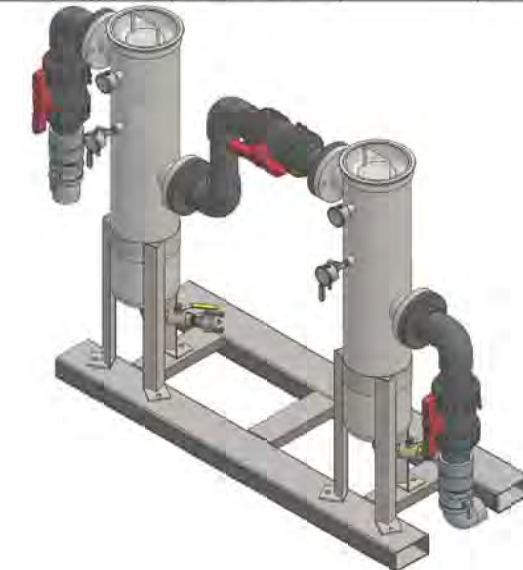
US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**  
**LINE 800 TREATMENT TRAILER ISOMETRIC LAYOUT**

PROJECT NO.:	11340
CADD DWG FILE:	M-222 LINE 800 SYS GEN ARRANGMENT
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-222</b>	
SHEET 28 OF 41	





ITEM NO.	Default 1/QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	2	PLUMBING	ROSEDALE			CARBON STEEL	BAG FILTER HOUSING 2" FLANGE INLET & OUTLET
2	1	WELDING					BAG FILTER BASE SKID ASSEMBLY
3	4	PLUMBING	PRECISION INSTRUMENTS	202L-254E			PRESSURE GAUGE 0- 100 PSI CENTER MOUNT
4	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
5	2	PLUMBING				GALVANIZED STEEL	PIPE 1" - NEAR THREADED GS
6	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 0.25" THREADED GS
7	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	STREET 90 1" THREADED GS
8	2	PLUMBING				GALVANIZED STEEL	TEE 0.25" THREADED GS
9	2	PLUMBING	APOLLO	94A-101		BRASS	0.25" BRASS BALL VALVE
10	2	PLUMBING	INDUSTRIAL SPECIALTIES			BRASS	HOSE BARB 0.25" THREADED BRASS
11	2	PLUMBING	APOLLO	94A-105		BRASS	BALL VALVE 1" THREADED BRASS
12	2	PLUMBING	DIXON	G100-F-AL		ALUMINUM	MALE CAMLOCK 1" MALE THREADED AL
13	2	PLUMBING	DIXON	100-DC-AL		ALUMINUM	CAP 1" CAMLOCK AL
14	4	PLUMBING	IPEX			SCHEDULE 80 PVC	FLANGE 2" SOCKET PCV
15	2	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
16	9	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
17	4	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
18	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 10.5" LONG SLIP PVC
19	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
20	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
21	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
22	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
23	1	PLUMBING	HAYWARD	CV1200STE		SCH 80 PVC	FLOW CONTROL VALVE



**NOTES**

- TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG DRAWN BY	ERV DRAFT CHK	ERV PROJ ENGR	BK LEAD ENGR
1	6/20/18	AS-BUILTS				

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(614) 508-1200  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

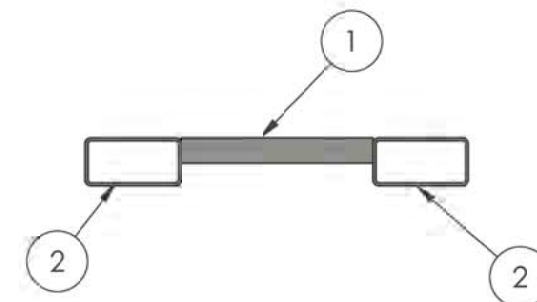
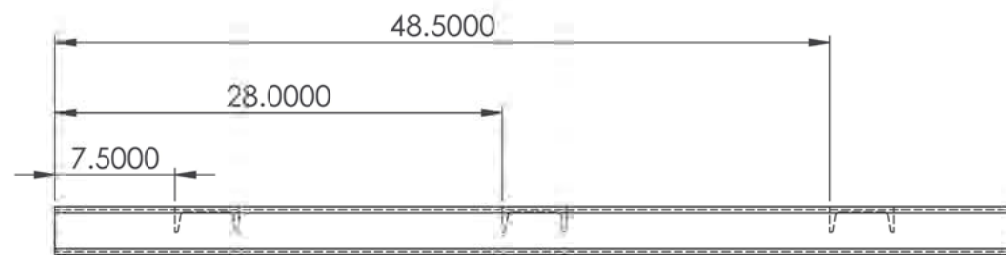
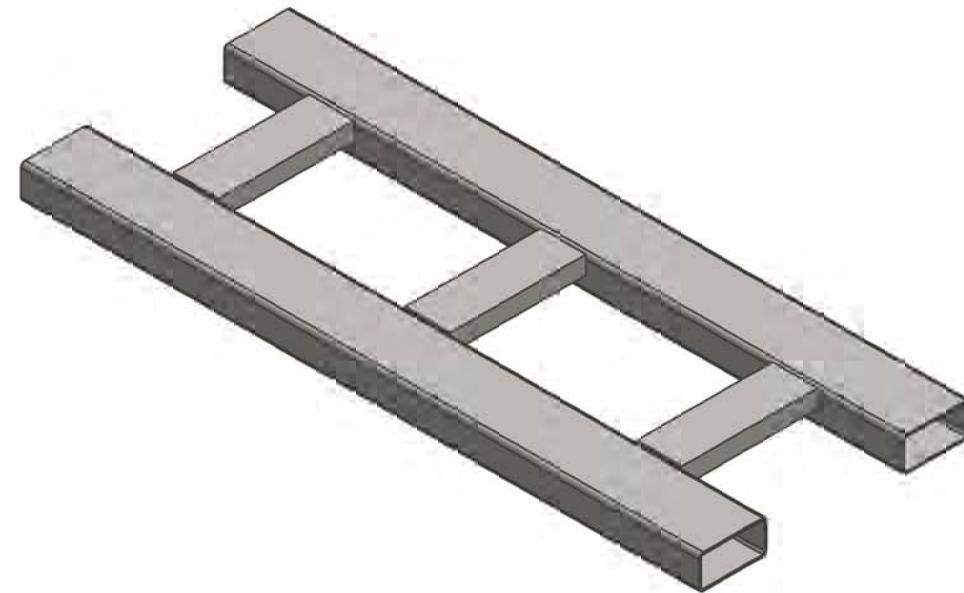
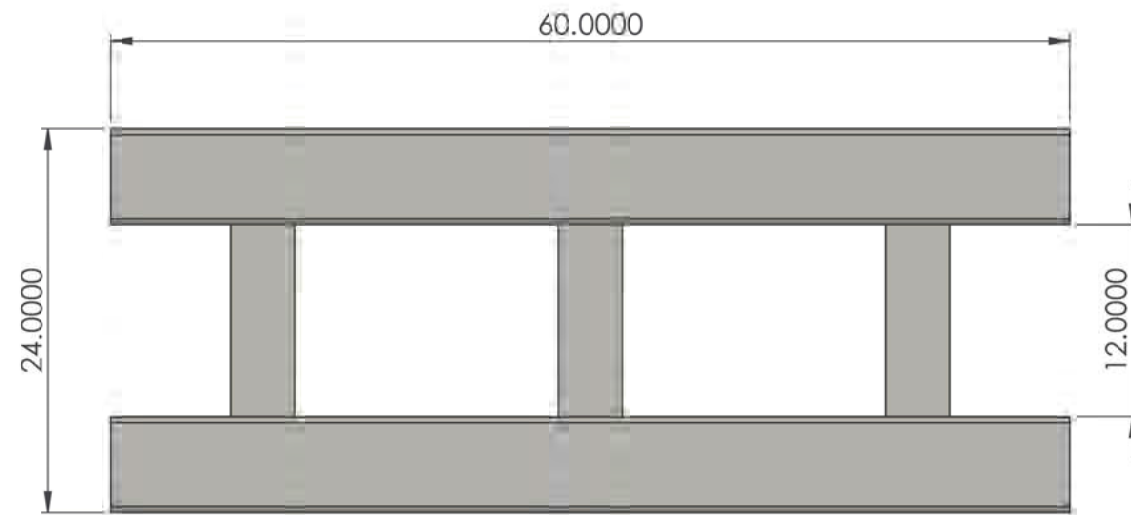
**LINE 800 TREATMENT TRAILER  
EQUIPMENT - BAG FILTER**

PROJECT NO.:	11340
CADD DWG FILE:	M-224 LINE 800 EQUIP BAG FILTER
DESIGNED BY:	ERV DATE: 12/16/16
DRAWN BY:	TCW DATE: 12/16/16
CHECKED BY:	BK DATE: 12/16/16

**M-224**  
SHEET 30 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROJCT PART NO.	MATERIAL	DESCRIPTION
1	3	WELDING				CARBON STEEL	C-CHANNEL 4" - 12" LONG CS
2	2	WELDING				ASTM A-36 CARBON STEEL	RECTANGULAR TUBE 4"x3"-60" LONG



**NOTES**

- TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	
	6/20/18	AS-BUILTS				

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(614) 508-1200  
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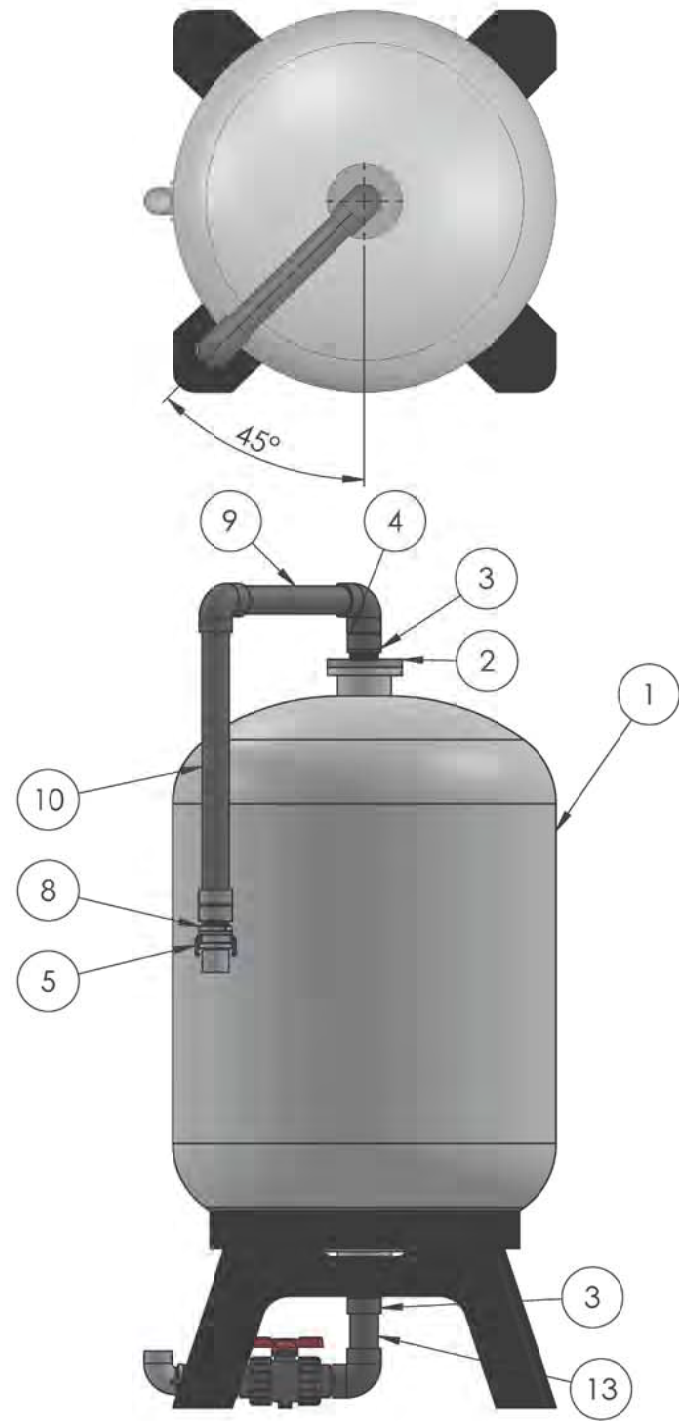
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

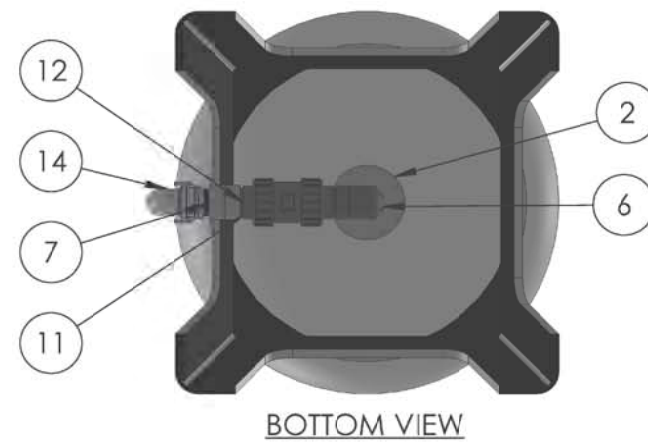
**LINE 800 TREATMENT TRAILER  
WELDING - BAG FILTER**

PROJECT NO.:	11340
CADD DWG FILE:	M-225 LINE 800 WELD BAG FILTER
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-225**  
SHEET 31 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	PENTAIR			FIBERGLASS	CARBON VESSEL 42" X 72" H
2	2	PLUMBING				CPVC	FLANGE 6" SNA TO 2" THREADED CPVC
3	2	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SOCKET X MNPT PVC
4	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
5	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
6	3	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
7	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
8	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
9	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 22" LONG SLIP PVC
10	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
11	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
12	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8" LONG SLIP PVC
14	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL



