

CONTRACT NO. 50-4441-D
WASTEWATER TREATMENT SYSTEM
WALNUT CREEK
ALL PHASES
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

TYPE OF BUILDING	RESIDENTIAL
NUMBER OF UNITS	160
NUMBER OF S.H.C.'s	149
NUMBER OF W.H.C.'s	N/A (THERE WILL BE A WELL ON EACH INDIVIDUAL LOT)
DRAINAGE AREA	N/A
TREATMENT PLANT	COMMUNITY DRAINFIELD

GENERAL NOTES

PART I

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED. WASTEWATER TREATMENT PLANS ARE BASED UPON THE SITE DEVELOPMENT PLANS DESIGNED BY GLW PA.
- THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS No. 28FB AND No. 35A2. ALL VERTICAL CONTROLS ARE BASED ON NAVD '29.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK ON THESE PLANS:

AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-850-4620
BGE (UNDER GROUND DAMAGE CONTROL)	410-685-1400/410-291-460
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE C	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033 / 410-224-9210
- TREES AND SHRUBS WITHIN THE CONSTRUCTION AREA TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-2450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(g) OF THE HOWARD COUNTY CODE.
- PRIOR TO INSTALLATION, A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED TO REVIEW THE INSTALLATION. THE ON-SITE SEWAGE DISPOSAL SYSTEM MUST BE PROFESSIONALLY STAKED FOR THE MEETING. THE MEETING SHALL INCLUDE:

A. MICHAEL DAVIS (410) 313-1771
HOWARD COUNTY DEPARTMENT OF HEALTH
B. BARRY GLOITFELY (410) 537-4156
MARYLAND DEPARTMENT OF THE ENVIRONMENT
C. BECCY KUGEL (410) 313-2723
DEPARTMENT OF PUBLIC WORKS, BUREAU OF UTILITIES
D. ON-SITE DISPOSAL SYSTEM INSTALLATION CONTRACTOR
E. GENERAL CONTRACTOR FOR THE PROJECT
F. MICHAEL HAUFLE, SAIC (410) 876-0280

ENGINEER THAT DESIGNED THE SYSTEM.
NOTE: A MINIMUM OF FIVE DAYS NOTICE MAY BE REQUIRED TO SCHEDULE THE MEETING. ANY CHANGES TO THE APPROVED PLAN MUST BE PRESENTED TO THE DEPARTMENT OF HEALTH, MARYLAND DEPARTMENT OF THE ENVIRONMENT, AND THE DEPARTMENT OF PUBLIC WORKS (PUBLIC WORKS MANAGED SYSTEM) BY THE ENGINEER - MICHAEL HAUFLE (410) 876-0280

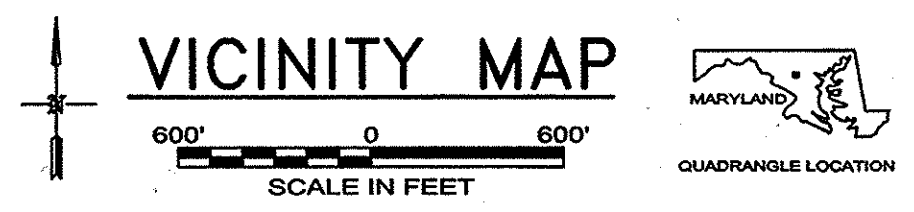
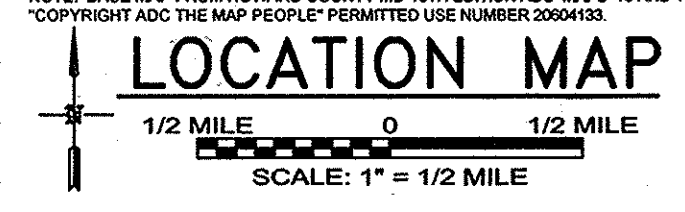
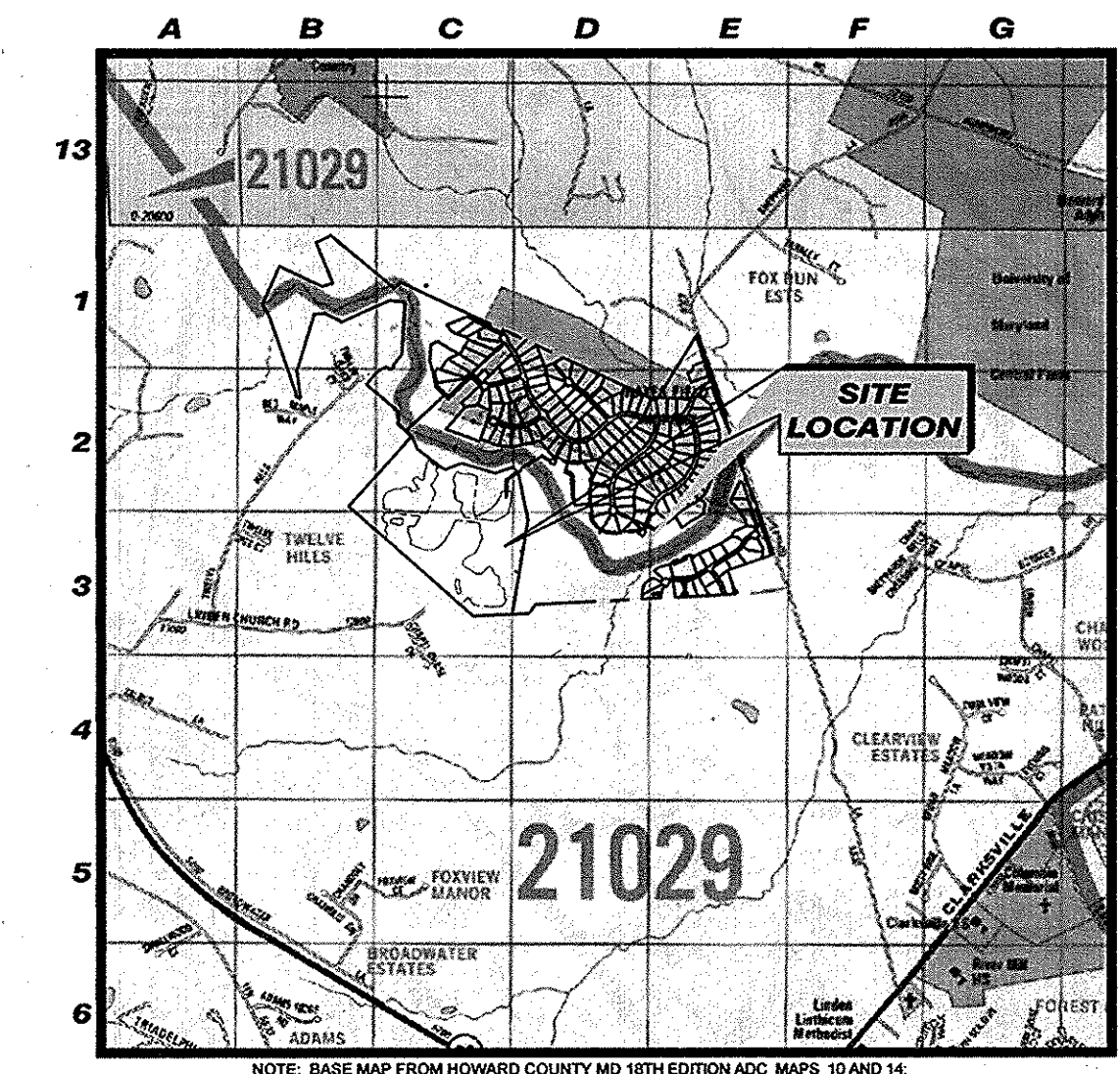
PRIOR TO INSTALLATION OF ANY COMPONENT OF THE SYSTEM, PROPER PERMITS MUST BE OBTAINED FROM:
A. DEPARTMENT OF HEALTH, SEPTIC SYSTEM INSTALLATION PERMIT
B. MARYLAND DEPARTMENT, STATE CONSTRUCTION PERMIT

PART II - WATER

- ALL WATER ON THIS SITE IS TO BE PROVIDED BY PRIVATE WELLS ON INDIVIDUAL LOTS.

PART III - SEWER

- LOW PRESSURE SEWER MAINS SHALL BE IN ACCORDANCE WITH CONTRACT NO. 50-4440-D.
- DRAINFIELD TRENCHES AND DISTRIBUTION PIPE LOCATIONS SHALL BE STAKED OUT IN THE LOCATION SHOWN.
- ALL VALVE BOXES AND VALVE VAULTS SHALL BE FINISHED AT THE SURFACE WITH FRAME AND GRAVEL.



INDEX OF DRAWINGS		
SHT NO.	SHT ID	DESCRIPTION
1	G01	TITLE SHEET
2	G02	GENERAL DESIGN SITE PLAN & PROCESS FLOW DIAGRAM
3	G03	EXISTING SITE CONDITIONS
4	G04	P&ID - TREATMENT SYSTEM
5	G05	P&ID - DOSING SYSTEM
6	G06	P&ID - BUILDING COMPONENTS & LEGEND
7	G07	DRAINFIELD DESIGN INFORMATION
8	C01	DRAINFIELD TRENCH PLAN
9	C02	TRENCH SECTIONS AND DETAILS
10	C03	TREATMENT SYSTEM SITE PLAN
11	M01	SBR TREATMENT SYSTEM SECTIONS - This Sheet Removed
12	M02	SYSTEM DETAILS
13	A01	CHEMICAL & BLOWER BUILDING PLAN LAYOUT

NOTE: ISSUANCE OF A HOWARD COUNTY SEPTIC SYSTEM INSTALLATION PERMIT IS SUBJECT TO REVIEW AND APPROVAL BY MARYLAND DEPARTMENT OF THE ENVIRONMENT. SIGNATURE OF THIS PLAN DOES NOT GUARANTEE LOT YIELD OR CONFIGURATION, CHANGES TO LOT YIELD, LOT CONFIGURATION, WELL BOX LOCATIONS OR SHARED SEPTIC SYSTEM DESIGN BASED ON MARYLAND DEPARTMENT OF THE ENVIRONMENT'S REVIEWS OF THE GROUNDWATER APPROPRIATIONS PERMIT OF THE SHARED SEPTIC SYSTEM WILL REQUIRE CHANGES TO THIS PLAN THAT ARE SUBJECT TO NORMAL HEALTH DEPARTMENT REVIEW TIMES.

QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
3W x 4H DRAINFIELD TRENCHES	39,000 L.F.	39,000 L.F.	N/A	Level Land, Inc
1/2" PVC EMITTER LINES	39,000 L.F.	39,000 L.F.	Pvc Dosing	Netafim Bibline
2" PVC CELL MAINS	6,500 L.F.	6,500 L.F.	PVC	Charlotte Pipe
2" PVC ZONE MAINS	6,000 L.F.	6,000 L.F.	PVC	Charlotte Pipe
2" PVC RETURN LINES	6,000 L.F.	6,000 L.F.	PVC	Charlotte Pipe
SBR TREATMENT PLANT	1 EACH	1 Each	SBR/Gutters	Horne Concrete Construction
DOSING PUMP SYSTEMS	4 EACH	4 Each	Submersible	Goulds
TREATMENT BUILDING	1 EACH	1 Each	Pole Structure	Free Spirited Contractors

NAME OF UTILITY CONTRACTOR: Utilities Unlimited

SURVEY AND DRAFTING DIV. CHECKBOX: AS-BUILT DATE: 11/23/15

FINAL PLAN REFERENCE F-07-076

DEVELOPER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS PLAN AND SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 HOCO DESIGN MANUAL SPECIFICATIONS AND DRAWINGS FOR SEDIMENT AND EROSION CONTROL (S&EC). ALL RESPONSIBLE CONSTRUCTION PERSONNEL WILL HAVE AN MDE S&EC TRAINING CERTIFICATE. I AUTHORIZE PERIODIC ON-SITE INSPECTION BY HOCO S.C.D.

[Signature] 1/25/08
SIGNATURE OF DEVELOPER DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. NATURAL RES. CONSRV. SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 1/24/08
HOWARD S.C.D. DATE

HEALTH DEPARTMENT
HOWARD COUNTY, MARYLAND

[Signature] 1/22/08
HEALTH OFFICER DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1/16/08
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature] 1/20/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



1129 Business Parkway South; Suite 10
Westminster, Maryland 21157
(410) 876-0280

CONTRACT NO. 50-4441-D
WASTEWATER TREATMENT SYSTEM
WALNUT CREEK

ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

Verify Scale
THIS BAR IS ONE INCH ON ORIGINAL DRAWING
0" = 1" = 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



no.	description	date	by	approved
7	AS-Built	11/23/15	MDS	MDH
6	FINAL DESIGN (MYLAR SUBMITTAL)	01/03/08	MDS	MDH
5	FINAL DESIGN	09/28/07	MDS	MDH
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0	CONCEPT DESIGN	04/17/06	MDS	MDH

WALNUT CREEK (BASSLER SITE)
HOWARD COUNTY, MARYLAND

WASTEWATER TREATMENT SYSTEM

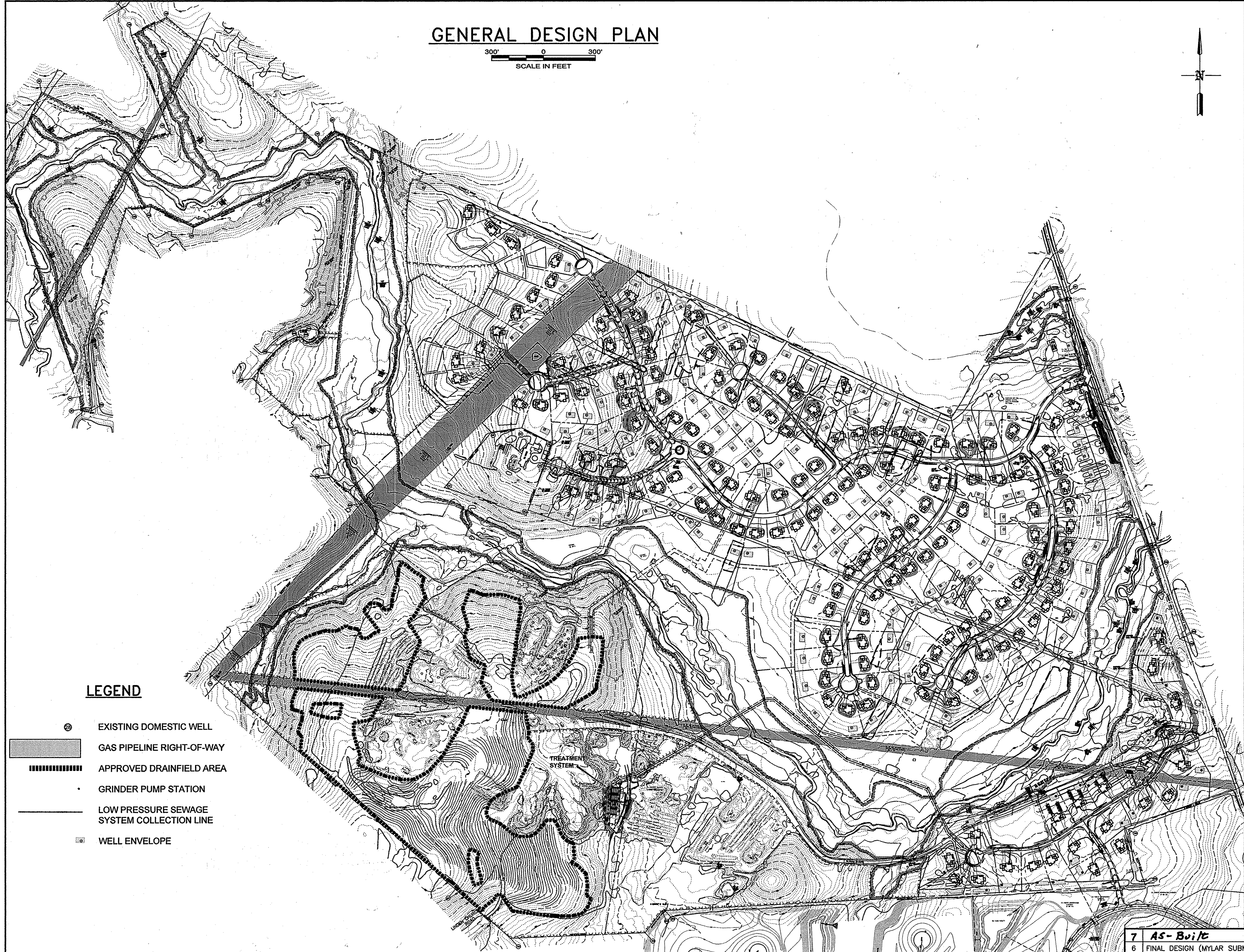
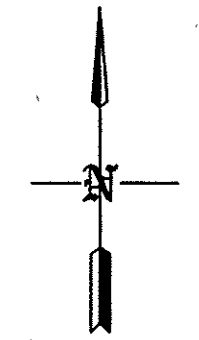
TITLE SHEET

sheet no. **G01**
01 of 13

date 12/24/05 AS NOTED file no. 8095-G01.DWG
job no. 01-1633-00-8095-007

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GENERAL DESIGN PLAN



LEGEND

- EXISTING DOMESTIC WELL
- GAS PIPELINE RIGHT-OF-WAY
- APPROVED DRAINFIELD AREA
- GRINDER PUMP STATION
- LOW PRESSURE SEWAGE SYSTEM COLLECTION LINE
- WELL ENVELOPE

