MACTEC

engineering and constructing a better tomorrow

May 9, 2008

Mr. Joseph T. Martella II, Senior Engineer
RIDEM Office of Waste Management
Site Remediation Program
235 Providence Street
Providence, RI 02908

RE: Short Term Response Action Work Plan
Retail Complex Sub-Slab Soil Mitigation
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, Rhode Island
MACTEC Project No. 3650050041.20

Dear Mr. Martella:

On behalf of Textron, Inc. (Textron), this letter presents the scope of work under the Short Term Response Action Work Plan for the installation of a vapor mitigation system inside the Retail Complex. An Active Soil Depressurization (ASD) system will be installed in each of the four retail stores. The objective of these ASD systems is to remove the soil vapor from beneath the building so that it may not migrate into the indoor air of the retail stores. These mitigation activities will be conducted consistent with Section 6.0 Short Term Response Action of the Remediation Regulations. Textron will continue to investigate the site to complete the site conceptual model and cleanup of the site.

BACKGROUND

Indoor air sampling was conducted in the Retail Complex in September 2007 and results from this investigation were submitted to the Rhode Island Department of Environmental Management (RIDEM) on November 5, 2007. This report is also posted on the RIDEM project website. The chemical concentrations detected in all of the air samples were well below the workplace air standards published by OSHA. A risk assessment concluded that potential risks to former employees and shoppers since the retail stores opened were not significant. However concentrations of one compound in the former Dollar Store and two compounds in the Stop & Shop were above the Connecticut Department of Environmental Protection Draft Industrial/ Commercial Target Air Concentrations (TACs).

Following coordination with RIDEM, soil gas and groundwater investigations were conducted in November 2007 and March 2008 at the Retail Complex. These investigations identified VOCs in soil gas and groundwater in the southwest corner of the former Stop & Shop. An additional investigation will be completed today to further assess the soil beneath Retail Complex concrete slab above the water table.

Based on these results, Textron proposes to install an ASD in all four retail spaces. The design, system start-up and monitoring plan for these ASD systems was provided to RIDEM in the letter dated March 31, 2008 and is available on the Gorham project website. We have provided additional copies of the system design figures with this work plan for RIDEM's convenience.

SCOPE OF WORK

Following RIDEM's review of the March 31, 2008 ASD design and approval of this work plan, Textron will prepare a public notice for review by RIDEM and publication in a local paper announcing the implementation of this Short Term Response Action. Textron will then procure and install the ASD systems, perform system start-up, monitor system operations and reporting of these results. Off-gas treatment of the soil vapor extracted from the source area will be included in the ASD for the former Stop & Shop. Monitoring of the system will determine the need for continued off-gas treatment and an associated air emissions permit. Off-gas treatment of the vapor emissions from the three other ASD systems is not anticipated, but Textron will monitor and coordinate these results with RIDEM.

REPORTING

A field activities report to summarize the soil sampling program and the associated analytical results will be prepared and submitted to RIDEM approximately 30 days following receipt of the analytical data. The ASD installation, monitoring and reporting plan was provided to RIDEM in the letter dated March 31, 2008 and is consistent with Section 6.0 of the Remediation Regulations. Monitoring of the operating systems will be conducted and the results will be reported to RIDEM for review and posting on the project website.

PROPOSED SCHEDULE

Following receipt of RIDEM approval, Textron is prepared to move forward with necessary activities for system installation in an expedited manner.

Textron will continue to investigate the site to complete the site conceptual model and cleanup of the site during the installation of this mitigation system. We look forward to working with RIDEM on the review and execution of this installation of the vapor mitigation system. Feel free to contact either Dave Heislein at (781) 213-5655 or Greg Simpson of Textron at (401) 457-2635 with any questions. We are available either for a conference call or to meet with RIDEM to address any questions you may have on this work plan.

Sincerely,
MACTEC Engineering and Consulting, Inc.