**NOTES**

1. TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
2. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER T

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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Westerville, OH 43081  
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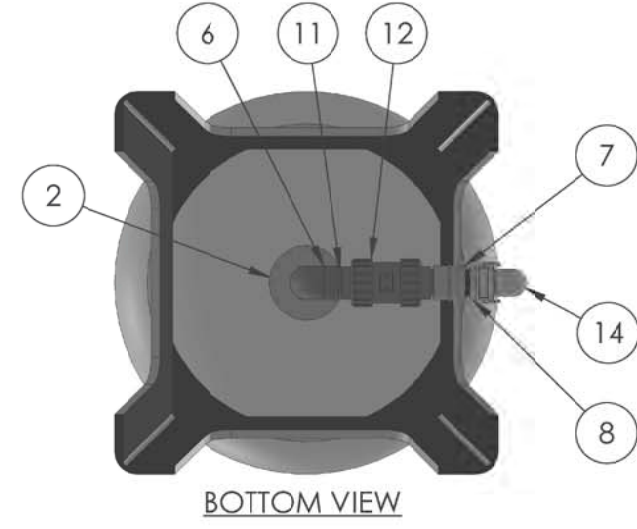
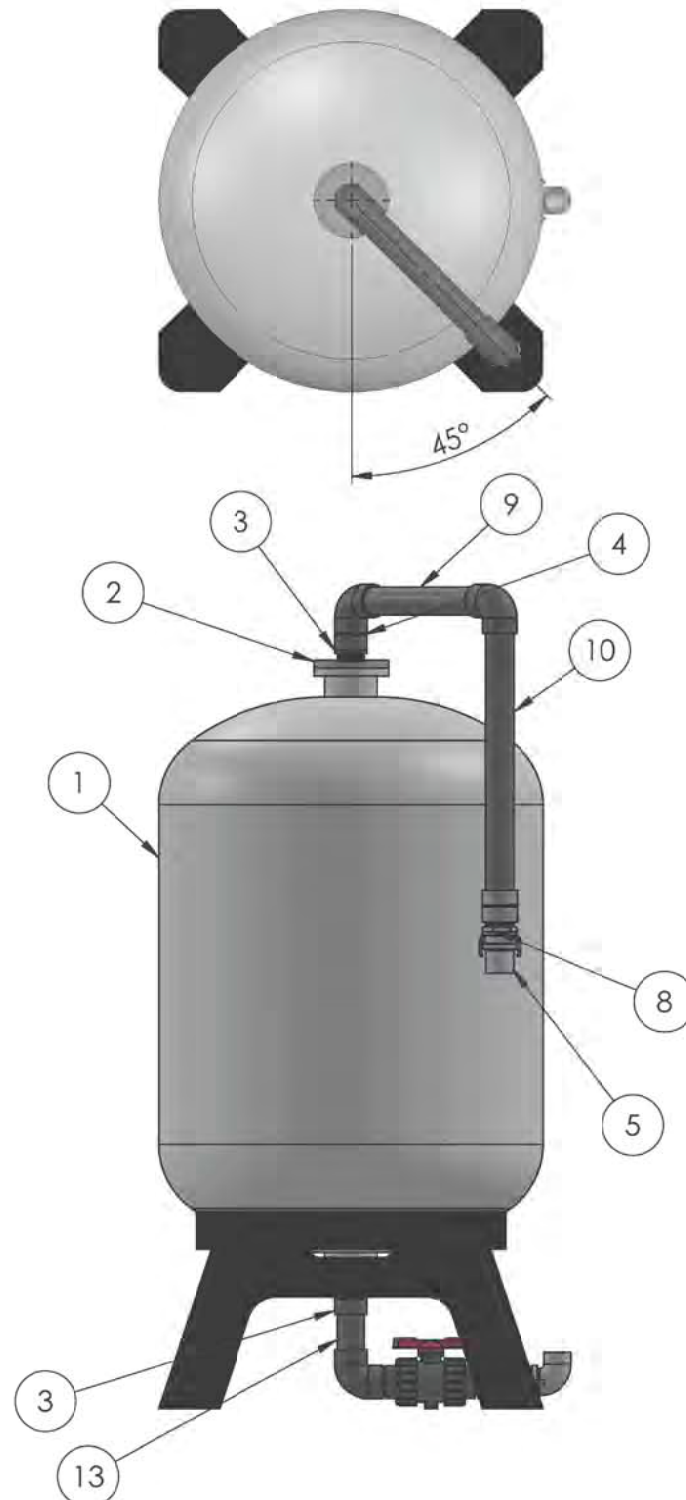
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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 800 TREATMENT TRAILER  
EQUIPMENT - GAC VESSEL LH**

PROJECT NO.:	11340
CADD DWG FILE:	M-226 LINE 800 EQUIP GAC LH
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16

**M-226**  
SHEET 32 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	PENTAIR			FIBERGLASS	CARBON VESSEL 42" X 72" HIG
2	2	PLUMBING				CPVC	FLANGE 6" SNA TO 2" THREADED CPVC
3	2	PLUMBING	IPEX			SCHEDULE 80 PVC	MALE ADAPTER -2" SOCKET X MNPT PVC
4	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
5	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
6	3	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
7	2	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
8	2	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
9	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 22" LONG SLIP PVC
10	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 36" LONG SLIP PVC
11	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
12	1	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
13	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8" LONG SLIP PVC
14	1	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL

**NOTES**

- TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	
0	6/20/18	AS-BUILTS				

**LATA** Los Alamos Technical Associates  
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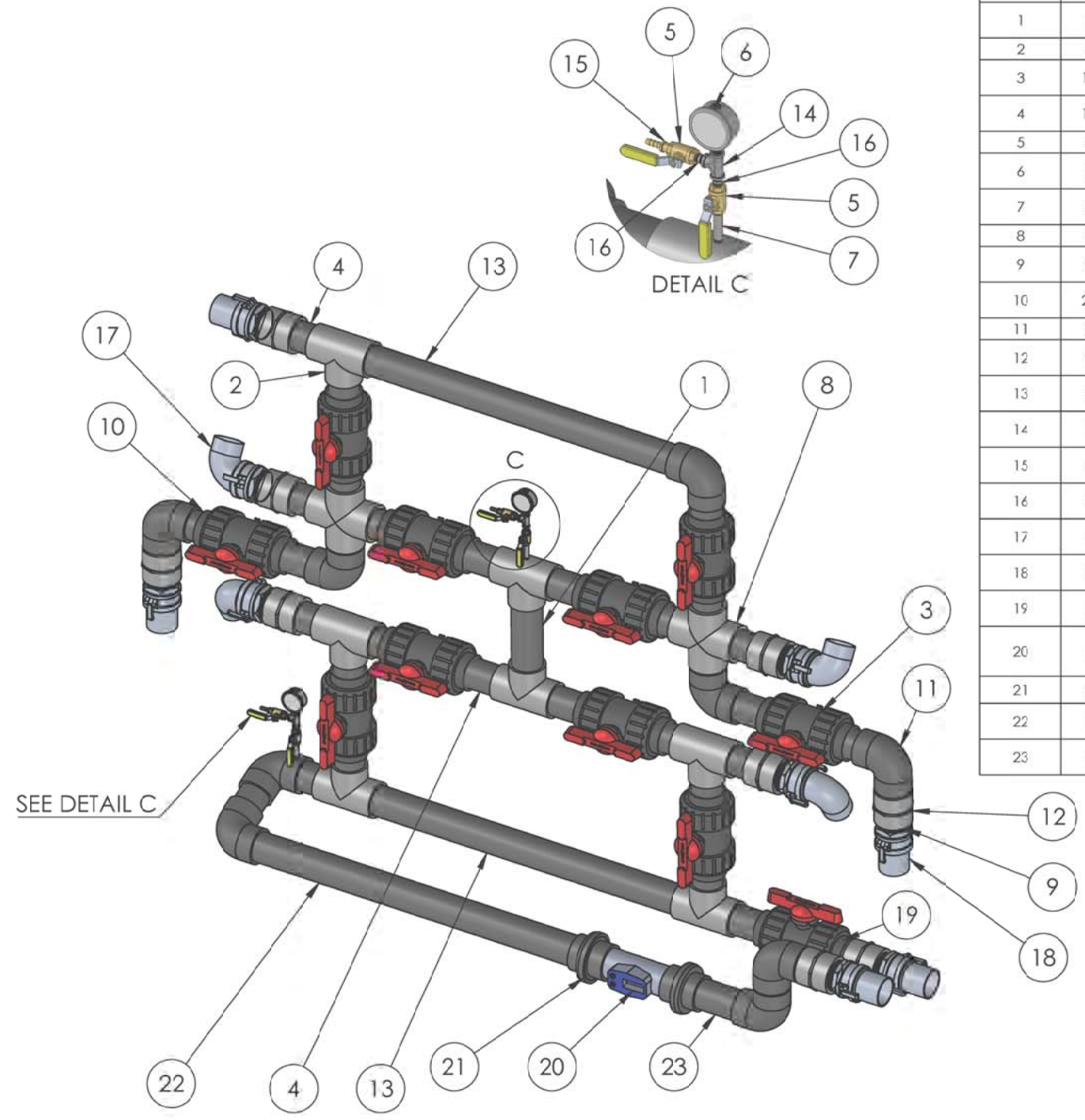
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

**LINE 800 TREATMENT TRAILER EQUIPMENT - GAC VESSEL RH**

PROJECT NO.: 11340  
 CADD DWG FILE: M-227 LINE 800 EQUIP GAC RH  
 DESIGNED BY: ERV DATE: 12/16/16  
 DRAWN BY: TCW DATE: 12/16/16  
 CHECKED BY: BK DATE: 12/16/16

**M-227**  
 SHEET 33 OF 41



ITEM NO.	QTY.	DEPARTMENT	MANUFACTURER	MAN. PART NO.	PROACT PART NO.	MATERIAL	DESCRIPTION
1	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 12" LONG SLIP PVC
2	7	PLUMBING	IPEX			SCHEDULE 80 PVC	TEE 2" SOCKET PVC
3	11	PLUMBING	ASAHI			PVC	BALL VALVE 2" SOCKET TRUE UNION PVC EPDM
4	14	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 6" LONG SLIP PVC
5	4	PLUMBING	APOLLO	94A-101		BRASS	0.25" BRASS BALL VALVE
6	2	PLUMBING	PRECISION INSTRUMENTS	201L-254E			PRESSURE GAUGE 0-100 PSI LOWER MOUNT
7	2	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - 2.5" LONG THREADED GS
8	2	PLUMBING	IPEX			SCHEDULE 80 PVC	CROSS 2" SOCKET PVC
9	9	PLUMBING	DIXON			ALUMINUM	MALE CAMLOCK 2" MALE THREADED AL
10	20	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 4" LONG SLIP PVC
11	9	PLUMBING	IPEX			SCHEDULE 80 PVC	90° ELBOW 2" SLIP PVC
12	9	PLUMBING	IPEX			SCHEDULE 80 PVC	FEMALE ADAPTER -2" SOCKET X FNPT
13	2	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 42.75" LONG SLIP PVC
14	2	PLUMBING				GALVANIZED STEEL	TEE 0.25" THREADED GS
15	2	PLUMBING	INDUSTRIAL SPECIALTIES			BRASS	HOSE BARB 0.25" THREADED BRASS
16	4	PLUMBING	GENERIC HYDRAULICS			GALVANIZED STEEL	PIPE 0.25" - NEAR THREADED GS
17	4	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 90° 2" FLEX HOSE AL
18	5	PLUMBING	DIXON			ALUMINUM	FEMALE CAMLOCK 2" FLEX HOSE AL
19	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 3" LONG SLIP PVC
20	1	PLUMBING	GPI	TM300		SCHEDULE 80 PVC	TURBINE FLOW METER 2" SLIP PVC WITH ELECTRONIC DISPLAY
21	2	PLUMBING	IPEX			SCHEDULE 80 PVC	UNION 2" SOCKET PVC
22	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 45" LONG SLIP PVC
23	1	PLUMBING	IPEX			SCHEDULE 80 PVC	PIPE 2" - 8.75" LONG SLIP PVC

**NOTES**

- TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
- TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR			
	6/20/18	AS-BUILTS				

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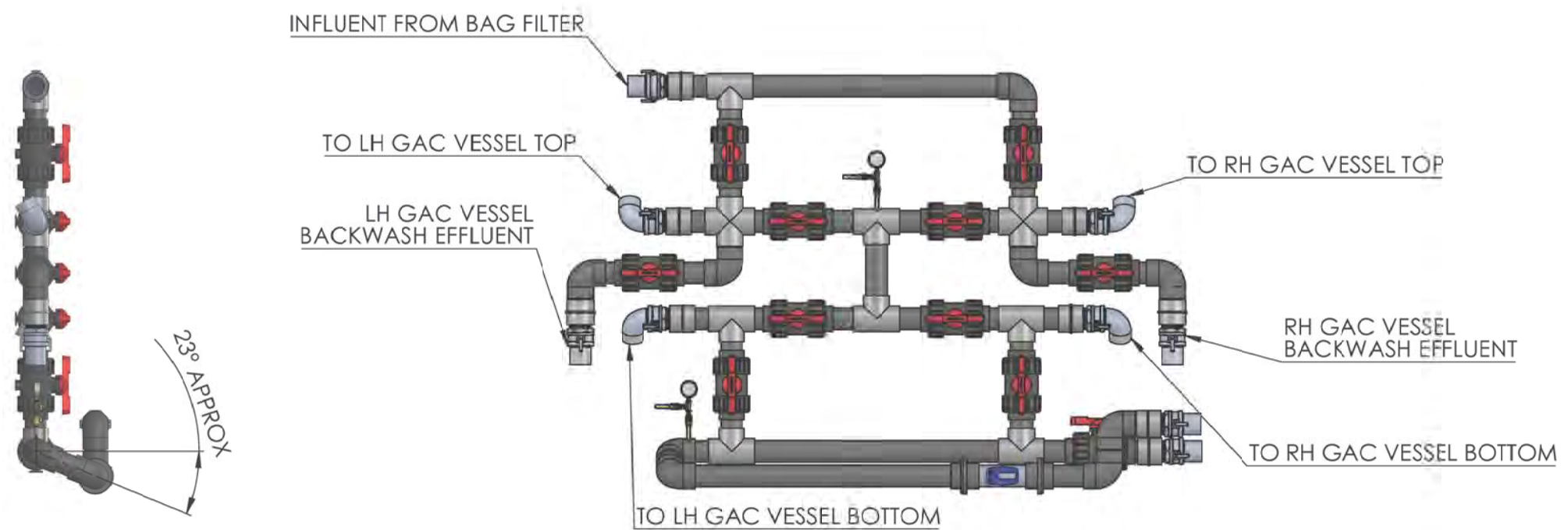
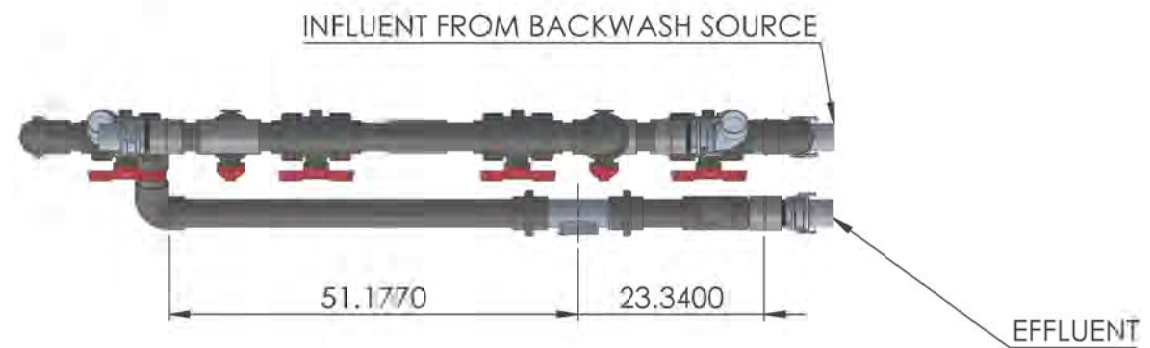
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800 LAGOON OPTIMIZATION**

PROJECT NO.: 11340  
 CADD DWG FILE: M-228 LINE 800 ISO MANIFOLD  
 DESIGNED BY: ERV DATE: 12/16/16  
 DRAWN BY: TCW DATE: 12/16/16  
 CHECKED BY: BK DATE: 12/16/16

**LINE 800 TREATMENT TRAILER ISOMETRIC MANIFOLD LAYOUT**

**M-228**  
 SHEET 34 OF 41



**NOTES**

1. TREATMENT TRAILER TO BE SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.
2. TREATMENT SKID INTERCONNECTION HOSE(S) NOT SHOWN FOR CLARITY AND SUPPLIED BY WATER TREATMENT SUBCONTRACTOR.

