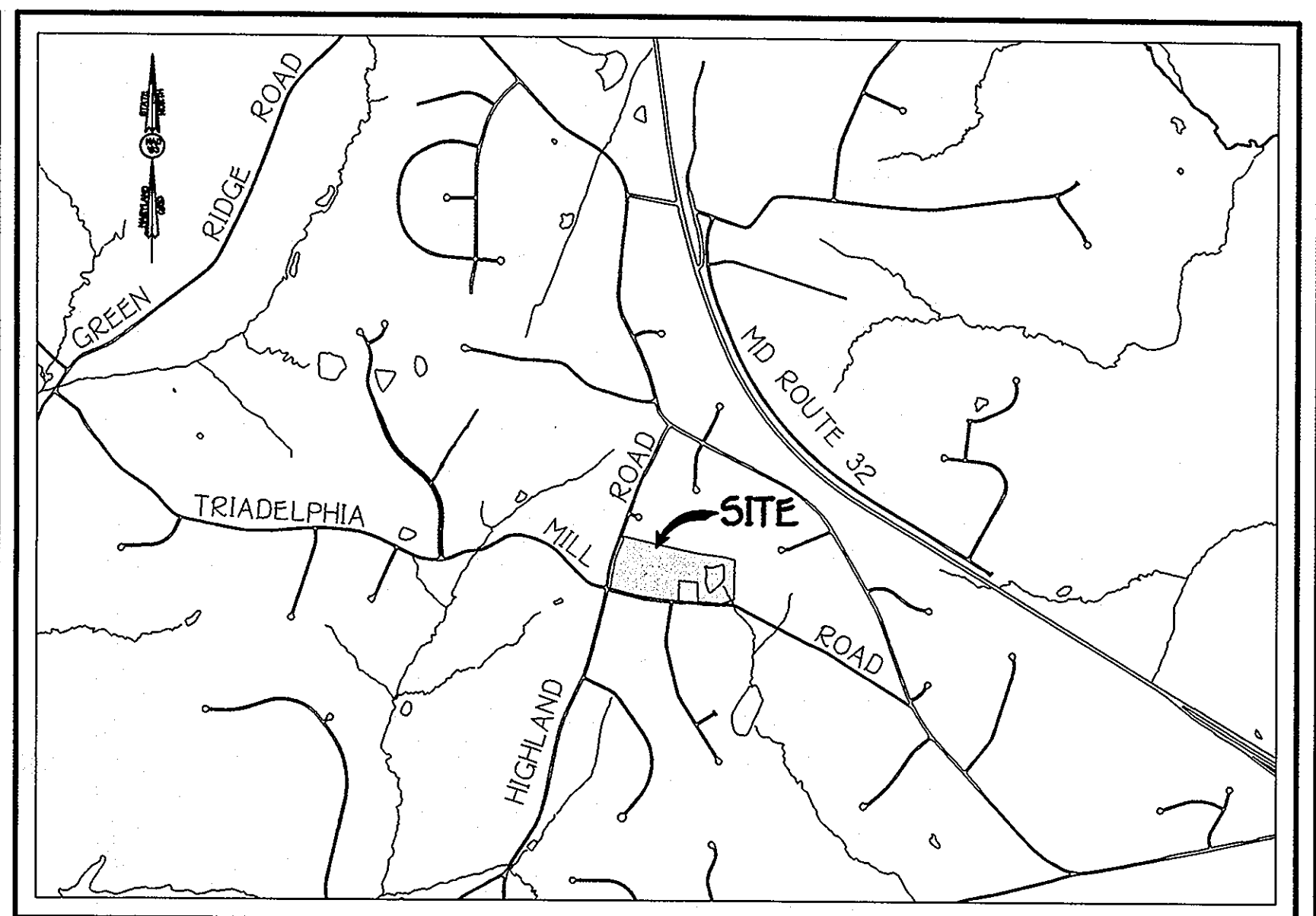
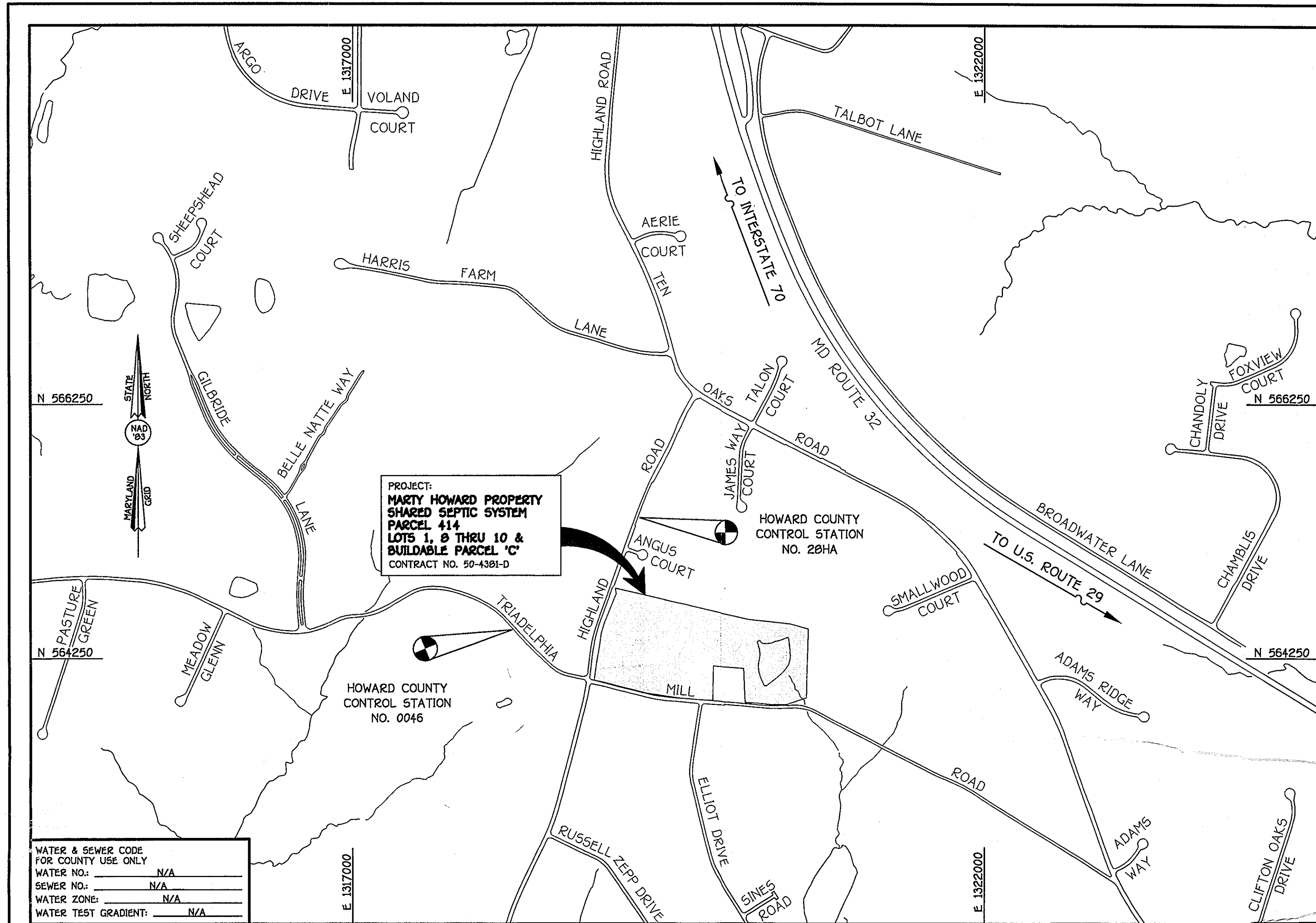


QUANTITIES				
ITEM	ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	SUPPLIER
2" L.P.S.	824 L.F.			
1-1/4" L.P.S.	145 L.F.			
4" SEWER	548 L.F.			
SIMPLEX GRINDER PUMP	3 EACH			
DUPLEX GRINDER PUMP	1 EACH			
MICRO-FAST UNIT	5 EACH			
2,000 GAL. PUMP CHAMBER	1 EACH			
2,000 GAL. POLISHING TANK	1 EACH			
TERMINAL FLUSHING CONN.	2 EACH			
IN-LINE FLUSHING CONN.	1 EACH			
CABLE TEST CABLE STATION	5 EACH			
TRANSITION MANHOLE	1 EACH			
VALVE BOX	1 EACH			
2" CAP & BUTTRESS	2 EACH			
2"x2" TEE	1 EACH			
1/8 H.B.	2 EACH			
1/32 H.B.	1 EACH			
1/4 H.B.	1 EACH			
MAINTENANCE BUILDING	1 EACH			
NAME OF UTILITY CONTRACTOR:				
SURVEY & DRAFTING DIVISION AS-BUILT DATE:				



LOCATION MAP
SCALE: 1" = 2000'

GENERAL NOTES
PART I

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON OR ABOUT DECEMBER, 2005 BY FISHER, COLLINS & CARTER, INC.
- HORIZONTAL AND VERTICAL CONTROLS
- 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. 28HA & NO. 0046. SEE THIS SHEET FOR BENCHMARK INFORMATION.
- 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. 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 BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF THE 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 DRAWINGS, 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 SITE.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL (S) 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 WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - AT&T 1-800-292-4133
 - BCE (CONSTRUCTION SERVICES) 410-850-4620
 - BCE (EMERGENCY) 410-825-1400
 - BUREAU OF UTILITIES 410-313-4900
 - COLONIAL PIPELINE CO. 410-799-1390
 - MES UTILITY 1-800-257-7777
 - STATE HIGHWAY ADMINISTRATION 410-531-5533
 - 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 MAINS.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-7450 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 18.14(C) OF THE HOWARD COUNTY CODE.
- MICROFAST UNITS AND ALL RELATED EQUIPMENT SHALL BE THE PROPERTY OF THE HOMEOWNER. THE HOMEOWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND REPAIR. THE COUNTY'S OWNERSHIP OF THE COLLECTION SYSTEM BEGINS WITH THE GRINDER PUMPS.
- WELLS ON THE LOTS SURROUNDING THE COMMON SHARED AREAS SHALL BE TESTED FOR BACKGROUND LEVELS OF CONTAMINANTS TO BE SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO PUTTING THE SHARED SEPTIC SYSTEM IN SERVICE.
- THE BUILDER SHALL INSTALL A BACKFLOW PREVENTER AND RELIEF VENT ON THE SEWER SERVICE AT THE HOUSE AT THE TIME OF THE HOUSE CONSTRUCTION OR AS REQUIRED BY THE PLUMBING INSPECTOR.
- INSTALLATION AND START-UP OF THE PUBLICLY OWNED GRINDER PUMPS AND APPURTENANCES, AND THE 4" SEWER HOUSE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
- SEPTIC TANKS SHALL BE VACUUM OR WATER TESTED ON-SITE BY THE MANUFACTURER. SEPTIC TANK SHOP DRAWINGS FROM THE MANUFACTURER SHALL BE SUBMITTED TO THE HOWARD COUNTY ENVIRONMENTAL HEALTH DEPARTMENT.
- ALL PRESSURE SEWER SHALL BE PRESSURE TESTED ACCORDING TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REQUIREMENTS AND METHOD OF INSTALLATION OF GRINDER PUMPS AND RELATED APPURTENANCES.
- OBSERVATION WELLS SHALL BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
- PRIOR TO INSTALLATION, A PRECONSTRUCTION MEETING SHALL BE SCHEDULED TO REVIEW THE INSTALLATION. THE ON-SITE SEWAGE DISPOSAL SYSTEM MUST BE PROFESSIONALLY STAKED FOR THE MEETING. A MINIMUM OF FIVE (5) DAYS NOTICE SHALL BE REQUIRED TO SCHEDULE THE MEETING. THE ENGINEER MUST PRESENT ANY CHANGES TO THE APPROVED PLAN TO THE DEPARTMENT OF HEALTH, MARYLAND DEPARTMENT OF THE ENVIRONMENT AND THE DEPARTMENT OF PUBLIC WORKS.
- PRIOR TO THE INSTALLATION OF ANY COMPONENT OF THE SYSTEM, PROPER PERMITS MUST BE OBTAINED FROM THE DEPARTMENT OF HEALTH, SEPTIC SYSTEM INSTALLATION PERMIT DIVISION.

- PART II: WATER**
- WATER SERVICE TO ALL BUILDABLE LOTS SHALL BE PROVIDED BY INDIVIDUAL PRIVATE ON-SITE WELLS.
- PART III: SEWER**
- LOW PRESSURE SEWER MAINS SHALL BE HDPE, SDR 11.
 - A TOTAL OF FIVE (5) LOTS ARE CONNECTED TO THE LOW PRESSURE SEWER SYSTEM.
 - ALL RESIDENTIAL DWELLINGS ON THE LOTS CONNECTED TO THE LOW PRESSURE SEWER SYSTEM ARE LIMITED TO A MAXIMUM OF FIVE (5) BEDROOMS.
 - TRACER WIRE SHALL BE PROVIDED OVER ALL LOW PRESSURE SEWER MAINS. TRACER WIRE SHALL BE OVERLAPPING, INSULATED #6 AND FIRMLY CONNECTED AND ENCAPSULATED.
 - REFERENCE THE DETAILS ON SHEET 8 OF 10 FOR NOTES, REQUIREMENTS & SPECIFICATIONS REGARDING THE GRINDER PUMP & HOUSING & THE ASSOCIATED GRINDER PUMP CONTROL PANEL.
 - ALL LATERALS BETWEEN THE GRINDER PUMP UNITS AND THE LOW PRESSURE SEWER MAINS SHALL BE 1.25" DIAMETER.

DEVELOPER
CHURCHILL GROUP
5 CHOKE CHERRY ROAD
SUITE 360
ROCKVILLE, MARYLAND 20850

CONTRACT NO. 50-4381-D
MARTY HOWARD PROPERTY SHARED SEPTIC SYSTEM
PARCEL 414
LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C'
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

BENCHMARK INFORMATION

B.M.-1 - HOWARD COUNTY CONTROL STATION #28HA D '83 (APPROX. 100 FT. NORTH OF ANGUS COURT, ALONG THE EAST SIDE OF HIGHLAND ROAD) N 565,347.9362 E 1,319,266.341 ELEVATION = 587.999
B.M.-2 - HOWARD COUNTY CONTROL STATION # 0046 (NAD '83) (LOCATED ALONG THE SOUTH SIDE OF TRIADELPHIA ROAD, APPROX. 20 FT. EAST OF HOUSE NO. 134715 DRIVEWAY) N 564,458.9465 E 1,318,257.4224 ELEVATION = 560.442

WATER & SEWER CODE FOR COUNTY USE ONLY

WATER NO.:	N/A
SEWER NO.:	N/A
WATER ZONE:	N/A
WATER TEST GRADIENT:	N/A

TYPE OF BUILDING: RESIDENTIAL: SINGLE FAMILY DETACHED
NUMBER OF LOTS: 5 (5 BUILDABLE)
NO. OF WATER HOUSE CONNECTIONS: -0-
NO. OF SEWER HOUSE CONNECTIONS: -5-
DRAINAGE AREA: N/A
TREATMENT PLANT: N/A

VICINITY MAP
SCALE: 1" = 600'

PLAN REFERENCE NUMBERS:
SP-06-04

DEVELOPER'S CERTIFICATION
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

SIGNATURE OF DEVELOPER _____ DATE _____

ENGINEER'S CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER _____ DATE _____

GP-08-008

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE _____ DATE _____

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

APPROVED: _____ DATE _____

HOWARD SOIL CONSERVATION DISTRICT _____ DATE _____

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY DESIGN MANUAL & STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS AND AS SHOWN ON THESE PLANS.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
HOWARD COUNTY HEALTH DEPARTMENT
HOWARD COUNTY HEALTH OFFICER _____ DATE _____

SIGNATURE OF DEVELOPER _____ DATE _____

CONTRACT NO. 50-4381-D
MARTY HOWARD PROPERTY
SHARED SEPTIC SYSTEM
PARCEL 414
LOTS 1, 8 THRU 10 &
BUILDABLE PARCEL 'C'
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

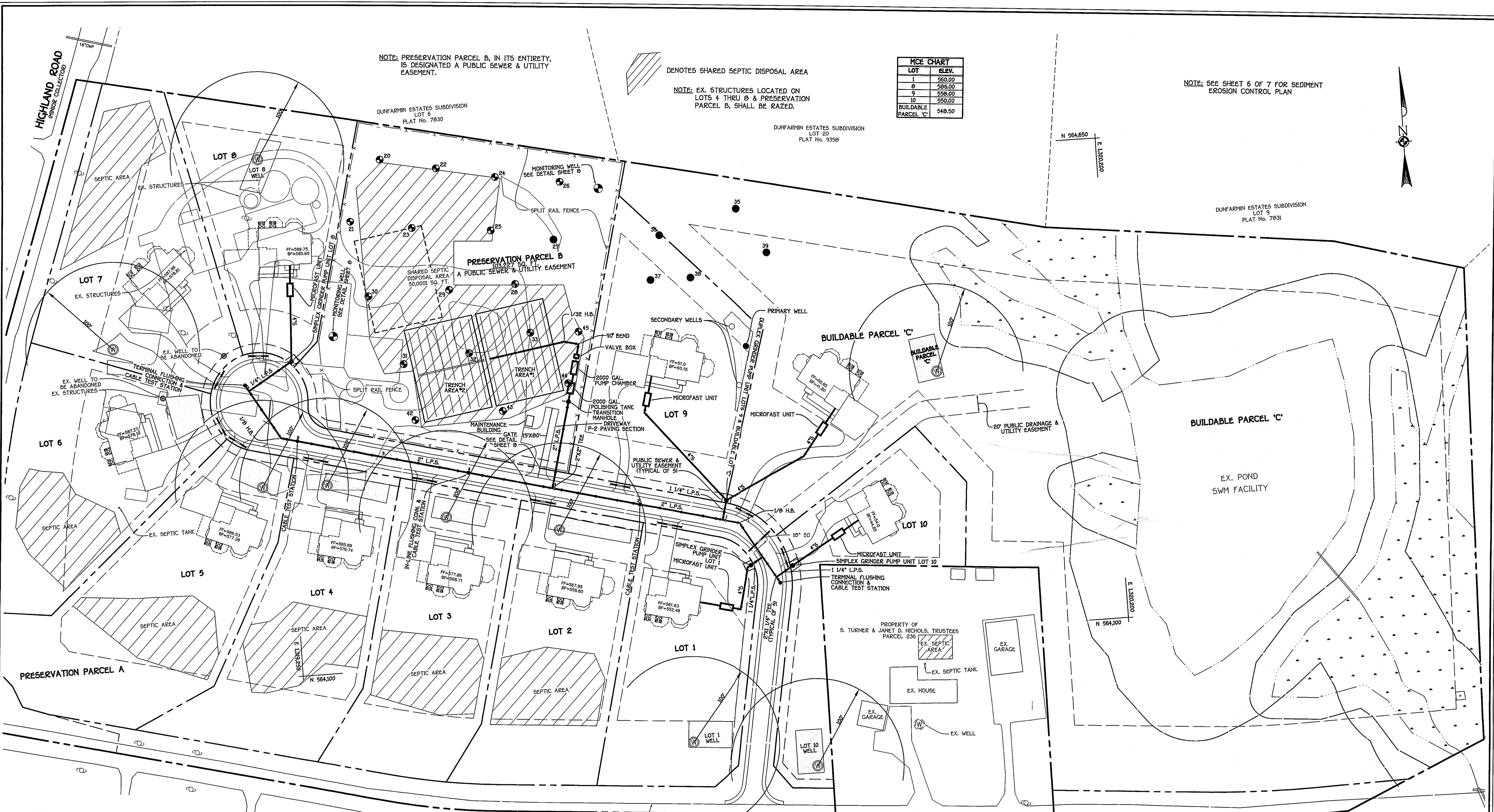
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	S/E ENGINEERING, INC. WESTMINSTER, MARYLAND	DESIGNED BY: S.C.R.					SHARED SEPTIC SYSTEM TITLE SHEET	MARTY HOWARD PROPERTY SHARED SEPTIC SYSTEM PARCEL 414: LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C' CONTRACT NO. 50-4381-D FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
CHIEF, BUREAU OF UTILITIES _____ DATE _____	CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____	JAMES D. CLISE	DRAWN BY: S.C.R.					600' SCALE MAP NO. 34 BLOCK NO. 3 F.C.C. WORK ORDER NO. 08063	FEB 21 2009	SHEET 1 OF 10
			CHECKED BY: E.W.K.					FILE NAME: SEWER TITLE SH1		
			DATE: FEBRUARY, 2008	BY NO.	REVISION	DATE				

NOTE: PRESERVATION PARCEL B, IN ITS ENTIRETY, IS DESIGNATED A PUBLIC SEWER & UTILITY EASEMENT.

