

QUANTITIES				
ITEM	ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	SUPPLIER
8" S; SDR-35	282 L.F.			
4" S; SDR-35	57 L.F.			
MANHOLES	3 EACH			
CLEAN-OUTS	5 EACH			
8" ISOLATION GATE VALVE	1 EACH			
1-1/2" L.P.S.; HDPE	360 L.F.			
DUPLEX GRINDER PUMP UNIT	1 EACH			
3" L.P.S.; PVC	1,305 L.F.			
2" LATERAL; PVC	1,167 L.F.			
DRAINFIELD TRENCH	1,231 L.F.			
4,000 GAL. SETTLING TANK	2 EACH			
5,500 GAL. PUMP CHAMBER	1 EACH			
ELECTRICAL CONTROLS & TELEMETRY	1 EACH			
CONTROL / MAINTENANCE BUILDING	1 EACH			
NAME OF UTILITY CONTRACTOR:				
SURVEY & DRAFTING DIVISION AS-BUILT DATE:				

BENCHMARK INFORMATION

B.M.#1 - HOWARD COUNTY CONTROL STATION #0019 - HORIZONTAL - (NAD '83)
 (LOCATED ALONG THE SOUTHEAST SIDE OF FOLLY QUARTER ROAD, APPROX. 25.5' FROM CENTERLINE OF FOLLY QUARTER ROAD AND APPROX. 92.2' WEST OF C&P #109)
 N 580,468.144
 E 1,333,675.544
 ELEVATION = 395.071 - VERTICAL - (NAVD '88)

B.M.#2 - HOWARD COUNTY CONTROL STATION #230A - HORIZONTAL - (NAD '83)
 (LOCATED ALONG THE SOUTH SIDE OF CARROLL MILL ROAD, ACROSS FROM THE GAS COMPANY ACCESS DRIVEWAY, APPROX. 40.6' FROM THE END OF QUARD RAIL ACROSS THE STREET)
 N 582,416.919
 E 1,332,909.009
 ELEVATION = 360.418 - VERTICAL - (NAVD '88)

PRIVATE WELL & PRIVATE SEPTIC SYSTEM CHART				
PARCEL NO.	ADDRESS	OWNER	ABANDON WELL	ABANDON SEPTIC
28	3661 FOLLY QUARTER ROAD	LAWRENCE R. HYMAN	NO	YES
108	3683 FOLLY QUARTER ROAD	LAWRENCE R. HYMAN	NO	NO
110	3685 FOLLY QUARTER ROAD	LAWRENCE R. HYMAN	NO	NO
111	3687 FOLLY QUARTER ROAD	LAWRENCE R. HYMAN	NO	NO
140	3661 FOLLY QUARTER ROAD	LAWRENCE R. HYMAN	NO	YES

APPROVED FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111 AND 140.

Dr. Lawrence Hyman 8/29/2017
 HOWARD COUNTY HEALTH OFFICER DATE

DEVELOPER'S CERTIFICATION

"I/WE 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."

Paul W. Kriebel, R.R.
 DR. LAWRENCE HYMAN 07/17/17
 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."

Paul W. Kriebel 07/17/17
 SIGNATURE OF ENGINEER DATE

SEDDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND AS SHOWN ON THESE PLANS.

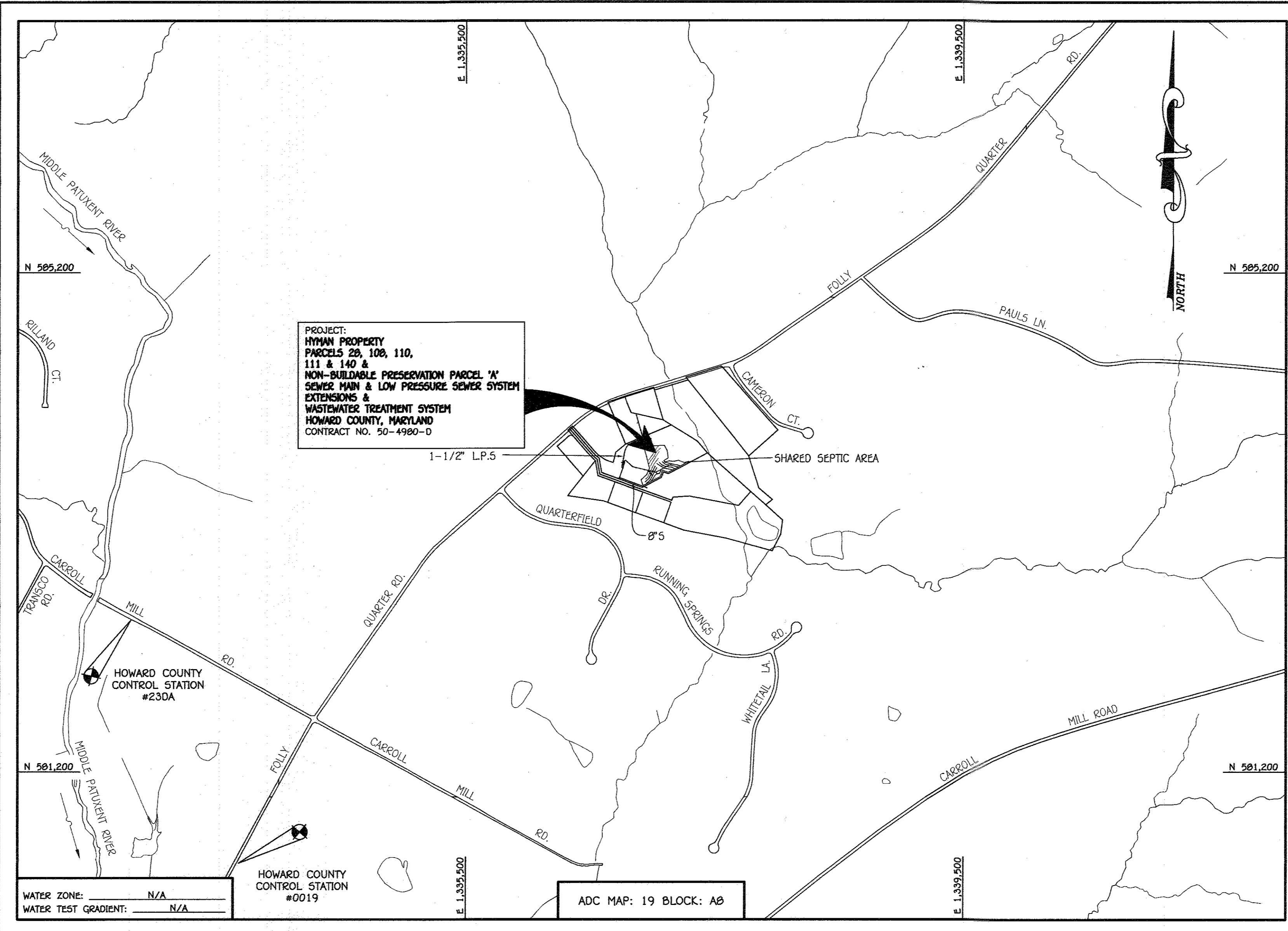
Dr. Lawrence Hyman 07/17/17
 SIGNATURE OF DEVELOPER DATE

GP-17-027

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

APPROVED: *John P. Blanton* 8/16/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

LEGEND	
SYMBOL	DESCRIPTION
---	EX. WATER MAIN
---	EX. SEWER MAIN
○	EX. SEWER MANHOLE
---	EX. SEWER, WATER & UTILITY EASEMENT
---	EX. FIRE HYDRANT
◇	EX. VALVE
---	PROP. WATER MAIN
---	PROP. SEWER MAIN
●	PROP. SEWER MANHOLE
---	PROP. SEWER, WATER & UTILITY EASEMENT
---	PROP. WIC
---	PROP. SHC
---	PROP. FIRE HYDRANT
◇	PROP. VALVE



TYPE OF BUILDING:	RESIDENTIAL: SINGLE FAMILY DETACHED
NUMBER OF PARCELS:	6 (INCLUDING NON-BUILDABLE PRESERVATION PARCEL 'A')
NO. OF WATER HOUSE CONNECTIONS:	0 - PRIVATE ON-LOT WELLS
NO. OF SEWER HOUSE CONNECTIONS:	5
SEWER SHED:	N/A
TREATMENT PLANT:	COMMUNITY SHARED CENTRAL TREATMENT FACILITY & SHARED DISPOSAL FACILITY ON NON-BUILDABLE PRESERVATION PARCEL 'A'

LOCATION MAP
SCALE: 1" = 600'

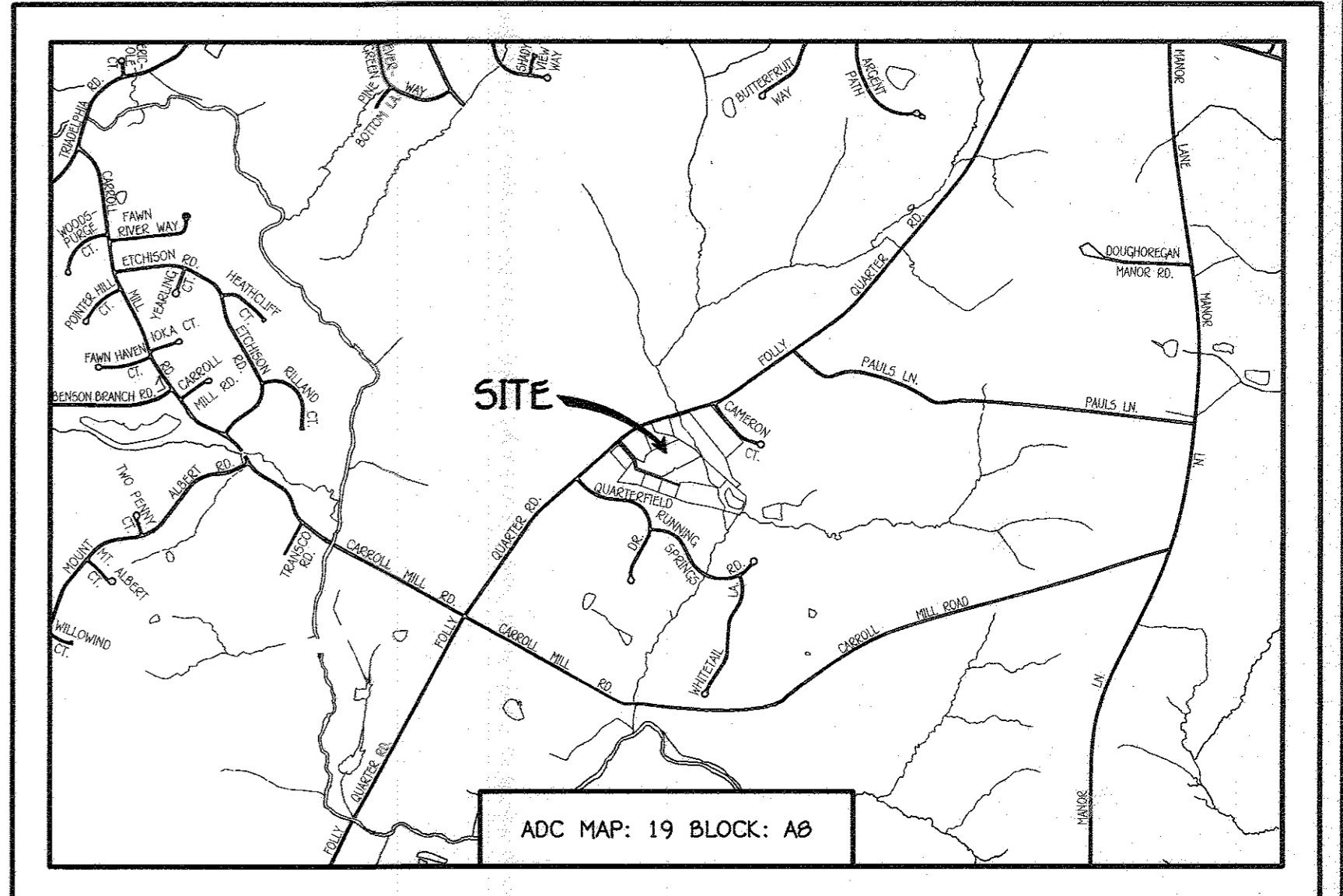
CONTRACT NO. 50-4980-D

HYMAN PROPERTY

PARCELS 28, 108, 110, 111, 140 & NON-BUILDABLE BULK PARCEL 'A'

SEWER MAIN & LOW PRESSURE SEWER SYSTEM EXTENSIONS & WASTEWATER TREATMENT SYSTEM

HOWARD COUNTY, MARYLAND



GENERAL NOTES

- PART A**
- 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 ON OR ABOUT JANUARY, 2016 BY FISHER, COLLINS & CARTER, INC.
 - HORIZONTAL AND VERTICAL SURVEY 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. 0019 & NO. 230A. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS.
 - 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	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	410-695-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO	410-799-1907
MESS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-3033 / 410-224-9210
- 9 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.
10. 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.
11. 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 18.114(a) OF THE HOWARD COUNTY CODE.
- PART B: WATER MAIN GENERAL NOTES**
- WATER SERVICE TO ALL BUILDABLE LOTS SHALL BE PROVIDED BY INDIVIDUAL PRIVATE ON-SITE WELLS.
- PART C: SEWER MAIN GENERAL NOTES**
- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
 - ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
 - MANHOLES SHOWN WITH 12" AND 18" WALLS ARE FOR BRICK MANHOLES ONLY.
 - MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL G5.52. WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED.
 - LOW PRESSURE SEWER MAINS SHALL BE HDPE, 50K 11'.
 - TRACER WIRE SHALL BE PROVIDED OVER ALL LOW PRESSURE SEWER MAINS. TRACER WIRE SHALL BE OVERLAPPING, INSULATED AND FIRMLY CONNECTED AND ENCAPSULATED.
 - PRIOR TO THE WASTEWATER TREATMENT SYSTEM BEING PLACED IN SERVICE, THE DEVELOPER SHALL ASSURE TO HAVE A QUALIFIED AND HOWARD COUNTY (BUREAU OF UTILITIES) APPROVED FIRM SAMPLE THE MONITORING WELLS AND FORWARD THE RESULTS TO THE BUREAU OF UTILITIES.
 - AT THE IN-SERVICE INSPECTION OF THE LOW PRESSURE SEWER MAIN COLLECTION SYSTEM, THE CONTRACTOR SHALL PROVIDE ONE (1) SPARE GENDER PUMP TO THE BUREAU OF UTILITIES.

- NOTES:**
- TOTAL NUMBER OF DWELLINGS CONNECTED TO THE SYSTEM: 5
 NUMBER OF BEDROOMS PER DWELLING: 5
 TOTAL NUMBER OF BEDROOMS: 5 DWELLINGS X 5 BEDROOMS PER DWELLING = 25 BEDROOMS
 DAILY DESIGN FLOW = 150 GPD PER BEDROOM
 TOTAL DAILY DESIGN FLOW = 150 GPD PER BEDROOM X 25 BEDROOMS = 3,750 GALLONS PER DAY
 - THE HOWARD COUNTY HEALTH DEPARTMENT WILL NOT APPROVE A BUILDING PERMIT OR A WELL PERMIT FOR PARCEL 140 UNTIL THE DWELLING ON PARCEL 28 CONNECTS TO THE SHARED WASTEWATER TREATMENT SYSTEM AND THE EXISTING ON-SITE SEWAGE DISPOSAL SYSTEM IS PROPERLY ABANDONED.
 - EASEMENT AGREEMENTS FOR THE PRIVATE SEWAGE EASEMENTS AND WELL EASEMENTS MUST BE RECORDED IN LAND RECORDS FOR THE PROPERTIES IN QUESTION PRIOR TO HOWARD COUNTY DEPARTMENT OF HEALTH DEPARTMENT APPROVAL OF BUILDING PERMITS FOR THE AFFECTED PARCELS OR A SEPTIC PERMIT FOR INSTALLATION OF THE SHARED TREATMENT SYSTEM.

