

February 26, 2019

Ms. Shannon Cala  
MT DEQ - PTS  
P.O. Box 200901  
Helena, MT 59620-0901

Re: **Corrective Action Plan 10970** for the Former Noon's 439, Helena, MT; Facility ID# 25-03919,  
Release# 3997, WPID# 10970.

Dear Ms. Cala:

Enclosed for your review is the **Corrective Action Plan 10970** for the Former Noon's 439 facility located at 1201 11<sup>th</sup> Avenue, Helena, Montana.

Thank you for your time and consideration of this corrective action plan. Please call or contact me via email at [nolson@wcec.com](mailto:nolson@wcec.com), if you have any questions or concerns.

Sincerely,

Nathan Olson  
Project Manager, WCEC

Enclosure

ec: Dirk Cooper, Hi-Noon Petroleum, Inc.; [dcooper@hi-noon.com](mailto:dcooper@hi-noon.com)

# Corrective Action Plan 10970

**Former Noon's #439**

**1201 11<sup>th</sup> Avenue**

**Helena, MT 59601**

**Facility ID# 25-03919, Release# 3997, WP ID# 10970**

**Prepared for:**

**Hi Noon Petroleum**

**1101 S. 6<sup>th</sup> W.**

**Missoula, MT 59801**

**Prepared by:**

**West Central Environmental Consultants, Inc.**

**1030 South Ave. W.**

**Missoula, MT 59801**

**February 26, 2019**

**WCEC Project No. 12-8949-70**

# WCEC

West Central Environmental Consultants, Inc.

Nationwide Services

[www.wcec.com](http://www.wcec.com)

Environmental



Emergency Response



Industrial Services

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## **1.0 Introduction**

This corrective action plan for the former Noon's 439 facility (Facility ID# 25-033919, Release# 3997) was created by West Central Environmental Consultants (WCEC) in response to the Montana DEQ work plan request letter dated January 24, 2019. The property that the former Noon's 439 facility was located at is now leased for office space to the Office of Public Instruction. All of the former tanks and piping have been removed from the ground. There are currently ten monitoring wells associated with the facility. Six of the wells are located on the former facility property and four additional wells are located downgradient in the public right of way or on the former Osco Drug (currently CVS) property. A site location map is included as Figure 1. A site details map is included as Figure 2.

### **1.1 Site Location**

The former Noon's #439 facility is located at 1201 11<sup>th</sup> Avenue in Helena. The Public Land Survey System (PLSS) description for the site is the NW4, SW/4, SW/4 of Section 29, T10N, R3W. The approximate geographic coordinates are Latitude 46.5895°, Longitude -112.0199°. Township, range, and section information was obtained using the United States Geological Survey (USGS) Helena, Montana 1:24,000 Quadrangle. The site is located within the Upper Missouri River Hydrologic Unit.

### **1.2 Geologic/ Hydrogeologic Setting**

The surficial geology of the Helena Valley is dominated by Quaternary glacial and alluvial deposits. The upper few hundred feet of Quaternary deposits consist of complex stratified lenses of cobble, gravel, and sand with abundant intercalated silts and clay (Briar and Madison, 1992). The layers of silt and clay are not laterally continuous across the valley, which allows for hydraulic interconnection of water bearing zones (Moreland and Leonard, 1980). Monitoring well logs of borings conducted at the facility show a subsurface lithology of sand and clay with interbedded gravels noted in some boring locations.

## **2.0 Scope of Work**

### **2.1 Required Scope of Work**

The Scope of Work requested by the MTDEQ consists of:

- Evaluate groundwater monitoring wells ODMW-1, ODMW-2, ODMW-3, and all the wells associated with Noon's #439 for viability.
- Determine if any of the wells need to be repaired, redeveloped, or abandoned. If it is determined that wells need to be repaired, redeveloped, or abandoned contact the DEQ and submit a PTRCB Form 8 for cost associated with necessary actions.
- Drill soil borings and complete them as groundwater monitoring wells to determine the vertical and horizontal extent and magnitude of remaining petroleum impact to soil and groundwater.
- Collect soil samples from the soil borings to be analyzed for VPH. Plan to submit up to three soil samples from each boring.
- Collect groundwater samples from all existing and newly installed groundwater monitoring wells. Ensure that sample collection is representative of the aquifer.
- Analyze soil and groundwater samples for petroleum constituents as required by the Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases. Included analysis for lead scavengers (1,2-dichloroethane and ethylene dibromide).
- Collect vapor samples adjacent to the sewer and water near the location that they enter the building leased by OPI. Collect an additional vapor sample along the eastern property line of the site that adjoins the property located at 1209 11<sup>th</sup> Avenue. If analytical indicates that petroleum vapors potentially could enter the structure contact the DEQ and submit a Form 8 for costs associated with a petroleum vapor intrusion investigation.
- Survey the monitoring wells in order to identify the groundwater gradient. Do not use wells installed within the excavated materials to determine the gradient.
- Collect a tap water sample from the water service line servicing the property and analyze the sample using EPA method 524.2 for VOCs.
- Identify the material of construction for the utilities servicing the property.
- Validate all laboratory analytical data using the DEQ's Data Validation Summary Form.
- Discuss ongoing work plan tasks and results with the DEQ's project manager; submit written agreed-upon work plan modifications as required to complete work plan objectives.
- Prepare a Release Closure Plan (RCP); discuss results with the DEQ's project manager. DEQ expects the RCP completion to be complex as it covers investigative, post-investigative, and cleanup information.
- Prepare and submit a Remedial Investigation Report. Included appended Data Validation Summary Form and RCP.

