Landmark Environmental LLC

Interim Response Action Implementation Report - Groundwater Remediation and Vapor Intrusion

MN Bio Business Center
221 First Avenue S.W.
Rochester, Minnesota

Prepared for
City of Rochester

June 2010

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Interim Response Action Implementation Report - Groundwater Remediation & Vapor Intrusion MN Bio Business Center 221 First Avenue S.W. Rochester, Minnesota

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Section 1 Introduction

This Interim Response Action ("RA") Implementation Report was prepared on behalf of the City of Rochester ("City") and the Economic Development Authority for the City ("the EDA") following implementation of RAs related to groundwater remediation and vapor intrusion systems installation activities at the property located at 221 First Avenue S.W. in Rochester, Olmsted County, Minnesota (the "Property"). The Property currently supports the Minnesota Bio Business Center Building. The Property location is shown on Figure 1.

The purpose of this RA Implementation Report is to summarize and document the installation of the passive venting, vapor barrier, and dual phase extraction ("DPE") systems described in the following documents approved by the Minnesota Pollution Control Agency ("MPCA") Voluntary Investigation and Cleanup ("VIC") Program: *Voluntary Response Action Plan* ("VRAP") *and Preliminary Response Action Design* ("RAD"), dated June 2007; *Voluntary Response Action Plan Addendum – Response Action Design*, dated July 17, 2007; the *VRAP, ECP, and Design Modifications Submittal*, dated September 18, 2007; the *VRAP Addendum* dated March 30, 2009; and the *VRAP Addendum #2*, dated April 20, 2009 (hereafter, collectively referred to as the MPCA-approved VRAP).

The VRAP was approved by the MPCA VIC Program in letters, dated July 27, 2007, and April 28, 2009. The *VRAP, ECP, and Design Modifications Submittal* was approved in an email from Mr. Allan Timm with the MPCA VIC Program, dated Wednesday October 17, 2007.

In July 2008, Landmark submitted a RA Implementation Report to the MPCA VIC Program which included a summary of the soil disposal and soil management activities completed at the Property. In a letter dated November 17, 2008, the MPCA issued a "Limited No Further Action Determination for Soil." Appendix A includes copies of pertinent approval letters and correspondence with the MPCA VIC Program. A final RA Implementation Report, related to future operation and maintenance and decommissioning activities, will be submitted to the MPCA VIC Program upon final completion of the approved RAs.

1.1 Background

The Property is owned by the City and previously consisted of two parcels, the 219 1st Avenue SW Parcel and the 223 1st Avenue SW. The City acquired a portion of the Property (the 219 1st Avenue SW Parcel) from Rochester DC LLC, a Delaware limited liability company on May 31, 2007. EDA

acquired the remaining portion of the Property (the 223 1st Avenue SW Parcel) from the Mayo Clinic Rochester, a Minnesota non-profit corporation on July 18, 2007. The 223 Parcel was subsequently transferred from EDA to the City on October 15, 2007. Both parcels comprise the Property and were most recently used as surface parking lots. Figure 2 shows the locations of each former parcel.

219 1st Avenue SW Parcel (the 219 Parcel)

The 219 Parcel consisted of 14,300 square feet of land that historically supported two dry cleaning facilities; historical structures were demolished prior to the construction of the current parking lot. The historical activities involved the use of hazardous substances, including the common dry cleaning solvent tetrachoroethylene ("PCE"). Environmental investigations and RAs were previously conducted on this parcel to address the releases of PCE. The previous RAs included the installation and operation of a DPE system (see Section 1.2 below).

The general Property vicinity has been developed since prior to 1884 for residential/commercial use. A number of the commercial operations located in the vicinity of the Property involved the use of hazardous substances or petroleum compounds and were the sites of leaking underground storage tanks and documented releases of volatile organic compounds ("VOCs").

223 1st Avenue SW Parcel (the 223 Parcel)

The 223 Parcel consisted of approximately 4,300 square feet of land that historically was used as a stable and later as a hotel and then as the Lawler Movie Theatre; historical structures were demolished prior to the construction of the current surface parking lot. These historical activities likely did not involve the use of significant quantities of hazardous substances or petroleum products.

1.2 Previous Investigation and Reports

Previous environmental investigations and RAs have been conducted at the Property. Information regarding the land use history of the Property, as well as the results of previous environmental investigations conducted at the Property, have been provided in the various reports and documents previously submitted to the MPCA, VIC Program for review and approval. The following is a list of these reports and documents:

- Additional Information – Interim Response Action Plan, Former Dry Cleaners, 219 First Avenue Southwest, completed August 24, 2001 (DPRA);

- Implementation Report, Groundwater Monitoring, Vapor Extraction System Installation & Start-up, Former Dry Cleaners, 219 First Avenue Southwest, completed January 2004 (DPRA);
- Revised Corrective Action Design Report, Former Dry Cleaners, 219 First Avenue Southwest, completed August 2005 (DPRA);
- Revised Corrective Action Report, Former Dry Cleaners, 219 First Avenue Southwest, completed November 10, 2005 (DPRA);
- Status Update, Former Dry Cleaners, 219 First Avenue Southwest, completed March 9, 2006 (DPRA);
- Implementation Report – Dual Phase Extraction System Start-up, Former Dry Cleaners, 219 First Avenue Southwest, completed July 2006 (DPRA);
- Status Update and Work Plan, Former Dry Cleaners, 219 First Avenue Southwest, completed December 4, 2006 (DPRA);
- Status Update, Former Dry Cleaners, 219 First Avenue Southwest, completed February 5, 2007 (DPRA);
- Phase I Environmental Site Assessment, 223 First Avenue Southwest, completed March 2007 (Landmark);
- Phase I Environmental Site Assessment, 219 First Avenue Southwest, completed March 2007 (Landmark);
- Supplemental Environmental Investigation Report, 219 and 223 1st Avenue Southwest, completed January 2007 (Landmark); and,
- Phase II Environmental Investigation Report, 219 and 223 1st Avenue Southwest, completed March 2007 (Landmark).

Based upon the previous investigations, the MPCA-approved VRAP was developed to address the following areas of potential environmental concern:

- VOC-impacted groundwater at the Property;
- Elevated VOC concentrations in the soils located at boring B-7 from 13 to 15 feet below grade on the 219 Parcel (see Figure 2);
- Elevated RCRA metals and polynuclear aromatic hydrocarbons in the soils at two sampling locations on the 223 Parcel; and,
- Buried demolition and building materials on the 223 Parcel.

This RA Implementation Report addresses the RAs at the Property related solely to groundwater remediation and vapor intrusion.

1.3 Voluntary Response Action Plan Summary

The MPCA-approved VRAP was developed based on the planned commercial use for the Property and was incorporated into the City's redevelopment plan. The City constructed the Property building with a partial basement and underground utilities. The City also built a tunnel on an adjacent property which connects to the partial basement located on the Property.

Prior reports identified PCE in groundwater that exceeded Minnesota Department of Health ("MDH"), Health Risk Limits ("HRLs"). The soil located in the fractured bedrock was also reported to be impacted by PCE. As a result, the chemical of concern for groundwater at the Property is PCE.

The previous DPE system was removed and replaced with an upgraded system during redevelopment of the Property. The upgraded DPE system is designed to remove source area PCE from the soil, fractured bedrock, and groundwater. The upgraded DPE system operational goals include achieving asymptotic PCE air exhaust concentrations, and achieving asymptotic mass removal quantities of PCE. The proposed cleanup goal for the groundwater is to reduce the source of PCE to the groundwater. DPE system success will be determined by asymptotic air emissions of PCE, and decreasing groundwater concentrations.

The groundwater remediation and vapor intrusion related RAs completed at the Property, to date, generally consist of the following:

- Decommissioning the previous remediation system and sealing the associated wells prior to redevelopment.
- Designing and installing an upgraded DPE system to address the chlorinated VOCs detected in groundwater samples on the Property.
- Designing and installing vapor barrier and venting systems beneath the entire Property building to prevent vapor intrusion into the building after operation of the new DPE system is no longer required.

The remaining groundwater remediation and vapor intrusion RAs at the Property consist of the following:

- Conducting monthly DPE system operation, maintenance, and monitoring events;
- Conducting quarterly groundwater monitoring events;
- Decommissioning the DPE system per the MPCA's approval;
- After the MPCA approves decommissioning of the DPE system, groundwater will be monitored quarterly, at a minimum, for a period of one year after the date of DPE system shut-down; and,
- Conducting passive venting system monitoring after the DPE system operation is discontinued.

Section 2 Response Actions

This section summarizes and documents the implementation of RAs at the Property. Adolfson and Peterson Construction ("AP") was hired by the City as the general contractor in charge of the Property redevelopment and Property building construction. Photographs documenting the implementation of RAs are included in Appendix B.

2.1 Previous DPE System Decommissioning

Prior to any excavation activities at the Property, the previous DPE system was decommissioned and removed from the Property on August 2, 2007, by Midwest Recovery Systems Inc. ("MRSI"). Equipment from the previous DPE system was disconnected and hauled off site by MRSI. The equipment removed during decommissioning included the soil vapor extraction ("SVE") and DPE pumps and condensate tanks, breaker panels and control panels, manifold and other piping, valves, flow meters, gauges, filters, and the remediation shed which housed all of the equipment. MRSI subcontracted with Barott Drilling Services, Inc. to abandon six monitoring wells, eight soil vapor extraction wells, one DPE well, and five soil gas monitoring wells. The wells were abandoned according to the MDH rules and regulations. The MDH Well and Boring Sealing Records are included in Appendix C.

2.2 Upgraded DPE System Installation

An upgraded DPE system was installed in the basement of the Property building to address the source area of VOCs detected in groundwater at the Property. The DPE system consists of a high vacuum pump connected to eight DPE extraction wells capable of extracting groundwater and soil vapor from the fractured bedrock. The DPE system was designed to dewater the fractured bedrock zone to expose pockets of source area VOCs. As the fractured bedrock zone is dewatered, the DPE system removes source area VOCs by soil vapor extraction. The new DPE system layout is shown in Figures 3 and 4.

The DPE system, DPE wells, and monitoring wells were installed by Stevens Drilling and Environmental, Inc. ("SDE") using a rotosonic drill rig. SDE was under contract with AP, the general contractor, for DPE system installation activities. SDE subcontracted with Boart Longyear Inc. for installing the wells, and Product Level Control for providing the DPE system equipment. The DPE and monitoring wells were installed from February 5 through February 12, 2008. The wells were installed according to the MDH rules and regulations were permitted by Olmsted County's

Inspections Division. The monitoring and DPE well details are included in Figures 5 and 6, respectively. Table 1 includes a well construction summary. Appendix D includes the well installation permits from Olmsted County and the well and boring records from the MDH.

The DPE system piping, equipment, and electrical connections were installed from November 1, 2008, through April 9, 2009. On April 9, 2009, the DPE system was temporarily started to collect an air emissions sample and a groundwater discharge sample for laboratory analysis. The results from these samples were used for the design of proposed groundwater and air emissions treatment systems. A groundwater treatment system consisting of an air stripper was installed from June 1, 2009, through June 5, 2009. An air emissions treatment system was not installed at the Property. On June 23, 2009, at the request of the City, SDE installed a permanent secondary containment berm in the doorway to the DPE room, an additional floor sump and alarm, a conductivity meter and alarm on the floor, and connected the elevator pit drain tile sump to the air stripper. The DPE system was started for permanent operation on June 29, 2009. After continuous corrosion and sediment plugging issues with the DPE pump inlet screen, a secondary demister moisture separator ("MS#2") was installed on February 23, 2010, to further reduce the amount of water vapor passing through the screen, and, ultimately, decrease the plugging frequency of the pump inlet screen.

The DPE system includes eight DPE wells controlled by automated solenoid valves located near the system manifold. The DPE system is designed to operate one or multiple DPE wells at a time depending on the Programmable Logic Control program settings. A 7.5 horsepower Rietschle VLR300 rotary claw vacuum pump capable of operating at a continuous vacuum of 24 inches of mercury and a flow rate of 212 cubic feet per minute was installed. Two moisture separators were installed. The primary moisture separator ("MS#1") is used to separate the groundwater from the soil vapor. MS#2 was installed to reduce the amount of water vapor passing through the DPE pump inlet screen, and minimize pump inlet screen plugging. Groundwater collected in the moisture separators and elevator pit sump is pumped to the air stripper for VOC removal prior to discharge to the sanitary sewer. Soil vapor emissions generated by the DPE system and air stripper are discharged directly to the atmosphere. Each stack exits the side of the building in west alley at a height of approximately 26 feet above the ground surface. Vapor emissions and groundwater discharge samples are collected for laboratory analysis on a monthly basis and compared to the applicable emissions and discharge limits. Process and instrumentation diagrams and the bill of materials for the DPE and groundwater treatment systems are included in Appendix E.

Groundwater generated from the DPE system and elevator pit sump is pretreated on site by an air stripper prior to discharge to the City's Water Reclamation Plant. The City obtained an industrial discharge permit from the Water Reclamation Plant on January 8, 2008, which allows a discharge VOC concentration of less than 2.13 milligrams per liter. The industrial discharge permit is included in Appendix F.

A water appropriations permit is required by the Minnesota Department of Natural Resources (DNR) because the DPE system extracts groundwater from the subsurface. Appendix G includes the Permit Application for Appropriation of Waters of the State, water use report directions, and a copy of the 2009 DNR Annual Report of Water Use worksheet.

Emissions treatment is not required for the DPE system. Air emissions rates for VOCs are evaluated using the MPCA Remediation Risk Analysis Spreadsheet ("RRASS"). The RRASS spreadsheet generates site specific emissions rates for individual VOCs and compares them to the screening emissions rates ("SERs") for chronic and acute risk and the excess lifetime cancer risk ("ELCR"). The site specific emissions rates includes emissions generated from the DPE exhaust stack, and the air stripper exhaust stack. Table 2 includes a summary of the site specific emissions rates to date.

2.3 Vapor Barrier and Venting Systems Installation

Vapor barrier and venting systems were installed under the entire building to prevent vapor intrusion into the Property building. The vapor barrier and venting systems were installed by Addudle Inc. and Winona Heating and Venting Inc., respectively, subcontractors for AP. Installation activities began in January 2008 and continued intermittently until completed in January 2009. The vapor barrier was installed beneath the basement slab, on the subsurface sidewalls of the proposed building and around the proposed tunnel located on the adjacent property. The vapor barrier material consisted of a 40-mil thick low linear density polyethylene barrier with protrusion boots, and thermally welded seams. The barrier joints/seams, both lateral and butt, overlapped at least 12 inches and in accordance with manufacturer's recommended seam completion and testing procedures. Appendix H includes the asbuilt drawings of the vapor barrier system.

The passive venting system installed on the Property utilizes the building's foundation drain tile system to collect vapors from the subsurface. The sub-slab piping was installed to slope such that groundwater drains to the storm sewer. Subsurface vapors move through drain tile and rise up through the solid riser piping until the vapors enter the atmosphere after passing through the exhaust stacks. There are three exhaust stacks which exit the side of the building in the west alley at a height of approximately 26 feet above the ground surface. A rotary wind turbine is installed on each of the

stacks to passively increase the movement of the vapors from the subsurface drain tile to the atmosphere. The exhaust stack outlets are located at least 10 feet from any building openings or any public or private access area.

Each riser piping system has a manual butterfly shutoff valve to prevent venting system operation while the DPE system is operational. The shut-off valves for the venting system are currently closed. Closing the venting system shutoff valves prevents the DPE system from extracting atmospheric air through the passive venting system instead of VOC-impacted vapors from the subsurface. The venting system will be operated in the "closed" position until the DPE system is permanently decommissioned as approved by the MPCA. After the DPE system is decommissioned, the venting system shut-off valves will be opened to initiate "passive" sub-slab venting of the building. Asbuilt design drawings are included in Appendix H.

The Sub-Slab Venting System Monitoring Plan, included in Appendix I, discusses how the system will be maintained, how performance monitoring will be performed, and what failed performance criteria will be used for deciding to upgrade the "passive" vent system to an "active" vent system. The performance of the venting system will be evaluated to determine the effectiveness of the rotary wind turbines to maintain airflow from the subsurface to the atmosphere. If it appears that the sloping of the sub-slab piping is inhibiting the effectiveness of the rotary wind turbines to operate successfully, in-line fans will be installed in the venting system riser pipes for "active" service mode. The venting system has been configured such that any subsequent upgrade can be made to accommodate an in-line fan for "active service" mode.

Section 3 Deviations from the Response Actions

This section summarizes and documents the deviations from the RAs approved by the MPCA for the Property.

3.1 Elevator Pit Draintile Sump

On April 9, 2009, Landmark sampled the groundwater in the elevator pit draintile sump for laboratory analysis of total toxic organics ("TTOs") by EPA Method 624. The TTOs concentration of the groundwater in the sump was 70,768 micrograms per liter ("ug/L") which exceeded the sanitary sewer discharge limits of 2,130 ug/L TTOs. PCE was detected at a concentration of 60,300 ug/L which exceeded the MPCA National Pollutant Discharge Elimination System discharge limit of 5 ug/L. To address the contaminated groundwater discovered in the elevator pit sump, the MPCA approved the following RAs in their letter dated April 28, 2009:

1. Installation of an air-tight cover on the sump pit;
2. Installation of vent piping from the sump pit to the passive venting system;
3. Installation of an explosion-proof sump pump with intrinsically safe float switches; and,
4. Installation of groundwater discharge piping from the sump to the air stripper.

Each of these RAs was completed in June 2009 except for the installation of an explosion proof sump pump with intrinsically safe float switches. As stated in the April 17, 2009, letter to Mr. Gale Mount, the Chief Plumbing Inspector at the Department of Building Safety, an analysis by Landmark of the detected contaminant concentrations and their explosive characteristics indicated there isn't a risk for explosion as long as the sump basin is air tight and vented. On June 1, 2009, Landmark monitored the elevator sump pit for explosive vapors (percent lower explosive limit, carbon monoxide, and hydrogen sulfide) and found no detections of any explosive vapors. Based on results from the explosive contaminant analysis and explosive vapor monitoring, and Landmark's recommendation, Mr. Dave Theil, the mechanical engineer with HGA Architects and Engineers, prepared a letter to Mr. Mount to document that an explosion-proof sump pump with intrinsically safe float switches was not required. Appendix J includes the June 1, 2009, letter that was sent by Mr. Theil to Mr. Mount, the April 17, 2009, letter from Landmark to Mr. Mount, and the field notes from the June 1, 2009, explosive vapor monitoring event.

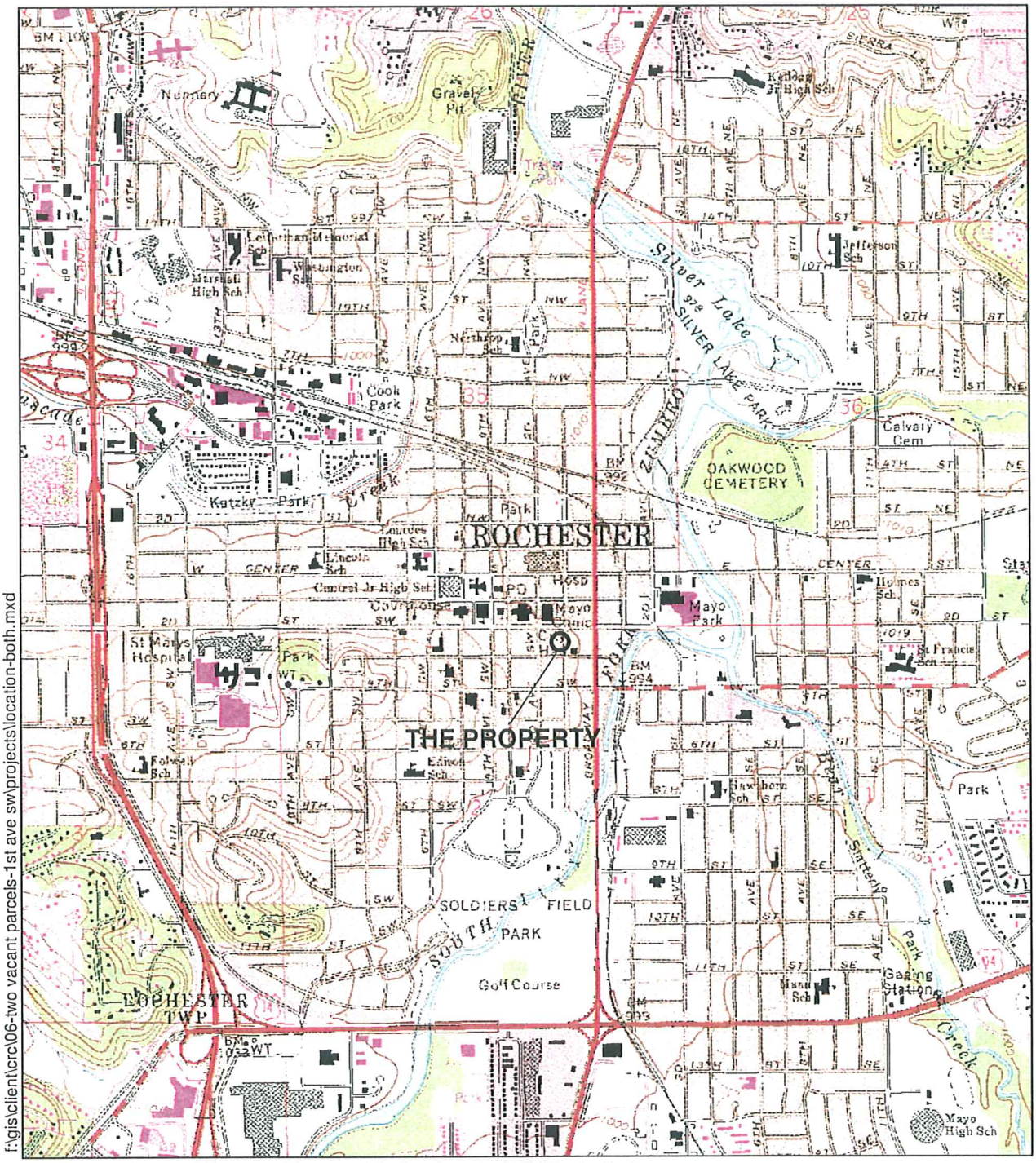
3.2 Air Emissions Treatment

In a letter from Landmark to the MPCA, dated April 20, 2009, Landmark requested the approval of RAs related to the installation of an air emissions treatment system for the DPE system and air stripper. The MPCA approved the RAs in a letter to Doug Knott with the City dated April 28, 2009. After four months of DPE system operation, the emissions concentrations of PCE dropped below the MPCA RRASS SERs for chronic risk. The SER for acute risk has not been exceeded to date. In a telephone conversation between Landmark and Mr. Timm on November 11, 2009, Mr. Timm stated that he consulted the MPCA air emissions specialists and they determined air emissions treatment would not be necessary based on the decreasing PCE concentration and site specific SER trends observed from the DPE system and air stripper (See Appendix A). Therefore, an air emissions treatment system will not be installed as part of the approved RAs. Table 2 includes the RRASS emissions rates summary table.

Section 4 Conclusions

The RAs pertaining to the DPE, vapor barrier, and passive venting systems installation at the Property were performed and completed in accordance with the MPCA-approved VRAP. RAs related to operation of the DPE system will continue until the MPCA approves the DPE system operation can be discontinued. As soon as DPE system operation is discontinued, RAs related to operation and monitoring of the passive venting system will begin. Based on the outcome achieved through the implementation of the approved RAs at the Property, the City requests that the MPCA VIC Program review and approve this Interim RA Implementation Report with respect to the groundwater remediation and vapor intrusion RAs related to the installation of the DPE, vapor barrier, and passive venting systems.

Figures



F:\gis\client\crc\06-two vacant parcels-1st ave sw\projects\location-both.mxd

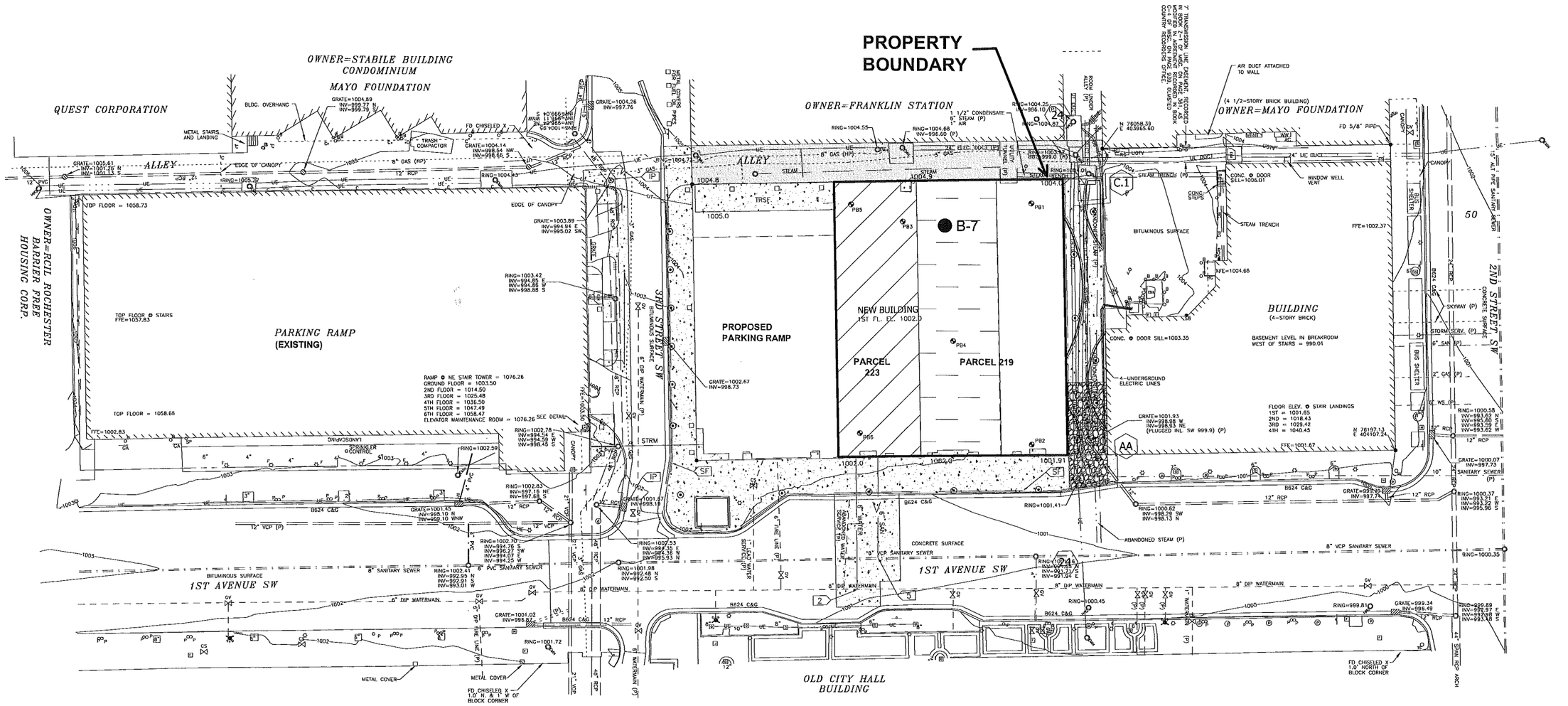
Source: Rochester, Minnesota Topographic Quadrangle, 7.5-Minute Series

N

2,000 1,000 0 2,000 Feet

FIGURE 1

PROPERTY LOCATION MAP
219 and 223 1ST Avenue Southwest
Rochester, Minnesota



Basemap from HGA, May 17, 2007.
F:\PROJECTS\Crc-City of Rochester\CAD\FIG 2 Soil Imp Rep.dwg

LEGEND

- Parcel 223 -- Excavate, Transport & Dispose at RCRA Subtitle D Landfill
- Excavate and Reuse South of Parcel 223
- B-7 MPCA Area of Concern

N

SCALE (feet)

0 50

Rev	Date	By	Description
.	.	.	.
.	.	.	.

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Bloomington, MN 55431

FIGURE 2
REDEVELOPMENT PLAN
219 AND 223 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC			
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Scale: 1:50	Date: 07-10-2008	Revision: 00	
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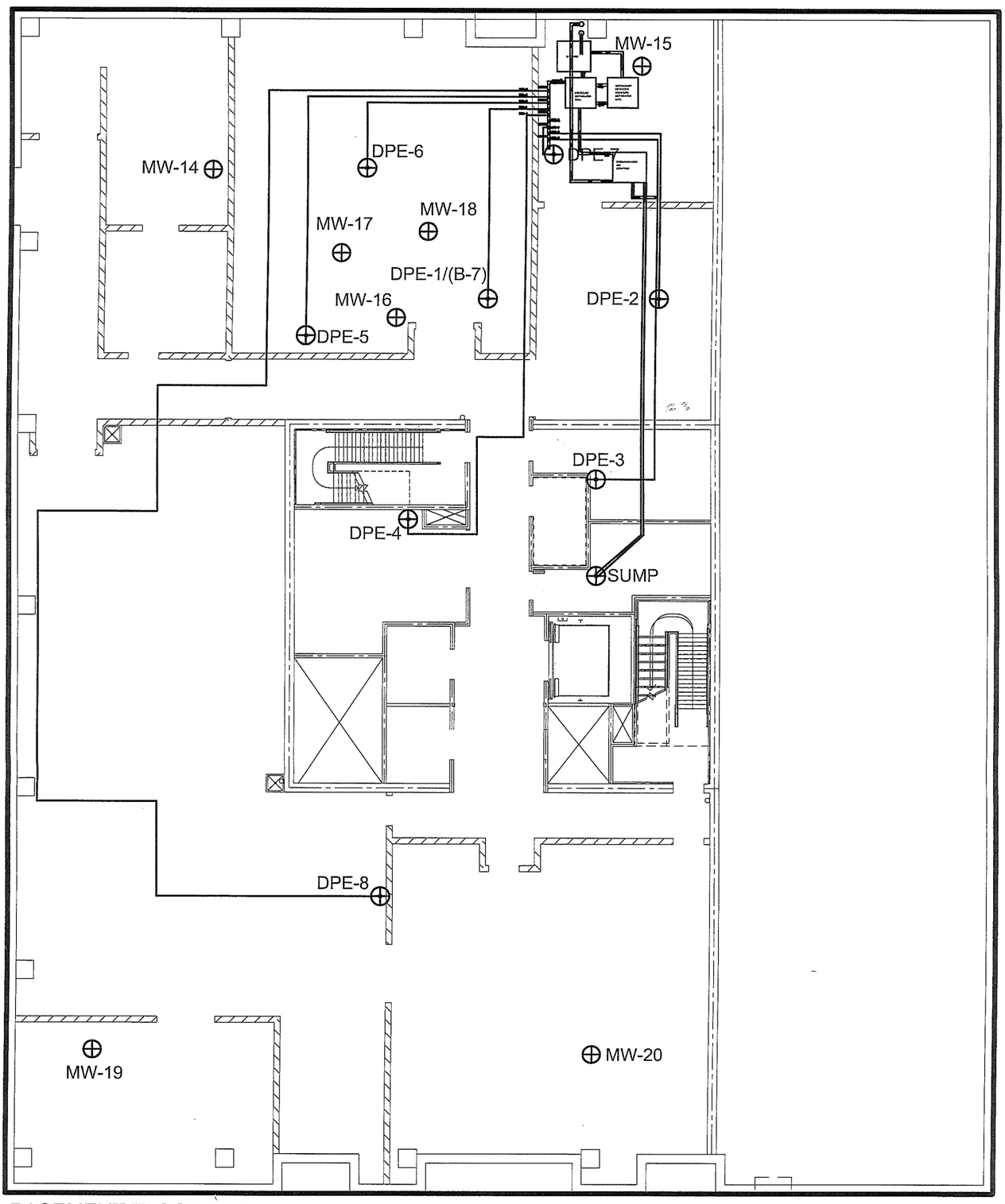

BASEMENT FLOOR PLAN

LEGEND

- ⊕ DPE, Monitoring Well, or Sump Location
- ——— DPE Piping Location
- ▬▬ Property Boundary

N

20 feet
SCALE

BASE DRAWINGS PROVIDED BY HGA
F:/Projects/CRC/CAD/basement planview\DPE AS Layout.dwg

Rev	Date	By	Description

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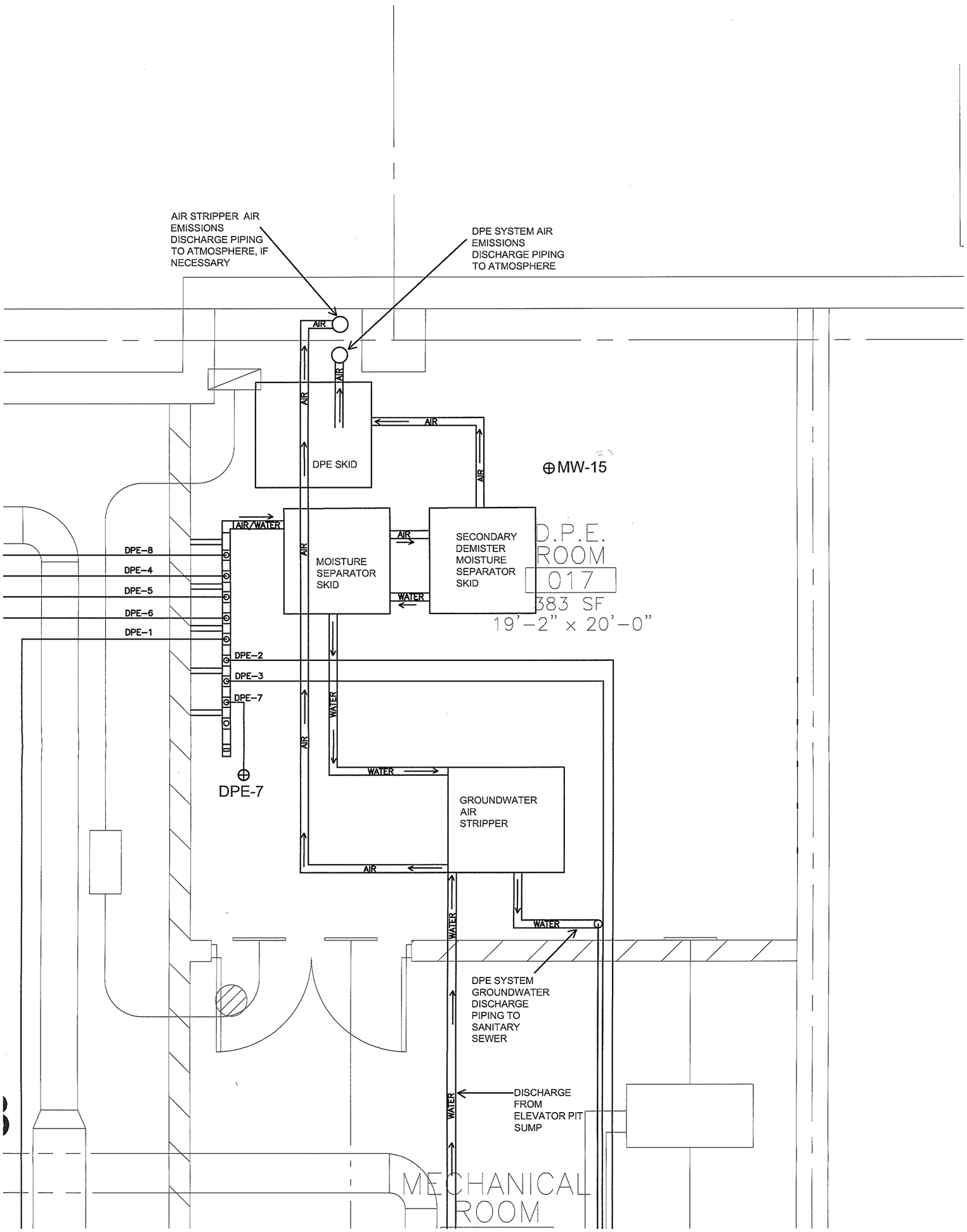
Bloomington, MN 55431

FIGURE 3

DPE SYSTEM LAYOUT

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC			
Drawn: JDS	Checked: JDS	Designed: JDS	
Scale: .	Date: 7/9/2009	Revision:	
Drawing Number: .		Sheet . Of .	Sheets .



LEGEND

N

Existing DPE Piping Location

AIR — Proposed Air Emissions Piping Location

WATER — Proposed Groundwater Discharge Piping Location

1 in = 3 ft

APPROXIMATE SCALE

BASEDRAWINGS PROVIDED BY HGA
P:/Projects/CRC/CAD/basement planview/20070829 DPE System/20100413 DPE Room.dwg

Rev	Date	By	Description

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FIGURE 4
DPE ROOM LAYOUT

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

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Scale: 1:3	Date: 4/13/2010	Revision: .
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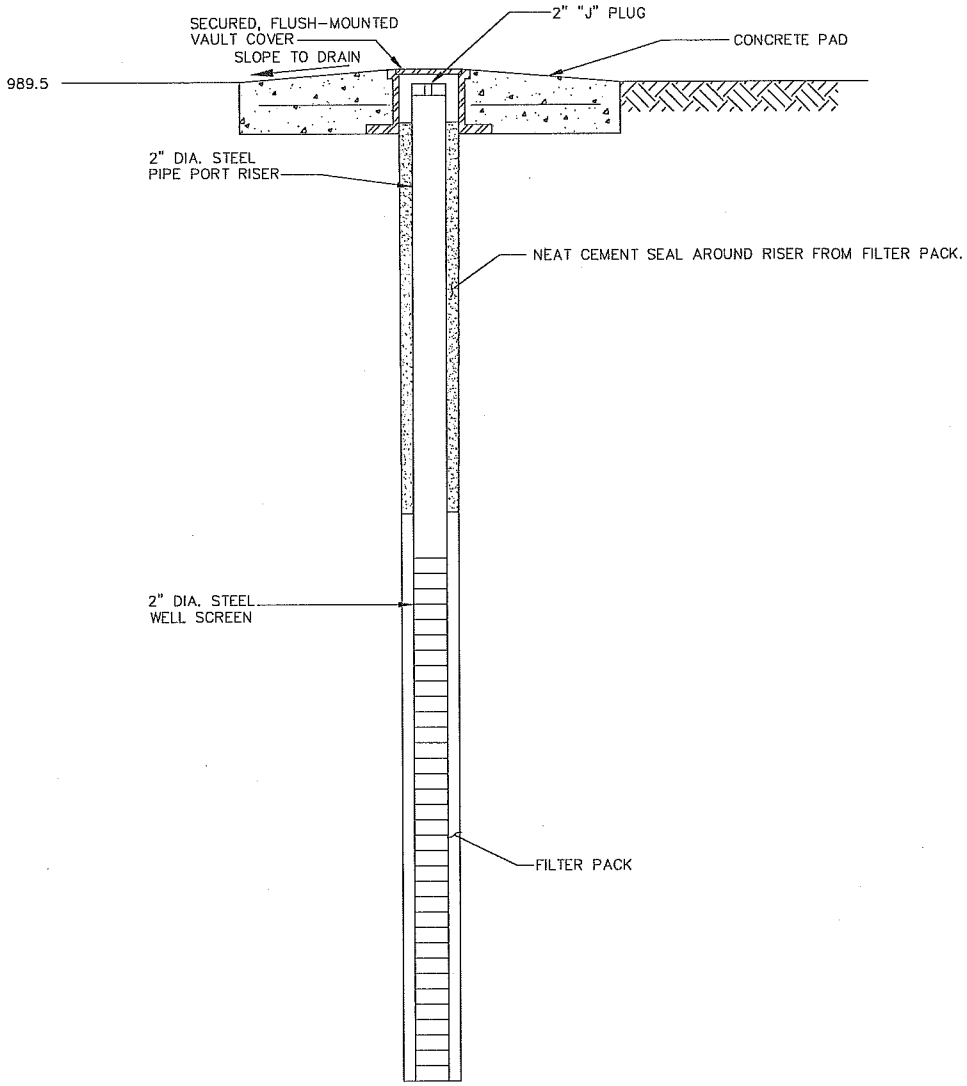

NOTES:
1. ALL CONNECTIONS SHALL BE IN ACCORDANCE WITH MINNESOTA DEPARTMENT OF HEALTH WELL CODE.
2. SEE SECTION 026200.10 TABLE 1 – PROPOSED REMEDIATION AND MONITORING WELL CONSTRUCTION SUMMARY.