OWNER / DEVELOPER
 DR. LAWRENCE HYMAN
 3681 FOLLY QUARTER ROAD
 ELLICOTT CITY, MD 21042
 410-707-0450

SCALE: 1" = 50'

CONTRACT NO. 50-4980-D
 HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 & NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE SEWER SYSTEM EXTENSIONS & WASTEWATER TREATMENT SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

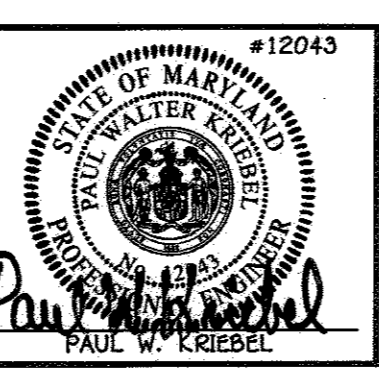
John P. Blanton 8/16/17
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

John P. Blanton 8/16/17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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. 12043 EXPIRATION DATE IS 7/16/18.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL FLYE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461 - 2999



DESIGNED BY:	B.C.R.		
DRAWN BY:	B.C.R.		
CHECKED BY:	P.W.K.		
DATE:	JULY, 2017	BY NO.	
		REVISION	
		DATE	

SEWER MAIN & LOW PRESSURE SEWER SYSTEM EXTENSIONS TITLESHEET

600' SCALE MAP NO. 23 BLOCK NO. 9

F.C.C. WORK ORDER NO. 04031-4002

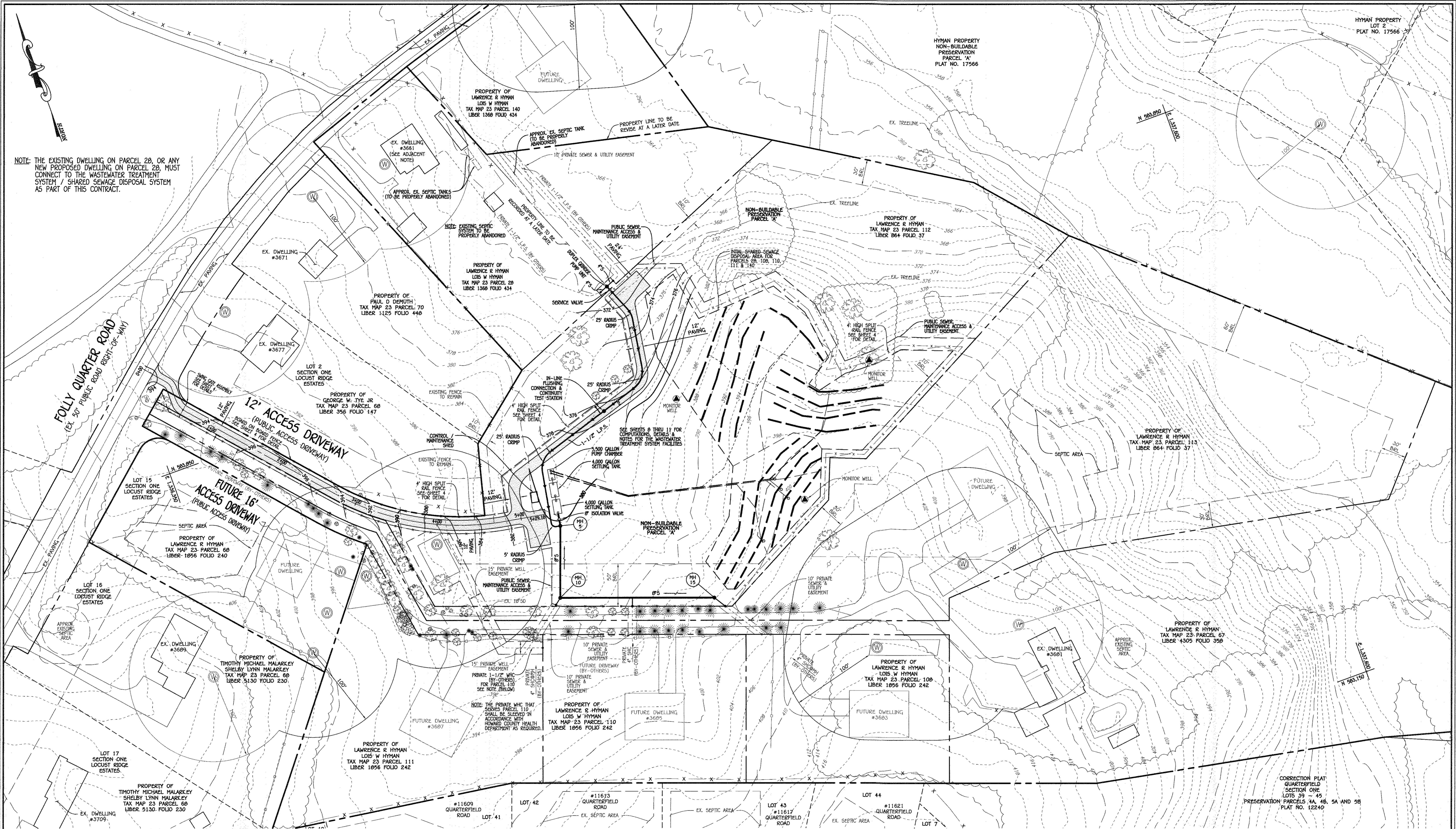
FILE NAME: SEWER MAIN EXTENSIONS PLAN

HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 & NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE SEWER SYSTEM EXTENSIONS & WASTEWATER TREATMENT SYSTEM
 CONTRACT NO. 50-4980-D
 THIRD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 11

NOTE: THE EXISTING DWELLING ON PARCEL 28, OR ANY NEW PROPOSED DWELLING ON PARCEL 28, MUST CONNECT TO THE WASTEWATER TREATMENT SYSTEM / SHARED SEWAGE DISPOSAL SYSTEM AS PART OF THIS CONTRACT.



APPROVED FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111 AND 140.
 8/23/2017
 MAURA ROSSMAN
 HOWARD COUNTY HEALTH OFFICER

PLAN
 SCALE: 1" = 50'

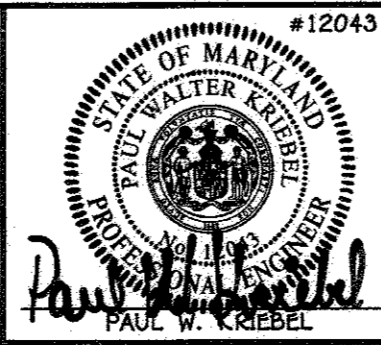
0' 50' 100' 200'
 SCALE: 1" = 50'

CONTRACT NO. 50-4980-D
 HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 &
 NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE SEWER
 SYSTEM EXTENSIONS & WASTEWATER
 TREATMENT SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 CHIEF, BUREAU OF UTILITIES
 DATE: 7/29/17

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: M.G.

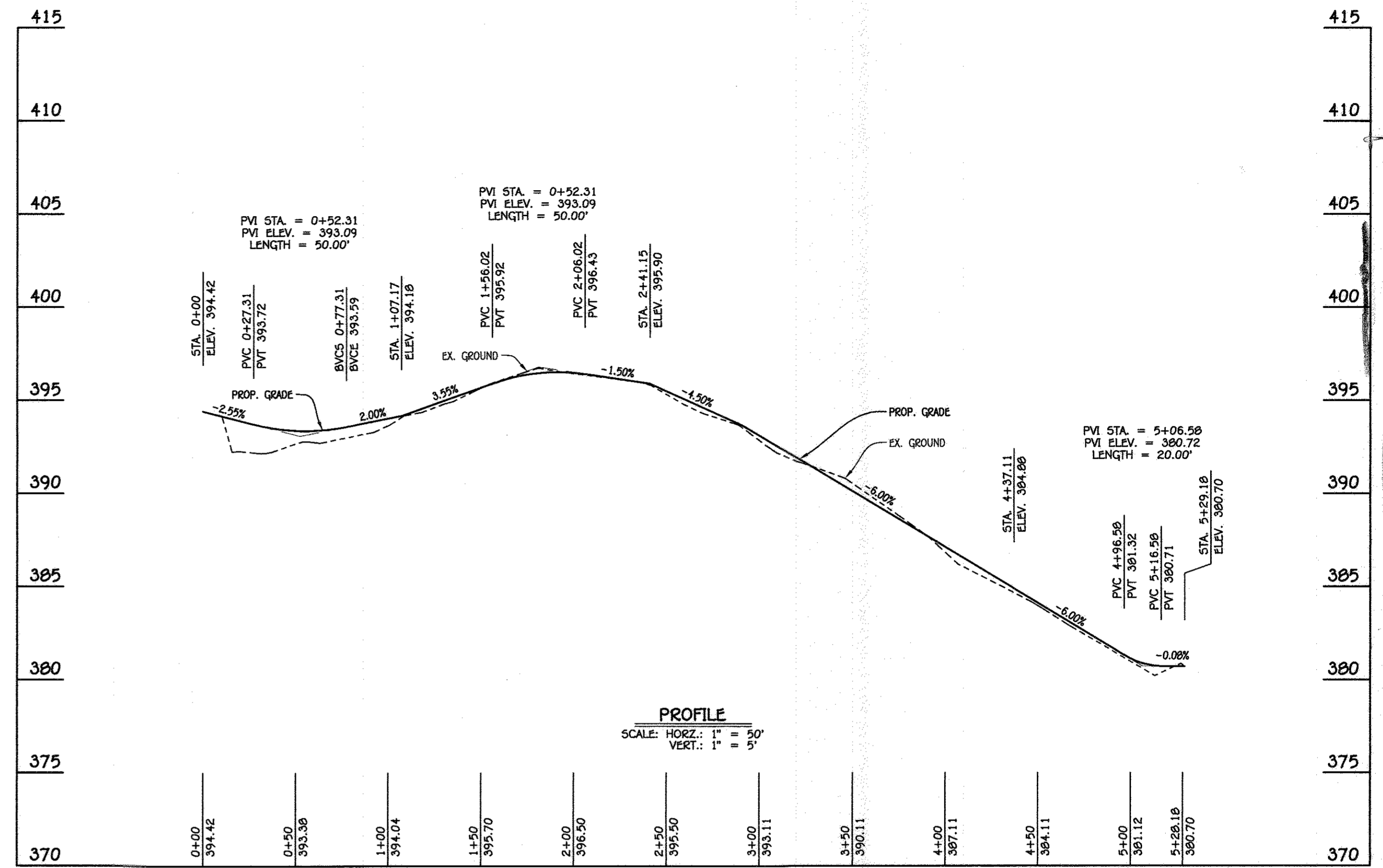
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 12043 EXPIRATION DATE IS 7/16/16.
 FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALDORNE NATIONAL PIKE
 ELIJAH CITY, MARYLAND 21042
 (410) 461-2899



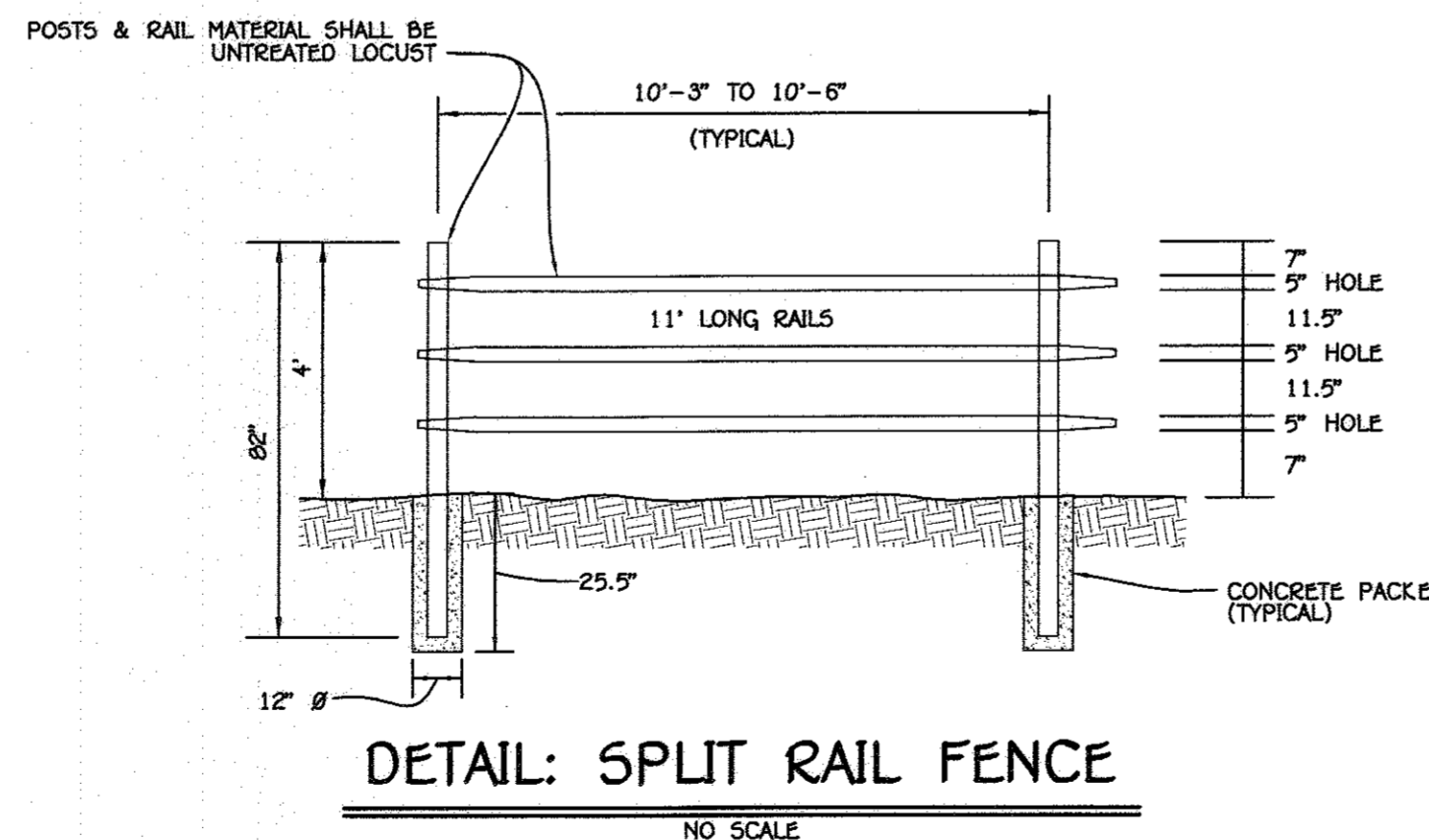
DESIGNED BY:	B.C.R.
DRAWN BY:	B.C.R.
CHECKED BY:	P.W.K.
DATE:	JULY, 2017
BY NO.	
REVISION	
DATE	

