

SOIL TEST ELEVATIONS			
HOLE NO.	GRADE	ESHW	BOTTOM
613-1	142.9	140.0	139.0
613-2	142.0	137.9	135.7
613-3	141.2	138.2	136.2
613-A	141.3	---	137.0

**ELEVATION DATUM**  
DATUM: ASSUMED

NOTE: IF THERE ARE NO BENCH MARKS WITHIN 75 FEET OF THE DISPOSAL SYSTEM TO BE INSTALLED, CONTRACTOR SHALL SET AT LEAST ONE BENCH MARK WITHIN SUCH PROXIMITY PRIOR TO ANY EXCAVATION.

**ASSESSORS REFERENCE:**

ASSESSORS MAP G1, LOT 154  
RECORD OWNER:  
FRANCIS J. & GERTUDE M. WIDMAYER  
11 DUGGAN ROAD  
ACTON, MA 01720

**PLAN NOTES:**

- CONTRACTOR TO REMOVE EXISTING LEACHING AREAS WITHIN 5 FEET OF THE EDGE OF THE PROPOSED PERC-RITE LEACHING AREA, JET TANK AND DOSING CHAMBER TO A DEPTH OF CLEAN SOILS BELOW EXISTING LEACHING AREA STONE AGGREGATE AND RECEIVING LAYER INTERFACE. CONTRACTOR TO COORDINATE TO HAVE ACTON BOARD OF HEALTH AND/OR DESIGN ENGINEER ON-SITE DURING EXCAVATION OR PRIOR TO PLACEMENT OF PROPOSED TITLE 5 SAND TO ENSURE PROPER DEPTH OF REMOVAL. BASED ON INFORMATION AVAILABLE AT THE ACTON BOARD OF HEALTH, THE BOTTOM OF THE EXISTING LEACHING AREAS IS BELIEVED TO BE APPROXIMATELY 3- FEET BELOW EXISTING GRADE.
- CONTRACTOR TO VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING BUILDING SEWERS PRIOR TO INSTALLATION OF THE PROPOSED LEACHING AREA OR TANKS. CONTACT DESIGN ENGINEER SHOULD CONFIRMED LOCATIONS VARY FROM THOSE SHOWN HEREON.

**LEGEND**

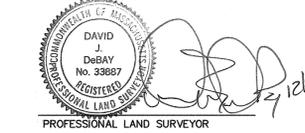
<b>EXISTING</b>	100	ELEVATION CONTOUR	<b>PROPOSED</b>	100.0	FG	SPOT GRADE
	10000	PROPERTY LINE				PROPERTY LINE
		BUILDING ENVELOPE				BUILDING ENVELOPE
		10-YR FLOODPLAIN LIMIT				10-YR FLOODPLAIN LIMIT
		100-YR FLOODPLAIN LIMIT				100-YR FLOODPLAIN LIMIT
		WETLAND EDGE WITH FLAG NO.				WETLAND EDGE WITH FLAG NO.
		25' NO-DISTURBANCE ZONE LIMIT				25' NO-DISTURBANCE ZONE LIMIT
		100' WETLAND BUFFER ZONE LIMIT				100' WETLAND BUFFER ZONE LIMIT
		SHORELINE				SHORELINE
		INTERMITTENT STREAM/DITCH				INTERMITTENT STREAM/DITCH
		200' RIVERFRONT ZONE LIMIT				200' RIVERFRONT ZONE LIMIT
		EDGE OF PAVEMENT				EDGE OF PAVEMENT
		GRAVEL/DIRT ROAD				GRAVEL/DIRT ROAD
		FENCE				FENCE
		STONE WALL				STONE WALL
		WATER MAIN				WATER MAIN
		WATER SERVICE				WATER SERVICE
		FOUNDATION DRAIN				FOUNDATION DRAIN
		FORCE MAIN				FORCE MAIN
		GRAVITY SEWER LINE				GRAVITY SEWER LINE
		GAS LINE				GAS LINE
		BURIED POWER LINE				BURIED POWER LINE
		STORM DRAIN				STORM DRAIN
		CATCH BASIN				CATCH BASIN
		DRAIN MANHOLE				DRAIN MANHOLE
		HAYBALE BARRIER				HAYBALE BARRIER
		SILT FENCE BARRIER				SILT FENCE BARRIER
		RETAINING WALL				RETAINING WALL
		DEEP SOIL OBSERVATION HOLE				DEEP SOIL OBSERVATION HOLE
		PERCOLATION TEST				PERCOLATION TEST
		SOIL BORING				SOIL BORING
		GROUNDWATER MONITORING WELL				GROUNDWATER MONITORING WELL
		ELEVATION BENCHMARK				ELEVATION BENCHMARK
		SURFACE RUNOFF DIRECTION				SURFACE RUNOFF DIRECTION