F:\PROJECTS\Crc-City of Rochester\CAD\20071101 DPE Details.dwg

Rev	Date	By	Description
1	11/27/07	JDS	Addendum 1
2	12/4/07	JDS	Addendum 2

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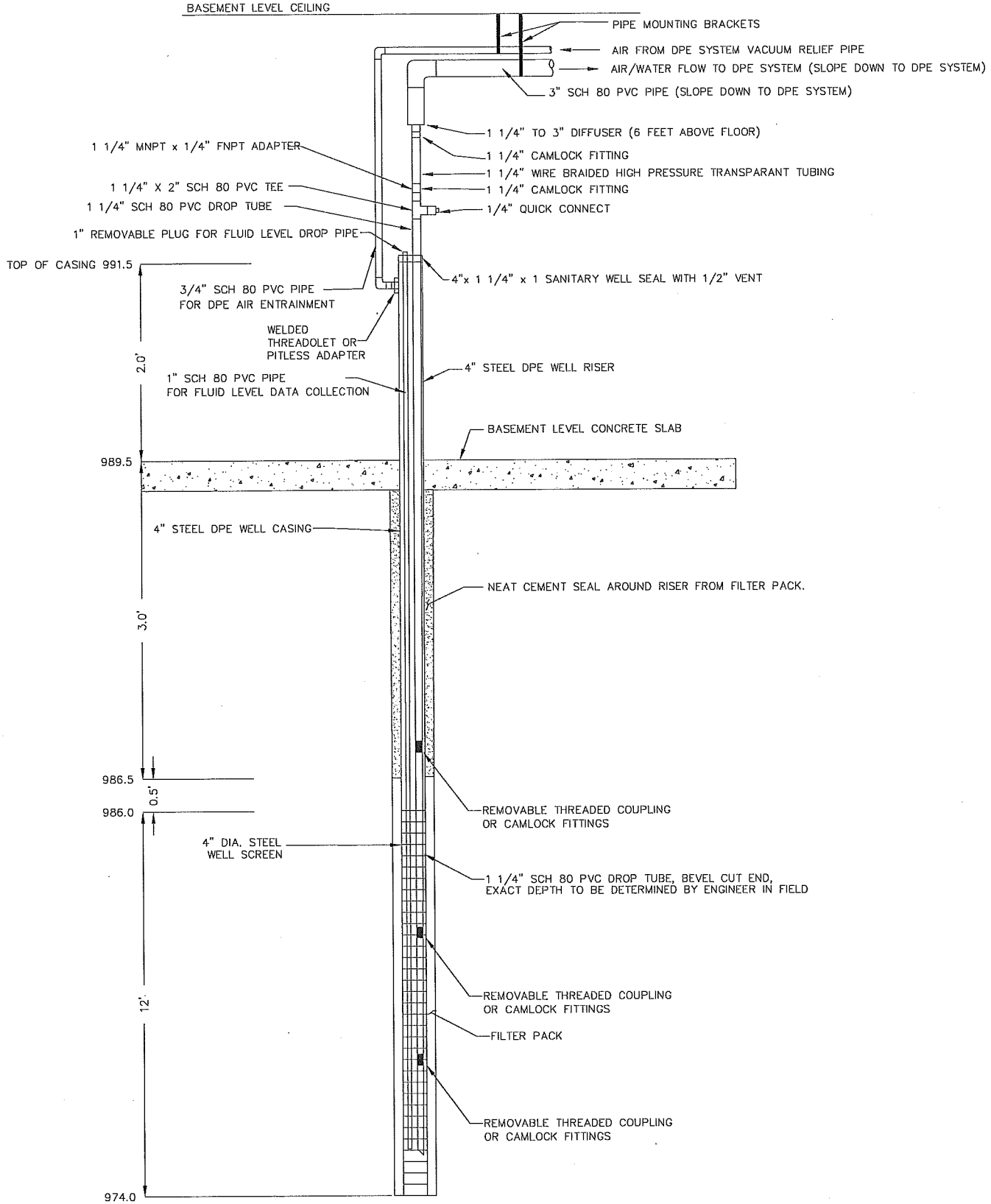
FIGURE 5
MONITORING WELL DETAIL

219 AND 223 FIRST AVENUE SW
ROCHESTER, MINNESOTA

Landmark Project Number: 06062.03		
Drawn: AMF	Checked: JDS	Designed: JDS
Scale: NONE	Date: 11/07/07	Revision:
Drawing Number: .	Sheet 7 Of	Sheets 7



NOTES:
1. ALL CONNECTIONS TO THE VERTICAL DPE PORTS SHALL BE IN ACCORDANCE WITH MINNESOTA DEPARTMENT OF HEALTH WELL CODE.
2. SEE SECTION 026200.10 TABLE 1 – PROPOSED REMEDIATION AND MONITORING WELL CONSTRUCTION SUMMARY.
3. 1 1/4" PVC DROP TUBE SHALL BE CONNECTED AT 5' INTERVALS WITH REMOVABLE THREADED COUPLINGS OR CAMLOCK FITTINGS.
4. OVERHEAD 3" DIAMETER SCH 80 HORIZONTAL PIPING SHALL SLOPE DOWNWARD TOWARDS THE DPE ROOM.

CONNECTION TO DUAL PHASE EXTRACTION (DPE) PORT

NOT TO SCALE

F:\PROJECTS\Crc-City of Rochester\CAD\20080918 DPE Details-RFP1 final revision.dwg

Rev	Date	By	Description
1	11/27/07	JDS	Addendum 1
2	12/4/07	JDS	Addendum 2
3	8/08/08	JDS	RFP1
4	9/18/08	JDS	RFP1– Revised Final

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FIGURE 6
DPE WELL DETAIL
(BASEMENT LEVEL)

219 AND 223 FIRST AVENUE SW
ROCHESTER, MINNESOTA

Landmark Project Number: 06062.03		
Drawn: AMF	Checked: JDS	Designed: JDS
Scale: .	Date: 11/07/07	Revision: 4
Drawing Number: .	Sheet 5 Of	Sheets 7

Tables

TABLE 1

WELL CONSTRUCTION SUMMARY
(elevations are in feet above mean sea level)

MN Bio Business Center
221 First Avenue SW
Rochester, Minnesota

Monitoring Well	Top of Casing Elevation[1,2]	Basement Floor Elevation	Top of Seal Elevation	Top of Filter Pack Elevation	Top of Well Screen Elevation	Bottom of Well Screen Elevation	Screen Interval (feet)	Depth to Bottom of Well (feet)	Bottom of Well Elevation	Well Completion
MW-14	989.50	989.50	989.50	986.00	984.00	974.00	10	17.5	972.00	flush-mounted
MW-15	991.50	989.50	990.50	987.50	985.50	975.50	10	18.0	973.50	stickup
MW-16	989.44	989.50	989.94	985.44	983.44	973.44	10	18.0	971.44	flush-mounted
MW-17	989.53	989.50	989.03	973.53	971.53	966.53	5	25.0	964.53	flush-mounted
MW-18	989.50	989.50	989.25	938.50	936.50	931.50	5	60.0	929.50	flush-mounted
MW-19	991.13	989.50	990.63	984.13	983.13	973.13	10	20.0	971.13	stickup
MW-20	991.50	989.50	992.80	988.80	986.80	976.80	10	16.7	974.80	stickup
DPE-1	992.40	989.50	989.53	984.53	982.53	970.53	12	21.9	970.53	stickup
DPE-2	992.80	989.50	990.28	986.28	984.28	972.28	12	20.5	972.28	stickup
DPE-3	992.48	989.50	990.42	989.42	987.42	975.42	12	17.1	975.42	stickup
DPE-4	992.40	989.50	990.07	987.07	985.07	973.07	12	19.3	973.07	stickup
DPE-5	992.46	989.50	990.32	987.32	986.32	974.32	12	18.1	974.32	stickup
DPE-6	992.40	989.50	989.87	986.87	984.87	972.87	12	19.5	972.87	stickup
DPE-7	993.48	989.50	990.32	984.32	983.32	971.32	12	22.2	971.32	stickup
DPE-8	992.84	989.50	990.84	989.34	987.34	975.34	12	17.5	975.34	stickup

Notes:

1. Monitoring well top of casing elevations were surveyed by Adolfson and Peterson on 4/22/08.
2. DPE well top of casing elevations changed during DPE well head installation and were estimated from a basement floor elevation of 989.5 ft and include the distance from the floor to the top of the well seal cover and the distance from the well seal cover to the top of the PVC stickup for collecting water level readings.

TABLE 2

RASS EMISSIONS RATES SUMMARY
MN Bio Business Center
221 1st Avenue SW
Rochester, Minnesota

Date	DPE Wells Operating	Parameter	Concentration (ug/m^3)	Emissions Rates				
				DPE (ug per sec)	AS (ug per sec)	Site Specific (ug per sec)	SER for Chronic Risk (ug per sec)	SER for Acute Risk (ug per sec)
9/4/2009	DPE-1	Tetrachloroethylene	3,630,000	61,710	70	**61,780**	16,300	5,980,000
10/15/2009	DPE-1	Tetrachloroethylene	396,000	5,940	6	5,946	16,300	5,980,000
10/16/2009	All Wells	Tetrachloroethylene	571,000	8,565	6	8,571	16,300	5,980,000
11/17/2009	All Wells	Tetrachloroethylene	381,000	4,953	0.5	4,953	16,300	5,980,000
12/17/2009	All Wells	Tetrachloroethylene	6,790	197	0.5	197	16,300	5,980,000
1/14/2010	All Wells	Tetrachloroethylene	8,550,000	393,300	4	**393,304**	16,300	5,980,000
2/22/2010	All Wells	Tetrachloroethylene	1,720,000	82,560	1	**82,561**	16,300	5,980,000
3/25/2010	All Wells	Tetrachloroethylene	215,000	11,180	2	11,182	16,300	5,980,000
4/16/2010	All Wells	Tetrachloroethylene	282,000	9,588	1	9,589	16,300	5,980,000

Notes:
SERs: MPCA Screening Emissions Rates
61,780 Emissions rate is above MPCA SER

Appendices

Appendix A

MPCA Approval Letters and Correspondence

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-675-3843 | 651-282-5332 TTY | www.pca.state.mn.us

July 27, 2007

Mr. Douglas Knott
City of Rochester
201 4th Street SE
Rochester, MN 55904

RE: Former Dry Cleaners – Rochester #3 Site, 219 and 223 First Avenue SW, Rochester
MPCA Project Number VP12562
Response Action Plan Approval

Dear Mr. Knott:

The Minnesota Pollution Control Agency (MPCA) staff in the Voluntary Investigation and Cleanup (VIC) Program has reviewed the "Voluntary Investigation and Cleanup, Voluntary Response Action Plan and Preliminary Response Action Design" dated June, 2007, the "Voluntary Response Action Plan Addendum- Response Action Design" dated July 17, 2007, and the electronic correspondence "MN Bio Business Center – DPE Design Revisions and Project Update" dated July 26, 2007 (altogether here as Response Action Plan), prepared by Landmark Environmental, Inc. (Landmark), for the Former Dry Cleaners – Rochester #3 site located at the address referenced above (the Site).

The Site consists of two adjoining parcels serving as a paved, surface-grade parking lot for the area business district. A small remediation shed with Dual Phase Extraction (DPE) system has been operational on the 219 First Avenue SW parcel in conjunction with a separate VIC project at the Site in order to remediate soil and ground water contamination. Historically, the Site supported a former dry cleaners and a movie theater on the 219 and 223 First Avenue SW parcels, respectively. Site documents indicate the building foundation remnants and as much as 15 feet of fill soils containing brick and other building debris remain at the Site. Contaminants identified at the Site include naphthalene, tetrachloroethylene (PCE) and polynuclear aromatic hydrocarbons (PAHs) in the Site soil at concentrations above the MPCA's industrial Soil Reference Values (SRVs) and several volatile organic compounds (VOCs) including PCE in the ground water at concentrations above the Health Risk Limits (HRLs).

VIC staff understands that response actions consist of the following: excavation and off-Site disposal of all impacted soils disturbed by redevelopment activities; field screening of excavated materials; cleanup confirmations sampling of excavation base and sidewalls in accordance with MPCA guidance; maintaining interim cover as necessary for storm water control; capping remaining soils with building expansion; installing a passive soil vapor

mitigation system with a vapor barrier below the new building; installation, maintenance and operation of a new DPE system to complete remediation of volatile organic contaminants; and the preparation and recording of an "Affidavit Concerning Real Property Contaminated with Hazardous Substances" in the event verification sampling results indicate the presence of contaminants remain above the MPCA's residential Soil Reference Values and Soil Leaching Values.

Based upon a review of Site documents, the Response Action Plan is hereby approved pursuant to Minn. Stat. § 115B.17, state response to releases, subd. 14, requests for review, investigation, and oversight, subject to the modifications listed in Attachment B. Please submit modifications to MPCA staff prior to beginning earthwork for review and approval.

Please be advised that the determination made in this letter is subject to the disclaimers found in Attachment A. If you have any questions about the contents of this letter, please contact me at 651-296-8111 or Allan Timm, Hydrogeologist at 651-297-1808.

Sincerely,

Edward P. Olson, CEP
Project Manager
Voluntary Investigation and Cleanup Unit
Superfund and Emergency Response Section
Remediation Division

EPO/jmp

Attachments

cc: The Honorable Aredell F. Brede, Mayor, City of Rochester
Terry Lee, Olmsted County
Ken Haberman, Landmark Environmental LLC.
Nancy Quattlebaum Burke, Gray Plant Mooty

ATTACHMENT A
DISCLAIMERS
Former Dry Cleaners – Rochester #3 Site, VP12562

1. Reservation of Authorities

The MPCA Commissioner reserves the authority to take any appropriate actions with respect to any release, threatened release, or other conditions at the Site. The MPCA Commissioner also reserves the authority to take such action if the voluntary party does not proceed in the manner described in this letter or if actions taken or omitted by the voluntary party with respect to the Site contribute to any release or threatened release, or create an imminent and substantial danger to public health and welfare.

2. No MPCA Assumption of Liability

The MPCA, its Commissioner and staff do not assume any liability for any release, threatened release or other conditions at the Site or for any actions taken or omitted by the voluntary party with regard to the release, threatened release, or other conditions at the Site, whether the actions taken or omitted are in accordance with this letter or otherwise.

3. Letter Based on Current Information

All statements, conclusions and representations in this letter are based upon information known to the MPCA Commissioner and staff at the time this letter was issued. The MPCA Commissioner and staff reserve the authority to modify or rescind any such statement, conclusion or representation and to take any appropriate action under his authority if the MPCA Commissioner or staff acquires information after issuance of this letter that provides a basis for such modification or action.

4. Disclaimer Regarding Use or Development of the Property

The MPCA, its Commissioner and staff do not warrant that the Site is suitable or appropriate for any particular use.

5. Disclaimer Regarding Investigative or Response Action at the Property

Nothing in this letter is intended to authorize any response action under Minn. Stat. § 115B.17, subd. 12.

ATTACHMENT B
RESPONSE ACTION PLAN MODIFICATIONS
Former Dry Cleaners – Rochester #3 Site, VP12562

1. Soils represented by DPRA boring B-7 and sample from 13-15 feet below grade surface on the 219 parcel, cannot be reused and needs to be included in the soils disposed of at the RCRA subtitle D landfill. These soils exhibited elevated concentrations of volatile organic compounds and therefore needs to be included in off-site disposal consistent with the Hazardous Waste Determination form issued by RCRA/Superfund Unit staff on July 20, 2007.

2. The following is needed in order to ensure conformance with the Interstate Technology & Regulatory Council (ITRC) and the U.S. EPA's Technical Guidance (3rd ed.) for Active Soil Depressurization Systems (i.e. radon mitigation standards) as recognized by VIC staff for vapor intrusion control at this Site:

    - The selected sub-floor vapor barrier shall be at least a 40-mil thick barrier with protrusion boots. All seams will be thermally welded. Provide VIC staff vapor barrier performance, installation and serviceability assurance details; The RAP, Attachment 6, Division 1 & Division 2 Specifications - Section 02666, Vapor Barrier, needs significant modification.
    - Any barrier joints/seams, both lateral and butt, shall be overlapped at least 12" and in accordance with manufacturer's recommended seam completion and testing procedures;
    - Provide VIC staff additional sub-slab venting system details including slope of horizontal piping runs toward intake risers (not "storm sewer" as in Attachment 6, Section 02667), and how the system will be maintained as in a valve "open", passive venting condition;
    - Provide VIC staff details as to performance monitoring for effectiveness of the sub-slab venting system (i.e. a minimum of two post-construction monitoring events), and the failed performance criteria to be used in any decision for upgrading the passive vent system to an active vent system by installing in-line fan(s); and
    - All remedial system exhaust stacks outlet shall be located at least 10' distance from any building openings or any public or private access area, and be configured such that any subsequent upgrade to accommodate an in-line fan for "active" service mode.

3. Provide VIC staff information on DPE system including:
    - Sealing the ground water monitoring wells (from DPRA project) and DPE recovery wells. Sealing shall be in accordance with MDH standards;
    - Depths of extraction wells and screen intervals;
    - Permit details for discharge to sanitary service; and
    - Operational goals to ensure diminished contaminant concentrations in the ground water over time, including ground water monitoring on a quarterly basis for at least a one-year period after the date of DPE system shut-down.

4. All electrical equipment for the DPE system and the remediation room shall be intrinsically safe.

5. RAP Attachment 2, Emission Control Plan:
   - Excavation, Loading, Transportation and Reconsolidation – ACWM shall be totally contained in "burrito-style" wrapped plastic.
   - Project Personnel - Clarify information in item 3.

6. RAP Attachment 5, DPE System Design Drawings:
   - Provide a description of automated sequence of operation.
   - Specifications shall specify that exhaust stack outlet be at least 10' distance from any building openings or any public or private access area.

7. RAP Attachment 6, Division 1 & Division 2 Specifications:
   - Significant modification is needed - see also item 2, above.
   - Section 02100, Soil Remediation, Part 3 –EXECUTION, Note: any stockpiles shall not be greater than 50 cubic yards in size.

Jason Skramstad

From: Timm, Allan [Allan.Timm@state.mn.us]
Sent: Wednesday, October 17, 2007 2:28 PM
To: Jason Skramstad
Cc: Olson, Edward
Subject: Former Drycleaner #3 - Rochester - VRAP, ECP. & Design Modifications Submittal Approval

RE: Former Drycleaner #3 - Rochester VP12562
219 and 223 First Avenue S. W., Rochester
VRAP, ECP. & Design Modifications Submittal Report

Jason,

This email is to confirm our conversation on Thursday, October 11, 2007. Based on VIC staff review of the VRAP, ECP. & Design Modifications Submittal Report, the documents are approved, with the following exception: The proposed excavation verification sampling for Parcel 223, presented in Attachment 2 - Table 1, shall be modified. In addition to the analysis that is listed in the Table, all floor and sidewall samples from Parcel 223 shall also be analyzed for volatile organic compounds (VOCs).
If you have any questions or comments, please contact Ed Olson, the Project Manager, at 651-296-8111 or me at 651-297-1808. Thanks,

Allan Timm
Hydrogeologist
Voluntary Investigation and Cleanup Unit
MPCA
651-297-1808

allan.timm@state.mn.us

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-675-3843 | 651-282-5332 TTY | www.pca.state.mn.us

April 28, 2009

Mr. Douglas Knott
City of Rochester
201 – 4th Street SE
Rochester, MN 55904

RE: Former Dry Cleaner - Rochester #3 Site
219 and 223 First Avenue SW, Rochester
MPCA Project Number VP12562
Response Action Plan Approval

Dear Mr. Knott:

The Minnesota Pollution Control Agency (MPCA) staff in the Voluntary Investigation and Cleanup (VIC) Unit has reviewed the "VRAP Addendum, Minnesota Bio Business Center," dated March 30, 2009, and the "VRAP Addendum #2, Minnesota Bio Business Center," dated April 20, 2009, (together referred to as the Response Action Plan or RAP), located at the above referenced address (the Site). The RAP was prepared by Landmark Environmental, LLC (Landmark) and submitted on your behalf. The "VRAP Addendum #2" was intended to provide additional technical information that VIC staff requested in an e-mail dated April 13, 2009, and follows response actions previously approved by the MPCA. This RAP approval is for the proposed air and groundwater treatment plans associated with the recently installed subsurface extraction systems at the newly constructed Minnesota Bio Business Center building (i.e. dual phase extraction or "DPE" and groundwater sump collection).

The RAP was developed in response to elevated concentrations of chlorinated volatile organic compounds (VOCs) detected in the soil and groundwater at the Site. The highest concentrations of chlorinated VOCs in the soil and groundwater were detected at the former location of a dry well that was removed in January 2008, during the general excavation for the building's basement. Groundwater in the bedrock aquifer has been impacted by the chlorinated VOC tetrachloroethene at concentrations five orders of magnitude above the Minnesota Department of Health's Health Risk Limits (HRLs).

The RAP proposes the following activities:

- Installation of a groundwater treatment system, consisting of an air stripper, to treat impacted groundwater generated by the DPE system and the sump pumps;
- Installation of air emission treatment equipment consisting of a booster pump and activated carbon and /or a vapor combustion unit; and

ATTACHMENT A
DISCLAIMERS
Former Dry Cleaner - Rochester #3 Site
MPCA Project Number VP12562

1. Reservation of Authorities

The MPCA Commissioner reserves the authority to take any appropriate actions with respect to any release, threatened release, or other conditions at the Site. The MPCA Commissioner also reserves the authority to take such action if the voluntary party does not proceed in the manner described in this letter or if actions taken or omitted by the voluntary party with respect to the Site contribute to any release or threatened release, or create an imminent and substantial danger to public health and welfare.

2. No MPCA Assumption of Liability

The MPCA, its Commissioner and staff do not assume any liability for any release, threatened release or other conditions at the Site or for any actions taken or omitted by the voluntary party with regard to the release, threatened release, or other conditions at the Site, whether the actions taken or omitted are in accordance with this letter or otherwise.

3. Letter Based on Current Information

All statements, conclusions and representations in this letter are based upon information known to the MPCA Commissioner and staff at the time this letter was issued. The MPCA Commissioner and staff reserve the authority to modify or rescind any such statement, conclusion or representation and to take any appropriate action under his authority if the MPCA Commissioner or staff acquires information after issuance of this letter that provides a basis for such modification or action.

4. Disclaimer Regarding Use or Development of the Property

The MPCA, its Commissioner and staff do not warrant that the Site is suitable or appropriate for any particular use.

5. Disclaimer Regarding Investigative or Response Action at the Property

Nothing in this letter is intended to authorize any response action under Minn. Stat. § 115B.17, subd. 12.

ATTACHMENT B
RAP MODIFICATIONS
Former Dry Cleaner - Rochester #3 Site
MPCA Project Number VP12562

1. A final water and air treatment systems design document shall be submitted the MPCA VIC staff for review and approval before systems installation.

2. The water treatment system shall be designed to handle the combined flow rates of the discharge water generated by the dual phase extraction system and the water discharged by the building sump.

3. The booster blower shall be sized to match the anticipated air flow rate of the DPE system blower.

2042 98th West Street
Bloomington, MN 55431
Phone # 952-887-9601
Fax # 952-887-9605

Landmark Environmental, LLC

Telephone Memo

JDS

Date: 11/11/09 Time: _____

☐ **Received Call From** ☐ **Placed Call To** ☐ **Received Voice Mail From** ☐ **Left Message With**

Name: AL TIMM Organization: _____

Phone No: _____

Re: _____ Project No: _____

(1.) PPE Emissions:

Tim talked to Air emissions folks and w/ decreasing concentrations evident, they didn't think Air emissions treatment would be necessary.

(2.) MS Sediment - HAZ WASTE:

- Mon - Tues Next week - HAZ Form for me to fill out

Fax Cover Sheet

Minnesota Pollution Control Agency

Remediation Division
St. Paul Office
520 Lafayette Road North - St. Paul, MN 55155

Date:	07/20/09	**Number of pages (including this page):**	5
To:		Jason Skramstad	
Company or agency:		Landmark Environmental LLC	
Fax number:		952-887-9605	
Subject:		Former Drycleaner #3 Rochester	
Message:		Limited No Further Action Determination for Soil	
From:		Allan Timm	
Telephone number:		651-757-2786	
Fax number:		651-296-9707	
If you have any questions regarding this fax, please call:			

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 1-800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us

Official File Stamp
File Name
File Number
Page # Staff
Category

November 17, 2008

Mr. Douglas Knott
City of Rochester
201 4th Street SE
Rochester, MN 55904

RE: Former Dry Cleaners – Rochester #3 Site, 219 and 223 First Avenue SW, Rochester
MPCA Project Number VP12562
Limited No Further Action Determination for Soil

Dear Mr. Knott:

The Minnesota Pollution Control Agency (MPCA) staff in the Voluntary Investigation and Cleanup (VIC) Unit has been requested to provide a No Further Action Determination for releases identified at the Former Dry Cleaners – Rochester #3 site, located at the address referenced above (the Site). The MPCA staff has reviewed the information submitted for the Site. The Site consists of two adjoining parcels which most recently were used a surface-grade, paved parking lot serving a downtown commercial district. Each parcel had various commercial building uses and supporting structures dating back to as early as 1884. Historic businesses include a commercial laundry with dry cleaning service, movie theatre, nursing home and hotel.

Subsurface investigations have been conducted at the Site beginning in 1999. Investigation findings indicated the presence of up to 15 feet of fill soils containing brick and other building debris at the Site. The volatile organic compounds (VOCs) naphthalene and tetrachloroethylene (PCE), and polynuclear aromatic hydrocarbons (PAHs), were detected in the Site soil at concentrations above the MPCA's Soil Reference Values (SRVs) for industrial use. Arsenic was detected in the soil within normal background concentrations. Oversight of petroleum contamination is being addressed by the MPCA Petroleum Remediation Unit. VOCs were detected in the ground water at concentrations above the Health Risk Limits (HRLs) established by the Minnesota Department of Health; however, these contaminants are being addressed under response activities to be implemented largely in early 2009. For the purposes of this letter the identified release at the Site consists of naphthalene, PCE and PAHs in the soil (Identified Release).

Response actions pertaining to the soil at the Site were conducted in accordance with the MPCA-approved voluntary Response Action Plan and environmental contingency plan. 4,351 tons of impacted soil and debris, and 14 tons of hazardous waste soil, bedrock and concrete were excavated from a hot spot location and disposed of at permitted facilities. Contaminants were not detected in excavation confirmation samples at concentrations above the SRVs for industrial land use, except for chlorinated VOCs in bedrock beneath a former underground injection well. A vapor barrier and passive sub-slab venting system were

installed as a part of the new building construction to mitigate vapor impacts. The approved response actions for remaining bedrock and ground water contamination at the Site, including soil gas impacts, will be addressed with the installation and operation of a dual phase extraction system, scheduled to be completed in March of 2009.

Based on a review of the information provided to the MPCA, the MPCA staff will not request the City of Rochester, to conduct any further investigation or remediation of the Identified Release to soil at the Site. Furthermore, the MPCA is issuing a determination to take no action under Minn. Stat. §§ 115B.01-115B.18, against the City of Rochester with respect to the Identified Release. Specifically, the MPCA staff will not refer the Identified Release to the U.S. Environmental Protection Agency for inclusion on the Comprehensive Environmental Response, Compensation and Liability Information System list, to the State Site Assessment staff for preparation of a Hazard Ranking System score, or to the MPCA Commissioner for the placement of the Site on the Permanent List of Priorities.

This determination is subject to the following conditions:

1. The City of Rochester shall record, at its own expense, in the office of the County Recorder or Registrar of Titles, whichever is appropriate, in and for Olmsted County, an Environmental Covenant approved by the MPCA as provided in the Uniform Environmental Covenants Act, 2007 Minn. Laws, ch. 131, secs. 59-72 and 74, to be codified in Minn. Stat. ch. 114E ("UECA"). The Environmental Covenant shall ensure the operation and maintenance of the dual phase extraction system as necessary to manage risks associated with residual contamination in the soil, bedrock and ground water, and prohibit Site activities which would expose or disturb the contaminated subsurface, without receiving prior written approval from the MPCA or its successors. The Environmental Covenant must also contain the information described in Minn. Stat. § 115B.16, subd. 2; i.e., it must contain a description of the identity, quantity, location, condition and circumstances of contamination currently located on the property, to the full extent known or reasonably ascertainable. This description shall include information disclosing that the Site is contaminated with compounds of the Identified Release in the soil, and VOC contamination in the ground water in the vicinity of boring B-7. The Environmental Covenant shall be recorded as provided in UECA. A copy of the proposed Environmental Covenant language shall be submitted to the MPCA staff for review and approval within sixty (60) days receipt of this letter and the City of Rochester shall file the Environmental Covenant within thirty (30) days after receipt of MPCA approval. The City of Rochester shall submit a copy of the Environmental Covenant as recorded to the MPCA within thirty (30) days after the Environmental Covenant is officially recorded. The City of Rochester shall provide notice of the Environmental Covenant to those parties to whom notice is required under UECA.

This determination is based solely on the results of the soil investigation conducted on the Site. This letter does not address any conclusions or representations regarding the future need for further investigation or response actions relating to ground water.

Please be advised that the determination made in this letter is subject to the disclaimers found in Attachment A and is contingent on compliance with the terms and conditions set forth herein including the submittal of the copy of the recorded Environmental Covenant documents. If you have any questions about the contents of this letter, please contact Ed Olson, Project Manager, at 651-296-8111 or Allan Timm, Hydrogeologist at 651-297-1808.

Sincerely,

Barbara Jackson

Barbara Jackson
Supervisor
Superfund, RCRA and Voluntary Cleanup Section
Remediation Division

BJ/EO:jmp

Attachment

cc: Judy Kay Scherr, Clerk, City of Rochester
Terry Lee, Olmsted County
Ken Haberman, Landmark Environmental LLC
Nancy Quattlebaum Burke, Gray Plant Mooty
Artie Dworak, MPCA

ATTACHMENT A
DISCLAIMERS
Former Dry Cleaners – Rochester #3 Site, VP12562

1. Reservation of Authorities

The MPCA Commissioner reserves the authority to take any appropriate actions with respect to any release, threatened release, or other conditions at the Site. The MPCA Commissioner also reserves the authority to take such actions if the voluntary party does not proceed in the manner described in this letter or if actions taken or omitted by the voluntary party with respect to the Site contribute to any release or threatened release, or create an imminent and substantial danger to public health and welfare.

2. No MPCA Assumption of Liability

The MPCA, its Commissioner and staff do not assume any liability for any release, threatened release or other conditions at the Site or for any actions taken or omitted by the voluntary party with regard to the release, threatened release, or other conditions at the Site, whether the actions taken or omitted are in accordance with this letter or otherwise.

3. Letter Based on Current Information

All statements, conclusions and representations in this letter are based upon information known to the MPCA Commissioner and staff at the time this letter was issued. The MPCA Commissioner and staff reserve the authority to modify or rescind any such statement, conclusion or representation and to take any appropriate action under his authority if the MPCA Commissioner or staff acquires information after issuance of this letter that provides a basis for such modification or action.

4. Disclaimer Regarding Use or Development of the Property

The MPCA, its Commissioner and staff do not warrant that the Site is suitable or appropriate for any particular use.

5. Disclaimer Regarding Investigative or Response Action at the Property

Nothing in this letter is intended to authorize any response action under Minn. Stat. § 115B.17, subd. 12.

Appendix B

Photographs Documenting Response Actions

MN Bio Business Center
City of Rochester

Feb. 5 thru 12, 2008 - Roto-sonic drill rig set up at DPE-2 location

Feb. 5 thru 12, 2008 - Custom protective wellhead structure

Feb. 5 thru 12, 2008 - DPE and monitoring well screen

Feb. 5 thru 12, 2008 - Several custom wellhead protective barriers

Feb. 5 thru 12, 2008 - Well inside a custom wellhead protective structure

Mat slab vapor barrier installation.

Mat slab vapor barrier installation.

Feb. 26 and 27, 2008 - Backfilling with sand along the south side of the building

Mat slab vapor barrier installation.

Feb. 26 and 27, 2008 - Typical extrusion seem

Feb. 26 and 27, 2008 - Extruding a seem on the northeast corner of the building

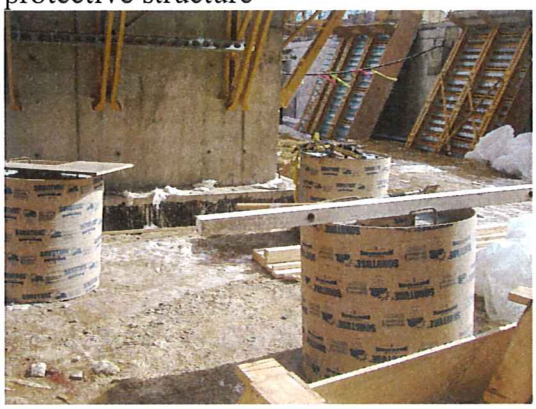
Feb. 26 and 27, 2008 - Existing vapor barrier under the super footing

Feb. 26 and 27, 2008 - Well inside a custom protective structure

Feb. 26 and 27, 2008 - Extruding seems along the east side of the building

Feb. 26 and 27, 2008 - Custom protective structure

Feb. 26 and 27, 2008 - Drain tile installation showing filter fabric, pea-gravel and perforated drain tile.



Feb. 26 and 27, 2008 - Several custom barriers

Feb. 26 and 27, 2008 - Perforations observed on the drain tile

Mar. 19 and 20, 2008 - Future floor drain and venting system in foreground

Mar. 19 and 20, 2008 - MW-15

Mar. 19 and 20, 2008 - Bank of electrical conduit

Mar. 19 and 20, 2008 - Multiple DPE and groundwater wells present on the west side

Mar. 19 and 20, 2008 - Skilled hand work prevailed in sealing the electrical conduits placed for a switch gear

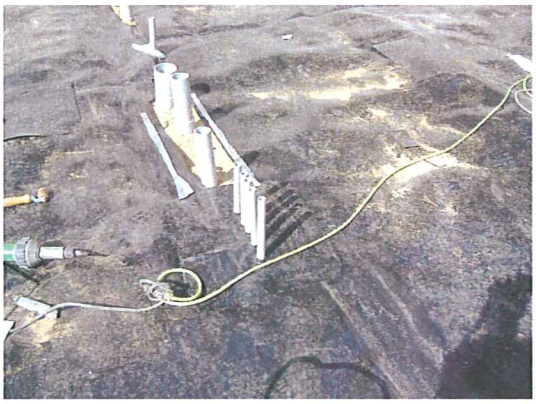
Mar. 19 and 20, 2008 - Another example of skilled hand work in sealing conduits

Mar. 19 and 20, 2008 - Multiple DPE and groundwater wells present on the west side

Mar. 19 and 20, 2008 - Barrier installation completed along the west side of the superstructure – yet to be tested

Mar. 19 and 20, 2008 - Connection between the barrier beneath the superstructure and the remaining horizontal barrier

Vertical foundation wall vapor barrier installation



Mar. 19 and 20, 2008 - Bank of electrical conduit

Mar. 25, 2008 – Sand cushion placed on top of vapor barrier prior to pouring the concrete slab

Mar. 25, 2008 – Sand cushion placed on top of vapor barrier prior to pouring the concrete slab

Mar. 25, 2008 – Additional vapor barrier installation activities

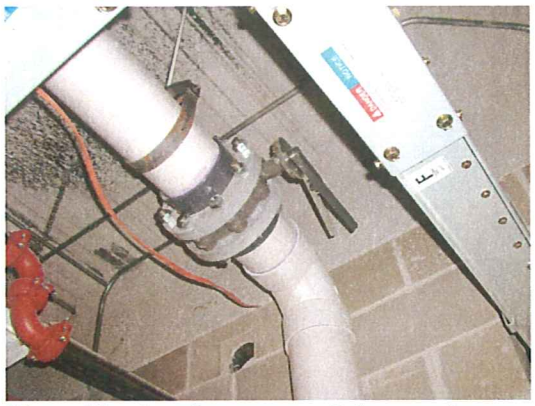
Mar. 25, 2008 – Completed vapor barrier connection to the vertical wall

Mar. 25, 2008 – Completed vapor barrier pipe boot and extrusion welding

Mar. 25, 2008 – Additional vapor barrier installation activities

Mar. 25, 2008 – Additional vapor barrier installation activities

Mar. 25, 2008 – Additional vapor barrier installation activities

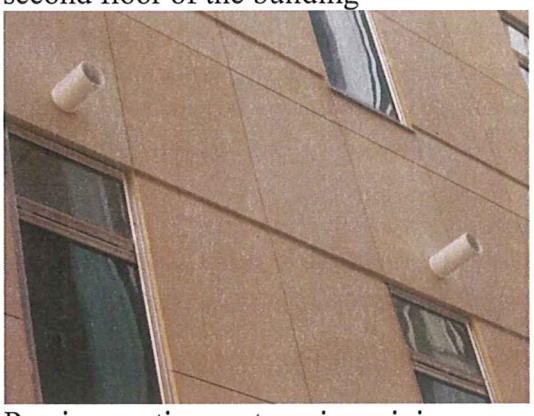


Shutoff valve from one of the passive venting system riser pipes

Mar. 25, 2008 – Additional vapor barrier installation activities

Passive venting system riser piping being installed in the ceiling on the second floor of the building

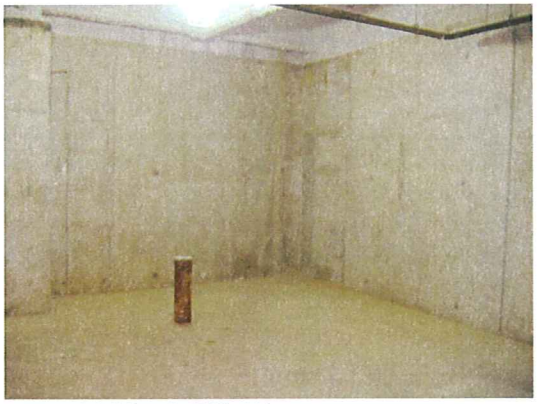
Passive venting system riser piping

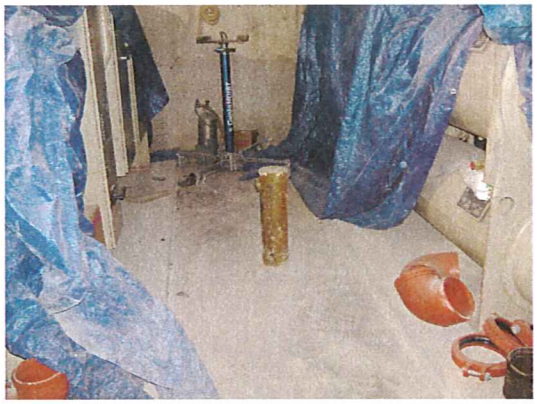


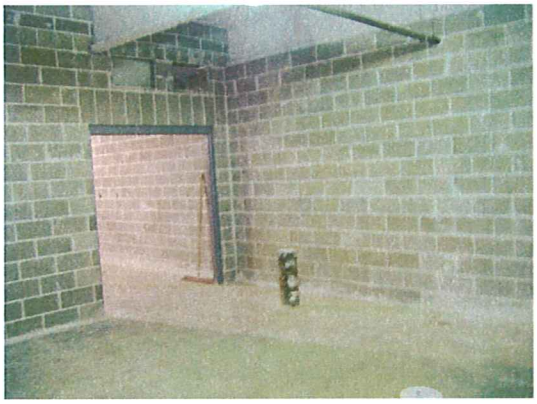
Passive venting system riser piping exiting the building, prior to the installation of the exhaust stack and rotary wind turbine


Aug. 2008 - MW-16


Aug. 2008 - DPE-3

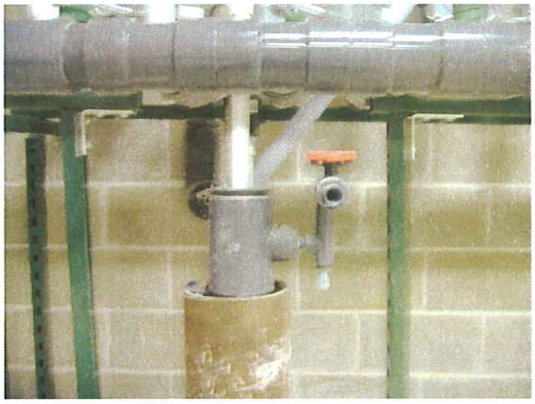

Aug. 2008 - MW-15


Aug. 2008 - MW-20

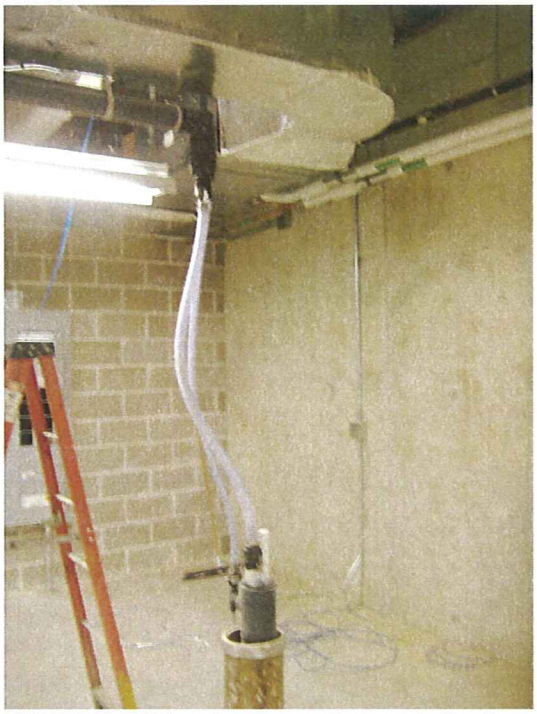

Aug. 2008 - DPE-7


Aug. 2008 - MW-19

Control panel for DPE system.