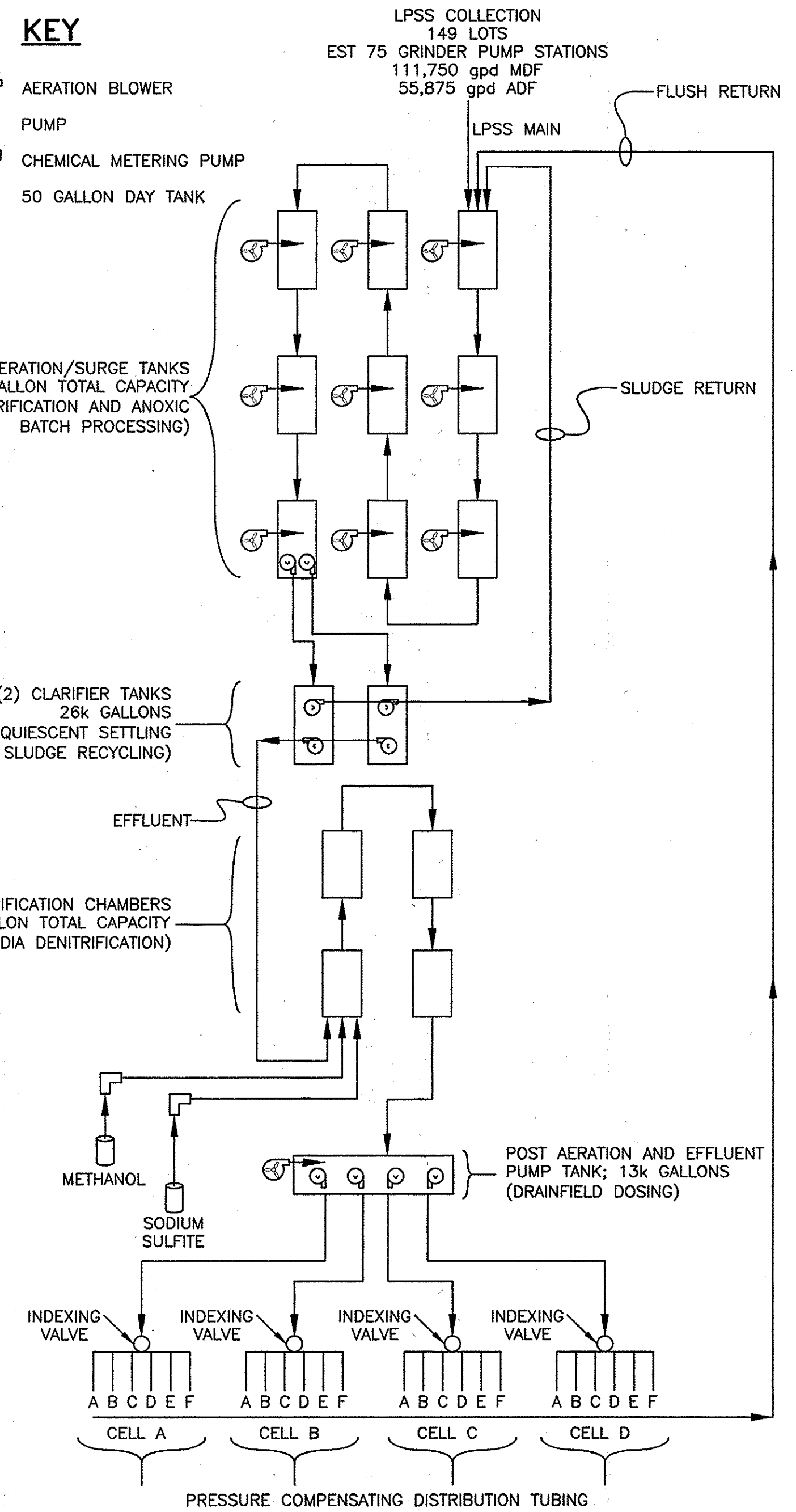
KEY

- AERATION BLOWER
- PUMP
- CHEMICAL METERING PUMP
- 50 GALLON DAY TANK

(9) AERATION/SURGE TANKS
116k GALLON TOTAL CAPACITY
(NITRIFICATION AND ANOXIC BATCH PROCESSING)

(2) CLARIFIER TANKS
26k GALLONS
(4 HR QUIESCENT SETTLING AND SLUDGE RECYCLING)

(4) DENITRIFICATION CHAMBERS
52k GALLON TOTAL CAPACITY
(FIXED MEDIA DENITRIFICATION)



PROCESS FLOW DIAGRAM

- SBR = SEQUENTIAL BATCH REACTOR TREATMENT
- MDF = MAXIMUM DAILY FLOW
- ADF = AVERAGE DAILY FLOW
- gpd = GALLONS PER DAY
- LPSS = LOW PRESSURE SEWER SYSTEM

Refer to Sheet 4A

no.	description	date	by	approved
7	AS- Buile	11/23/15	MDS	MDH
6	FINAL DESIGN (MYLAR SUBMITTAL)	01/03/08	MDS	MDH
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0	CONCEPT DESIGN	04/17/06	MDS	MDH

client
WALNUT CREEK (BASSLER SITE)
HOWARD COUNTY, MARYLAND

title
**WASTEWATER TREATMENT SYSTEM
GENERAL DESIGN PLAN &
PROCESS FLOW DIAGRAM**

sheet no.
G02
02 of 13

drawn
MDS

checked
MRK

designed
MDH

approved
N/A

date
12/24/05

job no.
01-1633-00-8095-007

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DEPARTMENT OF
PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Stah C. G...
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF
PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION

SAIC
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**WASTEWATER TREATMENT SYSTEM
WALNUT CREEK**
ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

Verify Scale
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DRAWING
0 1"

IF NOT ONE INCH ON
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SCALES ACCORDINGLY

STATE OF MARYLAND
Professional Seal
Mark W. King
1/3/08



LEGEND

- APPROVED DRAINFIELD AREA
- WATER TABLE ELEVATION; IN FEET MSL (JANUARY 2005)
- MW-3 MONITOR WELL LOCATION
- ⊙ TEST PIT (PASSED)
- TEST PIT (FAILED)

100' 0 100'
SCALE IN FEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Stuart C. Coan
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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Mark W. Knudsen
1/3/08

7	AS-BUILT	1/18/08	MDS	MDH
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no.	description	date	by	approved
	revisions			

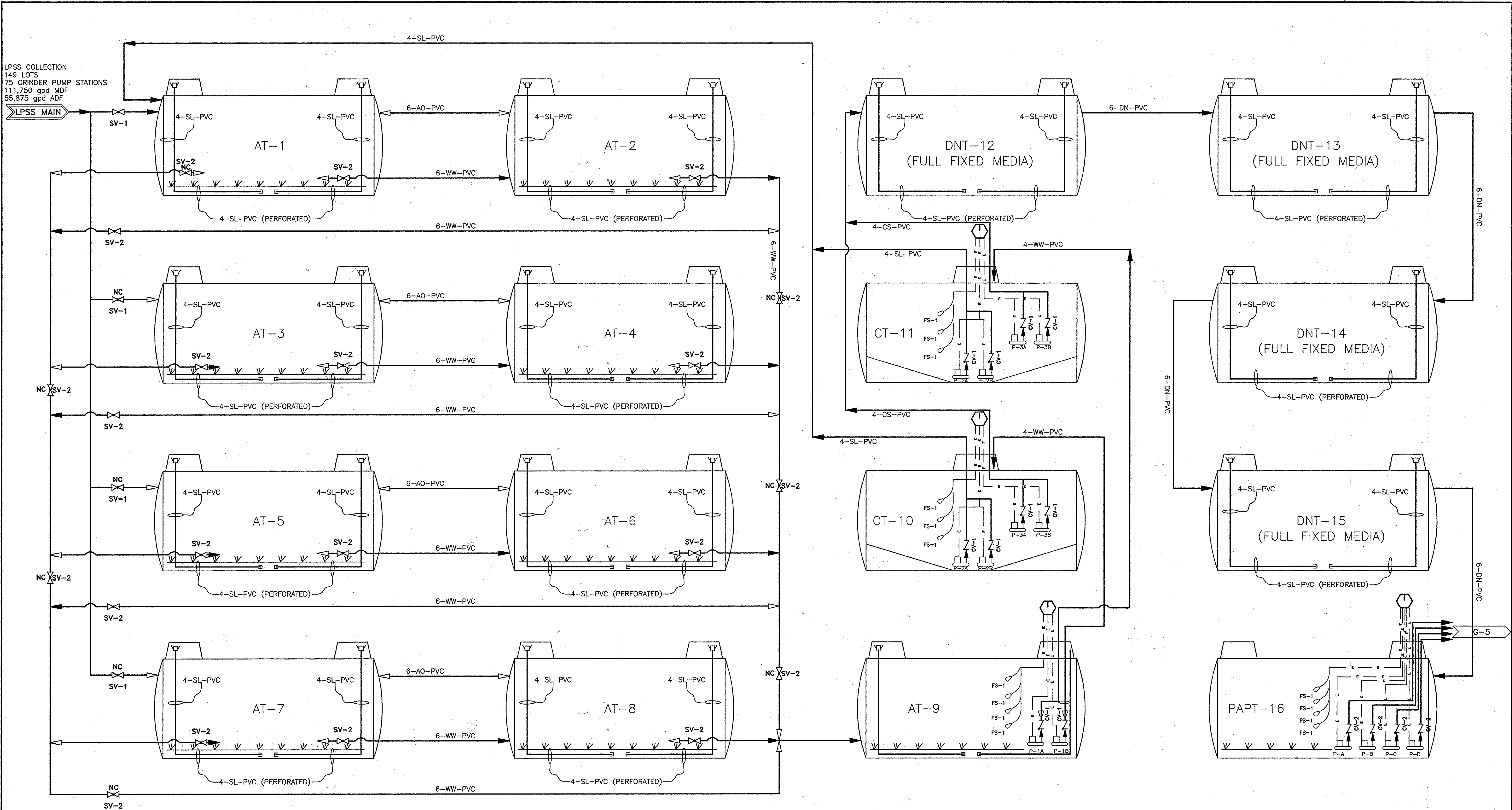
WALNUT CREEK (BASSLER SITE)
HOWARD COUNTY, MARYLAND

WASTEWATER TREATMENT SYSTEM
EXISTING SITE CONDITIONS

sheet no. G03
03 of 13

12/24/05 AS NOTED
01-1633-00-8095-007

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From Science to Solutions



Refer to Sheet 4A

DEPARTMENT OF
PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John C. Cooney
CHIEF, BUREAU OF UTILITIES

DATE

DEPARTMENT OF
PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

John C. Cooney
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE

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Mark W. King
1/3/08

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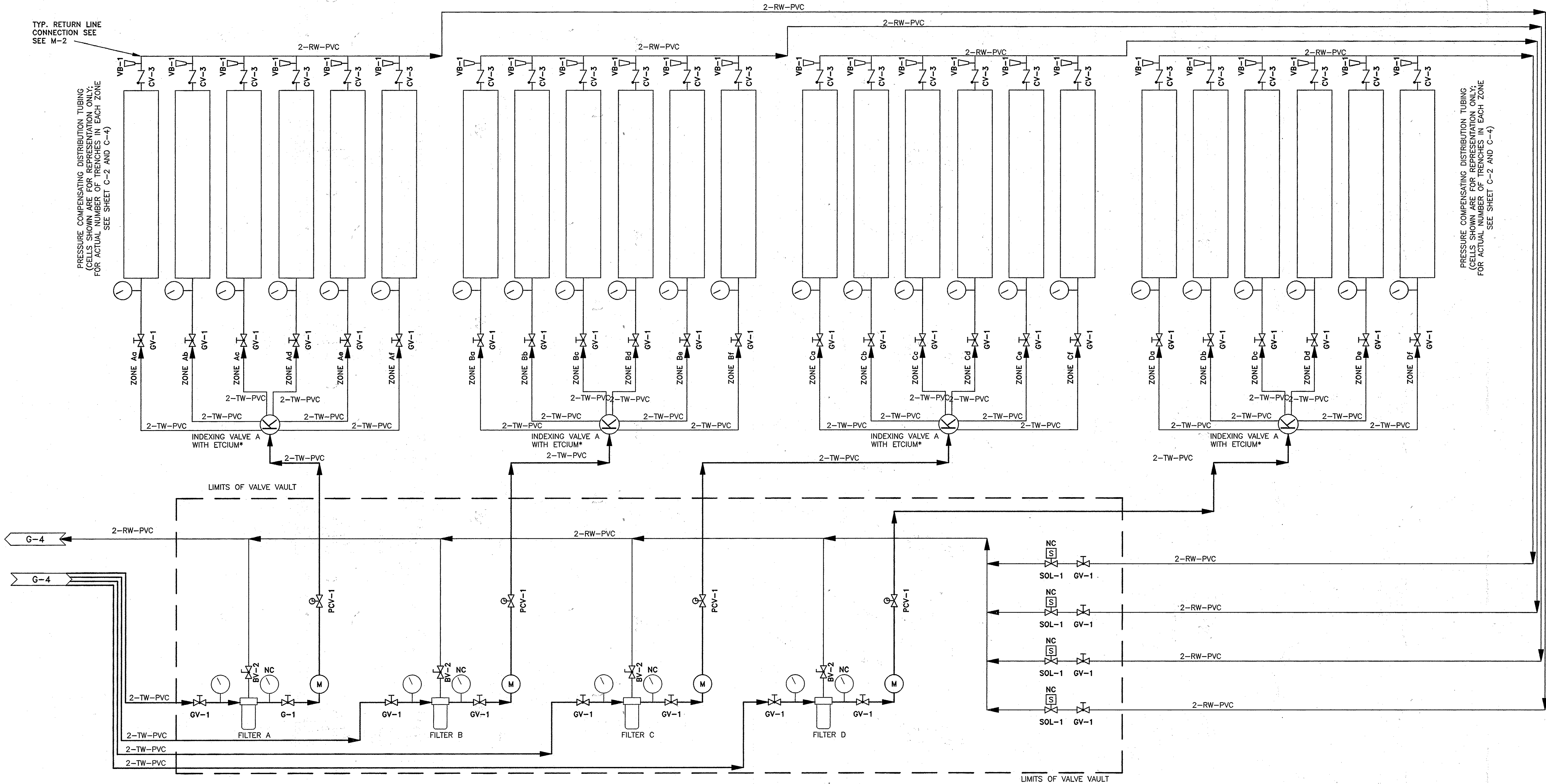
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1	revisions			

Client	WALNUT CREEK (BASSLER SITE)
Location	HOWARD COUNTY, MARYLAND
Project	WASTEWATER TREATMENT SYSTEM
Sheet No.	G04
Scale	1.2/24/05 NOT TO SCALE
File No.	8095-G04-G07.DWG
Job No.	01-1633-00-8095-007
Drawn	MDS
Checked	MRK
Designed	MDH
Client	N/A
Scale	N/A
File No.	N/A
Job No.	N/A

TYP. RETURN LINE CONNECTION SEE M-2

PRESSURE COMPENSATING DISTRIBUTION TUBING (CELLS SHOWN ARE FOR REPRESENTATION ONLY; FOR ACTUAL NUMBER OF TRENCHES IN EACH ZONE SEE SHEET C-2 AND C-4)

PRESSURE COMPENSATING DISTRIBUTION TUBING (CELLS SHOWN ARE FOR REPRESENTATION ONLY; FOR ACTUAL NUMBER OF TRENCHES IN EACH ZONE SEE SHEET C-2 AND C-4)



*ETCIVM ENGINEERING TECHNOLOGIES CORP. INDEXING VALVE MONITOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Stephen C. Gorman
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
John A. Foster
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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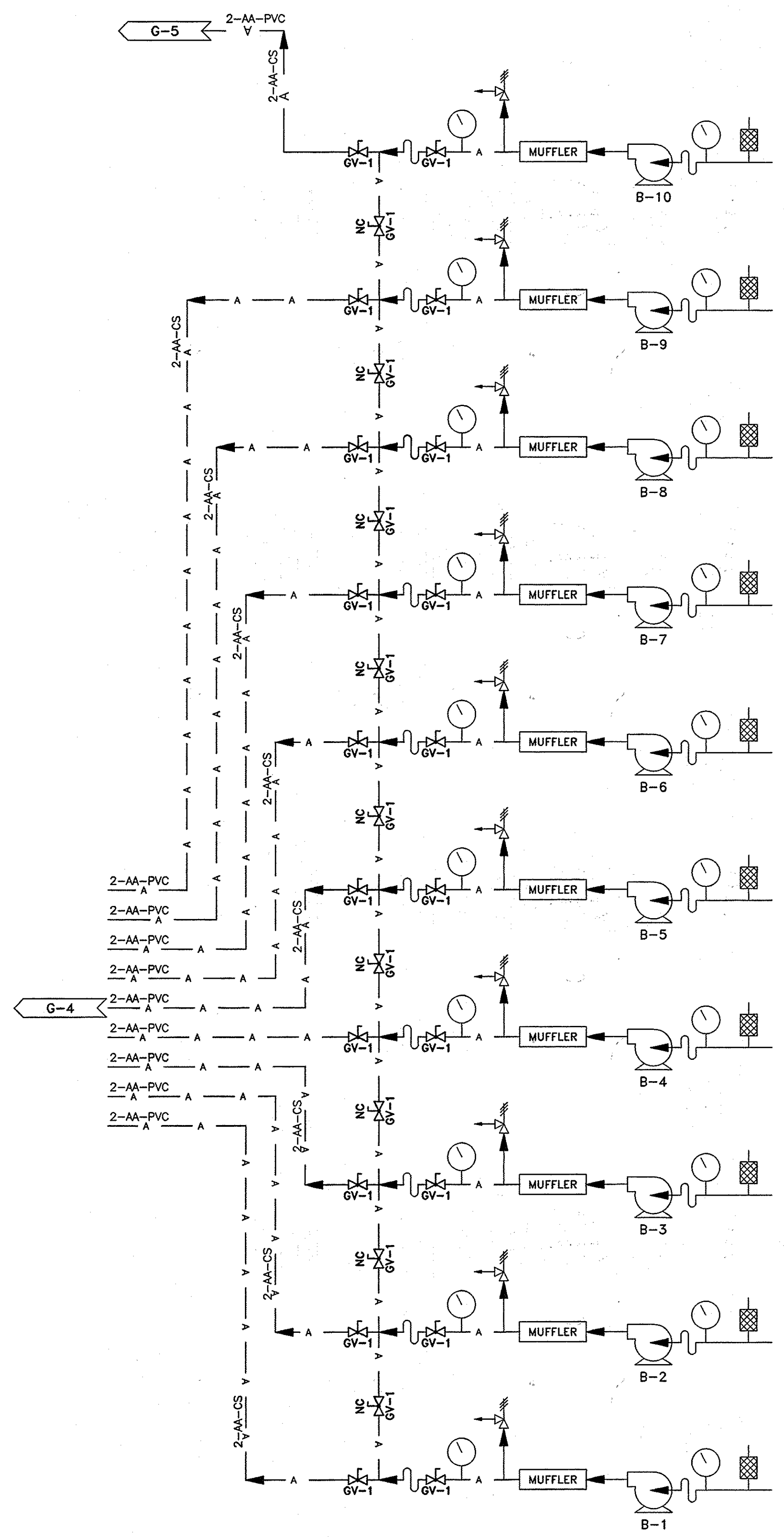
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**WASTEWATER TREATMENT SYSTEM
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Professional Seal
Mark W. Kuidor
1/3/08

