

GENERAL NOTES:

THE CURRENT COUNTY OF DELAWARE REQUIREMENTS, TOGETHER WITH THE SPECIFICATIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION, THE VILLAGE OF POWELL, AND THE CITY OF COLUMBUS INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF CONTRACT, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN. THE CONTRACTOR SHALL REFER TO THE "STANDARD PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF SANITARY FACILITIES IN DELAWARE COUNTY, OHIO" FOR ALL NECESSARY CONSTRUCTION DETAILS.

SEWER TRENCHES SHALL BE DE-WATERED TO 2" BELOW BELL OF PIPE PRIOR TO INSTALLATION OF PIPE.

ANY FIELD TILE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AS DIRECTED BY THE COUNTY, WITH 1800 PIPE SPANNING THE TRENCH. THE TRENCH SHALL BE FILLED WITH COMPACTED GRANULAR MATERIAL. COST OF THIS WORK IS TO BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS.

ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED ON THIS PROJECT.

TESTING

FORCE MAINS SHALL BE TESTED BY A HYDROSTATIC PRESSURE AND LEAKAGE TEST, WITH THE MAIN SUBJECT TO A HYDROSTATIC PRESSURE OF 125 PSI AT ITS LOWEST ELEVATION. ALLOWABLE LEAKAGE SHALL NOT EXCEED 20 GALLONS PER INCH DIAMETER PER MILE PER 24 HOURS.

THE CONTRACTOR SHALL COOPERATE WITH THE DELAWARE COUNTY SANITARY ENGINEER AND SHALL PROVIDE ALL NECESSARY EQUIPMENT TO PERFORM ALL TESTING.

TREES

ALL TREES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, ARE TO BE PRESERVED UNLESS APPROVAL TO REMOVE IS GIVEN IN WRITING BY THE ENGINEER OR THEIR REMOVAL HAS BEEN DESIGNATED THUSLY ADD TO THE PLANS. THE CONTRACTOR SHALL USE SPECIAL PRECAUTIONS TO AVOID DAMAGE TO ALL OTHER TREES. WHEN, IN THE OPINION OF THE ENGINEER, BRANCHES OF TREES WOULD BE ENDANGERED BY THE USE OF MECHANICAL EXCAVATION DEVICES, HAND EXCAVATION WILL BE REQUIRED. THE COST OF TREE REMOVAL AND DISPOSAL AND THE COST OF TREE PROTECTION SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS.

SAFETY REQUIREMENTS

CONTRACTOR AND SUB-CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

EXISTING UTILITIES

THE IDENTITY AND LOCATION OF THE EXISTING UNDERGROUND UTILITY FACILITIES KNOWN TO BE LOCATED IN THE CONSTRUCTION AREA HAVE BEEN SHOWN ON THE PLANS AS ACCURATELY AS PROVIDED BY THE OWNER OF THE UNDERGROUND UTILITY. DELAWARE COUNTY AND/OR THE ENGINEER ASSUME NO RESPONSIBILITY AS TO THE ACCURACY OF THE UNDERGROUND FACILITIES SHOWN ON THE PLANS.

SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS.

THE CONTRACTOR SHALL CAUSE NOTICE TO BE GIVEN TO THE OHIO PROTECTION SERVICE (O.P.S.) (TELEPHONE 1-800-352-2764 TOLL FREE) AND TO THE OWNERS OF UNDERGROUND UTILITY FACILITIES SHOWN ON THE PLANS WHO ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE IN ACCORDANCE WITH SECTION 153.64 OF THE REVISED CODE. THE ABOVE MENTIONED NOTICE SHALL BE GIVEN AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION.

THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT AND THE OWNERS DO NOT SUBSCRIBE TO A REGISTERED UNDERGROUND UTILITY PROTECTION SERVICE:

UTILITY OWNER
WATER MAINS DELCO WATER CO. (740)548-7746
 6773 OLENTANGY RIVER RD.
 DELAWARE, OHIO 43015

SANITARY SEWERS DELAWARE COUNTY SANITARY ENGINEER (740)833-2240
 50 CHANNING STREET
 DELAWARE, OHIO 43015

STORM SEWERS DELAWARE COUNTY ENGINEER'S OFFICE (740)833-2400
 53 CHANNING STREET
 DELAWARE, OHIO 43015
 (CONTACTING AGENT ONLY)

AREA RESTORATION

ALL AREAS WITHIN THE PUBLIC RIGHT-OF-WAY, INCLUDING FENCE THAT ARE DISTURBED BY THIS PROJECT, SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION, PER ITEM 659 (SEEDING AND MULCHING), ITEM 607 (FENCE), OR OTHER APPLICABLE SPECIFICATION.

STORAGE OF EQUIPMENT AND MATERIALS

NO MATERIALS, INCLUDING PIPE, SHALL BE STORED WITHIN TWENTY (20) FEET OF THE EDGE OF PAVEMENT OF HOME ROAD AND/OR SMALL PARKWAY, NOR WITHIN FIFTY (50) FEET OF ANY INTERSECTING STREET OR DRIVEWAY. DURING NON-WORKING HOURS, STORAGE OF EQUIPMENT SHALL COMPLY WITH THESE SAME REQUIREMENTS. COMPLIANCE WITH THESE REQUIREMENTS SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS LEGAL RESPONSIBILITIES OR LIABILITIES FOR THE SAFETY OF THE PUBLIC.

EXPOSE

THE CONTRACTOR SHALL EXPOSE THE UTILITY OR STRUCTURE INDICATED SUFFICIENTLY IN ADVANCE OF LAYING THE PROPOSED SEWER IN ORDER TO VERIFY THE PROPOSED LOCATION. COST TO BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS.

NON-RUBBER Tired VEHICLES

NO NON-RUBBER Tired VEHICLES SHALL BE MOVED ON PUBLIC STREETS.

SIGNS, FENCES, DRAINAGE STRUCTURES, ETC.

ALL SIGNS, FENCES, SHRUBS, DRAINAGE STRUCTURES, OR OTHER PHYSICAL FEATURES DISTURBED OR DAMAGED DURING WORK UNDER THIS CONTRACT SHALL BE RESTORED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR, UNLESS OTHERWISE PROVIDED IN THE CONTRACT. THE COST OF ALL SUCH WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS.

SANITARY FACILITIES

THE CONTRACTOR SHALL FURNISH AND MAINTAIN SANITARY CONVENIENCE FACILITIES FOR THE WORKMEN AND INSPECTORS FOR THE DURATION OF THE WORK.

EXTRA COMPENSATION

NO EXTRA COMPENSATION WILL BE PAID THE CONTRACTOR BY REASON OF COMPLIANCE WITH ANY OF THE REQUIREMENTS INDICATED ON THE PLANS, BUT PAYMENT SHALL BE DEEMED TO BE INCLUDED AMONG THE SEVERAL ITEMS, AS BID UPON, UNLESS OTHERWISE SPECIFICALLY PROVIDED.

RIGHTS OF WAY

IN ADDITION TO DIRECT REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL OBSERVE AND CONFORM TO THE SPECIFIC REQUIREMENTS OF ALL RIGHT-OF-WAY INCLUDING EASEMENTS, COURT ENTRIES, RIGHTS OF ENTRY OR ACTION FILED IN COURT IN ACCORDANCE WITH THE CODE OF THE APPLICABLE GOVERNING AGENCY. THE COST OF THE OPERATIONS NECESSARY TO FULFILL SUCH REQUIREMENTS SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS OF THE CONTRACT UNLESS SPECIFIC PROVISION IS MADE IN THE CONTRACT DOCUMENTS FOR THE MEASUREMENT OF AND PAYMENT FOR SUCH COST SPECIFIC ITEMS OF THE CONTRACT.

TRAFFIC

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", COPIES OF WHICH ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, BUREAU OF TRAFFIC, 1980 E. BROAD STREET, COLUMBUS, OHIO 43215.

TYPE "C" STEADY BURN LIGHTS SHALL BE USED ON ALL BARRICADES, DRUMS AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT.

ALL TRENCHES SHALL BE BACKFILLED OR SECURELY PLATED DURING NON-WORKING HOURS.

INGRESS AND EGRESS SHALL BE MAINTAINED AT ALL TIMES TO PUBLIC AND PRIVATE PROPERTY.

LIBERTY TOWNSHIP, DELAWARE COUNTY, OHIO

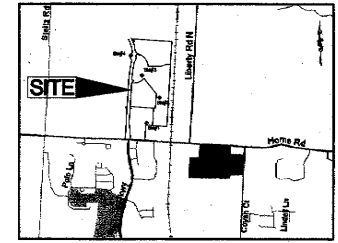
SANITARY SEWER IMPROVEMENT

FOR

GOLF VILLAGE NORTH

6" FORCE MAIN, PUMP STATION, AND GRAVITY SEWER

2006 AS BUILT 2007



VICINITY MAP
(NOT TO SCALE)

BENCH MARKS (NAVD 88):

- REFERENCE BENCH MARK:
 DESIGNATION: DELAWARE COUNTY GPS MONUMENT NO. 97-012
 THE STATION IS LOCATED ON HOME ROAD, 0.5 MILES WEST OF THE INTERSECTION OF LIBERTY ROAD AND 17' NORTH OF THE EDGE OF PAVEMENT. ELEV. = 934.252
- BASES OF BEARINGS:**
 THE AZIMUTH OF 93° 26' 53" BETWEEN DELAWARE COUNTY GPS MONUMENTS 97-01 AND 97-012, ESTABLISHED BY CANTER SURVEYING SERVICES FOR DELAWARE COUNTY AUDITORS OFFICE. ALL OTHER BEARINGS ARE BASED UPON THIS MERIDIAN.
- BM #1**
 BEING A MAG NAIL IN FENCE POST LOCATED NEAR THE SOUTHWEST PROPERTY LINE OF THE SITE. ELEV. = 937.71
- BM #2**
 BEING A MAG NAIL SET IN CONCRETE BASE AT THE NORTH CORNER OF A HIGH VOLTAGE ELECTRIC TOWER LOCATED IN THE MIDDLE SCHOOL PROPERTY. ELEV. = 929.15
- BM #3**
 BEING A MAG NAIL SET IN CONCRETE BASE AT THE WEST SIDE OF A HIGH VOLTAGE ELECTRIC TOWER LOCATED JUST NORTH OF THE SCHOOL ENTRANCE (ROAD D) WEST OF SITE. ELEV. = 932.81
- BM #4**
 BEING THE EAST BOLT IN A POWER POLE BASE LOCATED ON THE NORTH SIDE OF STEITZ-POWERS DITCH NEAR THE NORTHWEST CORNER OF THE SITE. ELEV. = 928.00

STANDARD DRAWINGS

THE DELAWARE COUNTY STANDARD DRAWINGS LISTED ON THIS PLAN SHALL BE CONSIDERED A PART THEREOF.
 01, 02, 03, 04, 05, 06,
 14, 20, 23, 24, 25

THIS IS TO CERTIFY THAT GOOD ENGINEERING PRACTICES HAVE BEEN UTILIZED IN THE DESIGN OF THIS PROJECT AND THAT ALL MINIMUM STANDARDS AS DELINEATED IN THE FAIRFIELD COUNTY WATER, DRAINAGE AND SEWER REGULATIONS HAVE BEEN MET, INCLUDING THOSE STANDARDS GREATER THAN MINIMUM WHERE, IN MY OPINION, THEY ARE NEEDED TO PROTECT THE SAFETY OF THE PUBLIC.

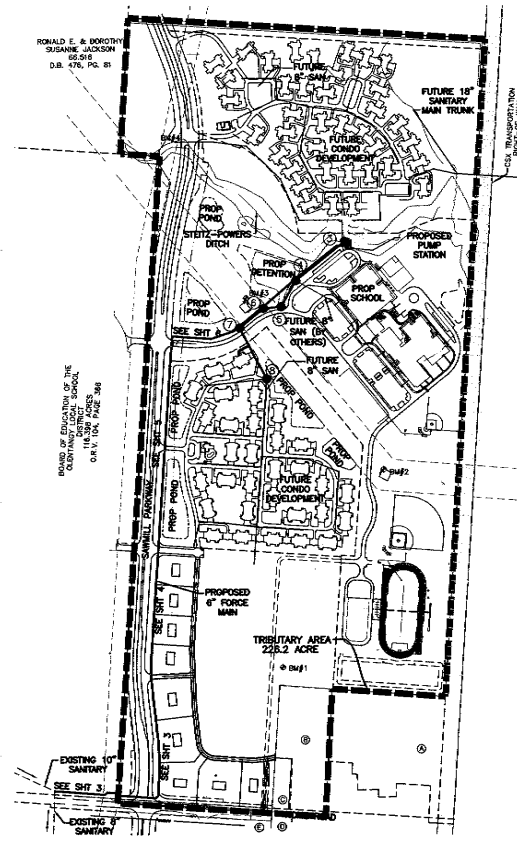
- (A) RANDOLPH A. SCHIRTZINGER AND REVA R. SCHIRTZINGER
10,177 ACRES
D.B. 650, PAGE 199
- (B) DAVID E. HARRIS AND DEE KATHLEEN HARRIS
5,507 ACRES
D.B. 509, PAGE 125
- (C) RICK AKERS AND MARI A. AKERS
0,804 ACRES
D.B. 503, PAGE 331
- (D) BRENT MURFIELD
1,089 ACRES
O.R.V. 131, PAGE 406
- (E) JERI K. SLAGLE
0,830 ACRES
D.B. 586, PAGE 211

Brian E. Macy
 BRIAN E. MACY
 DELAWARE COUNTY SANITARY ENGINEER
 3-27-06
 DATE

Chris E. Bayne
 CHRIS E. BAYNE
 DELAWARE COUNTY ENGINEER
 4-14-06
 DATE

Kathleen W. Gwalt
 KATHLEEN W. GWALT
 COUNTY COMMISSIONER
 5-1-06
 DATE

Jamie D. Ward
 JAMIE D. WARD
 COUNTY COMMISSIONER
 5-1-06
 DATE



TRIBUTARY INDEX MAP
 SCALE 1"=400'