DPE-7 well head


DPE system manifold, MS#1, and DPE pump

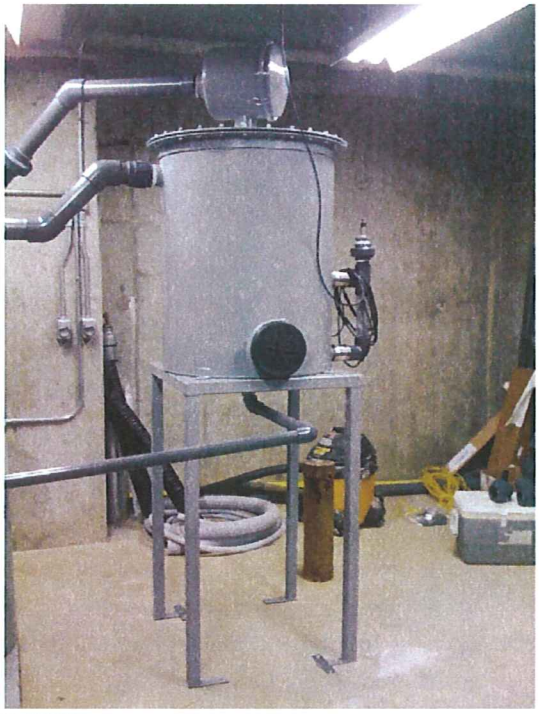

DPE-2 well head connection to lateral piping


DPE system manifold

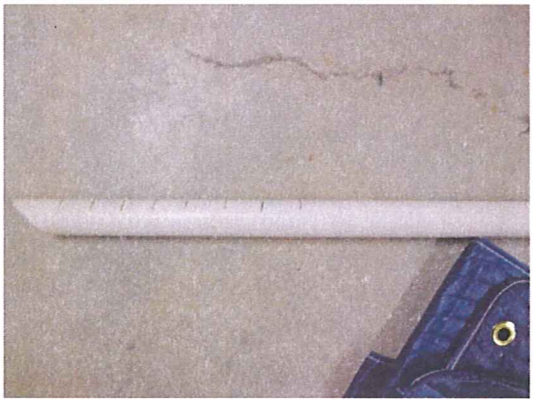

Lateral DPE piping from a well to the DPE room

Solenoid valve between MS#1 and MS#2

Piping between MS#1 and MS#2



MS#2



Slits cut into DPE system drop tube

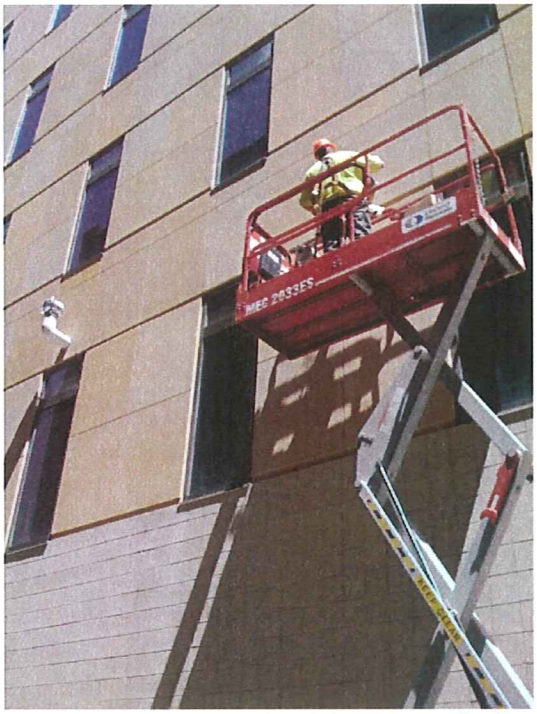
Air stripper

DPE-3 with modified air entrainment gatevalve and check valve

Passive venting (on left), DPE pump, and air stripper riser piping exiting the building

Galvanized steel riser piping from the DPE pump and air stripper

Galvanized steel riser piping from the DPE pump and air stripper



Passive venting stack with rotary wind turbine installed

Appendix C

Previous DPE System Boring and Well Sealing Records

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. / Minnesota Unique No or W-series No. — B258136 / VP#8

WELL OR BORING LOCATION

County Name: OLMSTEAD

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

GPS LOCATION — Latitude: Degrees / Minutes / Seconds

Latitude: Degrees / Minutes / Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location: 9TH AVE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed: 8-3-07

Date Well or Boring Constructed: 5-9-01

Depth Before Sealing _____ ft.

AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ☐ Monit.Well ☒ Env.Boring Hole ☐ Other

STATIC WATER LEVEL: ☐ Measured ☐ Estimated _____ ft. ☐ below ☐ above land surface

CASING TYPE(S): ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

ABANDONED CONSTRUCTION

OUTSIDE: ☐ Well House ☐ Basement & Other ☐ Pitless Adp ☐ Well Pit ☐ Well Pit ☐ Buried ☐ Buried

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55904

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET
ROCHESTER MN 55904

CASING: Diameter / Depth / Set in oversize hole? / Annular space initially grouted?
2 in. from 15 ½ to 36.52 ft. ☐ Yes ☒ No ☐ Yes ☐ No ☐ Unknown
_____ in. from _____ to _____ ft. ☐ Yes ☒ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.

OBSTRUCTIONS: ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) _____
Obstructions removed? Yes No Describe _____

PUMP
Type _____
☐ Removed ☒ Not Present ☐ Other _____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed
_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed
Type of perforator _____
☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Fine Sand	BRN	Soft	0	13
Md Silty Sand	BRN	Med	13	15
Limestone	BRN	Hard	15	301/2

Use a second sheet, if needed

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 8 ft. _____ yards 1 bags
_____ from _____ to _____ ft. _____ yards _____ bags
_____ from _____ to _____ ft. _____ yards _____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☐ No How Many? _____

REMARKS, ELEVATION, SOURCE OF DATA etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name — Lic. or Reg. No.

Authorized Representative Signature — Date

Name of Person Sealing Well or Boring

SEALING NO. B258136

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258135
Minnesota Unique No. or W-series No. VP #7

WELL OR BORING LOCATION

County Name OLMSTED

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	20	NW ¼ NE ¼ NW

GPS LOCATION Latitude Degrees Minutes Seconds
Latitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
1ST AVE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed 1/4 8-3-07

Depth Before Sealing _____ ft.

Date Well or Boring Constructed 05-02-01

AQUIFER(S) ☐ Single Aquifer ☐ Multi-aquifer

WELL/BORING ☐ Water Supply Well ☐ Monit.Well ☐ Env.Boring Hole ☐ Other

STATIC WATER LEVEL ☐ Measured ☐ Estimated
_____ ft ☐ below ☐ above land surface

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

WELLHEAD COMPLETION

☐ Pitless		☐ Well House	☐ Basement or Encl.
☐		☐ Pitless Adp.	☐ Well Pit
☐		☐ Well Pit	☐ Buried
☐		☐ Buried	

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET

ROCHESTER MN 55904

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET

ROCHESTER MN 55904

CASING
Diameter Depth Set in oversize hole? Annular space initially grouted?
2 in. from 15 ft. to 3.5 ft. ☐ Yes ☒ No ☐ Yes ☐ No ☒ Unknown
_____ in. from _____ ft. to _____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) _____
Obstructions removed? Yes No Describe _____

PUMP
Type _____ ☐ Removed ☐ Not Present ☐ Other _____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Seal ☐ Annular Space grouted with neat slurry ☐ Casing Perforated/removed
_____ in. from _____ ft. to _____ ft. ☐ Perforated ☐ Removed
_____ in. from _____ ft. to _____ ft. ☐ Perforated ☐ Removed
Type of perforator _____
☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Sand	Brown	med-c	0	13
Silty Sand/Fine Sand	BRN	med	13	15
Silty Sand/Fine Sand	BRN	Hard	15	17
Fine Sand	BRN	Hard	17	30½

Use a second sheet, if needed

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 7 ft. _____ yards 1 bags
_____ from _____ to _____ ft. _____ yards _____ bags
_____ from _____ to _____ ft. _____ yards _____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☒ No How Many? _____

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION
This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES, INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258135

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258134
Minnesota Unique No. or W-series No. VP #6

WELL OR BORING LOCATION

County Name: OLMSTEAD

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NW 1/4 NW

GPS LOCATION: Latitude Degrees ____ Minutes ____ Seconds ____ Longitude Degrees ____ Minutes ____ Seconds ____

Numerical Street Address or Fire Number and City of Well or Boring Location: ST AVE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55904

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET
ROCHESTER MN 55904

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Sand	BRN	Medc	0	13
Sand Gravel	BRN	Medc	13	17
Gravel Limestone	BRN	Hard	17	20½

Use a second sheet, if needed

REMARKS ELEVATION, SOURCE OF DATA, etc.

SEALING NO. H258134

Date Sealed 1/4 8-3-07
Depth Before Sealing 20½ ft.
AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer
WELL/BORING ☐ Water Supply Well ☐ Monit.Well ☒ Env.Boring Hole ☐ Other

Date Well or Boring Constructed 6-8-01
STATIC WATER LEVEL ☐ Measured ☐ Estimated ____ ft. ☐ below ☐ above land surface

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other ____

WELLHEAD COMPLETION

OUTSIDE: ☐	Well House ☐	Basement Offset
☐	Pitless Adp ☐	Well Pit
☐	Well Pit ☐	Buried
☐	Buried	

CASING Diameter Depth Set in oversize hole? Annular space initially grouted?
2 in. from 0½ to 3 ft. ☐ Yes ☐ No ☐ Yes ☐ No ☒ Unknown
____ in. from ____ to ____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) ____
Obstructions removed? Yes No Describe ____

PUMP Type ____ ☐ Removed ☒ Not Present ☐ Other ____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator ____
☐ Other ____

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 8 ft. ____ yards 1 bags
____ from ____ to ____ ft. ____ yards ____ bags
____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No Now Many? ____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES, INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258133
Minnesota Unique No. or W-series No. VP #5

WELL OR BORING LOCATION

County Name: OLMSTEAD

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

GPS LOCATION: Latitude Degrees ____ Minutes ____ Seconds ____ Longitude Degrees ____ Minutes ____ Seconds ____

Numerical Street Address or Fire Number and City of Well or Boring Location: 1ST AVENUE SW, ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed: 1/4 20 1/2

Depth Before Sealing: 20 1/2 ft

AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ☐ Monit.Well ☐ Env.Boring Hole ☐ Other

Date Well or Boring Constructed: 5-8-2001

STATIC WATER LEVEL: ☐ Measured ☐ Estimated ____ ft. ☐ below ☐ above land surface

CASING TYPE(S): ☒ Steel ☐ Plastic ☐ Tile ☐ Other ____

WELLHEAD COMPLETION

OUTSIDE:			
☐	Well House	☐	Basement Offset
☐	Pitless Adp	☐	Well Pit
☐	Well Pit	☐	Buried
☐	Buried		

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55904

CASING Diameter / Depth / Set in oversize hole? / Annular space initially grouted?
2 in. from 15 1/2 to 3.65 ft. ☐ Yes ☒ No ☐ Yes ☐ No ☒ Unknown
____ in. from ____ to ____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) ____
Obstructions removed? Yes No Describe ____

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET
ROCHESTER MN 55904

PUMP
Type ____ ☐ Removed ☒ Not Present ☐ Other ____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Clay	BRN	med	0	13
clay/limestone	BRN	med	13	15
limestone	BRN	Hard	15	20 1/2

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Remov
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator ____
☐ Other ____

GROUTING MATERIAL(S)
Grouting Material: Bent from 0 to 8 ft. ____ yards 1
____ from ____ to ____ ft. ____ yards ____
____ from ____ to ____ ft. ____ yards ____

Use a second sheet, if needed

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No How Many? ____

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258133

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258132
Minnesota Unique No. or W-series No. VPHY

WELL OR BORING LOCATION

County Name OLMSTEAD

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

GPS LOCATION Latitude Degrees Minutes Seconds
Latitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
1 ST AVENUE SW ROCHESTER

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed 1/4 8-3-2007

Date Well or Boring Constructed

Depth Before Sealing _____ ft.

AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING ☐ Water Supply Well ☐ Monit.Well ☐ Env.Boring Hole ☐ Other

STATIC WATER LEVEL ☐ Measured ☐ Estimated
_____ ft. ☐ below ☐ above land surface

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

WELLHEAD COMPLETION

OUTSIDE: ☐ Well House ☐ Basement Offset
☐ Pitless Adp ☐ Well Pit
☐ Well Pit ☐ Buried
☐ Buried

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55904

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET
ROCHESTER MN 55904

CASING
Diameter Depth Set in oversize hole? Annular space initially grouted?
2 in. from 0 ft. to 30 ft. ☐ Yes ☒ No ☐ Yes ☐ No ☒ Unknown
_____ in. from _____ ft. to _____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from _____ ft. to _____ ft. Open Hole from _____ ft. to _____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) _____
Obstructions removed? Yes No Describe _____

PUMP
Type _____ ☐ Removed ☒ Not Present ☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Sand	BRN	Med-C	0	13
Sand Silty Sand	BRN	Med-C	13	15
Sandy Siltlimestone	BRN	Hard	15	17
Limestone	BRN	Hard	17	30'

Use a second sheet, if needed

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
_____ in. from _____ ft. to _____ ft. ☐ Perforated ☐ Removed
_____ in. from _____ ft. to _____ ft. ☐ Perforated ☐ Removed
Type of perforator _____
☐ Other _____

GROUTING MATERIAL(S)

Grouting Material				
Bent	from 0 ft. to 6 ft.	_____ yards	13	bag
Bent	from 6 ft. to 8 ft.	_____ yards	1	bag
	from _____ ft. to _____ ft.	_____ yards	_____	bag

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No How Many? _____

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258132

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258131
Minnesota Unique No. or W-series No. 657811

WELL OR BORING LOCATION

County Name: OLMSTEAD

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW 1/4

GPS LOCATION: Latitude Degrees ; Minutes ; Seconds
Latitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location: 219 1ST AVE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed: 8-3-07
Depth Before Sealing: 23 ft.
AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer
WELL/BORING: ☐ Water Supply Well ☒ Monit.Well ☐ Env.Boring Hole ☐ Other
Date Well or Boring Constructed: 1-3-2001
STATIC WATER LEVEL: ☐ Measured ☐ Estimated ____ ft. ☐ below ☐ above land surface

CASING TYPE(S): ☒ Steel ☐ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION

OUTSIDE:	☐	Well House	☐ Basement Offset
	☐	Pitless Adp	☐ Well Pit
	☐	Well Pit	☐ Buried
	☐	Buried	

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55094

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET
ROCHESTER MN 55904

CASING
Diameter Depth Set in oversize hole? Annular space initially grouted?
2 in. from 16 1/2 to 36 53 ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown
____ in. from ____ to ____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.
OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) ____
Obstructions removed? Yes No Describe ____

PUMP
Type ____
☐ Removed ☒ Not Present ☐ Other ____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator ____
☐ Other ____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Sand	BRN	Med C	0	16
Limestone	BRN	Hard	16	23

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 13 1/2 ft. ____ yards 4 bags
____ from ____ to ____ ft. ____ yards ____ bags
____ from ____ to ____ ft. ____ yards ____ bags

Use a second sheet, if needed

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No How Many? ____

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725.
The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258131

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258130
Minnesota Unique No. or W-series No. 657812

WELL OR BORING LOCATION

County Name: OLMSTEAD

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	104	14	2	NW 1/4 NE 1/4 NW 1/4

GPS LOCATION: Latitude Degrees Minutes Seconds; Latitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location: 219 1ST AVENUE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed: 8-3-07

Date Well or Boring Constructed: 1-3-2001

Depth Before Sealing: 33 ft.

AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ☒ Monit.Well ☐ Env.Boring Hole ☐ Other

STATIC WATER LEVEL: ☐ Measured ☐ Estimated ____ ft. ☐ below ☐ above land surface

CASING TYPE(S): ☒ Steel ☐ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION

OUTSIDE: ☐ Well House ☐ Basement Offset ☐ Pitless Adp ☐ Well Pit ☐ Well Pit ☐ Buried ☐ Buried

PROPERTY OWNER'S NAME: CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55904

WELL OWNER'S NAME: CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET
ROCHESTER MN 55904

CASING
Diameter 2 in. from 14 1/2 to 31.53 ft. Set in oversize hole? ☐ Yes ☒ No Annular space initially grouted? ☐ Yes ☐ No ☐ Unknown
____ in. from ____ to ____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☒ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) ____
Obstructions removed? Yes No Describe ____

PUMP
Type ____ ☐ Removed ☒ Not Present ☐ Other ____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Sand Brown	Brown med	Med	0	12
Sand Cobble	Brown	med	12	15
Sand	Brown	Hard	15	17
Limestone	Brown	Hard	17	23

Use a second sheet, if needed

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☒ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator ____
☐ Other ____

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 13 1/2 ft. ____ yards 4 bags
____ from ____ to ____ ft. ____ yards ____ bags
____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No Now Many? ____

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258130

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258129
Minnesota Unique No. or W-series No. 165781C

L OR BORING LOCATION

y Name OLMSTEAD

ship Name	Township No.	Range No.	Section No.	Fraction
HESTER	106	14	2	NW 1/4 NE 1/4 NW 1/4

OCATION Latitude Degrees Minutes Seconds

Latitude Degrees Minutes Seconds

ical Street Address or Fire Number and City of Well or Boring Location
1ST AVENUE SW ROCHESTER 55904

exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

PERTY OWNER'S NAME
Y OF ROCHESTER

perty owner's mailing address if different than well location address indicated above.
1 4TH STREET

HESTER MN 55904

L OWNER'S NAME
TY OF ROCHESTER

l owner's mailing address if different than property owner's address indicated above.
4TH STREET

CHESTER MN 55904

Date Sealed 8-3-07
Date Well or Boring Constructed 01-02-2001

Depth Before Sealing _____ ft.

AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer

STATIC WATER LEVEL ☐ Measured ☐ Estimated
_____ ft. ☐ below ☐ above land surface

WELL/BORING ☐ Water Supply Well ☐ Monit.Well ☐ Env.Boring Hole Other

CASING TYPE(S) ☐ Steel ☐ Plastic ☐ Tile ☐ Other _____

WELLHEAD COMPLETION

OUTSIDE: ☐ Well House ☐ Basement Offset
☐ Pitless Adp ☐ Well Pit
☐ Well Pit ☐ Buried
☐ Buried

CASING Diameter Depth Set in oversize hole? Annular space initially grouted?
2 in. from 16 1/2 to 365 ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown
_____ in. from _____ to _____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) _____
Obstructions removed? Yes No Describe _____

PUMP
Type _____
☐ Removed ☒ Not Present ☐ Other _____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☒ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed
_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed
Type of perforator _____
☐ Other _____

OLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
and	Brown	med	0	8
nd Boulder	Brown	med	8	10
ndy Silty Clay	Brown	med	10	11
Limestone	Brown	Hard	11	33

Use a second sheet, if needed

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 13 1/2 ft. _____ yards 7 bags
_____ from _____ to _____ ft. _____ yards _____ bags
_____ from _____ to _____ ft. _____ yards _____ bags

MARKS, ELEVATION, SOURCE OF DATA, etc.

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☐ No How Many? _____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725.
The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258129

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258124
Minnesota Unique No. or W-series No. 657809

WELL OR BORING LOCATION

County Name OLMSTED

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

GPS LOCATION Latitude Degrees Minutes Seconds
Latitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
19 1ST STREET AVENUE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed 1/4 9-3-07

Date Well or Boring Constructed 1-3-2001

Depth Before Sealing _____ ft.

AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING ☐ Water Supply Well ☐ Monit.Well ☐ Env.Boring Hole Other

STATIC WATER LEVEL ☐ Measured ☐ Estimated
_____ ft. ☐ below ☐ above land surface

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

WELLHEAD COMPLETION

OUTSIDE:	☐	Well House	☐ Basement Offset
	☐	Pitless Adp	☐ Well Pit
	☐	Well Pit	☐ Buried
	☐	Buried	

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET SE

ROCHESTER MN 55904

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in.	from 70 to 84.5 ft.	☐ Yes ☒ No	☐ Yes ☐ No ☒ Unknown
_____ in.	from _____ to _____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐

Screen from 70 to 78 ft. Open Hole from _____ to _____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction

Type of Obstructions (Describe) _____

Obstructions removed? Yes No Describe _____

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET SE

ROCHESTER MN 55904

PUMP
Type _____
☐ Removed ☒ Not Present ☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Sand	Brown	med	0	17
Limestone	Brown	Hard	17	87

Use a second sheet, if needed

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

Type of perforator _____

☐ Other _____

GROUTING MATERIAL(S)

Grouting Material				
Bent	from 0 to 64 ft.	_____ yards	3	bags
_____	from _____ to _____ ft.	_____ yards	_____	bags
_____	from _____ to _____ ft.	_____ yards	_____	bags

REMARKS, ELEVATION, SOURCE OF DATA, etc.

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☐ No How Many? _____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725.
The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258124

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258125
Minnesota Unique No. or W-series No. 651501

WELL OR BORING LOCATION

County Name: OLMSTED

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

Date Sealed: 1/4 8-23-07
Date Well or Boring Constructed: 9-11a-2006

GPS LOCATION: Latitude Degrees Minutes Seconds; Longitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
319 1ST AVENUE SW ROCHESTER 55904

Depth Before Sealing _____ ft.

AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer

STATIC WATER LEVEL: ☐ Measured ☐ Estimated _____ ft. ☐ below ☐ above land surface

WELL/BORING: ☐ Water Supply Well ☒ Monit Well ☐ Env Boring Hole ☐ Other

Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings.

CASING TYPE(S): ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

ATTACHED COMPLETION

OUTSIDE:		Well House	Basement Offset
		Fitless Ado	Well Fit
		Well Pit	Buried
		Buried	

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above
201 4TH STREET SE

ROCHESTER MN 55904

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in.	from 35 to 36.5 ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
_____ in.	from _____ to _____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above
201 4TH STREET SE

ROCHESTER MN 55904

SCREEN/OPEN HOLE ☐ ☐

Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.

OBSTRUCTIONS: ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction

Type of Obstructions (Describe) _____

Obstructions removed? Yes No Describe _____

PUMP

Type _____

☐ Removed ☐ Not Present ☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Alluvial Sand	Blk/Brown	Med	0	3
Weathered Sand	Brown/Wt	Med	3	5
Sand	Brown	Med	5	10
Sand Rocks	Brown	Med+	10	16
Limestone	Tan/Wt	Hard	16	90

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE

☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal

_____ in. from _____ to _____ ft. ☐ Perforated ☒ Removed

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

Type of perforator _____

☐ Other _____

Use a second sheet, if needed

GROUTING MATERIAL(S)

Grouting Material

Bent from 0 to 30 ft. _____ yards 2 bags

_____ from _____ to _____ ft. _____ yards _____ bags

_____ from _____ to _____ ft. _____ yards _____ bags

REMARKS, ELEVATION, SOURCE OF DATA, etc.

OTHER WELLS AND BORINGS

Other unsealed and unused well or boring on property? ☐ Yes ☐ No How Many? _____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4726. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258125

WELL OR BORING LOCATION

County Name OLMSTED

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258126

Minnesota Unique No. or W-series No. 651504

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW 1/4

Date Sealed 8-3-07

Date Well or Boring Constructed 8-14-2000

GPS LOCATION Latitude Degrees Minutes Seconds

Latitude Degrees Minutes Seconds

Depth Before Sealing 24 ft.

AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer

STATIC WATER LEVEL ☐ Measured ☐ Estimated

______ ft. ☐ below ☐ above land surface

Numerical Street Address or Fire Number and City of Well or Boring Location

219 1ST AVENUE SW ROCHESTER 55904

WELL/BORING ☐ Water Supply Well ☒ Monit.Well ☐ Env.Boring Hole Other

Show exact location of well in section grid with "X".

Sketch map of well location, Showing property lines, roads and buildings.

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION

OUTSIDE: ☐ Well House ☐ Basement Offset ☐ Pitless Adp ☐ Well Pit ☐ Well Pit ☐ Buried ☐ Buried

PROPERTY OWNER'S NAME

CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.

201 4TH STREET SE

ROCHESTER MN 55904

CASING

Diameter Depth Set in oversize hole? Annular space initially grouted?

2 in. from 14 to 34.03 ft. ☐ Yes ☒ No ☐ Yes ☐ No ☐ Unknown

____ in. from ____ to ____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☒ Unknown

SCREEN/OPEN HOLE ☐ ☐

Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction

Type of Obstructions (Describe)

Obstructions removed? Yes No Describe

WELL OWNER'S NAME

CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.

201 4TH STREET SE

ROCHESTER MN 55904

PUMP

Type

☐ Removed ☒ Not Present ☐ Other

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
asphault Fill Sand Blk	Brwn	Brw/me	0	2
Clay Sandy Clay	Brwn	med	2	14½
Limestone	Tan wt	hard	14½	27

Use a second sheet, if needed

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE

☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

Type of perforator

☐ Other

GROUTING MATERIAL(S)

Grouting Material	from	to	ft.	yards	bags
Bent	0	11			3

OTHER WELLS AND BORINGS

Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No Now Many?

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860

Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258126

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258127
Minnesota Unique No. or W-series No. 651503

WELL OR BORING LOCATION

County Name: OLMSTED

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

GPS LOCATION Latitude Degrees Minutes Seconds

Latitude Degrees Minutes Seconds

Numerical Street Address or Fire Number and City of Well or Boring Location
219 1ST AVENUE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed 1/4 9-3-07

Date Well or Boring Constructed 8-4-2006

Depth Before Sealing 23 ft.

AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING ☐ Water Supply Well ☑ Monit.Well ☐ Env.Boring Hole ☐ Other

STATIC WATER LEVEL ☐ Measured ☐ Estimated
_____ ft. ☐ below ☐ above land surface

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other

WELLHEAD COMPLETION

OUTSIDE:	☐	Well House	☐ Basement Offset
	☐	Pitless Adp	☐ Well Pit
	☐	Well Pit	☐ Buried
	☐	Buried	

PROPERTY OWNER'S NAME
CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET SE

ROCHESTER MN 55904

WELL OWNER'S NAME
CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET SE

ROCHESTER MN 55904

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
4 in.	from 13 to 3.6523 ft.	☐ Yes ☒ No	☐ Yes ☐ No ☒ Unknown
_____ in.	from _____ to _____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐

Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction

Type of Obstructions (Describe) _____

Obstructions removed? Yes No Describe _____

PUMP
Type _____
☐ Removed ☒ Not Present ☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Asphalt/Sand	Brown	Med	0	14
Limestone	Tan/Wht	Hard	14	23

Use a second sheet, if needed

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

Type of perforator _____

☐ Other _____

GROUTING MATERIAL(S)

Grouting Material

Bent	from 0 to 16 ft.	_____ yards	1	bags
_____	from _____ to _____ ft.	_____ yards	_____	bags
_____	from _____ to _____ ft.	_____ yards	_____	bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No Now Many? _____

REMARKS, ELEVATION, SOURCE OF DATA, etc.

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

SEALING NO. H258127

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258128
Minnesota Unique No. or W-series No. 651502

WELL OR BORING LOCATION
County Name: OLMSTED
Township Name: ROCHESTER | Township No.: 106 | Range No.: 14 | Section No.: 2 | Fraction: NW 1/4 NE 1/4 NW
GPS LOCATION: Latitude Degrees Minutes Seconds; Longitude Degrees Minutes Seconds
Numerical Street Address or Fire Number and City of Well or Boring Location: 219 1ST AVE SW ROCHESTER 55904

Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed: 1/4 8-3-07
Date Well or Boring Constructed:
Depth Before Sealing _____ ft.
AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer
WELL/BORING: ☐ Water Supply Well ☑ Monit.Well ☐ Env.Boring Hole ☐ Other
STATIC WATER LEVEL: ☐ Measured ☐ Estimated _____ ft. ☐ below ☐ above land surface
CASING TYPE(S): ☑ Steel ☐ Plastic ☐ Tile ☐ Other _____

PROPERTY OWNER'S NAME: CITY OF ROCHESTER
Property owner's mailing address if different than well location address indicated above: 201 4TH STREET SE
ROCHESTER

WELL OWNER'S NAME: CITY OF ROCHESTER
Well owner's mailing address if different than property owner's address indicated above: 201 4TH STREET SE
ROCHESTER MN 55904

WELLHEAD COMPLETION

OUTSIDE:		Well House	Basement Offset
		Pitless Adp	Well Pit
		Well Pit	Buried
		Buried	

CASING
Diameter | Depth | Set in oversize hole? | Annular space initially grouted?
2 in. from 14 to 3.1.53 ft. ☐ Yes ☑ No ☐ Yes ☐ No ☑ Unknown
_____ in. from _____ to _____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.
OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) _____
Obstructions removed? Yes No Describe _____

PUMP
Type _____
☐ Removed ☑ Not Present ☐ Other _____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforated/Removed
_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed
_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed
Type of perforator _____
☐ Other _____

GROUTING MATERIAL(S)
Grouting Material
Bent. from 0 to 11 ft. _____ yards 1 bags
_____ from _____ to _____ ft. _____ yards _____ bags
_____ from _____ to _____ ft. _____ yards _____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☐ No How Many? _____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION
This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725.
The information contained in this report is true to the best of my knowledge.
BAROTT DRILLING SERVICES, INC. 1868
Contractor Business Name — Lic. or Reg. No.
Authorized Representative Signature — Date
Name of Person Sealing Well or Boring

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Asphalt/Sand	Blk/Brn	med	0	3
Sandy Clay/Sand	Brn/Gry	med	3	5
Sand	Brown	med.	5	10
Sand/Rocks	Brown	med-h	10	16
Limestone	Tan/Gray	hard	16	31

Use a second sheet, if needed

REMARKS, ELEVATION, SOURCE OF DATA, etc.

SEALING NO. H258128

ELL OR BORING LOCATION

unty Name OLMSTED

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258123
Minnesota Unique No. or W-series No. 643537

vnship Name	Township No.	Range No.	Section No.	Fraction
CHESTER	106	14	2	NW 1/4 NE 1/4 NW 1/4

S LOCATION Latitude Degrees Minutes Seconds

Latitude Degrees Minutes Seconds

herical Street Address or Fire Number and City of Well or Boring Location
1ST AVENUE SW ROCHESTER 55904

w exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed 8-3-07

Date Well or Boring Constructed 5-31-2007

Depth Before Sealing _____ ft.

AQUIFER(S) ☐ Single Aquifer ☐ Multiaquifer

STATIC WATER LEVEL ☐ Measured ☐ Estimated

WELL/BORING ☐ Water Supply Well ☒ Monit.Well ☐ Env.Boring Hole Other

_____ ft. ☐ below ☐ above land surface

CASING TYPE(S) ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

WELLHEAD COMPLETION

OUTSIDE:	☐	Well House	☐ Basement Offset
	☐	Pitless Adp	☐ Well Pit
	☐	Well Pit	☐ Buried
	☐	Buried	

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in.	from 33 1/2 ft. to 3.65 ft.	☐ Yes ☒ No	☐ Yes ☐ No ☐ Unknown
_____ in.	from _____ ft. to _____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐

Screen from _____ to _____ ft. Open Hole from 4 1/2 to 32 1/2 ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction

Type of Obstructions (Describe) _____

Obstructions removed? Yes No Describe _____

PUMP

Type _____

☐ Removed ☒ Not Present ☐ Other _____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE

☐ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

_____ in. from _____ to _____ ft. ☐ Perforated ☐ Removed

Type of perforator _____

☐ Other _____

GROUTING MATERIAL(S)

Grouting Material					
Bent	from 0	to 19 ft.	_____ yards	2 bags	
_____	from _____	to _____ ft.	_____ yards	_____ bags	
_____	from _____	to _____ ft.	_____ yards	_____ bags	

OTHER WELLS AND BORINGS

Other unsealed and unused well or boring on proterty? ☐ Yes ☐ No Now Many? _____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES, INC. 1860

Contractor Business Name Lic. or Reg. No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

PERTY OWNER'S NAME
TY OF ROCHESTER

perty owner's mailing address if different than well location address indicated above.
1 4TH STREET SE

CHESTER MN 55904

L OWNER'S NAME
TY OF ROCHESTER

l owner's mailing address if different than property owner's address indicated above.
L 4TH STREET SE

CHESTER MN 55904

OLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
and fill	Brown	med-c	0	13
and	Brown	med F	13	15
and Dolomite	Brown	med-l	15	18
imestone	Brown	Hard	18	32 1/2

Use a second sheet, if needed

ARKS, ELEVATION, SOURCE OF DATA, etc.

EALING NO. H258123

Recover well

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes Chapter 1031

Minnesota Well and Boring Sealing No. H258121
Minnesota Unique No. or W-series No. 735213

WELL OR BORING LOCATION

County Name: OLMSTED

Township Name	Township No.	Range No.	Section No.	Fraction
ROCHESTER	106	14	2	NW 1/4 NE 1/4 NW

GPS LOCATION: Latitude Degrees ____ Minutes ____ Seconds ____ Longitude Degrees ____ Minutes ____ Seconds ____

Numerical Street Address or Fire Number and City of Well or Boring Location: 219 1ST AVENUE SW ROCHESTER 55904

Show exact location of well in section grid with "X".

Sketch map of well location. Showing property lines, roads and buildings.

Date Sealed: 1/4 8/03/07

Date Well or Boring Constructed: 11/10/05

Depth Before Sealing _____ ft.

AQUIFER(S): ☐ Single Aquifer ☐ Multiaquifer

WELL/BORING: ☐ Water Supply Well ☐ Monit.Well ☐ Env.Boring Hole Other

STATIC WATER LEVEL: ☐ Measured ☐ Estimated ____ ft. ☐ below ☐ above land surface

CASING TYPE(S): ☒ Steel ☐ Plastic ☐ Tile ☐ Other _____

WELLHEAD COMPLETION

OUTSIDE: ☐ Well House ☐ Basement Offset ☐ Pitless Adp ☐ Well Pit ☐ Well Pit ☐ Buried ☐ Buried

PROPERTY OWNER'S NAME: CITY OF ROCHESTER

Property owner's mailing address if different than well location address indicated above.
201 4TH STREET
ROCHESTER MN 55904

WELL OWNER'S NAME: CITY OF ROCHESTER

Well owner's mailing address if different than property owner's address indicated above.
201 4TH STREET SE
ROCHESTER MN 55904

CASING
Diameter Depth
4 in. from 0 to ____ ft. ☐ Yes ☐ No Set in oversize hole? ☐ Yes ☐ No Annular space initially grouted? ☒ Unknown
____ in. from ____ to ____ ft. ☐ Yes ☐ No ☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE ☐ ☐
Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTIONS ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ☐ No Obstruction
Type of Obstructions (Describe) _____
Obstructions removed? Yes No Describe _____

PUMP
Type _____ ☐ Removed ☐ Not Present ☐ Other _____

GEOLOGICAL MATERIALS	COLOR	HARDNESS	FROM	TO
Clay	Brown	med	0	15
Limestone	Brown	med	15	17
Limestone	Brown	Hard	17	30

Use a second sheet, if needed

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE
☒ No Annular Space Exists ☐ Annular Space grouted with tremie pipe ☐ Casing Perforation/Removal
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed
Type of perforator _____
☐ Other _____

GROUTING MATERIAL(S)
Grouting Material
Bent from 0 to 10 ft. ____ yards 3 bags
____ from ____ to ____ ft. ____ yards ____ bags
____ from ____ to ____ ft. ____ yards ____ bags

OTHER WELLS AND BORINGS
Other unsealed and unused well or boring on property? ☐ Yes ☐ No How Many? ____

REMARKS, ELEVATION, SOURCE OF DATA, etc:
Rw# 1

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

BAROTT DRILLING SERVICES,INC. 1860
Contractor Business Name Lic. or Reg No.

