


PUBLIC WATER AND SEWER CONSTRUCTION PLANS KAISER FARM 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT No. 14-3866-D

BENCH MARKS (NAD83)			
HO. CO. No. 18G1	CONC. MONUMENT AT SURFACE, 4' N. OF MAC. SHOULDER OF RT. 40 WEST 18' W. OF YELLOW BURNING SIGNAL N 589,984.9578 E 1,367,750.2376	ELEV. 408.542	
HO. CO. No. 24C2	CONC. MONUMENT AT SURFACE 5.5' S. OF LEFT TURN LANE OF RT. 40 WEST 14' E. OF EAST EDGE OF CROSSOVER TO RT. 99 S. N 588,648.3158 E 1,366,038.1347	ELEV. 354.930	

GENERAL NOTES

PART 1 - 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.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 6". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. 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 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 DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAIL 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 LOCATION OF THE TEST PIT. 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 DONE SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

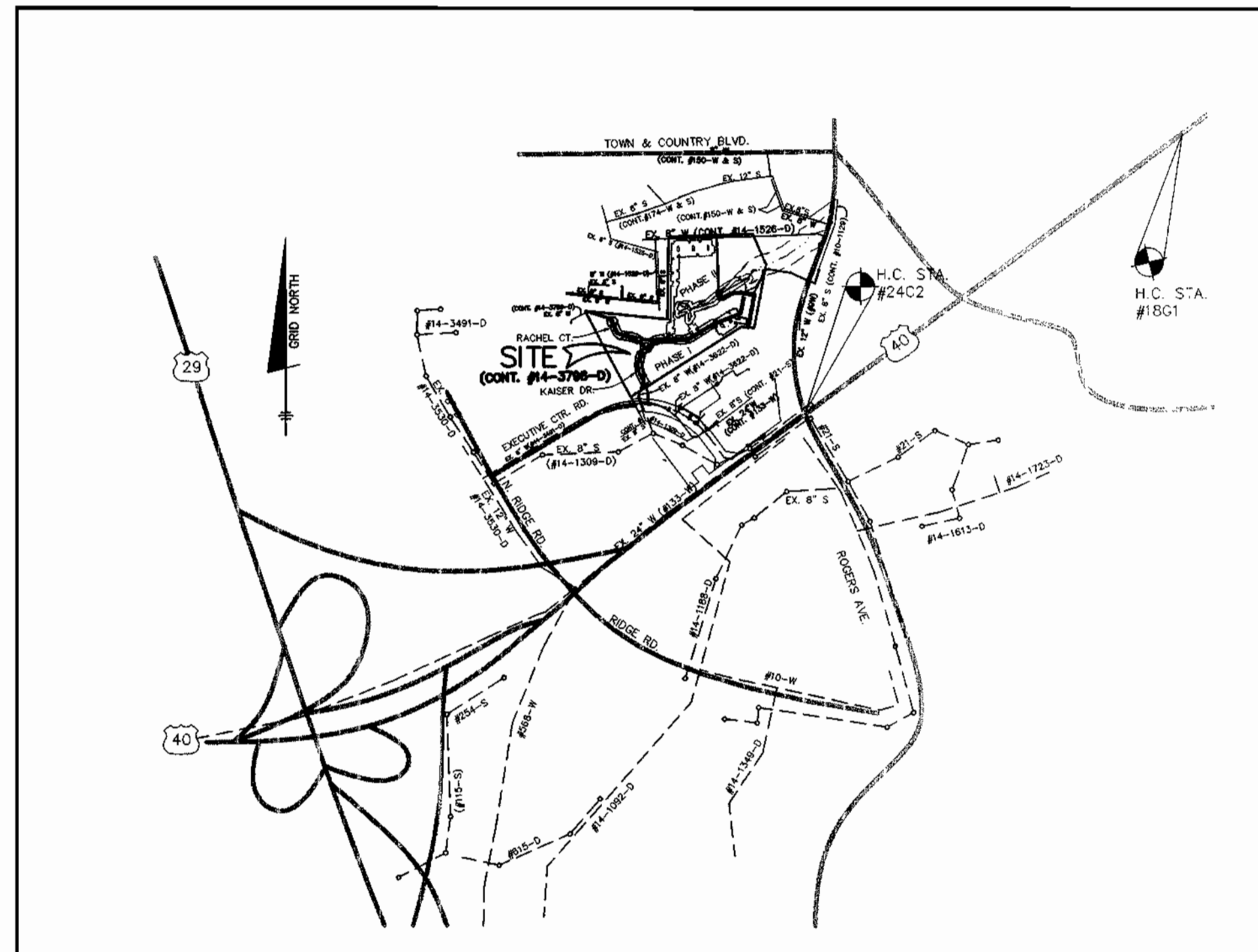
STATE HIGHWAY ADMINISTRATION.....	410-531-5533
BALTIMORE GAS & ELECTRIC CO.....	410-850-4620
BALTIMORE GAS & ELECTRIC CO.....	410-291-4607
UNDERGROUND DAMAGE CONTROL.....	1-800-257-7777
MISS UTILITY.....	410-549-4120
COLONIAL PIPELINE CO.....	410-313-4900
HOWARD CO. DEPT. OF PUBLIC WORKS.....	410-313-4900
BUREAU OF UTILITIES.....	1-800-446-5266
VERIZON.....	
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- PLACE REGULATION "MEN WORKING" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE OPERATIONS.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-2450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION 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(c) OF THE HOWARD COUNTY CODE.

PART 2 - WATER

- ALL WATER MAINS TO BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-1/2" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE RESTRAINED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS. SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR INSIDE METER SETTING UNLESS OTHERWISE NOTED ON PLANS OR IN SPECIFICATIONS. ALL WATER HOUSE CONNECTIONS SHALL BE 1" OR 1-1/2" x 1" FOR CONNECTIONS.

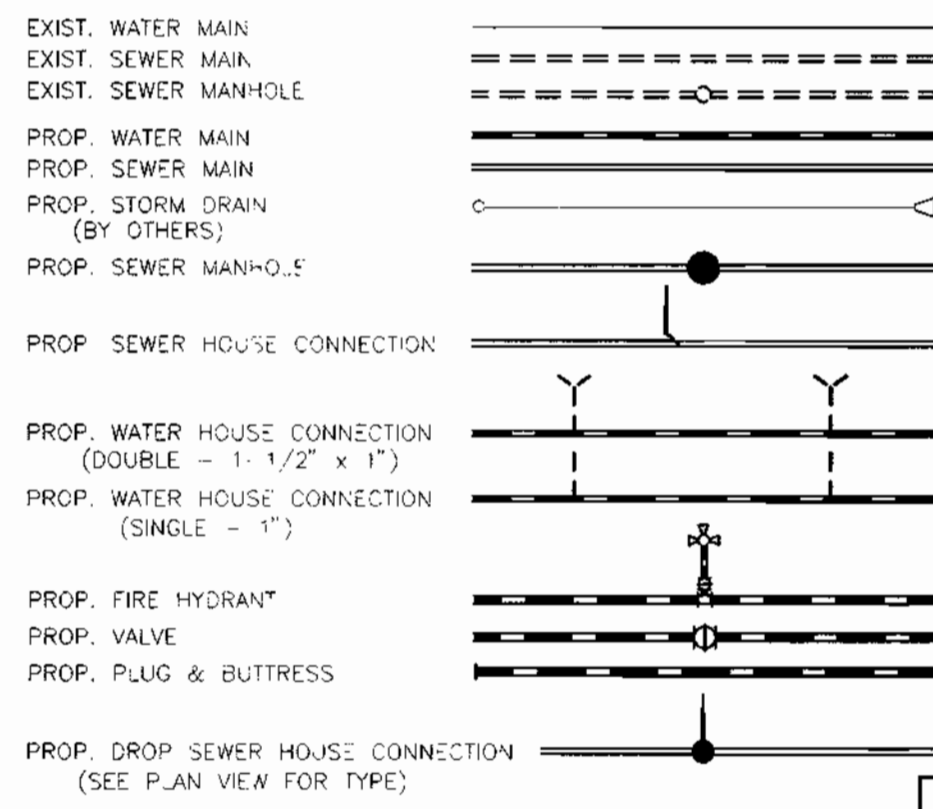
PART 3 - SEWER

- ALL SEWER MAINS SHALL BE DIP OR P.V.C. UNLESS OTHERWISE NOTED.
- 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.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVERS, STANDARD DETAIL G5.52. WHERE WATERTIGHT MANHOLE FRAME AND COVER IS 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.
- ALL MANHOLES SHOWN IN THE PLANS ARE PRECAST MANHOLE UNLESS OTHERWISE NOTED. ALL PRECAST MANHOLES MUST MET THE HOWARD COUNTY SPECIFICATIONS AND STANDARD.



WATER AND SEWER COUNTY CODE		VICINITY MAP	
WATER CODE: F03	TYPE OF BUILDING: SINGLE FAMILY ATTACHED & APARTMENTS	SCALE: 1" = 600'	
SEWER CODE: 1453600	NUMBER OF UNITS: 134		
TEST GRADIENT: 700	NUMBER OF S.H.C.'S: 82		
	NUMBER OF W.H.C.'S: 82		
	DRAINAGE AREA: PATAPSCO		
	TREATMENT PLANT: PATAPSCO WASTEWATER TREATMENT PLANT		

LEGEND



QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
8" WATER	1786 L.F.			
8" WATER	50 L.F.			
8" VALVES	4 EA.			
6" VALVES	3 EA.			
4" VALVES	4 EA.			
1 1/2" DRAIN	1 EA.			
FIRE HYDRANTS	3 EA.			
4" WHC	210 L.F.			
1-1/2" WHC	1972 L.F.			
1" WHC	278 L.F.			
8" SEWER	2371 L.F.			
MANHOLES	18 EA.			
4" SHC	3,427 L.F.			
4" DHC	30 L.F.			