SEWER MAIN EXTENSIONS
 PLAN
 600' SCALE MAP NO. 23 BLOCK NO. 9
 F.C.C. WORK ORDER NO. 04031-4002
 FILE NAME: SEWER MAIN EXTENSIONS PLAN

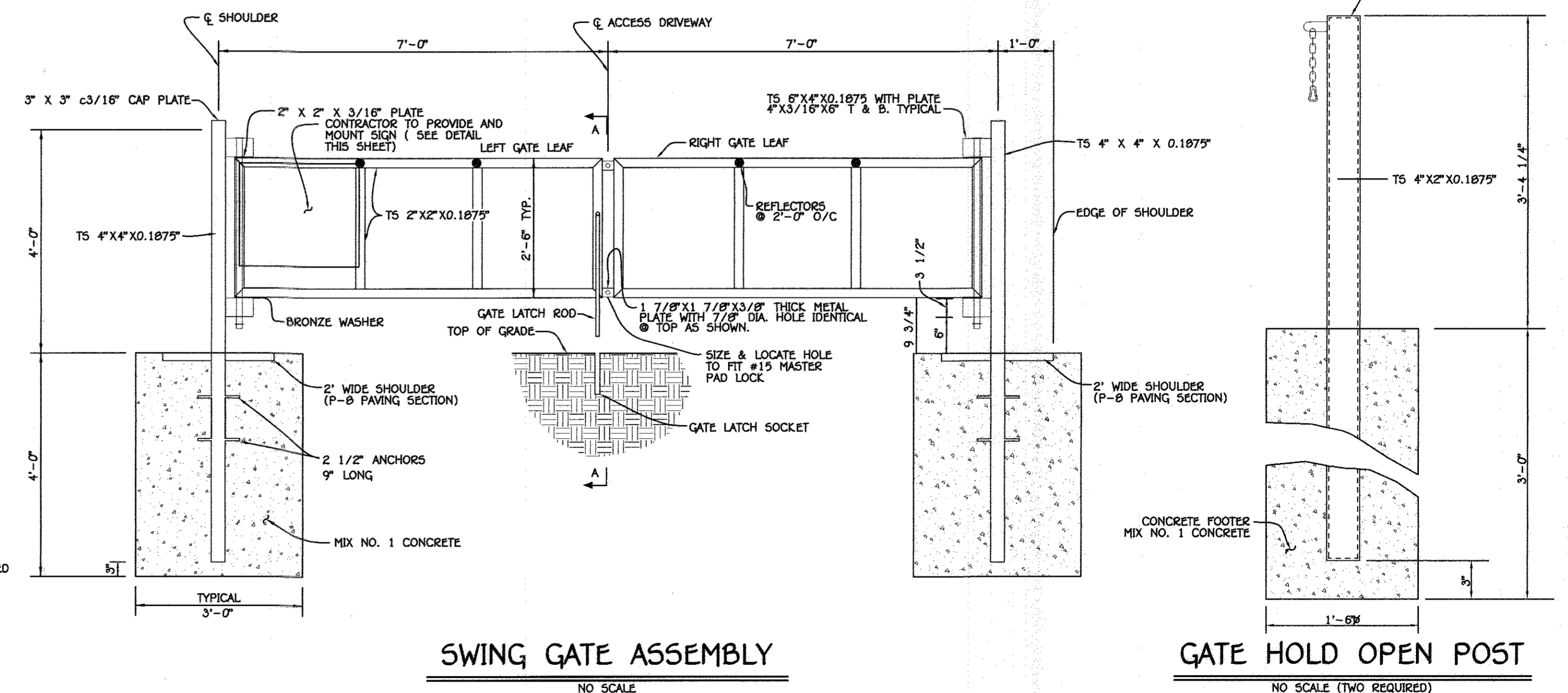
HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 &
 NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE
 SEWER SYSTEM EXTENSIONS & WASTEWATER
 TREATMENT SYSTEM
 CONTRACT NO. 50-4980-D
 THIRD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE AS SHOWN
 SHEET 2 OF 11



12" ACCESS DRIVEWAY



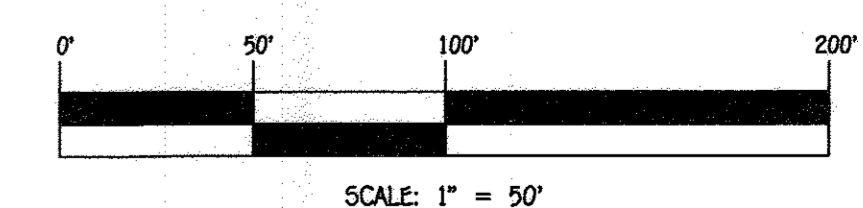
DETAIL: SPLIT RAIL FENCE
NO SCALE



SWING GATE ASSEMBLY
NO SCALE

GATE HOLD OPEN POST
NO SCALE (TWO REQUIRED)

- A. GATE FRAMES: 2"x2" SQUARE x 0.1875" THICK GALVANIZED STEEL WELDED CONSTRUCTION
- B. GATE POSTS: 4"x4" x 0.1875" THICK GALVANIZED STEEL
- C. GATE HOLDBACK POSTS: 2"x4" x 0.1875" THICK GALVANIZED STEEL
- D. GATE HARDWARE & POST CAPS: GALVANIZED STEEL
- E. MANUFACTURER: LONG FENCE COMPANY



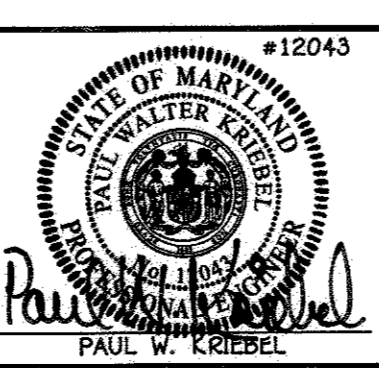
CONTRACT NO. 50-4980-D
HYMAN PROPERTY
PARCELS 28, 108, 110, 111 & 140 &
NON-BUILDABLE PRESERVATION PARCEL 'A'
SEWER MAIN & LOW PRESSURE
SEWER SYSTEM EXTENSIONS & WASTEWATER
TREATMENT SYSTEM
CONTRACT NO. 50-4980-D
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

APPROVED: FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111 AND 140.
Adrian for Maria Rosman
HOWARD COUNTY HEALTH OFFICER
8/29/2017
DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>[Signature]</i> CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND <i>[Signature]</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION
---	---

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. 12043 EXPIRATION DATE IS 7/16/16.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLSWORTH CITY, MARYLAND 21042
 (410) 461-2899

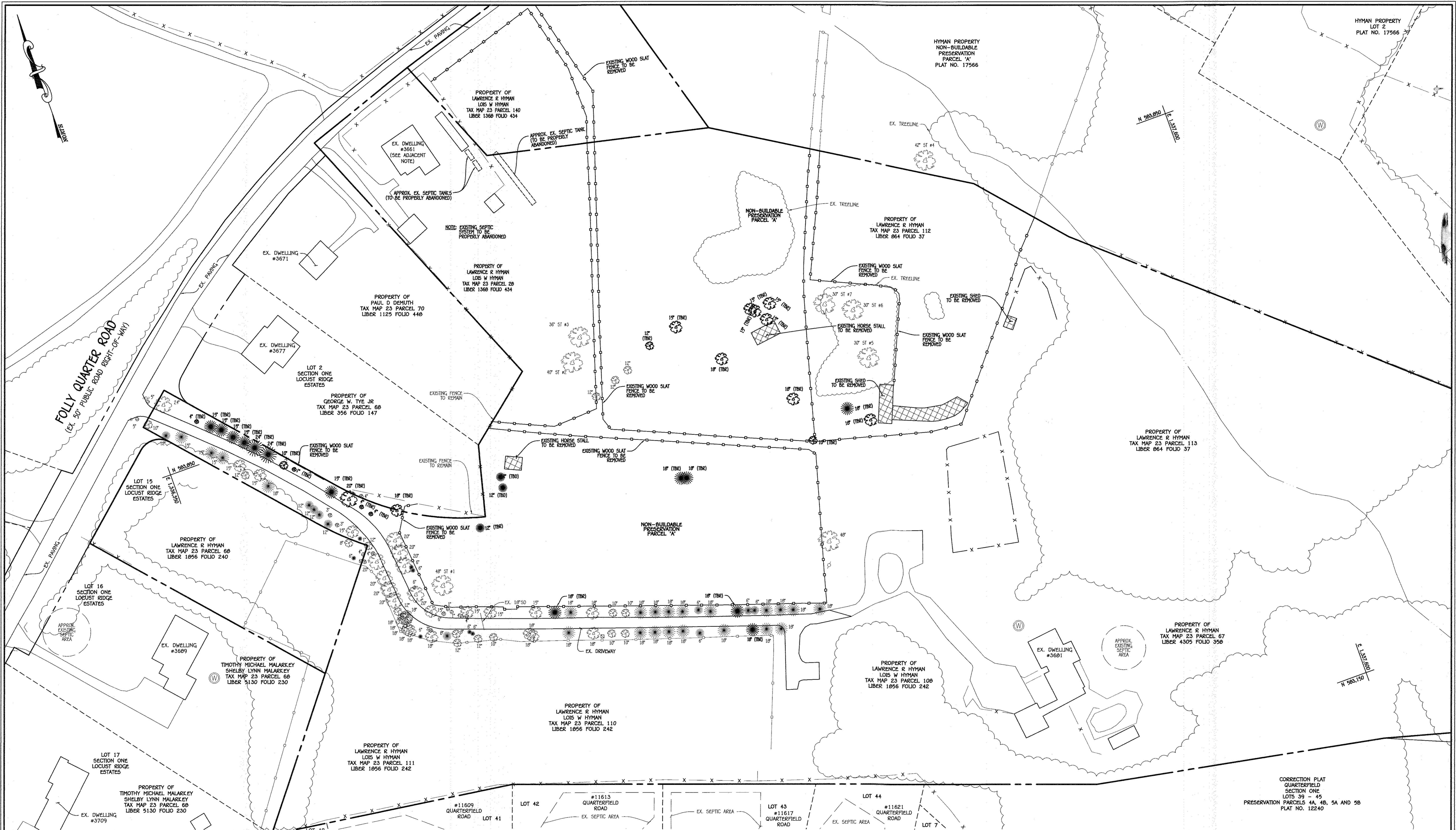


DESIGNED BY:	B.C.R.	DATE:	JULY, 2017
DRAWN BY:	B.C.R.	BY:	NO.
CHECKED BY:	P.M.K.	REVISION:	

ACCESS DRIVEWAY PROFILE & SWING GATE ASSEMBLY DETAILS	
600' SCALE MAP NO. 23	BLOCK NO. 9
F.C.C. WORK ORDER NO. 04031-4002	
FILE NAME:	SEWER MAIN EXTENSIONS PLAN

HYMAN PROPERTY PARCELS 28, 108, 110, 111 & 140 & NON-BUILDABLE PRESERVATION PARCEL 'A' SEWER MAIN & LOW PRESSURE SEWER SYSTEM EXTENSIONS & WASTEWATER TREATMENT SYSTEM CONTRACT NO. 50-4980-D THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 4 OF 11
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I:\2004\04031\Engineering\Draws\Sewer Contract Plans\Sewer Contract Plans.dwg

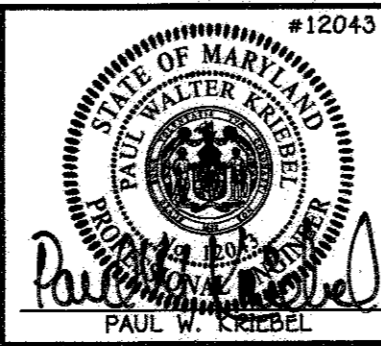


APPROVED: FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111 AND 140.
 8/23/2017
 HOWARD COUNTY HEALTH OFFICER

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 CHIEF, BUREAU OF UTILITIES

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

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. 12243 EXPIRATION DATE IS 7/16/16.
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2899



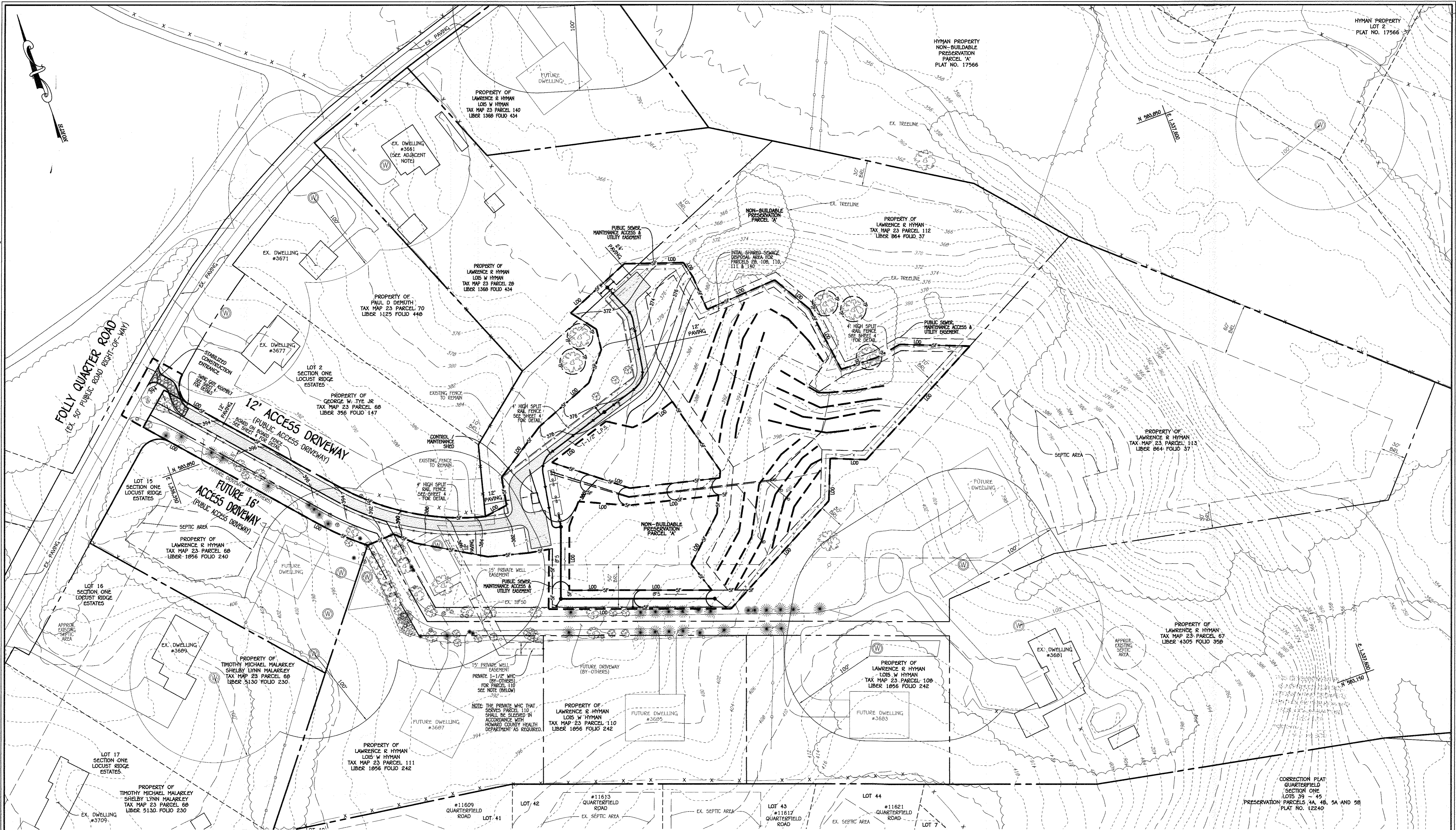
DESIGNED BY:	B.C.R.		
DRAWN BY:	B.C.R.		
CHECKED BY:	P.W.K.		
DATE:	JULY, 2017	BY NO.	
		REVISION	
		DATE	

