

SECTION 02240 – DEWATERING

PART 1 - GENERAL

1.01 Description of Work

- A. Provide, install, and maintain all necessary material and equipment used to keep excavation free of standing or flowing water and to transport water to a suitable discharge point.
- B. Provide measures to dispose of water in accordance with all local, state and federal regulations. Notify Steve Harris at the City of Portland Environmental Engineering Department prior to conduction dewatering operations.
- C. Related Work elsewhere includes:
 - 1. Existing Subsurface Conditions Section 02010
 - 2. Handling Contaminated Soils: Section 02110
 - 3. Lateral Earth Support: Section 02250
 - 4. Earthwork: Section 02300
 - 5. Erosion and Sedimentation Control: Section 02370
 - 6. Water System Distribution: Section 02510
 - 7. Sewers and Drains: Section 02600
 - 8. Drainage Structures: Section 02630
 - 9. Stormwater Treatment System: Section 02631

1.02 Submittals

- A. At least 2 weeks prior to the start of construction in any areas of anticipated dewatering, submit to the ENGINEER and City of Portland Environmental Engineering Department, a written plan for removal, storage, treatment, and disposal of groundwater from excavations. Do not proceed with construction in any of these areas until the plan has been reviewed and approved by the ENGINEER and City of Portland Environmental Engineering Department.

PART 2 – PRODUCTS (not applicable)

PART 3 - EXECUTION

3.01 General:

- A. Only trained personnel are authorized to conduct dewatering, storage, and discharge operations.

3.02 Dewatering Excavations:

- A. Perform all work in the dry. Prevent surface water or groundwater from flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations.
- B. Provide and maintain pumps, well points, gravel-pack walls, sumps, hoses, filters, and all other dewatering system components necessary to convey water away from excavations. The CONTRACTOR should note that several excavations for foundation elements, elevator pits and utilities adjacent to and within the Office and Garage footprints will extend several feet (up to 5 to 6 ft in some areas) below the observed/measured groundwater levels at the site (please refer to the groundwater level information summarized in Attachment B, Section 02010). The work of this Section shall include the design and installation of support of excavation systems (in accordance

with Section 02250) if the CONTRACTOR determines that such systems will be required to provide sufficient lateral groundwater cut-off, so that all earthwork activities can be conducted in-the-dry as outlined herein and in Section 02300.

- C. Minimize the suspended solids content in the water by lining the excavation collection area with crushed stone and placing the pump intake in a perforated bucket.
- D. Convey water removed from excavations to a frac tank. Do not use trench excavations as temporary drainage ditches. Do not allow silt laden water to discharge to gutters or storm drainage system. Do not discharge water directly to the storm, sanitary or combined sewer.
- E. Any damages to existing facilities or new work resulting from the failure of the CONTRACTOR to maintain the work areas in a dry condition shall be repaired by the CONTRACTOR, as directed by the ENGINEER, at no additional expense to the OWNER. Pumping shall be continuous where specified or directed or as necessary to protect the work and to maintain satisfactory progress.

3.03 Storage/Treatment/Discharge Process:

- A. Water removed from excavations shall be stored in a frac tank to allow settling of solids and testing prior to discharge. The dewatering pump line shall be placed at the opposite end from the tank outlet.
- B. Limit circulating tank contents to prevent freezing. Do not discharge from the tank while the circulation pump is operating to allow adequate settling time before discharge.
- C. If needed for additional storage and treatment volume, provide a second tank to be placed in series for secondary settlement. Transfer the water from the first tank to the second tank by suspending the intake line immediately below the water level to minimize disturbance of sediment at the bottom of the tank.
- D. Prior to discharge of the initial tank load, the CONTRACTOR must collect a water sample for laboratory analysis of the parameters identified with an "X" in the lists appended within this specification using the methods identified within the list. The CONTRACTOR must provide the test results to the ENGINEER and City of Portland Environmental Engineering Department. The City will use these test results to develop a baseline for testing of future frac tank loads. All future frac tank loads shall be required to be tested in accordance to the baseline developed by these initial analyses.

The City must provide approval to CONTRACTOR prior to additional effluent discharge.

The CONTRACTOR must provide access to the tanks for the City of Portland Environmental Engineering Department to take independent water samples. Do not add water or other materials to the frac tank after collecting the water sample.

- E. Managing and treating water determined to have contaminant levels exceeding the City's Industrial Pretreatment Program limits shall be in accordance with local, state, and federal regulations.

The CONTRACTOR shall work with the City of Portland and the ENGINEER to identify any other contaminants exceeding the Industrial Pretreatment Program discharge limits. The City of Portland and the ENGINEER shall provide recommended treatment methods for water found to exceed the City of Portland's Industrial Pretreatment Program discharge limitations.

Recent environmental analysis conducted at the site indicates that Total Petroleum Hydrocarbons (TPH) will likely be encountered in certain areas of the site. Free product and water with a visible sheen cannot be discharged to the sanitary and/or combined sewer. This

situation shall be controlled by spill pads typical of hydrophobic pads by SPC Sorbent Products Company or approved equal which soak visible sheens off the surface of the water. The CONTRACTOR may submit an alternative method for free product and sheen removal for review and approval by both the City and the ENGINEER.

