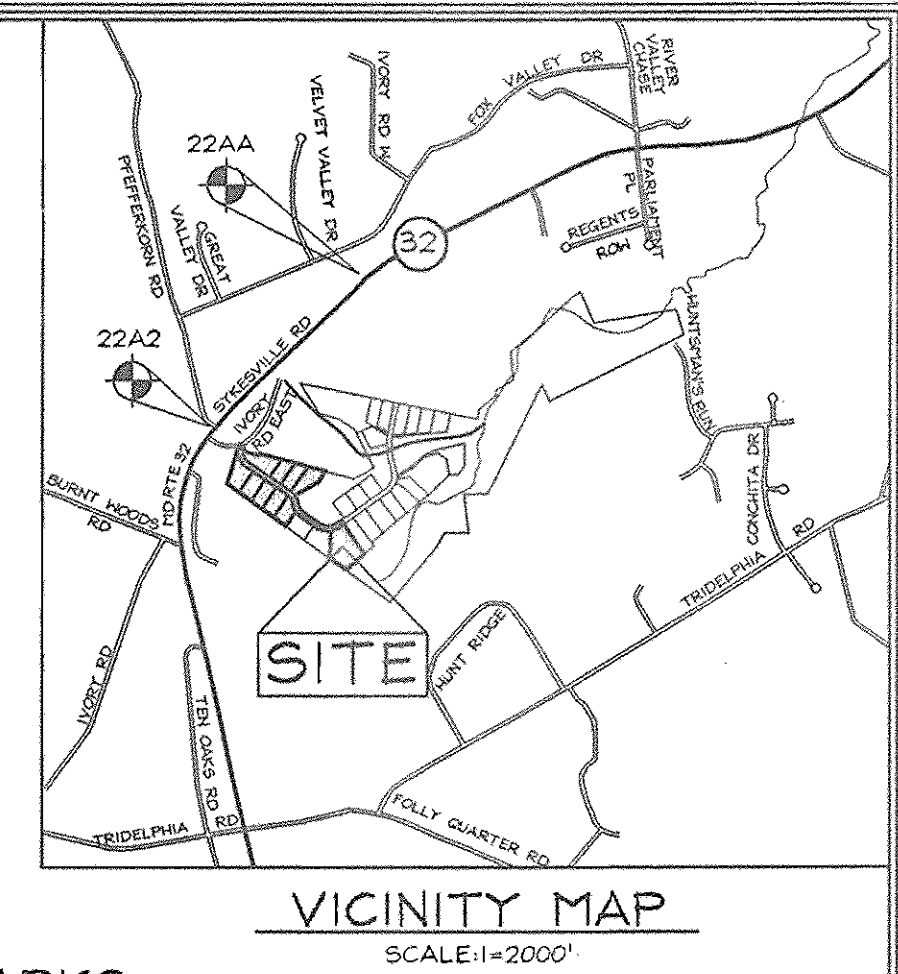


PUBLIC SEWER PLANS

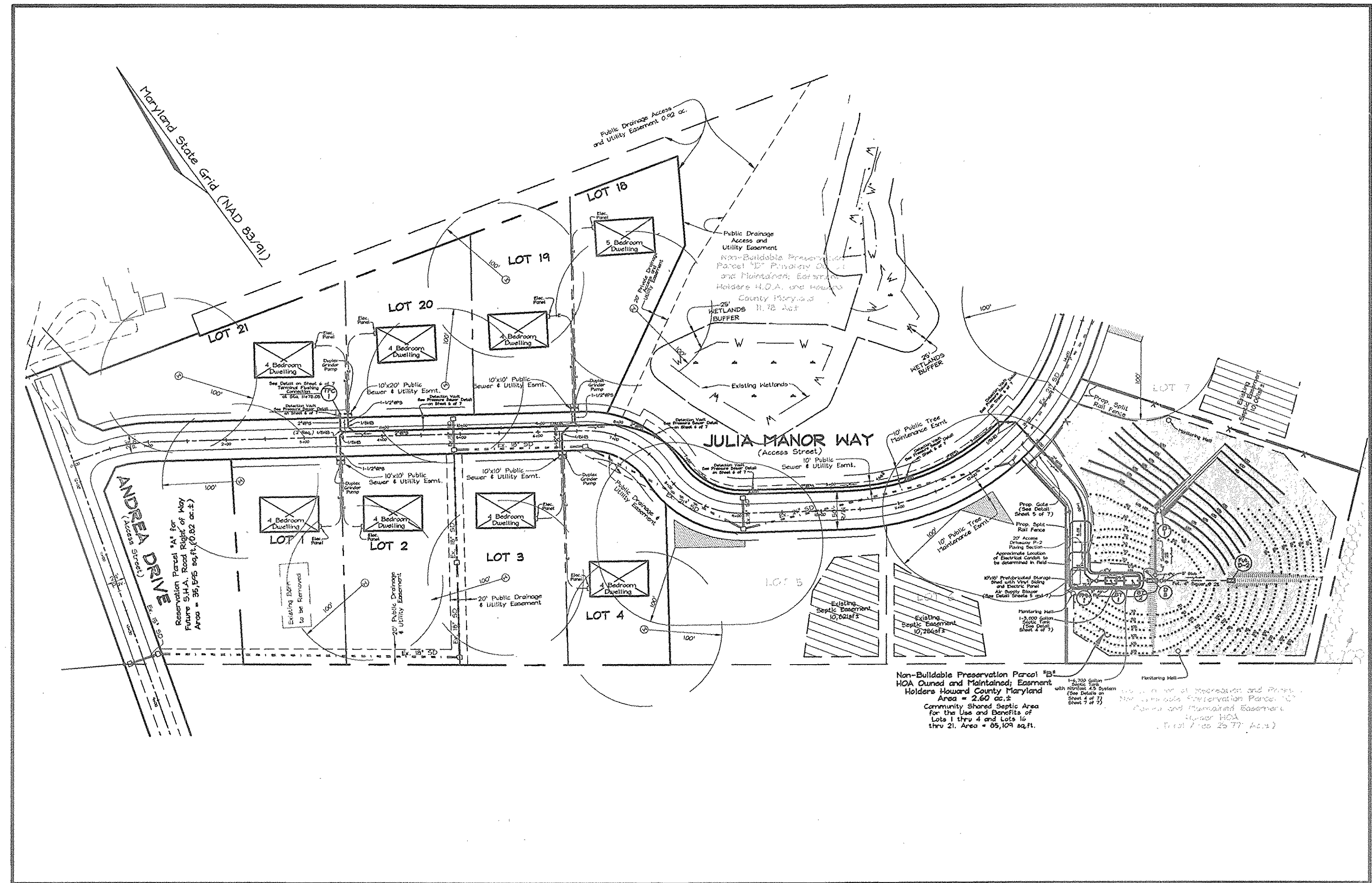
THE PADDOCKS EAST

HOWARD COUNTY, MARYLAND

CONTRACT NO. 50-4156-D



QUANTITIES				
NAME OF UTILITY CONTRACTOR :				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE :				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
Transition Manhole	1	1	PRECAST	ATLANTIC
3,000 Gallon Septic Tank	1	1	"	MAYER BROTHERS
6,700 Gallon Septic Tank	1	1	"	"
NitriFast (®) 4.5 System	1	1	"	CAN NOT READ!
10'X18' Prefabricated Storage Shed	1	1	PREFAB	RIQGE CABUET
Split Rail Fence	717 LF			
Entrance Gate	1			
2018-129 Duplex Grinder Pump	4	4	ENVIRONMENTAL	
Union Ball Valve Assembly	5	5	BRASS	HAMMOND
Clean Outs (GP Location)	8	8	P.V.C.	CHARLOTTE
Distribution Lateral (Phase 1)	16	16	P.V.C.	"
10' Turf Box w/Lid	43	43		CARSON
Monitoring Well	3	3		? GEOMETRIX ENG ?
Distribution Boxes (Phase 1)	2	2	PRECAST	MAYER BROTHERS
4" Sewer Flugs (For Distribution Box 3)	20	20	PVC	CHARLOTTE
4" Sewer Valve	3	19	RSMJ	KENNEDY
Clean Outs (Distribution Box 1)	19	19	P.V.C.	CHARLOTTE
Elect. Conduit (Blower)	200 LF	200	"	ALLIEO
1 1/2" X 1/2" Reducer (GP Location)	4	4	"	CHARLOTTE
1 1/2" X 2" Split Wye Branches	4	4	"	"
2" X 4" Reducer (TPH Location)	1	1	"	"
Vert. 1 1/2" PS 45° Bends	8	8	"	"
Hor. 1 1/2" PS 45° Bends	4	4	P.V.C.	"
Hor. 2" PS 45° Bends	4	4	"	"
Hor. 4" PS 45° Bend	1	1	"	"
Vert. 2" PS 45° Bends	2	2	"	"
1 1/2" FS	120 LF	120	"	"
2" PS	1178 LF	1178	"	"
4" PS (TPH Location)	2 LF	2	"	"
4" SHC (GP Location)	32 LF	32	"	"
4" Sewer	129 LF	129	"	"
3" Air PVC (Blower)	72 LF			
PVC Laterals (Distribution Box 1)	755 LF	755	P.V.C.	CHARLOTTE
4" SDR-21 Septic Trench (Phase 1)	1650 LF	1,650	"	"



BENCHMARKS
 Coordinates based on NAD '83, Maryland Coordinate System as projected by Howard County Geodetic Control Stations no. 22AA and no. 22A2. Ⓞ Denotes approximate location (see vicinity map).
 Sta. 22AA N 174,071.1931 (meters) E 401,696.1007 (meters)
 N 587,502.739 (feet) E 1,317,847.957 (feet)
 Sta. 22A2 N 178,609.6673 (meters) E 401,204.1296 (meters)
 N 585,988.550 (feet) E 1,316,263.801 (feet)

- GENERAL NOTES**
- PART I - GENERAL**
- Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the contractor's expense.
 - All horizontal controls are based on Maryland State Coordinates.
 - All vertical controls are based on U.S.G.S. data (NAVD 88).
 - All pipe elevations shown are invert elevations unless otherwise noted on the plans.
 - Clear all utilities by a minimum of 12". Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from money 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 by the symbol Ⓞ at the locations of the test pits. A note or notes containing the results of the test pit or pits is included on the drawings. 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 (5) working days before starting work shown on these plans:

State Highway Administration	410.531.5535
BOE (Contractor Services)	410.850.4620
BOE (Underground Damage Control)	410.291.4607
Miss Utility	1.800.257.7777
Colonial Pipeline Company	410.549.4120
Howard County Dept. of Public Works, Bureau of Utilities	410.313.4900
Howard County Health Department	410.313.2640
Bureau of Utilities	410.313.4900
Verizon	1.800.743.0033 / 410.224.9210
 - Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged 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 the construction of the main.
 - The contractor shall notify the Bureau of Highways, Howard County, at 410.313.2450 at least five (5) working days before any open cut of any County road or boring/jacking operations in County roads for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per Section 18.114(a) of the Howard County Code.

- PART III - SEWER**
- All sewer mains shall be D.I.P. Class 52 or P.V.C. unless otherwise noted.
 - All pressure sewer mains shall be SDR-21 PVC type.
 - The Contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole wall.
 - All manholes shall be 4'-0" inside diameter unless otherwise noted.
 - Manholes shown with 12" and 16" wells are for brick manholes only.
 - Manholes designated H.T. in plan and profile shall have watertight frame & covers, Standard Detail G-5.52 where watertight manhole frame and cover is used, set top of frame 18" above finished grade unless otherwise noted on the drawings.
 - House(s) with the symbol "C.N.S." indicates that cellar cannot be served.
 - A Septic Fee in the amount of \$180.00 per lot serviced by the common septic system shall be paid to the Howard County Environmental Health Department at the time of the septic construction permit issuance.
 - The Builder shall install a backflow preventer and relief vent on the sewer service at the house at the time of the house connection or as required by the plumbing inspector.
 - The Contractor shall notify the Construction Inspections Division at 410.313.1880, at least fourteen (14) days prior to construction.
 - Septic Tanks shall be vacuum tested on-site by the manufacturer. Septic tank shop drawings from the manufacturer should be submitted to the Howard County Environmental Health Department prior to any installation of the septic tanks.
 - All pressure sewer is to be pressure tested according to the Howard County Department of Public Works Standards and Specifications.
 - The Contractor shall notify the Howard County Health Department at 410.313.2640, at least five (5) working days before any pressure test of pressure sewers, and any septic tanks vacuum or water testing is performed.
 - The Builder shall be responsible for the requirements and method of installation of Grinder Pumps their appliances.
 - Observation Wells to be installed after trench installation is completed.
 - The portions of the public sewer lines which are closer than 50 feet to any well will be encased in concrete or constructed out of welded steel as required by COMAR 26.04.04.05.

*10'X18' Vinyl Sided Storage Building. High wall barn style with 6 foot side walls and no windows. One double door on one end of the building.
 Specifications to include:
 1. 4"X4" pressure treated skid.
 2. 2"X4" floor joists 16" on center.
 3. 2"X4" studs 16" on center.
 4. All walls shall be plated at the bottom and double plated at the top.
 5. 3/8" roof sheathing.
 6. 240 pounds asphalt, 20 year shingle.
 7. doors are to be reinforced with "X" pattern.
 8. Door hinges must be "T" type or strap type. Three hinges per door side.
 9. Vinyl siding color = Almond

OWNER/DEVELOPER
 SCALE: 1"=100'
 PULTE HOME CORPORATION
 1501 S. EDGEMOOR STREET
 SUITE K
 BALTIMORE, MARYLAND 21227

SEWAGE DESIGN FLOW CALCULATIONS

CONSTRUCTION PHASE	MAX. SEWAGE FLOW
PHASE I	PHASE I
Minimum Flow per Bedroom = 150 GPD	
7 Dwellings with 4 Bedrooms = 4,200 GPD	
(Lots 1,2,3,4,19,20 and 21)	
1 Dwelling with 5 Bedrooms = 750 GPD	
(Lot 18)	
	+ 4,950 GPD
	5,000 GPD

SEPTIC TANK DESIGN CALCULATIONS

SIZE OF REQUIRED TANKS	TANK SIZES
7 Dwellings x 1,250 Gallons = 8,750 Gallons	
1 Dwellings x 1,500 Gallons = 1,500 Gallons	
	+ 10,250 Gallons
	Provide one 3,000 Gallon Tank and one 6,700 Gallon Tank with NitriFast 4.5 System

TRENCH DESIGN CHART

CONSTRUCTION PHASE	MAX. SEWAGE FLOW	MAX. TRENCH LENGTH
PHASE I	4950 GPD	1650 LF
PHASE 2	4750 GPD	1650 LF
PHASE 3	4950 GPD	1650 LF

Note: Distribution Boxes D-1 and D-3 shall be built first (at Phase I). D-2 shall be built in the future.

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE STANDARD SPECIFICATIONS AND WITH ROAD CONSTRUCTION PLANS F-03-112

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

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[Signature] 1/22/09 DATE

[Signature] 1/22/09 DATE

SOIL CONSERVATION DISTRICT

DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 1-6-09
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING
 HOWARD COUNTY, MARYLAND

[Signature] 2/17/09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street, Ellicott City, MD 21117
 Tel: 410-750-2251 Fax: 410-759-7330
 E-mail: FSHAssociates@cs.com

DESIGN BY: Mike Mitchell
 DRAWN BY: Mike Mitchell
 CHECKED BY: ZYF
 DATE: Dec. 12, 2003