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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Westerville, OH 43081  
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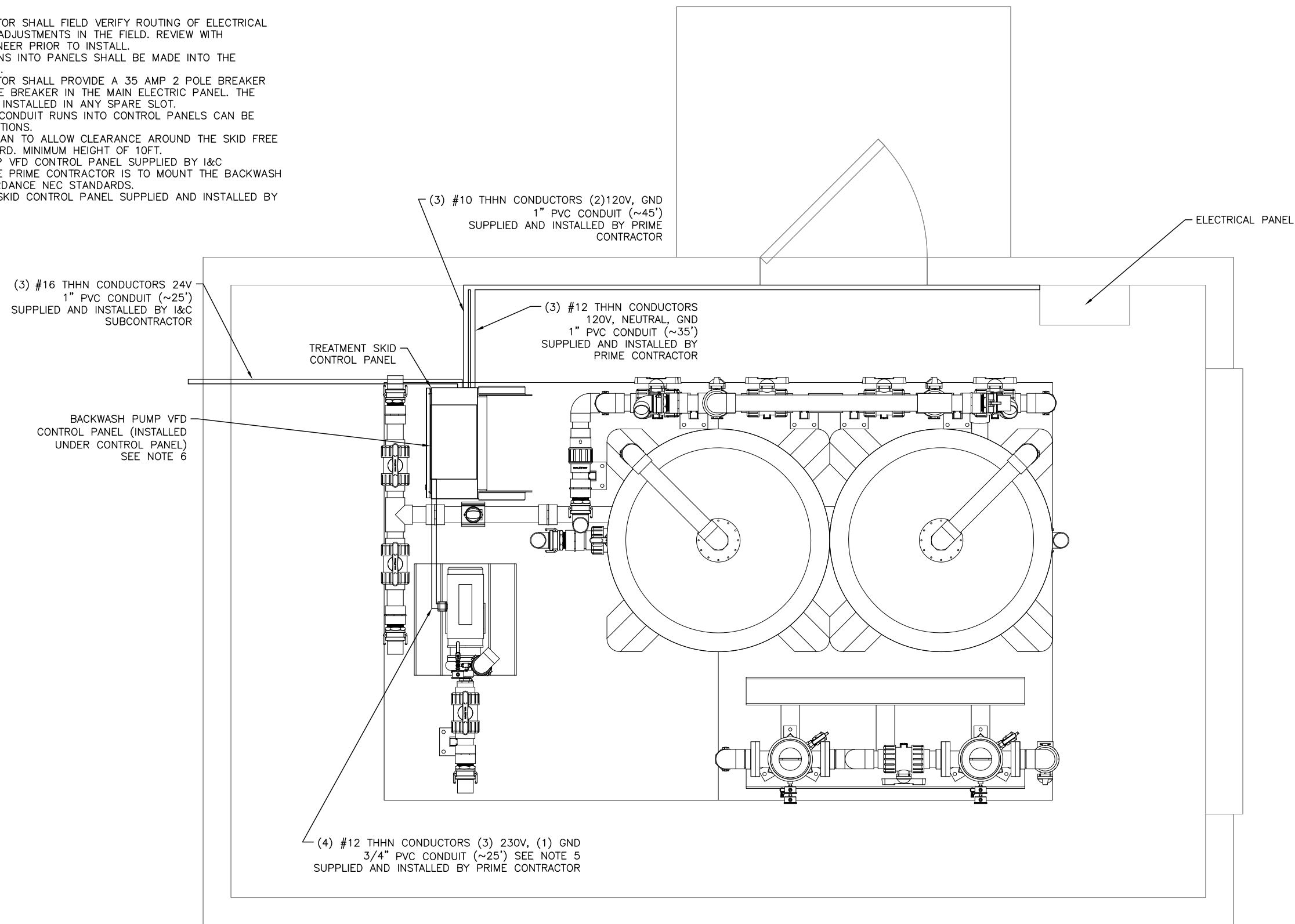
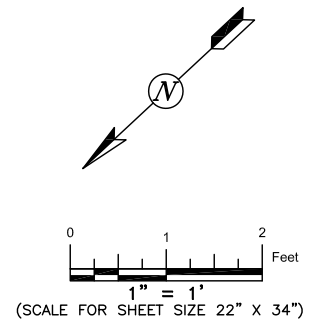
US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 800 TREATMENT TRAILER  
PIPING ASSEMBLY**

PROJECT NO.:	11340
CADD DWG FILE:	M-229 LAINE PIPE ASSEMBLY
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>M-229</b>	
SHEET 35 OF 41	

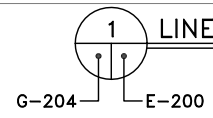
**NOTES**

1. THE PRIME CONTRACTOR SHALL FIELD VERIFY ROUTING OF ELECTRICAL CONDUIT AND MAKE ADJUSTMENTS IN THE FIELD. REVIEW WITH OPERATOR AND ENGINEER PRIOR TO INSTALL.
2. CONDUIT PENETRATIONS INTO PANELS SHALL BE MADE INTO THE BOTTOM OR THE SIDE.
3. THE PRIME CONTRACTOR SHALL PROVIDE A 35 AMP 2 POLE BREAKER AND A 6 AMP 1 POLE BREAKER IN THE MAIN ELECTRIC PANEL. THE BREAKERS SHALL BE INSTALLED IN ANY SPARE SLOT.
4. FINAL ONE FOOT OF CONDUIT RUNS INTO CONTROL PANELS CAN BE LIQUID TIGHT CONNECTIONS.
5. CONDUIT SHALL BE RAN TO ALLOW CLEARANCE AROUND THE SKID FREE FROM TRIPPING HAZARD. MINIMUM HEIGHT OF 10FT.
6. THE BACKWASH PUMP VFD CONTROL PANEL SUPPLIED BY I&C SUBCONTRACTOR. THE PRIME CONTRACTOR IS TO MOUNT THE BACKWASH VFD PANEL IN ACCORDANCE NEC STANDARDS.
7. TREATMENT SYSTEM SKID CONTROL PANEL SUPPLIED AND INSTALLED BY I&C SUBCONTRACTOR



**1 LINE 1 IMPOUNDMENT ELECTRICAL ARRANGEMENT**

Scale: 1" = 1'  
(SCALE FOR SHEET SIZE 22" X 34")



REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

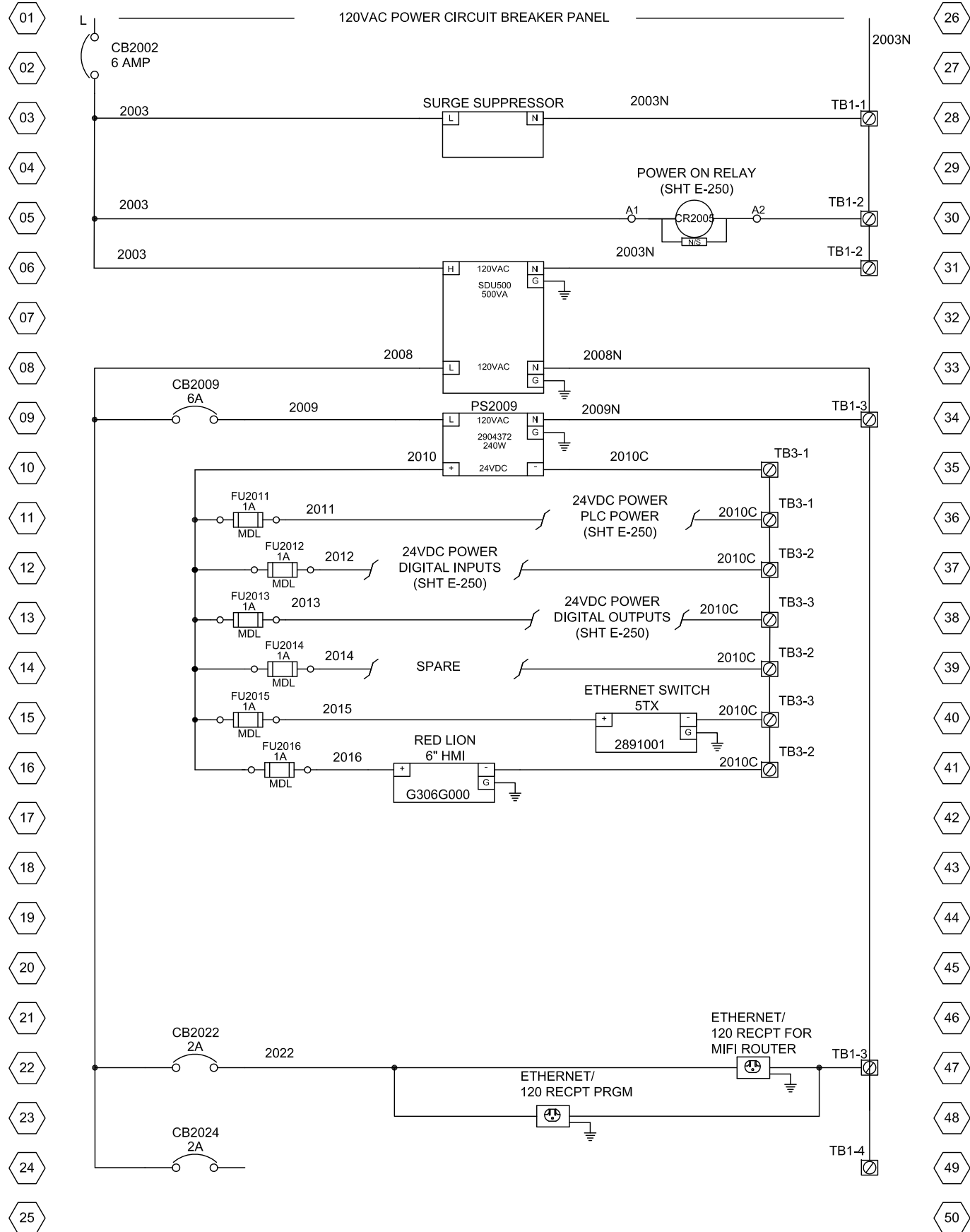
**LTA**  
Los Alamos Technical Associates  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 1 ELECTRICAL ARRANGEMENT**

PROJECT NO.:	11340
CADD DWG FILE:	E-200 ELECTRICAL ARRANGEMENT
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-200</b>	
SHEET 36 OF 41	



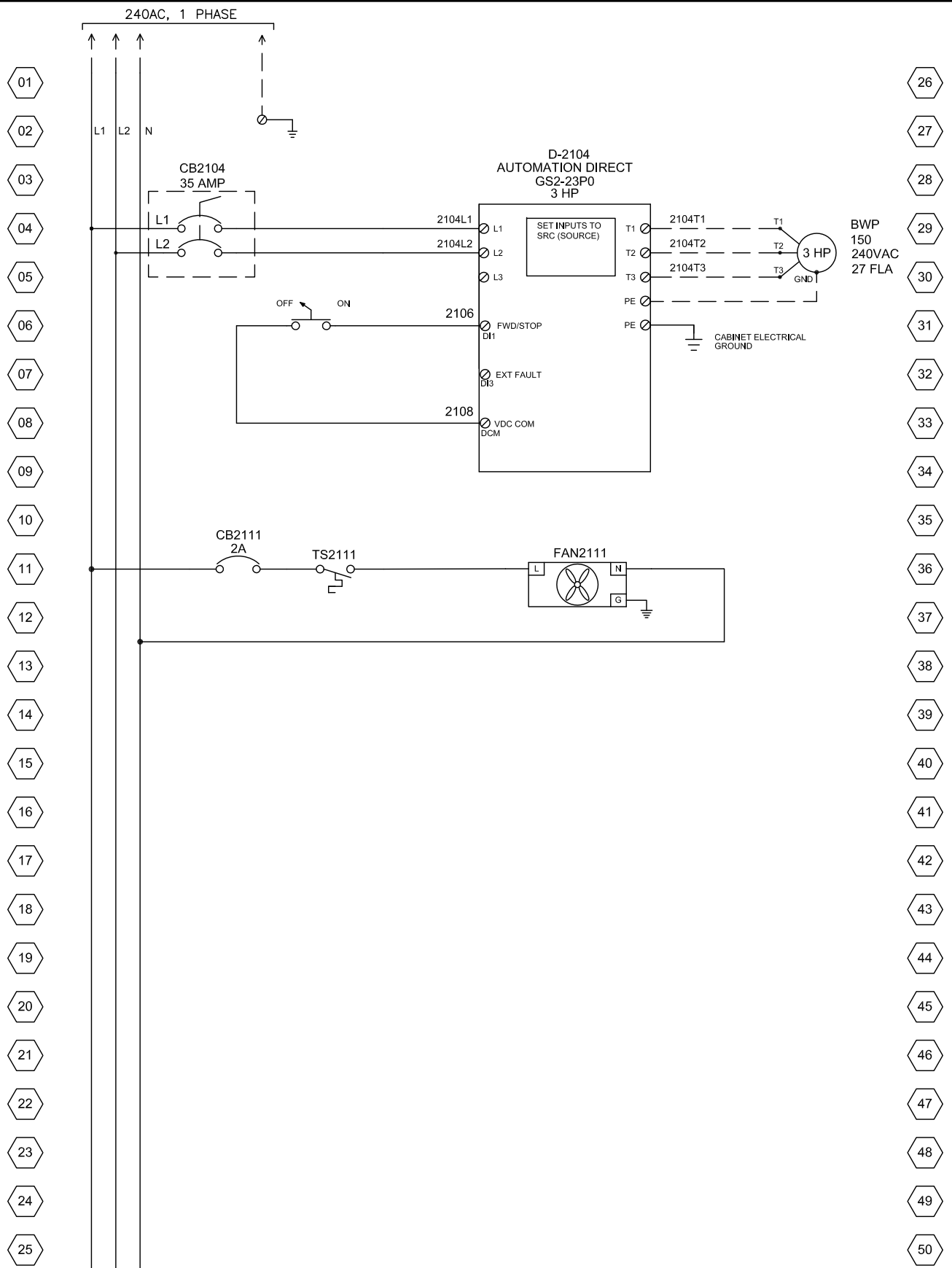
REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
0	6/20/18	AS-BUILTS				