DEMO PLAN
 600' SCALE MAP NO. 23 BLOCK NO. 9
 F.C.C. WORK ORDER NO. 04031-4002
 FILE NAME: SEWER MAIN EXTENSIONS PLAN

HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 & NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE SEWER SYSTEM EXTENSIONS & WASTEWATER TREATMENT SYSTEM
 CONTRACT NO. 50-4980-D
 THIRD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

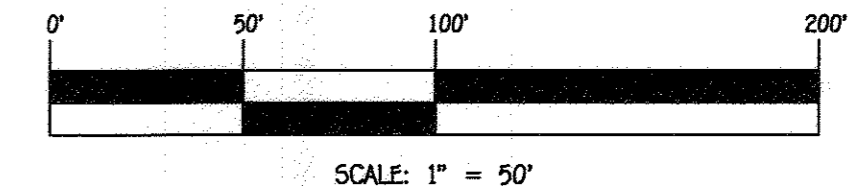
SCALE AS SHOWN
 SHEET 5 OF 11

I:\2004\04031\Engineering\04031 Sewer Contract Bidding



APPROVED FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111 AND 140.
 8/19/2017
 MAURA ROSSMAN
 HOWARD COUNTY HEALTH OFFICER

PLAN
 SCALE: 1" = 50'



CONTRACT NO. 50-4980-D
 HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 &
 NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE SEWER
 SYSTEM EXTENSIONS & WASTEWATER
 TREATMENT SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 CHIEF, BUREAU OF UTILITIES
 7/28/17

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 9.5.17

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. 12043 EXPIRATION DATE IS 7/16/16.
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALDORNE NATIONAL PkE
 ELIJAH CT, MARYLAND 21042
 (410) 461 - 8999



DESIGNED BY:	B.C.R.		
DRAWN BY:	B.C.R.		
CHECKED BY:	P.W.K.		
DATE:	JULY, 2017	BY NO.	
		REVISION	
		DATE	

SEDIMENT & EROSION CONTROL PLAN
 600' SCALE MAP NO. 23 BLOCK NO. 9
 F.C.C. WORK ORDER NO. 04031-4002
 FILE NAME: SEWER MAIN EXTENSIONS PLAN

HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140 &
 NON-BUILDABLE PRESERVATION PARCEL 'A'
 SEWER MAIN & LOW PRESSURE SEWER
 SYSTEM EXTENSIONS & WASTEWATER
 TREATMENT SYSTEM
 CONTRACT NO. 50-4980-D
 THIRD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 6 OF 11

***All results recorded here are for passed perc testing locations within the septic reserve area**

Test #	Perc Test Depth (feet)	Test Pit Depth (feet)	Limiting Zone Depth (ft)	Perc Rates (min/inch)	Max sidewall depth(feet)	Approx. Ground Surface Elevation (feet msl)	Perc Test Depth Elevation (feet msl)	Sidewall Bottom Elevation (feet msl)	Application Rate (gpd/ft ²)
798	3.0	11.0	1.8	3.5	4.0	389.0	386.0	382.0	1.2
804	3.0	10.0	2.2	4.0	3.0	392.5	389.5	386.5	1.2
805	2.5	12.0	2.1	<5	5.5	402.5	400.0	394.5	1.2
806	5.8	14.0	4.5	3.5	4.2	399.8	394.0	389.8	1.2
807	5.2	13.0	3.5	8.0	3.8	398.3	393.1	389.3	0.8
808B	3.5	13.0	3.5	<15	5.5	395.5	392.0	386.5	0.8
809B	7.0	13.5	7	<5	2.5	395.0	388.0	385.5	1.2
810	5.4	14.0	2.4	3.0	4.6	399.0	393.6	389.0	1.2
811	3.0	12.0	1.5	6.5	5.0	395.5	392.5	387.5	0.8
812A	5.0	12.0	2.2	2.1	3.0	392.8	387.8	384.8	1.2
813	3.4	10.5	2	5.0	3.1	393.5	390.1	387.0	0.8
814B	4.8	15.0	1.5	5.8	6.2	388.0	383.2	377.0	0.8
816	5.3	12.0	5.3	3.0	2.7	381.5	376.2	373.5	1.2
817	3.5	11.0	1.8	2.3	3.5	390.5	387.0	383.5	1.2
818	4.5	12.0	4.2	21.0	3.5	375.0	370.5	367.0	0.6

PERC TEST RESULTS

USE NOTES:

- The Health Department will not approve a building permit or a well permit for Parcel 140 until the dwelling on Parcel 28 connects to the shared sewage system and the existing onsite sewage disposal system is properly abandoned.
- Easement agreements for the private sewage easements and well easement must be recorded in Land Records for the properties in question (Parcels 28 & 140) prior to Health approval of building permits for the affected parcels or a septic permit for installation of the shared system.

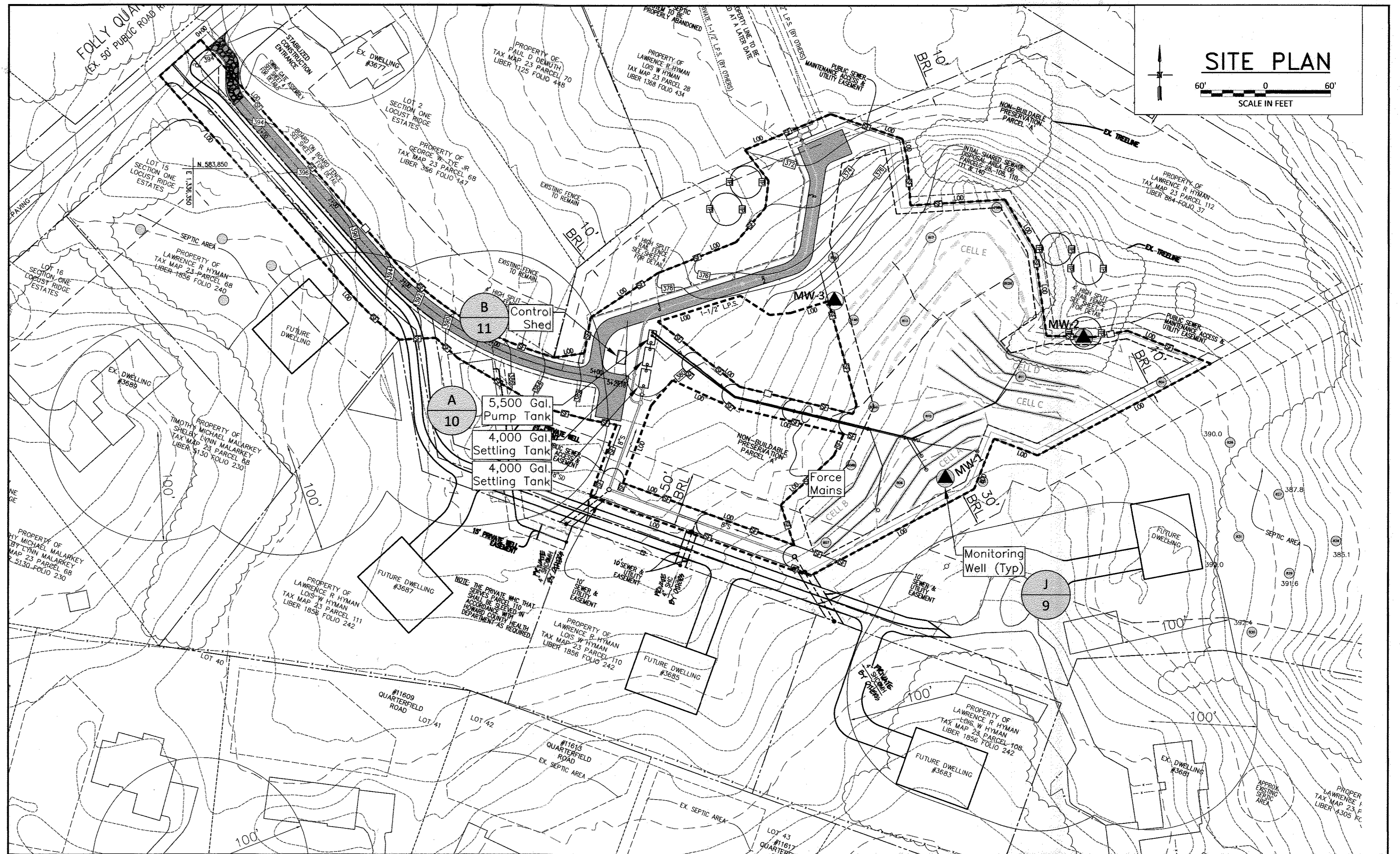
Use Projections

properties served 5
bedrooms per property 5
flow per bedroom (gpd) 150
MDF (gpd) 3,750
ADF (gpd) 1,875
settling tank volume required (gal) 7500

Notes

calculated values in *italics*
ADF = average daily flow
MDF = maximum daily flow
unit rates from Howard County Well and Septic memo Nov 2014

USE PROJECTIONS



SITE PLAN

SCALE IN FEET
60' 0 60'

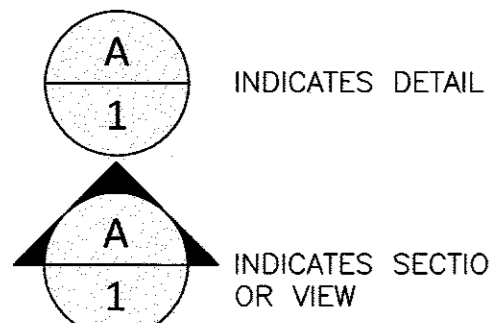
QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
3" DRAINFIELD TRENCHES	1,231 L.F.			
2" PVC LATERALS	1,167 L.F.			
3" PVC FORCE MAIN(S)	1,385 L.F.			
4,000 GALLON SETTLING TANKS (HEAVY TRAFFIC-BEARING)	2			
5,500 GALLON PUMP TANK (HEAVY TRAFFIC-BEARING)	1			
DRAINFIELD DOSING PUMPS	2			
8' x 12' CONTROL SHED	1			

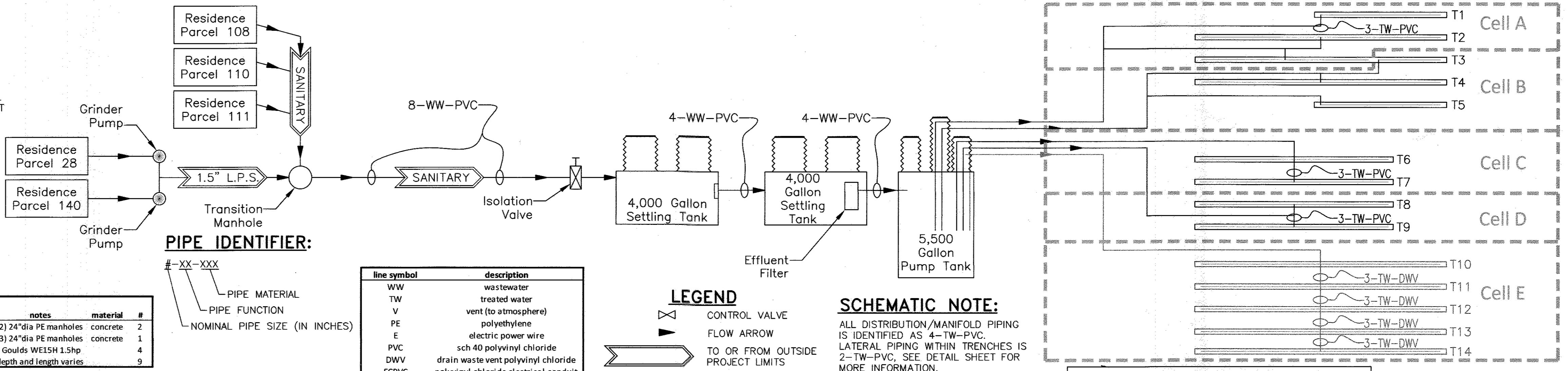
NAME OF UTILITY CONTRACTOR:

SURVEY AND DRAFTING DIV. CHECKBOX: AS-BUILT DATE:

SYMBOLS



NUMBER INDICATES A DETAIL, A LETTER INDICATES A SECTION.
SHEET NUMBER ON WHICH THE DETAIL OR SECTION IS DRAWN, OR THE SHEET NUMBER FROM WHERE THE DETAIL OR SECTION IS REFERENCED.



PIPE IDENTIFIER:
#-XX-XXX
PIPE MATERIAL
PIPE FUNCTION
NOMINAL PIPE SIZE (IN INCHES)

part symbol	component	size	notes	material	#
ST	settling tank	4000 gal	(2) 24" dia PE manholes	concrete	2
PT	pump tank	5500 gal	(3) 24" dia PE manholes	concrete	1
P1-P4	dose pump	2"	Goulds WE15H 1.5hp		4
T1-T9	trenches per plan	3' wide	depth and length varies		9

LEGEND

line symbol	description
WW	wastewater
TW	treated water
V	vent (to atmosphere)
PE	polyethylene
E	electric power wire
PVC	sch 40 polyvinyl chloride
DWV	drain waste vent polyvinyl chloride
ECPVC	polyvinyl chloride electrical conduit

SCHEMATIC NOTE:
ALL DISTRIBUTION/MANIFOLD PIPING IS IDENTIFIED AS 4-TW-PVC. LATERAL PIPING WITHIN TRENCHES IS 2-TW-PVC. SEE DETAIL SHEET FOR MORE INFORMATION.

APPROVED: FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111, AND 140.
HOWARD COUNTY HEALTH OFFICER
8/29/2017

CONTRACT NO. 50-4980-D
HYMAN PROPERTY PARCELS 28, 108, 110, 111 & 140
NON-BUILDABLE PRESERVATION PARCEL 'A'
WASTEWATER TREATMENT SYSTEM
HOWARD COUNTY, MARYLAND

WASTEWATER TREATMENT SYSTEM SCHEMATIC

NO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

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. 7803 EXPIRATION DATE IS 4/22/18.

