Landmark Environmental LLC

July 17, 2007

Mr. Ed Olson and Mr. Allan Timm
Minnesota Pollution Control Agency
Voluntary Investigation and Cleanup Program
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Re: Voluntary Response Action Plan Addendum – Response Action Design
Minnesota Bio Business Center
219 and 223 First Avenue S.W., Rochester

Dear Mr. Olson and Mr. Timm,

On behalf of the City of Rochester (City), Landmark Environmental, LLC (Landmark) is hereby submitting two copies of the *Voluntary Response Action Plan Addendum – Response Action Design* (VRAP Addendum) to the Minnesota Pollution Control Agency (MPCA), Voluntary Investigation and Cleanup (VIC) Program for review and approval in preparation for completing response actions and redevelopment activities at the above-referenced property (Property) later this summer and fall.

The VRAP Addendum includes information/documentation regarding the following:

- Soil/Fill Material Excavation – Design Specifications, including Soil Sampling Plan and Excavation Dewatering and Seepage Prevention Plan (Attachment 1);
- Emissions Control Plan – Information regarding the handling of asbestos containing materials (ACM), if encountered during excavation activities (Attachment 2);
- Previous Documentation Submitted to the MPCA re: Stego Wrap Specifications for Vapor Barrier (Attachment 3);
- Additional Design Specifications for Venting System, including details of sampling (Attachment 4), performance measurements and details on conversion from a passive to an active system;
- Dual-Phase Extraction (DPE) System – Design Specifications (Attachment 5); and,
- Division 1 and Division 2 Construction Specifications Institute (CSI) Specifications for soil remediation, the vapor barrier and passive venting systems, and the DPE system (Attachment 6).

The VRAP included preliminary design documents pertaining to the vapor barrier and venting system. This VRAP Addendum provides additional information with respect to the vapor barrier and venting system, based on your comments. As an example, as shown in an attached drawing, the venting system has been modified to include an additional lateral pipe under the basement of the proposed building. We have also included a copy of the July 12, 2007, letter sent to you by Landmark that provided responses to a number of the comments we received during a July 11, 2007, meeting.

2042 W. 98th Street Bloomington, Minnesota 55431 Phone: (952) 887-9601 Fax: (952) 887-9605 www.landmarkenv.com

Soil Remediation Design

As proposed in the VRAP, soil and fill material (including buried building materials) located on the 223 Parcel will be disposed at a permitted RCRA Subtitle D landfill and, if approved by the MPCA VIC Program, the soil from the 219 Parcel will be reused under the proposed parking ramp. Based on our conversations, the VRAP Addendum amends the soil response actions for the 219 Parcel proposed for the 219 Parcel by recommending that the soil (weathered bedrock) below the basement floor and any buried building materials will also be disposed at a permitted RCRA Subtitle D landfill. As we mentioned, a final decision regarding the specific landfill that will be used has not yet been made. The MPCA will be notified about the final decision regarding the selected landfill prior to the start of excavation activities.

The soil/fill material on the 219 Parcel that will be excavated for redevelopment will be field-screened, sampled and placed under the proposed parking ramp to be built on the property adjacent to and south of the 223 Parcel (Attachment 1 - Sheet 1). Details summarizing excavation volumes and sampling summary and frequency are included in Attachment 1 - Tables 1 and 2, respectively. Based on previous investigations, the chemicals of concern (COC) for soil/fill material are polycyclic aromatic hydrocarbons, arsenic, and volatile organic compounds (VOCs). An Emissions Control Plan has been prepared in the event that ACM is encountered during excavation activities (Attachment 2). The CSI specifications for soil remediation are included in Attachment 6.

The general contractor for the demolition and remediation of contaminated soil is yet to be determined. The City is conducting a public bidding process for demolition and excavation work. Landmark will conduct environmental oversight during excavation of contaminated soil. Landmark will provide field screening during soil excavation and collect final sidewall and floor samples from Parcel 223 and 219.

After the soil/fill material has been excavated, the excavated area will remain open until new concrete slabs are poured during the construction phase of redevelopment. As a result, the potential exists for precipitation runoff to infiltrate through the soil and fractured bedrock located beneath the floor of the excavation area. To prevent the infiltration of runoff in the excavation area, plastic sheeting will be placed in the excavated area to collect the runoff. Runoff that accumulates on the plastic sheeting will be pumped to the storm sewer per the requirements of a National Pollution Discharge and Elimination System General Construction Storm-Water Permit.

The work will be conducted in accordance with the approved VRAP and Environmental Contingency Plan (ECP). A Site Safety Plan (SSP) prepared by Landmark and the selected contractor's (Contractor's) SSP will be submitted to the MPCA prior to start of excavation. Contaminated soil excavation is anticipated to be completed in less than two weeks. Landmark will notify the MPCA at least 48 hours prior to the commencement soil excavation activities.

Vapor Barrier and Passive Venting Systems Design

The proposed vapor barrier design includes the use of a 15-mil Stego-wrap vapor barrier, Stego-tape, and Stego-mastic, all products of Stego Industries. Stego-wrap has uncharacteristically low permeance ratings for a 15-mil thick vapor barrier material and allows for easier installation compared to thicker, more conventional HDPE vapor barriers. Because Stego-wrap is easier for

contractors to install, the quality of the vapor barrier system is increased and the system is more effective. In the past couple of years, the MPCA has approved Landmark's use of Stego-wrap at several VIC sites including the Mist Lofts (formerly Norling Nursery) and the Plymouth Crossroads Station. Attachment 3 includes documentation of the approval from the MPCA to use Stego-wrap at the Mist Lofts, and Stego Industries product specification. Vapor barrier system design drawings are included in Attachment 4, and the CSI specifications are included in Attachment 6. The manufacturer's instructions for installing Stego-wrap are also included in Attachment 4.

The venting system design includes two individual venting systems below the basement slab of Parcel's 219 and 223, and one venting system below the first level slab of Parcel 219. Each of the three venting systems vent to the atmosphere through the proposed building's west wall from the ceiling of the second level. A rotary wind turbine will be attached to the top of each venting stack to create a pressure gradient to assist the passive venting of vapors from the subsurface. There are no operable windows or heating ventilation and air conditioning (HVAC) air intake vents located in the vicinity of the venting system stacks. Two vapor monitoring ports (VMP-1 and VMP-2) shall be installed in the basement slab of Parcels 219 and 223 to allow sub-slab vapor monitoring. Sub-slab vapor monitoring will be performed to monitor the effectiveness of the venting system. In the event that the passive venting approach does not appear to be adequate, the venting systems can be made active by installing in-line fans in the riser pipes in the building's basement. Venting system design drawings are included in Attachment 4, and the CSI specifications are included in Attachment 6.

DPE System Design

The proposed DPE system includes six DPE wells that operate individually through a cycle controlled by automated ball valves located near the system manifold. A 7.5 horsepower Rietschle 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 is proposed. The DPE is designed to operate a one or multiple DPE wells at a time depending on the subsurface conditions. A vapor liquid separator will be used to separate the groundwater and soil vapor. Soil vapor emissions will be sampled during system startup and analyzed to determine if emissions treatment will be necessary prior to discharge to the atmosphere. Groundwater will also be sampled during system startup and analyzed to determine if the groundwater requires treatment prior to discharge to the sanitary sewer. Four monitoring wells shall be installed in the basement of the proposed building to monitor concentrations of VOCs in groundwater. DPE system design drawings are included in Attachment 5, and the CSI specifications are included in Attachment 6.

Qualified Contractors will be hired by the City and Landmark to conduct the soil and fill material excavation work, the installation of the Vapor Barrier and Venting Systems, and the DPE System at the Property. The Contractors will complete the work in accordance with construction contracts for the response actions. The technical plans and specifications were prepared by a professional engineer in the CSI format. The CSI format is an organizational structure for performance based construction specifications and construction specifications that combine both the prescriptive and performance modes of specifying. The general conditions were prepared using the Engineers Joint Contract Documents Committee issued and published jointly by the American Consulting Engineers Council, National Society of Professional Engineers and the American Society of Civil Engineers.

Landmark will manage the remediation and construction contract as it pertains to the actions described in the VRAP and the ECP, including preparation of change orders during construction if necessary, and will provide day-to day oversight and direction of the Contractors to assure implementation of the response actions and design are conducted in accordance with the VRAP, the ECP, the VRAP Addendum and the technical plans and specifications.

Legend Technical Services located in St. Paul will be used for fixed-base laboratory analysis of soil and groundwater samples. Environmental Science Corporation located i n Mt. Juliet, Tennessee, may also be used for fixed-base laboratory analysis of soil and groundwater samples. Both laboratories are Minnesota certified.

The response actions will be conducted in accordance with the approved VRAP, ECP and VRAP Addendum. Excavation is anticipated to be conducted as soon as August 2007 following MPCA, VIC Program approval. We will provide weekly written (electronic) progress reports to the MPCA from the date the VRAP, the VRAP Addendum and the ECP are approved to completion of the installation of each of the components of the response actions.

If you have any questions, please feel free to contact me at (952) 887-9601, extension 205, or Ken Haberman at extension 208.

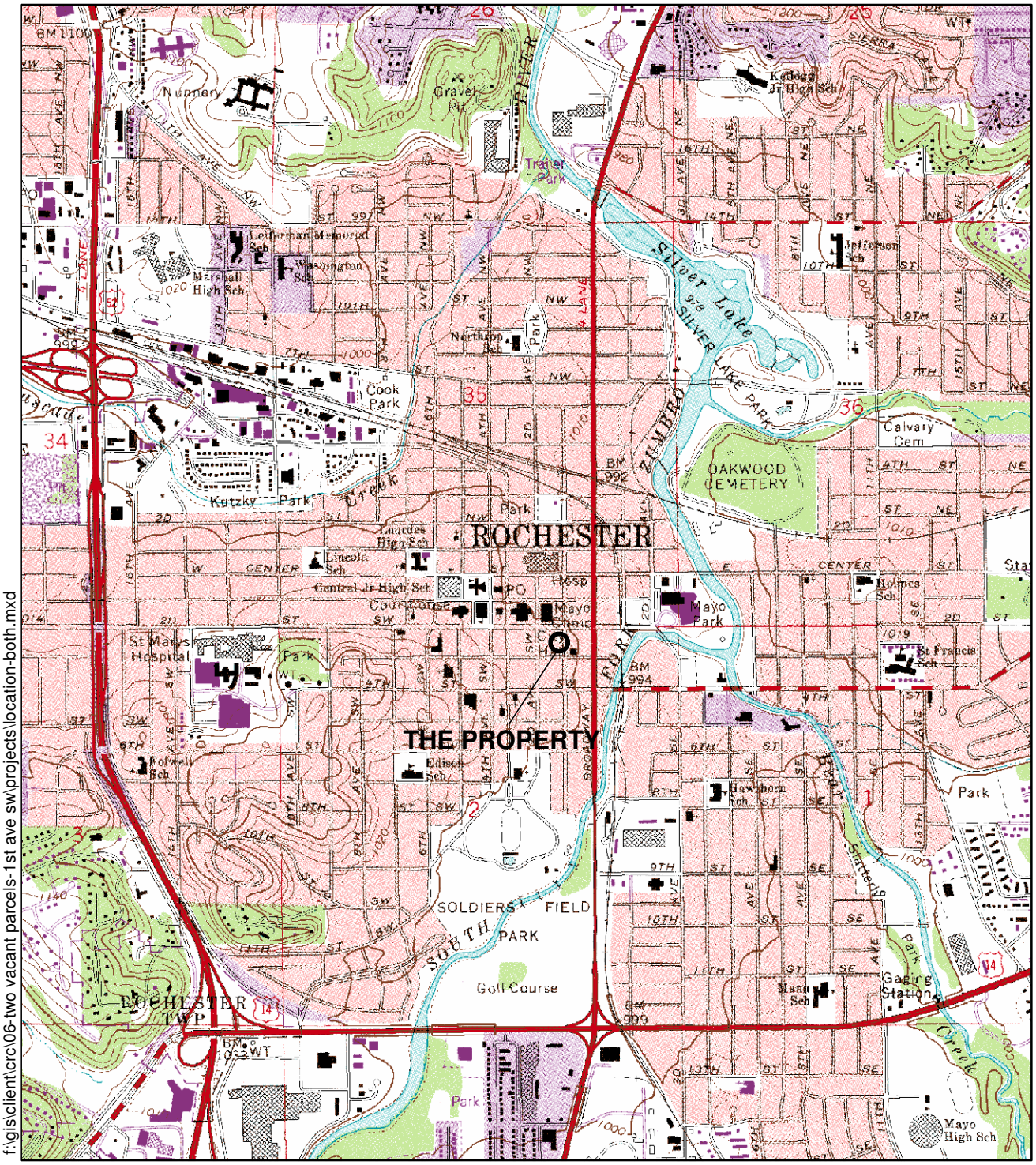
Sincerely;

Jason Skramstad, P.E.

cc: Doug Knott, City of Rochester
Nancy Quattlebaum Burke, Gray Plant Moody
Roger Nelson, HGA

Attachments

Figure 1
Attachment 1 – Soil Design Drawings
Attachment 2 – Emissions Control Plan
Attachment 3 – The Mist – Stego Information
Attachment 4 – Venting System/Vapor Barrier Design Drawings
Attachment 5 – DPE System Design Drawings
Attachment 6 – Division 1 & Division 2 Specifications
Attachment 7 – July 12 Letter from Landmark to MPCA



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

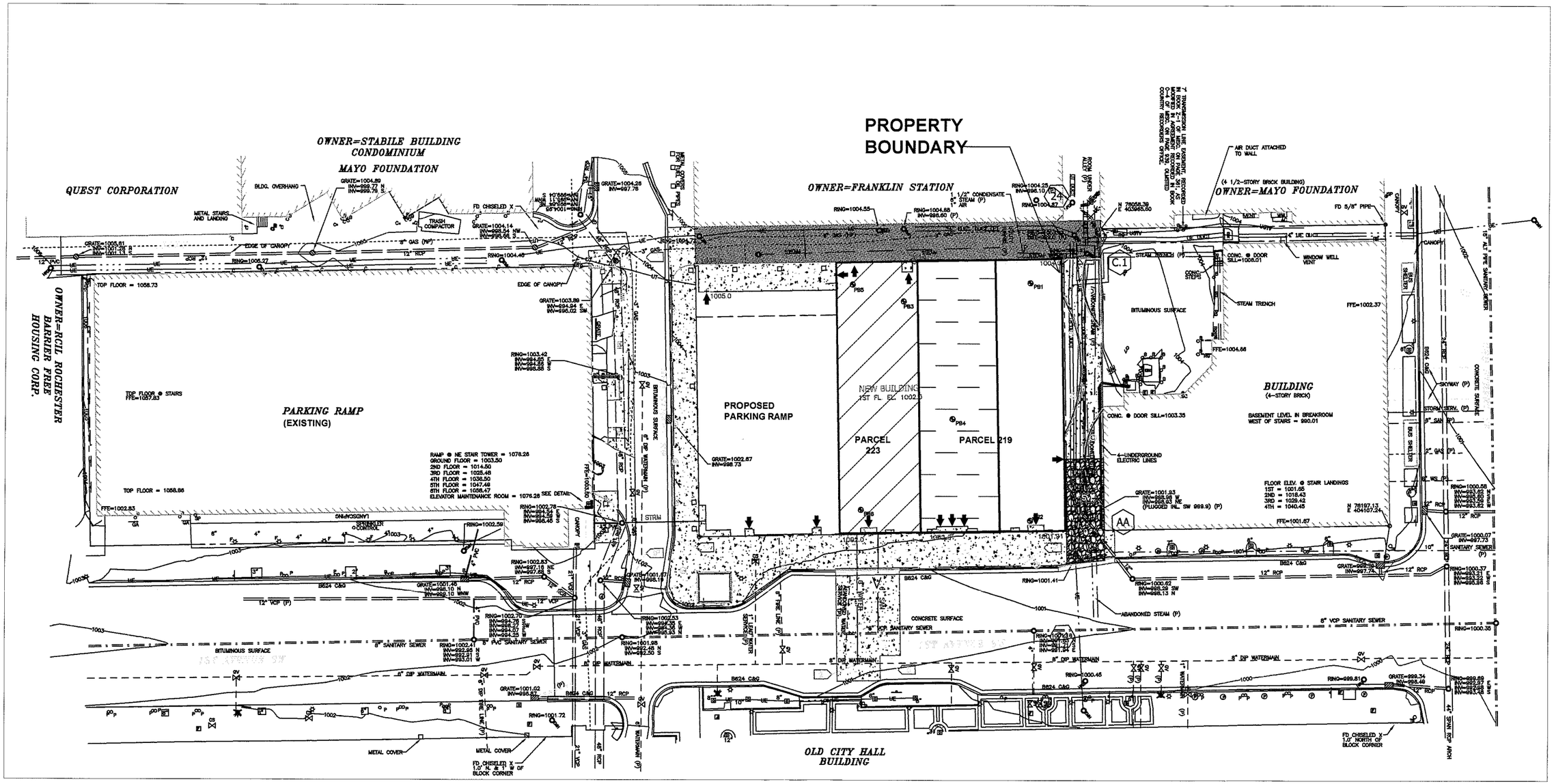
2,000 1,000 0 2,000 Feet

FIGURE 1

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

Attachments

Attachment 1
Soil Design Drawings



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

LEGEND

▨	Parcel 223 -- Excavate, Transport & Dispose at RCRA Subtitle D Landfill
☐	Excavate and Reuse South of Parcel 223

N

SCALE (feet)

0 50

NOTES:

1 Soil/fill material from Parcel 223 will be generally excavated to a depth of 12 to 14 feet below the final grade, based on the redevelopment plan. All of the soil/fill material excavated from the 223 Parcel will be transported off-site to an approved permitted RCRA Subtitle D landfill.
2 Soil/fill located north of Parcel 223 can be excavated and reused south of Parcel 223 in former basement as clean backfill.
3 Contractor shall provide Landmark with a Site Safety Plan and use HAZWOPER trained workers for excavation of contaminated soil.
4 Landmark will conduct field observation of soil during excavation.
5 Prior to redevelopment, the current dual phase extraction system will be decomissioned and all associated wells will be sealed.
6 Rainwater runoff shall be collected on an impermeable liner in depression and removed from the Property as clean stormwater runoff in accordance with the General Stormwater Construction Permit. Rainwater must be prevented from entering Parcel 223 groundwater to prevent migration of chlorinated VOC contaminated groundwater within Karst/fractured bedrock groundwater.

Rev	Date	By	Description
X	XX-XX-XX	XXX	XXX

LANDMARK
ENVIRONMENTAL, LLC
2042 W 98th Street
Bloomington, MN 55431

Contaminated Soil Design
RESPONSE ACTION PLAN

219 AND 223 FIRST AVENUE S W
ROCHESTER, MINNESOTA

Landmark Project Number: CRC		
Drawn: SKV	Checked:	Designed:
Scale: 1:50	Date: 07-12-2007	Revision: 00
Drawing Number: DWG NUMBER	Sheet 1 Of	Sheets 1

Table 1
Soil Excavation Summary
Minnesota Bio-Business Center Building and 3rd Street Parking Ramp Expansion
219 and 223 First Avenue S.W.
Rochester, Minnesota

Soil Excavation Areas	Sample ID	Sample Interval (ft bgs)	Contaminant	Concentration (mg/kg)	Sample Description	Estimate Area of Excavation					Excavation Dimension Basis	Excavation Verification Samples					Samples to be Analyzed for Disposal (if needed)
						Length (ft)	Width (ft)	Depth (ft)	Volume (CY)	Estimated Weight (tons)		Sidewalls (total # needed)	Floor (total # needed)	Arsenic	PAHs	VOCs	
Parcel 223	GB-3	2-4'	Arsenic	10.2	Geotechnical boring, fill material observed to 12 ft. bgs.	130	38	14	2,561	3,586	Fill with debris to be disposed at a RCRA Subtitle D landfill pending landfill approval. No samples will be collected on the south and north sidewalls because they will not exist.	5	7	12	12	0	1 sample/500 cy (See sample summary table, former samples will be used as part of samples needed.)
	GB-5	4.5-6.5'	Arsenic	8.1	Geotechnical boring, fill material observed to 16 ft. bgs.												
	LGP-4	0-2'	BAPeq.	12.7	Geoprobe boring, boring refusal at 2 ft. bgs on concrete. Fill material to 2 ft.												
Parcel 219	No contaminated soil observed in previous soil investigation. Field screening and stockpile sampling for VOCs will be completed during excavation and reuse in former basement south of 223 Parcel.				Fill, fine to medium grained sand, poorly graded, brown.	130	40	2	385	539	Weathered bedrock at bottom of excavation will likely require disposed off site because it will not be reuseable as geotechnical fill.	9	7	0	0	16	1 sample/500 cy (See sample summary table, former samples will be used as part of samples needed.)
						130	40	12	2,311	3,236	Soil to be reused to backfill south of 223 parcel in former basement.						Soil to be reused onsite will be field screened with a PID and sampled for VOCs.
Total									5,258	7,361		14	14	12	12	16	4

PID - Photo-ionization detector
BAP eq. - benzo (a) pyrene equivalent

Table 2
Response Action Sampling Summary
219 and 223 First Avenue S.W., Rochester, MN

Type of Sample	Description	Sample Numbering System	Frequency of Sampling	Construction Documentation Form[2]
Contaminated Excavation Verification – 223 Parcel	Samples collected from sidewalls and the floor of the 223 and 219 Parcel excavations to verify removal of contaminated soil. Final verification samples will be analyzed at a fixed based laboratory. Samples from the 223 Parcel will be analyzed for PAHs and arsenic and from the 219 Parcel will be analyzed for VOCs.	223-01, 223-02, etc. (i.e., Sequential numbering for samples collected from 223 Parcel).	As required by MPCA verification sampling guidance, based on the area of the sidewalls and floors of the excavations.	See sample data sheets for excavation of Parcel 223 and 219.
Landfill Samples and Stockpile Floor Removal Observation	Samples collected for landfill disposal. Landfills may request that some additional parameters be analyzed for additional characterization. Contaminated soils, excavated from 223 Parcel, are not expected to be stockpiled on the Property, they will be direct hauled to the approved permitted landfill. However, in the event these soils are stockpiled on the Property, soil beneath the piles will be field screened to verify the removal of contaminated soil at the time of stockpile removal/disposal.	LDF-01 (Sequential numbering for all landfill samples). LDF applies to samples of soil going to landfill, even if stockpiled prior to transport.	For LDF samples: 1 sample per 500 cy analyzed for contaminant of concern because total volume of soil is expected to be 2500 cys. **Note:** several samples were collected during previous investigations and represent landfill profile samples and will be used as part of this sampling frequency. Dirty sidewall samples will also be used for landfill profile samples.	See sample data sheets for landfill samples. Documentation will be completed for removal of stockpiles.
Soil Reuse from 219 Parcel	Soil from Parcel 219 that will be reused in the former basement south of the 223 Parcel will be field screened with a PID, visual, and olfactory to verify that the material being reused meets the cleanup goals and stockpile sampling for VOCs will also be completed. Soil that cannot be used will likely be landfilled and samples collected based on landfill sampling requirements.	R-01 (sequential numbering for all reuse soil samples for field screening).	Stockpile samples and sidewall and floor samples at the limits of the excavation will be analyzed for VOCs in accordance with MPCA verification sampling frequency guidelines.	See sample data sheets for reuse soil.
Contingency Plan	Samples collected during construction excavation if field screening observation indicate soils are contaminated. Water samples collected during potential dewatering activities are also included in this category. Water sampling will be conducted in accordance with the City of Rochester permit requirements. Soil samples collected if contamination was observed through field screening during installation in utility corridors, or removal of soil from under the buildings. Pertinent information concerning the underlying soils and condition and physical properties during redevelopment will be recorded on the Sample Data Sheet (attached). The location of each sample will be recorded on the Sample Data Sheet. Soils will be screened for organic vapors using a photoionization detector (PID) equipped with a 11.7 eV bulb and screened for visual contamination (e.g., discoloration, oiliness, odors) as described in the Contingency Plan. Discrete samples of a suspected release area may be collected based on field screening evaluation and analyzed for chemicals of concern.	Sample designators: C-1 and W-1 (dewater sample).	Sampling conducted if contaminated soil is identified through field screening consistent with the Environmental Contingency Plan.	See sample data sheets for contingency samples.