Authorized Representative Signature Date

Name of Person Sealing Well or Boring

dpa

SEALING NO. H258121

FAX TRANSMITTAL COVER SHEET

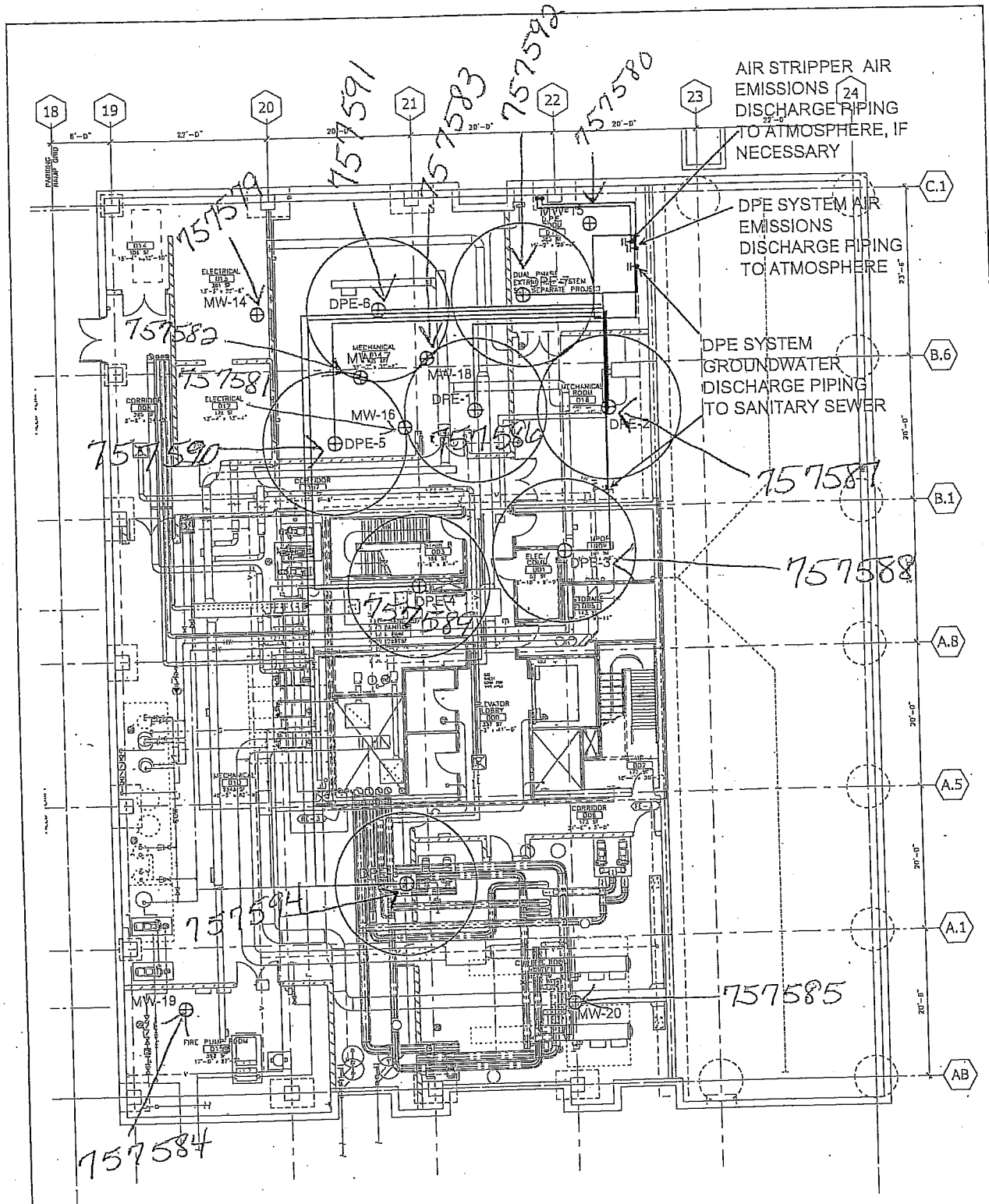
Date	*08/23/2007*
To	JASON KRAMSTAD
Company	
Phone	
Fax #	952-887-9605
From	LYNN
Company	BAROTT DRILLING SERVICES, INC.
Phone	651-484-0198
Fax #	651-484-0465
# OF PAGES	17

Message

JASON : HERE ARE THE WELL LOGS FOR THE CITY OF ROCHESTER, CALL ME WITH ANY QUESTIONS. THANKS LYNN 651-484-0198

Appendix D

Well Permits and Well Records



1 BASEMENT FLOOR PLAN
1/8"=1'-0"

LEGEND

N

20 feet
SCALE

⊕ Proposed DPE or Monitoring Well Location

Proposed DPE Piping Location

As built

NOTES:

1. DPE system piping shall be installed above the basement slab from the DPE wellheads to the basement ceiling. At the basement ceiling the horizontal DPE system piping from each of the wells shall slope downward towards the DPE system location.
2. The DPE system piping from the DPE wellheads shall consist of 2-inch SCH 80 PVC pipe.
3. The DPE piping shall be installed and pressure tested as described in the technical specifications and proposed drawings.
4. The DPE wells and horizontal piping shall be installed as shown on the proposed drawings.
5. The DPE system equipment and manifold shall be discharged to the sanitary sewer. A groundwater treatment system may be required based on system start-up sampling analytical results.
6. Groundwater generated from the DPE system shall be discharged to the sanitary sewer. A groundwater treatment system may be required based on system start-up sampling analytical results.
7. DPE exhaust emissions shall be discharged to the atmosphere through riser piping that exits the building through the proposed building's west wall of the second level ceiling. Air emissions treatment may be required based on system start-up analytical results.

Rev	Date	By	Description
1	8/30/07	JS	design mods.

LANDMARK

DUAL PHASE EXTRACTION SYSTEM PIPING

Landmark Project Number: CRC

Drawn: JDS | Checked: JDS | Designed: JDS

A+P (Landmark Env)

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO. 757586

WELL OR BORING LOCATION

County Name: Olmsted

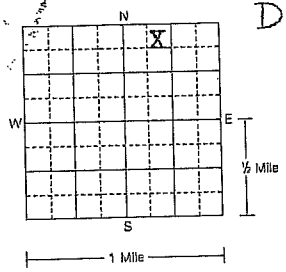
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE¼ NE¼ NE¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X."



DPE-1

see attached map

Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.

PROPERTY OWNER'S NAME/COMPANY NAME: City of Rochester

Property owner's mailing address if different than well location address indicated above.

201 4th St SE
Rochester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of ROchester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
top soil	brown		0	4
bedrock	tan		4	19

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS 757586

WELL/BORING DEPTH (completed): 19 ft. DATE WORK COMPLETED: Feb. 7, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Auger ☒ sonic ☐ Driven ☐ Rotary ☐ Dug ☐ Jetted

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Noncommunity PWS ☐ Community PWS ☐ Elevator ☐ Monitoring ☐ Environ. Bore Hole ☐ Irrigation ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 7 ft.	____ lbs./ft.	____	8¼ in. to 19 ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.

SCREEN: Make Johnson; Type SS; Slot/Gauze 10; Set between 7 ft. and 19 ft.

OPEN HOLE: From ____ ft. To ____ ft.

Diam. 4"; Length 12'; FITTINGS thread

STATIC WATER LEVEL: 12 ft. ☒ Below ☐ Above land surface Measured from grade Date measured 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION: ☐ Pitless/adapter manufacturer ____ Model ____

☒ Casing Protection 8" x 4' ☒ 12 in. above grade

☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION: Well grouted ☒ Yes ☐ No

Grout materials ☒ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand

Neat Cement	From 0 ft.	To 4.5 ft.	1 1/2	☐ Yds.	☒ Bags
Silica Sand	From 4.5 ft.	To 5 ft.	1/2	☐ Yds.	☒ Bags
	From ____ ft.	To ____ ft.	____	☐ Yds.	☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP: ☒ Not installed Date installed ____

Manufacturer's name ____

Model Number ____ HP ____ Volts ____

Length of drop pipe ____ ft. Capacity ____ g.p.m.

Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS: Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE: Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name Lic. or Reg. No.

Certified Representative Signature 86654 Certified Rep. No. 3/20/08 Date

Mat White

MINNESOTA UNIQUE WELL AND BORING NO.

757587

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

WELL OR BORING LOCATION

County Name: Olmsted

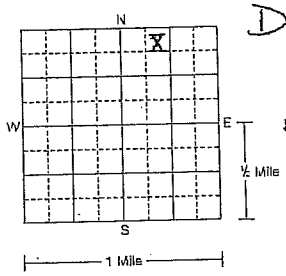
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE ¼ NW ¼ NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X." Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.



DPE-2

see attached map

PROPERTY OWNER'S NAME/COMPANY NAME: City of ROchester

Property owner's mailing address if different than well location address indicated above.

201 4th St. SE
ROchester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of Rochester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	2
bedrock	tan		2	19

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS 757587

WELL/BORING DEPTH (completed): 19 ft.

DATE WORK COMPLETED: Feb. 8, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Auger ☒ sonic ☐ Driven ☐ Rotary ☐ Dug ☐ Jetted

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Noncommunity PWS ☐ Community PWS ☐ Elevator ☐ Monitoring ☐ Environ. Bore Hole ☐ Irrigation ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic

Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded ☐ ____

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 7 ft.	____ lbs./ft.	____	8½ in. to 19 ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.

SCREEN: Make Johnson; Type SS; Slot/Gauze 10; Set between 7 ft. and 19 ft.

OPEN HOLE: From ____ ft. To ____ ft.; Diam. 4"; Length 12'; FITTINGS thread

STATIC WATER LEVEL: 13.41 ft. ☒ Below ☐ Above land surface; Measured from grade; Date measured 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION: ☐ Pitless/adapter manufacturer ____ Model ____; ☒ Casing Protection 8" x 4'; ☒ 12 in. above grade; ☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION: Well grouted ☒ Yes ☐ No; Grout materials ☑ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand

Neat cement	From 0 ft. To 4.5 ft.	1½	☐ Yds.	☒ Bags
Silica Sand	From 4.5 ft. To 5 ft.	½	☐ Yds.	☒ Bags
	From ____ ft. To ____ ft.	____	☐ Yds.	☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP: ☒ Not installed Date installed ____

Manufacturer's name ____

Model Number ____ HP ____ Volts ____

Length of drop pipe ____ ft. Capacity ____ g.p.m.

Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS: Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE: Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name Lic. or Reg. No.

Certified Representative Signature 86654 Certified Rep. No. 3/20/08 Date

Mat White

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO.: 757588

WELL OR BORING LOCATION

County Name: Olmsted

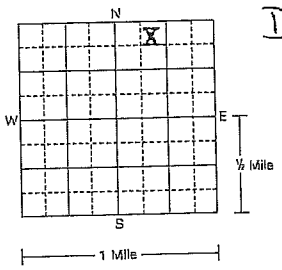
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE NW, NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X."



DPE-3

see attached map

Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.

PROPERTY OWNER'S NAME/COMPANY NAME: City of ROchester

Property owner's mailing address if different than well location address indicated above.

201 4th St. SE
Rochester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of Rochester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	1.5
bedrock	tan		1.5	16

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS 757588

WELL/BORING DEPTH (completed): 16 ft. DATE WORK COMPLETED: Feb. 7, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☐ Auger ☐ Rotary ☐ Jetted ☒ sonic

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Monitoring ☐ Heating/Cooling ☐ Noncommunity PWS ☐ Environ. Bore Hole ☐ Industry/Commercial ☐ Community PWS ☐ Irrigation ☐ Remedial ☐ Elevator ☐ Dewatering ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded ☐ ____

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 4 ft.	____ lbs./ft.	____	8¼ in. to 16 ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.

SCREEN: Make Johnson; Type SS; Slot/Gauze 10; Set between 4 ft. and 16 ft.; Diam. 4"; Length 12'; FITTINGS thread

OPEN HOLE: From ____ ft. To ____ ft.

STATIC WATER LEVEL: 8.51 ft. ☒ Below ☐ Above land surface Measured from Grade Date measured 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION: ☐ Pitless/adapter manufacturer ____ Model ____ ☒ Casing Protection 8" x 2' ☒ 12 in. above grade ☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION: Well grouted ☒ Yes ☐ No Grout materials ☒ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand

Neat cement	From 0	To @ 3 ft.	1	☐ Yds. ☒ Bags
Silica Sand	From 3	To 3.5 ft.	1/2	☐ Yds. ☒ Bags
	From ____	To ____ ft.	____	☐ Yds. ☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP: ☒ Not installed Date installed ____ Manufacturer's name ____ Model Number ____ HP ____ Volts ____ Length of drop pipe ____ ft. Capacity ____ g.p.m. Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS: Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE: Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name Lic. or Reg. No.

Certified Representative Signature 86654 Certified Rep. No. 3/20/08 Date

Mat White

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO. 757589

WELL OR BORING LOCATION

County Name: Olmsted

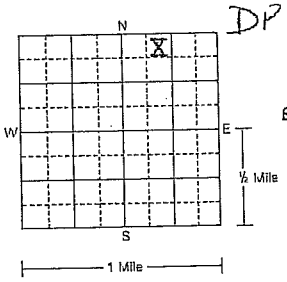
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE ¼ NW ¼ NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X." DPE-4



see attached map

Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.

PROPERTY OWNER'S NAME/COMPANY NAME: City of Rochester

Property owner's mailing address if different than well location address indicated above.

201 4th St SE
ROchester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of Rochester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	2
Bedrock	tan		2	17

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS 757589

WELL/BORING DEPTH (completed): 17 ft.

DATE WORK COMPLETED: Feb. 9, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Auger ☒ sonic ☐ Driven ☐ Rotary ☐ Dug ☐ Jetted

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Noncommunity PWS ☐ Community PWS ☐ Elevator ☐ Monitoring ☐ Environ. Bore Hole ☐ Irrigation ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic — Drive Shoe? ☐ Yes ☒ No — ☒ Threaded ☐ Welded ☐ ____

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 5 ft.	____ lbs./ft.		8¼ in. to 17 ft.
____ in. to ____ ft.	____ lbs./ft.		____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.		____ in. to ____ ft.

SCREEN
Make: Johnson
Type: SS — Diam.: 4"
Slot/Gauze: 10 — Length: 12'
Set between: 5 ft. and 17 ft. — FITTINGS:

OPEN HOLE: From ____ ft. To ____ ft.

STATIC WATER LEVEL: 13.10 ft. ☒ Below ☐ Above land surface — Measured from: grade — Date measured: 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION
☐ Pitless/adapter manufacturer ____ Model ____
☒ Casing Protection: 8" x 3' ☒ 12 in. above grade
☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION
Well grouted ☒ Yes ☐ No
Grout materials ☒ Neat cement ☐ Bentonite ☐ Concrete ☒ Other: Silica Sand

Neat Cement	From 0 ft.	To 2.5 ft.	1	☐ Yds.	☒ Bags
Silica Sand	From 2.5 ft.	To 3 ft.	½	☐ Yds.	☒ Bags
	From ____ ft.	To ____ ft.	____	☐ Yds.	☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP
☒ Not installed Date installed ____
Manufacturer's name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft. Capacity ____ g.p.m.
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE
Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name — Lic. or Reg. No.

Certified Representative Signature — 86654 — Certified Rep. No. — 3/20/08 Date

Mat White

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO.

757590

WELL OR BORING LOCATION

County Name: Olmsted

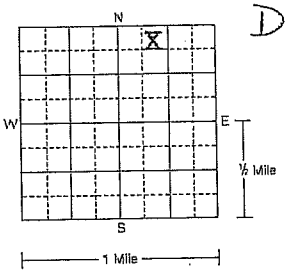
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE ¼ NW ¼ NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X." Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.



DPE-5

see attached map

PROPERTY OWNER'S NAME/COMPANY NAME: City of Rochester

Property owner's mailing address if different than well location address indicated above.
201 4th St SE
Rochester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of ROchester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	1.5
bedrock	tan		1.5	15

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS WELL OWNER COPY 757590

WELL/BORING DEPTH (completed): 15 ft. DATE WORK COMPLETED: Feb. 9, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☐ Auger ☐ Rotary ☐ Jetted ☒ sonic

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Monitoring ☐ Heating/Cooling ☐ Noncommunity PWS ☐ Environ. Bore Hole ☐ Industry/Commercial ☐ Community PWS ☐ Irrigation ☐ Remedial ☐ Elevator ☐ Dewatering ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded ☐ ____

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 5 ft.	____ lbs./ft.	____	8½ in. to 15 ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.

SCREEN: Make Johnson; Type SS; Slot/Gauze 10; Set between 5 ft. and 15 ft.; Diam. 4"; Length 10'; FITTINGS thread

OPEN HOLE: From ____ ft. To ____ ft.

STATIC WATER LEVEL: 10.31 ft. ☒ Below ☐ Above land surface Measured from gradl Date measured 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION: ☐ Pitless/adapter manufacturer ____ Model ____ ☒ Casing Protection 8" x 3' ☒ 12 in. above grade ☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION: Well grouted ☒ Yes ☐ No

Grout materials				
☐ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand				
Neat Cement	From 0 To 3 ft.	1	☐ Yds. ☒ Bags	
Silica Sand	From 3 To 3.5 ft.	1/2	☐ Yds. ☒ Bags	
	From ____ To ____ ft.	____	☐ Yds. ☐ Bags	

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP: ☒ Not installed Date installed ____

Manufacturer's name ____

Model Number ____ HP ____ Volts ____

Length of drop pipe ____ ft. Capacity ____ g.p.m.

Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS: Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE: Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name Lic. or Reg. No.

Certified Representative Signature 86654 Certified Rep. No. 3/20/08 Date

Mat White

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO. 757591

WELL OR BORING LOCATION

County Name: Olmsted

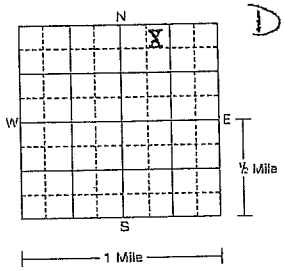
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE NW¼ NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st AVe, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X."



DPE-6

see attached map

Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.

PROPERTY OWNER'S NAME/COMPANY NAME: City of Rochester

Property owner's mailing address if different than well location address indicated above.
201 4th St SE
Rochester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of Rochester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	2
bedrock	tan		2	17

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS 757591

WELL/BORING DEPTH (completed): 17 ft. DATE WORK COMPLETED: Feb. 10, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Auger ☒ sonic ☐ Driven ☐ Rotary ☐ Dug ☐ Jetted

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Noncommunity PWS ☐ Community PWS ☐ Elevator ☐ Monitoring ☐ Environ. Bore Hole ☐ Irrigation ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic — Drive Shoe? ☐ Yes ☒ No — ☒ Threaded ☐ Welded

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 5 ft.	____ lbs./ft.	____	8¼ in. to 17 ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.

SCREEN — Make: Johnson — Type: SS — Slot/Gauze: 10 — Set between: 5 ft. and 17 ft. — Diam.: 4" — Length: 12' — FITTINGS: thread

OPEN HOLE: From ____ ft. To ____ ft.

STATIC WATER LEVEL: 11.74 ft. ☒ Below ☐ Above land surface — Measured from: grade — Date measured: 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION: ☐ Pitless/adapter manufacturer ____ Model ____ ☒ Casing Protection 8" x 3' ☒ 12 in. above grade ☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION: Well grouted ☒ Yes ☐ No — Grout materials ☒ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand

Neat Cement	From 0 ft.	To 4 ft.	1	☐ Yds. ☒ Bags
Silica Sand	From 4 ft.	To 4.5 ft.	1/2	☐ Yds. ☒ Bags
	From ____ ft.	To ____ ft.	____	☐ Yds. ☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP: ☒ Not installed Date installed ____ Manufacturer's name ____ Model Number ____ HP ____ Volts ____ Length of drop pipe ____ ft. Capacity ____ g.p.m. Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS: Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE: Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name, Lic. or Reg. No.

Certified Representative Signature: [signature] 86654 Certified Rep. No. 3/20/08 Date

Jason Drabek

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO. 757592

WELL OR BORING LOCATION

County Name: Olmsted

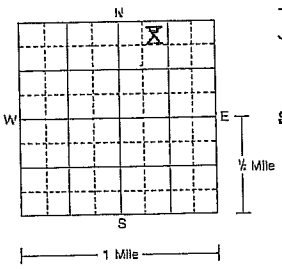
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE NW¼ NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X." Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.



DPE-7

see attached map

PROPERTY OWNER'S NAME/COMPANY NAME: City of Rochester

Property owner's mailing address if different than well location address indicated above.

201 4th St SE
Rochester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of ROchester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	2
Bedrock	tan		2	16

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

IMPORTANT - FILE WITH PROPERTY PAPERS 757592

WELL/BORING DEPTH (completed): 16 ft. DATE WORK COMPLETED: Feb. 8, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☐ Auger ☐ Rotary ☐ Jetted ☒ sonic

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Monitoring ☐ Heating/Cooling ☐ Noncommunity PWS ☐ Environ. Bore Hole ☐ Industry/Commercial ☐ Community PWS ☐ Irrigation ☐ Remedial ☐ Elevator ☐ Dewatering ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic — Drive Shoe? ☐ Yes ☒ No — ☒ Threaded ☐ Welded ☐ ____

HOLE DIAM.

CASING Diameter	Weight	Specifications	HOLE DIAM.
4 in. to 4 ft.	____ lbs./ft.	____	8¼ in. to 16 ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____	____ in. to ____ ft.

SCREEN — OPEN HOLE From ____ ft. To ____ ft.

Make: Johnson
Type: SS — Diam.: 4"
Slot/Gauze: 10 — Length: 12'
Set between: 4 ft. and 16 ft. — FITTINGS: thread

STATIC WATER LEVEL: 12.59 ft. ☒ Below ☐ Above land surface — Measured from: grade — Date measured: 3-18-08

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION
☐ Pitless/adapter manufacturer ____ Model ____
☒ Casing Protection 8" x 2' ☒ 12 in. above grade
☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION
Well grouted: ☒ Yes ☐ No
Grout materials: ☒ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand

Neat Cement	From 0	To 3 ft.	1	☐ Yds. ☒ Bags
Silica Sand	From 3	To 3½ ft.	½	☐ Yds. ☒ Bags
	From ____	To ____ ft.	____	☐ Yds. ☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP
☒ Not installed Date installed ____
Manufacturer's name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft. Capacity ____ g.p.m.
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE
Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name — Lic. or Reg. No.

Certified Representative Signature — 86654 Certified Rep. No. — 3/20/08 Date

Mat White

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO. 757594

WELL OR BORING LOCATION

County Name: Olmsted

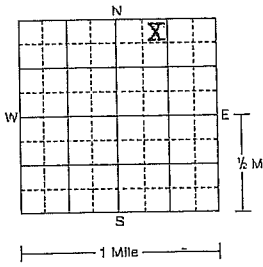
Township Name	Township No.	Range No.	Section No.	Fraction
Rochester	106N	14W	2	NE NW¼ NE ¼

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: 221 SW 1st Ave, Rochester

or Fire Number:

Show exact location of well/boring in section grid with "X." Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.



DPE-8

see attached mpp

PROPERTY OWNER'S NAME/COMPANY NAME: City of ROchester

Property owner's mailing address if different than well location address indicated above.

201 4th St. SE
Rochester, MN 55904

WELL OWNER'S NAME/COMPANY NAME: City of Rochester

Well/boring owner's mailing address if different than property owner's address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
sand	brown		0	1.5
bedrock	tan		1.5	16

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

WELL/BORING DEPTH (completed): 14.5 ft. DATE WORK COMPLETED: Feb. 13, 2008

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☐ Auger ☐ Rotary ☐ Jetted ☒ sonic

DRILLING FLUID: water

WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☐ Monitoring ☐ Heating/Cooling ☐ Noncommunity PWS ☐ Environ. Bore Hole ☐ Industry/Commercial ☐ Community PWS ☐ Irrigation ☐ Remedial ☐ Elevator ☐ Dewatering ☒ DPE

CASING MATERIAL: ☒ Steel ☐ Plastic Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded

CASING Diameter 2.5 Weight Specifications

4 in. to XXX ft. ____ lbs./ft. ____

____ in. to ____ ft. ____ lbs./ft. ____

____ in. to ____ ft. ____ lbs./ft. ____

HOLE DIAM.

8¼ in. to 16 ft.

____ in. to ____ ft.

____ in. to ____ ft.

SCREEN Make Johnson Type SS Slot/Gauze 10 Set between 2.5 ft. and 14.5 ft.

OPEN HOLE From ____ ft. To ____ ft. Diam. 4" Length 12' FITTINGS ____

STATIC WATER LEVEL 11.48 ft. ☒ Below ☐ Above land surface Measured from grade Date measured 3-18-08

PUMPING LEVEL (below land surface) ____ ft. after ____ hrs. pumping ____ g.p.m.

WELLHEAD COMPLETION

☐ Pitless/adapter manufacturer ____ Model ____

☒ Casing Protection 8" x 1' ☒ 12 in. above grade

☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION

Well grouted ☒ Yes ☐ No

Grout materials ☒ Neat cement ☐ Bentonite ☐ Concrete ☒ Other Silica Sand

Neat Cement From 0 To 1.5 1/2 ☐ Yds. ☒ Bags

Silica Sand From 1.5 To 2 ft. 1/2 ☐ Yds. ☒ Bags

From ____ To ____ ft. ____ ☐ Yds. ☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP

☒ Not installed Date installed ____

Manufacturer's name ____

Model Number ____ HP ____ Volts ____

Length of drop pipe ____ ft. Capacity ____ g.p.m.

Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE

Was a variance granted from the MDH for this well? ☒ Yes ☐ No TN# 4216

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255

Licensee Business Name Lic. or Reg. No.

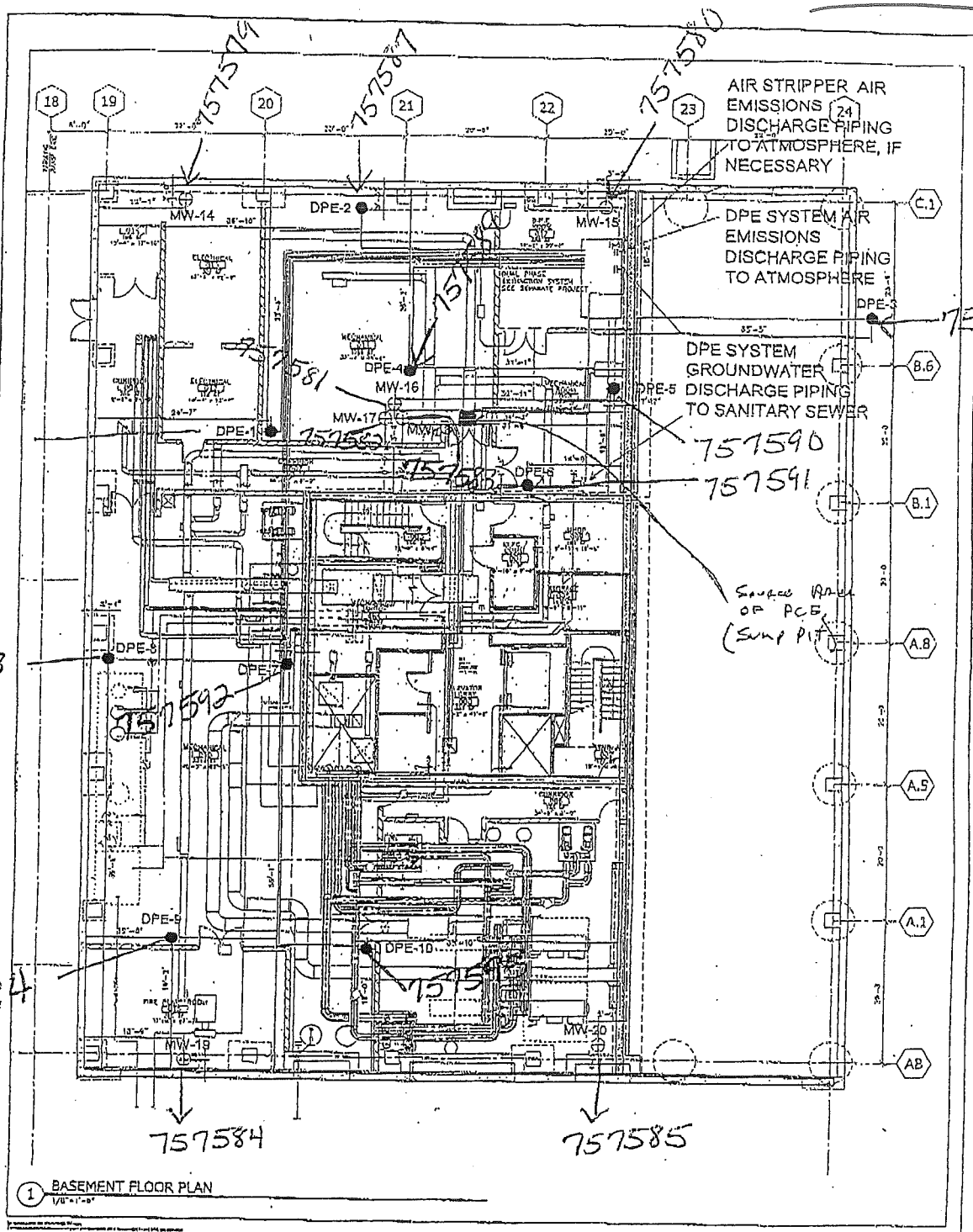
Certified Representative Signature 86654 3/20/08

Certified Rep. No. Date

Jason Drabek

IMPORTANT - FILE WITH PROPERTY PAPERS WELL OWNER COPY 757594

PROPOSED LOCATIONS



1 BASEMENT FLOOR PLAN
1/8"=1'-0"

NOTES:

1. DPE system piping shall be installed above the basement slab from the DPE wellheads to the basement ceiling. At the basement ceiling the horizontal DPE system piping from each of the wells shall slope downward towards the DPE system location.
2. The DPE system piping from the DPE wellheads shall consist of 2-inch SCH 80 PVC pipe.
3. The DPE piping shall be installed and pressure tested as described in the approved specifications and proposed drawings.
4. The DPE wells and horizontal piping shall be installed as shown on the proposed drawings.
5. The DPE system equipment and manifold shall be installed as shown on the proposed drawings.
6. Groundwater generated from the DPE system shall be discharged to the sanitary sewer. A groundwater treatment system may be required based on system startup sampling analytical results.
7. DPE exhaust emissions shall be discharged to the atmosphere through new piping that exits the building through the penetration in the west wall of the second level ceiling. Air emissions treatment may be required based on system start-up analytical results.

LEGEND

- DPE-1 Proposed DPE Well Location
- MW-14 Proposed Monitoring Well Location
- Proposed DPE Piping Location
- Foundation Mat Slab
- Foundation Walls

N

20 feet
SCALE

Rev	Date	By	Description
1	7/26/07	JS	design mods.
2	8/06/07	JS	design mods.
3	9/30/07	JS	design mods.
4	9/25/07	JS	CP2 ADD2
5	12/5/07	JS	Bid Docs

LANDMARK ENVIRONMENTAL LLC
2042 West 94th Street
Bloomington, MN 55431

BASEMENT FLOOR - DUAL PHASE EXTRACTION SYSTEM LAYOUT

219 AND 223 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: ERC
Drawn: JDS | Checked: | Designed: JDS
Scale: NONE | Date: 9/25/2007 | Revisions: 4
Drawing Number: | Sheet 01 .1 | Sheets 7

JAN 2008
RECEIVED
WELL MGT.

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0021W
Well Type:	Remedial	**MN Unique Well #**	757594
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

PERMIT TO CONSTRUCT A REMEDIAL WELL FOR THE CITY OF ROCHESTER

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0019W
Well Type:	Remedial	**MN Unique Well #**	757592
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

PERMIT TO CONSTRUCT A REMEDIAL WELL FOR THE CITY OF ROCHESTER

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0020W
Well Type:	Remedial	**MN Unique Well #**	757593
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

PERMIT TO CONSTRUCT A REMEDIAL WELL FOR THE CITY OF ROCHESTER

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR

STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0018W
Well Type:	Remedial	**MN Unique Well #**	757591
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

PERMIT TO CONSTRUCT A REMEDIAL WELL FOR THE CITY OF ROCHESTER

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0017W
Well Type:	Remedial	**MN Unique Well #**	757590
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

PERMIT TO CONSTRUCT A REMEDIAL WELL FOR THE CITY OF ROCHESTER

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0016W
Well Type:	Remedial	**MN Unique Well #**	757589
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

PERMIT TO CONTRUCT A REMEDIAL WELL FOR THE CITY OF ROCHESTER

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR

STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

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COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0015W
Well Type:	Remedial	**MN Unique Well #**	757588
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

Permit to Construct a Remedial Well for the City of Rochester

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

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COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0014W
Well Type:	Remedial	**MN Unique Well #**	757587
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0013W
Well Type:	Remedial	**MN Unique Well #**	757586
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

New Water Well for the City of Rochester

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0012W
Well Type:	Monitoring	**MN Unique Well #**	757585
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

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WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0011W
Well Type:	Monitoring	**MN Unique Well #**	757584
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0010W
Well Type:	Monitoring	**MN Unique Well #**	757583
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0009W
Well Type:	Monitoring	**MN Unique Well #**	757582
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0008W
Well Type:	Monitoring	**MN Unique Well #**	757581
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

COUNTY OF Olmsted

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0007W
Well Type:	Monitoring	**MN Unique Well #**	757580
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

New monitoring well for city of Rochester

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR
STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

WELL PERMIT

INSPECTIONS DIVISION
2122 Campus Drive SE, Suite 100
Rochester MN 55904-4744
Phone: (507) 328-7111
Fax: (507) 328-7958

Permit Type:	Well / New	**Permit Number:**	O08-0006W
Well Type:	Monitoring	**MN Unique Well #**	757579
Jurisdiction:	Rochester TWP	**Date Issued:**	02/01/2008

WORK AUTHORIZED:

New monitoring well for city of Rochester

SITE INFORMATION:

Address:	221 SW 1 AVE, ROCHESTER, MN 55902
Plat Name:	ORIGINAL PLAT (CITY OF ROCH) -
Block-Lot:	003
TR/Sec/qq/PIN:	640212017854
Parcel #	017854
QQ/Sec/TWP:	Sect-02 Twp-106 Range-014

Licensed Professional:

Type: WELL CONTRACTOR

STEVENS DRILLING &
ENVIRONMENTAL, INC.
MIKE STEVENS
6240 HWY 12 W
MAPLE PLAIN, MN 55359-9810

Well Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

Land Owner:

CITY OF ROCHESTER
201 4TH ST SE
ROCHESTER, MN 55904

NOTE : This permit becomes null and void if work or construction authorized is not commenced within 1 year from date of issuance. A notice of 24 hours is needed prior to inspections.

Minnesota Unique Well No.
757579

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date 01/30/2009
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation ft.
106	14	W	2	ABA	

Elevation Method

Well Depth	Depth Completed	Date Well Completed
18 ft.	17.5 ft.	02/12/2008

Drilling Method Vibracore/rotasonic

Well Address
221 1ST AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
SAND AND GRAVEL	BROWN		0	2
BEDROCK	TAN		2	18

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below ft.**

Casing Diameter	Weight	Hole Diameter
2 in. to 7.5 ft.	lbs./ft.	6.25 in. to 18 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	10	7.5 ft. and 17.5 ft.

Static Water Level
13.54 ft. from Land surface Date Measured 02/12/2008

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☑ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐

No

Grout Material: Other from 5 to 5.5 ft. 0.25 bags

Grout Material: Neat Cement from to 5 ft. 1 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

License Business Name	Lic. Or Reg. No.	Name of Driller
Stevens Drilling and Environmental Services, Inc.	2255	DRABEK, JASON

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757579

Printed 5/19/2010
HE-01205-07

Minnesota Unique Well No.
757580

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation ft.
106	14	W	2	ABA	

Elevation Method

Well Depth	Depth Completed	Date Well Completed
18 ft.	18 ft.	02/06/2008

Drilling Method Vibracore/rotasonic

Well Address
221 1ST AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
SAND	BROWN		0	2
BEDROCK	TAN		2	18

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below ft.**

Casing Diameter	Weight	Hole Diameter
2 in. to 8 ft.	lbs./ft.	6.5 in. to 18 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	10	8 ft. and 18 ft.

Static Water Level
13.52 ft. from Land surface Date Measured 02/06/2008

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☑ Casing Protection Y ☑ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐

No

Grout Material: Other from 5.5 to 6 ft. 0.25 bags

Grout Material: Neat Cement from to 5.5 ft. 1 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

Stevens Drilling and Environmental Services, Inc.	2255	WHITE, MAT
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757580

Printed 5/19/2010
HE-01205-07

Minnesota Unique Well No.
757581

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation	ft.
106	14	W	2	ABA		

Elevation Method

Well Depth	Depth Completed	Date Well Completed
16 ft.	16 ft.	02/05/2008

Drilling Method Vibracore/rotasonic

Well Address
221 1ST AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
SAND	BROWN		0	2
BEDROCK	TAN		2	16

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below** ft.

Casing Diameter	Weight	Hole Diameter
2 in. to 6 ft.	lbs./ft.	6.25 in. to 16 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	10	6 ft. and 16 ft.

Static Water Level
11.41 ft. from Land surface Date Measured 03/18/2008

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☑ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐

No

Grout Material: Other from 3.5 to 4 ft. 0.25

Grout Material: Neat Cement from to 3.5 ft. 1 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

Stevens Drilling and Environmental Services, Inc.	2255	WHITE, MAT
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757581

Printed 5/19/2010
HE-01205-07

Minnesota Unique Well No.
757582

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation ft.
106	14	W	2	ABA	

Elevation Method

Well Depth	Depth Completed	Date Well Completed
30 ft.	28 ft.	02/12/2008

Drilling Method Vibracore/rotasonic

Well Address
221 1ST AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
SAND AND GRAVEL	BROWN		0	2
BEDROCK	TAN		2	30

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below ft.**

Casing Diameter	Weight	Hole Diameter
2 in. to 23 ft.	lbs./ft.	6.25 in. to 30 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	5	23 ft. and 28 ft.

Static Water Level
12.56 ft. from Land surface Date Measured 03/18/2008

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☑ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐

No

Grout Material: Other	from 21.5 to 22 ft.	0.25 bags
Grout Material: Neat Cement	from to 21.5 ft.	3 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

Stevens Drilling and Environmental Services, Inc.	2255	DRABEK, JASON
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757582

Printed 5/19/2010
HE-01205-07

Minnesota Unique Well No.
757583

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation ft.
106	14	W	2	ABA	Elevation Method

Well Depth	Depth Completed	Date Well Completed
61 ft.	61 ft.	02/08/2008

Drilling Method Vibracore/rotasonic

Well Address
221 SW AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
SAND	BROWN		0	3
BEDROCK	TAN		3	61

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below ft.**

Casing Diameter	Weight	Hole Diameter
2 in. to 56 ft.	lbs./ft.	6.25 in. to 61 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	5	56 ft. and 61 ft.

Static Water Level
ft. from Date Measured

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☑ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐ No

Grout Material: Other	from 53.5 to 54 ft.	0.25 bags
Grout Material: Neat Cement	from to 53.5 ft.	6 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

Stevens Drilling and Environmental Services, Inc.	2255	WHITE, MAT
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757583

Printed 5/19/2010
HE-01205-07

Minnesota Unique Well No.
757584

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation ft.
106	14	W	2	ABA	

Elevation Method

Well Depth	Depth Completed	Date Well Completed
18 ft.	17.5 ft.	02/12/2008

Drilling Method Vibracore/rotasonic

Well Address
221 1ST AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
BEDROCK	TAN		0	18

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below ft.**

Casing Diameter	Weight	Hole Diameter
2 in. to 7.5 ft.	lbs./ft.	6.25 in. to 18 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	10	7.5 ft. and 17.5 ft.

Static Water Level
12.44 ft. from Land surface Date Measured 03/18/2008

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☑ Casing Protection Y ☑ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐

No

Grout Material: Neat Cement from 0 to 5 ft. 1 bags

Grout Material: Other from 5 to 5.5 ft. 0.25 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

Stevens Drilling and Environmental Services, Inc.	2255	DRABEK, JASON
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757584

Printed 5/19/2010
HE-01205-07

Minnesota Unique Well No.
757585

County Olmsted
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

Entry Date
Update Date 01/30/2009
Received Date

Well Name CITY OF ROCHESTER

Township	Range	Dir	Section	Subsections	Elevation	ft.
106	14	W	2	ABA		

Elevation Method

Well Depth	Depth Completed	Date Well Completed
16 ft.	15.5 ft.	02/12/2008

Drilling Method Vibracore/rotasonic

Well Address
221 1ST AV SW
ROCHESTER MN

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From Ft. to Ft.