**ABBREVIATIONS**

TP	TOP OF PAVEMENT	TOP	TOP OF FOUNDATION
TW	TOP OF WALL	BDR	BEDROOM
FG	FINISH GRADE	GAR	GARAGE
FF	FIRST FLOOR		
LL	LOWER LEVEL		
BF	BOTTOM OF FOOTING		

**SURVEY NOTES:**

- OFFSETS ARE NOT FOR THE REPRODUCTION OF PROPERTY LINES.
- DESIGN REFERENCE NO. 1
- THE RESPONSIBILITY OF THE PROFESSIONAL LAND SURVEYOR IS LIMITED TO LAND BOUNDARY DATA AND EXISTING CONDITION INFORMATION ONLY.



**REMEDIAL USE APPROVAL** (310 CMR 15.284)

- "APPROVAL FOR REMEDIAL USE" PER MA DEP APPROVAL LETTER TO AMERICAN MANUFACTURING COMPANY, INC. DATE OF ISSUANCE: MARCH 4, 2011 [JANUARY 26, 2006, MODIFIED SEPTEMBER 11, 2007, FEBRUARY 26, 2008], EXPIRATION DATE: MARCH 4, 2016.  
AMERICAN MANUFACTURING COMPANY, INC.  
22011 GREENHOUSE ROAD, P.O. BOX 97  
ELKWOOD, VA 22718
  - "APPROVAL FOR REMEDIAL USE" PER MA DEP APPROVAL LETTER TO JET, INC. DATE OF ISSUANCE: JANUARY 30, 2012, REVISION DATE: NOVEMBER 05, 2012.  
JET, INC.  
750 ALPHA DRIVE  
CLEVELAND, OH 44143
- AND THE "STANDARD CONDITIONS FOR SECONDARY TREATMENT UNITS APPROVED FOR REMEDIAL USE" EFFECTIVE DATE: NOVEMBER 05, 2012.

**REQUESTED:**

SECTION II.5.A - A 50% REDUCTION IN THE SIZE OF THE EFFECTIVE LEACHING AREA CALCULATED USING THE LOADING RATES FOR GRAVITY SYSTEMS OF 310 CMR 15.242(1)(c) SITED IN SOILS WITH A PERCOLATION RATE OF 60 MINUTES OR LESS.

SECTION II.5.B - A REDUCTION OF REQUIRED GROUNDWATER OFFSET REQUIRED PER 310 CMR 15.212 TO 2 FEET IN SOILS WITH A RECORDED PERCOLATION RATE OF MORE THAN TWO MINUTES PER INCH.

SECTION II.5.C - A REDUCTION OF REQUIRED DEPTH OF NATURALLY OCCURRING PERVIOUS MATERIAL REQUIRED BY 310 CMR 15.240(1) TO 2.7 FEET WITH NO GREATER DEPTH AVAILABLE ELSEWHERE ON SITE.

**LOCAL BOARD OF HEALTH WAIVERS**

ACTON BOARD OF HEALTH RULES AND REGULATIONS  
ARTICLE 11, REGULATION 11-8.1 - DISPOSAL FACILITIES:  
REQUIRED: NO DISPOSAL AREA SHALL BE CONSTRUCTED WITH AN AREA LESS THAN 600 SQUARE FEET.  
REQUESTED: DISPOSAL AREA OF 575 SQUARE FEET WITH REMEDIAL USE APPROVAL OF JET SECONDARY TREATMENT UNIT.

ARTICLE 11, REGULATION 11-8.1.1 (TABLE 1) - DISPOSAL FACILITIES:  
REQUIRED: MINIMUM REQUIRED DISPOSAL AREA OF 900 SQUARE FEET FOR A DESIGN FLOW OF 440 TO 550 GALLONS PER DAY;  
REQUESTED: DISPOSAL AREA OF 575 SQUARE FEET FOR A DESIGN FLOW OF 550 GALLONS PER DAY WITH REMEDIAL USE APPROVAL OF JET SECONDARY TREATMENT UNIT.