NAME OF UTILITY CONTRACTOR: _____
SURVEY AND DRAFTING DIVISION AS-BUILT DATE: _____

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT
AND MEETS TECHNICAL REQUIREMENTS

Jim Myers 2/12/01
NATURAL RESOURCES CONSERVATION DISTRICT
DATE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT
CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John Robertson 2/12/01
HOWARD SOIL CONSERVATION DISTRICT
DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE
IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE
HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER
ROAD CONSTRUCTION PLANS F-01-25

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Robert B... 02-06-01
CHIEF, BUREAU OF UTILITIES
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
... 2/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

BENCHMARK
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND
David M...
PROFESSIONAL ENGINEER
1/17/01

DES: YSL					
DRN: YSL					
CHK: DAM					
DATE: 9/00	BY: NO.	REVISIONS	DATE		

OWNER/DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 442-2101

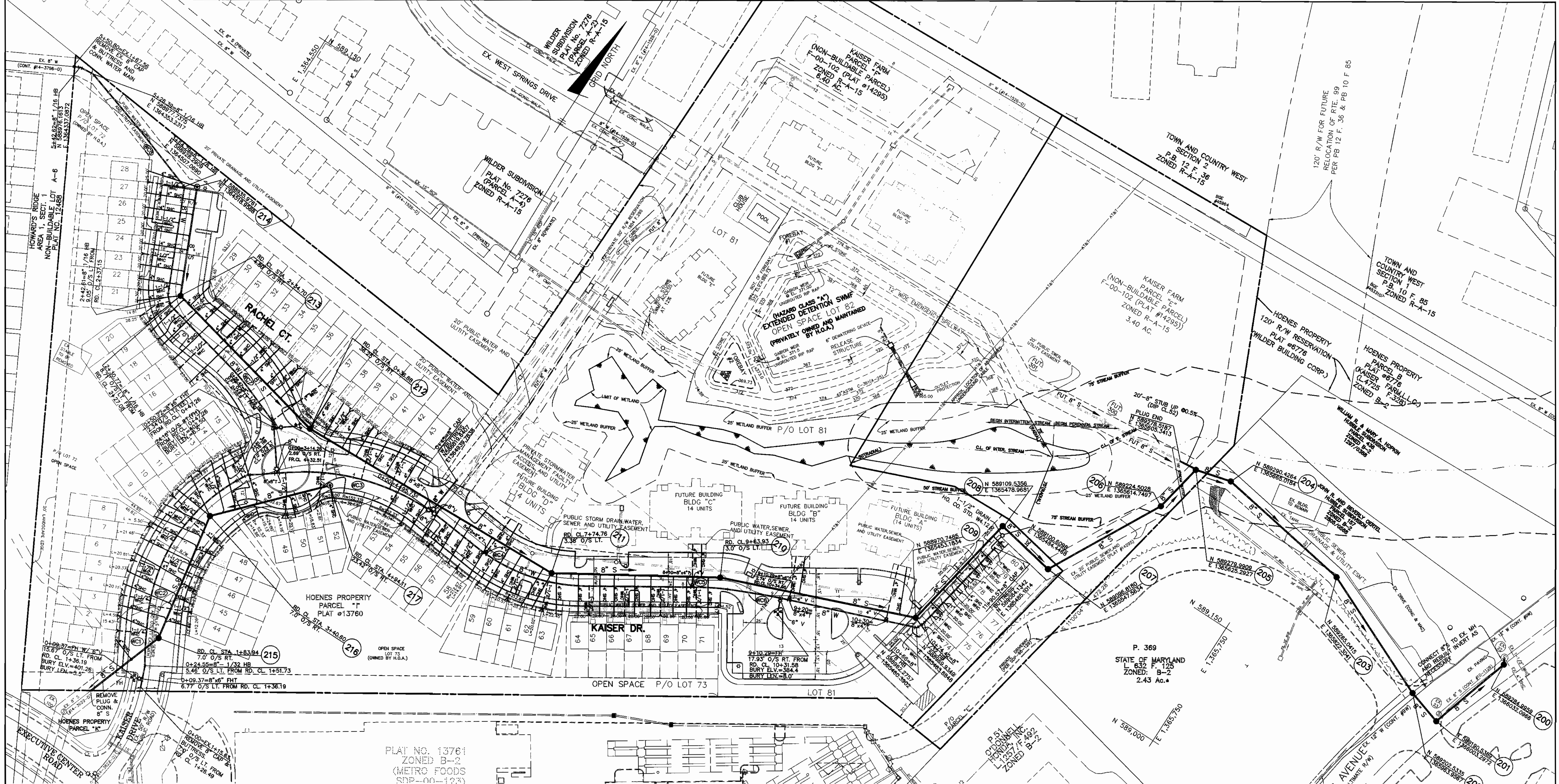
**WATER & SEWER EXTENSION
TITLE SHEET**

600 SCALE MAP NO. 17 BLOCK 23 & 24

KAISER FARM
LOTS 1 - 82, AND
FUTURE BUILDINGS "A" - "D"
HOWARD COUNTY ELECTION DISTRICT NO. 2
CONTRACT NO. 14-3866-D

SCALE AS SHOWN
SHEET 1 OF 5

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN OF WATER AND SEWER MAINS
3-5	PROFILES OF WATER AND SEWER MAINS



PLAN VIEW

SCALE: 1" = 50'

FOR SHC/DHC INVERT ELEVATIONS
SEE DATA TABLE ON SHEET 4.

PER HOWARD COUNTY WATER & SEWER DESIGN MANUAL,
TABLES 5 & 6 OF APPENDIX 1, THE MIN. WATER CRIMP
RADI FOR 8" WATER MAIN IS 205' FOR PUSH-UP JOINT PIPE,
AND 195' RADI IS FOR MECH. JOINT PIPES.

NOTE: CONTRACTOR SHALL CUT ROADWAY, INSTALL
PROPOSED 8" S, BACKFILL AND REPAIR PAVING
PER HOWARD COUNTY STANDARD NO.4.01.

WATER LINE CRIMP RADII DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC STA.		PT STA.		REMARKS
						PC STA.	PT STA.	PC STA.	PT STA.	
WC1	200.00'	16.22'	8.11'	16.21'	04°38'43"	0+35.48=RD. CL. 1+62.62 (6.34' O/S LT.)	0+51.70=RD. CL. 1+78.82 (7.0' O/S LT.)	0+51.70=RD. CL. 1+78.82 (7.0' O/S LT.)	0+51.70=RD. CL. 1+78.82 (7.0' O/S LT.)	MJ PIPES
WC2	197.00'	204.90'	112.81'	195.79'	59°35'41"	0+76.39=RD. CL. 2+03.69 (7.0' O/S LT.)	1+13.33=RD. CL. 4+40.05 (7.0' O/S LT.)	1+13.33=RD. CL. 4+40.05 (7.0' O/S LT.)	1+13.33=RD. CL. 4+40.05 (7.0' O/S LT.)	MJ PIPES
WC3	250.00'	185.10'	97.02'	180.90'	42°25'19"	3+28.23=RD. CL. 4+46.55 (6.16' O/S RT.)	6+91.87=RD. CL. 8+14.17 (8.0' O/S RT.)	6+91.87=RD. CL. 8+14.17 (8.0' O/S RT.)	6+91.87=RD. CL. 8+14.17 (8.0' O/S RT.)	MJ PIPES
WC4	200.00'	133.08'	69.11'	130.64'	38°07'28"	6+58.79=RD. CL. 6+85.51 (7.0' O/S RT.)	8+16.66=RD. CL. 9+38.96 (8.0' O/S RT.)	8+16.66=RD. CL. 9+38.96 (8.0' O/S RT.)	8+16.66=RD. CL. 9+38.96 (8.0' O/S RT.)	MJ PIPES
WC5	286.00'	42.00'	21.04'	41.97'	08°24'53"	8+88.19=RD. CL. 10+12.98 (0.85' O/S RT.)	9+10.39=RD. CL. 10+34.79 (2.76' O/S RT.)	9+10.39=RD. CL. 10+34.79 (2.76' O/S RT.)	9+10.39=RD. CL. 10+34.79 (2.76' O/S RT.)	MJ PIPES
WC6	400.00'	22.20'	11.10'	22.20'	03°10'49"	1+01.43=RD. CL. 0+98.56 (9.19' O/S LT.)	1+36.16=RD. CL. 1+35.32 (9.76' O/S LT.)	1+36.16=RD. CL. 1+35.32 (9.76' O/S LT.)	1+36.16=RD. CL. 1+35.32 (9.76' O/S LT.)	MJ PIPES
WC7	250.00'	34.74'	17.40'	34.71'	07°57'41"	4+25.58 (N58897.8791, E1364449.5218)	4+58.28 (N58895.9082, E1364418.3985)	4+58.28 (N58895.9082, E1364418.3985)	4+58.28 (N58895.9082, E1364418.3985)	MJ PIPES
WC8	1000.00'	32.70'	16.35'	32.70'	01°52'25"					

OWNER/DEVELOPER:
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P.O. BOX 417
ELLCOTT CITY, MARYLAND 21041
(410) 442-2101

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

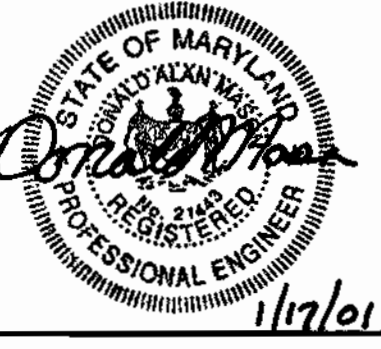
[Signature]
02-06-01
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
DATE