[1] Samples analyzed at a fixed based MN Certified laboratory to be determined.
[2] Construction documentation forms are forms that will be used during construction to document the response action sampling.

Sample Designator	Sample Number	Onsite Source Location	Volume (CY)	Sample Type	Sample Date	Visual Observations (Discoloration/Odor/Oiliness)	Soil Description (ASTM)	Mobile Laboratory Methods and Results	Fixed Lab Analytical Parameter	Landfill
Sample Id Information										
	01									
	02									
	03									
	04									
	05									
	06									
	07									
	08									
	09									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									

Onsite Source Locations

SP - Stock Pile Designator
219 - Parcel 219 Designator
223 - Parcel 223 Designator
LDF - Landfill Designator
R - Reuse Designator
C - Contingency Designator
W - Dewater Designator

Sample Designator	Sample Number	Sample Modifier	Sample Type	Sample Depth (ft BGS)	Sample Date	Field Screening Results: Headspace	Field Screening Results: Visible Contam. Eval. (Discoloration, Odor, Oiliness)	Soil Description (ASTM)	Mobile Laboratory Methods and Results	Fixed Lab, Analytical Parameter
Sample Id Information										
	01									
	02									
	03									
	04									
	05									
	06									
	07									
	08									
	09									
	10									

Sample Designator	Sample Modifier	Sample Type	Calculations (or use back)
SP - Stock Pile Designator 219 - Parcel 219 Designator 223 - Parcel 223 Designator LDF - Landfill Designator R - Reuse Designator C - Contingency Designator W - Dewater Designator	SW - Excavation Sidewall F - Excavation Floor	G - Grab C - Composite	

Dimensions/Sample Locations

Page of

Attachment 2
Emissions Control Plan

Emission Control Plan

219 and 223 First Avenue S.W.
Rochester, Minnesota

Prepared for
The City of Rochester

July, 2007

Asbestos Containing Waste Material Emission Control Plan
219 and 223 First Avenue S.W.
Rochester, Minnesota

The purpose of this Emission Control Plan ("ECP") is to outline procedures to be followed for control of potential asbestos emissions during the excavation, loading, transportation and disposal of Asbestos-Containing Waste Material ("ACWM") that could potentially be encountered during removal of demolition debris from the excavation of the parcels located at 219 and 223 First Avenue S.W. in Rochester, Minnesota ("the Property"). The Property location is shown on Figure 1 of the Voluntary Response Action Plan ("VRAP). The ECP was prepared and will be implemented in accordance with the Minnesota Pollution Control Agency ("MPCA") Voluntary Investigation and Cleanup ("VIC") Program Guidance Document #9.

Volume, Description, and Present Condition of the ACWM
The 219 Parcel is currently owned by the City. The City acquired the Property from Rochester DC LLC, a Delaware limited liability company, on May 31, 2007. The 223 Parcel is currently owned by the Mayo Clinic Rochester, a Minnesota non-profit corporation. Both parcels comprise the Property and are currently used as surface parking lots.

It is unknown if ACWM is present on the Property, but because demolition debris will likely be encountered during redevelopment, an asbestos certified personnel will be onsite during the removal of the debris.

219 1st Avenue Parcel
The 219 Parcel consists 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 likely involved the use of hazardous substances, including the common dry cleaning solvent tetrachoroethylene ("PCE"). The 219 Parcel is enrolled in the MPCA VIC Program as VP#12560. Based on previous environmental investigations, RAs have been conducted to address reported releases of PCE at the Property on this parcel since 2000. The RAs currently include operation of a dual phase extraction ("DPE") system.

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 VOCs.

The DPE system was installed and operated by DPRA, Inc. ("DPRA") in the past on behalf of the former Property owner of the 219 Parcel. Details of the DPE system construction and operation are included in the Implementation Report, Dual Phase Extraction System Installation and Start-up, Former Dry Cleaners, 219 First Avenue SW, Rochester, Minnesota ("DPRA Report"), dated July 2006.

223 1st Avenue SW Parcel
The 223 Parcel consists 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 and demolition debris has been observed on this parcel as described below. As stated, the general Property vicinity has been developed since prior to 1884 for residential/commercial use. These historical activities likely did not involve the use of significant quantities of hazardous substances or petroleum products.

219 and 223 1st Avenue Southwest – January 2007 Phase II Environmental Investigation
Following the preparation of a Phase I Environmental Site Assessment ("ESA") in December 2006, Landmark conducted a Supplemental Phase II Environmental Investigation ("Supplemental Investigation"). The results of the Supplemental Investigation are presented in a report dated January 2007. Based on the results of the January 2007 Supplemental Investigation, soil and fill material was encountered throughout the Property to depths ranging from 10 to 15 feet bgs. Bedrock was encountered in the six geotechnical borings at depths ranging from 13 to 17 feet bgs.

The soil/fill material on the 219 Parcel consists of poorly graded sand that has been placed above a concrete slab at approximately 10 feet bgs. No construction debris or demolition debris was encountered in the six borings located on the 219 Parcel. All RCRA metals and detected PAHs were reported below the MPCA residential soil reference values ("RSRVs") in soil samples collected on the 219 Parcel.

Soil and fill material on the 223 Parcel is more varied and contained construction demolition debris. In the eastern portion of the 223 Parcel, sandy silt and clay with gravel was encountered. In the central and western portions of the 223 Parcel, demolition debris consisting of concrete, bricks, movie theater seats, and wood was mixed with sand, silt and gravel from 10 to 15 feet bgs. Arsenic was reported above the RSRV of 5.0 mg/kg in soil sample GB-3/2-4 (10.2 mg/kg) and GB-5/4.5-6.5 (8.1 mg/kg), which were collected on the 223 Parcel. In sample LGP-4/0-2, which was also collected on the 223 Parcel, the benzo(a)pyrene ("BaP") equivalent was calculated at 12.7 mg/kg, which is above the RSRV of 2.0 mg/kg as well as the commercial/industrial soil reference values ("C/ISRV") of 3.0 mg/kg.

Regulatory Requirements
Activities described in this ECP will follow the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), Title 40, Code of Federal Regulations, Sections 61.140 through 61.157) and those rules as adopted by reference in the Minnesota Rules, Section 7011.9920.

Standard Operating Procedures
The contractor will implement standard operating procedures ("SOPs") during excavation, loading, transportation and disposal off site at a permitted landfill of the ACWM on the Property to ensure maximum protection and safeguard exposure of workers, visitors, tenants, employees and the environment. The SOPs shall ensure:

1. Restrict security from unauthorized entry into the work area. The Property where the

ACWM in located and the immediate area where trucks will be loaded and prepared for transportation on the Property will be restricted only to authorized, trained and protected personnel. These may include employees of the contractor operating equipment loading the ACWM on the trucks and preparing the trucks for transporting the ACWM for off-site disposal at a permitted landfill, employees of subcontractors transporting the ACWM, state and local inspectors and other designated individuals responsible for supervising the project.

2. Warning signs will be posted at the work area on the Property to comply with Occupational Safety and Health Administration ("OSHA") and Minnesota Department of Health ("MDH") regulations and to comply with all other federal, state and local requirements.

3. A list will be posted containing the names, addresses and phone numbers of the contractor and any other personnel that may be required to supervise the excavation, loading, transportation and offsite disposal activities.

4. The City of Eagan and Inver Grove Heights and Dakota County will be notified.

Wetting Procedures

The debris containing ACWM will be wetted to minimize asbestos fiber release during excavation, loading, and transportation of the ACWM. The water will be applied from a water truck or onsite water hoses using a low-pressure sprayer to ensure, to the extent possible, that spraying activities will not cause asbestos fibers to become airborne.

Section 40 CFR 61-145(7) allows for the suspension of wetting operations due to freezing temperatures. During periods when wetting operations are suspended due to freezing temperatures, the contractor will record the temperatures near the loading area at the beginning, middle and end of each workday.

Because wetting procedures will be implemented, MDH air monitoring will only be conducted as necessary. The contractor may elect to conduct OSHA air monitoring, if necessary.

Excavation, Loading, Transporting and Reconsolidation

1. The ACWM will be loaded and sealed in a labeled rolloff box or truck. [Truck needs to be labeled during loading and unloading.]

2. The ACWM will be wetted during the loading process as discussed above.

3. To prevent asbestos fibers from being released from the top of the rolloff box, the contractor will ensure that the containers are not overfilled and will be sealed or covered with plastic.

4. The ACWM will be transported and disposed at a permitted RCRA Subtitle D

landfill

5. The ACWM will be covered with soil or plastic at the end of the work day.

6. Upon completion of the project, the excavation, loading equipment will be decontaminated.

Recordkeeping
Records will be maintained in accordance with 40 CFR 61-154(f) indicating the location and quantity (in cubic yards) of ACWM removed from the Property. The contractor will maintain:

1. Security and safety logs showing the names of the persons entering the work space, date and time of entry and exit, record of any accident, emergency evacuations and any other safety and/or health incident.

2. Copies of all transportation trip tickets for all the ACWM disposed at the RCRA Subtitle landfill.

3. Required permits, clearances, licenses and other submissions required to complete the project.

4. Daily work reports on all removal and abatement activities by the contractor. Such reports shall include mention of all matters necessary to be accomplished in order to assure the satisfactory completion of the project.

Project Personnel
A description of the entities responsible to implement this ECP include the following:

1. The asbestos contractor will be licensed in the state of Minnesota. The contractor will provide all loading and wetting equipment and the personnel to operate the equipment and to line the trucks with polyethylene. The contractor will provide the dump trucks and end dumps to transport the ACWM. The contractor will develop a Site Safety Plan ("SSP") for its employees. The contractor will submit a "Notification of Asbestos-Related Work" to the MPCA and MDH. Contact information for the asbestos contractor will be provided to the MPCA and MDH prior to conducting earthwork activities.

2. The general contractor will be selected in the near future. Contact information for the general contractor will be provided to the MPCA and MDH prior to conducting earthwork activities.

3. The owner of the Property is the City of Rochester ("City"). The City contact is Doug Knott at Gopher Resource Corporation, 3385 S. Highway 149, Eagan, MN 55121, phone 507-328-2003.

4. Landmark Environmental, LLC, 2042 West 98th Street, Bloomington, MN 55431, phone

952-887-9601, fax 952-887-9605, is the environmental consultant for the project. Landmark's subcontractor for asbestos issues is Applied Environmental Services, Inc. and the contact person is Tom Roberts, a certified asbestos inspector, phone 763-545-5510. Landmark also has certified asbestos inspectors who may assist AES and includes Jerry Mullin (cell phone 612-702-8335) or Eric Gabrielson (cell phone 952-240-8935). The project manager is Jason Skramstad, phone 952-887-9601, ext. 205, fax 952-887-9605.

Attachment 3
The Mist – Stego Information

Memorandum

Landmark Environmental, LLC

Landmark Environmental, LLC
2042 West 98th Street
Bloomington, MN 55431

Phone: 952-887-9601
Fax: 952-887-9605

To: Karlene French

From: Jason Skramstad

Subject: Vapor Barrier Design

Project: Mist Lofts

Date: 6/7/05

c:

This memo is to follow up with a conference call on May 23, 2005, with the Minnesota Pollution Control Agency (MPCA), Landmark Environmental (Landmark), The Cornerstone Group, Winthrop and Weinstine, and Prudential concerning the design of the vapor barrier system at the Mist Lofts Property (Property). During the conference call, the potential effect of ground water coming into contact with the taped seams was discussed. After conversations with the Stegowrap manufacturer (Manufacturer) and the geotechnical engineer responsible for the drain tile and foundation drainage systems, Landmark does not believe it is necessary to change the current vapor barrier design which was submitted to the MPCA for approval.

The current vapor barrier design consists of taped seams, not welded seams. The Stegowrap manufacturer recommends the use of taped seams for the vapor barrier system at the Property. However, the Manufacturer did acknowledge potential pressure from hydrostatics could cause damage to taped seams, but ONLY under extreme conditions such as being in contact with water for a prolonged period of time. The building design at the Property includes a drain tile and foundation drainage systems to address the possibility of water coming in contact with the taped seams of the vapor barrier system. The geotechnical engineer, who designed the drain tile system, does not believe there is a real possibility at this site for prolonged contact of water with the taped seams. In addition, the geotechnical engineer also believes that the drain tile design coupled with the foundation drainage system will provide adequate drainage, thus eliminating prolonged exposure of the vapor barrier to the ground water. The geotechnical engineer stated that severe precipitation events may occur every five to ten years that may cause ground water to come in contact with the vapor barrier system. However, the contact would not be prolonged enough to cause damage to the taped seams.

The drain tile system design will consist of piping on the interior and exterior of each building. The exterior drain tile will be installed around the perimeter of each building. The interior drain tile will be installed in the center of each building and will extend parallel to the length of the buildings. One set of drain tile will be installed in the

interior of the south building and two sets of drain tile will be installed in the interior of the north building. The drain tile diameter shall be 6 inches for the south building and 8 inches for the north building. The drain tile will have ½ inch slots and will be utilized with coarse filter aggregate.

The foundation drainage system design consists of installing free-draining rock below the footing level of the buildings. The free-draining rock recommended by the geotechnical engineer to the general contractor has the following characteristics: quarried, 100% crushed, washed, and graded to be 100% passing a 1.5 inch sieve. Therefore, the foundation drainage system will be a very uniform and porous material.

Landmark agrees with the geotechnical engineer that the current design of drain tile and drainage foundation systems will be sufficient to prevent prolonged exposure of the taped seams to ground water and that there is not a real possibility of vapor barrier seam damage from hydrostatic pressure at the Property.

Hi Paul,

This email is to follow up on a voicemail I sent you earlier today. Could you please respond to Item 1 on the attached email. The MPCA requires this information to be addressed before they approve the vapor varrier design. Prudential won't go through with the closing until the MPCA approved the vapor barrier and drain tile system. We have informed the MPCA about our past conversations with you concerning chemical resistivity of the Stegowrap to chlorinated solvents, however, they would like to hear the information directly from you. A response to this email will suffice. I plan on providing the methane gas and petroleum test data to the MPCA. Do you happen to know roughly how many other chlorinated solvent or TCE sites that stegowrap has been used on? I will need to get this info to the MPCA by 3 pm (Central time)today so they can approve it for the closing between Prudential and the Cornerstone Group tomorrow.

Sorry for dropping this urgent request on your 1st day back from you 2 week vacation. Thanks.

Jason Skramstad

----- Original Message -----
From: svanduyn@landmarkenv.com
To: "Dan Schleck" <dschleck@winthrop.com>,
pstpierre@thecornerstonegroup.com, wolson@thecornerstonegroup.com
Subject: Fw: RE: Mist Lofts Vapor Barrier Memo
Date: Wed, 08 Jun 2005 09:49:53 -0600

Jason D. Skramstad, P.E.
Environmental Engineer

Landmark Environmental, LLC
2042 W. 98th Street
Bloomington, MN 55431
office: (952) 887-9601 Ext. 205
cell: (651) 717-8885
fax: (952) 887-9605
email: jskramstad@landmarkenv.com
www.landmarkenv.com

Jason Skramstad

From: Paul Blasdel [paul@stego.occoxmail.com]
Sent: Thursday, June 09, 2005 12:54 PM
To: Jason Skramstad
Subject: Re: RE: Mist Lofts Vapor Barrier Memo

Jason,

Per our conversation I will try to clear up some items.

It is very difficult for design professionals to believe that 15 mils of Stego Wrap can be better than 40 mils of HDPE. Here are some reasons why this is possible.

Stego Wrap is made from Metallocene Polyolefin Resins. This resin was invented by Exxon Mobil about 12 years ago. HDPE (High Density Polyethylene) has been around for years and is a better quality resin than LLDPE (Liner Low-Density Polyethylene). However, there are many grades of HDPE. Most land fill liners are made from very low grades of either HDPE or LLDPE. If they were made from prime, virgin resins (like Stego Wrap) they would be much better products.

With regard to comparing Stego Wrap 15-Mil Vapor Barrier and a landfill liner with ASTM tests, this will prove next to impossible.

I found this out 10 years ago when I was researching products during the invention of Stego Wrap. There are many different types of ASTM puncture tests and tensile tests. Permeance should be tested with ASTM E 96 but even this is not always the case.

Most landfill liners do not even mention permenace. They seem to be more interested in puncture and tensile.

With HDPE thicker is almost always better in terms of puncture and tensile.

What makes Stego Wrap special? The resins we use (mettalocene polyolefin) have some remarkable qualities where the moleclues actually cross-link to provide exceptional characteristics of very high puncture and tensile and very low-permeance. Until metallocene came along it was very tough to get all these qualities in a single plastic sheet.

Polyolefin and Polyethylene are both known in the plastics industry to posess very good qualities with regard to chemical resistance. The higher the qualities of the inital resin the better off the product will be.

Many landfill liners now use recycled resins. Stego does not. We use only prime, virgin resin on a first melt basis. This is the only way we can assure that every extrusion of Stego Wrap is exactly the same as the previous batch. Landfill liners have a hard time making this claim.

My hope is that all this information will help determine what will work for your project.

I am available to speak directly with the folks at MPCA if needed.

Regards,

Paul J. Blasdel
Principal/Inventor
Stego Wrap Vapor Barrier
----- Original Message -----
From: "Jason Skramstad" <jskramstad@landmarkenv.com>
To: <paul@stego.occoxmail.com>
Sent: Wednesday, June 08, 2005 9:39 AM
Subject: Fw: RE: Mist Lofts Vapor Barrier Memo

Jason Skramstad

From: Jason Skramstad [jskramstad@landmarkenv.com]
Sent: Thursday, June 09, 2005 2:00 PM
To: Karlene.French@state.mn.us
Cc: Ken Haberman; Sherry Van Duyn
Subject: Fw: Re: RE: Mist Lofts Vapor Barrier Memo

Mist Lofts
)or Barrier Mem

Karlene,

Per our recent phone conversation, I have attached an email from Paul Blasdel, the president of Stego Industries, concerning the strength characteristics of 15 mil stegowrap vs. 40 mil HDPE. Please let me know if you have any additional questions. Thanks for working with us to get these issues resovled is such a timely manner. Please copy Ken and Sherry on your vapor barrier design approval email when it is completed.

Thanks,

Jason

----- Original Message -----
From: "Paul Blasdel" <paul@stego.occoxmail.com>
To: "Jason Skramstad" <jskramstad@landmarkenv.com>
Subject: Re: RE: Mist Lofts Vapor Barrier Memo
Date: Thu, 9 Jun 2005 10:53:58 -0700

Jason D. Skramstad, P.E.
Environmental Engineer

Landmark Environmental, LLC
2042 W. 98th Street
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email: jskramstad@landmarkenv.com
www.landmarkenv.com

Jason Skramstad

From: French, Karlene [Karlene.French@state.mn.us]
Sent: Wednesday, June 08, 2005 10:04 AM
To: Jason Skramstad
Cc: Ken Haberman; Sherry Van Duyn; Jensen, Patrice; French, Karlene
Subject: RE: Mist Lofts Vapor Barrier Memo

Hi Sherry, Jason, and Ken:

Great news about just having to OK the vapor barrier system by tomorrow instead of having to scramble to complete the entire comment letter. I have a couple of questions in followup to the memo Jason sent over:

1. Does the manufacturer of the vapor barrier have any information regarding chemical resistivity of the barrier to chlorinated solvents (e.g., do they use it as landfill liner material, do they have test results)? We need some data or use information to support the manufacturer's claim.