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US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**  
**LINE 1 120V 24V POWER WIRE**

PROJECT NO.:	11340
CADD DWG FILE:	E-220 LINE 1 120 24 POWER
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-220</b>	
SHEET 37 OF 41	



REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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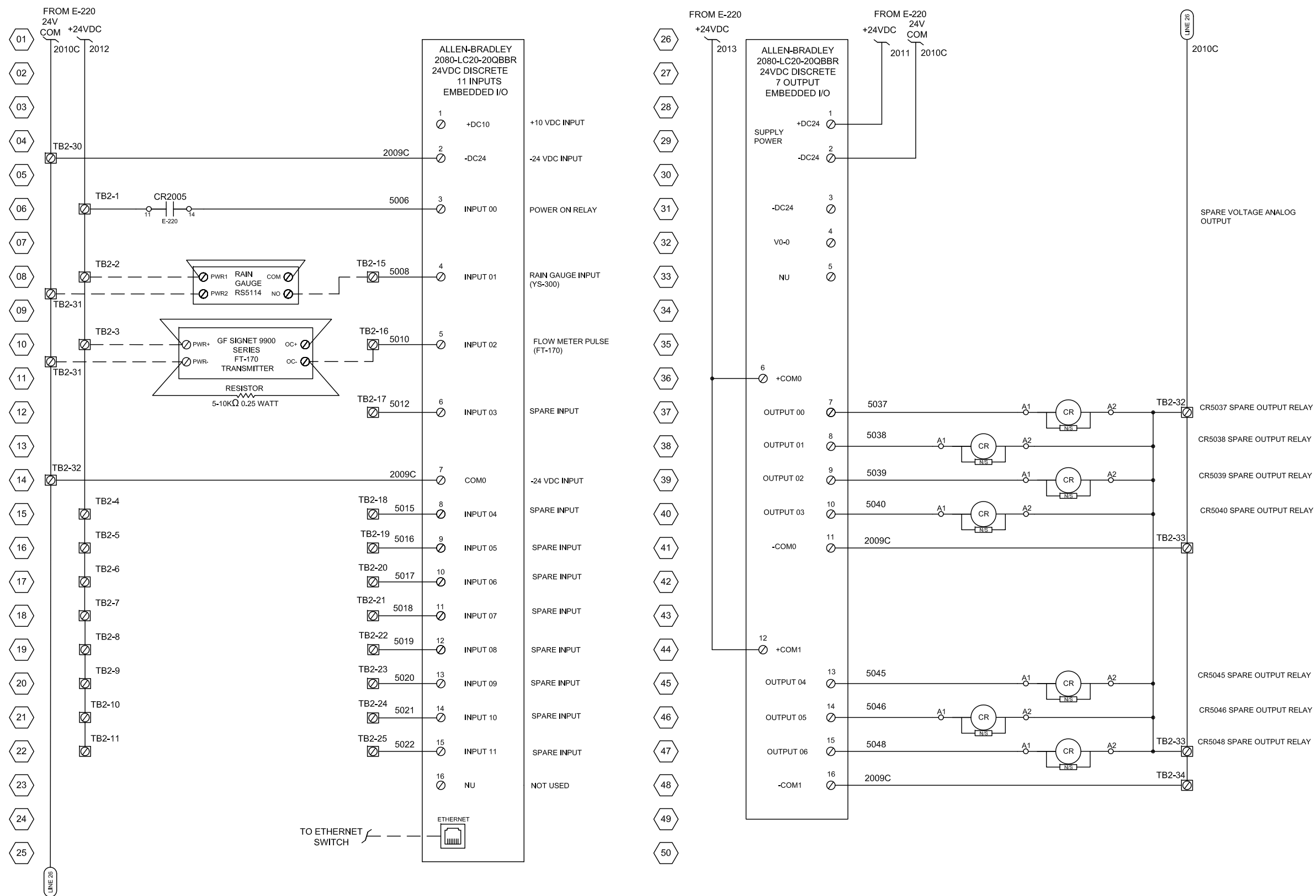
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 1 240V/120V VFD PANEL  
POWER**

PROJECT NO.:	11340
CADD DWG FILE:	E-221 LINE 1 240 120 VFD POWER
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>E-221</b>	
SHEET 38 OF 41	





REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
1	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT & LINE 800  
LAGOON OPTIMIZATION**

**LINE 1 EMBEDDED DISCRETE  
INPUTS/OUTPUTS**

PROJECT NO.:	11340
CADD DWG FILE:	E-250 LINE 1 DISCRETE IN OUT
DESIGNED BY:	TLL
DATE:	12/16/16
DRAWN BY:	TLL
DATE:	12/16/16
CHECKED BY:	TH
DATE:	12/16/16
<b>E-250</b>	
SHEET 39 OF 41	





# IOWA ARMY AMMUNITION PLANT

## LINE 1 IMPOUNDMENT AND LINE 800 LAGOON EMERGENCY OVERFLOW STRUCTURES

### MIDDLETOWN, IOWA

### CONTRACT NO. W912QR-12-D-0006-0018

PROJECT LOCATION

TOWNSHIP 69 NORTH, RANGE 4 WEST AND 3 WEST, DES MOINES COUNTY, IOWA

OWNER/DEVELOPER

UNITED STATES ARMY CORPS OF ENGINEERS,  
LOUISVILLE DISTRICT  
600 DR. MARTIN LUTHER KING BLVD  
LOUISVILLE, KY.

ENGINEER

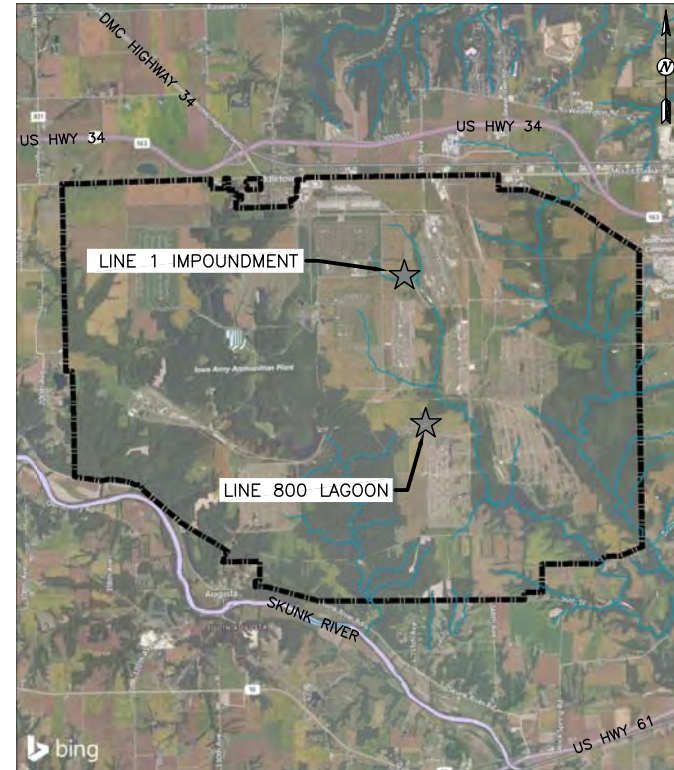
LOS ALAMOS TECHNICAL ASSOCIATES, INC.  
756 PARK MEADOW ROAD  
WESTERVILLE, OHIO 43081  
(614) 508-1200

PRIME CONTRACTOR AND OPERATOR

PARS/GANNETT FLEMING  
500 HORIZON DRIVE, SUITE 540  
ROBBINSVILLE, NEW JERSEY 08691  
(609) 890-7277



LOCATION MAP  
NOT TO SCALE



VICINITY MAP  
1" = 6000'  
(SCALE FOR SHEET SIZE 22" X 34")

UTILITIES

EXISTING ON-SITE UTILITIES ARE MAINTAINED AND OPERATED BY CIVILIAN CONTRACTOR AMERICAN ORDNANCE, LLC.

BENCHMARKS

NO FIELD SURVEY CONDUCTED TO ESTABLISH BENCHMARKS.

EXISTING ELEVATION, TOPOGRAPHIC DATA, INFRASTRUCTURE, & UTILITY LOCATIONS ARE DERIVED FROM GIS MAPPING FILES RECEIVED FROM AMERICAN ORDNANCE LLC; THE LINE 1 IMPOUNDMENT REMEDIAL ACTION MODIFIED DRAWINGS FOR OPERATIONS AND MAINTENANCE MANUAL, IOWA ARMY AMMUNITION PLANT, MIDDLETOWN, IOWA, DATED SEPTEMBER 2002; AND THE LINE 800 LAGOON REMEDIAL ACTION AS-BUILT PLANS, IOWA ARMY AMMUNITION PLANT, MIDDLETOWN IOWA, DATED SEPTEMBER 2000.

DRAWING INDEX

DWG #	SHT #	DESCRIPTION
<b>04-GENERAL</b>		
G-401	1	TITLE SHEET
G-402	2	GENERAL NOTES / LEGENDS AND ABBREVIATIONS
G-403	3	LINE 1 AND LINE 800 SITE PLANS
<b>05-CIVIL</b>		
C-401	4	LINE 1 OVERFLOW STRUCTURE PLAN AND PROFILE
C-402	5	LINE 1 OVERFLOW CROSS-SECTIONAL VIEW
C-403	6	LINE 800 OVERFLOW STRUCTURE PLAN AND PROFILE
C-404	7	LINE 800 OVERFLOW RIPRAP APRON DETAIL

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
BY	CHK	ENGR	LEAD	ENGR		
0	6/20/18	AS-BUILTS				

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US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT AND LINE 800 LAGOON EMERGENCY OVERFLOWS**

**TITLE SHEET**

PROJECT NO.:	11340
CADD DWG FILE:	G-401 TITLE SHEET
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>G-401</b>	
SHEET 1 OF 7	

ABBREVIATIONS

AMSL – ABOVE MEAN SEA LEVEL  
 ASTM – AMERICAN SOCIETY FOR TESTING AND MATERIALS  
 DOT – DEPARTMENT OF TRANSPORTATION  
 FT – FEET  
 H:V – HORIZONTAL TO VERTICAL  
 HDPE – HIGH-DENSITY POLYETHYLENE  
 NTS – NOT TO SCALE  
 PVC – POLYVINYL CHLORIDE

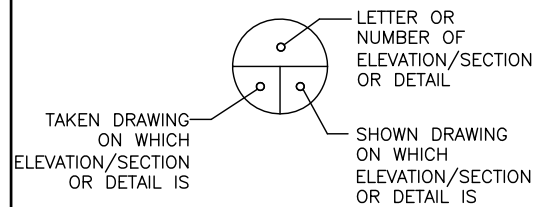
PROJECT REQUIREMENTS

- A. THE PRIME CONTRACTOR IS REQUIRED TO SUPPLY AND INSTALL ANY EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED BY LAW OR AS DIRECTED BY THE PROJECT OWNER.
- B. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL COMPLY WITH BASIC PROVISIONS OF OSHA HEALTH AND SAFETY STANDARDS 29 CFR 1910 AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE TO THIS CONSTRUCTION.
- C. THE PRIME CONTRACTOR SHALL CONTACT AN UNDERGROUND UTILITY LOCATOR AT LEAST 48 HOURS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL LOCATE ALL CONFLICTS PRIOR TO CONSTRUCTION.
- D. THE PRIME CONTRACTOR SHALL COMPLY WITH THE ENVIRONMENTAL PROTECTION AGENCY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER REQUIREMENTS ESTABLISHED FOR CONSTRUCTION SITES.

LINETYPES

— x — FENCE  
 — OHE — OVERHEAD ELECTRIC  
 - -678 - - EXISTING GRADE TOPOGRAPHIC CONTOUR  
 — 678 — PROPOSED GRADE TOPOGRAPHIC CONTOUR

ELEVATION/SECTION & DETAIL KEY



REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	ENGR
0	6/20/18	AS-BUILTS				

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**PARS** / **Gannett Fleming**  
 ENVIRONMENTAL INC.