BY	NO.	REVISION	DATE
	1	ADJUST DATA SHOWN	02/04/09

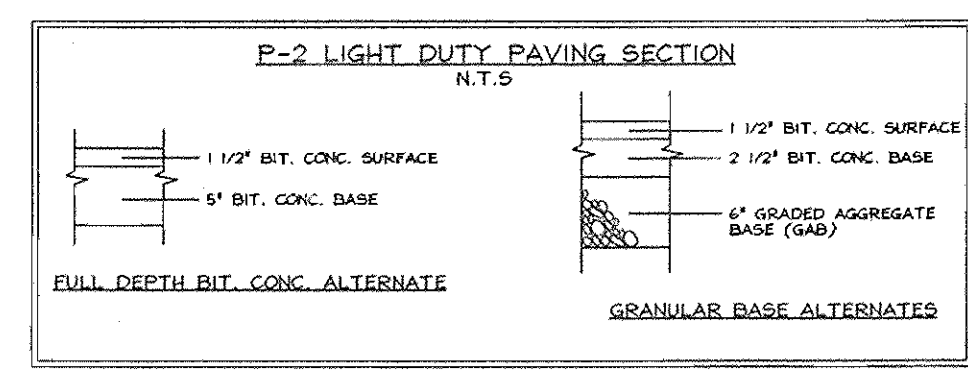
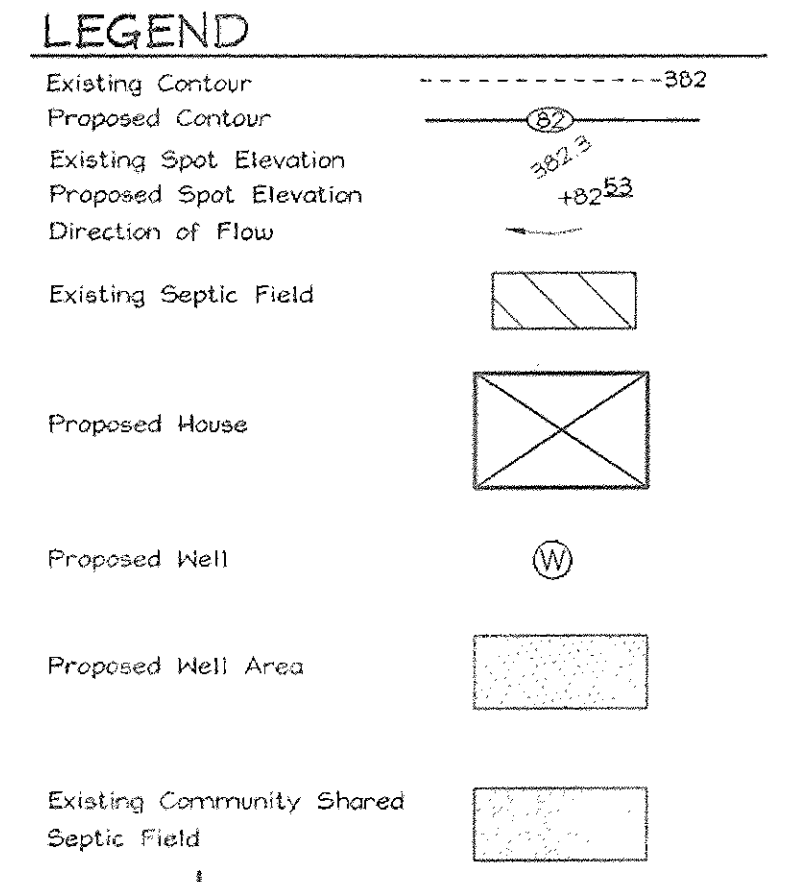
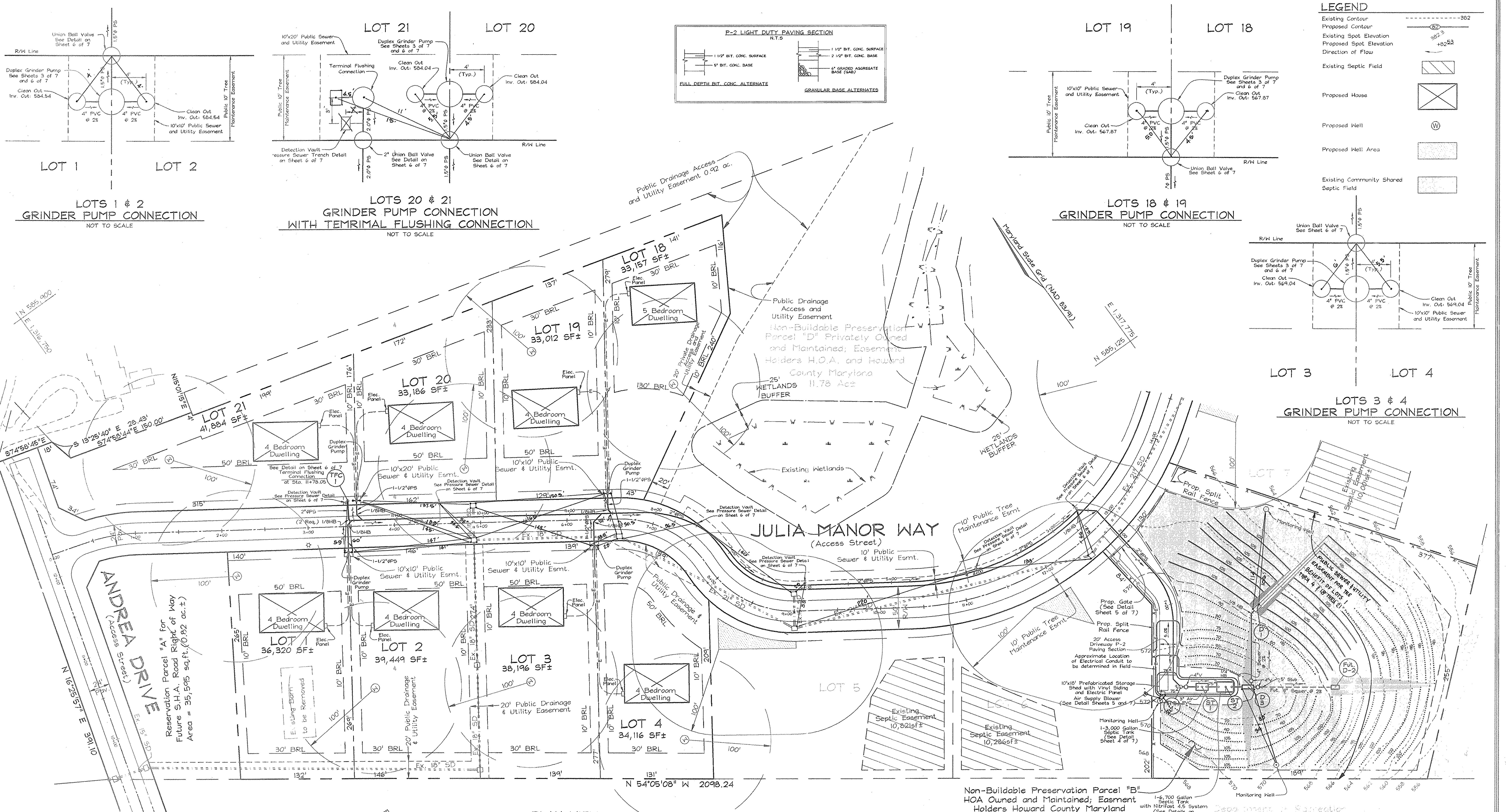
SEWER PLAN

600' SCALE MAP NO. 22 BLOCK NO.: 8

THE PADDOCKS EAST
 LOTS 1-4, 18-21, AND
 NON-BUILDABLE PRESERVATION PARCEL '5'
 CONTRACT NO. 50-4156-D
 TAX MAP #22 GRID 8 PARCEL 7
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET NO. 1 OF 7



LOTS 1 & 2
GRINDER PUMP CONNECTION
NOT TO SCALE

LOTS 20 & 21
GRINDER PUMP CONNECTION
WITH TERMINAL FLUSHING CONNECTION
NOT TO SCALE

LOTS 18 & 19
GRINDER PUMP CONNECTION
NOT TO SCALE

LOTS 3 & 4
GRINDER PUMP CONNECTION
NOT TO SCALE

PLAN VIEW
SCALE: 1"=50'

OWNER/DEVELOPER
PULTE HOME CORPORATION
1501 S. EDGEWOOD STREET
SUITE K
BALTIMORE, MARYLAND 21227

Non-Buildable Preservation Parcel "B"
HOA Owned and Maintained; Easement
Holders Howard County Maryland
Area = 2.60 ac.±
Community Shared Septic Area
for the Use and Benefits of
Lots 1 thru 4 and Lots 18
thru 21. Area = 85,109 sq.ft.

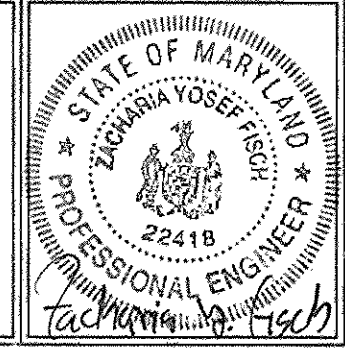
1-6,700 Gallon
Septic Tank
with Nitrifast 4.5 System
(See Details on
Sheet 4 of 7)
Sheet 7 of 7)

APPROVED FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT
Paula Beatty, M.P.S.E.
COUNTY HEALTH OFFICER
3-12-07
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Paul H. Berman
CHIEF, BUREAU OF UTILITIES
1-6-04
DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
William J. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
2/17/04
DATE

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street, Elkridge, MD 21043
Tel: 410-750-2251 Fax: 410-750-7355
E-mail: FSHAssociates@cs.com



DESIGN BY: Mike Mitchell
DRAWN BY: Mike Mitchell
CHECKED BY: ZYF
DATE: Dec. 11, 2003

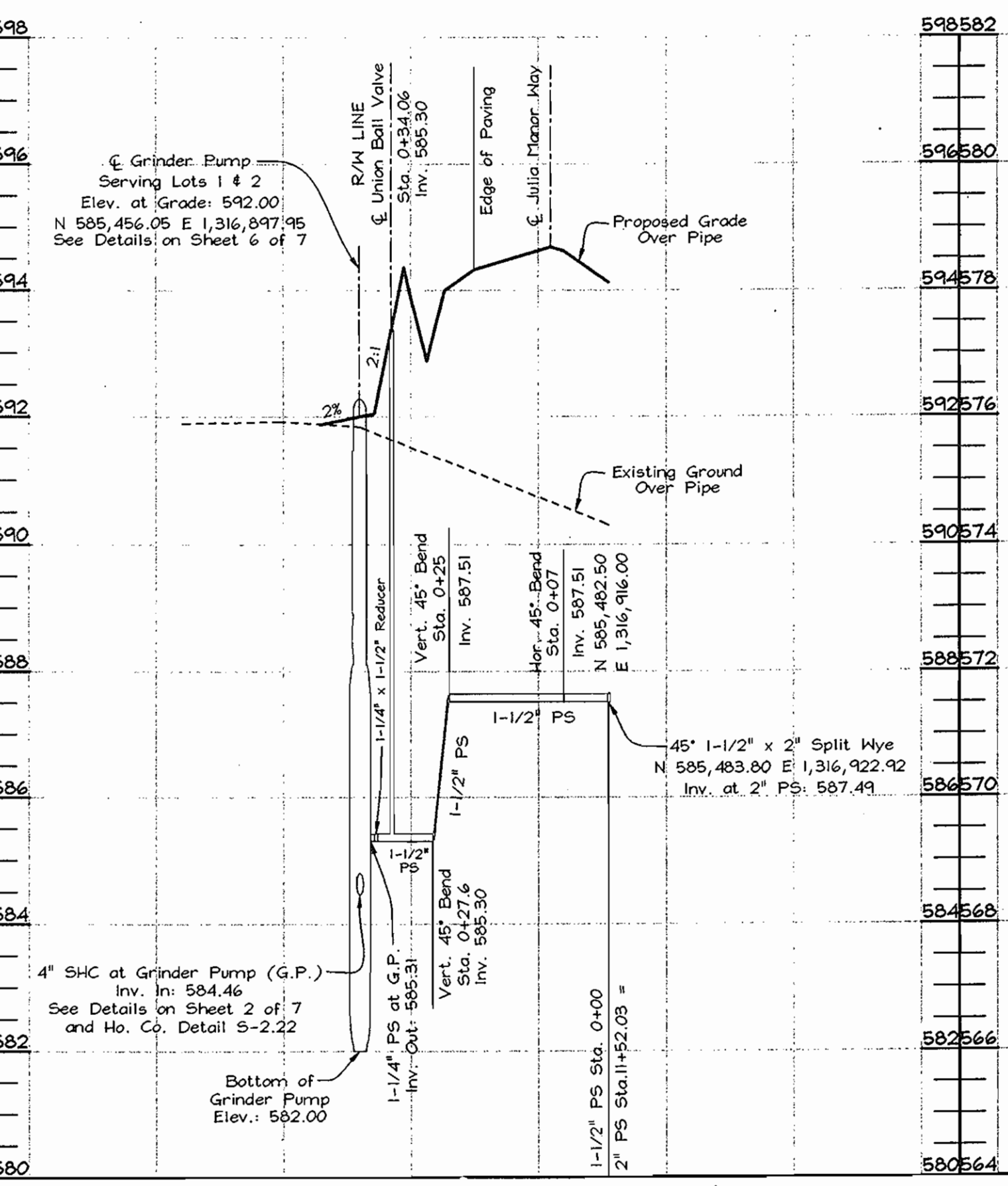
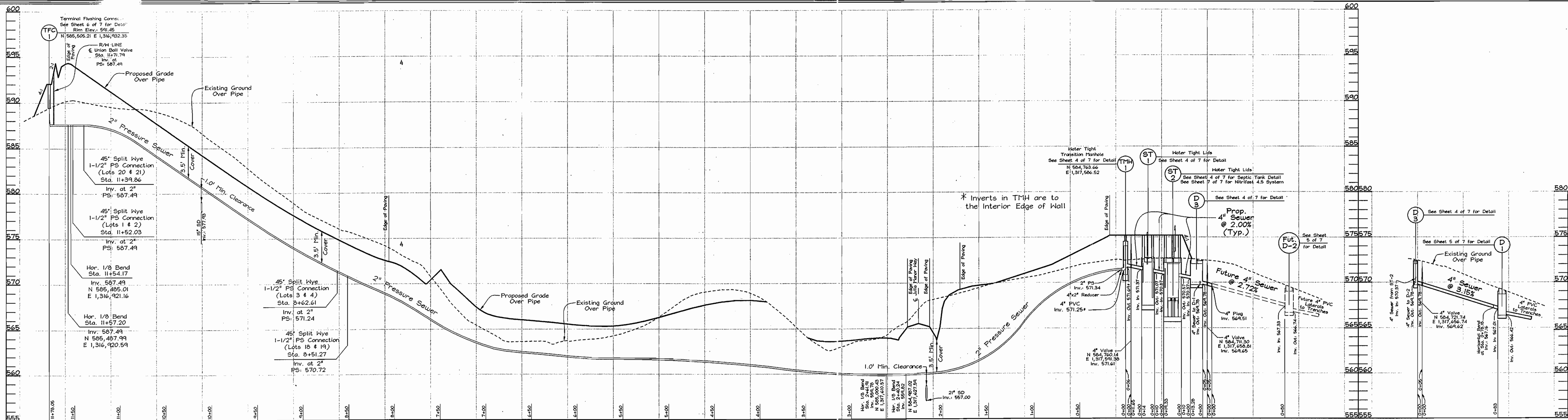
NO.	BY	DATE	REVISION
1	ADULT DATA		

DATE: 10/10/06

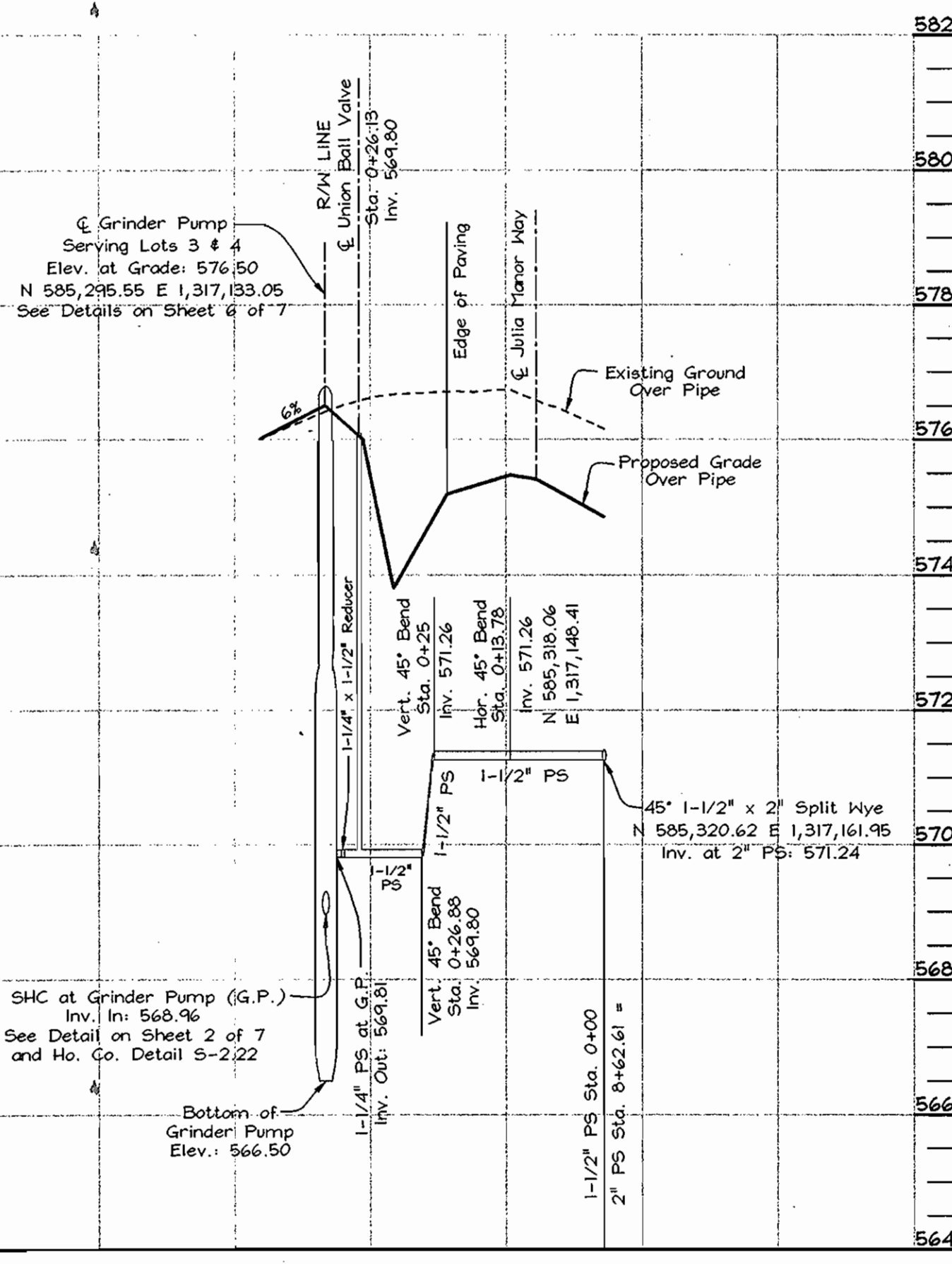
SEWER PLAN
600' SCALE MAP NO.: 22 BLOCK NO.: 8

THE PADDOCKS EAST
LOTS 1-4, 18-21, AND
NON-BUILDABLE PRESERVATION PARCEL 'B'
CONTRACT NO. 50-4156-D
TAX MAP #22 GRID 8
3RD ELECTION DISTRICT
PARCEL 7
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET NO. 2 OF 7

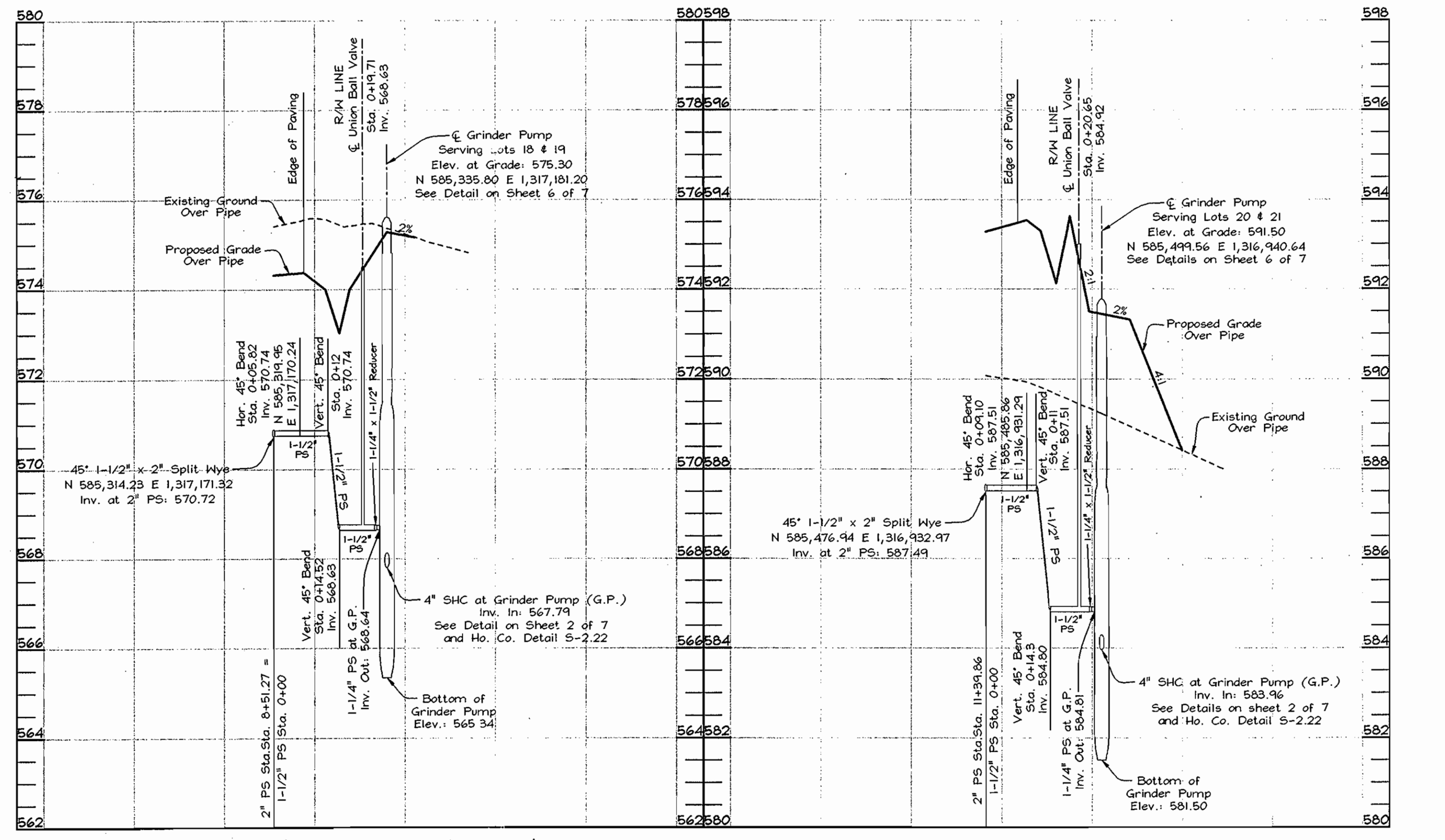


CONNECTION DETAIL LOTS 1 & 2
 SCALE: 1" = 20' HORIZ.
 1" = 2' VERT.

