



October 6, 2021

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JOHNSON CONTROLS, INC  
5757 N. GREEN BAY AVENUE  
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MR. SCOTT WAHL  
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Via Email Only to [jeffrey.howard.danko@jci.com](mailto:jeffrey.howard.danko@jci.com) and [scott.wahl@jci.com](mailto:scott.wahl@jci.com)

SUBJECT: Groundwater Extraction and Treatment System - Materials Management Plan  
Approval to Manage Contaminated Soil under Wis. Adm. Code § NR 718.12 and  
Response to Other Management for Contaminated Soil and Groundwater  
JCI/Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI  
DNR BRRTS Activity #: 02-38-580694

Dear Mr. Danko and Mr. Wahl:

On September 10, 2021, the Wisconsin Department of Natural Resources (DNR) received the *Groundwater Extraction and Treatment System* (“GETS”): *REVISED - Interim Remedial Action Materials Management Plan* (“MMP”) for the above-referenced site submitted by Geosyntec Consultants (Geosyntec), on behalf of Johnson Controls, Inc. and Tyco Fire Products LP (JCI/Tyco). The report was accompanied by the appropriate fee of \$700 required under Wisconsin Administrative Code (Wis. Adm. Code) § NR 749.04(1) for formal DNR review and response. (The original plan with notification of materials management was received on August 13, 2021, which required revisions for review and approval.) On October 3, 2021, the DNR received preliminary soil characterization results, which are attached to this letter (**Attachment A**).

JCI/Tyco are investigating and responding to the discharge of polyfluoroalkyl substances (PFAS) to the environment at the JCI/Tyco Fire Technology Center (FTC), located at 2700 Industrial Parkway South in Marinette, Wisconsin (“Site”). In February 2021, JCI/Tyco submitted an interim remedial action plan for the GETS, which is designed to capture and treat PFAS-contaminated groundwater migrating from the FTC property. The DNR conditionally approved JCI/Tyco’s GETS interim action plan on May 18, 2021.

During construction of the GETS, JCI/Tyco plans to excavate soil from areas of the Site that may be contaminated with PFAS and to pump groundwater from areas that may be contaminated with volatile organic compounds (VOCs) and/or PFAS. The GETS MMP outlines JCI/Tyco’s plans to characterize soil in the excavation areas prior to construction, and either dispose of the soil at an approved solid waste landfill or manage the contaminated soil on the Site in accordance with Wis. Adm. Code § NR 718.12. The GETS MMP also outlines JCI/Tyco’s plans to characterize and manage the contaminated groundwater that is generated during the construction for PFAS. The contaminated water will either be disposed off-site or discharged under a Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit for contaminated groundwater in accordance with the permit requirements.

**Summary of JCI/Tyco’s Material Management Plan**

The DNR understands JCI/Tyco’s **soil management plan** to be as follows:

Construction Activity	Estimated Vol (cy)	Characterization	Management	NR 718.12 Approval?
Drilling to install extraction wells	20	As needed for disposal	Dispose @ licensed facility	not needed
Excavations for trenches and vaults for extraction wells and horizontal drilling access points.	420	Approximately two samples per 13 excavation areas for PFAS	Manage/reuse at point of excavation as space and geotechnical considerations allow	Yes, plus exemption for locational criteria
	650		<b>Extra soils from excavations:</b> Compare to PFAS SSRCLs*	
			≥ SSRCLs	Dispose @ licensed facility
< SSRCLs	Manage on-site near GETS building	Yes		
Grading for GETS treatment building and road	900	During site investigation	Manage on-site near GETS building	Yes

cy = cubic yards, bgs = below ground surface

\* SSRCL= Site Specific Residual Contaminant Levels. SSRCLs calculated by JCI/Tyco for protection of groundwater near the Outdoor Testing Area on the Site are PFOS = 0.9 µg/kg and PFOA = 5.0 µg/kg.