DATE	REVISION	DESCRIPTION
05-23-06	LOWER FORCEMAIN ON SHEETS 4, 5, & 6	JS
06-17-06	VOID SHEET #5; AFFLAGE WITH SHEET #4	JS

SHEET INDEX

TITLE SHEET (GENERAL NOTES)	1
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OWNER/DEVELOPER



470 OLDE WORTHINGTON ROAD,
 SUITE 100
 WESTERVILLE, OH 43082

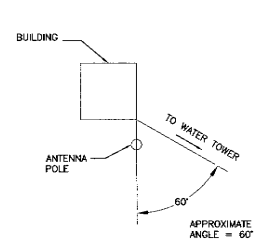
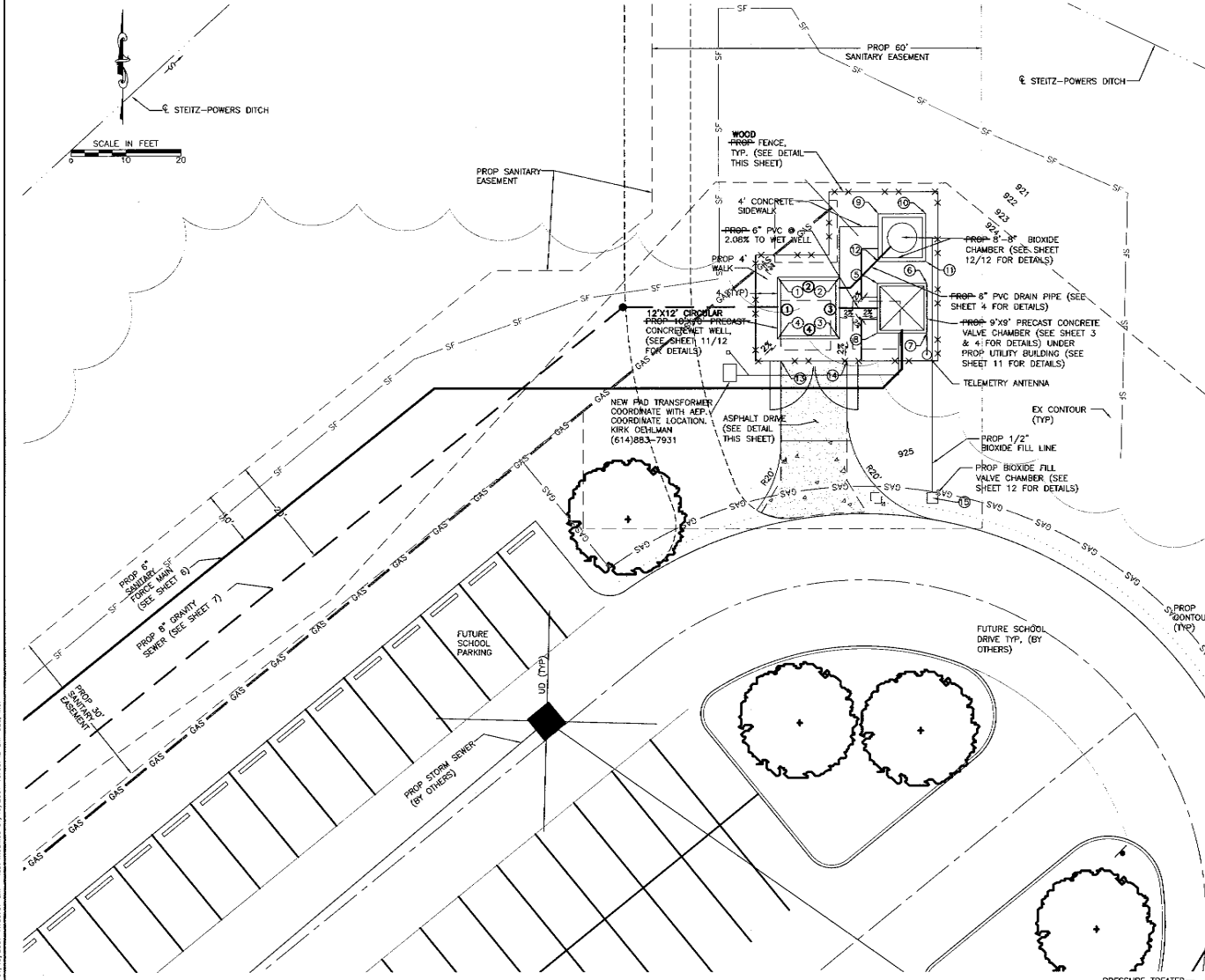
UNDERGROUND UTILITIES
 2 WORKING DAYS
 BEFORE YOU DIG
 CALL TOLL FREE 800-362-2764
 OHIO UTILITIES PROTECTION SERVICE

PREPARED BY:



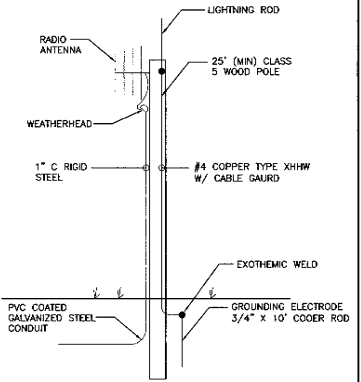
Civil & Environmental Consultants, Inc.
 8740 Orion Place, Suite 100
 Columbus, OH 43240
 (614) 540-6633 • (888)598-6808
 Cincinnati, OH • Pittsburgh, PA • Indianapolis, IN • Nashville, TN

REVISION RECORD	
DATE	DESCRIPTION



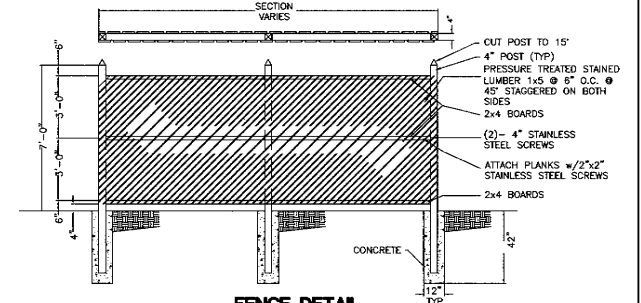
RADIO ANTENNA POSITIONING DETAIL
NOT TO SCALE

NOTE: THE APPROXIMATE ANGLE FOR THE ORANGE ROAD/ US 23 TOWER IS 60'

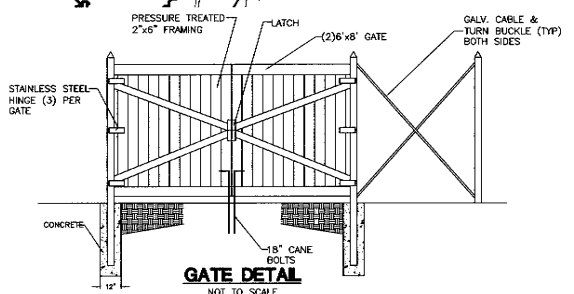


RADIO ANTENNA POLE CONDIT & GROUNDING DETAIL
NOT TO SCALE

NOTE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE THE TELEMETRY SYSTEM IS WORKING.



FENCE DETAIL
NOT TO SCALE



GATE DETAIL
NOT TO SCALE

STRUCTURE LOCATIONS

① N 496984.2361 198954.704	⑥ N 496975.7279 198976.497	①
E 496949.7446 1803185.480	E 4969205.4929 1803202.487	②
② N 496964.7352 198960.903	⑦ N 496925.7299 198977.534	③
E 4969195.7546 1803191.486	E 4969274.7496 1803214.289	④
③ N 496962.8884 198955.323	⑧ N 496967.8884 198966.426	⑤
E 4969596.9939 1803197.485	E 4969274.7496 1803214.289	⑥
N 496962.8884 198948.633	⑨ N 496967.8884 198965.603	⑦
E 4969487.1146 1803192.266	E 4969205.4929 1803203.454	⑧
④ N 496963.0612 198961.892	⑩ N 496948.8884 198944.782	⑨
E 4969205.4929 1803203.446	E 4969195.7546 1803186.598	⑩
⑤ N 496962.8884 198962.483	N 496948.8884 198946.331	①
E 4969274.7496 1803213.836	E 4969199.7696 1803200.212	②
N 496964.7352 198952.275	E 496909.0614 198925.851	③
E 4969274.7496 1803214.584	E 4969274.7496 1803216.040	④
⑥ N 49694.8884 198951.484		
E 4969205.4929 1803204.373		

LEGEND

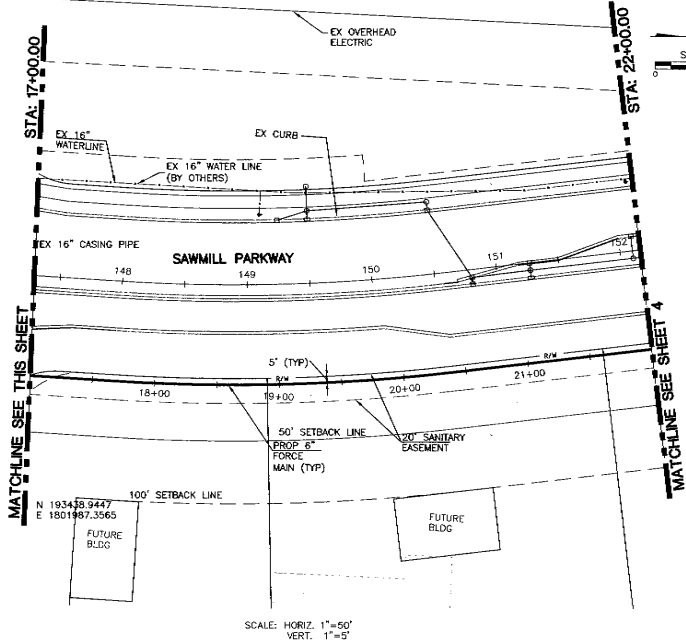
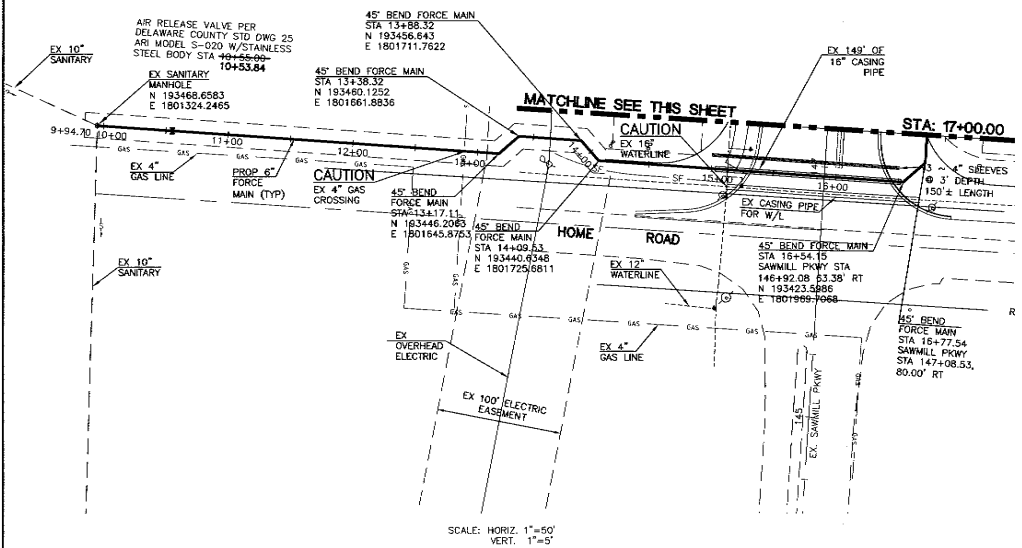
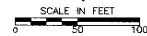
 CONCRETE APPROACH COMPOSITION PER DCED-2220. CONTRACTOR SHALL OBTAIN DRIVEWAY PERMIT FROM THE DELAWARE COUNTY ENGINEERS OFFICE.

NOTE: STRUCTURE LOCATIONS FOR 1-4
 STRUCTURE IS ROUND, INFORMATION IS GIVEN ON QUADRANTS

LIFT STATION ACCESS DRIVE
NOT TO SCALE

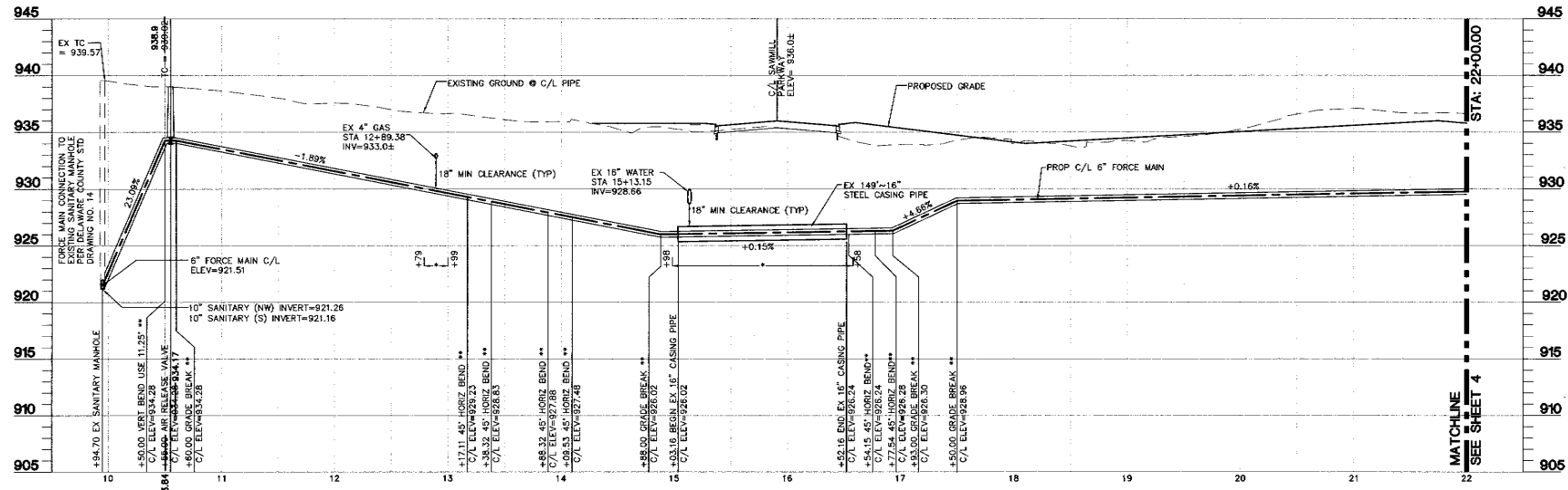
CEC	
Civil & Environmental Consultants, Inc.	
8740 Orion Pkwy, Suite 100 Columbus, OH 43240 (614) 540-6633 • (688)598-6805	
Cincinnati, OH • Pittsburgh, PA • Indianapolis, IN • Nashville, TN	
GOLF VILLAGE NORTH SANITARY SEWER IMPROVEMENTS ORANGE TOWNSHIP DELAWARE COUNTY, OHIO	
DATE: JAN 2006	APPROVED BY: DWN BY: LCP
SCALE: 1" = 10'	GH
PUMP STATION SITE PLAN & FENCE DETAILS	CHKD. BY: BCE
	SHEET 8 OF 12 DRAWING NUMBER 050425

REVISION RECORD	
DATE	DESCRIPTION



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

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



- NOTES:
- NO UTILITY TO BE LAID CLOSER THAN 10' TO THE SANITARY SEWER
 - * COMPACTED GRANULAR BACKFILL LIMITS.
 - ** ALL HORIZONTAL & VERTICAL BENDS SHALL CONFORM TO DCEE STD. DWG. NO. 23 & 24.