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6844



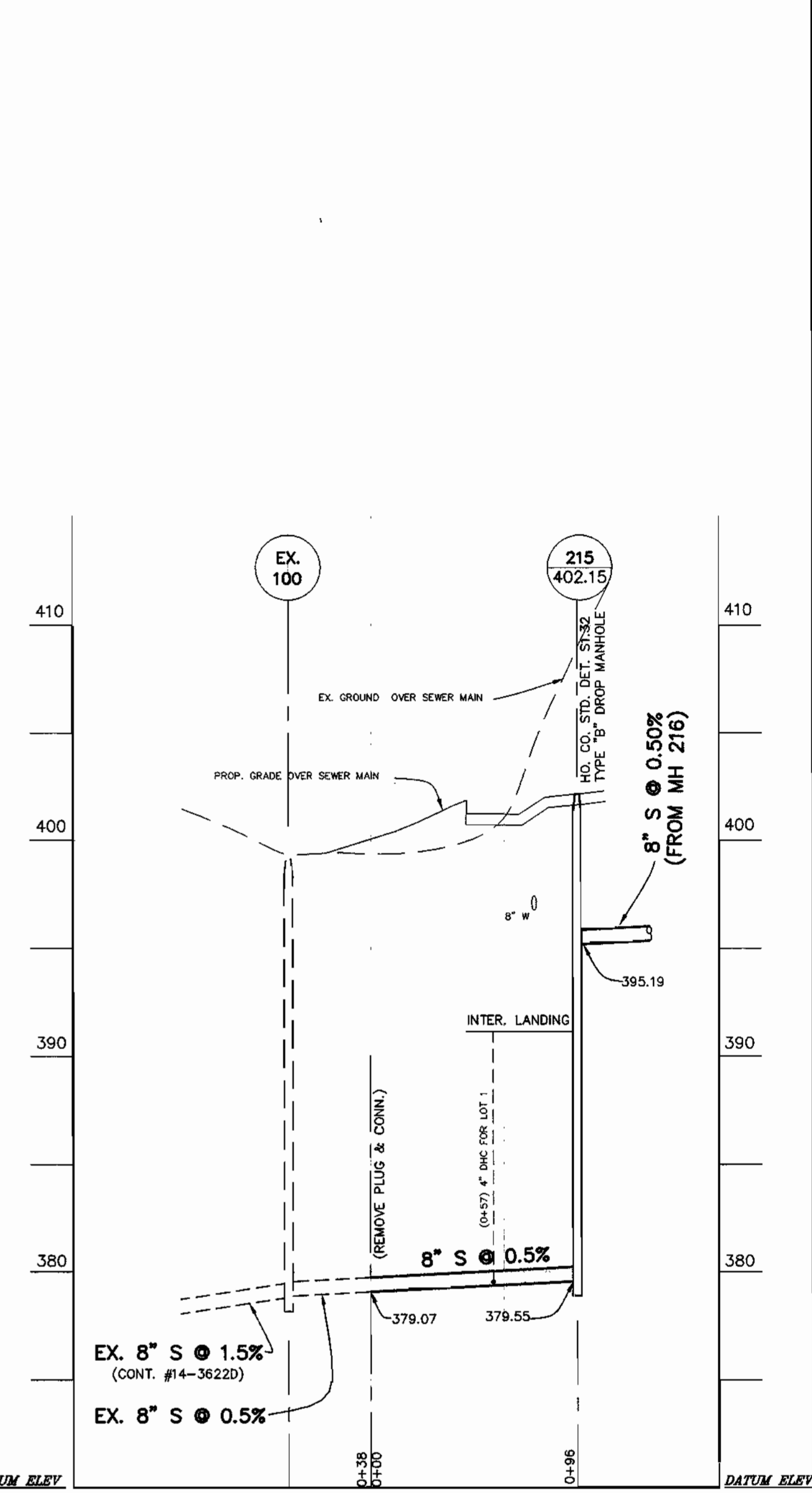
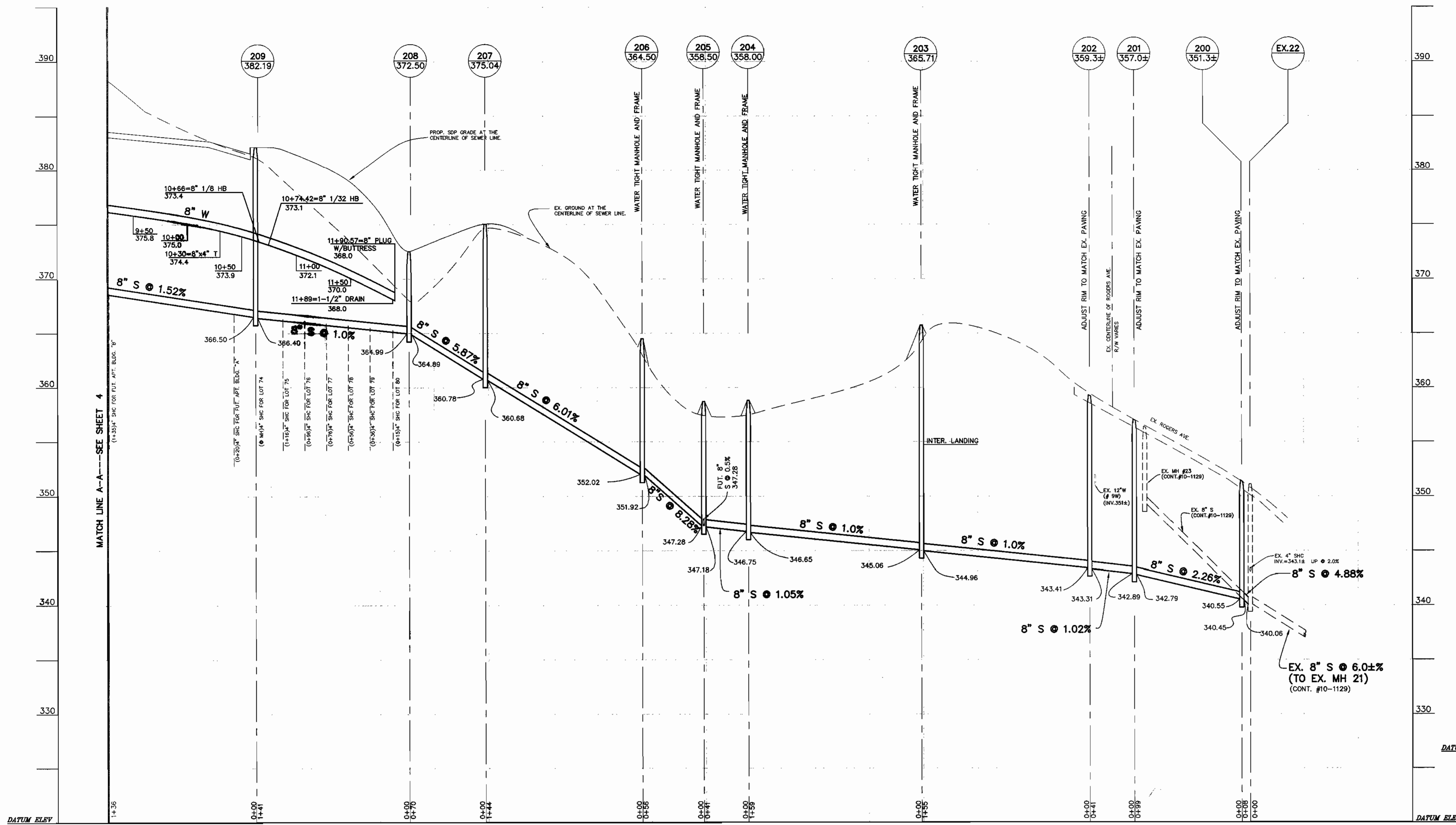
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CHK: DAM			
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BY	NO.	REVISIONS	DATE

WATER & SEWER EXTENSION
PLAN VIEW

600 SCALE MAP NO. 17 BLOCK 23 & 24

KAISER FARM, PHASE I
LOTS 1 - 82, AND
FUTURE BUILDINGS "A" - "D"
HOWARD COUNTY ELECTION DISTRICT NO. 2
CONTRACT NO. 14-3866-D

SCALE AS SHOWN
SHEET 2 OF 5

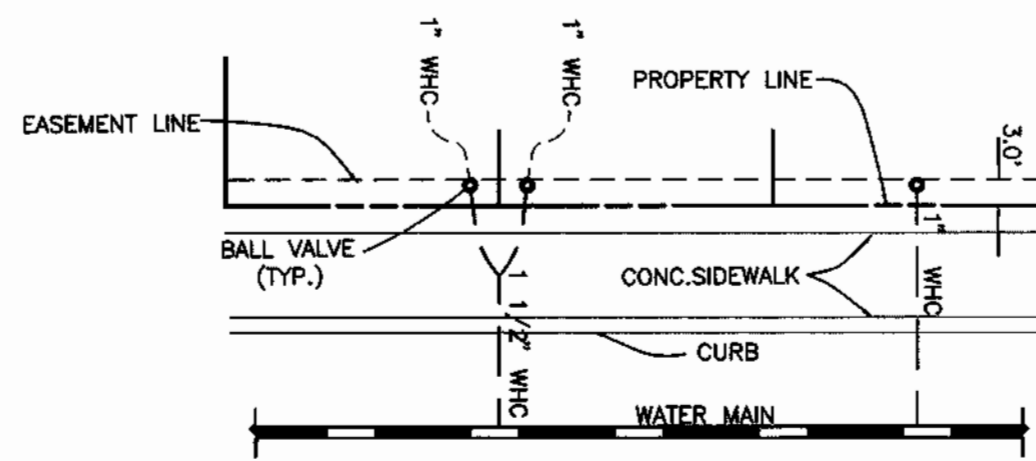


WATER & SEWER PROFILE AT KAISER DRIVE

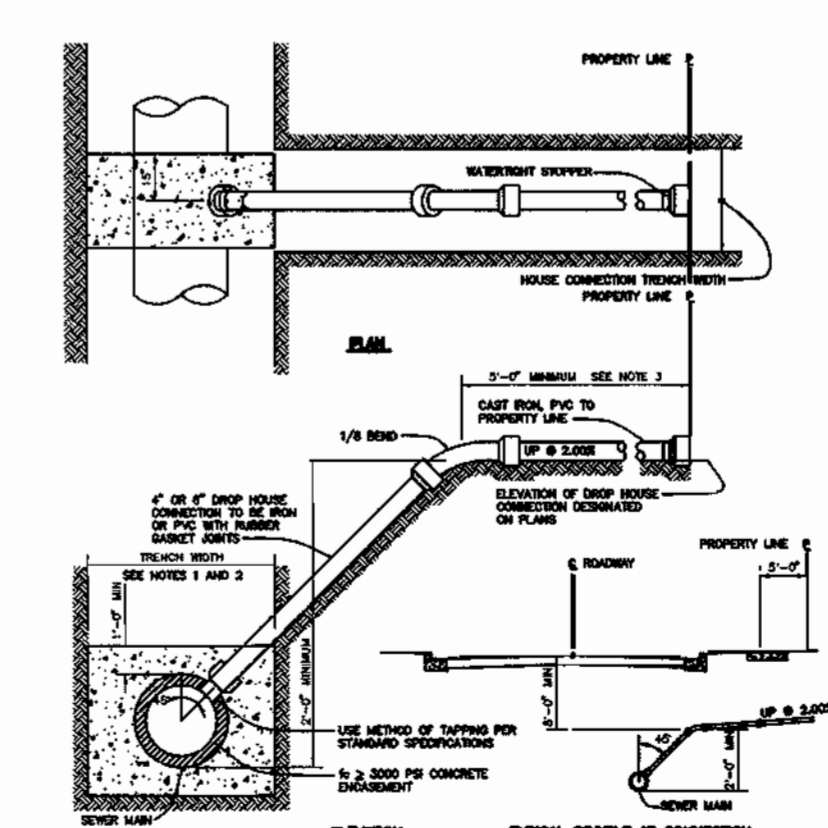
SCALE: H: 1"=50'
V.: 1"=5'

SEWER PROFILE AT KAISER DR.