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Client: WALNUT CREEK (BASSLER SITE)		Project: 8095-G04-G07.DWG
Location: HOWARD COUNTY, MARYLAND		Sheet: G05 of 13
Title: WASTEWATER TREATMENT SYSTEM P&ID - DOSING SYSTEM		
Drawn: MDS	Struct: N/A	Date: 12/24/05
Checked: MRK	Mech: N/A	Scale: AS NOTED
Designed: MDH	Elec: N/A	Job No: 01-1633-00-8095-007
Civil: N/A	Rev/Iss: MRK	



LEGEND

LINE CODE

- LINE SIZE
- LINE DESIGNATION
- PIPE MATERIAL OF CONSTRUCTION

CS CARBON STEEL
DIP/MJ DUCTILE IRON PIPE/MECHANICAL JOINT
DIP/F DUCTILE IRON PIPE/FLANGED
DIP/G DUCTILE IRON PIPE/GROOVED JOINT
CPVC CHLORINATED POLYVINYL CHLORIDE PIPE
PVC POLYVINYL CHLORIDE
PE POLYETHYLENE
C COPPER
SS STAINLESS STEEL

AA AERATION AIR
BP BYPASS
CS CLARIFIER SUPERNATANT
D DRAIN
DN DENITRIFIED
IN INFLUENT
M METHANOL
PW POTABLE WATER
OF OVERFLOW
RW RETURN WASTE WATER (FLUSHING)
SL SLUDGE RETURN
SS SODIUM SULFITE
TSL THICKENED SLUDGE
TW TREATED WASTEWATER
V VENT
WW WASTE WATER

ABBREVIATIONS

ETC/VM ENGINEERING TECHNOLOGIES CORP.
 INDEXING VALVE MONITOR

PROCESS SYMBOLS

- Check Valve
- Gate Valve
- Pressure Control Valve
- Concentric Reducer
- Ball Valve
- Slide Valve
- Pressure Relief Valve
- Normally Closed
- Normally Open
- Float Switch
- Vacuum Breaker
- Indexing Distributing Valve
- Flex Connection
- Blower
- Metering Pump
- Submersible Pump
- Air Diffuser
- Normal Direction of Flow
- Alternative Direction of Flow
- Meter
- Pressure Gauge
- To or from Outside Project Limits
- Continuation to Another Sheet

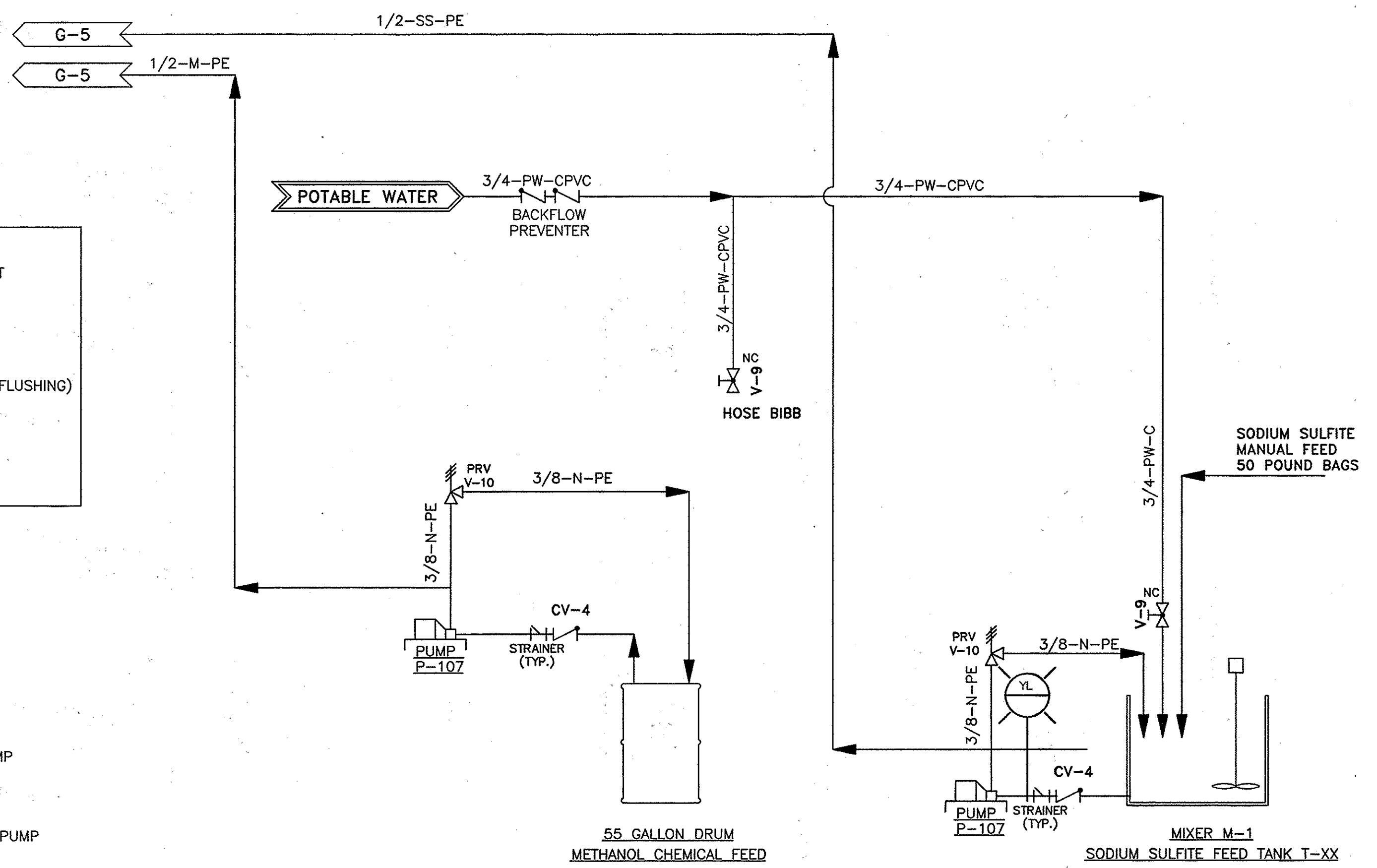
LINE SYMBOLS

- EXISTING
- SECONDARY AND UTILITY LINES
- MAIN PROCESS LINES
- E POWER/CONTROL
- CHANGE IN LINE DESIGNATION
- FUTURE
- AIR LINES

Qd - DESIGN FLOW, GPM
Q - DESIGN AVERAGE FLOW, GPD

ALL VALVES NORMALLY OPEN UNLESS OTHERWISE NOTED

* EQUIPMENT SUPPLIED BY SBR VENDOR



PIPING AND INSTRUMENTATION DIAGRAM

Valves	ID No.	DESCRIPTION	SIZE, MATERIAL, TYPE	QUANTITY	SHEET NO.
	BF-1	BACKFLOW PREVENTOR	3/4-INCH DOUBLE-CHECK VALVE	1	G06
	CV-1	TRANSFER PUMP CHECK VALVE	4-INCH SCH 80 PVC BALL CHECK VALVE	4	G04
	CV-2	DOSING PUMP CHECK VALVE	2-INCH SCH 80 PVC BALL CHECK VALVE	4	G05
	CV-3	RETURN LINE CHECK VALVE	2-INCH SCH 80 PVC SPRING CHECK VALVE	24	G05
	CV-4	CHEMICAL FEED INLET CHECK VALVE	3/8-INCH PE IN-LINE BALL CHECK	2	G06
	K	INDEXING DISTRIBUTING VALVE WITH POSITION MONITOR	K-RAIN 6606 RCN 6 OUTLET/6 ZONE	4	G05
	SV-1	INLET VALVE TO AERATION TANKS	4-INCH SCH 40 PVC SLIDE VALVE	4	G04
	SV-2	AERATION TANK ISOLATION VALVE	6-INCH SCH 40 PVC SLIDE VALVE	21	G04
	SOL-1	FLUSH VALVE	2-INCH SCH 80 PVC SOLENOID VALVE	4	G05
	GV-1	ISOLATION VALVE	2-INCH BRASS GATE VALVE	36	G05
	BV-2	FILTER FLUSH VALVE	1-INCH BRASS BALL VALVE	3	G05
	M	DATA LOGGING FLOWMETER	DATA INDUSTRIAL PADDLE STYLE	4	G04
	V-8	DRAIN VALVE	1/2-INCH BRASS DRAIN VALVE / HOSE BIB	2	G06
	V-9	POTABLE WATER SPIGOT	3/4-INCH BRASS SPIGOT / HOSE BIB	2	G06
	VB-1	VACUUM BREAKER FOR DRAINFIELD FEED	1-INCH SCH 40 PVC	18	G05
	PCV-1	PRESSURE CONTROL VALVE	2-INCH BRASS, ADJUSTABLE	4	G05
	FILTER	DOSE FLUIT FILTER	130 MESH ORIVAL ORG-020-LE	4	G05

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

State C. G. ...
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

...
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

SAC
 From Science to Solutions

1129 Business Parkway South; Suite 10
 Westminster, Maryland 21157
 (410) 876-0280

CONTRACT NO. 50-4441-D
WASTEWATER TREATMENT SYSTEM
WALNUT CREEK

ALL PHASES
 ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

Verify Scale
 THIS BAR IS ONE INCH ON ORIGINAL DRAWING
 0" 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

Professional Seal
Mark ...
 1/3/08

no.	description	date	by	approved	revisions
7	AS-BUILT	11/03/08	MDS	MDH	
6	FINAL DESIGN (MYLAR SUBMITTAL)	01/03/08	MDS	MDH	
5	FINAL DESIGN	09/28/07	MDS	MDH	
4	FINAL DESIGN	08/16/07	DAK	MDH	
3	FINAL DESIGN	06/22/07	DAK	MDH	
2	FINAL DESIGN	05/21/07	DAK	MDH	
1	PRELIMINARY DESIGN	11/02/06	MDS	MDH	
0	CONCEPT DESIGN	04/17/06	MDS	MDH	