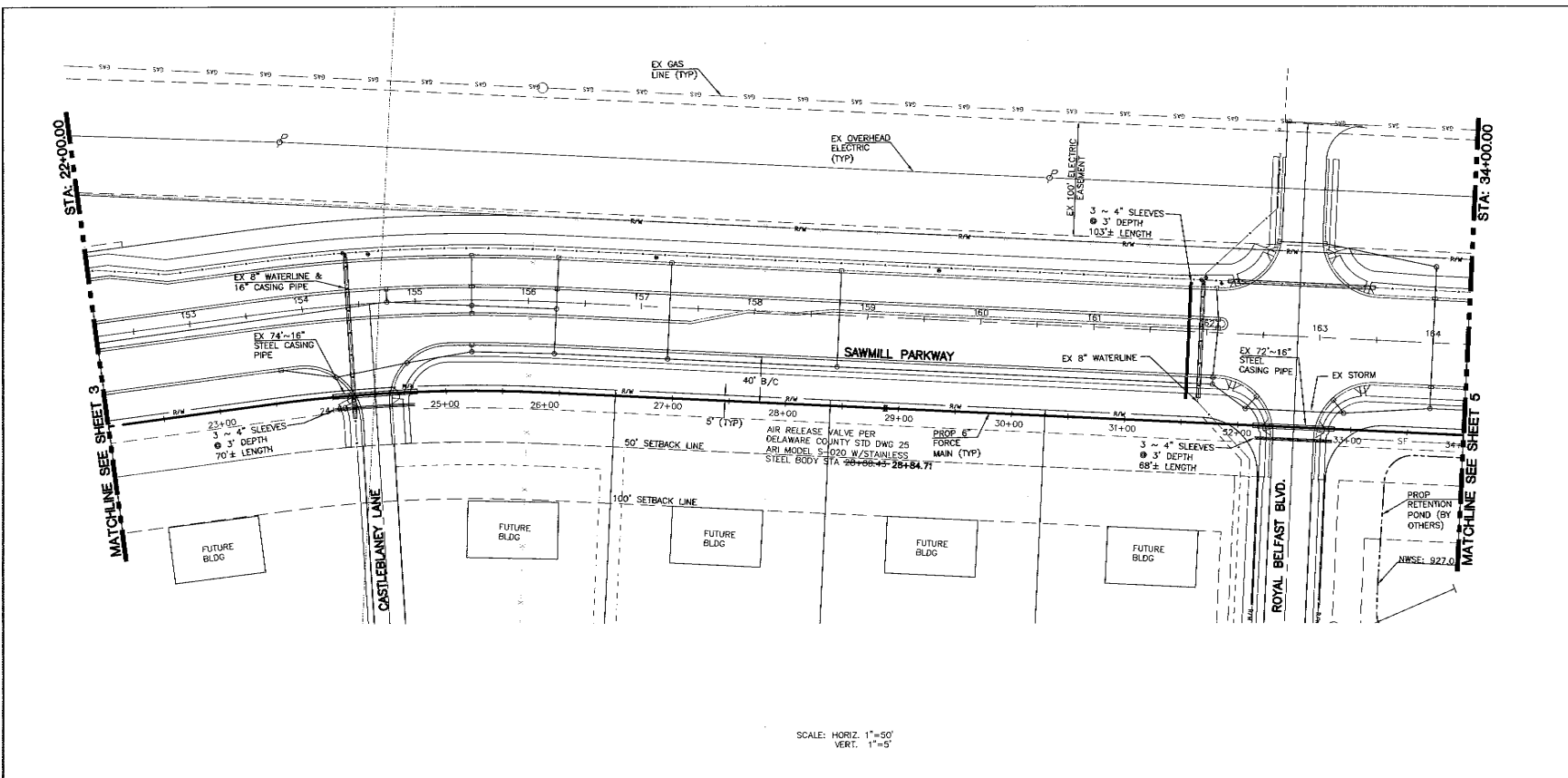
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 8740 Ohio Place, Suite 102
 Columbus, OH 43240
 (614) 540-5633 • (688)598-6808
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**GOLF VILLAGE NORTH
 SANITARY SEWER IMPROVEMENTS
 LIBERTY TOWNSHIP
 DELAWARE COUNTY, OHIO**

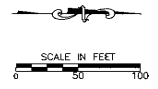
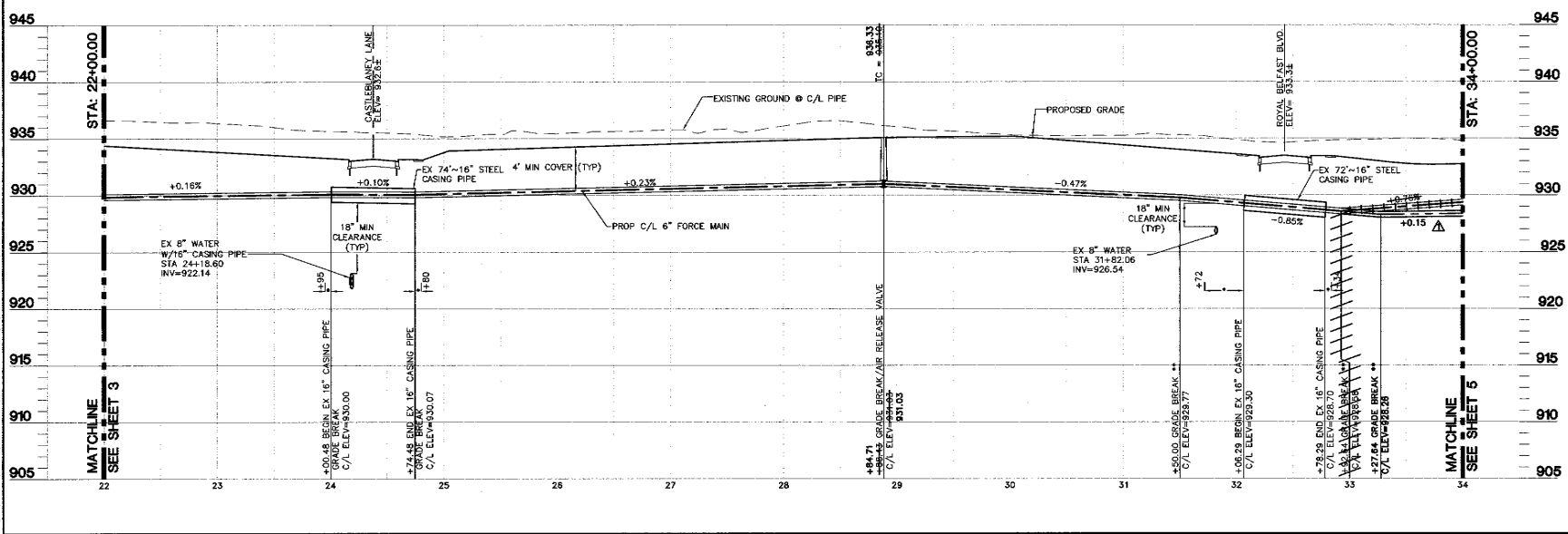
DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
SCALE: 1" = 50'		CHKD. BY: BCE
6" FORCE MAIN, PLAN & PROFILE		SHEET 3 OF 12
STA 9+87.58 TO STA 22+00		DRAWING NUMBER 050425

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REVISION RECORD	
DATE	DESCRIPTION
05-23-06	LOWER FORCEMAN ON SHEETS 4, 5, & 6



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



NOTES:
NO UTILITY TO BE LAID CLOSER THAN 10' TO THE SANITARY SEWER
* COMPACTED GRANULAR BACKFILL LIMITS.
** ALL HORIZONTAL & VERTICAL BENDS SHALL CONFORM TO DCSE STD. DWG. NO. 23 & 24.

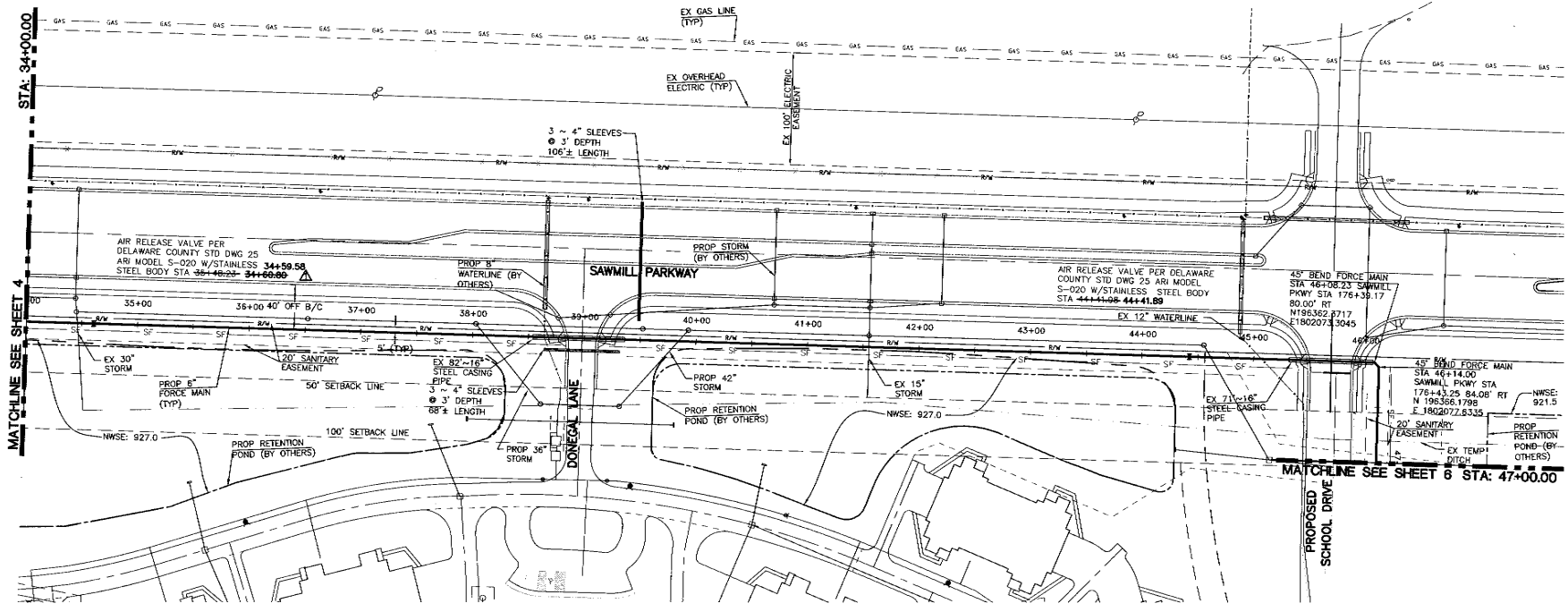
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**GOLF VILLAGE NORTH
SANITARY SEWER IMPROVEMENTS
ORANGE TOWNSHIP
DELAWARE COUNTY, OHIO**

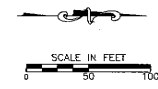
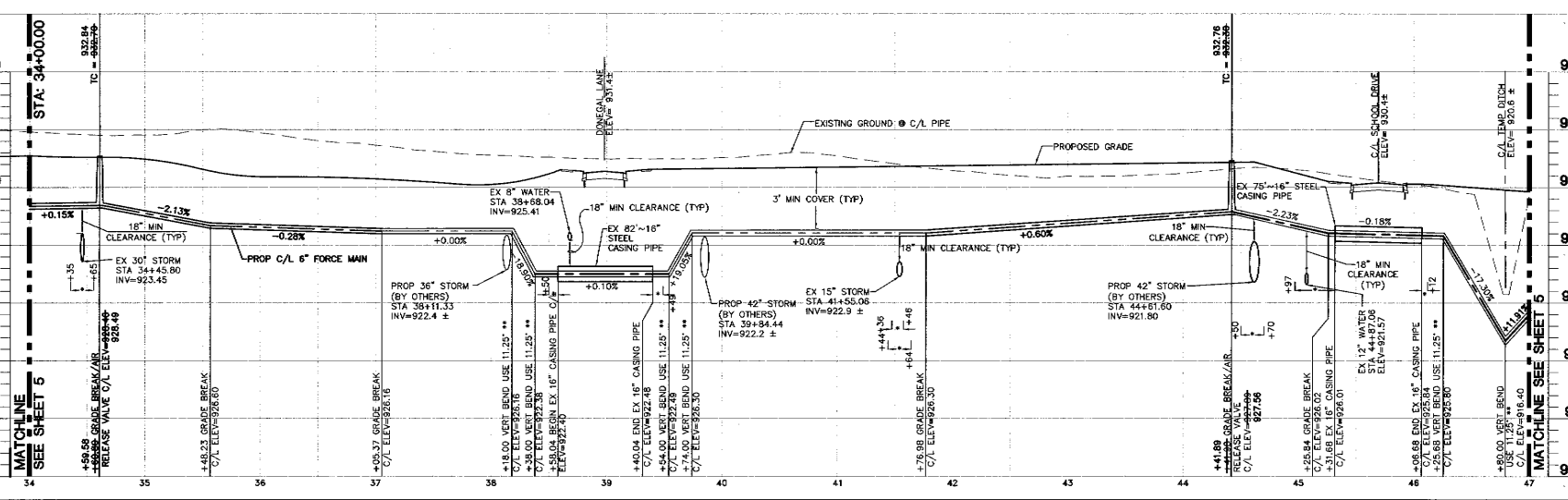
DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
SCALE: 1" = 50'		CHKD. BY: BCE
6" FORCE MAIN, PLAN & PROFILE		SHEET 4 OF 12
STA 22+00 TO STA 34+00		DRAWING NUMBER 050425

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REVISION RECORD	
DATE	DESCRIPTION
05-23-06	LOWER FORCEMAIN ON SHEETS 4, 5, & 6
08-17-06	REVISED FORCEMAIN BETWEEN STA 37+05 & 41+77; REPLACED SHT 5 WITH SHT 5A



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



- NOTES:
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 - COMPACTED GRANULAR BACKFILL LIMITS.
 - ALL HORIZONTAL & VERTICAL BENDS SHALL CONFORM TO DCOE STD. DWG. NO. 23 & 24.