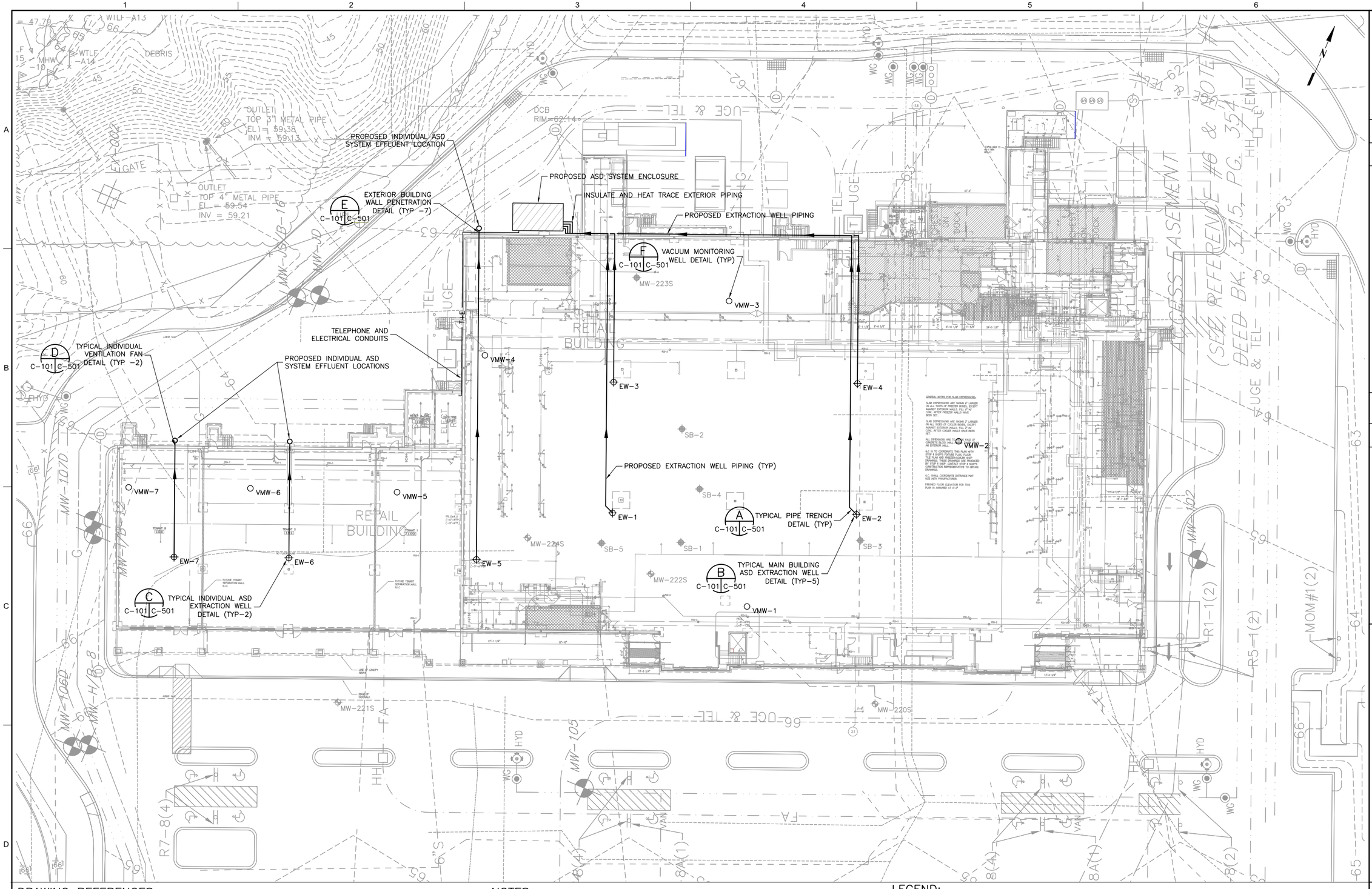
For Philip J. Muller with permission
Project Engineer

David E. Heislein
Principal Engineer

Attachments:

	Drawing C-101	Existing Conditions Plan and Proposed Layout
	Drawing C-501	Civil Details
	Drawing D-001	Piping & Instrumentation Diagram Legend
	Drawing D-601	Piping and Instrumentation Diagram

cc: T. Deller, City of Providence
P. Grivers, EA Engineering, Science, and Technology
G. Simpson, Textron, Inc.
J. Schiff, Textron, Inc.
G. Wilson, Kimco Realty
J. Morgan, Stop & Shop, LLC
Knight Memorial Library Repository
MACTEC Project File [P:\TEXTRON\GORHAM\Stop & Shop\sub-slab system documents and Workplan\Short Term Response Action Work Plan ASD System 050908.doc]



DRAWING REFERENCES:

1. PROPOSED GRADING, DRAINAGE, SEDIMENTATION, AND EROSION CONTROL PLAN DRAWING C-4, FOR CONSTRUCTION AUGUST 24, 2001. DRAWING C-4 MATERIALS AND UTILITIES PLAN SEPTEMBER 07, 2001, PREPARED BY VANASSE HANGEN BRUSTLIN, INC. FOR CHURCHILL & BANKS MASHAPAUG COMMONS PROVIDENCE, RHODE ISLAND
2. SUPER STOP & SHOP – #733 DRAWINGS LATEST REVISION JUNE 07, 2007 PREPARED BY: CARTER BURGESS, CAMBRIDGE, MASSACHUSETTS FOR CHURCHILL & BANKS MASHAPAUG COMMONS PROVIDENCE, RHODE ISLAND

NOTES:

1. FINAL EXTRACTION WELL AND EXTRACTION WELL PIPING LOCATIONS TO BE BASED UPON PRE-CONSTRUCTION SITE INVESTIGATION AND AS APPROVED BY THE ENGINEER AND OWNER.
2. EXTRACTION WELL PIPING SHALL BE SLOPED TO DRAIN TO EXTRACTION WELLS OR THE ASD SYSTEM ENCLOSURE.