Use Monitor well

Geological Material	Color	Hardness	From	To
SAND	BROWN		0	2
BEDROCK	TAN		2	16

Casing Type Steel (black or low carbon) **Joint** Threaded **Drive Shoe?** ☐ Yes ☑ No **Above/Below** ft.

Casing Diameter	Weight	Hole Diameter
2 in. to 5.5 ft.	lbs./ft.	6.25 in. to 16 ft.

Open Hole from ft. to ft.

Screen YES **Make** JOHNSON **Type** stainless steel

Diameter	Slot/Gauze	Length	Set Between
2	10	10	5.5 ft. and 15.5 ft.

Static Water Level
12.11 ft. from Land surface Date Measured 03/18/2008

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model
☑ Casing Protection Y ☑ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐

No

Grout Material: Other from 3 to 3.5 ft. 0.25 bags

Grout Material: Neat Cement from to 3 ft. 0.5 bags

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☐ Yes ☑ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number ___ HP _ Volts
Length of drop Pipe _ft. Capacity _g.p.m
Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☑ Yes ☐ No

Well Contractor Certification

Stevens Drilling and Environmental Services, Inc.	2255	DRABEK, J.
License Business Name	Lic. Or Reg. No.	Name of Driller

First Bedrock **Aquifer**
Last Strat **Depth to Bedrock ft.**

County Well Index Online Report

757585

Printed 5/19/2010
HE-01205-07

Appendix E

DPE System Documentation

CONTROLS WET TEST CHECKLIST

10-004 Landmark Env.

219 & 223 First Av. SW

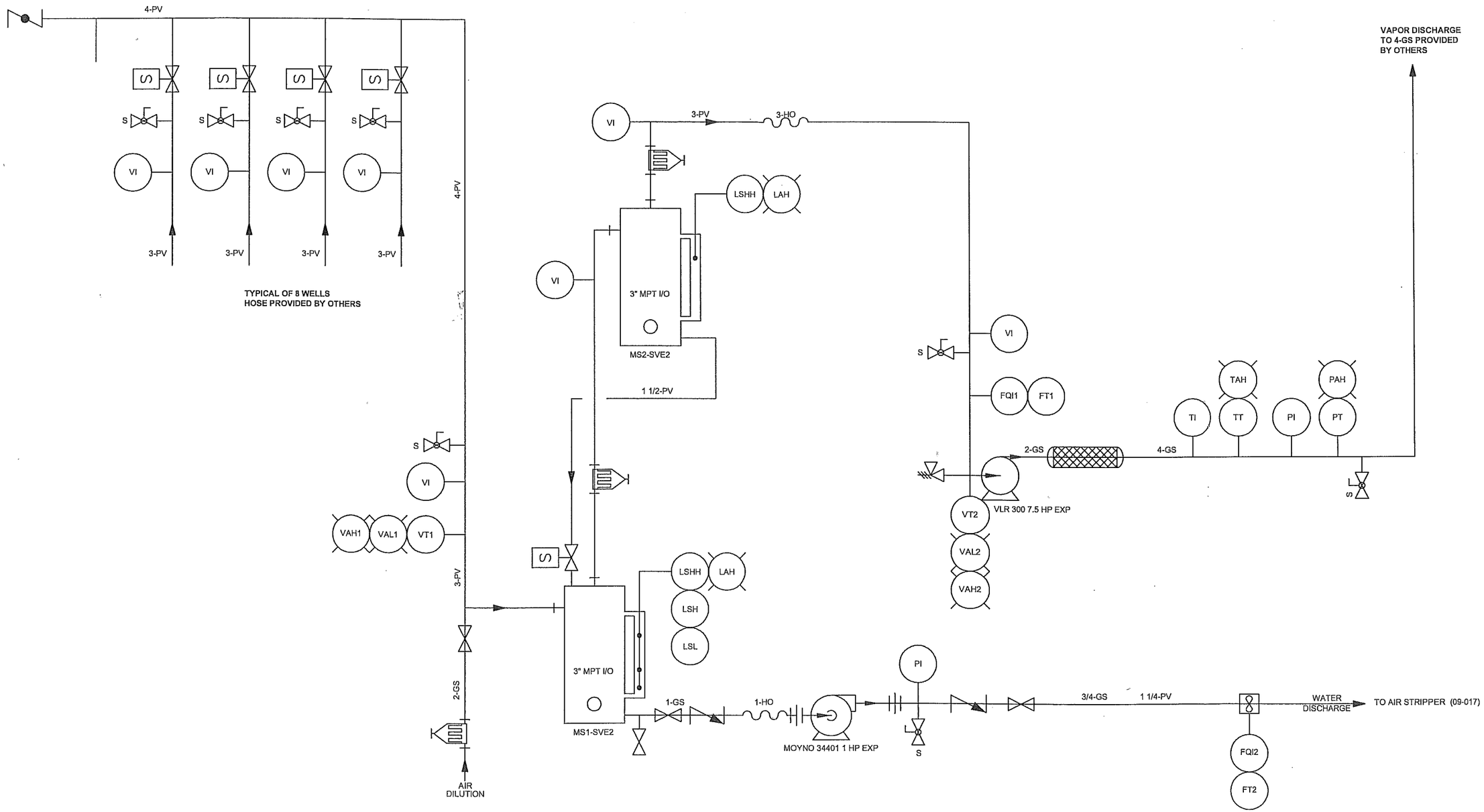
Rochester, MN

2/1/2010

ALARM INTERLOCKS SCHEDULE: X = DEVICE SHUTDOWN CONDITION, O=DEVICE ACTIVATION

ALARM INTERLOCKS		DPE Vacuum Pump	MS Transfer Pump	Air stripper Blower	Air Stripper Transfer Pump	MS Solenoid Valve	DPE Well Solenoids 1 - 8	ACTION DELAY	ACTION	CHECKBOX COLUMN
Switch Inputs										
MS 1 or 2 Hi Hi Level Switch		X				O		3 sec	LAH 'MS HI Level' alarm, manual reset, or auto reset if condition clears within 6 minutes	
Air Stripper Hi Hi Level Switch		X	X					3 sec	LAH 'Stripper Low Level' alarm, manual reset	
Air Stripper Low Airflow Switch		X	X					10 sec	FAL 'Stripper Low Airflow' alarm, manual reset	
Floor Sump HI Level Switch		X	X		X			3 sec	FAH 'Floor Sump Hi Level' alarm, manual reset	
Surge Supressor		X	X	X	X	X	X	2 sec	'Surge Supressor' alarm, manual reset	
Analog Alarms										
High DPE Well Vacuum	VT1	X						5 sec	VAH1 'Hi Well Vacuum' alarm, manual reset	
Low DPE Well Vacuum	VT1	X						15 sec	VAL1 'Low Well Vacuum' alarm, manual reset	
High DPE Vac Pump Inlet Vacuum	VT2	X						5 sec	VAH2 'Hi DPE Pump Vacuum' alarm, manual reset	
Low DPE Vac Pump Inlet Vacuum	VT2	X						15 sec	VAL2 'Low DPE Pump Vacuum' alarm,manual reset	
High DPE Vac Pump Outlet Pressure	PT	X						3 sec	PAH 'Hi DPE Pump Pressure' alarm, manual reset	
High DPE Vac Pump Outlet Temp	TT	X						3 sec	TAH 'Hi DPE Pump Temp' alarm, manual reset	
Motor/Valve Faults										
DPE Vacuum Pump Overload		X						3 sec	'DPE Pump Motor Fault' alarm, manual reset	
DPE Vacuum Pump Internal Thermal Switch		X						3 sec	'DPE Pump Motor Hi Temp' alarm, manual reset	
MS Transfer Pump Overload		X	X					3 sec	'MS Pump Motor Fault' alarm, manual reset	
Air Stripper Blower Overload		X	X	X				3 sec	'Air Stripper Blower Motor Fault' alarm, manual reset	
Air Stripper Blower Internal Thermal Switch		X	X	X				3 sec	'Air Stripper Blower Motor Hi Temp' alarm, manual reset	
Air Stripper Transfer Pump Overload		X	X		X			3 sec	'Air Stripper Transfer Pump Motor Fault' alarm, manual reset	

Sequence of Operation	
On power up with all switches in 'Auto' and no active alarms:	
DPE Vacuum Pump starts, begins filling Moisture Separator with water and discharging vapor.	
DPE Zones (1-8) begin cycling open/close.	
MS Transfer Pump & Air Stripper Blower start when the Moisture Separator High Level Switch becomes wet.	
MS Solenoid Valve turns on (opens) for 6 minutes when either MS LSHH becomes wet.	
Air Stripper Transfer Pump turns on when Air Stripper High Level Switch becomes wet.	
MS Transfer Pump stops when the Moisture Separator Low Level Switch becomes dry.	
MS Solenoid Valve turns off (closes) 6 minutes after both MS LSHH become dry.	
Air Stripper Transfer Pump turns off when Air Stripper Low Level Switch becomes dry.	



DRAWING APPROVAL
☐ APPROVED
☐ NOT APPROVED
☐ APPROVED WITH CHANGES
DATE ___-___-___ BY _____

TOLERANCES UNLESS OTHERWISE SPECIFIED
N/A

GENERAL OFFICES
11929 PORTLAND AV. S.
BURNSVILLE, MN. 55337
Tel: 952-707-9101
Fax: 952-707-1075

PRODUCT LEVEL CONTROL, INC.

Customer: LANDMARK ENVIRONMENTAL		Drawing No.: 10-004-PID	
Site Reference: ROCHESTER, MN		Sheet No.: Sht_1_of_1_	Scale: N/A
Cust. No.: .	PLC Sales No.: 10-004	Title Line 1: PROCESS & INSTRUMENTATION DIAGRAM	
Drawn By: JWW	Drawn Date: 01/22/10	Title Line 2: UPDATED FROM 08-007	

Reference No.	Qty	Units	Description	Material	Part Number					Mounted Unless Indicated	Item No.
											2
VI, VT	2	feet	PIPE, 3"	SCH 80 PVC							3
	2	each	MALE ADAPTER, 3"	SCH 80 PVC							4
VI	2	each	GAUGE, VACUUM, 0-30" HG 2 1/2" DIAL 1/4" MNPT CBM LIQUID FILLED	SS/BRASS	Dasco 981 Series-2500BL-02B-30VAC						5
VT	2	each	ASHCROFT PRESSURE TRANSDUCER, CLASS 1 DIVISION 2 GROUPS A, B, C, D, 0-30" Hg VACUUM	316 SS	ASHCROFT-K1-7-M02-42-C1-VAC / 0						6
	2	each	FEMALE ADAPTER, 3"	SCH 80 PVC							7
DILUTION	1	each	REDUCING TEE, 3" x 2"	150 LB GAL							8
DILUTION	1	each	PIPE NIPPLE, 2" x CLOSE	SCH 40 GAL							9
DILUTION	1	each	VALVE, GATE, FNPT, 2", 200 WOG 125 SWP	BRONZE	WATTS-2WGV						10
DILUTION	1	each	FILTER, AIR, INLET SILENCER, DILUTION FILTER SILENCER, 2" MNPT-135SCFM	STEEL/POLYESTER	SOLBERG-FS-31P-200						11
											12
S	3	each	1/4" MNPT BARBED SAMPLE PORT	BRASS	4793K2						13
	1	each	FILTER, AIR, INLINE, 3" FNPT WITH QUICK RELEASE LID-300SCFM	STEEL/POLYESTER	SOLBERG-CSL-239-300C						14
	1	each	MALE ADAPTER, 3"	SCH 80 PVC							15
	5	feet	HEAVY DUTY RUBBER VACUUM HOSE, 3 1/2" ID	SBR RUBBER	5314K42						16
											17
											18
FI / FT	1	each	METRIS SERIES COMPRESSED AIR FLOW METER FOR 3" STEEL PIPE, WITH NUMERIC DISPLAY		SD-XXXX						19
FI / FT	1	each	FITTING FOR MOUNTING ABOVE SENSOR TO 3" PVC PIPE								20
FI / FT	1	each	4-wire Micro DC connector,nickel/brass coupling nut, 22 AWG, black PVC jacket, 5M length.		ifm efector-EVC002						21
											22
											23
											24
											25
											26
	2	each	ELBOW, 90 DEGREE, SOCKET, 3"	SCH 80 PVC							27
	1	each	MALE ADAPTER, 3"	SCH 80 PVC							28
	1	each	BELL REDUCER, 3" FPT x 2" FPT	150 LB GAL							29
	2	each	PIPE NIPPLE, 2" x CLOSE	SCH 40 GAL							30
BLOWER	1	each	BLOWER, ZEPHYR MULTI-CLAW VACUUM PUMP WITH VACUUM REGULATING/RELIEF VALVE WITH SILENCER, 2" FNPT INLET, UP TO 212 ACFM AND 24 in. HgV, INCLUDES MOUNTED 7.5 HP 3 PHASE EXP 230/460 VAC 3600 RPM 213TC MOTOR	Q08-516	RIETSCHLE-VLR-300 - 7.5 HP 3 PHASE EXP						31
	4	each	VIBRATION DAMPING MOUNTS, 3/8"-16 x 5/8 STUD x INSERT		9376K149						32
	1	each	PIPE NIPPLE, 2 1/2" CLOSE	SCH 40 GAL							33
	1	each	REDUCINGCOUPLER, 4" FPT x 2 1/2" FPT	150 LB GAL							34
	1	each	SILENCER, ABSORPTIVE TYPE, MINIMAL PRESSURE DROP, REDUCES HIGH FREQUENCY NOISE UP TO 30dBA, LAYERED SOUND ABSORBENT MEDIA, INLET OR DISCHARGE APPLICATION, UP TO 212F, 15 PSIG, 4" MNPT I/O, 29 5/16" LONG, RATED FOR 575 SCFM, 15 PSIG	STEEL/ABSORBENT MEDIA	SOLBERG-SLCRT400						35
	1	each	FULL COUPLING, 4"	150 LB GAL							36
											37
											38
TI	1	each	THERMOMETER, 50-550°F 3" DIAL 2 1/2" STEM 1/2" MNPT CBM	300 SS	GOODIN-3BM25550, WEISS 3BM25						39
TT	1	each	PYROMATION TEMPERATURE SENSOR ASSEMBLY- RTD: +- 0.1%, -328-400°F RANGE, 1/4" DIAMETER X 2" LONG STRAIGHT 316 SS SHEATH WITH 1/2" X 1/2" MNPT HEX STEEL HEAD. HEAD: CAST ALUMINUM SCREW COVER. TRANSMITTER:100 OHM PLATINUM UPSCALE BURNOUT TRANSMITTER, 2 WIRE OUTPUT. 0-400°F RANGE		R1T185L483-002-00-6HN31, T-440-385U-S(0-400)F						40
PI	1	each	GAUGE, PRESSURE, 0-100" WC 2 1/2" DIAL 1/4" MNPT CBM -20-180°F	PS/CU,BR,PS, RTV	Ashcroft-251490A02BXXX100"H2O						41
PT	1	each	ASHCROFT PRESSURE TRANSDUCER, CLASS 1 DIVISION 2 GROUPS A, B, C, D, 0-30 psi	316 SS	ASHCROFT-K1-7-M02-42-C1-0 / 30						42
	2	each	1/4" THREADOLET	STEEL	3612X14TOL						43
	2	each	1/2" THREADOLET		3634X12TOL						44
PI, PT, TI, TT	1	each	PIPE NIPPLE, 4" x 12"	SCH 40 GAL							45
PT, PI	2	each	SPIRAL COOLING TOWER, 1/4" NPT		A-250-A						46
											47
											48
											49
											50
											51
											52
											53
											54
											55
											56

PRODUCT LEVEL CONTROL, INC.

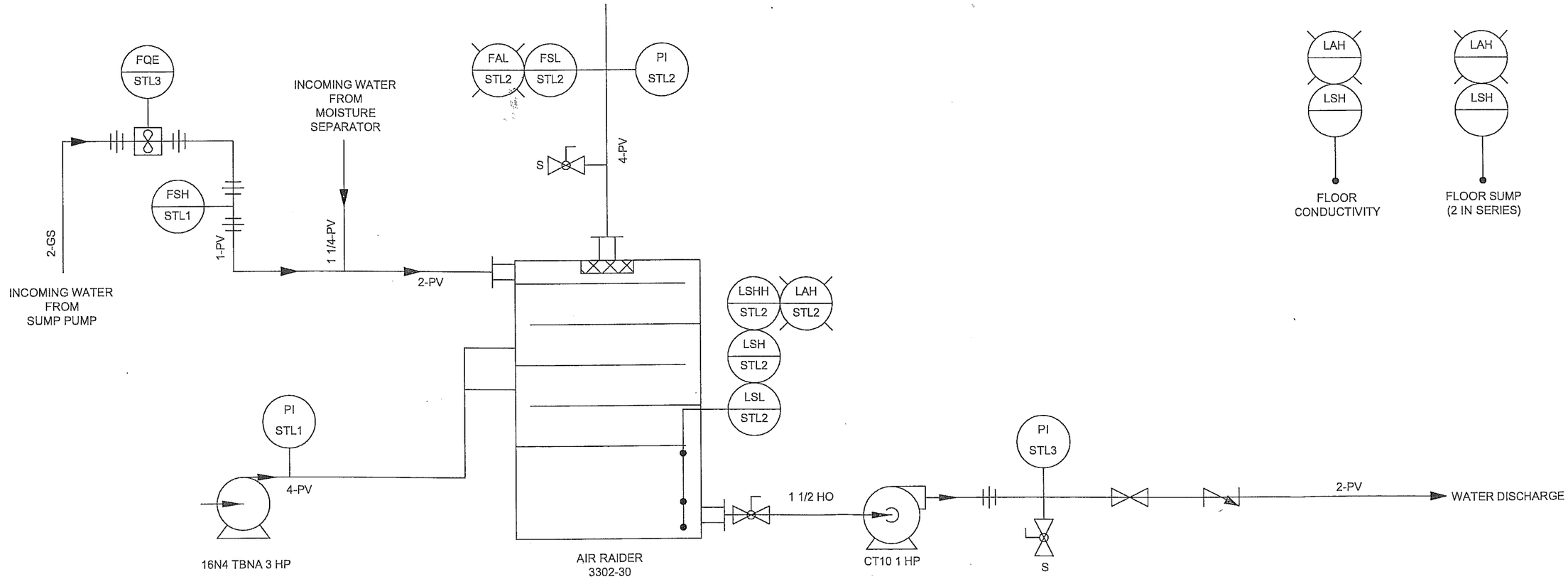
11929 Portland Ave. South
Burnsville, MN 55337
www.productlevel.com
phone: 952-707-9101
fax: 952-707-1075

Customer	STEVENS DRILLING
Site Reference	
Site Reference	ROCHESTER, MN
Customer No.	
PLC Sales No.	08-007

Title	08-007-DPE-BOM		
Drawing No.	08-007-BOM		
Drawn By	JWW	Sheet	
Drawn Date	08/29/08	of	
Rev			

BOM-level2.xls 11-04-03

NOTES:
1. INSTALL FSH-STL1 WITH CORD TO ALLOW REMOVAL FOR CLEANING
2. INSTALL FQE-STL3 IN A PIPE WITH UPWARD WATER FLOW



DRAWING APPROVAL
☐ APPROVED
☐ NOT APPROVED
☐ APPROVED WITH CHANGES
DATE ___-___-___ BY _____

TOLERANCES UNLESS OTHERWISE SPECIFIED
N/A

GENERAL OFFICES
11929 PORTLAND AV. S.
BURNSVILLE, MN. 55337
Tel: 952-707-9101
Fax: 952-707-1075

PRODUCT LEVEL CONTROL, INC.

Customer: STEVENS DRILLING		Drawing No.: 09-017-PID R2	
Site Reference: MN BIO BUSINESS BLDG		Sheet No.: Sht_1_of_1_	Scale: N/A
Cust. No.: .	PLC Sales No.: 09-017	Title Line 1: PROCESS & INSTRUMENTATION DIAGRAM	
Drawn By: JWW	Drawn Date: 06/11/09	Title Line 2: FOR AIR STRIPPER REV 2	

Reference No.	Qty	Units	Description	Material	Part Number					Mounted Unless Indicated	Item No.
	1	each	PRESSURE BLOWER WITH DAMPER, INLET SCREEN, ALUMINUM WHEEL, 4" FLANGED OUTLET, DRAIN, 400 SCFM @ 20" WC @ 1000 FASL, LESS MOTOR		16N4 TBNA, ARR 4, UPWARD DISCHARGE						2
	1	each	MOTOR, 3 HP, 3600 RPM, 182T FRAME, 3 PHASE 60 Hz 208-230/460 VAC, 3.59 FL AMPS AT 460 VAC, UL CLASS 1 DIVISION 1 GROUPS C AND D, TEMPERATURE CODE T4, TEFC, 1.15 SERVICE FACTOR, 104°F AMBIENT TEMPERATURE, 3300 FEET ABOVE SEA LEVEL, CLASS F INSULATION	CAST IRON FRAME	WEG-00336XP3E182T						3
	1	each	FLANGE GASKET, 4"	NEOPRENE							4
	1	each	FLANGE, SOCKET, 4"	SCH 80 PVC							5
	5	feet	PIPE, 4"	SCH 80 PVC							6
	2	each	TEE, SOCKET, 4"	SCH 80 PVC							7
	1	each	END SEAL CAP, 4"		EC4						8
PI	2	each	GAUGE, PRESSURE, 0-60" WC 2 1/2" DIAL 1/4" MNPT CBM	STEEL/BRASS	WEISS DG25P3CBM060						9
	8	feet	SMOOTH BORE HOSE, 300 F, 21 PSI MAX, 4.5" I.D.	NEOPRENE / F	5499K252						10
											11
											12
											13
	1	each	PIPE NIPPLE, 2" x 8", CUT IN HALF BY PLC	SCH 80 PVC							14
	1	each	ELBOW, 90 DEGREE, SOCKET, 2"	SCH 80 PVC							15
	1	each	AIR STRIPPER COVER, 3' x 3', WITH 4" AIR EFFLUENT PIPE	NATURAL POLYPRO	PLC-3300						16
	1	each	30 GPM AIR STRIPPER 1st STAGE, 3' x 3', WITH TABS	NATURAL POLYPRO	PLC-3301-30						17
	1	each	30 GPM AIR STRIPPER 2nd STAGE, 3' x 3', WITH TABS	NATURAL POLYPRO	PLC-3302-30						18
	1	each	AIR STRIPPER SUMP, 3' x 3', WITH TABS, WITHOUT 2" DRAIN FITTING, WITHOUT LEL CHAMBER	NATURAL POLYPRO	PLC-3305						19
											20
											21
	1	each	DEMISTER MATERIALTM-1112 W/O GRID, COILED CONSTRUCTION, 6" x 16" DIAMETER, SEG:1, 150-600 CFM	304 SS							22
	12	each	LIFTING HANDLE	GALV	1647A42						23
											24
	3	each	EZ OUT SIDE MOUNTED LEVEL SWITCH, 1 1/4" MPT, 25' CORD	PVC						LOOSE	25
	3	each	BULKHEAD FITTING, FPT x FPT, 1 1/4"	PVC	60431112						26
FSL	1	each	VANE OPERATED FLOW SWITCH, 1" NPTM	PPS	V8						27
											28
											29
											30
			PUMPOUT:								31
	1	each	BULKHEAD FITTING, FPT x FPT, 1 1/2", 16.25" MIN TANK ID	PVC	60431115						32
	1	each	PIPE NIPPLE, 1 1/2" x CLOSE	SCH 80 PVC							33
	1	each	VALVE, BALL, TRUE UNION SOCKET/FNPT, 1 1/2"	PVC/EPDM	CEPEX-21983, 89995150						34
	2	each	HOSE BARB TO MPT ADAPTER, 1 1/2"	PVC	23611015						35
	2	feet	HOSE, 1 1/2"ID X 1.81"OD, STANDARD DUTY SUCTION HOSE, CLEAR PVC WITH WHITE HELIX, 100' STANDARD PACKAGE, -10 - 130°F, 70 PSIG AND 28"HG AT 68°F, 5" MBR	PVC	APACHE-12017006						36
	1	each	PUMP END, CENTRIFUGAL, 1 1/4" I x 1" O, LESS 1 HP 3450 RPM 56 C MOTOR		CT10-FAB						37
	1	each	MOTOR, 1HP, 208-230/460V, 3.5-3.2/1.6 AMPS, 3 PHASE EXP, 3450 RPM, 1.0 SF, 56C FOOTLESS FRAME		LEESON 111943.00						38
	1	each	PIPE NIPPLE, 1" x CLOSE	SCH 40 GAL							39
	1	each	UNION, 1"	150 LB GAL							40
	2	each	PIPE NIPPLE, 1" x 4"	SCH 40 GAL							41
	1	each	CROSS, 1"	150 LB GAL							42
	2	each	REDUCER BUSHING, 1" MPT x 1/4" FPT	150 LB GAL							43
	2	each	1/4" MNPT SPIGOT SAMPLE PORT	BRASS	4793K34						44
	1	each	GAUGE, PRESSURE, 0-60 PSI 2 1/2" DIAL 1/4" MNPT CBM LIQUID FILLED	SS/BRASS	Dasco 980 Series-2500BL-02B 60PSIG						45
	1	each	VALVE, GATE, FNPT, 1", 200 WOG 125 SWP	BRONZE	WATTS-1WGV						46
	1	each	VALVE, SWING CHECK, FNPT, 1", 200 WOG 125 WSP	BRONZE	WATTS-1CV						47
											48
											49
FSH	1	each	GLOBE VALVE SWITCH, 1" FPT, 1.0-6.0 GPM RANGE, SPDT		GVS-111					LOOSE	50
	8	each	LOW PROFILE TEST PLUG FOR END OF PIPE USE, 3.80-4.08"		2645K44						51
	4	each	LOW PROFILE TEST PLUG FOR END OF PIPE USE, 5.77-6.08"		2645K45						52
											53
											54
											55
											56

PRODUCT LEVEL CONTROL, INC.

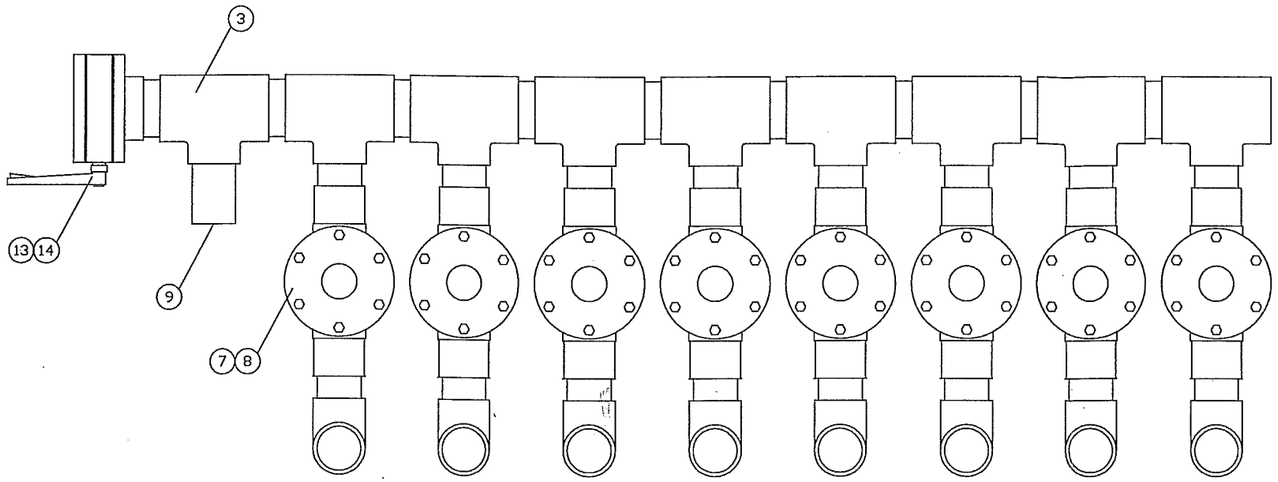
11929 Portland Ave. South
Burnsville, MN 55337
www.productlevel.com
phone: 952-707-9101
fax: 952-707-1075

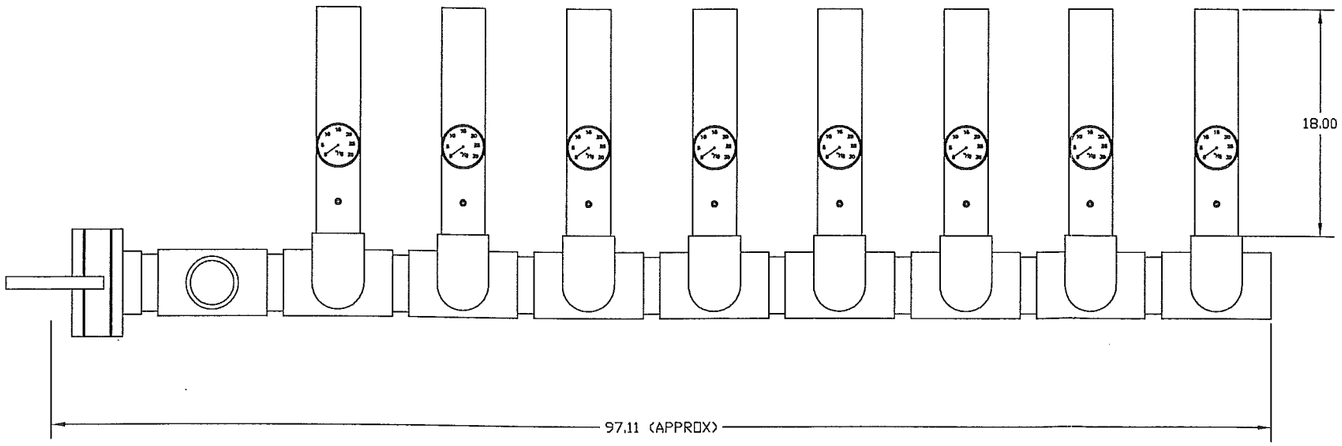
Customer	STEVENS DRILLING
Site Reference	MN BIO BUSINESS BLDG
Site Reference	ROCHESTER, MN
Customer No.	
PLC Sales No.	09-017

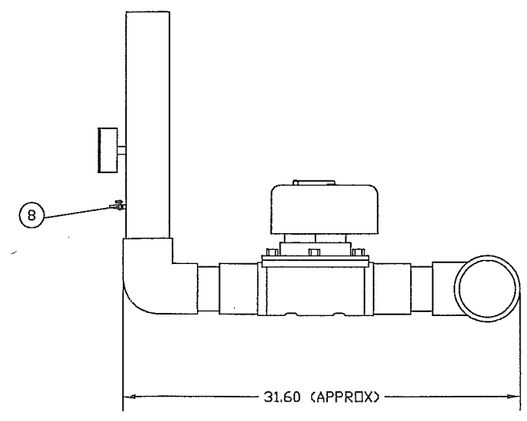
Title	09-017-AST-BOM		
Drawing No.	09-017-BOM		
Drawn By	JWW	Sheet	
Drawn Date	05/14/09	of	
Rev			

NOTES:

1. SOME ITEMS ARE NOT SHOWN IN ALL VIEWS
2. MANIFOLD TO BE SHIPPED WITH 3" LEGS ASSEMBLED BUT NOT ATTACHED AT 4" JOINTS TO ALLOW FLEXIBILITY DURING INSTALLATION







DRAWING APPROVAL
☐ APPROVED
☐ NOT APPROVED
☐ APPROVED WITH CHANGES
DATE ___-___-___ BY _____

TOLERANCES UNLESS OTHERWISE SPECIFIED
± .25"

GENERAL OFFICES
11929 PORTLAND AV. S.
BURNSVILLE, MN. 55337
Tel: 952-707-9101
Fax: 952-707-1075

PRODUCT LEVEL CONTROL, INC.

Customer: STEVENS DRILLING		Drawing No.: 08-007-DPE MFD	
Site Reference: ROCHESTER, MN		Sheet No.: Sht 1 of 2	Scale: 1:12
Cust. No.:	PLC Sales No.: 08-007	Title Line 1: DPE MANIFOLD	
Drawn By: JWW	Drawn Date: 09/05/08	Title Line 2:	

Reference No.	Qty	Units	Description	Material	Part Number					Mounted as Located	Item No.
											2
	9	each	REDUCING TEE, 4" x 4" x 3", **DO NOT USE 4" TEE WITH REDUCER**	SCH 80 PVC							3
	10	feet	PIPE, 4"	SCH 80 PVC							4
VI	8	each	GAUGE, VACUUM, 0-30" HG 2 1/2" DIAL 1/4" MNPT CBM LIQUID FILLED	SS/BRASS	Dasco 981 Series-2500BL-02B-30VAC					LOOSE	5
	8	each	1/4" MNPT BARBED SAMPLE PORT	BRASS	4793K2					LOOSE	6
	16	each	MALE ADAPTER, 3"	SCH 80 PVC							7
	8	each	SOLENOID VALVE, 2 WAY / 2 POSITION, N.C., 120 VAC, 3", 0 PSI CRACKING PRESSURE, 5 PSI MAX AIR, 125°F MAX	ALUMINUM	ASCO-8215A40-120 / 60						8
	1	each	MISSION BAND SEAL END CAP, 3"		EC2						9
	8	each	ELBOW, 90 DEGREE, SOCKET, 3"	SCH 80 PVC							10
											11
	20	feet	PIPE, 3"	SCH 80 PVC							12
	1	each	VALVE, BUTTERFLY, WAFER TYPE, LOCKABLE LEVER HANDLE, 4"	PVC/EDPM	CEPEX-16709, 89991040						13
	1	each	FLANGE, SOCKET, 4"	SCH 80 PVC							14
											15
											16
											17
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PRODUCT LEVEL CONTROL, INC.