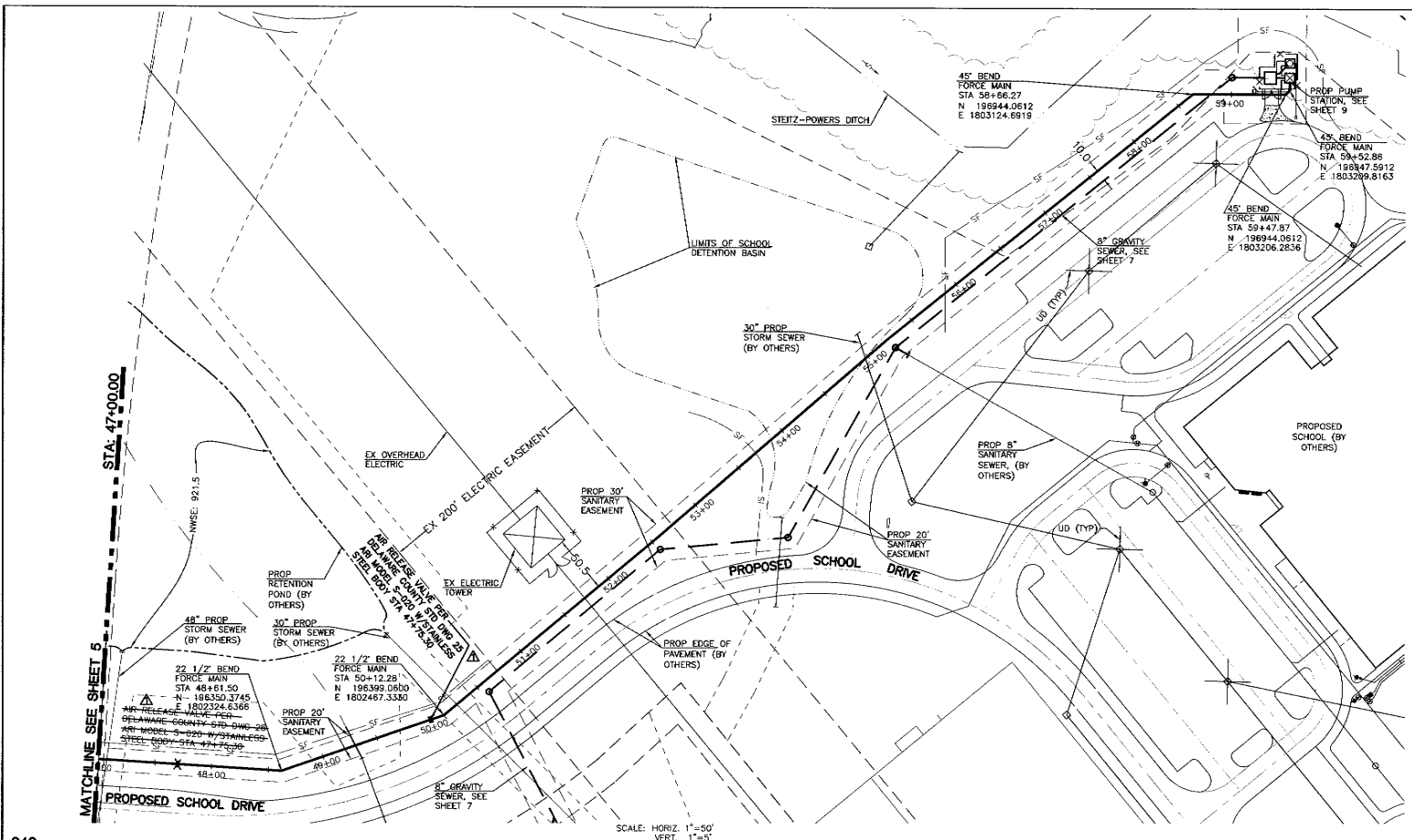
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**GOLF VILLAGE NORTH
SANITARY SEWER IMPROVEMENTS
LIBERTY TOWNSHIP
DELAWARE COUNTY, OHIO**

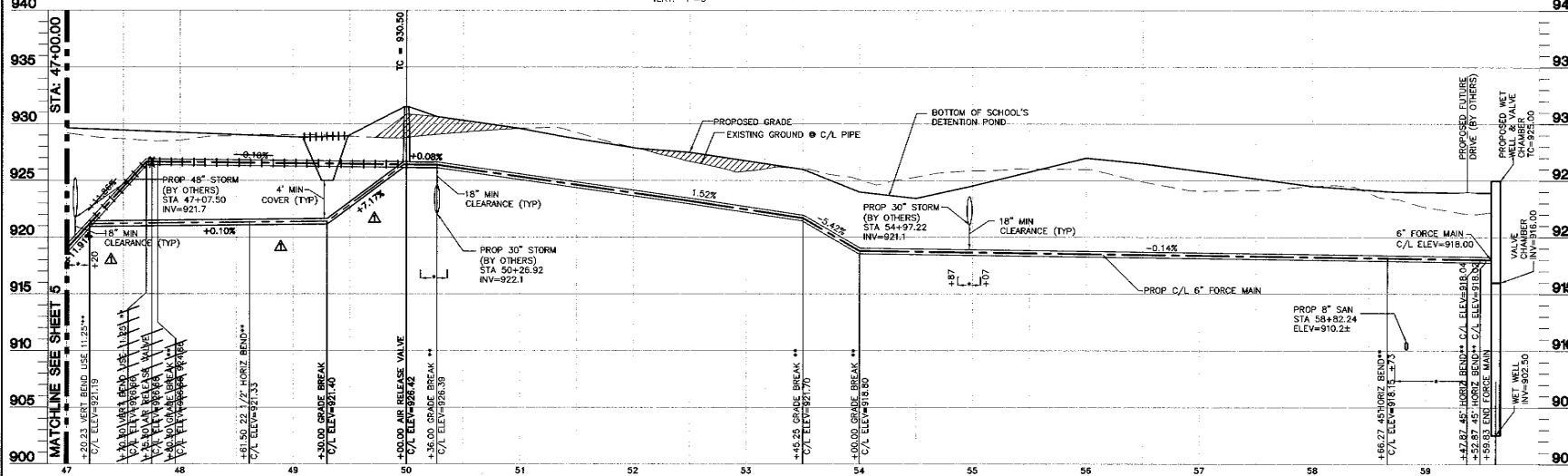
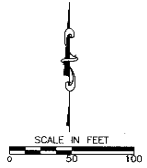
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SCALE: 1" = 50'	CHKD. BY: BCE	SHEET 5A OF 12
6" FORCE MAIN, PLAN & PROFILE		DRAWING NUMBER
STA 34+00 TO STA 47+00		050425

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REVISION RECORD	
DATE	DESCRIPTION
05-23-06	LOWER FORCEMAIN ON SHEETS 4, 5, & 6



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



- NOTES:
- NO UTILITY TO BE LAID CLOSER THAN 10' TO THE SANITARY SEWER.
 - COMPACTED GRANULAR BACKFILL LIMITS.
 - ALL HORIZONTAL & VERTICAL BENDS SHALL CONFORM TO DCSE STD. DWG. NO. 23 & 24.
 - PLACE FILL TO 4" ABOVE PROPOSED TOP OF PIPE PRIOR TO INSTALLATION.

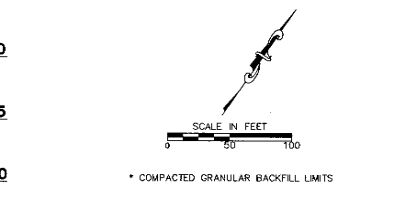
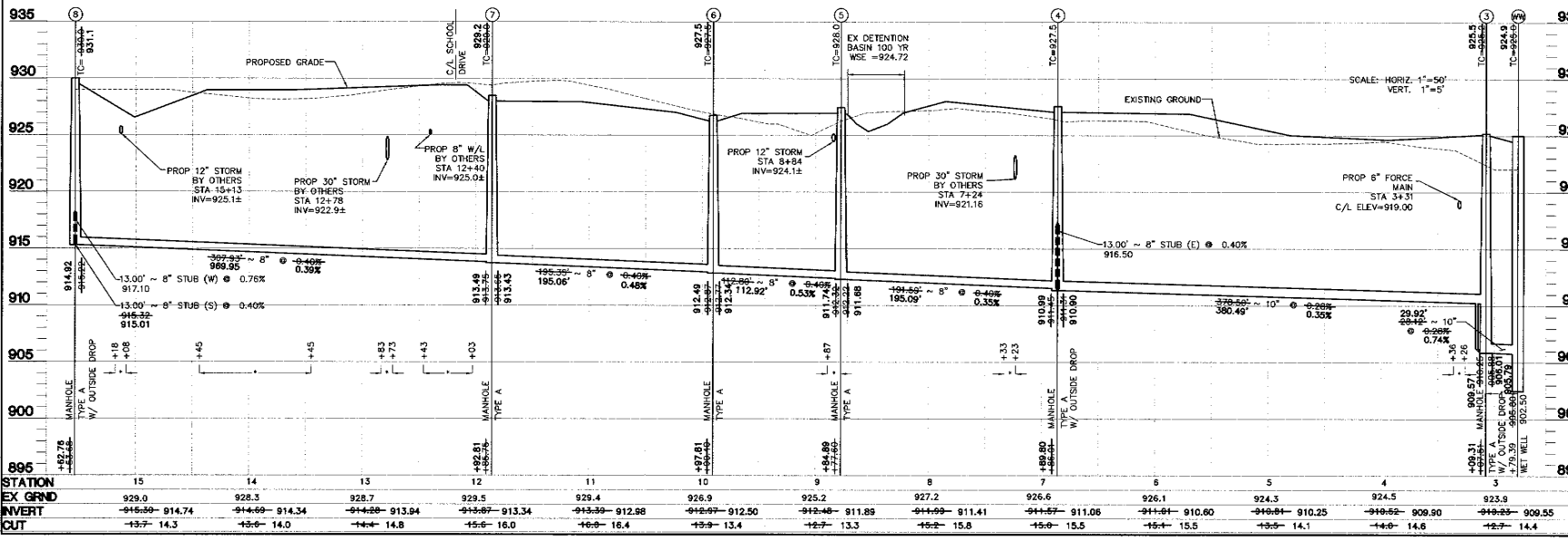
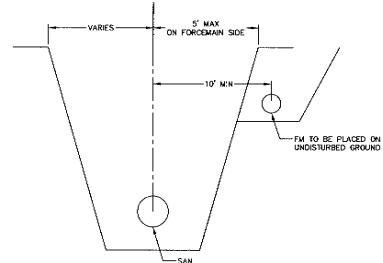
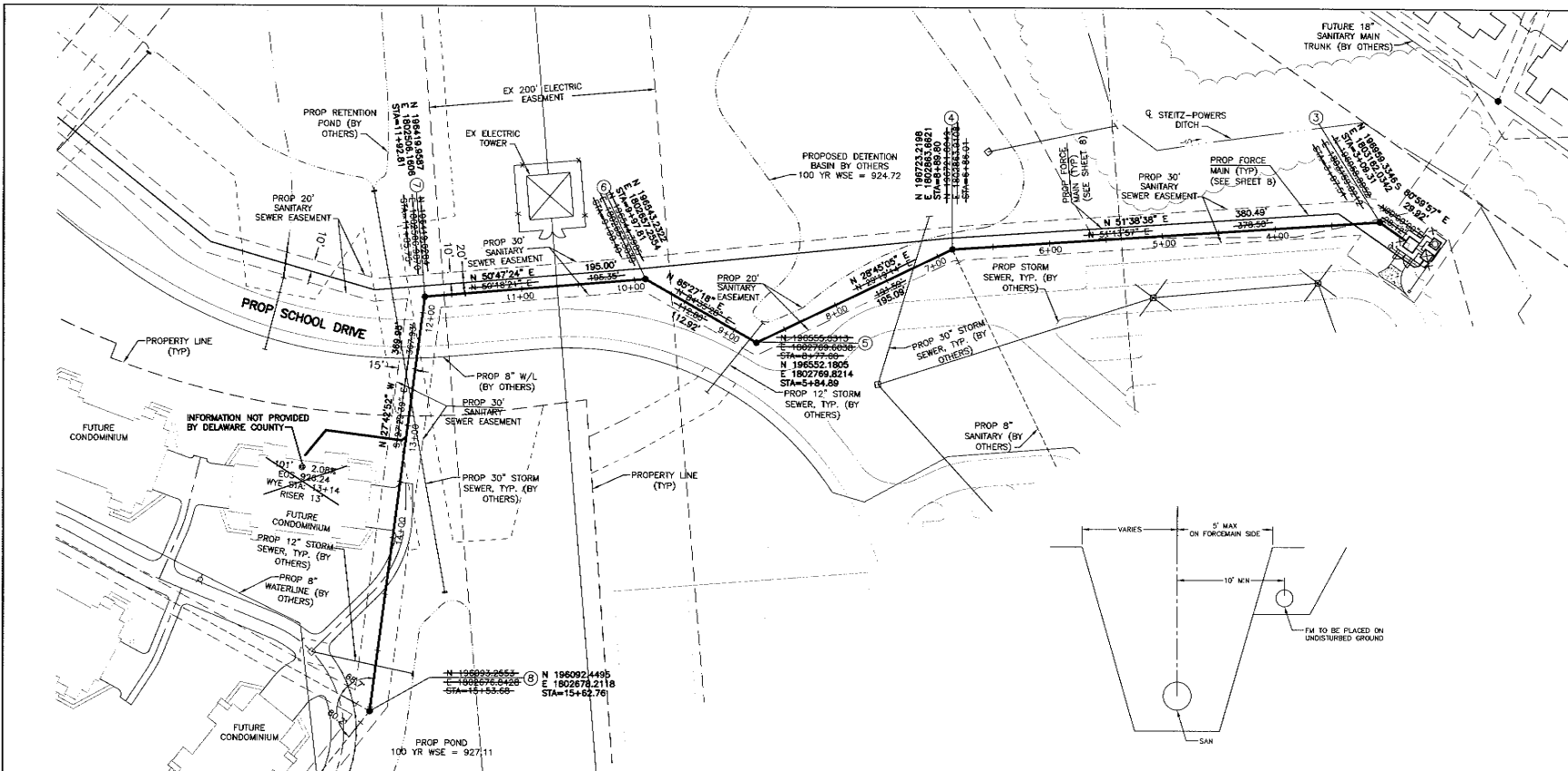
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Civil & Environmental Consultants, Inc.
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Cincinnati, OH • Pittsburgh, PA • Indianapolis, IN • Nashville, TN