### **3.0 Monitoring Well Assessment and Installation**

#### **3.1 Monitoring Well Viability Evaluation**

WCEC will evaluate the viability of all of the site monitoring wells and the three well located downgradient of the site at the former Osco Drug (currently CVS) property. WCEC will record the total depth of site wells during the monitoring event. These depths will be compared to the installation logs to evaluate the amount of sedimentation that has accumulated in the wells. In addition, the condition of the well casing and monuments will be recorded. WCEC will make recommendations for monitoring well repair, redevelopment, or abandonment and replacement as needed based on the condition of each monitoring well. WCEC will sample monitoring wells MW7, ODMW-1, and ODMW-2 for volatile petroleum hydrocarbons (VPH) if these wells are found in viable condition. The sampling of these three wells will provided current data to determine if additional downgradient wells are needed to delineate the extent and magnitude of the dissolved phase impacts. This monitoring well assessment/monitoring event will be conducted in conjunction with the soil vapor assessment event. WCEC plans to conduct this well assessment, monitoring, and soil vapor assessment event prior to the monitoring well installation event. This will allow for Form 8 adjustments to the number of well installed if is discovered site monitoring wells are no longer viable and need to be replaced.

#### **3.2 Monitoring Well Installation**

WCEC will install a minimum of three new monitoring wells at the facility. Wells will be installed by a MT licensed driller using a GeoProbe 7800 rig equipped with 4.5-inch I.D. hollow stem auger tooling. WCEC personnel will continuously field screen soils from the borings using a Rae Systems MiniRae™ 3000 photoionization detector (PID), as well as visual and olfactory evidence to determine which horizons may be impacted. The PID will be calibrated daily using fresh air and span gas calibration points. Isobutylene span gas at a concentration of 100 parts per million (ppm) will be used in the calibration procedure. Each well will be completed with 15 feet of 0.010 well screen and 5 feet of solid PVC riser. Monitoring wells will be completed with eight-inch flush mount completions placed in concrete. WCEC will collect up to three soil samples from each boring location. WCEC will collect samples in each soil boring at the interval that exhibits the greatest petroleum impacts delineated through field screening, at the groundwater interface, and at the maximum depth of boring. If field screening conducted using a photoionization detector (PID) does not indicate the presence of petroleum impacts at the maximum depth of boring, or at depths above the

**Corrective Action Plan 10970**

Noon's 439, 1201 11<sup>th</sup> Ave.,  
Helena, MT

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groundwater interface then samples at these depths will be collected at the discretion of the onsite project manager. WCEC will collect a soil sample at the groundwater interface at all boring locations regardless of PID reading. Soil samples will be analyzed for VPH.

Soil samples will be collected using WCEC standard sampling procedures, and in accordance with the MTDEQ requirements. Soil samples will be packed on ice and submitted under chain of custody to Pace Analytical Services, Inc. (Pace) in Billings, Montana. WCEC will request analyses for VPH using the Massachusetts Method, as required by the MTDEQ in *Technical Guidance Document #8* (MTDEQ, 2012).

## **4.0 Soil Vapor Assessment**

WCEC will install three soil vapor probes to assess the potential for petroleum vapors to enter structures near the known area of groundwater impacts. WCEC will install one vapor point adjacent to the onsite utility corridor for water and sewer, one vapor point on the north side of known hydrocarbon impacts at the southern edge of the sidewalk adjacent to the structure located at 1201 11<sup>th</sup> Avenue, and one vapor point at the base of the retaining wall that is on the property line separating 1209 and 1201 11<sup>th</sup> Avenue. These points will be installed using AMS Gas Vapor Probe (GVP) equipment. A permanent vapor tip will be implanted 5 feet below grade and connected to the surface via polyethylene tubing. The polyethylene tubing will terminate in a 4-inch manhole that is placed in concrete. The void space surrounding the tubing will be filled with bentonite to ensure that vapors cannot travel down the probe boring. Following installation, the vapor points will be left in place for a minimum of 30 minutes to allow subsurface soil conditions time to equilibrate prior to sampling.

To verify the integrity of the seal on the soil vapor points, helium gas will be used as a gaseous tracer in accordance with the Montana Vapor Intrusion Guide (MVGIG). Helium gas will be pumped into a shroud placed around the manhole to achieve a minimum concentration of 20% helium gas measured with field instruments. The vapor point will then be purged of a minimum of three times the calculated volume of the tubing and vapor sampling point. Following the purging of air from the sample point, a helium gas measurement will be collected by directly attaching the field instrument to the tubing, to ensure that the tubing shows less than 10% of the helium concentration recorded in the shroud.

Air samples will be collected from the soil vapor sampling points using summa canisters. WCEC will request that Pace Analytical adjust the flow controller on the summa canisters to a sample collection flow of 100 milliliters/minute (ML/Minute). As required by the MVGIG, WCEC will analyze the summa canisters using EPA method TO-15 and APH. Pace Analytical Laboratory will be used to conduct the laboratory analysis of the summa canister samples.