LEGEND:

- SB-5 ◈ VACUUM MONITORING WELL
- MW-224S ◈ GROUNDWATER MONITORING WELL
- EW-7 ⊕ PROPOSED EXTRACTION WELL
- VMW-1 ○ PROPOSED VACUUM MONITORING WELL (ACTUAL LOCATION SUBJECT TO CHANGE)

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SCALE IN FEET

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B	04/01/08	SCP	DEH	DEH
A	02/04/08	SCP	DEH	APVD
DSGN	RTB	DEL	SCP	

SUBMITTAL TO RIDEM
DRAFT FOR CLIENT REVIEW
REVISION
BY

Active Soil Depressurization System Design
Former Gorham Manufacturing Facility
Parcel A Retail Complex
333 Adelaide Avenue, Providence, Rhode Island

MACTEC Engineering and Consulting, Inc.
P.O. Box 7050, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

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Civil
EXISTING CONDITIONS PLAN AND PROPOSED LAYOUT

VERIFY SCALE
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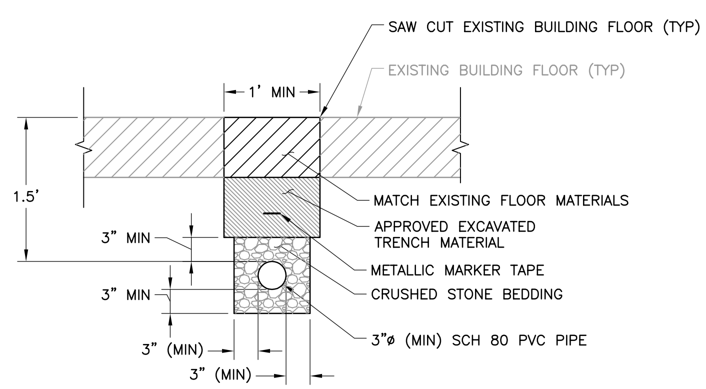
DATE	
PROJ	3650050041
DWG	C-101
SHEET	2 OF 5

FILE NAME: M:\Projects\TEXTRON\GORHAM SITE - Parcel A Sub slab\PASS-C-101.dwg PLOT DATE: Tue, 01 Apr 2008 PLOT TIME: 3:07 PM

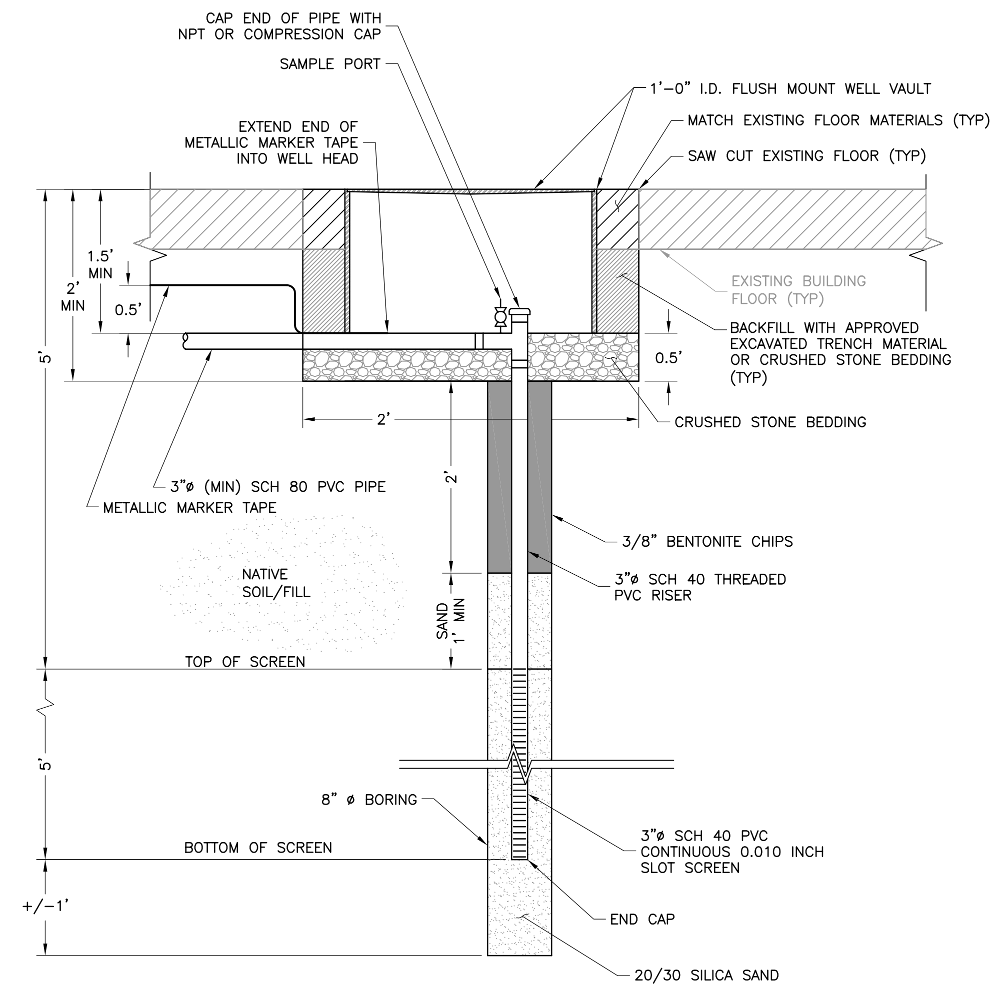


NOTES:

1. BACKFILL WITH APPROVED EXCAVATED TRENCH MATERIAL.
2. SLOPE SVE PIPE DOWN TOWARD SVE WELLS.
3. SVE PIPE TO BE SIZED BY CONTRACTOR.