**GOLF VILLAGE NORTH
SANITARY SEWER IMPROVEMENTS
LIBERTY TOWNSHIP
DELAWARE COUNTY, OHIO**

DATE: JAN 2006	APPROVED BY:	DWN BY: LCP
SCALE: 1" = 50'	GH	CHKD. BY: BCE
6" FORCE MAIN, PLAN & PROFILE		SHEET 6 OF 12
STA 47+00 TO STA 59+59.83		DRAWING NUMBER 050425

S:\proj\050425\050425.dwg: 05/23/06 12:46:53 pm - last modified: 07/19/2007 12:09:37 p.m. (BCE)

REVISION RECORD	
DATE	DESCRIPTION



NOTE: AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE TOP OF THE SANITARY PIPE AND THE BOTTOM OF ALL OF THE STORM AND WATERLINE PIPES.

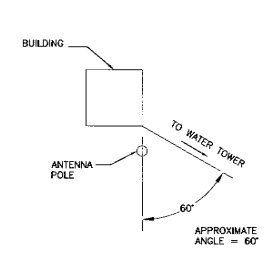
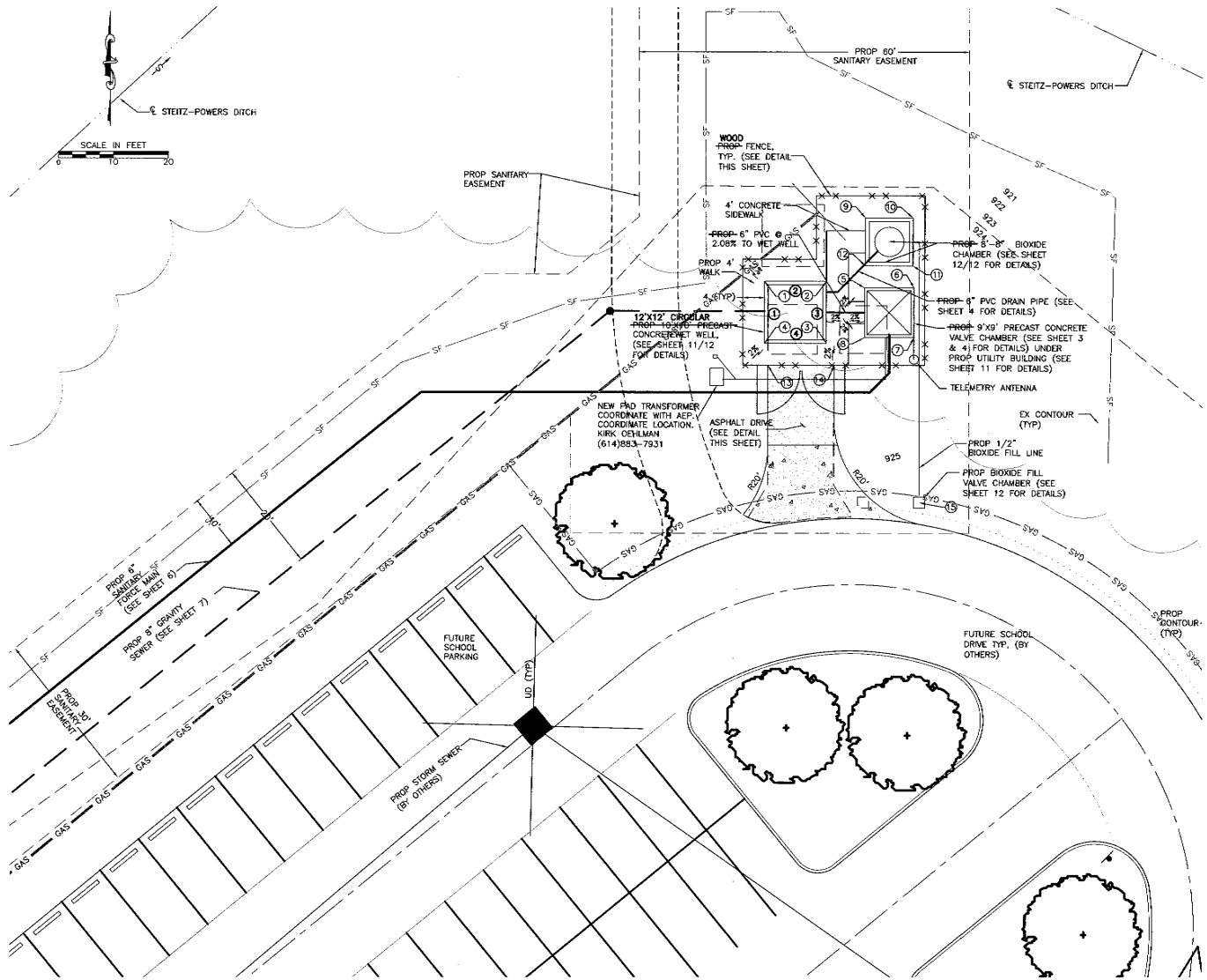
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**GOLF VILLAGE NORTH
 SANITARY SEWER IMPROVEMENTS
 LIBERTY TOWNSHIP
 DELAWARE COUNTY, OHIO**

DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
SCALE: 1" = 50'	CHKD. BY: BCE	SHEET 7 OF 12
SANITARY PLAN & PROFILE (GRAVITY)		DRAWING NUMBER
STA 0+00 TO STA 15+53.68		050425

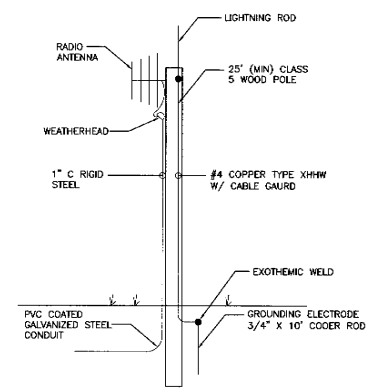
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REVISION RECORD	
DATE	DESCRIPTION



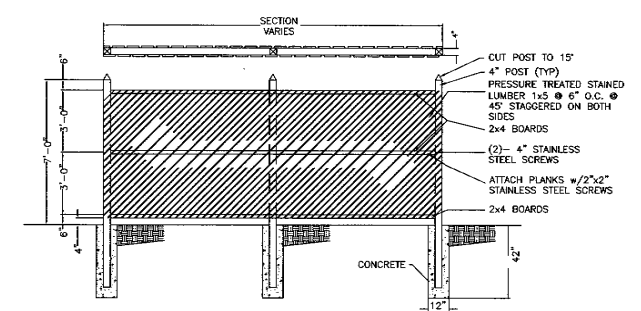
RADIO ANTENNA POSITIONING DETAIL
NOT TO SCALE

NOTE: THE APPROXIMATE ANGLE FOR THE ORANGE ROAD/ US 23 TOWER IS 60°

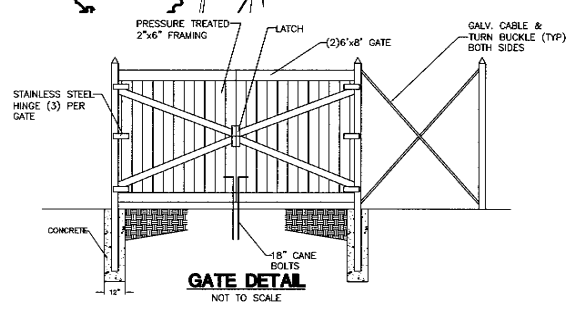


RADIO ANTENNA POLE CONDIT & GROUNDING DETAIL
NOT TO SCALE

NOTE: IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE THE TELEMETRY SYSTEM IS WORKING.



FENCE DETAIL
NOT TO SCALE



GATE DETAIL
NOT TO SCALE

STRUCTURE LOCATIONS

① N 186864.2364	196954.704	⑤ N 186875.7272	196976.497
E 186844.7425	1803185.490	E 1869295.9629	1803202.487
N 186869.0346	186960.903	N 186926.7028	196977.534
E 1803190.3920	1803191.499	E 1803214.1496	1803213.427
N 186920.0984	186955.323	N 186967.0612	186966.426
E 1803190.3920	1803197.485	E 1803214.1496	1803214.289
N 186862.0884	186948.633	N 186967.0612	186965.603
E 18681674.436	1803192.266	E 1869295.9629	1803203.454
N 186909.0510	186961.892	N 186944.782	186944.782
E 1803203.4102	1803203.646	N 186944.782	1803186.586
N 186923.0614	186962.483	N 186944.782	186946.331
E 1803214.3108	1803213.836	N 186979.7606	1803200.212
N 186924.3108	186962.275	N 186944.782	186925.931
E 186924.3108	1803214.564	E 186924.3108	1803216.040
N 186924.3108	186951.484		
E 186924.3108	1803204.373		

LEGEND

①	1 1/2" ASPHALT CONCRETE ITEM 404
②	1 1/2" ASPHALT CONCRETE ITEM 402
③	6" STABILIZED CRUSHED AGGREGATE, ITEM 304

NOTE: STRUCTURE LOCATIONS FOR 1-4 STRUCTURE IS ROUND, INFORMATION IS GIVEN ON QUADRANTS

LIFT STATION ACCESS DRIVE
NOT TO SCALE

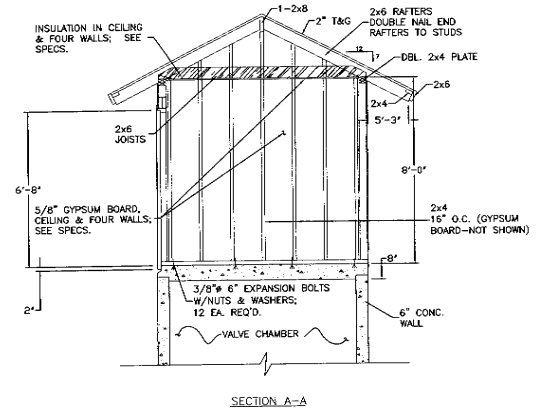
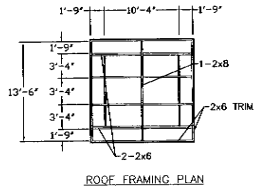
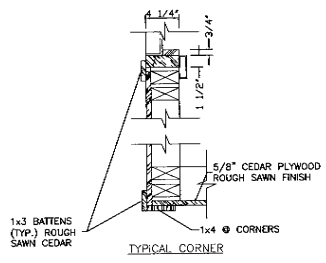
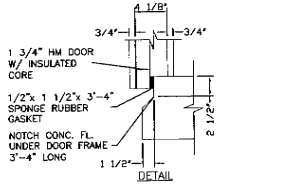
CONCRETE APPROACH COMPOSITION PER DCED-2220.
CONTRACTOR SHALL OBTAIN DRIVEWAY PERMIT FROM THE DELAWARE COUNTY ENGINEERS OFFICE.