NOTES: EX. STRUCTURES LOCATED ON LOTS 4 THRU 8 & PRESERVATION PARCEL B, SHALL BE RAZED.

MCE CHART	
LOT	ELEV.
1	560.00
8	586.00
9	558.00
10	550.00
BUILDABLE PARCEL 'C'	548.50

NOTE: SEE SHEET 6 OF 7 FOR SEDIMENT EROSION CONTROL PLAN



⊕ DENOTES WELL BOXES; THE PARTIAL 100' RADIUS CIRCLES DENOTE THE 100' CLEARANCES

PLAN
SCALE: 1" = 50'

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

HOWARD COUNTY HEALTH OFFICER _____ DATE _____

NOTE: ALL TEES AND HORIZONTAL BENDS WITHIN THE LOW PRESSURE SEWER MAIN SHALL BE BUTTRESSED IN ACCORDANCE WITH THE DETAILS INCLUDED ON SHEET 4 OF 5.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

S/E ENGINEERING, INC.
WESTMINSTER, MARYLAND

10086

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	FEBRUARY, 2008
BY NO.	REVISION
DATE	FILE NAME :

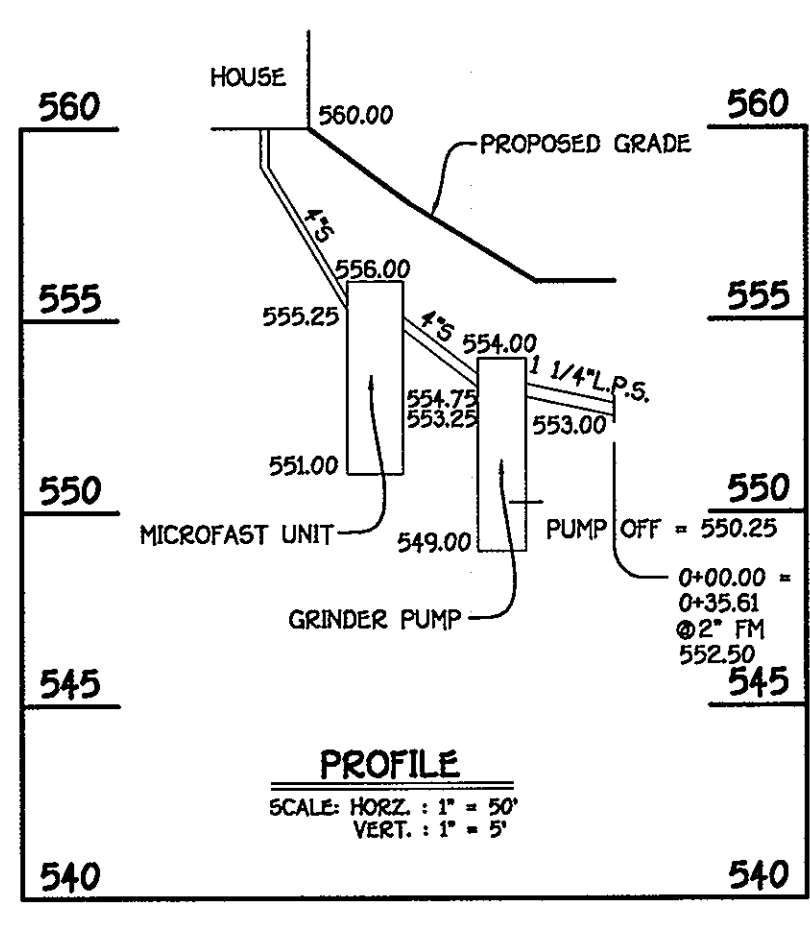
SHARED SEPTIC SYSTEM PLAN

600' SCALE MAP NO. 34 BLOCK NO. 3
F.C.C. WORK ORDER NO. 06063
SEWER PLAN SH1

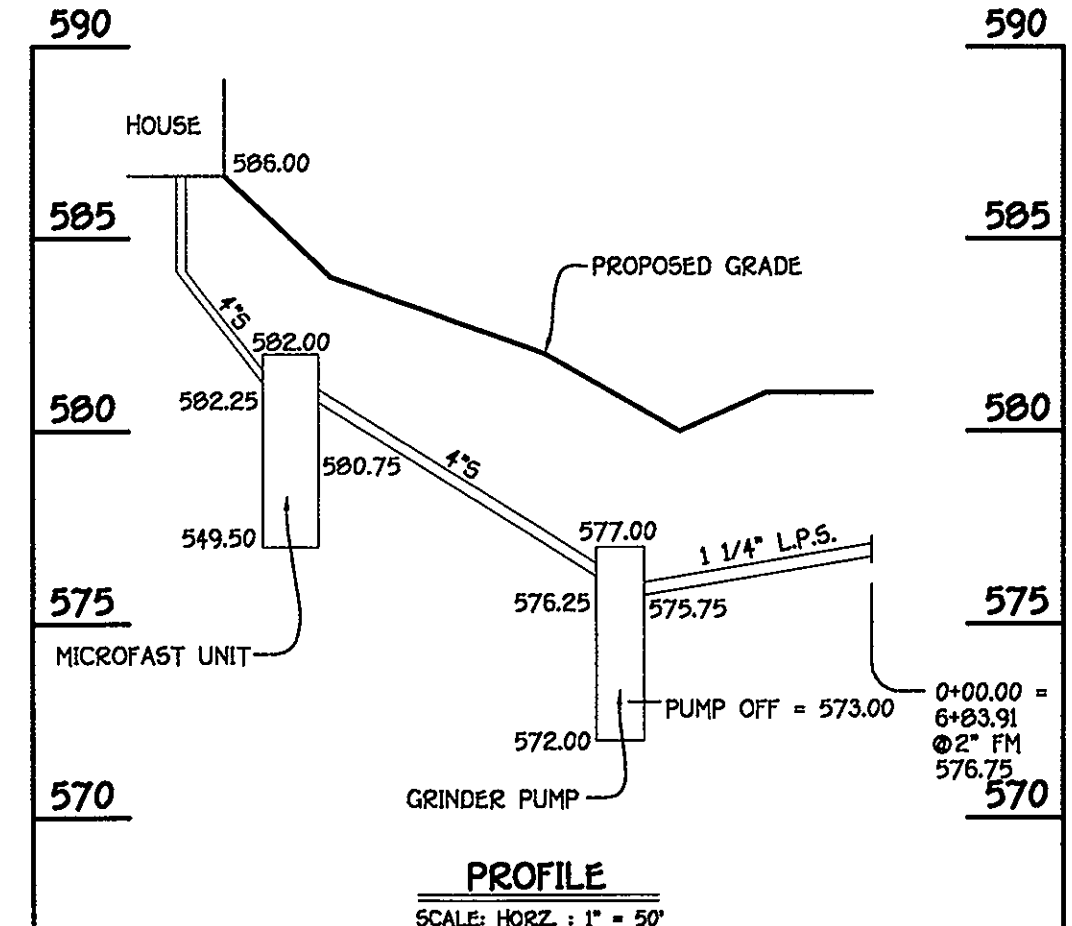
MARTY HOWARD PROPERTY SHARED SEPTIC SYSTEM
PARCEL 414: LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C'
CONTRACT NO. 50-4301-D
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 2 of 10

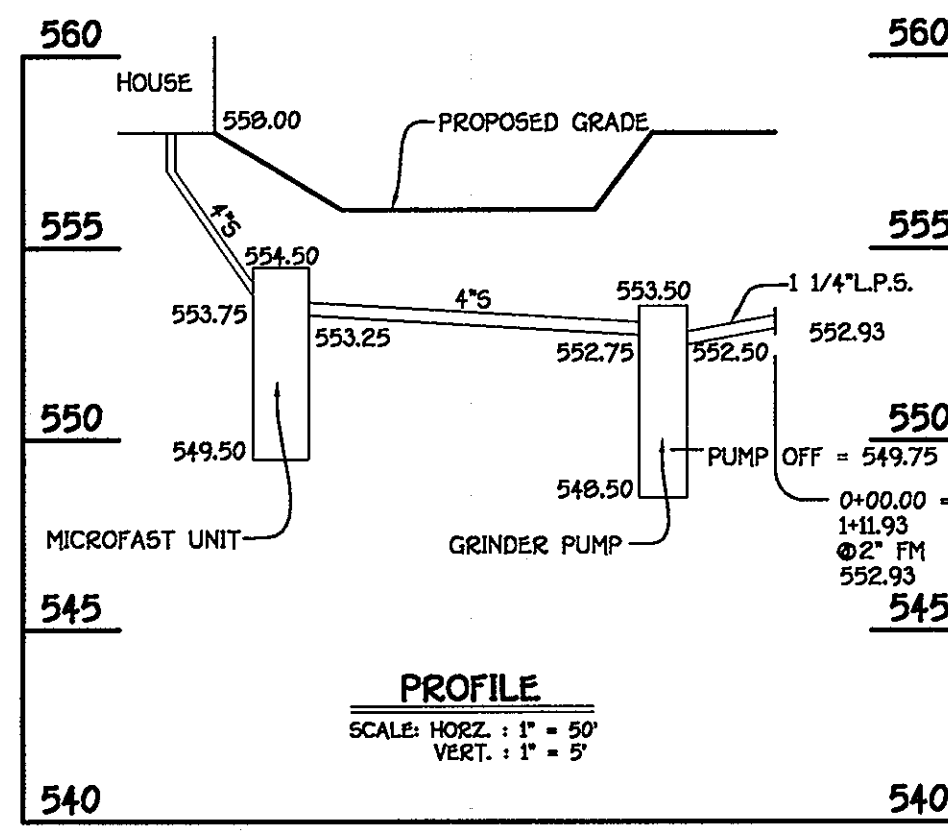
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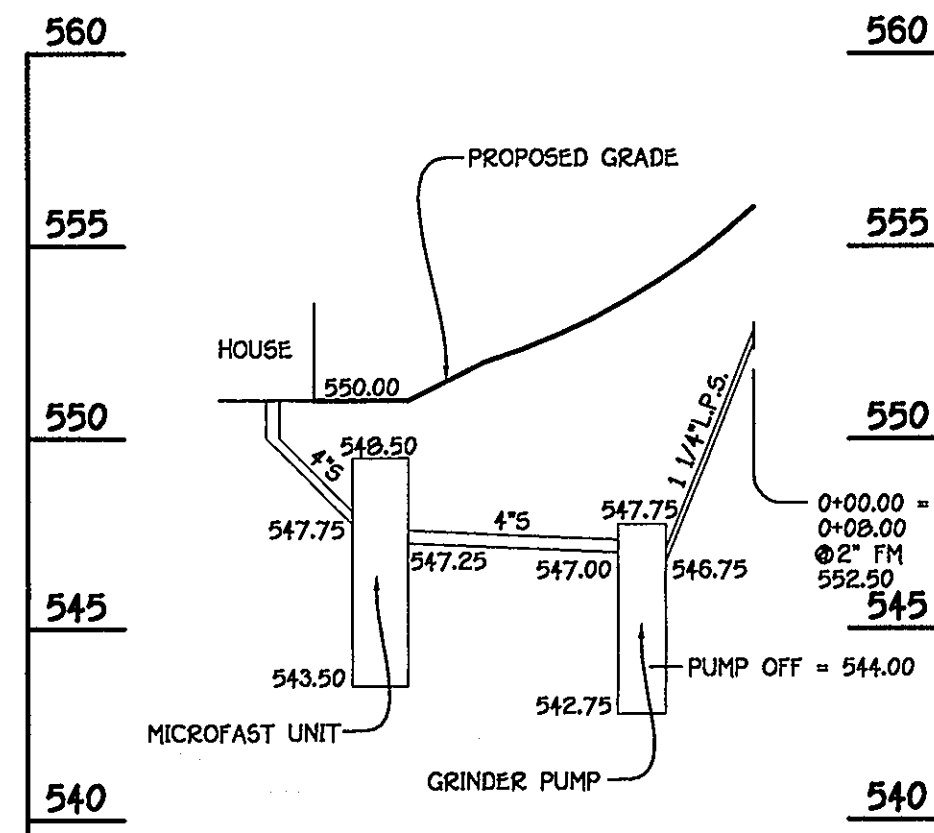
HYDRAULIC PROFILE - LOT 1