Extra soils from the excavations that are waiting for off-site disposal or management on-site near the GETS building will be stockpiled temporarily in the area shown on Figure 1 from the GETS MMP (**Attachment B**). Soil from each discrete excavation area will be managed in discrete, separate stockpiles that prevents mixing of materials. Each stockpile will be placed upon and covered with secured plastic-sheeting or in roll-offs labeled with the source location(s) and date(s) of generation in a manner that prevents free-water runoff. JCI/Tyco plans to notify the DNR if the contaminated soil is stored more than 90 days in accordance with Wis. Adm. Code § NR 718.05(2)(i), which requires notification in writing within 3 business days of the 90<sup>th</sup> day.

The DNR understands JCI/Tyco’s **groundwater management plan** to be as follows. The combined concentration of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) greater than 20 parts per trillion (ppt) is the current standard applied to WPDES Permits.

Construction Activity	Estimated Vol	Characterization	Management	Anticipated WPDES Permit <sup>2</sup>
Dewatering to install vaults and trenches	Up to 1,000,000 gallons <sup>1</sup>	Shallow groundwater samples from each vault area	PFOS + PFOA < 20 ppt, Direct discharge to ditch	Dewatering
			PFOS + PFOA ≥ 20 ppt, Store in frac tanks, treat and discharge to ditch	Contaminated Groundwater
Well Installation and Development and Equipment Decontamination	20,000 to 30,000 <sup>1</sup> gallons	Groundwater sampling results from nearby wells or borings	Store in frac tanks <sup>1</sup> , treat, and discharge to ditch	

**Footnote:**

<sup>1</sup> In a phone call on September 29, 2021, JCI/Tyco shared that 20,000 to 30,000 gallons will be generated during well installation and development and this groundwater will be stored in separate frac tanks from the shallow groundwater pumped from vault and trench dewatering. JCI/Tyco plans to store the frac tanks with the well construction water on Site and to treat this water at using the GETS once it is permitted and operational.

<sup>2</sup> See <https://dnr.wisconsin.gov/topic/Wastewater/GeneralPermits.html> for WPDES applicability. WPDES determinations and coverages are issued by Water Quality and may differ from the anticipated permits listed here.

**Summary of Soil Characterization Results**

On October 3, 2021, the DNR received a summary of preliminary PFAS results for 23 soil samples collected from 12 boring pits for purposes of characterizing soil for the GETS MMP (**Attachment A**). (Samples from a thirteenth location, Boring Pit 3, were delayed due to access issues.) Up to two samples were collected from each pit; one from unsaturated soil and one from saturated soil if saturated conditions were present near the maximum depth of excavation (~ 8 feet). Saturated soil was not encountered in Boring Pit 8, so a saturated sample was not collected from this location. The results are summarized below:

- The concentrations of PFAS were *below* the applicable Wis. Adm. Code ch. NR 720 non-industrial residual contaminant levels (RCLs) for direct contact in all the samples collected.
- The concentration of PFAS were *below* the SSRCLs for pathway to groundwater for PFOA and PFOS in all samples except for at Boring Pits 4 and 5.
- The concentration of PFAS were *above* the SSRCLs for pathway to groundwater for PFOA and PFOS at Boring Pits 4 and 5. JCI/Tyco reported that almost all material encountered in Boring Pits 4 and 5 was peat, which is not suitable for reuse from a structural perspective. Therefore, materials excavated from near Boring Pits 4 and 5 will be disposed off-site at an approved facility.

Based on these results it is expected that the soil from Boring Pit 3 will have PFAS concentrations that are *below* the SSRCLs for pathway to groundwater for PFOA and PFOS.

**DNR Review**

The DNR reviewed the GETS MMP and concurs with JCI/Tyco’s plans to manage contaminated materials during the GETS construction.

**Wis. Adm. Code § NR 718.12 Approval**

This letter grants an approval for JCI/Tyco’s proposed plan to manage contaminated soil on the Site under Wis. Adm. Code § NR 718.12 based on the following:

### ***Compliance with Locational Criteria***

Geosyntec stated in the GETS MMP that the grading area around the GETS treatment building where excess soil will be managed meets the locational criteria listed under Wis. Adm. Code § NR 718.12(1)(c). Two figures with the location of GETS treatment building and grading area are provided in **Attachment B**. These figures are from previous submittals for the GETS; Figure 3-1 is from the February 26, 2021 Interim Remedial Action Design Report and Drawing C-102 is from the August 18, 2021 Stormwater Management Report.