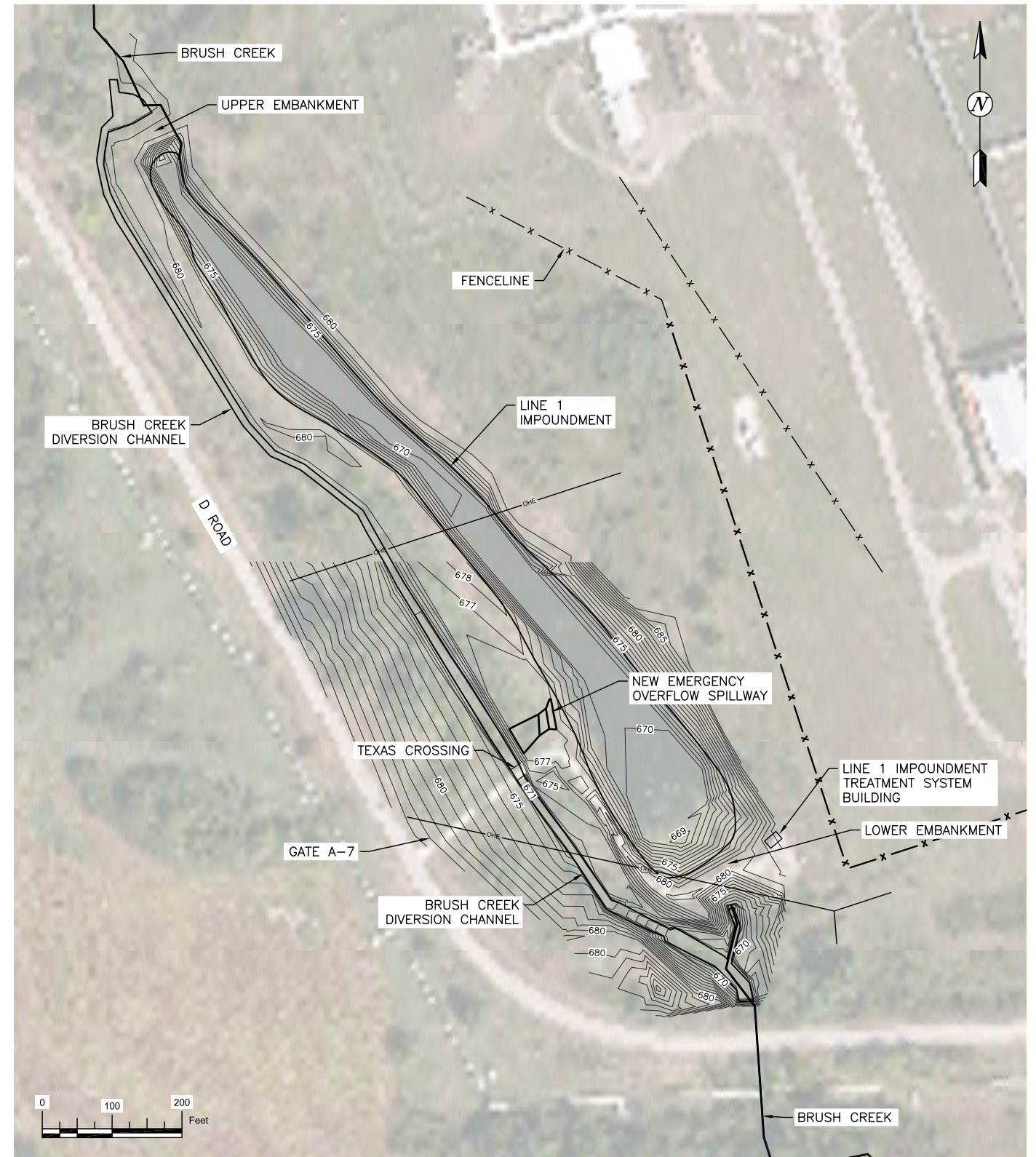
US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT AND LINE 800  
 LAGOON EMERGENCY OVERFLOWS**

**GENERAL NOTES / LEGENDS AND  
 ABBREVIATIONS**

PROJECT NO.:	11340
CADD DWG FILE:	G-402 LEGENDS AND ABBREV
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16
<b>G-402</b>	
SHEET 2 OF 7	



1 LINE 800 LAGOON – SITE PLAN  
 Scale: 1" = 100'  
 (SCALE FOR SHEET SIZE 22" X 34")



2 LINE 1 IMPOUNDMENT – SITE PLAN  
 Scale: 1" = 100'  
 (SCALE FOR SHEET SIZE 22" X 34")

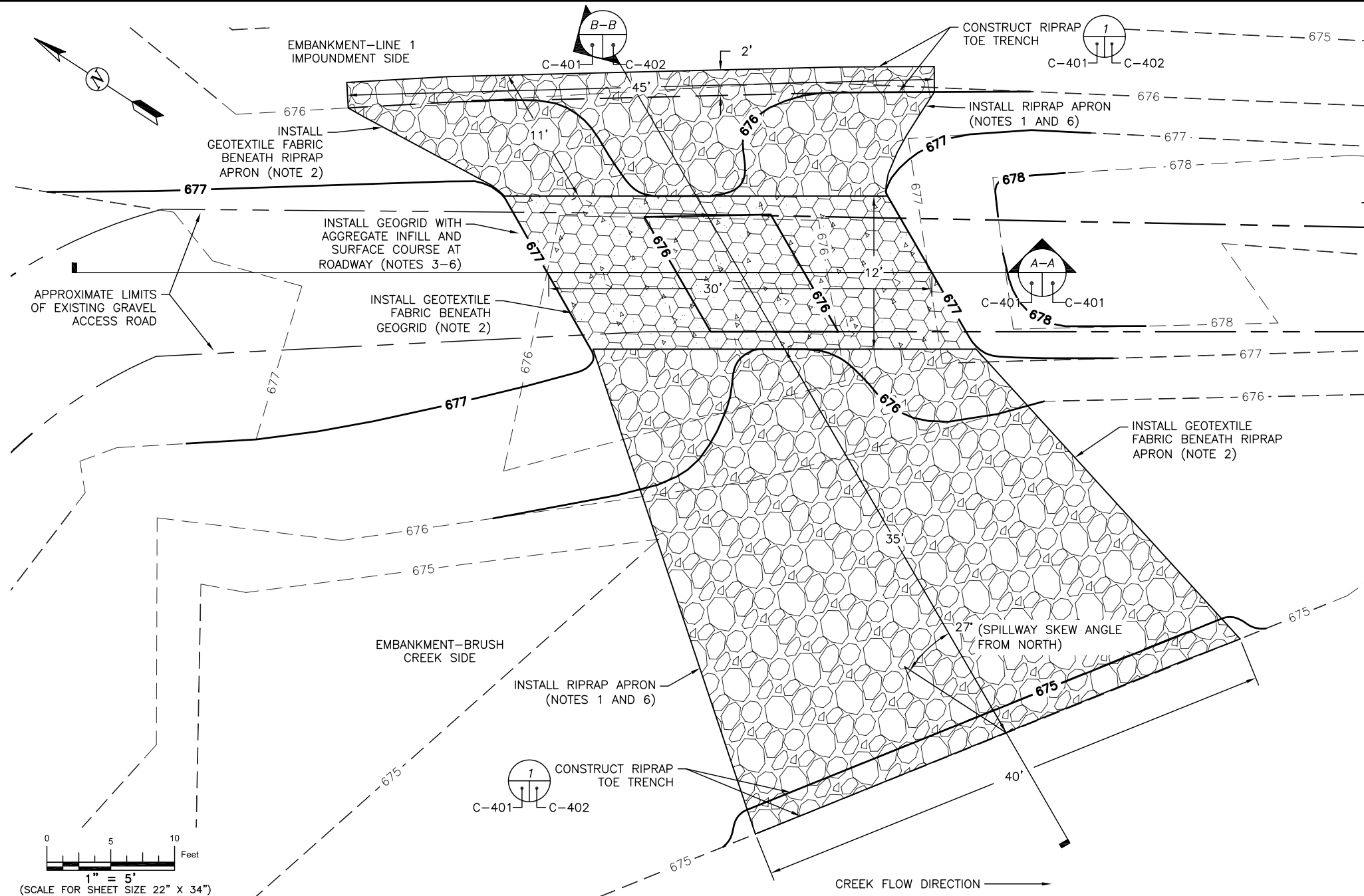
REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
1	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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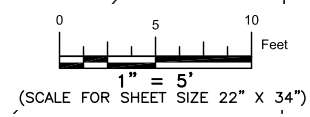
**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT AND LINE 800 LAGOON EMERGENCY OVERFLOWS**  
**LINE 1 AND LINE 800 SITE PLANS**

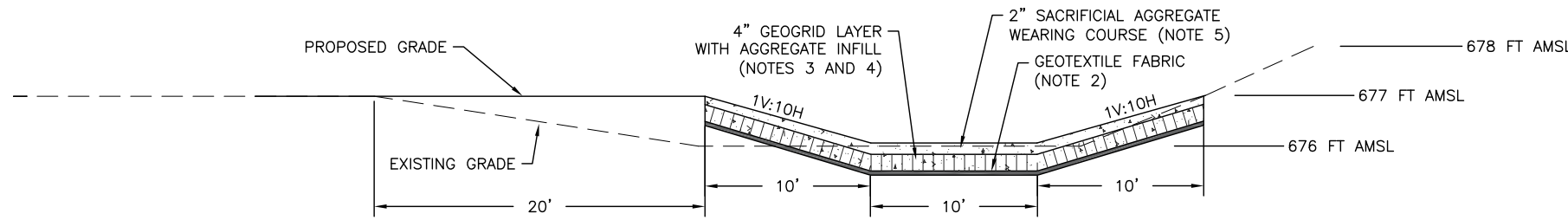
PROJECT NO.:	11340
CADD DWG FILE:	G-403 LINE 1 AND 800 SITE PLANS
DESIGNED BY:	ERV
DATE:	12/16/16
DRAWN BY:	TCW
DATE:	12/16/16
CHECKED BY:	BK
DATE:	12/16/16
<b>G-403</b>	
SHEET 3 OF 7	



- NOTES:
1. RIPRAP SHOULD CONSIST OF NATIVE FIELD STONE, QUARRY RUN ROCK, OR CLEAN BROKEN CONCRETE. RIPRAP STONE SHALL MEET THE WEIGHT, DIAMETER, AND GRADATION REQUIREMENTS FOR IOWA DOT CLASS D OR E REVETMENT STONE. IF BROKEN CONCRETE IS USED, ALL REINFORCEMENT MATERIAL SHALL BE COMPLETELY REMOVED FROM IT; IF REMOVAL IS NOT POSSIBLE, THE REINFORCEMENT MATERIAL SHOULD BE CUT FLUSH WITH THE SURFACE OF THE CONCRETE. THE RIPRAP MUST BE MAINTAINED FREE OF EXPOSED REINFORCEMENT MATERIAL. THE CONCRETE SHALL BE APPROPRIATELY GRADED AND SIZED. NO ASPHALT OR PETROLEUM-BASED MATERIAL SHALL BE USED AS OR INCLUDED IN RIPRAP MATERIAL.
  2. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS FOR ENGINEERING FABRICS SET FORTH IN IOWA DOT STANDARD SPECIFICATIONS SECTIONS 4196.01.A AND 4196.01.B.3 FOR USE AS EMBANKMENT EROSION CONTROL.
  3. GEOGRID MATERIAL SHALL BE A CELLULAR CONFINEMENT SYSTEM MANUFACTURED FROM STRIPS OF HDPE WELDED TOGETHER TO FORM HONEYCOMB GEOCELL PANELS. THE GEOGRID SHALL BE 4" THICK AND CAPABLE OF SUPPORTING LIGHT TO OCCASIONAL HEAVY TRAFFIC LOADS. GEOGRID SHALL BE INSTALLED AND ANCHORED PER MANUFACTURER'S GUIDELINES FOR SOIL STABILIZATION. GEOGRID SHALL BE CONTECH ENVIROGRID®, STRATA STRATAWEB®, OR APPROVED EQUAL.
  4. AGGREGATE INFILL MATERIAL FOR GEOGRID SHALL COMPLY WITH IOWA DOT STANDARD SPECIFICATIONS SECTION 2111 GRANULAR SUBBASE.
  5. AGGREGATE WEARING COURSE MATERIAL SHALL COMPLY WITH IOWA DOT STANDARD SPECIFICATIONS SECTION 2312 GRANULAR SURFACING. WEARING COURSE IS CONSIDERED SACRIFICIAL AND MAY REQUIRE REPLACEMENT FOLLOWING STORM EVENTS IN WHICH OVERFLOW OF THE IMPOUNDMENT INTO THE BRUSH CREEK DIVERSION CHANNEL OCCURS.
  6. PREPARED SUBGRADE MATERIALS ON WHICH RIPRAP OR GEOGRID/AGGREGATE ARE TO BE PLACED SHALL MEET THE REQUIREMENTS FOR NATURAL SUBGRADE SET FORTH IN SECTION 2109 OF THE IOWA DOT STANDARD SPECIFICATIONS. THE SUBGRADE SHALL BE SHAPED TO A SMOOTH SURFACE HAVING PROPER GRADE AND CROSS SECTION SUCH THAT THE FINAL SURFACE ELEVATIONS ARE CONSISTENT WITH THE CONTOURS SHOWN IN THIS PLAN.
  7. PROPOSED FINAL GRADE CONTOURS SHOWN REPRESENT THE TOP OF EACH ASSOCIATED SURFACE.



**EMERGENCY OVERFLOW SPILLWAY - LINE 1 IMPOUNDMENT**



**SPILLWAY PROFILE VIEW**  
 Scale: 3H:1V  
 (SCALE FOR SHEET SIZE 22" X 34")

REV	DATE	DESCRIPTION	JMG	ERV	ERV	BK
DRAWN BY	DRAFT	PROJ	LEAD	ENGR	ENGR	
1	6/20/18	AS-BUILTS				

**WTA** Los Alamos Technical Associates  
 756 Park Meadow Road  
 Westerville, OH 43081  
 (614) 508-1200  
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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
 IOWA ARMY AMMUNITION PLANT  
 MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT AND LINE 800 LAGOON EMERGENCY OVERFLOWS**

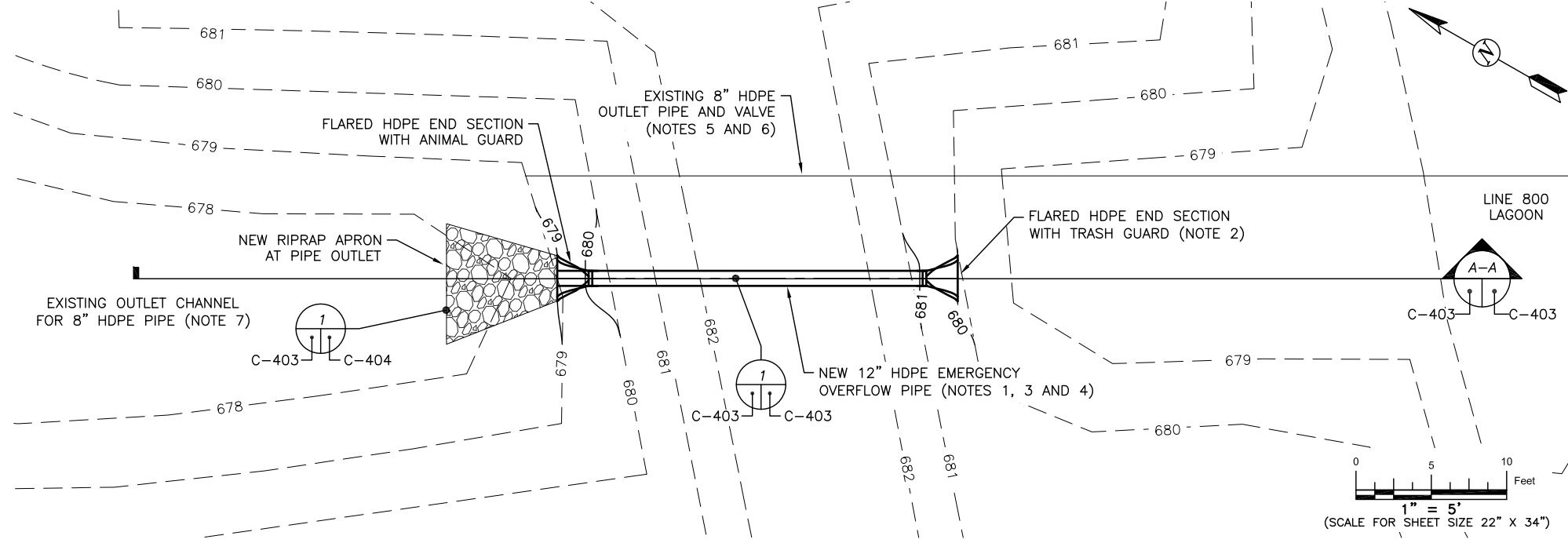
**LINE 1 OVERFLOW STRUCTURE PLAN AND PROFILE**

PROJECT NO.: 11340  
 CADD DWG FILE: C-401 LINE 1 OVERFLOW STRUC P - P  
 DESIGNED BY: ERV DATE: 12/9/16  
 DRAWN BY: TCW DATE: 12/9/16  
 CHECKED BY: BK DATE: 12/9/16