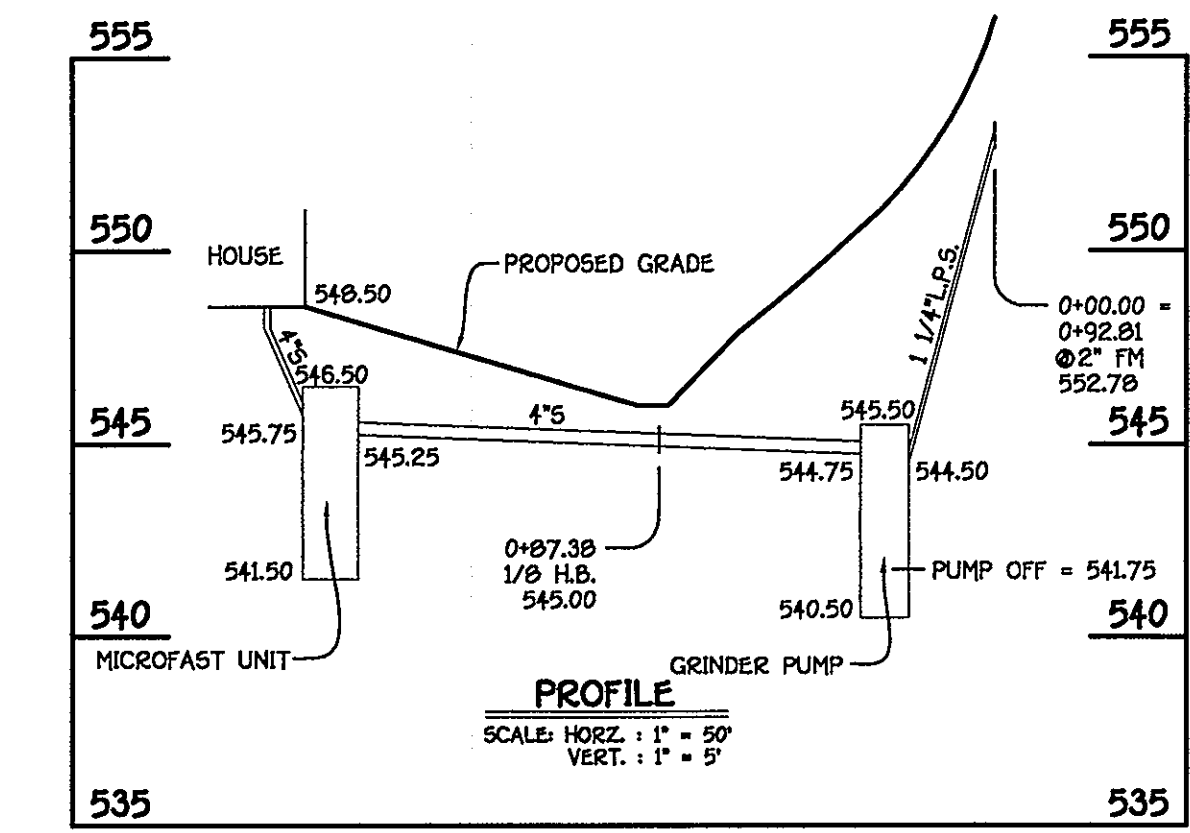
HYDRAULIC PROFILE - LOT 8



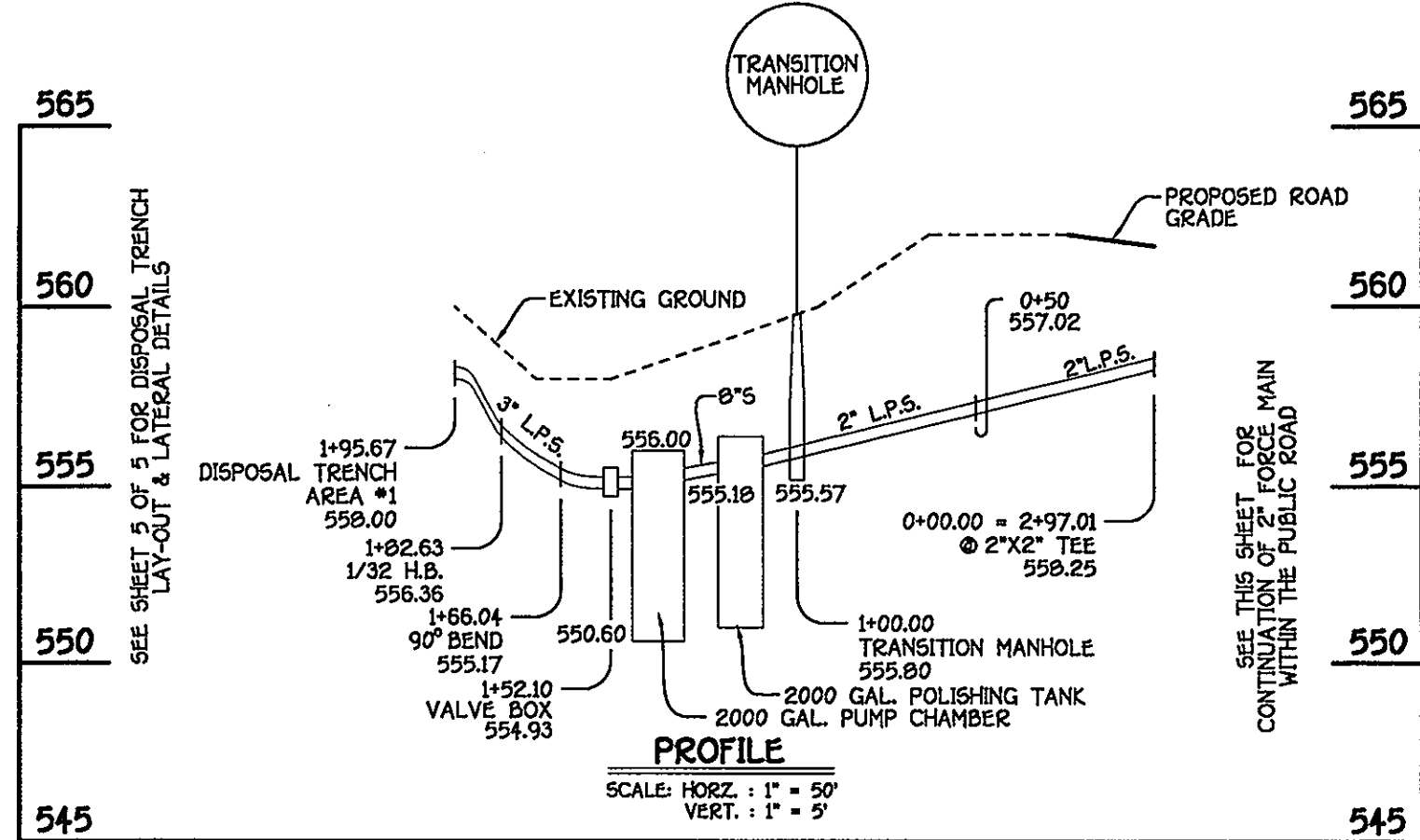
HYDRAULIC PROFILE - LOT 9



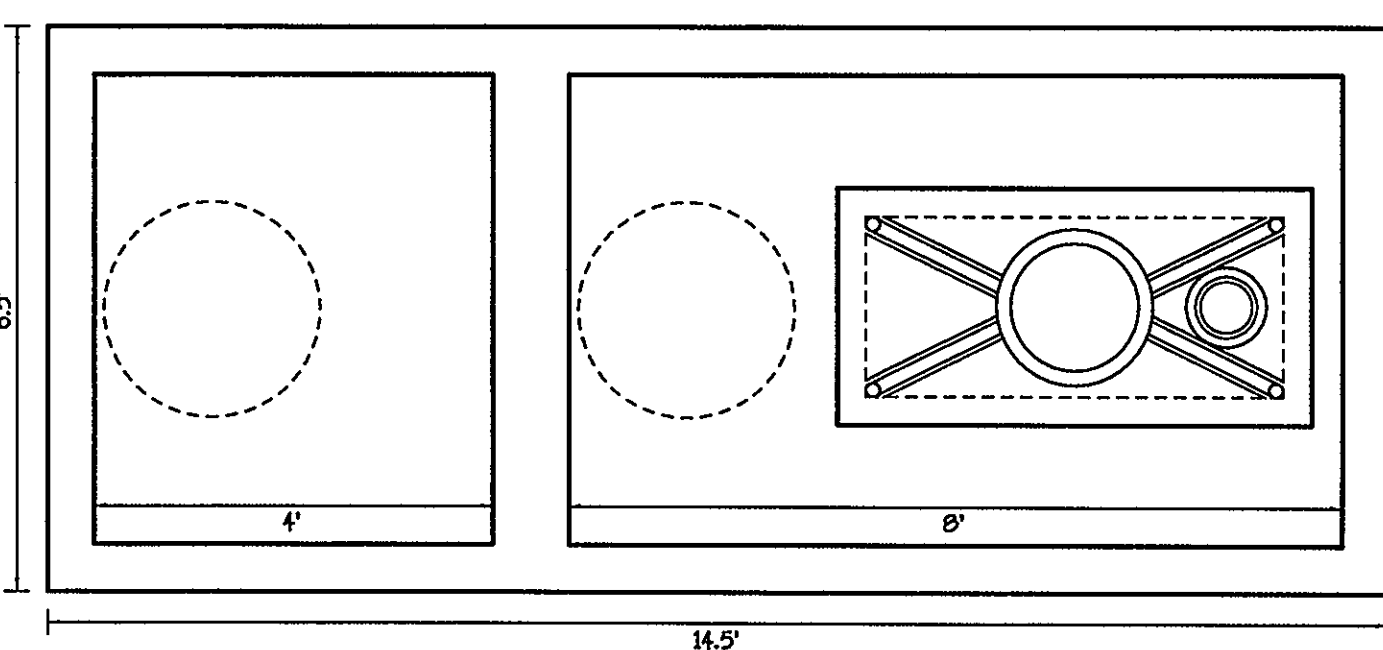
HYDRAULIC PROFILE - LOT 10



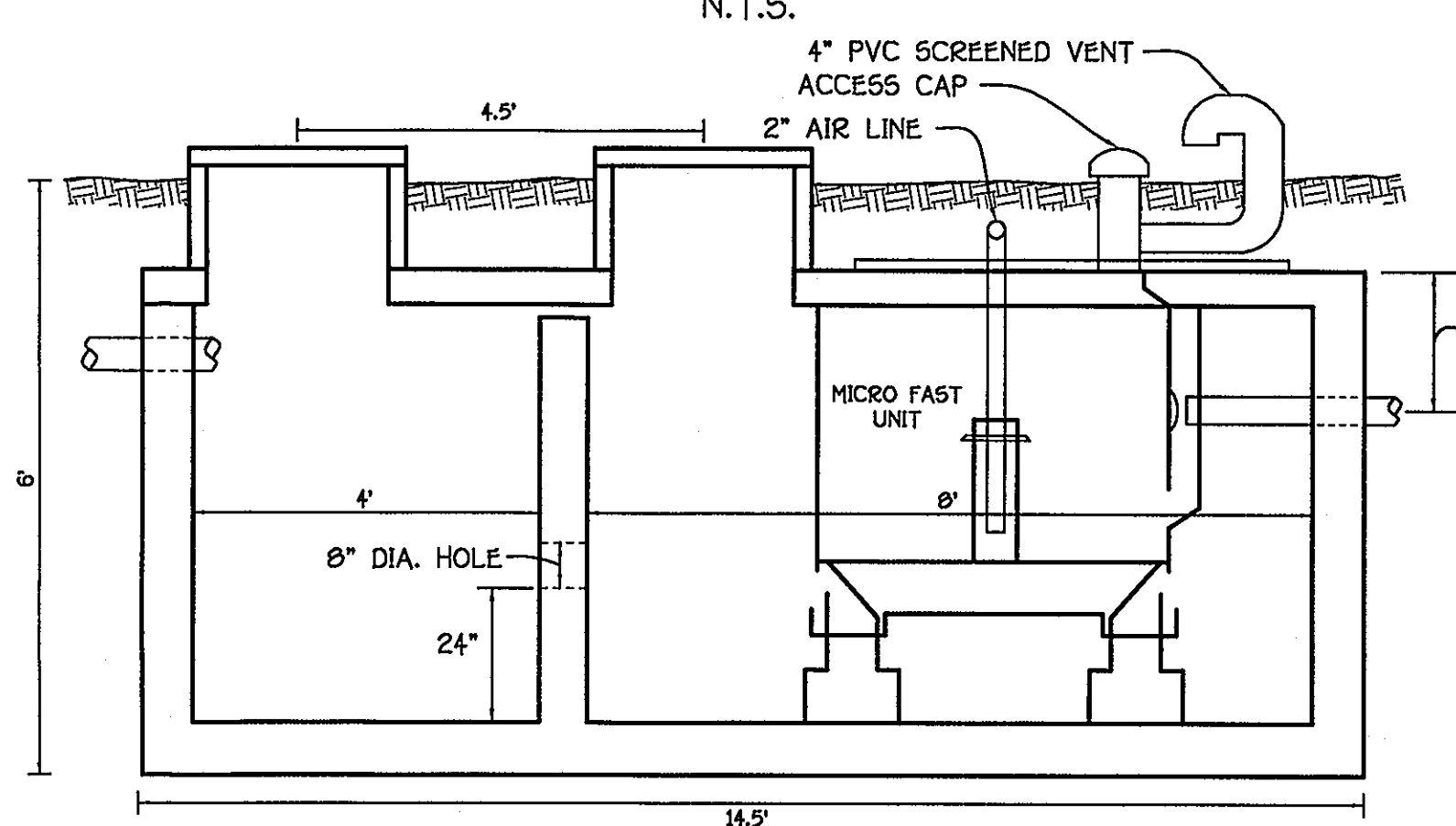
HYDRAULIC PROFILE - BUILDABLE PARCEL 'C'



FORCE MAIN/LOW PRESSURE TRENCHES - HYDRAULIC PROFILE



MICROFAST - PLAN VIEW



MICROFAST SECTION - (TYPICAL OF 5)

MICROFAST UNIT: 1500 GAL TANK

DESIGN PARAMETERS

5 HOUSES x 5 BEDROOMS @ 150 GPD = 3,750 GPD
 APPLICATION RATE = 1.2 GPD/SQ.FT.
 3 1/2\"/>

TEST RESULTS - DISPOSAL AREA #1

- 20 - 1\"/>

TEST RESULTS - DISPOSAL AREA #2

- 20 - 1\"/>

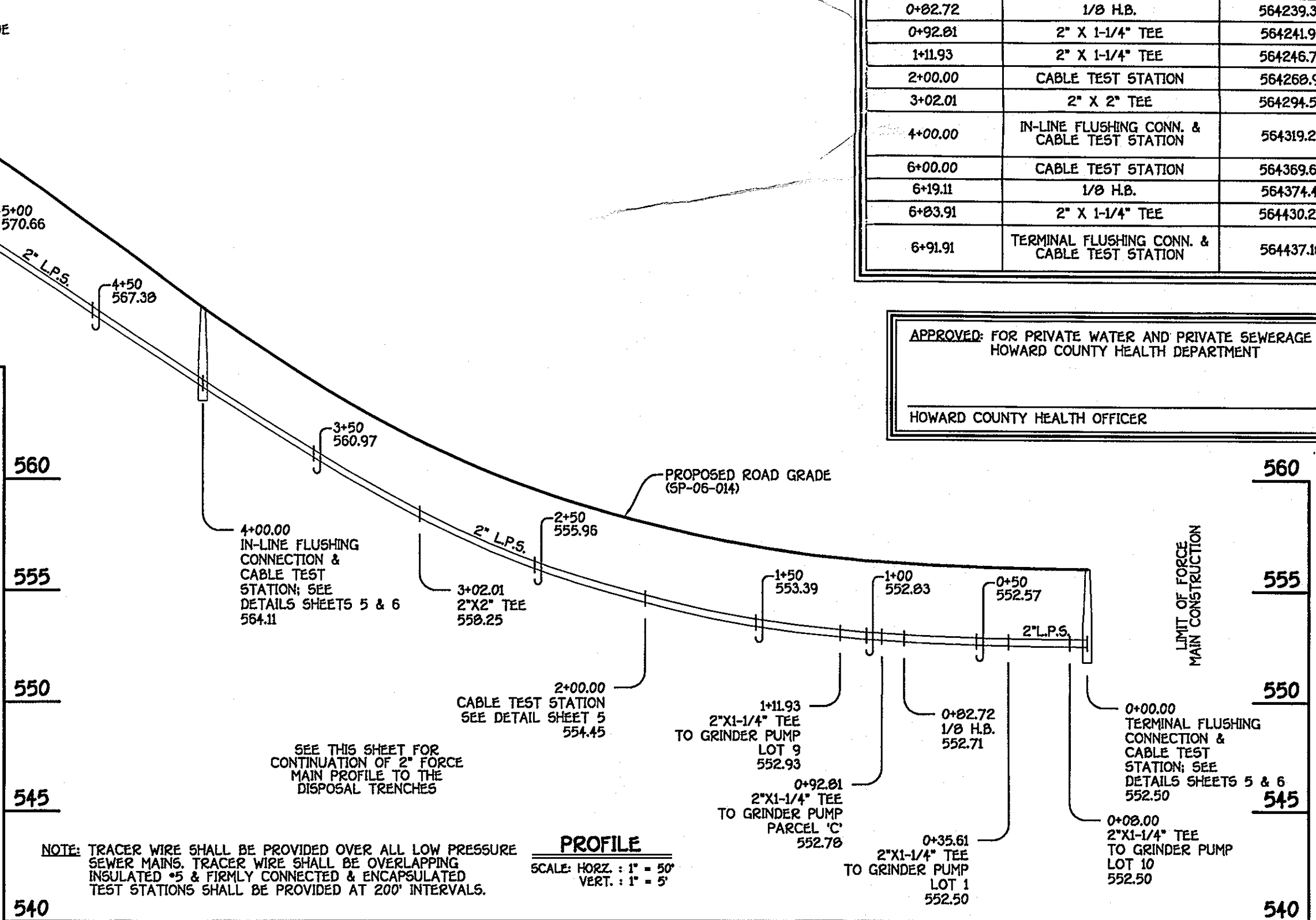
SPECIFICATIONS

- AERATION TREATMENT UNITS SHALL BE MICROFAST MODEL 075 L AS MANUFACTURED BY BIO-MICROBICS. EACH UNIT TO BE INSTALLED IN A 1500 GAL. TOP SEAM TANK, ALTERED TO ACCOMMODATE THE UNIT AS SHOWN ON THE DRAWINGS. UNITS AND BLOWERS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS (AVAILABLE THROUGH FREEZE & ASSOCIATES).
- EFFLUENT PUMPS SHALL BE INSTALLED WITHIN TRADITIONAL PUMP CHAMBERS. TOP SEAM TANK AS SHOWN ON THE DRAWINGS. PUMPS ARE TO BE 2-ONE AMP - 1 HP - POSITIVE DISPLACEMENT UNITS. PUMPS ARE EQUIPPED WITH A SELF CONTAINED CHECK VALVE AND A PRESSURE LEVEL CONTROL SYSTEM. LEVELS FOR PUMP OFF, PUMP ACTIVATION, AND HIGH LEVEL ALARM ARE AS SHOWN ON THE DRAWINGS. PUMP CONTROLS ARE TO BE LOCATED IN THE HOUSE WITH THE HIGH LEVEL ALARM ON A SEPARATE CIRCUIT. EACH GRINDER PUMP DISCHARGE LINE SHALL CONTAIN A BALL VALVE FOR PUMP ISOLATION.
- FORCE MAIN SHALL BE 2\"/>

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
LOW PRESSURE SEWER MAIN: ROAD 'A'				
0+00.00	TERMINAL FLUSHING CONN. & CABLE TEST STATION	564169.14	1319804.88	556.00
0+08.00	2\"/>			

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

HOWARD COUNTY HEALTH OFFICER _____ DATE _____



2\"/>

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES _____ DATE _____

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

S/E ENGINEERING, INC.
 WESTMINSTER, MARYLAND

DESIGNED BY :
 B.C.R.

DRAWN BY :
 B.C.R.

CHECKED BY :
 P.W.K.