Hydro-Terra Group
1108 Business Parkway South
Suite E
Westminster, Maryland 21157
(410) 861-5376 (phone)
(410) 861-5467 (fax)

7-10-2017
DESIGNED BY: M.D.S.
DRAWN BY: M.D.S.
CHECKED BY: M.J.M.
DATE: July, 2017

BY	NO.	REVISION	DATE

WASTEWATER TREATMENT SYSTEM
SITE PLAN & PFD

600' SCALE MAP NO. 23 BLOCK NO. 9
F.C.C. WORK ORDER NO. 04031-4002
FILE NAME: SEWER MAIN-EXTENSIONS PLAN

HYMAN PROPERTY
PARCELS 28, 108, 110, 111 & 140
NON-BUILDABLE PRESERVATION PARCEL 'A'

WASTEWATER TREATMENT SYSTEM
CONTRACT NO. 50-4980-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

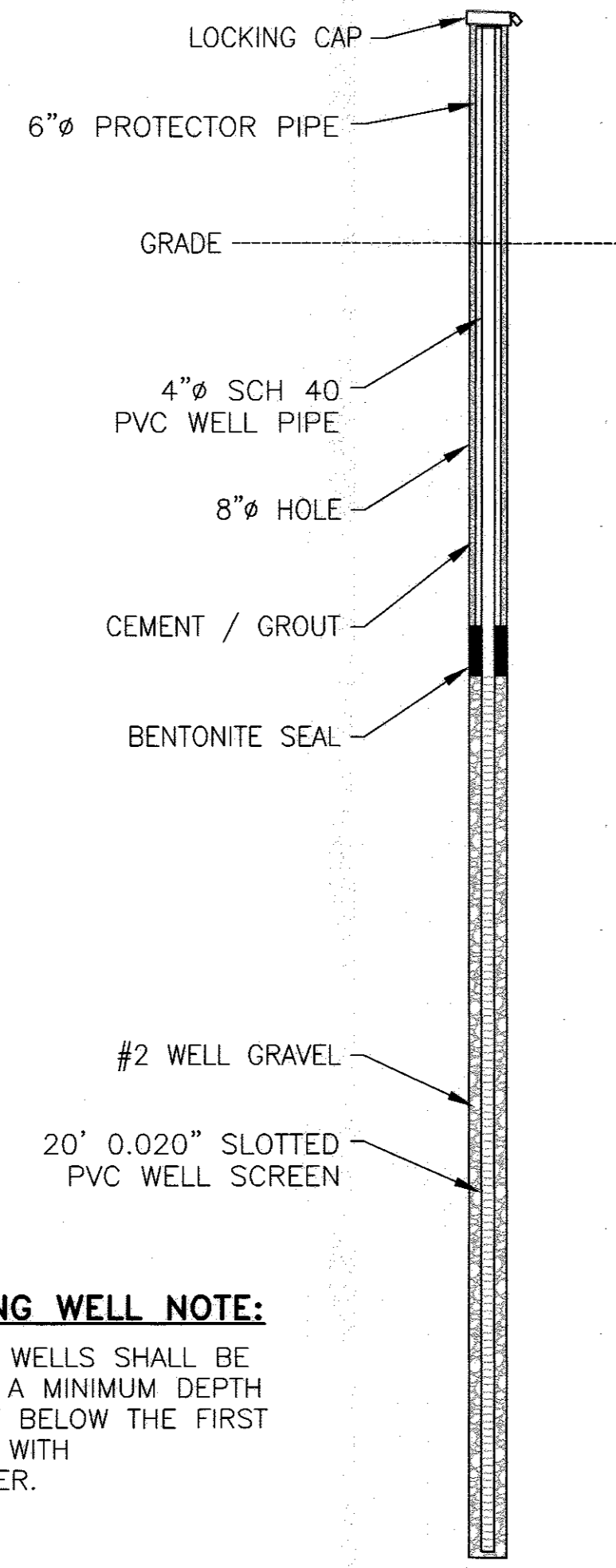
SCALE AS SHOWN

SHEET 8 OF 11

CHIEF, BUREAU OF UTILITIES
7/28/17

CHIEF, DEVELOPMENT ENGINEERING DIVISION
9-5-17

EXP. 4-22-19



MONITORING WELL NOTE:
 MONITORING WELLS SHALL BE DRILLED TO A MINIMUM DEPTH OF 15 FEET BELOW THE FIRST ENCOUNTER WITH GROUNDWATER.

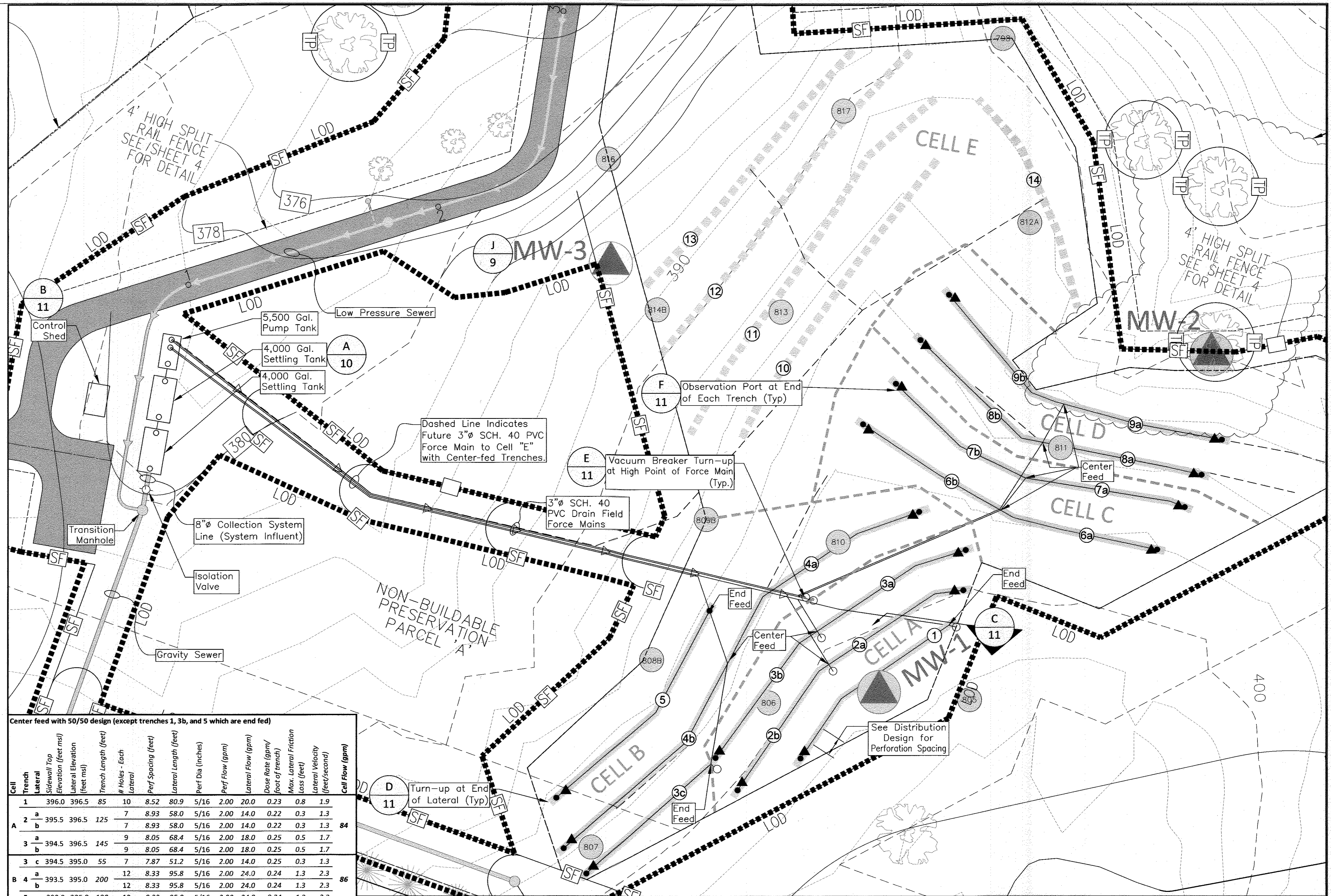
MONITORING WELL
 NOT TO SCALE

Cell	Trench	Existing Ground Elevation (feet msl)	perc ID's	Sidewall Top Elevation (feet msl)	perc Rate (min/inch)	Sidewall Height (feet)	Sidewall Bottom Elevation (feet msl)	Trench Bottom Depth (feet)	Trench Length (feet)	Trench Width (feet)	Application Rate (gpd/ft ²)	Capacity (gpd, L*W*AppR/ft)
A	1	400.5	805, 806	396.00	<15	3.5	392.5	8.0	85	3	0.8	450
	2	400.0	806	395.50	3.5	3.5	392.0	8.0	125	3	0.8	660
	3a,b	399.0	806, 807	394.50	<15	3.5	391.0	8.0	145	3	0.8	765
B	3c	399.0	806, 807	394.50	<15	3.5	391.0	8.0	55	3	0.8	291
	4	398.0	807, 810	393.50	<15	3.5	390.0	8.0	200	3	0.8	1,056
C	5	396.5	808B	392.00	<15	3.5	388.5	8.0	100	3	0.8	528
	6	397.5	811	395.00	6.5	5.5	389.5	8.0	130	3	0.8	938
D	7	396.5	811	394.00	6.5	5.5	388.5	8.0	130	3	0.8	938
	8	396.0	811	393.50	6.5	5.5	388.0	8.0	130	3	0.8	938
E	9	394.5	811	392.00	6.5	5.5	386.5	8.0	130	3	0.8	938
	10	394.5	813	392.50	5	4	388.5	6.0	130	3	0.8	749
E	11	392.5	813	390.50	5.0	4	386.5	6.0	160	3	0.8	923
	12	390.0	817, 814B	388.00	<15	4	384.0	6.0	150	3	0.8	866
E	13	387.5	817, 814B	385.50	<15	4	381.5	6.0	120	3	0.8	694
	14	392.0	812A, 798	390.00	5.0	4	386.0	6.0	90	3	0.8	518
<p>300% total capacity (gpd) 11,250 100% capacity (gpd) 3,750 primary capacity, 200% (gpd) 7,500 reserve capacity, 100% (gpd) 3,750</p>												

calculated values in italics
 gpd = gallons per day
 NA = not available

msl = mean sea level in feet
 laterals in each trench are at same elevation

TRENCHFIELD DESIGN



Center feed with 50/50 design (except trenches 1, 3b, and 5 which are end feed)

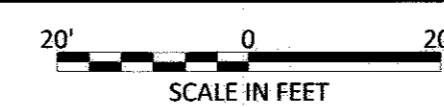
Cell	Trench	Lateral	Sidewall Top Elevation (feet msl)	Sidewall Bottom Elevation (feet msl)	Trench Length (feet)	# Holes - Each Lateral	Perf Spacing (feet)	Lateral Length (feet)	Perf Dia (inches)	Perf Flow (gpm)	Lateral Flow (gpm)	Dose Rate (gpm/foot of trench)	Max. Lateral Friction Loss (feet)	Lateral Velocity (feet/second)	Cell Flow (gpm)
A	1	a	396.0	396.5	85	10	8.52	80.9	5/16	2.00	20.0	0.23	0.8	1.9	84
		b	395.5	396.5	125	7	8.93	58.0	5/16	2.00	14.0	0.22	0.3	1.3	
		c	394.5	396.5	145	9	8.05	68.4	5/16	2.00	18.0	0.25	0.5	1.7	
B	3	a	394.5	395.0	55	7	7.87	51.2	5/16	2.00	14.0	0.25	0.3	1.3	86
		b	393.5	395.0	200	12	8.33	95.8	5/16	2.00	24.0	0.24	1.3	2.3	
		c	392.0	395.0	100	12	8.33	95.8	5/16	2.00	24.0	0.24	1.3	2.3	
C	4	a	395.0	395.0	130	10	6.51	61.9	5/16	2.00	20.0	0.31	0.6	1.9	80
		b	394.0	395.0	130	10	6.51	61.9	5/16	2.00	20.0	0.31	0.6	1.9	
		c	393.5	393.5	130	10	6.51	61.9	5/16	2.00	20.0	0.31	0.6	1.9	80
D	5	a	392.0	393.5	130	10	6.51	61.9	5/16	2.00	20.0	0.31	0.6	1.9	80
		b	392.0	393.5	130	10	6.51	61.9	5/16	2.00	20.0	0.31	0.6	1.9	

Notes
 calculated values in italics
 gpm = gallons per minute
 msl = mean sea level in feet
 Minimum cover over laterals shall be 18"

design distal head (feet) = 3.0
 friction C factor for plastic pipes = 130
 lateral inside diameter (2" dia sch40PVC, in) = 2.067

DISTRIBUTION DESIGN

DRAINFIELD PLAN



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 7803 EXPIRATION DATE IS 4/22/19.

Hydro-Terra Group
 1106 Business Parkway South
 Suite E
 Westminster, Maryland 21157
 (410) 861-5376 (phone)
 (410) 861-5487 (fax)

DESIGNED BY:
 M.D.S.

DRAWN BY:
 M.D.S.

CHECKED BY:
 M.J.M.

DATE:
 July, 2017

BY NO. _____ REVISION _____ DATE _____

WASTEWATER TREATMENT SYSTEM
 ENLARGED SITE PLAN

600' SCALE MAP NO. 23 BLOCK NO. 9

F.C.C. WORK ORDER NO. 04031-4002

FILE NAME: SEWER MAIN EXTENSIONS PLAN

APPROVED: FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111, AND 140.

Howard County Health Officer

CONTRACT NO. 50-4980-D
 HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140
 NON-BUILDABLE PRESERVATION PARCEL 'A'
 WASTEWATER TREATMENT SYSTEM
 HOWARD COUNTY, MARYLAND

HYMAN PROPERTY
 PARCELS 28, 108, 110, 111 & 140
 NON-BUILDABLE PRESERVATION PARCEL 'A'

WASTEWATER TREATMENT SYSTEM
 CONTRACT NO. 50-4980-D
 FIRST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 9 OF 11

CHIEF, BUREAU OF UTILITIES
 DATE: 7/20/17

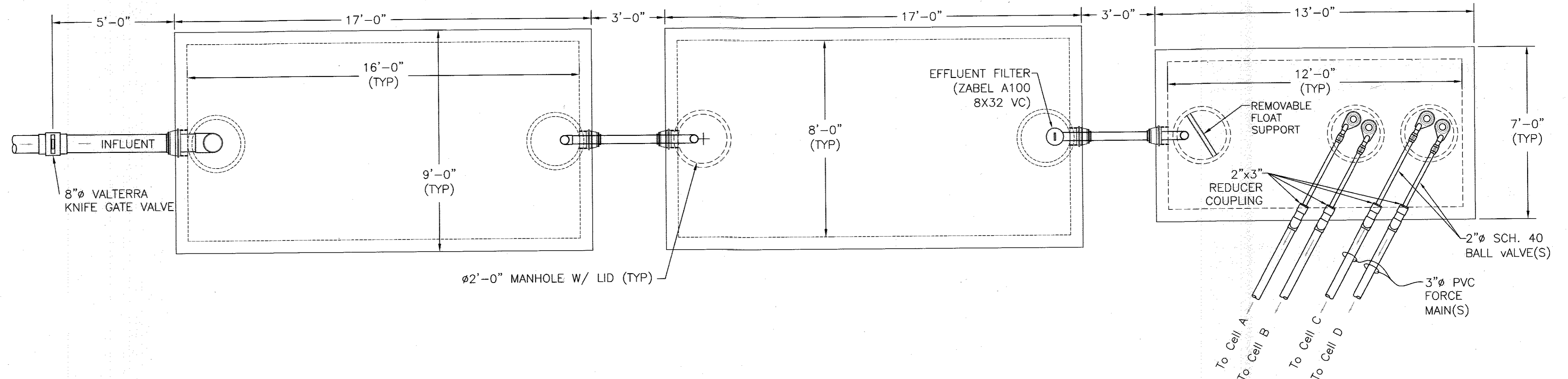
CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 9-5-17