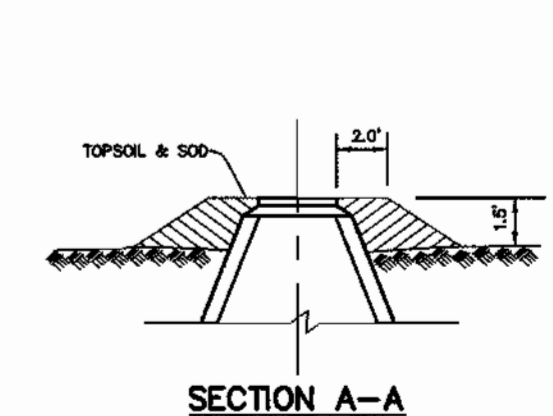
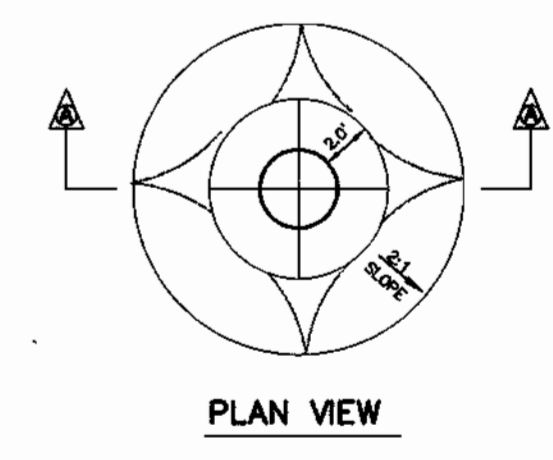
SCALE: H: 1"=50'
V.: 1"=5'



TYPICAL WATER HOUSE CONNECTIONS
NOT TO SCALE



4" DROP HOUSE CONNECTION TO SEWER MANHOLE
NOT TO SCALE



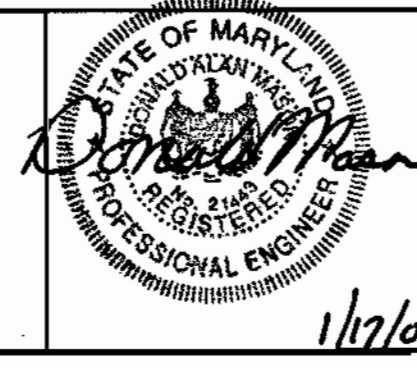
NOTES:
1) ALL MANHOLE FRAME AND COVERS SHALL BE FLUSH WITH GRADE EXCEPT WHEN SHOWN ON PROFILE TO BE SET HIGHER THAN GRADE.
2) MANHOLE FRAME AND COVERS TO BE SET HIGHER THAN GRADE SHALL BE SET IN ACCORDANCE WITH THIS DETAIL.

NOTE: FOR TYPE "B" AND "C" DROP HOUSE CONNECTION SEE HOWARD COUNTY STANDARD DETAILS S2.12 AND S2.13

OWNER/DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLCOTT CITY, MARYLAND 21041
(410) 442-2101

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
6480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

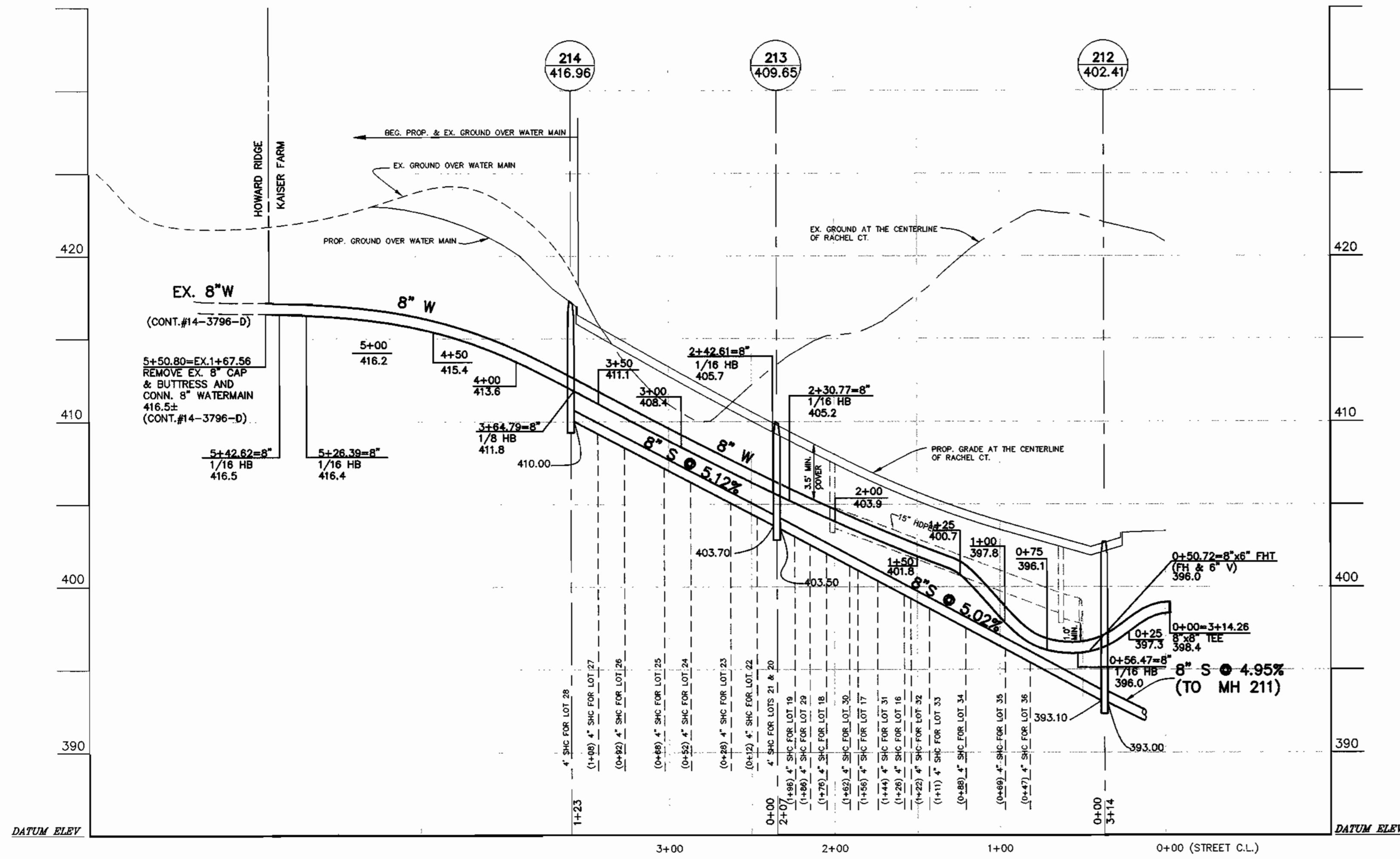


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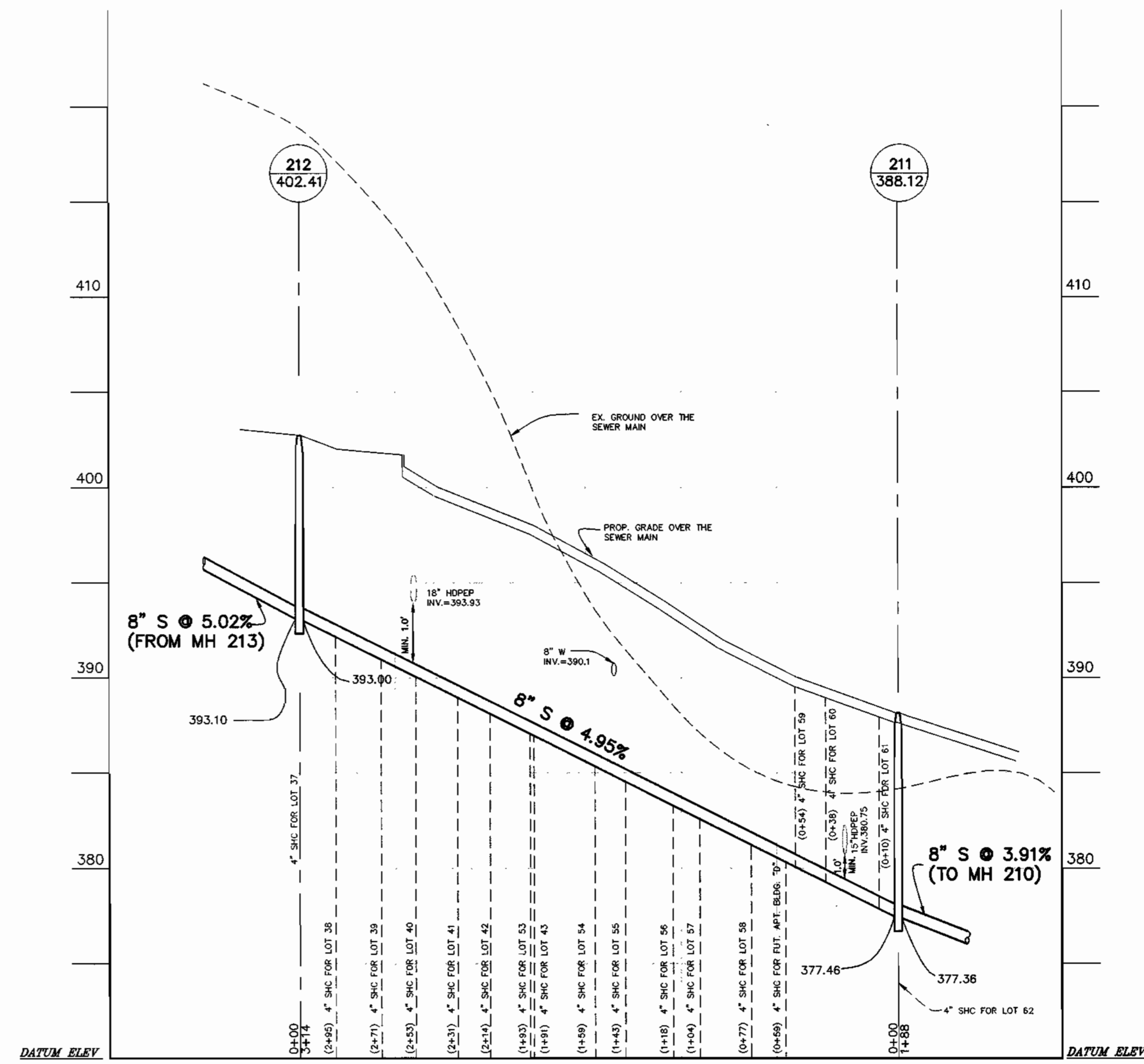
WATER & SEWER EXTENSION
PROFILES
600 SCALE MAP NO. 17 BLOCK 23 & 24