WALNUT CREEK (BASSLER SITE)
 HOWARD COUNTY, MARYLAND

WASTEWATER TREATMENT SYSTEM
P&ID - BUILDING
COMPONENTS & LEGEND

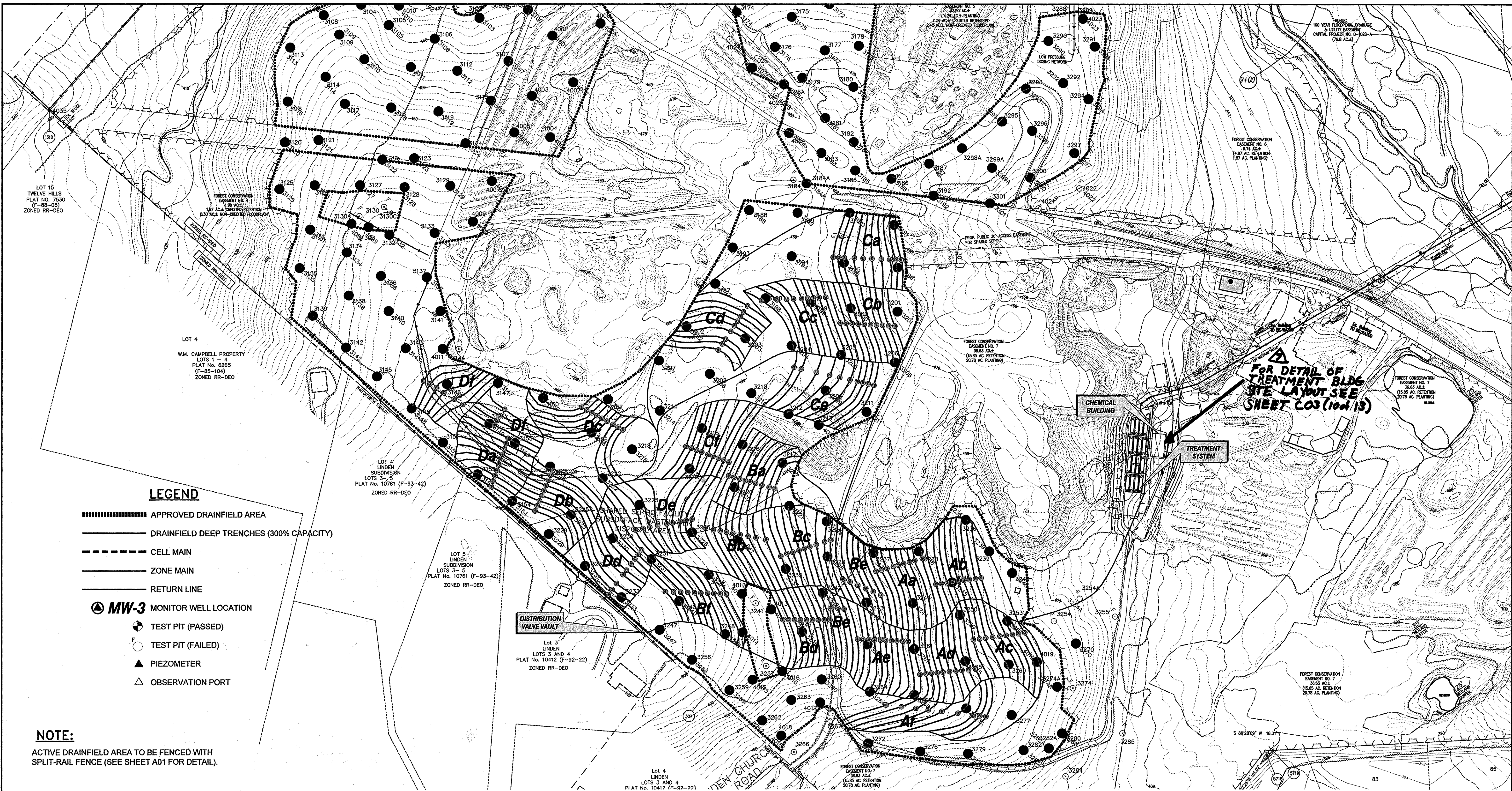
sheet no. **G06** of 13
 06 of 13

drawn: MDS
 checked: MRK
 designed: MDH
 title: 01-1633-00-8095-007

SAC
 From Science to Solutions

Test Pit Evaluations												
Test pit field data (depths in feet)						Design data						
perc site ID	Y	X	ground elev.	total depth	perc rate	perc rate	perc rate	perc rate	perc rate	perc rate	perc rate	
3129	570933	1324560	473.0	12.0	3.5	5.0	3.0	P	6.0	465.0	-1.0	0.5
3144	570581	1324578	488.0	11.5	6.0	5.0	3.0	F	7.5	480.5	-1.5	-2.4
3146	570505	1324553	496.5	13.8	4.0	5.0	7.0	F	9.0	489.5	0.0	1.0
3147	570507	1324663	501.5	13.0	4.0	5.0	14.0	P	9.0	492.5	0.0	1.0
3149	570420	1324545	498.0	13.0	3.5	4.5	5.0	P	8.8	490.2	0.0	1.3
3150	570475	1324760	503.5	12.5	3.0	4.5	3.0	P	8.5	494.0	0.0	1.0
3151	570379	1324545	501.0	11.0	4.0	5.5	2.0	P	7.0	494.0	-2.5	-1.0
3152	570310	1324620	508.0	13.0	4.0	5.0	3.0	P	9.0	499.0	0.0	1.0
3153	570378	1324700	499.0	13.0	3.0	4.0	8.0	P	8.0	491.0	0.0	1.0
3154	570253	1324694	507.0	13.0	3.0	4.0	4.0	P	8.0	499.0	0.0	1.0
3155	570327	1324776	496.5	15.0	3.5	4.5	9.0	P	8.5	491.0	0.0	1.0
3156	570400	1324665	500.5	13.5	3.5	4.2		F	8.2	492.3	0.0	0.7
3157	570472	1324600	503.5	12.5	3.0	3.5	3.0	P	7.5	493.0	0.0	0.5
3185	570666	1325432	478.0	14.0	3.5	4.0	2.0	P	8.0	470.0	0.0	0.5
3186	570948	1325110	470.0	10.0	1.0	2.5	4.0	P	6.0	464.0	-0.5	1.0
3188	570881	1325203	481.0	13.0	3.0	6.0	9.0	P	9.0	472.0	-1.0	0.0
3189	570875	1325308	480.5	13.0	5.0	6.0	7.0	P	9.0	471.5	-1.0	0.0
3190	570875	1325419	476.5	12.0	3.0	3.5	2.5	P	7.5	471.0	0.0	0.5
3191	570849	1325515	467.0	12.5	2.5	3.0	21.0	P	7.0	460.0	0.0	0.5
3192	570812	1325600	468.0	13.0	4.0	4.5	3.0	P	8.0	460.0	0.0	0.5
3193	570800	1325189	480.5	12.5	3.5	4.0	3.0	P	8.0	472.5	0.0	0.5
3194	570781	1325295	481.5	9.5	3.0	4.0	2.0	P	5.5	476.0	-2.5	-1.5
3195	570767	1325407	476.5	14.5	1.0	3.5	8.0	P	7.5	469.0	0.0	2.5
3196	570757	1325323	468.5	13.0	2.5	3.0	2.0	P	7.0	461.5	0.0	0.5
3197	570722	1325130	484.0	10.0	2.5	3.0	2.0	P	6.0	478.0	-1.0	-0.5
3198	570690	1325239	485.0	13.0	4.0	5.0	5.0	P	8.0	477.0	0.0	0.0
3199	570682	1325337	483.0	13.4	4.0	4.5	10.0	P	7.5	476.5	0.0	0.5
3200	570689	1325422	483.0	12.0	3.5	4.0	3.0	P	8.0	476.0	0.0	0.5
3201	570662	1325523	469.0	12.4	3.0	4.0	2.0	P	8.0	461.0	0.0	1.0
3202	570630	1325068	488.0	12.0	4.0	4.5	8.0	P	8.0	480.0	-0.5	0.0
3203	570604	1325195	485.0	13.0	3.0	4.0	2.0	P	8.0	480.5	0.0	1.0
3204	570588	1325295	486.5	15.0	4.0	4.5	4.0	P	8.5	478.0	0.0	0.5
3205	570568	1325402	481.0	13.0	3.0	3.5	6.0	P	7.5	474.0	0.0	0.5
3206	570551	1325517	475.0	14.5	4.0	4.5	4.0	P	8.8	466.2	0.0	0.8
3207	570558	1325189	480.5	12.0	3.5	4.0	3.0	P	8.0	480.0	0.0	0.5
3208	570527	1325119	482.5	9.5	3.0	3.5	9.0	P	5.5	487.0	-2.0	-1.5
3209	570491	1325369	482.5	14.5	3.5	4.5	5.0	P	8.5	474.0	0.0	1.0
3210	570485	1325208	489.0	13.0	4.0	5.0	4.0	P	9.0	480.0	0.0	1.0
3211	570445	1325456	476.0	12.1	5.0	5.5	3.0	P	8.1	487.9	-1.4	-0.9
3212	570443	1325285	483.5	13.0	2.0	4.0	6.0	P	9.0	475.0	0.0	1.0
3213	570400	1325364	478.0	13.0	4.0	5.0	8.0	P	9.0	469.0	0.0	2.0
3214	570400	1325014	493.0	12.0	3.5	4.0	3.0	P	8.0	493.0	-3.3	3.0
3215	570410	1325102	495.5	13.5	4.0	5.5	2.0	P	9.5	486.0	0.0	1.5
3216	570375	1325189	486.0	14.0	3.5	5.5	2.0	P	9.5	476.5	0.0	2.0
3217	570335	1325276	472.0	13.0	4.0	6.0	16.0	P	9.0	463.0	-1.0	1.0
3218	570365	1324952	485.0	14.5	6.0	6.3	7.0	P	10.3	484.7	0.0	0.3
3219	570323	1325075	494.5	12.5	3.0	3.5	4.0	P	7.5	487.0	0.0	0.5
3220	570282	1325172	482.0	14.0	5.0	5.0	23.0	P	9.0	473.0	0.0	0.0
3221	570242	1325230	485.0	14.0	2.5	3.5	13.0	P	9.5	460.0	0.0	0.0
3222	570202	1324989	490.0	13.0	3.0	4.5	3.0	P	8.8	489.7	0.0	1.8
3223	570245	1324968	496.0	13.0	4.0	5.0	26.0	P	9.0	489.0	0.0	1.0
3224	570209	1325371	466.5	14.5	3.5	5.5	30.0	P	9.5	457.0	0.0	2.0
3225	570223	1324820	506.0	12.0	3.5	5.0	3.0	P	8.0	497.0	-1.0	0.5
3226	570185	1325081	488.0	13.0	5.0	6.5	3.0	P	9.0	479.0	-1.5	0.0
3227	570169	1325179	479.0	14.0	5.0	5.5	19.0	P	9.5	469.5	0.0	0.5
3228	570132	1325373	467.0	14.5	4.0	6.5	4.0	P	10.5	456.5	0.0	2.5
3229	570181	1324773	509.0	12.0	3.0	4.5	0.0	P	8.0	501.0	-0.5	1.0
3230	570172	1324911	501.5	13.0	4.0	5.0	3.0	P	9.0	492.5	0.0	1.0

Test Pit Evaluations												
Test pit field data (depths in feet)						Design data						
perc site ID	Y	X	ground elev.	total depth	perc rate	perc rate	perc rate	perc rate	perc rate	perc rate	perc rate	
3231	570127	1324994	496.5	13.0	5.0	5.5	5.0	P	9.0	490.5	-0.5	0.0
3232	570112	1324851	507.0	13.5	5.0	5.5	3.0	P	9.5	497.5	0.0	0.5
3233	570045	1324929	509.0	12.0	4.0	5.0	6.0	P	8.0	497.0	-1.0	0.0
3234	570093	1325117	491.0	11.5	4.0	4.5	4.0	P	7.5	484.5	-1.0	-0.5
3235	570106	1325073	472.5	13.0	3.5	4.5	6.0	P	8.5	464.0	0.0	1.0
3236	570092	1325070	438.0	12.5	6.0	5.5	3.0	P	8.5	427.5	-1.0	-0.5
3237	570140	1325472	456.5	13.5	4.5	5.0	7.0	P	9.0	447.5	0.0	0.5
3238	570144	1325669	447.5	13.0	4.0	4.5	6.0	P	8.5	439.0	0.0	0.5
3239	570144	1325721	433.5	12.0	4.5	5.5	8.0	P	8.0	426.5	-1.5	-0.5
3240	570037	1325054	500.5	12.0	4.0	4.5	3.0	P	8.0	492.5	-0.5	0.0
3242	570055	1325363	489.0	15.0	5.0	5.5	3.0	P	9.5	498.5	0.0	0.5
3243	570033	1325257	463.5	13.0	4.0	4.5	7.0	P	8.5	459.0	0.0	0.5
3244	570032	1325356	443.0	14.5	4.0	4.5	2.0	P	8.5	444.5	0.0	0.5
3245	570077	1325641	452.0	14.0	4.5	5.5	6.0	P	9.5	432.5	0.0	1.0
3246	570097	1325710	430.0	12.0	5.0	5.8	19.0	P	8.0	422.0	-1.8	-1.0
3247	569975	1325011	505.0	11.0	4.0	5.0	2.0	P	7.0	498.0	-2.0	-1.0
3248	569965	1325152	494.0	13.0	4.5	5.5	3.0	P	9.0	486.0	-0.5	0.5
3249	569970	1325318	475.0	14.0	4.5	5.5	4.0	P	9.5	460.0	0.0	1.0
3250	570006	1325657	442.0	12.0	4.0	5.0	4.0	P	8.0	424.0	-1.0	0.0
3251	569979	1325222	491.5	13.5	4.0	4.5	3.0	P	8.0	424.5	0.0	0.5
3252	569994	1325680	424.0	11.0	6.0	6.0		F	7.0	417.5	-3.0	-3.0
3256	569910	1325081	500.0	13.0	4.0	5.0	3.0	P	9.0	491.0	0.0	1.0
3258	569943	1325459	462.0	13.0	5.0	5.5	27.0	P	9.0	453.5	-0.5	0.0
3259	569844	1325162	487.0	14.0	4.0	4.5	3.0	P	8.5	476.5	0.0	0.5
3260	569867	1325361	471.5	14.0	5.0	5.5	20.0	P	9.5	462.0	0.0	0.5
3261	569933	1325559	452.0	13.5	3.5	4.0	4.0	P	8.0	444.0	0.0	0.5
3262	569933	1325780	469.0	14.0	3.5	3.5	3.0	P	8.0	461.5	0.0	0.0
3263	569823	1325295	467.0	13.0	4.0	5.0	3.0	P	9.0	458.0	0.0	1.0
3264	569841	1325464	461.0	14.0	4.0	4.5	3.0	P	8.5	453.0	0.0	0.5
3265	569907	1325669	443.0	13.5	4.0	5.2	5.0	P	9.2	433.8	0.0	1.2
3267	569767	1325308	456.0	14.0	6.0	6.0		F	10.0	446.0	0.0	0.0
3268	569834	1325650	465.5	13.0	3.0	3.5	3.0	P	7.5	446.0	0.0	0.5
3269	569900	1325763	437.0	13.0	3.5	4.5	2.0	P	8.5	429.0	0.0	1.0
3270	569919	1325780	421.5	13.5	4.0	4.5	2.0	P	8.5	413.0	0.0	0.5
3272	569729	1325461	440.0	12.5	4.0	4.5	6.0	P	8.5	435.5	0.0	0.5
3273	569805	1325672	446.0	15.0	5.0	5.0	30.0	P	9.0	437.0	0.0	0.0
3276	569712	1325733	438.0	13.0	4.0	4.5	10.0	P	8.5	429.5	0.0	0.5
3277	569790	1325769	437.0	13.0	4.0	5.0	4.0	P	9.0	428.0	0.0	1.0
3279	569707	1325675	436.5	11.5	5.0	5.0	22.0	P	7.5	429.0	-1.5	-1.5
3280	569751	1325978	421.0	13.5	4.0	4.2	10.0	P	8.2	412.8	0.0	0.2
3282	569734	1325429	429.0	14.0	3.5	4.5	3.0	P	9.0	420.0	0.0	1.5
3300	570951	1325808	444.0	10.0	2.5	3.5	2.0	P	7.5	437.0	0.0	1.0
3301	570895	1325722	444.0	13.0	3.5	4						

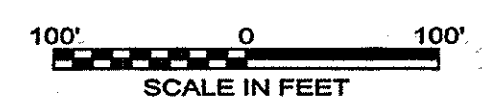


LEGEND

- APPROVED DRAINFIELD AREA
- DRAINFIELD DEEP TRENCHES (300% CAPACITY)
- CELL MAIN
- ZONE MAIN
- RETURN LINE
- ⊙ MW-3 MONITOR WELL LOCATION
- ⊕ TEST PIT (PASSED)
- TEST PIT (FAILED)
- ▲ PIEZOMETER
- △ OBSERVATION PORT

NOTE:
ACTIVE DRAINFIELD AREA TO BE FENCED WITH SPLIT-RAIL FENCE (SEE SHEET A01 FOR DETAIL).

DRAINFIELD TRENCH PLAN



8	AS- Bui/E	11/23/15	MDS	MDH	
7	Revised to Reflect updated Site Plan	03/18/13	MDS	MDH	
6	FINAL DESIGN (MYLAR SUBMITTAL)	01/03/08	MDS	MDH	
5	FINAL DESIGN	09/28/07	MDS	MDH	
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no.	description	date	by	approved	
	revisions				

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Steve C. G...
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION

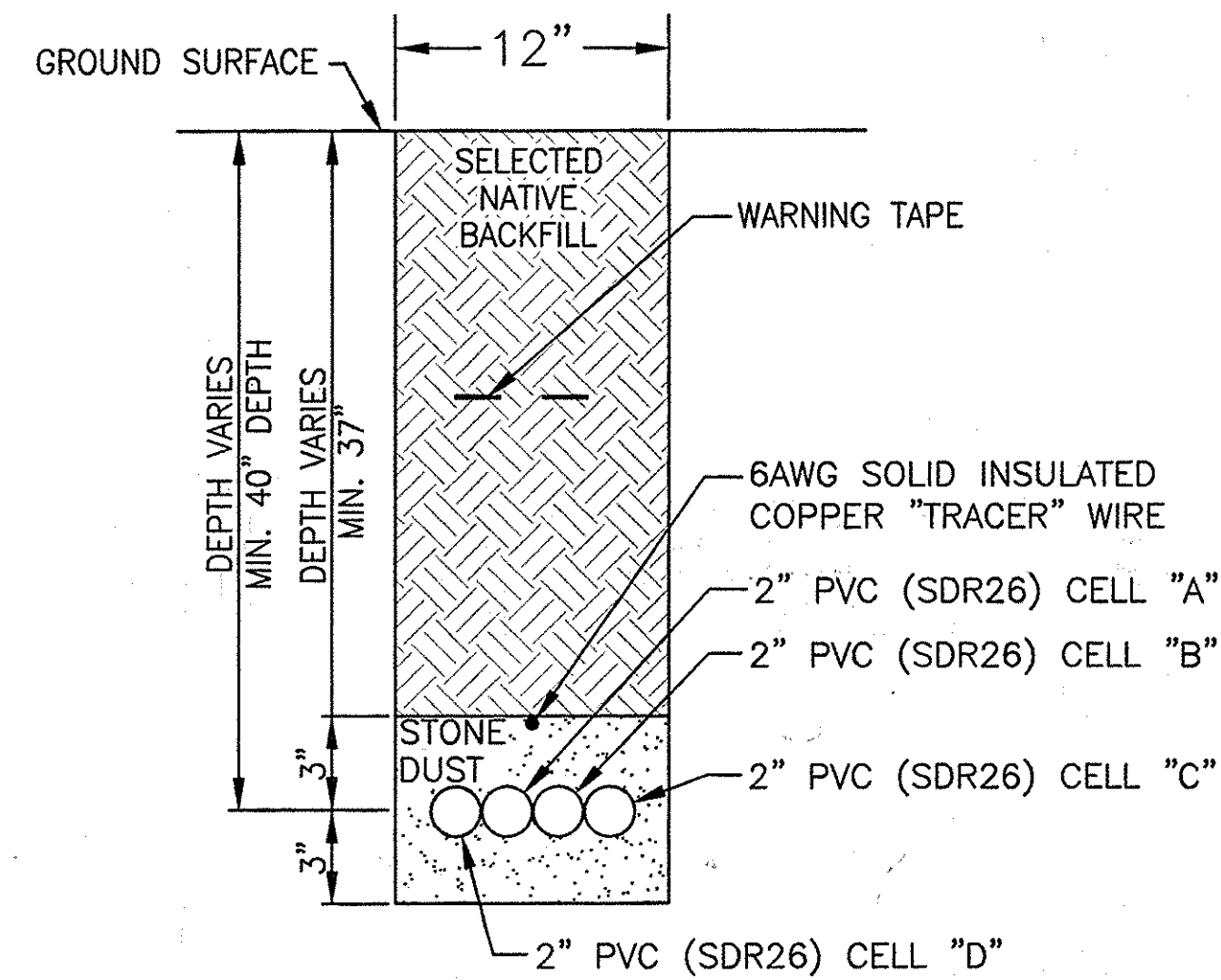
SAIC
From Science to Solutions
1129 Business Parkway South; Suite 10
Westminster, Maryland 21157
(410) 876-0280

CONTRACT NO. 50-4441-D
**WASTEWATER TREATMENT SYSTEM
WALNUT CREEK**
ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