**C-401**  
 SHEET 4 OF 7

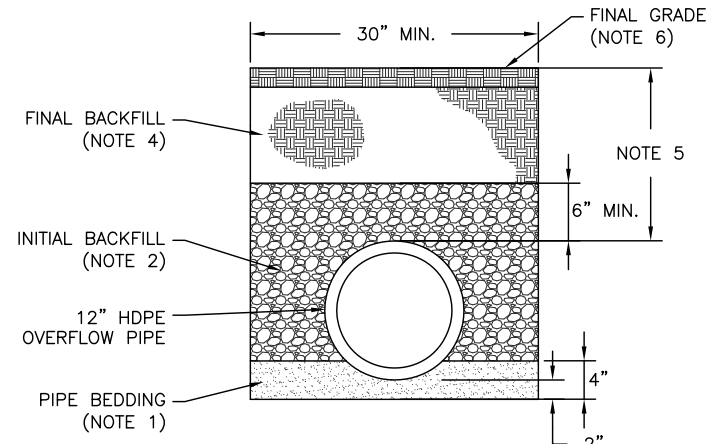






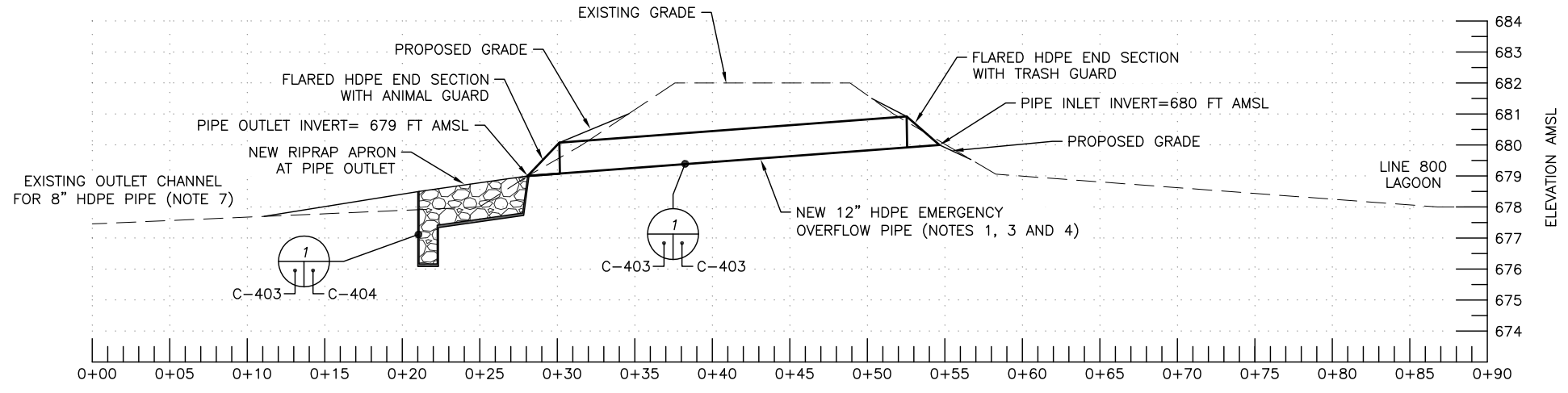
- EMERGENCY OVERFLOW PLAN AND PROFILE NOTES:
- NEW 12" HDPE PIPE SHALL BE CORRUGATED DUAL WALL PIPE WITH A SMOOTH INTERIOR, MEETING THE REQUIREMENTS OF ASTM F2648. PIPE SHALL BE JOINED USING BELL AND SPIGOT JOINTS MEETING THE REQUIREMENTS OF ASTM F2648. THE JOINT SHALL BE SOIL-TIGHT AND GASKETS, WHEN APPLICABLE, SHALL MEET ASTM F477. FITTINGS SHALL CONFORM TO ASTM F2306. BELL AND SPIGOT CONNECTIONS SHALL UTILIZE A SPUN-ON OR WELDED BELL AND VALLEY OR SADDLE GASKET MEETING THE SOIL-TIGHT JOINT PERFORMANCE REQUIREMENTS OF ASTM F2306. PIPE MATERIAL SHALL BE HDPE CONFORMING WITH THE MINIMUM REQUIREMENTS OF CELL CLASSIFICATION 435420C, AS DESCRIBED IN THE LATEST VERSION OF ASTM D3350. PIPE SHALL BE ADS N-12@ ST IB PIPE, OR APPROVED EQUAL.
  - FLARED END SECTIONS SHALL BE INSTALLED ON THE INLET AND OUTLET OF THE NEW OVERFLOW PIPE. AN END SECTION TRASH GUARD SHALL BE INSTALLED ON THE INLET (LINE 800 LAGOON) SIDE. AN ANIMAL GUARD (FINGER STYLE) SHALL BE INSTALLED ON THE OUTLET SIDE.
  - INSTALLATION OF NEW 12" HDPE PIPE SHALL BE IN ACCORDANCE WITH ASTM D232 AND MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
  - INSTALLATION QUALITY TO BE CONFIRMED BY A VISUAL INSPECTION FOR PIPE DEFLECTION.
  - THE LOCATION OF THE EXISTING 8" HDPE OUTLET PIPE IS DERIVED FROM THE LINE 800 LAGOON REMEDIAL ACTION AS-BUILT PLANS, IOWA ARMY AMMUNITION PLANT, MIDDLETOWN, IOWA, DATED SEPTEMBER 2000.
  - CONTRACTOR TO VERIFY IF EXISTING ISOLATION VALVE IS IN WORKING CONDITION. IF VALVE IS OPERABLE, EXISTING OUTLET PIPE WILL REMAIN IN PLACE. IF THE VALVE IS NOT OPERABLE, EXISTING OUTLET PIPE WILL BE REMOVED OR ABANDONED IN PLACE.
  - BASED ON FIELD CONDITIONS, ADDITIONAL GRADING MAY BE COMPLETED TO DIRECT OVERFLOW DISCHARGE TO THE CREEK.

**1** LINE 800 LAGOON EMERGENCY OVERFLOW  
C-403

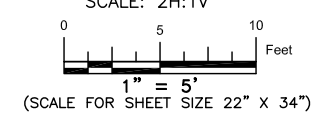


**1** TRENCH DETAIL-TYPICAL  
NTS  
C-403

- TRENCH DETAIL NOTES:
- PIPE BEDDING SHALL BE IOWA DOT CLASS B BEDDING CONSISTING OF A 2" CUSHION OF SAND SHAPED WITH A TEMPLATE TO A CONCAVE SADDLE IN COMPACTED OR NATURAL EARTH TO SUCH A DEPTH THAT 15% OF THE HEIGHT OF THE PIPE RESTS ON THE SAND CUSHION BELOW THE ADJACENT GROUND LINE.
  - INITIAL BACKFILL SHALL BE IOWA DOT CLASS I (COMPACTED) OR CLASS II (MINIMUM 90% STANDARD PROCTOR DENSITY) MATERIAL COMPACTED IN LIFTS NOT TO EXCEED 8".
  - EXTRA CARE SHALL BE TAKEN TO ENSURE COMPLETE AND SATISFACTORY TAMPING OF BACKFILL MATERIAL IN THE AREA IMMEDIATELY ADJACENT TO THE LOWER PORTION OF THE PIPE.
  - FINAL BACKFILL WILL BE NATIVE OR EXCAVATED MATERIAL FREE OF INDIVIDUAL STONES OR CONCRETE CHUNKS LARGER THAN 6", FROZEN MATERIALS, STUMPS, LOGS, BRANCHES AND BRUSH, TRASH, AND ENVIRONMENTALLY CONTAMINATED SOILS.
  - DO NOT EXCEED MAXIMUM ALLOWABLE COVER PER PIPE MANUFACTURER'S RECOMMENDATIONS.
  - SITE SHALL BE RESTORED TO EXISTING CONDITIONS OR BETTER. PLACE A MINIMUM OF 4" OF TOPSOIL AND SEED AS NEEDED.



**A-A** EMERGENCY OVERFLOW PIPE - SECTION A-A  
SCALE: 2H:1V  
C-403



REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

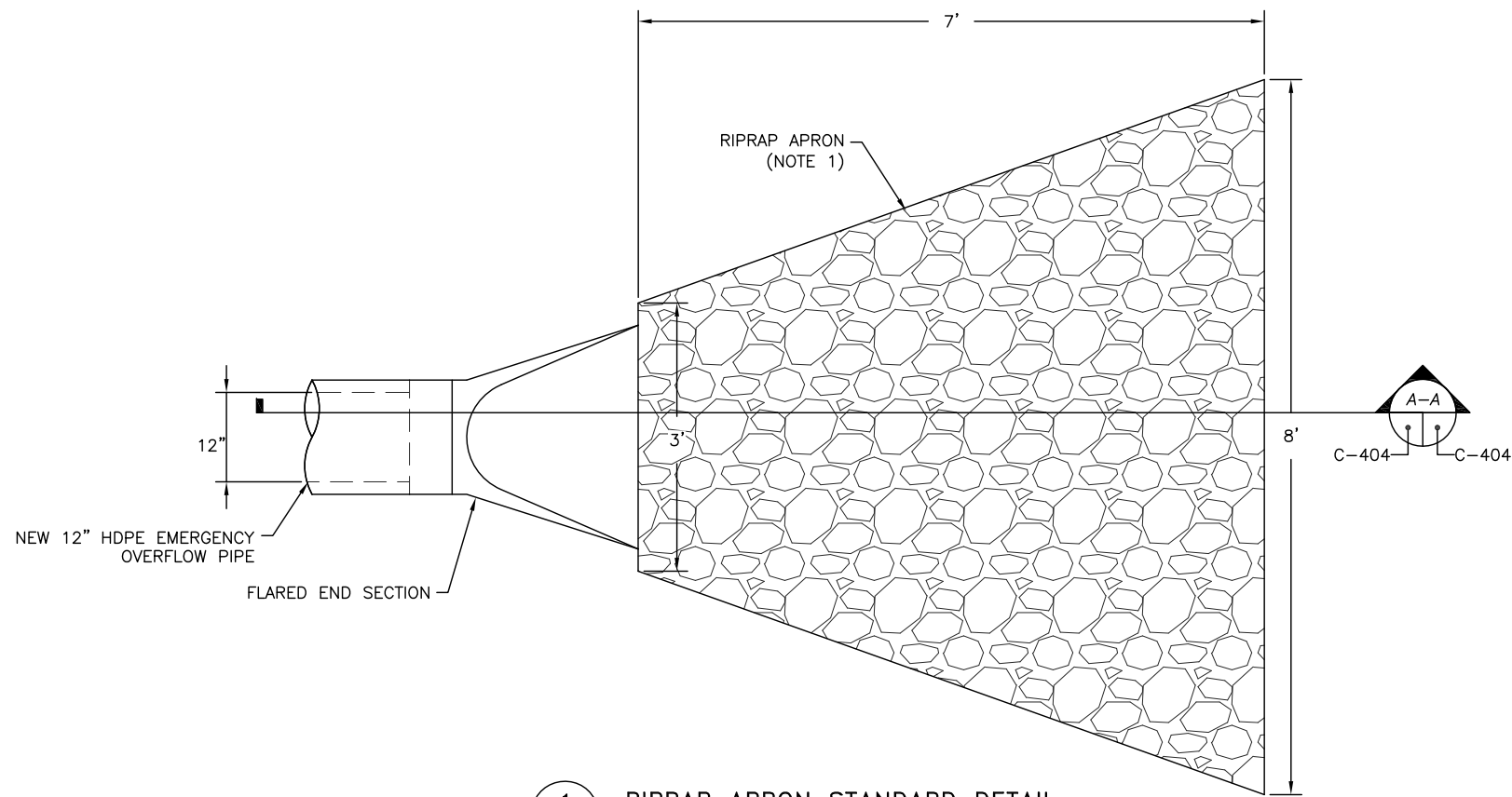
**LATA**  
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**PARS**  
ENVIRONMENTAL INC.

**Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT AND LINE 800 LAGOON EMERGENCY OVERFLOWS**  
**LINE 800 OVERFLOW STRUCTURE PLAN AND PROFILE**

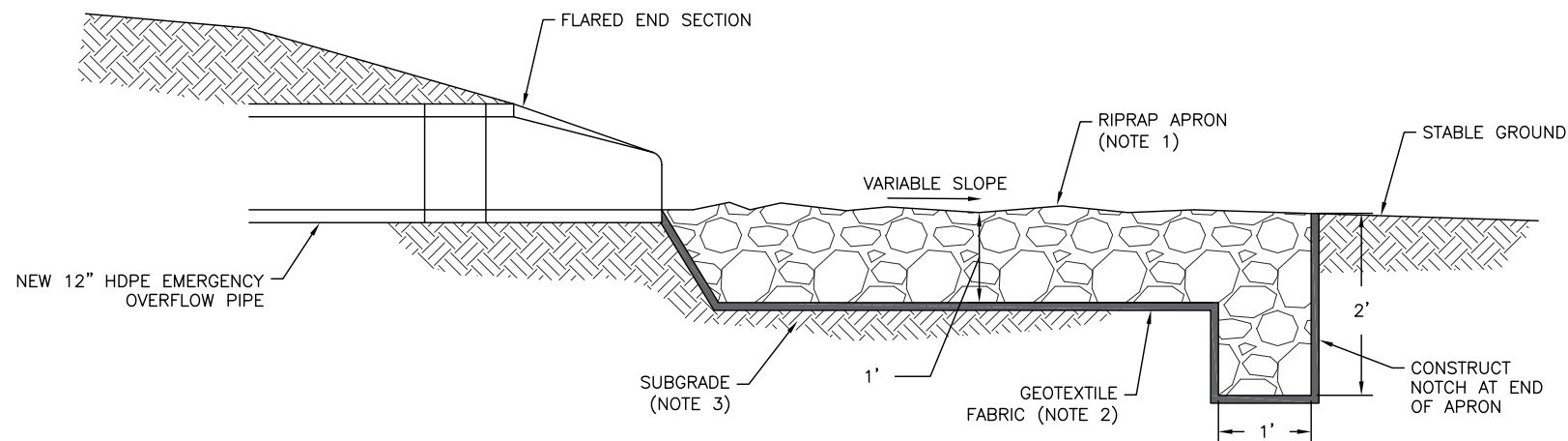
PROJECT NO.:	11340
CADD DWG FILE:	C-403 LINE 800 OVRFLOW STRUC P - P
DESIGNED BY:	ERV
DATE:	12/9/16
DRAWN BY:	TCW
DATE:	12/9/16
CHECKED BY:	BK
DATE:	12/9/16
<b>C-403</b>	
SHEET 6 OF 7	



NOTES:

1. RIPRAP SHOULD CONSIST OF NATIVE FIELD STONE, QUARRY RUN ROCK, OR CLEAN BROKEN CONCRETE. RIPRAP STONE SHALL MEET THE WEIGHT, DIAMETER, AND GRADATION REQUIREMENTS FOR IOWA DOT EROSION STONE. IF BROKEN CONCRETE IS USED, ALL REINFORCEMENT MATERIAL SHALL BE COMPLETELY REMOVED FROM IT; IF REMOVAL IS NOT POSSIBLE, THE REINFORCEMENT MATERIAL SHOULD BE CUT FLUSH WITH THE SURFACE OF THE CONCRETE. THE RIPRAP MUST BE MAINTAINED FREE OF EXPOSED REINFORCEMENT MATERIAL. THE CONCRETE SHALL BE APPROPRIATELY GRADED AND SIZED. NO ASPHALT OR PETROLEUM-BASED MATERIAL SHALL BE USED AS OR INCLUDED IN RIPRAP MATERIAL.
2. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS FOR ENGINEERING FABRICS SET FORTH IN IOWA DOT STANDARD SPECIFICATIONS SECTIONS 4196.01.A AND 4196.01.B.3 FOR USE AS EMBANKMENT EROSION CONTROL.
3. PREPARED SUBGRADE MATERIALS ON WHICH RIPRAP OR GEOGRID/AGGREGATE ARE TO BE PLACED SHALL MEET THE REQUIREMENTS FOR NATURAL SUBGRADE SET FORTH IN SECTION 2109 OF THE IOWA DOT STANDARD SPECIFICATIONS. THE SUBGRADE SHALL BE SHAPED TO A SMOOTH SURFACE HAVING PROPER GRADE AND CROSS SECTION.

1 RIPRAP APRON STANDARD DETAIL  
NTS  
C-403 C-404



A-A RIPRAP APRON PROFILE VIEW  
NTS  
C-404 C-404

REV	DATE	DESCRIPTION	DRAWN BY	DRAFT CHK	PROJ ENGR	LEAD ENGR
0	6/20/18	AS-BUILTS	JMG	ERV	ERV	BK

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**PARS** ENVIRONMENTAL INC. / **Gannett Fleming**

US ARMY CORPS OF ENGINEERS  
IOWA ARMY AMMUNITION PLANT  
MIDDLETOWN, IOWA  
**LINE 1 IMPOUNDMENT AND LINE 800 LAGOON EMERGENCY OVERFLOWS**

PROJECT NO.: 11340  
CADD DWG FILE: C-404 LINE 800 OVRFLOW STRUC DETAILS  
DESIGNED BY: ERV DATE: 12/9/16  
DRAWN BY: TCW DATE: 12/9/16  
CHECKED BY: BK DATE: 12/9/16

**LINE 800 OVERFLOW RIPRAP APRON DETAIL**

**C-404**  
SHEET 7 OF 7



**Appendix H**  
**Data Validation Report**

# DATA VALIDATION REPORT OF WATER SAMPLES FOR EXPLOSIVES OCTOBER 2021 THRU OCTOBER 2022

Revision: 01

Prepared for:



**United States Army Corps of Engineers, Louisville District**  
**600 Dr. Martin Luther King Jr. Place**  
**Louisville, Kentucky 40201**  
Contract No. W912QR-19-D0057  
Delivery Order No. W912QR-21-F0314

March 17, 2023

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## DATA VALIDATION SUMMARY

There were total of 35 data sets (total of 45 samples) between October 2021 to October 2022; therefore, three data sets (total of seven samples) were selected for data validation. This report summarizes data review findings for seven randomly selected water samples collected October 14, 2021, through October 24, 2022, and analyzed for explosives by United States Environmental Protection Agency (U.S. EPA) Method SW-846 8330A, summarized in Table 1.

<b>Table 1 Sample Summary</b>				
<b>Sample Delivery Group</b>	<b>Lab Identification</b>	<b>Sample Identification</b>	<b>Sample Date</b>	<b>Sample Type</b>
FA90298	FA90298-1	LINE 1-INF-10282021	10/28/2021	Water
FA90298	FA90298-2	LINE 1-AFC-10282021	10/28/2021	Water
FA96428	FA96428-1	LINE 1-DIS-06132022	6/13/2022	Water
FA96429	FA96429-1	LINE-1-INF-06132022	6/13/2022	Water
FA96429	FA96429-2	LINE-1-AFC-06132022	6/13/2022	Water
FA99995	FA99995-1	FFWTP-INF-10242022	10/24/2022	Water
FA99995	FA99995-2	FFWTP-AFC-10242022	10/24/2022	Water

Data were validated by EnSafe Inc. independently from the laboratory to assess data quality. Samples discussed in this report were analyzed by SGS North America Inc. in Orlando, Florida. The quality assurance criteria used to assess all data were established by the analytical methods and relevant standards in the following guidance documents:

- National Functional Guidelines for Superfund Organic Methods Data Review, Environmental Protection Agency (EPA) 540-R-20-005. (U.S. EPA, November 2020).
- Final Project Management Plan/Contractor Quality Control Plan, Operation and Maintenance Environmental Services, Iowa Army Ammunition Plant, Middletown, Iowa (EnSafe, Inc, September 2021).

Samples discussed in this validation summary were analyzed and reported as definitive data and quality control summary information and raw instrument outputs were submitted for data review. A U.S. EPA Stage 4 electronic and manual validation, consisting of recalculating a minimum of 10% of method, instrument output, and sample detections from raw data outputs was performed to ensure that computerized algorithms are valid, correct, and usable. The data review encompassed the parameters shown on Table 2:

<b>Table 2 Data Validation Parameters and Outlier Summary</b>		
<b>Parameter Reviewed</b>	<b>Data Outlier Observed</b>	<b>Results Qualified</b>
Data completeness	No	No
Sample receipt	No	No
Preservation and holding times	No	No
Sample instrument tuning	No	No
Initial calibration	No	No
Instrument sensitivity check	No	No
Initial calibration verification	No	No
Continuing calibration verification	No	No
Blanks (laboratory)	No	No
Laboratory control sample	Yes	Yes
Sample quantitation	No	No
Dual-column confirmation analysis	Yes	Yes
Matrix spike/matrix spike duplicates (MS/MSD)	Yes	Yes
Dilution	No	No
Raw data examination (10%)	No	No
Integration (manual and automated) review	No	No

Acceptable parameters for which all criteria were met or were not qualified, as indicated with *No* in the *Results Qualified* column in Table 2, are not discussed further.

Table 3 shows a summary of data qualifiers that may be used during data review, along with how the qualifier is to be interpreted by the end user.

<b>Table 3 Data Qualifiers</b>				
<b>Data Qualifier</b>	<b>Qualifier Definition</b>	<b>Interpret Result as a Detection?</b>	<b>Result Usable?</b>	<b>Potential Result Bias</b>
no qualifier	Acceptable	Yes	Yes	None expected
J	Estimated (quantitatively) and tentatively usable	Yes	Yes	High or Low
J+	Estimated (quantitatively)	Yes	Yes	High
J-	Estimated (quantitatively)	Yes	Yes	Low
U	Undetected below reporting limit	No	Yes	None expected
UJ	Undetected and estimated	No	Yes	High or Low
N	Estimated (tentative detection)	Yes	Yes	High or Low
X	Tentatively rejected	Not applicable	No	Not applicable
UN	Tentative nondetection	No	Yes	High or Low
NJ	Quantitatively and qualitatively estimated	Yes	Yes	High or Low
R	Rejected	Not applicable	No	Not applicable

### Laboratory Control Sample/Blank Spike

A laboratory control sample/blank spike was analyzed with every batch of 20 samples or less. Failures above the upper criteria do not need to be qualified if the sample was non-detect. The tetryl LCS recovery associated with samples LINE 1-INF-10282021 and LINE 1-AFC-10282021 (46%) were

below the laboratory control limits of 65-124%. All sample results were non-detect for tetryl; therefore, the samples were qualified as estimated (UJ).

### Dual-Column Confirmation Analysis

All detects were confirmed by a secondary column. HMX in sample LINE 1-INF-06132022 relative percent difference (RPD) between the two dissimilar columns (the primary and confirmation result) was greater than 40% and was qualified as estimated "J".

### Matrix Spike/Matrix Spike Duplicate

Table 4 summarizes MS/MSD %R outliers where samples were qualified during validation. All RPDs were acceptable. The qualifications performed were limited to the native (unspiked) sample and not the entire matrix batch. MS/MSD outliers that did not require sample qualification for the following reasons are not shown in this table: positive results greater than four times the spike amount and undetected results with high bias/RPDs.

Table 4 Matrix Spike/Matrix Spike Duplicate Outliers								
SDG	Spiked Sample	Analyte	Native Sample Result	Units	MS %R	MSD %R	%R Limit	Qualifier
FA96428	LINE 1-DIS-06132022	Tetryl	0.099 U	µg/L	53	53	65-124	UJ
FA96428	LINE 1-DIS-06132022	2,4,6-trinitrotoluene	0.099 U	µg/L	72	70	72-112	UJ

#### Notes

SDG =sample delivery group  
%R = percent recovery  
MS = matrix spike  
µg/L = micrograms per liter  
UJ = nondetect and estimated

### Overall Assessment and Data Qualifications Summary

Seven randomly selected data sets generated during the October 2021 thru October 2022 sampling events for water samples were evaluated independently from the laboratory to assess data quality. Due to a blank spike outlier, two results for tetryl were qualified as nondetect and estimated. Due to dual-column confirmation results RPD exceeding 40%, one HMX result were qualified as estimated. Due to low MS/MSD recovery, two results were qualified as nondetect and estimated. All analytes detected at concentrations less than the reporting limit but greater than the method detection limits were qualified by the laboratory as estimated (J). The qualifier remained after data validation. Analytical completeness was calculated to be 100 percent. Table 5 provides the final validation qualifiers applied.

Table 5 Qualified Results Summary							
SDG	Sample Identification	Analyte	Result	Unit	Lab Qualifier	Validator Qualifier	Reason Code
FA90298	LINE 1-INF-10282021	Tetryl	0.098	µg/L	U	UJ	bs
FA90298	LINE 1-AFC-10282021	Tetryl	0.098	µg/L	U	UJ	bs
FA96429	LINE-1-INF-06132022	HMX	0.55	µg/L		J	r
FA96428	LINE 1-DIS-06132022	Tetryl	0.099	µg/L	U	UJ	m
FA96428	LINE 1-DIS-06132022	2,4,6-trinitrotoluene	0.099	µg/L	U	UJ	m

**Notes:**

SDG = sample delivery group

µg/L = microgram per liter

**Qualifier Definitions:**

J = **Estimated Value** — The analyte concentration was less than the reporting limit or the parameter was qualified as estimated, and bias is indeterminable.

U = **Undetected** — The parameter was analyzed but undetected or was qualified as undetected due to blank artifacts.

UJ = **Undetected and Estimated Value** — Non-detected results were qualified as estimated.

**Qualification Reason Codes:**

bs = blank spike outlier

r = dual column relative percent difference

m = matrix spike recovery outlier



SGS North America Inc.

# Report of Analysis

Page 1 of 1

Client Sample ID:	LINE 1-INF-10282021		
Lab Sample ID:	FA90298-1	Date Sampled:	10/28/21
Matrix:	AQ - Water	Date Received:	10/29/21
Method:	SW846 8330A SW846 3535A	Percent Solids:	n/a
Project:	IAAAP O&M Services; IA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	PP391601.D	1	11/01/21 14:38	JB	10/29/21 13:00	OP88083	GPP2489
Run #2	BB070796.D	1	11/03/21 18:27	JB	10/29/21 13:00	OP88083	GBB2120
Run #3 <sup>b</sup>	GG622690.D	1	11/03/21 19:59	JB	10/29/21 13:00	OP88083	GGG3061

Run #	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2	1020 ml	10.0 ml
Run #3	1020 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	5.9	0.20	0.098	0.078	ug/l	
121-82-4	RDX	27.5	0.20	0.098	0.078	ug/l	
	DNX <sup>c</sup>	0.098 U <sup>d</sup>	0.20	0.098	0.078	ug/l	
	MNX	0.098 U	0.20	0.098	0.078	ug/l	
	TNX	0.098 U	0.20	0.098	0.078	ug/l	
99-65-0	1,3-Dinitrobenzene	0.098 U	0.20	0.098	0.078	ug/l	
606-20-2	2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
121-14-2	2,4-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
98-95-3	Nitrobenzene	0.098 U	0.20	0.098	0.095	ug/l	
88-72-2	o-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-08-1	m-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-99-0	p-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
479-45-8	Tetryl <sup>e</sup>	UU 0.098 U	0.20	0.098	0.078	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.098 U	0.20	0.098	0.097	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	95%	119%	134%	70-136%

- (a) All hits confirmed by reanalysis on a dissimilar column.
- (b) Confirmation run.
- (c) Confirmed by reanalysis.
- (d) Result is from Run# 2
- (e) Associated BS recovery outside control limits.

*Dana Miller*

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
4

SGS North America Inc.

# Report of Analysis

Page 1 of 1

Client Sample ID:	LINE 1-AFC-10282021	Date Sampled:	10/28/21
Lab Sample ID:	FA90298-2	Date Received:	10/29/21
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	SW846 8330A SW846 3535A		
Project:	IAAAP O&M Services; IA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	PP391602.D	1	11/01/21 15:09	JB	10/29/21 13:00	OP88083	GPP2489
Run #2	BB070797.D	1	11/03/21 18:58	JB	10/29/21 13:00	OP88083	GBB2120
Run #3 <sup>b</sup>	GG622691.D	1	11/03/21 19:30	JB	10/29/21 13:00	OP88083	GGG3061

Run #	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2	1020 ml	10.0 ml
Run #3	1020 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.098 U	0.20	0.098	0.078	ug/l	
121-82-4	RDX	4.9	0.20	0.098	0.078	ug/l	
	DNX <sup>c</sup>	0.098 U <sup>d</sup>	0.20	0.098	0.078	ug/l	
	MNX	0.098 U	0.20	0.098	0.078	ug/l	
	TNX	0.098 U	0.20	0.098	0.078	ug/l	
99-65-0	1,3-Dinitrobenzene	0.098 U	0.20	0.098	0.078	ug/l	
606-20-2	2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
121-14-2	2,4-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
98-95-3	Nitrobenzene	0.098 U	0.20	0.098	0.095	ug/l	
88-72-2	o-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-08-1	m-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-99-0	p-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
479-45-8	Tetryl <sup>e</sup>	0.098 U	0.20	0.098	0.078	ug/l	UJ
99-35-4	1,3,5-Trinitrobenzene	0.098 U	0.20	0.098	0.097	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	83%	105%	118%	70-136%

- (a) All hits confirmed by reanalysis on a dissimilar column.
- (b) Confirmation run.
- (c) Confirmed by reanalysis.
- (d) Result is from Run# 2
- (e) Associated BS recovery outside control limits.