2. Welded seams are better in wet conditions. Would there be a huge cost difference in switching to welded vs. taped seams? Are there other reasons besides cost that make taped seams better?

3. Can you provide a scaled schematic showing the relationship between the water table (long-term average vs 5 or 10-year, how were these levels determined, how often will the barrier get wet?), the french drain system, the passive venting system, and the barrier? I assume the drain system is keeping the area for passive venting beneath the barrier dry, but I can't tell that from the information provided.

We may not need to have the following to approve the vapor barrier seams, but I included them just in case a change to them would change the vapor barrier design.

4. What is the proposed design for the drain sump/discharge system? Will the discharge need to be treated? Why or why not? Will sampling be required by the discharge permit?

5. What long-term maintenance plans will there be for the drain and venting systems to make sure they remain operational? We will have to include those in the restrictive covenant.

Patrice and I will pull together our comments on the design documents for next week. Call with questions.

Nice to work with you again. Karlene

-----Original Message-----
From: Jason Skramstad [mailto:jskramstad@landmarkenv.com]
Sent: Tuesday, June 07, 2005 6:02 PM
To: Karlene.French@state.mn.us
Cc: Ken Haberman; Sherry Van Duyn
Subject: Mist Lofts Vapor Barrier Memo

Karlene,

Attached is a memo which discusses the potential of the vapor barrier coming in contact with ground water and our recommendation to use taped seams versus welded seams.

Take care,

Jason D. Skramstad, P.E.
Environmental Engineer

Landmark Environmental, LLC
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Memorandum

Landmark Environmental, LLC

Landmark Environmental, LLC.
2042 West 98th Street
Bloomington, MN 55431

Phone: 952-887-9601
Fax: 952-887-9605

To: Karlene French

From: Jason Skramstad

Subject: Vapor Barrier Design

Project: Mist Lofts

Date: 6/8/05

c: Patty St. Pierre

The following are questions posed by the MPCA and Landmark's response to them:

1. Does the manufacturer of the vapor barrier have any information regarding chemical resistivity of the barrier to chlorinated solvents (e.g., do they use it as landfill liner material, do they have test results)? We need some data or use information to support the manufacturer's claim.

Landmark Response: The manufacturer does not have any information regarding chemical resistivity of the barrier to chlorinated solvents (TCE). The manufacturer said that it isn't feasible for them to test every contaminant that may come into contact with the barrier. However, the manufacturer did send the results of a methane gas test and a petroleum test. The methane gas test examined the permeance of methane gas through the membrane. The result was 0.01 perms indicating that essentially zero methane gas permeated the barrier. The manufacturer believes the vapor barrier would perform just as well with TCE vapor. The petroleum test submerged the vapor barrier material into a petroleum substance for 90 days. The permeance and several other strength tests were performed on the vapor barrier material after being submersed in the petroleum substance. The permeance ONLY increased by a few thousandths of a perm and the integrity of the material was not affected. The manufacturer stated the vapor barrier was made from petroleum based materials and expected the petroleum to have a greater impact on performance of the barrier. The manufacturer believes that the vapor barrier will perform better if in contact with TCE because it is not a petroleum contaminant. The manufacturer does not have any concern about using the vapor barrier material for TCE vapors because of the following reasons: 1. the test results discussed above, 2. the low TCE ground-water concentrations (14 ppb from sample taken from dewatering test), and 3. the fact that there is a drain tile and passive venting system. Attached with this memo are the results of the methane gas test and petroleum test.

2. Welded seams are better in wet conditions. Would there be a huge cost difference in switching to welded vs. taped seams? Are there other reasons besides cost that make taped seams better?

Landmark Response: The cost for welding the seams would be 4 times greater than taping the seams. Taped seams have been recommended by the manufacturer as being effective at vapor control for this application.

3. Can you provide a scaled schematic showing the relationship between the water table (long-term average vs 5 or 10-year, how were these levels determined, how often will the barrier get wet?), the french drain system, the passive venting system, and the barrier? I assume the drain system is keeping the area for passive venting beneath the barrier dry, but I can't tell that from the information provided.

Landmark Response: Attached are scaled schematics with the information you requested. One typical design schematic has been created for each building. The invert elevations for the drain tile will vary because they are sloped to provide drainage to sumps and manholes. The schematic provided includes the lowest drain tile invert elevation from that building. The invert elevations for the interior drain tile have not been established at this time but should be similar to the drain tile invert elevation provided on the schematics. Accurate local ground water elevations are not available for the Mist Site. Water elevations for the schematic are taken from A Geotechnical Evaluation Report - Prepared for The Cornerstone Group, July 29, 2004. Ground water elevations were encountered on this site from 926 to 940 feet above mean sea level. Elevated ground water observed above 930 feet is assumed to be perched in sand overlaying a less permeable clay soil. The structure outlet elevation for Lake Minnetonka is in Gray's Bay and is 929.4 feet above mean sea level. Under normal circumstances Lake Minnetonka surface water elevations will not exceed the structures level.

We may not need to have the following to approve the vapor barrier seams, but I included them just in case a change to them would change the vapor barrier design.

4. What is the proposed design for the drain sump/discharge system? Will the discharge need to be treated? Why or why not? Will sampling be required by the discharge permit?

Landmark Response: The current design consists of discharging ground water collected from the drain tile directly to the storm sewer. However, it will be determined at a later date whether or not the drain tile discharge requires treatment before being sent to the storm sewer. I have attached the plan view drawings of the drain tile system which shows the manholes and storm sewer piping which will receive the ground water discharged from the drain tile. The plan view drain tile drawings have not been updated to include the drain tile which will be installed beneath the interior of the building. Any changes to the drain tile design will not affect what type of seams should be used for vapor barrier installation.

5. What long-term maintenance plans will there be for the drain and venting systems to make sure they remain operational? We will have to include those in the restrictive covenant.

Landmark Response: The geotechnical engineer has recommended cleanout manholes be installed to access the drain tile for long term maintenance. The cleanout manholes will be included in the updated drain tile design drawings.

F:\PROJECTS\Tcg-The Cornerstone Group\05\The Mist\Design\MPCA vapor barrier questions.doc

Jason Skramstad

From: French, Karlene [Karlene.French@state.mn.us]
Sent: Thursday, June 09, 2005 3:27 PM
To: Jason Skramstad; khaberman@landmarkenv.com; svanduyn@landmarkenv.com
Cc: Jensen, Patrice; French, Karlene
Subject: Norling Nursery VP 19710--Vapor Barrier Design Approval

Staff in the Minnesota Pollution Control Agency (MPCA) Voluntary Investigation and Cleanup (VIC) Program has reviewed technical specifications and design information for the proposed vapor barrier in the following documents for the referenced site:

1. Landmark Environmental, LLC, (Landmark), Response Action Design and Implementation for Minnetonka Mist Redevelopment, May 4, 2005 (Design)

2. Landmark, Vapor Barrier Design Memorandum, June 8, 2005

3. E-Mail from Stego Industries, LLC (manufacturer of the proposed vapor barrier) to Landmark, June 9, 2005

Based on the information provided in these documents, MPCA staff approves the proposed vapor barrier design and the proposed method of taping barrier seams. MPCA continues its review of the remaining portions of the Design; comments on and/or approval of the Design with modifications is forthcoming.

Please contact Patrice Jensen at 651-296-7744 or me at 651-297-8330 with any questions regarding this approval of the proposed vapor barrier.

Sincerely,

Karlene French
Project Manager
MPCA VIC Unit
520 Lafayette Road
St. Paul, MN 55155-4194
651-297-8330
karlene.french@pca.state.mn.us

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

SUMMARY OF PLASTIC FILM TEST RESULTS
STEGO Industries

Material: 15 MIL Plastic Wrap Material
Sample Identification: Stego Wrap
TRI Log #: E2130-51-05

SRA 11-15-99
Quality Review/Date

per ASTM E 154-93, Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

Baseline Water Vapor Permeance (perms) (ASTM E 96, Procedure B)	0.012
Permeance after Wetting, Drying and Soaking (perms) (ASTM E 154-93, Section 8)	0.014
Tensile Strength after Soaking (Lbs/in) (ASTM E 154-93, Section 9) SRA 11-15-03	76.6
Resistance to Puncture (grams) (ASTM E 154-93, Section 10) SRA 11-15-03	2445
Resistance to Plastic Flow and Elevated Temperature (perms) (ASTM E 154-93, Section 11)	0.015
Effect of Low Temperature on Bending (perms) (ASTM E 154-93, Section 12)	0.017
Resistance to Organisms and Substrates in Contact with soil (perms) (ASTM E 154-93, Section 13)	0.014
Resistance to Deterioration from Petroleum Vehicle for soil Poisons (perms) (ASTM E 154-93, Section 14)	0.013

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

Stego® Mastic

STEGO INDUSTRIES, LLC

Vapor Retarders
07260, 03300

1. Product Name
Stego Mastic

2. Manufacturer
Stego Industries, LLC
27442 Calle Arroyo, Suite A
San Juan Capistrano, CA 92675
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 493-5165
www.stegoindustries.com

3. Product Description
USES: Stego Mastic is designed to be used as a waterproofing and vapor retardant membrane for use in conjunction with Stego Wrap 10-mil and 15-mil Vapor Retarder/Barrier. Stego Mastic can be used as an alternate to boots for pipe penetrations in Stego Wrap Vapor Barrier. Stego Mastic can also be used as a primary waterproofing for below grade walls.
COMPOSITION: Stego Mastic is a medium-viscosity, water-based, polymer-modified anionic bituminous/asphalt emulsion, which exhibits bonding, elongation and waterproofing characteristics.
SIZE: Stego Mastic comes in 5 gallon buckets.

4. Technical Data
APPLICABLE STANDARDS
American Society for Testing and Materials (ASTM)
- ASTM 412
- ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
- ASTM G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials (Withdrawn 2000)
- ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM D 751 Standard Test Methods for Coated Fabrics
- ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
- ASTM C 836 Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.
- ASTM E 1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

5. Installation
PREPARATION
- A test application simulating the project environment should always be done prior to final usage of Stego Mastic.
- All Surfaces should be dry and free of loose materials, oils and other contaminants. The surfaces should be cleaned in the same fashion as the test surface in order to ensure proper results.
- Store above 40°F

PENETRATIONS
For small pipe and rebar penetrations in Stego Wrap Vapor Barrier cut Stego Wrap just big enough for the penetration. Liberally apply Stego Mastic around the penetration to keep the integrity of the membrane intact. Stego Mastic can be applied by brush, roller, or sprayer.
NOTE: 1: For larger penetrations or wide cut-outs of Stego Wrap, use Stego Wrap and Stego Red Polyethylene Tape to construct boots. 2: Solvent-based products should not be applied over this product.

CLEANING
Clean all tools with kerosene and/or oil-based cleaners.

6. Availability & Cost
Stego Mastic is available nationally via building supply distributors. For current cost information, contact your local Stego distributor or Stego Industries' sales department.

7. Warranty
Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. No warranty, express or implied, is given as to the merchantability, fitness for a particular purpose, or otherwise with respect to the products referred to.

8. Maintenance
None required.

9. Technical Services
Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries' technical assistance department or by visiting the website: www.stegoindustries.com

10. Filing Systems
- Stego Industries' website

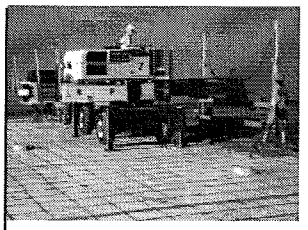
TABLE 1: PHYSICAL PROPERTIES OF STEGO MASTIC

Property and Test	Stego Mastic
Tensile, ASTM 412	32 psi / 3860%
Resistance to Decay, ASTM E 154	9% perm loss
Accelerated Aging, ASTM G 23	No Effect
Permeance, ASTM E 96	0.17 Perms
Hydrostatic Water Pressure, ASTM D 751	28 psi
Methane Transmission Rate, ASTM D 1434	0
Adhesion to Concrete & Masonry, ASTM C 836	7 lbf./in.
Hardness, ASTM C 836	85
Crack Bridging, ASTM C 836	No Cracking
Low Temp Flexibility, ASTM C 836	No Cracking at -20°C
Resistance to Acids:	
Acetic	30%
Sulfuric and Hydrochloric	15%
Temperature Effect:	
Stable	248°F
Flexible	13°F

Stego® Wrap 15-mil Class A

A "true" VAPOR BARRIER

STEGO INDUSTRIES, LLC



Vapor Retarders
07260, 03300

1. Product Name
Stego Wrap 15-mil
Class A Vapor Barrier

2. Manufacturer
Stego Industries, LLC
27442 Calle Arroyo, Suite A
San Juan Capistrano, CA 92675
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 493-5165
www.stegoindustries.com

3. Product Description
USES: Stego Wrap 15-mil is used as a true below-slab vapor barrier, and as a protection course for below grade waterproofing applications.
COMPOSITION: Stego Wrap 15-mil Vapor Barrier is a multi-layer plastic extrusion manufactured with only the highest grade of prime, virgin, polyolefin resins.
SIZE: Stego Wrap 15-mil comes in rolls 14' x 140' or 1,960 ft²
WEIGHT: Stego Wrap 15-mil rolls weigh approximately 141 lb.

4. Technical Data
APPLICABLE STANDARDS
American Society for Testing & Materials (ASTM)

- ASTM E 1745 - Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs
- ASTM D 882 - Test Methods for Tensile Properties of Thin Plastic Sheeting
- ASTM D 1709 - Test Methods for Impact Resistance of Plastic Film by Free-Falling Dart Method
- ASTM E 96 - Test Methods for Water Vapor Transmission of Materials
- ASTM E 154 - Test Methods for Water Vapor Retarders Used in Contact with Earth under Concrete Slabs, on Walls, or as Ground Cover
- ASTM E 631 - Terminology of Building Constructions
- ASTM F 1249 - Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor
- ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

American Concrete Institute (ACI)

- ACI 302.1R-96 Minimum Thickness (10-mils)

ENVIRONMENTAL FACTORS
Stego Wrap 15-mil can be used in systems for the control of soil gases (radon, methane), soil poisons (oil by-products) and sulfates.

5. Installation
UNDERSLAB: Unroll Stego Wrap 15-mil Vapor Barrier over an aggregate, sand or tamped earth base. Overlap all seams a minimum of 6" and tape using Stego Tape. All penetrations must be sealed using a combination of Stego Wrap, Stego Tape and/or Stego Mastic.

VERTICAL WALL: Install Stego Wrap 15-mil Vapor Barrier over the waterproofing membrane while still tacky. Mechanically fasten Stego Wrap to the wall at the top with termination bar and concrete nails. Drape Stego Wrap down across the footer and under the french drain.

6. Availability & Cost
Stego Wrap 15-mil is available nationally via building supply distributors. For current cost information, contact your local Stego Wrap distributor or Stego Industries' sales department.

7. Warranty
Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. No warranty, express or implied, is given as to the merchantability, fitness for a particular purpose, or otherwise with respect to the products referred to.

8. Maintenance
None required.

9. Technical Services
Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries' technical assistance department or via the website:
www.stegoindustries.com

10. Filing Systems
- SpecSource
- Stego Industries' website
- MasterSpec

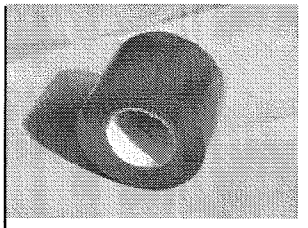
TABLE 1: PHYSICAL PROPERTIES OF STEGO WRAP 15-MIL VAPOR BARRIER

Property & Test	Stego Wrap 15-Mil
Underslab Vapor Retarders, ASTM E 1745 Class A	Exceeds
Water Vapor Permeance, ASTM E 96 & ASTM F 1249	0.012 perms (*0.006 WVTR)
Tensile Strength, ASTM D 882	76.6 lbf./in.
Puncture Resistance, ASTM D 1709	2445 grams
Chemical Resistance, ASTM E 154	Unaffected
Life Expectancy, ASTM E 154	Indefinite

* WVTR water vapor transmission rate

Stego® Tape

STEGO INDUSTRIES, LLC



Vapor Retarders
07260, 03300

1. Product Name
Stego Tape

2. Manufacturer
Stego Industries, LLC
27442 Calle Arroyo, Suite A
San Juan Capistrano, CA 92675
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 493-5165
www.stegoindustries.com

3. Product Description
USES: Stego Tape is a low permeance tape designed for protective sealing, hanging, seaming, splicing, and patching applications where a highly conformable material is required. It has been engineered to bond specifically to Stego Wrap 10-mil and 15-mil, making it ideal for sealing Stego Wrap seams and penetrations.
COMPOSITION: Stego Tape is composed of a high-density polyethylene film and a rubber-based, pressure-sensitive adhesive.
SIZE: Stego Tape comes in 4" wide, 180 ft. long rolls. Stego Tape ships 12 rolls in a case.

4. Technical Data
APPLICABLE STANDARDS
American Society for Testing & Materials (ASTM)

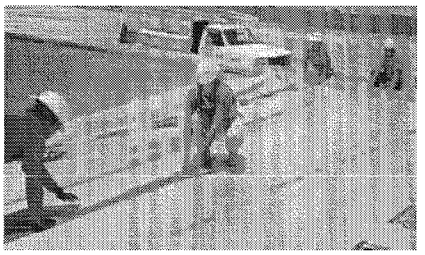
- ASTM D 1000 Standard Test Method for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications
- ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

5. Installation
SEAMS:
Overlap Stego Wrap 6 inches and seal with Stego Tape. Make sure the area of adhesion is free from dust, dirt and moisture to allow maximum adhesion of the pressure sensitive tape.

PIPE BOOTS:
1) Cut a piece of Stego Wrap.
   Width: minimum 12"
   Length: 1 1/2 times the pipe circumference
2) With scissors, cut slits half the width of the film.
3) Wrap boot around pipe and tape onto pipe, completely taping the base to Stego Wrap using Stego Tape.

Stego Tape should be installed above 40 °F

Note: See Stego's installation instructions for complete instructions and detailed drawings. Each user should make their own tests to determine the products



suitability for their own intended use and shall assume all risks and liability in connection therewith.

6. Availability & Cost
Stego Tape is available nationally via building supply distributors. For current cost information, contact your local Stego distributor or Stego Industries' sales department.

7. Warranty
Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. No warranty, express or implied, is given as to the merchantability, fitness for a particular purpose, or otherwise with respect to the products referred to.

8. Maintenance
None required.

9. Technical Services
Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries' technical assistance department or by visiting the website: www.stegoindustries.com

10. Filing Systems
- Stego Industries' website

TABLE 1: PHYSICAL PROPERTIES OF STEGO TAPE

Property	Stego Tape
Total Thickness	8 mils
Permeance	0.23 perms
Tensile Strength	25 lbs./in. width
Elongation (at break)	80%
Adhesion	35-oz./in. width
Ultraviolet Resistance	Excellent

STEGO®
INDUSTRIES, LLC

INSTALLATION INSTRUCTIONS

STEGO® WRAP VAPOR BARRIER /RETARDER

IMPORTANT: Please read these installation instructions completely, prior to beginning any Stego Wrap installation to ensure suitable use of the product. The following installation instructions are based on ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

UNDER-SLAB INSTRUCTIONS:

1. Stego Wrap can be installed over an aggregate, sand or tamped earth base. It is not necessary to have a perfectly smooth 1" to 3" sand base, as Stego Wrap is tough enough to withstand rugged construction environments.

2. Unroll Stego Wrap over the area where the slab is to be poured. Stego Wrap should completely cover the pour area. All joints/seams both lateral and butt should be overlapped six inches and taped using Stego Tape.

   NOTE: The area of adhesion should be free from dust, dirt and moisture to allow maximum adhesion of the pressure sensitive tape.

3. The most efficient installation methodology includes placing Stego Wrap on top of the footing and against the vertical wall. Stego Wrap will then be sandwiched between the footing, vertical wall and poured concrete floor. (See Figure #1). This placement will help protect the concrete slab from external moisture sources after the slab has been poured.

4. **IMPORTANT: ALL PENETRATIONS MUST BE SEALED.** All pipe, ducting, rebar, wire penetrations and blockouts should be sealed using Stego Wrap, Stego Tape and/or Stego Mastic. Individual pipe penetrations should be sealed using a pipe boot constructed of Stego Wrap and Stego Tape (see figure #2 Pipe Penetration Detail). Multiple pipe penetrations in close proximity and very small pipes may be sealed using Stego Wrap and Stego Mastic for ease of installation (see figure #2 Alternate Pipe Penetration).

5. In the event that Stego Wrap is damaged during or after installation, repairs must be made. Cut a piece of Stego Wrap large enough to cover any damage by a minimum overlap of six inches in all directions. Clean all adhesion areas of dust, dirt and moisture. Tape down all edges using Stego Tape. (See Figure #2).

6. Many vapor retarder manufacturers recommend a 3-inch to 6-inch layer of fine washed gravel or sand (cushion layer) on top of the retarder before the pour to guard against the possibility of damage due to the placement of reinforcement and concrete. **This is permissible, but not a necessity with Stego Wrap.** Stego Wrap is strong enough to withstand normal construction traffic without a protective layer. In fact, ACI guidelines and many flooring companies recommend placement of the concrete slab directly on the vapor barrier/retarder. This eliminates the potential for water to be trapped in the blotter layer and ultimately resurfacing through the slab adversely effecting the flooring system.

   NOTE: There are well-publicized pros and cons regarding different approaches to vapor barrier placement. Consult local building codes and regulations and ACI guidelines along with the design or architectural firm's recommendations before proceeding.

REMEMBER: If damaged, Stego Wrap must be repaired using the techniques outlined above.

VERTICAL WALL INSTRUCTIONS:

1. Install an approved waterproofing membrane according to the manufacturer's installation instructions. This may include sheet goods, or liquid applied membranes be they roll, brush or spray.

2. While the membrane is still tacky, install Stego Wrap as a protective course/vapor barrier over the applied waterproofing membrane. Using a termination bar with concrete nails at the termination of the waterproofing membrane is advisable in some applications. (See Figure #1).