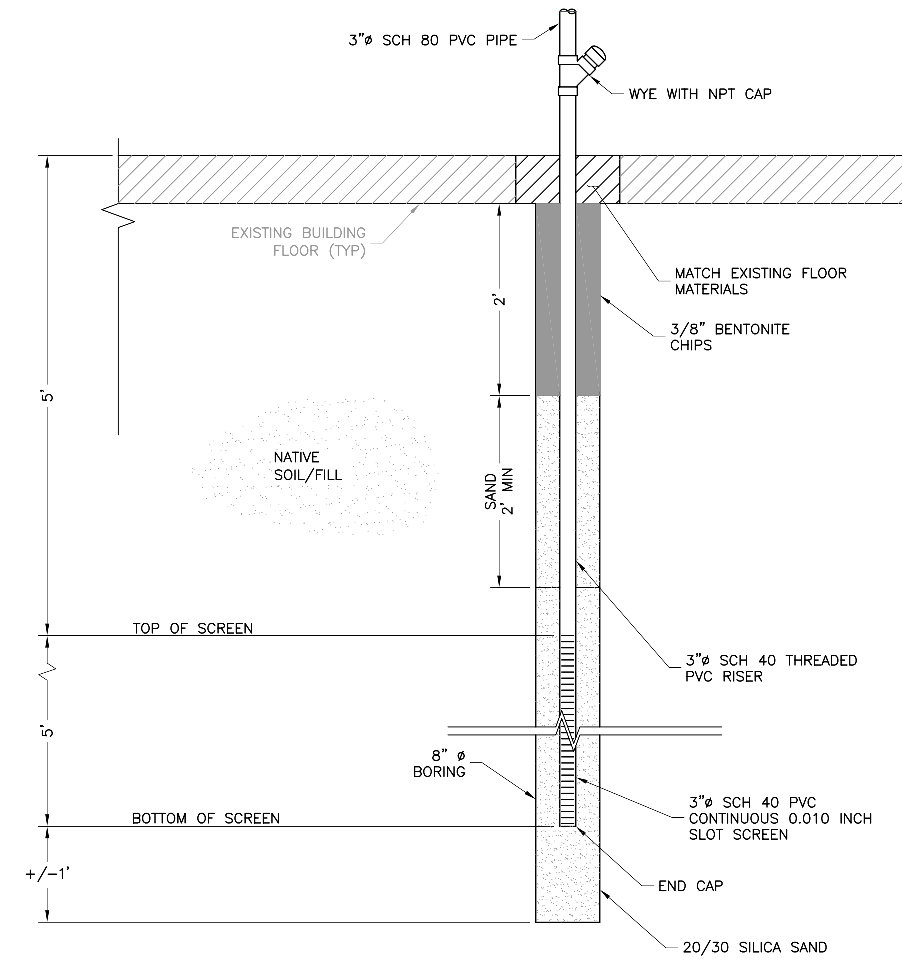
TYPICAL PIPE TRENCH DETAIL (A, C-101 | C-501)

NTS



TYPICAL MAIN BUILDING ASD EXTRACTION WELL DETAIL (B, C-101 | C-501)

NTS



TYPICAL INDIVIDUAL ASD EXTRACTION WELL DETAIL (C, C-101 | C-501)