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**GOLF VILLAGE NORTH
SANITARY SEWER IMPROVEMENTS
ORANGE TOWNSHIP
DELAWARE COUNTY, OHIO**

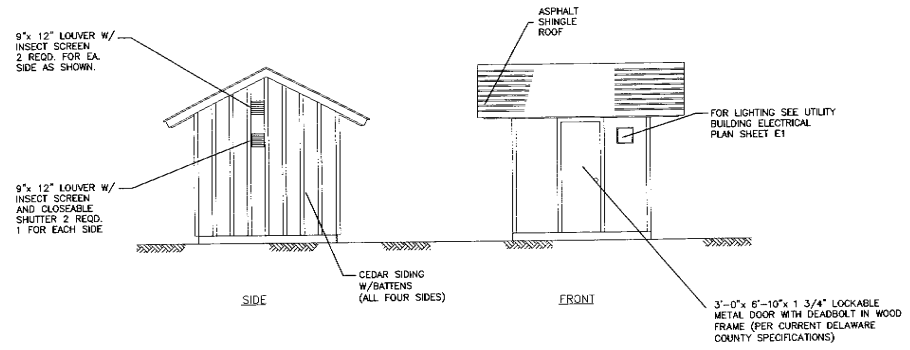
DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
SCALE: 1" = 10'		CHKD BY: BCE
PUMP STATION SITE PLAN & FENCE DETAILS		SHEET 8 OF 12 DRAWING NUMBER 050425

REVISION RECORD	
DATE	DESCRIPTION



NOTES:

- CEILING LIGHTS SHALL BE STANDARD INDUSTRIAL LIGHT WITH 100W BULBS.
- ALL 120 VOLT CKTS ORIGINATE TO THE CUSTOM CONTROL PANEL.
- HEATER-A HEATER, Q-MARK MODEL HUH-03-41 480 VOLTS, FEED FROM CUSTOM CONTROL PANEL MANUFACTURED BY QMARK, SHALL BE INSTALLED IN THE UTILITY BUILDING.
- THE CONTRACTOR SHALL EMPLOY QUALIFIED TECHNICIAN TO TEST, ADJUST, START-UP AND TUNE THE SYSTEM.
- POWER AND CONTROL CORDS (LENGTH AS REQUIRED), CORDS FURNISHED WITH PUMP MOTORS. PROVIDE STAINLESS KELLUM GRIP FOR EACH CORD AT THE TOP OF THE WELL.
- FLOAT CORDS: INSTALL STAINLESS STEEL CORD SUPPORT BRACKET WITH INDIVIDUAL INSULATED CABLE SUPPORT GRIPS. PROVIDE SLACK FOR REQUIRED ADJUSTMENT (CORD LENGTH 25' + AS REQUIRED). WEIGHT CORDS FOR NEGATIVE BUOYANCY TO MAINTAIN POSITION AND ALIGNMENT.
- THE PROPOSED CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 11 OBCC AND THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES" (ADAAG) AS MODIFIED BY SECTIONS 1102.2 AND 1103.0 OBCC.
- INSTALLATION OF PLUMBING EQUIPMENT AND SYSTEMS SHALL COMPLY WITH OBCC CHAPTER 28 AND THE OHIO PLUMBING CODE (OPC).
- MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ITS UNDERWRITER APPROVAL, THE MANUFACTURER'S RECOMMENDATIONS, SPECIFICATIONS AND GOOD ENGINEERING PRACTICES; ARTICLES M-401 AND M-403.1 OF THE OBC.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF ARTICLE 27 OBCC AND THE NATIONAL ELECTRIC CODE NFPA 70, OBCC APPROVED EDITION AND ITS SUBJECT TO THE APPROVAL OF THE STATE ELECTRICAL INSPECTOR ASSIGNED BY CONSTRUCTION COMPLIANCE, IN ACCORDANCE WITH SECTIONS 2701.1 3404.0 AND 3404.2.4 OF THE OBCC.
- THE GROUNDS AND BONDING OF THE ELECTRICAL SHALL BE IN ACCORDANCE WITH NEC 250 AND NFPA 70, LISTED IN OBCC CHAPTER 35, PLEASE PROVIDE REVISED DRAWINGS.
- TRANSFORMER INSTALLATIONS SHALL COMPLY WITH NEC 450. TRANSFORMER PRIMARY AND SECONDARY OVERCURRENT PROTECTION SHALL COMPLY WITH NEC 450-3. CONDUCTORS TAPPED TO A TRANSFORMER SECONDARY SHALL COMPLY WITH NEC 240-21(B) OR 240-21(D). PLEASE PROVIDE DRAWINGS.
- NO ELECTRICAL WORK (CONDUITS, CABLES OR OTHER ELECTRICAL APPARATUS) MAY BE COVERED OR CONCEALED WITHOUT VISUAL INSPECTION AND APPROVAL BY THE ELECTRICAL FIELD INSPECTOR AS PER OBCC 2704.2.
- FOR ALL ELECTRICAL LAYOUT, SEE SHEETS E1-E4.
- FOR ALL HVAC LAYOUT, SEE SHEET M1.



ELEVATIONS

 Civil & Environmental Consultants, Inc. 8740 Orion Place, Suite 100 Columbus, OH 43240 (614) 540-6633 • (888) 336-6808 Cincinnati, Or. • Fatsburgh, PA • Indianapolis, IN • Nashville, TN		
GOLF VILLAGE NORTH SANITARY SEWER IMPROVEMENTS LIBERTY TOWNSHIP DELAWARE COUNTY, OHIO		
DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
SCALE: N/A		CHKD. BY: BCE
UTILITY BUILDING NOTES & DETAILS		SHEET 9 OF 12 DRAWING NUMBER 050425

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REVISION RECORD	
DATE	DESCRIPTION

PUMP STATION GENERAL NOTES

ALL GENERAL NOTES ARE TO BE HEREBY CONSIDERED FOR THE CONSTRUCTION WORK OF THE SEWAGE PUMP STATION, WHERE APPLICABLE.

THE CONTRACTOR SHALL COMPLY WITH MATERIAL AND CONSTRUCTION REQUIREMENTS OF DELAWARE COUNTY SANITARY ENGINEER. THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED, AND PAY COST FOR ANY AND ALL FEES.

THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, TOOLS, TRANSPORTATION, INCIDENTALS AND APPLICABLE PERMITS TO COMPLETE IN EVERY DETAIL AND LEAVE IN WORKING ORDER ALL ITEMS OR WORK CALLED FOR AND/OR SHOWN ON THE ACCOMPANYING DRAWINGS. ANY MATERIAL OR WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO COMPLETE THE WORK, SHALL BE FURNISHED.

THE CONTRACTOR IS REQUIRED TO VISIT THE SITE AND FULLY INFORM HIMSELF CONCERNING ALL CONDITIONS AFFECTING THE SCOPE OF THE WORK. FAILURE TO VISIT THE SITE SHALL NOT RELIEVE HIM FROM ANY RESPONSIBILITY IN THE PERFORMANCE OF THIS CONTRACT.

THE CONTRACTOR SHALL INVESTIGATE AND LOCATE ALL EXISTING UTILITIES AND NOTIFY ALL UTILITY COMPANIES A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL PROVIDE 4" TO 6" SAND OR GRIOT LEVELING BASE UNDER EACH CONCRETE STRUCTURE AND SHALL PLACE GRANULAR FILL AS REQUIRED, DEPENDENT ON SOIL CONDITIONS.

CONTRACTOR SHALL GRADE AREA TO DRAIN SURFACE WATER AWAY FROM STATION.

ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AFTER FINAL GRADING BY CONTRACTOR.

ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SYSTEM ARE PROHIBITED.

ALL GENERAL NOTES SHOWN ON SHEET 1 AND 2 ARE TO BE HEREBY CONSIDERED FOR THE CONSTRUCTION WORK OF THE WASTEWATER PUMP STATION, WHERE APPLICABLE.

1.0 PUMP STATION SPECIFICATIONS

1.01 GENERAL

A. SCOPE OF WORK

WORK UNDER THIS SECTION INCLUDES FURNISHING AND INSTALLING THE PUMP STATION, COMPLETE AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

1.02 WET WELL AND VALVE CHAMBER

A. THE WET WELL, VALVE CHAMBER SHALL BE CONSTRUCTED OF 10' x 10' PRECAST VAULT, CONCRETE SHALL COMPLY WITH ACI COMMITTEE 350 REQUIREMENTS FOR SANITARY STRUCTURES AND ODOT CMS ITEM 511-CONCRETE FOR STRUCTURES; REINFORCING STEEL PER ODOT CMS ITEM 709-REINFORCING STEEL. CONCRETE SHALL TEST MINIMUM 4500 PSI AT 28 DAYS AND FINISH SHALL BE FREE OF SPILLS, CHIPS, AND HONEYCOMBS. OPENINGS FOR PIPING, SUMP, ROOF HATCHES, ELECTRICAL CONDUIT AND SENSOR LINES SHALL BE CAST SMOOTHLY INTO THE STRUCTURE. CHIPPING OR PUNCHING OPENINGS WILL NOT BE ALLOWED UNDER ANY CIRCUMSTANCES.

ASPHALTIC TAR BASED MASTIC SEALANT SHALL BE NEATLY APPLIED BETWEEN PRECAST SECTIONS BEFORE THE NEXT SECTION IS INSTALLED. TWO COATS OF THORSOLE WATERPROOFING SHALL BE LIBERALLY APPLIED ON ALL SECTION SEAMS, INSIDE AND OUTSIDE, AFTER WHICH TWO CONCRETE COATS SHALL BE APPLIED TO ALL EXTERIOR CONCRETE SURFACES. DRYING TIME BETWEEN SUCCESSIVE COATS SHALL BE THE MINIMUM RECOMMENDED BY THE MANUFACTURER. SILICON CAULKING SHALL BE APPLIED AT ALL PERPENDICULAR JOINTS.

CONTRACTOR SHALL SUBMIT 5 SETS OF SUPPLIER'S SHOP DRAWINGS WITH ALL DIMENSIONS AND PERTINENT INFORMATION INCLUDED.

1.03 ACCESS LID AND FRAME ASSEMBLIES

A. THE WET WELL TOP SHALL BE FITTED WITH DOUBLE LEAF 36" x 48" AND A 24" x 30" HEAVY-DUTY ACCESS COVERS "SAFEGATCH" BY FLYGT.

B. EACH DOOR SHALL HAVE A HANDLE, A LATCH TO HOLD IT IN THE OPEN POSITION, AND LOCKABLE HASP.

C. THE ACCESS COVERS, COVER FRAMES, AND TOP SLAB SHALL BE DESIGNED FOR A 300 P.S.F. LIVE LOAD.

D. THE FRAME ASSEMBLIES SHALL BE PLACED IN THE CONCRETE WET WELL TOP WHEN IT IS POURED.

1.04 PIPING

A. THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL PIPING AND VALVES REQUIRED IN THE CONCRETE VALVE CHAMBER AS SHOWN ON THE DRAWINGS. FLANGED JOINT - DUCTILE IRON PIPE SHALL BE CLASS 52 (MIN.) CONFORMING TO ANNA C - 110, C - 150 AND C - 151 1/2 RUBBER GASKETS PER C - 111.

1.05 PUMPS - (EXPLOSION PROOF MOTORS & ELECTRICAL ITEMS ARE REQUIRED PER CLASS 1, DIV. 1, GROUP D REQUIREMENTS.)

A. FURNISH AND INSTALL TWO (2) SUBMERSIBLE PUMPS AS CALLED FOR ON THE DRAWINGS AND AS SPECIFIED HEREIN. PUMPS SHALL BE MODEL NP - 3171 AS MANUFACTURED BY ITT FLYGT.

B. PUMP IMPELLERS SHALL BE MODEL 452.

C. EACH PUMP SHALL HAVE A CAPACITY TO PUMP 435 GPM AT A TOTAL DYNAMIC HEAD (TDH) OF 146 FEET. PUMP SHUT OFF HEAD SHALL EXCEED 130 FEET. PUMP MOTORS SHALL BE NON - OVERLOADED OVER THE ENTIRE RANGE OF THE PUMP PERFORMANCE CURVE. PUMP EFFICIENCY AT 435 GPM SHALL EXCEED 50%.

D. MOTORS SHALL BE 34 HP (MAX.), 1750 RPM (MAX.) DESIGNED TO OPERATE ON 460 VOLT, THREE PHASE, 60 HERTZ POWER. MOTORS SHALL HAVE TWO (2) HEAVY DUTY BALL BEARINGS. DESIGN LIFE SHALL BE 30,000 HOURS (9 - 10). HEAT SENSORS SHALL BE IMBEDDED IN EACH MOTOR WINDING TO STOP MOTOR IF WINDING EXCEEDS A TEMPERATURE OF 125°C, MOTOR TO BE RE - ENERGIZED WHEN TEMPERATURE RETURNS TO SAFE OPERATING TEMPERATURE. THE COMMON PUMP / MOTOR SHAFT SHALL BE 416 STAINLESS STEEL.

E. SEALS - EACH MOTOR SHALL BE PROTECTED BY TWO (2) MECHANICAL SEAL ASSEMBLIES, IN TANDEM, WITH A SEAL CHAMBER BETWEEN THE SEALS. SEAL CHAMBERS SHALL BE OIL FILLED TO LUBRICATE SEAL FACES AND TO TRANSMIT HEAT FROM SHAFTS TO OUTER SHIELDS. SEAL FACES SHALL BE CARBON AND CERAMIC AND LAPPED TO A FLATNESS OF ONE LIGHT BAND. LOWER SEAL FACES SHALL BE TUNGSTEN CARBIDE. A DOUBLE ELECTRODE SHALL BE MOUNTED IN THE SEAL CHAMBER TO DETECT ANY WATER ENTERING THE CHAMBER THROUGH THE BOTTOM SEAL. WATER IN THE CHAMBER SHALL ILLUMINATE A WARNING LIGHT IN THE CONTROL PANEL AND ALSO ACTIVATE A FAULT CIRCUIT OF THE AUTOMATIC PHONE DIALER; THIS SIGNALING SHALL NOT STOP MOTOR. A MINI CAS (CONTROL AND STATUS) MONITORING UNIT SHALL BE MOUNTED IN THE CONTROL PANEL AND CONNECTED TO THE THERMAL SWITCHES AND FLOAT LEAKAGE SENSOR (FLS).

F. PUMP MONITORING SHALL INCORPORATE THE USE OF FLYGT'S SUBMG - D, AUTOMATIC MOTOR INSULATION DEVICE, TO PROTECT THE ELECTRICAL MOTOR.

G. PUMP VOLTAGE CAGES SHALL BE CAST IRON WITH 6" DISCHARGE FLANGE. WEARING SURFACES SHALL BE FITTED WITH REPLACEABLE BRONZE WEARING RINGS. PROVIDE EACH PUMP WITH A 4" x 6" SLIDE - AWAY BASE ELBOW IF REQUIRED BY THE PUMP MANUFACTURER.

H. PUMP AND MOTOR CASTINGS SHALL BE HIGH TENSILE STRENGTH CAST IRON TREATED WITH PHOSPHATE AND CHROMATE RINSES. A FASTENERS, FOR EACH ASSEMBLED PUMP AND MOTOR UNIT, SHALL BE 302 STAINLESS STEEL.