## **5.0 Groundwater Monitoring**

### **5.1 Groundwater Monitoring & Sampling**

WCEC will sample monitoring wells MW7, ODMW-1, and ODMW-2 for VPH during the initial well viability assessment, monitoring, and soil vapor sampling event. The analysis of groundwater from these wells will address the lack of recent analytical data from downgradient locations and determine if additional downgradient wells are needed to define the extent and magnitude of hydrocarbon impacts at the facility.

WCEC will conduct an additional groundwater monitoring event following the installation of the new monitoring wells at the facility. A Groundwater sample will be collected from all current and new monitoring wells at the facility. All wells will be sampled using a peristaltic pump. Samples collected during the event will be analyzed for VPH and lead scavengers (1,2-dichloroethane and ethylene dibromide). Depth to water measurements will be collected from all site wells during the monitoring event. Only depth to water measurements from wells located outside the former excavation will be used for calculation of groundwater flow direction and gradient. Groundwater quality parameters (pH, DO, conductivity, temperature, salinity, and ORP) will be obtained using a flow through cell attached to a peristaltic pump. Field parameters will be collected from all well monitoring wells that are sampled during each event. Groundwater samples will be preserved in accordance with the analytical method, packed on ice and delivered to Pace Analytical in Billings, Montana.

### **5.2 Water and Sewer Construction & Tap Sample**

WCEC will assess the material that the water and sewer lines are constructed with as they enter the structure at 1201 11<sup>th</sup> Avenue. This information will be used to assess the risk of potential hydrocarbon impacts to these utility lines. WCEC will also collect a sample tap sample from the water service line at the nearest available location to where the service line enters the structure. This sample will be analyzed for VOCs using EPA method 524.2. The sample will be preserved in accordance with the analytical method, packed on ice and delivered to Pace Analytical in Billings, Montana for analysis.

### **5.3 Site Surveying**

WCEC will resurvey all site wells in accordance with the MTDEQ *Technical Guidance Document #2*. WCEC will survey the top of casing on all monitoring wells at the facility to The Forth Order (0.10 feet times the square root of total distance of the level loop in miles) with a measurement precision of 0.01 feet. The latitude and

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Noon's 439, 1201 11<sup>th</sup> Ave.,  
Helena, MT

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longitude of all site wells will be surveyed using a Trimble Geo 7X GPS with 1 centimeter post processed accuracy. Site well casing elevations will be correlated to the North American Vertical Datum of 1988 (NAVD 88) using an onsite elevation control point. The location of new monitoring wells and soil vapor points will be included on future site detail maps.

## **6.0 Report Preparation**

### **6.1 Release Closure Plan**

WCEC will complete release closure plan outlining basic information pertaining to the release, a conceptual site model, evaluation of cleanup alternatives, and assessment of future compliance monitoring. The release closure plan will be included as an appendix of the remedial investigation report.

### **6.2 Data Validation**

WCEC will complete the MTDEQ – Waste Management and Remediation Division Data Validation Summary Form. WCEC will submit one trip blank and two field duplicate samples for analysis of relative percent difference (RPD) of groundwater laboratory results. WCEC will collect duplicate samples from monitoring wells MW4 and MW6. WCEC will also collect one air sample field duplicate from one of the soil vapor probe sampling locations for RPD analysis. No air sample blank will be requested as part of the data validation as agreed upon by WCEC and the DEQ case manager. The completed data validation form will be included as an appendix to the remedial investigation report.

### **6.3 Remedial Investigation Report**

WCEC will submit a Remedial Investigation Report (RIR-02) to the MTDEQ within 60 days of receipt of laboratory analytical results. The report will cover the groundwater monitoring well viability assessment, monitoring well installation, soil vapor assessment, groundwater monitoring, and site surveying conducted in 2019. The remedial activities report will include a brief site history, description of site location and geolithology, and a summary of all remedial actions conducted under corrective action plan 10970. WCEC will include cumulative tables for groundwater elevations, groundwater chemistry, and analytical results. Maps will be provided detailing the site location, former tank basin and associated piping, utilities, extent and magnitude of current hydrocarbon impacts, potentiometric surface plots each sampling event, and location sampling locations. The complete laboratory analytical reports will be included as appendices of the remedial investigation report.