DATE :
 FEBRUARY, 2008

10086

BY NO. _____

REVISION _____

DATE _____

60' SCALE MAP NO. 34 BLOCK NO. 3

F.C.C. WORK ORDER NO. 06083

FILE NAME : _____ SEWER PLAN SH1

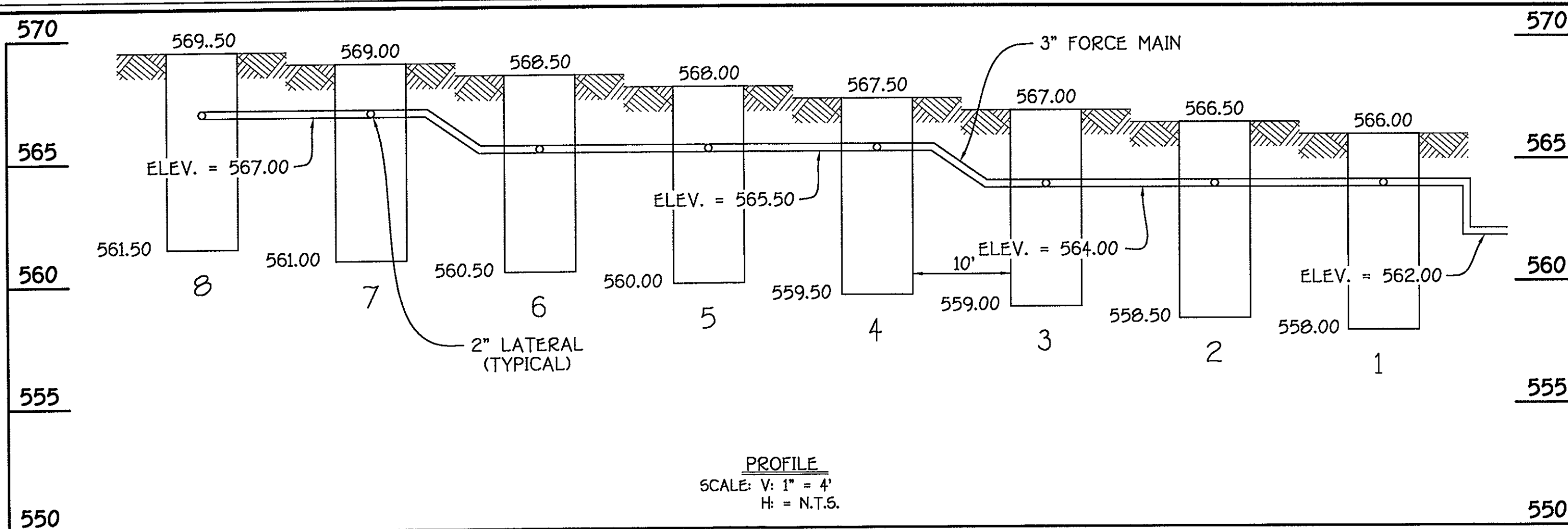
CONTRACT NO. 50-4381-D

MARTY HOWARD PROPERTY
 SHARED SEPTIC SYSTEM
 PARCEL 414

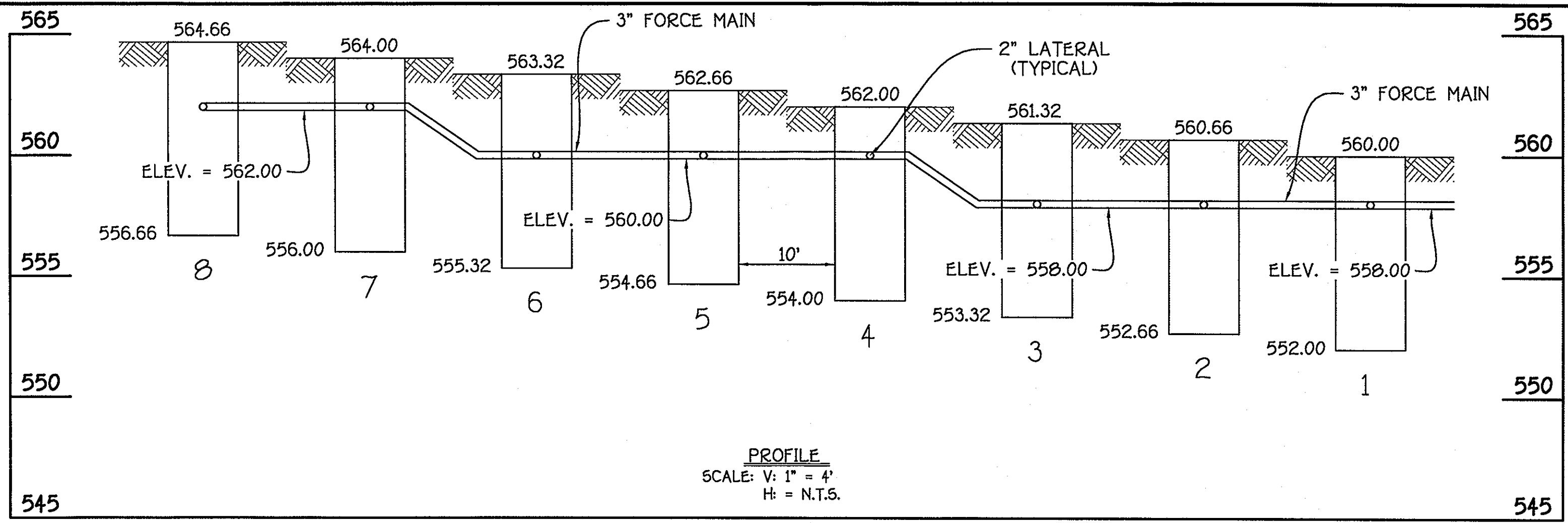
LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C'
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

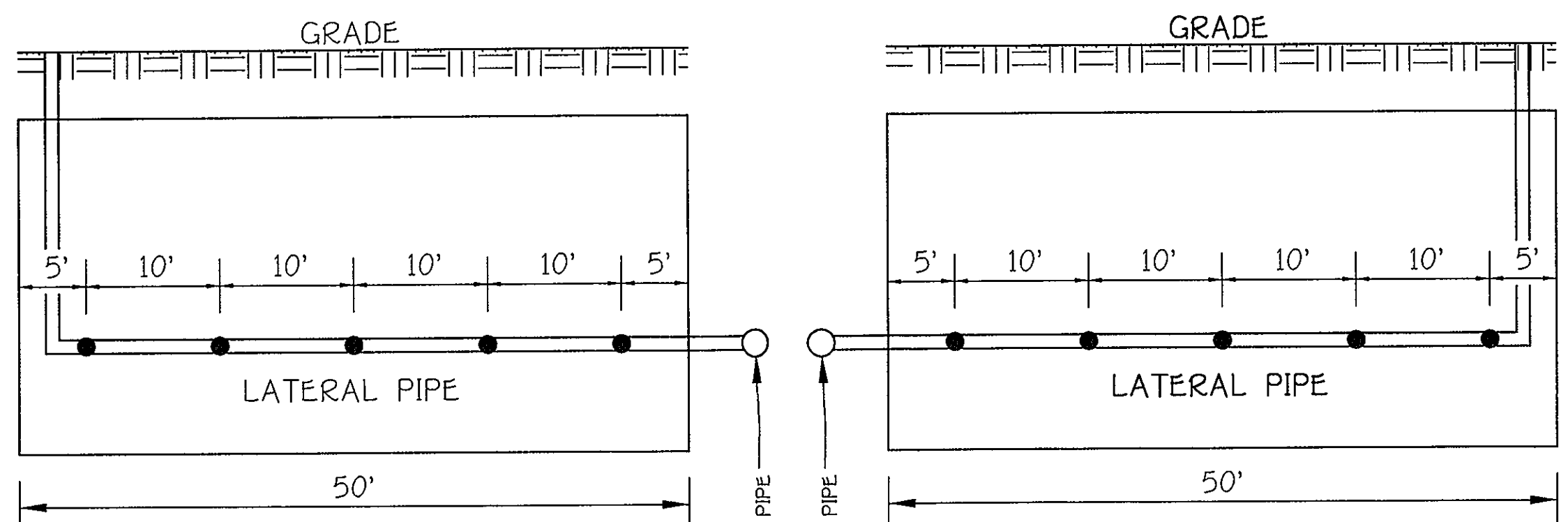
SHEET 3 of 10



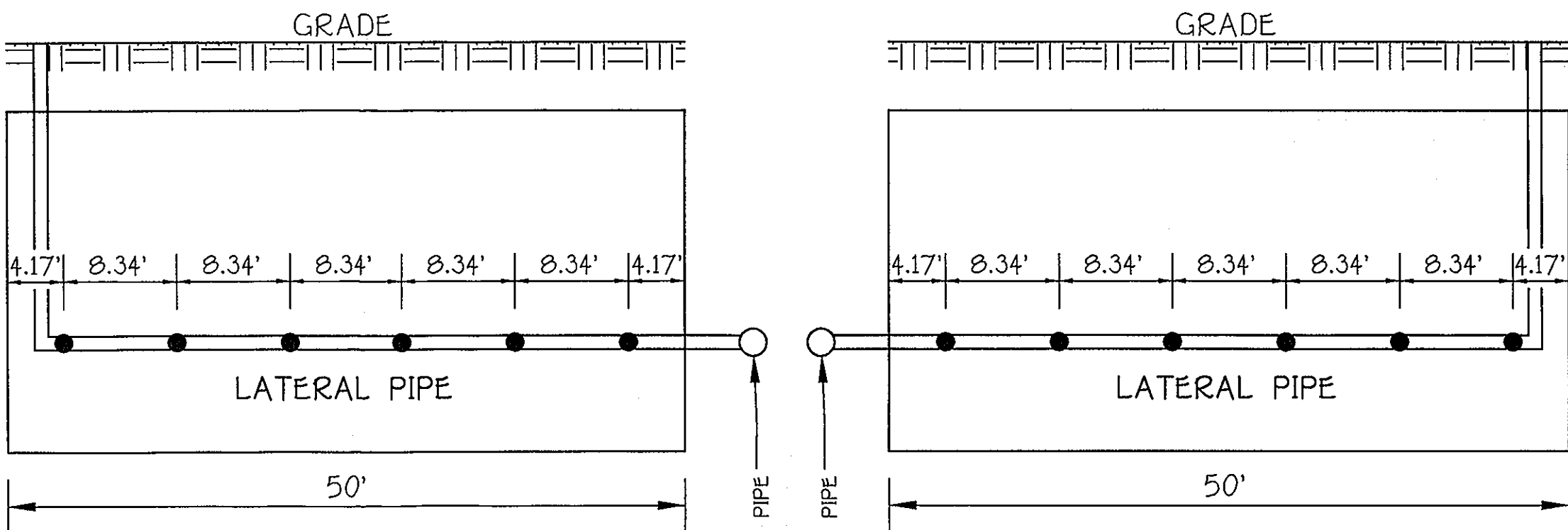
TRENCH AREA #2/FORCE MAIN/LATERAL PROFILE



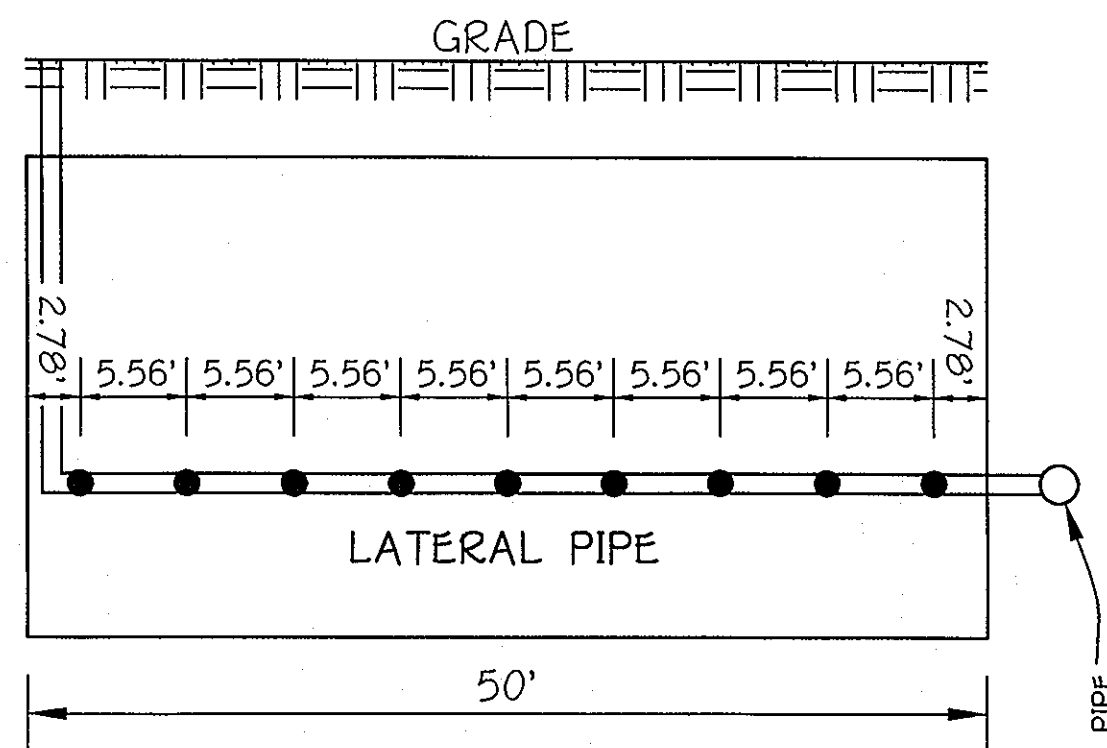
TRENCH AREA #1/FORCE MAIN/LATERAL PROFILE



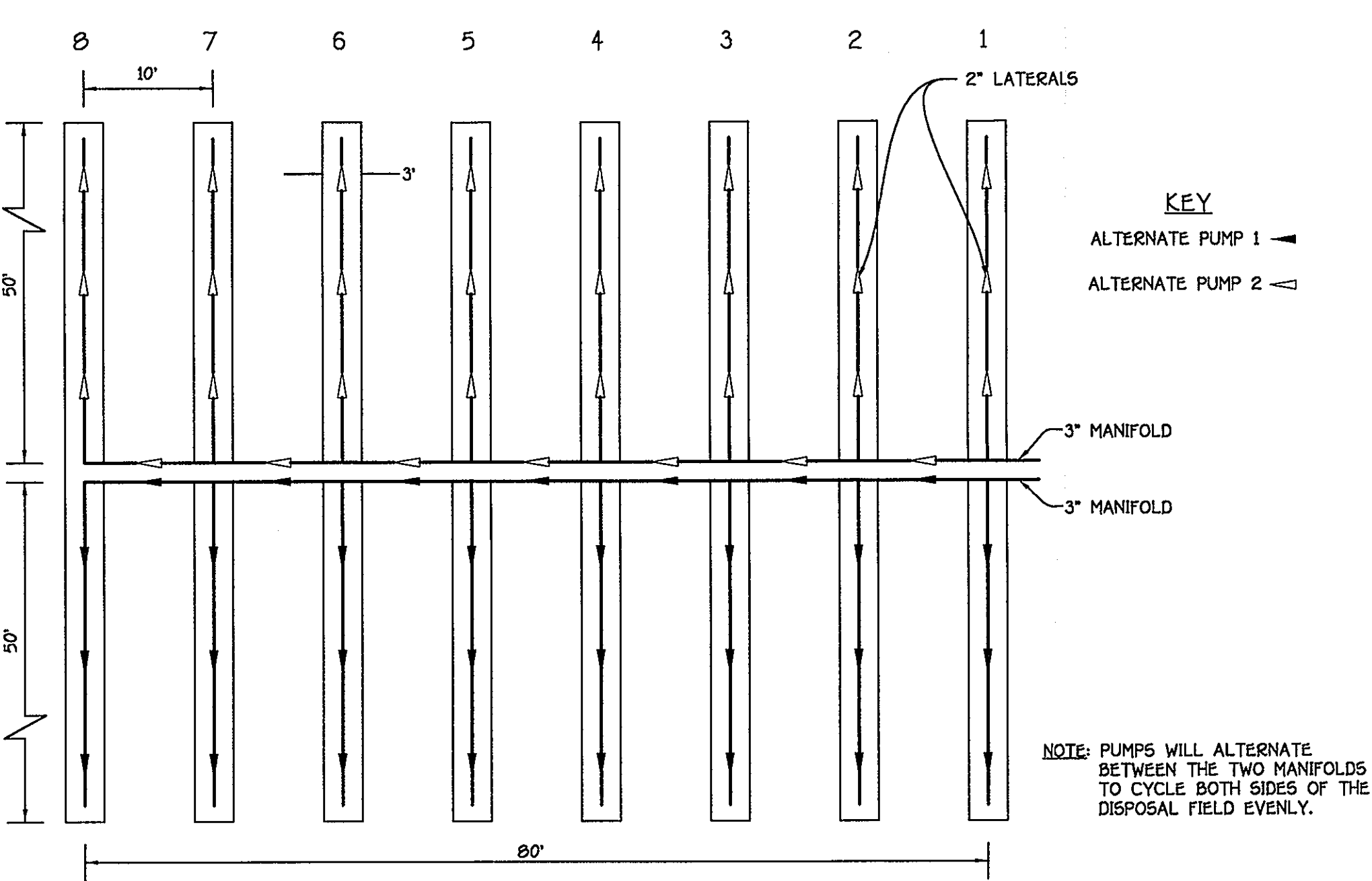
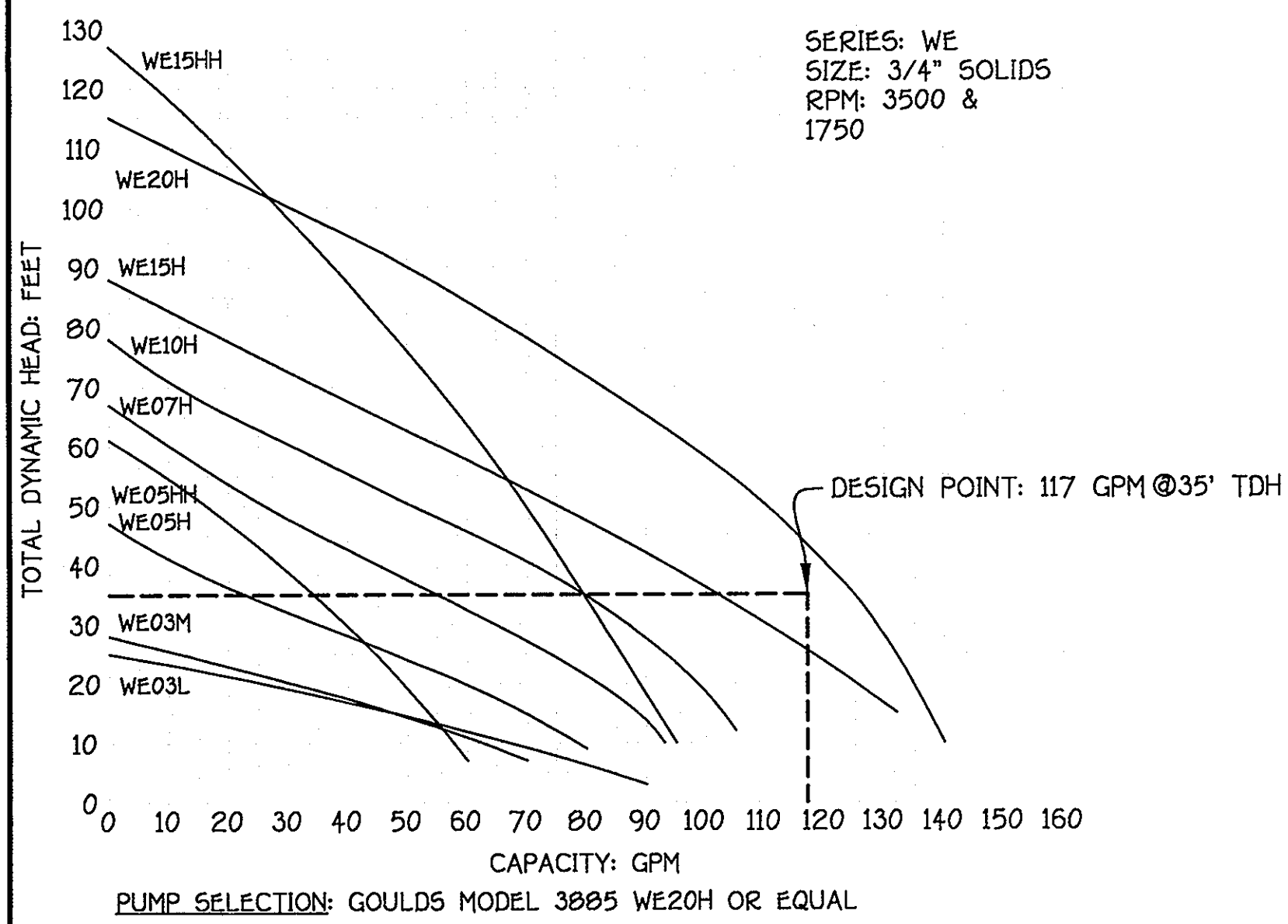
LATERAL DETAIL - TRENCHES 1, 2 & 3
SCALE: 1" = 10'