I. PUMPS SHALL INCLUDE ITT FLYGT 4901 FLUSH VALVE.

J. POWER CABLES - EACH POWER CORD AND CONTROL CORD SHALL BE DOUBLE SEALED. THE POWER & CONTROL CONDUCTOR SHALL BE SINGLE STRAND SEALED WITH EPOXY POTTING COMPOUND AND THEN CLAMPED IN PLACE WITH RUBBER SEAL BUSHING TO SEAL OUTER JACKET AGAINST LEAKAGE AND TO PROVIDE FOR STRAIN RELIEF. CORDS SHALL WITHSTAND A PULL OF 300 POUNDS. INSULATION OF POWER AND CONTROL CORDS SHALL BE TYPE SO, SOW, OR SOW - A. BOTH CONTROL AND POWER CORDS SHALL HAVE A GREEN CARRIER GROUND CONDUCTOR THAT ATTACHES TO MOTOR FRAME. CONTRACTOR SHALL FIELD MEASURE FOR REQUIREMENTS OF CABLE LENGTHS TO CONNECT POINTS, NO FIELD SPLICING OF CABLES WILL BE ALLOWED.

K. LEFT - OUT RAIL SYSTEM - PROVIDE TWO (2) PUMP SLIDE ASSEMBLY UNITS INCLUDING 4" X 6" FLANGED ELBOWS AND MOUNTING BASES. THE DESIGN OF THIS SYSTEM SHALL BE SUCH THAT A MINIMUM UP OR DOWN FORCE, VIA LIFTING CHAINS, EXERTED BETWEEN THE STATIONARY BASE ELBOW AND THE PUMP DISCHARGE FLANGE WILL BE SUFFICIENT TO REMOVE OR PLACE THE PUMPS INTO PROPER POSITION FOR LEAK - PROOF OPERATION.

A SEAL PLATE SHALL BE ATTACHED TO EACH PUMP AND WITH "O" RING EMBEDDED IN MACHINED FACE TO MATE AGAINST BASE ELBOW. TAPERED LUG CONNECTIONS SHALL ALLOW FOR POSITIVE LEAK - PROOF SEALS AS WELL AS EASY REMOVAL AND REPLACEMENT. PROVIDE TWO (2) PUMP CONNECTION UNITS.

TWO (2) RAIL PIPES SHALL BE USED TO GUIDE THE PUMP FROM THE SURFACE TO THE DISCHARGE BASE CONNECTION. THE GUIDE RAILS SHALL BE 2 - INCH SCHEDULE 40 STAINLESS STEEL PIPE. THE WEIGHT OF THE PUMP SHALL BEAR SOLELY ON THE DISCHARGE BASE AND NOT ON THE GUIDE RAILS. RAIL SYSTEMS WHICH REQUIRE THE PUMP TO BE SUPPORTED BY JECS WHICH MIGHT INTERFERE WITH THE FLOW OF SOLIDS INTO THE PUMP SECTION WILL NOT BE CONSIDERED. THE GUIDE RAIL SHALL BE FIRMLY ATTACHED TO THE ACCESS HATCH FRAME. SYSTEMS DEEPER THAN 21 FEET SHALL USE AN INTERMEDIATE GUIDE FOR EACH 21 FEET OF WET WELL DEPTH.

AN ADEQUATE LENGTH OF 3/4" DIAMETER STAINLESS STEEL LIFTING CHAIN SHALL BE SUPPLIED FOR REMOVING EACH PUMP. THE CHAIN SHALL BE SUFFICIENT LENGTH AND SHALL INCLUDE AN ADEQUATE NUMBER OF LIFTING RINGS FOR EASY REMOVAL. PROVIDE AND INSTALL CHAIN FOR TWO (2) PUMP UNITS. CHAIN SHALL BE RATED AT 1600# (MIN.) SAFE WORKING LOAD CAPACITY.

L. OPERATION AND MAINTENANCE MANUALS: THREE (3) COPIES OF THE MANUFACTURER'S D & M MANUALS, FOR THE SPECIFIED PUMPS, SHALL BE DELIVERED TO THE OWNER TO FAMILIARIZE THEMSELVES WITH THE OPERATION OF THESE PUMPS.

1.06 PUMP CONTROLS

A. LEVEL CONTROLS

1. A MULTITRODE LIQUID LEVEL CONTROL SYSTEM AS SUPPLIED BY FLYGT SHALL ALSO BE MOUNTED IN THE WET WELL TO CONTROL THE ALL PUMPS OFF LINE, LEAD PUMP ON LEVEL, HIGH WATER ALARM LEVEL, AND STANDBY PUMP ON LEVEL.

B. CONTROL PANEL

1. CONTROL PANEL SHALL BE MULTITRODE M2PC6 DUPLEX PUMP CONTROLLER AS MANUFACTURED BY FLYGT. FLYGT MOD - BUS IS REQUIRED AS PART OF THE FLYGT CONTROLLING / MONITORING SYSTEM.

1.07 CIRCULAR CHART RECORDER

A. THE CONTRACTOR SHALL INSTALL A DR 4500 A TRULINE CIRCULAR CHART RECORDER PER DELAWARE COUNTY SANITARY ENGINEER SPECIFICATIONS.

1.08 CONFINED SPACE ENTRY SIGNS

A. CONFINED SPACE ENTRY SIGNS SHALL BE PROVIDED AND INSTALLED AT BOTH SIDES OF ENTRY DOORS AT THE FOLLOWING LOCATIONS:

- 1. WET WELL
 - A. SIGN POSTS SHALL BE 4" X 4" (NOMINAL) MEETING THE REQUIREMENTS OF ODOT CMS ITEM 710.14 X 7'-0" PRESSURE TREATED LUMBER.
 - B. INSTALLATION
 - 1. POSTS - INSTALL POSTS ON OPPOSITE SIDES OF EACH STRUCTURE NEAR EACH ACCESS OPENING AS DIRECTED ON SITE BY THE ENGINEER. POSTS TO BE PLACED IN 8" DIAMETER HOLES AT DEPTHS OF 3.0' (MIN.) BELOW FINISHED GRADE. POSTS SHALL BE SET PLUMB, CENTERED IN HOLES WITH CONCRETE AROUND THEM TO WITHIN 6" FROM FINISHED GRADE.
 - 2. SECURE EACH SIGN NEAR TOP OF POSTS THAT EXTEND 4' ABOVE FINISHED GRADE; USE 2 - 3/8" X 1" CADMIUM PLATED LAG SCREWS AND WASHERS FOR ATTACHMENT. SIGNS SHALL BE READABLE FROM SIDES FACING AWAY FROM STRUCTURES. A TOTAL OF TWO (2) SIGNS ARE REQUIRED AT EACH OF THE STRUCTURES.
- 2. VALVE CHAMBER
 - A. SIGNS SHALL BE SECURED TO BUILDING AT DOOR LOCATION.
 - B. SIGNS SHALL MEET THE REQUIREMENTS OF ITEM 630 (ODOT) AND BE AS FOLLOWS:
 - 1. SIGN MATERIAL SHALL BE 0.063" THICK ALUMINUM.
 - 2. PAINT COLORS SHALL BE RED AND BLACK ON WHITE, NON - REFLECTIVE.
 - 3. APPROXIMATE SIGN SIZE: 11" X 16" WIDE.
 - 4. TEXT AND STYLE: AS FOLLOWS:



2. **POWER COMPANY DISCONNECT SWITCH** LOCATION: UTILITY DISCONNECT SWITCH



3. **HIGH VOLTAGE-STAY OUT AUTHORIZED PERSONNEL ONLY** LOCATION: CONTROL PANEL FRONT DOOR

1.09 PAINTING

A. ALL VALVE CHAMBER PIPING AND VALVES SHALL BE PAINTED (EXCEPT FLANGES AND MACHINED EDGES). ALL PAINTING PREPARATIONS AND APPLICATION SHALL BE IN ACCORDANCE WITH STANDARD PRACTICE AND PER POINT MANUFACTURER'S RECOMMENDATIONS.

B. PAINT BRAND TYPES SHALL BE ICI DEVO COATINGS (STATED); EQUIVALENT TYPES BY SHERWIN - WILLIAMS, DETROIT GRAPHITE, RUSTOLEUM OR EQUAL.

C. APPLICATION

- 1. PRIMING
 - A. PIPING - ONE (1) COAT OF (TAR STOP)
 - B. VALVES - ONE (1) COAT OF RUST PENETRATING PRIMER NO 622)

2. FINISH COATS - BROWN COLOR TWO (2) COAT OF (GLAMORTX ENAMEL)

1.10 PRESSURE GAUGES

A. PUMP PRESSURE GAUGES SHALL BE PROVIDED AND INSTALLED ON THE DISCHARGE LINES OF EACH PUMP FURNISHED AND PLACED ON THE PROJECT. LOCATIONS OF GAUGES SHALL BE ON TOP OF THE HORIZONTAL DISCHARGE PIPING, INSIDE THE VALVE CHAMBER AND UPSTREAM FROM EACH CHECK VALVE.

B. GAUGE AND ACCESSORY REQUIREMENTS

1. PRESSURE GAUGES SHALL BE SOLID FRONT, LIQUID FILLED GAUGES WITH CLEAR GLASS WINDOWS, BOTTOM 1/2" NPT OUTLET AND STAINLESS STEEL BOURDON TUBE. ALL GAUGES SHALL BE DUAL - CALIBRATED IN FEET OF WATER AND PSIG. GAUGES SHALL BE 4 1/2" DIAMETER. ALL GAUGES SHALL BE FITTED WITH AN APPROVED IMPULSE DAMPENER. GAUGES SHALL BE NO. 1279SL WITH NO. 1106S IMPULSE DAMPENER, BY ASHCROFT, OR APPROVED EQUAL BY U.S. GAUGE, H.O. TRERICE CO., HUNTSVILLE OF ROBERTSHAW.

2. PUMP DISCHARGE SIDE GAUGES SHALL HAVE FULL DIAL REGISTRATION FOR 0 TO 75 PSIG / 0 TO 150 FEET.

C. PRESSURE GAUGE CONNECTIONS - AT ALL PRESSURE GAUGE CONNECTIONS, AS DENOTED ON THE DRAWINGS, FURNISHED AND INSTALLED PRESSURE GAUGE CONNECTORS SHALL CONSIST OF BRASS GAUGE COCKS WITH 1/2" BRASS UNION ENDS, NO. 1094 BY ASHCROFT, OR APPROVED EQUAL.

1.11 START - UP
A. THE CONTRACTOR SHALL ARRANGE AND CONDUCT A PUMP STATION START - UP MEETING WITH THE OWNER PRIOR TO DISCHARGE OF SEWERAGE TO PUMP STATION.

B. ALL ASPECTS OF THE PUMP STATION OPERATION SHALL BE TESTED AND DOCUMENTED.

2.0 ODOR CONTROL SPECIFICATIONS

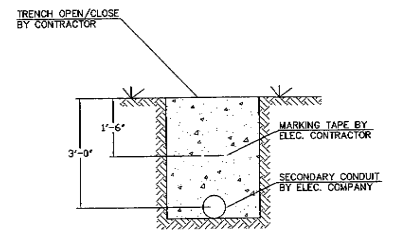
2.01 ODOR CONTROL SYSTEM (BIOXIDE DRIP)

THE CONTRACTOR SHALL PROVIDE THE REQUIRED ITEMS FOR A BIOXIDE ODOR CONTROL SYSTEM, AS MANUFACTURED AND INSTALLED BY US FILTER, TO BE INSTALLED ADJACENT TO THE WET WELL. THE BIOXIDE ODOR CONTROL SYSTEM WILL CONSIST OF A STORAGE TANK AND A CLOSING PUMP THAT FEEDS DIRECTLY TO THE WET WELL. THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL, TUBING, AND MOUNTING REQUIREMENTS FOR THE PROPER OPERATION OF THE ODOR CONTROL SYSTEM AS REQUIRED BY THE DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS.

3.0 HYDRAULIC POWERED GRINDER

3.01 MUFFIN MONSTER

A HYDRAULIC POWERED GRINDER (MUFFIN MONSTER, 30000-0024 MODEL) AS MANUFACTURED BY JWO ENVIRONMENTAL SHALL BE PROVIDED. THE INSTALLATION OF THE GRINDER SHALL INCLUDE A STAINLESS STEEL FRAME AND RETRIEVAL SYSTEM MOUNTED ON THE INTERIOR WALL OF THE WET WELL AT THE INVERT OF THE INFLUENT LINE. ALL CONTROLS AND HYDRAULIC POWER SUPPLY WILL BE INSTALLED COMPLETE AS PART OF THE GRINDER INSTALLATION.