## **7.0 Time Line and Costs**

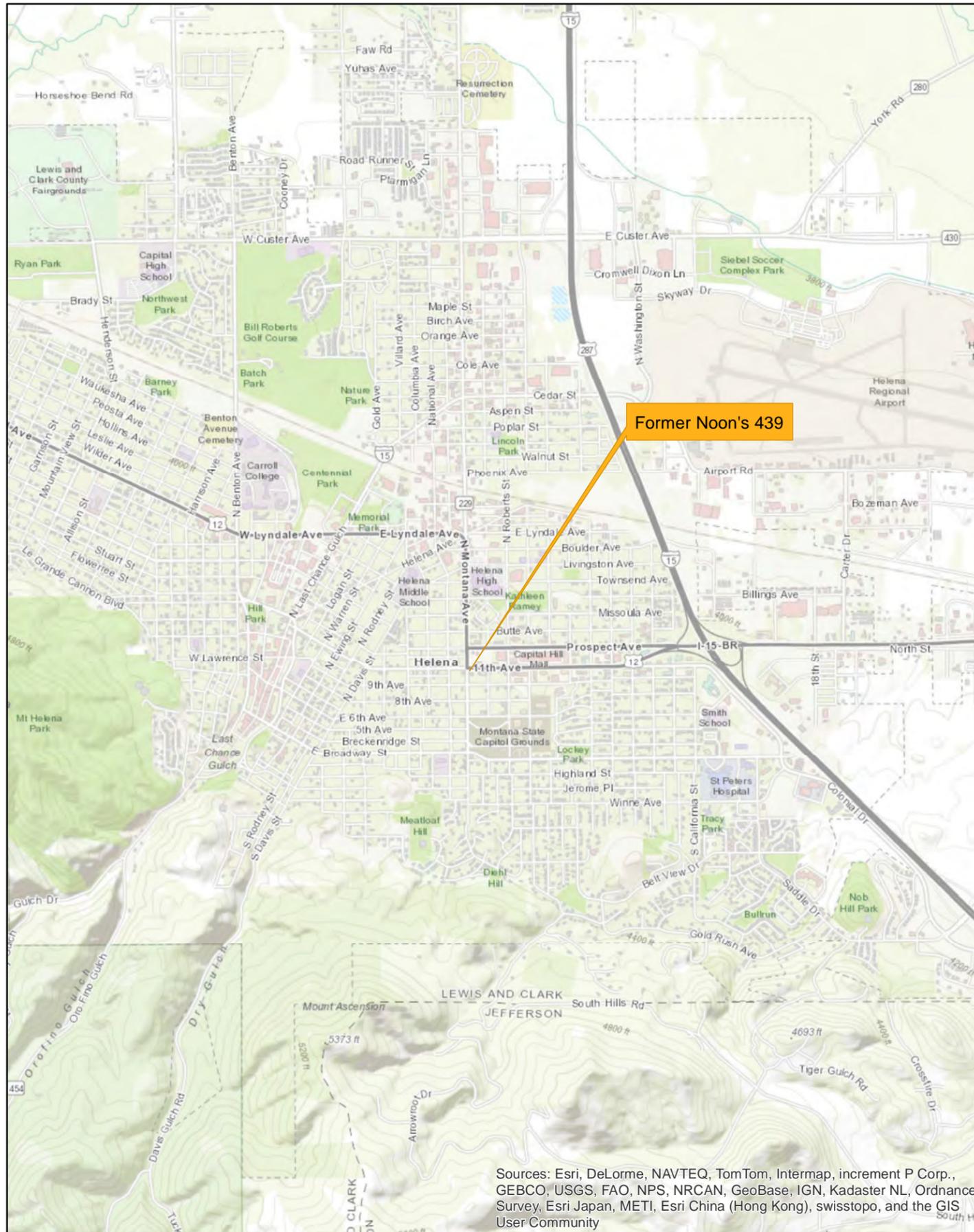
The attached estimated cost sheet in Appendix A covers the anticipated costs to complete the scope of work required by the MTDEQ in the work plan request dated January 24, 2019. The scope of work outlined in this work plan is tentatively scheduled to begin in May 2019 pending work plan approval by the MTDEQ and obligation of funds by the Montana PTRCB.