### **Grant of exemption to Wis. Adm. Code §§ NR 718.12(1)(c)1., 2., 3. and 5.**

Soil excavated for the construction of trenches and vaults for the GETS that is replaced into the excavation from which the soil was removed (Figure in Attachment A) will meet the locational criteria listed under Wis. Adm. Code § NR 718.12(1)(c), except for the following:

- Wis. Adm. Code § 718.12(1)(c)1. - Within a floodplain;
- Wis. Adm. Code § 718.12(1)(c)2. - Within 100 feet of a wetland or critical habitat area;
- Wis. Adm. Code § 718.12(1)(c)3. - Within 300 feet of any navigable river, stream, lake, pond or flowage;
- Wis. Adm. Code § 718.12(1)(c)5. - Within 3 feet of the high groundwater level.

In consideration that the PFAS concentrations in the soils do not pose a direct contact risk to human health and replacement of these soils at the point of excavation will cause no net harm to the environment, the DNR grants an exemption to the locational criteria listed above and will allow placement of contaminated soil within the excavation from which it was removed.

### ***Characterization of Soil to be Excavated***

Twenty-three soil samples were collected from the proposed excavation locations and analyzed for PFAS, which are the contaminants previously detected or expected to be present in shallow soils at this Site. Based on the estimated volume of soil to be excavated, the sampling protocol described in Wis. Adm. Code § NR 718.12(1)(e) was met.

### ***Submittal of a Soil Management Plan***

A soil management plan, as defined by Wis. Adm. Code § NR 718.12(2)(b), was provided to the DNR.

### ***Assessment of Risk Posed by Soil Management***

The proposed management of contaminated soil at the Site is expected to meet the criteria of Wis. Adm. Code § NR 726.13(1)(b)1 to 5.

### ***Notice Provided Prior to Commencing Soil Management Activities***

Per Wis. Adm. Code § NR 718.12(2), the DNR was provided with written notice at least seven days prior to commencing the proposed material management.

### ***Requirement of Continuing Obligations***

Continuing obligations are not being imposed as a condition of approval of this GETS MMP, but continuing obligations are expected to be applied more broadly at the Site in the future. JCI/Tyco is required to document the management and movement of contaminated soil in the Construction Documentation Report for the GETS (see condition #4 in the DNR's May 18, 2021 *Conditional Approval of Groundwater Extraction and Treatment System (GETS) Interim Remedial Action Design Report*). This documentation required for this interim action under Wis. Adm. Code §§ NR 708.11(4) and 721.15 can be used at a future date when continuing obligations are imposed at the Site.

### **Other Requirements - Wis. Adm. Code § NR 718.12 Approval**

- 1) Documentation of the materials management under Wis. Adm. Code § NR 718.12 must be included in the GETS Construction Documentation Report and must include the following elements from Wis. Adm. Code § NR 724.15(3), which apply to interim actions like the GETS (Wis. Adm. Code § NR 708.11(4)):
  - a. Drawings that depict how contaminated soil was managed. (This includes area and depth of soil grading, locations and depth of excavations where soils were replaced, and location(s) where excess soils from the excavations were managed on Site.)
  - b. A synopsis of the work and an explanation as to how it complied with the GETS MMP.
  - c. A description of any changes made to the planned management activity and an explanation as to why they were necessary for the project.
  - d. Any field observations or results of monitoring conducted during the management activity.
  - e. A description of how new site conditions are protective of human health, safety, welfare and the environment.  
\* Note: Soil sampling is planned for near the GETS building as part of the site investigation work plan that was approved by the DNR on September 14, 2021. These results should be included in discussion of site conditions for soil management in this area. (Additional sampling of the graded soil may be needed depending on results.)
- 2) Any hazardous substance discharge discovered during contaminated soil management activities must be reported to the DNR following the requirements of Wis. Adm. Code ch. NR 706.
- 3) Contaminated soil management activities approved by this letter should be completed within 6 months. Notify the DNR if this schedule will change.
- 4) This approval is granted under Wis. Adm. Code § NR 718.12 and applies only to the specific activities described within the submitted GETS MMP. Any contaminated soil or solid waste that is excavated or otherwise disturbed at the Site, not covered under this or another approval, must be managed in compliance with the requirements of Wis. Adm. Code chs. NR 500 to NR 599. The management of contaminated soil and solid waste on a property that does not comply with these rules may be considered a hazardous substance discharge or environmental pollution and would be required to be addressed by the process outlined in Wis. Adm. Code chs. NR 700 to NR 799.