CHARLES R. CROCKEN

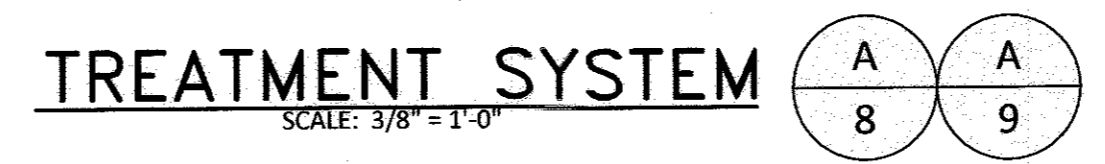
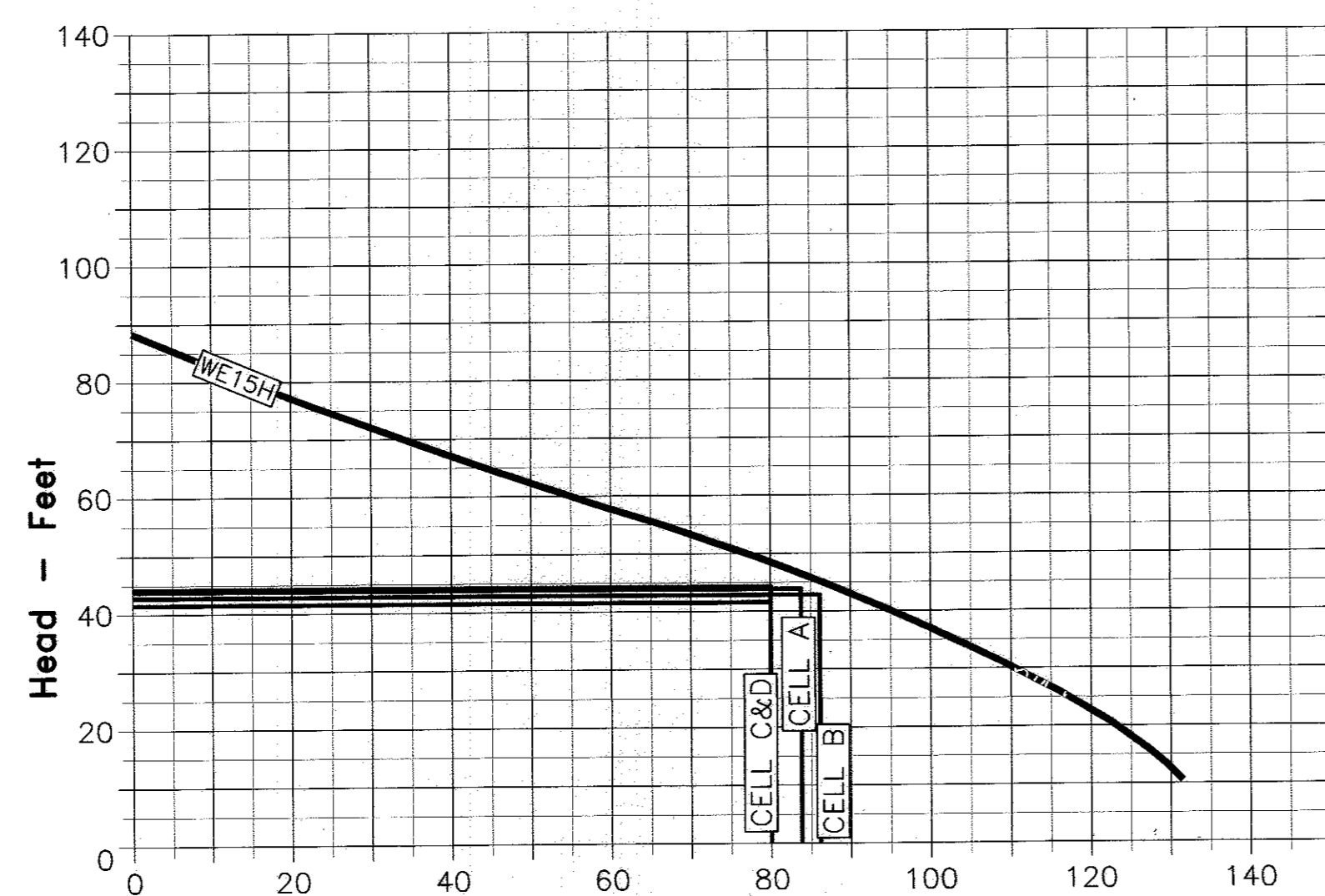
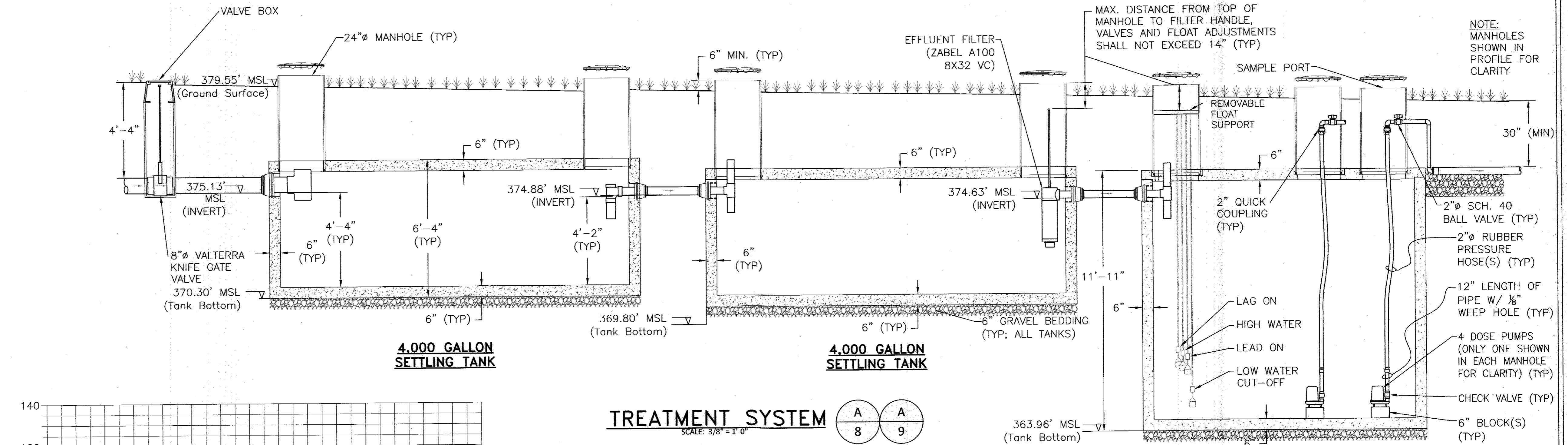
EXP. 4-22-19

Notes

1. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
2. Tank, anchors, piping, and conduit are provided by others.
3. A minimum of fill shall be placed over any typical tank lid. If more than 3 FT of fill is necessary tank lids and bottoms shall be a minimum of 6" thick and shall be heavy traffic-bearing tanks.
4. Tank measurements and elevations are based on septic tanks and pump chambers as manufactured by Gillespie Precast, LLC (1-800-638-6884). Tanks from alternative manufacturers may be used with shop drawing submittal and engineer's approval.
5. Dose Pump control panel(s) shall have event counters and elapsed time meters.
6. All new tanks shall be tested for water tightness prior to service.
7. All tanks shall be set upon 6"-8" of gravel bedding.
8. Pump control system shall automatically notify the County remotely in the event of a pump failure or high water alarm. Remote notification shall be routinely tested as part of regular O&M.

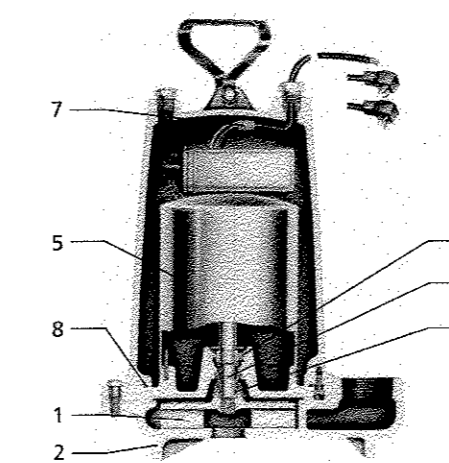
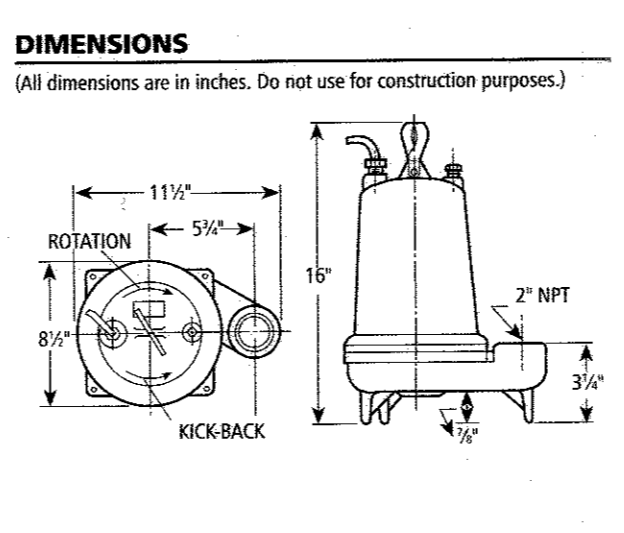


Design Input		Calculations	
Primary and Secondary Treatment and Equalization			
settling tank capacity (gallons per inch)	159.6	maximum daily flow (MDF) (gpd)	3,750
normal settling tank fluid level (inches)	50	average daily flow (ADF) (gpd)	1,875
		settling tank volume required (gal)	7,500
		normal settling tank capacity (gal)	7,980
Static hydraulic profile (with invert elevations)			
influent invert elev. (feet msl)	375.50	*30" gravity sewer bury	
pump tank influent invert elev. (feet msl)	375.23		
pump tank bottom elev. (feet msl)	362.20		
dose pump elev. (feet msl)	362.70	*Pump suction is 6" above tank bottom	
Cell A lateral elev. (feet msl)	396.50	Cell A in-service lift for dose pump (feet)	33.8
Cell B lateral elev. (feet msl)	395.00	Cell B in-service lift for dose pump (feet)	32.3
Cell C lateral elev. (feet msl)	395.00	Cell C in-service lift for dose pump (feet)	32.3
Cell D lateral elev. (feet msl)	393.50	Cell D in-service lift for dose pump (feet)	30.8
Pumping and Dosing			
cell A flow (gpm)	84	force main velocity (feet/second)	3.6
Cell A force main length (feet)	298	Cell A force main friction loss (feet)	6.8
Cell A minor loss equivalent lengths (feet)	44.8	Cell A max. total dynamic head (feet)	44.4
		Cell A main volume (gal)	114
		Cell A total lateral volume (gal)	58
		Cell A dose vol. @ main + 5x lateral (gal)	405
cell B flow (gpm)	86	force main velocity (feet/second)	3.7
Cell B force main length (feet)	298	Cell B force main friction loss (feet)	7.1
Cell B minor loss equivalent lengths (feet)	44.8	Cell B max. total dynamic head (feet)	43.7
		Cell B main volume (gal)	114
		Cell B total lateral volume (gal)	59
		Cell B dose vol. @ main + 5x lateral (gal)	410
cell C flow (gpm)	80	force main velocity (feet/second)	0.0
Cell C force main length (feet)	423	Cell C force main friction loss (feet)	8.5
Cell C minor loss equivalent lengths (feet)	44.8	Cell C max. total dynamic head (feet)	44.3
		Cell C main volume (gal)	162
		Cell C total lateral volume (gal)	43
		Cell C dose vol. @ main + 5x lateral (gal)	378
cell D flow (gpm)	80	force main velocity (feet/second)	3.5
Cell D force main length (feet)	423	Cell D force main friction loss (feet)	8.5
Cell D minor loss equivalent lengths (feet)	44.8	Cell D max. total dynamic head (feet)	42.9
		Cell D main volume (gal)	162
		Cell D total lateral volume (gal)	43
		Cell D dose vol. @ main + 5x lateral (gal)	378
dose tank length (inches)	144	dose tank capacity (gals per inch)	5,475
dose tank width (inches)	72		
dose tank height to invert (inches)	122	design dose volume (gals)/Cell B	410
# cells in service	2	volume below enable float (gal)	808
lag pump on (inches)	40	min # daily doses @ ADF	4.6
high water alarm height (inches)	38	average dose time (minutes)	5.1
lead pump on (inches)	36	pump off time setting (hours)	5.2
low water cutoff height (inches)	18	residual settling volume (gal)	808
two sets, dual alternating pumps (Goulds)	WE15H	normal equalization above enable (gal)	3,860
double demand dose panels (SJE Rhombus) IF541W114H		volume above high water alarm (gal)	3,770
tank height above invert (inches)	9		



COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



5,500 GALLON PUMP TANK

PUMP TANK FLOAT	SETTING (Inches from Tank Bottom)
LAG ON	40
HIGH WATER	38
LEAD ON	36
LOW WATER CUT-OFF	18

DESIGN INPUT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

7-10-2017

7-5-17

CHIEF, BUREAU OF UTILITIES

CHIEF, DEVELOPMENT ENGINEERING DIVISION

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. 7803 EXPIRATION DATE IS 4/22/19.

Hydro-Terra Group
1106 Business Parkway South
Suite E
Westminster, Maryland 21157
(410) 861-5376 (phone)
(410) 861-5467 (fax)

CHARLES R. CROOKEN

DESIGNED BY: M.D.S.

DRAWN BY: M.D.S.

CHECKED BY: M.J.M.

DATE: July, 2017

BY NO. REVISION DATE

WASTEWATER TREATMENT SYSTEM DETAILS

600' SCALE MAP NO. 23 BLOCK NO. 9

F.C.C. WORK ORDER NO. 04031-4002

FILE NAME: SEWER MAIN EXTENSIONS PLAN

APPROVED: FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111, AND 140.