**LOCAL UPGRADE APPROVAL** (310 CMR 15.405)

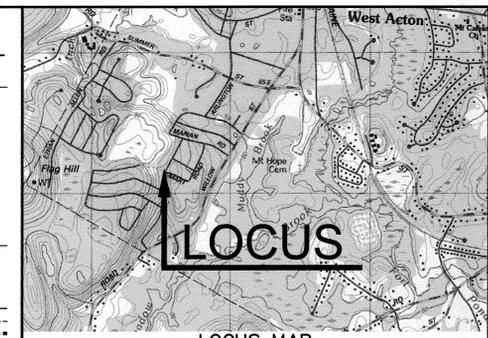
310 CMR 15.405(1)(A): REDUCTION OF SYSTEM LOCATION SETBACKS ESTABLISHED WITHIN 310 CMR 15.211 FROM PROPERTY LINES.  
REQUIRED: MINIMUM 10 FEET OFFSET FROM PROPERTY LINE TO TREATMENT UNIT, DOSING CHAMBER AND SOIL ABSORPTION SYSTEM.  
REQUESTED: MINIMUM 5 FOOT OFFSET FROM PROPERTY LINE TO TREATMENT UNIT, DOSING CHAMBER AND SOIL ABSORPTION SYSTEM.

**TITLE 5 VARIANCES** (310 CMR 15.410-417)

NONE REQUIRED

**PLAN REFERENCES**

- "REVISED PLAN OF COLONIAL ACRES (SECTION 1), WEST ACTON, MASS." PREPARED BY EVERETT M. BROOKS, CIVIL ENGINEERS. ENDORSED BY THE ACTON PLANNING BOARD JUNE 2, 1961, RECORDED AT THE MIDDLESEX SOUTH REGISTRY OF DEEDS PLAN NO. 901 OF 1961, RECORDED BOOK 9832, PAGE END.
- "TITLE 5 OFFICIAL INSPECTION FORM - 11 DUGGAN RD, ACTON, MA (FAILED)" PREPARED FOR FRANK WIDMAYER BY ROBERT RATTA, RM RATTA CORPORATION, DATED 10/18/12.
- "PLAN OF LAND IN ACTON, MASS." PREPARED BY EVERETT M. BROOKS DATED JULY 28, 1959.
- "MORTGAGE INSPECTION PLAN LOCATED AT ACTON, MASS." PREPARED FOR MIDDLESEX SAVINGS BANK BY BRADFORD ENGINEERING CO. DATED FEBRUARY 28, 2003.



**LOCUS MAP**  
1" = 200'

**NITROGEN LOADING LIMITATIONS** (310 CMR 15.214-217)

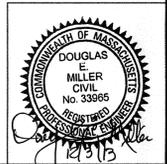
SENSITIVE AREA: NONE  
UNIT DESIGN FLOW LIMIT: NONE  
UNIT DESIGN FLOW: NO LIMITATION. SEE DESIGN CRITERIA.

**DESIGN CRITERIA**

- FLOW AND SEPTIC TANK
- BUILDING USE: SINGLE FAMILY DWELLING
  - NO. OF BEDROOMS: 5
  - DESIGN FLOW: 110 GPD PER BEDROOM
  - TOTAL DAILY FLOW: 550 GALLONS
  - GARBAGE GRINDER: NO
  - SEPTIC TANK SIZE: 550 GPD X 200% = 1,100 GALLONS  
USE 1,500 GALLON TANK MIN.
- SOIL ABSORPTION AREA
- DESIGN PERCOLATION RATE: 20 MIN. PER INCH
  - SOIL TEXTURAL CLASS: 2
  - LONG TERM ACCEPTANCE RATE: 0.53 GPD/SF
  - EFFECTIVE AREA REQUIRED (LOCAL CODE): 550 GPD / 0.53 GPD/SF = 1,038 SF  
1,038 SF X 50% REDUCTION = 519 SF (THROUGH USE OF JET J-750)
  - EFFECTIVE AREA PROVIDED: USING PREC-RITE DRIP DISPERSAL  
REQUIRED TUBING NEEDED: 519 SF / 2 = 260 LF (MIN. 400 LF REQUIRED)  
PROVIDED TUBING: 10 RUNS OF 40 FT = 400 LF  
NUMBER OF ZONES: 1 LATERALS PER ZONE: 5 RUNS PER LATERAL: 2  
AREA PROVIDED: AREA OF TUBING: 40 FT LONG X 11.7 FT WIDE  
+ 1 FOOT ADDITION OF ALL SIDES = 42 FT X 13.7 FT = 575 SF  
(THROUGH USE OF JET J-750)
  - MIN. SEPARATION, BOTTOM STONE TO ESHGW: REQ'D: 4 FT; PROVIDED: 2 FT
- RESERVE AREA  
NONE PROVIDED