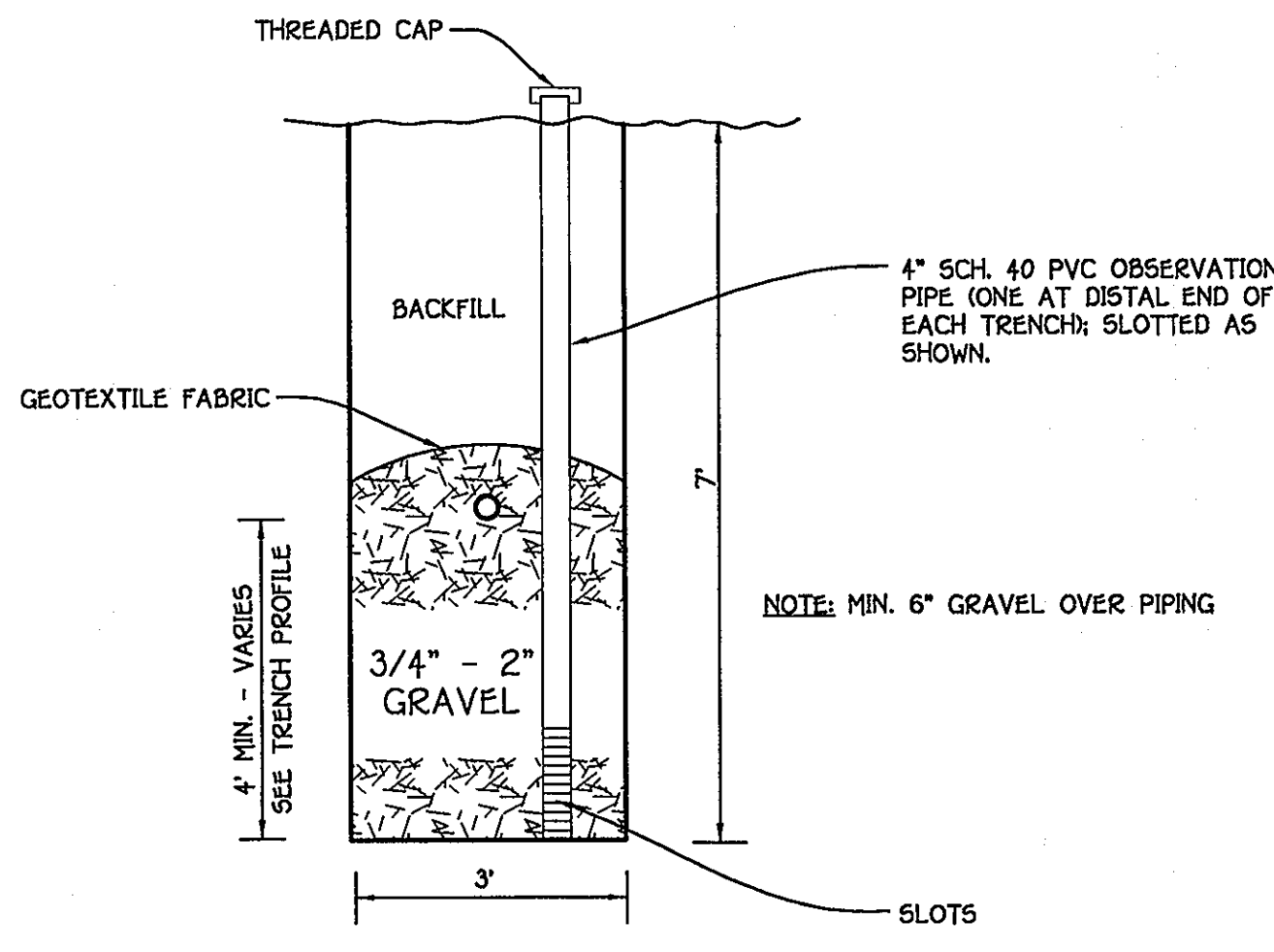
LATERAL DETAIL - TRENCHES 4, 5 & 6
SCALE: 1" = 10'



LATERAL DETAIL - TRENCHES 7 & 8
SCALE: 1" = 10'



TRENCH LAYOUT
SCALE: 1" = 10'



LATERAL TRENCH DETAIL
NO SCALE

TRENCH LENGTH, LOADING & HYDRAULIC CALCULATIONS

5 HOUSES @ 5 BEDROOMS PER HOUSE
= 25 BEDROOMS @ 150 GPD = 3,750 GPD

LOADING RATE -
0.8 GPD/SQ. FT. = 4,680 SQ. FT. @ 36" WIDE

TOTAL TRENCH LENGTH = 4,680 SQ. FT. / 3' = 1,563 LINEAR FEET
3 1/2" ACCEPTABLE SIDEWALL (FROM 4'-0")
(3 + 2) X 100 / (3 + 1 + 7) = 500/11 = 45X
1,563 X 0.45 = 703; SAY 800 LINEAR FEET
USE 16-50'@800' TOTAL) X 3' X 7' DEEP TRENCHES AS SHOWN ON THESE PLANS

NOTE: REFERENCE HYDRAULIC, LOW PRESSURE DOSING & PUMP SELECTION CALCULATIONS: THE MARTY HOWARD PROPERTY, DATED JANUARY 17, 2008 (REVISED) FOR CONTINUATION OF CALCULATIONS

CONTRACT NO. 50-4381-D
MARTY HOWARD PROPERTY
SHARED SEPTIC SYSTEM
PARCEL 414
LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C'
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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

HOWARD COUNTY HEALTH OFFICER _____ DATE _____

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

S/E ENGINEERING, INC.
WESTMINSTER, MARYLAND

DESIGNED BY :
B.C.R.

DRAWN BY :
B.C.R.

CHECKED BY :
P.W.K.

DATE :
FEBRUARY, 2008

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	FEBRUARY, 2008
BY NO.	
REVISION	

SHARED SEPTIC SYSTEM
DETAILS

600' SCALE MAP NO. 34 BLOCK NO. 3

F.C.C. WORK ORDER NO. 06053

FILE NAME : SEWER PLAN SH1

MARTY HOWARD PROPERTY
SHARED SEPTIC SYSTEM
PARCEL 414: LOTS 1, 8 THRU 10 &
BUILDABLE PARCEL 'C'
CONTRACT NO. 50-4381-D
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE
AS
SHOWN

SHEET
4 of 10

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BEND	SIZE IN INCHES			
	1-1/4, 1-1/2	2, 2-1/2	3	4
11 1/4° (1/32)	L	12	15	18
	W	10	12	15
	D	10	15	18
22 1/2° (1/16)	L	15	20	24
	W	15	20	24
	D	12	18	20
45° (1/8)	L	20	24	30
	W	20	24	30
	D	12	20	24

NOTES:
 1. COAT EXPOSED GALVANIZED STRAPS WITH FIELD APPLIED TWO COATS OF BITUMINOUS PAINT.
 2. USE MIX NO. 1 CONCRETE
 3. CARRY ALL BEARING SURFACES TO UNDISTURBED EARTH OR FIRM SUBGRADE.
 4. CONCRETE ANCHORAGE DIMENSIONS ARE BASED ON TOTAL PRESSURE OF 150 PSI.

Revised	Howard County, Maryland Department of Public Works	PRESSURE SEWER Anchoring (Upper Vertical Bends)	Detail S-4.06
Drawn	Approved: <i>[Signature]</i> 5/17/2007 Chief, Bureau of Engineering		

NOTES:
 1. FOR PIPE SIZES, SEE CONTRACT DOCUMENTS.
 2. SOLVENT CEMENT PARTS A, B, C AND D TOGETHER PRIOR TO CUTTING EXISTING MANHOLE PRESSURE SEWER.
 3. CONNECTION TO EXISTING PVC 6-INCH GASKET DOUBLE BALL PVC COUPLING.
 4. CONNECTION TO EXISTING HOPE, SEAL AND RESTRAINT TYPE MECHANICAL COUPLING, SEE SPECIFICATION.

Revised	Howard County, Maryland Department of Public Works	PRESSURE SEWER Connection to Main	Detail S-4.16
Drawn	Approved: <i>[Signature]</i> 5/17/2007 Chief, Bureau of Engineering		

Revised	Howard County, Maryland Department of Public Works	PRESSURE SEWER In-Line Valve Installation	Detail S-4.11
Drawn	Approved: <i>[Signature]</i> 5/17/2007 Chief, Bureau of Engineering		

NOTES:
 1. USE MIX NO. 1 CONCRETE FOR BLOCKING.
 2. CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.
 3. WHEN CONNECTING TO PVC PRESSURE SEWER AT THE PIPE'S INTERFACE INSTALL SEAL-O-NLY NON-RESTRAINING MECHANICAL COUPLING. CENTERLINES OF COUPLING AND HDPE PIPE SHALL BE 3'-0" APART.

Revised	Howard County, Maryland Department of Public Works	PRESSURE SEWER Blocking Collar HDPE Pipe	Detail S-4.12
Drawn	Approved: <i>[Signature]</i> 5/17/2007 Chief, Bureau of Engineering		

NOTES:
 1. FOR SECTION A-A, SEE DETAIL S-4.15
 2. FOR SECTION B-B, SEE DETAIL S-4.15

Revised	Howard County, Maryland Department of Public Works	PRESSURE SEWER Gravity Transition Manhole	Detail S-4.14
Drawn	Approved: <i>[Signature]</i> 5/17/2007 Chief, Bureau of Engineering		

NOTES:
 1. FOR LOCATIONS ALONG PRESSURE SEWER ALIGNMENT, SEE CONTRACT DRAWINGS.

Revised	Howard County, Maryland Department of Public Works	PRESSURE SEWER Tracer Wire, Conducting Rod & Vault	Detail S-4.18
Drawn	Approved: <i>[Signature]</i> 5/17/2007 Chief, Bureau of Engineering		

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

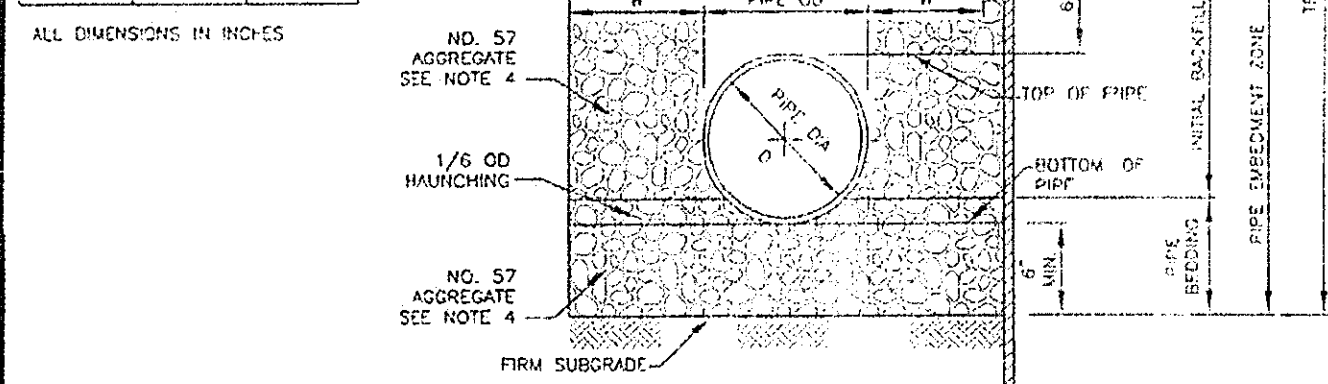
HOWARD COUNTY HEALTH OFFICER _____ DATE _____

CONTRACT NO. 50-4381-D
 MARTY HOWARD PROPERTY
 SHARED SEPTIC SYSTEM
 PARCEL 414
 LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C'
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	S/E ENGINEERING, INC. WESTMINSTER, MARYLAND	DESIGNED BY : B.C.R.	DRAWN BY : B.C.R.	CHECKED BY : P.W.K.	DATE : FEBRUARY, 2008	BY NO.	REVISION	DATE	SHARED SEPTIC SYSTEM DETAILS	600' SCALE MAP NO. 34 BLOCK NO. 3 F.C.C. WORK ORDER NO. 08053 FILE NAME : SEWER PLAN SH1	MARTY HOWARD PROPERTY SHARED SEPTIC SYSTEM PARCEL 414: LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C' CONTRACT NO. 50-4381-D FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN	SHEET 5 of 10
CHIEF, BUREAU OF UTILITIES	CHIEF, DEVELOPMENT ENGINEERING DIVISION	JAMES D. CLISE												

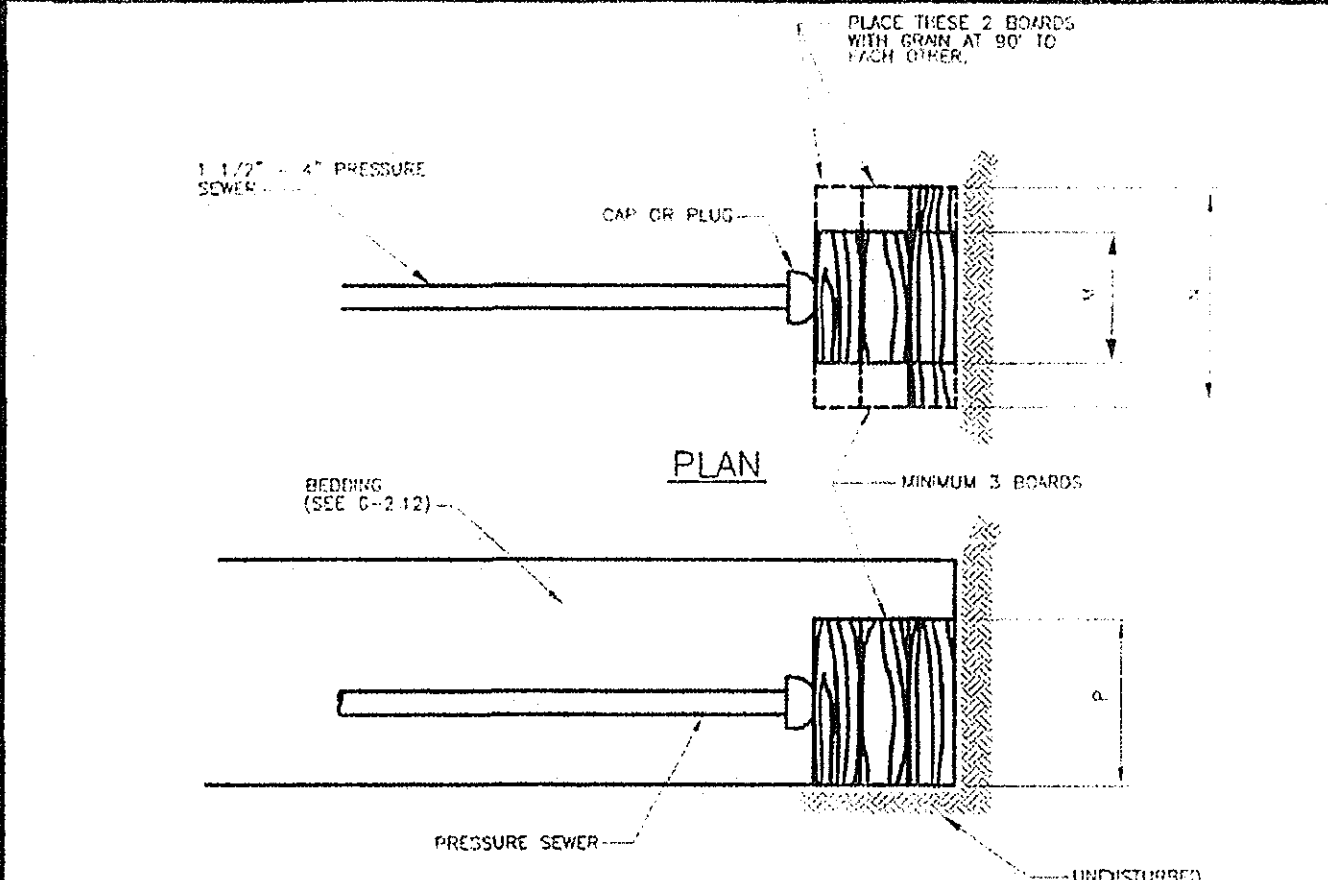
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PIPE DIA TO"	W"	TRENCH WIDTH
4	12	28
6	11	26
8	10	26
10	9	26
12	8	26



- NOTES:**
- THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
 - FOR TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS NOT REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN.
 - FOR TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN PLUS 24 INCHES.
 - FOR COPPER, PVC AND HDPE PIPE, 3 INCHES OR SMALLER: PIPE EXHAUSTION ZONE MATERIAL IS FINE AGGREGATE (SAND). "W" DIMENSION IS 6 INCHES MINIMUM AND BEDDING THICKNESS UNDER PIPE IS 4" MINIMUM. FOR TRENCHES IN ROCK, MINIMUM BEDDING THICKNESS IS 6 INCHES.
 - SPECIAL DESIGN IS REQUIRED AND SHALL BE SPECIFIED OR DETAILED IN THE CONTRACT DOCUMENTS FOR THE FOLLOWING PIPES:
PVC AWWA C-905 LARGER THAN 12 INCHES.
PVC GRAVITY SANITARY SERVICES LARGER THAN 12 INCHES.
HDPE CORRUGATED DRAIN PIPE.
STEEL CROSSINGS SEE DETAILS S-3.11 AND S-3.12.

