



## GENERAL NOTES

THE COUNTY OF DELAWARE REQUIREMENTS, TOGETHER WITH THE SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION INCLUDING ALL SUPPLEMENTS THERETO, 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.

APPROVAL OF THESE PLANS IS CONTINGENT UPON ALL REQUIRED SANITARY SEWER EASEMENTS BEING APPROVED BY THE COUNTY AND RECORDED PRIOR TO CONSTRUCTION.

THE SURFACES WITH WHICH THE RUBBER GASKET COMES IN CONTACT SHALL BE CLEANED THOROUGHLY JUST PRIOR TO ASSEMBLY.

ALL VALVES OUTSIDE STRUCTURES SHALL BE PROVIDED WITH VALVE BOXES. VALVES SHALL BE SET ON FIRM FOUNDATIONS SO THAT NO LOAD WILL BE TRANSFERRED TO THE CONNECTING PIPE. VALVE BOXES SHALL BE OF STANDARD ADJUSTABLE, HEAVY PATTERN, CAST IRON, EXTENSION TYPE, OF SUCH LENGTH AS IS REQUIRED.

IF THE TOP OF THE OPERATION NUT IS MORE THAN 36 INCHES BELOW FINISHED GRADE, AN EXTENSION STEM SHALL BE FURNISHED TO BRING THE TOP OF THE OPERATING NUT WITHIN 24 INCHES OF FINISHED GRADE.

GATE VALVES CALLED FOR ON THE PLANS SHALL CONFORM TO AWWA C500, 150 PSI WORKING PRESSURE. OPEN COUNTER-CLOCKWISE AND HAVE MECHANICAL JOINT ENDS. VALVE BOXES SHALL BE OF STANDARD HEAVY PATTERN DESIGN WITH A 5 1/4" DIAMETER 3 PIECE SCREW TYPE. PAYMENT TO BE INCLUDED IN COST OF FORCE MAIN.

ANY MODIFICATIONS TO THE WORK AS SHOWN ON THESE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE COUNTY SANITARY ENGINEER.

### COMMENCEMENT OF WORK

THE CONTRACTOR SHALL NOTIFY THE DELAWARE COUNTY SANITARY DEPARTMENT, TELEPHONE 368-5870, 48 HOURS PRIOR TO COMMENCING WORK ON THIS PROJECT, HOLIDAYS AND WEEKENDS EXCLUDED.

### EXISTING UTILITIES

THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL CALL, TOLL FREE, THE OHIO UTILITIES PROTECTION SERVICE (1-800-362-2764) 72 HOURS PRIOR TO CONSTRUCTION AND SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO WORK IN THE VICINITY OF THEIR UNDERGROUND LINES.

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. THE COUNTY OF DELAWARE AND/OR ENGINEER ASSUME NO RESPONSIBILITY AS TO THE ACCURACY OF THE UNDERGROUND FACILITIES SHOWN ON THE PLANS.

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

UTILITY	OWNER	TELEPHONE
WATER MAINS	DEL-CO WATER COMPANY, INC. 6773 OLENTANGY RIVER ROAD DELAWARE, OHIO 43015	548-7746
STORM SEWERS	DELAWARE COUNTY 50 CHANNING STREET DELAWARE, OHIO 43015	368-1930
SANITARY SEWERS	DELAWARE COUNTY 50 CHANNING STREET DELAWARE, OHIO 43015	368-5870
TELEPHONE	AMERITECH 150 EAST GAY STREET, ROOM 6A COLUMBUS, OHIO 43215	223-5123

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RESIDENTS OF INTERRUPTION TO THEIR UTILITIES THAT WILL BE CAUSED BY CONSTRUCTION AT LEAST 24 HOURS IN ADVANCE.

SUPPORTING AND/OR PROTECTING EXISTING WATER LINES, GAS MAINS, TELEPHONE CONDUIT, STORM SEWERS, ETC., SHALL BE INCLUDED IN PAYMENT FOR THE VARIOUS CONTRACT ITEMS OF WORK.

ALL WORK REQUIRED FOR THE MAINTENANCE OF SERVICE OF EXISTING UTILITIES SHALL BE DONE BY, AND AT THE EXPENSE OF THE CONTRACTOR.

ALL MAINTENANCE, REPAIR AND/OR REPLACEMENT OF EXISTING UTILITIES SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE VARIOUS UTILITY COMPANIES HAVING JURISDICTION.

ALL EXISTING STORM SEWERS, DRIVEWAY DRAINS, AND OTHER SURFACE DRAIN PIPES, WHETHER SHOWN ON THE CONTRACT DRAWINGS OR NOT, REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AND RECONNECTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER, AT NO COST TO THE COUNTY.

IT IS ASSUMED THAT THERE ARE WATER AND GAS BRANCH LINES, ETC., SERVING EACH RESIDENCE. THE CONTRACTOR SHALL REPAIR AND REPLACE THESE UTILITIES IF DAMAGED AT NO COST TO THE COUNTY.

### INSTALLATION

TRAVERSE SEWERS AND UTILITY LINES UNDER THE PAVEMENT AREA SHALL BE BACKFILLED WITH COMPACTED GRANULAR MATERIAL TO WITHIN FIVE (5) FEET OF THE BACK OF CURB OR EDGE OF PAVEMENT, COMPACTED TO 98% OF MAXIMUM DRY DENSITY. ALL REMAINING LENGTHS TO BE BACKFILLED PER ITEM 203, OR AS NOTED ON THE SEWER PROFILES.

LONGITUDINAL SEWERS AND UTILITY LINES UNDER PAVEMENT OR DRIVEWAY OR WITHIN FOUR (4) FEET OF THE FACE OF CURB OR EDGE OF PAVEMENT SHALL BE BACKFILLED WITH COMPACTED GRANULAR MATERIAL, COMPACTED TO 98% OF MAXIMUM DRY DENSITY. ALL REMAINING LINES SHALL BE BACKFILLED PER ITEM 203, OR AS NOTED ON THE SEWER PROFILES.

THE CONTRACTOR AND SUB-CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH 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 THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUB-CONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

ANY FIELD TILE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AS DIRECTED BY THE COUNTY WITH PVC PIPE SPANNING THE TRENCH. THE TRENCH SHALL BE FILLED WITH COMPACTED GRANULAR BACKFILL.

### TESTING

SANITARY SEWERS SHALL BE TESTED BY THE EXFILTRATION METHOD. ALLOWABLE LEAKAGE SHALL NOT EXCEED 100 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS. CONTRACTOR SHALL COOPERATE WITH DELAWARE COUNTY ENGINEER AND PROVIDE ALL NECESSARY EQUIPMENT TO PERFORM SEWER TEST.

### BACKFILLING

BACKFILL REQUIREMENTS ON ALL PROJECTS SHALL BE AS FOLLOWS:

95% OF MAXIMUM DRY LABORATORY WEIGHT AT PLUS OR MINUS 2% OF OPTIMUM MOISTURE FOR ALL STORM TRENCHES OUTSIDE OF RIGHT-OF-WAY. MATERIAL AS NOTED. \*

98% OF MAXIMUM DRY LABORATORY WEIGHT AT PLUS OR MINUS 2% OPTIMUM MOISTURE FOR ALL STORM, SANITARY AND UTILITY TRENCHES IN RIGHT-OF-WAY RUNNING PARALLEL TO THE PAVEMENT. MATERIALS AS NOTED. \*

98% OF MAXIMUM DRY LABORATORY WEIGHT AT PLUS OR MINUS 1.5% OF OPTIMUM MOISTURE FOR ALL STORM, SANITARY AND UTILITY TRENCHES UNDER ROAD PAVEMENT STARTING AT A DISTANCE OF FIVE FEET FROM EDGES OF PAVEMENT AND EXTENDING 1 FOOT IN DISTANCE FOR EACH 1 FOOT OF DEPTH. MATERIALS AS NOTED. \*\*

SPECIFICATIONS OF O.D.O.T. 20312 FOR "EMBANKMENT SOIL COMPACTION REQUIREMENTS" FOR SANITARY OR OTHER DEEP TRENCHES WHICH RUN PARALLEL TO THE PAVEMENT AND THAT ARE IN THE AREA OF INFLUENCE FOR EMBANKMENTS OR PAVEMENTS. MATERIALS AS NOTED. \*

\* SOILS AS DEFINED BY O.D.O.T. SPECIFICATIONS NUMBER 203 WHICH HAVE A DRY WEIGHT OF 100 POUNDS OR BETTER.

\*\* GRANULAR MATERIAL AS DEFINED BY O.D.O.T. SPECIFICATION NUMBER 304 - APRIL 1 THRU OCTOBER 1. LOW STRENGTH MORTAR BACKFILL. CLASS LSM - 100 MATERIAL OCTOBER 2 THRU MARCH 31.

ALL STORM SEWER CROSSINGS SHALL BE COMPACTED TO 95% OF MAXIMUM DRY LABORATORY WEIGHT USING MATERIAL DEFINED BY O.D.O.T. SPECIFICATION NUMBER 203.

FINISHED GRADE AT ALL SANITARY MANHOLES SHALL BE AT LEAST 6" BELOW TOP OF CASTING TO AVOID UNNECESSARY INFILTRATION INTO THE SANITARY SEWER SYSTEM.

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. THE COUNTY OF DELAWARE AND/OR ENGINEER ASSUME NO RESPONSIBILITY AS TO THE ACCURACY OF THE UNDERGROUND FACILITIES SHOWN ON THE PLANS.

FINAL CONNECTION SHALL NOT BE MADE TO THE RECEIVING SANITARY SEWER SYSTEM UNTIL THE PHASE PROJECT HAS BEEN FULLY INSTALLED.

### STREAM CROSSINGS

AT EACH STREAM CROSSING THE CONTRACTOR SHALL INSTALL WATERCOURSE EROSION PROTECTION TO THE LIMITS SHOWN ON THE PLANS. WATERCOURSE EROSION PROTECTION WILL BE DEFINED BY THE FOLLOWING:

DESCRIPTION: THIS WORK SHALL CONSIST OF COMPACTING BACKFILL AND PLACING THE PROTECTION MATERIAL ON THE BANKS AND BOTTOM OF THE STREAM WHERE SHOWN ON THE PLANS OVER THE FULL WIDTH OF EXCAVATED TRENCH TO UNDISTURBED EARTH.

MATERIALS: MATERIALS SHALL CONSIST OF DUMPED ROCK FILL, TYPE B PER ODOT SPEC 601.07.

EXCAVATION AND BACKFILL: EXCAVATION AND BACKFILLING SHALL BE DONE PER DELAWARE COUNTY STANDARD PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF SANITARY FACILITIES SECTIONS 4.2A AND 4.2B.

PROTECTION MATERIALS: THE CONTRACTOR SHALL DISTRIBUTE THE ROCK TO A MAT THICKNESS OF 18 (EIGHTEEN) INCHES. THE FINISHED SURFACE OF THE PROTECTED TRENCH SHALL CONFORM WITH THE EXISTING STREAM BANK AND BOTTOM CONTOURS.

METHOD OF MEASUREMENT: THE NUMBER OF SQUARE YARDS OF WATERCOURSE EROSION PROTECTION TO BE PAID FOR WILL BE COMPUTED ON THE FOLLOWING BASIS: SQUARE YARDS EQUALS W TIMES L DIVIDED BY 9: WHERE W IS THE SURFACE WIDTH OF THE ROCK MAT AND L IS THE SURFACE LENGTH OF THE ROCK MAT AS MEASURED ALONG THE SLOPE OF THE MAT PARALLEL TO THE CENTERLINE OF THE SEWER, BOTH WIDTH AND LENGTH BEING IN FEET, COMPLETE IN PLACE.

