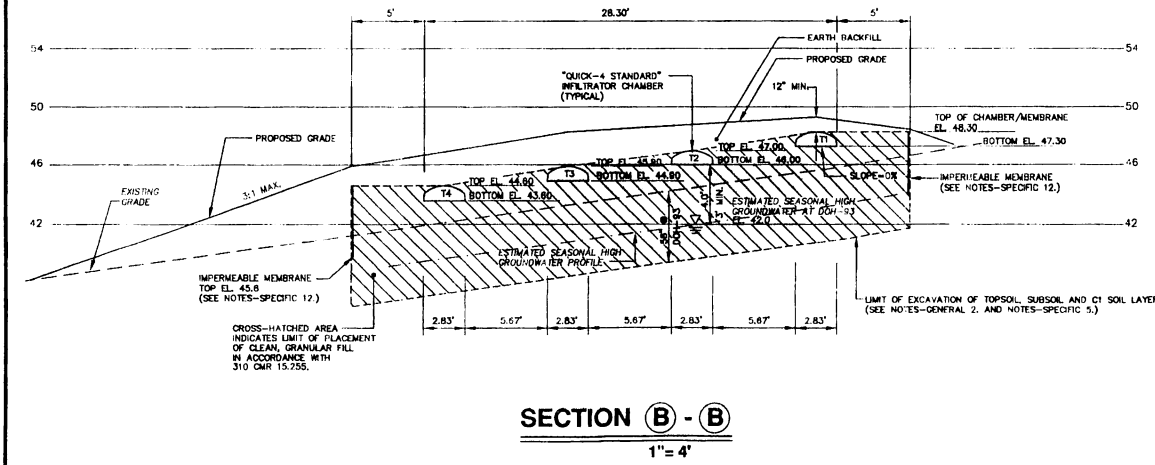


(\*) CONTRACTOR TO VERIFY ELEVATION OF BUILDING SEWER PRIOR TO INSTALLATION OF SYSTEM COMPONENTS. ALL INTERIOR PLUMBING SHALL BE ROUTED TO NEW BUILDING SEWER LOCATION/ELEVATION.