Howard County Health Officer

8/29/2017

DATE

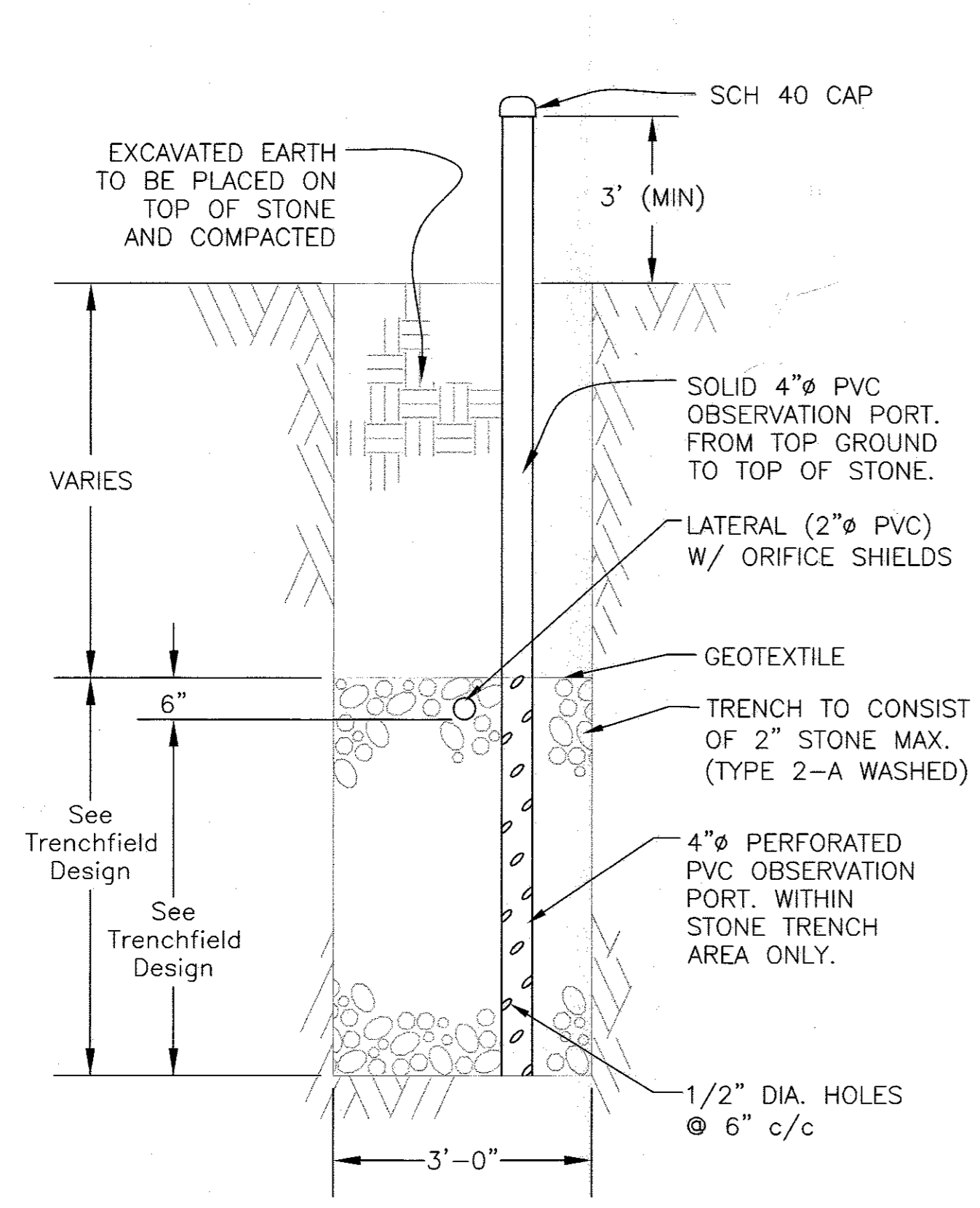
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WASTEWATER TREATMENT SYSTEM
HOWARD COUNTY, MARYLAND

HYMAN PROPERTY
PARCELS 28, 108, 110, 111 & 140
NON-BUILDABLE PRESERVATION PARCEL 'A'

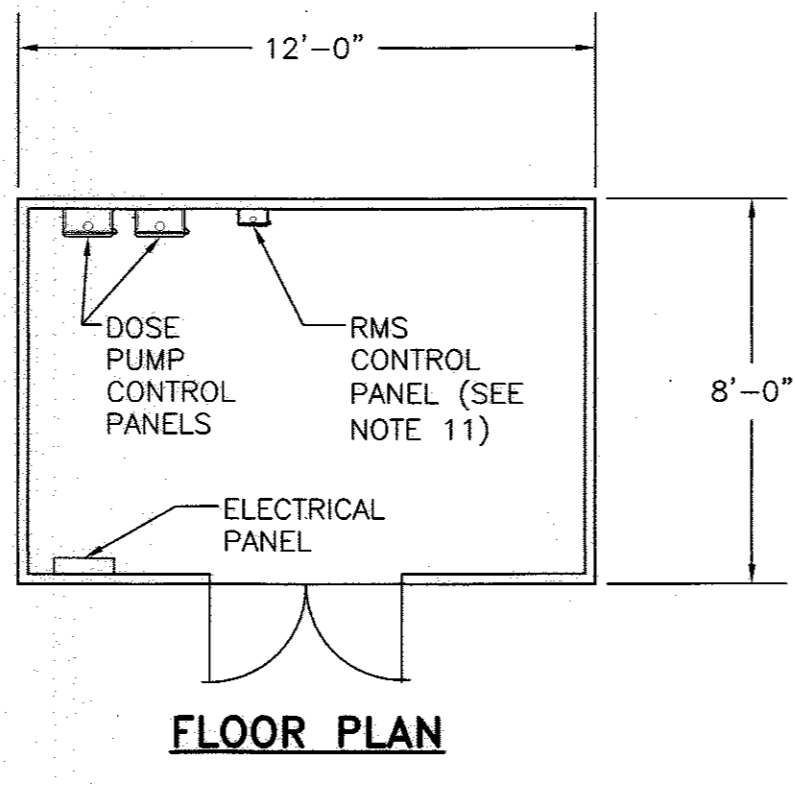
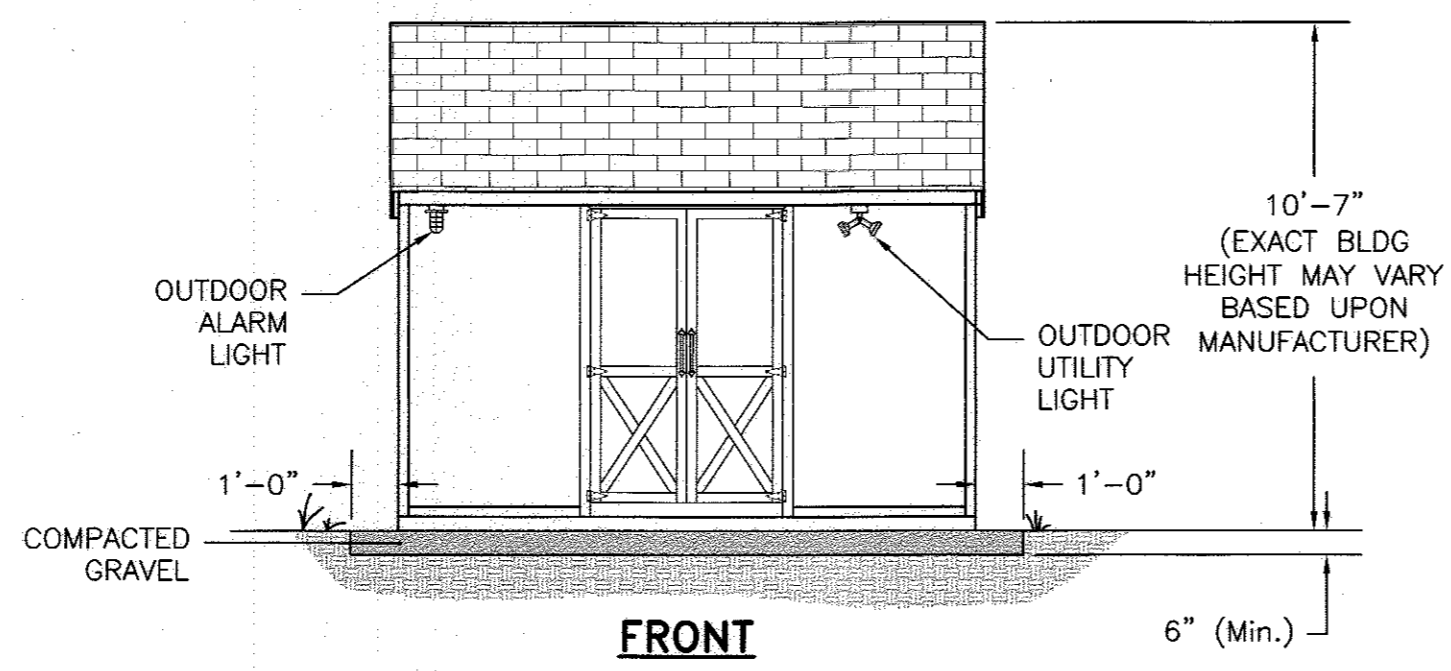
WASTEWATER TREATMENT SYSTEM
CONTRACT NO. 50-4980-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 10 OF 11



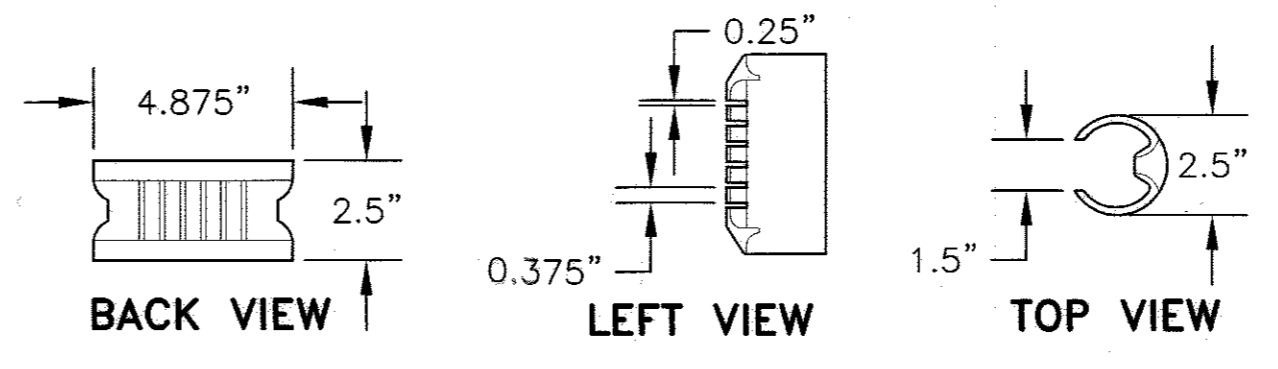
TYPICAL OBSERVATION PORT (F 9)
NOT TO SCALE



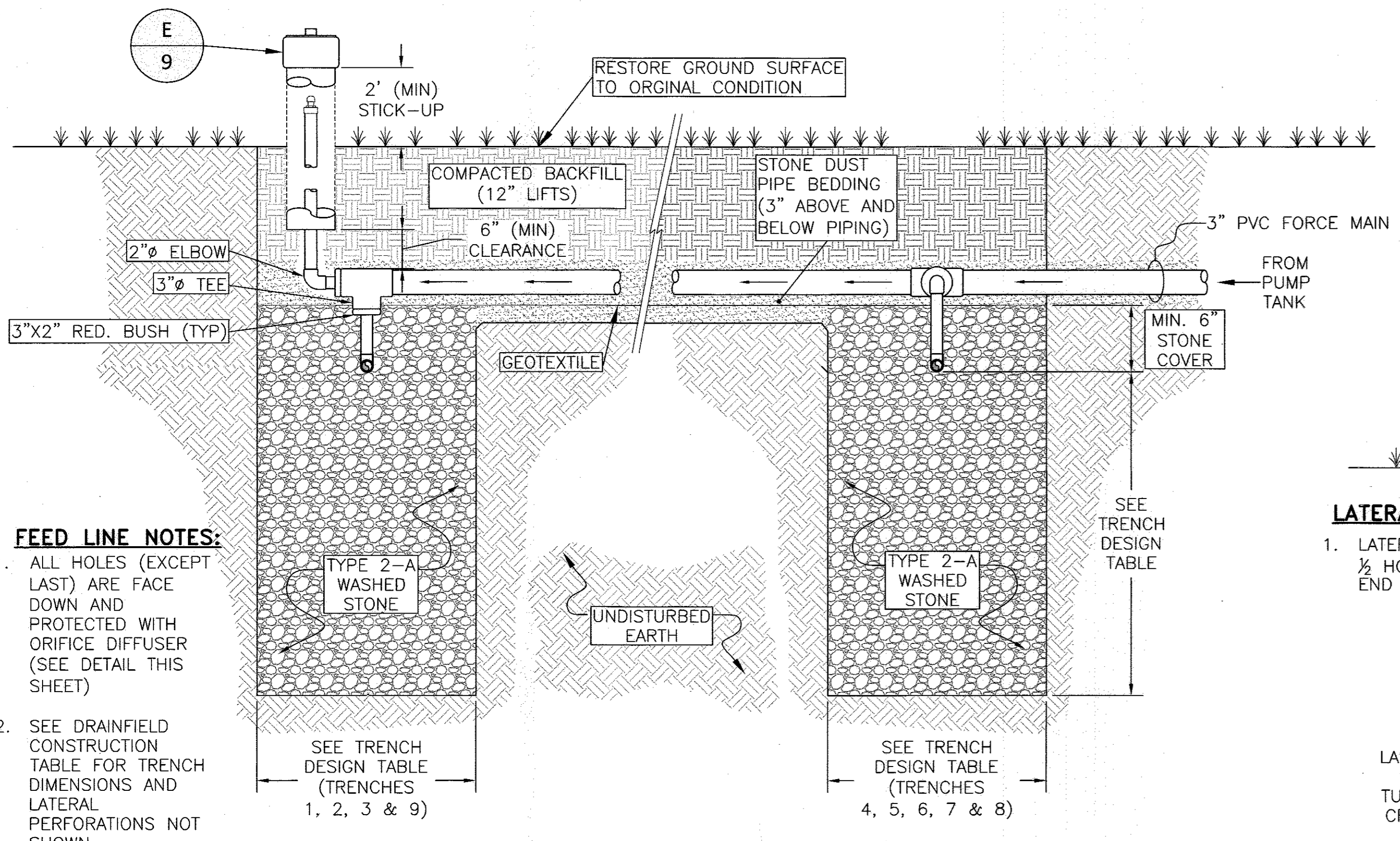
CONTROL SHED (B 8, B 9)
1/4" = 1'-0"

UTILITY SHED NOTES:

- UTILITY STORAGE BUILDING SHALL BE PROVIDED NEAR PUMP STATION WITH CONTROL PANEL MOUNTED INSIDE.
- BUILDING SHALL BE RIDGE CABINET COMPANY "COTTAGE A-FRAME" STYLE STORAGE BUILDING. 8' X 12', VINYL SIDED WITH NOMINAL 8' SIDE WALLS AND NO WINDOWS, WITH ONE DOUBLE DOOR CENTERED ON 12' SIDE OF BUILDING. BUILDING SHALL HAVE 10" RIDGE VENT, 4"X4" PRESSURE TREATED SKIDS, 2"X4" FLOOR JOISTS (16" ON CENTER), 5/8" PLYWOOD FLOOR SHEATHING, 2"X4" VENT, ALL WALLS TO BE PLATED AT BOTTOM AND DOUBLE PLATED AT THE TOP, 1/2" ROOF SHEATHING, 240 POUND ASPHALT 20 YEAR SHINGLES, DOORS AND FRAME TO BE REINFORCED, DOOR HINGES MUST BE "T" TYPE OR STRAP TYPE, 3 HINGES PER DOOR SIDE (PIANO HINGES ARE NOT ACCEPTABLE), LOCKS ARE TO BE KEYS ALIKE WITH BAUER CH751 LOCK.
- VINYL SIDING SHALL BE ALMOND COLOR AND SHINGLES SHALL BE BROWN COLOR.
- A RED ALARM BEACON SHALL BE MOUNTED ON THE OUTSIDE OF THE BUILDING.
- BUILDING SHALL BE PLACED ON TOP OF 6" (MIN.) CR6 COMPACTED STONE.
- GRADING TO BE LEVEL AND COMPACTED PRIOR TO PLACEMENT OF BUILDING.
- FIELD PLACEMENT OF PANELS, PIPING, BLOWERS, AND TANKS SHALL BE APPROVED BY SITE ENGINEER.
- ALL PIPING AND CONDUIT PENETRATIONS SHALL BE THROUGH THE FLOOR OF THE BUILDING AND SHALL BE SEALED WITH SPRAY FOAM INSULATION.
- BUILDING SHALL HAVE A 230 VAC LOAD CENTER WITH APPROPRIATE CIRCUIT BREAKERS.
- BUILDING SHALL HAVE AT LEAST 3 DOUBLE-DUPLEX CONVENIENCE OUTLETS, A CEILING LIGHT, OUTDOOR FLOODLIGHTS, AND AN OUTDOOR ALARM LIGHT.
- A REMOTE MONITORING SYSTEM (RMS) SHALL BE INSTALLED THAT SHALL REMOTELY NOTIFY THE COUNTY IN THE EVENT OF A PUMP FAILURE OR A HIGH WATER ALARM. THE RMS SHALL BE COMPATIBLE WITH THE COUNTY'S EXISTING REMOTE MONITORING NETWORK AND INFRASTRUCTURE. RMS ALERT SYSTEM TESTING SHALL BE PART OF REGULAR O&M.