### MAINTENANCE OF TRAFFIC

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE "OHIO MANUAL OF CONTROL DEVICES FOR CONSTRUCTION AND MAINTENANCE OPERATION" (CURRENT EDITION); COPIES OF WHICH ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF TRAFFIC, 25 S. FRONT STREET, COLUMBUS, OHIO 43215.

ALL TRENCHES SHALL BE BACKFILLED OR SECURELY PLATED DURING NON-WORKING HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING "LOCAL" TRAFFIC AT ALL TIMES AND OF NOTIFYING THE PROPER AUTHORITIES REGARDING THE CLOSING OF ROADS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, STORAGE AND REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES WITHIN THE PROJECT LIMITS. PERMANENT TRAFFIC CONTROL DEVICES INCLUDED, BUT ARE NOT LIMITED TO PAVEMENT MARKINGS AND SIGNS.

THE CONTRACTOR SHALL NOT BEGIN WORK UNTIL STANDARD BARRICADES AND WARNING SIGNS ARE IN ACCEPTABLE POSITION AND THE MARKERS AND SIGNS CONFORM TO THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AT ALL TIMES DURING CONSTRUCTION OF THIS PROJECT IN A MANNER CAUSING THE LEAST AMOUNT OF INCONVENIENCE TO THE ADJUTING PROPERTY OWNERS. TEMPORARY DRIVEWAYS, TEMPORARY ROADWAYS, OR RUN-AROUNDS AS MAY BE NECESSARY TO PROVIDE VEHICULAR ACCESS TO AND FROM THE ADJUTING PROPERTIES SHALL BE CONSTRUCTED, MAINTAINED AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

ALL PAVEMENT AND/OR RIGHT-OF-WAY OPENINGS WITHIN THE PUBLIC RIGHT-OF-WAY MUST CONFORM TO THE CURRENT EDITION OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS, WITH SUPPLEMENTS OR CHANGES THERETO. ALSO, THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES AND LIABILITIES REGARDING STRICT ADHERENCE TO APPLICABLE SECTIONS FOR THE MAINTENANCE OF TRAFFIC AND PUBLIC SAFETY AS SET FORTH IN THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS". ALL TRAFFIC CONTROL DEVICES MUST BE IN PLACE PRIOR TO STARTING CONSTRUCTION.

THE PORTION OF THE PAVEMENT NOT IN THE SEWER MAIN CONSTRUCTION SHALL BE KEPT CLEAR OF ALL EXCAVATED MATERIAL. ONLY A PORTION OF THE TRENCH SHALL BE EXCAVATED AT A TIME AND CLOSED AGAIN WITH GRANULAR MATERIAL, BEFORE THE PAVEMENT OVER THE BALANCE IS REMOVED, AS DIRECTED BY THE ENGINEER.

EXCAVATION WHICH IS NOT PROTECTED BY TEMPORARY FENCING SHALL BE BACKFILLED AT THE END OF EACH WORKING DAY.

IF AT ANY TIME TRAFFIC HAS TO BE BLOCKED, THE CONTRACTOR SHALL NOTIFY THE NEAREST FIRE AND POLICE DEPARTMENTS (EMERGENCIES ONLY).

NO NON-RUBBER Tired VEHICLES SHALL BE MOVED ON COUNTY ROADS.

### COLUMBUS SOUTHERN POWER

THE CONTRACTOR SHALL CONTACT THE COMPANY PRIOR TO EXCAVATION IN THE VICINITY OF ELECTRIC UNDERGROUND FACILITIES (APPROXIMATE PLAN LOCATION SHOWN) OR WHEN WORKING NEAR OVERHEAD ELECTRIC FACILITIES.

(A) FOR FIELD INSPECTOR TO LOCATE UNDERGROUND ELECTRIC LINE, IN OHIO CALL "OHIO UTILITIES PROTECTION SERVICE" 1-800-362-2764, (AT LEAST 48 HOURS IN ADVANCE), EXCLUDING SAT., SUN., AND STATE LEGAL HOLIDAYS.

(B) FOR NOTIFICATION OF CONSTRUCTION ACTIVITY NEAR ELECTRIC FACILITIES, CALL TONY REID, 464-7348.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO ELECTRIC FACILITIES DURING CONSTRUCTION.

ELECTRIC FACILITIES TO BE KEPT IN SERVICE AT ALL TIMES.

CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING EXISTING ELECTRIC FACILITIES AFFECTED BY THE PROPOSED CONSTRUCTION.

(A) WHERE CONCRETE ENCASED CONDUIT SYSTEMS OR DIRECT BURIED CABLE SYSTEMS ARE EXPOSED OR OTHERWISE INTERFERED WITH, THE CONTRACTOR SHALL PROTECT THE SYSTEM AS NECESSARY AGAINST DAMAGE. AS SOON AS FEASIBLE, THE CONTRACTOR SHALL TAKE ADDITIONAL APPROPRIATE STEPS TO PROVIDE PERMANENT MEASURES TO RESTORE SUPPORT. THE METHODS USED SHALL BE BASED ON CONDITIONS TO BE DETERMINED BY THE UTILITY.

(B) WHERE POLES OR ANCHORS THAT SUPPORT OVERHEAD ELECTRIC FACILITIES ARE EXPOSED OR OTHERWISE INTERFERED WITH, THE CONTRACTOR SHALL PROTECT THEM FROM DAMAGE AND PROVIDE TEMPORARY SUPPORT TO INSURE THE INTEGRITY OF THE SYSTEM. AS SOON AS FEASIBLE, THE CONTRACTOR SHALL TAKE ADDITIONAL APPROPRIATE STEPS TO PROVIDE PERMANENT MEASURES TO RESTORE SUPPORT. THE METHODS USED SHALL BE BASED ON CONDITIONS TO BE DETERMINED BY THE UTILITY.

(C) WHERE THE DEPTH OF EXCAVATION FOR THE PROPOSED WORK IS GREATER THAN FIVE (5) FEET, THE CONTRACTOR SHALL SHEET AND SHORE THE TRENCH TO CONTINUOUSLY MAINTAIN THE SUPPORT OF ELECTRIC FACILITIES AT LOCATIONS WHERE THE ELECTRIC FACILITIES ARE WITHIN THE ZONE OF INFLUENCE ADJACENT TO THE EXCAVATION AS DETERMINED BY THE NATURAL ANGLE OF REPOSE OF THE SOIL.

(D) ALL DAMAGE TO ELECTRIC FACILITIES AND SERVICES REQUIRING ADJUSTMENTS, RELOCATIONS AND/OR REPAIRS WILL BE MADE AT THE CONTRACTOR'S COST.

THE CONTRACTOR SHALL NOT BACKFILL EXPOSED ELECTRIC FACILITIES UNTIL THE COMPANY HAS INSPECTED ITS FACILITY OR PERFORMED ANY ADJUSTMENTS AND/OR MAINTENANCE THAT MAY BE REQUIRED.

SHOULD THE CONTRACTOR DAMAGE ELECTRIC FACILITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ELECTRIC SERVICE DESK THROUGH THE COMPANY OPERATOR. THE CONTRACTOR SHALL KEEP EVERYONE CLEAR OF DAMAGED ELECTRIC FACILITIES UNTIL COMPANY PERSONNEL ARRIVE AT THE WORK SITE.

### COLUMBIA GAS OF OHIO

GAS FACILITIES ARE TO BE KEPT IN SERVICE AT ALL TIMES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO GAS FACILITIES DURING OR AS A RESULT OF HIS CONSTRUCTION. ALL DAMAGE TO GAS FACILITIES REQUIRING ADJUSTMENTS, RELOCATIONS AND/OR REPAIRS WILL BE MADE AT THE CONTRACTOR'S COST.

THE CONTRACTOR SHALL SHEET AND SHORE ALL EXCAVATIONS AS REQUIRED TO CONTINUOUSLY SUPPORT GAS FACILITIES WITHIN THE ZONE OF INFLUENCE (AS DETERMINED BY THE NATURAL ANGLE OF REPOSE OF THE SOIL).

CROSSING BURIED GAS FACILITIES WITH HEAVY CONSTRUCTION EQUIPMENT MAY CAUSE DAMAGE TO THEM. CONTACT THE GAS DISTRIBUTION ENGINEERING DEPT. FOR DETAILS ON HOW TO PROTECT THE GAS FACILITIES FROM DAMAGE.

THE CONTRACTOR SHALL NOT BACKFILL EXPOSED GAS FACILITIES UNTIL THE UTILITY HAS INSPECTED ITS FACILITIES AND PERFORMED ANY MAINTENANCE AND/OR ADJUSTMENTS THAT MAY BE REQUIRED.

THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING AGAINST DAMAGE TO THE COATING AND WRAPPING OF STEEL WELDED GAS MAINS.

COLUMBIA GAS CONTACT PERSON IS DEBBIE BURKE, 460-2079.

### DEL-CO WATER

THE CONTRACTOR IS ADVISED THAT DUE TO THE PROXIMITY OF THE PROPOSED FORCE MAIN, THE INTEGRITY OF THE EXISTING WATER MAINS MUST BE MAINTAINED AT ALL TIMES.

IF DURING CONSTRUCTION THE EXISTING WATER MAIN(S) BECOME DISTURBED, THE CONTRACTOR MUST IMMEDIATELY REMEDY THE SITUATION AND PROVIDE DEL-CO WATER AND THE COUNTY WITH A PLAN OF SUPPORTING THE EXISTING WATER MAIN(S) SO THAT FURTHER DAMAGE DOES NOT OCCUR. REPLACEMENT OF WATER MAIN MAY BE NECESSARY.

ALL CONCRETE THRUST BLOCKING OF EXISTING BENDS MUST NOT BE DISTURBED. SHOULD IT BE NECESSARY TO DO ANY WORK WHICH COULD POSSIBLY ALTER OR IMPAIR THE THRUST BLOCKING THE CONTRACTOR MUST RESTRAIN ALL JOINTS WHICH WOULD BE AFFECTED. THIS WORK MUST BE APPROVED BY DEL-CO WATER BEFORE THE CONTRACTOR CAN PROCEED WITH HIS WORK.

DEL-CO WATER WILL NOT BE LIABLE FOR ANY COST RELATED TO THE REQUIREMENTS OF ITEMS ABOVE. ALL COST SHALL BE BORNE BY THE CONTRACTOR AND INCLUDED IN THE VARIOUS BID ITEMS.

FOR NOTIFICATION OF CONSTRUCTION ACTIVITY NEAR WATER FACILITIES, CALL 548-7746.

### TELEPHONE

THE CONTRACTOR SHALL CONTACT THE COMPANY PRIOR TO EXCAVATION IN THE VICINITY OF UNDERGROUND TELEPHONE FACILITIES (APPROXIMATE PLAN LOCATION SHOWN) OR WHEN WORKING NEAR OVERHEAD TELEPHONE FACILITIES.

FOR NOTIFICATION OF CONSTRUCTION ACTIVITY NEAR TELEPHONE FACILITIES, CALL:

AMERITECH  
LUCY FIGNER, 223-4834

### USE OF PREMISES

IN ADDITION TO DIRECT REQUIREMENTS OF THE CONTRACT SPECIFICATION, THE CONTRACTOR SHALL OBSERVE AND CONFORM TO THE SPECIFIC REQUIREMENTS OF ALL RIGHT-OF-WAY, INCLUDING EASEMENTS, COURT ENTRIES, RIGHT-OF-ENTRY, OR ACTION FILED IN COURT IN ACCORDANCE WITH THE CODE OF APPLICABLE GOVERNING AGENCY.