KAISER FARM
LOTS 1 - 82, AND
FUTURE BUILDINGS "A" - "D"
HOWARD COUNTY ELECTION DISTRICT NO. 2
CONTRACT NO. 14-3866-D

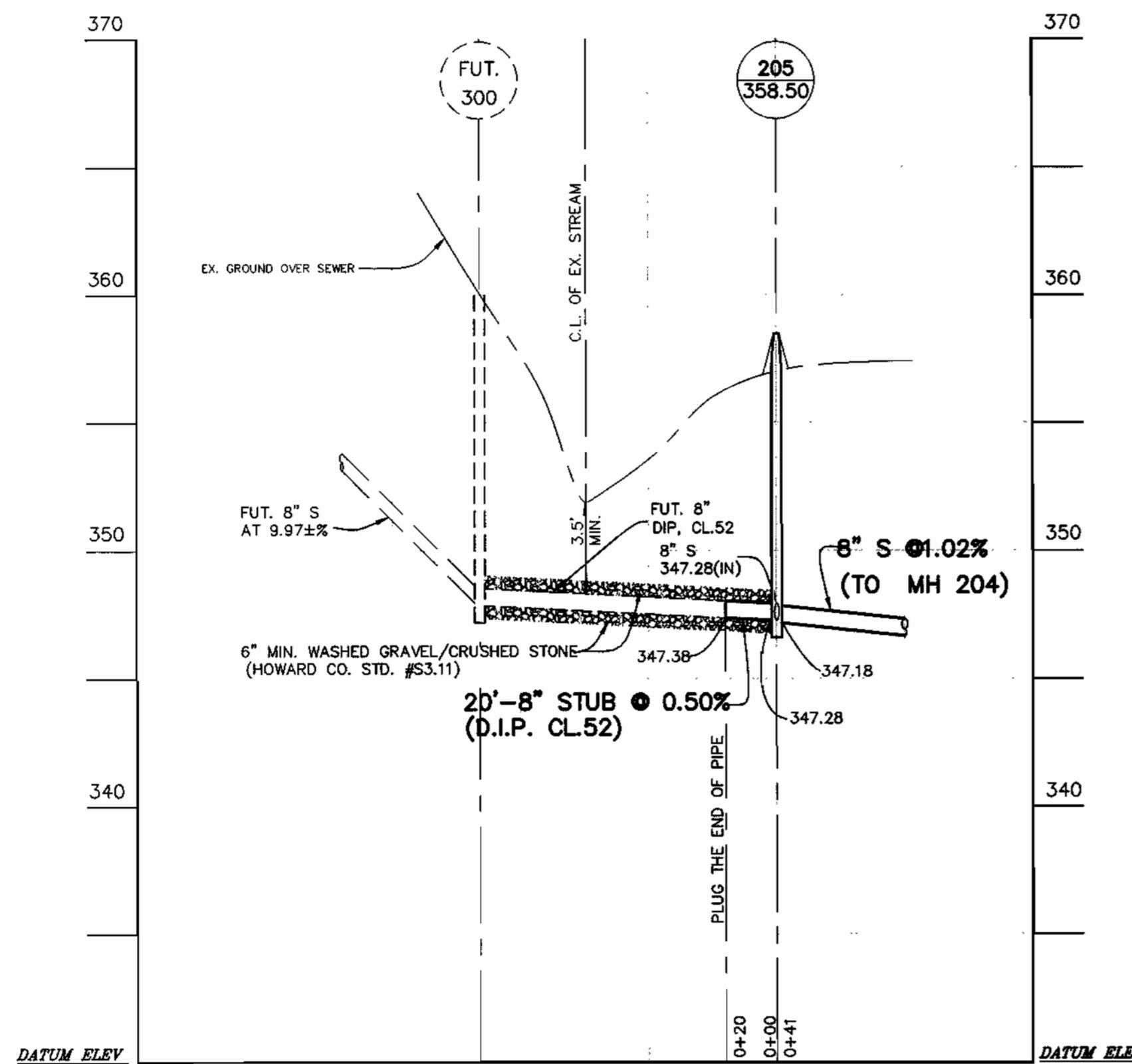
SCALE AS SHOWN
SHEET 3 OF 5



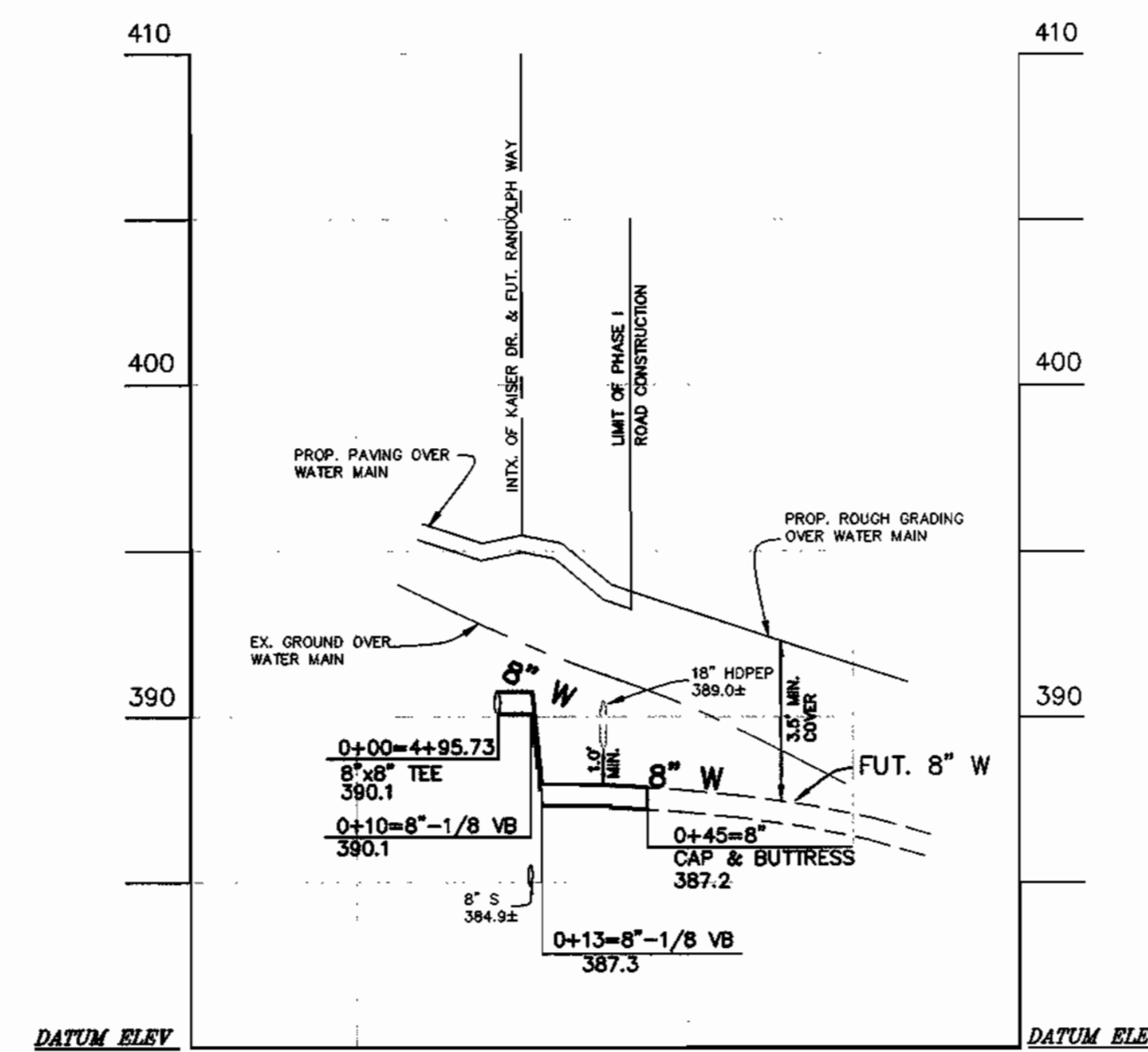
WATER & SEWER PROFILE AT RACHEL COURT
 SCALE: H: 1"=50'
 V.: 1"=5'



SEWER PROFILE AT KAISER DR. & RACHEL CT.
 SCALE: H: 1"=50'
 V.: 1"=5'



SEWER PROFILE FROM MH 205 TO FUT. MH 300
 SCALE: H: 1"=50'
 V.: 1"=5'



WATER MAIN PROFILE AT
 FUT. RANDOLPH WAY
 SCALE: H: 1"=50'
 V.: 1"=5'

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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Chief, Bureau of Utilities
 02-06-01

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 Chief, Development Engineering Division
 2/10/01

BENCHMARK
 ENGINEERS & LAND SURVEYORS & PLANNERS
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 8480 BALTIMORE NATIONAL PIKE & SUITE 418
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WATER & SEWER EXTENSION
 PROFILIES
 600 SCALE MAP NO. 17
 BLOCK 23 & 24

KAISER FARM
 LOTS 1 - 82, AND
 FUTURE BUILDINGS "A" - "D"
 HOWARD COUNTY ELECTION DISTRICT NO. 2
CONTRACT NO. 14-3866-D


SCALE
 AS
 SHOWN
 SHEET
 5 OF 5

PUBLIC WATER AND SEWER CONSTRUCTION PLANS KAISER FARM 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT No. 14-3866-D

BENCH MARKS (NAD83)			
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HO. CO. No. 24C2 CONC. MONUMENT AT SURFACE 5.5' S. OF LEFT TURN LANE OF RT. 40 WEST 14' E. OF EAST EDGE OF CROSSOVER TO RT. 99 S. N 588,648.3158 E 1,366,038.1347	ELEV. 354.930		

