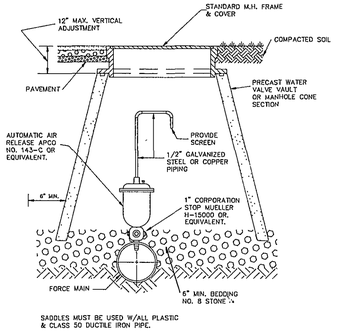
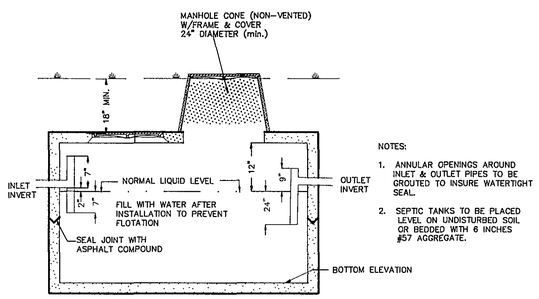
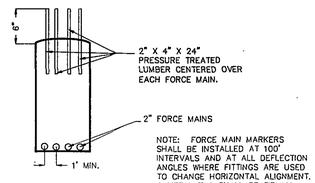


AUTOMATIC AIR RELEASE ASSEMBLY

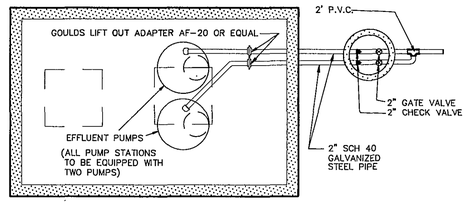


SEPTIC TANK

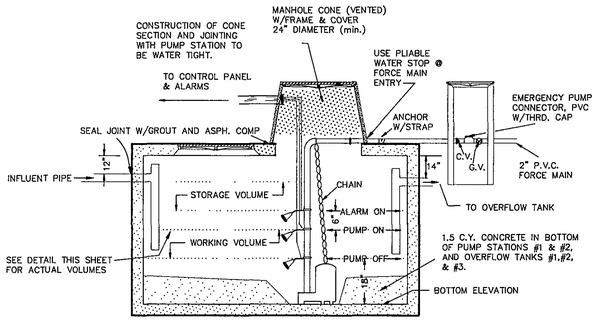


DETAIL
FORCE MAIN MARKER

NOTE: THE LIFT OUT ADAPTORS SHALL BE INSTALLED ON THE DISCHARGE LINES SO THAT THE PUMP AND DISCHARGE PIPING CAN BE REMOVED THROUGH THE ACCESS MANHOLE.



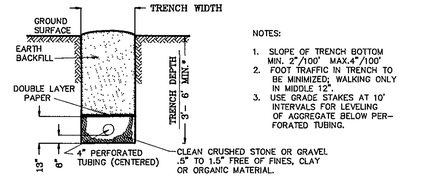
PLAN



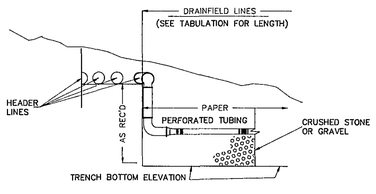
SECTION

NOTE: PROVIDE PLIABLE WATER STOPS AROUND ALL PIPES IN BOTH THE PUMP STATIONS AND OVERFLOW TANKS.

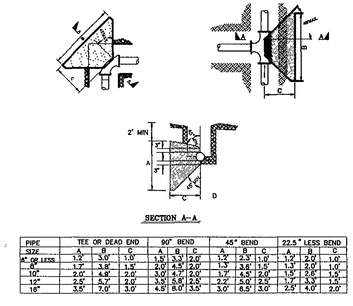
PUMP STATION



ABSORPTION TRENCH



HEADER LINE TO ABSORPTION TRENCH



PIPE SIZE	TEE OR DEAD END A	B	C	90° BEND A	B	C	45° BEND A	B	C	22.5° LESS BEND A	B	C
4" OR LESS	1.5'	3.0'	1.0'	1.5'	3.3'	2.0'	1.3'	2.3'	1.0'	1.3'	2.0'	1.0'
6"	1.7'	3.8'	1.5'	2.0'	4.0'	2.0'	1.5'	3.6'	1.5'	1.3'	2.0'	1.0'
10"	2.0'	4.8'	2.0'	3.0'	4.7'	2.0'	1.7'	4.5'	2.0'	1.5'	2.6'	1.5'
12"	2.5'	5.7'	2.0'	3.5'	5.8'	2.0'	2.2'	5.0'	2.5'	1.7'	3.3'	1.5'
18"	3.5'	7.0'	3.0'	4.5'	8.0'	3.5'	3.0'	6.5'	3.0	2.5'	4.0'	2.0'