THE CONTRACTOR SHALL NOT TRESPASS UPON OR IN ANY WAY DISTURB PROPERTY ADJACENT TO THE STREET RIGHT-OF-WAY WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE OWNER TO DO SO. A COPY OF SUCH WRITTEN PERMISSION SHALL BE FURNISHED TO THE ENGINEER.

IF THE CONTRACTOR FINDS IT NECESSARY TO OBTAIN ADDITIONAL WORKING AREA, IT SHALL BE HIS RESPONSIBILITY FOR ITS ACQUISITION. ALL REQUIREMENTS LISTED UNDER THE "USE OF PREMISES" SHALL APPLY IF ADDITIONAL AREA IS OBTAINED.

THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, RESTORE SUCH PROPERTY TO THE FULL SATISFACTION OF THE OWNER, AND SHALL OBTAIN FROM THE OWNER A WRITTEN RELEASE STATING THAT RESTORATION HAS BEEN SATISFACTORILY MADE. A COPY OF THE WRITTEN RELEASE SHALL BE FURNISHED TO THE ENGINEER.

THE CONTRACTOR SHALL NOT WASTE ANY EXCESS EARTH, STONE, OR OTHER EXCAVATED MATERIAL ON ANY PROPERTY WITHOUT FIRST OBTAINING WRITTEN PERMISSION OF THE OWNER OF THE PROPERTY AND SECURING THE APPROVAL OF THE ENGINEER. ONE COPY OF THE OWNER'S WRITTEN PERMISSION AND ONE COPY OF A WRITTEN RELEASE FROM THE OWNER STATING AT THE WORK HAS BEEN COMPLETED SATISFACTORILY, SHALL BE FURNISHED TO THE ENGINEER.

ALL ITEMS WITHIN THE STREET RIGHT-OF-WAY SHALL BE REMOVED, OR REMOVED AND REPLACED, OR RESTORED AS REQUIRED BY THE CONTRACT DRAWINGS AND DETAILED PROVISIONS, AS DIRECTED BY THE ENGINEER.

### PROTECTION OF TREES


SPECIAL CARE SHALL BE TAKEN TO AVOID DAMAGES TO TREES AND THEIR ROOT SYSTEM. MACHINE EXCAVATION SHALL NOT BE USED WHEN, IN THE OPINION OF THE ENGINEER, IT WOULD ENDANGER TREE ROOTS. IN GENERAL, WHERE THE LINE OF TRENCH FALLS WITHIN THE LIMITS OF THE LIMB SPREAD, THE LEAVING OF HEADERS ACROSS THE TRENCH TO PROTECT ROOTS WILL BE REQUIRED. THE OPERATION OF ALL EQUIPMENT, PARTICULARLY WHEN EMPLOYING BOOMS; THE STORAGE OF MATERIALS; AND THE DEPOSITION OF EXCAVATION SHALL BE CONDUCTED IN THE MANNER WHICH WILL NOT INJURE TREES, TRUNKS, BRANCHES OR THEIR ROOTS UNLESS SUCH TREES ARE DESIGNATED BY THE ENGINEER FOR REMOVAL.

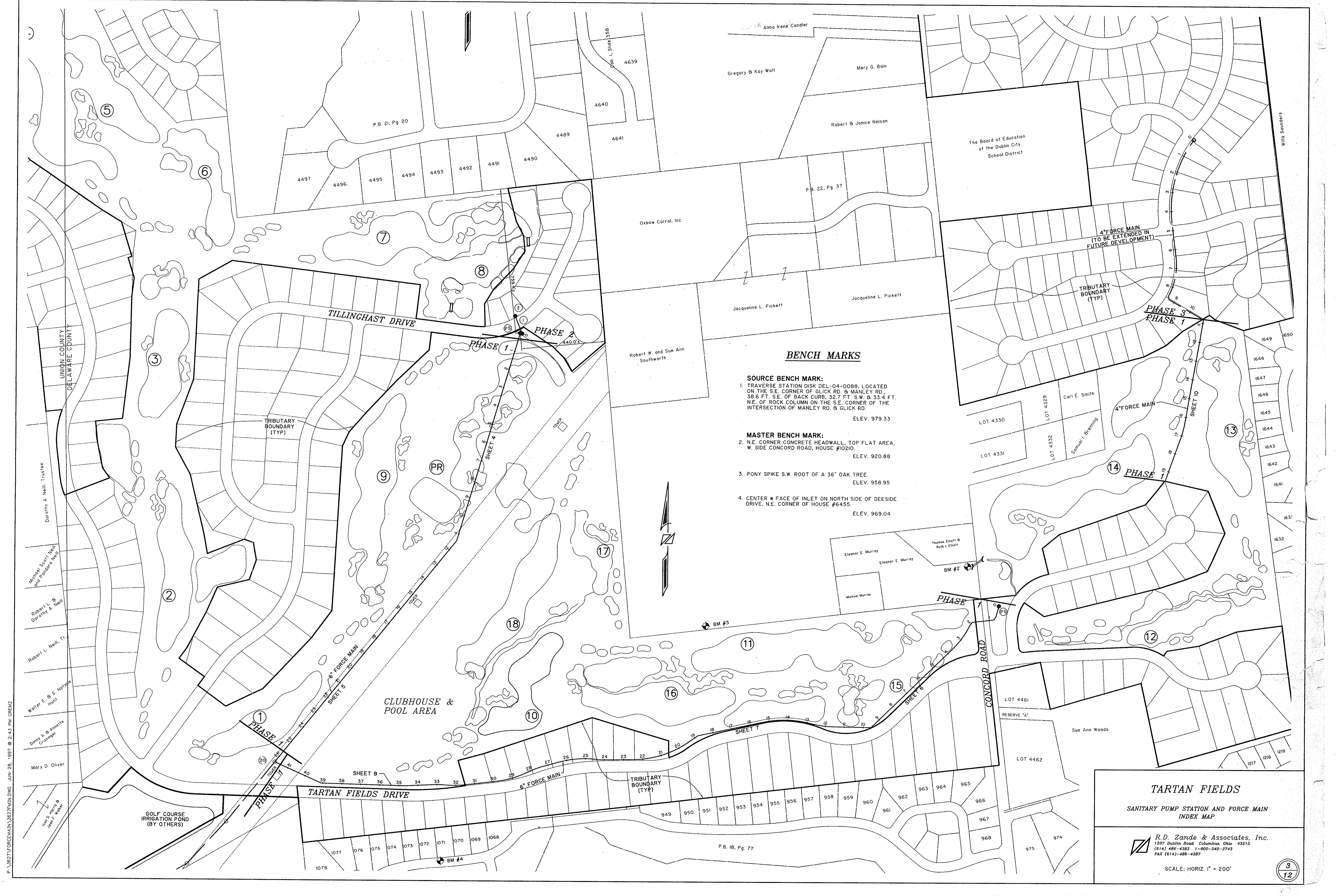
### MAINTAINING FLOW

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, THROUGHOUT THE TENURE OF THIS CONTRACT, TO PROVIDE AND MAINTAIN SUFFICIENT FLOW AT ALL TIMES TO PASS ANY FLASH OR STORM FLOW OF DRAINAGE DITCHES, CREEKS, STREAMS AND RIVERS, AND TO PREVENT ANY BACKWATER FLOODING DUE TO OBSTRUCTION CAUSED BY CONSTRUCTION EQUIPMENT AND/OR MATERIALS.

## TARTAN FIELDS

SANITARY PUMP STATION AND FORCE MAIN  
GENERAL NOTES

 R.D. Zande & Associates, Inc.  
1237 Dublin Road Columbus, Ohio 43215  
(614) 486-4383 1-800-340-2745  
FAX (614)-486-4887



**BENCH MARKS**

- SOURCE BENCH MARK:**
1. TRAVERSE STATION DISK DEL-04-0088, LOCATED ON THE S.E. CORNER OF GLICK RD. & MANLEY RD. 38.6 FT. S.E. OF BACK CURB, 32.7 FT. S.W. & 33.4 FT. N.E. OF ROCK COLUMN ON THE S.E. CORNER OF THE INTERSECTION OF MANLEY RD. & GLICK RD. ELEV. 979.33
- MASTER BENCH MARK:**
2. N.E. CORNER CONCRETE HEADWALL, TOP FLAT AREA, W. SIDE CONCORD ROAD, HOUSE #10210. ELEV. 920.88
  3. PONY SPIKE S.W. ROOT OF A 36" OAK TREE. ELEV. 958.95
  4. CENTER OF FACE OF INLET ON NORTH SIDE OF DEESIDE DRIVE, N.E. CORNER OF HOUSE #6455. ELEV. 969.04

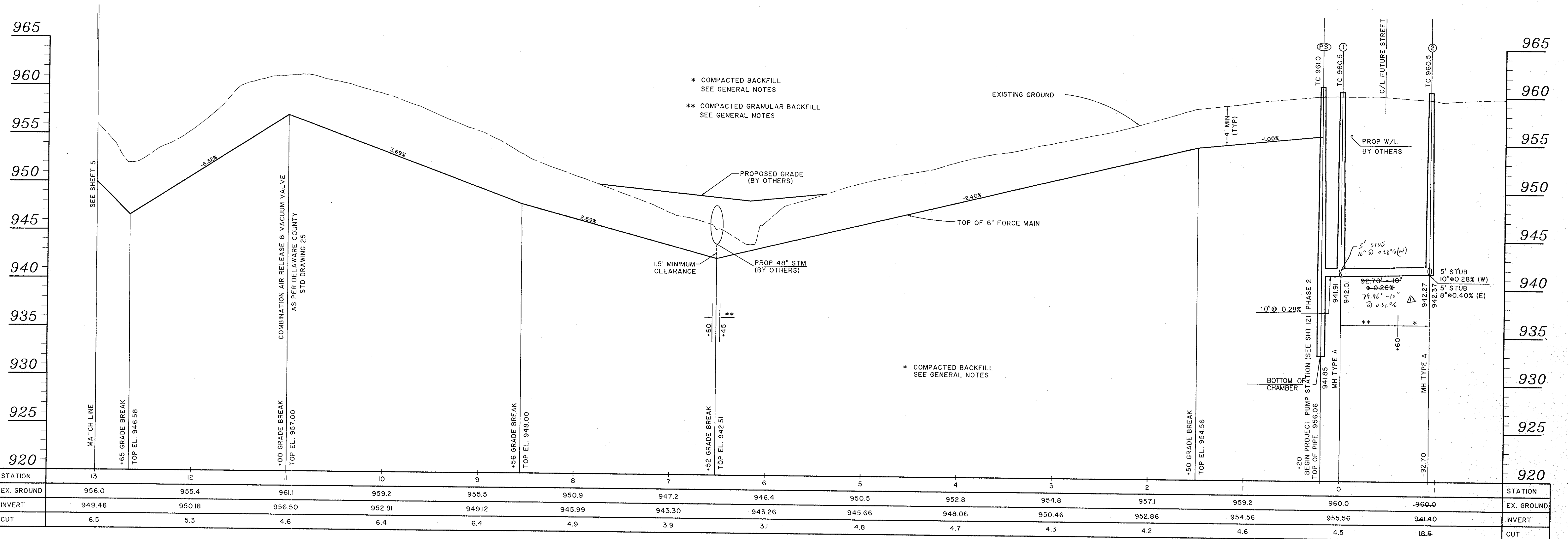
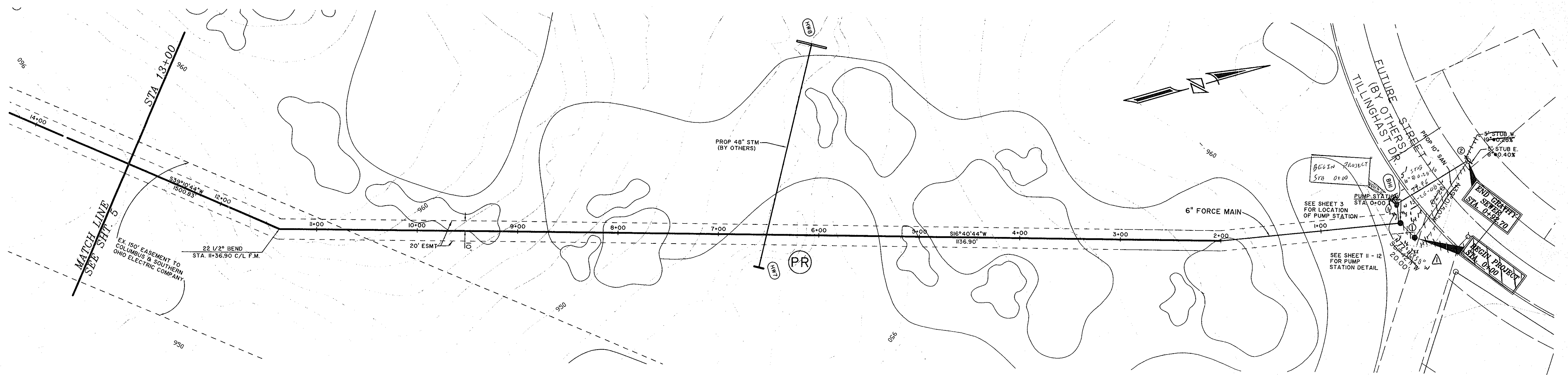