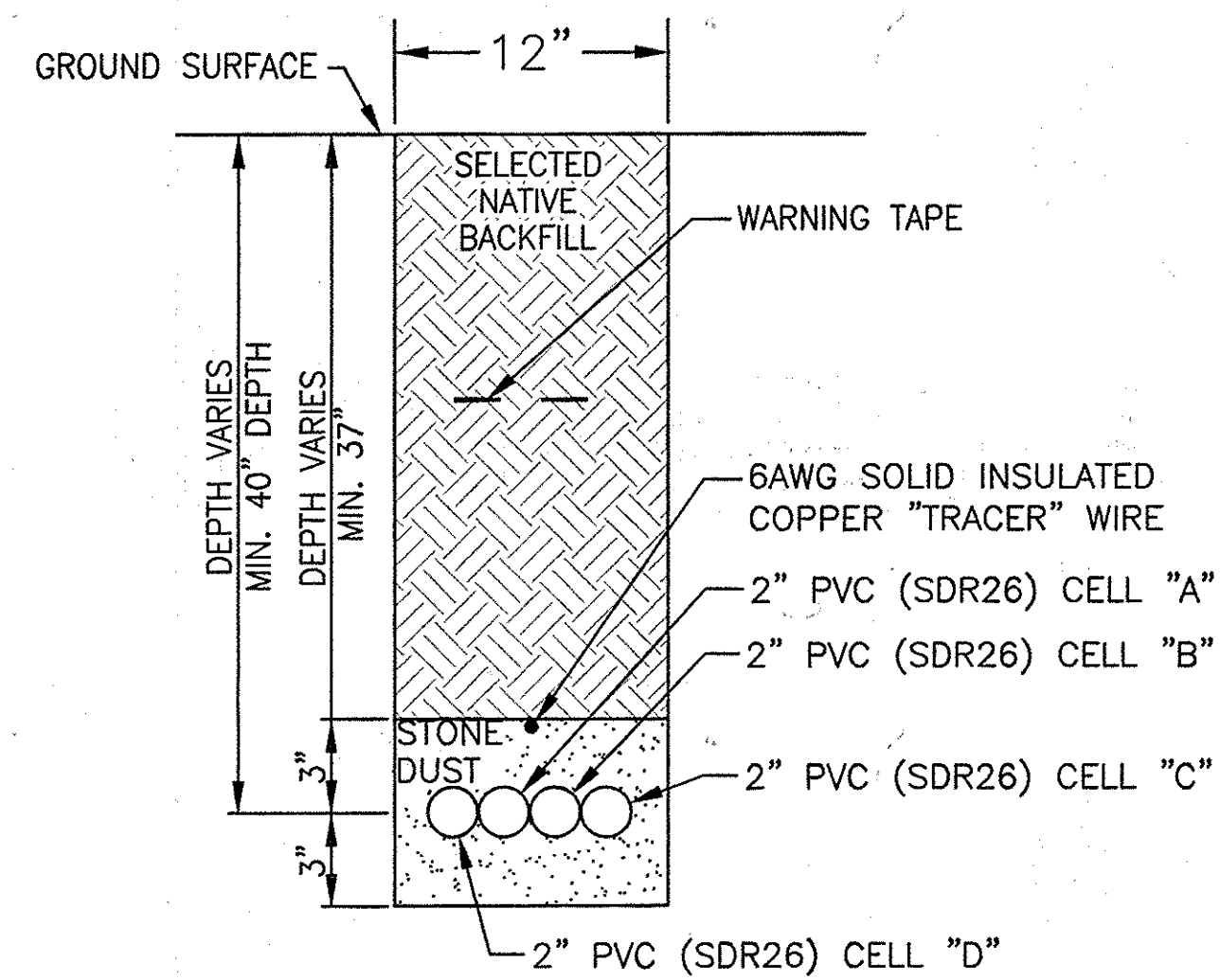
Verify Scale
THIS BAR IS ONE INCH ON ORIGINAL DRAWING
0" = 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

STATE OF MARYLAND
M. MARK W. KING
Professional Seal
1/3/08

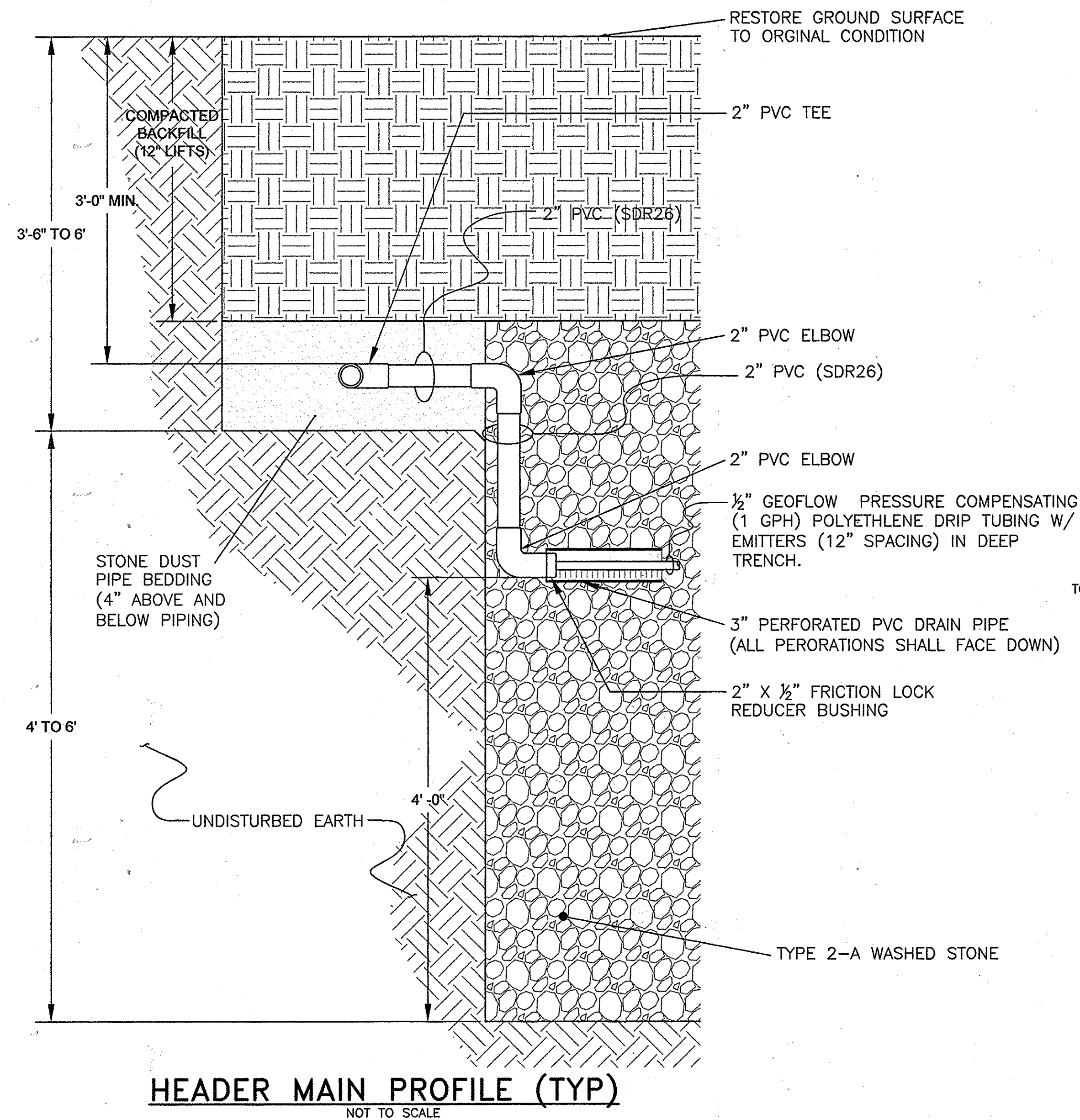
WALNUT CREEK (BASSLER SITE)
HOWARD COUNTY, MARYLAND
**WASTEWATER TREATMENT SYSTEM
DRAINFIELD TRENCH PLAN**
C01
08 of 13
01-1633-00-8095-007
SAIC
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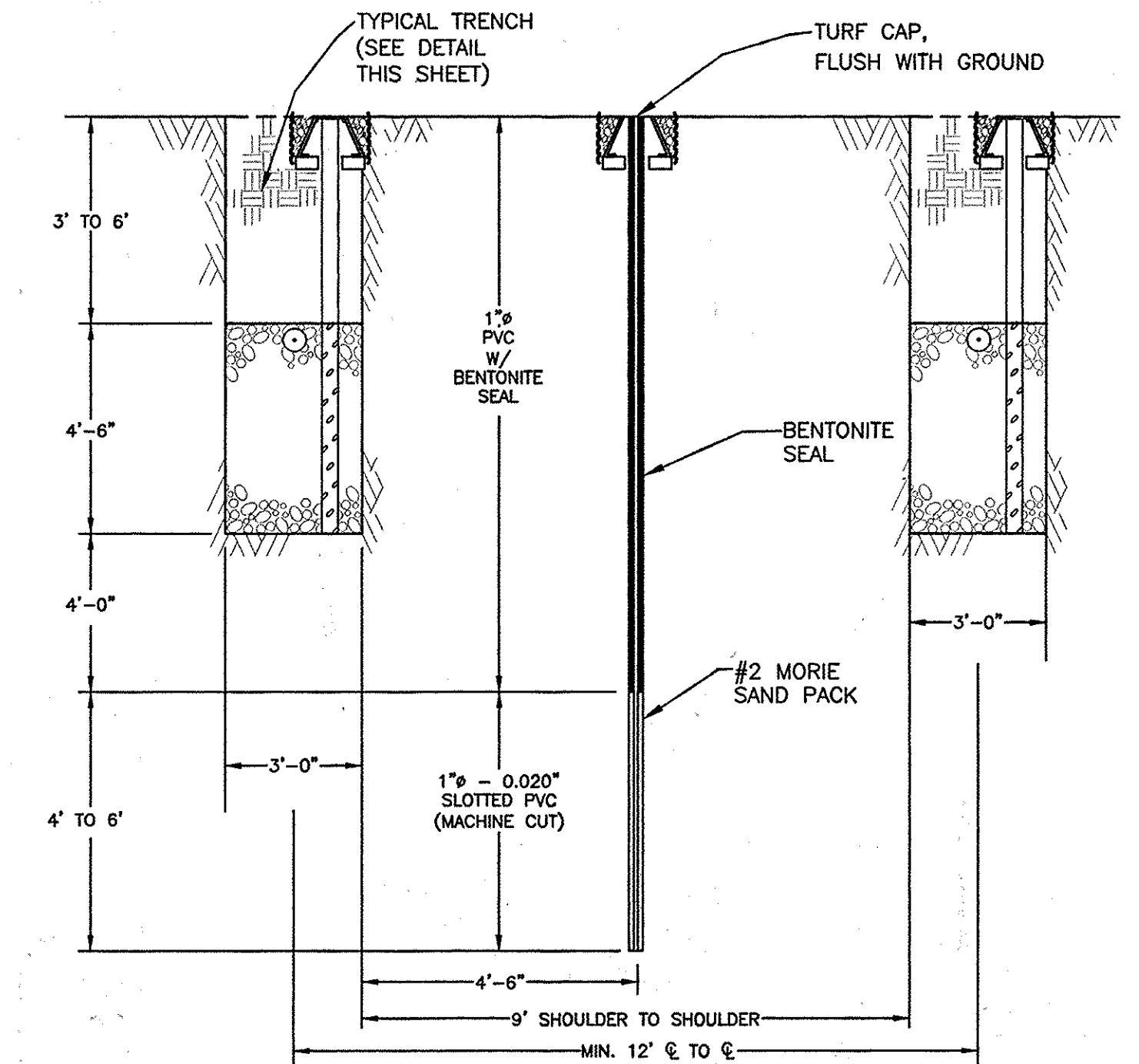
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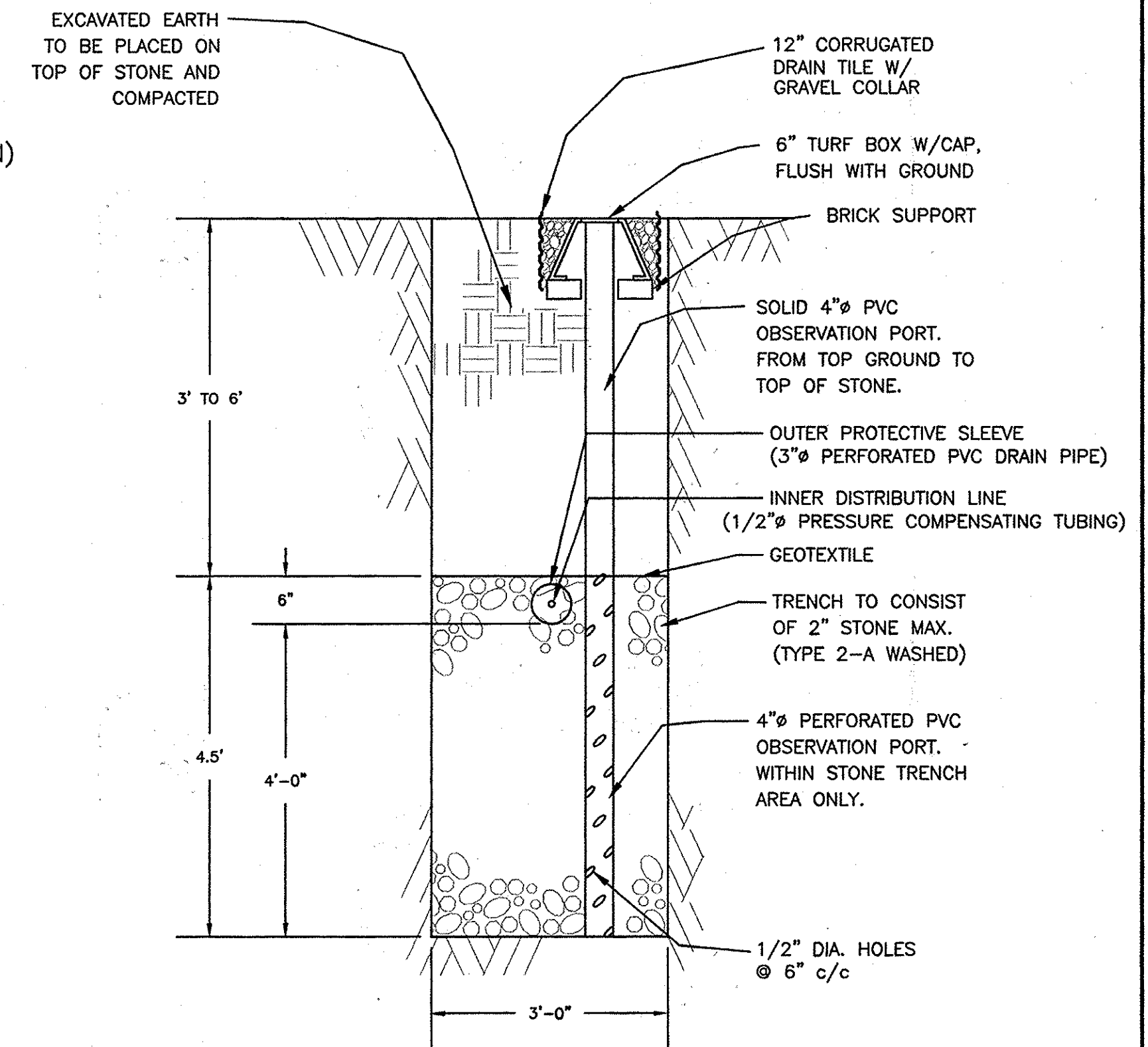
RETURN TRENCH SECTION (TYP)
NOT TO SCALE



HEADER MAIN PROFILE (TYP)
NOT TO SCALE



TYPICAL PIEZOMETER
NOT TO SCALE



TYPICAL DEEP TRENCH SECTIONAL VIEW
NOT TO SCALE

DEPARTMENT OF
PUBLIC WORKS
HOWARD COUNTY, MARYLAND

State C. G. ...
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DEPARTMENT OF
PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

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**WASTEWATER TREATMENT SYSTEM
WALNUT CREEK**
ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

Verify Scale
THIS BAR IS ONE
INCH ON ORIGINAL
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0 1"

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Professional Seal
Mark ...
1/3/08

no.	description	date	by	approved
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6	FINAL DESIGN (MYLAR SUBMITTAL)	01/03/08	MDS	MDH
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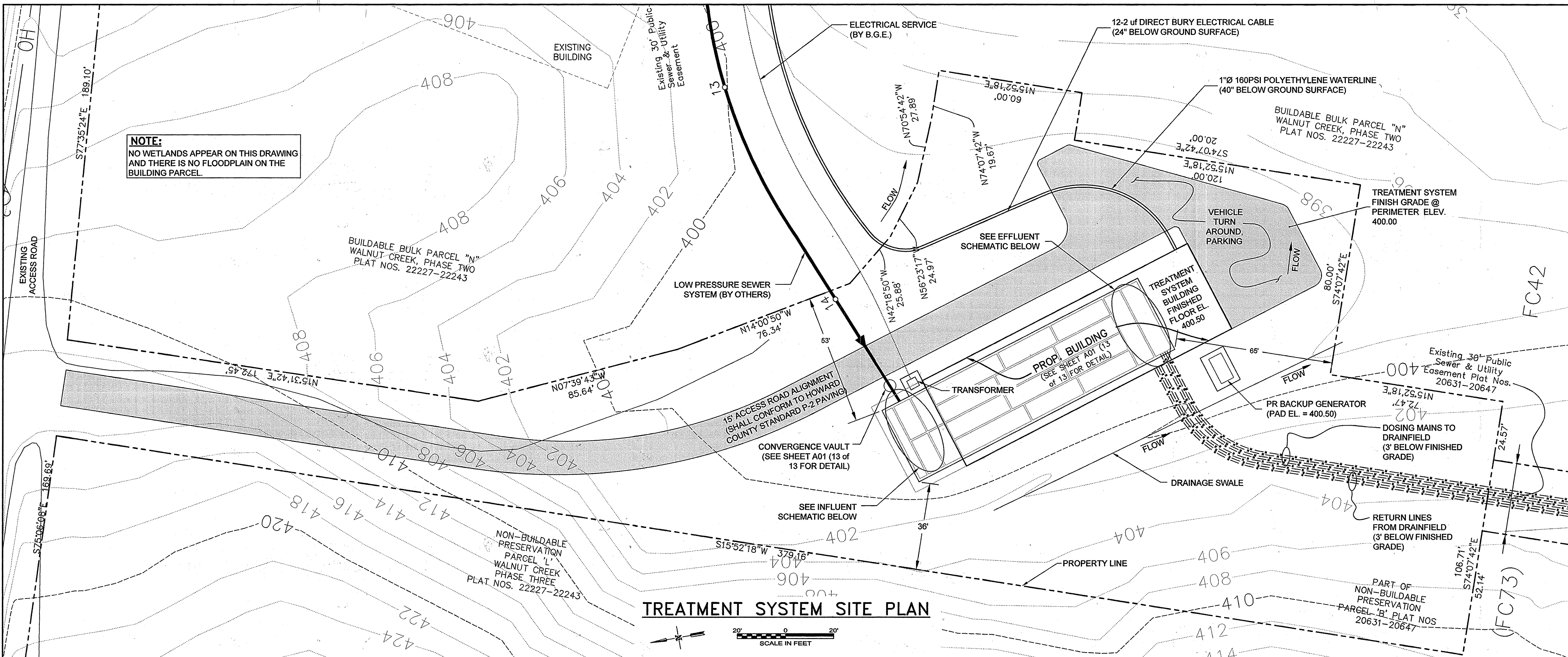
revisions