NOTES:
1. THE ABOVE NOTED DIMENSIONS ARE MINIMUM BASED ON CONCRETE ANCHOR EXTENDING TO UNDISTURBED SOIL, LINE PRESSURE NOT TO EXCEED 150 PSI AND, MINIMUM SOIL BEARING CAPACITY OF 2500 PSF; UNSATISFACTORY SOIL BEARING OR EXCESS PRESSURE WILL REQUIRE ADDITIONAL DESIGN.
2. CONCRETE SHALL NOT BE POURED ON JOINTS OR BOLTS.
3. CONCRETE TO BE MINIMUM 3000 PSI - 28 DAY COMPRESSIVE STRENGTH.

THRUST BLOCK FOR HORIZONTAL & LOWER VERTICAL BENDS

DESIGN DATA AND SPECIFICATIONS

PUMP STATION OR SEPTIC TANK NUMBER	1	2	3	4
BUILDINGS	23A & 24B	25A & 25B	27B & 28A	29B & 30A
LOWEST FLOOR ELEVATION	809.75	812.25	815.25	817.00
NUMBER OF BEDROOMS	6	6	6	6
DESIGN FLOW (GPD)	900	900	900	900
SEPTIC TANK VOLUME (GAL)	2000	2000	2000	2000
PUMP STATION				
TOTAL VOLUME (GAL)	2000	2000	2000	2000
BOTTOM ELEVATION	799.00	799.00	802.00	806.5
PUMP DELIVERY (GPM)	29.0	28.0	29.0	34.0
VELOCITY (FPS)	3.0	2.9	3.0	3.5
TOTAL DYNAMIC HEAD (FT)	94.9	96.9	96.2	89.2
ELEVATION	867.00	868.0	868.0	866.0
WORKING VOLUME (AS DESIGNED) (GAL)	240	240	240	280
STORAGE VOLUME (AS DESIGNED) (GAL)	752	752	752	712
DEPTH OF WORKING VOLUME (FT)	1.98	1.98	1.98	1.88
PUMP MODEL	3885	3885	3885	3885

NOTES TO DESIGN DATA AND SPECIFICATIONS:

1. PUMPS: A. GOULDS 3885 WE15HH SUBMERSIBLE EFFLUENT PUMPS - 240 VOLT - SINGLE PHASE - 1 1/2 HP

2. CONTROLS: GOULDS A6 DUPLEX WITH AUDIO VISUAL ALARM, 4 EA. A2-3 MERCURY TYPE FLOAT SWITCHES OR EQUAL.. THIS UNIT WILL BE MOUNTED ON EXTERIOR OF APPROPRIATE UNIT. THEREFORE A COMPLETE NEMA III ENCLOSURE MUST BE PROVIDED. AUTOMATIC ALTERATION OF THE PUMPS SHALL BE PROVIDED. THE AUDIO VISUAL ALARM MUST SIGNAL THE FAILURE OF EITHER PUMP TO START.

3. PIPING AND VALVES: ALL GRAVITY LINES AND FORCE MAINS OUTSIDE PUMP STATIONS TO BE SCHEDULE 40 PVC WITH WELDED SLEEVES (WATERTIGHT). PIPE AND FITTINGS INSIDE PUMP STATIONS TO BE SCHEDULE 40 GALVANIZED STEEL. PERCOLATIONS LINES TO BE ADS #402 (ADVANCED DRAINAGE SYSTEMS), ASTM F-481 OR EQUAL. CHECK VALVES TO BE 2" BRONZE BODY CHECK VALVES. ALL FORCE MAIN PIPING SHALL BE TESTED TO 50 PSI FOR ONE HOUR WITH NO LEAKAGE PERMITTED.