11929 Portland Ave. South
Burnsville, MN 55337
www.productlevel.com
phone: 952-707-9101
fax: 952-707-1075

Customer	STEVENS DRILLING
Site Reference	
Site Reference	ROCHESTER, MN
Customer No.	
PLC Sales No.	08-007

Title	08-007-DPE MFD-BOM
Drawing No.	08-007-BOM
Drawn By	JWW
Drawn Date	08/29/08
Rev	
Sheet	
of	

BOM-formatZ.xls 11-04-02

Reference No.	Qty	Units	Description	Material	Part Number					Mounted Unless Indicated	Item No.
											2
MS	1	each	100 GAL MOISTURE SEPARATOR WITH SIGHT TUBE AND TRI LEVEL SWITCH		08-007-AWS 100						3
	2	each	CLAMP ALL COUPLING, 3"		3CAC						4
											5
RELIEF	1	each	INLET FILTER SILENCER, 3/4" MPT		FS-15-075						6
RELIEF	1	each	SOLENOID VALVE, 2 WAY / 2 POSITION, N.C., 120 VAC, 3/4", 0 PSI CRACKING PRESSURE, 350 PSI MAX AIR, 300 PSI MAX WATER, 200°F MAX, NON-EXP, MUST HAVE SOLENOID MOUNTED VERTICAL AND UPRIGHT	BRASS	ASCO-8210G26-120 / 60						7
											8
											9
											10
	1	each	TEE, 1"	150 LB GAL							11
	1	each	VALVE, BALL, FNPT, 1" FULL PORT, 600 WOG 50 SWP, 0-400°F	BRASS/TFE	WATTS-1FBV3						12
	3	each	PIPE NIPPLE, 1" x CLOSE	SCH 40 GAL							13
	1	each	VALVE, SWING CHECK, FNPT, 1", 200 WOG 125 WSP	BRONZE	WATTS-1CV						14
	2	each	MPT TO HOSE BARB ADAPTER, 1"	ZPS	1GSMIA						15
	3	feet	HOSE, CLEAR WITH WHITE HELIX, 1" ID	PVC							16
	1	each	UNION, 1"	150 LB GAL							17
	1	each	REDUCER BUSHING, 1" MPT x 3/4" FPT	150 LB GAL							18
	7	each	PIPE NIPPLE, 3/4" x CLOSE	SCH 40 GAL							19
	1	each	ELBOW, 90 DEGREE, 3/4"	150 LB GAL							20
	1	each	PUMP END, POSITIVE DISPLACEMENT PROGRESSING CAVITY, 3/4"I X 3/4"O, 5/8" SHAFT	CI/SS/NBR	MOYNO 500-34401						21
	1	each	COUPLING GUARD, 4" x 4" x 6"	POLYETHYLENE	6593K31						22
	1	each	SPIDER COUPLING HUB, 2 7/64" OD x 5/8" BORE	IRON	6408K14						23
	1	each	SPIDER COUPLING HUB, 2 7/64" OD x 7/8" BORE	IRON	6408K14						24
	1	each	SPIDER COUPLING SPIDER, 2 7/64" OD	BUNA N	6408K75						25
	1	each	MOTOR, 1 HP, 1800 RPM, 143T FRAME, 3 PHASE 60 Hz 208-230/460 VAC, 1.49 FL AMPS AT 460 VAC, UL CLASS 1 DIVISION 1 GROUPS C AND D, TEMPERATURE CODE T4, TEFC, 1.15 SERVICE FACTOR, 104°F AMBIENT TEMPERATURE, 3300 FEET ABOVE SEA LEVEL, CLASS F INSULATION	CAST IRON FRAME	WEG-00118XP3E143T						26
	1	each	CROSS, 3/4"	150 LB GAL							27
PI	1	each	GAUGE, PRESSURE, 0-60 PSI 2 1/2" DIAL 1/4" MNPT CBM LIQUID FILLED	SS/BRASS	2500BL-02B-60						28
	2	each	REDUCER BUSHING, 3/4" MPT x 1/4" FPT	150 LB GALV							29
S	1	each	1/4" MNPT SPIGOT SAMPLE PORT	BRASS	4793K34						30
	1	each	VALVE, GATE, FNPT, 3/4", 200 WOG 125 SWP	BRONZE	WATTS-34WGV						31
	1	each	BELL REDUCER, 1" FPT x 3/4" FPT	150 LB GAL							32
	3	each	PIPE NIPPLE, 3/4" x 4"	SCH 40 GAL							33
	1	each	VALVE, SWING CHECK, FNPT, 3/4", 200 WOG 125 WSP	BRONZE	WATTS-34CV						34
	1	each	BELL REDUCER, 1 1/4" FPT x 3/4" FPT	150 LB GAL							35
											36
	1	each	MALE ADAPTER, 1 1/4"	SCH 80 PVC							37
	10	feet	PIPE, 1 1/4"	SCH 80 PVC							38
FI	1	each	LOCALLY MOUNTED DISPLAY FOR SIGNET FLOWMETER		3-8550-1						39
FI	1	each	SIGNET FLOW SENSOR, FREQUENCY OUTPUT, 1-1/4", 5.1-52 GPM	SCH 80 PVC	3-7000-54						40
FI	1	each	END CONNECTION KIT, 1-1/4"	SCH 80 PVC	3-7000.391-54						41
											42
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www.productlevel.com
phone: 952-707-9101
fax: 952-707-1075

Customer	STEVENS DRILLING
Site Reference	
Site Reference	ROCHESTER, MN
Customer No.	
PLC Sales No.	08-007

Title	08-007-PUMPOUT-BOM
Drawing No.	08-007-BOM
Drawn By	JWW
Drawn Date	08/29/08
Rev	
Sheet	
of	

BOM-format2.xls 11-04-03

FILE

Landmark Environmental LLC

Dual Phase Extraction System Contingency Plan

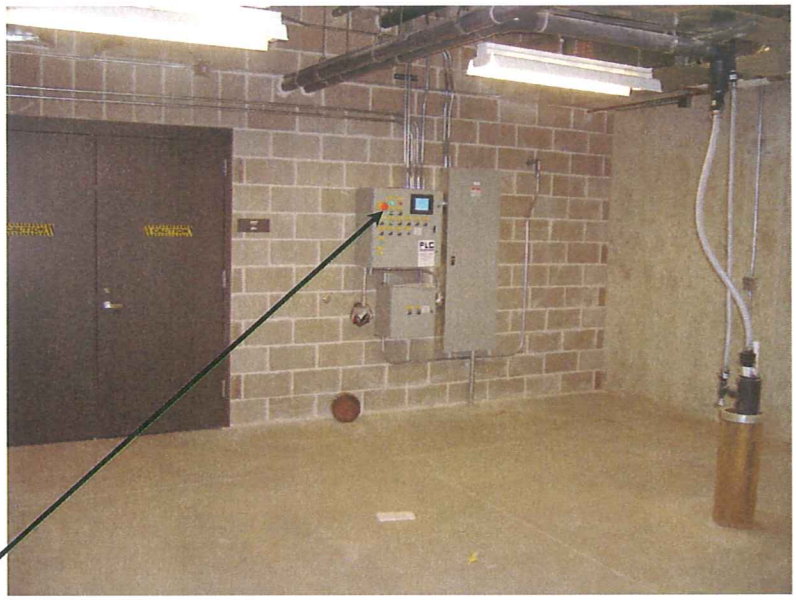
MN Bio Business Center
221 1st Avenue SW
Rochester, Minnesota

Prepared for
City of Rochester

July 2009

2042 W. 98th Street Bloomington, Minnesota 55431 Phone: (952) 887-9601 Fax: (952) 887-9605 www.landmarkenv.com

EMERGENCY STOP



EMERGENCY STOP BUTTON – PUSH IN EMERGENCY STOP BUTTON TO SHUT DOWN ALL COMPONENTS OF THE DPE SYSTEM

EMERGENCY CONTACTS

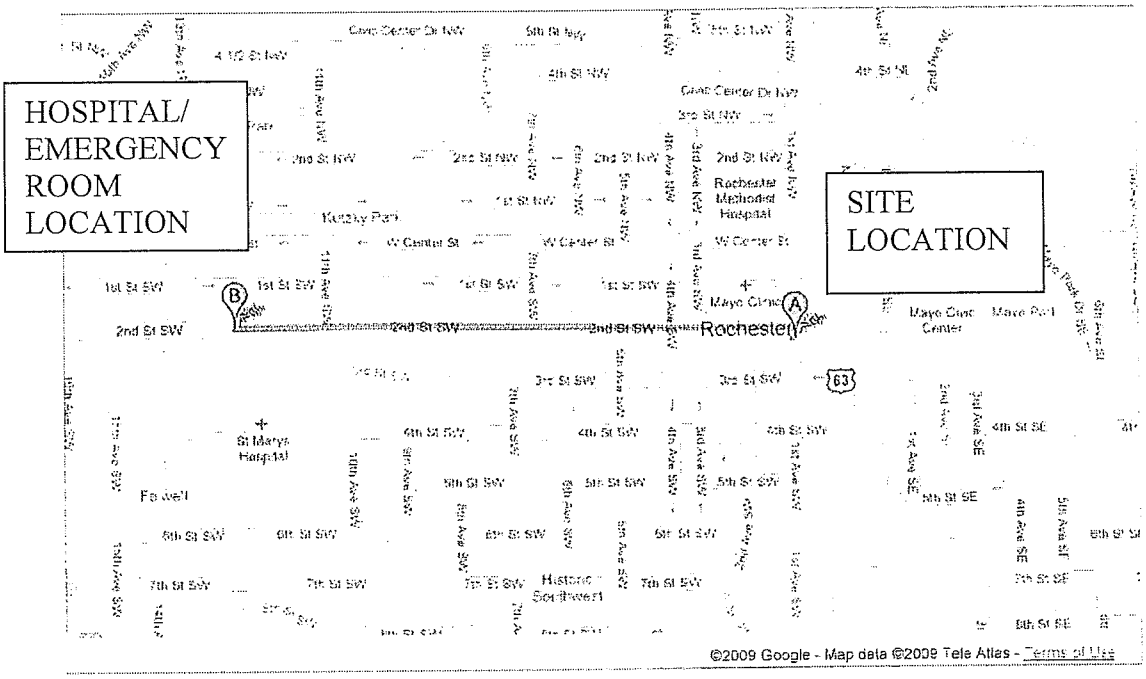
CITY OF ROCHESTER SITE CONTACT
Gary Neumann
Assistant City Administrator
City of Rochester
201 4th Street SE - Room 266
Rochester MN 55904
(507) 328-2007 office
507-951-5332 cell

CITY OF ROCHESTER ALTERNATE SITE CONTACT
Doug Knott
Development Administrator
201 4th Streeet SE - Room 266
Rochester Mn 55904
(507) 328-2003

CONSULTANT PROJECT MANAGER
Jason D. Skramstad, PE
Senior Environmental Engineer
Landmark Environmental, LLC
2042 West 98th Street
Bloomington, MN 55431
office: (952) 887-9601 x205
cell: (651) 717-8885

CONSULTANT FIELD CONTACT
Eric Gabrielson
Environmental Scientist
Landmark Environmental, LLC
2042 West 98th Street
Bloomington, MN 55431
office: (952) 887-9601 x204
cell: (952) 240-8935

SAINT MARY'S HOSPITAL MAP – ENTIRE ROUTE



Driving directions to Saint Marys Hospital
(507) 255-5123
0.9 mi – about 2 mins

A 221 1st Ave SW
Rochester, MN 55902

SITE LOCATION

1. Head north on 1st Ave SW toward 2nd St SW — 65 ft
2. Turn left at 2nd St SW — 0.9 mi

B Saint Marys Hospital
1216 2nd St
Rochester, MN 55902-1970
(507) 255-5123

HOSPITAL/EMERGENCY ROOM LOCATION

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2009 Tele Atlas

Dual Phase Extraction System Contingency Plan
221 First Avenue S.W.
Rochester, Minnesota

Table of Contents

List of Figures

Action Summary—Emergency Reference

Refer to this action summary in the event of an emergency.

Action Summary for Dual Phase Extraction System Water/Air Leaks

If water or air leaks from any components of the dual phase extraction ("DPE") system such as DPE wells, overhead piping from wells or sump room, air stripper tank and fittings, moisture separator tank and fittings, transfer pump or fittings, DPE pump or fittings, air stripper blower or fittings, and any associated media transfer piping, are observed in the MN Bio Business Center Building during DPE system operation, the following actions will be taken:

1. SHUT DOWN THE DPE SYSTEM BY PRESSING THE EMERGENCY STOP BUTTON AND SECURE THE AREA, AS NECESSARY.

2. Contact the City of Rochester and Landmark Environmental, LLC ("Landmark") for further instruction.

City of Rochester:	Gary Neumann (507-328-2007 [office], 507-951-5332 [cell]) or Doug Knott (507-328-2003 [office])
Landmark:	Jason Skramstad (651-717-8885 [cell]) or Eric Gabrielsen (952-240-8935 [cell])

3. Refer to the appropriate sections of this DPE Contingency Plan.

Introduction

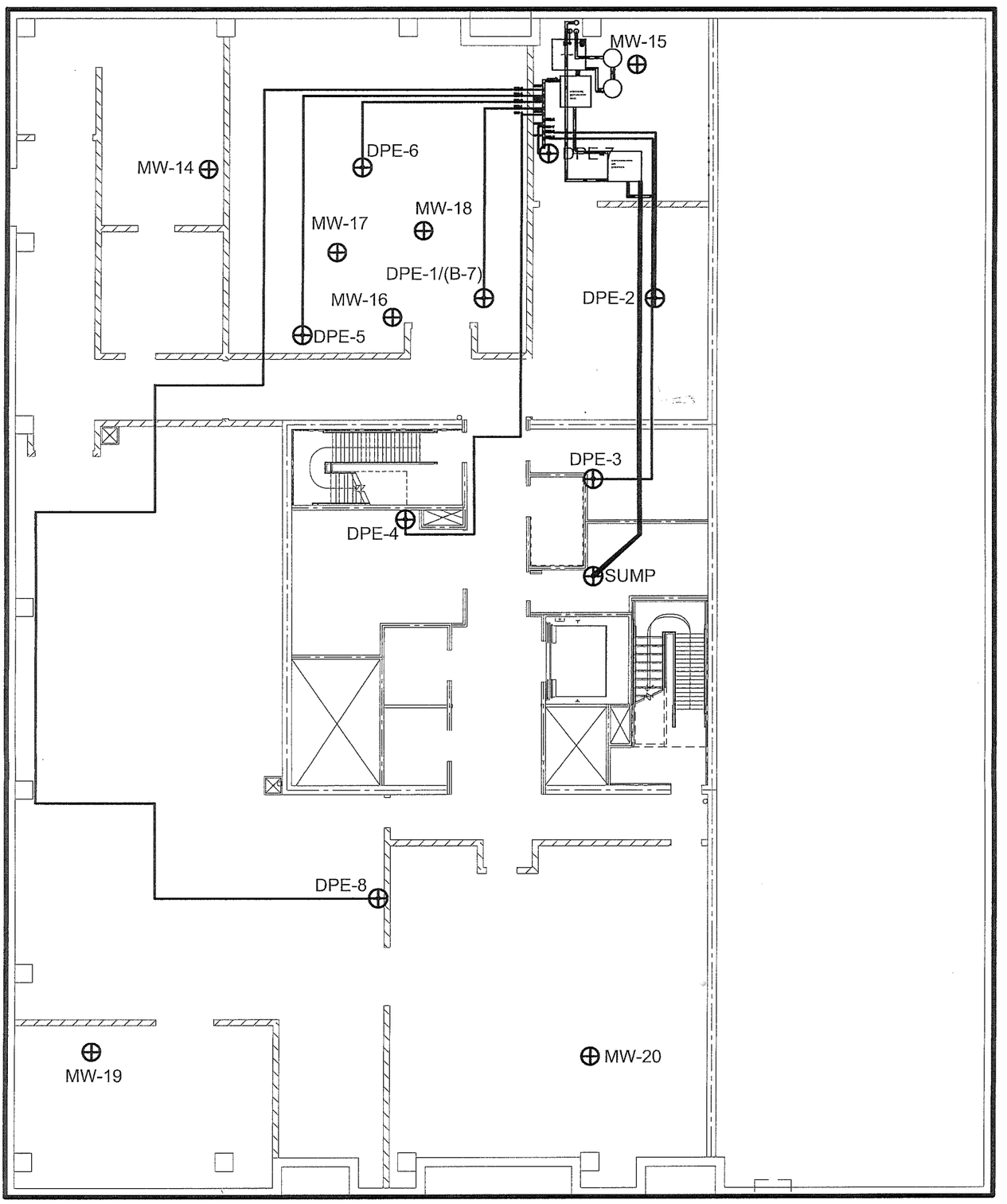
This Dual Phase Extraction System Environmental Contingency Plan ("Contingency Plan") was prepared by Landmark Environmental, LLC ("Landmark") on behalf of the City of Rochester ("the City") for the property located at 221 First Avenue Southwest in Rochester, Minnesota (the "Property"). The purpose of this Contingency Plan is to provide building maintenance personnel a protocol to follow in the event that a water or air leak is observed from the dual phase extraction ("DPE") system located in the basement of the MN Bio Business Center building.

Background

The Property, which is currently owned by the City, historically supported two dry cleaning facilities. The historical activities likely involved the use of hazardous substances, including the common dry cleaning solvent tetrachoroethylene ("PCE"). The Property is enrolled in the MPCA VIC Program as VP#12560. Based on previous environmental investigations, response actions ("RAs") have been conducted to address reported releases of tetrachloroethene ("PCE") at the Property since 2000. The RAs currently include operation of a DPE system to remediate the groundwater and fractured bedrock at the Property. Elevated concentrations of PCE in the groundwater and subsurface vapor have been detected from operation of the current DPE system. As a result, the DPE system has the potential to leak VOC-impacted groundwater and air; therefore, the City is requiring building maintenance personnel to conduct daily visual inspections of the DPE system.

Site Responsibilities and Coordination

Building maintenance personnel are responsible for conducting daily inspections of all components of the DPE system for groundwater and subsurface air leaks. DPE system components are shown on Figure 1. If water or air leaks from any components of the DPE system, such as DPE wells, overhead piping from wells or sump room, air stripper tank and fittings, moisture separator tank and fittings, transfer pump or fittings, DPE pump or fittings, air stripper blower or fittings, and any associated media transfer piping, are observed in the MN Bio Business Center Building during DPE system operation, building maintenance personnel shall contact the City and Landmark to report the leak. At the City's request, Landmark shall send field personnel who are safety-trained for hazardous waste operations according to the requirements of 29 CFR 1910.120 to assess the release, take the appropriate actions to clean up the release, and fix the cause of the release.



BASEMENT FLOOR PLAN

LEGEND

⊕ DPE, Monitoring Well, or Sump Location

DPE Piping Location

Property Boundary

N

20 feet
SCALE

BASEDRAWINGS PROVIDED BY HGA
F:/Projects/CRC/CAD/Groundwater Data/20090128 Well Locations.dwg

Rev	Date	By	Description

LANDMARK ENVIRONMENTAL, LLC
2042 West 98th Street
Bloomington, MN 55431

FIGURE 1

DPE SYSTEM LAYOUT

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC		
Drawn: JDS	Checked: JDS	Designed: JDS
Scale: .	Date: 7/9/2009	Revision:
Drawing Number: .	Sheet Of .	Sheets .

Appendix F

Groundwater Discharge Permit

ALL-AMERICA CITY 1988

ROCHESTER

Minnesota

CITY OF ROCHESTER MINNESOTA INCORPORATED AUGUST 5 A.D. 1858

January 9, 2008

WATER RECLAMATION PLANT
301 37th St. N.W.
Rochester, MN 55901
(507) 281-6190
FAX #(507) 287-1389

Mr. Doug Knott
City of Rochester
201-4th St. SE
Rochester, MN 55904

RE: Industrial Discharge Permit- MN Bio-Business Center

Dear Mr. Knott;

Enclosed please find a modified Industrial Discharge Permit for the MN Bio-Business Center. Please note that the limits specified in table 2.0 include restriction on flow because of the sanitary sewer capacity in this location. Reports are due quarterly according to schedule in section 3.6. If there is enough flow, the WRP will issue a journal voucher quarterly for the quantity charges. Otherwise the quantity will be accumulated until there is enough flow to justify a voucher.

If you have any questions or comments regarding this permit, please feel free to contact me at 281-6190 ext. 3006.

Sincerely,

David C Lane

David C. Lane
Environmental Coordinator

Enc.

CC: Jason Skramstad, Landmark Environmental

DRAFT PERMIT
FOR
INDUSTRIAL USER DISCHARGE TO THE
ROCHESTER, MINNESOTA MUNICIPAL SANITARY SEWER SYSTEM

Permit No: 30G-12

This permit is issued to:

City of Rochester.

and permits the discharge of industrial wastes to the Rochester, Minnesota Municipal Sanitary Sewer System from the address and facilities described herein. This permit contains the following sections:

1.0 Background Data
2.0 Discharge limits
3.0 Specific Conditions
4.0 General Conditions

This permit is issued in accordance with Chapter 76A.11 of the Rochester Code of Ordinances.

This permit supersedes any previous permit.

Effective Date: 1st day of January, 2008

Expiration Date: 31st day of December, 2012

Issued By: Richard Freese Date: 1/2/08
Richard Freese, City Engineer

ROCHESTER MINNESOTA DRAFT INDUSTRIAL DISCHARGE PERMIT

1.0. BACKGROUND DATA.

Company Name:	City of Rochester
Mailing Address:	201 4th St. SE Rm 266 Rochester, MN 55904
Address of Premises:	219 first Avenue SW Rochester, MN
Contact Name:	Doug Knott
Title:	Development Administrator
Address:	201 4th St. SE Rm 266 Rochester, MN 55904
Phone:	(507) 328-2900
FAX:	(507) 328-2901
e-mail	dknott@ci.rochester.mn.us
Contact Name:	Jason Skramstad
Title:	Consultant
Address:	Landmark Environmental 2042 W. 98th Street Bloomington, MN 55431
Phone:	(952)887 - 9601
FAX:	(952)887 - 9605
e-mail	jskramstad@landmarkenv.com

1.1. SIC CODE:

1.2. DESCRIPTION OF PREMISES: Tetrachloroethylene (PCE) contaminated groundwater from the sight of the former Textile Care Building.

1.3. DESCRIPTION OF PROCESS FLOW: Construction dewatering and contaminated groundwater remediation.

1.4. DESCRIPTION OF PRETREATMENT PROVIDED: Construction dewatering will be treated with activated carbon to remove VOC's. Groundwater remediation will separate VOC's with the use of a dual phase extraction system discharged through a condensate tank.

2.0. LIMITS AND MONITORING REQUIREMENTS.

SPECIFIC LIMITS AND MONITORING REQUIRED BY THIS PERMIT					
PARAMETER	DAILY LIMIT	MONTHLY LIMIT	SAMPLING FREQUENCY	METHOD	SAMPLE TYPE
Flow			Continuous	Totalizer	
Flow 6am-10pm	20gpm		Continuous	Display	
Flow 10pm-6am	100gpm		Continuous	Display	
TTO mg/l	2.13		Once within 7 Days of start up of duel phase extraction.	EPA 624 7 day turn around.	Grab
TTO mg/l	2.13		Once within 8-14 days of start up of duel phase extraction	EPA 624 7 day turn around	Grab
TTO mg/l	2.13		Weekly during construction dewatering	EPA 624	Grab
TTO mg/l	2.13		Monthly during operation of duel phase extractio.n	EPA 624	Grab

Abbreviation of terms that may be found in table 2.0

TTO Total Toxic Organics

3.0. SPECIFIC CONDITION

3.1. AUTHORIZATION: The permittee is authorized to discharge process wastewater in compliance with the limits and monitoring requirements specified in Section 2.0. of this permit beginning January 1, 2008 and lasting through December 31, 2012. No discharge may take place under this permit after the above expiration date unless the user receives written authorization. In order to receive authorization to discharge after the above expiration date the user shall file a permit application, including any appropriate fees, with the City Engineer or designated representative. Applications will be made in accordance with Rochester Code of Ordinances, Section 76A.11, § 5.

3.2. SURROGATE MONITORING: NA

3.3. SAMPLING LOCATION: Samples collected in compliance with the monitoring requirements specified in Section 2.0. shall be taken at the following location(s): Prior to discharge into the sanitary sewer.

3.4. MONTHLY AVERAGES: NA

3.5. COMBINED WASTE STREAM FORMULA: NA

3.6. REPORTS: A self-monitoring report shall be submitted quarterly according to the following schedule:

Frequency	Period	Due Date
Quarterly	January 1 - March 31	April 30
	April 1 - June 30	July 31
	July 1 - September 30	October 31
	October 1 - December 31	January 31

Reports shall include all required and any other self monitoring of discharges.

3.7 REQUIRED PRETREATMENT: Construction dewatering will be treated with activated carbon to remove VOC's.

4.0. GENERAL CONDITIONS

4.1. NOTIFICATION The permittee, upon detection of any violations of the limits or monitoring requirements specified in Section 2.0., shall notify the Rochester Water Reclamation Plant. The permittee, upon detection of any violations of the Supplemental Limitations specified in Section 4.5, shall notify the Rochester Water Reclamation Plant. Notification shall be made within 24 hours of detection. The permittee shall also resample for the violated parameter within 30 days. Detection shall include all required and any other self-monitoring.

4.2. COMPOSITE SAMPLES For the purposes of the monitoring requirements specified in 2.0., a composite sample shall consist of a series of discrete samples collected in either:

a. A volume consistently proportional to the flow rate at the time of collection.

b. A fixed volume taken at equal time intervals within the compositing period.

All composite samples shall consist of a number of discrete samples equal to one per hour for the compositing period. All samples will be analyzed by a laboratory certified by the Minnesota Department of Health. Analytical methods and sample holding times shall conform to Section 304(h) of the Clean Water Act. All self-monitoring conducted by the user shall include the following: The date and time of the sampling. The name of the person conducting the sampling. The dates and times of all analyses. The name of the analyst.

4.3. DISCHARGE PROHIBITIONS: In addition the permittee shall comply with General Discharge Prohibitions as stated in the Rochester Code of Ordinances, Section 76A.03.

4.4. HAZARDOUS WASTES: The permittee shall also notify the Rochester Water Reclamation Plant, in writing, of any discharge of a substance that would, if otherwise disposed of, be considered a hazardous waste under 40 CFR Part 261. Notification shall take place at least 30 days before the date of discharge and conform to 40 CFR Section 403.12(p). No discharge of any hazardous wastes may take place without prior approval of the Rochester Water Reclamation Plant.

4.5. SUPPLEMENTAL LIMITATIONS: Industrial wastewater discharges from the permittee shall not exceed the supplemental limitations as stated in section 76A.07 nor the specific limits as specified in section 2.0. of this permit whichever is lesser.

4.6. FALSIFICATION: The permittee shall not knowingly make a false statement, representation or certification in any record, report, or plan required to be submitted to the Rochester Water Reclamation Plant under the provisions of Chapter 76A of the Rochester Code of Ordinances, or this Permit.

4.7. TRANSFERABILITY: This Permit is non-transferable.

4.8. RECORD KEEPING: The permittee shall maintain and retain plant records relating to wastewater discharge as specified by the City for a minimum of three years.

4.9. ACCIDENTAL DISCHARGE: The permittee shall notify the Rochester Water Reclamation Plant immediately of any slug or accidental discharge of a substance or wastewater in violation of Chapter 76A of the Rochester Code of Ordinances or this Permit.

4.10. SAMPLING AND MONITORING DEVICES: The permittee shall install, operate, and maintain sampling and monitoring devices in proper working order at the permittee's own expense, if required by this Permit.

4.11. INSPECTION: The permittee shall allow the City of Rochester personnel to enter upon the permittee's premise to inspect the monitoring point, collect samples, and determine compliance with Chapter 76A of the Rochester Code of Ordinances, the Federal Pretreatment Regulations, and this permit.

4.13. REVOCATION: The City of Rochester may revoke this permit if the permittee fails to comply with the conditions of this permit, Chapter 76A of the Rochester Code of Ordinances, or applicable State and Federal Regulations.

4.14. PENALTY: In the event of an industrial users noncompliance the user shall be subject to penalty in accordance with Rochester Code of Ordinances 76A.18 through 76A.28.

4.15. WASTEWATER CHANGES: Any significant change in volume or characteristics of industrial wastewater introduced into the Rochester Water Reclamation Plant system shall be immediately reported to the Manager of the Water Reclamation Plant. In such cases this permit may be subject to modification. Notice of any anticipated increase in pollutants contributed shall be given to the City 30 days in advance of such increase, in the form of a new permit application.

4.16. MODIFICATION: The terms and conditions of the permit may be subject to modifications by the City of Rochester during the term of the permit as limitations or requirements are modified or other just cause exists. The user shall be informed of any proposed changes in his permit at least 30 days prior to the effective date of change.

Appendix G

DNR Water Appropriations Permit Documentation

A-02623-04
(Rev. 3/06)
Minnesota
DNR Waters

Permit Application for Appropriation of Waters of the State
NON-IRRIGATION

OFFICE USE ONLY
P.A. No.
Date(s) Served
☐ SWCD
☐ WSD
☐ CITY

NOTICE OF WARNING: All information provided on this form is considered to be public information in accordance with the Minnesota Data Privacies Act (M.S. 15.1611 to 15.1698).

▷ SEE INSTRUCTIONS...TYPE OR PRINT CLEARLY

1. Applicant Name (landowner or renter): Doug Knott
2. Business Name: City of Rochester
3. Authorized Agent (if applicable):
4. Phone Numbers (with area codes): 507-328-2000
5. Mailing Address: 201 4th Street SE
6. City, State, Zip Code: Rochester MN 55904

7. Purpose (Explain what the water will be used for) ☐ Public Water Supply ☐ Commercial/Industrial ☐ Water Level Maintenance
☒ Pollution Containment ☐ Temporary (1 year or less) ☐ Other

8. Source of Water ("X" one and complete) ▷ Additional information MUST be supplied for each source. Refer to instructions (8 & 9) for requirements.
a. ☐ One well
b. ☒ 8 manifolded wells
c. ☐ Stream, ditch, or river (name)
d. ☐ Wetland, lake, or impoundment (name)
e. ☐ Other

9. Point of Taking/Pumping Site
a. NE 1/4 of NE 1/4 of NE 1/4
b. Section No. 2
c. Township No. 106
d. Range No. 14W
e. County Olmsted

10. Means of Taking and Rate
a. ☒ Stationary Pump(s) at 2 gpm
b. ☐ Portable Pump at ____ gpm
c. ☐ Gravity Flow at ____ gpm/cfs
d. ☐ Other ____ gpm/cfs (circle one)

11. Method of Measurement
a. ☒ Flow Meter
b. ☐ Timing Device
c. ☐ Electric Power Consumption
d. ☐ Other

12. Means of Distribution
a. ☒ pipe 4" diam 27' length
b. ☐ tank ____ gal. capacity
c. ☐ channel ____ length
d. ☐ other

13. Legal Description-Land Owned/Rented *

Township No.	Range No.	Section	Fractional Sect. Gov't. Lots
106	14W	2	NE/NE/NE

* Rental Agreement MUST Be Submitted

14. Months of Appropriation
☒ JAN ☒ JUL
☒ FEB ☒ AUG
☒ MAR ☒ SEP
☒ APR ☒ OCT
☒ MAY ☒ NOV
☒ JUN ☒ DEC

15. Schedule of Appropriation ("X" one and complete)
a. ☒ Continuous 24 hrs./day 30 days/mo. 12 mo./yr.
b. ☐ Seasonal Beginning date 8-1-2009
c. ☐ Temporary End date

16. Total Annual Use (Gallons per Year)

17. Discharge To and Quantity
a. ☐ Stream, Ditch or River ____ (name) ( ) MGY
b. ☐ Wetland, Lake or Impoundment ____ (name) ( ) MGY
c. ☒ Sewer System (1.65) MGY
d. ☐ Other ( ) MGY

18. Discharge Point
a. NE 1/4 of NE 1/4 of NE 1/4
b. Section No. 2
c. Township No. 106
d. Range No. 14W
e. County Olmsted

19. Means of Discharge and Rate
a. ☒ 1 (no.) stationary pump(s) at 2 gpm ea.
b. ☐ ____ (no.) portable pump(s) at ____ gpm ea.
c. ☐ Gravity Flow at ____ gpm/cfs
d. ☐ Other ____ gpm/cfs (circle one)

20. Additional Requirements:
a. ☐ Map or Air Photo which shows:
1) Point of Taking or Pumping Site
2) Test Hole Location 3) Boundaries of Property Controlled and Area of Use 4) Discharge Point
b. ☐ $150 Minimum Application Fee will be billed after receipt of application.
c. ☐ Statement of Justification/Alternative Sources
d. ☐ Additional Documents Required

▷ I hereby make application pursuant to Minnesota Statutes Chapter 103G.261 and all supporting rules for a permit to appropriate water in accordance with all supporting maps, plans, and other information submitted with this application. The information submitted and statements made concerning this application are true and correct to the best of my knowledge.

21. Signature of Landowner or Authorized Agent: Doug Knott
22. Date: 7/24/09

▷ IMPORTANT: Submit this application and all supporting data to the DNR Office serving you (see back for addresses).
APPLICANT: KEEP A COPY FOR YOUR RECORDS.

This information is available in an alternative format upon request.

Water Use Report Directions

Enclosed are the 2009 Water Use Report forms for your Minnesota Department of Natural Resources water appropriation permits

Please complete these forms with all requested information and return with the appropriate fee by February 15, 2010, even if no water was used during 2009.

A condition of each water appropriation permit is the monthly measurement and yearly reporting of water use with an approved measuring device to an accuracy of 10%. A monthly water use reporting ***Installation Worksheet*** is printed for each active installation (well/pump station) for each permit. Fill in the monthly water used in units of whole gallons for each installation. A flow meter, flow rate meter, or timing device is required to measure water use. Only pre-approved alternate methods can be substituted.

The **Fee Calculation Worksheet** is used to determine your processing fee based on the amount of water used. Add the individual installation totals to make a grand total for each permit. Use the fee rate table to determine the fee and follow the instructions to calculate the amount due.

The **Permit Data Verification Form** is used to check compliance with the permitted water use volume and to request amendment, transfer, or termination of permits. Note the fee exemptions for amendments and transfers.

Please note the following items related to water use reporting:

To calculate monthly water use from:
A Flow Meter: Subtract the beginning of the month readings from end of the month readings. Convert the result into gallons for each month. If meter readings are in cubic-feet, multiply by **7.4805** to convert to gallons.

A Timing Device: To convert to gallons: multiply the hours pumped times the pump rate (in gallons per minute) times 60 (minutes). [Example: 150 hrs x 800 gpm x 60 min/hr = 7,200,000 gallons]

For Irrigators:
Gallons of water per acre = Total Annual Gallons ÷ number of irrigated acres
Inches of water per acre = Gallons of water per acre ÷ 27,154

Calculate the inches per acre for each crop type by installation. The total of each individual crop acres times the inches per acre, when converted into gallons, should equal the total water use for each installation.

Pay by check or money order. We are unable to accept payment by cash or credit card.
Make your check or money order payable to **MN DNR Waters.**
All money received goes to the State of Minnesota General Fund. Return all completed forms with payment to the address on the Fee Calculation Worksheet. You may pay for all permits using one check.

Questions? For questions on water use reporting please call (651)259-5679; for questions on permit amendments, transfers and terminations call (651)259-5678. Send email to **wateruse.dnr@state.mn.us.** Please include your name, permit number, telephone number, and specific questions when leaving a message. We will return your call or send you the information/forms requested.

Non-Reporting: Permits for which reports and fees are not received by **February 15, 2010** are subject to termination. All active permits require reports and fees, except as noted. Permittees that do not submit the required fee will be referred to the Minnesota Department of Revenue for collection and additional collection, enforcement and interest fees will apply.

To suggest changes that you feel would make water use reporting easier or more effective, please send your comments. We welcome your ideas.

Turn over for general information on Minnesota water use

STD

2010-0159
2009

2009 MN DNR - Annual Report of Water Use
Fee Calculation Worksheet

Permit: 2010-0159 Permitted Volume (MG/Y): 1.1 Permitted Installations: 1
Use: Pollution Containment

ROCHESTER, CITY OF
DOUG KNOTT
201 4TH ST
ROCHESTER MN 55904

Please correct address if needed:

Phone: 507-328-2000
Email:

1. Enter the total volume of water from all installations of this permit. 105,956 gallons
2. Divide line 1 by one million, round to the nearest decimal place. 0.1 million gallons
3. If the amount on line 2 is less than 50 million gallons, skip to line 5.
   If 50 million gallons or greater, enter the Fee Rate from the table. $ per million gallons

Volume Pumped (from line 2)	Fee
Less than 50 million gallons	Minimum fee $140
	Fee Rate
50 to 100 million gallons	$3.50
100 to 150 million gallons	$4.00 per
150 to 200 million gallons	$4.50 million
200 to 250 million gallons	$5.00 gallons
250 to 300 million gallons	$5.50
300 to 350 million gallons	$6.00
350 to 400 million gallons	$6.50
400 to 450 million gallons	$7.00
450 to 500 million gallons	$7.50
over 500 million gallons	$8.00

Maximum Fee

Classification	Fee
entity with 1 to 3 permits	$60,000
entity with 4 to 6 permits	$90,000
entity with more than 6 permits	$300,000
city of the first class	$250,000

4. Multiply line 2 by line 3 (when volume is 50 MG or greater). $

5. Fee Determination
   a) If the amount on line 2 is less than 50 million gallons, enter the minimum permit fee of $140.
   b) If the amount on line 4 is greater than the maximum fee, enter the applicable maximum fee.
   c) Otherwise, enter the amount from line 4.

Return this fee with the water use reports and any additional information required. $ 140 (355)

paid

Make checks payable to: "MN DNR Waters"
Mail forms and fees to: Minnesota DNR - OMB
500 Lafayette Rd Box 10
St Paul MN 55155

Check Amt $ 140
Check #

This report and fee are due by February 15th. Please call (651)259-5679 with questions on water use reporting/fees.

STD

2010-0159
2009

2009 MN DNR - Annual Report of Water Use
Installation Worksheet

Permit: 2010-0159 Installation: 1

Permittee: ROCHESTER, CITY OF

Use: Pollution Containment
Source Type: Ground Water
Source Name:

Twp: 106 Rng: 14 Sec: 2 Qtr: ABAA
Olmsted County

A. If no water was withdrawn this year, indicate the reason.
___ 1. Well Sealed ___ 2. System Removed
___ 3. Water received from an alternate source, specify:
___ 4. Other, specify:

B. List the number of gallons withdrawn in each month of 2009. Pumping Rate (GPM): ____

January	NA	July	22,184
February	NA	August	
March	NA	September	24,344
April	51	October	11,157
May	73	November	16,000
June	15,923	December	16,224
		Total	105,956

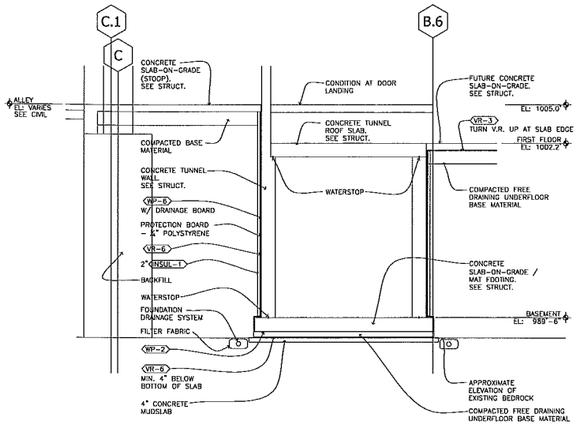
C. Measurement method (indicate one)

___ 1. Flow Meter
X 2. Flow Rate Meter with: X Totalizer or ___ Hour meter
___ 3. Timing Device with: ___ Hour Meter or ___ Electric meter
___ 4. Alternate method: If not already approved, enclose request for approval
___ 5. Estimated: An approved measuring device or method is required (describe below)

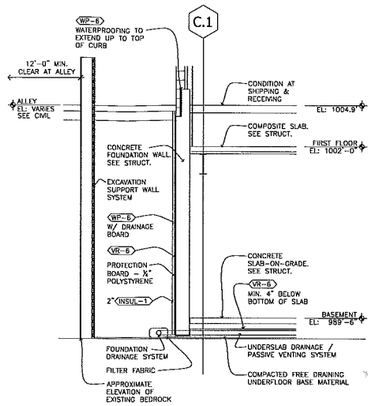
Signature Doug Knott Date 3/3/10 Phone (507) 328-2003

Appendix H

Vapor Barrier and Passive Venting Systems Asbuilt Drawings



10 FOUNDATION DETAIL
1/4" = 1'-0"

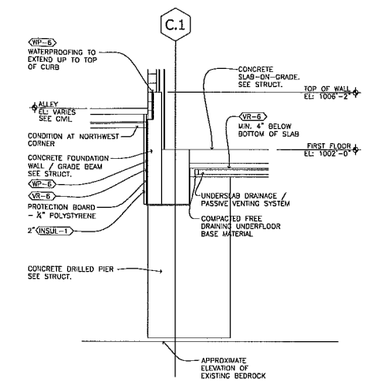


7 FOUNDATION DETAIL
1/4" = 1'-0"

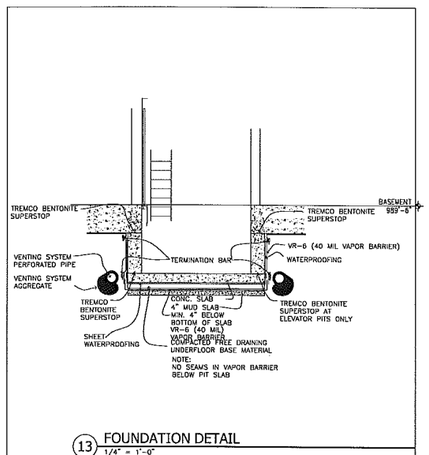
1. PASSIVE VENTING SYSTEM AND VAPOR BARRIER SYSTEM ARE PART OF THE ENVIRONMENTAL REMEDIATION AND ARE DESIGNED BY LANDMARK ENVIRONMENTAL SERVICES.

2. FOUNDATION AND UNDERFLOOR SLAB DRAINAGE SYSTEM SERVES ALSO TO COLLECT SOIL GAS AND CONNECTS TO PASSIVE VENTING SYSTEM. REFER TO PLUMBING DRAWINGS FOR ROUTING.