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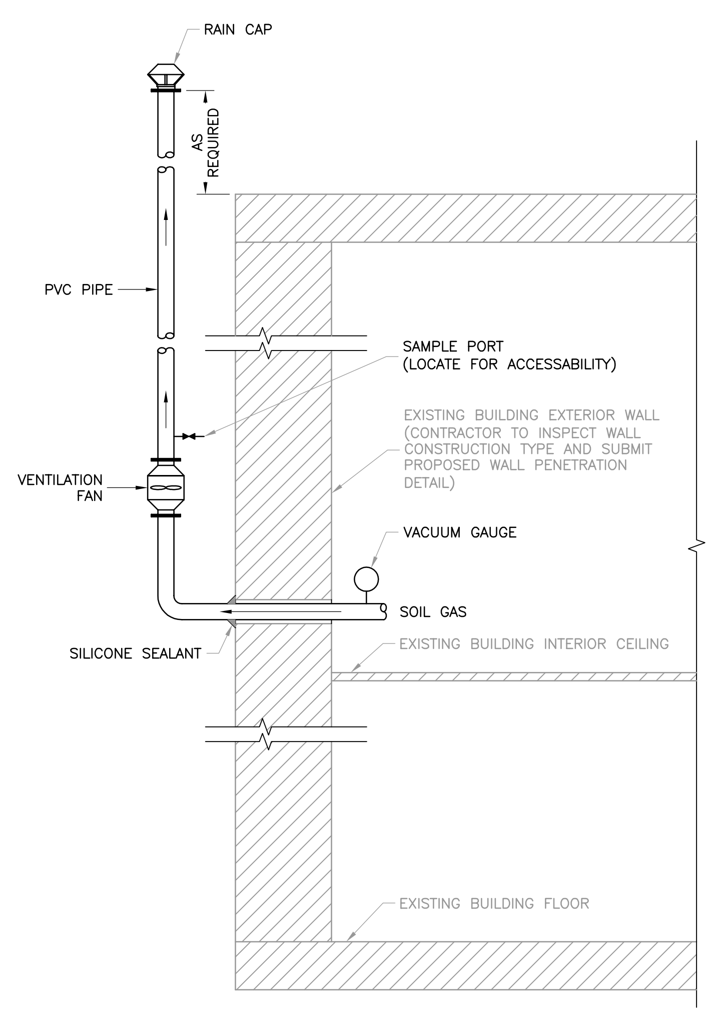
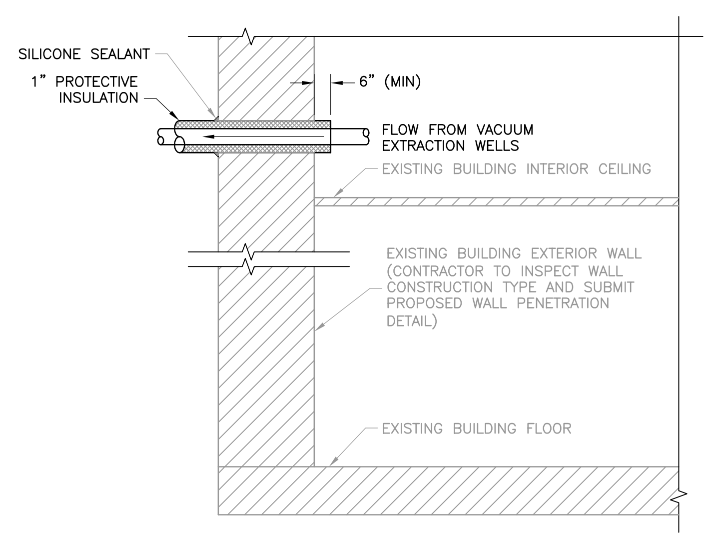


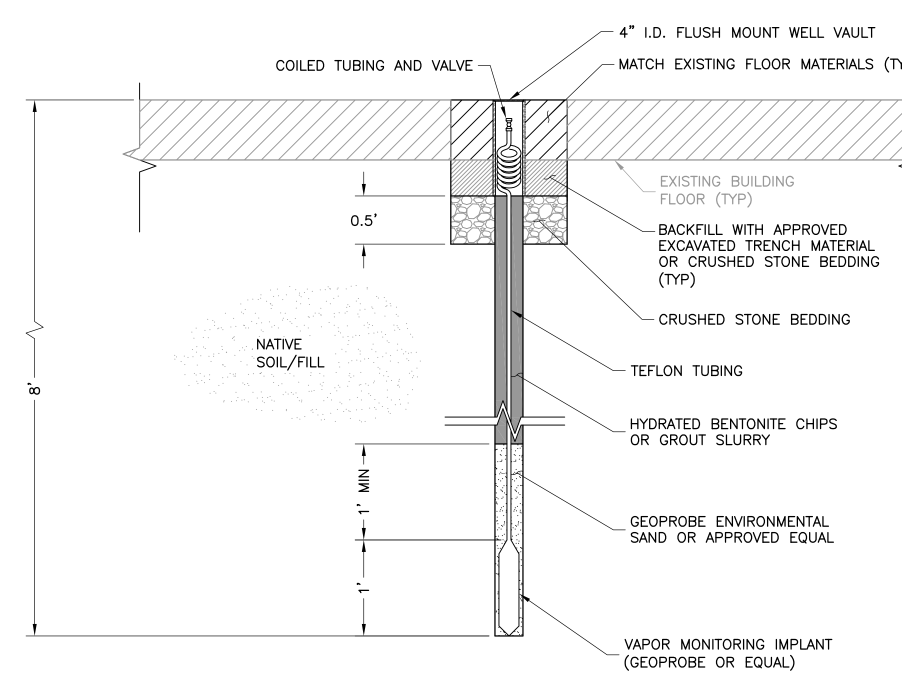
TYPICAL INDIVIDUAL VENTILATION FAN DETAIL (D, C-101 | C-501)

NTS



EXTERIOR BUILDING WALL PENETRATION DETAIL (E, C-101 | C-501)

NTS



VACUUM MONITORING WELL DETAIL (F, C-101 | C-501)