**DRAWING ISSUED FOR:**

- CONCEPT  CONSTRUCTION  
 PERMIT  CONSTRUCTION RECORD



THIS DRAWING MAY BE USED FOR CONSTRUCTION UPON ISSUANCE OF ALL PERMITS AND APPROVALS BY REGULATORY AUTHORITIES.

NO.	DATE	BY	APP.	REVISION DESCRIPTION

**GPR** Engineering Solutions for Land & Structures

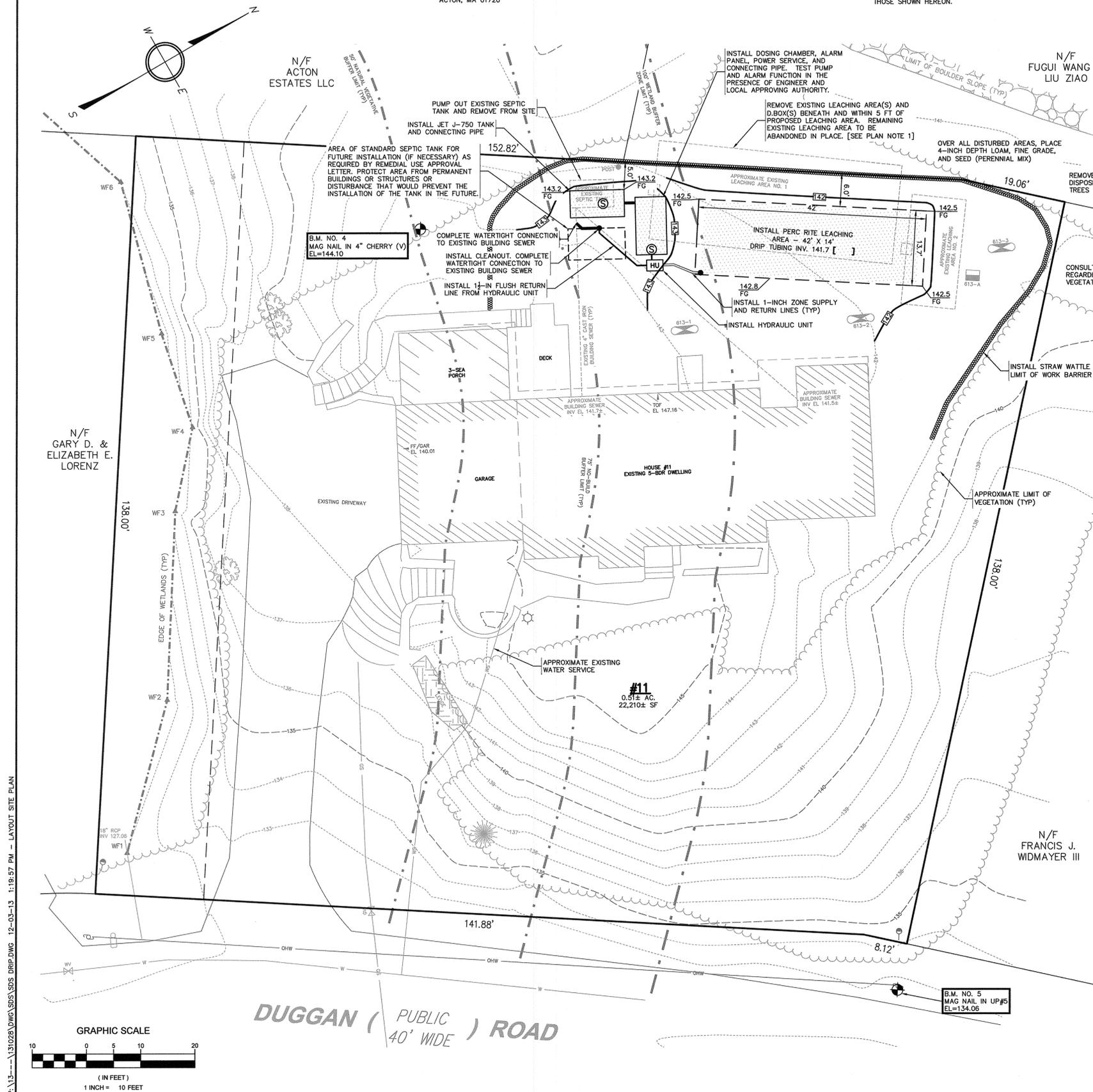
**GOLDSMITH, PREST & RINGWALL, INC.**  
39 MAIN STREET, SUITE 301 AYER, MA 01432  
CIVIL & STRUCTURAL ENGINEERING • LAND SURVEYING & LAND PLANNING  
VOICE: 978.772.1500 FAX: 978.772.1591  
www.gpr-inc.com