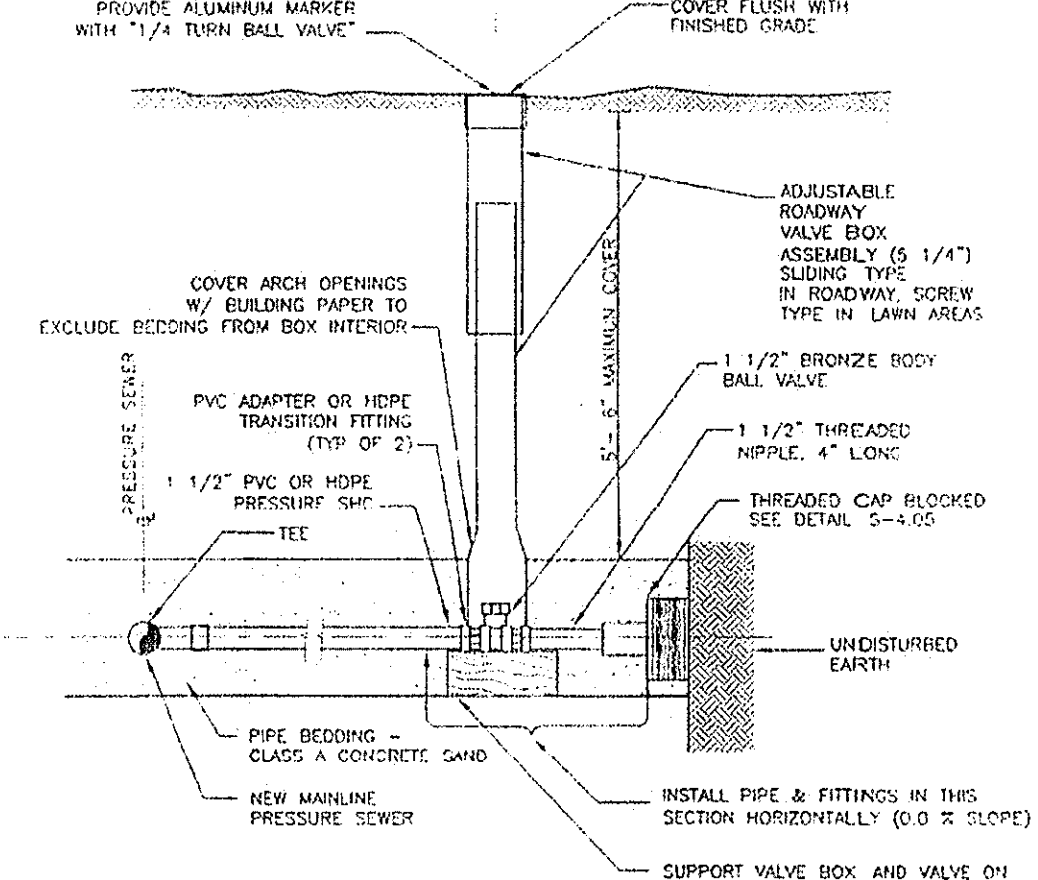
Howard County, Maryland
Department of Public Works
Pipe Trench
Plastic & Copper
Detail
G-2.12



- NOTES:**
- CARRY ALL BEARING SURFACES TO UNDISTURBED EARTH OR FIRM SUBGRADE.
 - BUTTRESS SIZED FOR 150 PSI.
 - NOMINAL THICKNESS OF EACH BOARD IS 2".
 - ALL BOARDS TO BE GROUND CONTACT TREATED.

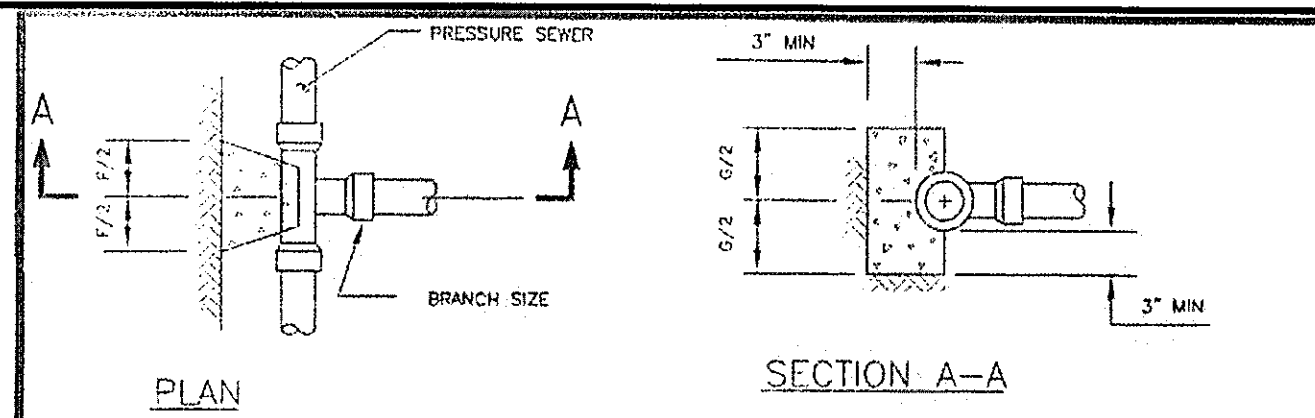
PIPE SIZE	M	N	P
1 1/4"	6"	6"	8"
1 1/2"	6"	6"	8"
2"	6"	8"	8"
2 1/2"	8"	8"	10"
3"	12"	18"	12"
4"	12"	18"	12"

Howard County, Maryland
Department of Public Works
PRESSURE SEWER
House Connection
Cap & Plug Blocking
Detail
S-4.05



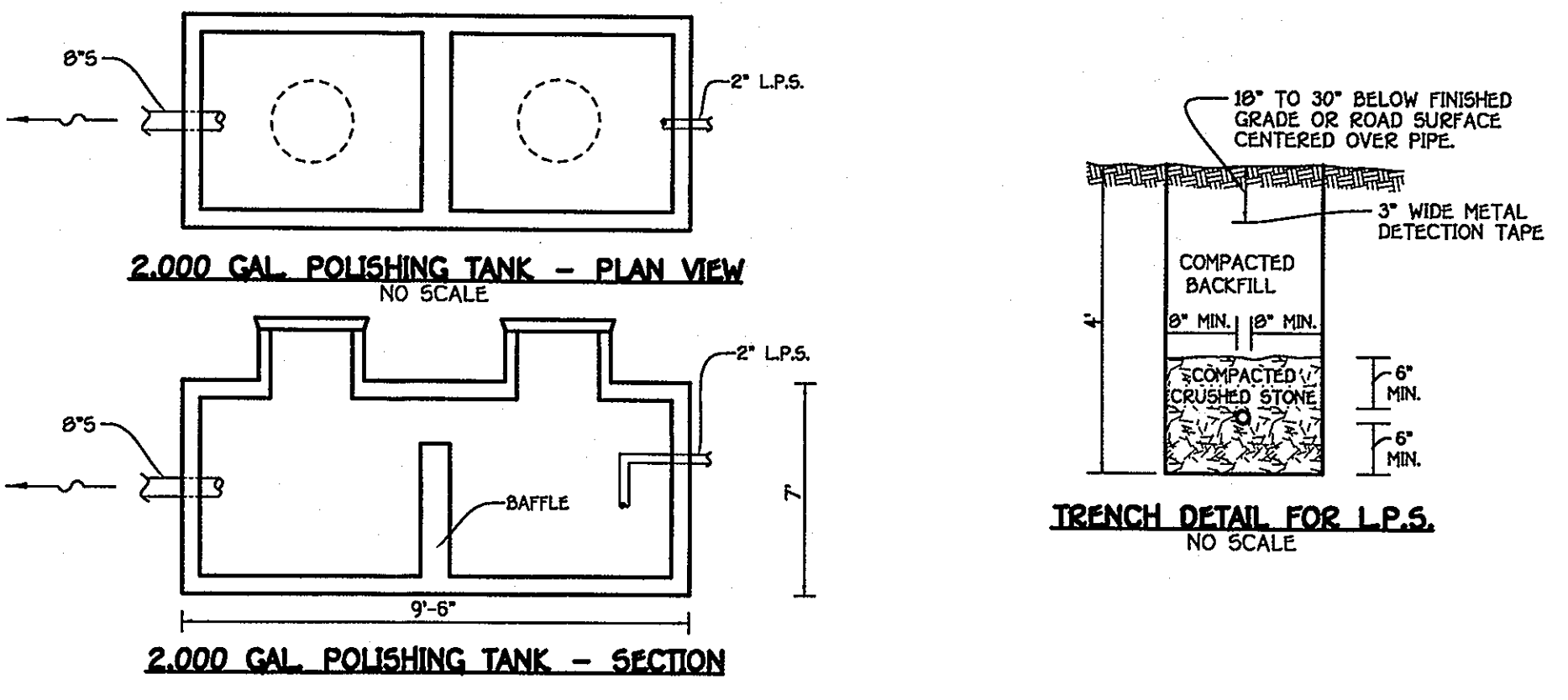
- NOTES:**
- SERVICE VALVE TO BE LEFT IN THE CLOSED POSITION.
 - UNLESS OTHERWISE NOTED ALL 1 1/4" DIAMETER PVC PIPE SHALL HAVE SOFTENED CLEARANCE JOINTS AND HELIX WALL HAVE BUTT FUSED JOINTS.
 - FITTINGS SHALL BE BLOCKED OR ANCHORED IN ACCORDANCE WITH DETAILS S-4.06 AND S-4.08.

Howard County, Maryland
Department of Public Works
PRESSURE SEWER
House Connection
Service Valve Assembly
Detail
S-4.03

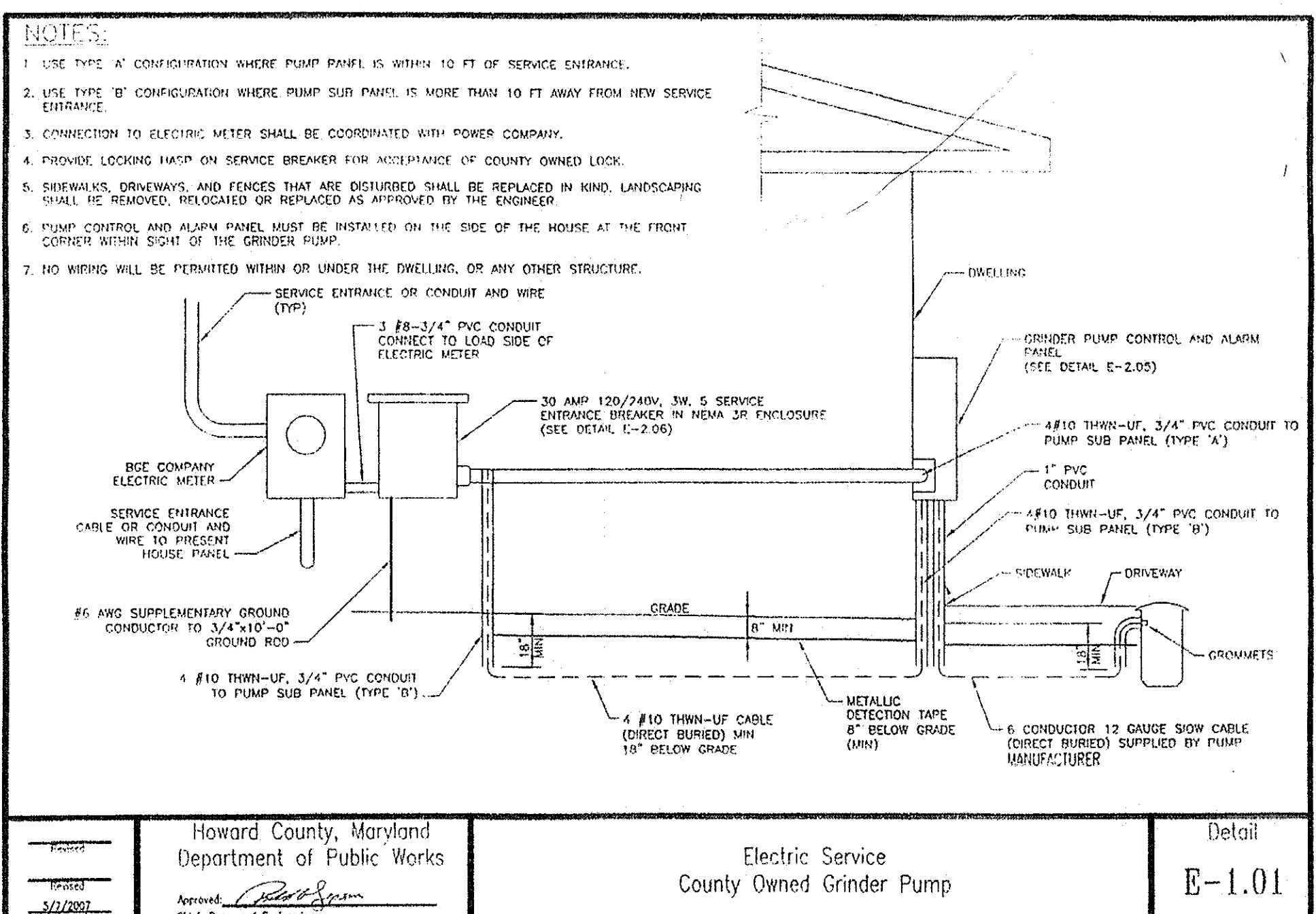


- TEES, INCLUDING PRESSURE SHC'S**
- 90° HORIZONTAL BENDS**
- 11-1/4", 22-1/2", 45" HORIZONTAL & LOWER VERTICAL BENDS**
- NOTES:**
- USE MIX NO. 1 CONCRETE.
 - CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.
 - BUTTRESS SIZED FOR 160 PSI.
 - SEE DETAIL S-4.06 FOR UPPER VERTICAL BENDS.
 - DO NOT ENCASE JOINTS.

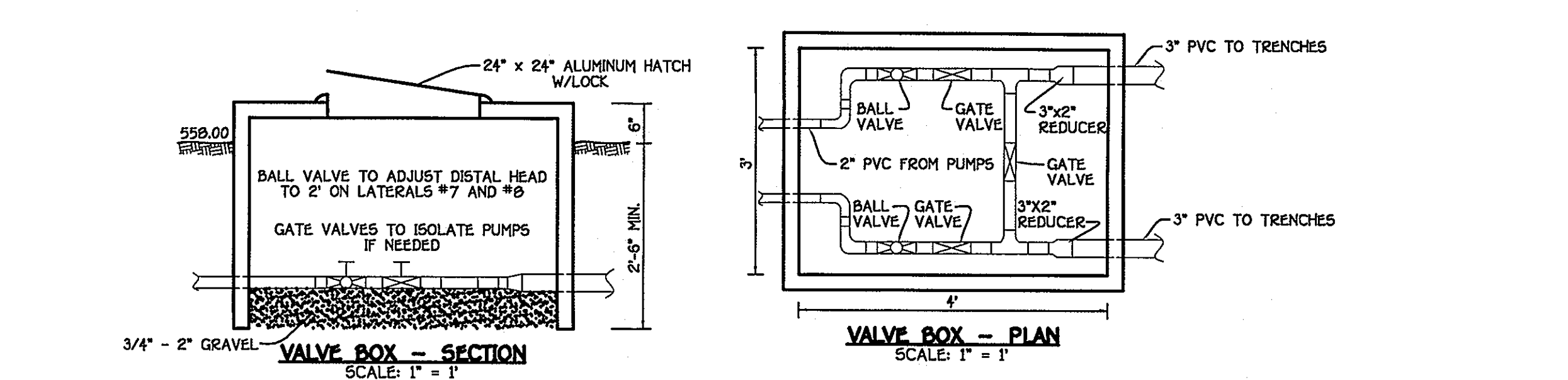
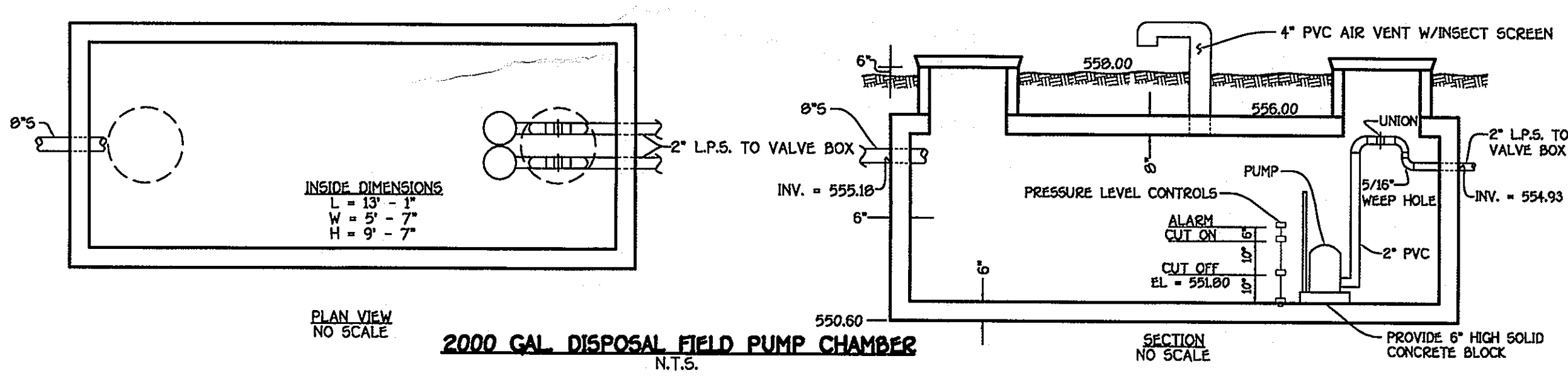
Howard County, Maryland
Department of Public Works
PRESSURE SEWER
Blocking
Detail
S-4.04



- NOTES:**
- MANHOLE FRAME & COVERS SHALL NOT BE WATERTIGHT. PROVIDE STANDARD MANHOLE FRAME & COVERS WITH PLASTIC INSERTS.
 - "STAND-OFF" SUPPORTS FOR TAIL ENDS OF INLET & OUTLET TEES SHALL BE INSTALLED WITHIN THE POLISHING TANK & PUMP CHAMBER TANK & ANCHORED AGAINST THE SIDEWALLS OF THE TANKS.