*Dana Miller*

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.2  
4

## Report of Analysis

<b>Client Sample ID:</b>	LINE 1-DIS-06132022		
<b>Lab Sample ID:</b>	FA96428-1	<b>Date Sampled:</b>	06/13/22
<b>Matrix:</b>	AQ - Water	<b>Date Received:</b>	06/14/22
<b>Method:</b>	SW846 8330A SW846 3535A	<b>Percent Solids:</b>	n/a
<b>Project:</b>	IAAAP O&M Services; IA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB073362.D	1	06/16/22 22:14	FS	06/15/22 08:30	OP91648	GBB2218
Run #2							

	Initial Volume	Final Volume
Run #1	1010 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.099 U	0.20	0.099	0.079	ug/l	
121-82-4	RDX	0.099 U	0.20	0.099	0.079	ug/l	
	DNX	0.099 U	0.20	0.099	0.079	ug/l	
	MNX	0.099 U	0.20	0.099	0.079	ug/l	
	TNX	0.099 U	0.20	0.099	0.079	ug/l	
99-65-0	1,3-Dinitrobenzene	0.099 U	0.20	0.099	0.079	ug/l	
606-20-2	2,6-Dinitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
121-14-2	2,4-Dinitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
98-95-3	Nitrobenzene	0.099 U	0.20	0.099	0.096	ug/l	
88-72-2	o-Nitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
99-08-1	m-Nitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
99-99-0	p-Nitrotoluene	0.099 U	0.20	0.099	0.079	ug/l	
479-45-8	Tetryl	UJ 0.099 U	0.20	0.099	0.079	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.099 U	0.20	0.099	0.098	ug/l	
118-96-7	2,4,6-Trinitrotoluene	UJ 0.099 U	0.20	0.099	0.079	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	80%		70-136%

*Dana Miller*

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	LINE 1-INF-06132022		
<b>Lab Sample ID:</b>	FA96429-1	<b>Date Sampled:</b>	06/13/22
<b>Matrix:</b>	AQ - Water	<b>Date Received:</b>	06/14/22
<b>Method:</b>	SW846 8330A SW846 3535A	<b>Percent Solids:</b>	n/a
<b>Project:</b>	IAAAP O&M Services; IA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	BB073365.D	1	06/16/22 23:47	FS	06/15/22 08:30	OP91648	GBB2218
Run #2 <sup>b</sup>	GG624275.D	1	06/17/22 16:17	FS	06/15/22 08:30	OP91648	GGG3153

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2	1020 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX <sup>c</sup>	J 0.55	0.20	0.098	0.078	ug/l	
121-82-4	RDX	0.63	0.20	0.098	0.078	ug/l	
	DNX	0.098 U	0.20	0.098	0.078	ug/l	
	MNX	0.098 U	0.20	0.098	0.078	ug/l	
	TNX	0.098 U	0.20	0.098	0.078	ug/l	
99-65-0	1,3-Dinitrobenzene	0.098 U	0.20	0.098	0.078	ug/l	
606-20-2	2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
121-14-2	2,4-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
98-95-3	Nitrobenzene	0.098 U	0.20	0.098	0.095	ug/l	
88-72-2	o-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-08-1	m-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-99-0	p-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
479-45-8	Tetryl	0.098 U	0.20	0.098	0.078	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.098 U	0.20	0.098	0.097	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	87%	93%	70-136%

- (a) All hits confirmed by reanalysis on a dissimilar column.  
(b) Confirmation run.  
(c) Primary and confirmation results differ by more than 40%.

*Dana Miller*

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



**Appendix I**  
**Waste Disposal Documents (carbon and bag filters)**



# Area Disposal Service, Inc.

P.O. Box 9071, Peoria, IL 61612-9071 www.pdcarea.com 309-688-0760

CUSTOMER SERVICE RECEIPT

WO#: 5176433 Date: 1/18/22  
 Cust Name: AMERICAN ORDNANCE  
 Address: 17575 State Hwy 79  
 City: Middletown State: IA  
 Site Start Time: \_\_\_\_\_  
 Site End Time: \_\_\_\_\_ PO #: \_\_\_\_\_

**Residential/Commercial Containers (Circle)**  
 Container Size: \_\_\_\_\_  
 Container Delivery Extra Pick-Up  
 Empty and Leave Other \_\_\_\_\_  
 Retrieve \_\_\_\_\_  
 Extra Yardage (Quantity) \_\_\_\_\_

**Roll-Off Service Containers (Circle)**  
 Container Size: 30yd/40yd  
 Box Delivery Double Box Delivery  
 Dump/Return Open Top  
Dump/Exchange Compactor Receiver  
 Dump/Final Self Contained Compactor  
 Demurrage Other/Notes \_\_\_\_\_  
 Relocate Box \_\_\_\_\_

**Payment Received:** \_\_\_\_\_  
 (Circle Payment Type)  
 Cash Check # \_\_\_\_\_

Driver: Rent M<sup>c</sup>Connell Route ID: X015

*Customer/Designee Signature (below) acknowledges service was provided by Area Disposal Service, Inc. and agrees to all terms and conditions as listed on the reverse side of this Service Receipt*

Customer Name (print): Zach Hill  
 Customer Signature: [Signature] Date: 1.18.22

**Shipping Instructions for Non-Special Wastes:** A Bill of Lading Form or similar shipping paper must be provided with each load. The names of ALL non-special wastes, as identified on the Non-Special Certification(s), contained within the load must be noted on the Bill of Lading or other shipping paper. When scheduling the load for pickup, give the dispatcher the waste name(s) and note that it is a non-special waste.

# BILL OF LADING

**FROM (Generator Name & Address)**

PARS Environmental, Inc.  
17575 DMC HWY 79  
Middletown, IA 52638

**TO (Disposal Facility)**

Hickory Ridge Landfill  
32246 375<sup>th</sup> Street  
Baylis, IL 62314

**NON-SPECIAL WASTE NAME(S)**

NSW – Bag filters/PPE  
Permit # 31-22833

**SHIP DATE**

1-18-22

**TRANSPORTER:**

ADS Missouri

**TOTAL QUANTITY:**

1 Bag - 20lbs

**DRIVER:**

**CUSTOMER:**

*[Signature]* 12-15-21



**Area Disposal Service, Inc.**

P.O. Box 9071, Peoria, IL 61612-9071 www.pdcarea.com 309-688-0760

CUSTOMER SERVICE RECEIPT

WO#: 4917/4918 Date: 4/20/22  
Cust Name: American Ordnance  
Address: 17575 State Hwy 79  
City: Middletown State: IA  
Site Start Time: \_\_\_\_\_  
Site End Time: \_\_\_\_\_ PO #: \_\_\_\_\_

**Residential/Commercial Containers (Circle)**

Container Size: \_\_\_\_\_  
Container Delivery Extra Pick-Up  
Empty and Leave Other \_\_\_\_\_  
Retrieve \_\_\_\_\_  
Extra Yardage (Quantity) \_\_\_\_\_

**Roll-Off Service Containers (Circle)**

Container Size: 30yd/40yd  
Box Delivery Double Box Delivery  
Dump/Return Open Top  
Dump/Exchange Compactor Receiver  
Dump/Final Self Contained Compactor  
Demurrage Other/Notes \_\_\_\_\_  
Relocate Box \_\_\_\_\_

**Payment Received:** \_\_\_\_\_

(Circle Payment Type)

Cash

Check # \_\_\_\_\_

Driver: Kent M. Conell Route ID: 3700

*Customer/Designee Signature (below) acknowledges service was provided by Area Disposal Service, Inc. and agrees to all terms and conditions as listed on the reverse side of this Service Receipt*

Customer Name (print): \_\_\_\_\_

Customer Signature: \_\_\_\_\_ Date: \_\_\_\_\_



**Shipping Instructions for Non-Special Wastes:** A Bill of Lading Form or similar shipping paper must be provided with each load. The names of ALL non-special wastes, as identified on the Non-Special Certification(s), contained within the load must be noted on the Bill of Lading or other shipping paper. When scheduling the load for pickup, give the dispatcher the waste name(s) and note that it is a non-special waste.

## BILL OF LADING

**FROM (Generator Name & Address)**

PARS Environmental, Inc.  
17575 DMC HWY 79  
Middletown, IA 52638

**TO (Disposal Facility)**

Hickory Ridge Landfill  
32246 375<sup>th</sup> Street  
Baylis, IL 62314

**NON-SPECIAL WASTE NAME(S)**

NSW - Bag filters/PPE

Permit # 31-22833

**SHIP DATE**

4-20-22

**TRANSPORTER:**

ADS Missouri

**TOTAL QUANTITY:**

4 bags = 80 lbs

**DRIVER:**

**CUSTOMER:**

*BA* - American Ordnance



# Area Disposal Service, Inc.

P.O Box 9071, Peoria, IL 61612-9071 www.pdcarea.com 309-688-0760

CUSTOMER SERVICE RECEIPT

WO#: 6706/6707 Date: 5/16/22  
 Cust Name: AMERICAN ORDNANCE  
 Address: 17575 State Hwy 79  
 City: Middletown State: IA  
 Site Start Time: \_\_\_\_\_  
 Site End Time: \_\_\_\_\_ PO #: \_\_\_\_\_

### Residential/Commercial Containers (Circle)

Container Size: \_\_\_\_\_  
 Container Delivery Extra Pick-Up  
 Empty and Leave Other \_\_\_\_\_  
 Retrieve  
 Extra Yardage (Quantity) \_\_\_\_\_

### Roll-Off Service Containers (Circle)

Container Size: 30/40  
 Box Delivery Double Box Delivery  
 Dump/Return Open Top  
Dump/Exchange Compactor Receiver  
 Dump/Final Self Contained Compactor  
 Demurrage Other/Notes \_\_\_\_\_  
 Relocate Box \_\_\_\_\_

### Payment Received:

(Circle Payment Type)  
 Cash \_\_\_\_\_ Check # \_\_\_\_\_

Driver: Kent M. Cornell Route ID: 1700

*Customer/Designee Signature (below) acknowledges service was provided by Area Disposal Service, Inc. and agrees to all terms and conditions as listed on the reverse side of this Service Receipt*

Customer Name (print): Zach Hill

Customer Signature: [Signature] Date: 5/16/22

**Shipping Instructions for Non-Special Wastes:** A Bill of Lading Form or similar shipping paper must be provided with each load. The names of ALL non-special wastes, as identified on the Non-Special Certification(s), contained within the load must be noted on the Bill of Lading or other shipping paper. When scheduling the load for pickup, give the dispatcher the waste name(s) and note that it is a non-special waste.

# BILL OF LADING

**FROM (Generator Name & Address)**

PARS Environmental, Inc.  
17575 DMC HWY 79  
Middletown, IA 52638

**TO (Disposal Facility)**

Hickory Ridge Landfill  
32246 375<sup>th</sup> Street  
Baylis, IL 62314

**NON-SPECIAL WASTE NAME(S)**

NSW - Bag filters/PPE

Permit # 31-22833

**SHIP DATE**

5-16-22

**TRANSPORTER:**

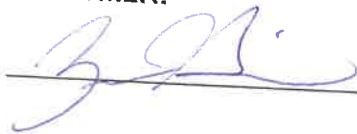
ADS Missouri

**TOTAL QUANTITY:**

2 - 40 lbs

**DRIVER:**

**CUSTOMER:**





# Area Disposal Service, Inc.

P.O. Box 9071, Peoria, IL 61612-9071 www.pdcarea.com 309-688-0760

CUSTOMER SERVICE RECEIPT

WO#: \_\_\_\_\_ Date: 7/13/22  
 Cust Name: American Ordnance  
 Address: 17575 Hwy 79  
 City: Middletown State: IA.  
 Site Start Time: \_\_\_\_\_  
 Site End Time: \_\_\_\_\_ PO #: \_\_\_\_\_

### Residential/Commercial Containers (Circle)

Container Size: \_\_\_\_\_  
 Container Delivery Extra Pick-Up  
 Empty and Leave Other \_\_\_\_\_  
 Retrieve  
 Extra Yardage (Quantity) \_\_\_\_\_

### Roll-Off Service Containers (Circle)

Container Size: 30yd/40yd  
 Box Delivery Double Box Delivery  
 Dump/Return Open Top  
Dump/Exchange Compactor Receiver  
 Dump/Final Self Contained Compactor  
 Demurrage Other/Notes \_\_\_\_\_  
 Relocate Box \_\_\_\_\_

### Payment Received:

(Circle Payment Type)

Cash

Check # \_\_\_\_\_

Driver: Kent M. Cornell Route ID: \_\_\_\_\_

*Customer/Designee Signature (below) acknowledges service was provided by Area Disposal Service, Inc. and agrees to all terms and conditions as listed on the reverse side of this Service Receipt*

Customer Name (print): American Ordnance

Customer Signature: [Signature] Date: 7/13/22

**Shipping Instructions for Non-Special Wastes:** A Bill of Lading Form or similar shipping paper must be provided with each load. The names of ALL non-special wastes, as identified on the Non-Special Certification(s), contained within the load must be noted on the Bill of Lading or other shipping paper. When scheduling the load for pickup, give the dispatcher the waste name(s) and note that it is a non-special waste.

## BILL OF LADING

**FROM (Generator Name & Address)**

PARS Environmental, Inc.  
17575 DMC HWY 79  
Middletown, IA 52638

Contact: Wendy Villalta  
PH: 609 - 890 - 7277

**TO (Disposal Facility)**

Hickory Ridge Landfill  
32246 375<sup>th</sup> Street  
Baylis, IL 62314

**NON-SPECIAL WASTE NAME(S)**

NSW - Spent Granular Activated Carbon (GAC)  
Permit # 31-22833

**SHIP DATE**

7-13-22

**TRANSPORTER:**

ADS Missouri

**TOTAL QUANTITY:**

1000 lbs

**DRIVER:**

**CUSTOMER:**

 5-31-22