NTS

NO.	DATE	REVISION	BY	APVD
A	02/04/08	DRAFT FOR CLIENT REVIEW	SCP	DEH

DSGN: DEL | DR: RTB | CHK: SCP | APVD: DEH

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CIVIL
CIVIL DETAILS

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DWG	C-501
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FILE NAME: M:\Projects\TEXTRON\GORHAM SITE - Parcel A Sub slab\PASS-C-501.dwg PLOT DATE: Thu, 27 Mar 2008 PLOT TIME: 12:12 PM

EQUIPMENT SYMBOLS

	CENTRIFUGAL PUMP
	SUBMERSIBLE PUMP
	ROTARY LOBE VACUUM PUMP
	LIQUID RING VACUUM PUMP
	WELL PUMP
	METERING PUMP
	AIR ACTUATED DIAPHRAGM PUMP
	FAN OR BLOWER
	MIXER OR AGITATOR
	AIR INTAKE FILTER
	AIR COMPRESSOR
	PROGRESSIVE CAVITY PUMP

EQUIPMENT ABBREVIATIONS

AC	AIR COMPRESSOR
AD	AIR DRYER
B	BLOWER
BL	BOILER
C	CLARIFIER
E	EDUCTOR
EW	EXTRACTION WELL
F	FILTER
FP	FILTER PRESS
H	HEATER
LC	LIQUID CARBON
M	MIXER
MP	METERING PUMP
OC	ORGANIOCLAY
P	PUMP
S	SEPARATOR
SA	SAMPLE VALVE
SC	SCRUBBER
ST	STACK
T	TANK
TO	THERMAL OXIDIZER
VC	VAPOR CARBON
WS	WATER SOFTENER

VALVE AND ACTUATOR SYMBOLS

	GATE VALVE OR ANY IN-LINE BLOCK VALVE NOT IDENTIFIED BY TYPE		PLUG VALVE
	GLOBE VALVE		HAND ACTUATOR
	CHECK VALVE		DIAPHRAGM ACTUATOR
	BALL VALVE		PRESSURE REGULATOR
	BUTTERFLY VALVE		BACK PRESSURE REGULATOR
	BALL VALVE NORMALLY CLOSED		CYLINDER ACTUATOR
	SLIDE GATE VALVE	M	MOTOR
	NEEDLE VALVE	S	SOLENOID
	IN-LINE PRESSURE RELIEF VALVE		
	NORMALLY CLOSED VALVE		
	DIAPHRAGM VALVE		
	PINCH VALVE		
	THREE WAY VALVE		
	FOUR WAY VALVE		
	ANGLE GLOBE VALVE		
	PRESSURE RELIEF VALVE		
	VACUUM RELIEF VALVE		
	PRESSURE RELIEF VALVE WITH DRIP PAN		
	AIR RELIEF VALVE		
	HOSE STATION		

FITTING SYMBOLS

	Y-STRAINER
	SHOWER
	SEWER OR DRAIN
	EXPANSION JOINT
	ORIFICE PLATE
	PULSATION DAMPENER
	REDUCER
T	STEAM TRAP
	FILTER STRAINER
	RUPTURE DISC (PRESSURE)
	RUPTURE DISC (VACUUM)
	HOSE COUPLING
	QUICK CONNECT HOSE COUPLING
	SIGHT GLASS
	EDUCTOR
	BACK FLOW PREVENTER
	CALIBRATION COLUMN
	DIAPHRAGM SEAL
	UNION
	FLANGE
	BLIND FLANGE

DATA SYMBOLS

	PIPING MATERIAL SPECIFICATION CHANGE
	VALVE NUMBER
X"-XXX-XXXX	LINE ID PIPING MATERIAL SERVICE DESIGNATION LINE SIZE
P-117	P&ID DWG NUMBER TO WHICH LINE TO CONTINUE P&ID INTERCONNECT REFERENCE

PIPE SERVICE DESIGNATIONS

A	AIR
BR	BACKWASH RECYCLE
BW	BACKWASH
CF	CHEMICAL FEED
CO	CONDENSATE
CW	CITY WATER
CWH	CITY WATER, HOT
DE	DECANT
DR	DRAIN
EF	EFFLUENT
FPW	FIRE PROTECTION WATER
GW	GROUNDWATER
IN	INFLUENT
OF	OVERFLOW
PS	SLUDGE PRESSATE
PW	PROCESS WATER
SAN	SANITARY SEWER
SD	SUMP PUMP
SL	SLUDGE
V	VENT
VA	VAPOR

PIPING MATERIALS DESIGNATIONS

BR	BRASS
CI	CAST IRON
CM	CORRUGATED METAL
COP	COPPER
CP	CORRUGATED POLYETHYLENE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
DI	DUCTILE IRON
GSP	GALVANIZED STEEL PIPE
HDPE	HIGH DENSITY POLYETHYLENE
KR	KYNAR
NY	NYLON
PE	POLYETHYLENE
PP	POLYPROPYLENE
PTFE	POLY TETRA FLUOROTHYELENE (TEFLON)
PVC	POLYVINYL CHLORIDE
RC	REINFORCED CONCRETE
RUB	RUBBER HOSE
SS	STAINLESS STEEL
VC	VITRIFIED CLAY