## List of Figures

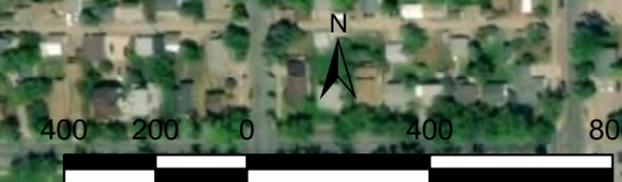
Figure 1: Site Location Maps

Figure 2: Site Details Map

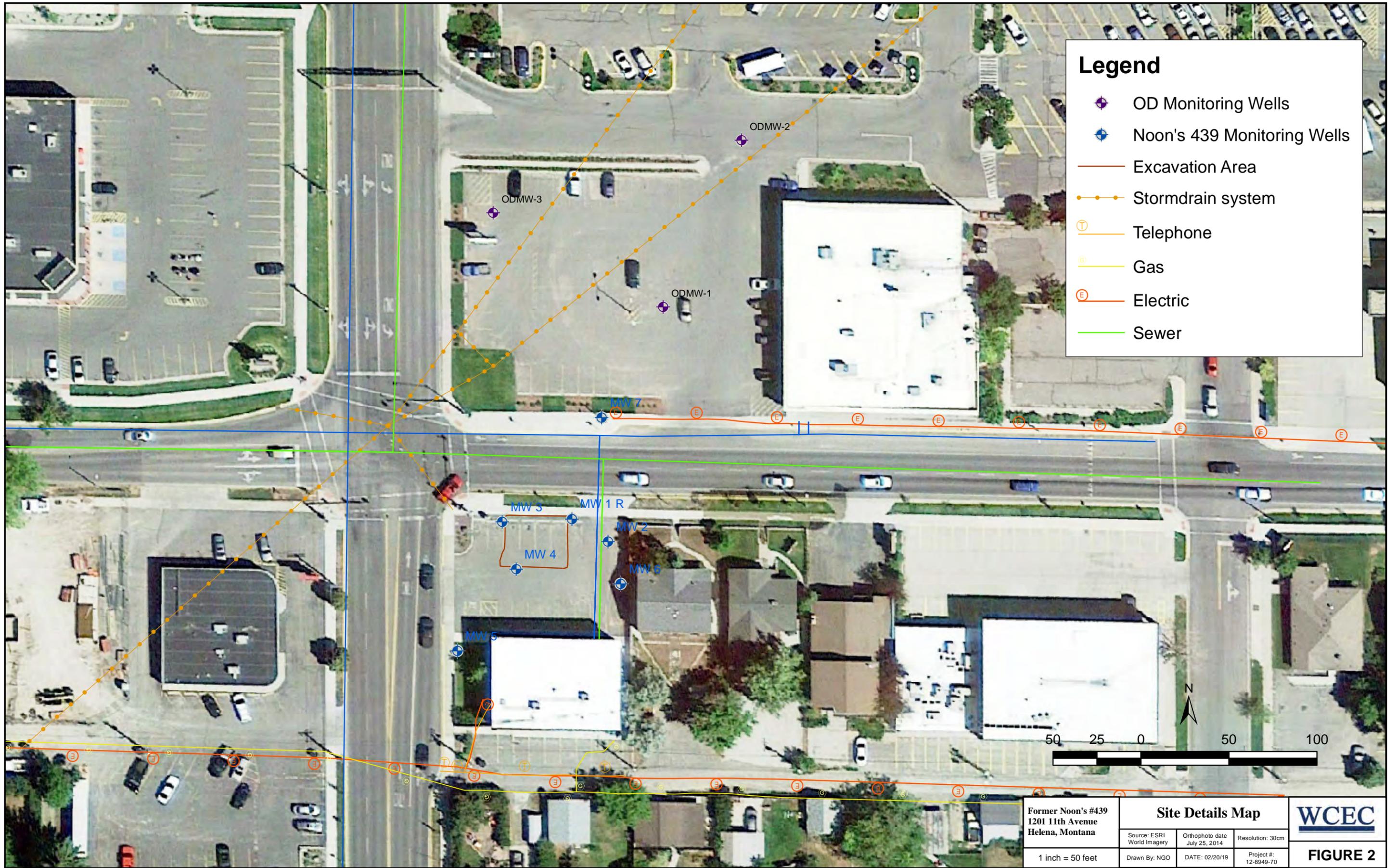
Figure 3: Proposed Well & Vapor Point Installation Locations



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

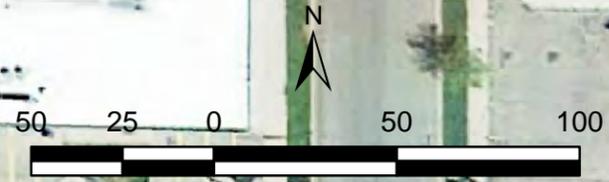


<b>Former Noon's #439</b> 1201 11th Avenue Helena, Montana	<b>Site Location Maps</b>			
	Source: ESRI World Imagery	Orthophoto date: May 7, 2012	Resolution: 30cm	
1 inch = 400 feet	Drawn By: NGO	DATE: 02/20/19	Project #: 12-8949-70	<b>FIGURE 1</b>