3. Supervised care must be taken during back filling against the material so that it is not damaged or punctured. If damage occurs, patch using the techniques outlined above.

   WARNING: Any untreated punctures, tears or damage during back filling will greatly reduce the effectiveness of Stego Wrap as a protection course/vapor barrier.

FIGURE ONE

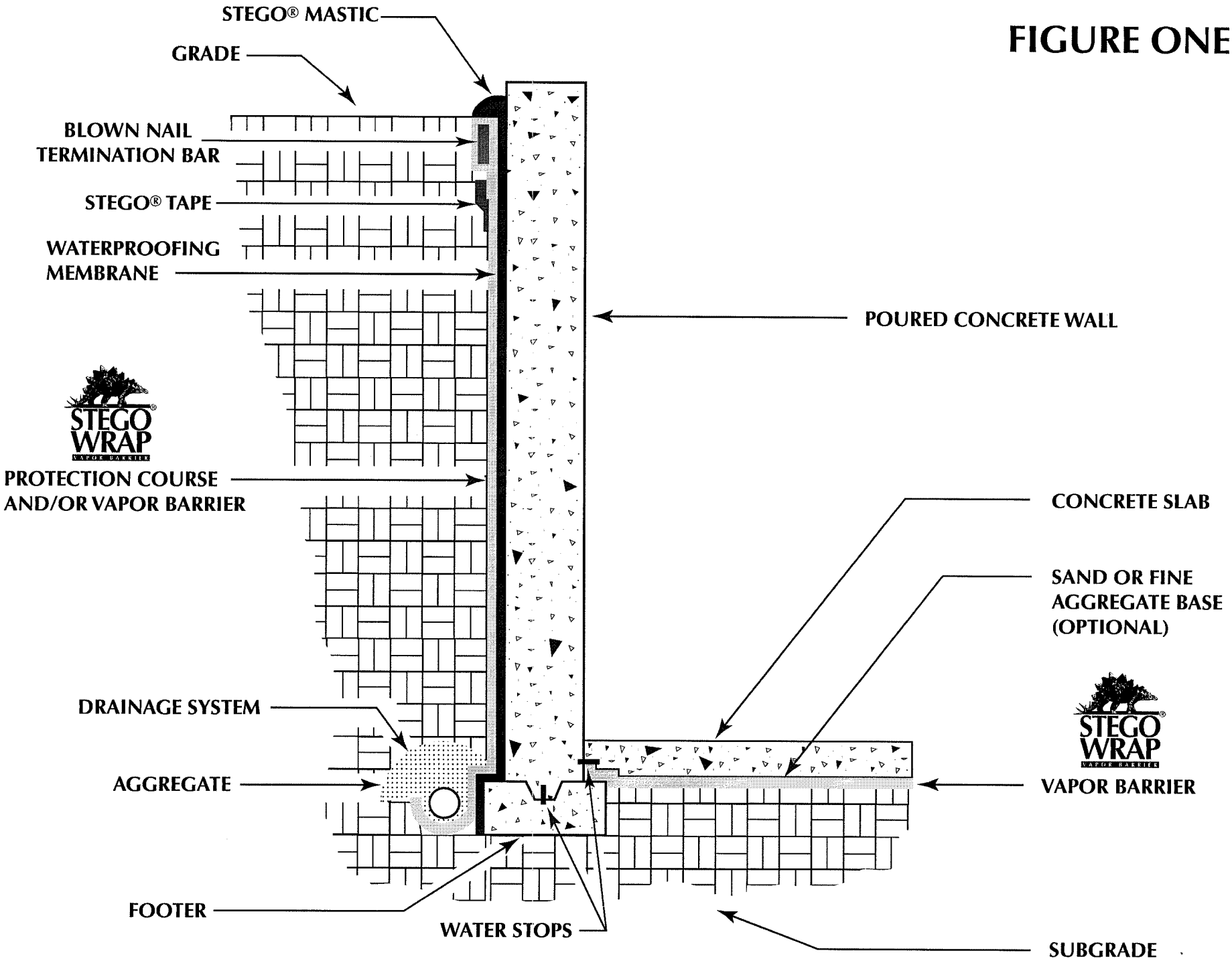
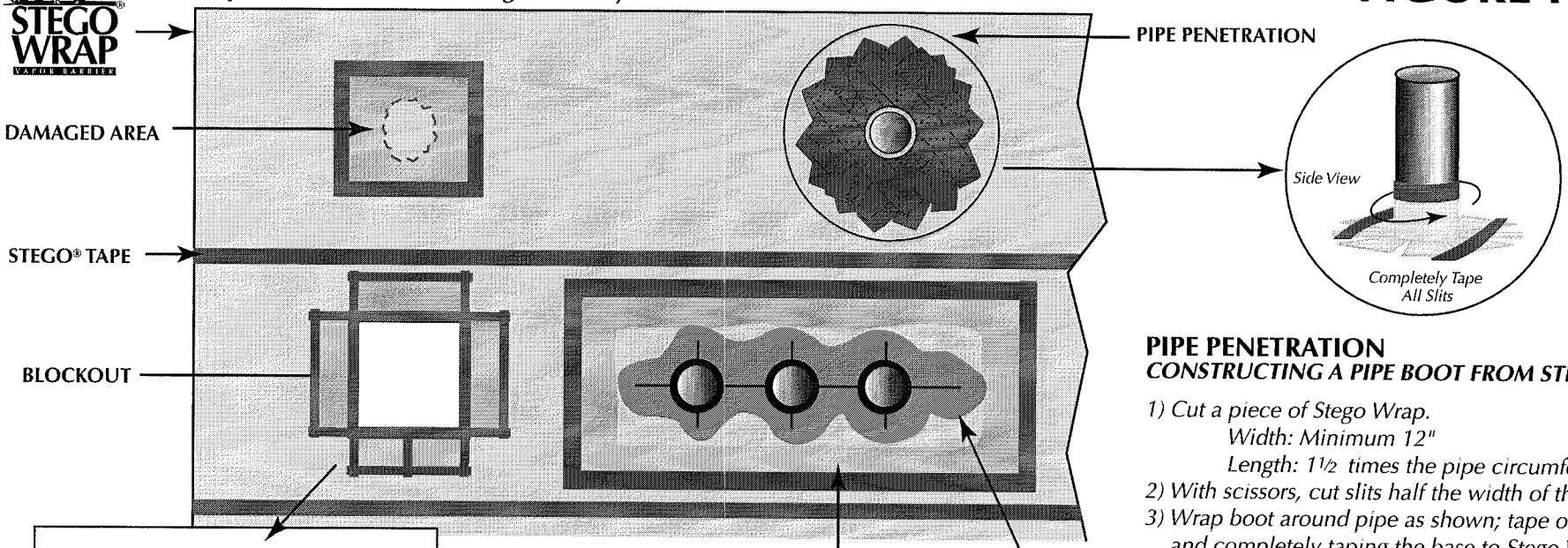

STEGO® MASTIC
GRADE
BLOWN NAIL TERMINATION BAR
STEGO® TAPE
WATERPROOFING MEMBRANE
POURED CONCRETE WALL
STEGO WRAP
VAPOR BARRIER
PROTECTION COURSE AND/OR VAPOR BARRIER
CONCRETE SLAB
SAND OR FINE AGGREGATE BASE (OPTIONAL)
DRAINAGE SYSTEM
AGGREGATE
STEGO WRAP
VAPOR BARRIER
FOOTER
WATER STOPS
SUBGRADE

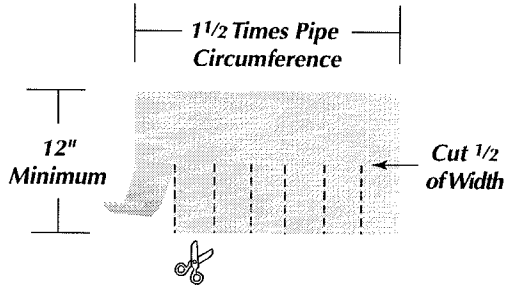
FIGURE TWO

All patches must cover damaged area by 6" on all sides.



PIPE PENETRATION
CONSTRUCTING A PIPE BOOT FROM STEGO WRAP

1) Cut a piece of Stego Wrap.
Width: Minimum 12"
Length: 1½ times the pipe circumference
2) With scissors, cut slits half the width of the film.
3) Wrap boot around pipe as shown; tape onto pipe and completely taping the base to Stego Wrap barrier using Stego Tape.



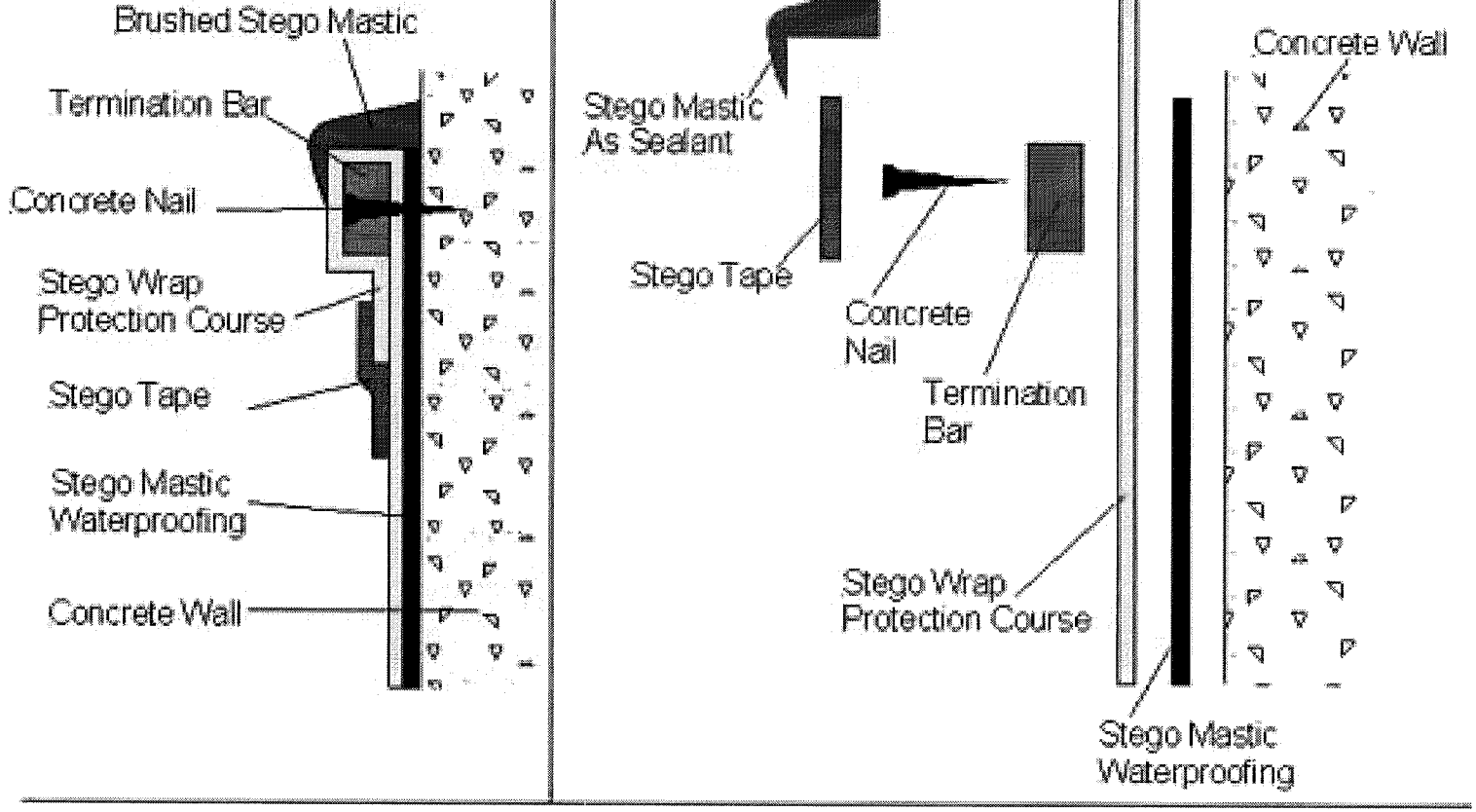
BLOCKOUT
CONSTRUCTING A BLOCKOUT BOOT FROM STEGO WRAP

1) Cut a piece of Stego Wrap.
Width: Minimum 12"
Length: 1⅛ times perimeter of blockout
• (S1 + S2 + S3 +S4 + ½ S1)
2) With scissors, cut flaps half the width of the film at the corners of each side of the blockout.
3) Wrap the boot around the blockout as shown; tape the overlap, tape the film onto the top of the blockout and completely tape the flaps to Stego Wrap barrier using Stego Tape.

PIPE PENETRATION ALTERNATE
USING STEGO MASTIC TO SEAL PIPES

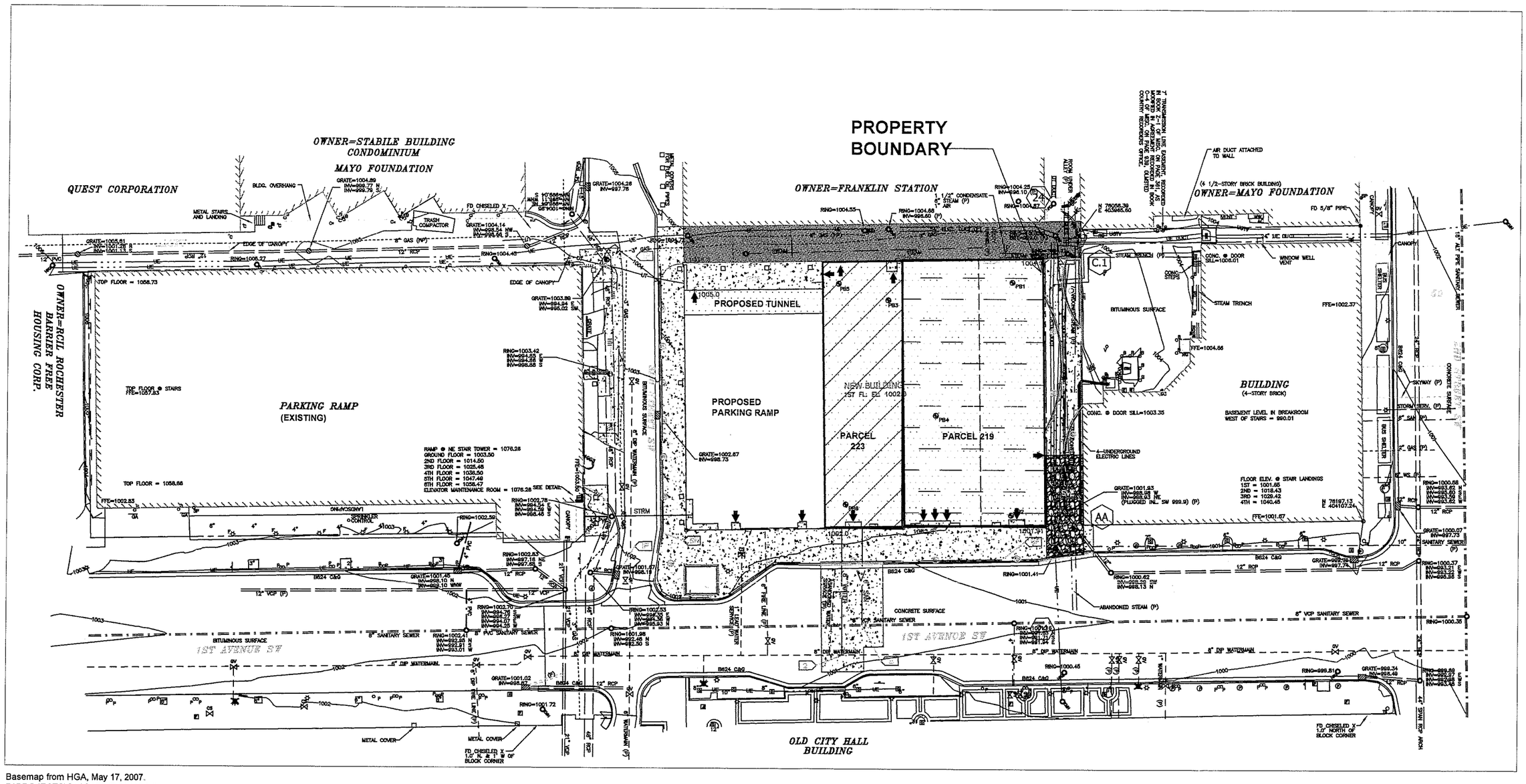
1) Cut out a small area around pipes.
2) Cut a patch of Stego Wrap extending at least 6" past the cut out in all directions.
3) Cut X's or small circles in the patch and install over pipes.
4) Overlap at least 6" and tape with Stego Tape.
5) Build up 40-60 mils of mastic, or as needed to completely fill all voids between the pipe and Stego Wrap.
6) Allow 24 hours for maximum cure before concrete pour.

Termination Bar Application on Concrete Wall and on Masonry



Not to Scale

Attachment 4
Venting System/Vapor Barrier Design Drawings



Basemap from HGA, May 17, 2007.
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LEGEND

- Parcel 223
- Parcel 219
- Vapor Barrier

N

SCALE (feet)

0 50

NOTES:

1. Vapor barrier system shall be installed beneath the proposed building in Parcel's 219 and 223, and around the proposed tunnel located on the property located south of Parcel 223.
2. Vapor barrier shall be installed beneath the basement and first level slabs, and on the exterior side of the subsurface vertical walls to the proposed basement located on Parcel's 219 and 223.
3. Vapor barrier shall be installed around the slab, subsurface vertical sidewalls, and ceiling of the proposed tunnel located on the property south of Parcel 223, connected to the proposed adjacent parking ramp.
4. The sub-slab surface area requiring vapor barrier is approximately 13,900 square feet.
5. The surface area of the subsurface basement and tunnel vertical walls, and the tunnel ceiling is approximately 7,800 square feet.

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X	XX-XX-XX	XXX	XXX

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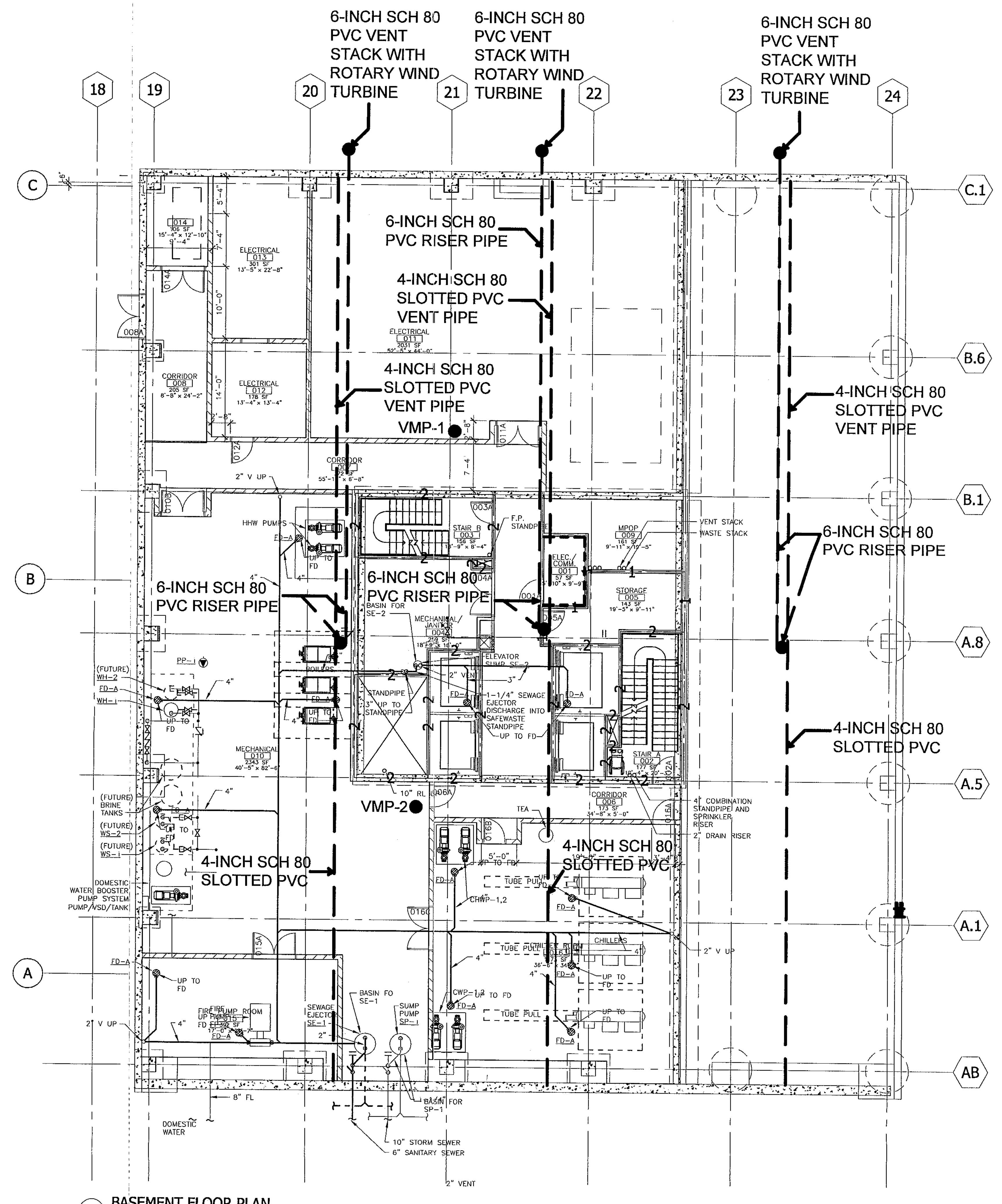
2042 W. 98th Street
Bloomington, MN 55431

VAPOR BARRIER DESIGN RESPONSE ACTION PLAN

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

Landmark Project Number: CRC			
Drawn: JDS	Checked:	Designed:	
Scale: 1:50	Date: 07-12-2007	Revision: 00	
Drawing Number: DWG NUMBER	Sheet 1	Of	Sheets 1



1 BASEMENT FLOOR PLAN

NOTES:

1. The venting system shall be installed as shown on the drawing and include slotted sub-slab piping and non-slotted riser piping.
2. The non-slotted riser piping shall connect vertically from the sub-slab slotted piping to the ceiling of the second level, and continue laterally along the second level seiling and exit the building through the west wall of the building.
3. The venting system stack shall consist of a 6-inch SCH 80 PVC elbow with a 1-foot section of pipe extending vertically from the elbow. A 6-inch rotary wind turbine shall be installed at the top of each venting stack.
4. Vapor Monitoring Ports, VMP-1 and VMP-2, shall consist of a 1-inch diameter SCH 80 pipe extending 12-inches in depth below the slab. The VMP's shall be used to monitor the accumulation of vapors below the slab and the effectiveness of the venting system.
5. Sample ports shall be installed on the riser piping just above the slab for the collection of air samples, and flow and pressure data.
6. The sub-slab slotted lateral piping shall be capped at each end.