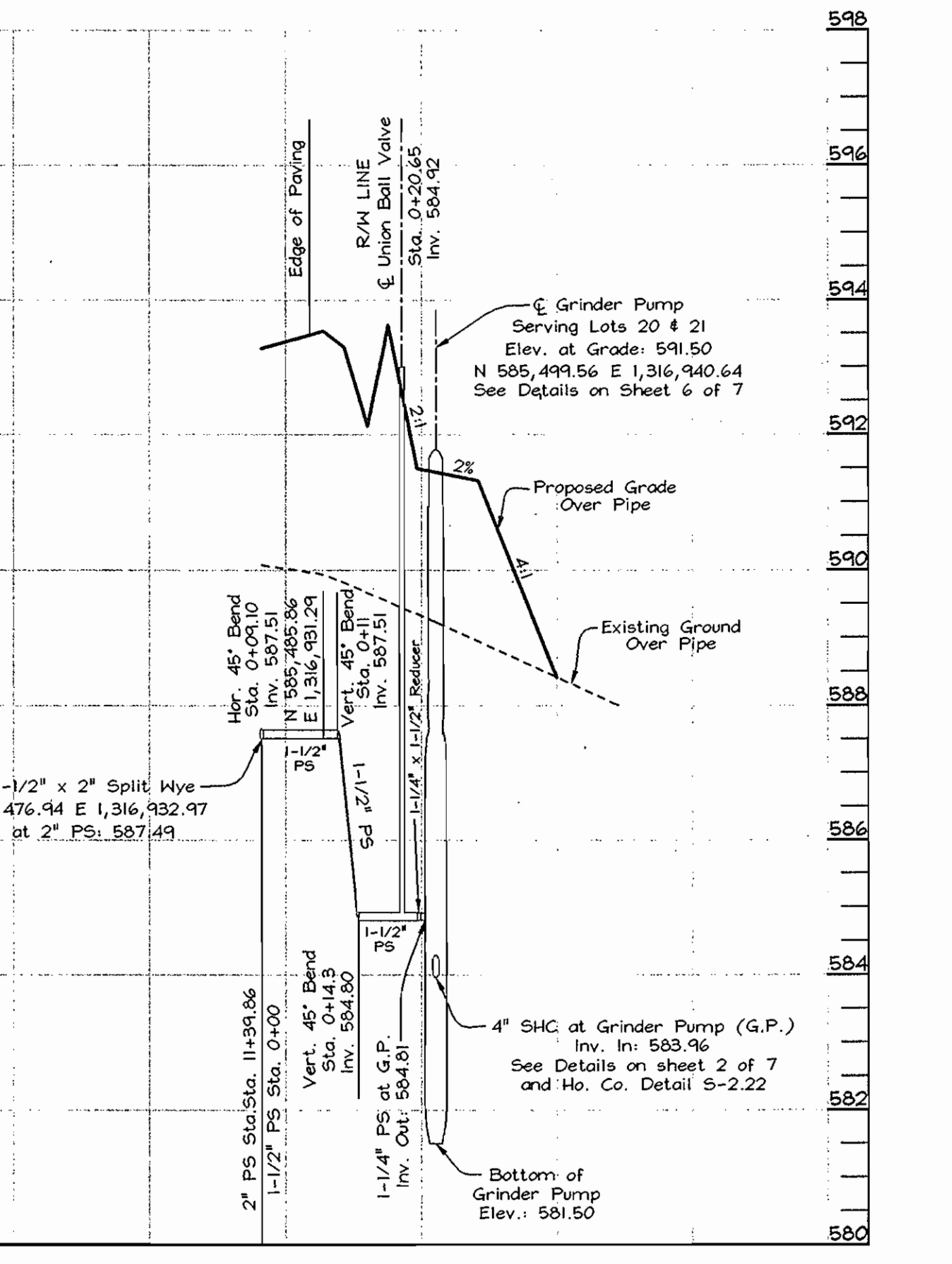


CONNECTION DETAIL LOTS 3 & 4
 SCALE: 1" = 20' HORIZ.
 1" = 2' VERT.

SEWER PROFILE
 SCALE: 1" = 50' HORIZ.
 1" = 5' VERT.



CONNECTION DETAIL LOTS 18 & 19
 SCALE: 1" = 20' HORIZ.
 1" = 2' VERT.



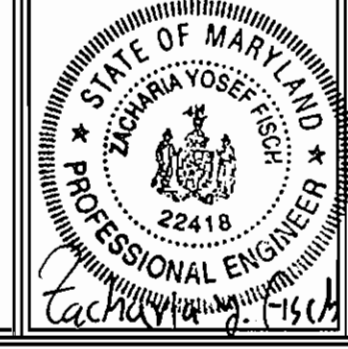
CONNECTION DETAIL LOTS 20 & 21
 SCALE: 1" = 20' HORIZ.
 1" = 2' VERT.

APPROVED FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPARTMENT
 Diana B. ...
 COUNTY HEALTH OFFICER
 2-12-04
 BJB DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Robert ...
 CHIEF, BUREAU OF UTILITIES
 1-6-04
 DATE

DEPARTMENT OF PLANNING & ZONING
 HOWARD COUNTY, MARYLAND
 ...
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com



DESIGN BY: Mike Mitchell
 DRAWN BY: Mike Mitchell
 CHECKED BY: ZYF
 DATE: Dec. 11, 2003

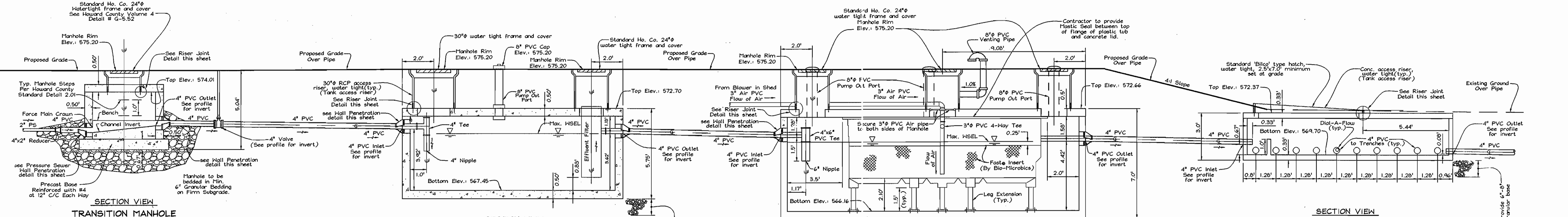
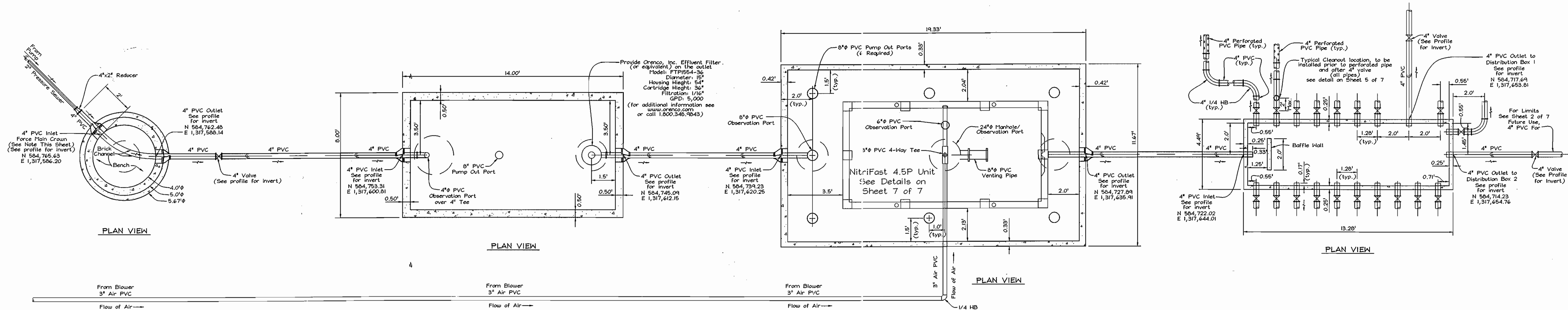
BY	NO.	REVISION	DATE

SEWER PROFILE AND DETAILS
 600' SCALE MAP NO.: 22 BLOCK NO.: 8

THE PADDOCKS EAST
 LOTS 1-4, 18-21, AND
 NON-BUILDABLE PRESERVATION PARCEL 'B'
 CONTRACT NO. 50-4156-D
 TAX MAP 422 GRID 8 PARCEL 7
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET NO. 3 OF 7

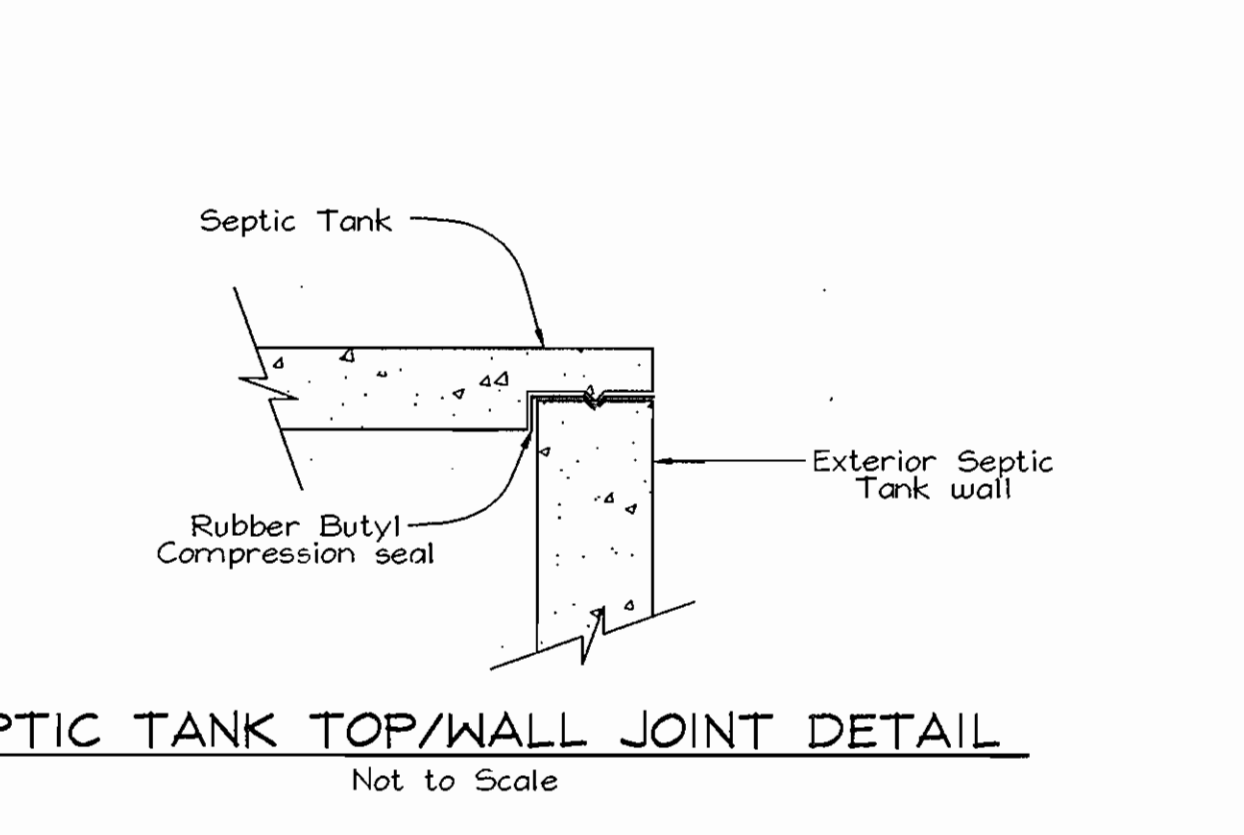
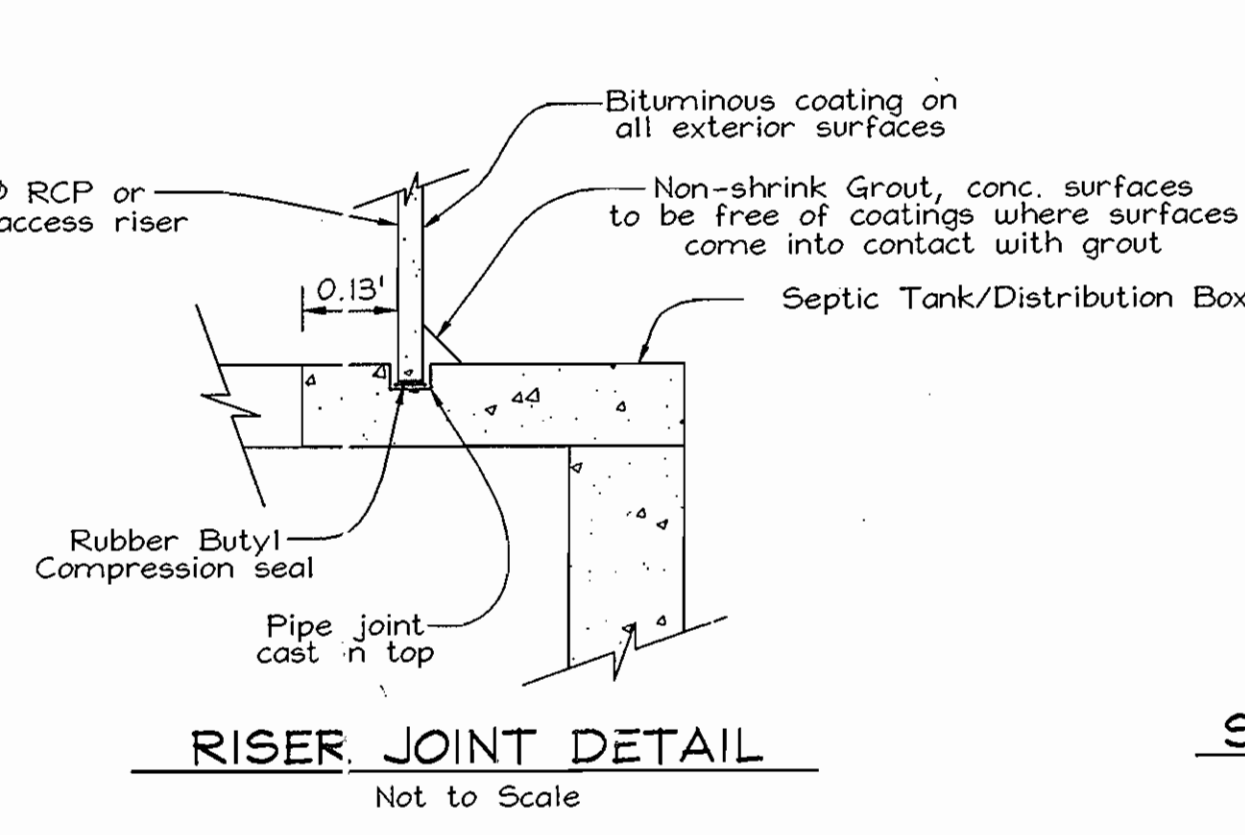
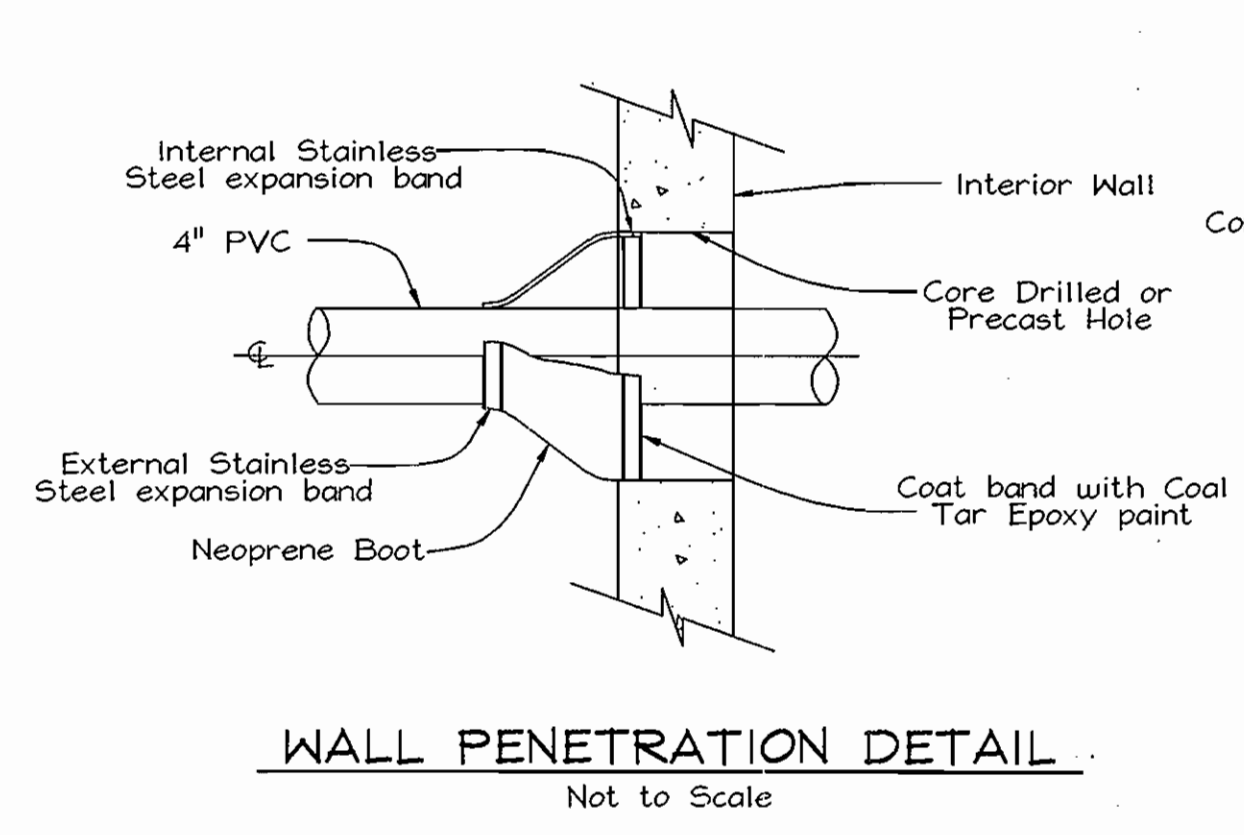
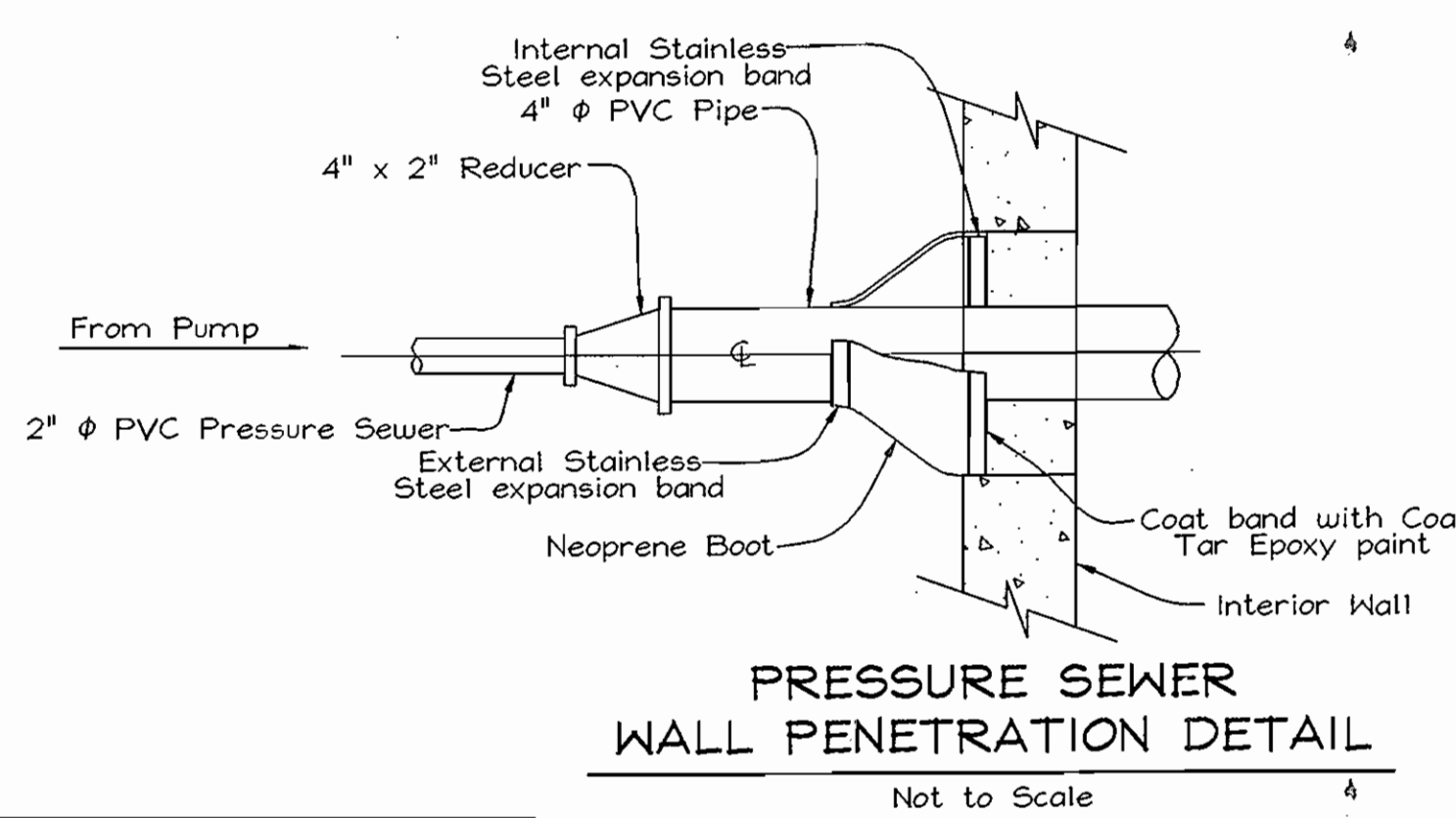
OWNER/DEVELOPER
 PULTE HOME CORPORATION
 1501 S. EDGEWOOD STREET
 SUITE K
 BALTIMORE, MARYLAND 21227



