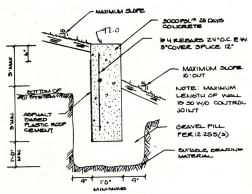


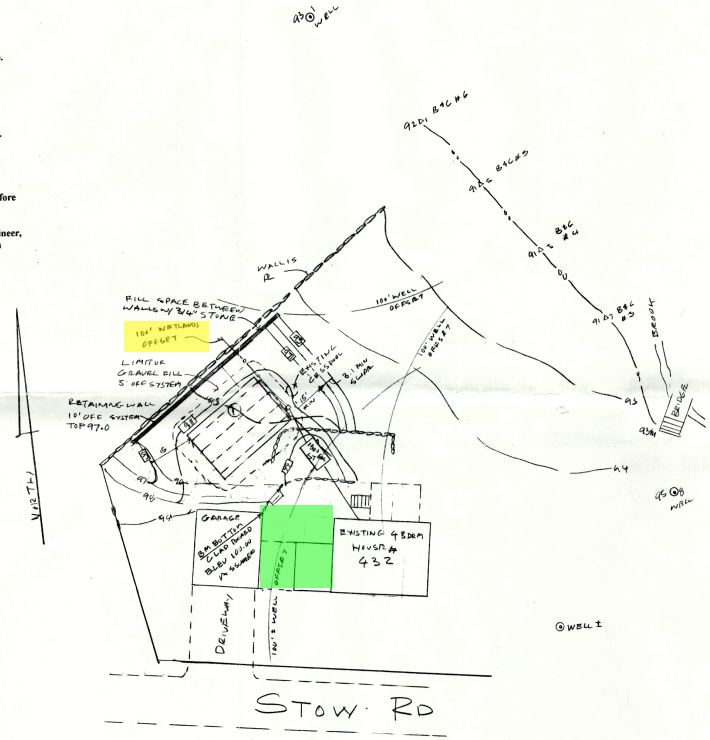

SHORT RETAINING WALL
NOT TO SCALE

**NOTES:**

**1. I, Mark T. Donohoe, PE certifies that the retaining walls shown above meet the criteria of 310 CMR 15.255(2).**

**2. The following [ at a minimum] shall be witnessed by the design engineer in order for him to certify the wall's construction, as required by 310 CMR 15.225(2)(d).**
**a. All excavations prior to placement of forms.**
**b. All reinforcing steel prior to pouring of concrete.**
**c. The wall while being poured.**
**d. The wall after waterproofing and before back fill.**

**3. The contractor shall inform the Engineer, in writing of any expected construction difficulties.**



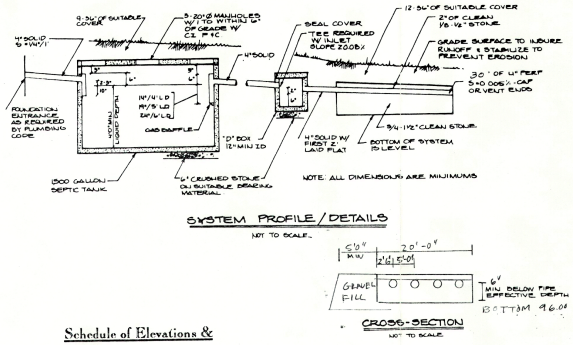

NOTE: PROPERTY IS IN A RIVER FRONT AREA

**NOTE:**
**Breakout fill is within 100 feet of bordering vegetated wetlands determined by others - a filing w/ the Conservation Commission will be required.**

**By scaling from the Boxborough Assr's Maps breakout fill may also be within 100' of W - Wetlands Protection overlay zone - an opinion from the Zoning Enforcement Officer [Building Inspector] should be obtained to determine if a filing for a Special Permit is required.**

**SITE PLAN**
**Scale: 1" = 20'**

**LEGEND**
- 100 — EXISTING CONTOUR
- 100 — PROPOSED CONTOUR
- PERCOLATION TEST
- OBSERVATION HOLE
- S — SEWER LINE
- W — PRESSURE WATER LINE
- EDGE OF PAVEMENT




SYSTEM PROFILE / DETAILS
NOT TO SCALE




CROSS-SECTION
NOT TO SCALE

**Schedule of Elevations & Pipes:**

| | |
|---|---|
| Top of Concrete | EXIST |
| Invert @ Building | 97.40 |
| Bldg Sewer: L= 20 | S=0.11'/' |
| Septic Tank Inlet | 97.20 |
| Septic Tank Outlet | 97.03 |
| Top of Tank | 98.15 |
| Sewer: L= 12 | S=0.12'/' |
| D Box Inlet | 96.90 |
| D Box Outlet | 96.73 |