Howard County, Maryland
Department of Public Works
Electric Service
County Owned Grinder Pump
Detail
E-1.01

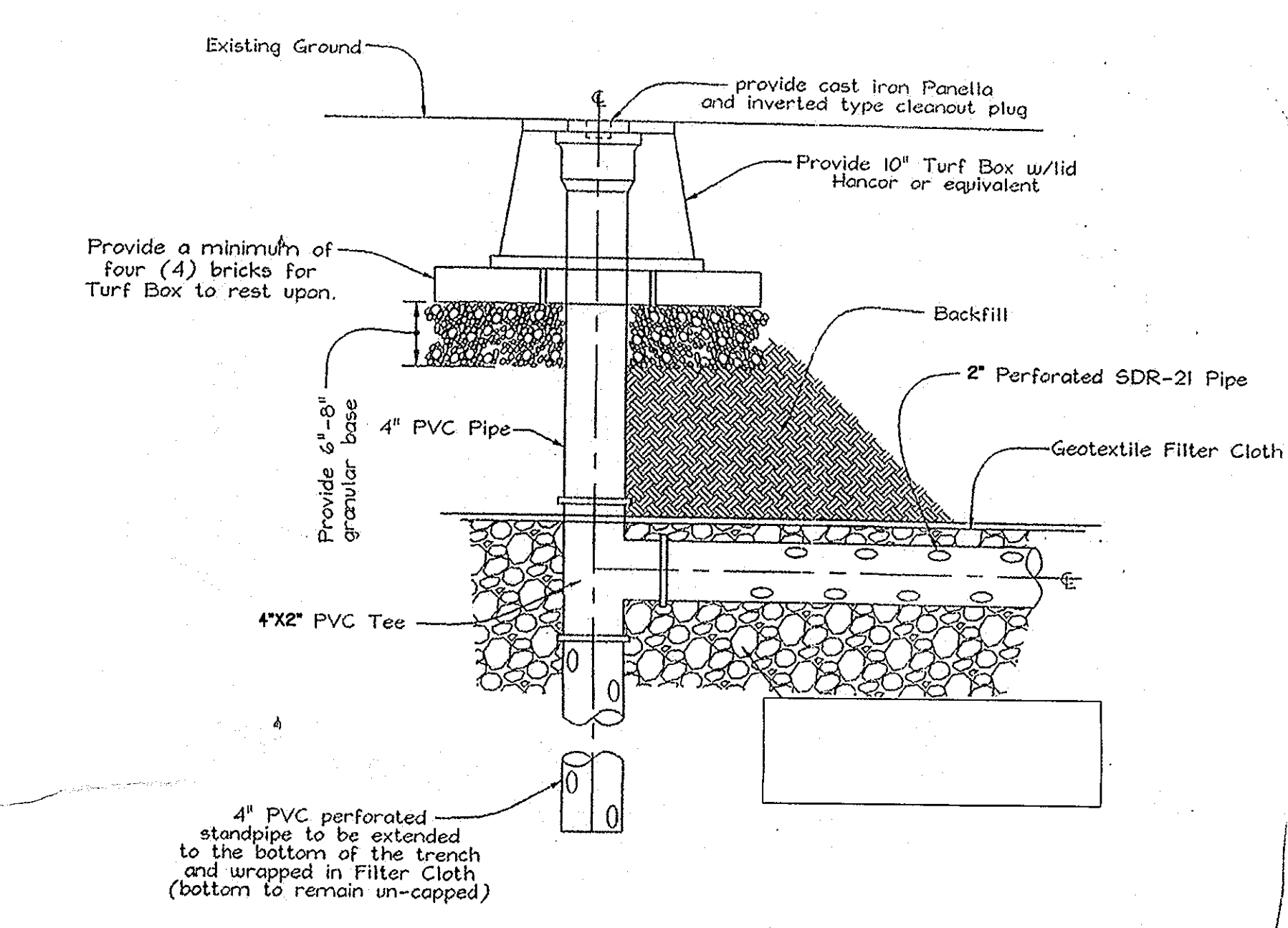
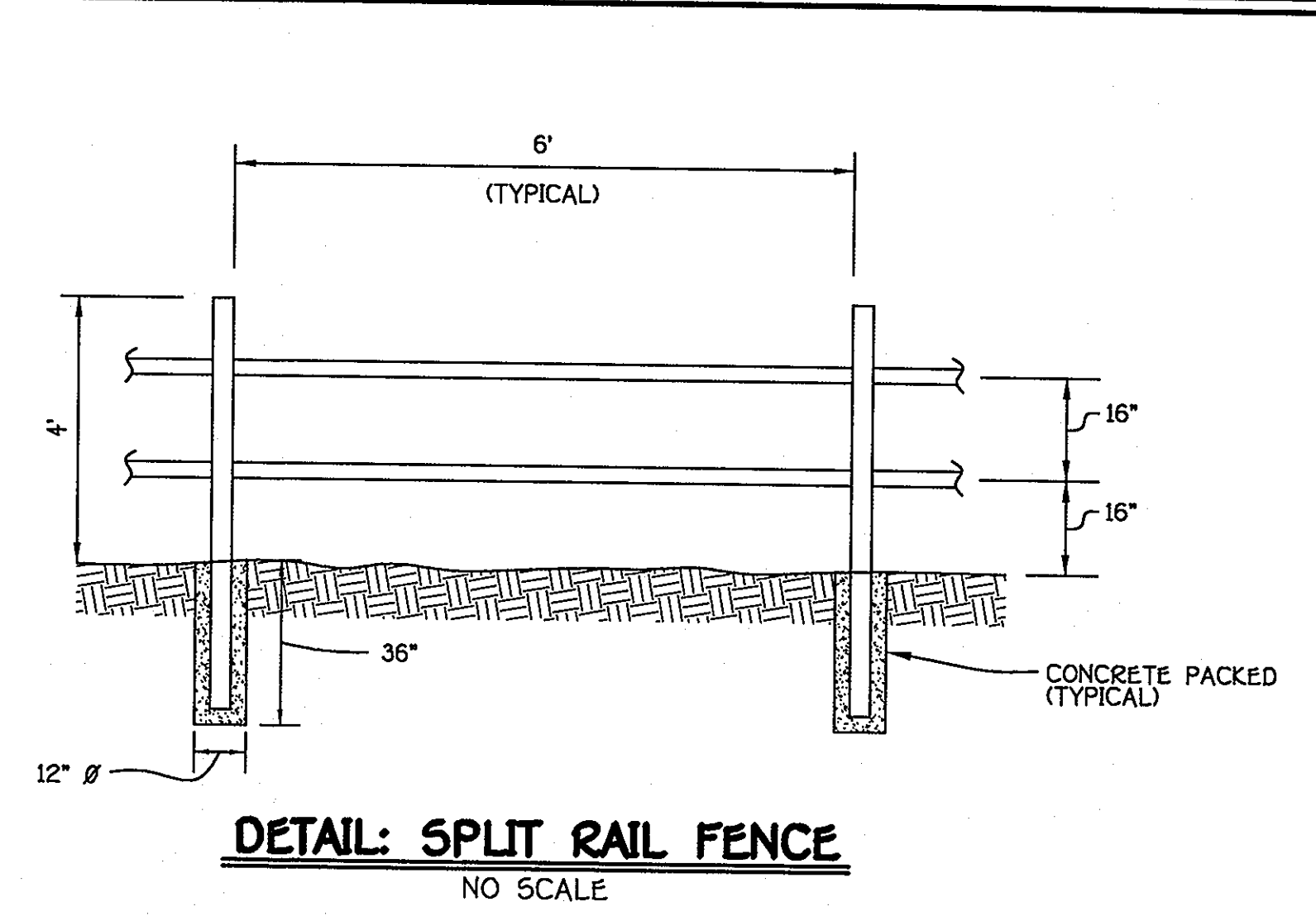
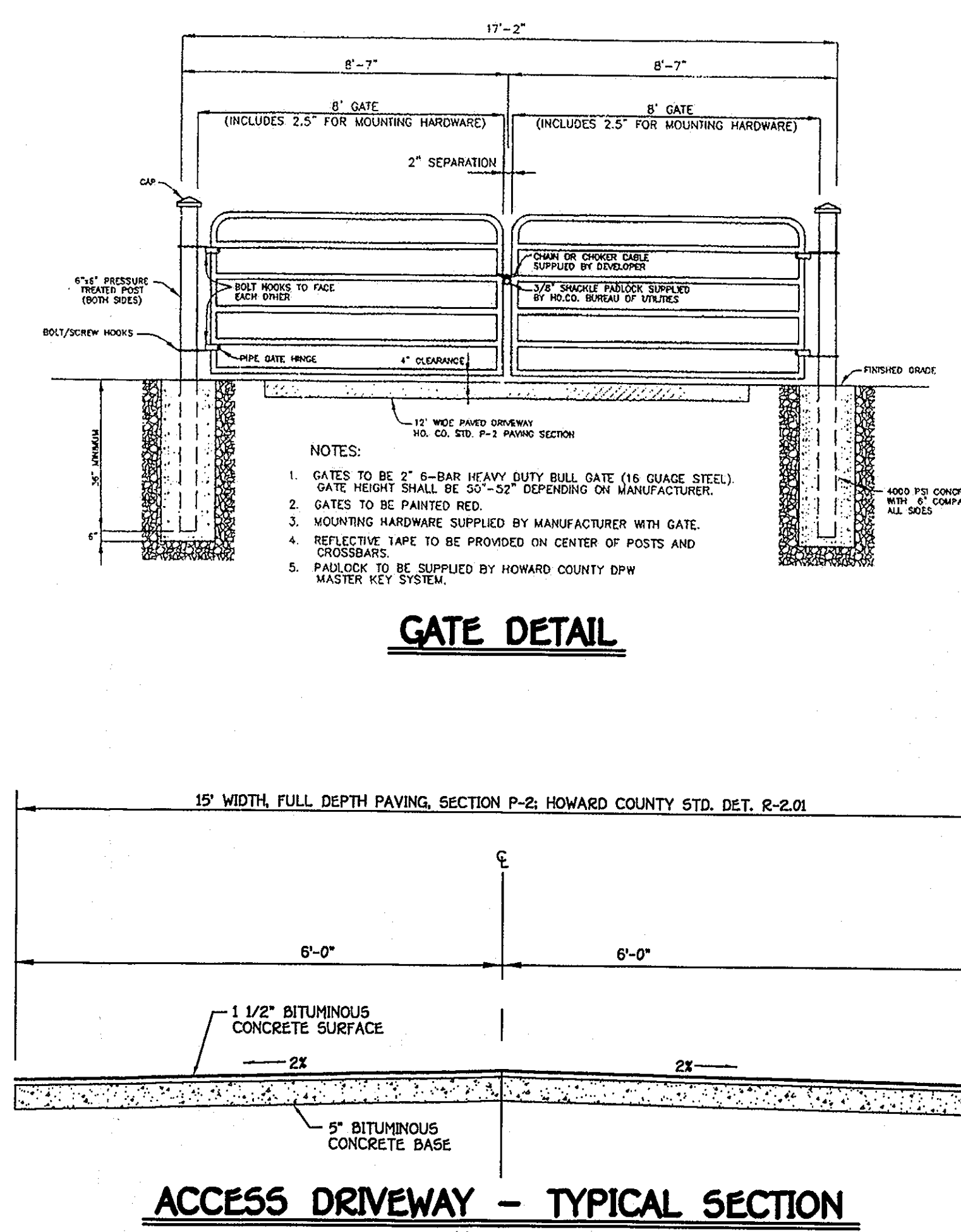
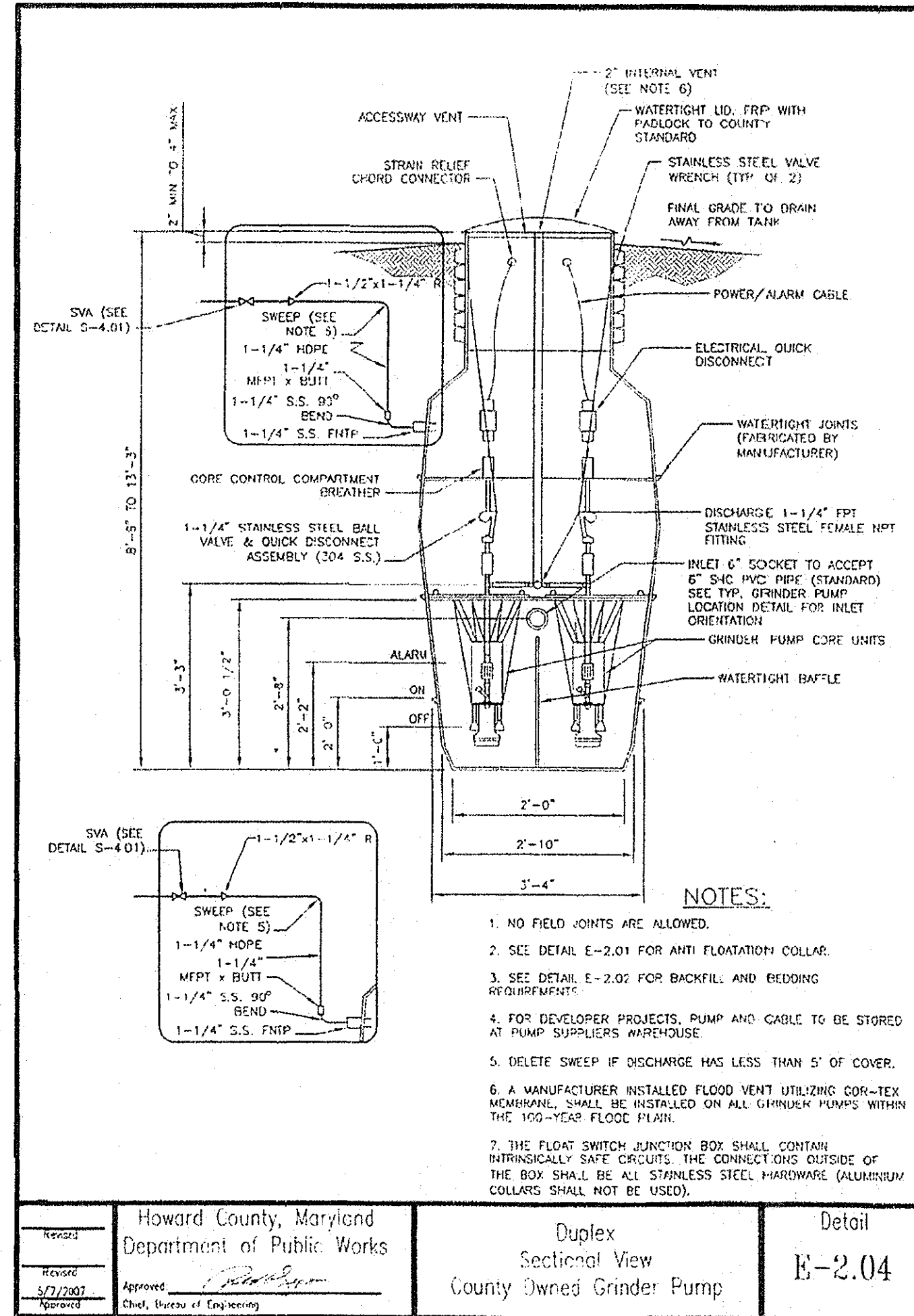
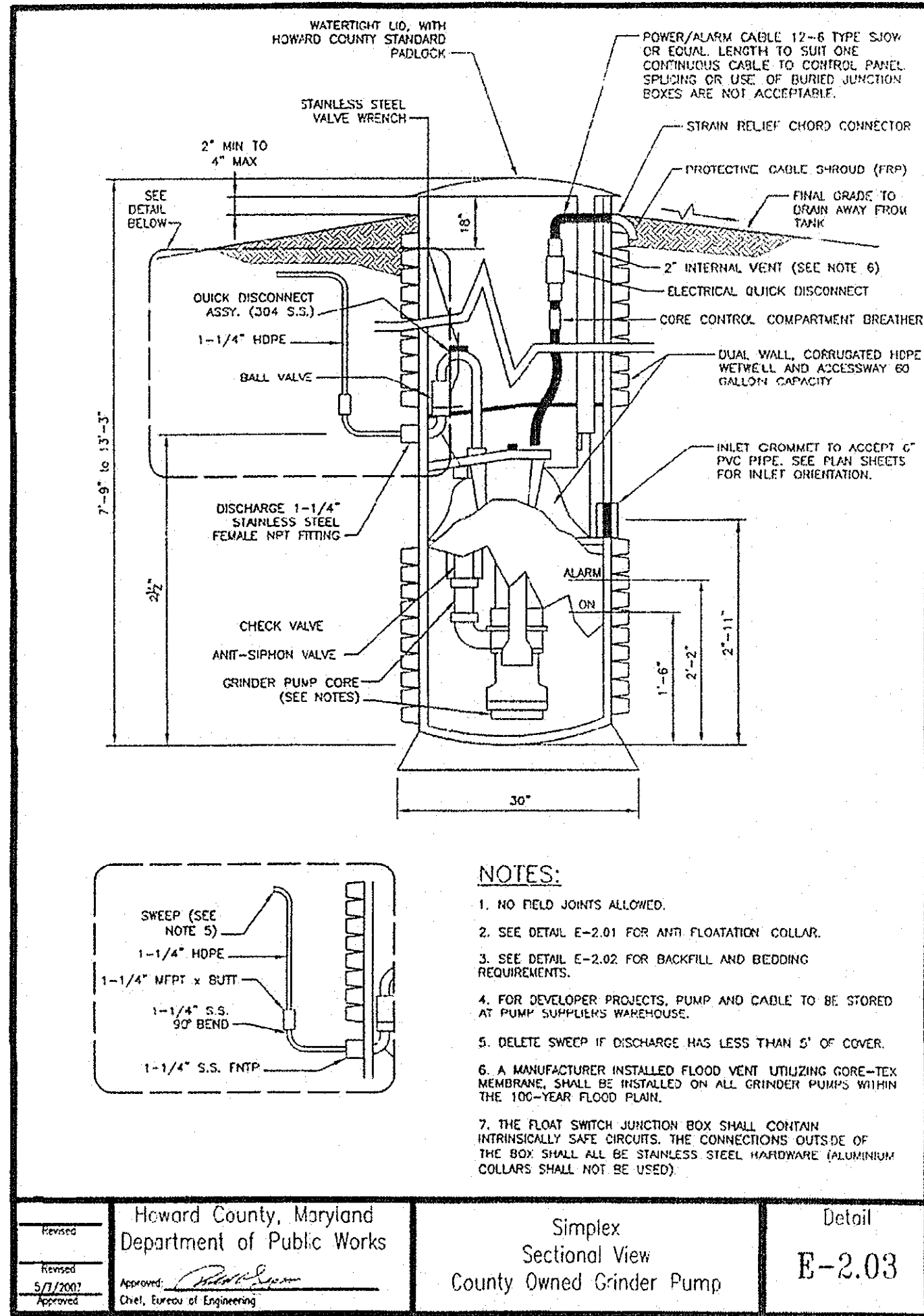


APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
HOWARD COUNTY HEALTH DEPARTMENT

HOWARD COUNTY HEALTH OFFICER _____ DATE _____

CONTRACT NO. 50-4381-D
MARTY HOWARD PROPERTY
SHARED SEPTIC SYSTEM
PARCEL 414
LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C'
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	S/E ENGINEERING, INC. WESTMINSTER, MARYLAND	DESIGNED BY: B.C.R.	DRAWN BY: B.C.R.	CHECKED BY: P.W.K.	DATE: FEBRUARY, 2008	BY NO.	REVISION	DATE	600' SCALE MAP NO. 34 BLOCK NO. 3 F.C.C. WORK ORDER NO. 06063 FILE NAME: SEWER PLAN SH1	SCALE AS SHOWN	SHEET 7 of 10
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE	JAMES D. CLISE	FEBRUARY, 2008	BY NO.	REVISION	DATE				



NOTE: GRINDER PUMP CHAMBERS FOR SIMPLEX PUMPS SHALL BE A MINIMUM OF THIRTY-SIX (36) INCHES IN DIAMETER.