- NOTES:**
- Elevation of gravity sewer invert shall be a minimum of 0.1' above elevation of force main crown.
 - Provide smooth upward sloping channel from force main to gravity sewer.

NOTE: To insure equal distribution to each manifold, provide "Dial-a-Flow" levelers from American Manufacturing Company, Inc. (or equivalent).

Part #	Size	Color
170-0038	4" Nominal - 4" ID 4" above	Green
170-0039	4" Nominal - Under 4" ID	Grey



APPROVED FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT

[Signature] 2-12-2004
COUNTY HEALTH OFFICER DATE

OWNER/DEVELOPER
PULTE HOME CORPORATION
1501 S. EDGEMOOD STREET
SUITE K
BALTIMORE, MARYLAND 21227

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1-6-04
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

[Signature] 2/12/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHassociates@cs.com



DESIGN BY: Mike Mitchem
DRAWN BY: Mike Mitchem
CHECKED BY: JTF
DATE: Dec. 11, 2003

BY	NO.	REVISION	DATE

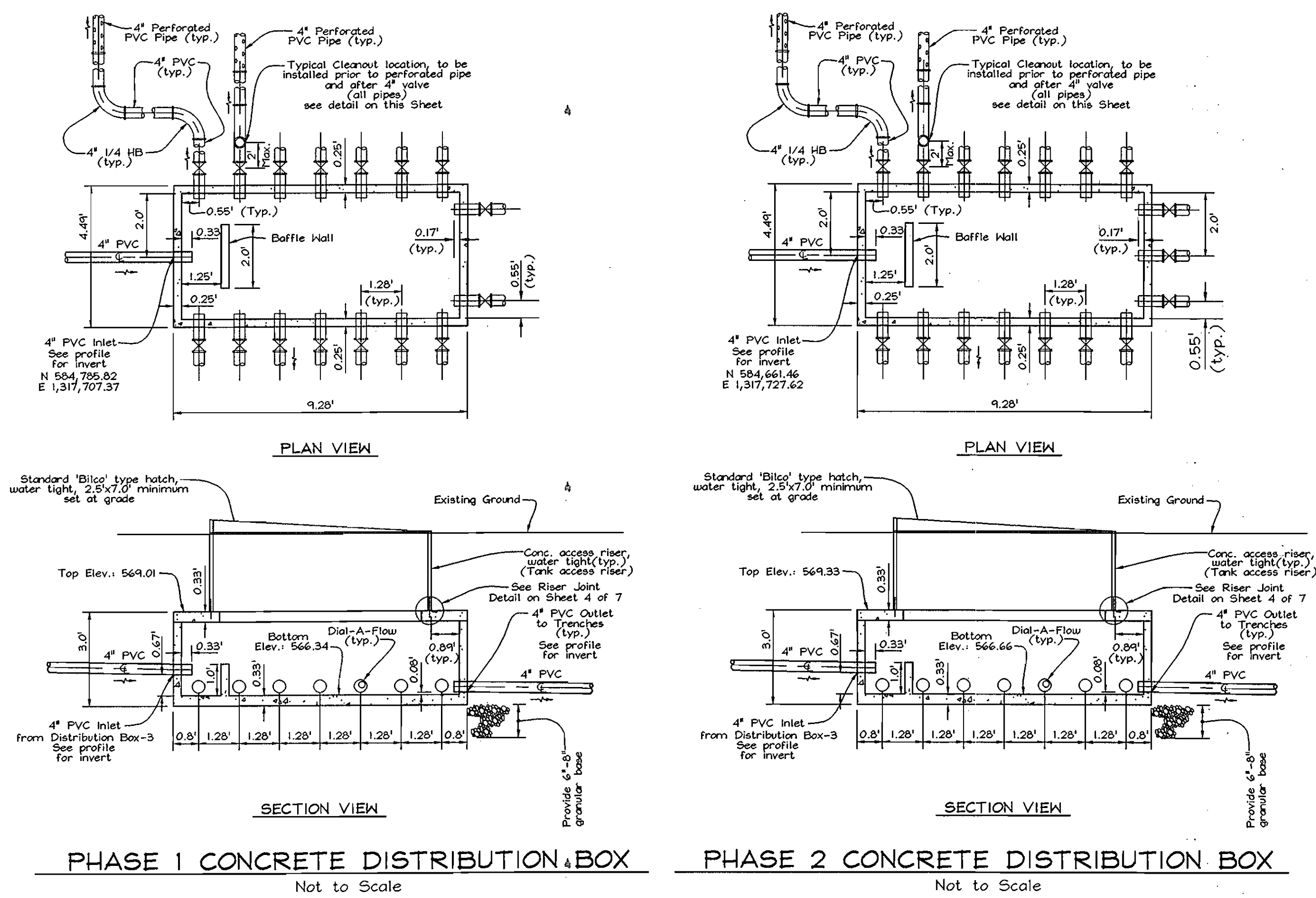
SEWER DETAILS

600' SCALE MAP NO.: 22 BLOCK NO.: 8

TH PADDOCKS EAST
LOTS 1-4, 18-21, AND
NON-BUILDABLE PRESERVATION PARCEL 'B'
CONTRACT NO. 50-4156-D
TAX MAP #22 GRID 8
3RD ELECTION DISTRICT