ELECTRIC TRENCH DETAIL
NOT TO SCALE

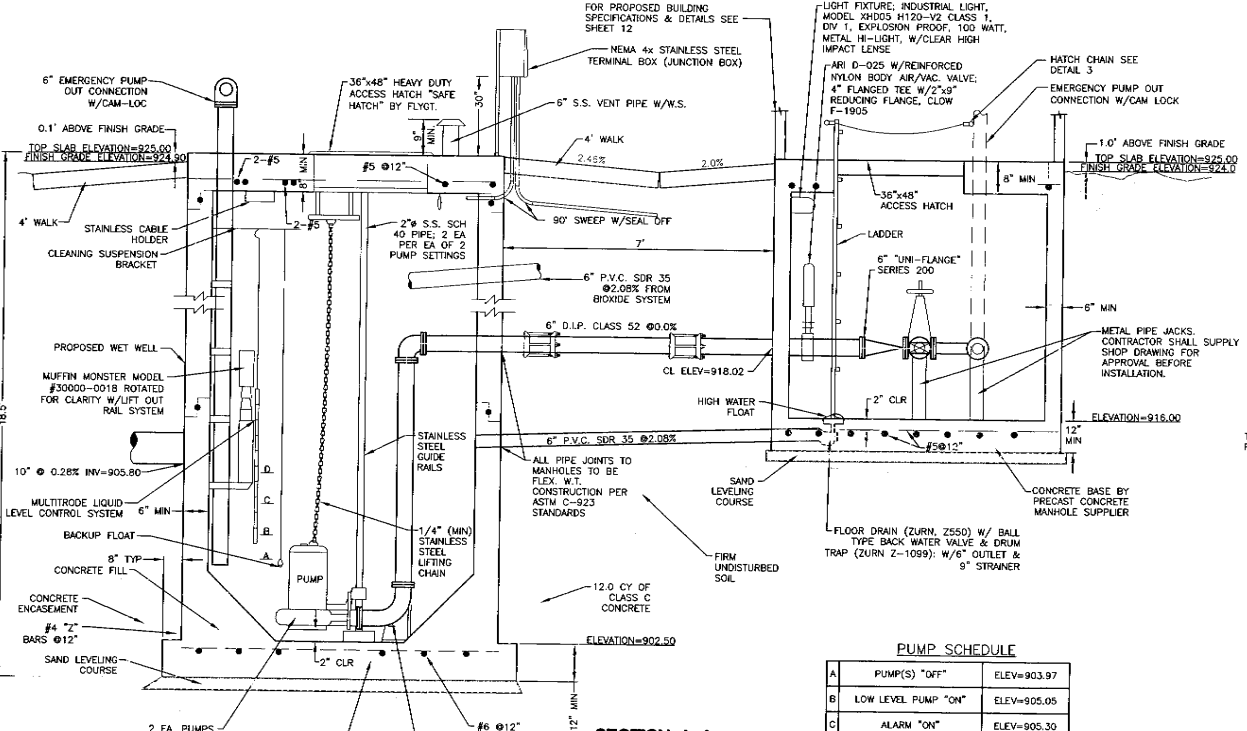
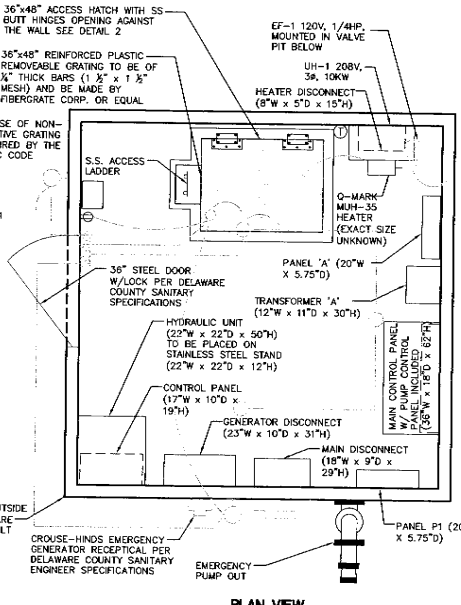
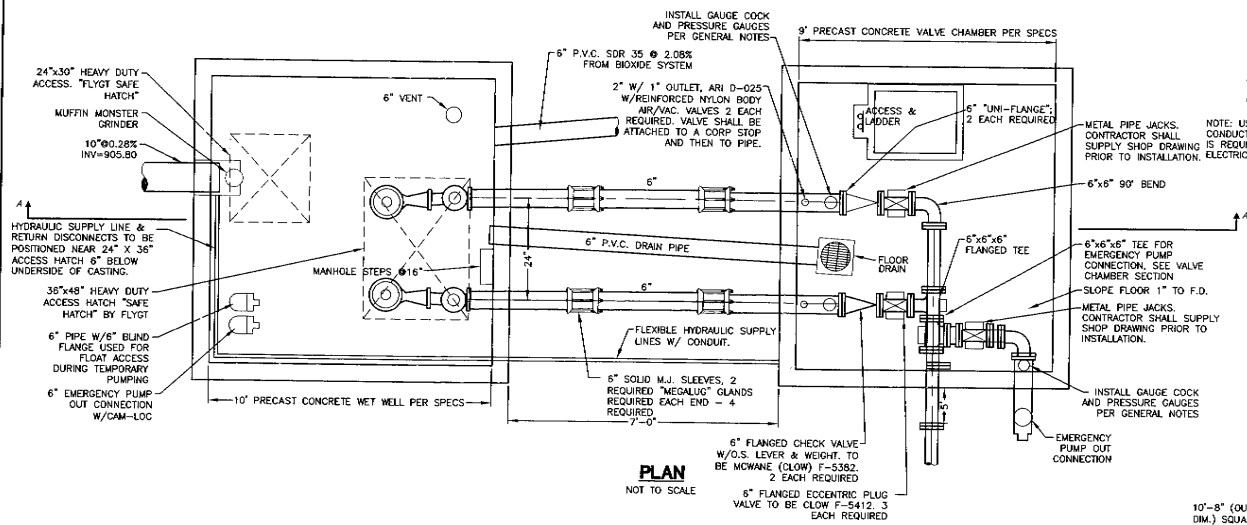
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**GOLF VILLAGE NORTH
SANITARY SEWER IMPROVEMENTS
LIBERTY TOWNSHIP
DELAWARE COUNTY, OHIO**

DATE: JAN 2006	APPROVED BY:	DWN BY: LCP
SCALE: N/A	GH	CHKD. BY: BCE
PUMP STATION GENERAL NOTES & DETAILS		SHEET 10 OF 12 DRAWING NUMBER 050425

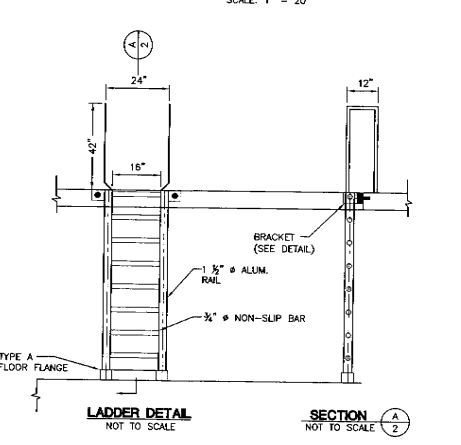
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REVISION RECORD	
DATE	DESCRIPTION



PUMP SCHEDULE

LETTER	PUMP(S) "OFF"	ELEV=
A	PUMP(S) "OFF"	ELEV=903.97
B	LOW LEVEL PUMP "ON"	ELEV=905.05
C	ALARM "ON"	ELEV=905.30
D	EMERGENCY PUMP "ON"	ELEV=905.55



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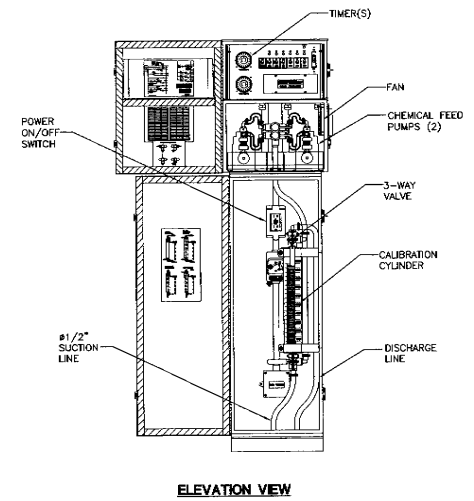
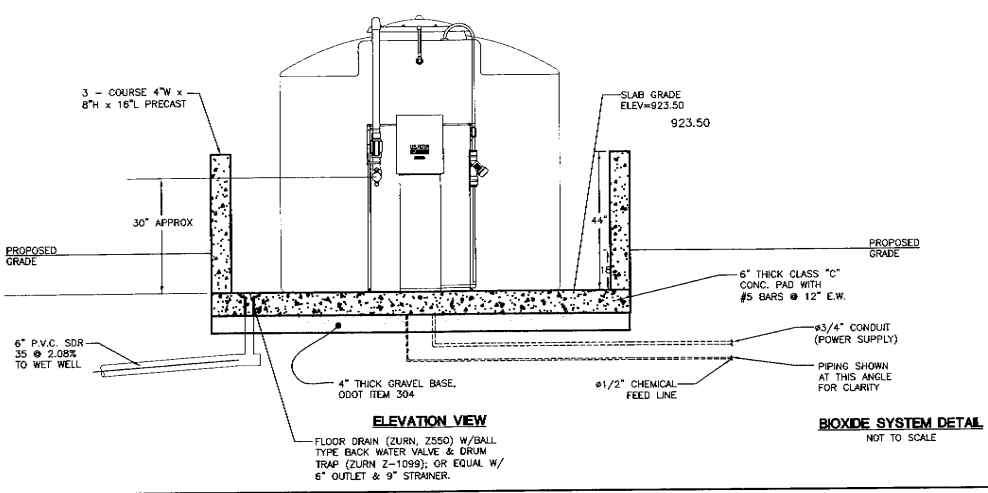
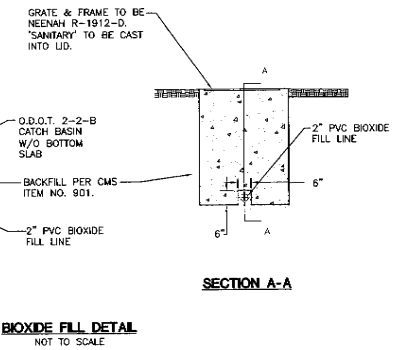
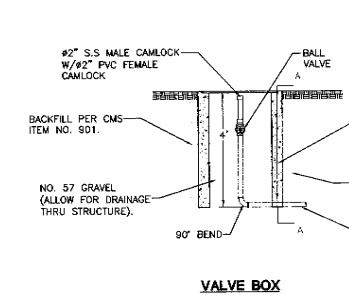
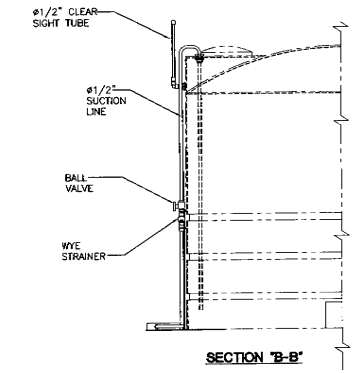
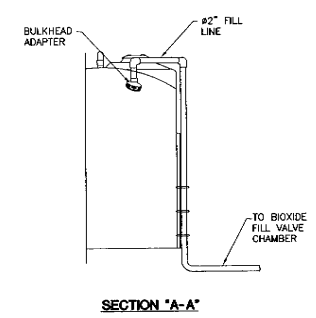
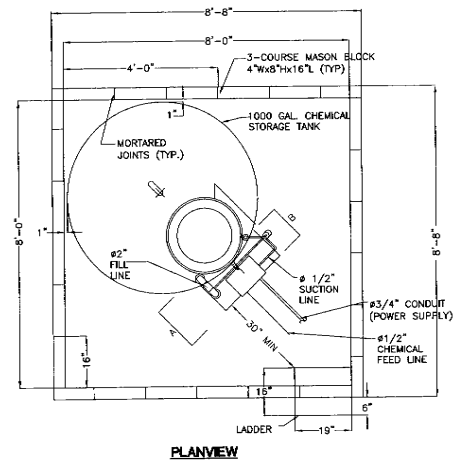
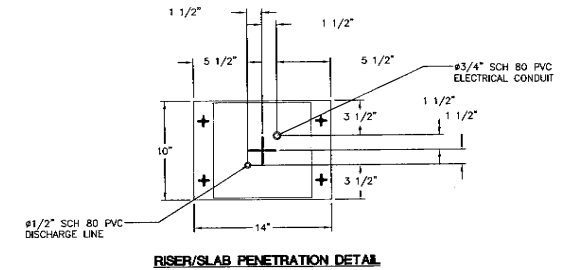
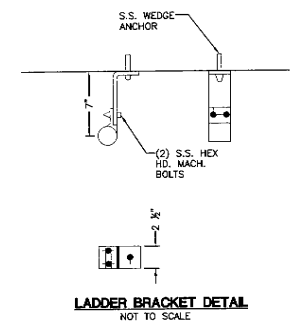
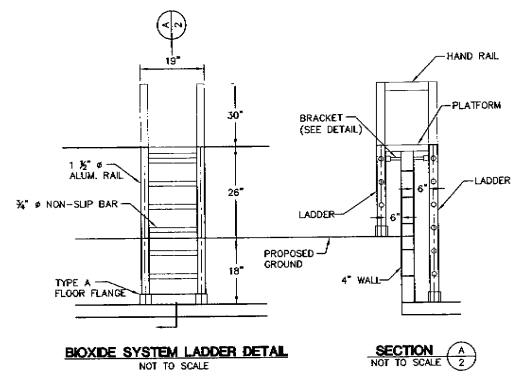
DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
SCALE: N/A		CHKD. BY: BCE
PUMP STATION DETAIL		SHEET 11 OF 12
		DRAWING NUMBER 050425

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NOTES

1. U.S. FILTER SHALL PROVIDE 1,000 GALLON BIOXIDE SYSTEM.
2. CONTRACTOR TO FURNISH CONCRETE PAD WITH ALL IN-SLAB PIPING AND CONDUIT.
3. ALL PIPING AND APPURTENANCES SHALL BE PVC, SCH 80.
4. ALL ELECTRICAL CONDUIT AND WIRING BY CONTRACTOR.
5. UTILIZE SWEEPS ONLY (NO ELBOWS) FOR CONDUIT DIRECTIONAL CHANGES.
6. CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY SLAB OPENINGS, SLEEVES AND SEALANT.
7. CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY HANGERS, SUPPORTS, AND BLOCKING FOR PIPING.
8. ALL HARDWARE REQUIRED FOR INSTALLATION SHALL BE STAINLESS STEEL, FURNISHED AND INSTALLED BY CONTRACTOR.
9. SEE SUPPLEMENTAL STANDARD DETAILS FOR CHEMICAL FEED UNIT, CALIBRATION PEDESTAL, PIPING SUPPORT, STORAGE TANK, LEVEL GAUGE AND VARIOUS OTHER COMPONENTS.

REVISION RECORD	
DATE	DESCRIPTION



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LIBERTY TOWNSHIP
DELAWARE COUNTY, OHIO**

DATE: JAN 2006	APPROVED BY: GH	DWN BY: LCP
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**BIOXIDE SYSTEM
NOTES & DETAILS**

SHEET 12 OF 12
DRAWING NUMBER
050425

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