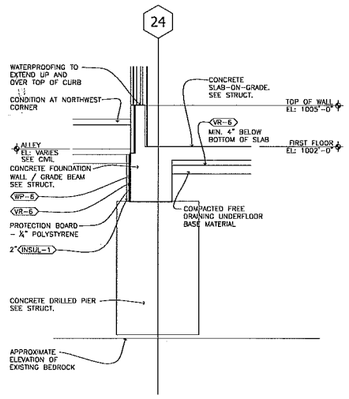
4 GENERAL NOTES
1/4" = 1'-0"



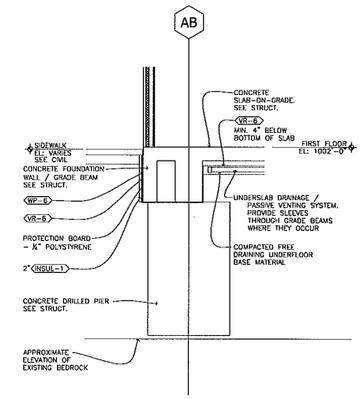
1 FOUNDATION DETAIL
1/4" = 1'-0"



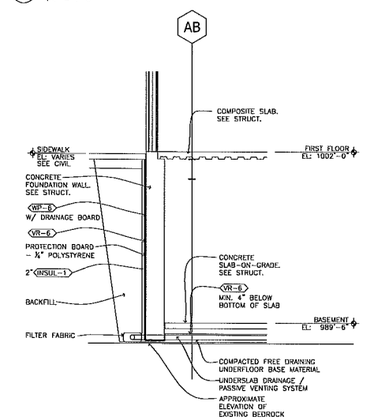
13 FOUNDATION DETAIL
1/4" = 1'-0"



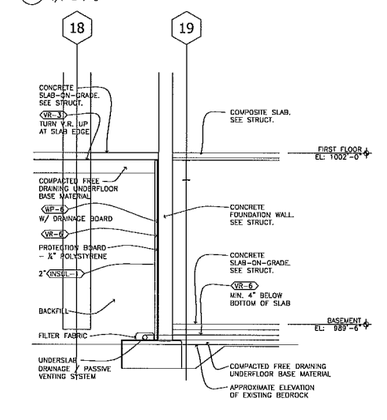
11 FOUNDATION DETAIL AT NORTH WALL OF TOWER
1/4" = 1'-0"



8 FOUNDATION DETAIL
1/4" = 1'-0"

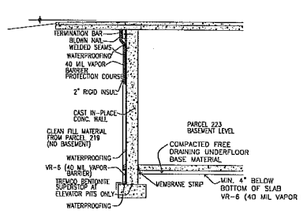


5 FOUNDATION DETAIL
1/4" = 1'-0"

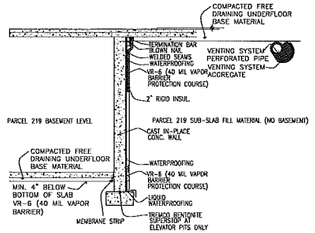


2 FOUNDATION DETAIL
1/4" = 1'-0"

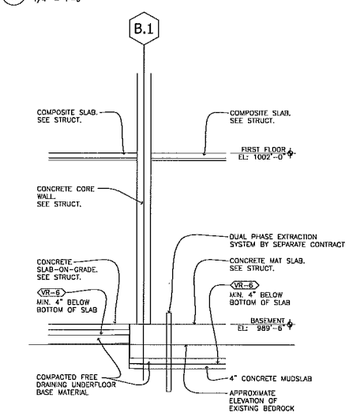
THESE DETAILS PROVIDED BY LANDMARK ENVIRONMENTAL SERVICES



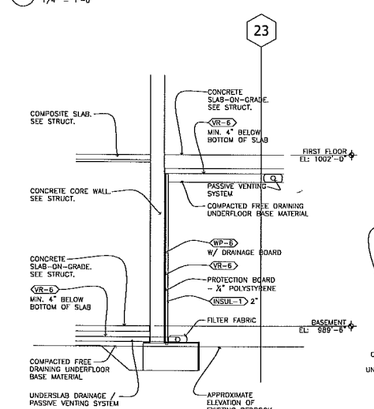
14 FOUNDATION DETAIL
1/4" = 1'-0"



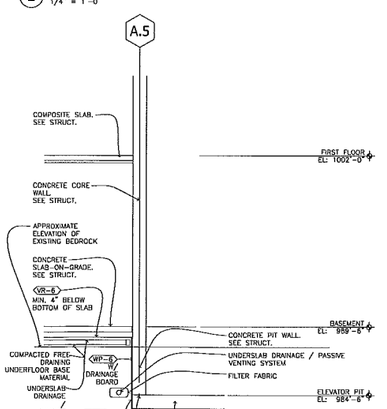
12 FOUNDATION DETAIL
1/4" = 1'-0"



9 FOUNDATION DETAIL
1/4" = 1'-0"



6 FOUNDATION DETAIL
1/4" = 1'-0"



3 FOUNDATION DETAIL
1/4" = 1'-0"

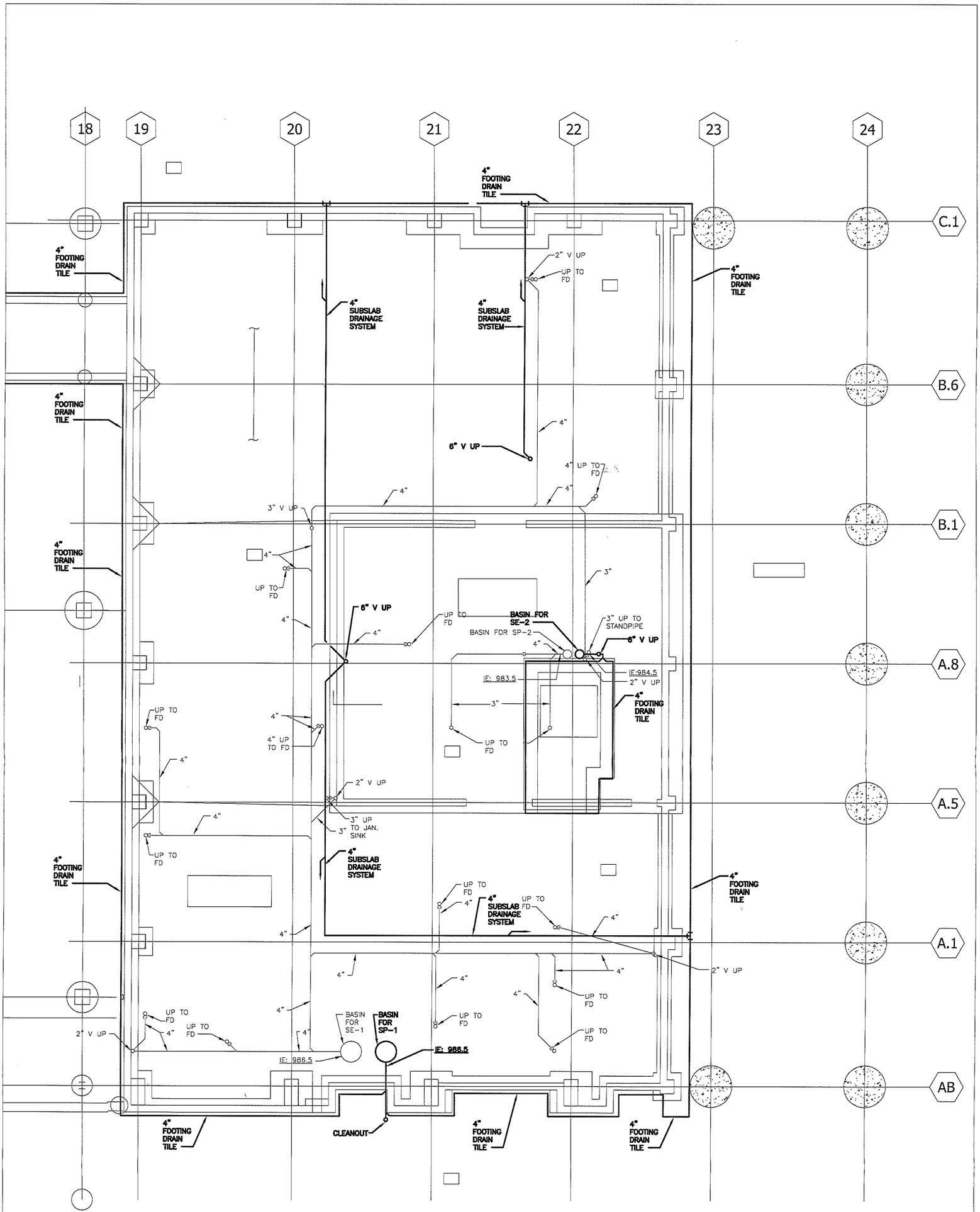
NOTE: Detail drawings provided by HGA; however, venting and vapor barrier systems shown in the details were designed by Landmark Environmental LLC.

Rev	Date	By	Description
.	.	.	.

LANDMARK ENVIRONMENTAL, LLC
2042 W. 98th Street
Bloomington, MN 55431

VAPOR BARRIER AND PASSIVE VENTING SYSTEM ASBUILT DRAWINGS
221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC		
Drawn: JDS	Checked: JDS	Designed: JDS
Scale: NONE	Date: 9/18/07	Revision: .
Drawing Number: .	Sheet Of 1	Sheets 1



NOTE: Drawing provided by HGA; however, the venting system was designed by Landmark Environmental LLC.

F:\Projects\CRC\CAD\Sub-slab Venting System - Asbuilt.dwg

LEGEND

——— Venting System

N

NOT TO SCALE

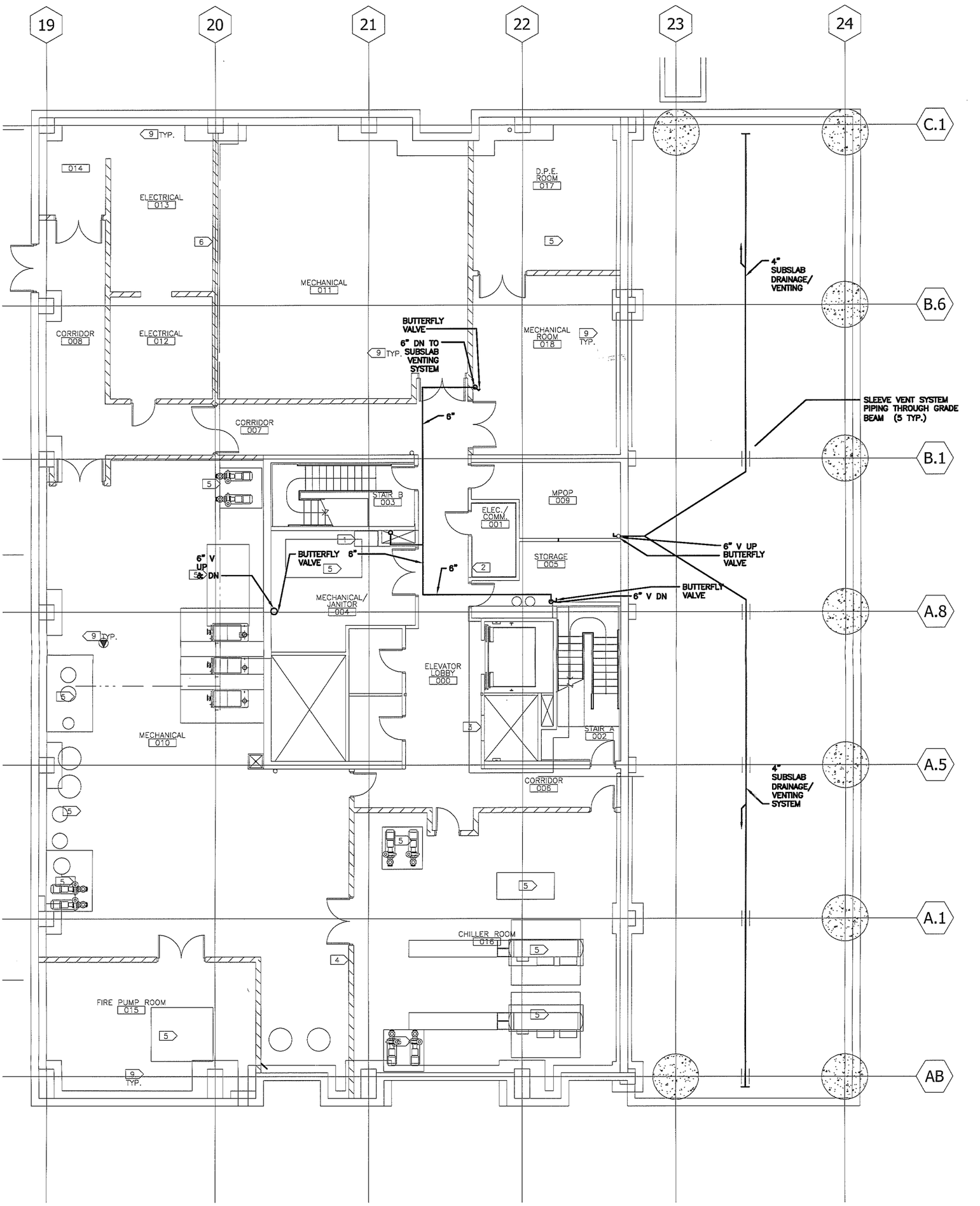
Rev	Date	By	Description
.	.	.	.

LANDMARK ENVIRONMENTAL, LLC
2042 W. 98th Street
Bloomington, MN 55431

BASEMENT LEVEL SUB-SLAB - FOUNDATION VENTING AND DRAINAGE SYSTEM ASBUILT DRAWING

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC			
Drawn: JDS	Checked: JDS	Designed: JDS	
Scale: NONE	Date: 6-1-2010	Revision: .	
Drawing Number: .		Sheet . Of .	Sheets .



NOTE: Drawing provided by HGA; however, the venting and DPE systems were designed by Landmark Environmental, LLC.

LEGEND

——— Venting System

N NOT TO SCALE

F\projects\crc\CAD\basement planview\Basement Level PV Asbuilt.dwg

Rev	Date	By	Description
.	.	.	.

LANDMARK ENVIRONMENTAL, LLC
2042 W. 98th Street
Bloomington, MN 55431

BASEMENT LEVEL - FOUNDATION VENTING AND DRAINAGE SYSTEM ASBUILT DRAWING

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC			
Drawn: JDS	Checked: JDS	Designed: JDS	
Scale: NONE	Date: 6-1-2010	Revision: .	
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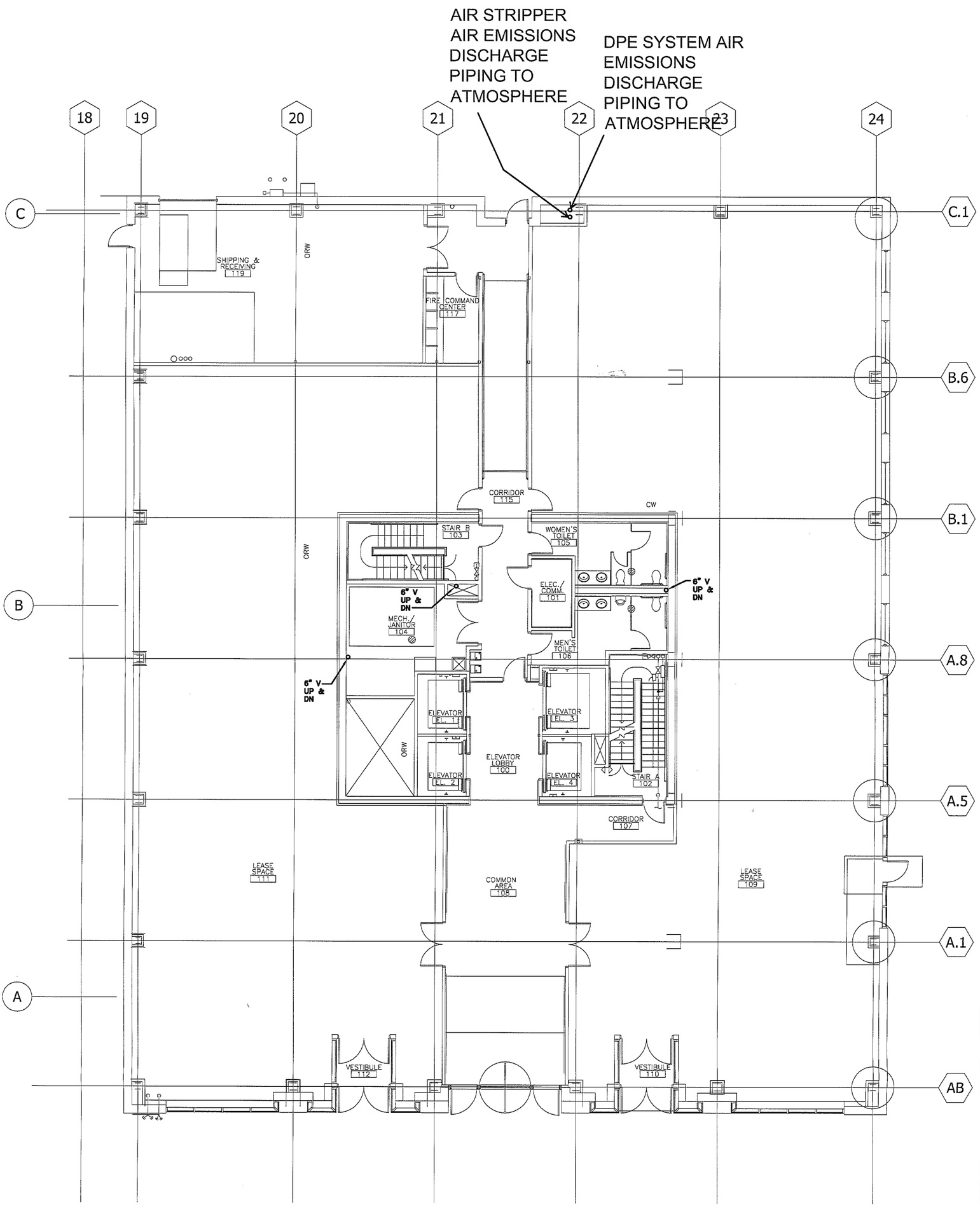


1 FIRST FLOOR PLAN
1/8"=1'-0"

NOTE: Drawing provided by HGA; however, the venting and DPE systems were designed by Landmark Environmental, LLC.

N NOT TO SCALE

F\projects\crc\CAD\1st floor pv Asbuiltl.dwg

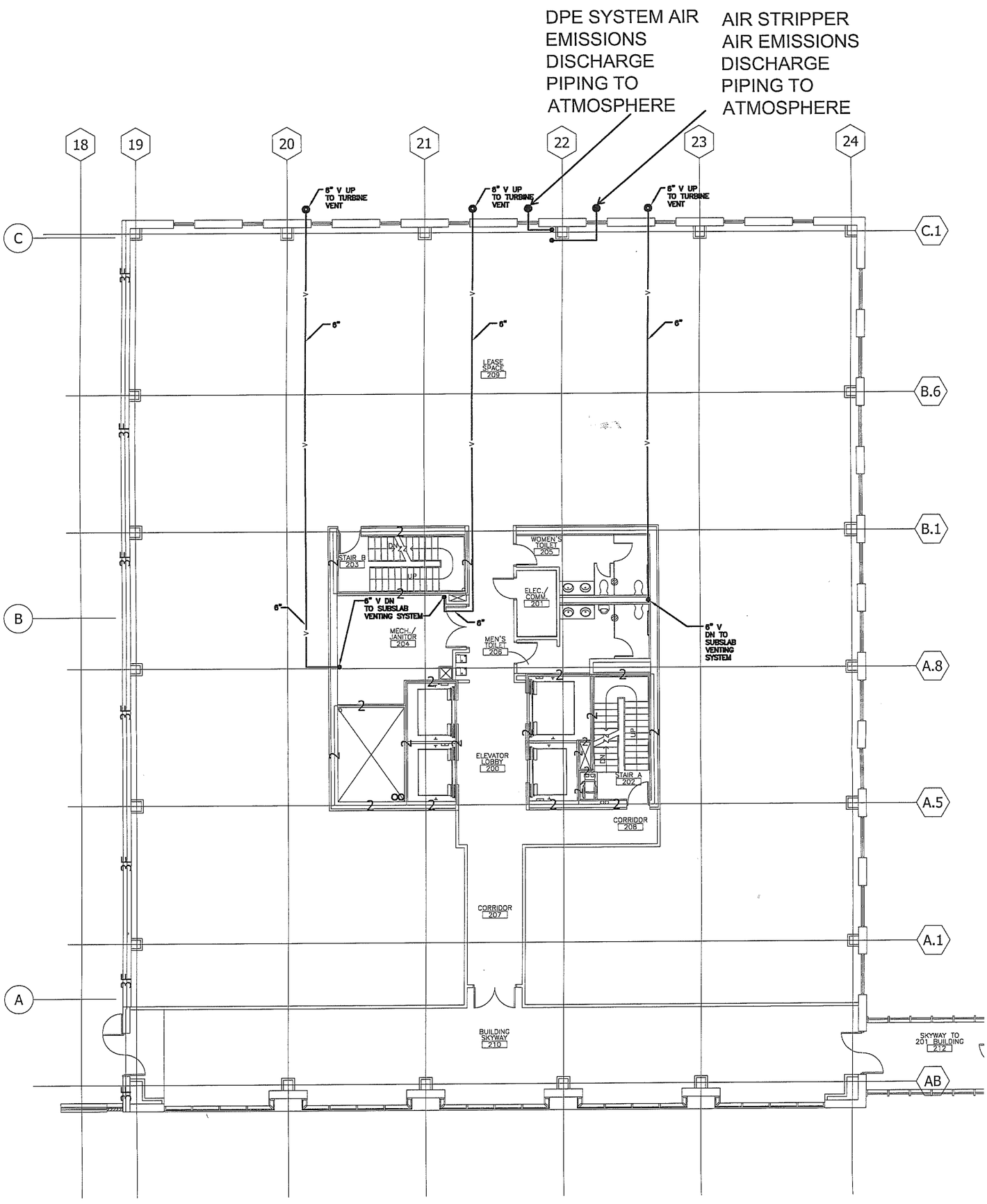
Rev	Date	By	Description
X	XX-XX-XX	XXX	XXX

LANDMARK ENVIRONMENTAL, LLC
2042 W. 98th Street
Bloomington, MN 55431

FIRST LEVEL FOUNDATION VENTING AND DPE SYSTEM ASBUILT DRAWING

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC		
Drawn: JDS	Checked: .	Designed: .
Scale: 1:50	Date: 6-1-2010	Revision: 00
Drawing Number: DWG NUMBER	Sheet 1 Of	Sheets 1



1 SECOND FLOOR PLAN
1/8"=1'-0"

NOTE: Drawing provided by HGA; however, the venting and DPE systems were designed by Landmark Environmental, LLC.

F\projects\crc\CAD\2nd floor PV Asbuilt.dwg

LEGEND

——— Venting And DPE System Piping

N → NOT TO SCALE

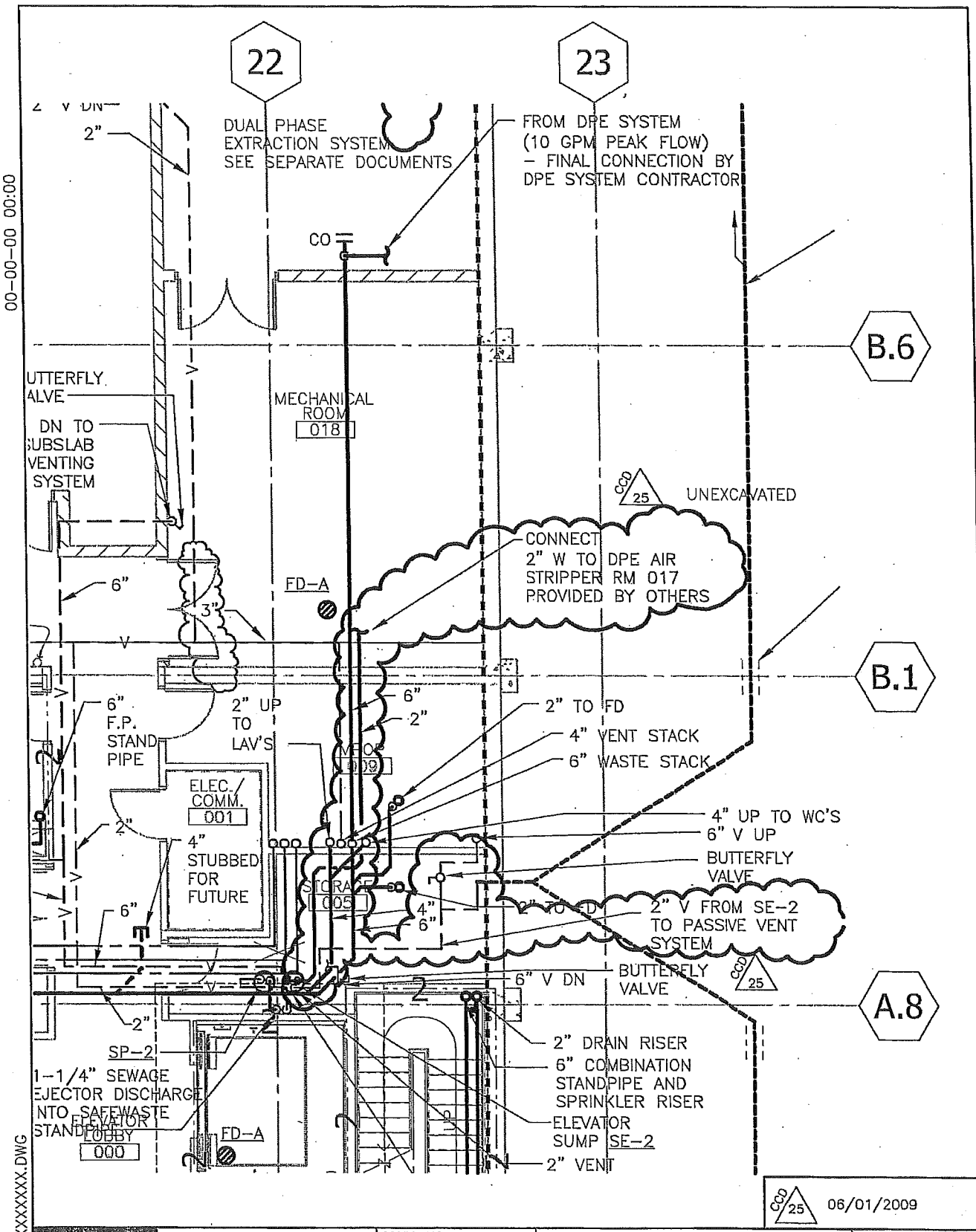
Rev	Date	By	Description

LANDMARK ENVIRONMENTAL, LLC
2042 W. 98th Street
Bloomington, MN 55431

SECOND FLOOR - FOUNDATION VENTING AND DPE SYSTEM ASBUILT DRAWING

221 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC			
Drawn: JDS	Checked: .	Designed: .	
Scale: .	Date: 6-1-2010	Revision: 00	
Drawing Number: .	Sheet .	Of Sheets .	



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XXXXXXXX-XXXXXXXXX.DWG

CITY OF ROCHESTER MINNESOTA

HGA
Architecture | Engineering | Planning
Hammel, Green and Abrahamson, Inc
202 1st Avenue SW - Suite 200
Rochester, Minnesota USA 55902-3129
Telephone 507.281.8600 Facsimile 507.281.8686

COMM. NO.	1009-018-00
SCALE	1/8"=1'-0"
DATE	Sept. 14, 2007
DRAWN	HGA

MINNESOTA BIO BUSINESS CENTER
&
THIRD STREET PARKING RAMP EXPANSION

1

P200

Appendix I

Sub-slab Venting System Monitoring Plan

Landmark Environmental LLC

Venting System Operation and Maintenance Plan

219 and 223 First Avenue S.W.
Rochester, Minnesota 55902

Prepared for
City of Rochester

September 2007

2042 W. 98th Street Bloomington, Minnesota 55431 Phone: (952) 887-9601 Fax: (952) 887-9605 www.landmarkenv.com

Venting System Operation And Maintenance Plan

This Venting System Operation and Maintenance Plan (O&M Plan) describes the monitoring that will be conducted for remedial verification and long-term monitoring after the dual phase extraction system is decommissioned and Response Actions (RAs) are completed at 219 and 223 First Avenue S.W., Rochester, Minnesota ("the Property"). The purpose of this Operation and Maintenance Plan (O&M Plan) is to address the following: 1.) the air monitoring procedures; 2.) the performance of the passive venting system; and 3.) the criteria for upgrading the passive system to an active system. The procedures outlined in this O&M Plan will be implemented as part of the Voluntary Response Action Plan ("VRAP") previously submitted to the MPCA for review and approval under separate cover.

Air monitoring of the venting system will be conducted quarterly by Landmark Environmental (Landmark) for a minimum of two years following completion of the RAs. Quarterly air monitoring reports will be submitted to the MPCA on an annual basis following completion of the RAs. Air monitoring locations will include the 4 indoor suction points, which are located in the basement level of the building and designated SP-1 through SP-4, the 3 exhaust points designated R-1 through R-3 and located outside the west side of the building on the second level.

Air monitoring of organic vapors will be conducted during the long-term monitoring period. The air monitoring will involve the use of field equipment that provides a direct readout of the results. The sampling equipment to be used to measure organic vapors will be a PID (with 11.7 eV bulb). Vacuum and differential pressure measurements will be made with various equipment including magnehelic gauges, electronic digital manometer, and a digital thermo-anemometer. Vacuum and differential pressure data will be collected to determine the quantity and direction of air flow through the venting system riser piping. The air flow through the riser piping will also be evaluated quantitatively by documenting whether or not the rotary wind turbines on the venting system exhaust stacks are moving air through them. Weather data will also be collected during each monitoring event including; temperature, barometric pressure, dew point, wind speed and wind direction. Monitoring procedures are described in the indoor air monitoring standard operating procedures ("SOPs") included in Attachment 1.

Quantitative and qualitative data collected will be evaluated to determine the effectiveness of the rotary wind turbines to maintain airflow from the subsurface to the atmosphere. Quantitatively, the effectiveness of the rotary wind turbines on the passive venting system can be determined just by verifying if turbine is spinning or not. If the turbine is spinning, air is being evacuated from the subsurface of the building through the exhaust stack. If the turbine is not spinning, the monitoring data will have to be evaluated to determine if the passive venting system is operating effectively or not. Vacuum readings and differential pressure may be used to determine flow rates and direction if there is enough air flow through the pipes to obtain accurate field readings. Another way to verify that the passive venting system is working is to detect organic vapors at the venting system exhaust stacks. In-line fans will be installed in the venting system riser pipes for "active" service mode if evaluation of the quantitative and qualitative data collected indicates the passive venting system with the rotary wind turbines is not working.

Attachment 1

Standard Operating Procedures

SOPs For Venting System Air Monitoring

Monitoring post-construction of the interior office space of the Building will include sampling for airborne concentrations of methane, hydrogen sulfide, organic vapors, carbon monoxide and oxygen. The results of the sampling will be used to measure the effectiveness of the sub-slab depressurization system.

The depressurization system monitoring will be conducted by Landmark after the post construction/remodeling is completed. The sampling equipment used to measure methane will be an Industrial Scientific MDU420 dual range methane monitor. Carbon monoxide, hydrogen sulfide, and oxygen levels will be measured using a Rae Systems MultiRae Plus four gas monitor. The sampling equipment to be used to measure organic vapors will be a PID (with 11.7 eV bulb). Vacuum measurements will be made with various equipment including; magnehelic gauges, electronic digital manometer, and a digital thermo-anemometer. Weather data will be collected at the Property and may be supplemented with local media information. During each monitoring event the temperature, barometric pressure, dew points, wind speed and wind direction will be collected.

The air monitoring will involve the use of field equipment that provides a direct readout of the results. The results from the air monitoring will be used for direct sampling activities and to evaluating potential exposure or unsafe situations during construction and RA implementation activities.

The main objectives for air monitoring are to:

1. Identify and quantify airborne contaminants;
2. Evaluate the potential risk posed by the presence of airborne contaminants;
3. Track changes in airborne contaminants that occur during seasonal fluctuations;

The frequency of monitoring during the post construction/remodeling will be quarterly from the third quarter of 2007 through the second quarter of 2008. At a minimum, monitoring will be performed during the fall, winter, spring and summer months. Unscheduled monitoring will be conducted if conditions change at the Property or if AAA request monitoring at specific times.

The monitoring activities will be conducted in accordance with Landmark's SOPs. The SOPs were developed based on Section 8.0 (Monitoring and Sampling) of the MPCA's Risk Based Site Characterization and Sampling Guidance (Internal Review Draft, August 29, 1997).

Methane Monitoring

The following procedure will be used for methane gas monitoring with the Industrial Scientific MDU420 dual range methane monitor:

1. The calibration of this monitor will be checked in the field to determine if recalibration is required. This monitor utilizes an automatic calibration system that has the ability to detect when calibration is necessary. If necessary, the monitor will be calibrated in the field per the manufacturer's instructions.

2. This monitor provides direct readings of methane and will be used to collect data in locations discussed in the VRAP.

Oxygen, Hydrogen Sulfide, and Carbon Monoxide Monitoring

The following procedure will be used for oxygen, hydrogen sulfide, and carbon monoxide gas monitoring with the Rae Systems MultiRae Plus four gas monitor:

1. This monitor will be calibrated no less than every 30 days, or if it does not pass a fresh air reading, or if it does not pass a field verification. The sensors in this monitor will be calibrated per the manufacturer's instructions which consist of a two step process as using fresh air and span gas.

2. This monitor provides direct readings of oxygen, hydrogen sulfide, and carbon monoxide and will be used to collect data in locations discussed in the VRAP.

Organic Vapor Monitoring

The following procedure will be used for organic vapor monitoring with a PID (with 11.7 eV bulb):

1. This monitor will be calibrated in the field daily per the manufacturer's instructions which consist of a two step process as using fresh air and span gas.

2. This monitor provides direct readings of organic vapors and will be used to collect data in locations discussed in the VRAP.

Appendix J

Elevator Pit Draintile Sump Documentation

Jason Skramstad

From: Dave Thiel [DThiel@hga.com]
Sent: Thursday, June 03, 2010 4:07 PM
To: Jason Skramstad
Cc: Knott, Doug; David Manns; Mount, Gale; Roger Nelson
Subject: RE: elevator pit
Attachments: City of Rochester-Minnesota Bio Business Center

Jason,

Attached is the June 1, 2009 letter that was sent by HGA to Gale Mount with Building Safety regarding the sump pumps.

As you may recall, the final Certificate of Occupancy was not being issued pending the resolution of the sump pump issue. Based on the testing documentation provided by Landmark Environmental, our letter documented that the explosion-proof motors and intrinsically-safe wiring were not required. We did note that the basin cover should be modified to a sealed type, the pump discharge should be routed to the DPE system and the basin vent should be rerouted to the building's "passive" vent system. These changes were incorporated into the sump pump system.

The issuing of the final Certificate of Occupancy served as the documentation that the recommended changes were accepted by Building Safety.

Please contact me if you have any questions.

Dave Thiel PE, LEED AP
Senior Associate

HGA Architects and Engineers
202 1st Avenue SW, Suite 200, Rochester, MN 55902
Direct 507.281.8616 | Fax 507.281.8688
dthiel@hga.com

From: Jason Skramstad [mailto:jskramstad@landmarkenv.com]
Sent: Thursday, May 20, 2010 3:35 PM
To: Dave Thiel
Cc: David Manns; Knott, Doug
Subject: RE: elevator pit

Hello Dave,

Now that all of the DPE system modifications have been completed, I am finishing up an implementation report summarizing the details of the DPE, vapor barrier, and passive venting systems installation at the MN Bio Business Center. As referenced in the email below in yellow highlights, I am trying to track down the documentation of your conversation with Gayle at Building Safety confirming that explosion proof motors and cover for the elevator sump pit are not required. I have been through my email archives and hard copy corresspondence files and can't find anything. I have to provide backup documentation to the MPCA showing we didn't have to install the explosion proof pumps, cover, etc. Will you please email me the documentation of your conversation with Gayle which confirms we did not need to install explosion proof motors and cover?

I was on site on June 1, 2009, and monitored the elevator pit drain tile sump for explosive gases. No explosive gasses were detected. My field book says I left voice mail messages for you and Doug Knott with the results.

Let me know if you have any questions, I know this was a long time ago.

Thanks.

Jason

From: Knott, Doug [mailto:dknott@rochestermn.gov]
Sent: Monday, June 01, 2009 8:59 AM
To: Neumann, Gary
Cc: David Manns; Jason Skramstad; Dave Thiel
Subject: elevator pit

I spoke with Dave Thiel this morning. This is a recap of the resolution of the elevator pit situation as I understand it. Jason will be in Rochester this morning for air quality monitoring. If there are any issues he will let Thiel and the City know. After monitoring results are available Dave will contact Gayle at Building Safety to confirm we do not need explosion proof motors and cover. This discussion will be documented in writing. HGA will issue a CCD to A-P for the work. The piping work should be complete in a matter of several days. The sealed basin cover may take up to a week to acquire and install. If I have missed anything let me know. Doug

Doug Knott
Development Administrator
201 4th Streeet SE - Room 266
Rochester Mn 55904
(507) 328-2003

Architecture | Engineering | Planning

June 1, 2009

WRITER'S DIRECT DIAL 507-281-8616

Gale Mount
Chief Plumbing Inspector
City of Rochester Building Safety Department
2122 Campus Drive Southeast, Suite 300
Rochester, Minnesota 55904

Re: Minnesota Bio Business Center
Elevator Sump Pump Piping
HGA Commission Number 1009-018-00

Dear Gale:

Per your request, this letter is to document whether or not the elevator sump pump should be provided with explosion-proof motor(s) and intrinsically-safe wiring. Based on our analysis, the minute amounts of potentially combustible materials do not present any sort of flammability hazard and do not require changes to the existing sump pump's motors or wiring. Changes to the sump installation should be limited to the rerouting of the discharge piping to the Dual-Phase Extraction (DPE) system for treatment, modification of the basin venting to connect to the building below-floor "passive" vent system and providing a sealed basin cover.

We have reviewed the elevator sump pump water sample test results that Landmark Environmental previously submitted to Building Safety (attached). The primary contaminant in the water sample, PCE, is not a combustible substance. The four contaminants in the sample that are combustible in a pure liquid form are of the noted concentrations:

- Contaminant A: 2-butanone (67 ug/L)
- Contaminant B: cis-1,2-dichloroethene (46 ug/L)
- Contaminant C: Styrene (25 ug/L)
- Contaminant D: 1,1,1-trichloroethane (40 ug/L)

Based on a review of Section 500 of the NEC, which in turn references NFPA 497, the properties for Flash Point, Auto-Ignition Temperature, Lower Explosive Limit and Upper Explosive Limit were determined. A substance is considered combustible if the Flash Point is greater or equal to 100 degrees F and flammable is less than 100 degrees F.

- Flash Point (FP) is the minimum temperature (degrees F) at which a pure liquid gives off a vapor in sufficient concentration to form an ignitable mixture.

- Auto-Ignition Temperature (AIG) is the temperature (degrees F) at which the substance will self-ignite.
- Lower Explosive Limit (% LEL) is minimum percentage by weight for the substance to be combustible in air.
- Upper Explosive Limit (% UEL) is maximum percentage by weight for the substance to be combustible in air.

The values for the contaminants are:

- Contaminant A: FP = 75 deg., AIG = 761 deg., LEL = 1.7%, UEL = 9.8%
- Contaminant B: FP = 56 deg., AIG = 775 deg., LEL = 6.2%, UEL = 16%
- Contaminant C: FP = 88 deg., AIG = 490 deg., LEL = 0.9 %, UEL = 6.8%
- Contaminant D: FP = none, AIG = 997 deg., LEL = 7.5%, UEL = 7.5%

Assuming a worst case air volume within the pit basin of approximately 113 cubic feet (36" diameter x 96" deep, half full of water), the combined percentage of the contaminants in air would be less than 0.000005% assuming that vapor from all four contaminants were present, much lower than the combined LEL's. Since the temperature in the basin would be room temperature or less, the actual percentage would be lower still as the Flash Point for Contaminant C is higher than room temperature and Contaminant D has no documented Flash Point.

As the DPE system is put into service and the groundwater is removed from elevations deeper than the elevator pit and treated, the contaminant levels will be reduced further.

Landmark Environmental obtained secondary measurements on June 1, 2008 to verify the earlier sampling that was performed. Using a multi-gas meter, a zero reading was obtained for % LEL in both the basement and within the sump basin.

Based on the above information, there does not appear to be any combustibility hazard associated with the ground water removed from elevator sump pit. With the lack of the combustibility hazard, the explosion-proof motors and intrinsically-safe wiring is not required. Our recommendation is that changes to the elevator sump pump should be limited to the previously-requested rerouting of the discharge to the DPE system, venting the basin to the "passive" vent system and providing a sealed basin cover (revisions are attached for reference).

Please contact me with any questions, comments or concerns regarding the above information.

Sincerely,

Dave A. Thiel
Senior Associate

Enclosure

cc: Doug Knott, City of Rochester
Gary Neumann, City of Rochester
David Manns, CPMI
Jason Skramstad, Landmark Environmental
Roger Nelson, HGA
Kevin Coyle, HGA

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Landmark Environmental LLC

April 17, 2009

Mr. Gale Mount
Chief Plumbing Inspector
City of Rochester
2122 Campus Dr SE
Suite 300
Rochester, MN 55904

Re: Elevator Pit Drain Tile Discharge
MN Bio Business Center, Rochester, MN

Dear Mr. Mount:

On behalf of the City of Rochester (City) Administration Department, Landmark Environmental, LLC (Landmark) has prepared this letter to request a variance allowing the elevator pit drain tile system at the Minnesota Bio Business Center to remain connected to the sanitary sewer piping network in the building as shown in Attachment 1.

Based on our conversation this morning, it is Landmark's understanding that you would prefer to have the elevator pit drain tile connected to the storm sewer, and that the elevator pit basin SE-2 may need to be modified with an air-tight seal and an explosion proof sump pump motor.