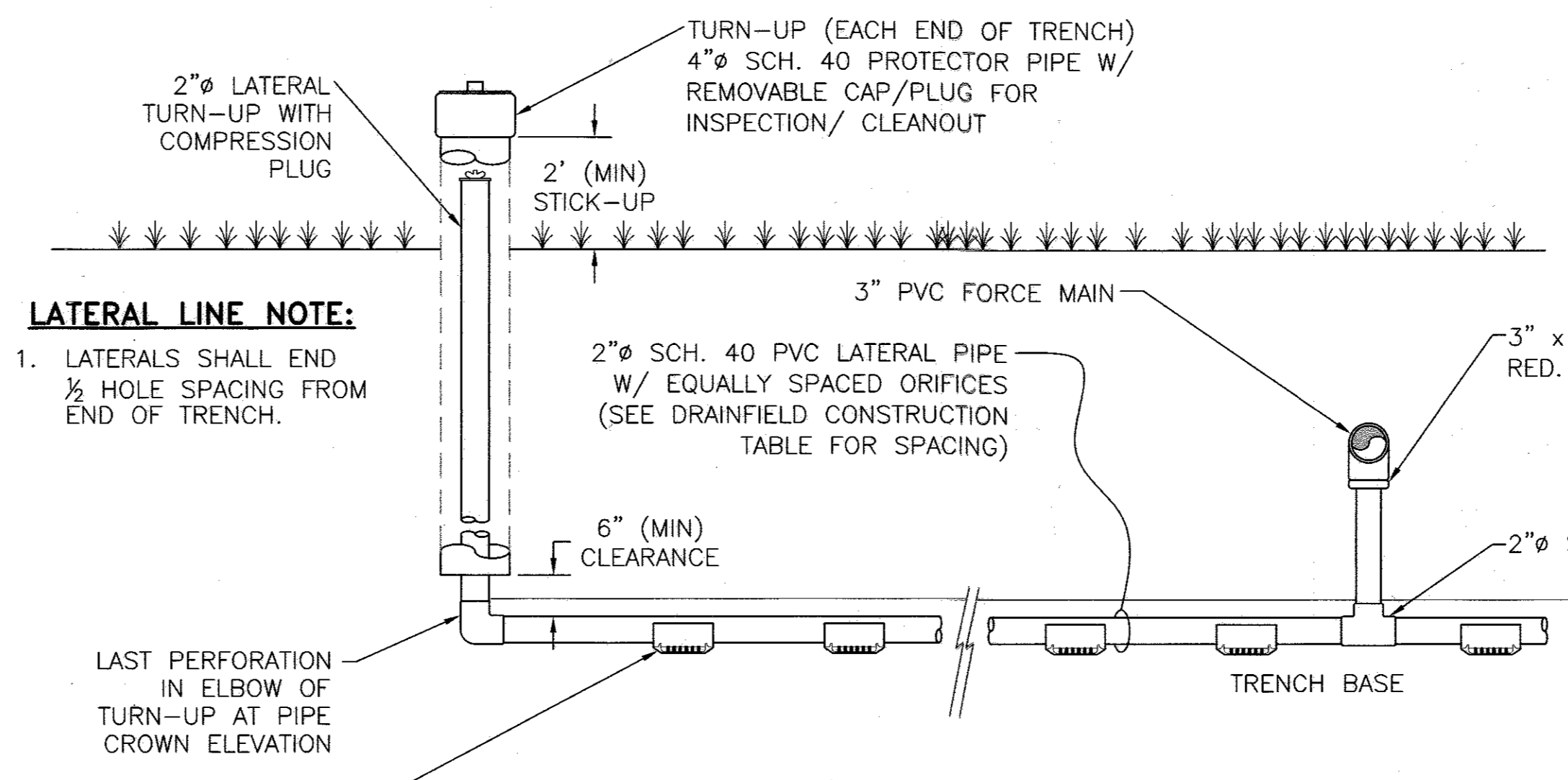


SIM TECH ORIFICE SHIELD 2"
(STF-106-2.0)
NOT TO SCALE



- FEED LINE NOTES:**
- ALL HOLES (EXCEPT LAST) ARE FACE DOWN AND PROTECTED WITH ORIFICE DIFFUSER (SEE DETAIL THIS SHEET)
 - SEE DRAINFIELD CONSTRUCTION TABLE FOR TRENCH DIMENSIONS AND LATERAL PERFORATIONS NOT SHOWN.
 - ADJUSTMENT VALVES NOT NEEDED ON HIGHEST TRENCH IN CELL.

FEED LINE/DEEP TRENCH DETAIL (TYP) (C 9)
NOT TO SCALE



LATERAL LINE NOTE:

- LATERALS SHALL END 1/2 HOLE SPACING FROM END OF TRENCH.

DISTRIBUTION LATERAL DETAIL (D 9)
NOT TO SCALE

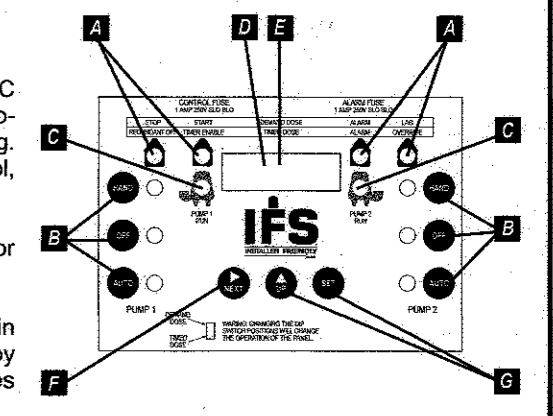
INSTALLER FRIENDLY SERIES® - IFS Single Phase Duplex (Demand/TD)

Single phase, duplex demand dose or timed dose, float or C-Level™ sensor controlled system for pump control and system monitoring.

The IFS duplex control panel is designed to control two (alternating) 120, 208, 240 VAC single phase pumps in water and sewage installations. The panel features an easy-to-use touch pad with display on the inner door for programming and system monitoring. The alternating action equalizes pump wear. In addition to the alternating pump control, this system provides override control should either pump fail.

The panel configuration can be easily converted in the field to either a timed dose or demand dose.

The optional C-Level™ sensor is a pressure transducer that senses the liquid level in the tank and sends a signal to the IFS panel. Pump activation levels can be adjusted by using the panel touch pad. C-Level™ CL40 sensor operating range is 3-39.9 inches (7.6-101.3 cm), C-Level™ CL100 operating range is 3-99.5 inches (7.6-252.7 cm).



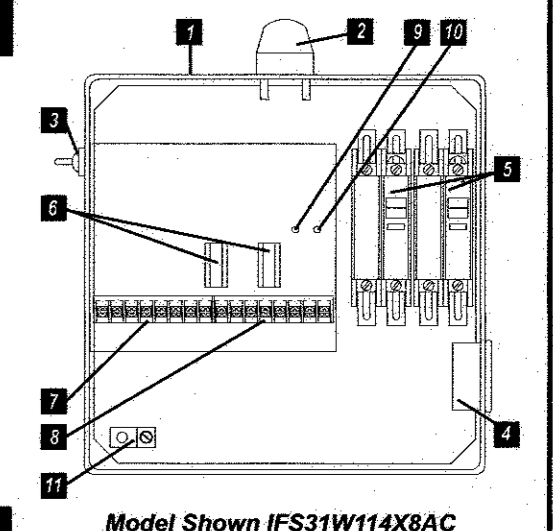
TOUCH PAD FEATURES

- Level Status Indicators** illuminate when floats or set points are activated. Alarm will activate if a float operates out of sequence.
- HOA (Hand-Off-Automatic) Buttons** control pump mode with indication. Hand mode defaults to Automatic when stop level or redundant off level is reached.
- Pump Run Indicators** will illuminate when pumps are called to run.
- Lead/Lag Selector** toggles pump operation (alternate 1-2 and 2-1).
- LED Display** shows system information including: level in inches or centimeters (C-Level™ only), mode, pumps elapsed time (hr:mm), events (cycles), alarm counter, float error count, timed dose override counter (timed dose only), and ON/OFF times (timed dose only).
- NEXT Push Button** toggles display.
- UP and SET Push Buttons** set pump ON/OFF times (timed dose only) and activation levels (C-Level™ only).

PANEL COMPONENTS

- Enclosure base** measures 10 X 10 X 6 inches (25.4 X 25.4 X 15.24 cm). NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use). Note: Options, voltage, and amp range selected may change enclosure size and component layout.
- Red Alarm Beacon** provides 360° visual check of alarm condition.
- Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
- Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
- Circuit Breakers** (optional) provide pump disconnect and branch circuit protection.
- Power Relays** control pump by switching electrical lines. Definite purpose contactors used when pump full load amps are above 15.
- Float Connection Terminal Block**
- Incoming Control/Alarm Power & Pump Terminal Block**
- Control Power Indicator/Fuse indicator** light illuminates if control power is present in panel. Alarm activates if control fuse is blown.
- Alarm Power Indicator/Fuse indicator** light illuminates if alarm power is present in panel.
- Ground Lug**

NOTE: Schematic/Wiring Diagram and Pump Specification Label are located inside the panel on enclosure cover



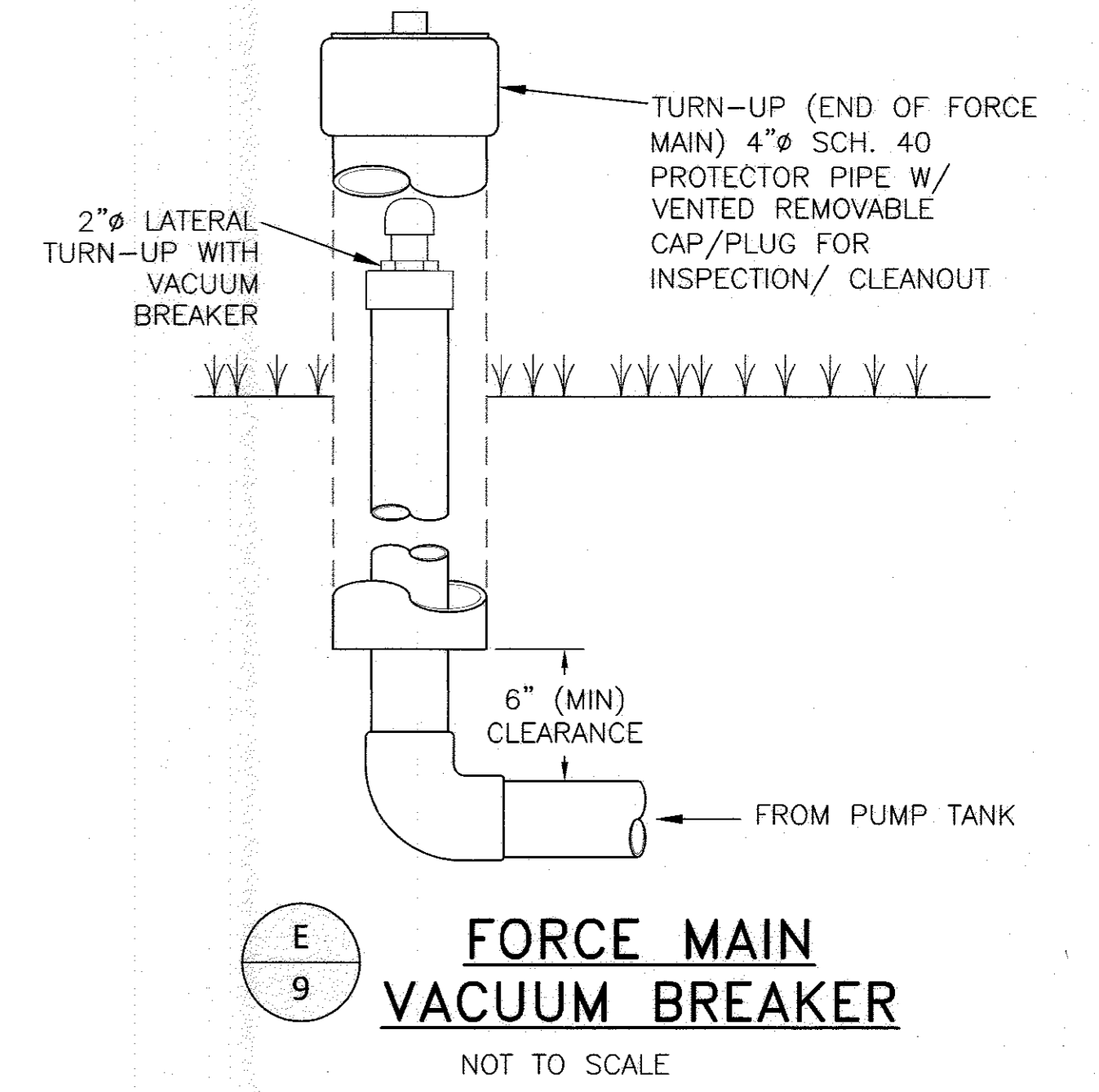
FEATURES

- Entire control system is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes: Demand Dose - three 20' SJE MilliAmpMaster™ control switches, Timed Dose - two 20' SJE MilliAmpMaster™ control switches
- Complete with step-by-step installation instructions
- Five-year limited warranty

SIE Rhombus
PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE • 1-218-847-1317
1-218-847-4617 Fax
email: customer.service@sierhombus.com
www.sierhombus.com

SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.
SEE PRICE BOOK FOR LIST PRICE.

CONTROL PANEL SPECIFICATION



APPROVED: FOR PRIVATE WATER AND SHARED SEWAGE FOR PARCELS 28, 108, 110, 111, AND 140.

CONTRACT NO. 50-4980-D
HYMAN PROPERTY
PARCELS 28, 108, 110, 111 & 140
NON-BUILDABLE PRESERVATION PARCEL 'A'
WASTEWATER TREATMENT SYSTEM
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Hydro-Terra Group
1106 Business Parkway South
Suite 2
Westminster, Maryland 21157
(410) 881-5376 (phone)
(410) 881-5487 (fax)

7-10-2017

DESIGNED BY: M.D.S.
DRAWN BY: M.D.S.
CHECKED BY: M.J.M.
DATE: July, 2017

CHARLES R. GROCKEN

DESIGNED BY: M.D.S.	DATE: July, 2017
DRAWN BY: M.D.S.	BY NO.
CHECKED BY: M.J.M.	REVISION
DATE: July, 2017	DATE

WASTEWATER TREATMENT SYSTEM
DETAILS (CON'T)

600' SCALE MAP NO. 23 BLOCK NO. 9
F.C.C. WORK ORDER NO. 04031-4002
FILE NAME: SEWER MAIN EXTENSIONS PLAN

SCALE AS SHOWN

SHEET 11 OF 11