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**TARTAN FIELDS**  
 SANITARY PUMP STATION AND FORCE MAIN  
 INDEX MAP

**R.D. Zande & Associates, Inc.**  
 1287 Dublin Road, Columbus, Ohio 43215  
 (614) 486-4383 1-800-340-2743  
 FAX (614)-486-4387

SCALE: HORIZ. 1" = 200'



\* COMPACTED BACKFILL  
SEE GENERAL NOTES


\*\* COMPACTED GRANULAR BACKFILL  
SEE GENERAL NOTES

\* COMPACTED BACKFILL  
SEE GENERAL NOTES

▲ MOVE MH ① FROM 20' EAST TO 20' WEST OF PUMP STATION

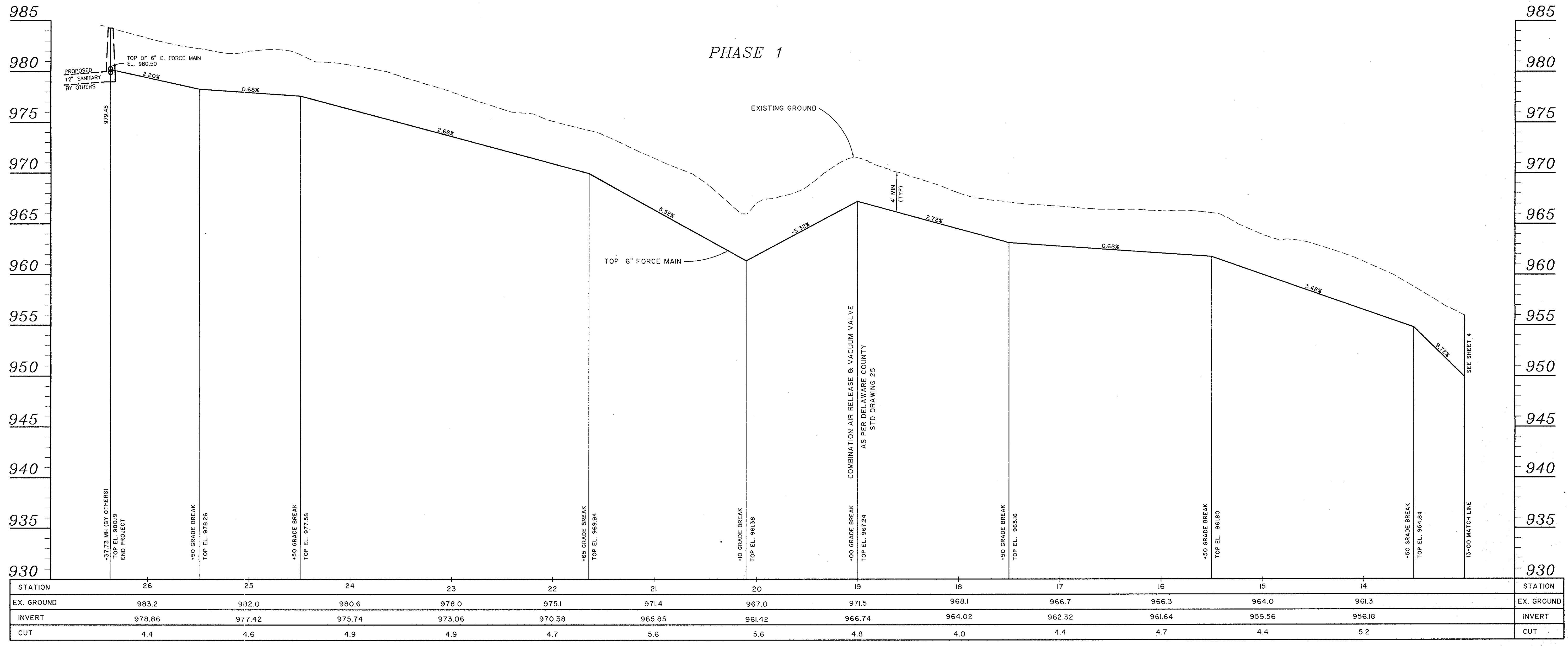
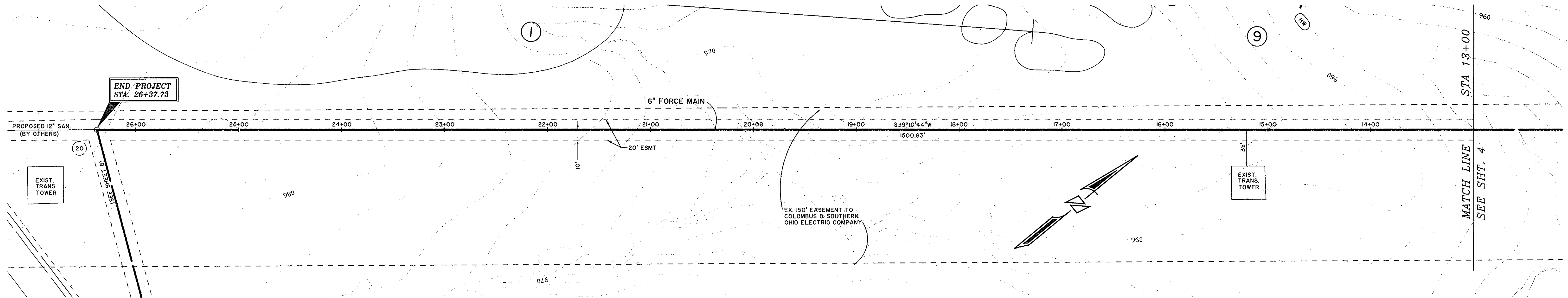
**TARTAN FIELDS**

SANITARY PUMP STATION AND FORCE MAIN  
STA 0+00 TO 13+00


**R.D. Zande & Associates, Inc.**  
 1237 Dublin Road, Columbus, Ohio 43215  
 (614) 486-4283 1-800-340-2743  
 FAX (614)-486-4387