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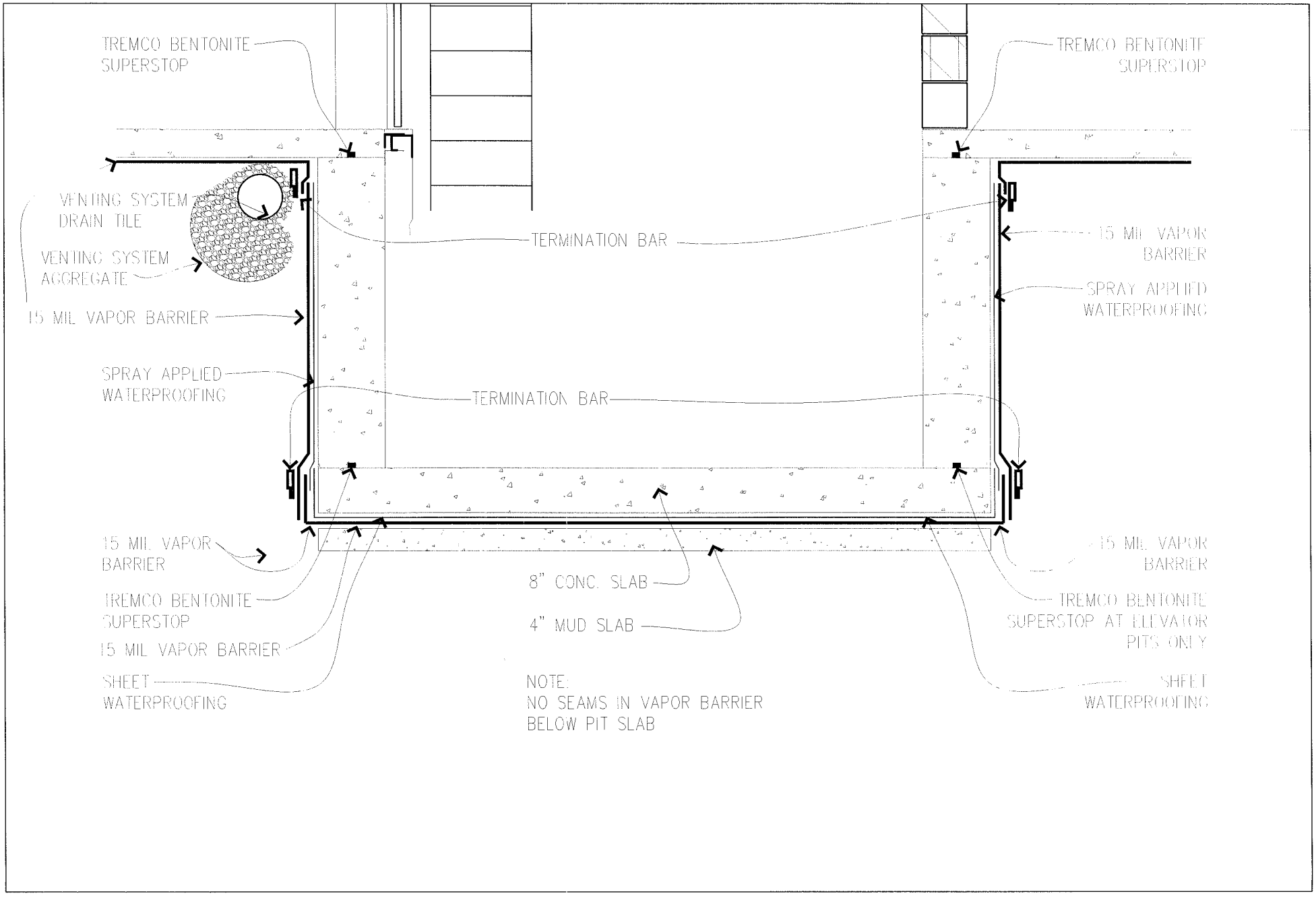
Bloomington, MN 55431

PASSIVE VENTING SYSTEM INSTALLATION
219 AND 223 FIRST AVENUE S.W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC		
Drawn: JDS	Checked:	Designed:
Scale: NONE	Date: 07-16-2007	Revision:
Drawing Number:	Sheet 1 Of	Sheets



Base drawing provided by Stego Industries.
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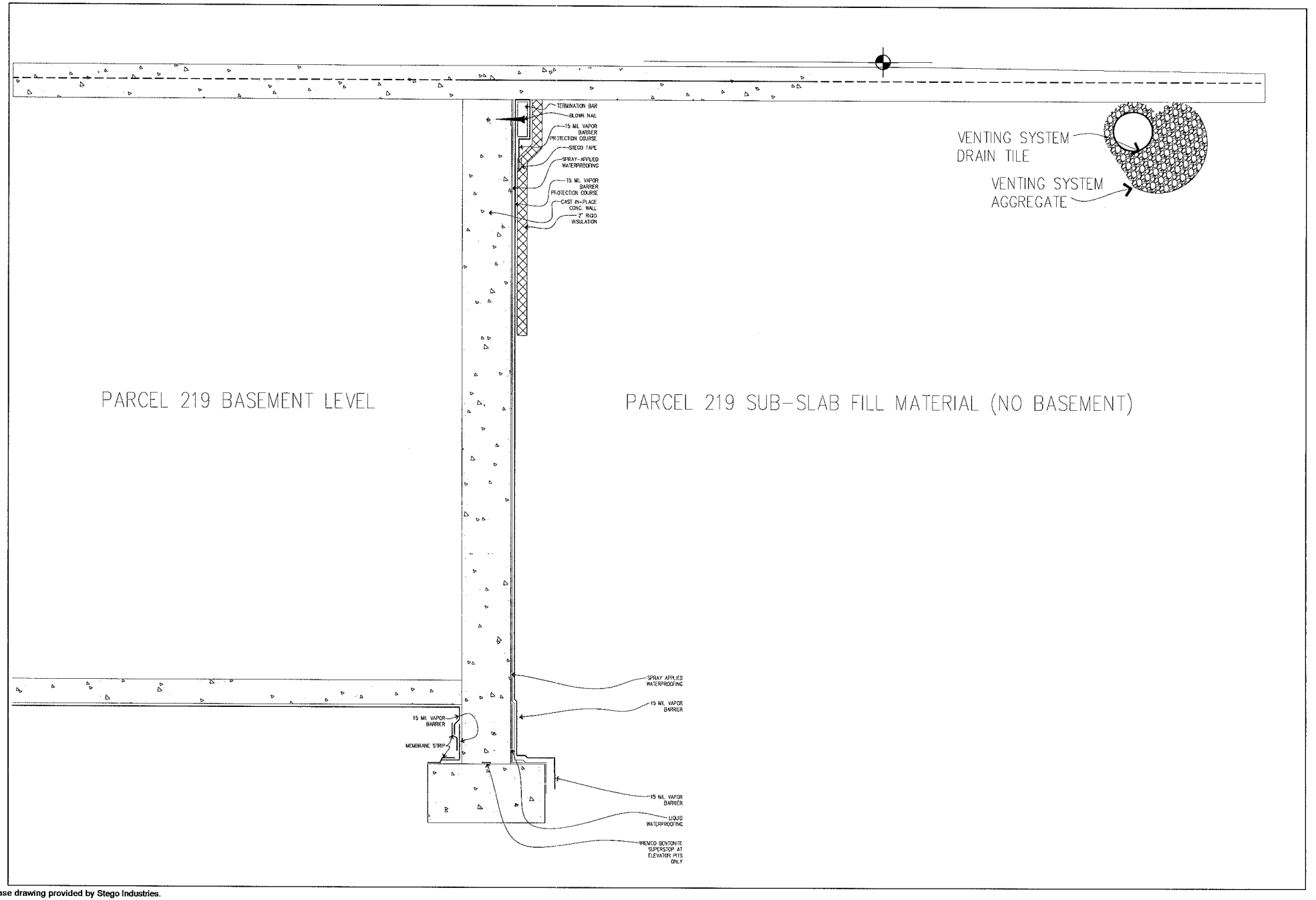
Rev	Date	By	Description

LANDMARK ENVIRONMENTAL, LLC
2042 West 98th Street
Bloomington, MN 55431

ELEVATOR PIT VAPOR BARRIER AND VENTING SYSTEM INSTALLATION

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

Landmark Project Number: CRC			
Drawn: JDS	Checked:	Designed:	
Scale: None	Date: 07-16-2007	Revision: 0	
Drawing Number:		Sheet 1 Of	Sheets 1



Base drawing provided by Stego Industries.
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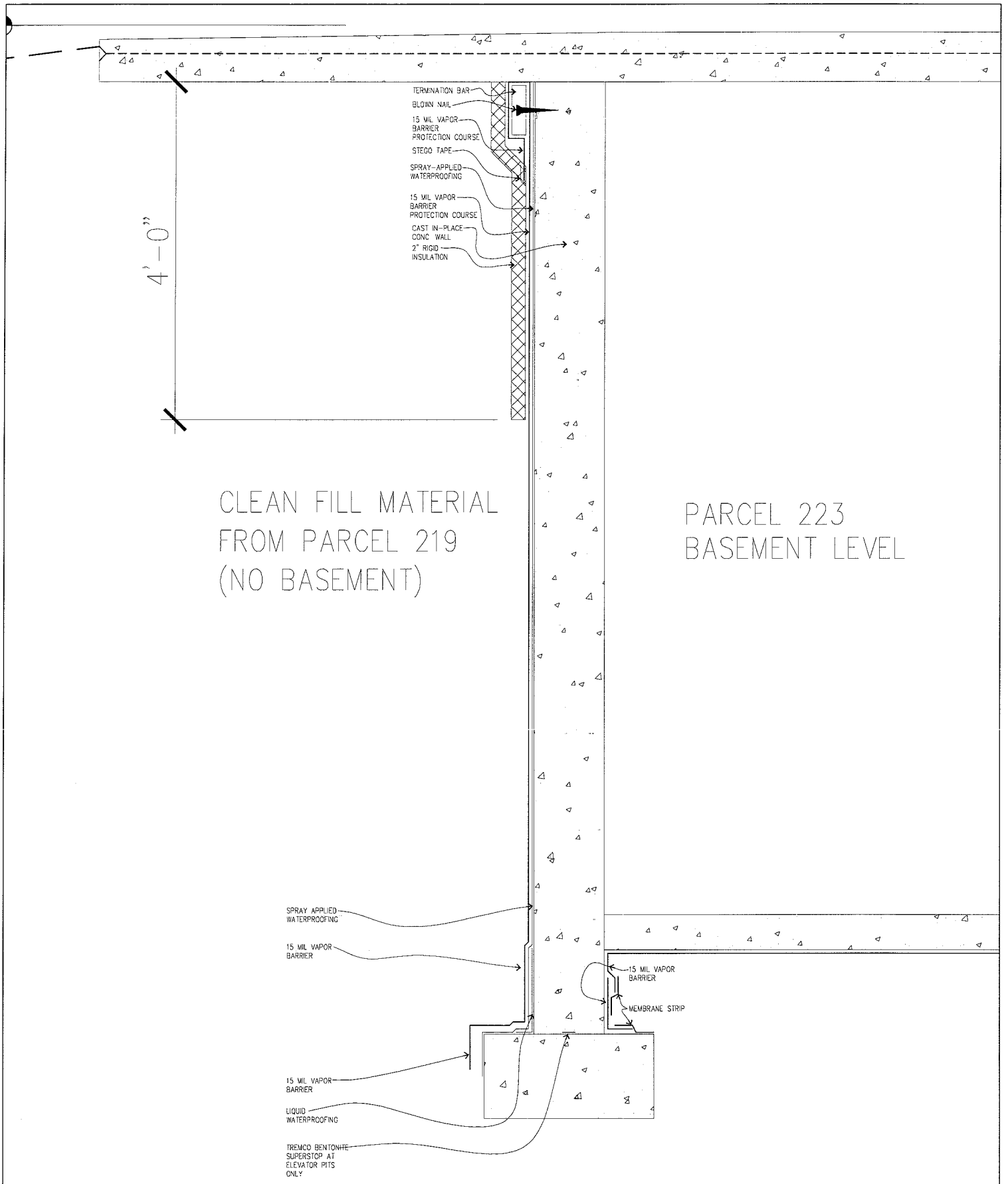
Bloomington, MN 55431

VAPOR BARRIER AND VENTING SYSTEM INSTALLATION

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

Landmark Project Number: CRC		
Drawn: JDS	Checked:	Designed:
Scale: None	Date: 07-16-2007	Revision: 0
Drawing Number:	Sheet 1 Of	Sheets 1



Base drawing provided by Stego Industries
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LANDMARK ENVIRONMENTAL, LLC
2042 West 98th Street
Bloomington MN 55431

SUB-SLAB AND VERTICAL WALL VAPOR BARRIER INSTALLATION

219 AND 223 FIRST AVENUE S W.
ROCHESTER, MINNESOTA

Landmark Project Number: CRC		
Drawn: JDS	Checked:	Designed:
Scale: None	Date: 07-16-2007	Revision: 0
Drawing Number:	Sheet 1 Of	Sheets 1

INSTALLATION INSTRUCTIONS

STEGO® WRAP VAPOR BARRIER /RETARDER

IMPORTANT: Please read these installation instructions completely, prior to beginning any Stego Wrap installation to ensure suitable use of the product. The following installation instructions are based on ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

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2. Unroll Stego Wrap over the area where the slab is to be poured. Stego Wrap should completely cover the pour area. All joints/seams both lateral and butt should be overlapped six inches and taped using Stego Tape.

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3. The most efficient installation methodology includes placing Stego Wrap on top of the footing and against the vertical wall. Stego Wrap will then be sandwiched between the footing, vertical wall and poured concrete floor. (See Figure #1). This placement will help protect the concrete slab from external moisture sources after the slab has been poured.

4. **IMPORTANT: ALL PENETRATIONS MUST BE SEALED.** All pipe, ducting, rebar, wire penetrations and blockouts should be sealed using Stego Wrap, Stego Tape and/or Stego Mastic. Individual pipe penetrations should be sealed using a pipe boot constructed of Stego Wrap and Stego Tape (see figure #2 Pipe Penetration Detail). Multiple pipe penetrations in close proximity and very small pipes may be sealed using Stego Wrap and Stego Mastic for ease of installation (see figure #2 Alternate Pipe Penetration).

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FIGURE ONE

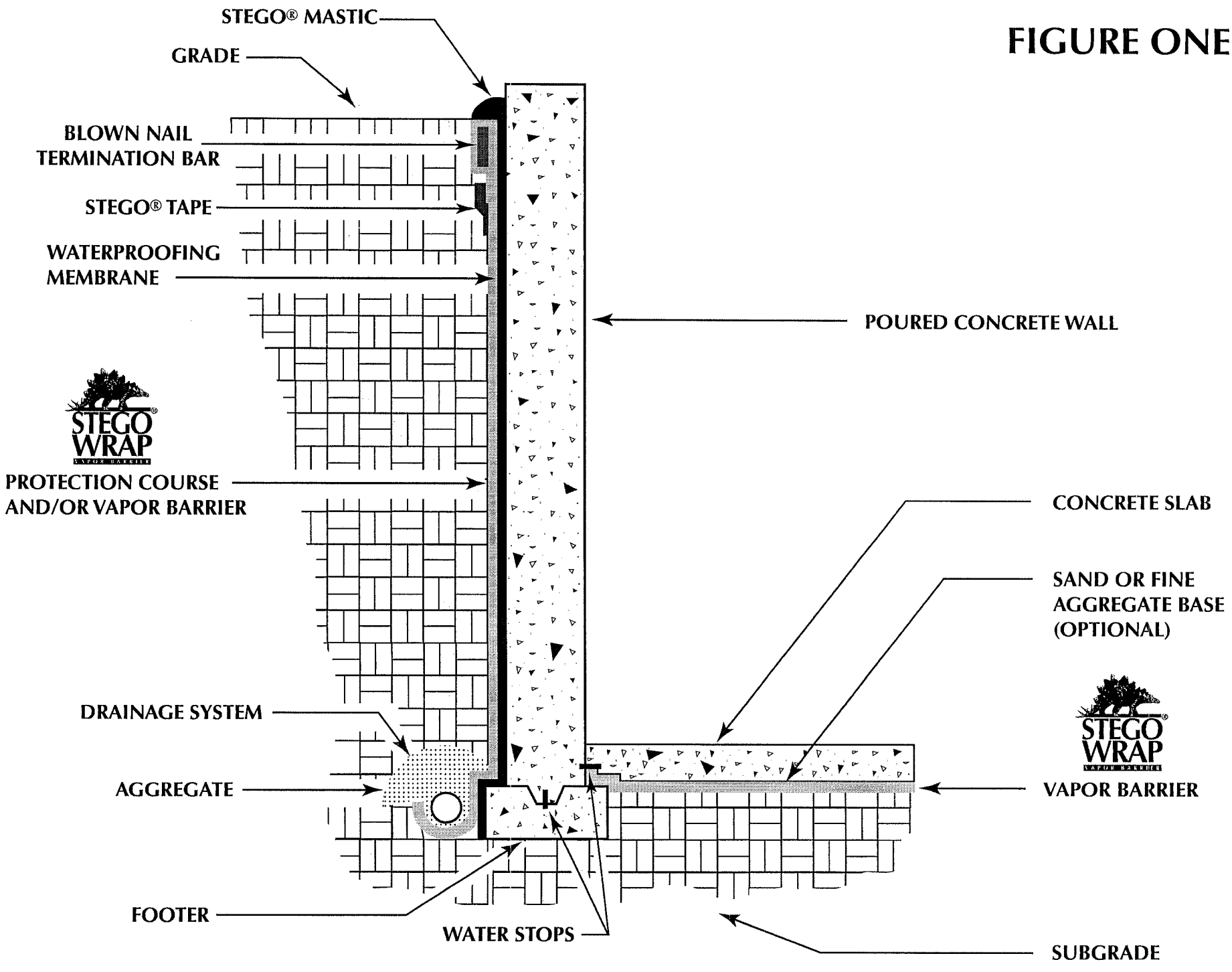
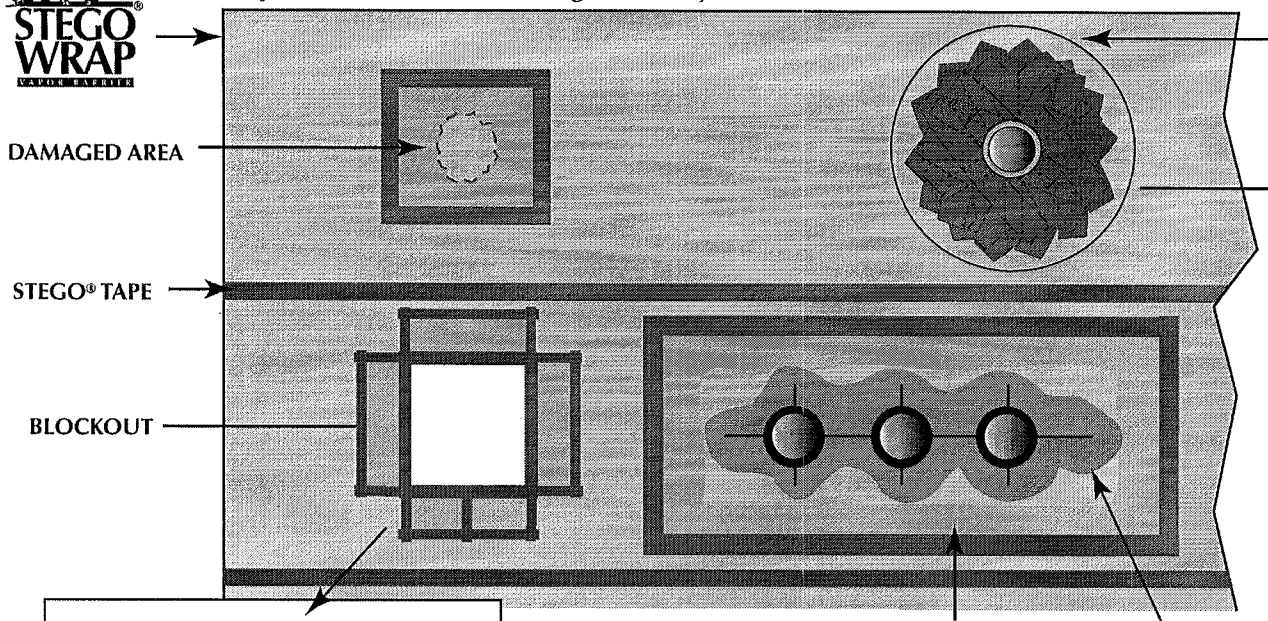
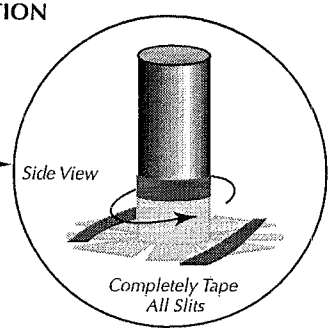

STEGO® MASTIC
GRADE
BLOWN NAIL TERMINATION BAR
STEGO® TAPE
WATERPROOFING MEMBRANE
POURED CONCRETE WALL
STEGO WRAP VAPOR BARRIER
PROTECTION COURSE AND/OR VAPOR BARRIER
CONCRETE SLAB
SAND OR FINE AGGREGATE BASE (OPTIONAL)
DRAINAGE SYSTEM
AGGREGATE
STEGO WRAP VAPOR BARRIER
VAPOR BARRIER
FOOTER
WATER STOPS
SUBGRADE

FIGURE TWO

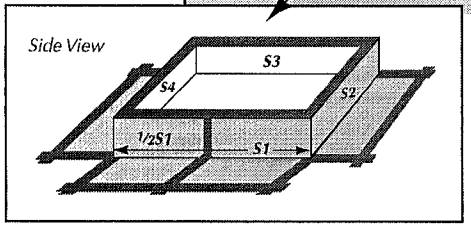
All patches must cover damaged area by 6" on all sides.