GENERAL NOTES

PART 1 - GENERAL

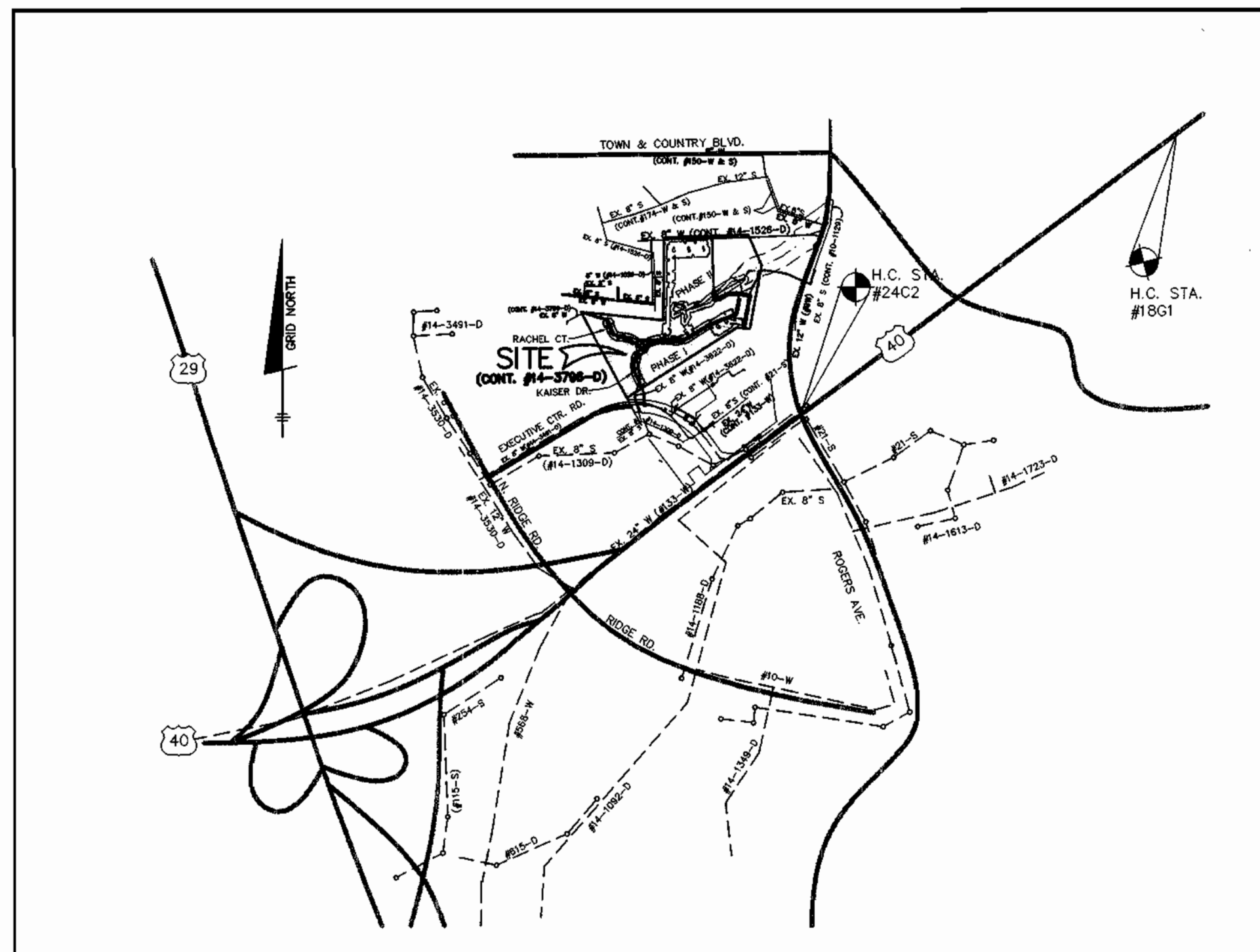
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STATE HIGHWAY ADMINISTRATION.....410-531-5533
BALTIMORE GAS & ELECTRIC CO.410-850-4620
CONTRACTOR SERVICES.....410-549-4120
BALTIMORE GAS & ELECTRIC CO.410-291-4607
UNDERGROUND DAMAGE CONTROL.....1-800-257-7777
MISS UTILITY.....410-549-4120
COLONIAL PIPELINE CO.....410-313-4900
HOWARD CO. DEPT. OF PUBLIC WORKS
BUREAU OF UTILITIES.....410-313-4900
VERIZON.....1-800-446-5266
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS WITHIN LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- PLACE REGULATION "MEN WORKING" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE OPERATIONS.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-2450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION 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(g) OF THE HOWARD COUNTY CODE.

PART 2 - WATER

- ALL WATER MAINS TO BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3-1/2" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE RESTRAINED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS. SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND 1005 OF STD. STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR INSIDE METER SETTING UNLESS OTHERWISE NOTED ON PLANS OR IN SPECIFICATIONS. ALL WATER HOUSE CONNECTIONS SHALL BE 1" OR 1-1/2" x 1" FOR CONNECTIONS.

PART 3 - SEWER

- ALL SEWER MAINS SHALL BE DIP OR P.V.C. UNLESS OTHERWISE NOTED.
- 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.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATER-TIGHT FRAME AND COVERS, STANDARD DETAIL GS-52, WHERE WATER-TIGHT MANHOLE FRAME AND COVER IS 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.
- ALL MANHOLES SHOWN IN THE PLANS ARE PRECAST MANHOLE UNLESS OTHERWISE NOTED. ALL PRECAST MANHOLES MUST MET THE HOWARD COUNTY SPECIFICATIONS AND STANDARD.



WATER AND SEWER COUNTY CODE		TYPE OF BUILDING: SINGLE FAMILY ATTACHED & APARTMENTS	
WATER CODE: F03		NUMBER OF UNITS: 134	
SEWER CODE: 1453600		NUMBER OF SHC'S: 82	
TEST GRADIENT: 700		NUMBER OF WHC'S: 82	
		DRAINAGE AREA: PATAPSCO WASTEWATER TREATMENT PLANT	

VICINITY MAP

SCALE: 1" = 600'

LEGEND

EXIST. WATER MAIN	
EXIST. SEWER MAIN	
EXIST. SEWER MANHOLE	
PROP. WATER MAIN	
PROP. SEWER MAIN	
PROP. STORM DRAIN (BY OTHERS)	
PROP. SEWER MANHOLE	
PROP. SEWER HOUSE CONNECTION	
PROP. WATER HOUSE CONNECTION (DOUBLE - 1-1/2" x 1")	
PROP. WATER HOUSE CONNECTION (SINGLE - 1")	
PROP. FIRE HYDRANT	
PROP. VALVE	
PROP. PLUG & BUTTRESS	
PROP. DROP SEWER HOUSE CONNECTION (SEE PLAN VIEW FOR TYPE)	

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
8" WATER	1786 L.F.			
6" WATER	50 L.F.			
8" VALVES	4 EA.			
6" VALVES	3 EA.			
4" VALVES	4 EA.			
1 1/2" DRAIN	1 EA.			
FIRE HYDRANTS	3 EA.			
4" WHC	210 L.F.			
1-1/2" WHC	1972 L.F.			
1" WHC	276 L.F.			
8" SEWER MANHOLES	17 EA.			
4" SHC	3,427 L.F.			
4" DHC	30 L.F.			

NAME OF UTILITY CONTRACTOR:
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Jim Myers 2/12/01
NATURAL RESOURCES CONSERVATION DISTRICT

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

John Robertson 2/12/01
HOWARD SOIL CONSERVATION DISTRICT

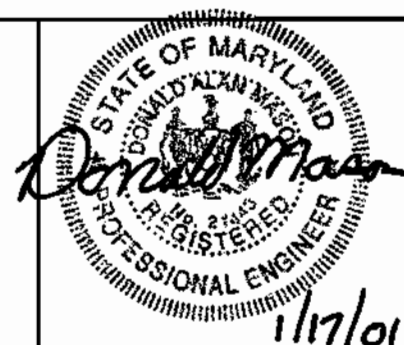
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS F-01-25

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644



DES: YSL

DRN: YSL

CHK: DAM

DATE: 9/00

REVISE 8" SEWER AND MANHOLE QUANTITIES 1/18/02

BY NO. REVISIONS

OWNER/DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLCOTT CITY, MARYLAND 21041
(410) 442-2101