PIPING SCHEDULE AS FOLLOWS:

	SIZE	MAX. BEND	MIN. SLOPE	MAX.SLOPE
BUILDING SEWERS	4"	45°	1.04%	
CONVEYANCE LINES	4"	90°	0.5%	
FORCE MAINS	2"	90°		
GRAVITY HEADERS	4"	90°	0.2%	
PERCOLATION LINES	4"	0°	0.16%	0.33%

4. SET BACK DISTANCES FOR SEPTIC TANKS, PUMPING STATIONS, DISTRIBUTION BOXES, HEADER LINES AND DRAINFIELD TRENCHES FROM PROPERTY LINES - 5'; BUILDING FOUNDATIONS - 10'; UTILITY LINES - 10'.

5. FOR DESIGN PURPOSES, THE 2,000 GALLON PUMP STATION WAS CALCULATED AS HAVING INSIDE DIMENSIONS OF 10.5'L X 5.0'W X 6.0'H. THESE DIMENSIONS WILL VARY DEPENDING ON THE MANUFACTURER. WHEN THE DIMENSIONS VARY, THE CONTRACTOR MUST ADJUST PUMP ON, OFF, AND ALARM POINTS, SUCH THAT OPERATION IS IN ACCORDANCE WITH THE SEWAGE HANDLING AND DISPOSAL REGULATIONS. DIMENSIONS OF TANK USED MUST BE PROVIDED TO THE DESIGN ENGINEER DURING FINAL INSPECTION.

GENERAL NOTES:

1. LOCATIONS OF DRAIN FIELDS, SEPTIC TANKS, PUMP STATIONS, PIPE LINES AND DISTRIBUTION BOXES ARE APPROXIMATE AND ARE SUBJECT TO MINOR ADJUSTMENTS DURING CONSTRUCTION. HOWEVER, SEPTIC TANKS, PUMP STATIONS AND DISTRIBUTION BOXES MUST BE SET AT THE ELEVATION SHOWN. ANY DEVIATIONS MUST BE APPROVED BY THE ENGINEER AND LOCAL HEALTH DEPARTMENT.

2. ALL CONSTRUCTION OF THESE SEWERAGE SYSTEMS TO BE IN ACCORDANCE WITH STATE BOARD OF HEALTH SEWAGE HANDLING AND DISPOSAL REGULATIONS. EXCAVATION PRACTICES MUST FOLLOW OSHA REQUIREMENTS.

3. HEAVY WHEELED VEHICLES ARE PROHIBITED FROM DRAINFIELD AREAS AFTER CONSTRUCTION.

4. SEPTIC TANKS, DISTRIBUTION BOXES AND DRAINFIELD AREAS ARE TO BE CLEARLY MARKED FOR POST-CONSTRUCTION LANDSCAPING. LANDSCAPING EQUIPMENT IS NOT TO BE ALLOWED TO DRIVE DIRECTLY OVER THE DISTRIBUTION BOXES.

5. EXCAVATING EQUIPMENT USED TO CONSTRUCT THE ABSORPTION TRENCHES IS TO BE OF A DESIGN SO AS NOT TO COMPACT THE TRENCH BOTTOM OR THE 13" SIDEWALL AREAS.

6. FINAL SURFACES OF DRAINFIELD AREAS ARE TO BE GRADED TO DRAIN SUCH THAT SURFACE RUNOFF WILL NEITHER POND NOR FLOW IN CONCENTRATION OVER THE DRAINFIELD.

7. BEDDING: ALL BUILDING SEWERS, GRAVITY CONVEYANCE PIPES, FORCE MAINS, AND GRAVITY HEADER PIPES ARE TO BE BEDDED TO PROVIDE UNIFORM SUPPORT THROUGHOUT. IF ROCK IS ENCOUNTERED DURING EXCAVATION IT SHALL BE OVEREXCAVATED A MINIMUM OF 6 INCHES BELOW GRADE AND BACKFILL WITH STONE.

8. BACKFILL AND TAMPING: TRENCHES FOR BUILDING SEWERS, GRAVITY CONVEYANCE PIPES, FORCE MAINS AND GRAVITY HEADER PIPES ARE TO BE BACKFILLED WITH MATERIAL FREE OF LARGE STONES AND CLUMPS OF EARTH. AFTER ACCEPTANCE, THE TRENCHES WILL BE TAMPED AS SOON AS POSSIBLE, TO PREVENT MOVEMENT OF PIPES. IN AREAS WHERE FORCE MAINS CROSS, A MINIMUM VERTICAL SEPARATION OF 6" MUST BE MAINTAINED.