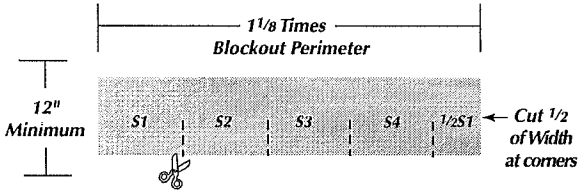




PIPE PENETRATION
CONSTRUCTING A PIPE BOOT FROM STEGO WRAP

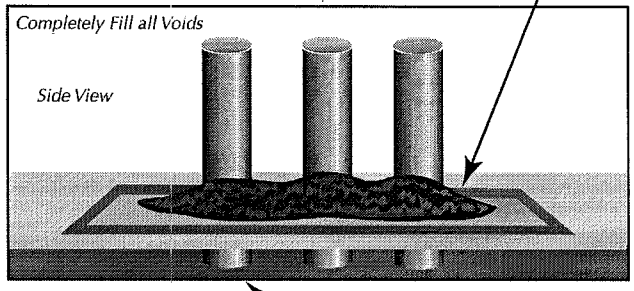
1) Cut a piece of Stego Wrap.
Width: Minimum 12"
Length: 1½ times the pipe circumference
2) With scissors, cut slits half the width of the film.
3) Wrap boot around pipe as shown; tape onto pipe and completely taping the base to Stego Wrap barrier using Stego Tape.

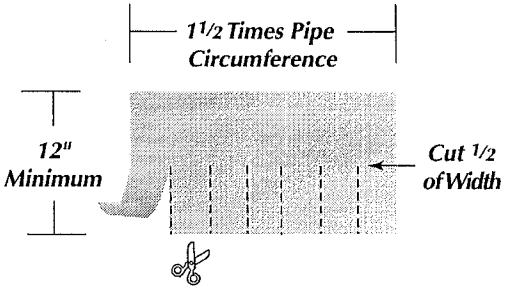




BLOCKOUT
CONSTRUCTING A BLOCKOUT BOOT FROM STEGO WRAP

1) Cut a piece of Stego Wrap.
Width: Minimum 12"
Length: 1⅛ times perimeter of blockout
• (S1 + S2 + S3 +S4 + ½ S1)
2) With scissors, cut flaps half the width of the film at the corners of each side of the blockout.
3) Wrap the boot around the blockout as shown; tape the overlap, tape the film onto the top of the blockout and completely tape the flaps to Stego Wrap barrier using Stego Tape.

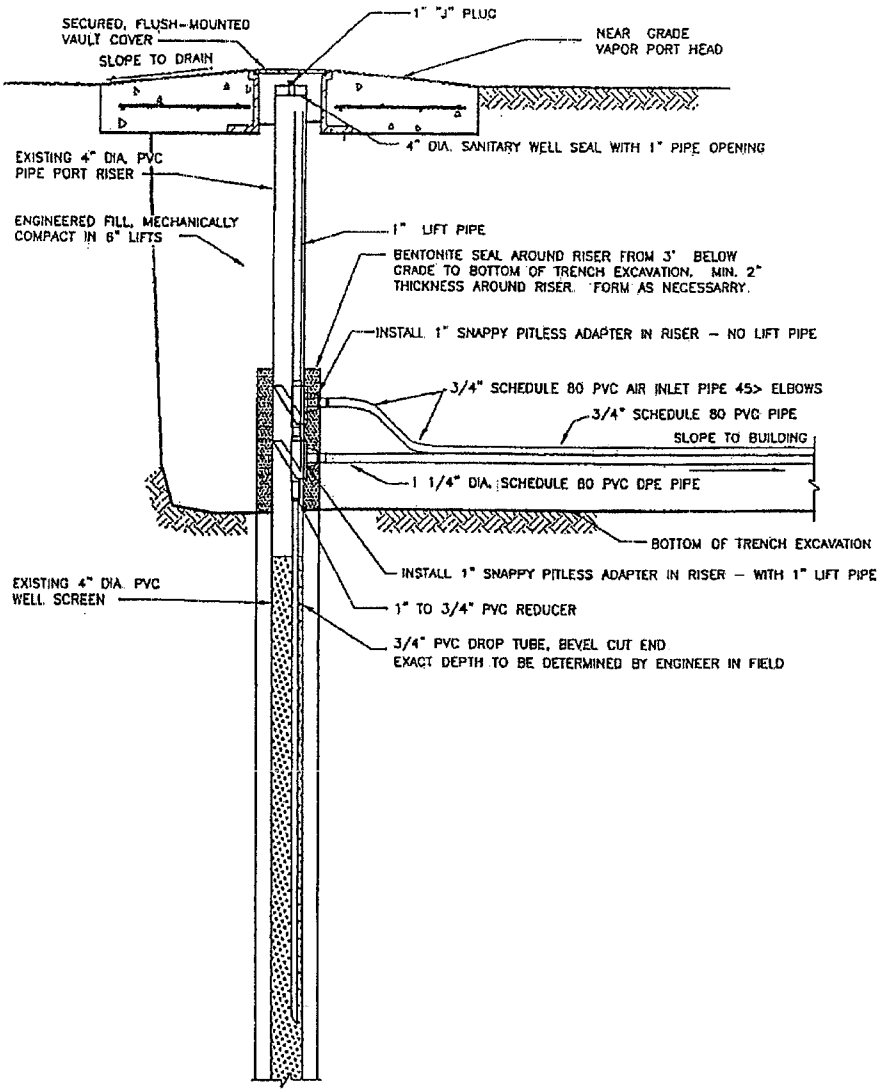




PIPE PENETRATION ALTERNATE
USING STEGO MASTIC TO SEAL PIPES

1) Cut out a small area around pipes.
2) Cut a patch of Stego Wrap extending at least 6" past the cut out in all directions.
3) Cut X's or small circles in the patch and install over pipes.
4) Overlap at least 6" and tape with Stego Tape.
5) Build up 40-60 mils of mastic, or as needed to completely fill all voids between the pipe and Stego Wrap.
6) Allow 24 hours for maximum cure before concrete pour.

Attachment 5
DPE System Design Drawings



NOTES:
1. ALL CONNECTIONS TO THE VERTICAL MPE PORTS SHALL BE IN ACCORDANCE WITH MINNESOTA DEPARTMENT OF HEALTH WELL CODE

CONNECTION TO DUAL PHASE EXTRACTION (DPE) PORT

NOT TO SCALE

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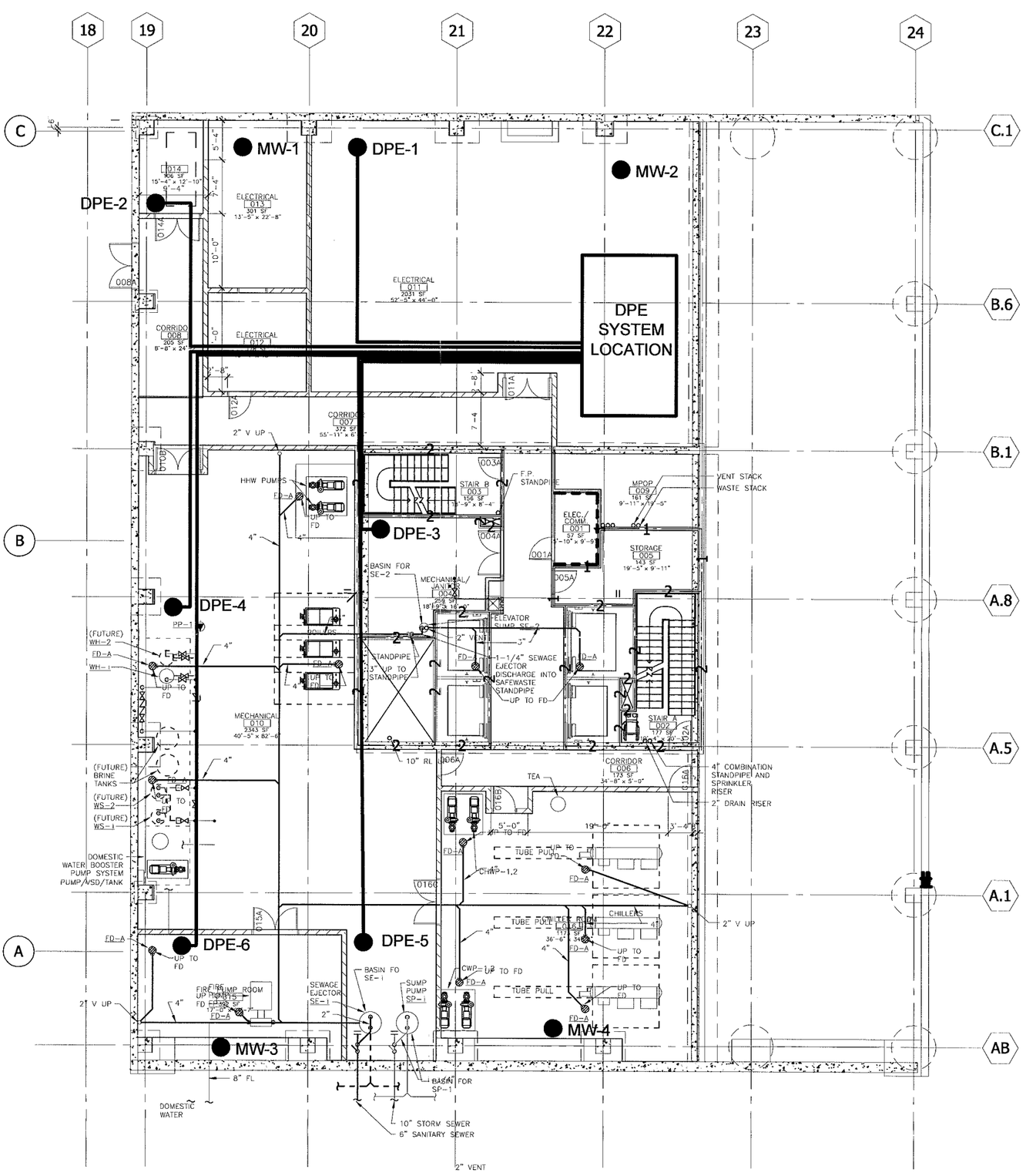
LANDMARK ENVIRONMENTAL, LLC
2042 West 98th Street
Bloomington, MN 55431

DUAL PHASE EXTRACTION WELL DETAILS

219 AND 223 FIRST AVENUE S.W.
ROCHESTER MINNESOTA

Landmark Project Number:			
Drawn:	Checked:	Designed:	
Scale:	Date:	Revision:	
Drawing Number:		Sheet Of	Sheets



1 BASEMENT FLOOR PLAN

NOTES:

1. DPE system piping shall be installed beneath the slab as shown and consist of 2-inch SCH 80 PVC pipe.
2. DPE system piping shall be installed such that piping slopes from the vacuum pump to the DPE well.
3. DPE system piping shall be installed and pressure tested as described in the technical specifications and proposed drawings.
4. DPE wells shall be installed as shown in the proposed drawings.
5. DPE system equipment and manifold piping shall be installed as shown on the proposed drawings.
6. Groundwater generated from the DPE system shall be discharged to the sanitary sewer. Groundwater treatment may be required based on system start-up 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.

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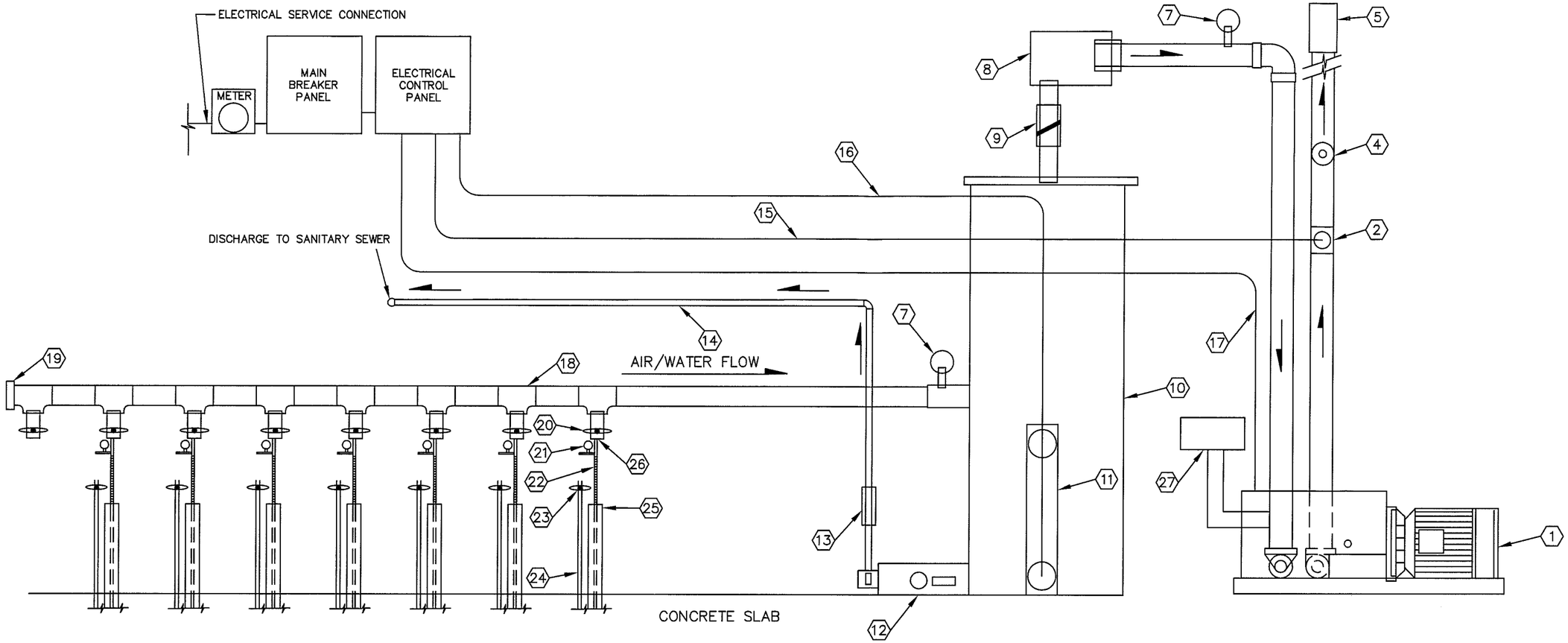
LANDMARK ENVIRONMENTAL, LLC
2042 W. 98th Street
Bloomington, MN 55431

DUAL PHASE EXTRACTION SYSTEM LAYOUT

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

Landmark Project Number: CRC			
Drawn: JDS	Checked:	Designed: JDS	
Scale: None	Date: 07-16-2007	Revision:	
Drawing Number:	Sheet 1	Of	Sheets 1



1. DPE VACUUM
2. TEMPERATURE GAUGE
3. AIR–FLOW DIFFERENTIAL METER
4. SAMPLING PORT
5. RAIN CAP
6. EXHAUST PIPING – 3" GALV PIPE TO 6" X 24" RAIN GUARD PIPE SLEEVE
7. VACUUM GAUGE – 0 TO 30" Hg LIQUID FILLED STAINLESS STEEL
8. FILTER (SOLBERG INLET FILTER/ SILENCER WITH 10 MICRON) DILUTION VALVE WITH SOLBERG FILTER/ SILENCER VACUUM RELIEF VALVE – SET AT 22" Hg 3" CHECK VALVE PIPING 3"
9. BRONZE VERTICAL MOUNT SWING CHECK VALVE
10. 320– GALLON MOISTURE SEPARATOR (36" X 72")
11. MOISTURE SEPARATOR LEVEL CONTROLS
12. PROGRESSIVE CAVITY TRANSFER PUPM (MOYNO MODEL 344)
13. INLINE SPRING CHECK VALVE
14. DPE DISCHARGE 1 1/4"ø SCH 80 PIPE
15. HIGH TEMPERATURE SENSOR CONTROL LEAD
16. WATER LEVEL CONTROL LEAD (LOW, HIGH, HIGH/HIGH)
17. DPE BLOWER CONTROL LEAD
18. 3" DIA MANIFOLD PIPE
19. PVC END CAP
20. 3" AUTOMATED BALL VALVE, TYP
21. VACUUM GAUGE 0 TO 30" Hg, TYP LIQUID FILLED STAINLESS STEEL WITH RELIEF VALVE
22. 3/4" WIRE BRAIDED HIGH PRESSURE TRANSPARENT TUBING, TYP
13. 3/4" SNAP LOCK BALL VALVE, TYP
24. 3/4" PVC VACUUM RELIEF PIPE
25. 4" TO 3/4" PVC AIR TIGHT DOUBLE TAP FITTING (TREAD PIPE THROUGH FITTING)
26. 3" TO 3/4" PVC REDUCER
27. INLET FILTER

DUAL PHASE EXTRACTION SYSTEM CENTERLINE SCHEMATIC

NO SCALE

NOTES:

1. ALL PVC PIPING SCHEDULE 80 CEMENTED SLIP JOINT UNLESS OTHERWISE NOTED.
2. ALL COMPONENTS TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS.
3. EXHAUST STACK SHALL EXTEND 15 FEET ABOVE REMEDIATION EQUIPMENT STRUCTURE.

Rev	Date	By	Description
.	.	.	.

LANDMARK ENVIRONMENTAL, LLC
2042 W 98th Street
Bloomington, MN 55431

DUAL-PHASE EXTRACTION SYSTEM SCHEMATIC

219 AND 223 FIRST AVENUE S W
ROCHESTER, MINNESOTA

Landmark Project Number: crc			
Drawn: JDS	Checked:	Designed:	
Scale: NONE	Date: 07-16-2007	Revision: 0	
Drawing Number:	Sheet 1 Of	Sheets 1	

Attachment 6
Division 1 & Division 2 Specifications

TECHNICAL SPECIFICATIONS

Minnesota Bio Business Center
Rochester, Minnesota

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CERTIFICATIONS

I hereby certify that Divisions 1 and 2 of these specifications were prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date Jason D. Skramstad, P.E. Reg. No. 43899

SECTION 01110

SUMMARY OF REMEDIATION WORK

1.01 INTRODUCTION

These Specifications were prepared to supplement the Voluntary Response Action Plan (VRAP) for the Minnesota Bio Business Center, Rochester, Minnesota, which was prepared by Landmark Environmental, LLC (ENGINEER) on behalf of the City of Rochester and Economic Development Authority for the City of Rochester (hereafter collectively referred to as the OWNER), dated June 2007. The OWNER will contract with the ENGINEER to oversee and manage the Work performed by the CONTRACTOR. The work includes the following tasks:

- Prepare and implement a site safety plan.
- Implement runoff control and dust control procedures.
- Coordinate with utility companies for excavation work.
- Excavate soil and fill material (including buried building debris) across the southern portion of the Property (the property previously located at 223 First Avenue S.E. [the 223 Parcel])
- Excavated soil and fill material from the 223 Parcel will be transported directly (if possible) to an approved permitted RCRA Subtitle D landfill. CONTRACTOR shall excavate, load, transport and dispose soil at an approved permitted RCRA Subtitle D landfill.
- Excavate contaminated soil and dispose in an approved RCRA Subtitle D Landfill
- Contingency contaminated soil that cannot be excavated and transported directly to the landfill shall be stockpiled on poly and covered until ENGINEER can collect and analyze samples
- Manage contaminated soils in accordance with MPCA requirements.
- Comply with the MPCA, federal and local requirements for removing, transporting, and disposing of contaminated materials.
- Install a dual phase system as part of CP-2
- Install a vapor barrier and passive venting systems during CP-2.

PART 2: PRODUCTS [NOT USED]
PART 3: EXECUTION [NOT USED]

END OF SECTION 01010

SECTION 01330

SUBMITTAL PROCEDURES

1.01 GENERAL SUBMITTAL PROCEDURES

A. Submittals shall be delivered to Landmark's Project Engineer at the following address:

Landmark Environmental, LLC
Attn: Jason Skramstad
2042 West 98th Street
Bloomington, MN 55431

1.02 LIST OF SUBMITTALS

CONTRACTOR shall submit the following list of submittals, but CONTRACTOR shall submit all other submittals not specifically specified below but called out elsewhere in these Contract Documents.

A. SITE SAFETY PLAN

Four copies of the CONTRACTOR's Health and Safety Plan and one copy of training documentation shall be submitted five days before work starts as discussed in Section 1501. See Section 1501 for more information.

B. SUBCONTRACTOR AND LANDFILL DOCUMENTATION
Subcontractors that will be used on the project and landfill disposal documentation as required by Section 2100 shall be submitted to ENGINEER upon receipt.