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN OF WATER AND SEWER MAINS
3-5	PROFILES OF WATER AND SEWER MAINS

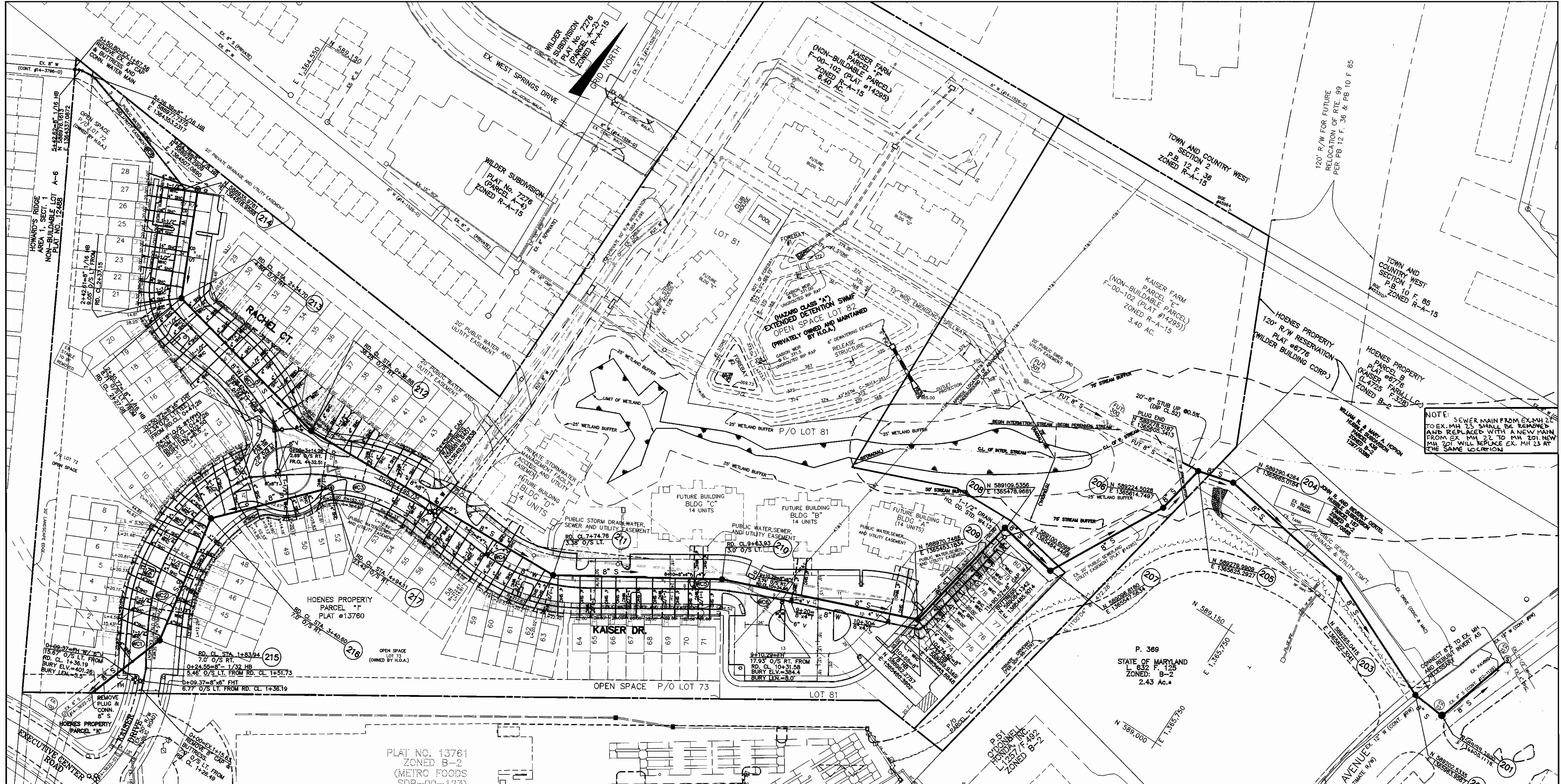
**WATER & SEWER EXTENSION
TITLE SHEET**

600 SCALE MAP NO. 17 BLOCK 23 & 24

KAISER FARM
LOTS 1 - 82, AND
FUTURE BUILDINGS "A" - "D"
HOWARD COUNTY ELECTION DISTRICT NO. 2
CONTRACT NO. 14-3866-D

SCALE AS SHOWN

SHEET 1 OF 5



NOTE: SEWER MAIN FROM EX. MH 21 TO EX. MH 20 SHALL BE REMOVED AND REPLACED WITH A NEW MAIN FROM EX. MH 22 TO MH 20. NEW MAIN SHALL REPLACE EX. MH 23 AT THE SAME LOCATION.

PLAN VIEW

SCALE: 1" = 50'
 FOR SHC/DHC INVERT ELEVATIONS
 SEE DATA TABLE ON SHEET 4.

PER HOWARD COUNTY WATER & SEWER DESIGN MANUAL, TABLES 5 & 6 OF APPENDIX 1, THE MIN. WATER CRIMP RADIUS FOR 8" WATER MAIN IS 205' FOR PUSH-UP JOINT PIPE, AND 195' RADII IS FOR MECH. JOINT PIPES.

WATER LINE CRIMP RADII DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC STA.	PT STA.	REMARKS
WC1	200.00'	16.22'	8.11'	16.21'	04°38'43"	0+35.48=RD. CL. 1+62.62 (6.34' O/S LT.)	0+51.70=RD. CL. 1+78.82(7.0' O/S LT.)	MJ PIPES
WC2	197.00'	204.90'	112.81'	195.79'	59°35'41"	0+76.39=RD. CL. 2+03.89(7.0' O/S LT.)	2+81.30=RD. CL. 4+01.31(7.0' O/S LT.)	MJ PIPES
WC3	250.00'	185.10'	97.02'	180.90'	42°25'19"	3+28.23=RD. CL. 4+46.55 (5.16' O/S RT.)	5+13.33=RD. CL. 6+40.05 (7.0' O/S RT.)	MJ PIPES
WC4	200.00'	133.08'	69.11'	130.64'	38°07'26"	5+58.79=RD. CL. 6+85.51 (7.0' O/S RT.)	6+91.87=RD. CL. 8+14.17 (8.0' O/S RT.)	MJ PIPES
WC5	286.00'	42.00'	21.04'	41.97'	08°24'53"	8+16.66=RD. CL. 9+38.96 (0.85' O/S RT.)	8+58.86=RD. CL. 9+83.80 (6.33' O/S RT.)	
WC6	400.00'	22.20'	11.10'	22.20'	03°10'49"	8+88.19=RD. CL. 10+12.98 (0.85' O/S RT.)	9+10.39=RD. CL. 10+34.79 (2.76' O/S RT.)	
WC7	250.00'	34.74'	17.40'	34.71'	07°57'41"	1+01.43=RD. CL. 0+98.56 (9.19' O/S LT.)	1+36.16=RD. CL. 1+35.32 (8.76' O/S LT.)	
WC8	1000.00'	32.70'	16.35'	32.70'	01°32'25"	4+25.58 (N588947.8791, E1364449.5218)	4+58.28 (N588957.9082, E1364418.3985)	

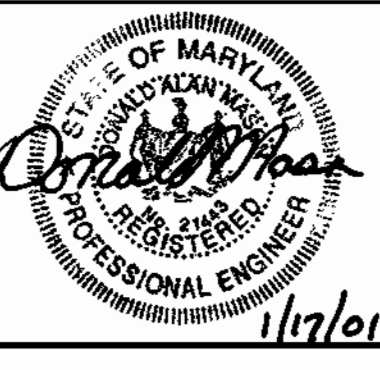
NOTE: CONTRACTOR SHALL CUT ROADWAY, INSTALL PROPOSED 8" S. BACKFILL AND REPAIR PAVING PER HOWARD COUNTY STANDARD NO. 4.01.

OWNER/DEVELOPER:
 KAISER FARM, L.L.C.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 442-2101

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

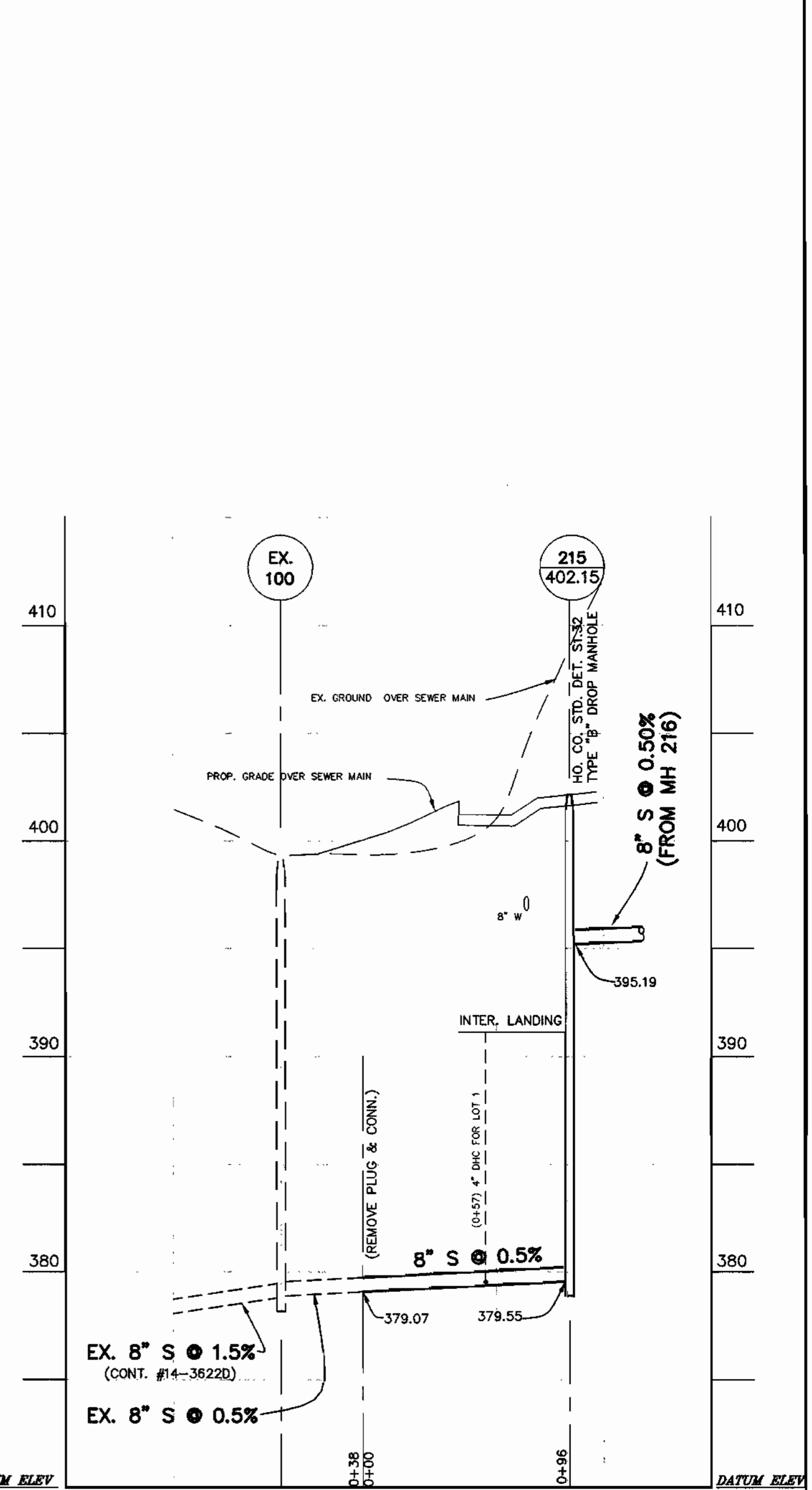
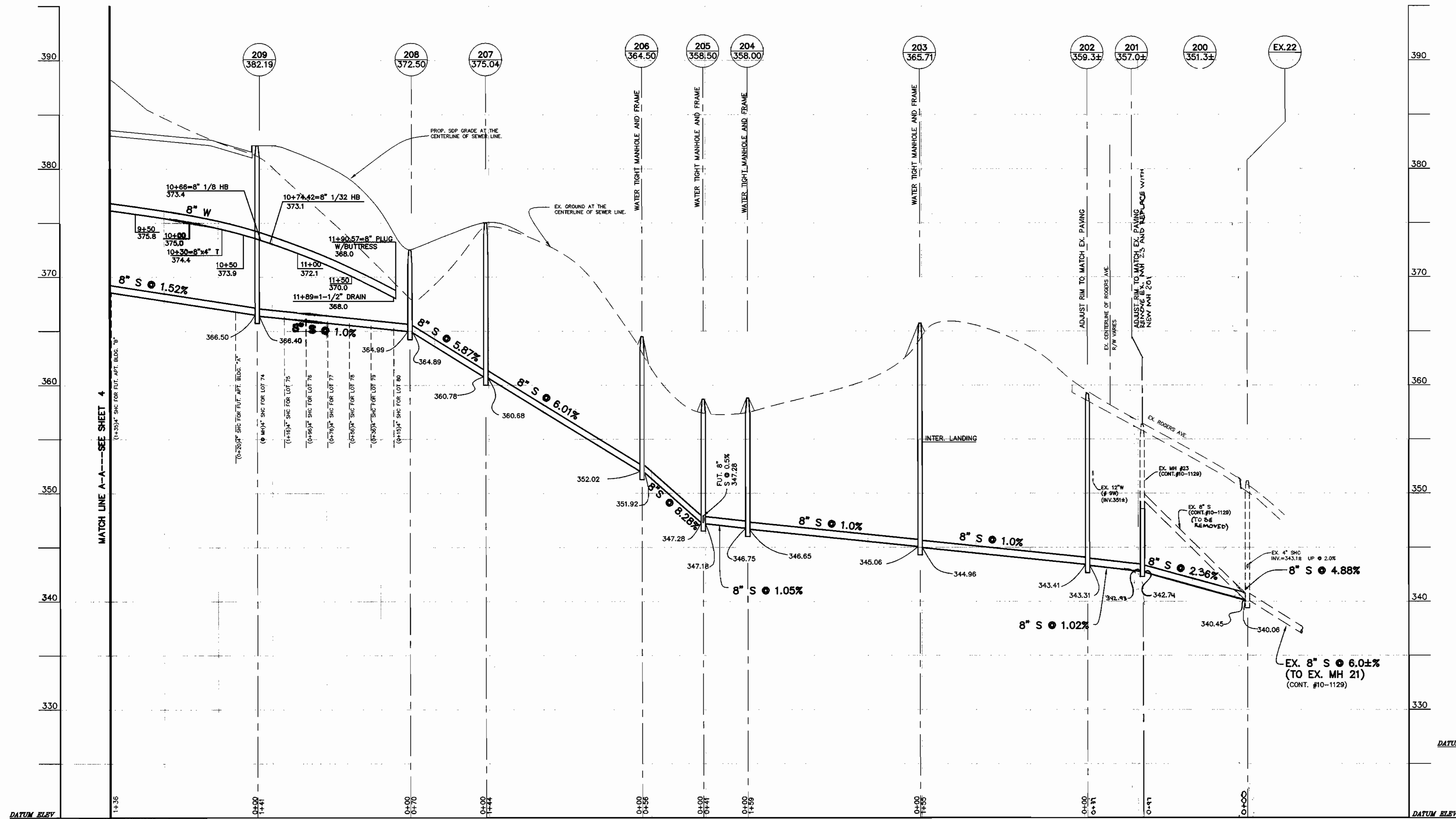
BENCHMARK
 ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6644