PARCEL 7
HOWARD COUNTY, MARYLAND

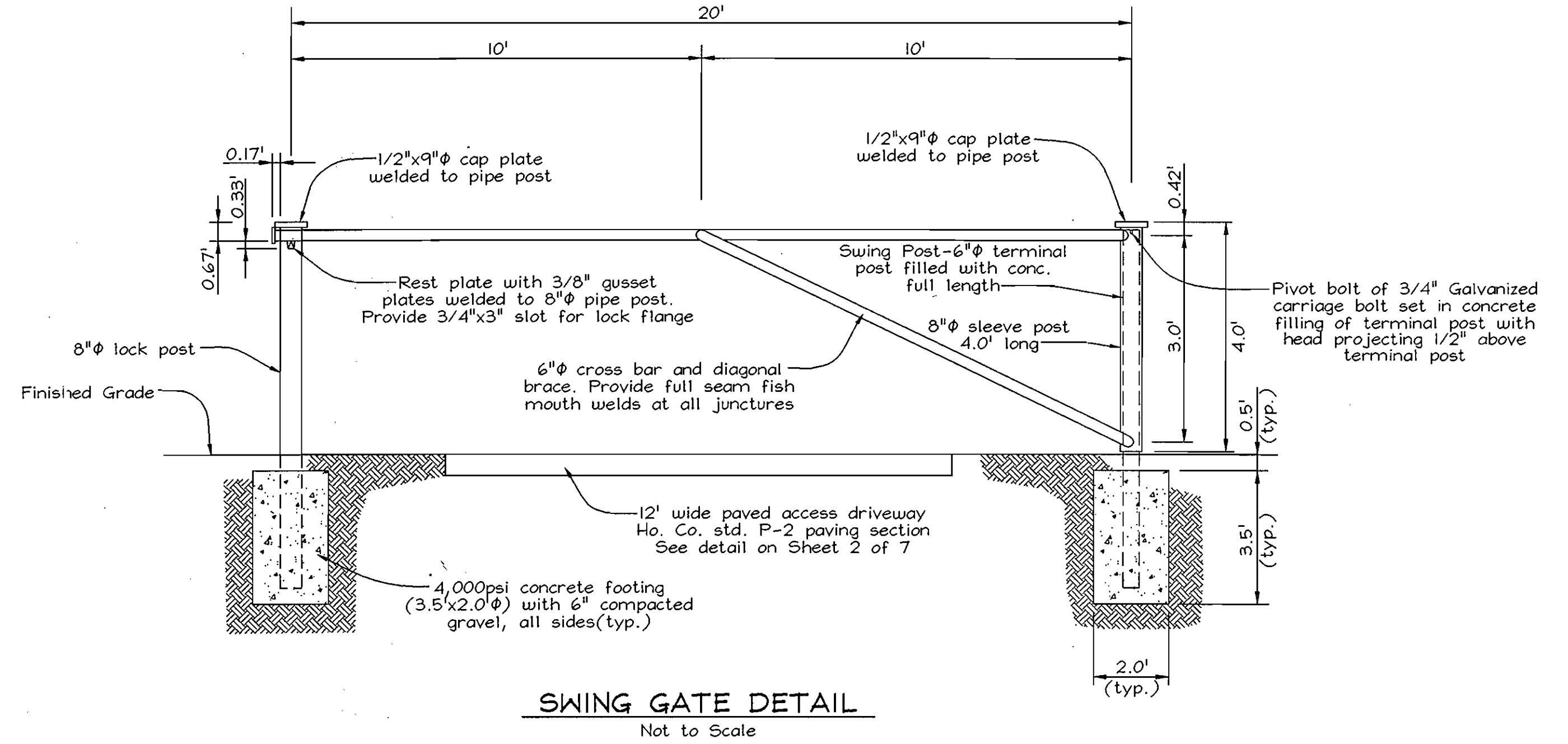
SCALE AS SHOWN
SHEET NO. 4 OF 7



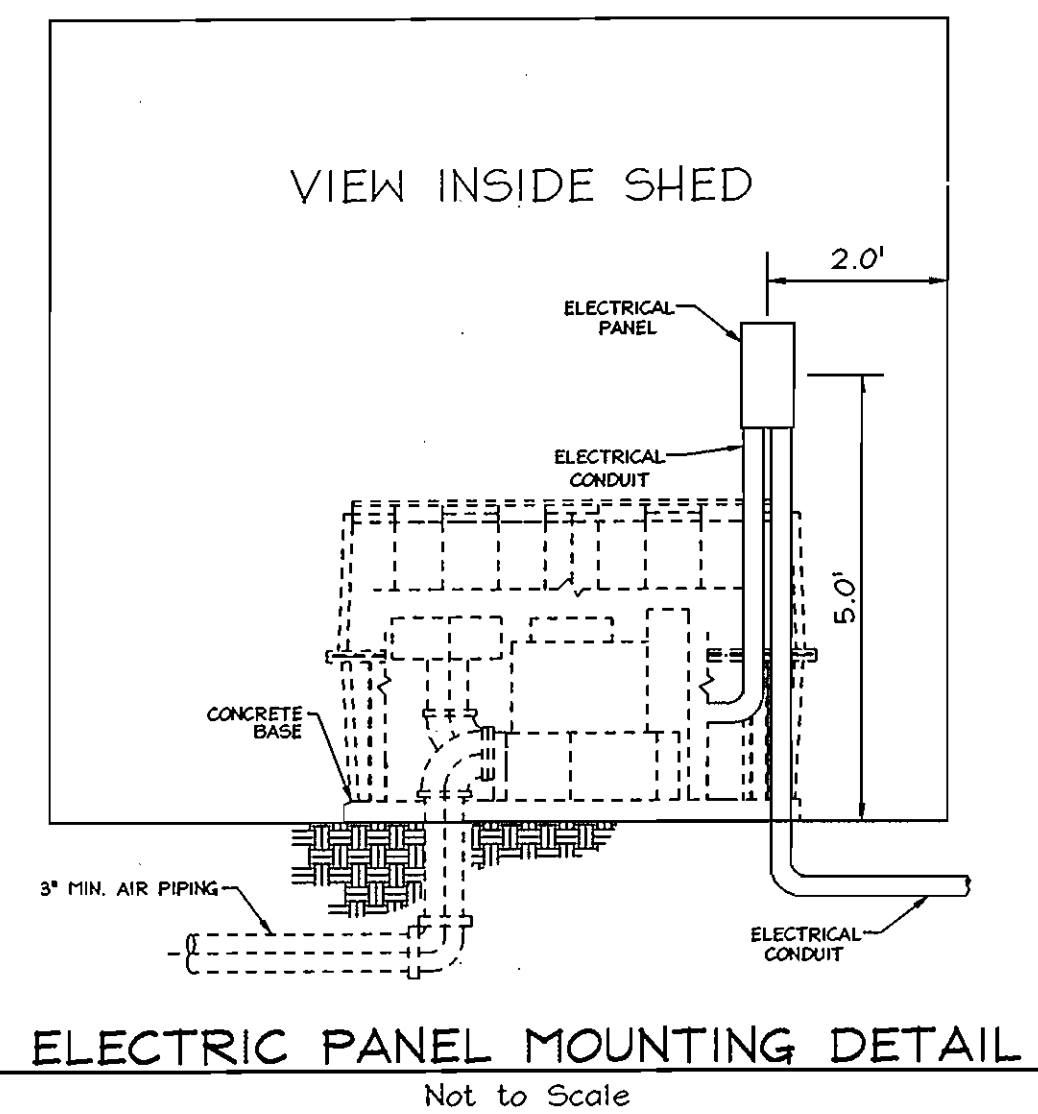
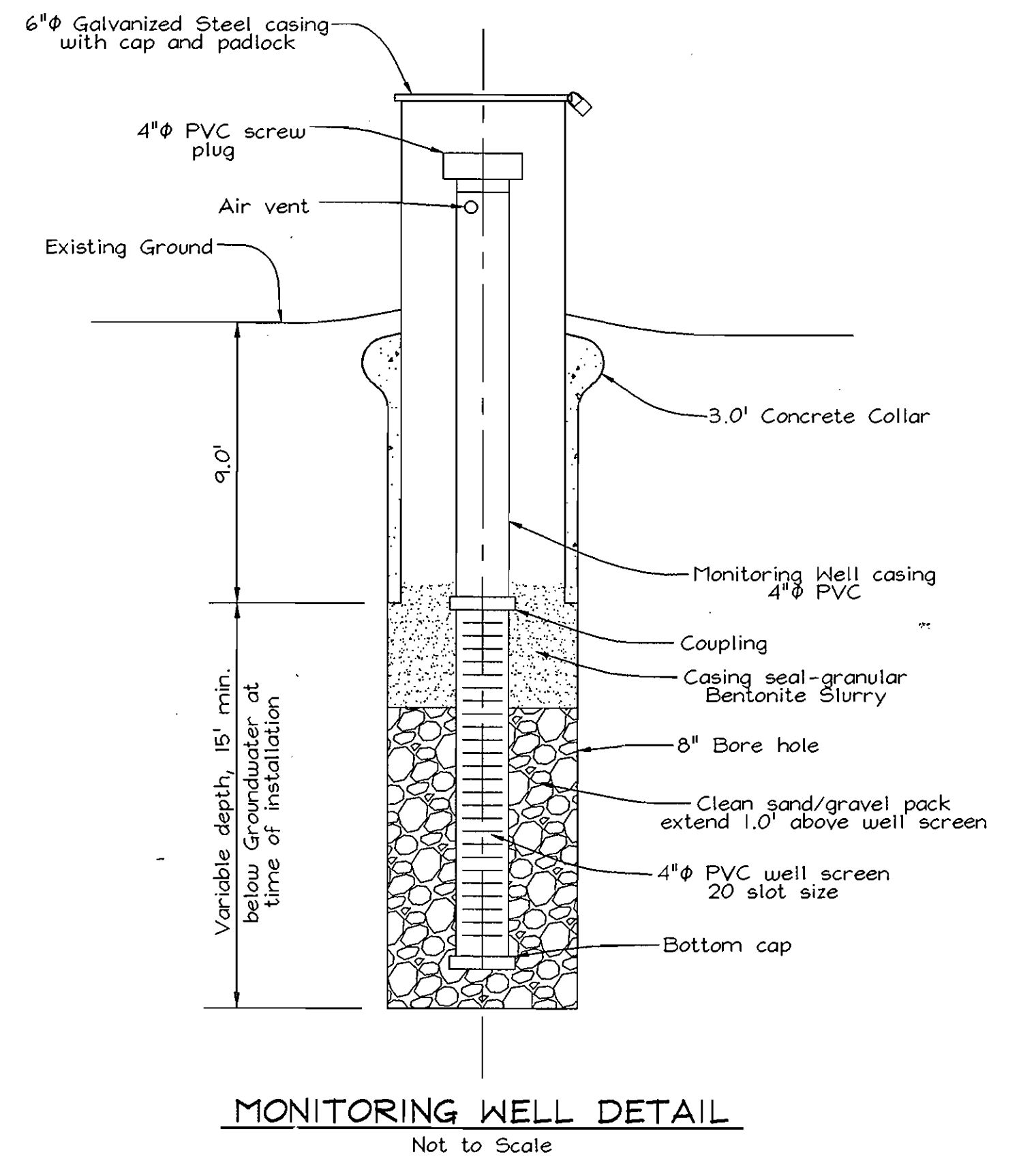
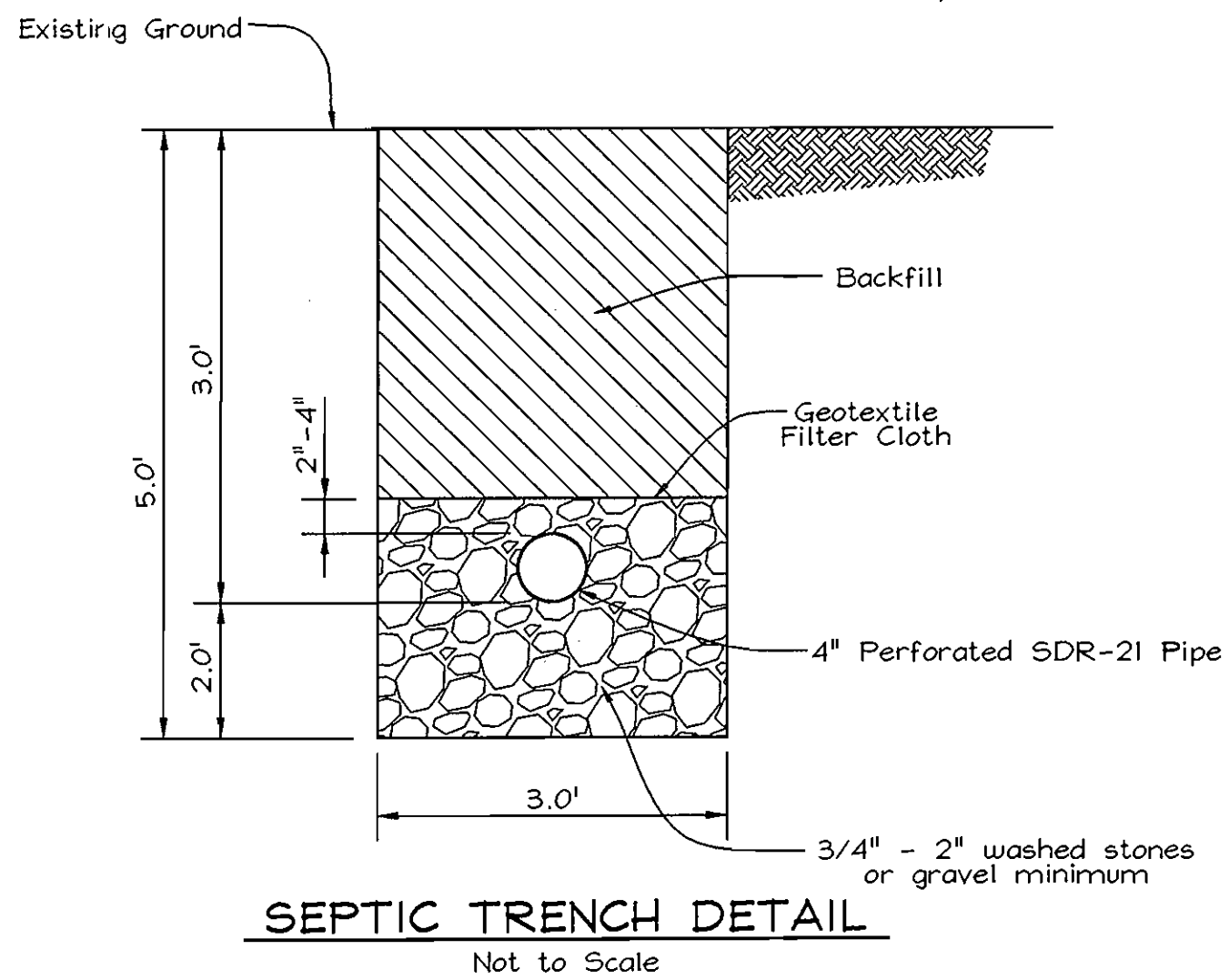
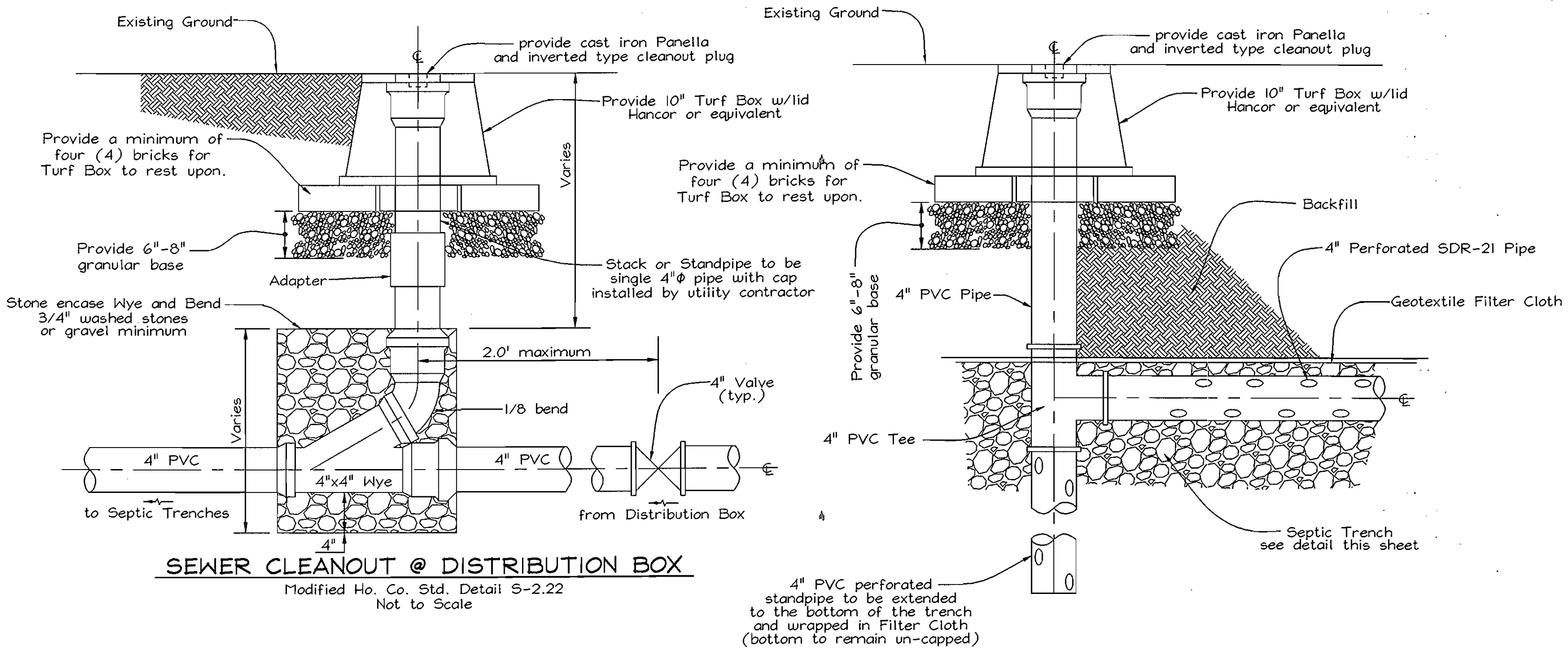
NOTE: To insure equal distribution to each manifold, provide "Dial-a-Flow" levers from American Manufacturing Company, Inc. (or equivalent).

Size	Color
Part # 170-0036 4" Nominal - 4" ID # above	Green
170-0094 4" Nominal - Under 4" ID	Grey

(for additional information see www.americanmfg.com or call 1.800.345.3152)



NOTES:
1. All steel members to be hot dipped galvanized.
2. Provide reflective tapes on center of posts and crossbars.
3. Padlock to be keyed to Howard County DPH master key system.



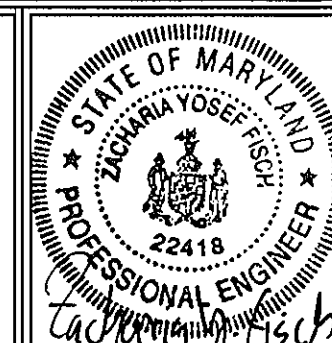
OWNER/DEVELOPER
PULTE HOME CORPORATION
1501 S. EDGEWOOD STREET
SUITE K
BALTIMORE, MARYLAND 21227

APPROVED FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT
Dennis Banta 2-22-04
COUNTY HEALTH OFFICER 133 DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Robert Benjamin 1-6-04
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
Robert Benjamin 2/12/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

FSH Associates
Engineers Planners Surveyors
8318 Forest Street Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com



DESIGN BY: Mike Mischen
DRAWN BY: Mike Mischen
CHECKED BY: ZYF
DATE: Dec. 11, 2003

BY	NO.	REVISION	DATE

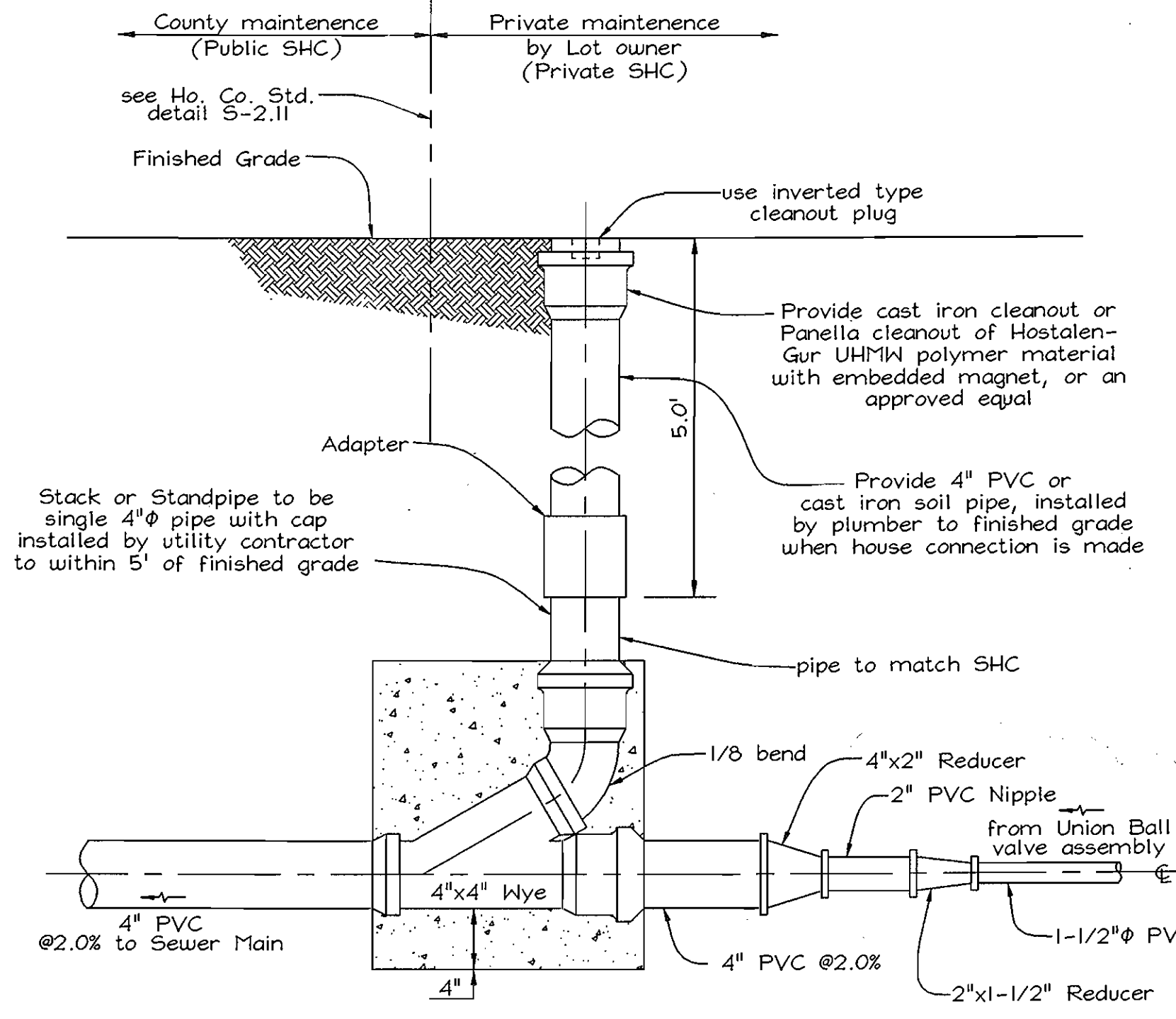
SEWER DETAILS

600' SCALE MAP NO.: 22 BLOCK NO.: 8

THE PADDOCKS EAST
LOTS 1-4, 18-21, AND
NON-BUILDABLE PRESERVATION PARCEL 'B'
CONTRACT NO. 50-4156-D
TAX MAP #22 GRID 8
3RD ELECT'N DISTRICT