BED ELEVS

TOP BED 97.05
HIGH INV 96.65
LOW INV 96.50
BOTTOM OF BED 96.00

SUBSURFACE EXPLORATIONS:
OBSERVED BY S. DILLIS

**Witnessed by: J. Giorgio**

FORM 11 - SOIL EVALUATOR FORM
Page 2 of 3

Location Address or Lot No. STOW RD BOXBORO

***On-site Review***

Deep Hole Number 1 Date: 11/20 Time: 9:00 Weather CLOUDY
Location (identify on site plan) ----
Land Use EV Slope (%) 2 Surface Stones
Vegetation LAWN
Landform CUT-OVER FLOW
Position on landscape (sketch on the back)
Distances from:
Open Water Body ---- feet Drainage way feet
Possible Wet Area ---- feet Property Line feet
Drinking Water Well ---- feet Other

**DEEP OBSERVATION HOLE LOG** 1 95.0 11/20/96

| Depth from Surface (inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 9 | AP | SL | 10YR 3/4 | - | GRANS |
| 30 | BW | SL | 10YR 5/6 | MINIMAL | FRIABLE |
| 66 | C1 | S | 2.5Y 6/2 | 2.5Y 6/2, 10YR 5/6 | LOOSE 20% GRAVEL |
| 120 | C2 | S | 2.5Y 6/2 | 10YR 5/6 | FRIABLE - MASSIVE SAND |

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) OUTWASH Depth to Bedrock: -
Depth to Groundwater: Standing Water in the Hole: 70" Weeping from Pit Face: 70
Estimated Seasonal High Ground Water: 48

DEP APPROVED FORM - 12/07/95

**General Notes:**

1. **Plan was prepare, for named client, to show the design of the subsurface sewage disposal system in accordance with Title 5 and any more restrictive regulations of the Board of Health.**
2. **Buildings and property lines are graphic, only.**
3. **Property plans, zoning regulations, etc. shall be reviewed and confirmed as being most recent. Other regulations, including wetlands, may apply to construction.**
4. **Design is based on a topographic plan showing the visually apparent feature of the site in the environs of the system, on the date of topography, and the subsurface explorations listed on this plan.**
5. **Contractor shall call inform engineer of any deficiencies prior to initiation of construction.**
6. **Sewage disposal system shall be offset a minimum of 10' from any drain, 50' from any surface waters or wetlands, 100 feet from water supplies, or as otherwise required by State and local regulations.**
7. **All known drinking wells within 200' of the sewage disposal system are shown, or indicated,**
8. **All known sewage disposal systems within 200' of the proposed well are shown or indicated, unless a community water supply is to be utilized.**
9. **The system shall be properly maintained and utilized including, but not limited to, the pumping of the septic tank when the sludge depth exceeds 1/8 of the liquid depth [about every 2 years].**
10. **Any deviation in construction from this plan, the design and maintenance conditions, or Title 5 and local regulations shall void any certification or representation made relative to the system.**

**Construction Notes:**

1. **Contractor shall call dig safe [1-800-322-4844] prior to initiating construction.**
2. **Construction shall proceed in an orderly manner with all components being backfilled promptly.**
3. **Materials and workmanship shall conform to these plans, Title 5 and Board of Health regulations unless specified otherwise in writing.**
4. **System is vented through building plumbing.**
5. **All structures shall be of an approved design and made water tight.**
6. **All gravity piping shall be Schd 40 or SDR 35, unless specified otherwise, and installed as required by manufacturer.**
7. **Distribution outlets shall be level and a inlet tee [cut off 1" above outlets] shall be installed if inlet pipe slopes exceeds 8%**
8. **All large boulders, roots and other unsuitable materials encountered in excavations shall be removed.**
9. **All surfaces shall be scarified prior to placement of fill or stone.**
10. **When gravel fill is required all organic material shall be removed and fill in accordance with 310 CMR 15.255, shall be placed in a manner which will provide support and percolation.**
11. **Stone shall be durable and free from iron, fines and dust in place.**
12. **All backfill and other fill shall be clean earthen material free of large stones and frozen material placed to support the system, insure runoff, and be stabilized to prevent erosion.**

**Design Criteria:**

1. **System was designed to accommodate sanitary sewage associated with domestic usage consisting of waterborne putrescible waste, and for the design flow calculated below. System was not designed for the use of a garbage grinder.**

2. **FLOWS: 4 Bedrooms @ 110 gpd 440 gpd**

3. **SEPTIC TANK: 2 x Flow, or minimum size, 1,500 gallons-liquid capacity**

4. **LEACHING AREA:**
   - **A. Percolation rate used: 2 min/in**
   - **B. Soil Class: I**
   - **C. Application rate: 0.79 GPD/SF**
   - **D Areas provided:**
     - **1. Bottom area: 600**
     - **2. Sidewall: N/A**
     - **3. Total: 600**
   - **F. Capacity provided: 444 GPD**
   - **G. Groundwater offset: 4' - 5' REQUIRED - LOCAL UPGRADE VARIANCE**

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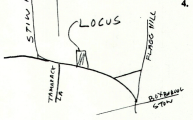