DES:	YSL		
DRN:	YSL		
CHK:	DAM		
DATE:	9/00		
BY:	NO.	REVISIONS	DATE
		REVISE SEWER MAIN FROM EX. MH 22 TO MH 20.	1/18/02

WATER & SEWER EXTENSION
 PLAN VIEW
 600 SCALE MAP NO. 17 BLOCK 23 & 24

KAISER FARM, PHASE I
 LOTS 1 - 82, AND
 FUTURE BUILDINGS "A" - "D"
 HOWARD COUNTY ELECTION DISTRICT NO. 2
CONTRACT NO. 14-3866-D
 SCALE AS SHOWN
 SHEET 2 OF 5



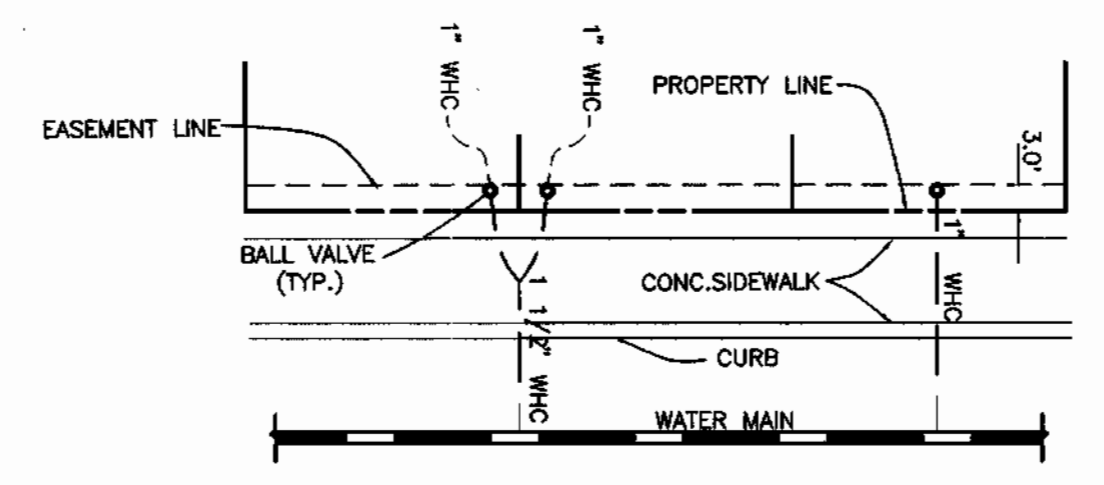
10+00 DATUM ELEV. 390 380 370 360 350 340 330 DATUM ELEV.

WATER & SEWER PROFILE AT KAISER DRIVE

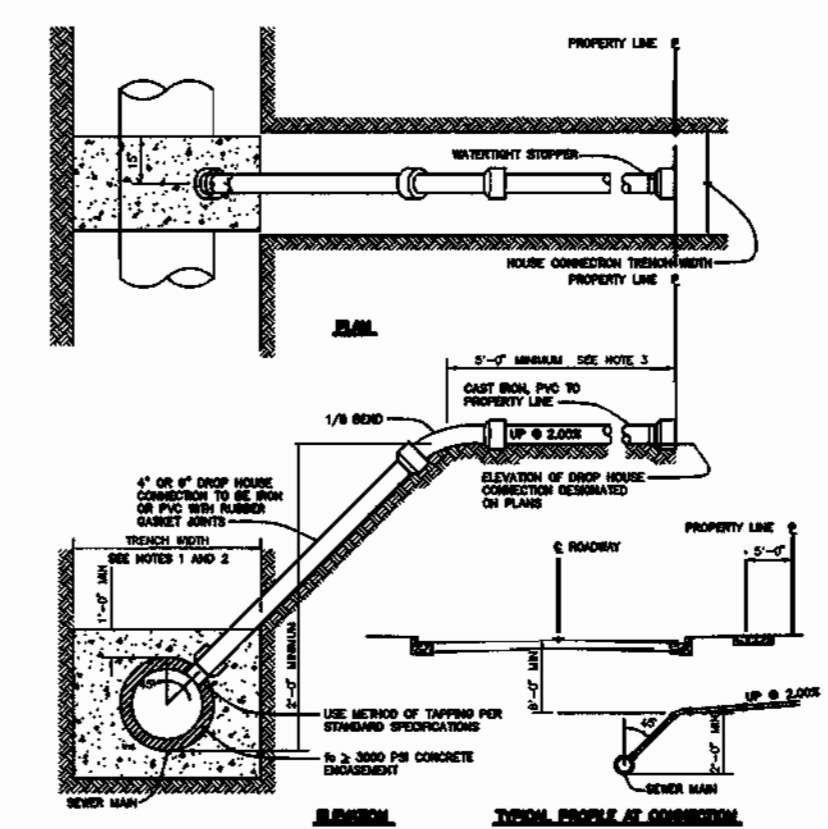
SCALE: H: 1"=50'
V: 1"=5'

SEWER PROFILE AT KAISER DR.

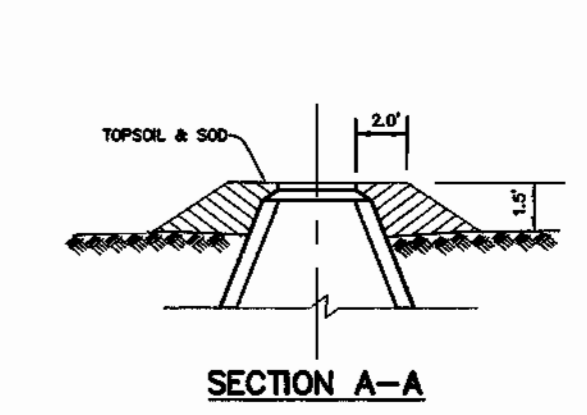
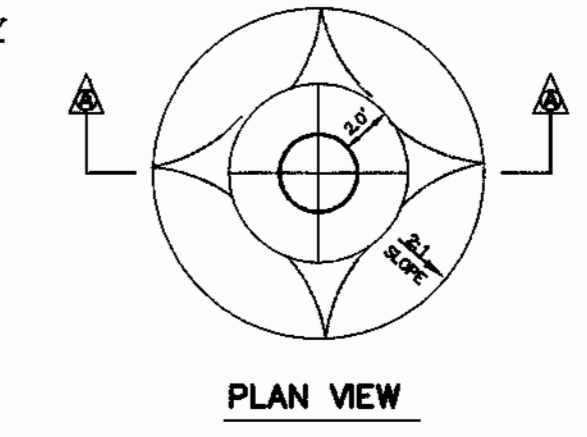
SCALE: H: 1"=50'
V: 1"=5'



TYPICAL WATER HOUSE CONNECTIONS
NOT TO SCALE



4" DROP HOUSE CONNECTION TO SEWER MAIN
NOT TO SCALE



NOTES:
1.) ALL MANHOLE FRAME AND COVERS SHALL BE FLUSH WITH GRADE EXCEPT WHEN SHOWN ON PROFILE TO BE SET HIGHER THAN GRADE.
2.) MANHOLE FRAME AND COVERS TO BE SET HIGHER THAN GRADE SHALL BE SET IN ACCORDANCE WITH THIS DETAIL.

FILL AROUND MANHOLE

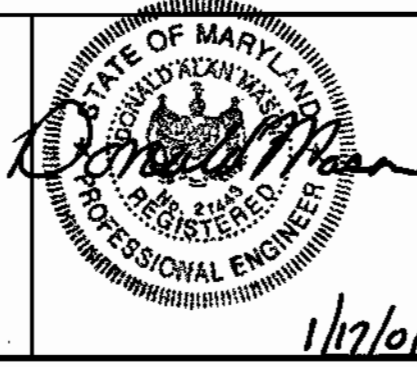
NOTE: FOR TYPE "B" AND "C" DROP HOUSE CONNECTION SEE HOWARD COUNTY STANDARD DETAILS S2.12 AND S2.13

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DES:	YSL				
DRN:	YSL				
CHK:	DAM				
DATE:	9/00	JTC	Δ	REVISE SEWER MAIN EX. MH 22 TO MH 202	1/10/02
		BY	NO.	REVISIONS	DATE

WATER & SEWER EXTENSION
PROFILES
600 SCALE MAP NO. 17 BLOCK 23 & 24

KAISER FARM
LOTS 1 - 82, AND
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HOWARD COUNTY ELECTION DISTRICT NO. 2
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SCALE AS SHOWN
SHEET 3 OF 5