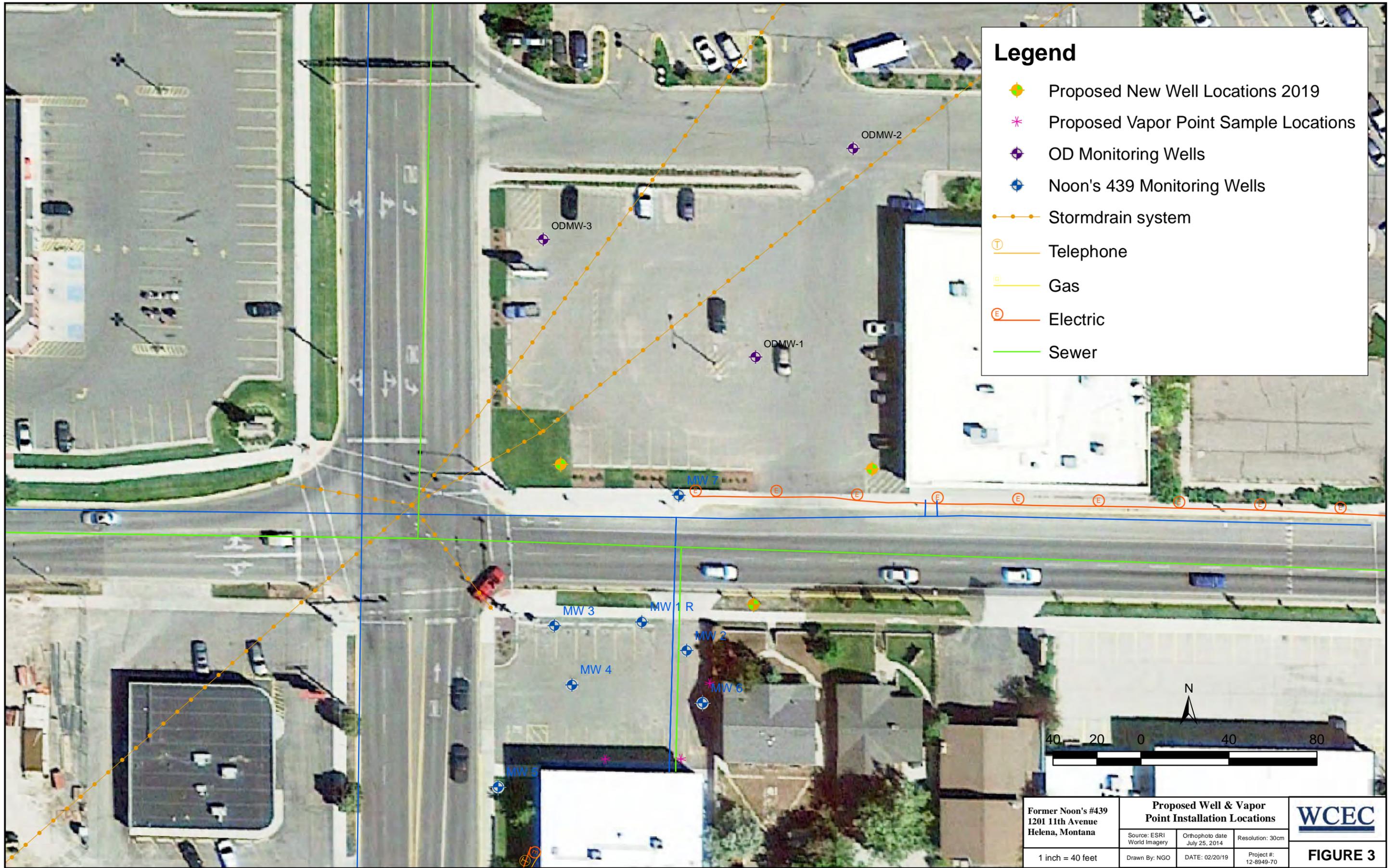


### Legend

- ◆ OD Monitoring Wells
- ◆ Noon's 439 Monitoring Wells
- Excavation Area
- Stormdrain system
- Telephone
- Gas
- Electric
- Sewer

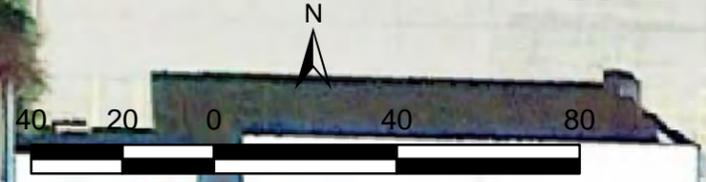


Former Noon's #439 1201 11th Avenue Helena, Montana	<b>Site Details Map</b>			<b>WCEC</b>
	Source: ESRI World Imagery	Orthophoto date July 25, 2014	Resolution: 30cm	
1 inch = 50 feet	Drawn By: NGO	DATE: 02/20/19	Project #: 12-8949-70	<b>FIGURE 2</b>



### Legend

- ◆ Proposed New Well Locations 2019
- ✱ Proposed Vapor Point Sample Locations
- ◆ OD Monitoring Wells
- ◆ Noon's 439 Monitoring Wells
- Stormdrain system
- T— Telephone
- Gas
- E— Electric
- Sewer



Former Noon's #439 1201 11th Avenue Helena, Montana	Proposed Well & Vapor Point Installation Locations			
	Source: ESRI World Imagery	Orthophoto date July 25, 2014	Resolution: 30cm	
1 inch = 40 feet	Drawn By: NGO	DATE: 02/20/19	Project #: 12-8949-70	<b>FIGURE 3</b>

**Corrective Action Plan 10970**

Noon's 439, 1201 11<sup>th</sup> Ave.,

Helena, MT

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## **Appendix A**

Estimated Costs for Semiannual Groundwater Monitoring - 2019

**Estimated Costs for**  
**Corrective Action Plan #10970**  
Noon's 439, 1201 11th Avenue, Helena, MT  
Facility ID# 25-03919, Release# 3997, Work Plan ID# 10970