### **Response to Groundwater Management Plan**

JCI/Tyco plans to discharge pumped groundwater to surface water at the Site. To proceed with this plan, JCI/Tyco must have coverage under the applicable WPDES General Permit prior to discharge in accordance with Wis. Adm. Code § NR 205.08(1)(b). Depending on characterization results, the coverage is expected to fall either under a General Permit for Contaminated Groundwater (WI-0046566-7) or Dewatering (WI-0049344-5), which are issued through the DNR's Water Quality Program.

JCI/Tyco presented three options to handle contaminated water that requires treatment prior to discharge; these options included: use of one of its existing permitted-treatment systems, use of the GETS treatment facility after permitted and operational, or use a mobile temporary treatment system. If JCI/Tyco wants to treat contaminated groundwater using one of its existing WPDES permit coverages (e.g., the Ditch A treatment system), it must first receive approval for the planned change from the DNR's wastewater program. The water characterization results and an engineering evaluation that confirms that the proposed treatment can achieve the permit limits from the new water source should be submitted to the DNR for review and approval of the planned change.

**Response to Storage and Disposal of Contaminated Materials**

JCI/Tyco plans to temporarily store contaminated soil in stockpiles or roll-off boxes in accordance with Wis. Adm. Code. § NR 718.05, and is reminded that it must notify the DNR if the soil or solid waste will be stored on-site longer than 90 days (Wis. Adm. Code § NR 718.05(2)(i)). Disposal of soil, solid waste and groundwater off-site at a licensed facility does not require approval from the DNR.

**Next Steps**

JCI/Tyco may proceed with management of materials as proposed in the GETS MMP, with the reminder a WPDES permit is required to discharge the groundwater pumped during construction, and that documentation of as-built conditions, off-site waste disposal and on-site management of contaminated soil and groundwater must be included in the GETS Construction Documentation Report (per the DNR's conditional approval letter for the GETS Remedial Action Design Report dated May 18, 2021).

If you have any questions, please contact the project manager Alyssa Sellwood at (608) 622-8606 or [Alyssa.Sellwood@wisconsin.gov](mailto:Alyssa.Sellwood@wisconsin.gov).

Sincerely,



Jodie Peotter, P.G.  
Brownfields, Outreach and Policy Section Chief  
Remediation & Redevelopment Program

Attachments: Attachment A – Preliminary Soil Characterization Results Received October 3, 2021

Attachment B – Figures from JCI/Tyco Reports

cc: Jeff Tracy, Geosyntec (via email: [JTracy@Geosyntec.com](mailto:JTracy@Geosyntec.com))  
Alyssa Sellwood, DNR (via email: [Alyssa.Sellwood@wisconsin.gov](mailto:Alyssa.Sellwood@wisconsin.gov))  
Bridget Kelly, DNR (via email: [Bridgetb.kelly@wisconsin.gov](mailto:Bridgetb.kelly@wisconsin.gov))

## Sellwood, Alyssa A - DNR

**From:** Jeff Tracy <JTracy@Geosyntec.com>  
**Sent:** Sunday, October 3, 2021 8:13 PM  
**To:** Sellwood, Alyssa A - DNR  
**Cc:** Scott D Wahl; Kelly, Bridget B - DNR; Greg Johnson; Mary Ensck; Jeffrey Howard Danko  
**Subject:** RE: Tyco GETS- Materials Management Plan Submission

**CAUTION: This email originated from outside the organization.  
 Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Alyssa –

With the exception of material generated from Boring Pit 4 (EX-3 location) and Boring Pit 5 (EX-4 location), soil from the conveyance piping vaults (extraction well vaults and junction vaults) will be reused at the point of generation as described in the soil management plan. Excess soil that cannot be reused at the point of generation will be transported to the Fire Technology Center property and incorporated into the site grading, berms, or other landscaping features near the GETS building. Soil from Boring Pit 6 (EX-5 location) consists of peat. This material will not be reused to backfill around the vault, but will be incorporated into the slopes along the side of the access road.