PIPING LINE SYMBOLS

	NEW PRIMARY FLOW
	ALL OTHER NEW
	TUBE
	SECONDARY CONTAINMENT

INSTRUMENT SYMBOLS

LOCALLY MOUNTED	INSTRUMENTS SHARING COMMON HOUSING	COMPUTER FUNCTION (OPERATOR ACCESS PRIMARY LOCATION)
REAR OF PANEL OR RACK MOUNTED	PROCESS INTERLOCK	COMPUTER FUNCTION (OPERATOR ACCESS AUXILIARY LOCATION)
FRONT OF PANEL MOUNTING (PRIMARY LOCATION)	SHARED DISPLAY FUNCTION (BLIND)	PLC LOGIC FUNCTION (BLIND)
FRONT OF PANEL MOUNTING (AUXILIARY LOCATION)	SHARED DISPLAY FUNCTION (OPERATOR ACCESS PRIMARY LOCATION)	PLC LOGIC FUNCTION (OPERATOR ACCESS PRIMARY LOCATION)
ALARM ACTIVATED LIGHT	SHARED DISPLAY FUNCTION (OPERATOR ACCESS AUXIILIARY LOCATION)	PLC LOGIC FUNCTION (OPERATOR ACCESS AUXHILIARY LOCATION)
ALARM ACTIVATED HORN	COMPUTER FUNCTION (BLIND)	H/O/A NOTE HS FUNCTIONAL IDENTIFICATION 24 INSTRUMENT/LOOP NUMBER
ROTAMETER		

INSTRUMENTATION IDENTIFICATION LETTERS

	FIRST-LETTER		SUCCEEDING-LETTERS		
SYMBOL	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	–	ALARM	–	–
B	BURNER, COMBUSTION	–	–	–	–
C	–	–	–	CONTROL	–
D	–	DIFFERENTIAL	–	–	–
E	VOLTAGE	–	SENSOR (PRIMARY ELEMENT)	–	–
F	FLOW RATE	RATIO (FRACTION)	–	–	–
G	–	–	GLASS, VIEWING DEVICE	–	–
H	HAND	–	–	–	HIGH
I	CURRENT (ELECTRICAL)	–	INDICATE	–	–
J	POWER	SCAN	–	–	–
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE	–	CONTROL STATION	–
L	LEVEL	–	LIGHT	–	LOW
M	–	MOMENTARY	–	–	MIDDLE, INTERMEDIATE
N	–	–	–	–	–
O	–	–	ORIFICE, RESTRICTION	–	–
P	PRESSURE, VACUUM	–	POINT (TEST) CONNECTION	–	–
Q	QUANTITY	INTEGRATE, TOTALIZE	–	–	–
R	RADIATION	–	RECORD	–	
S	SPEED, FREQUENCY	SAFETY	–	SWITCH	–
T	TEMPERATURE	–	–	TRANSMIT	–
U	MULTIVARIABLE	–	MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS, VACUUM	–	–	VALVE, DAMPER, LOUVER	–
W	WEIGHT, FORCE	–	WELL	–	–
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS	–	RELAY, COMPUTE, CONVERT	–
Z	POSITION, DIMENSION	Z AXIS	–	DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	–

INSTRUMENT LINE SYMBOLS

	CONNECTION TO PROCESS OR INSTRUMENT IMPULSE LINE
	INSTRUMENT PNEUMATIC SIGNAL LINE (3-15 PSIG UNLESS NOTED OTHERWISE)
	INSTRUMENT ELECTRONIC SIGNAL LINE (CURRENT OR VOLTAGE AS NOTED ON SPEC SHEETS)
	FIELD TUBING OR CAPILLARY FOR THERMAL ELEMENTS AND PRESSURE SEALS
	INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
	UNGUIDED ELECTROMAGNETIC OR SONIC SIGNAL
	HEAT TRACED LINE

INSTRUMENTATION DESIGNATIONS

A/B	SELECTOR SWITCH
A/M	AUTO/MANUAL
COMB.	COMBUSTIBLES
DO	DISSOLVED OXYGEN
ES	EMERGENCY STOP
F/R	FORWARD/REVERSE
H/O/A	HAND/OFF/AUTO
H_2S	HYDROGEN SULFIDE
NH_3	AMMONIA
O_2	OXYGEN CONCENTRATION
O/C	OPEN CLOSE
OL	MOTOR OVERLOAD TRIP
O/O	ON OR OFF
ORP	OXYGEN REDUCTION POTENTIAL
pH	HYDROGEN ION CONCENTRATION
SO_2	SULFUR DIOXIDE
S/S	START STOP
S	START
TU	TURBIDITY

NOTE:

INSTRUMENT DESIGNATIONS BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARD S5.1.