PART 2: PRODUCTS [NOT USED]
PART 3: EXECUTION [NOT USED]

END OF SECTION 01300

SECTION 01501

SAFETY

1.01 GENERAL

A. In accordance with generally accepted construction practices, CONTRACTOR shall be solely and completely responsible for job-site conditions and safety procedures and programs, including safety and health of all persons and property, on those portions of the property affected by or used by CONTRACTOR, CONTRACTOR's employees, subcontractors, agents, and others during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. Observation of the Work and CONTRACTOR's performance by OWNER and ENGINEER is not intended to include review of the adequacy of CONTRACTOR's safety and health procedures and programs on or near the construction site. CONTRACTOR is solely responsible for the protection of property and the safety and health of its employees, Subcontractors, Suppliers, agents and others on or near the property. OWNER and ENGINEER shall have access to all areas of the Property at all times. CONTRACTOR shall make all areas of the Property available at all times to OWNER and ENGINEER.

1.02 SITE SAFETY PLAN

A. CONTRACTOR shall be solely responsible for the health and safety of all persons at the property, specifically including but not limited to, health and safety matters related to the remedial nature of the Work and the potential for encountering hazardous substances in groundwater and soil during the Work. CONTRACTOR shall prepare its own Site Safety Plan (SSP) specifically for performance of the Work. CONTRACTOR's SSP shall, at a minimum, meet the requirements established in ENGINEER's SSP and shall meet the regulatory requirements set forth by the Occupational Safety and Health Administration (OSHA), specifically those set forth in the Code of Federal Regulations (CFR) at 29 CFR Parts 1910 and 1926, in particular 1910.120 (Hazardous Waste Operations and Emergency Response). Specific topics that shall be addressed in CONTRACTOR's SSP are those that are required to be addressed by Laws and Regulations, those that are addressed in ENGINEER's SSP, and the following (if not addressed in ENGINEER's SSP):

1. worker medical surveillance;

2. worker training;

3. a detailed description of the planned movement of labor, equipment and materials from and between work areas as work progresses, including measures

to be employed to prevent recontamination of previously cleaned areas and contamination of areas that do not now contain hazardous materials;

4. a detailed description of the personnel decontamination facilities to be employed including the planned phasing of decontamination facilities between work areas as the work progresses and the methods to be used to collect, store, treat, and ultimately dispose of personnel decontamination waters and wastes;

5. a detailed description of the area for decontamination of vehicles and equipment and the methods to be used to collect above, treat and ultimately dispose of washdown decontamination waters and sediments;

6. personal protective equipment types to be used and conditions for use;

7. personal hygiene and personnel decontamination procedures;

8. respirator protection program and procedures;

9. personnel and ambient air monitoring;

10. emergency and first aid equipment and supply;

11. dust and particulate emission control;

12. monitoring and mitigation of worker heat and cold stress;

13. the types of materials and substances likely to be encountered in the course of the work; and

14. property security, property access, and property control.

In addition, CONTRACTOR's SSP shall detail safety procedures appropriate for the Work.

CONTRACTOR shall submit the SSP to ENGINEER before beginning the Work and will not commence construction activities until its receipt is noted by ENGINEER and distributed as herein below provided. ENGINEER's review will be only to see that CONTRACTOR's SSP meets the minimum requirements set forth in these Specifications. CONTRACTOR shall make reasonable changes required by ENGINEER to make CONTRACTOR's SSP conform to the minimum requirements. CONTRACTOR shall distribute four copies to ENGINEER and one copy to Subcontractors, Suppliers, and all other parties that will be required to enter the property for any purpose. Such distribution shall not impose on any party any obligation to approve CONTRACTOR's SSP, but is intended only for informational

purposes to make parties aware of CONTRACTOR's requirements for entry to the Property. It is not intended that CONTRACTOR's SSP cover routine construction activities that would not otherwise require a project specific health and safety plan under Laws and Regulations were it not for the potential for contact with contaminated soil and water.

CONTRACTOR's SSP shall designate a qualified individual to act as CONTRACTOR's Site Safety Officer for purposes of assuring compliance by all persons with CONTRACTOR's SSP. CONTRACTOR's Site Safety Officer shall be present on the property during all activities that could potentially result in exposure to contaminated soil or groundwater, specifically including but not limited to, excavation, transportation and backfilling. At other times of routine construction, CONTRACTOR shall determine the need for the presence of the designated Site Safety Officer. However, the Site Safety Officer (or a designated alternate(s)) shall be available by telephone continuously during the Contract Time, and shall be available to respond to the property within two hours at any time following request by CONTRACTOR, OWNER or ENGINEER at no additional cost to OWNER.

CONTRACTOR shall hold regularly scheduled safety meetings (at least weekly) that shall be given by CONTRACTOR's Site Safety Officer. That meeting shall also be attended by CONTRACTOR's resident supervisors and Subcontractors involved in the Work during the upcoming period. OWNER and ENGINEER will attend when appropriate. The topic of the meeting shall specifically be limited to safety and attendees shall at a minimum discuss safety problems and requirements related to upcoming work.

CONTRACTOR will not be required to supply personnel protective equipment or monitoring equipment for any persons other than CONTRACTOR's employees. However, CONTRACTOR shall make available CONTRACTOR's decontamination facilities to those persons who reasonably require access to the Work, including OWNER, ENGINEER, and regulatory authorities. CONTRACTOR shall be solely responsible for assuring compliance by all persons with CONTRACTOR's SSP in accordance with paragraph 6.20 of the General Conditions and Supplementary Conditions. CONTRACTOR shall not unreasonably restrict access to the property and shall not proceed with Work that OWNER or ENGINEER request to observe during such time as OWNER or ENGINEER are being denied access to the property because of non-compliance with CONTRACTOR's SSP.

B. The costs of safety and health as specified in this Section 01501 of the Specifications shall be included in the Contract Price and no additional compensation will be provided. Health and safety shall be of paramount importance and shall take precedence over cost and schedule considerations.

C. ENGINEER has prepared a SSP for ENGINEER's employees. A copy of ENGINEER's SSP can be reviewed at the Architect office.

1.03 HAZARD COMMUNICATION PROGRAMS

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between employers at the Property in accordance with Laws and Regulations. All workers shall have access to all material safety data sheets and other hazard communication information.

1.04 EMERGENCIES

A. In emergencies affecting the safety or protection of persons, the Work, or any property adjacent to the Work, CONTRACTOR, without special instruction from OWNER or ENGINEER, is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been created by such emergency. If ENGINEER or OWNER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Change Order will be issued to document the consequences of such action.

1.05 PROPERTY CHARACTERIZATION

A. A list of contaminants identified to be on-site is presented in ENGINEER's SSP. More detailed information is contained in documents located at ENGINEER's offices and may be reviewed at ENGINEER's office upon request by CONTRACTOR or CONTRACTOR's designee. A summary of previous investigation results is included in the VRAP.

1.06 SUBMITTALS

A. CONTRACTOR shall submit to ENGINEER proof of worker training and proof of medical surveillance.
B. CONTRACTOR shall submit 4 copies of the CONTRACTOR's SSP to the ENGINEER 5 days prior to Work is scheduled to begin.

PART 2: PRODUCTS [NOT USED]
PART 3: EXECUTION [NOT USED]

END OF SECTION 01501

SECTION 02100

SOIL REMEDIATION

PART 1 - GENERAL

1.1 INTRODUCTION

A. These Specifications were prepared following completion of the (1) Phase I Environmental Assessments for 219 and 223 First Avenue S.W., Rochester, Minnesota, dated March 2007; (2) Phase II Environmental Investigation, dated January, 2007; (3) Voluntary Response Action Plan (VRAP), dated June 2007; and (4) Environmental Contingency Plan (ECP), dated June 2007.

The work (Work) includes the following tasks:

1. Conduct earthwork activities in accordance with Construction Package #1, CP-1, Demolition and Soil Removal dated July 6, 2007.
2. Prepare and implement a Site Safety Plan (SSP) for contaminated soil, groundwater and potential soil gas from groundwater.
3. Implement dust control procedures.
4. Excavate soil and fill material from the 223 Parcel for transportation and disposal at an approved permitted RCRA Subtitle D landfill.
5. Excavate fill soil from the 219 Parcel for reuse as fill in the former basement under the proposed parking ramp to be constructed on the property directly south of the 223 Parcel.
6. Manage excavated soil and fill material in accordance with the VRAP and ECP.
7. Comply with the applicable local, state and federal requirements for removing, transporting, and disposing of contaminated materials.
8. Accumulate water in a depression on a liner within the excavation and remove runoff water from the 223 Parcel and properly discharge in accordance with the general stormwater permit. The MPCA requires us to collect runoff water so that it doesn't increase migration of chlorinated VOCs within the karst and fractured bedrock groundwater.

1.2 DESCRIPTION

A. All Work included in this Section shall be done in accordance with the following paragraphs as well as the General Requirements of these Technical Specifications and in accordance with all provisions of the Contract Documents.

1. The Work covered by this section of the Technical Specifications consists of, but is not limited to, furnishing all supervision, labor, equipment, and materials and performing all operations necessary to complete items discussed in 1.1 A discussed above.

B. CONTRACTOR shall conduct all work in accordance with OSHA standards for excavations in 29 CFR Part 1926.

1.3 SUBMITTALS

A. Submittals shall be delivered to Landmark's Project Engineer at the following address. Deliver 1 copy to General Contractor.

Landmark Environmental, LLC
Attn: Jason Skramstad
2042 West 98th Street
Bloomington, MN 55431

B. SITE SAFETY PLAN: Four copies of the CONTRACTOR's SSP and one copy of training documentation shall be submitted five days before work starts as discussed in Section 1501. See Section 1501 for more information.

C. CONTRACTOR shall submit the names of all subcontractors who will be used to haul contaminated soil from the Property to the designated disposal facility. CONTRACTOR shall submit name of proposed permitted lined RCRA Subtitle D landfill for approval by OWNER.

1. CONTRACTOR shall submit copies of all documentation (manifests, analytical testing results, profiles, disposal facility invoices, etc.) that will be used to track the shipment of contaminated materials. CONTRACTOR shall submit copies of all documentation (weight tickets, etc.) that will be used to track the weight and volume of clean fill delivered to the Property.
2. CONTRACTOR shall, if necessary, obtain approval from local, state, or federal agencies for the routes that its vehicles will travel from the Property to the disposal facility, and shall submit copies of the approved routes and all supporting documentation prior to removing any contaminated soil or other material from the Property.
3. CONTRACTOR shall provide clean offsite fill source data and fill samples on each source, a minimum of 15 days before importing material, for chemical analysis by ENGINEER. A sample frequency of 1 sample per 2,000 cubic yards is required. CONTRACTOR shall provide other soil information per CP-1. CONTRACTOR shall submit weigh tickets of clean fill delivered to the Property.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Polyethylene Sheeting for Stockpiles and Collection of Runoff Water: Temporary sheeting shall be a minimum of 10-mil thick reinforced polyethylene sheeting.

2.2 CLEAN FILL

A. Offsite Clean Fill: Clean fill shall meet requirements indicated in CP-1. The backfill shall be clean, free of roots, demolition debris, or other wastes, and not contaminated

with detectable concentrations of volatile organic compounds, semi-volatile organic compounds, petroleum, pesticides or polychlorinated biphenyls, or elevated concentrations of metals, and shall not have any contaminants in excess of the cleanup criteria.

PART 3 - EXECUTION

3.1 PREPARATION

A. The CONTRACTOR shall make arrangements to locate all existing Utilities and Underground Facilities in the areas of work. CONTRACTOR shall provide adequate means of protection during earthwork operations.

B. Prior to beginning excavation of contaminated soils, CONTRACTOR shall complete all of the preparation activities.

C. The CONTRACTOR shall protect structures, fences, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

3.2 GENERAL EXCAVATION

A. CONTRACTOR shall perform the excavations in the sequence of work approved by the ENGINEER.

B. During all excavation activities, CONTRACTOR shall be required to maintain stable side slopes.

C. During the excavation and handling of contaminated soils, the CONTRACTOR shall carefully adhere to the SSP. Any violation of the plan will be a basis to stop work until compliance with the plan is restored.

D. Initial excavation shall be as shown on the Drawings or as directed by ENGINEER. Removal of materials beyond indicated excavation limits without specific direction of ENGINEER or OWNER, as well as correction of any defective work directed by ENGINEER or OWNER, shall be at CONTRACTOR's expense. Unauthorized excavations shall be immediately backfilled and compacted as specified for authorized excavations of same classification, unless otherwise directed by ENGINEER.

E. Side slopes of excavations shall comply with applicable Laws and Regulations. CONTRACTOR shall shore or brace excavations where sloping is not possible either because of space restrictions or stability of the material excavated. CONTRACTOR shall maintain sides and slopes of excavations in a safe condition until completion of backfilling.

F. CONTRACTOR shall coordinate with utility companies during excavation in areas of utilities.

3.3 EXCAVATION OF CONTAMINATED SOIL

A. After completion of all necessary site preparation activities, CONTRACTOR shall excavate and load (and as necessary, stockpile) soil as shown on the Drawings. The CONTRACTOR shall excavate in a manner that will minimize the amount of underlying soil that becomes mixed or tracked with contaminated soil. CONTRACTOR shall excavate and load contaminated soil and transport and dispose in an approved landfill.

B. The VRAP includes analytical data from previous investigations.

C. After sample verification conducted by the ENGINEER, the CONTRACTOR may be required to continue excavating additional soil from select areas as directed by the ENGINEER. Volumes are considered estimated quantities.

D. Contaminated soil shall be stockpiled on the Property (for future reuse on the Property) or loaded and transported to the approved permitted RCRA Subtitle D landfill.

E. The transportation vehicle shall not be overfilled or filled in such a manner that there is spilling or tracking of contaminated soil in any area other than the contaminated soil portion of the excavation and the stockpile area. In the event there is a spillage of material in areas not allowed above, the excavation may be stopped by the ENGINEER or OWNER until the problem is resolved.

F. Any vehicle used to excavate or transport the contaminated soil shall not leave the Property or be used to excavate or transport any materials except from the contaminated soil excavation until that piece of equipment has been decontaminated. CONTRACTOR shall sequence the work such that equipment used for excavation and transportation of contaminated material is not used for excavation and transportation of clean fill until that equipment has been decontaminated.

G. Prior to leaving the Property, open trucks shall be covered with a secure tarp that will not allow contaminated soil to blow out of the truck.

H. In the event any unexpected materials/liquids, drums, containers, tanks, or any similar material of concern is encountered during the excavation activities, the excavation activities in that area shall immediately be stopped and the ENGINEER notified in accordance with the ECP.

I. Large debris encountered during excavation of contaminated soil shall be segregated, cleaned, and managed in accordance with this Section of the Specifications.

3.4 LOADING, TRANSPORTATION AND DISPOSAL OF CONTAMINATED SOIL

A. CONTRACTOR shall use appropriate methods in the loading, handling, storage and transportation of the materials described in this section of the Technical Specifications.

B. CONTRACTOR shall be in strict compliance with all federal, state, and local laws, regulations, or requirements when transporting any contaminated materials from the Property to an accepted permitted disposal facility.

C. Any spill caused by the CONTRACTOR's handling of any material shall be cleaned up at the CONTRACTOR's expense.

D. CONTRACTOR shall dispose of soil designated for off site disposal at an approved permitted RCRA Subtitle D landfill. CONTRACTOR shall coordinate disposal and submit copies of profiles, manifest, weight tickets and any other documentation to ENGINEER and OWNER.

E. CONTRACTOR shall direct load contaminated soil after acceptance from the disposal facility.

3.5 CONTAMINATED SOIL STOCKPILE(S) FOR UNEXPECTED CONTAMINATED SOIL

A. CONTRACTOR shall place contaminated soil on a polyethylene liner or on asphalt as directed by the ENGINEER for unexpected contaminated soil discovered during excavation.

B. The contaminated soil stockpile(s) shall have berms to prevent runon and runoff of water.

C. The stockpiles shall have stable side slopes and shall not exceed 15 feet in height.

D. ENGINEER will collect soil stockpile samples and analyze them for landfill disposal purposes.

3.6 CONTAMINATED SOIL IN UTILITY TRENCHES

A. ENGINEER will be notified in accordance with the ECP if contaminated soil is encountered in utility trenches. ENGINEER will field screen and sample soil in accordance with ECP.

3.7 DEBRIS CLEANING

A. If excavated large debris such as concrete are covered with contaminated soils, the CONTRACTOR shall clean the materials by removing any contaminated soil or waste from the debris surface. CONTRACTOR may require the use of hand tools to clean the contaminated demolition materials. All debris shall be cleaned such that no more than 1/8 inch of contaminated soil remains on any surface. The cleaned debris shall be temporarily stockpiled until inspection by the ENGINEER before transportation offsite. If the debris appears to be contaminated it shall be disposed of with the contaminated soil or with the contaminated concrete.

3.8 BACKFILL AND COMPACTION

A. CONTRACTOR shall not backfill contaminated soil excavations until approved by the ENGINEER and shall backfill in accordance with CP-1.

3.9 ROADS/DUST CONTROL

A. CONTRACTOR shall maintain roads to provide access to and from the Property and all affected adjacent facilities for the entire duration of the construction. Roads shall be passable for their intended use at all times in all weather conditions and shall be maintained. Public roads shall be cleaned and maintained as necessary to minimize tracking of contaminated soil off the Property.

1. CONTRACTOR shall provide all equipment and materials necessary for the control of dust arising during the performance of the Work. Dust shall be kept to an absolute minimum. Dust shall not be a nuisance to area residents or businesses. When requested by ENGINEER or OWNER, or at other times as necessary, CONTRACTOR shall take measures to reduce dust.
2. The cost of Roads/Dust Control shall be included in the Contract Price and no additional compensation will be provided.

3.10 DECONTAMINATION FACILITIES AND PROCEDURES

A. Before work can begin, CONTRACTOR shall delineate decontamination zone and exclusion zones.

B. All equipment introduced to the Property at any time shall be decontaminated at off-site locations by CONTRACTOR prior to entering the Property.

C. Prior to commencing work involving equipment in contact with contaminated material, CONTRACTOR shall supply decontamination equipment and establish a decontamination area or facility. All personnel and equipment shall be decontaminated after working with contaminated material and prior to entering clean areas.
   1. Dry decontamination will be allowed. Equipment can be cleaned with shovels and brushes removing contaminated soil from equipment.

3.11 FIELD QUALITY CONTROL

A. CONTRACTOR shall utilize equipment, materials, and procedures that are anticipated to meet the quality requirements specified.

B. CONTRACTOR shall compact soil in accordance with other Specifications.

3.12 MEASUREMENT AND PAYMENT

A. Excavation, Loading, Transportation and Disposal of Contaminated Soil from Parcel 223 shall be included in the base bid pricing in CP-1.

B. Preparation and implementation of the SSP shall be included in the base bid pricing in CP-1.

END OF SECTION 02100

SECTION 02665

DUAL PHASE EXTRACTION UNDERGROUND PIPING

PART I -GENERAL

1.1 INTRODUCTION

A. These Specifications were prepared following completion of the (1) Phase I Environmental Assessments for 219 and 223 First Avenue S.W., Rochester, Minnesota, dated March 2007; (2) Phase II Environmental Investigation, dated January, 2007; (3) Voluntary Response Action Plan (VRAP), dated June 2007; and (4) Environmental Contingency Plan (ECP), dated June 2007.

1.2 RELATED SECTIONS

B. Section 02672 – Remediation Wells.

1.3 SUBMITTALS

A. Pipe line pressure test data shall be submitted to Owner's Representative.

1.4 EXISTING CONDITIONS

A. Piping will be placed in trenches excavated below the slab of the proposed building as shown on the proposed Drawings.

1.5 REGULATORY REQUIREMENTS

A. Contractor shall conform to applicable codes of state, local and federal regulatory authorities. If any information contained within these specifications is contrary to applicable regulations, the Bidder shall notify the Owner's Representative immediately upon discovery.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary end caps and closures on piping and fittings. Maintain in place until connections to pipe are made.

B. Protect piping systems from entry of foreign materials by providing temporary covers, completing sections of Work and isolating parts of completed system.

PART 2 - PRODUCTS

2.1 UNDERGROUND PIPING FROM REMEDIATION WELLS

A. PVC Pipe: ASTM D1785, Schedule 80, flush threaded.

1. Fittings

2. Joints

B. Refer to Drawings.

2.2 MULTI-PHASE EXTRACTION DROP TUBE, WELLHEAD COMPLETION

A. PVC Pipe: ASTM D1785, Schedule 80, flush threaded.

B. Refer to drawings.

2.3 BEDDING AND COVER MATERIALS

A. Bedding material shall be sand cushion: Clean, medium to coarse sand with less than 3% passing the No. 200 sieve size; 0-25% passing the #8 sieve; 10-50% passing the #4 sieve, 85-100% passing the 3/8" sieve.

2.4 ACCESSORIES

A. None.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Contractor shall verify to Owner's Representative that all piping is installed according to specification and Drawings.

3.2 PREPARATION

A. Cut pipe ends square, ream pipe and tube ends, as required, and remove burrs.

B. Remove debris, scale and dirt, on inside and outside, before assembly.

3.3 CONNECTIONS

A. All underground connections shall be fused. Connections aboveground may be made using pressure inserts and clamps.

3.4 BEDDING

A. Hand trim excavation for accurate placement of pipe to elevations indicated.

B. Place bedding material at trench bottom, level in one continuous layer in accordance with MnDot Class C bedding specifications.

C. Compaction equipment used by Contractor must be pre-approved by Owner's Representative.

D. Compact the layer to the degree that no further appreciable consolidation is evidenced under action of compaction equipment, with a minimum of two complete passes, reaching a compaction minimum of 95% Standard Proctor Test.

C. Completed bedding layer shall have a maximum compaction depth of 3 inches.

D. Backfill trench with bedding material, around sides and to a height of 1 foot above top of pipe. Tamp each lift of bedding material in-place and compact.

E. Maintain optimum moisture content of bedding material to attain accepted compaction requirements.

3.5 INSTALLATION – REMEDIATION PIPING

A. All piping must be clearly labeled during installation so that piping labels correspond to correct well.
B. Install pipe and fittings in accordance with manufacturer's instructions.