Client: **WALNUT CREEK (BASSLER SITE)**
HOWARD COUNTY, MARYLAND

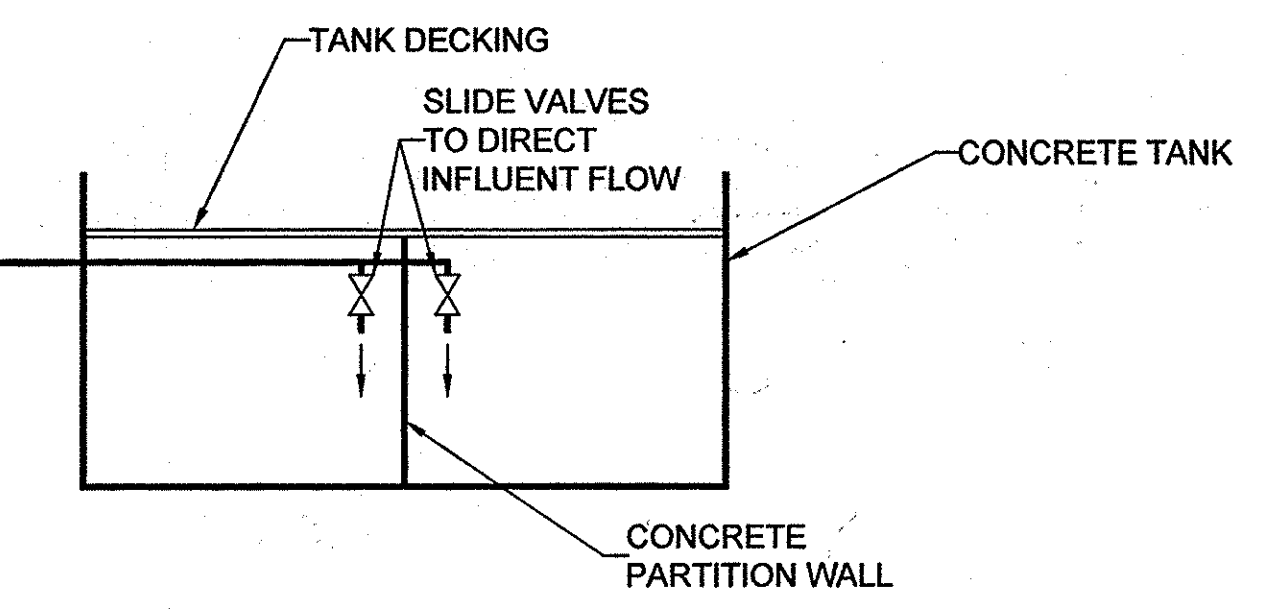
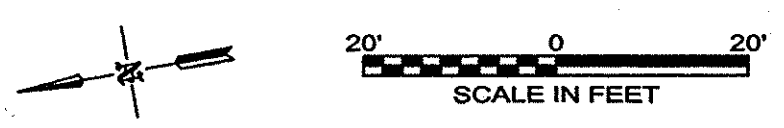
Project: **WASTEWATER TREATMENT SYSTEM
TRENCH SECTIONS AND
DETAILS**

Scale: **AS NOTED** 12/24/05
Job no.: 01-1633-00-8095-007
File no.: 8095-C02.DWG
Sheet no.: **C02** of 13

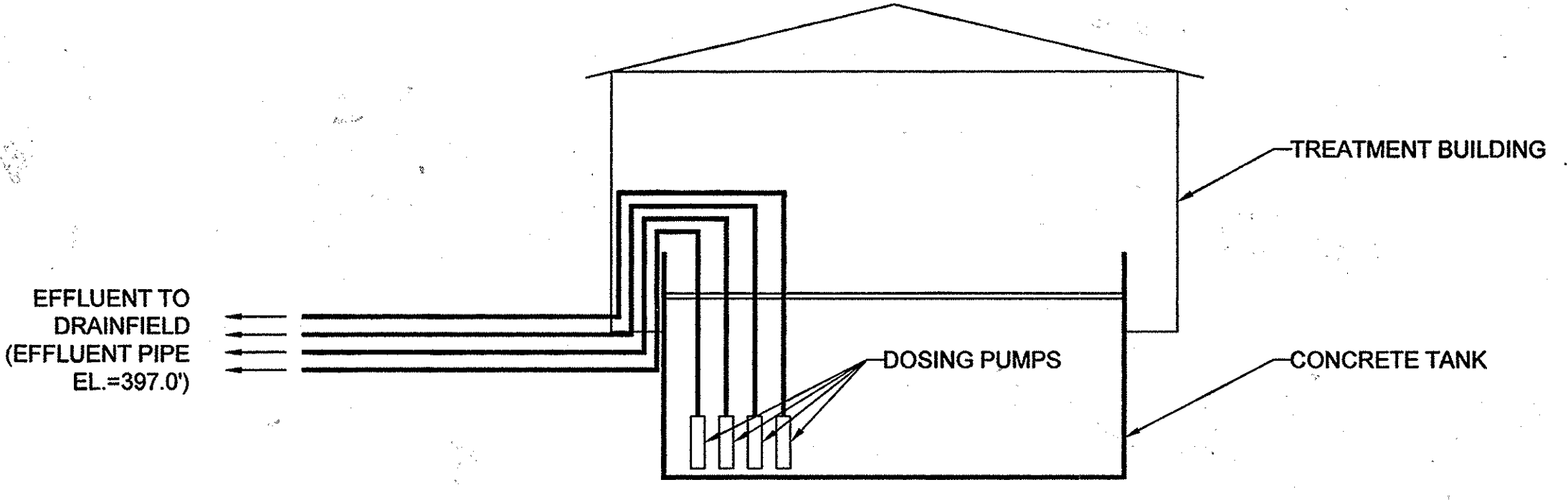
SAIC
From Science to Solutions



TREATMENT SYSTEM SITE PLAN



INFLUENT SCHEMATIC
NOT TO SCALE



EFFLUENT SCHEMATIC
NOT TO SCALE

NOTE:
ALL BURIED PIPING SHALL HAVE A MINIMUM OF 36" OF COVER.

- LEGEND**
- DOSING MAINS TO DRAINFIELD
 - RETURN MAINS FROM DRAINFIELD
 - LOW PRESSURE SEWER SYSTEM LINE
 - == 1"Ø 160PSI POLYETHYLENE WATERLINE
 - EXISTING TOPOGRAPHIC INDEX CONTOUR
 - EXISTING TOPOGRAPHIC INTERVAL CONTOUR
 - PROPOSED GRADE
 - PROPERTY LINE

no.	description	date	by	approved
8	AS-BUILT	11/23/15	MDS	MDH
7	FINAL DESIGN; RED-LINE REPLACEMENT SHEET	03/18/13	MDS	MDH
6	FINAL DESIGN (MYLAR SUBMITTAL)	01/03/08	MDS	MDH
5	FINAL DESIGN	09/28/07	MDS	MDH
4	FINAL DESIGN	08/16/07	DAK	MDH
3	FINAL DESIGN	06/22/07	DAK	MDH
2	FINAL DESIGN	05/21/07	DAK	MDH
1	PRELIMINARY DESIGN	11/02/06	MDS	MDH
0	CONCEPT DESIGN	04/17/06	MDS	MDH

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve Chan 4/12/13
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

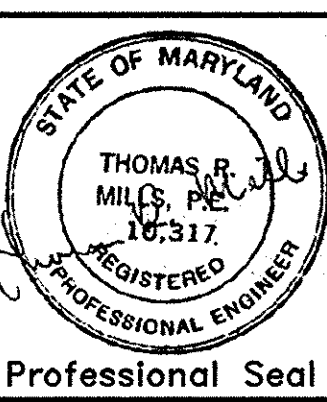
William R. Mills 4/12/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 10317, EXPIRATION DATE: APRIL 8, 2015

Thomas R. Mills 3/18/13
Thomas R. Mills, PE 10317 DATE

CONTRACT NO. 50-4441-D
**WASTEWATER TREATMENT SYSTEM
WALNUT CREEK**
ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

Verify Scale
THIS BAR IS ONE INCH ON ORIGINAL DRAWING
0" = 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



no.	description	date	by	approved

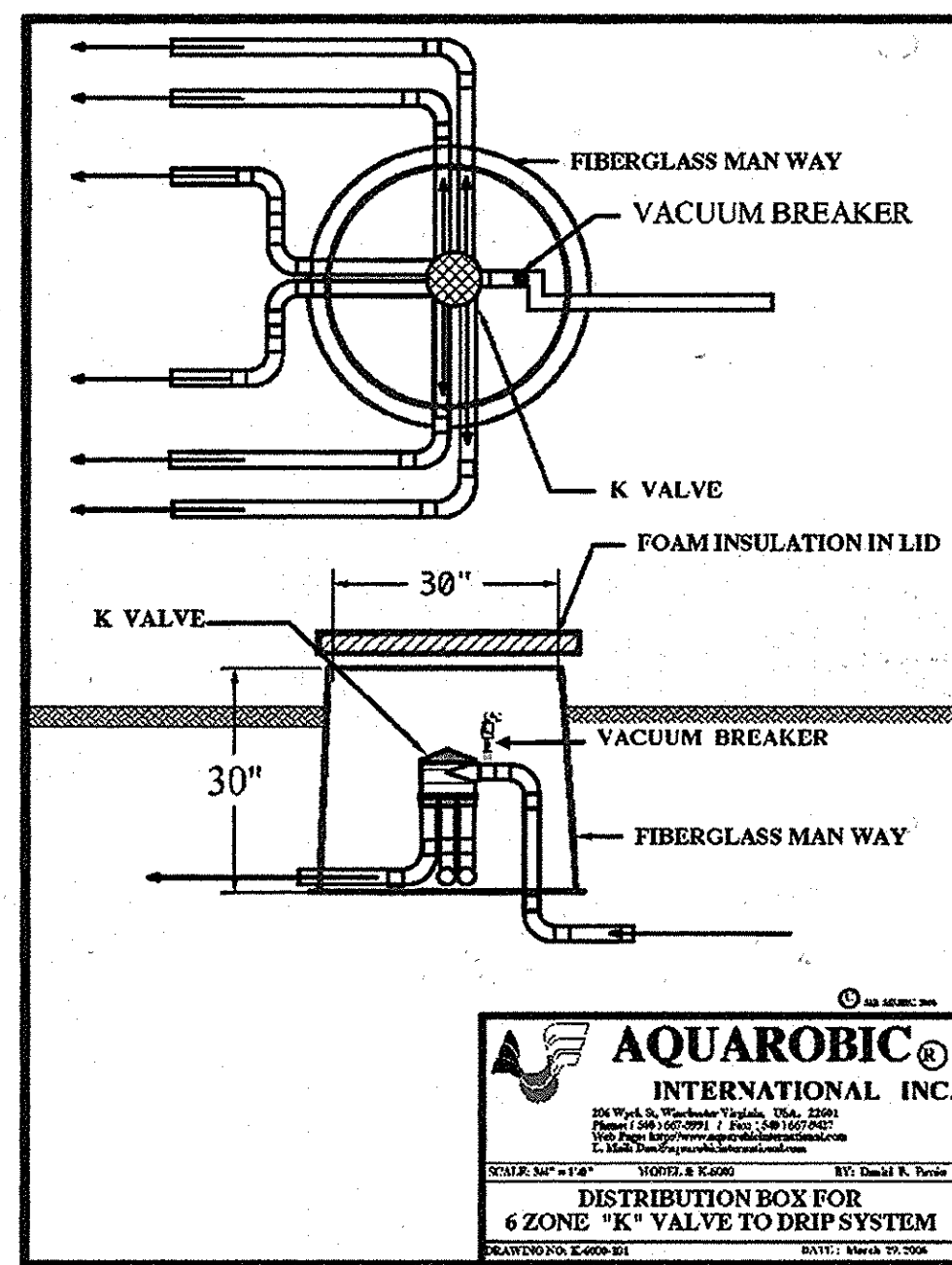
client: **Walnut Creek (Bassler Site)**
project location: **Clarksville, Howard County, Maryland**

project: **Wastewater Treatment System**
title: **TREATMENT SYSTEM SITE PLAN**

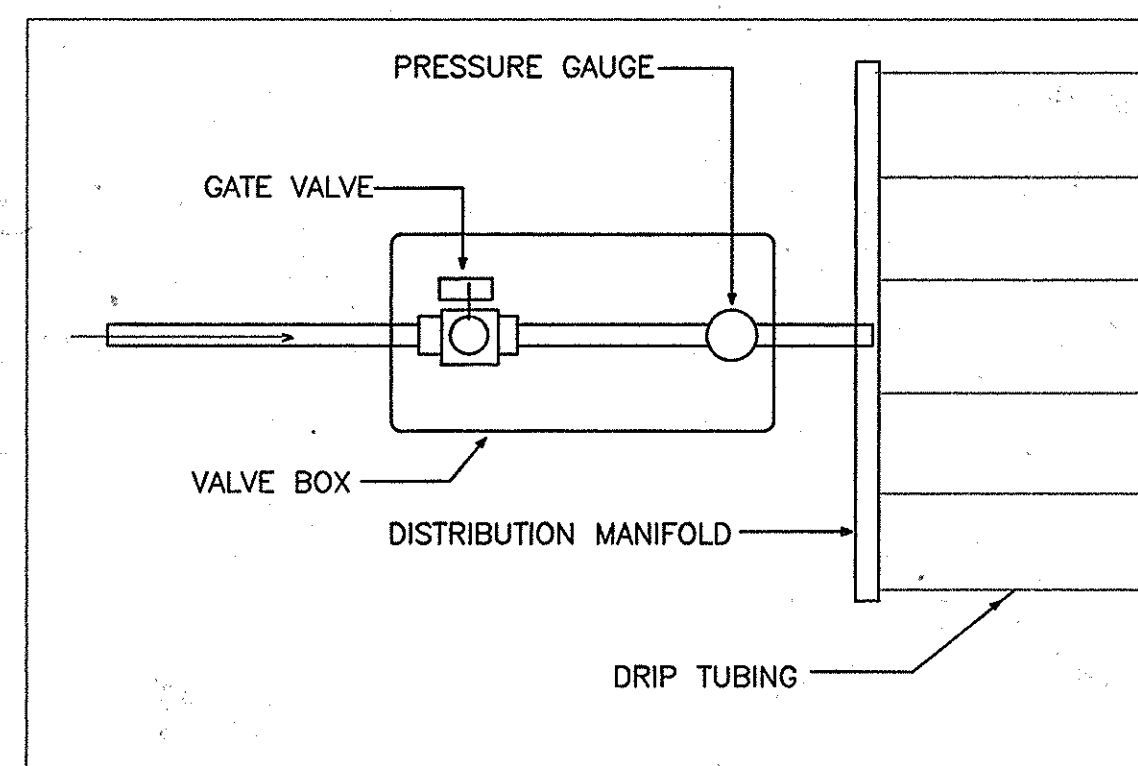
Hydro-Terra GROUP
15 National Place
198 Pennsylvania Avenue
Westminster, MD 21157
Phone: (410)-861-5376
Fax: (410)-861-5467
www.hydro-terra.com

file no. 8095-C03 - C03.dwg
drawn by M. Swann 03/18/13
checked by M. Bassler 03/18/13
approved by T. Mills 03/18/13