TASK	Unit Cost	Units	Total Cost
<b>Project Management</b>			
Project Manager - Coordination	\$130.00	16	\$2,080.00
Encroachment Permit - Public rights-of-way	\$130.00	5	\$650.00
Well cutting manifesting & soil disposal	\$130.00	3	\$390.00
<b>Sub Total</b>			<b>\$3,120.00</b>
<b>Soil Vapor Assessment</b>			
<b>Mobilization - Soil Vapor Point Installation &amp; Sampling</b>			
A01014 Staff Scientist	\$110.00	4	\$440.00
A01050 Tech III	\$90.00	4	\$360.00
A01050 Tech III - Premobilize	\$90.00	2	\$180.00
Vehicle Mileage	\$0.63	230	\$144.90
<b>Sub Total</b>			<b>\$1,124.90</b>
<b>Vapor Point Installation &amp; Sampling</b>			
A01014 Staff Scientist	\$110.00	8	\$880.00
A01050 Tech III	\$90.00	8	\$720.00
<b>Sub Total</b>			<b>\$1,600.00</b>
<b>Vapor Point Equipment</b>			
AMS Soil Vapor Sampling Equipment	\$150.00	1	\$150.00
SDS Max Impact Jack Hammer	\$125.00	1	\$125.00
Vapor Point & Expendable Supplies	\$27.00	3	\$81.00
Ultra High Purity Helium & Tank	\$171.88	1	\$171.88
Helium Meter Rental - Field Environmental Instruments Inc. (weekly rental)	\$575.00	1	\$575.00
Vapor Point Monuments	\$45.00	3	\$135.00
<b>Sub Total</b>			<b>\$1,237.88</b>
<b>Monitoring Well Viability Evaluation</b>			
A01014 Staff Scientist	\$110.00	3	\$330.00
<b>Sub Total</b>			<b>\$330.00</b>
<b>Monitoring Well Installation</b>			
<b>Mobilization</b>			
Vehicle Mileage	\$0.63	230	\$144.90
Trailer (daily rate)	\$30.00	2	\$60.00
A01014 Staff Scientist	\$110.00	4	\$440.00
A01050 Tech III	\$90.00	4	\$360.00
A01051 Tech III (premobilize)	\$90.00	2	\$180.00
<b>Sub Total</b>			<b>\$1,184.90</b>
<b>Monitoring Well Installation &amp; Well Development</b>			
A01014 Staff Scientist	\$110.00	9	\$990.00
A01050 Tech III	\$90.00	9	\$810.00
<b>Sub Total</b>			<b>\$1,800.00</b>
<b>Monitoring Well Installation &amp; Development Equipment</b>			
M00300 PID	\$84.15	1	\$84.15
S03100 Sample Gloves	\$0.75	20	\$15.00
Deionized Water	\$1.50	10	\$15.00
M02000 Water Level Meter	\$52.80	1	\$52.80
Rediflow Pump	\$115.80	1	\$115.80
55 Steel Drum unlined - (New Pig w/ shipping) (soil cuttings)	\$147.97	5	\$739.85
<b>Sub Total</b>			<b>\$1,022.60</b>
<b>GeoProbe &amp; Operator (Soil Boring/Monitoring Well Installation)</b>			
Drill Rig w/Operator Mob/Demobilize	\$3.50	230	\$805.00
Well drilling (per foot)	\$35.00	60	\$2,100.00
Well Construction (per foot)	\$31.00	60	\$1,860.00
Flush Mount Monument with Concrete	\$90.00	3	\$270.00
<b>Sub Total</b>			<b>\$5,035.00</b>

TASK		Unit Cost	Units	Total Cost
<b>Professional Labor - Mapping, Surveying, CAD</b>				
A01014	Staff Scientist	\$110.00	3	\$330.00
A01050	Tech III	\$90.00	3	\$270.00
A01009	Drafter CAD - differential correction of survey data	\$90.00	2	\$180.00
E02350	GPS Trimble RTK	\$231.00	1	\$231.00
E02100	Survey Equipment	\$165.00	1	\$165.00
			<b>Sub Total</b>	<b>\$1,176.00</b>
<b>Traffic Control</b>				
	Traffic Control	\$1,500.00	1	\$1,500.00
			<b>Sub Total</b>	<b>\$1,500.00</b>
<b>Soil Disposal - Republic Services Class II Landfill</b>				
A01050	Tech III	\$90.00	3	\$270.00
	Disposal minimum fee based on small expected quantity	\$200.00	1	\$200.00
	Trailer (daily rate)	\$30.00	1	\$30.00
			<b>Sub Total</b>	<b>\$500.00</b>
<b>Analytical - Soil Samples</b>				
	TCLP Volatiles, Semi-volatiles, and TCLP metals - Landfill Disposal	\$250.00	1	\$250.00
	VPH - Soil Samples	\$125.00	9	\$1,125.00
	Sample Handling Fees	\$10.00	10	\$100.00
<b>Analytical - Air Samples</b>				
	TO-15	\$250.00	4	\$1,000.00
	APH	\$125.00	4	\$500.00
	Canister certification	\$125.00	4	\$500.00
	Sample Handling Fees	\$10.00	4	\$40.00
			<b>Sub Total</b>	<b>\$3,515.00</b>
<b>Report Preparation - MW Installation, VI Investigation, Groundwater Monitoring</b>				
RPT_RIR-02	Report Preparation - RPT_RIR-02	\$3,010.00	1	\$3,010.00
	Prepare Release Closure Plan	\$130.00	4	\$520.00
	DEQ Data Validation (soil, air, tap, & groundwater analytical results)	\$130.00	6	\$780.00
			<b>Sub Total</b>	<b>\$4,310.00</b>
<b>Per Diem</b>				
	Per Diem (Food)	\$23.00	10	\$230.00
	Lodging	\$130.00	6	\$780.00
			<b>Sub Total</b>	<b>\$1,010.00</b>
<b>PTRCB Groundwater Unit Cost Work Sheet</b>				
	Groundwater Unit Cost Form	\$9,149.95	1	\$9,149.95
			<b>Sub Total</b>	<b>\$9,149.95</b>
			<b>Total Cost</b>	<b>\$37,616.23</b>

**Corrective Action Plan 10970**

Noon's 439, 1201 11<sup>th</sup> Ave.,  
Helena, MT

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## **Appendix B**

Appendix B – Montana PTRCB Groundwater Unit Cost Work Sheet

## Petroleum Tank Release Compensation Board Groundwater Monitoring and Sampling Unit Cost Worksheet

### Contractor Information

Company Name:	WCEC		
Address:	1030 South Avenue W.		
City, State, Zip:	Missoula, MT 59801		
Cost Estimator:	Nathan Olson	Phone:	(406) 549-8487