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

4  
12

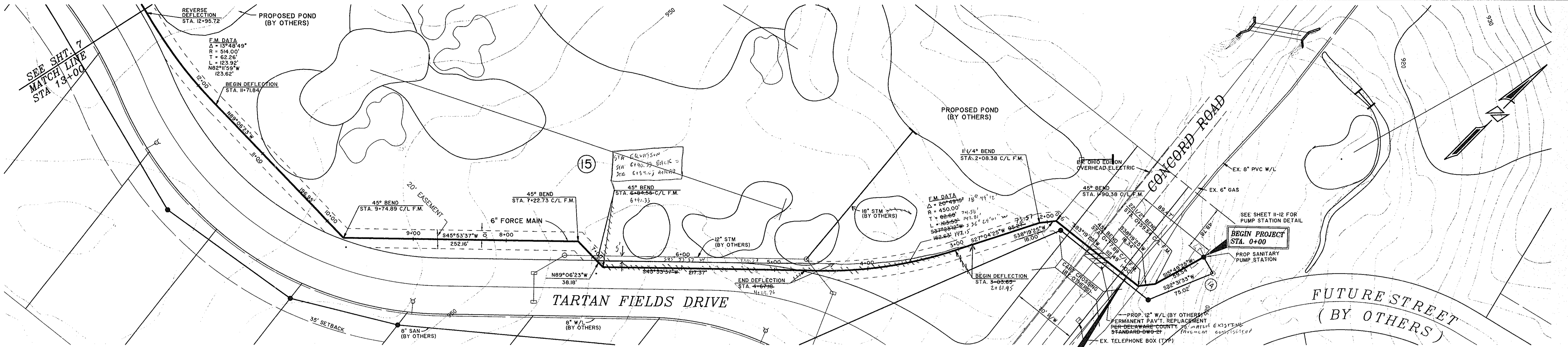


**TARTAN FIELDS  
WEST FORCE MAIN**  
SANITARY PUMP STATION AND FORCE MAIN  
STA 13+00 TO 26+37.73

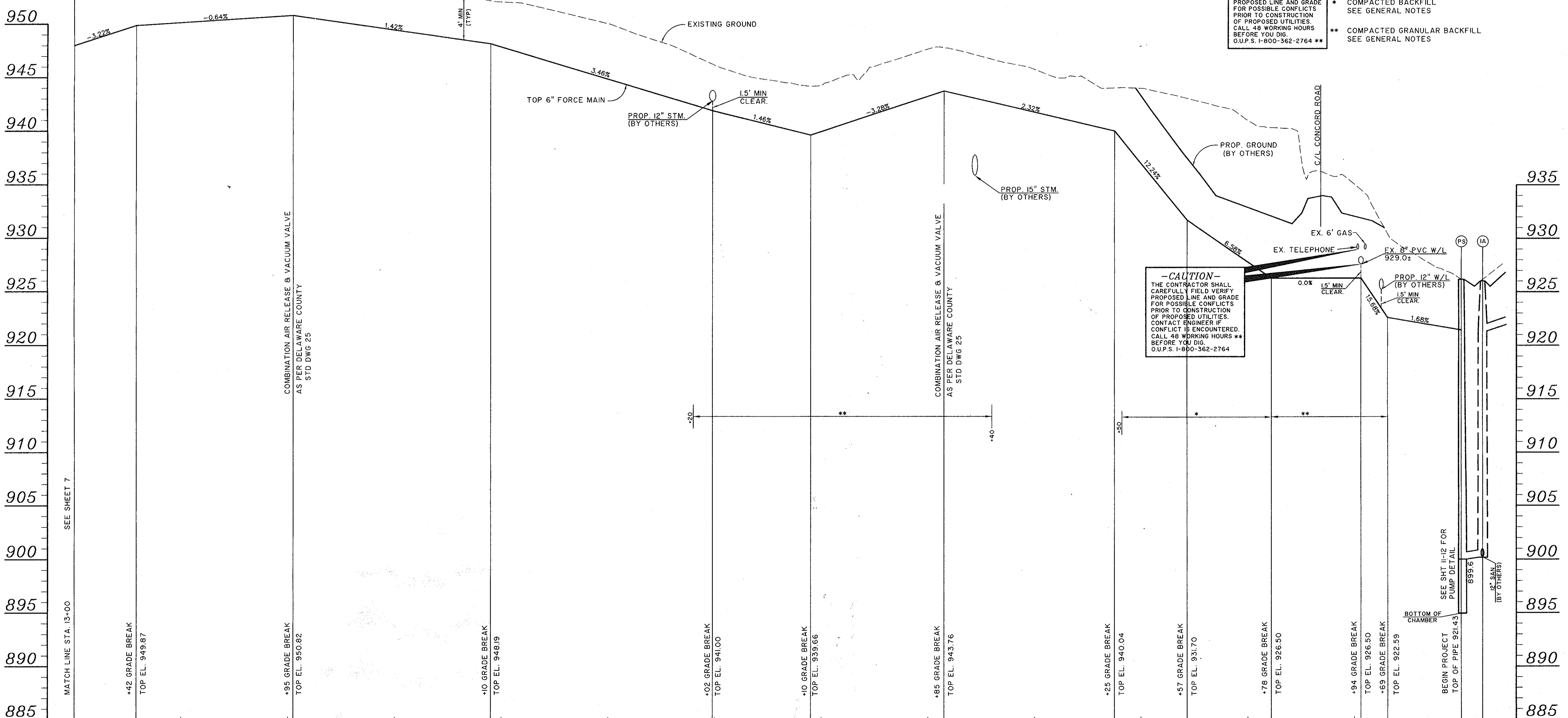
R.D. Zande & Associates, Inc.  
1237 Duane Road Columbus, Ohio 43215  
(614) 486-4383 1-800-340-2743  
FAX (614)-486-4387

SCALE: VERT. 1" = 50'  
HOR. 1" = 50'

D:\PROJECTS\FOREMAIN\3627FMS.DWG JUN 28, 1997 3:00 PM GREWZ



PHASE 1



**-CAUTION-**  
THE CONTRACTOR SHALL CAREFULLY FIELD VERIFY PROPOSED LINE AND GRADE FOR POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES. CALL 48 WORKING HOURS BEFORE YOU DIG. O.U.P.S. 1-800-362-2764 \*\*

**-CAUTION-**  
THE CONTRACTOR SHALL CAREFULLY FIELD VERIFY PROPOSED LINE AND GRADE FOR POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION OF PROPOSED UTILITIES. CONTACT ENGINEER IF CONFLICT IS ENCOUNTERED. CALL 48 WORKING HOURS \*\* BEFORE YOU DIG. O.U.P.S. 1-800-362-2764

- \* COMPACTED BACKFILL SEE GENERAL NOTES
- \*\* COMPACTED GRANULAR BACKFILL SEE GENERAL NOTES

STATION	13	12	11	10	9	8	7	6	5	4	3	2	1	0
EX. GROUND	952.3	954.3	954.8	953.9	952.1	950.1	946.2	944.3	947.7	945.8	944.0	941.0	935.1	926.2
INVERT	947.50	949.64	950.28	948.97	947.41	944.56	941.72	939.49	942.76	941.28	936.48	925.86	926.33	920.93
CUT	4.8	4.7	4.5	4.9	4.7	5.5	4.5	4.8	4.9	4.5	7.5	15.0	6.9	5.2

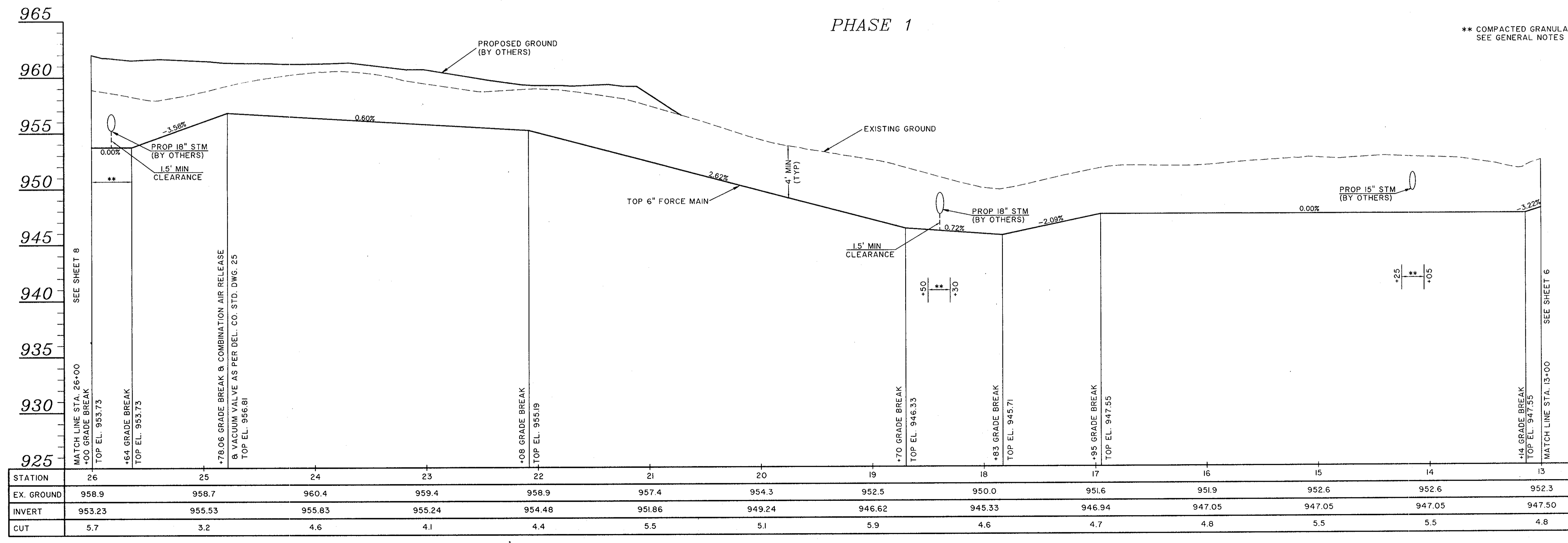
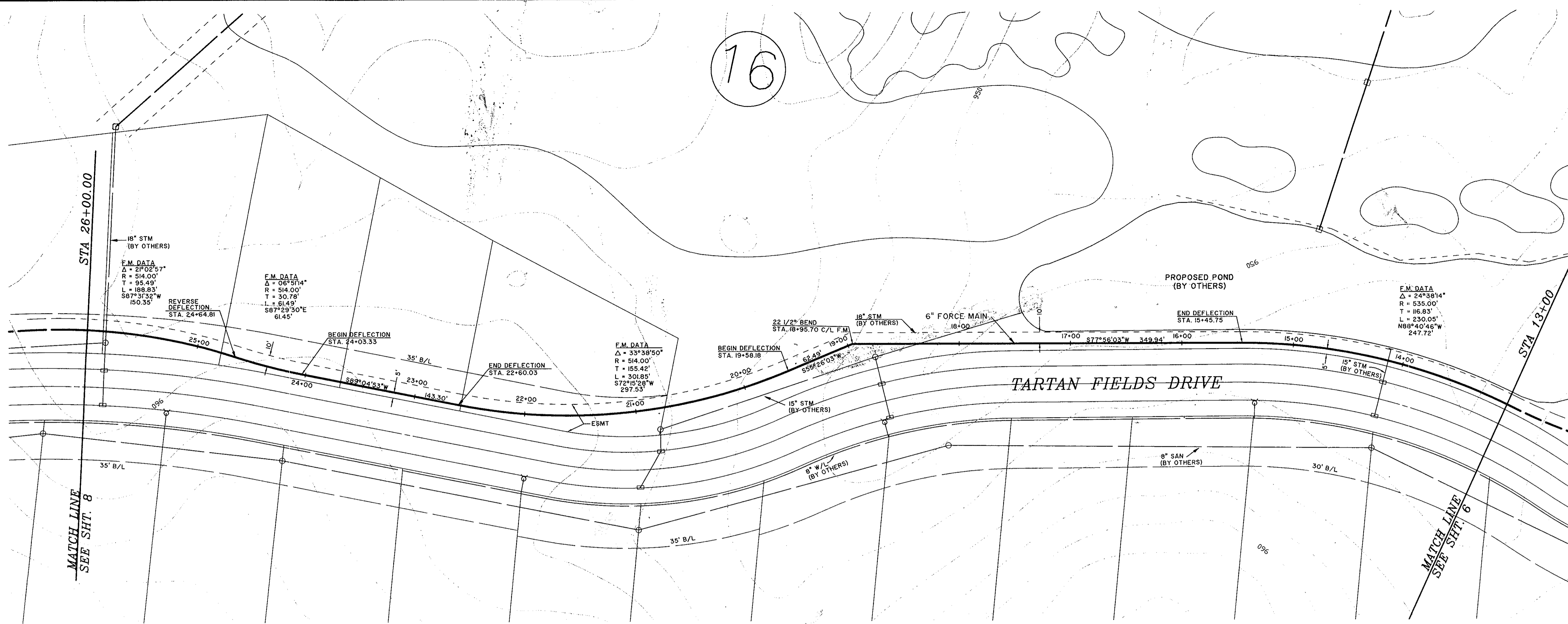
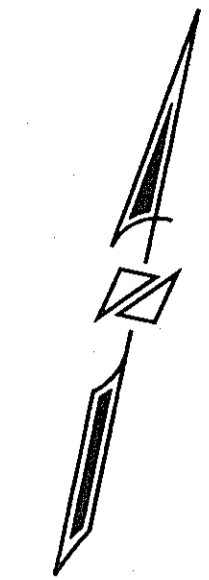
**TARTAN FIELDS  
MIDDLE FORCE MAIN**  
SANITARY PUMP STATION AND FORCE MAIN  
STA 0+00 TO 13+00

R.D. Zande & Associates, Inc.  
1237 Dublin Road, Columbus, Ohio 43215  
(614) 486-4383 1-800-340-2743  
FAX (614)-486-4387