Landmark is requesting a variance for the following reasons:

1. The length of elevator pit drain tile connected to the sanitary sewer system is approximately 76 feet and does not include the entire building foundation drain tile system; therefore, the amount of groundwater generated will be minimal when compared to the building foundation drain tile system;
2. The volume of groundwater generated by the drain tile was only 4 gallons over a period of approximately 9 months. The groundwater flow generated by this drain tile system is low because it is installed in fractured bedrock which has a low groundwater yield;
3. As a result of the low volume generated by the elevator pit drain tile, the impacted groundwater will be diluted with sewage water generated from the building during full occupancy to concentrations below the sanitary sewer discharge permit limit of 2,130 ug/L total toxic organics (TTOs). Based on the dilution calculations provided in Attachment 2, the estimated concentration of TTOs at sump basin SE-1 is 0.05 ug/L, and below the sanitary sewer discharge limit. The laboratory report from the elevator drain tile sample from basin SE-2 is included in Attachment 3.
4. In addition, removal of PCE from the groundwater will also occur as the result of biodegradation from bacteria in the sewage.

In this particular case, connecting the drain tile to the storm sewer is not recommended for the following reasons:

1. When compared to the high volume of sewage water discharged from the building for mixing, less dilution of TTOs will occur from mixing with the low volume of groundwater

generated by the building foundation drain tile system, or by the roof drain system, regardless of which storm sewer connection is made.

2. Biodegradation of TTOs would not occur in the building foundation drain tile system to assist in the removal of TTOs;
3. A Minnesota Pollution Control Agency (MPCA) National Pollution Discharge Elimination System (NPDES) permit would have to be acquired. The NPDES permit regulates individual contaminants and has much lower discharge standards compared to the sanitary sewer discharge limit. Therefore the NPDES permit would likely require pretreatment of the groundwater from the drain tile prior to discharge to the storm sewer.
4. If the basin SE-2 discharge is switched to the storm sewer and pretreatment is required, the proposed groundwater treatment system for the DPE room could be used; however, the air stripper would have to be resized to meet the lower discharge limits (e.g. the limit for PCE is 5 ug/L), and be repiped to discharge to the drain tile or roof drain piping located in the building.

Landmark agrees that an air-tight seal for elevator pit basin SE-2 should be installed. In addition, Landmark recommends that basin SE-2 be vented to the existing passive venting system designed by Landmark. As long as the basin is air tight and vented, Landmark does not believe the concentration levels of the detected parameters in the sump sample pose a risk that would require an explosion proof sump pump motor. PCE, the primary contaminant of concern at the property, is present at the highest concentration (60,300 ug/L) and is not combustible; therefore, PCE does not pose a risk of explosion. The following secondary contaminants were detected in the sample and are combustible when in a pure liquid form: 2-butanone (67 ug/L), cis-1,2-dichloroethene (46 ug/L), styrene (25 ug/L), 1,1,1-trichloroethane (40 ug/L). However, Landmark does not believe there is a risk of explosion due to the low concentrations detected in the sump groundwater sample.

Landmark is requesting your approval, on behalf of the City, to allow the elevator pit drain tile system to remain connected to the building's sanitary sewer system, and to keep the existing sump pump, which is not explosion proof. Landmark does recommend installing an air-tight basin cover and venting the basin to the existing passive venting system.

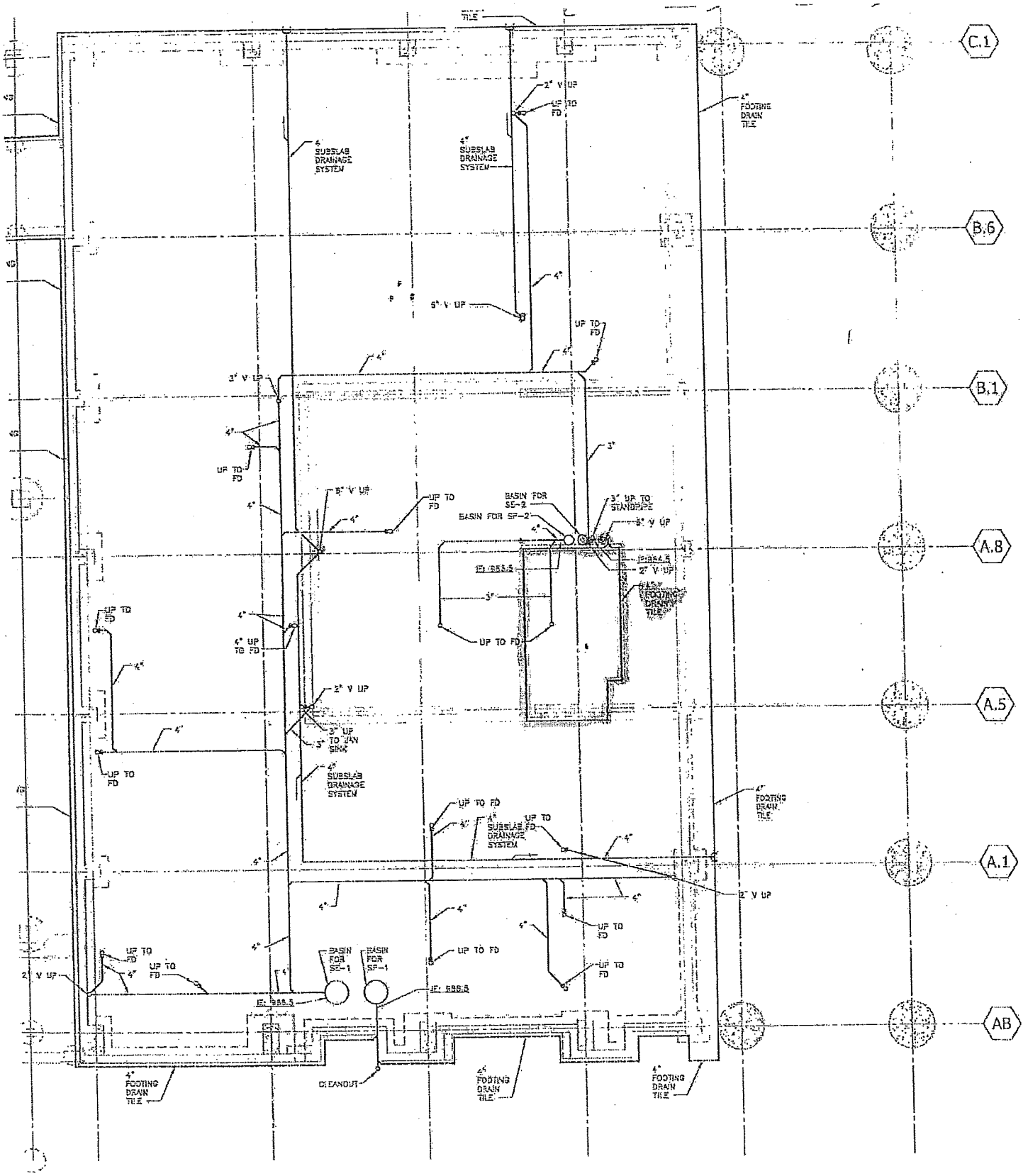
If you have any questions or require additional information, please feel free to contact me at (952) 887-9601, extension 205.

Sincerely,

Jason D. Skramstad, P.E.

Cc: Doug Knott, City of Rochester
Cc: David Manns, CPMI
F:\Projects\Crc\Permits\Elevator Pit Foundation Draintile.doc

Attachment I



1 UNDERGROUND PLUMBING PLAN
1/8"=1'-0"

Attachment 2

SUBJECT: DILUTION CALCULATIONS

DATE: 4/16/09

MN BIO BUS CTR

by JDS

THIS CALCULATION ESTIMATES THE EFFECTS OF DILUTION ON THE PCE CONTAMINATED GROUNDWATER FROM ELEVATOR SUMP SE-2 AFTER MIXING WITH SEWAGE DISCHARGE FROM THE ENTIRE BUILDING DURING FULL OCCUPANCY.

KNOWN INFO: TTOs conc in SE-2 = 70,768 µg/L = C_{SE-2}

FLOW RATE FROM SE-2:

$= \frac{4 \text{ gallons}}{9 \text{ months}} \frac{1 \text{ mo}}{30 \text{ days}} \frac{1 \text{ day}}{24 \text{ hrs}} \frac{1 \text{ hr}}{60 \text{ min}}$

$Q_{SE-2} = 0.00001$ gpm

ESTIMATED INFO: FLOW RATE FROM SE-1

40 gpm MAX FOR SE-1 pump

Assume 8 hrs of pump operation per day

$\therefore \frac{40 \text{ gal}}{\text{min}} \times \frac{8 \text{ hrs}}{\text{day}} \frac{60 \text{ min}}{1 \text{ hr}} = \frac{19,200 \text{ gal}}{\text{day}}$

$= \frac{19,200 \text{ gal}}{\text{day}} \frac{1 \text{ day}}{24 \text{ hrs}} \frac{1 \text{ hr}}{60 \text{ min}}$

$Q_{SE-1} = 13$ gpm

Dilution CALC: $Q_{SE-1} C_{SE-1} = Q_{SE-2} C_{SE-2}$

$C_{SE-1} = \frac{Q_{SE-2} C_{SE-2}}{Q_{SE-1}}$

$C_{SE-1} = \frac{(0.00001 \text{ gpm})(70,768 \text{ µg/L})}{13 \text{ gpm}}$

$C_{SE-1} = 0.05$ µg/L TTOs

Attachment 3

Pace Analytical Services, Inc
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 13, 2009

Mr. Jason Skramstad
Landmark Environmental
2042 W. 98th, St.
Minneapolis, MN 55431

RE: Project: CRC
Pace Project No.: 1092721

Dear Mr. Skramstad:
Enclosed are the analytical results for sample(s) received by the laboratory on April 10, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carolynne Trout

Carolynne Trout

carolynne.trout@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: CRC
Pace Project No.: 1092721

Minnesota Certification IDs
Tennessee Certification #: 02818
Wisconsin Certification #: 999407970
Washington Certification #: C754
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Alaska Certification #: UST-078

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: CRC
Pace Project No.: 1092721

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1092721001	Drain Tile	Water	04/09/09 10:15	04/10/09 08:00

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: CRC
Pace Project No.: 1092721

Lab ID	Sample ID	Method	Analysts	Analytes Reported
1092721001	Drain Tile	EPA 624	CNC, DJT	82

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: CRC
Pace Project No.: 1092721

Sample: Drain Tile | Lab ID: 1092721001 | Collected: 04/09/09 10:15 | Received: 04/10/09 08:00 | Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 MSV	Analytical Method: EPA 624							
Acetone	ND	ug/L	100	10		04/10/09 17:56	67-64-1	
Acrolein	ND	ug/L	400	10		04/10/09 17:56	107-02-8	
Acrylonitrile	ND	ug/L	100	10		04/10/09 17:56	107-13-1	
Allyl chloride	ND	ug/L	40.0	10		04/10/09 17:56	107-05-1	
Benzene	ND	ug/L	10.0	10		04/10/09 17:56	71-43-2	
Bromobenzene	ND	ug/L	10.0	10		04/10/09 17:56	108-86-1	
Bromochloromethane	ND	ug/L	10.0	10		04/10/09 17:56	74-97-5	
Bromodichloromethane	ND	ug/L	40.0	10		04/10/09 17:56	75-27-4	
Bromoform	ND	ug/L	80.0	10		04/10/09 17:56	75-25-2	
Bromomethane	ND	ug/L	40.0	10		04/10/09 17:56	74-83-9	
2-Butanone (MEK)	67.3	ug/L	40.0	10		04/10/09 17:56	78-93-3	
n-Butylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	104-51-8	
sec-Butylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	135-98-8	
tert-Butylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	98-06-6	
Carbon disulfide	ND	ug/L	10.0	10		04/10/09 17:56	75-15-0	
Carbon tetrachloride	ND	ug/L	10.0	10		04/10/09 17:56	56-23-5	
Chlorobenzene	ND	ug/L	10.0	10		04/10/09 17:56	108-90-7	
Chloroethane	ND	ug/L	10.0	10		04/10/09 17:56	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	100	10		04/10/09 17:56	110-75-8	
Chloroform	10.8	ug/L	10.0	10		04/10/09 17:56	67-66-3	
Chloromethane	ND	ug/L	10.0	10		04/10/09 17:56	74-87-3	
Chloroprene	ND	ug/L	10.0	10		04/10/09 17:56	126-99-8	
2-Chlorotoluene	ND	ug/L	10.0	10		04/10/09 17:56	95-49-8	
4-Chlorotoluene	ND	ug/L	10.0	10		04/10/09 17:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	40.0	10		04/10/09 17:56	96-12-8	
Dibromochloromethane	ND	ug/L	10.0	10		04/10/09 17:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	10.0	10		04/10/09 17:56	106-93-4	
Dibromomethane	ND	ug/L	10.0	10		04/10/09 17:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	10.0	10		04/10/09 17:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	10		04/10/09 17:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	10		04/10/09 17:56	106-46-7	
Dichlorodifluoromethane	ND	ug/L	10.0	10		04/10/09 17:56	75-71-8	
1,1-Dichloroethane	ND	ug/L	10.0	10		04/10/09 17:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	10		04/10/09 17:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	10		04/10/09 17:56	75-35-4	
cis-1,2-Dichloroethene	46.1	ug/L	10.0	10		04/10/09 17:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	10		04/10/09 17:56	156-60-5	
Dichlorofluoromethane	ND	ug/L	10.0	10		04/10/09 17:56	75-43-4	
1,2-Dichloropropane	ND	ug/L	10.0	10		04/10/09 17:56	78-87-5	
1,3-Dichloropropane	ND	ug/L	10.0	10		04/10/09 17:56	142-28-9	
2,2-Dichloropropane	ND	ug/L	10.0	10		04/10/09 17:56	594-20-7	
1,1-Dichloropropene	ND	ug/L	10.0	10		04/10/09 17:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	40.0	10		04/10/09 17:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	40.0	10		04/10/09 17:56	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	40.0	10		04/10/09 17:56	60-29-7	
Ethylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	40.0	10		04/10/09 17:56	87-68-3	

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: CRC
Pace Project No.: 1092721

Sample: Drain Tile Lab ID: 1092721001 Collected: 04/09/09 10:15 Received: 04/10/09 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 MSV	Analytical Method: EPA 624							
2-Hexanone	ND	ug/L	40.0	10		04/10/09 17:56	591-78-6	
Iodomethane	ND	ug/L	40.0	10		04/10/09 17:56	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	10.0	10		04/10/09 17:56	98-82-8	
p-Isopropyltoluene	ND	ug/L	10.0	10		04/10/09 17:56	99-87-6	
Methylene Chloride	ND	ug/L	40.0	10		04/10/09 17:56	75-09-2	
2-Methylnaphthalene	ND	ug/L	50.0	10		04/10/09 17:56	91-57-6	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	10		04/10/09 17:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	10		04/10/09 17:56	1634-04-4	
Naphthalene	ND	ug/L	40.0	10		04/10/09 17:56	91-20-3	
n-Propylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	103-65-1	
Styrene	25.1	ug/L	10.0	10		04/10/09 17:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	10.0	10		04/10/09 17:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	10		04/10/09 17:56	79-34-5	
Tetrachloroethene	60300	ug/L	500	500		04/13/09 14:53	127-18-4	
Tetrahydrofuran	ND	ug/L	100	10		04/10/09 17:56	109-99-9	
Toluene	ND	ug/L	10.0	10		04/10/09 17:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	10.0	10		04/10/09 17:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	10		04/10/09 17:56	120-82-1	
1,1,1-Trichloroethane	40.3	ug/L	10.0	10		04/10/09 17:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	40.0	10		04/10/09 17:56	79-00-5	
Trichloroethene	79.2	ug/L	10.0	10		04/10/09 17:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	40.0	10		04/10/09 17:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	10.0	10		04/10/09 17:56	96-18-4	
1,1,2-Trichlorotrifluoroethane	10200	ug/L	500	500		04/13/09 14:53	76-13-1	L2
1,2,4-Trimethylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	10.0	10		04/10/09 17:56	108-67-8	
Vinyl acetate	ND	ug/L	200	10		04/10/09 17:56	108-05-4	
Vinyl chloride	ND	ug/L	4.0	10		04/10/09 17:56	75-01-4	
Xylene (Total)	ND	ug/L	30.0	10		04/10/09 17:56	1330-20-7	
m&p-Xylene	ND	ug/L	20.0	10		04/10/09 17:56	1330-20-7	
o-Xylene	ND	ug/L	10.0	10		04/10/09 17:56	95-47-6	
Dibromofluoromethane (S)	99	%	75-125	10		04/10/09 17:56	1868-53-7	
4-Bromofluorobenzene (S)	91	%	75-125	10		04/10/09 17:56	460-00-4	
Toluene-d8 (S)	97	%	75-125	10		04/10/09 17:56	2037-26-5	
1,2-Dichloroethane-d4 (S)	102	%	75-125	10		04/10/09 17:56	17060-07-0	

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QUALITY CONTROL DATA

Project: CRC
Pace Project No.: 1092721

QC Batch: MSV/12048
QC Batch Method: EPA 624
Analysis Method: EPA 624
Analysis Description: 624 MSV
Associated Lab Samples: 1092721001

METHOD BLANK: 605686
Matrix: Water
Associated Lab Samples: 1092721001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	04/10/09 17:34	
1,1,1-Trichloroethane	ug/L	ND	1.0	04/10/09 17:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	04/10/09 17:34	
1,1,2-Trichloroethane	ug/L	ND	4.0	04/10/09 17:34	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	04/10/09 17:34	
1,1-Dichloroethane	ug/L	ND	1.0	04/10/09 17:34	
1,1-Dichloroethene	ug/L	ND	1.0	04/10/09 17:34	
1,1-Dichloropropene	ug/L	ND	1.0	04/10/09 17:34	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	04/10/09 17:34	
1,2,3-Trichloropropane	ug/L	ND	1.0	04/10/09 17:34	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	04/10/09 17:34	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	04/10/09 17:34	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	04/10/09 17:34	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	04/10/09 17:34	
1,2-Dichlorobenzene	ug/L	ND	1.0	04/10/09 17:34	
1,2-Dichloroethane	ug/L	ND	1.0	04/10/09 17:34	
1,2-Dichloropropane	ug/L	ND	1.0	04/10/09 17:34	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	04/10/09 17:34	
1,3-Dichlorobenzene	ug/L	ND	1.0	04/10/09 17:34	
1,3-Dichloropropane	ug/L	ND	1.0	04/10/09 17:34	
1,4-Dichlorobenzene	ug/L	ND	1.0	04/10/09 17:34	
2,2-Dichloropropane	ug/L	ND	1.0	04/10/09 17:34	
2-Butanone (MEK)	ug/L	ND	4.0	04/10/09 17:34	
2-Chloroethylvinyl ether	ug/L	ND	10.0	04/10/09 17:34	
2-Chlorotoluene	ug/L	ND	1.0	04/10/09 17:34	
2-Hexanone	ug/L	ND	4.0	04/10/09 17:34	
2-Methylnaphthalene	ug/L	ND	5.0	04/10/09 17:34	
4-Chlorotoluene	ug/L	ND	1.0	04/10/09 17:34	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	04/10/09 17:34	
Acetone	ug/L	ND	10.0	04/10/09 17:34	
Acrolein	ug/L	ND	40.0	04/10/09 17:34	
Acrylonitrile	ug/L	ND	10.0	04/10/09 17:34	
Allyl chloride	ug/L	ND	4.0	04/10/09 17:34	
Benzene	ug/L	ND	1.0	04/10/09 17:34	
Bromobenzene	ug/L	ND	1.0	04/10/09 17:34	
Bromochloromethane	ug/L	ND	1.0	04/10/09 17:34	
Bromodichloromethane	ug/L	ND	4.0	04/10/09 17:34	
Bromoform	ug/L	ND	8.0	04/10/09 17:34	
Bromomethane	ug/L	ND	4.0	04/10/09 17:34	
Carbon disulfide	ug/L	ND	1.0	04/10/09 17:34	
Carbon tetrachloride	ug/L	ND	1.0	04/10/09 17:34	
Chlorobenzene	ug/L	ND	1.0	04/10/09 17:34	
Chloroethane	ug/L	ND	1.0	04/10/09 17:34	

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QUALITY CONTROL DATA

Project: CRC
Pace Project No.: 1092721

METHOD BLANK: 605566 Matrix: Water

Associated Lab Samples: 1092721001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloroform	ug/L	ND	1.0	04/10/09 17:34	
Chloromethane	ug/L	ND	1.0	04/10/09 17:34	
Chloroprene	ug/L	ND	1.0	04/10/09 17:34	
cis-1,2-Dichloroethene	ug/L	ND	1.0	04/10/09 17:34	
cis-1,3-Dichloropropene	ug/L	ND	4.0	04/10/09 17:34	
Dibromochloromethane	ug/L	ND	1.0	04/10/09 17:34	
Dibromomethane	ug/L	ND	1.0	04/10/09 17:34	
Dichlorodifluoromethane	ug/L	ND	1.0	04/10/09 17:34	
Dichlorofluoromethane	ug/L	ND	1.0	04/10/09 17:34	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	04/10/09 17:34	
Ethylbenzene	ug/L	ND	1.0	04/10/09 17:34	
Hexachloro-1,3-butadiene	ug/L	ND	4.0	04/10/09 17:34	
Iodomethane	ug/L	ND	4.0	04/10/09 17:34	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	04/10/09 17:34	
m&p-Xylene	ug/L	ND	2.0	04/10/09 17:34	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/10/09 17:34	
Methylene Chloride	ug/L	ND	4.0	04/10/09 17:34	
n-Butylbenzene	ug/L	ND	1.0	04/10/09 17:34	
n-Propylbenzene	ug/L	ND	1.0	04/10/09 17:34	
Naphthalene	ug/L	ND	4.0	04/10/09 17:34	
o-Xylene	ug/L	ND	1.0	04/10/09 17:34	
p-Isopropyltoluene	ug/L	ND	1.0	04/10/09 17:34	
sec-Butylbenzene	ug/L	ND	1.0	04/10/09 17:34	
Styrene	ug/L	ND	1.0	04/10/09 17:34	
tert-Butylbenzene	ug/L	ND	1.0	04/10/09 17:34	
Tetrachloroethene	ug/L	ND	1.0	04/10/09 17:34	
Tetrahydrofuran	ug/L	ND	10.0	04/10/09 17:34	
Toluene	ug/L	ND	1.0	04/10/09 17:34	
trans-1,2-Dichloroethene	ug/L	ND	1.0	04/10/09 17:34	
trans-1,3-Dichloropropene	ug/L	ND	4.0	04/10/09 17:34	
Trichloroethene	ug/L	ND	1.0	04/10/09 17:34	
Trichlorofluoromethane	ug/L	ND	4.0	04/10/09 17:34	
Vinyl acetate	ug/L	ND	20.0	04/10/09 17:34	
Vinyl chloride	ug/L	ND	0.40	04/10/09 17:34	
Xylene (Total)	ug/L	ND	3.0	04/10/09 17:34	
1,2-Dichloroethane-d4 (S)	%	103	75-125	04/10/09 17:34	
4-Bromofluorobenzene (S)	%	93	75-125	04/10/09 17:34	
Dibromofluoromethane (S)	%	106	75-125	04/10/09 17:34	
Toluene-d8 (S)	%	101	75-125	04/10/09 17:34	

LABORATORY CONTROL SAMPLE: 605567

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.6	99	75-129	
1,1,1-Trichloroethane	ug/L	50	46.2	92	73-144	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CRC
Pace Project No.: 1092721

LABORATORY CONTROL SAMPLE: 605657

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	50	53.0	106	75-125	
1,1,2-Trichloroethane	ug/L	50	49.3	99	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	50	36.3	73	75-143	LO
1,1-Dichloroethane	ug/L	50	46.7	93	75-135	
1,1-Dichloroethene	ug/L	50	44.8	90	75-133	
1,1-Dichloropropene	ug/L	50	45.1	90	75-131	
1,2,3-Trichlorobenzene	ug/L	50	52.4	105	75-141	
1,2,3-Trichloropropane	ug/L	50	53.2	106	75-125	
1,2,4-Trichlorobenzene	ug/L	50	52.7	105	75-125	
1,2,4-Trimethylbenzene	ug/L	50	51.4	103	70-148	
1,2-Dibromo-3-chloropropane	ug/L	50	55.7	111	75-141	
1,2-Dibromoethane (EDB)	ug/L	50	51.4	103	64-135	
1,2-Dichlorobenzene	ug/L	50	50.9	102	75-125	SS
1,2-Dichloroethane	ug/L	50	52.5	105	75-125	
1,2-Dichloropropane	ug/L	50	47.2	94	75-136	
1,3,5-Trimethylbenzene	ug/L	50	50.3	101	75-130	
1,3-Dichlorobenzene	ug/L	50	51.6	103	75-141	
1,3-Dichloropropane	ug/L	50	50.4	101	75-125	
1,4-Dichlorobenzene	ug/L	50	51.6	103	75-125	
2,2-Dichloropropane	ug/L	50	43.9	88	75-125	
2-Butanone (MEK)	ug/L	50	51.2	102	50-150	
2-Chloroethylvinyl ether	ug/L	125	122	98	58-138	
2-Chlorotoluene	ug/L	50	50.5	101	50-150	SS
2-Hexanone	ug/L	50	50.7	101	75-132	
2-Methylnaphthalene	ug/L	50	60.4	121	65-135	
4-Chlorotoluene	ug/L	50	50.3	101	62-150	
4-Methyl-2-pentanone (MIBK)	ug/L	50	51.8	104	75-135	
Acetone	ug/L	125	160	128	69-137	
Acrolein	ug/L	500	372	74	52-141	
Acrylonitrile	ug/L	500	491	98	50-150	
Allyl chloride	ug/L	50	43.0	86	75-130	
Benzene	ug/L	50	45.9	92	68-150	
Bromobenzene	ug/L	50	51.3	103	75-125	
Bromochloromethane	ug/L	50	48.9	98	75-125	
Bromodichloromethane	ug/L	50	51.1	102	75-129	
Bromoform	ug/L	100	107	107	75-142	
Bromomethane	ug/L	50	43.0	86	66-135	
Carbon disulfide	ug/L	50	40.8	82	57-150	
Carbon tetrachloride	ug/L	50	46.9	94	65-132	SS
Chlorobenzene	ug/L	50	50.2	100	75-148	
Chloroethane	ug/L	50	38.6	77	75-125	
Chloroform	ug/L	50	48.0	96	68-142	
Chloromethane	ug/L	50	37.7	75	75-131	
Chloroprene	ug/L	50	44.6	89	52-147	
cis-1,2-Dichloroethene	ug/L	50	47.2	94	71-147	
cis-1,3-Dichloropropene	ug/L	50	51.7	103	75-126	
Dibromochloromethane	ug/L	50	52.3	105	69-150	
Dibromomethane	ug/L	50	50.6	101	73-138	
					75-127	

CONTAMINANT A

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sec-Butyl alcohol

CAS 78-92-2

$CH_3CH(OH)CH_2CH_3$

RTECS EO1750000

Synonyms & Trade Names
2-Butanol, Butylene hydrate, 2-Hydroxybutane, Methyl ethyl carbinol

DOT ID & Guide
1120 129

Exposure Limits
NIOSH REL: TWA 100 ppm (305 mg/m^3) ST 150 ppm (455 mg/m^3)
OSHA PEL†: TWA 150 ppm (450 mg/m^3)

IDLH 2000 ppm See: 78922

Conversion 1 ppm = 3.03 mg/m^3

Physical Description
Colorless liquid with a strong, pleasant odor.

MW: 74.1	BP: 211°F	FRZ: -175°F	Sol: 16%
VP: 12 mmHg	IP: 10.10 eV		Sp.Gr: 0.81
Fl.P: 75°F	UEL(212°F): 9.8%	LEL(212°F): 1.7%	

Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.

Incompatibilities & Reactivities
Strong oxidizers, organic peroxides, perchloric & permonosulfuric acids

Measurement Methods
NIOSH 1405, 1450; OSHA 7
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Water flush promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH
Up to 1000 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
Up to 2000 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode*
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, throat; narcosis

CONTAMINANT B

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Ethylene dichloride

CAS 107-06-2

$ClCH_2CH_2Cl$

RTECS KI0525000

Synonyms & Trade Names
1,2-Dichloroethane; Ethylene chloride; Glycol dichloride

DOT ID & Guide
1184 131

Exposure Limits

NIOSH REL: Ca TWA 1 ppm (4 mg/m^3) ST 2 ppm (8 mg/m^3) See Appendix A See Appendix C (Chloroethanes)

OSHA PEL†: TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]

IDLH Ca [50 ppm] See: 107062

Conversion 1 ppm = 4.05 mg/m^3

Physical Description
Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.]

MW: 99.0	BP: 182°F	FRZ: -32°F	Sol: 0.9%
VP: 64 mmHg	IP: 11.05 eV		Sp.Gr: 1.24
Fl.P: 56°F	UEL: 16%	LEL: 6.2%	

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities
Strong oxidizers & caustics; chemically-active metals such as magnesium or aluminum powder, sodium & potassium; liquid ammonia [Note: Decomposes to vinyl chloride & HCl above 1112°F.]

Measurement Methods
NIOSH 1003; OSHA 3
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation
Provide: Eyewash, Quick drench

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes Inhalation, ingestion, skin absorption, skin and/or eye contact

Symptoms Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]

Target Organs Eyes, skin, kidneys, liver, central nervous system, cardiovascular system

Cancer Site [in animals: forestomach, mammary gland & circulatory system cancer]

See also: INTRODUCTION See ICSC CARD: 0250 See MEDICAL TESTS: 0104

CONTAMINANT C

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NIOSH Pocket Guide to Chemical Hazards

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Styrene

CAS 100-42-5

RTECS WL3675000

$C_6H_5CH=CH_2$

Synonyms & Trade Names
Ethenyl benzene, Phenylethylene, Styrene monomer, Styrol, Vinyl benzene

DOT ID & Guide
2055 128P (inhibited)

Exposure Limits
NIOSH REL: TWA 50 ppm (215 mg/m^3) ST 100 ppm (425 mg/m^3)
OSHA PEL†: TWA 100 ppm C 200 ppm 600 ppm (5-minute maximum peak in any 3 hours)

IDLH 700 ppm See: 100425

Conversion 1 ppm = 4.26 mg/m^3

Physical Description
Colorless to yellow, oily liquid with a sweet, floral odor.

MW: 104.2	BP: 293°F	FRZ: -23°F	Sol: 0.03%
VP: 5 mmHg	IP: 8.40 eV		Sp.Gr: 0.91
Fl.P: 88°F	UEL: 6.8%	LEL: 0.9%	

Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.

Incompatibilities & Reactivities
Oxidizers, catalysts for vinyl polymers, peroxides, strong acids, aluminum chloride [Note: May polymerize if contaminated or subjected to heat. Usually contains an inhibitor such as tert-butylcatechol.]

Measurement Methods
NIOSH 1501, 3800; OSHA 9, 89
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Water flush
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH
Up to 500 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
Up to 700 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode*
(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise

CONTAMINANT D

NIOSH Publication 2005-149 September 2005

NIOSH Pocket Guide to Chemical Hazards

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Methyl chloroform

CAS 71-55-6

CH_3CCl_3

RTECS KJ2975000

Synonyms & Trade Names
Chlorothene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)

DOT ID & Guide
2831 160

Exposure Limits
NIOSH REL: C 350 ppm (1900 mg/m^3) [15-minute] See Appendix C (Chloroethanes)
OSHA PEL†: TWA 350 ppm (1900 mg/m^3)

IDLH 700 ppm See: 71556

Conversion 1 ppm = 5.46 mg/m^3

Physical Description
Colorless liquid with a mild, chloroform-like odor.

MW: 133.4	BP: 165°F	FRZ: -23°F	Sol: 0.4%
VP: 100 mmHg	IP: 11.00 eV		Sp.Gr: 1.34
Fl.P: ?	UEL: 12.5%	LEL: 7.5%	

Combustible Liquid, but burns with difficulty.

Incompatibilities & Reactivities
Strong caustics; strong oxidizers; chemically-active metals such as zinc, aluminum, magnesium powders, sodium & potassium; water [Note: Reacts slowly with water to form hydrochloric acid.]

Measurement Methods
NIOSH 1003
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH/OSHA
Up to 700 ppm:
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage

Target Organs Eyes, skin, central nervous system, cardiovascular system, liver

See also: INTRODUCTION See ICSC CARD: 0079 See MEDICAL TESTS: 0141

AIA Document G714 - 2001

Construction Change Directive

OWNER: City of Rochester – Doug Knott
CONTRACTOR: Adolfson & Peterson – Carl Rinta, Tom Dykhoff, Pete Pokorny
CONSULTANT: Landmark Environmental – Jason Skramstad
CPMI – David Manns, Susan Jones
IN-HOUSE: Hal Henderson, Roger Nelson, Kenny Horns,
Sarah Jorczak, Jonathan Wacker, Kevin Coyle, Tony Staeger
Dave Thiel, Dean Korstad, Jennifer Logelin

PROJECT:

Minnesota BioBusiness Center and
Third Street Parking Ramp Expansion
First Avenue and Third Street Southwest
Construction Package #2

TO CONTRACTOR:
Adolfson & Peterson Construction
6701 West 23rd Street
Minneapolis, MN 55426

DIRECTIVE NO: 25

DATE: June 1, 2009

CONTRACT FOR: General Construction

CONTRACT DATED: October 29, 2007
ARCHITECT'S PROJECT NUMBER: 1009-018-00

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum ~~or Guaranteed Maximum Price~~ is:

[ ] Lump Sum (increase) (decrease) of $
[ ] Unit Price of $ Per
[X] as provided in Subparagraph 7.3.6 of AIA Document A201-1997 Edition
[ ] as follows:

Mechanical

A. Drawing P200:
   1. Revise discharge piping for elevator sump in Storage Room 005 to connect directly into "air stripper" (provided by DPE contractor) located in Room 017. See attached Partial Plan 1/P200.

Attachments: Partial Plan 1/P200.

2. Revise vent piping for Elevator sump in Storage Room 005 to connect into the existing 6" PVC passive vent located in the northwest corner of the room. Relocate existing valve as required to allow space for new connection. Cover for sump pump to be sealed air-tight with gasketing and seals at pipe penetrations.

2. This Contract Time is proposed to remain unchanged.

When signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

ARCHITECT:
Hammel, Green and Abrahamson, Inc.
202 1st Avenue Southwest, Suite 200
Rochester, Minnesota 55902

By _____

Date 10.01.09

OWNER:
City of Rochester
City Hall, Room 226
201 Fourth Street Southeast
Rochester, Minnesota 55904

By _____

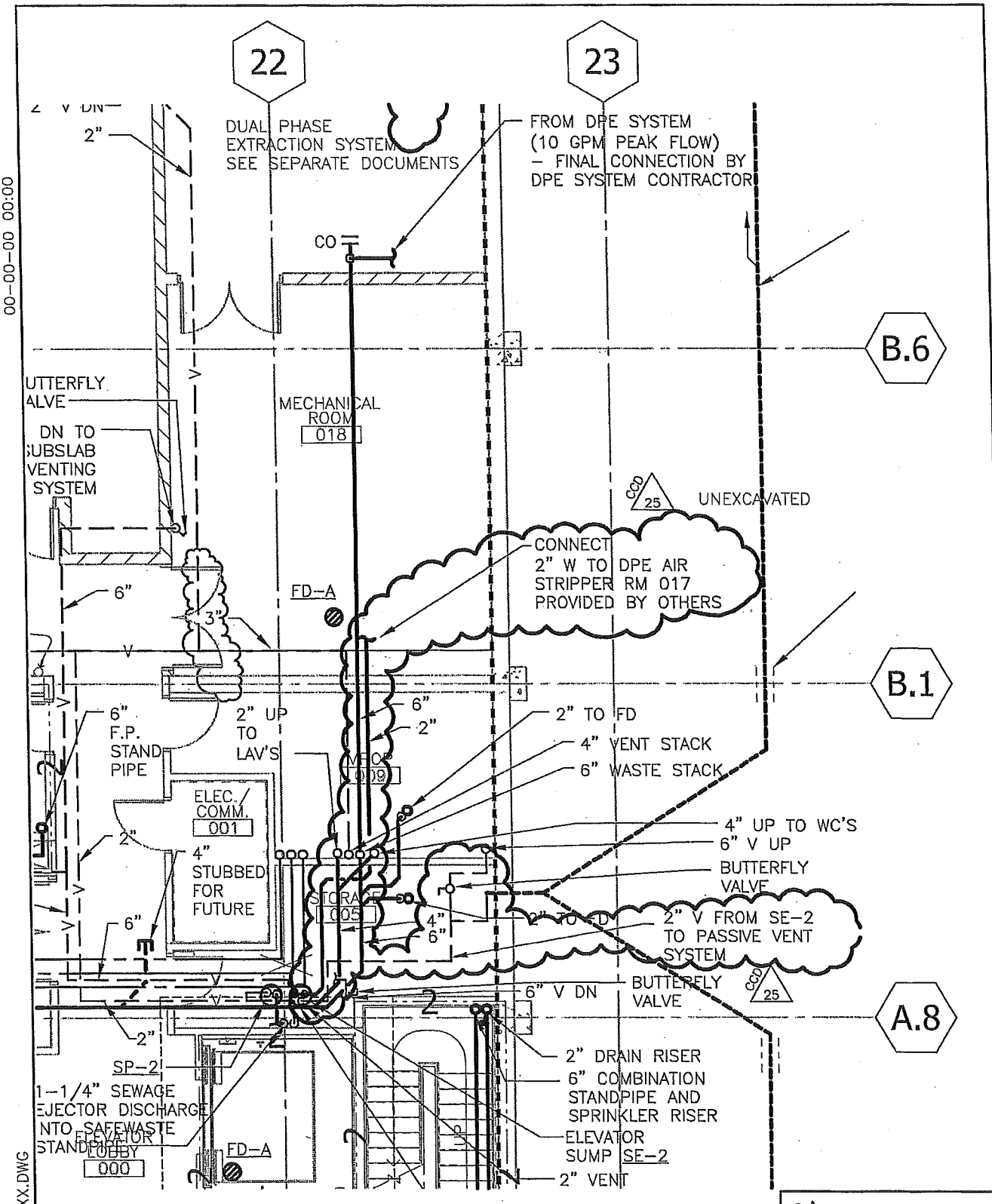
Date _____

Signature by the Contractor indicates the Contractor's agreement with the proposed adjustments in Contract Sum and Contract time set forth in this Construction Change Directive.

CONTRACTOR:
Adolfson & Peterson Construction
6701 West 23rd Street
Minneapolis, Minnesota 55426

By _____

Date _____



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CITY OF ROCHESTER MINNESOTA

HGA
Architecture | Engineering | Planning
Hammel, Green and Abrahamson, Inc
202 1st Avenue SW - Suite 200
Rochester, Minnesota USA 55902-3129
Telephone 507.281.8600 Facsimile 507.281.8686

COMM. NO.	1009-018-00
SCALE	1/8"=1'-0"
DATE	Sept. 14, 2007
DRAWN	HGA

MINNESOTA BIO BUSINESS CENTER
&
THIRD STREET PARKING RAMP EXPANSION

1

P200

6/1/09

- GWTS INSTALL
- AIR MONITORING
- ~~start fup~~

800 Left office

1000 JDS ON SITE

1030 SDE ON SITE

1100 Field calibrated PID & multi-gas meter

	PID	% LEL	
	0	0	Outside Building
(North Sump) SE-2	8.4	0	Drain tile sump inside sump pit
SE2	0	0	inside sump pit ELEVATOR SUMP

1145 Left messages w/ results for Dave Theil (HGA) & Doug Knott (CRI)

[redacted]

1200 CHECKED EACH room & WELL (DPE, MW) in entire Basement ~~FID~~ w/ PID & multigas meter (VOCs, LEL, CO, H_2S) AND ALL READINGS were 0.

1300 SDE Finished unloading 2 skids & headed back to office to get more supplies

JDS offsite - 1500 JDS home

6/2

700 ... SD

- INST

1200 ...

- Insta

500 pm

- helpe

600 pm