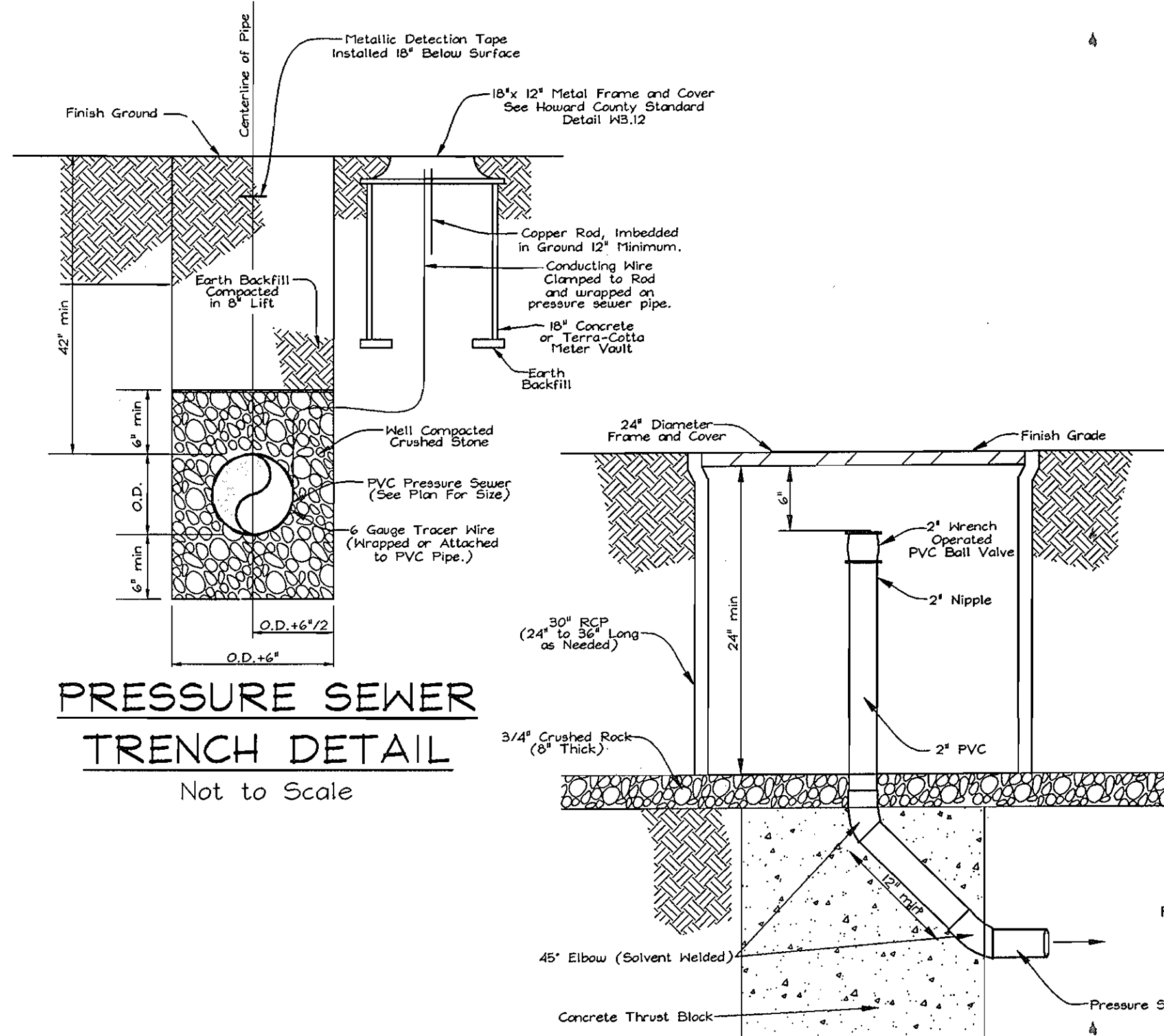
PARCEL 7
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET NO. 5 OF 7



TYPICAL FORCE MAIN HOUSE CONNECTION
Modified Ho. Co. Std. Detail 5-2.22
Not to Scale

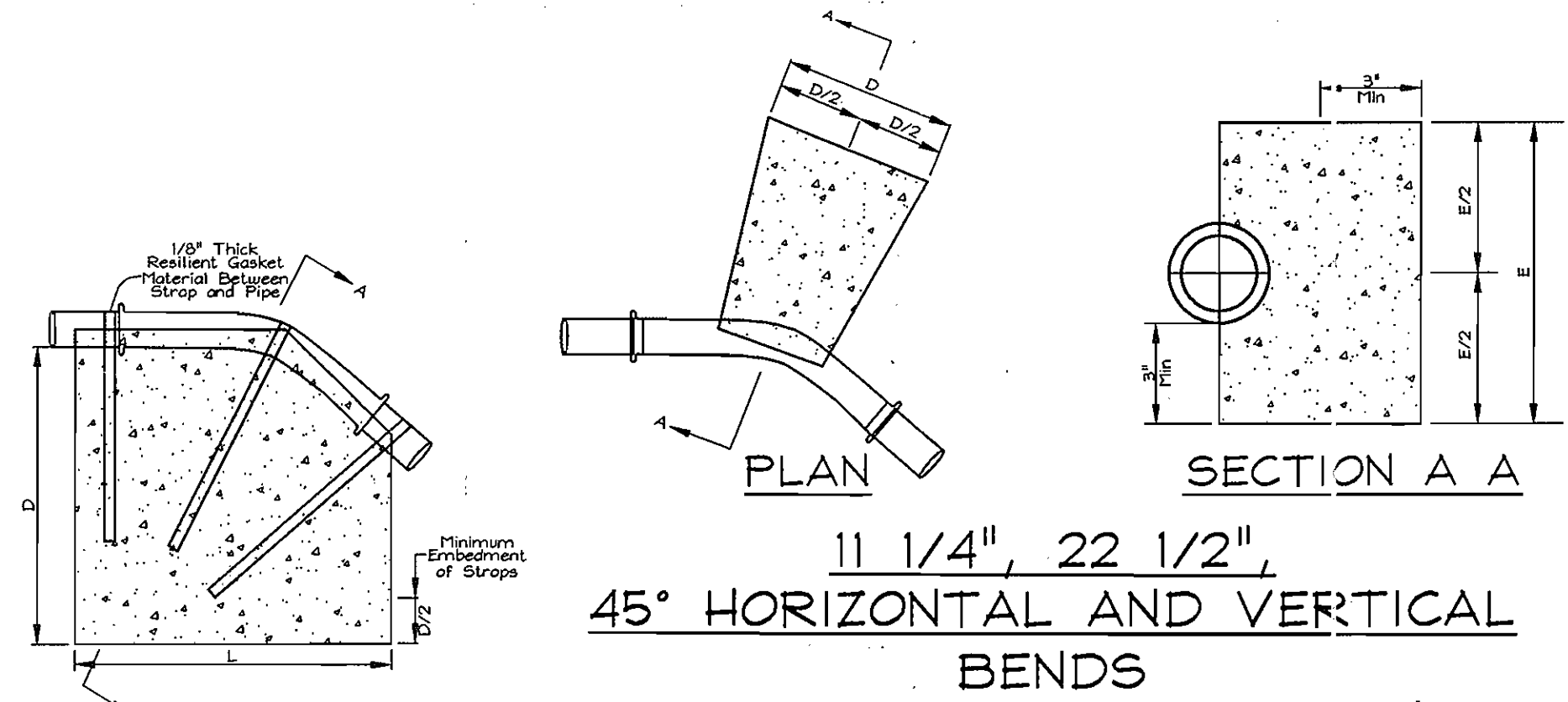
NOTE: Connection may also be made on Standpipe with a minimum of 3.5' cover



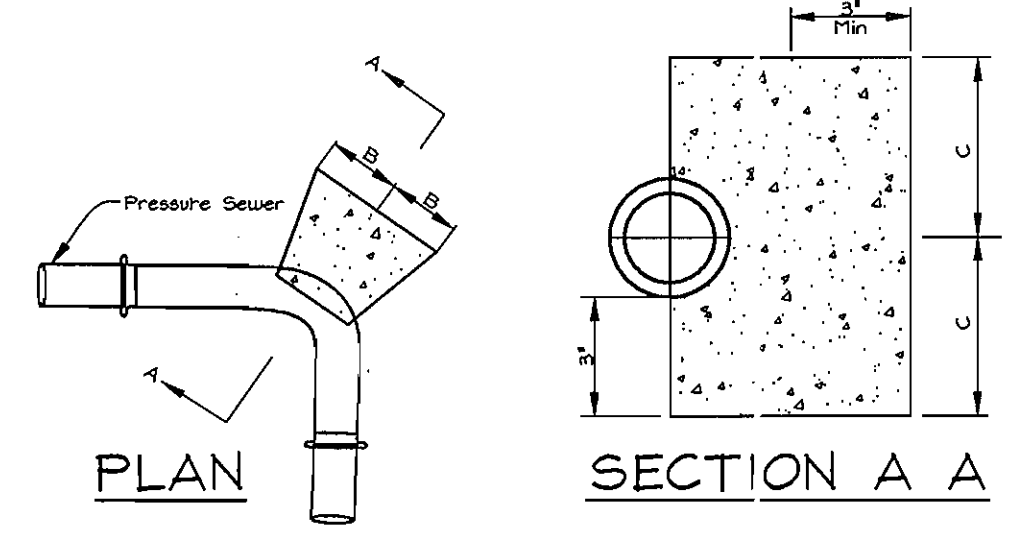
PRESSURE SEWER TRENCH DETAIL
Not to Scale

TERMINAL FLUSHING CONNECTION
Not to Scale

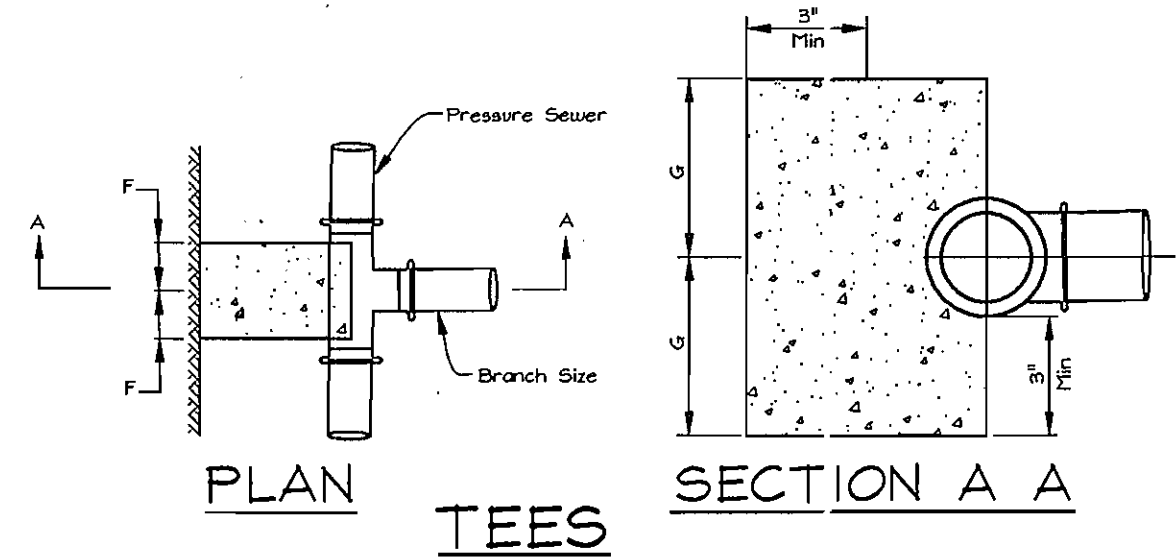
BUTRESS DIMENSIONS						
PIPE SIZE	B	C	D	E	F	G
1 1/2"	4 1/2"	4 1/2"	5"	9"	4 1/2"	4"
2"	5"	5"	7"	7"	5"	5"



SECTION A A ANCHORING PRESSURE SEWERS
(Upper Vertical Bends)
Not to Scale

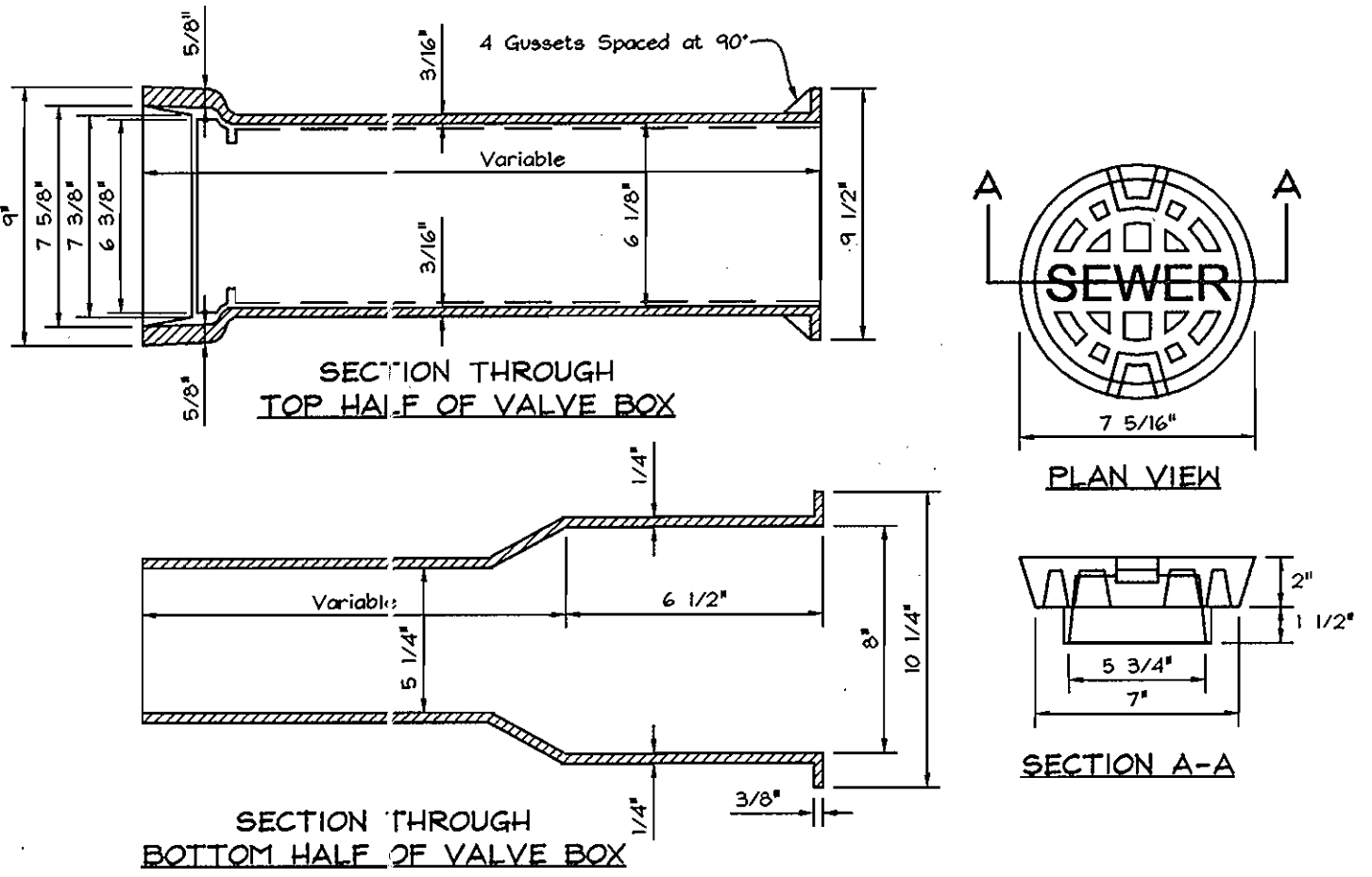


90 degree HORIZONTAL BENDS

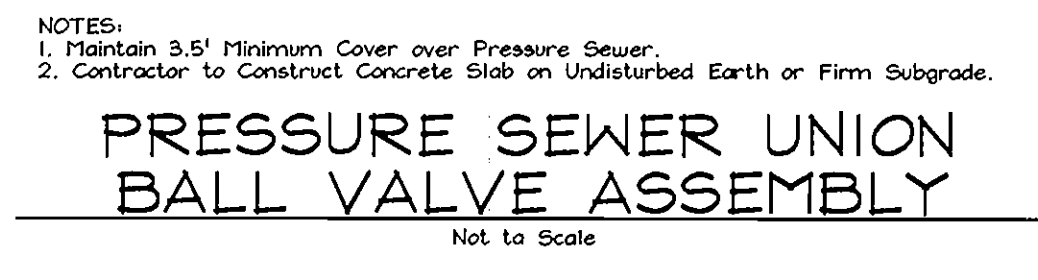


PRESSURE SEWER BLOCKING DETAILS
Not to Scale

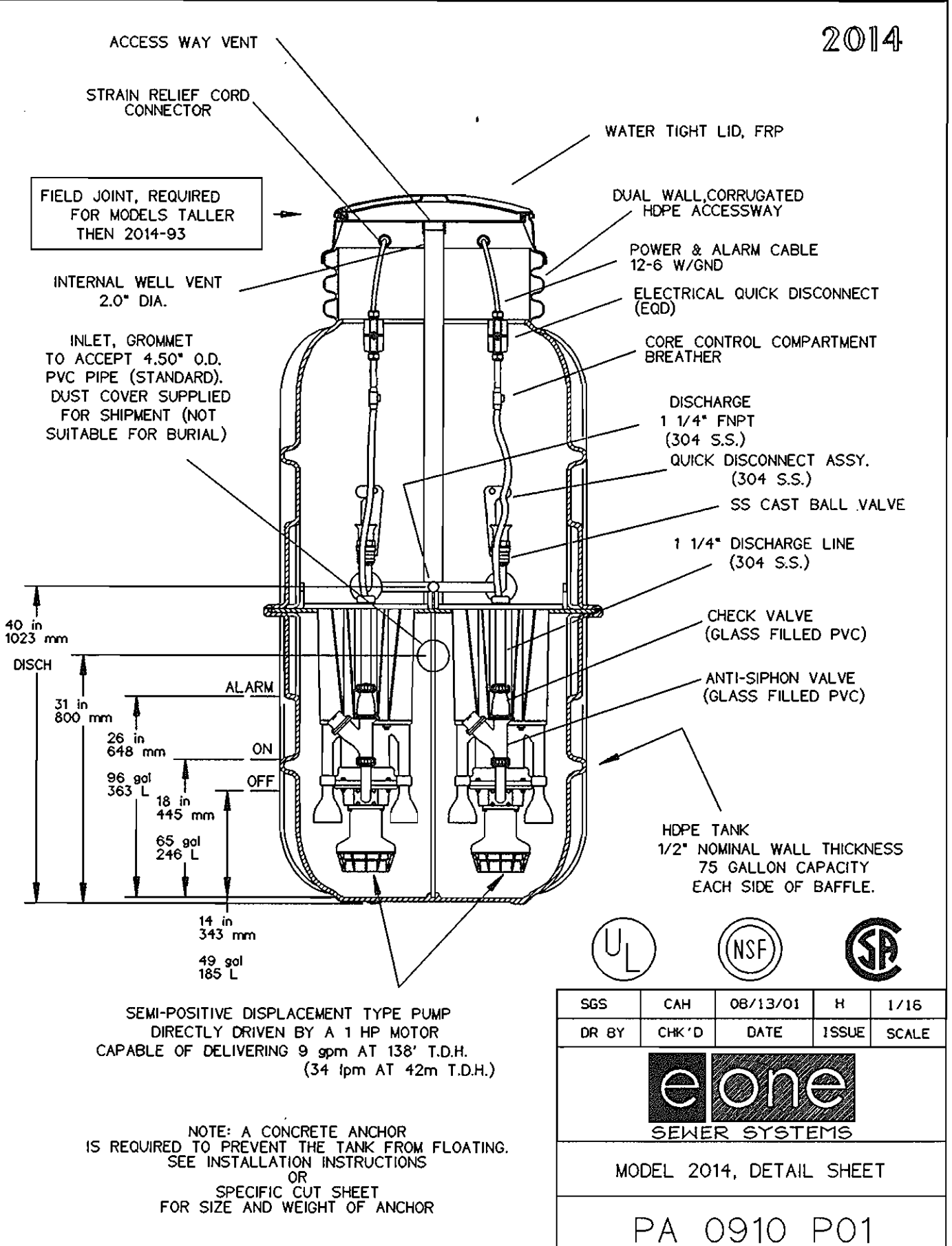
- SPECIFICATIONS:**
- Cast Iron Sliding Type Min. T.S. 30,000 Psi
 - Top Section 16" Bottom Section 18"
 - Boxes Adjustable 34" to 46"
 - Top Section 16" Bottom Section 30" Min. WT. Per Box 100 Lbs