B. Cover pipe ends during installation with cap, tape, or other, to prevent debris and soil from entering the pipe.

C. Install pipe to indicated elevation to within a tolerance of 1 inch. Confirm elevation and slope at every pipe joint with laser or level and stadia rod.

D. Route pipe over or under obstructions (utilities, etc.), provided that there is adequate cover, such that there are no low points in piping runs.

E. Clearances between remediation piping and utilities must meet minimum requirements specified by each individual utility owner.

F. Install one tracer line in each trench as shown in Drawings.

3.6 AIR PRESSURE TESTING - PREPARATION

A. Upon completed placement, within trench excavations, of below-grade DPE piping, conduct a line pressure test on each new pipeline to determine degree of tightness.

B. Testing shall be performed after underground piping has been installed but prior to piping connection to DPE wells. Piping shall be terminated at the treatment building location but shall remain unconnected to equipment until testing is completed.

C. Contractor shall seal each piping run. One end of each piping run shall be fitted with a connector to pressurize line for testing purposes and connecting a pressure gauge.

D. Compressed gas source shall be equipped with an adjustable pressure relief regulator and pressure gauge. Connection for piping run will include a ball or other leak-proof valve for isolating pipe line after pressurization for duration of test.

E. Provide all labor, blowers, compressors, other compressed gas sources, piping, connections, gauges, measuring devices and all other appurtenances necessary to conduct testing.

F. Conduct pressure testing at a time acceptable to and in the presence of the Owner's Representative, and in accordance with the requirements of this section.

F. Any detected leaks or reductions in line pressure shall result in failure of the test and require location and elimination of the leak by the Contractor, at no additional cost to Owner's Representative.

3.7 AIR PRESSURE TESTING

A. Pressure testing shall be successfully completed prior to trench backfilling.

B. Below-grade, DPE pipelines shall be tested at 15 psig (pounds per square inch gauge).

C. Pressure test all other buried pipe prior to backfilling by pressurizing the pipe with air to 15 psig and soaping the joints to check for leaks.

D. Contractor shall test each piping run individually, however, individual tests may be performed concurrently.

E. Contractor shall pressurize the pipe line to be tested to the required pressure and then isolate the line from the pressure source by closing the isolation valve.

F. Pipe must maintain 90 percent of the initial pressure for 5 minutes to pass the test.

G. Contractor must complete line testing form for each pipe run to be tested. Forms must be provided to the Owner's Representative.

G. Contractor shall submit completed forms to Owner's Representative after completion of testing. Any failures in pipe tests shall be specifically and clearly noted and brought to Owner's Representative's attention.

3.8 FIELD QUALITY CONTROL

A. If Work does not meet the requirements specified in the Contract Documents, remove Work and replace until accepted by the Owner's Representative, at no additional cost to the Owner's Representative.

B. Repair and retest all pipe, joints and fittings failing the pressure test at no additional cost to the Owner's Representative.

END OF SECTION

SECTION 02666

VAPOR BARRIER

PART I –GENERAL

1.1 SUMMARY

A. Products Supplied Under This Section

1. Vapor Barrier, seam tape, pipe boots, detail snip for installation under concrete slabs.

B. Related Sections

1. Section 02667 Venting System.

C. Experience

1. The vapor barrier installer shall have at least 3 years continuous experience in the installation of geo-membranes and an installation record totaling at least 1 million square feet.

1.2 REFERENCES

American Society for Testing and Materials (ASTM)

1. ASTM E 1745-97 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil Or Granular Fill Under Concrete Slabs.

2. ASTM E 154-88 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.

3. ASTM E 96-95 Standard Test Methods for Water Vapor Transmission of Materials.

4. ASTM E 1643-98 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

American Concrete Institute (ACI)

1. ACI302.1R-96 Vapor Barrier Component (plastic membrane) is not less than 10 mils thick.

1.3 SUBMITTALS

A. Quality Control/Assurance

1. Independent laboratory test results showing compliance with ASTM & ACI Standards.

2. Manufacturer's samples, literature.

3. Manufacturer's installation instructions for placement, seaming and pipe boot installation.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Vapor Barrier (performance based specification)

1. Vapor Barrier membrane must have the following properties and can be manufactured by Stego Industries, LLC (Stego) or equivalent:

a. Minimum 15-mil thick polyolefin geo-membrane.

b. Manufactured from ISO certified virgin resins.

c. Water Vapor Barrier ASTM E-1745 Meets or exceeds Class B.

d. Water Vapor Transmission Rate ASTM E-96 0.006 gr./ft2/hr. or lower.

e. Permeance Rating ASTM E-96 0.01 gr./ft2/hr. or lower.

f. Puncture Resistance ASTM E-1745 minimum 1970 grams.

g. Tensile Strength ASTM E-1745 minimum 45.0 lbf/in.

2.2 ACCESSORIES

A. Seam Tape

1. High Density Polyethylene Tape with pressure sensitive adhesive. Seam tape shall have a minimum width of 4 inches.

B. Welding

1. Weld per manufacturers instructions for pressure and temperature can be substituted for taping of seams.

C. Stego Mastic

1. Pipe penetrations must be sealed with Stego Mastic per manufacturer's instructions.

PART 3 – EXECUTION

3.1 PREPARATION

A. Ensure that engineer approves subsoil conditions.

1. Level and tamp or roll aggregate, sand or tamped earth base.

2. Inspect sub-grade and remove any stones, branches, clumps and other debris from the surface, which may damage the barrier.

3.2 INSTALLATION

A. Install Vapor Barrier/Retarder:

1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643-98.

a. Unroll Vapor Barrier with the longest dimension parallel with the direction of the pour.

b. Lap Vapor Barrier over footings and seal to foundation walls.

c. Tape or weld joints in accordance with manufacturer's specifications. Seams shall be taped on both sides.

d. Seal all penetrations (including pipes) with manufacturer's Stego Mastic.

e. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.

f. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with tape.

END OF SECTION

SECTION 02667
VENTING SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work included in this Section shall be done in accordance with the following paragraphs as well as the General Requirements of the Technical Specifications and in accordance with all provisions of the Contract Documents.

B. All work shall be completed in accordance with the Voluntary Response Action Plan and the Environmental Contingency Plan for the Property as approved by the Minnesota Pollution Control Agency.

C. The work covered by this section of the Technical Specifications consists of, but is not limited to, furnishing all supervision, labor, equipment, and materials to construct complete in place all piping and fittings as shown on the Drawings and specified herein. This section specifically includes furnishing and installing all piping and appurtenances inside and outside the building for the passive venting.

D. This work also includes restoring all subsurface or surface structures directly or indirectly disturbed by the CONTRACTOR, furnishing piping and fittings required to join work completed under this Section with work completed under related sections, and all other Work required for a complete installation.

1.2 REFERENCES

ASTM D1785-88 Standard Specifications for Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, and 80, Tables 1 and 2, Annual Book of ASTM Standards (December 1988)

1.3 SUBMITTALS

A. Product submittals are not required for this section if material meets or exceeds the requirements of this section.

B. CONTRACTOR shall submit results of all field-testing completed for items installed in accordance with this section.

1.4 DELIVERY, STORAGE AND HANDLING

A. Materials shall be inspected by the CONTRACTOR at delivery point for loss or damage in transit. It shall be CONTRACTOR's responsibility to replace damaged items. Damaged and nonconforming materials shall be removed from Site promptly.

B. Pipe materials shall not be stacked. Each pipe section shall be blocked to prevent rolling. Pipe ends shall be covered to prevent entry of foreign materials.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Slotted PVC Drain Tile Pipe

The slotted pipe shall be new schedule 80 PVC, 4-inch diameter pipe size, 0.5-inch slots spaced 4-inches on center, off-set 60 degrees with length and a slip-joint female flush couplings fitted with a welded PVC end cap at the terminal end section. The inside diameter shall not be less than 4 inches throughout the full length of the assembly including the attached coupling.

B. Riser Pipe

Riser pipes refer to all PVC pipe or approved equal that is NOT slotted. PVC riser pipe and couplings shall be new schedule 80 PVC 6-inch diameter pipe size and shall conform to Minnesota Department of Health (MDH) Water Well Construction Code, Plastic Well Casing, Sections 4725.2550 through 4725.2650.

The riser pipes connect to the 4-inch slotted PVC drain tile pipes and extend vertically to the ceiling of the second floor. At the ceiling of the second floor, each riser is directed laterally to the west side of the building where the riser pipe is vented to the atmosphere through a penetration in the building wall.

C. Exhaust Stack

The riser pipe exhaust stack shall consist of a 6-inch schedule 80 PVC 90 degree elbow connected to the lateral riser pipe located immediately outside the west building wall. A section of riser pipe will connect to the 90 degree elbow and extend vertically, approximately, one foot in length above the elbow. To complete the riser pipe exhaust stack, a 6-inch rotary wind turbine will be installed at the top of the vertical section of pipe.

D. PVC Cleanouts

PVC cleanouts shall be installed to allow the drain tile to be cleaned out if necessary. The cleanouts shall consist of 4-inch schedule 80 treaded plugs. The cleanouts shall be accessible outside the buildings at finished grades.

E. Gravel Pack for Slotted PVC Pipe

The gravel pack for the drain tile shall be a coarse filter aggregate.

F. Rotary Wind Turbine

A rotary wind turbine shall be installed at the top of each vent stack located on the roof of each building.

G. Shut-off Valve

A shut-off valve shall be installed on each vent stack between the rotary wind turbine and the stack penetration through the roof.

PART 3 - EXECUTION

3.1 LOCATION OF WORK

A. The Work shall be located on the proposed Drawings.

B. It may be necessary for the ENGINEER to shift lines a reasonable amount to avoid obstructions, such as proposed building footings or utilities. The CONTRACTOR will not be allowed any additional compensation due to minor shift of lines. Additional compensation will be allowed only for lengthening lines.

3.2 EXCAVATION

A. Excavation shall be made to the alignment and depth shown on the proposed Drawings that will be created during completion of the final system design, or as specified herein.

3.3 PIPE PLACEMENT

A. The type, kind, and class of pipe to be used shall be as shown on the proposed Drawings, or as specified herein. All pipe shall be constructed within the tolerance for line and grade.

B. At the time of pipe placement, the bedding conditions shall be such as to provide uniform and continuous support of the pipe. Immediately before placement, the joint surface of each pipe section and fitting shall be inspected for the presence of foreign

matter, coating blisters, rough edges or projections, and any imperfections so detected shall be corrected by cleaning, trimming, or repair as needed.

C. Before being lowered or plowed into laying position, the CONTRACTOR shall make a thorough visual inspection of each pipe section and appurtenant units to detect damage or unsound conditions that may need corrective action or be cause for rejection. The CONTRACTOR shall inform the ENGINEER of any defects discovered.

D. All slotted PVC drain tile piping shall be sloped to allow potential drainage to the storm sewer.

E. Any defective or damaged pipe shall be replaced.

F. At all times when pipe laying is not in progress, including the noon hour and overnight periods, all open ends of the pipe must be closed by a watertight plugs or other means approved by the ENGINEER. If water is present in the trench, the seals shall remain in place until the trench is pumped completely dry.

G. A rotary wind turbine shall be installed on each venting system stack.

H. A shut-off valve shall be installed on the riser pipe in the basement of the building where the pipe extends out of the slab.

3.4 FIELD TESTING

A. Pressure testing shall be conducted after completion of the passive venting system to ensure there are no leaks in the section of riser piping from the slab to the venting stack. Testing shall be completed in accordance with applicable building code. Pressure testing data shall be provided to the ENGINEER upon completion of the methane mitigation system.

END OF SECTION 02667

SECTION 02672

REMEDIATION WELLS

PART 1 - GENERAL

1.1 INTRODUCTION

A. These Specifications were prepared following completion of the (1) Phase I Environmental Assessments for 219 and 223 First Avenue S.W., Rochester, Minnesota, dated March 2007; (2) Phase II Environmental Investigation, dated January, 2007; (3) Voluntary Response Action Plan (VRAP), dated June 2007; and (4) Environmental Contingency Plan (ECP), dated June 2007.

1.2 RELATED SECTIONS

A. Section 02665 – Dual Phase Extraction Underground Piping

1.3 REFERENCES

B. Minnesota Department of Health Well Code.

C. City specifications, standards, and requirements, City of Rochester, Minnesota.

1.4 EXISTING CONDITIONS

A. The soil and fill material at the property generally exists at depths ranging from 10 to 15 feet bgs. Bedrock exists at depths ranging 13 to 17 feet bgs. A one to tw0-foot thick layer of weathered bedrock exists between the soil/fill material and the bedrock. The depth to ground water is expected to be approximately 20 to 25 feet bgs.

B. Coring through concrete is not expected for most boring locations.

C. Drilling will occur as shown on Drawings.

1.5 SUBMITTALS

A. Submit to Owner's Representative, signed copies of well records and other documents which may be required by state, local or federal agencies, including permits.

1.6 REGULATORY REQUIREMENTS

A. CONTRACTOR shall conform to applicable codes of state, local and federal regulatory authorities. If anything contained within these specifications is contrary to Minnesota well code or other applicable regulations, the Bidder shall notify the Owner's Representative immediately upon discovery.

B. The CONTRACTOR shall obtain any and all permits including Minnesota Department of Health permits and City of Rochester Street-Use Permits.

1.7 UTILLITIES

A. CONTRACTOR shall be responsible for calling Minnesota Gopher State One-Call to locate public utilities a minimum of 72 hours and a maximum of 10 days prior to initiating drilling activities. All areas must be remarked if snowfall, ice cover, or faded paint hinders positive identification of located utilities.

B. CONTRACTOR shall verify with Owner's Representative, location of non-public utilities located in work areas.

PART 2 - PRODUCTS

2.1 WELL PRODUCTS

A. All products shall be new materials and shall be as specified on the Drawings.

B. Schedule 80 PVC well piping shall be flush threaded and shall use Buna O-rings for each connection.

C. The watertight vaults shall be Morrison, 418XAW, New Welded Manhole, available from Morrison Brothers Company, P.O. Box 238, Dubuque, IA 52001, (800) 553-4840, FAX (319) 583-5028, or equivalent.

2.2 SAMPLING PRODUCTS

A. No samples will be collected during drilling activities.

2.3 PRODUCTS FURNISHED BY OWNER'S REPRESENTATIVE

A. Keyed alike locks for wells.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. The CONTRACTOR shall provide adequate safety cones, barriers, signs, and/or other equipment as necessary for automobile and pedestrian traffic control for drilling locations.

B. CONTRACTOR shall protect all structures and utilities near the wells from damage.

3.2 DRILLING

A. Drill borehole to diameters sufficient for proper well installation.

B. Hollow-stem auger method of drilling shall be utilized.

3.3 WELL INSTALLATION

A. Well installation shall be in accordance with Drawings, subject to minor changes as directed in the field by on-site Owner's representative.

B. Above grade and below grade well installations shall be completed as required by MDH well code.

C. Prior to use, the casings and couplings shall be inspected for cuts, deformations, deep scratches, damaged ends, and other imperfections. Any casing or coupling having such defect(s) may not be used. Trim and smooth ends and remove burrs from well casings. Remove any debris or dirt, on inside and outside of casings, before assembly.

D. The well casing and screen assembly shall be constructed during the drilling of the borehole. Place well casing(s) and screen assembly(s) immediately after drilling, with well screen centered in the borehole. Set firmly in place. Allow inspection of casing(s) prior to placement of well construction materials.

E. CONTRACTOR shall ensure that the filter pack and filter pack seal are installed evenly surrounding the well screen and casing over the proper interval by using a tape measure, measuring rod or similar device. The filter pack sand shall not be allowed to bridge. If bridging occurs, the filter pack sand shall be tamped into place to surround the well screen and/or casing.

F. Maintain well openings(s) and casing(s) free of contaminated materials. Do not permit cuttings to enter casing(s) when the top is being cut to final elevation.

G. The CONTRACTOR shall not allow bentonite or other well construction materials to bridge in the augers while constructing wells.

H. Accurately record actual locations of wells, depths, subsoil strata and drilling difficulties encountered.

I. Settling of neat cement must be replaced as necessary to form a proper seal and to bring to grade.

3.4 FLUSH-MOUNT PAD INSTALLATION

A. The flush-mount pad shall be installed at each DPE well location.

B. The wells will terminate at grade and will be protected in a watertight vault installed in concrete with a minimum 28-day compressive strength of 4,000 psi and a unit weight between 140 and 150 lb/ft^3.

C. The covers shall be clearly marked with the standard monitoring well warning symbol and labeled "Monitoring Well."

D. A Minnesota Department of Health unique well number must be assigned to each well and shall be attached to the well casing or shall be permanently engraved or otherwise emplaced into the surface of the unhardened concrete, or as acceptable at applicable code.

3.5 SOIL BORING ABANDONMENT

A. All soil borings that are not completed as wells shall be abandoned according to state guidelines.

3.6 DRILL CUTTINGS

A. Owner's Representative will provide on-site personnel to segregate soil cuttings.

B. Drill cuttings shall be collected and containerized in CONTRACTOR-provided standard, 55-gallon drums. CONTRACTOR shall transport all drums containing drill cuttings to a storage area as directed by the on-site Owner's Representative.

C. All drums shall be labeled as directed by Owner's Representative.

D. Owner's Representative will coordinate disposal of soil cuttings.

3.7 SITE CLEANING

A. Driller shall collect and dispose of all cement, sand pack and bentonite bags, as well as other refuse and materials, and cleaning up and restoring the areas where drilling has taken place.

END OF SECTION

Attachment 7
July 12 Letter from Landmark to MPCA

July 12, 2007

Mr. Ed Olson and Mr. Allan Timm
Minnesota Pollution Control Agency
Voluntary Investigation & Cleanup Program
520 Lafayette Road
St. Paul, Minnesota 55155

Re: Follow-up to Meeting
219 and 223 First Avenue S.W., Rochester, Minnesota

Dear Ed and Al:

Thank you for taking the time to meet with Jason Skramstad and me yesterday and sending us a follow-up email this afternoon, which summarized our discussions. We thought the meeting was very helpful. We believe we now have a better understanding of the level of information that needs to be included in the response action design package (which, at your request, we will refer to as a VRAP Addendum), which will help keep the project on schedule.

This letter is intended to serve as a written response to some of the more basic issues we discussed. We are planning on submitting the additional - more substantive - information to you early next week. The information that we can report to you at this time include the following:

- I left a voice message with Jackie Deneen yesterday. I have not heard anything back yet. However, we will make sure that the scope of the demolition permit and work for the project include the demolition activities related the removal of the buried building foundations/floors on the 223 and 219 Parcels. We will also submit an Asbestos Emission Control Plan to Jackie for approval (with copies to the VIC Program). As we mentioned, the Landmark field manager overseeing the excavation will be a licensed asbestos inspector.

- I left a voice message with Beth Gawrys yesterday. I have not heard back from her yet. It is very important that we find out what additional information is needed in order for Beth to make a determination about the reuse of soil on the 219 Parcel ASAP. I will call her again tomorrow morning. For purposes of clarification, the fill soil (that was brought in to fill the basement of the 219 Parcel and was placed above the concrete floor) had one detection of PCE below the Tier 1 SLV and well below the residential SRV. The soil and weathered bedrock below the concrete floor, if excavated, is probably not structurally suitable to reuse under the proposed parking lot and we would propose that it be transported to a Subtitle D permitted landfill

- The chemicals of concern will be identified to also include other VOCs and in particular, the breakdown products of PCE, which have been monitored by DPRA.

- References in the VRAP and ECP to "HRA" should be replaced with "EDA".

- I contacted the City Building Safety and Inspection Department (Ron Boose, Director) to discuss the installation and operation of the DPE System in the basement of the proposed building. Mr. Boose told me that the system is not of particular concern to the department as long as it meets the standard building code requirements, which it will. His main concern was that the vent pipes are not placed near a, air intake for the building. We will make sure that this is not the case.

- All of the references in the VRAP and ECP to the type of written assurance being requested by the City and the EDA should have used the term "partial Certificate of Completion". We understand that some of the references used the term Certificate of Completion.

- All of the references in the VRAP and ECP to the when the RA Implementation Report will be prepared and submitted should be interpreted as being at the time in the future when the cleanup goals related to the DPE system have been met. As we mentioned, the VRAP did not intend to convey that the RA Implementation Report would be submitted upon completion of the installation of the DPE system.

- We should have pointed this out during our meeting, for purposes of clarification, the second full paragraph on page 8 of the VRAP states that the DPE system operational goals for the DPE system "include achieving asymptotic PCE air exhaust concentrations, and achieving asymptotic mass removal quantities of PCE."

- Landmark prepared the ECP and, as such, is the party responsible for ensuring the procedures are applied and followed. The ECP was prepared and will be applied in connection with the site safety plans, for use by Landmark, the contractors, the MPCA, and of course, the City and EDA. Once the contractors are selected, we will submit an updated ECP with names, phone numbers are additional clarification to the MPCA.

- The VRAP and ECP make a number of references to verification sampling. The purpose of the floor and sidewall verification sampling is to satisfy the MPCA guidance requirements and to document if the soil meets cleanup goals. These results will then determine if any institutional controls will be required. As stated in the VRAP, we do not anticipate institutional controls will be necessary – based on previous sampling results and the fact that the soil will be under the building (remotely accessible). However, as we indicated during the meeting, if the verification sampling results indicate the presence of contaminants above residential soil reference values and soil leaching values and the soil remains in place, the City will comply with the applicable MPCA guidance documents relating to filing institutional controls.

- Before making a formal request for the partial Certificate of Completion, the City and EDA will provide the MPCA with an accurate legal description of the property and, although they were already issued a No Association Determination, if required, will submit a an affidavit of non-RP status.

We appreciate your assistance on this project. You will see additional design information in a few days. If you have any questions, please contact me at (952) 887-9601 (ext. 208) or Jason at ext. 205.

Sincerely,

Ken Haberman

Cc: Doug Knott

Nancy Quattlebaum Burke