9. DISTRIBUTION BOXES FOR ALL BUILDINGS TO BE PERMANENTLY LEVELED BY BONDING TO A 4" POURED-IN-PLACE CONCRETE PAD 6" WIDER THAN DISTRIBUTION BOX. FORCE MAIN DISCHARGE SHALL BE BAFFLED IN DISTRIBUTION BOX.

10. ALL SEPTIC TANKS, PUMP CHAMBERS, AND DISTRIBUTION BOXES TO BE PRECAST CONCRETE CONFORMING WITH THE STATE BOARD OF HEALTH SEWAGE HANDLING AND DISPOSAL REGULATIONS.

11. DRAINFIELD TRENCHES FOR EACH DRAINFIELD ARE TO BE INSTALLED WITHIN THE BOUNDARIES SHOWN ON THE SITE PLAN.

12. THRUST BLOCKS OR RESTRAINED JOINTS REQUIRED AT ALL FITTED BENDS IN FORCE MAIN.

13. ALL OF THE DRAIN FIELDS FOR THIS PHASE MUST BE STAKED OUT AND THEIR LOCATIONS APPROVED BY THE ENGINEER AND THE LOCAL HEALTH DEPARTMENT PRIOR TO THE INSTALLATION OF ANY DRAIN FIELD.

14. WHERE THE EARTH COVER ON ANY SEPTIC TANK, PUMP STATION OR OVERFLOW TANK EXCEEDS 3'-0", THE TANK SUPPLIER WILL FURNISH THE DESIGN ENGINEER WITH A CERTIFIED STATEMENT BY A CERTIFIED PROFESSIONAL ENGINEER THAT THE TANK SUPPLIED IS ADEQUATE TO SUPPORT THE LOADS IMPOSED BY BACKFILL AT THE LOCATION SHOWN. DETAILS OF REINFORCING AND WALL THICKNESS WILL ALSO BE PROVIDED.

15. MANHOLE COVER OVER PUMP STATIONS TO BE VENTED. MANHOLE COVERS OVER SEPTIC TANKS TO BE UNVENTED TO PREVENT ODORS.

DRAIN FIELD DATA

DRAIN FIELD NUMBER	23A & 24B	25B & 26A	27B & 28A	29B & 30A
NUMBER OF LINES	8	8	6	8
LENGTH OF LINES (FT)	75'	75'	100'	85'
DEPTH OF LINES (IN)	48"	48"	60"	60'

THE SEWERAGE SYSTEMS PLANS WERE DEVELOPED IN CONSULTATION WITH MR. FRANK DAVIS, RTE. 1, BOX 214A, ROCKY MOUNT, VIRGINIA, WHO PROVIDED THE FOLLOWING:

1. GENERAL LAYOUT OF THE SYSTEMS.
2. LOCATION, SIZE AND DEPTH OF DRAINFIELDS.

CONSTRUCTION NOTES:
SEPTIC TANKS, PUMP STATIONS, AND OVERFLOW TANKS SHALL BE BEDDED WITH AT LEAST 6" OF SAND OR FINE GRAVEL WHERE ROCK OR OTHER UNDESIRABLE CONDITIONS ARE ENCOUNTERED. BACKFILLING OF THE EXCAVATION SHALL BE DONE IN LAYERS WITH SUFFICIENT TAMPING TO AVOID SETTLING. BACKFILL MATERIAL SHALL BE FREE OF LARGE STONES AND DEBRIS.

REVISION	DATE	DESCRIPTION

DESIGNED GLR, KLR
DRAWN PB
CHECKED GLR

SANITARY SEWER NOTES & DETAILS
FOR
"ISLAND GREEN POINTE, PHASE II"
AT
THE WATERS EDGE
PROPERTY OF:
WILLARD CONSTRUCTION OF ROANOKE VALLEY, INC.
UNION HALL MAGISTERIAL DISTRICT
FRANKLIN COUNTY, VIRGINIA

LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA

SCALE: AS SHOWN
DATE: 14 AUG. 1991
COMM: #84-665
SHEET 9 of 11