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

P:\3627\FORCEMAIN\3627FM.DWG JUN 28 1997 @ 3:04 PM GSE/ACZ

16

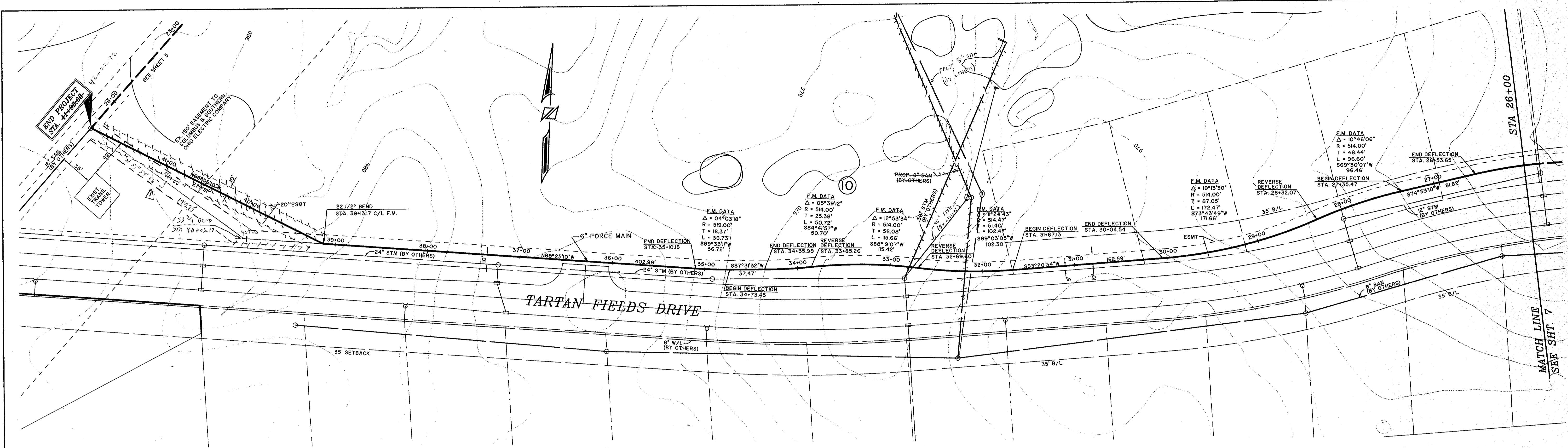


**TARTAN FIELDS  
MIDDLE FORCE MAIN**  
SANITARY PUMP STATION AND FORCE MAIN  
STA 13+00 TO 26+00

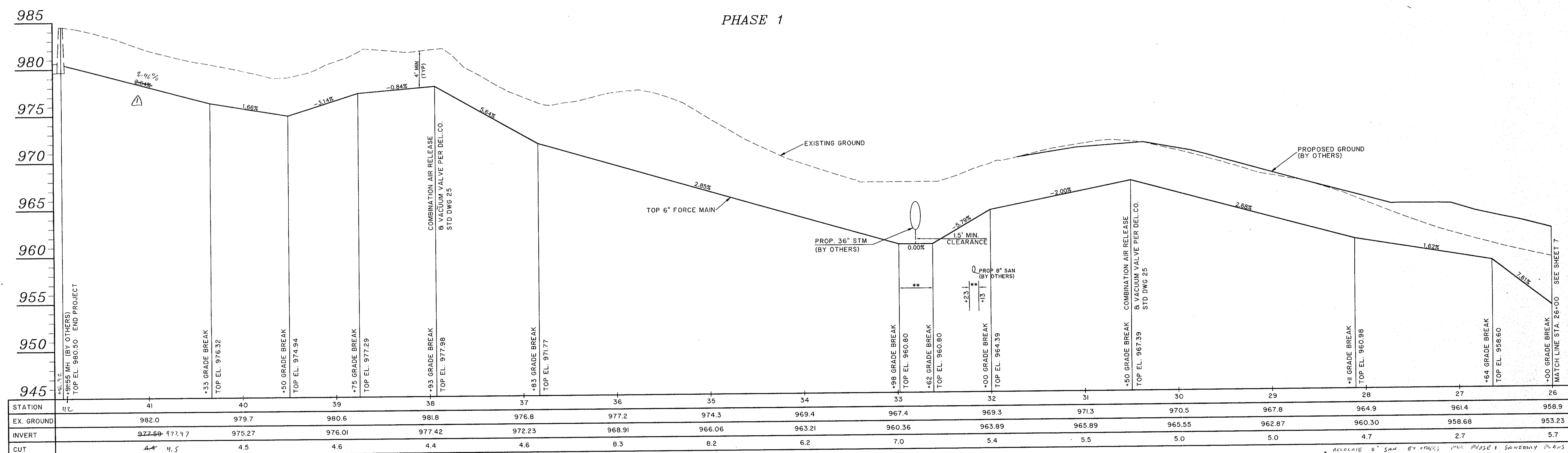
R.D. Zande & Associates, Inc.  
1237 Dublin Road Columbus, Ohio 43215  
(614) 486-4383 1-800-340-2743  
FAX (614)-486-4387

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

P:\927\FORCEMAIN\3527FM2.DWG JUN 28, 1997 @ 4:14 PM GREW2



PHASE 1



L:\27\FORCEMAIN\3527P13.DWG JUN 28, 1997 @ 3:59 PM GREKZ

\* COMPACTED BACKFILL  
SEE GENERAL NOTES

RELIEVE 8" SAN BY OTHERS PER PHASE 1 SANITARY PLANS  
RELIEVE FORCE MAIN BETWEEN STA 31+00 AND 41+00

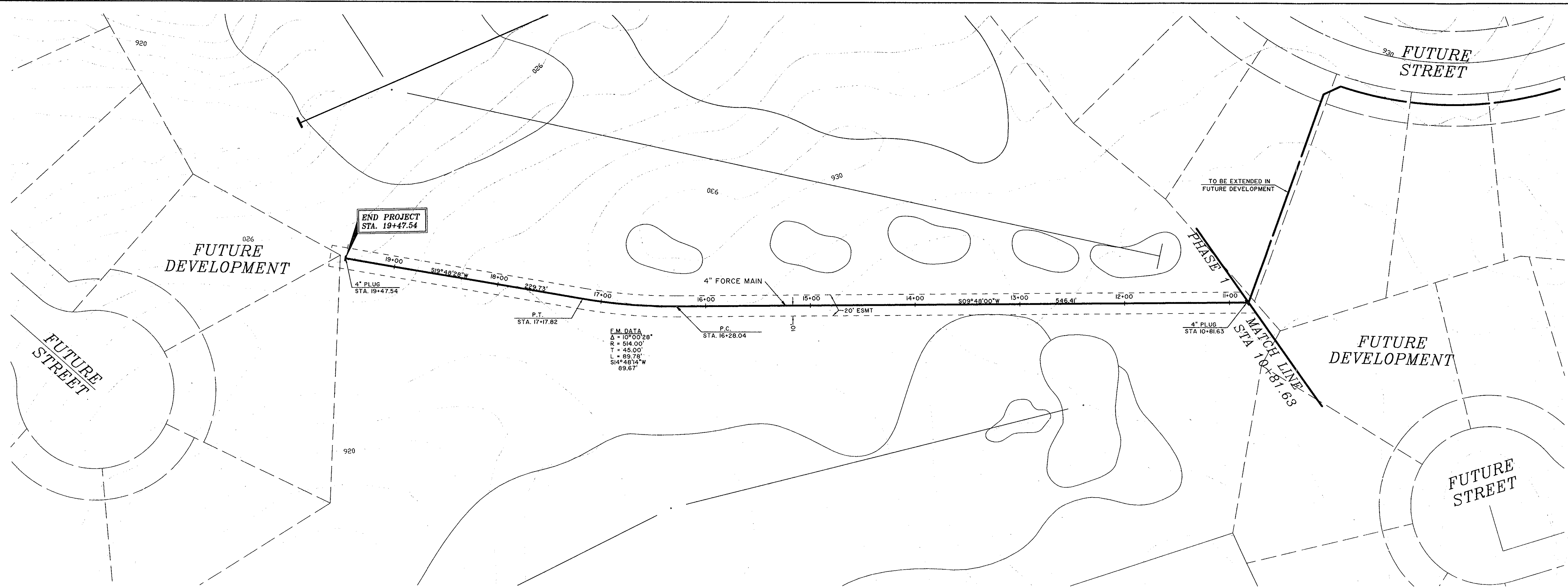
**TARTAN FIELDS  
MIDDLE FORCE MAIN**  
SANITARY PUMP STATION AND FORCE MAIN  
STA 26+00 TO 41+93.08

R.D. Zande & Associates, Inc.  
1237 Dublin Road Columbus, Ohio 43215  
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FAX (614)-486-4387

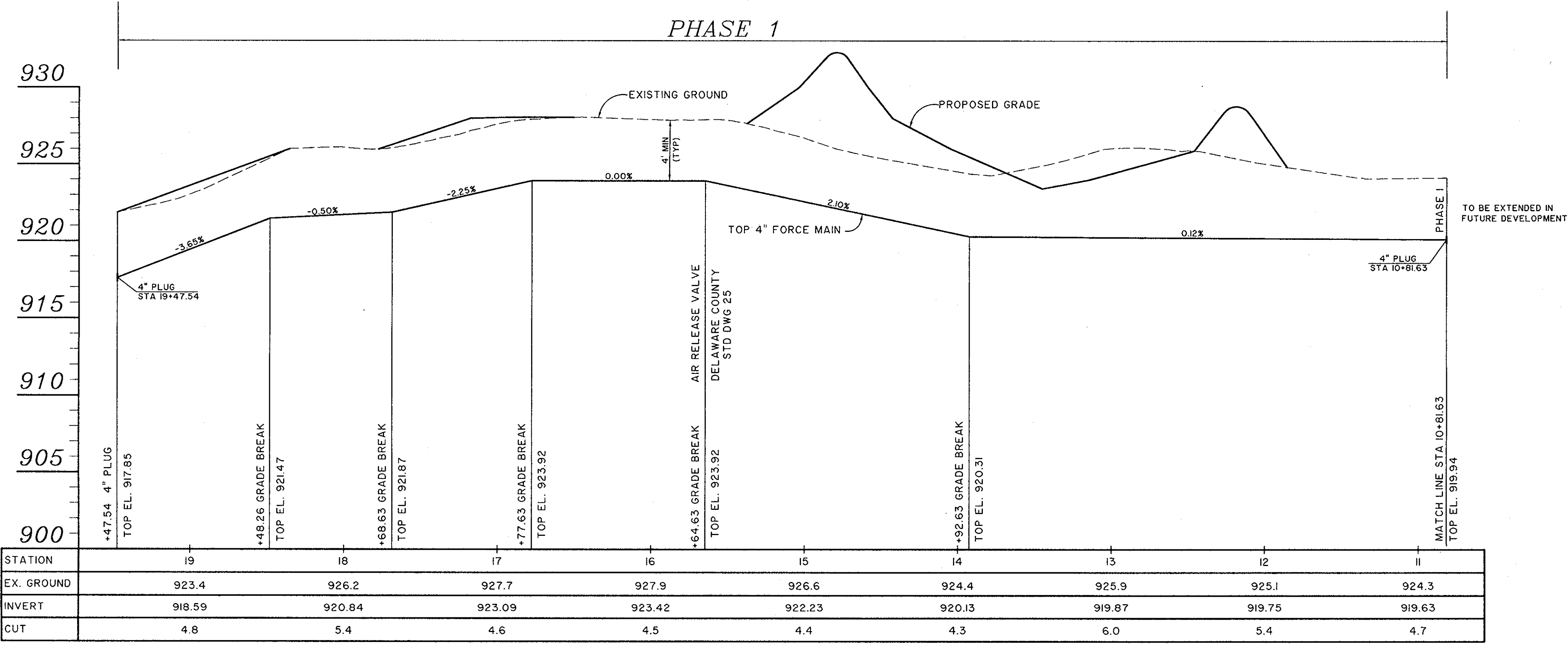
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'