NO.	DATE	DSGN	DR	CHK	DEL
A	02/04/08	RTB			

DRAFT FOR CLIENT REVIEW

	SCP	APVD	DEH
REVISION	BY	APVD	DEH

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PIPING & INSTRUMENTATION DIAGRAM LEGEND

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PROJ	3650050041
DWG	D-001
SHEET	4 OF 5

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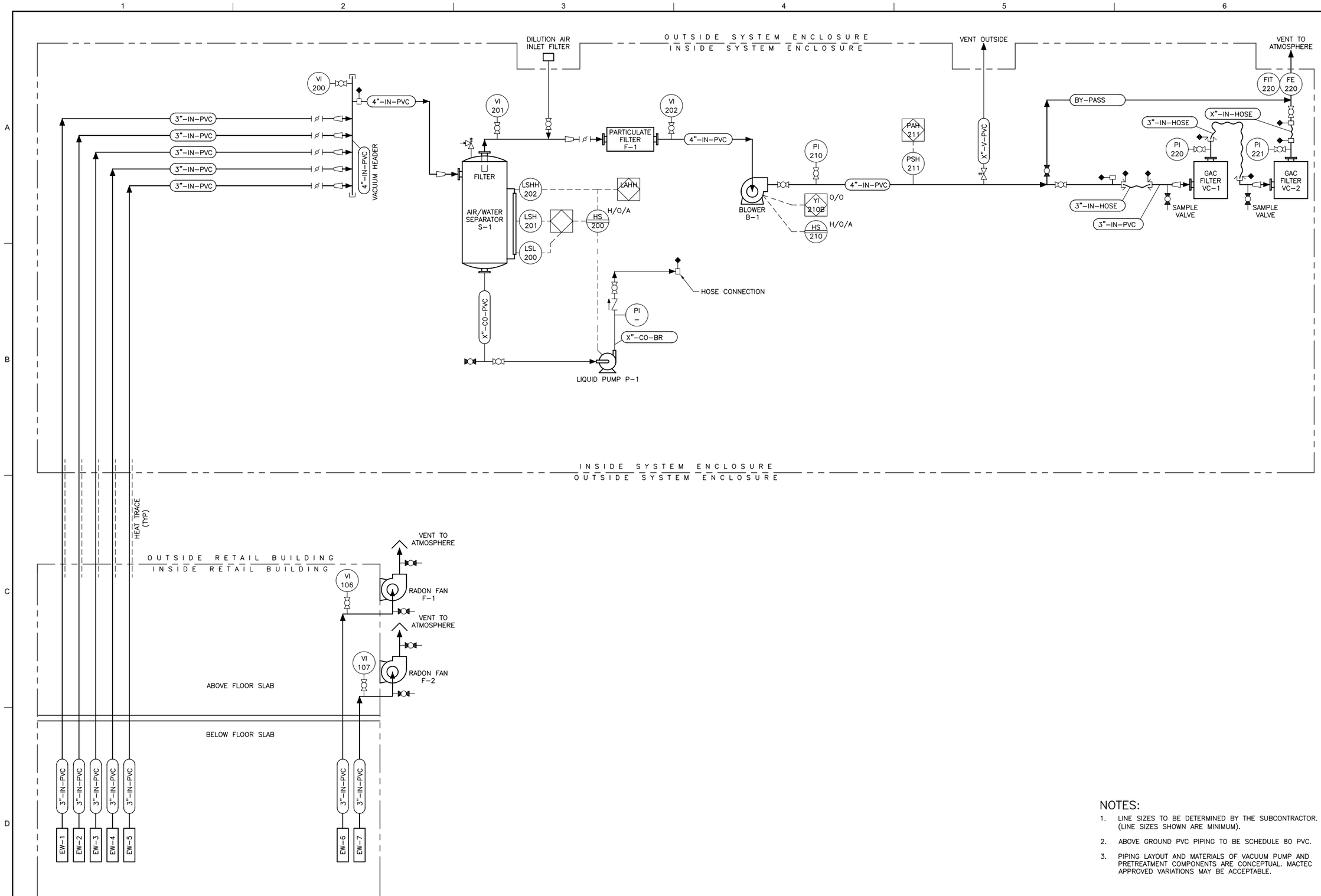

NOTES:

1. LINE SIZES TO BE DETERMINED BY THE SUBCONTRACTOR. (LINE SIZES SHOWN ARE MINIMUM).
2. ABOVE GROUND PVC PIPING TO BE SCHEDULE 80 PVC.
3. PIPING LAYOUT AND MATERIALS OF VACUUM PUMP AND PRETREATMENT COMPONENTS ARE CONCEPTUAL. MACTEC APPROVED VARIATIONS MAY BE ACCEPTABLE.

NO.	DATE	DSGN	DR	CHK	DEL
A	02/04/08	RTB			

DRAFT FOR CLIENT REVIEW

REVISION

SCP	DEH	APVD
BY	APVD	DEH
SCP	APVD	

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DATE	
PROJ	3650050041
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SHEET	5 OF 5

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