GRINDER PUMP / GRINDER PUMP CHAMBER

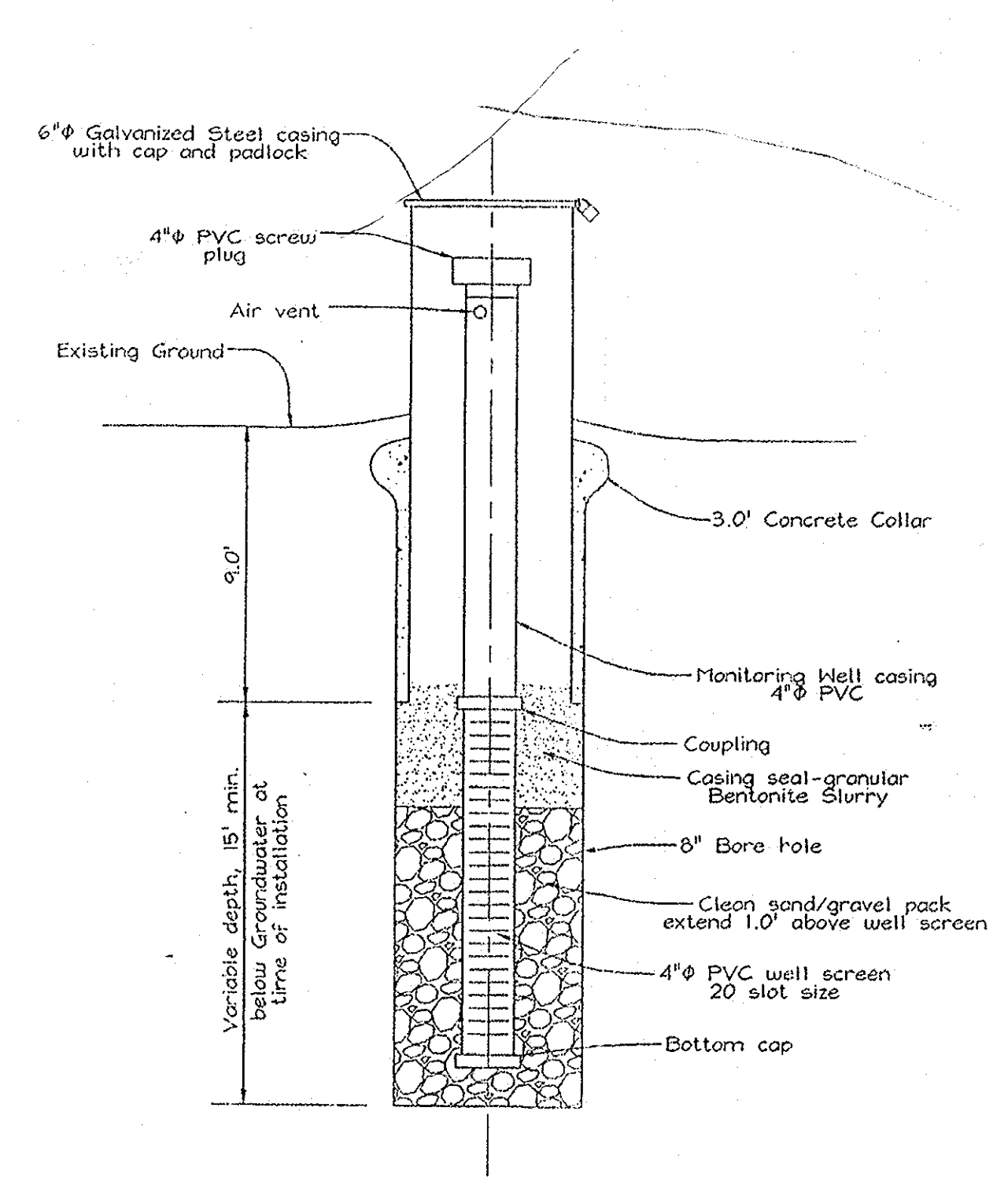
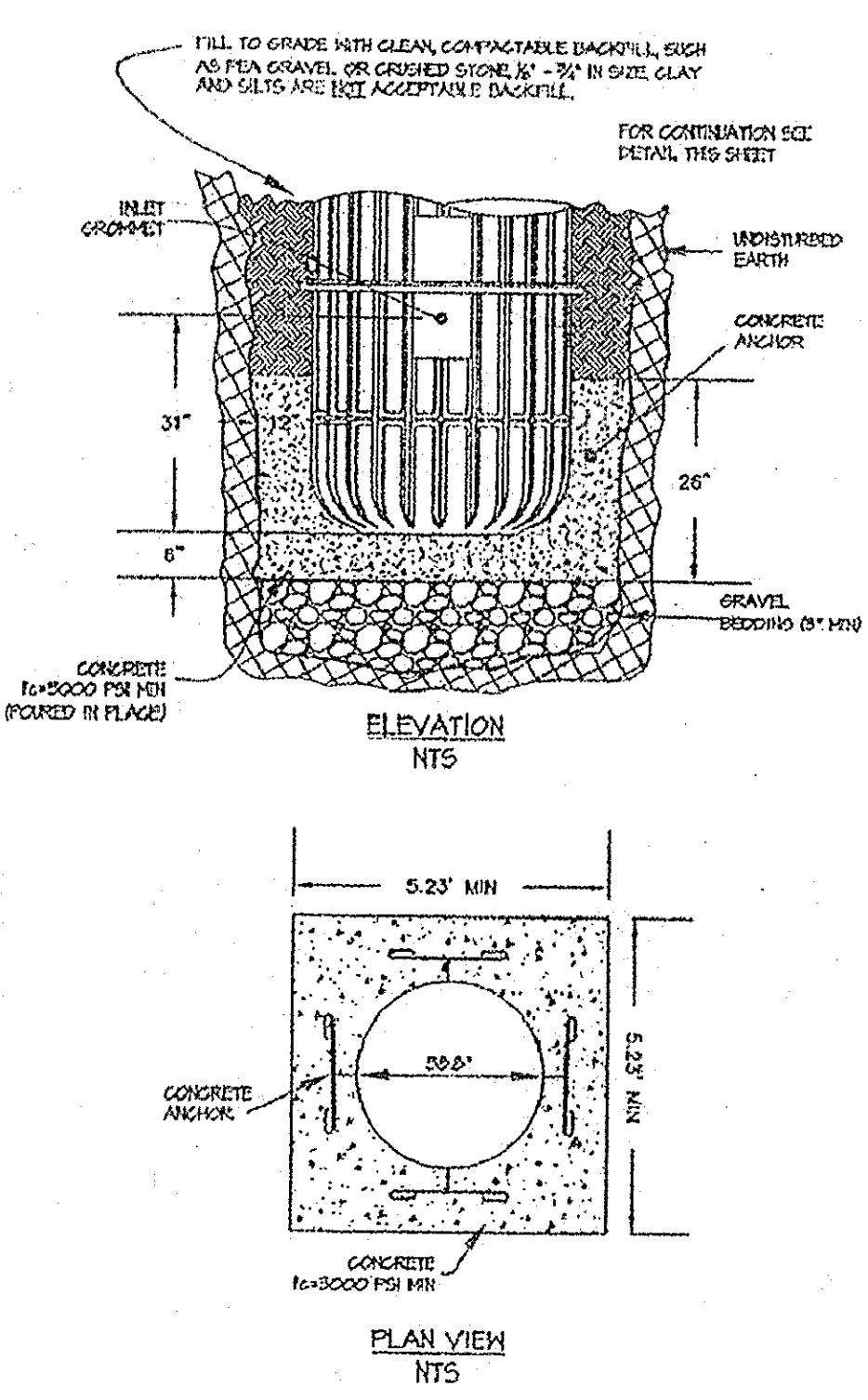
- GRINDER PUMP CONTROL PANEL NOTES**
- THE GRINDER PUMP CONTROL PANEL SHALL BE LOCATED ON THE HOUSE AND A CLEAR LINE OF VISION SHALL BE MAINTAINED BETWEEN THE CONTROL PANEL & THE GRINDER PUMP CHAMBER.
 - THE SEALING BOX SHALL BE PLACED SIX (6) INCHES BELOW THE CONTROL PANEL ON THE HOUSE IN LINE WITH CONDUIT & SHALL BE SEALED WITH CHICLE WATERIGHT SEALANT TO CREATE A VAPOR LOCK.
 - THE GRINDER PUMP CONTROL PANEL SHALL BE DIRECT WIRED FROM B.G.A.E.'S METER BOX.
 - THE GRINDER PUMP CONTROL PANEL SHALL HAVE A FUNCTIONAL HOA/PUSH TO RUN SWITCH.
 - THE CONTROLS SHALL HAVE AN OVER-CURRENT DEVICE AND A DISCONNECT LOCATED NEXT TO THE ELECTRIC METER; BETWEEN THE METER & THE GRINDER PUMP CONTROL PANEL.
 - ALL WIRE SHALL BE INSTALLED IN CONDUIT; DIRECT BURIED WIRING IS UNACCEPTABLE.
 - THE CONTROL PANEL SHALL BE SITUATED SUCH THAT THE BOTTOM OF THE PANEL IS A MINIMUM OF FORTY-EIGHT (48) INCHES ABOVE THE GROUND.

- GRINDER PUMP & HOUSING NOTES**
- GRINDER PUMPS SHALL BE ENVIRONMENTAL-ONE 2000 SERIES, DELTA DIP20-21, VORTEX V-2000S OR HYD65 CENTRIFUGAL GRINDER PUMPS.
 - THE CHAMBER HOUSING FOR THE GRINDER PUMP SHALL HAVE A MAXIMUM DEPTH OF 10 FEET.
 - THE DISCHARGE LINE AS IT EXITS THE GRINDER PUMP CHAMBER SHALL HAVE A MAXIMUM DEPTH OF 10\"/>

PIPE CURVE DATA

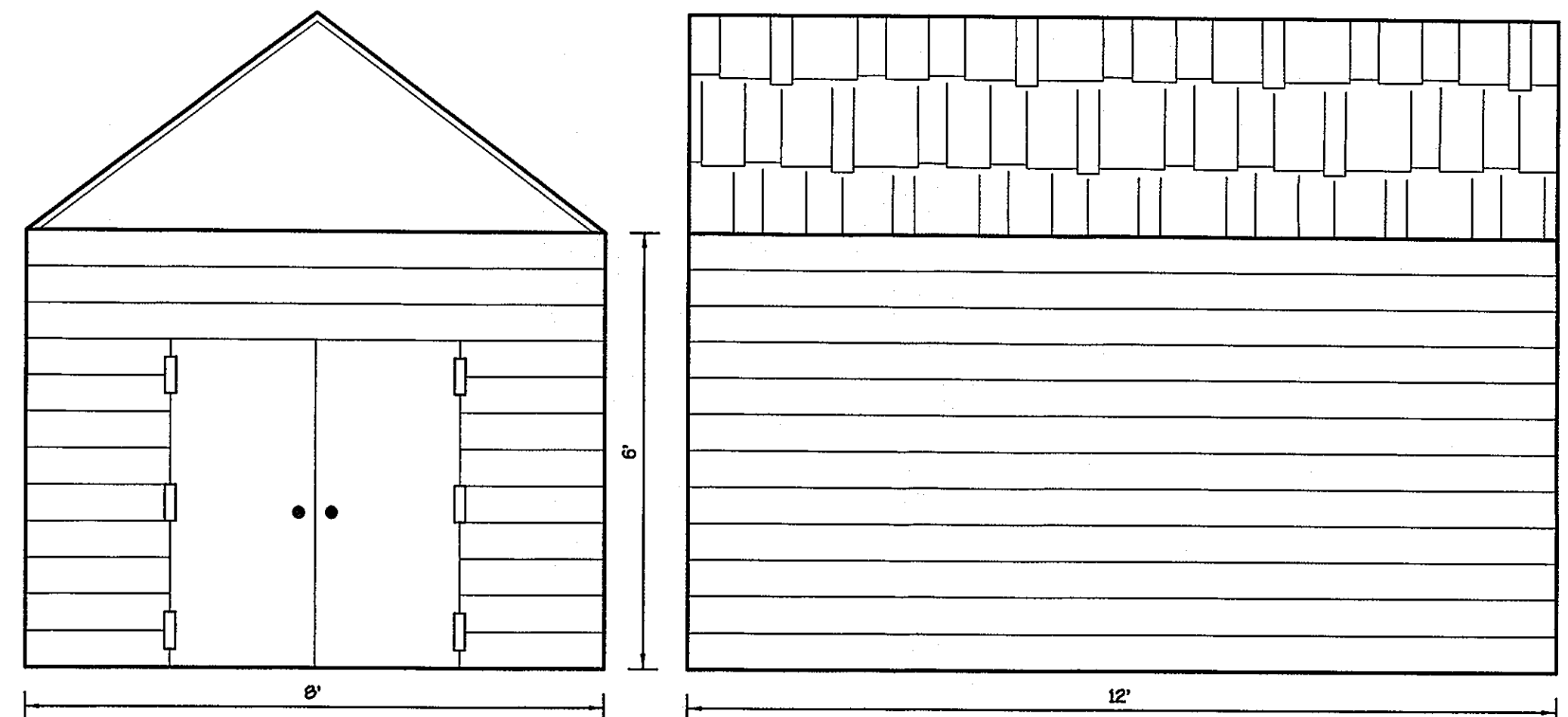
DIAMETER	OFFSET (IN. FT)
2"	3.33
4"	2.27
5"	1.77
6"	1.21
8"	.93
10"	.74
12"	.62

NOTE: THESE CURVATURES RESULT ONLY FROM THE BENDING OF THE PIPE LENGTHS. THERE IS VIRTUALLY NO DEFLECTION IN THE JOINT.



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

HOWARD COUNTY HEALTH OFFICER _____ DATE _____



- MAINTENANCE BUILDING SPECIFICATIONS:**
- 6\"/>

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	SIE ENGINEERING, INC. WESTMINSTER, MARYLAND	DESIGNED BY : B.C.R.	DRAWN BY : B.C.R.	CHECKED BY : P.W.L.	DATE : FEBRUARY, 2008	SHARED SEPTIC SYSTEM DETAILS	600' SCALE MAP NO. 34 - BLOCK NO. 3 F.C.C. WORK ORDER NO. 05063	MARTY HOWARD PROPERTY SHARED SEPTIC SYSTEM PARCEL 414: LOTS 1, 8 THRU 10 & BUILDABLE PARCEL 'C' CONTRACT NO. 50-4381-D FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
CHIEF, BUREAU OF UTILITIES	CHIEF, DEVELOPMENT ENGINEERING DIVISION	JAMES D. CLISE	DATE : FEBRUARY, 2008	BY NO.	REVISION	DATE	FILE NAME : SEWER PLAN SH1	SHEET 8 OF 10		



EROSION & SEDIMENT CONTROL PLAN
SCALE: 1"=50'

NOTE: SEE SHEET 10 OF 10 FOR EROSION & SEDIMENT CONTROL SPECIFICATIONS, NOTES & DETAILS

CONTRACT NO. 50-4301-D
MARTY HOWARD PROPERTY
SHARED SEPTIC SYSTEM
PARCEL 414
LOTS 1, 9 THRU 10 & BUILDABLE PARCEL 'C'
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

S/E ENGINEERING, INC.
WESTMINSTER, MARYLAND

10096
DESIGNED BY :
B.C.R.
DRAWN BY :
B.C.R.
CHECKED BY :
P.W.K.
DATE :
FEBRUARY, 2009 BY NO. REVISION DATE

EROSION & SEDIMENT CONTROL PLAN
60' SCALE MAP NO. 34 BLOCK NO. 3
F.C.C. WORK ORDER NO. 08053
FILE NAME : EROSION & SEDIMENT CONTROL PLAN

**MARTY HOWARD PROPERTY
SHARED SEPTIC SYSTEM**
PARCEL 414: LOTS 1, 9 THRU 10 &
BUILDABLE PARCEL 'C'
CONTRACT NO. 50-4301-D
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 9 of 10

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