- F. Follow direction provided by the City of Portland Environmental Engineering Department on further testing and disposal requirements.
- G. Obtain all local, state, and federal approvals necessary for the discharge of the water. If water is discharged to the combined or sanitary sewer, bag filters must be installed on the discharge piping and water must meet the City of Portland's Industrial Pretreatment Program discharge limitations.
- H. The City of Portland and/or the Portland Water District reserve the right to stop the CONTRACTOR from discharging flow to the combined sewer system during periods of time when the Combined Sewer Overflow (CSO) is or has the potential to be active.

3.04 Diversion of Water

- A. The CONTRACTOR shall be responsible for providing and maintaining all ditching, grading, sheeting, and bracing, pumping and appurtenant work for the protection from flooding as necessary to permit the construction of work in the dry.
- B. Upon completion of the contract work, the CONTRACTOR shall remove all temporary construction and shall do all necessary earthwork and grading to restore the areas disturbed to their original condition or to such other conditions as indicated or directed by the OWNER.
- C. Water shall not be permitted to flow into or through excavations in which work is under way or has been partially completed. The CONTRACTOR shall not restrict or close off the natural flow of water in such a way that ponding or flooding will occur, and shall at all times prevent flooding of public and private property. All damages resulting from flooding or restriction of flows shall be the sole responsibility of the CONTRACTOR, at no additional expense to the OWNER.

City of Portland and Portland Water District Industrial Waste Report

Location:		Maine Health/United Way Bayside Development, Portland				Sample Date:		
Sample Type					Sample Condition			
Composite	X	Grab		Discrete		Refrigerated		
• Methods 40 CFR Part 136 •								
	ID No	Parameter	Preservative	Method	Report Value	Duplicate % Recovery	Analysis Date	Analyst
X	23	pH (Composite)	Analysis (ASAP)	150.1				
X	1	Caustic Alk.	Refrigerate	310.1				
X	30	TSS	Refrigerate	160.2				
X	14	Cadmium	HNO3 to pH <2	200.7				
X	14	Copper	HNO3 to pH <2	200.7				
X	14	Chromium	HNO3 to pH <2	200.7				
X	14	Lead	HNO3 to pH <2	200.7				
X	14	Nickel	HNO3 to pH <2	200.7				
X	14	Zinc	HNO3 to pH <2	200.7				
X	32	Silver	HNO3 to pH <2	200.7				
X	54	Mercury	HNO3 to pH <2	245.1				
X	62	Arsenic	HNO3 to pH <2	206.2/200.7				
Person(s) Sampling			Community			Location		
Type Of System:			Industrial	Combined	Sanitary	Storm	Surface	
Automatic Sampler Information:								
Date/Time Set:			Start Time:			Time Period:		
Time Interval:			Samples per Bottle:			No. of Bottles:		
Date/Time Pulled:			Comments:					
Grab Sample Information (including bottle size & type)								
Date/Time Pulled:			No. of Samples:					
1000 ml HDPE Ambe			1000 ml Glass			950 ml Plastic		
Other Bottle Type:								
Relinquished by:			Received by:			Date / Time:		
Reviewed for release by:			Date:					

Notes: Copy Thomas Wiley, PWD and Return Original to Stephen Harris or Charles Moore at Portland Public Works

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	ID No	Parameter	Preservative	Method	Report Value	Duplicate % Recovery	Analysis Date	Analyst	
X	1	<i>pH</i>	Analyze (ASAP)	150.1					
		<i>Caustic Alk.</i>	Refrigerate	310.1					
Person(s) Sampling:			Community:			Location:			
Type Of System:		Industrial	Combined	Sanitary	Storm	Surface			
Automatic Sampler Information:									
Date/Time Set:		Start Time:		Time Period:					
Time Interval:		Samples per Bottle:		No. of Bottl:					
Date/Time Pulled:		Comments:							
Grab Sample Information (including bottle size & type)									
Date/Time Pulled:		No. of Sample:							
1000 ml HDPE Ambe		1000 ml Glass		950 ml Plastic					
Other Bottle Type:									
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• Methods 40 CFR Part 136 •									
	ID No	Parameter	Preservative	Method	Report Value	Duplicate % Recovery	Analysis Date	Analyst	
		<i>PCB's and Pesticides</i>		EPA 608					
		<i>(GRO) Gasoline Range Organics</i>		Me HETL 4.2.17					
		<i>(DRO) Diesel Range Organics</i>		Me HETL 4.1.25					
X		<i>Hydrocarbon (PAH Range)</i>		EPA 8015					
Person(s) Sampling:			Community			Location			
Type Of System:			Industrial	Combined	Sanitary	Storm	Surface		
Automatic Sampler Information:									
Date/Time Set:		Start Time:			Time Period				
Time Interval:		Samples per Bottle			No. of Bottles				
Date/Time Pulled:		Comments:							
Grab Sample Information (including bottle size & type)									
Date/Time Pulled:		No. of Samples							
1000 ml HDPE Amber		1000 ml Glass		950 ml Plastic					
Other Bottle Type:									
Relinquished by:			Received by:			Date / Time:			
Reviewed for release by						Date			

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End of Section