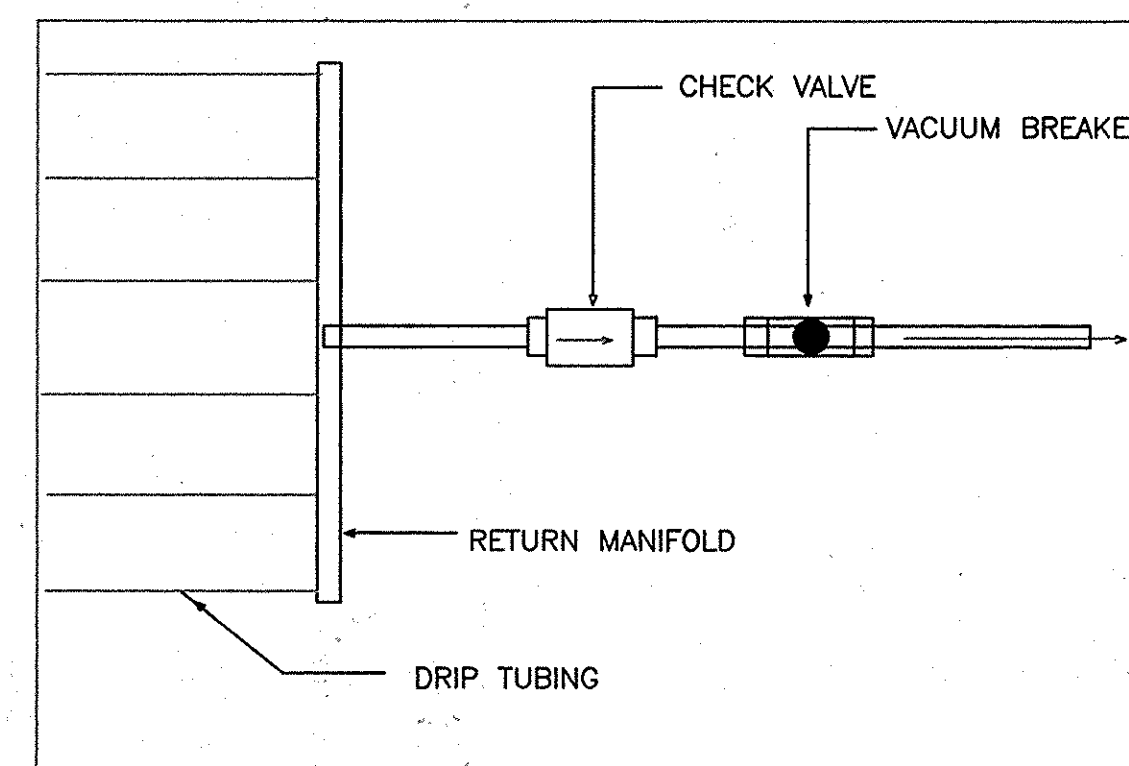
C03
10 of 13



"K" VALVE ASSEMBLY (TYP)
NOT TO SCALE

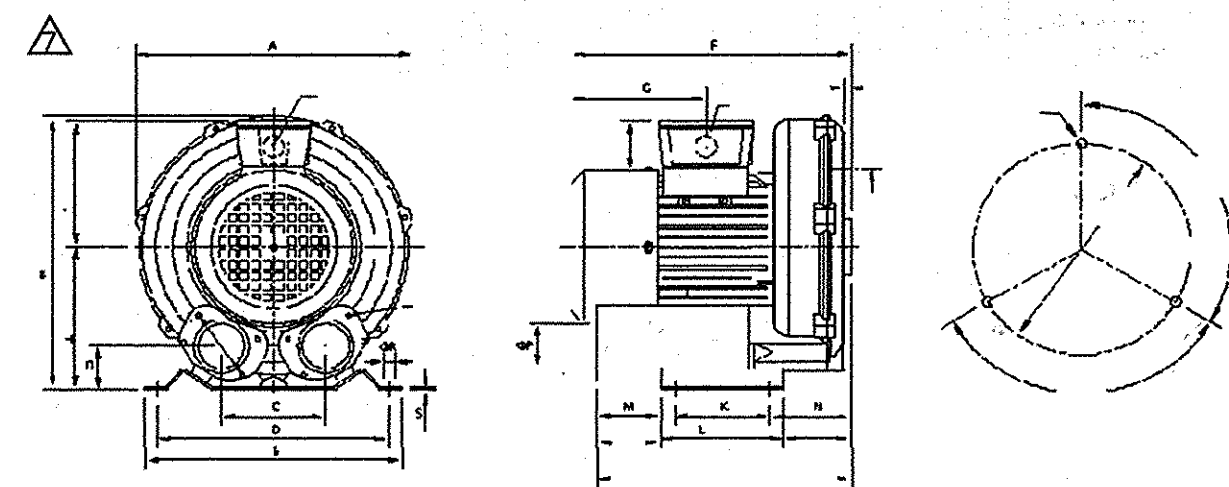


INLET LINE CONNECTION (TYP)
NOT TO SCALE



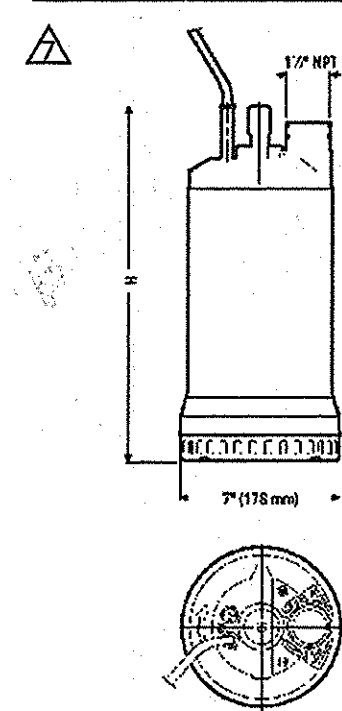
RETURN LINE CONNECTION (TYP)
NOT TO SCALE

NOTE:
THIS CURVE IS AN EXAMPLE AND IS AN AVERAGE OF ALL FOUR (4) PUMPS FROM THE DESIGN CALCULATION DATA SHOWN ON SHEET G07.



BLOWER DETAIL
NOT TO SCALE

DIMENSIONS



Series	HP	Phase	Dimensions in Inches (mm)	Discharge Size
10W	1/2	3	10 1/2 (267)	1 1/2"

MECHANICAL DATA

Order No.	HP	Volts	Phase	Max. Amps.	RPM	Weight (lbs.)
10W1000A	1/2	115	3	10.3	1725	22
10W1000B	1/2	230	3	4.5	1725	22
10W1000C	3/4	115	3	15.5	1725	27
10W1000D	3/4	230	3	7.0	1725	27
10W1000E	1	115	3	21.0	1725	32
10W1000F	1	230	3	9.5	1725	32
10W1000G	1 1/2	115	3	27.0	1725	37
10W1000H	1 1/2	230	3	12.0	1725	37
10W1000I	2	115	3	33.0	1725	42
10W1000J	2	230	3	14.5	1725	42
10W1000K	3	115	3	40.0	1725	47
10W1000L	3	230	3	17.5	1725	47
10W1000M	4	115	3	47.0	1725	52
10W1000N	4	230	3	20.0	1725	52
10W1000O	5	115	3	53.0	1725	57
10W1000P	5	230	3	23.0	1725	57
10W1000Q	7 1/2	115	3	75.0	1725	62
10W1000R	7 1/2	230	3	32.0	1725	62
10W1000S	10	115	3	80.0	1725	67
10W1000T	10	230	3	35.0	1725	67

Component	Material
Pump body and motor casing	Stainless steel AISI 304
Over sleeve	Stainless steel AISI 304
Impeller	Stainless steel AISI 304
Motor shaft	Stainless steel AISI 304
Shaft on motor	Stainless steel AISI 304
Front of motor plate	Stainless steel AISI 304 coated with polyurethane
Lower mechanical seal	Silicon carbide at contact with upper lip seal
Upper lip seal	NBR rubber
Roade	Stainless steel AISI 304 coated with polyurethane

APPLICATIONS

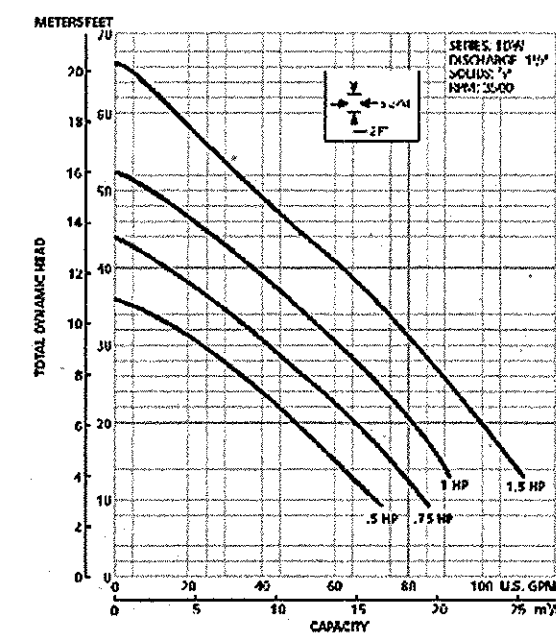
- Specifically designed for the following uses:
 - Handling dirty water
 - Draining clothes and pits
 - Excavating in the building trades
 - Water transfer
 - Industrial water drainage or transfer

SPECIFICATIONS

- Pump:**
 - Discharge size: 1 1/2" NPT
 - Capacity: up to 110 GPM
 - Total heads: up to 66 feet TDH
 - Max. solids: 80" spherical
 - Mechanical seal: Silicon carbide rotary/silicon carbide stationary, 300 series stainless steel metal parts, BUNA-N elastomers.
 - Maximum submergence: 23'
 - Temperature limit: 120°F (50°C) maximum.
 - Fasteners: 300 series stainless steel.

Motor:

- Single phase: 60 Hz, 3500 RPM, 1/2 HP 115 and 230 V; 1/2 and 1 HP 230 V only
- Three phase: 60 Hz, 3500 RPM, 1/2 to 1 1/2 HP 230 or 460 V
- Built-in thermal overload protection with automatic reset on single phase models.
- Three phase: Overload protection must be provided in starter unit with three phase pumps.
- Power cord: 20 feet long. Single phase 115 V and 230 V models are supplied with modified NEMA plugs and built-in capacitors. Three phase models are supplied with frame leads.
- Class F insulation.

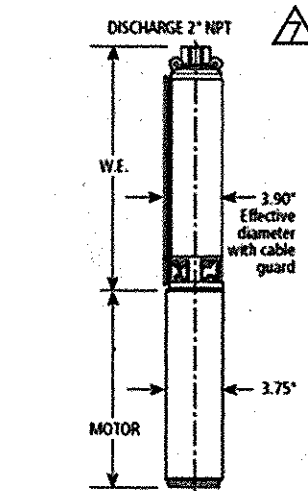


MODELS AND SPECIFICATIONS

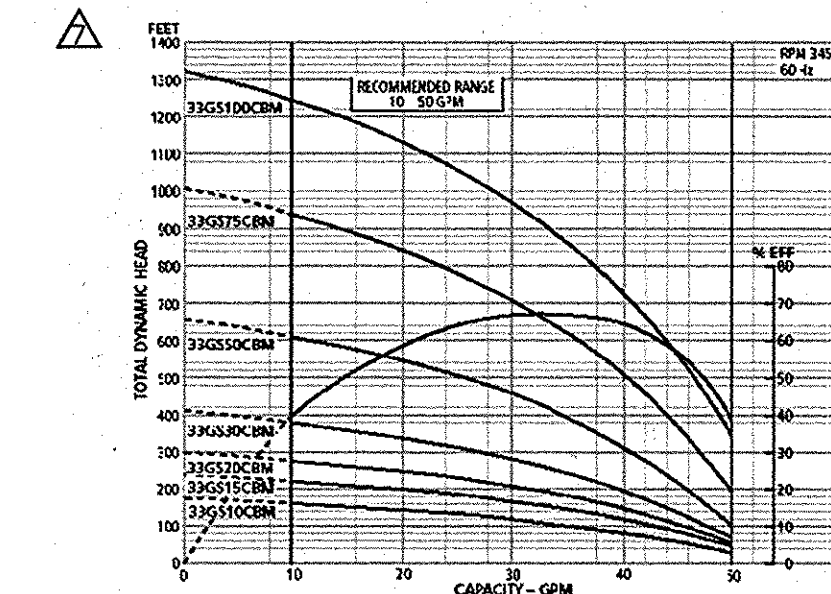
Model	Flow Range GPM	Horsepower Range	Best Eff. GPM	Discharge Connection	Minimum WBS Size
10W1000A	10-20	1/2	15	1 1/2"	1/2"
10W1000B	10-20	1/2	15	1 1/2"	1/2"
10W1000C	15-30	3/4	20	1 1/2"	1/2"
10W1000D	15-30	3/4	20	1 1/2"	1/2"
10W1000E	20-40	1	25	1 1/2"	1/2"
10W1000F	20-40	1	25	1 1/2"	1/2"
10W1000G	25-50	1 1/2	30	1 1/2"	1/2"
10W1000H	25-50	1 1/2	30	1 1/2"	1/2"
10W1000I	30-60	2	35	1 1/2"	1/2"
10W1000J	30-60	2	35	1 1/2"	1/2"
10W1000K	40-80	3	40	1 1/2"	1/2"
10W1000L	40-80	3	40	1 1/2"	1/2"
10W1000M	50-100	4	45	1 1/2"	1/2"
10W1000N	50-100	4	45	1 1/2"	1/2"
10W1000O	60-120	5	50	1 1/2"	1/2"
10W1000P	60-120	5	50	1 1/2"	1/2"
10W1000Q	75-150	7 1/2	60	1 1/2"	1/2"
10W1000R	75-150	7 1/2	60	1 1/2"	1/2"
10W1000S	100-200	10	70	1 1/2"	1/2"
10W1000T	100-200	10	70	1 1/2"	1/2"

"GS" SERIES MATERIALS OF CONSTRUCTION

Part Name	Material
Discharge Head	AISI 304 SS
Bearing Spindel - Upper	Glass Filled Engineered Composite
Bearing	Proprietary Engineered Composite
Impeller	AISI 304 SS
Diffuser	Glass Filled Engineered Composite
Impeller	AISI 304 SS
Body	AISI 304 SS
Intermediate Sleeve*	AISI 304 SS, Powder Metal
Intermediate Shaft Coupling*	AISI 304 SS, Powder Metal
Intermediate Bearing Spindel*	Glass Filled Engineered Composite
Intermediate Bearing Spindel*	AISI 303 SS
Shim	AISI 304 SS
Screws - Cable Guard	AISI 304 SS
Motor Adapter	AISI 303 SS
Casing	AISI 304 SS
Shaft (up to 2 HP)	1774 PH
Shaft (5 HP and larger)	AISI 304 SS, Powder Metal
Coupling	AISI 304 SS, Powder Metal
Cable Guard	AISI 304 SS
Fastener Screws	AISI 304 SS



33GSCBM Curve



DISTRIBUTION PUMP

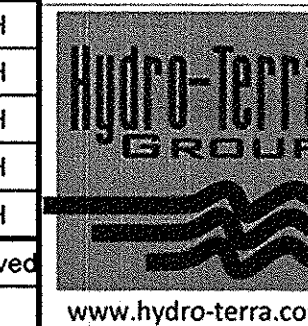
NOT TO SCALE

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0	CONCEPT DESIGN	04/17/06	MDS	MDH

SITE PLAN & BUILDING DESIGN HAS CHANGED; SEE SHEETS CO3 & AO1

Walnut Creek (Bassler Site)

Clarksville, Howard County, Maryland



15 National Place
198 Pennsylvania Avenue
Westminster, MD 21157

Phone: (410)-861-5376
Fax: (410)-861-5467

Wastewater Treatment System

SYSTEM DETAILS

file no. 8095-M02 - M02.dwg
drawn M. Swann 03/18/13
checked M. Hyster 05/18/13
approved T. Mills 03/18/13

M02

12 of 13

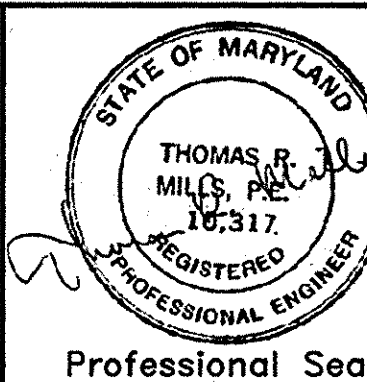
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
S. Chen 4/2/13
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
M. Swann 4/2/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

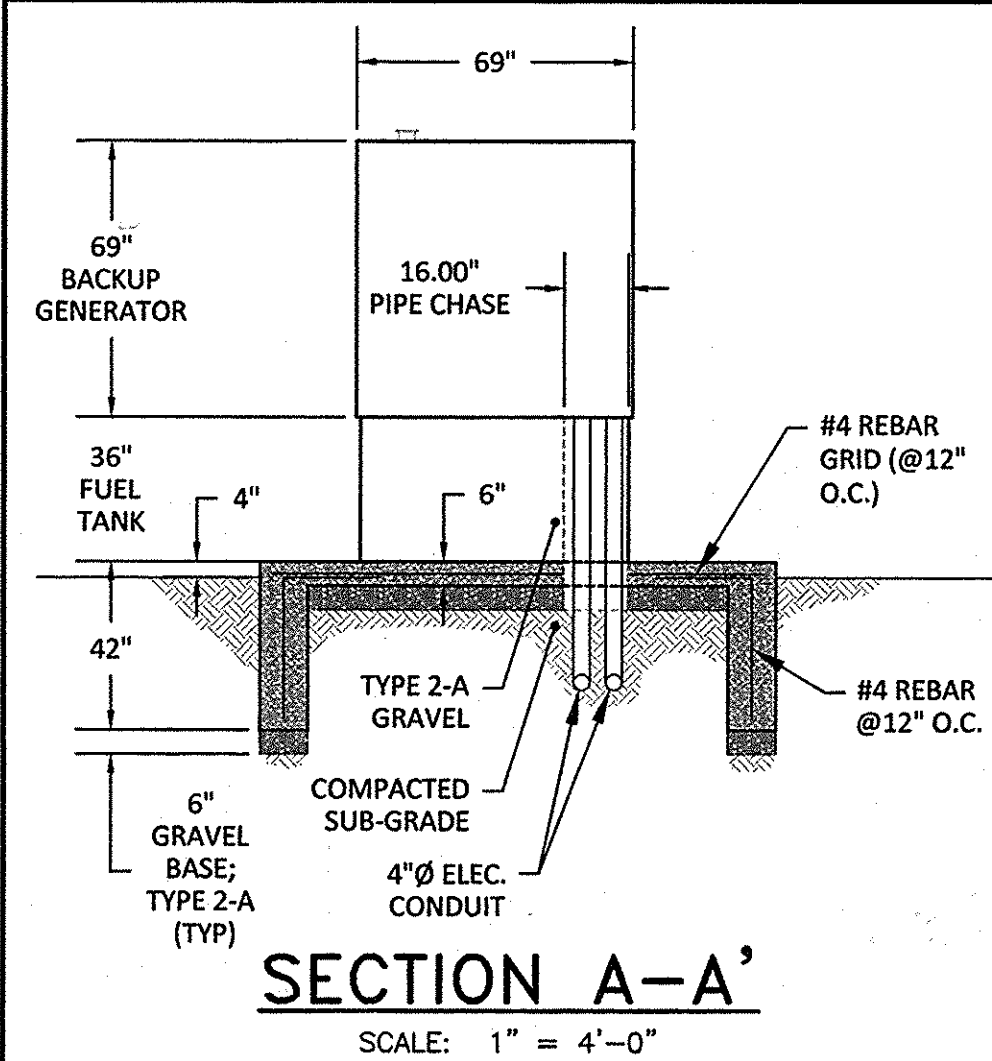
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LICENSE NO. 10317, EXPIRATION DATE: APRIL 8, 2015
Thomas R. Mills, PE 10317 3/18/13
DATE