As shown in the figure below, material from Boring Pits 4 and 5 consist of peat and have PFOA and PFOS concentrations exceeding the site-specific residual contaminant limits (5.0 ug/kg for PFOA; 0.9 ug/kg for PFOS) developed for the site. This material will be stockpiled and managed at the property in accordance with the procedures described in the soil management plan until it is transported off-site for disposal.

## Preliminary Soil Results



Please let me know if you have any questions or wish to discuss.

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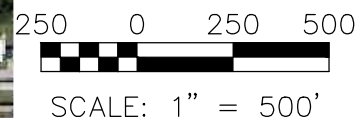
**LEGEND**

- ▲ EXTRACTION WELL
- BELOW-GRADE GROUNDWATER EXTRACTION UTILITY INFRASTRUCTURE ROUTE
- BELOW-GRADE TREATED EFFLUENT DISCHARGE LINE ROUTE
- ▭ APPROXIMATE LIMITS OF DITCH B

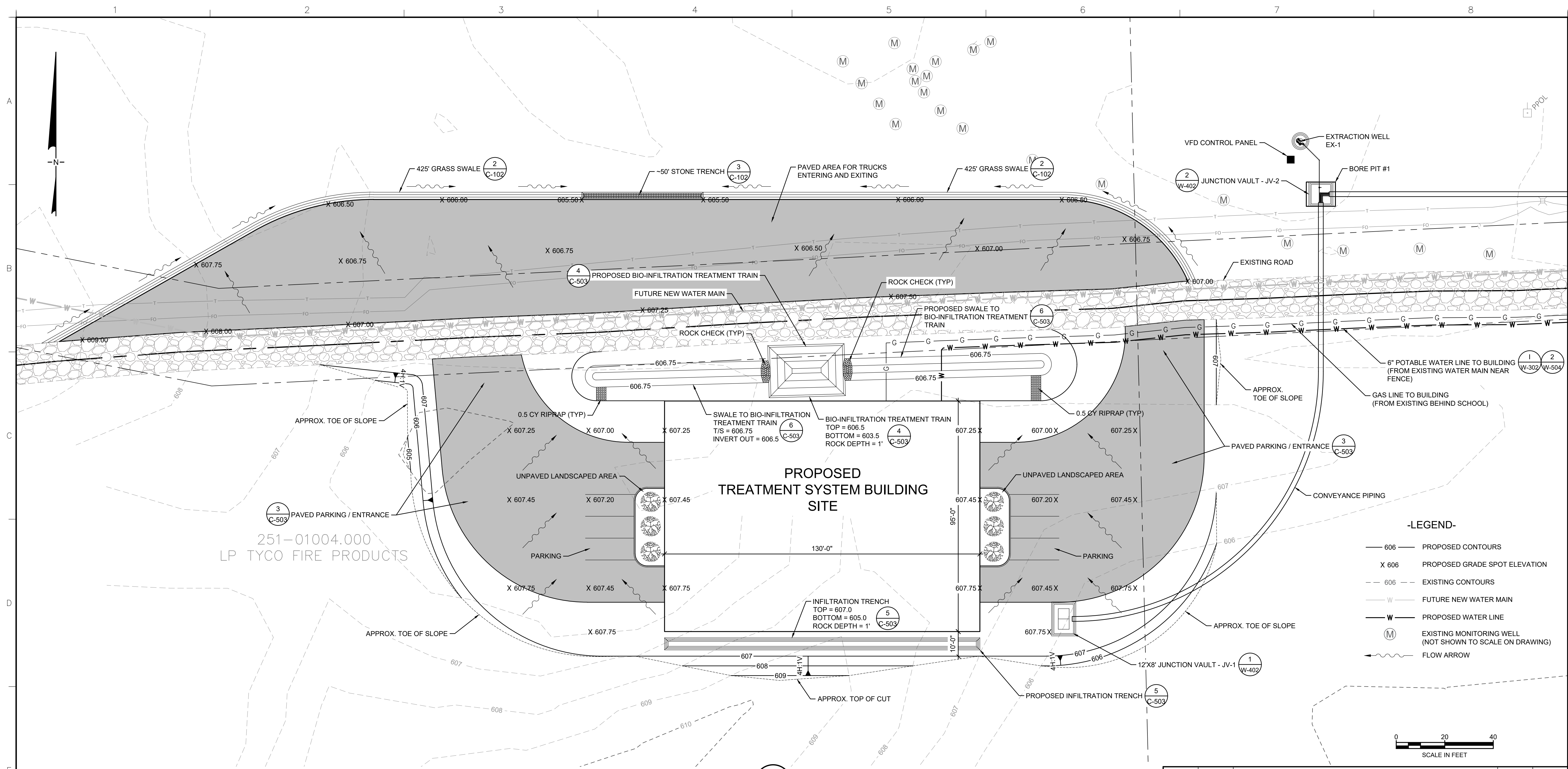
NOTE:  
 AERIAL MAPPING SOURCE ©2020 MICROSOFT CORPORATION, NAD83 WISCONSIN STATE PLANES, CENTRAL ZONE, US FEET.