8  
12





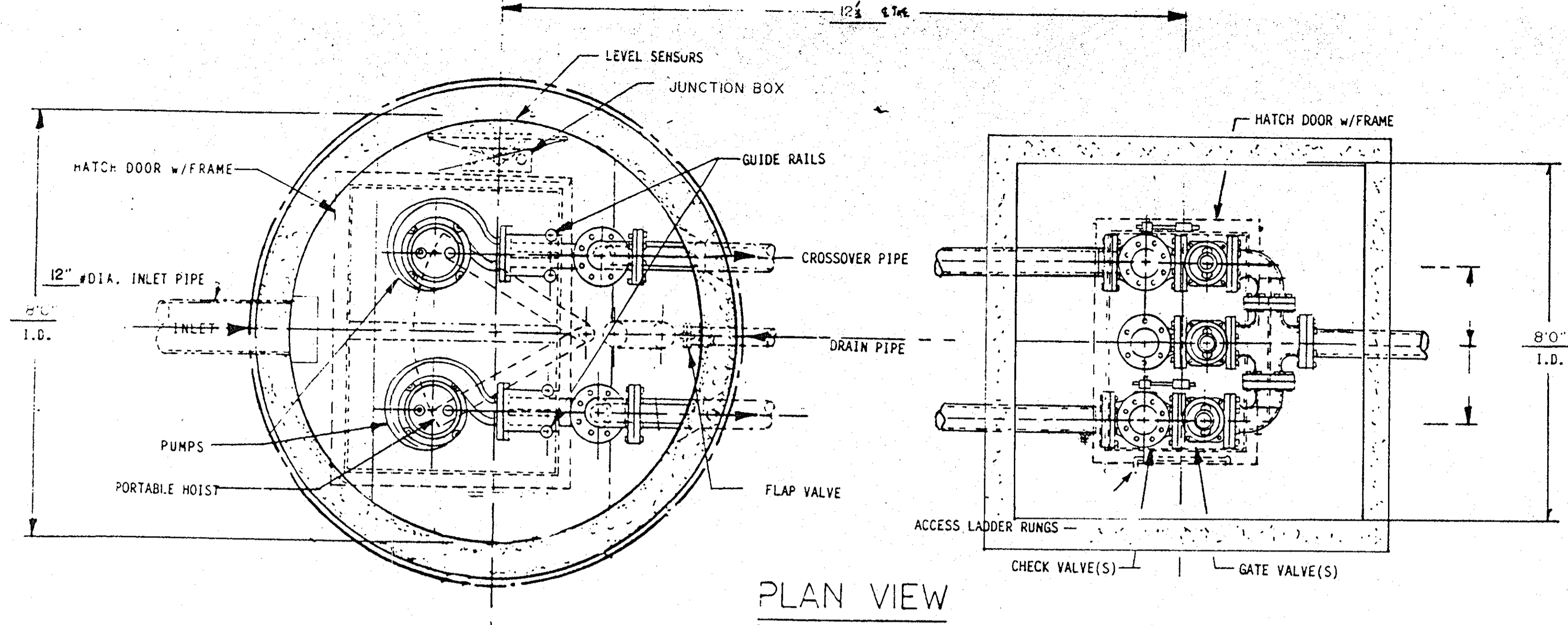
E.M. DATA  
 Δ = 10°00'28"  
 R = 514.00'  
 T = 45.00'  
 L = 89.73'  
 S14°48'14"W  
 89.67'



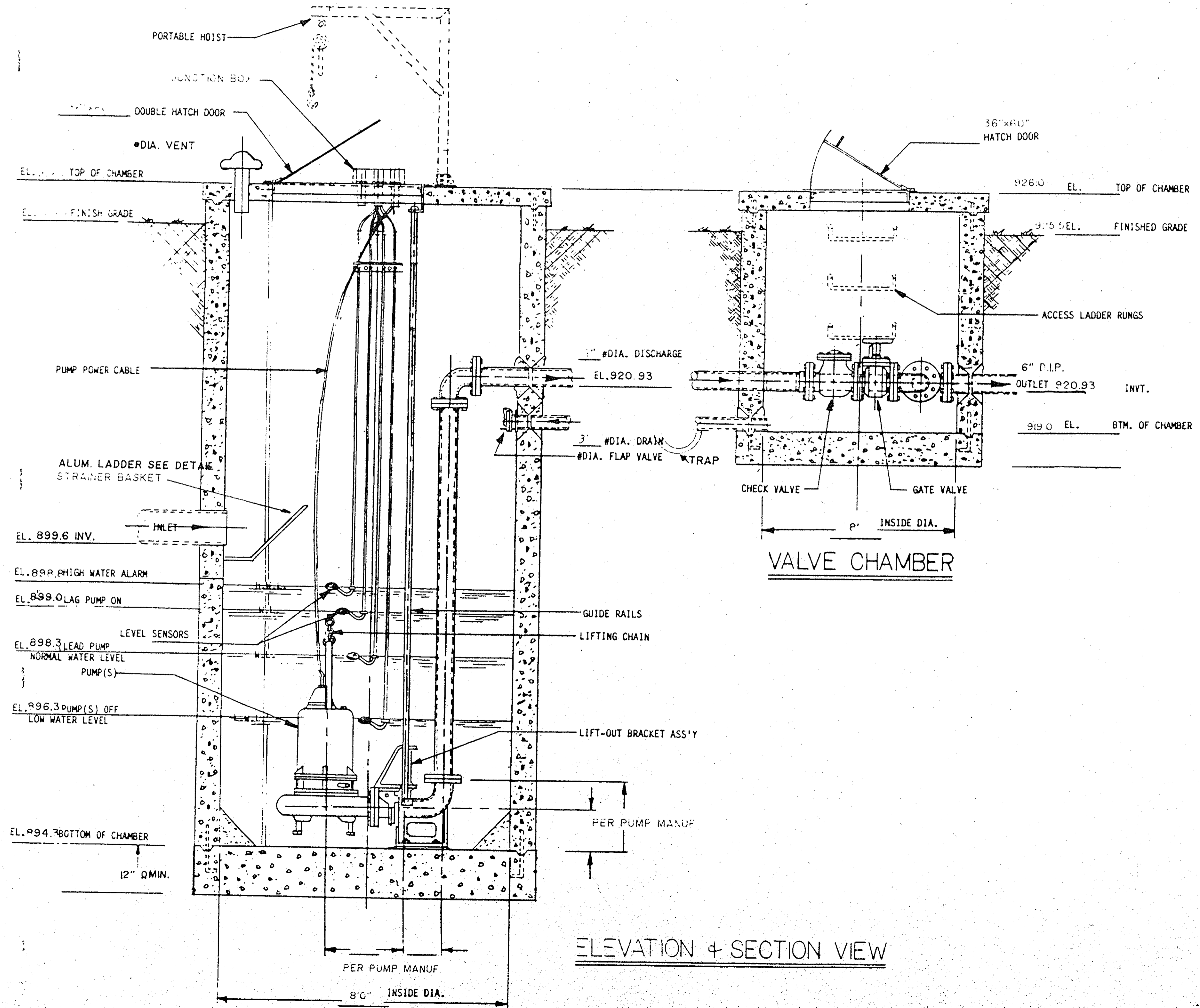
**TARTAN FIELDS  
 EAST FORCE MAIN**  
 SANITARY PUMP STATION AND FORCE MAIN  
 STA 10+81.63 TO STA 19+47.54

R.D. Zande & Associates, Inc.  
 1237 Dublin Road, Columbus, Ohio 43215  
 (614) 486-4383 1-800-340-2743  
 FAX (614)-486-4387

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



PLAN VIEW

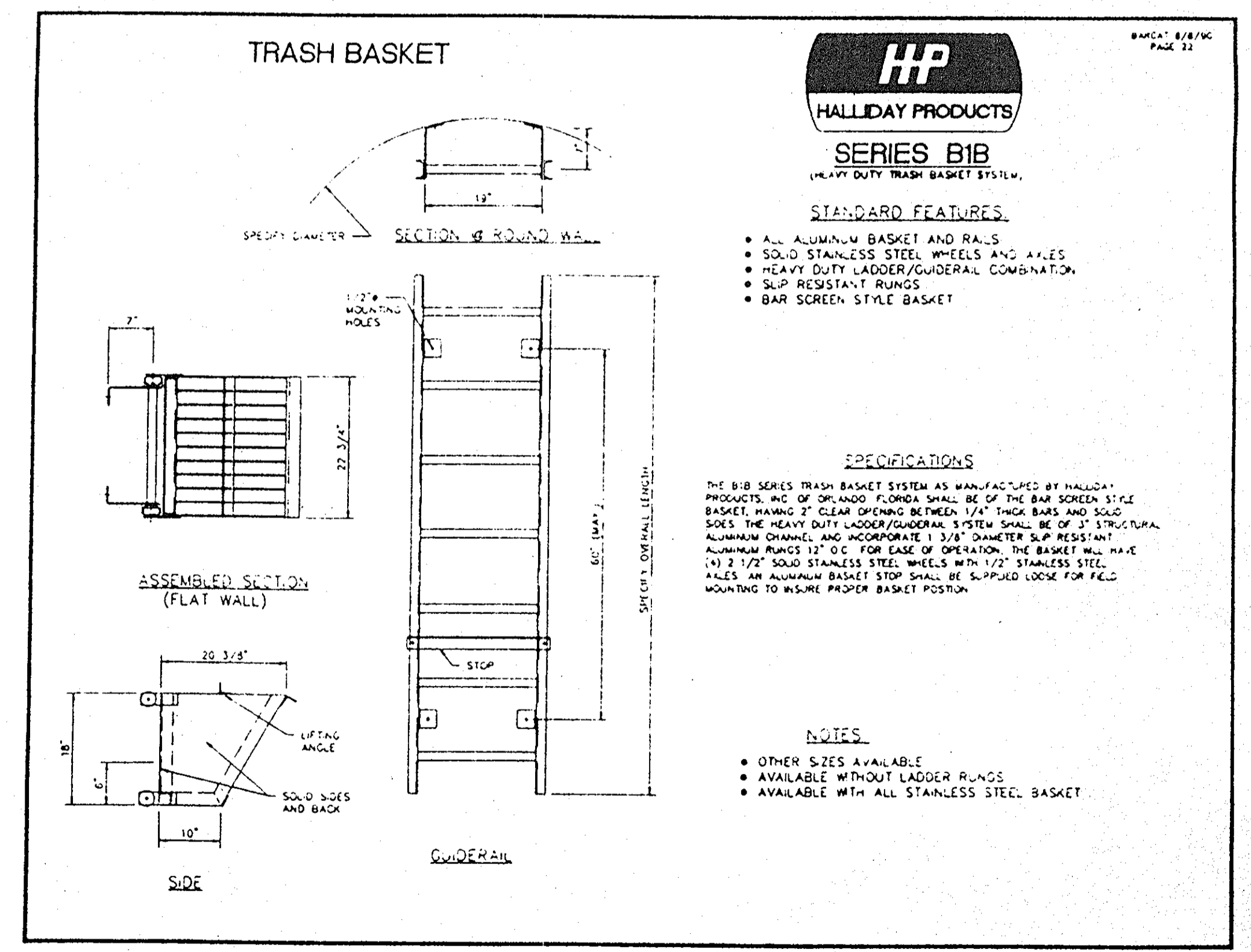


ELEVATION & SECTION VIEW

**LIFT STATION DESIGN - CONCORD RD PUMP STATION**

PROPOSED UNITS - 357 LOTS  
 SANITARY FLOW - 357 X 330 gpd/UNIT 117,810 gpd ADDF or 81.8 gpm  
 PEAK SANITARY FLOW - 117,810 X 2.5 (peaking factor) = 294,525 GPD PEAK FLOW  
 CONCENTRATION -  $\frac{294,525 \text{ GPD}}{1,440 \text{ minutes}} \div 204.5 \text{ GPM} \times 24 = 204.5 \text{ GPM PF}$   
 TOTAL PEAK FLOW - 204.5 GPM  
 WET WELL REQ. CAPACITY -  $\frac{204.5 \text{ GPM} \times 15 \text{ MIN}}{4 \text{ STARTS}} = 766.88 \text{ GAL. NEEDED}$   
 8 FT. I.D. WET WELL - 2'04" MINIMUM DRAWDOWN = 1014.66 GALS. SUPPLIED  
 STATIC HEAD - 980.50 - 896.3 = 84.2'  
 FRICTION LOSS - 4300' OF 6" PVC = 26.58' with station loss  
 DYNAMIC HEAD - 84.20' STATIC HEAD + 26.58' FRICTION LOSS = 110.78' TDH  
 PUMP WILL OPERATE AT 204.5 GPM @ 110.0' TDH

Revised 06/26/97



SHT. II OF 12

CONCORD RD.