SECTION THROUGH BOTTOM HALF OF VALVE BOX
ADJUSTABLE VALVE BOX ROUND HEAD SLIDING TYPE
Not to Scale



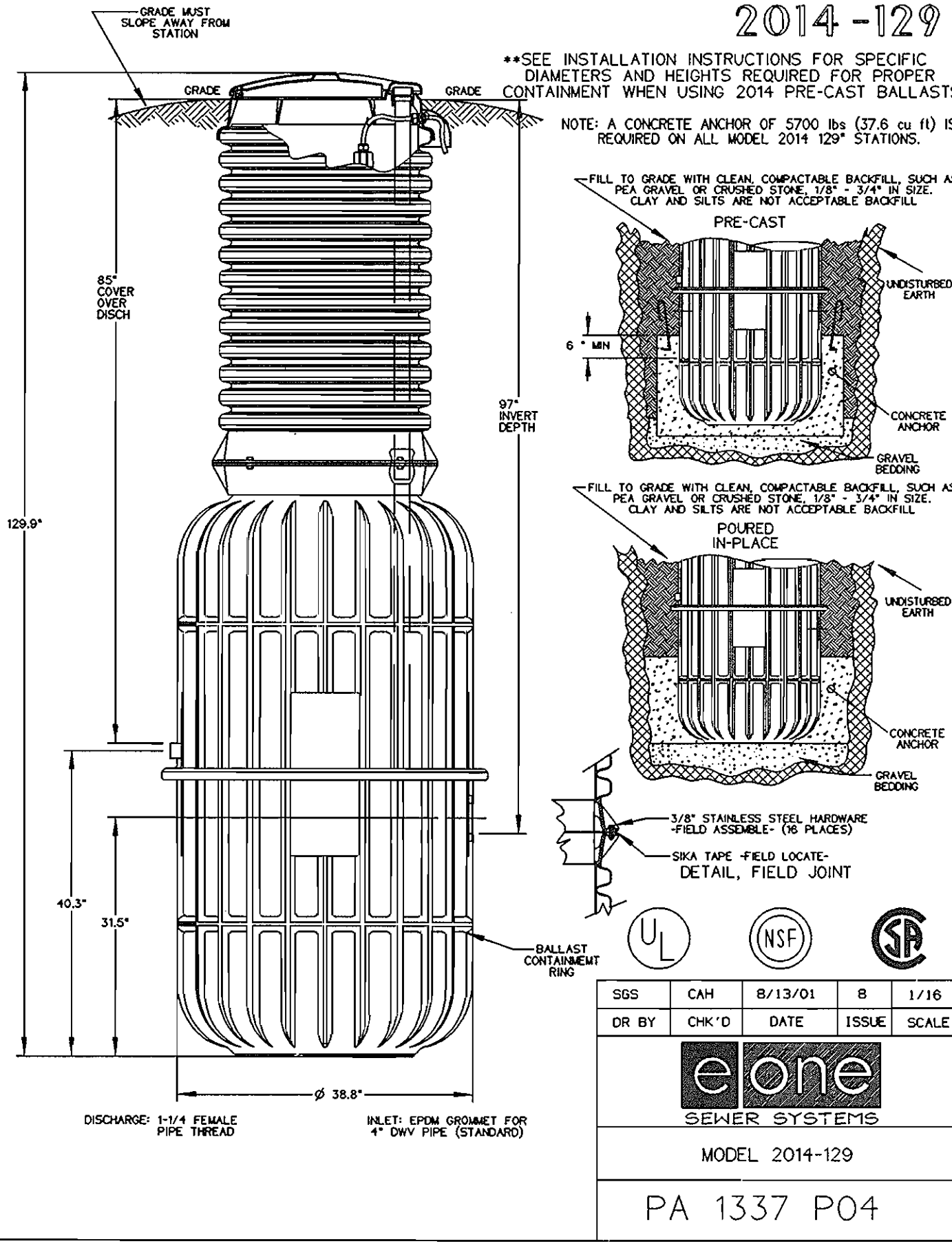
PRESSURE SEWER UNION BALL VALVE ASSEMBLY
Not to Scale



SEMI-POSITIVE DISPLACEMENT TYPE PUMP DIRECTLY DRIVEN BY A 1 HP MOTOR CAPABLE OF DELIVERING 9 gpm AT 138' T.D.H. (34 lpm AT 42m T.D.H.)

NOTE: A CONCRETE ANCHOR IS REQUIRED TO PREVENT THE TANK FROM FLOATING. SEE INSTALLATION INSTRUCTIONS OR SPECIFIC CUT SHEET FOR SIZE AND WEIGHT OF ANCHOR

SSS	CAH	08/13/01	H	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE
eone SEWER SYSTEMS				
MODEL 2014, DETAIL SHEET				
PA 0910 P01				



**SEE INSTALLATION INSTRUCTIONS FOR SPECIFIC DIAMETERS AND HEIGHTS REQUIRED FOR PROPER CONTAINMENT WHEN USING 2014 PRE-CAST BALLASTS

NOTE: A CONCRETE ANCHOR OF 5700 LBS (27.6 cu ft) IS REQUIRED ON ALL MODEL 2014 129 STATIONS.

SSS	CAH	8/13/01	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE
eone SEWER SYSTEMS				
MODEL 2014-129				
PA 1337 P04				

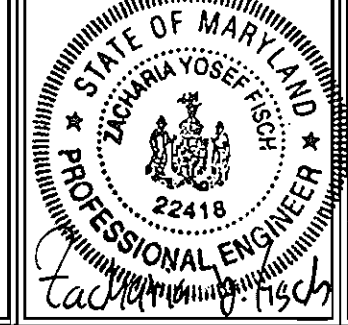
OWNER/DEVELOPER
PULTE HOME CORPORATION
1501 S EDGEMOOD STREET
SUITE K
BALTIMORE, MARYLAND 21227

APPROVED FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT
Demetrius M. Williams
COUNTY HEALTH OFFICER
2-12-04
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
John J. ...
CHIEF, BUREAU OF UTILITIES
DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street, Elliott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com



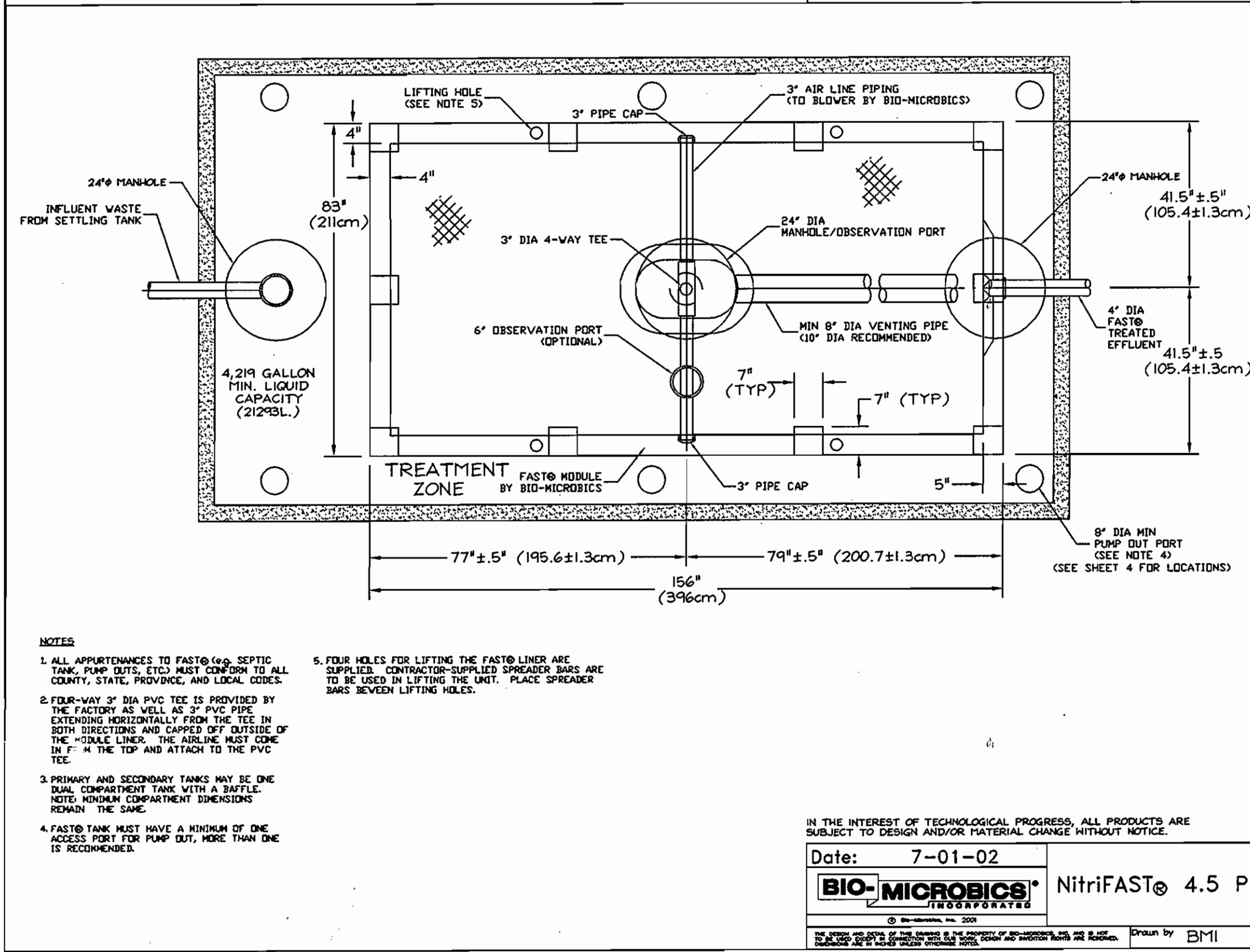
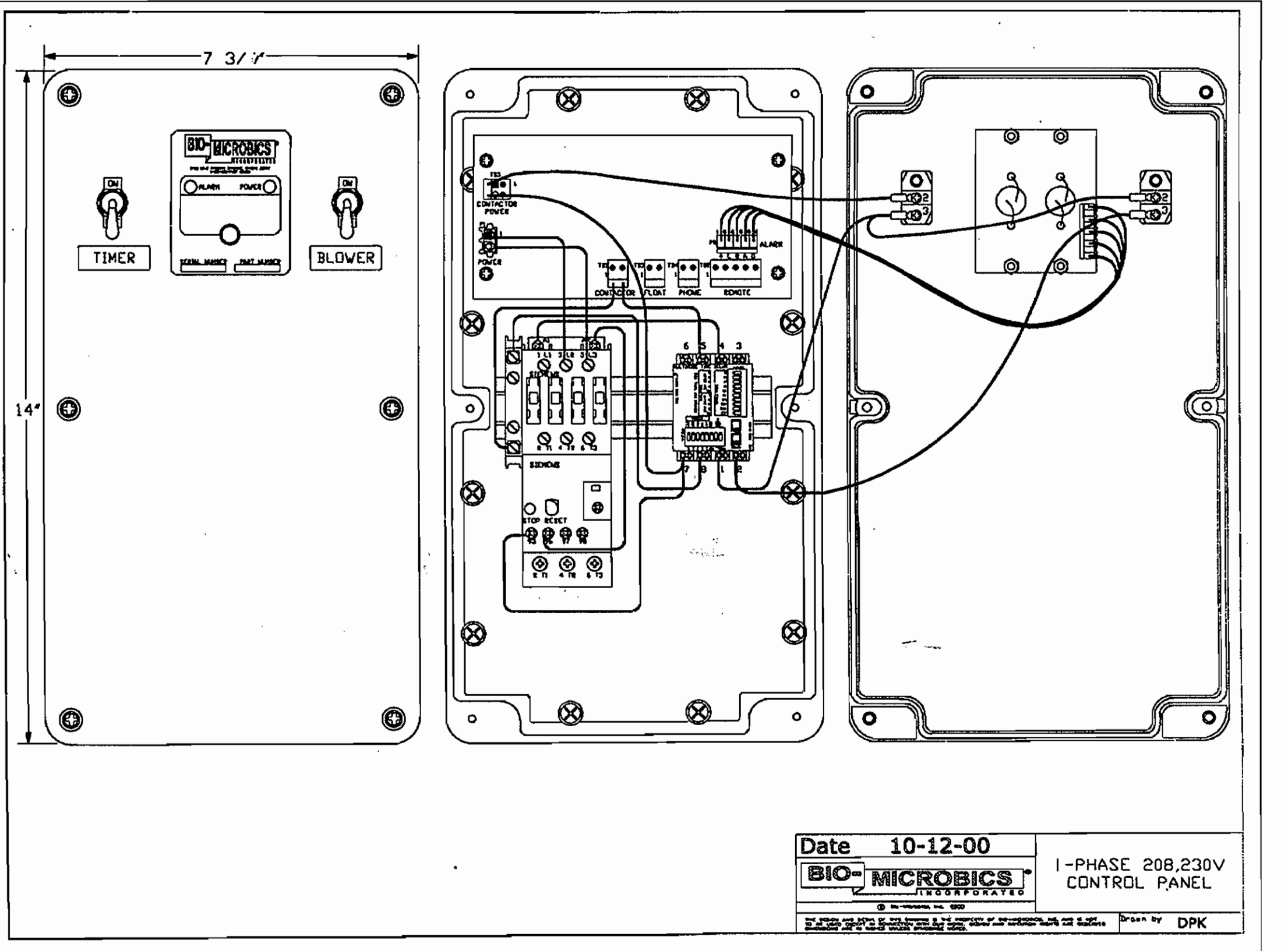
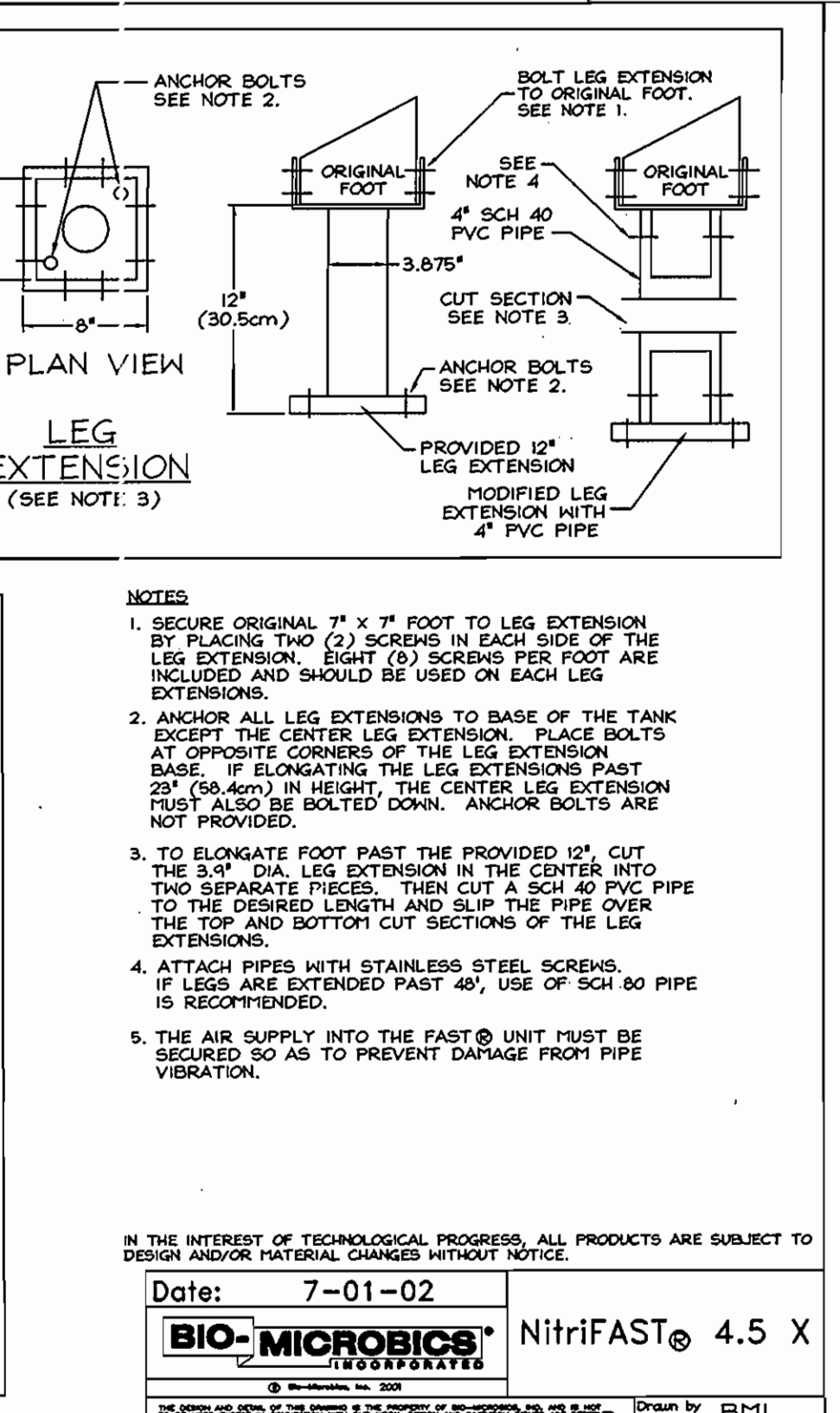
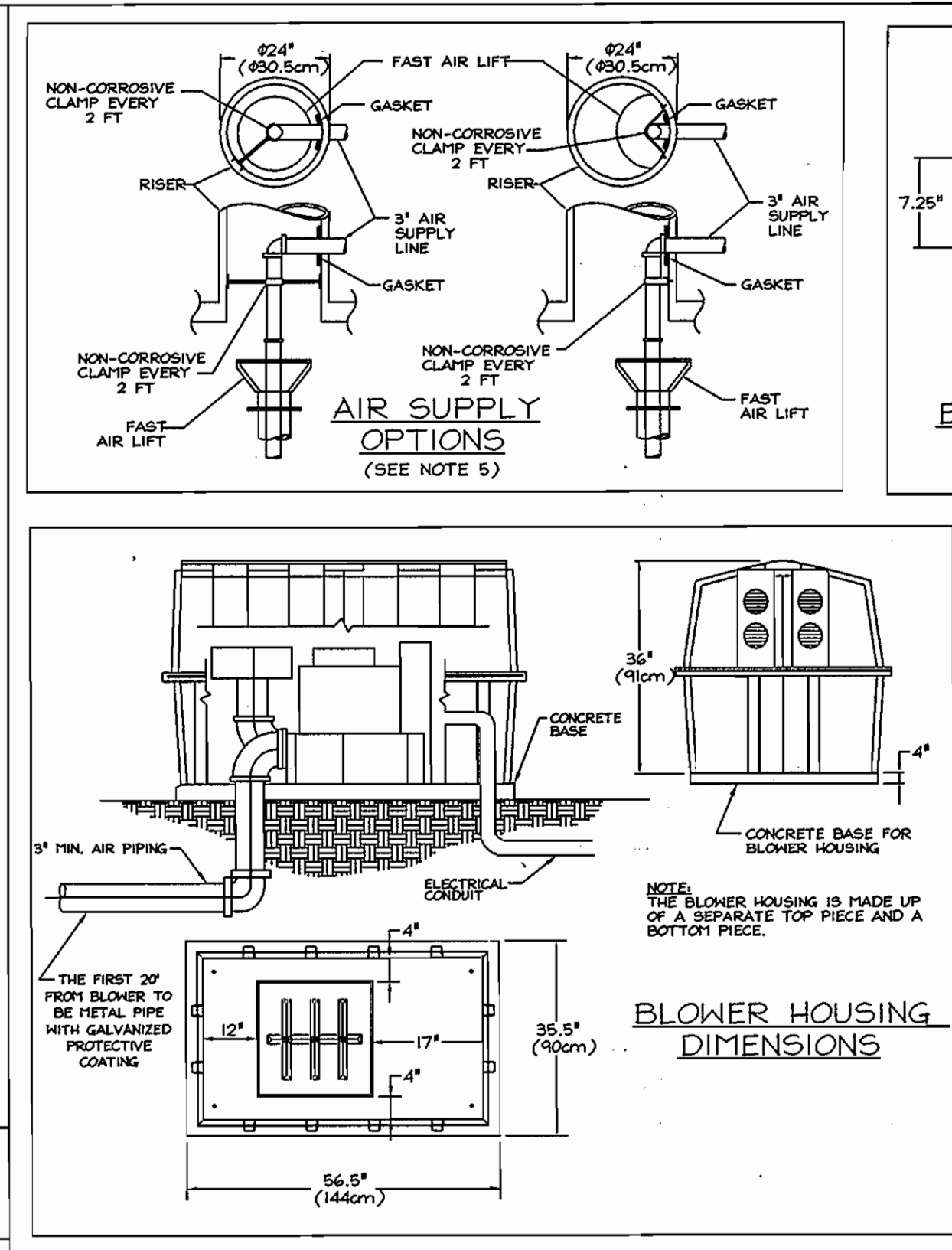
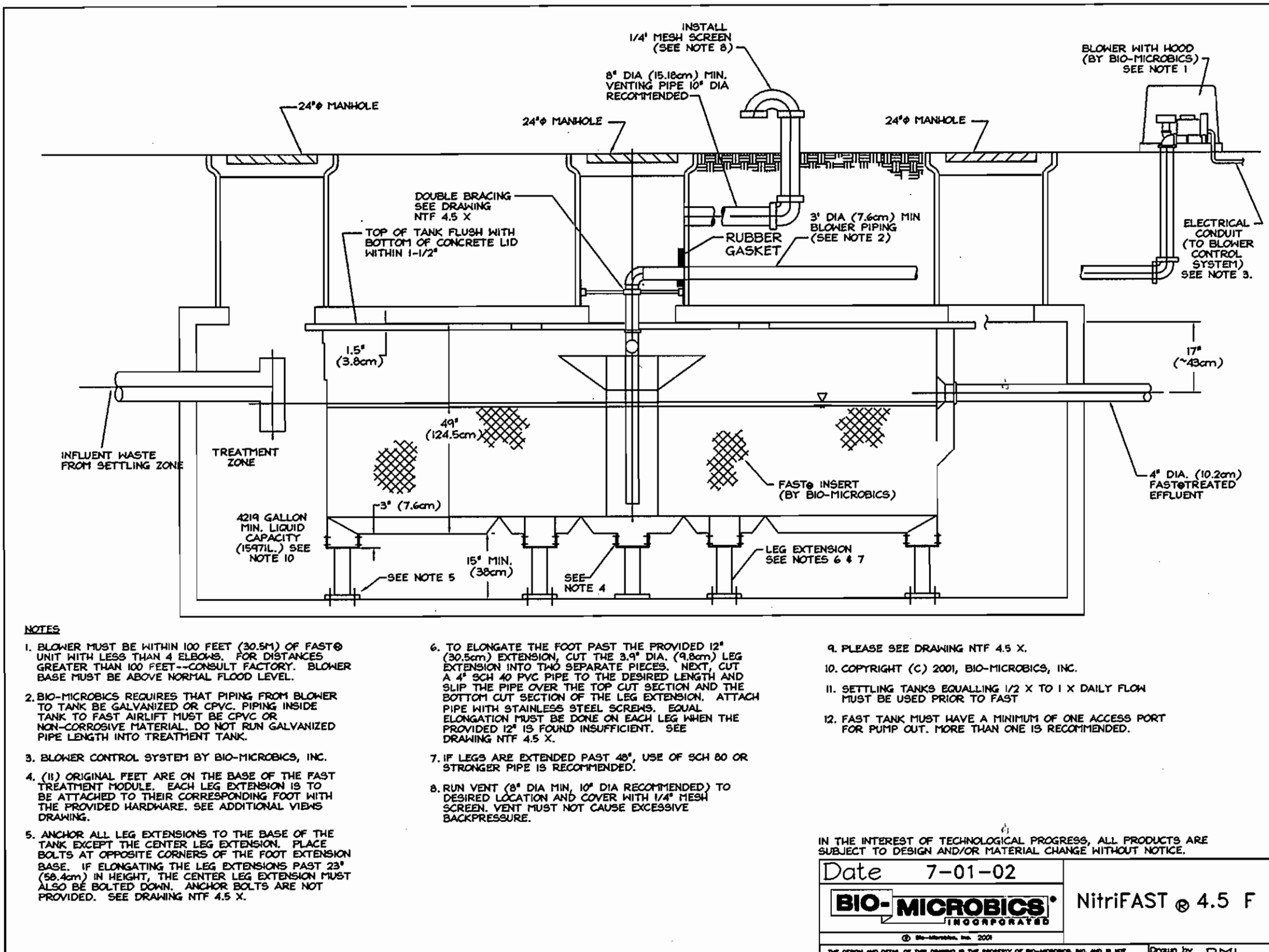
DESIGN BY: Mike Mischler
DRAWN BY: Mike Mischler
CHECKED BY: JZF
DATE: Dec. 11, 2003