Signature:  \_\_\_\_\_ Date: 2/26/18

### Project Information

Site Name:	Noon's 439	Facility ID#	25-03919
Address:	1201 11th Avenue	Release #	3997
City:	Helena	WP ID#	10970

### Monitoring Well Details

Total Number of Wells at Site

Number of Water Level Measurements Only <sup>(2)</sup>

Number of Wells to be Monitored/Sampled <sup>(3)</sup>

Well Casing Diameter (inches)

Average Depth to Groundwater (ft)

Average Depth of Wells (ft)

### Well Purging Method

Hand Bailing

Peristaltic Pump

Submersible Pump

Micropurge

No Purge

Other (please specify)

### Monitoring/Sampling Interval

Estimated Start Date:

Quarterly # of events

Semi-annual # of events

Annual # of events

Other # of events  (specify)

### Other Services

Free Product Recovery

Groundwater Well survey

Wellhead retrofit/reconstruction

Other (please specify)

### Cost Estimate Explanation:

- <sup>(1)</sup> Mobilization/Demobilization: Includes all costs and mileage to transport equipment, materials, and personnel to and from the site location. More than one mobilization event will require justification and pre-approval by the DEQ-PTCS and Board staffs. This item should be on a per mile unit rate.
- <sup>(2)</sup> Water Level Measurements: Includes all costs (labor, equipment, materials, and well consumables) to measure groundwater depth, collect other groundwater information from well, and decontaminate equipment. The well monitoring costs should be on a per well basis and does not include purging and sampling of the well.
- <sup>(3)</sup> Well Monitoring/Purging/Sampling: Includes all costs (labor, equipment, materials, and well consumables) to monitor (see above), purge, sample groundwater, decontaminate equipment, take water level measurements and handle disposal of contaminated purge water. The cost should be on a per well basis.
- <sup>(4)</sup> Laboratory Analysis: Includes all laboratory costs for all wells, for duration of project. It is realized that some laboratory analyses will not be conducted for every event and that the well sampling frequency may change.
- <sup>(5)</sup> PTRCB Sampling Fee: Includes all costs related to management of the sample including: sample container, cooler, packing, shipping, handling, sample preservation, and office related handling charges. The sample is defined as the laboratory ID number on the laboratory invoice.
- <sup>(6)</sup> Report Preparation and Project Management: Includes all costs (labor and materials) project management, report preparation, and report submittal, including all office related costs, per groundwater sampling event.

## Groundwater Monitoring and Sampling Unit Cost Worksheet

Task	Unit Cost	Number of Units	Total Cost
<b>Work Plan Preparation</b>	\$1,085.00	1	\$1,085.00
<b>Project Management</b>	\$130.00 /hr	3	\$390.00
<b>Mobilization/Demobilization</b> <sup>(1)</sup>	\$2.59 /mile	230	\$595.70
<b>Field Work</b>			
Water Level Measurements <sup>(2)</sup>	\$42.25 /well	7	\$295.75
Well Monitoring/Purging/Sampling <sup>(3)</sup>	\$186.00 /well	16	\$2,976.00
Other Service (please specify) <input type="text" value="Tap Water Sample"/>	\$44.50	1	\$44.50
Other Service (please specify) <input type="text"/>			\$0.00
<b>Lodging &amp; Per Diem</b> (Lodging – actual only)			
Lodging: # of people <input type="text"/>	/person per day	<input type="text"/>	\$0.00
Food: # of people <input type="text" value="1"/> (\$23.00 max a day allowed)	\$23.00/person per day	1	\$23.00
<b>Laboratory Analysis</b> <sup>(4)</sup>			
Volatile Petroleum Hydrocarbons (VPH)	\$125.00 /sample	16	\$2,000.00
Extractable Petroleum Hydrocarbons (EPH)			
EPH “screen”	<input type="text"/> /sample	<input type="text"/>	\$0.00
EPH “fractions”	<input type="text"/> /sample	<input type="text"/>	\$0.00
BTEX/MTBE/Naphthalene only-method:	<input type="text"/> /sample	<input type="text"/>	\$0.00
Polyaromatic Hydrocarbons (PAHs)	<input type="text"/> /sample	<input type="text"/>	\$0.00
PTRCB sampling fee (\$10.00 allowed) <sup>(5)</sup>	\$10.00 /sample	17	\$170.00
Other (please specify) <input type="text" value="lead scavengers (EDB &amp; EDC)"/>	\$110.00 /sample	13	\$1,430.00
Other (please specify) <input type="text" value="EPA 524.2"/>	\$140.00 /sample	1	\$140.00
<b>Report Preparation</b> <sup>(6)</sup>			
Quarterly	<input type="text"/> /report	<input type="text"/>	\$0.00
Semi-annual	<input type="text"/> /report	<input type="text"/>	\$0.00
Annual	<input type="text"/> /report	<input type="text"/>	\$0.00
Other (Please specify) <input type="text" value="Included on attached sheet"/>	<input type="text"/>	<input type="text"/>	\$0.00
<b>Monitoring &amp; Sampling Total:</b>			<b>\$9,149.95</b>

**Additional Conditions/Comments/Costs:**

Additional cost included on attached cost estimate sheet

If you require assistance, call 406-444-9710  
 Submit completed form to:  
 Petroleum Tank Release Compensation Board  
 PO Box 200902, Helena MT 59620-0902