TYCO FIRE TECHNOLOGY CENTER  
 MARINETTE, WISCONSIN

**GROUNDWATER EXTRACTION AND TREATMENT SYSTEM (GETS) INTERIM REMEDIAL ACTION SITE PLAN**







REV	DATE	DESCRIPTION	DRN	APP
<p><b>Geosyntec</b> consultants</p> <p>309 N. WATER STREET, SUITE 350 MILWAUKEE, WISCONSIN 53202 PHONE: 414.918.7480</p>				
<p><b>TITLE:</b> GRADING PLAN</p>				
<p><b>PROJECT:</b> GROUNDWATER EXTRACTION AND TREATMENT SYSTEM INTERIM REMEDIATION ACTION DESIGN</p>				
<p><b>SITE:</b> TYCO FTC SITE MARINETTE, WISCONSIN</p>				
<p>THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.</p>		<p>DESIGN BY: KMH</p> <p>DRAWN BY: BKF</p> <p>CHECKED BY: KC</p> <p>DRAWING NO.: C-102</p>		<p>DATE: AUGUST 2021</p> <p>PROJECT NO.: CHW8327</p> <p>FILE: CHW8327_C-102</p> <p>SHEET NO.: 09 OF XX</p>
<p>SIGNATURE</p> <p>DATE</p>		<p>WISCONSIN PROFESSIONAL ENGINEER</p> <p>GREGORY L. JOHNSON E-39389 MILWAUKEE, WI</p>		

**PRE-FINAL DESIGN DRAWINGS  
ISSUED FOR PERMIT**

Aug 18, 2021 - 4:18pm B:\remediation - C:\Users\gjohnson\My Documents\Projects\TYCO\TYCO\_FTCSITE\C-102.dwg



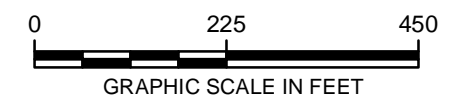
LEGEND:

- DITCH
- SOIL STOCKPILE LOCATION



NOTES:

1. IMAGERY SOURCE: 4/27/2016, DIGITALGLOBE, VIVID - USA.
2. FTC: Fire Technology Center.
3. OTA: Outdoor testing/training area.



TYCO FIRE TECHNOLOGY CENTER MARINETTE, WISCONSIN	
<b>Soil Stockpile Location</b>	
	FIGURE
MILWAUKEE, WISCONSIN	MAY 2021
1	