**PROFILE A - A**  
1" = 4'



**SECTION B - B**  
1" = 4'

**NOTES - SPECIFIC (CONT.)**

- 6. DESIGN DATA: EXISTING 4-BEDROOM DWELLING  
 CALCULATE DAILY SEWAGE FLOW  
 4 BEDROOMS x 150 GALLONS PER DAY (GPD) PER BEDROOM = 600 GPD  
 CALCULATE SEPTIC TANK SIZE  
 TITLE 8 - TANK = 200% OF DAILY FLOW  
 600 GPD x 2 = 1,200 GALLONS  
 USE 1500 GALLON MONOLITHIC TANK  
 CALCULATE LEACHING AREA REQUIREMENT (TITLE 8)  
 PERCOLATION RATE = 20 MINUTES PER INCH = 0.53 GPD PER SQUARE FT.  
 L.T.A.R. - CLASS II SOIL = 1,132.1 SQUARE FT.  
 LEACHING AREA PROVIDED:  
 SEE DEP REMEDIAL USE APPROVAL FOR INFILTRATOR SYSTEMS QUICK-4 STANDARD INFILTRATOR  
 AREA = 836 S.F./A.F. (TRENCH CONFIGURATION)  
 4 ROWS @ 44' (11 CHAMBERS PER ROW) = 178 L.F.  
 178 L.F. X 8.98 S.F./L.F. = 1,598 S.F. > 1,132.1 S.F.  
 BUTYRACY CALCULATIONS:  
 SEPTIC TANK  
 GROUNDWATER ESTIMATED AT 1.7' BELOW EXISTING GRADE (NEARBY TEST)  
 BOTTOM OF SEPTIC TANK AT 8.6' BELOW EXISTING GRADE  
 DEPTH OF WATER DISPLACED = 4.1'  
 FORCE OF UPLIFT (82.4 lb./CF. X 56.7 S.F. X 4.1') = 15,018 lbs.  
 WT. OF TANK (FROM MANUFACTURER) = 12,715 lbs.  
 WT. OF BACKFILL (100 lb./CF. X 0.6' X 64.3 S.F.) = 3,925 lbs.  
 TOTAL = 17,643 lbs.  
 SAFETY FACTOR (17,643/15,018) = 1.2  
 PUMP CHAMBER  
 GROUNDWATER ESTIMATED AT 1.7' BELOW EXISTING GRADE  
 BOTTOM OF PUMP CHAMBER AT 6.7' BELOW EXISTING GRADE  
 DEPTH OF WATER DISPLACED = 4.5'  
 FORCE OF UPLIFT (82.4 lb./CF. X 43.8 S.F. X 4.5') = 12,243 lbs.  
 WT. OF TANK (FROM MANUFACTURER) = 14,823 lbs.  
 WT. OF BACKFILL (100 lb./CF. X 0.6' X 48.3 S.F.) = 3,854 lbs.  
 TOTAL = 18,699 lbs.  
 SAFETY FACTOR (18,699/12,243) = 1.5
- 7. MINIMUM EARTH COVER OVER INFILTRATION CHAMBERS IS 12 INCHES. MINIMUM COVER OVER SEPTIC TANK AND PUMP CHAMBER IS 8 INCHES.
- 8. THE SEPTIC TANK SHALL BE A 1,500 GALLON MONOLITHIC H=20 TANK. THE PUMP CHAMBER SHALL BE A 1,000 GALLON MONOLITHIC H=20 TANK. BOTH TANKS SHALL BE MANUFACTURED BY QUICK-4 STANDARD INFILTRATOR SYSTEMS, INC. ALL RISERS AND COVERS SHALL BE INSTALLED TO GRADE AND SHALL BE WATER-TIGHT. A HYDRA-MATIC SEWAGE PUMP OR APPROVED EQUIVALENT, SHALL BE INSTALLED IN THE PUMP CHAMBER.
- 9. POLYVINYL CHLORIDE PIPING SHALL MEET THE FOLLOWING SPECIFICATIONS:  
 SCH 40 = HEAVY DUTY SEWER PIPE (ASTM D 1782), OF SMOOTH, WASTE AND VENT PIPE (ASTM D 2965).  
 ALL JOINTS SHALL BE MADE WATER-TIGHT AND PROTECTED AGAINST DAMAGE FROM ROOTS.
- 10. AGGREGATE LISTS IN THE SOIL ABSORPTION AREA SHALL BE DOUBLE WASHED AND MEET THE FOLLOWING REQUIREMENTS:  

LEACHING STONE		FILTER STONE	
SIZE	PERCENT PASSING	SIZE	PERCENT PASSING
3/8 INCH	100	3/4 INCH	100
200 SIEVE	<0.5	200 SIEVE	<0.5
- 11. THE EXISTING DISPOSAL SYSTEM SHALL BE ABANDONED. STRUCTURES SHALL BE PUMPED CLEAN, BROKEN IN PLACE, AND BACKFILLED WITH CLEAN GRANULAR FILL.
- 12. THE IMPERMEABLE MEMBRANE SHALL CONSIST OF A CONTINUOUS LENGTH OF HDPE PLASTIC OR RUBBER FOOTING HAVING A MINIMUM THICKNESS OF 40 MIL. MEMBRANE SHALL EXTEND FROM A MINIMUM OF 1 FOOT BELOW THE EXISTING GRADE UP TO THE DIVISION OF THE TOP OF THE HIGHEST INFILTRATOR CHAMBER WITHIN ITS FEET, BACKFILL WITH CLEAN SAND.
- 13. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR COMPATIBLE MARKS.

**SUBSURFACE SEWAGE DISPOSAL SYSTEM REPAIR PLAN**  
 prepared for  
**HAYDOCK REAL ESTATE TRUST**

154 ARGILLA ROAD IPSWICH, MA

**GRAHAM ASSOCIATES, INC.**  
 CIVIL ENGINEERS  
 TWO CENTRAL STREET, IPSWICH, MA 01938 (978) 356-2756

DRAWN BY: HCT	CHECKED BY: HLG/GMM	PROJECT NO. 05-241-A
DATE: NOVEMBER 15, 2007		SCALE: AS SHOWN
REVISION NO. 1: 12/31/07 - PER HEALTH AGENCY'S 12/07/07 REVIEW COMMENTS.		SHEET 2 OF 3