REV. 6/26/97

REV. 5/29/97

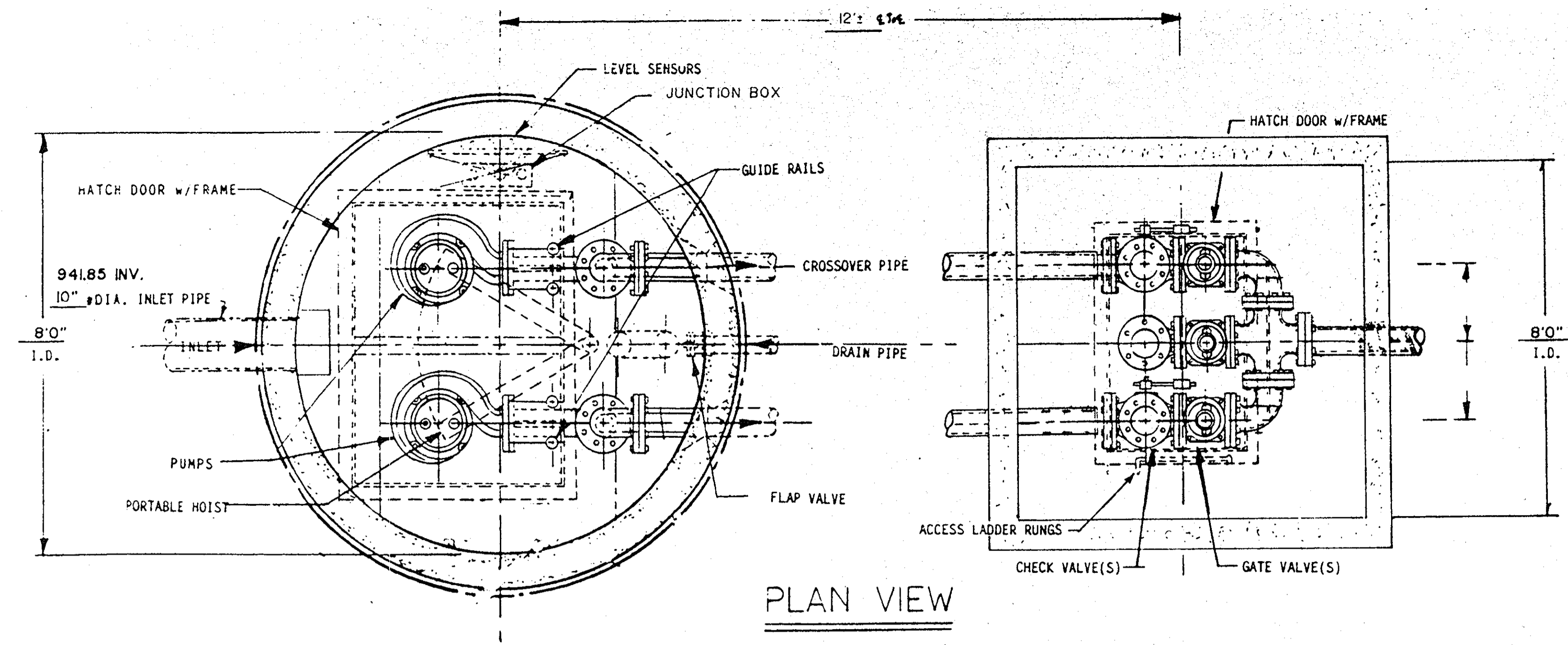
REV. 6/5/97

REV. 6/19/97

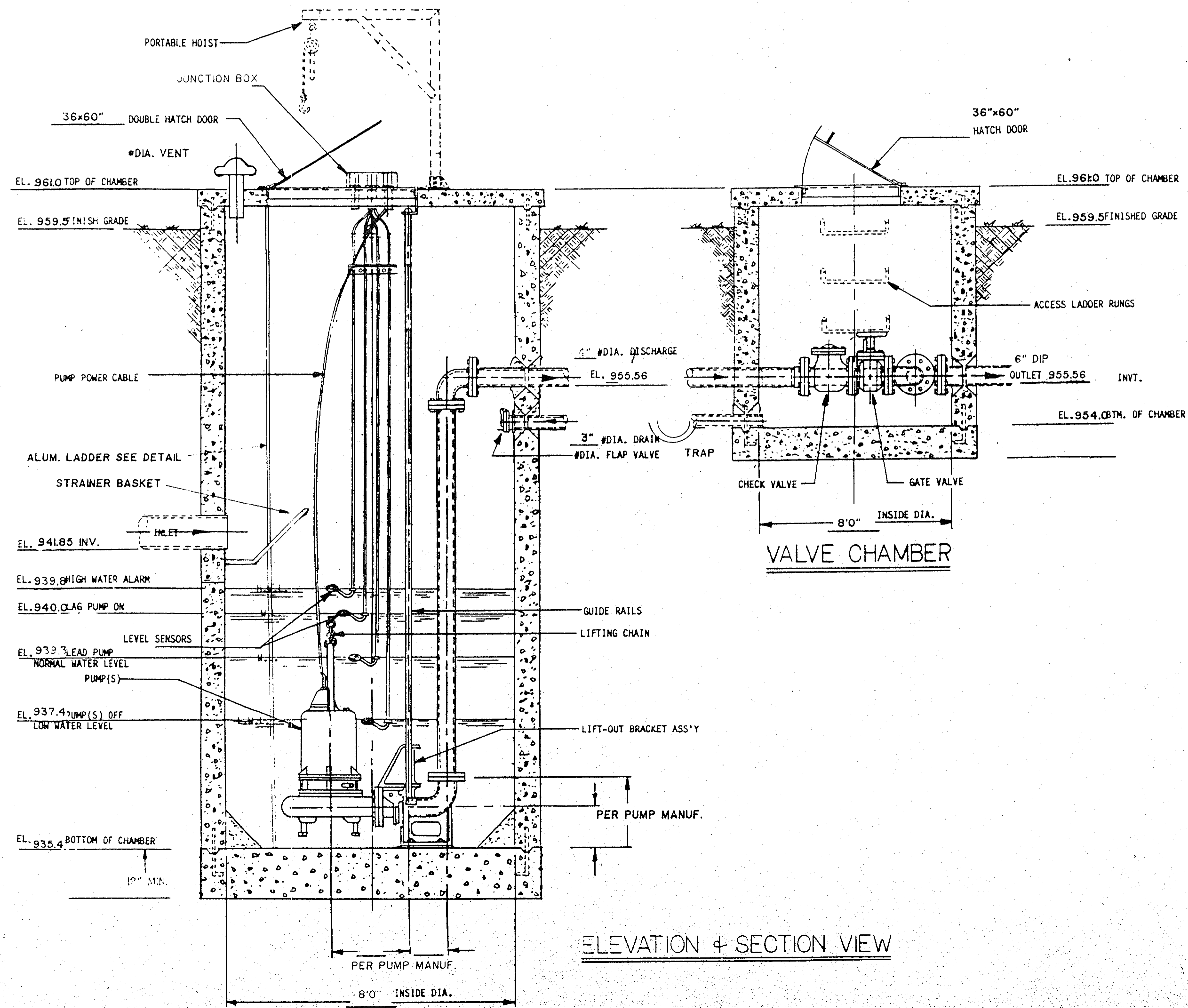
**AWI**

American Wastewater Industries, Inc.  
 • 106 Arndt Court • Fairfield, Ohio 45014  
 (513) 858-6690-Phone • (513) 858-6692-Fax

Tartan Fields Golf Club  
 Pump Station



PLAN VIEW



ELEVATION & SECTION VIEW

**LIFT STATION DESIGN - TILLINGHAST DR PUMP STATION**

PROPOSED UNITS - 333 LOTS  
 SANITARY FLOW - 333 X 330 gpd/UNIT 109,890 gpd ADDF or 76.3 gpm  
 PEAK SANITARY FLOW - 109,890 X 2.5 (peaking factor) = 274,725 GPD PEAK FLOW  
 CONCENTRATION - 274,725 GPD = 190.78 GPM x 24 = 190.78 GPM PF  
 1,440 minutes 24  
 TOTAL PEAK FLOW - 190.78 GPM  
 WET WELL REQ. CAPACITY - 190.78 GPM X 15 MIN = 715.43 GAL. NEEDED  
 4 STARTS  
 8 FT. I.D. WET WELL - 1.9' MINIMUM DRAWDOWN = 977.08 GALS. SUPPLIED  
 STATIC HEAD - 980.19 - 937.4 = 42.79'  
 FRICTION LOSS - 2700' OF 6" PVC @ 100 = 14.86'  
 DYNAMIC HEAD - 42.8' STATIC HEAD + 5.0 STATION LOSS + 14.86' FRICTION LOSS = 63.1' TDH  
 PUMP WILL OPERATE AT 200 GPM @ 62' TDH

Revised 06/26/97

**TRASH BASKET**

**HP**  
HALLIDAY PRODUCTS

**SERIES B1B**  
(HEAVY DUTY TRASH BASKET SYSTEM)

**STANDARD FEATURES:**

- ALL ALUMINUM BASKET AND RAILS
- SOLID STAINLESS STEEL WHEELS AND AXLES
- HEAVY DUTY LADDER/GUIDERAIL COMBINATION
- SLIP RESISTANT RUNGS
- BAR SCREEN STYLE BASKET

**SPECIFICATIONS**

THE B1B SERIES TRASH BASKET SYSTEM AS MANUFACTURED BY HALLIDAY PRODUCTS, INC. OF ORLANDO, FLORIDA SHALL BE OF THE BAR SCREEN STYLE BASKET, HAVING 1" CLEAR OPENING BETWEEN 1/2" THICK BARS AND SOLID SIDES. THE HEAVY DUTY LADDER/GUIDERAIL SYSTEM SHALL BE OF 3" STRUCTURAL ALUMINUM CHANNEL AND INCORPORATE 1 1/2" DIAMETER SLIP RESISTANT ALUMINUM RUNGS 12" O.C. FOR EASE OF OPERATION, THE BASKET WILL HAVE AXLES AND AN ALUMINUM BASKET STOP SHALL BE SUPPLIED LOOSE FOR FIELD MOUNTING TO INSURE PROPER BASKET POSITION.

**NOTES:**

- OTHER SIZES AVAILABLE
- AVAILABLE WITHOUT LADDER RUNGS
- AVAILABLE WITH ALL STAINLESS STEEL BASKET

SHT. 12 OF 12

TILLINGHAST DR.

REV. 6/26/97

REV. 5/29/97

REV. 6/5/97

REV. 6/19/97

**AWI**

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 106 Amick Court • Fairfield, Ohio 45014  
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Tartan Fields Golf Club  
 Pump Station