BY	NO.	REVISION	DATE

SEWER DETAILS
600' SCALE MAP NO. 22 BLOCK NO. 8

THE PADDOCKS EAST
LOTS 1-4, 18-21, AND
NON-BUILDABLE PRESERVATION PARCEL 'B'
CONTRACT NO. 50-4156-D.
TAX MAP #22 GRID 8
3RD ELECTION DISTRICT
PARCEL 7
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET NO. 6 OF 7



Specifications For NitrIFAST 4.5 Wastewater Treatment System

1. GENERAL

The contractor shall furnish and install (1) NitrIFAST 4.5 treatment system as manufactured by Bio-Microbics, Inc. The treatment system shall be complete with all needed equipment as shown on the drawings and specified herein.

The principal items of equipment shall include FAST System inlet, leg extensions, blower assembly, blower controls and alarm. NitrIFAST 4.5 unit shall be situated within a 4,219 Gallon (16,971 L) minimum tank, as shown on the plans. Settling tank(s) equaling 1/2 to 1 x daily flow must be used prior to FAST. Tank(s) must conform to local, state, and all other applicable codes. The contractor shall provide coordination between the FAST system and tank supplier with regard to fabrication of the tank, installation of the FAST unit and delivery to the job site.

2. OPERATING CONDITIONS

The NitrIFAST 4.5 treatment system shall be capable of treating the wastewater produced by typical family activities (both laundry, kitchen, etc.) ranging from (18) eighteen to (63) sixty-three persons and not to exceed 4,500 US Gallons per day (17033 LPD).

3. MEDIA

The FAST media shall be manufactured of rigid PVC or polyethylene and it shall be supported by polyethylene insert. The media shall be fixed in position and contain no moving or wearing parts and shall not corrode. The media shall be designed and installed to ensure that sloughed solids immediately descend through the media to the bottom of the septic tank.

4. BLOWER

The NitrIFAST 4.5 unit shall come equipped with a regenerative type blower capable of delivering 90-135 CFM. The blower assembly shall include an inlet filter with metal filter element.

5. REMOTE MOUNTED BLOWER

The blower shall be mounted remote, up to 100 feet (30.5 M) maximum, from the NitrIFAST unit on a contractor supplied concrete base. The blower elevation must be higher than the normal flood level. A two-piece, rectangular housing shall be provided with tamper-proof screws. The discharge air line from the blower to the NitrIFAST shall be provided and installed by the contractor.

6. ELECTRICAL

The electrical source should be within 150 feet of the blower. Consult local codes for longer wiring distances. The input power required for the blower is 230 Volts, Single Phase, 60/50 Hertz, 11.5 Full Load Amps, minimum wire size is 12 A.W.G. (Locked Rotor Amps are 67). All conduit and wiring between the electrical control panel, the power supply, and the blower shall be furnished and installed by the contractor.

7. ALARMS

The alarm system shall consist of a visual and audible alarm to indicate loss of power to the blower. A manual silence switch is included.

8. INSTALLATION AND OPERATING INSTRUCTIONS

All work must be done in accordance with local codes and regulations. Installation of the NitrIFAST 4.5 shall be done in accordance with the written instructions provided by the manufacturer. An operation and maintenance manual shall be furnished which will include a description of system installation, operation, and maintenance procedures.

Module weighs approximately 1600 pounds. Four holes for lifting the FAST liner are supplied. Spreader bars are to be used in lifting the unit. Place spreader bars between lifting holes.

9. FLOW & PIPE SIZING

Each FAST module is provided with a standard (4) four inch effluent pipe hole and gasket. The maximum free or unrestricted flow with a four inch effluent pipe is 90 U.S. Gallons per minute (341 LPM), or 45 U.S. GPM (170 LPM) with a 2.0 design safety factor. An optional (6) six inch hole and gasket can be utilized on the same centerline dimension or up to 2 inches (5 cm) higher. Maximum free or unrestricted flow with a 6 inch effluent pipe is 260 GPM (984 LPM) or 130 GPM (492 LPM) with a 2.0 design safety factor.

Wastewater treatment systems work best when influent flow is delivered as consistently as possible. When influent flow is controlled (either by pump or other means) to the FAST system to help with highly variable flow conditions, then multiple feeding events should be used to help assure even flow, optimum performance, and reliability.

10. WARRANTY

The manufacturer of the NitrIFAST 4.5 treatment system shall warrant for eighteen months from the date of shipment or one year from the date of start-up, whichever occurs first, that the equipment they provide will be free from defects in material and workmanship.

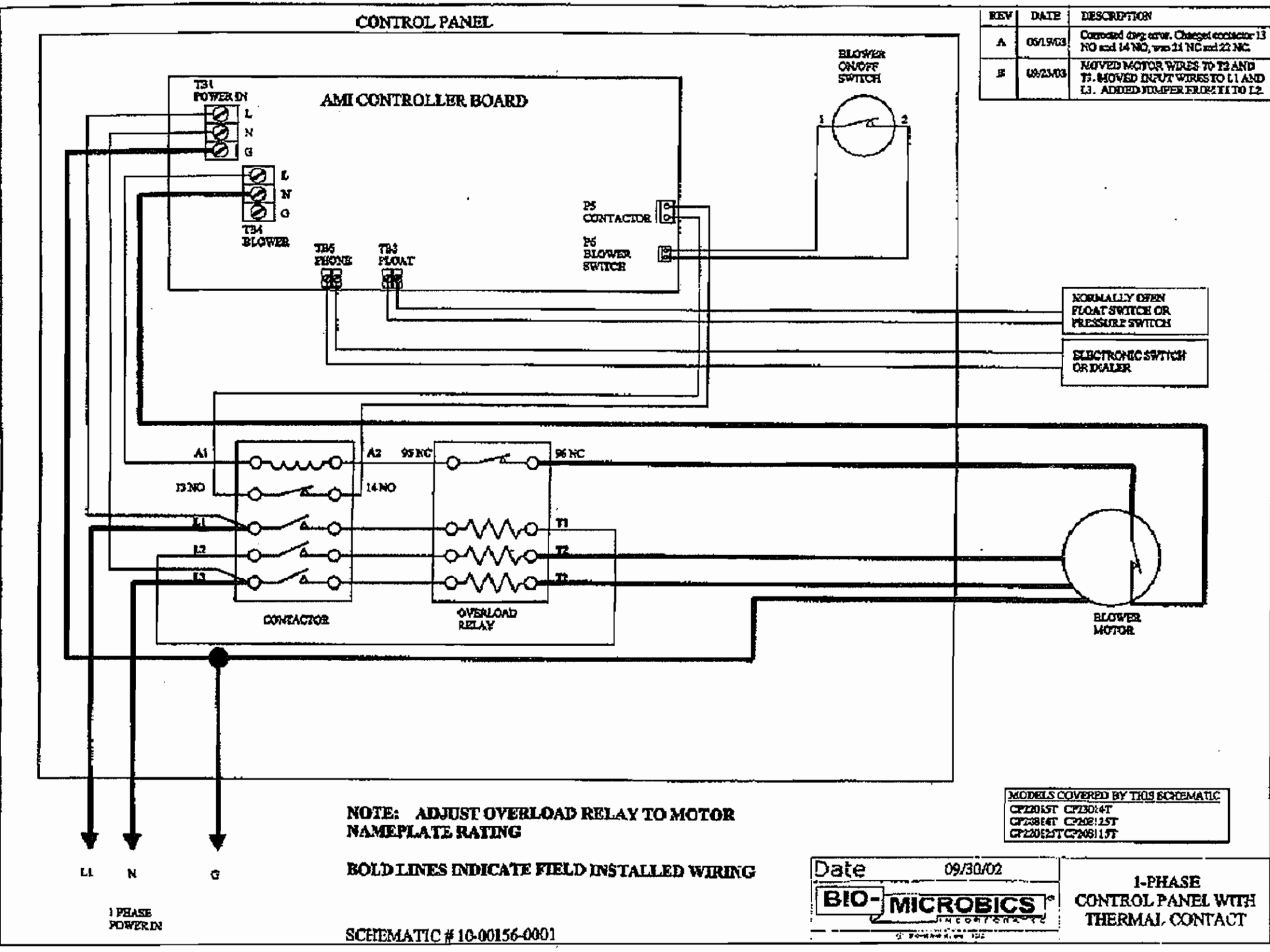
In the event a mechanical component fails to perform as specified or is proven defective in service during the warranty period, the manufacturer shall repair or replace such defective parts. (Cost of labor on repair/replacement is not covered under this warranty.) The replacement or repair of those items normally consumed in service such as air filter, etc., shall be considered as part of routine maintenance and upkeep.

It is not intended that the contractor assume responsibility for contingent liabilities or consequential damages of any nature resulting from defects in design, material or workmanship or delays in delivery, replacement, or otherwise.

DATE: 7-01-02

BIO-MICROBICS NitrIFAST® 4.5 S

Drawn by BMI



NOTE: CONTROL PANEL DETAILS SHOWN ARE FOR ILLUSTRATIVE PURPOSES. CONTRACTOR TO UTILIZE BLOWER MANUALS FOR INSTALLATION OF ELECTRICAL CONTROL PANEL.

OWNER/DEVELOPER

RULTE HOME CORPORATION
1501 S. EDGEMOOD STREET
SUITE K
BALTIMORE, MARYLAND 21227

APPROVED: FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT

Deanna Brantley 2-12-04
COUNTY HEALTH OFFICER

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

Robert Brantley 1-6-04
CHIEF, BUREAU OF UTILITIES

John Brantley 2/17/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: Mike Hilschen
DRAWN BY: Mike Hilschen
CHECKED BY: ZYF
DATE: Dec. 11, 2003

BY NO. REVISION DATE

600' SCALE MAP NO.: 22 BLOCK NO.: 8

SEWER DETAILS

THE PADDOCKS EAST
LOTS 1-4, 18-21, AND
NON-BUILDABLE PRESERVATION PARCEL 'B'
CONTRACT NO. 50-4156-D
TAX MAP #22 GRID 8 PARCEL 7
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET NO. 7 OF 7