CONTRACT NO. 50-4441-D
WASTEWATER TREATMENT SYSTEM
WALNUT CREEK
ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

Verify Scale
THIS BAR IS ONE INCH ON ORIGINAL DRAWING
0 1" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

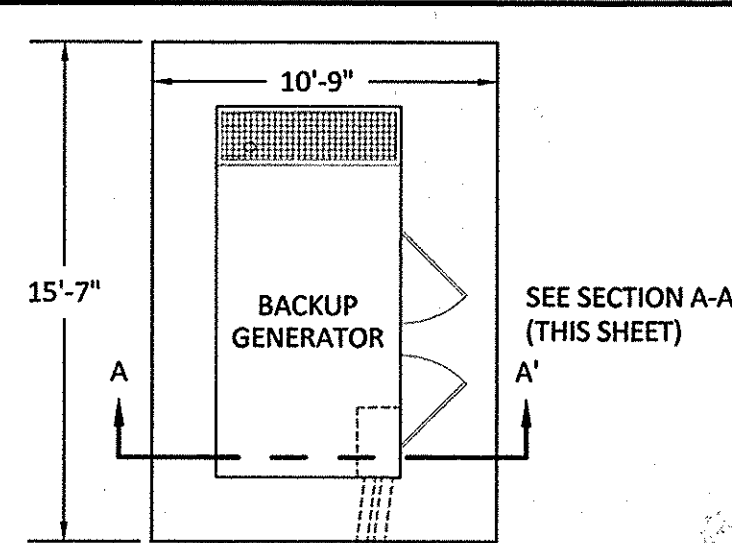


Professional Seal

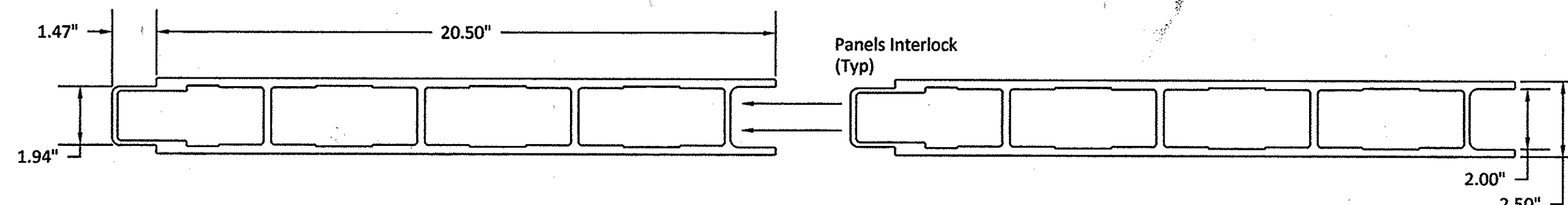


SECTION A-A'

SCALE: 1" = 4'-0"



SEE SECTION A-A' (THIS SHEET)

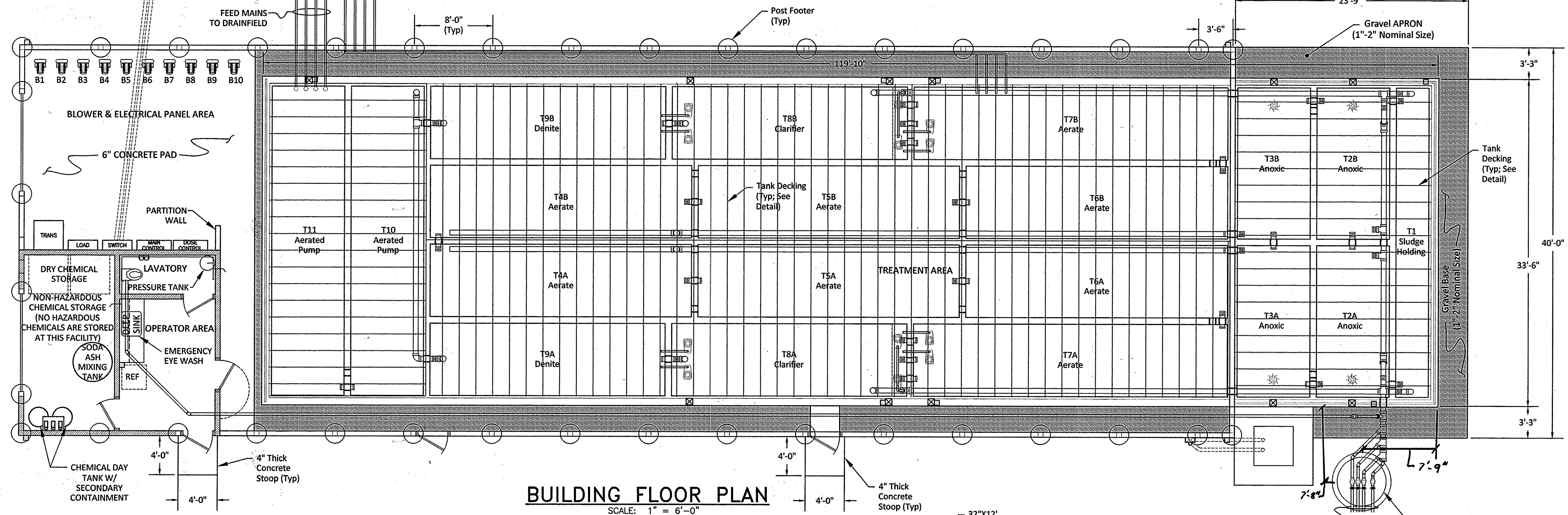


TANK DECKING

SCALE = 1 : 4

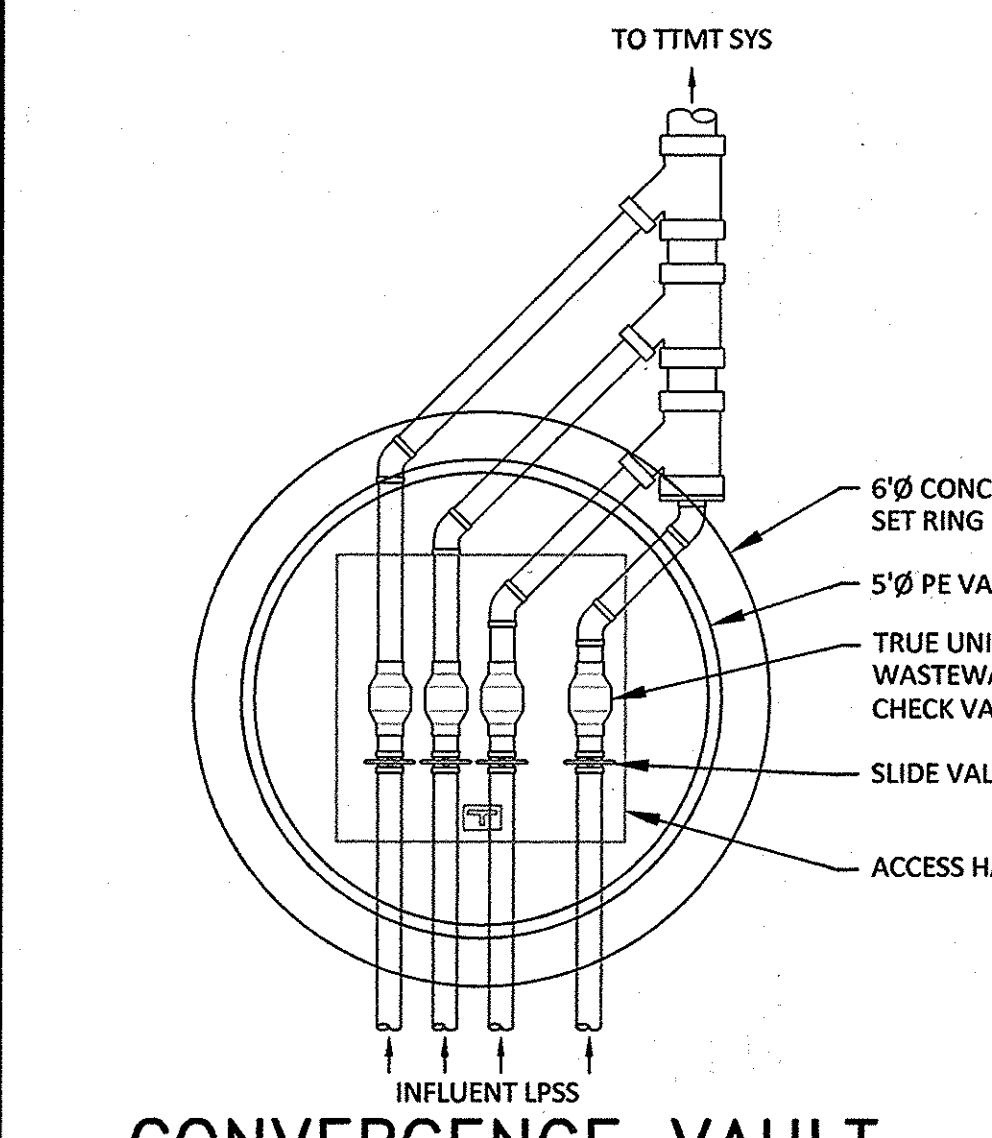
TANK DECKING NOTE:

Tank Decking is to be Creative Pultrusion CP150 Truevault Panel or equal



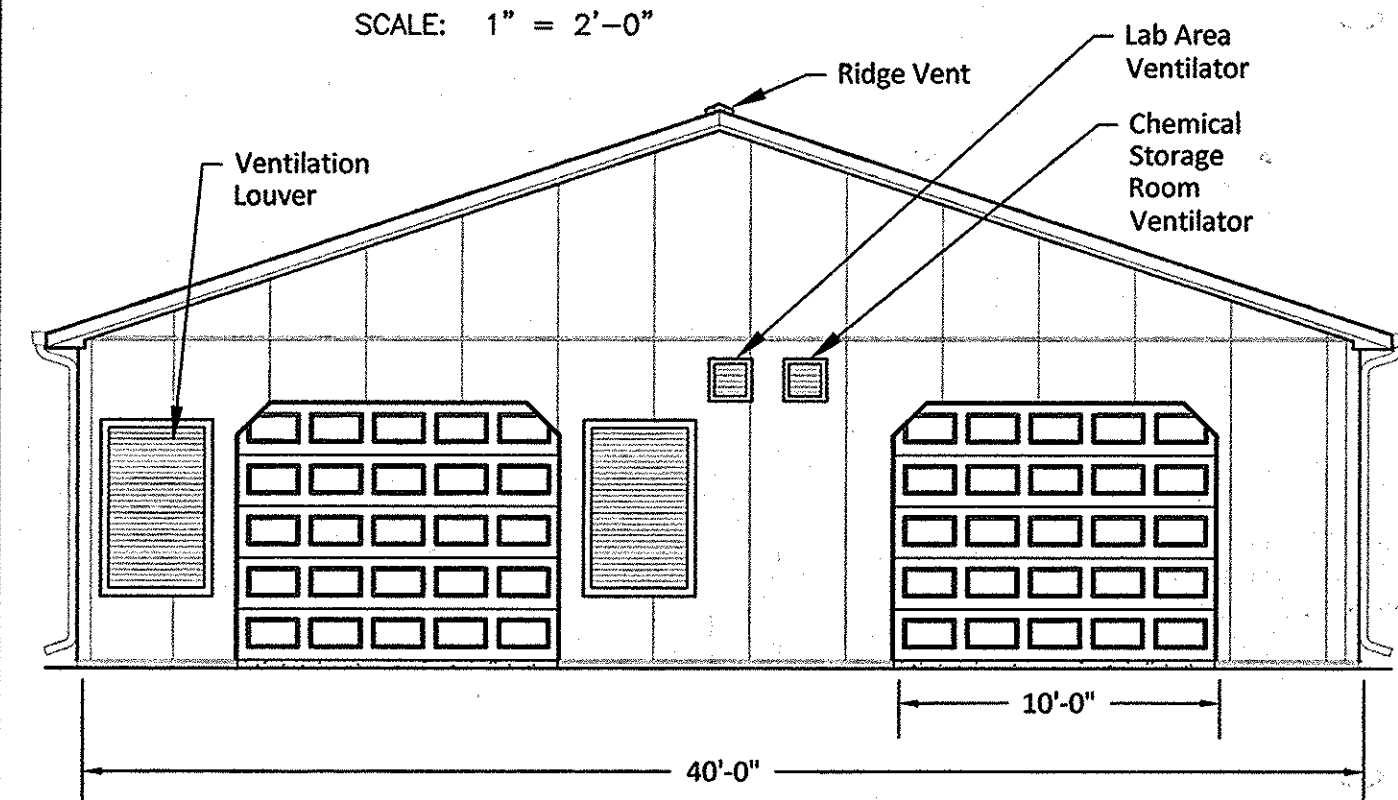
BUILDING FLOOR PLAN

SCALE: 1" = 6'-0"



CONVERGENCE VAULT

SCALE: 1" = 2'-0"

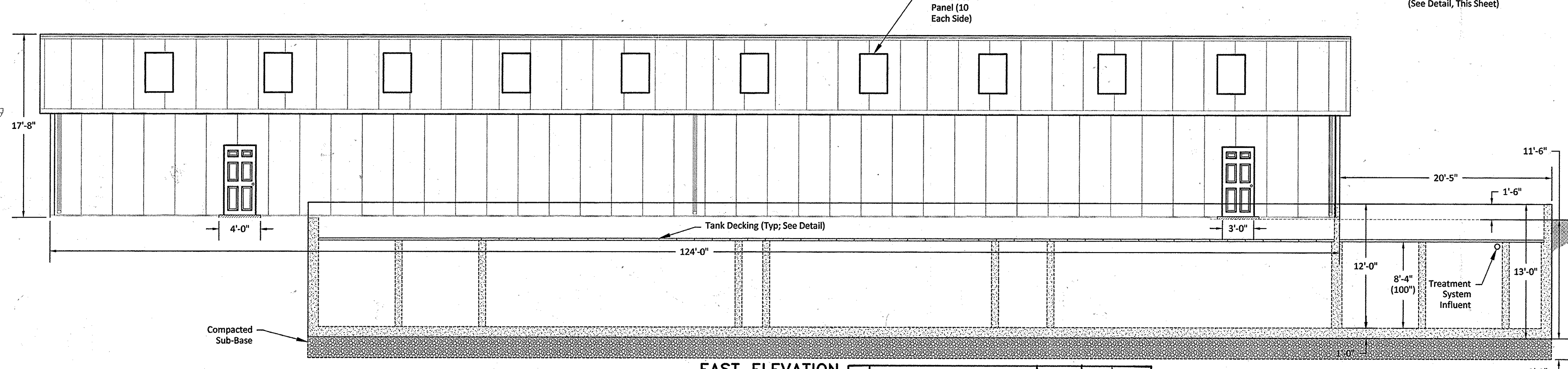


SOUTH ELEVATION

Equipment	Heat Load (btuh)	Assumptions
Blowers	44,520	Outdoor Air Temperature: 96° F
Water Heater	4,900	Indoor Air Temperature: 100° F
Mixer(s)	1,500	
Exhaust Fan(s)	1,980	Ventilation Rate: 14,904 cfm
Lighting	12,676	Louver Free Area (overall): 14.2 sq. ft.
Total	66,576	Louver Dimensions (qty 2): 3' x 5' ea.

BUILDING ELEVATIONS

SCALE: 1" = 6'-0"



EAST ELEVATION

AS BUILT

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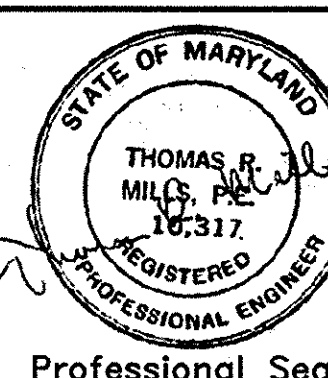
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HOWARD COUNTY, MARYLAND

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WALNUT CREEK**
ALL PHASES
ELECTION DISTRICT NO. 5 HOWARD COUNTY MARYLAND

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revisions

client: **Walnut Creek (Bassler Site)**
project location: **Clarksville, Howard County, Maryland**
project: **Wastewater Treatment System**
title: **CHEMICAL AND BLOWER BUILDING PLAN LAYOUT**
File no.: 8095-A01 - A01.dwg
drawn: M. Swann 03/18/13
checked: M. Swann 03/18/13
approved: T. Mills 03/18/13
Phone: (410)-861-5376
Fax: (410)-861-5467
www.hydro-terra.com
A01
13 of 13