VARIANCE REQUIRED FOR EXISTING WELL BEING WITHIN 100' OF BUILDING SEWER & SEPTIC TANK

**PLAN OF PROPOSED SEWAGE DISPOSAL SYSTEM**

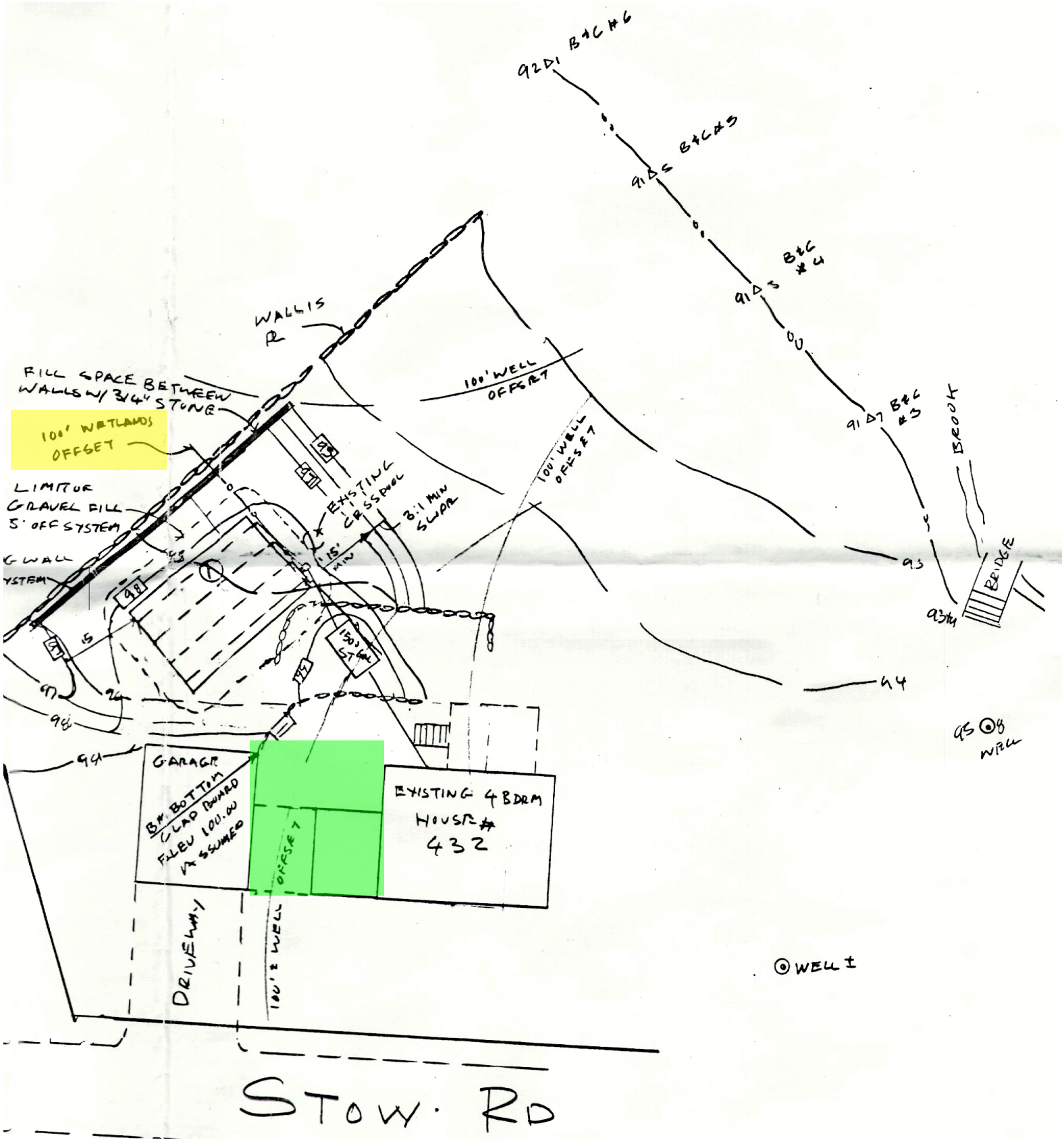
**PREPARED FOR**
G. Nichols Construction, Inc.

**AT**
Davidson Residence
432 Stow Road - Boxborough

MARK T. DONOHOE No. 27146 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS 3/31/97

**LAND DESIGN SERVICES, P O BOX 647, ACTON, MA 01720**
**(508) 635-9112**

**Rev 6/1/97**
**DATE: 3/31/97**
**FILE: 7943 - SDS 1/1**


92 D1 B+C #6
91 D5 B+C #5
91 D5 B&C #4
91 D7 B&C #3
BROOK
BRIDGE
WALLIS R
FILL SPACE BETWEEN WALLS W/ 3/4" STONE
100' WETLANDS OFFSET
100' WELL OFFSET
100' WELL OFFSET
LIMIT OF GRAVEL FILL 5' OFF SYSTEM
G WALL
YSTEM
EXISTING CB SSDWL
3:1 MIN SLOPE
15' MIN
150' GAL ST
GARAGE
8" BOTTOM
1/2 LAP BOARD
FILED 100.00
AS SUMED
OFFSET
EXISTING 4 BDRM HOUSE # 432
DRIVEWAY
100' ± WELL
95 WELL
WELL ±
STOW RD