**SUBSURFACE SEWAGE DISPOSAL SYSTEM UPGRADE**

**SITE PLAN**

**11 DUGGAN ROAD**  
**ACTON, MA**

PREPARED FOR:  
WIDMAYER REALTY TRUST  
MICHAEL WIDMAYER  
11 DUGGAN ROAD  
ACTON, MA 01720



P:\131028\DWG\SSDS\SSDS DRIP.DWG 12-03-13 1:19:57 PM - LAYOUT SITE PLAN

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**EROSION AND SEDIMENT CONTROL REQUIREMENTS**

**PART 1 - GENERAL**

- 1.01 SUMMARY
  - FURNISH, INSTALL, AND MAINTAIN TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS, BUT NOT NECESSARILY LIMITED TO, STRAW WATTLES, HAY BALE AND SILT FENCE BARRIERS, RIPRAP, DIVERSION CHANNELS AND BERMS, CHECK DAMS, STRATEGICALLY LOCATED STOCKPILES, SEDIMENT BASINS, MULCH, AND SEED MIX (HEREINAFTER "CONTROL MEASURES") ADEQUATE TO PREVENT THE CONVEYANCE OF EROSION PRODUCTS (E.G. SOIL, MULCH, SOD) OFF SITE, OR INTO ENVIRONMENTALLY SENSITIVE AREAS, OR INTO AREAS WHERE WORK WILL BE ADVERSELY IMPACTED. ENVIRONMENTALLY SENSITIVE AREAS INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, WETLANDS, TRIBUTARIES TO WETLANDS, WETLAND BUFFER ZONES, INTERMITTENT AND PERENNIAL STREAMS / RIVERS, AND THEIR ATTENDANT BUFFER ZONES.
  - REFER TO DRAWINGS FOR LOCATION AND DETAILS OF CONTROL MEASURES REQUIRED TO COMMENCE WORK. THESE CONTROL MEASURES WILL BE ADEQUATE ONLY FOR VEGETATION CLEARING. THE DRAWINGS ARE NOT INTENDED TO GRAPHICALLY DEPICT ALL CONTROL MEASURES THAT WILL BE REQUIRED TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A.
  - DEVELOP AND EMPLOY CONTROL MEASURES THROUGHOUT THE DURATION OF PROJECT, OVER ALL AREAS DISTURBED OR UNDISTURBED BY CONSTRUCTION, AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A.
  - DEVELOP AND EMPLOY TEMPORARY CONTROL MEASURES AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A, WHILE ALLOWING WORK TO PROCEED IN AN EFFICIENT, COST EFFECTIVE MANNER.
  - DEVELOP, EMPLOY AND MAINTAIN CONTROL MEASURES UNTIL SUCH TIME AS THE ENTIRE SITE IS PERMANENTLY STABILIZED BY ESTABLISHED VEGETATION, FINISH LANDSCAPE MATERIALS, PAVED SURFACES, AND/OR ROOF AREA.
  - ONCE THE SITE IS PERMANENTLY STABILIZED AND CERTIFIED AS SUCH BY ENGINEER, REMOVE TEMPORARY CONTROL MEASURES WHILE PROTECTING STABILIZED SURFACES.

- 1.02 SUBMITTALS
  - SUBMIT PRODUCT DATA, WARRANTY, AND TEST REPORTS AS INDICATED ON THE DRAWINGS.
- 1.03 QUALITY ASSURANCE
  - COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS FROM ACCEPTABLE MANUFACTURERS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
  - CONFORM TO CONDITIONS OF APPROVAL ISSUED BY REGULATORY AGENCIES INCLUDING, BUT NOT NECESSARILY LIMITED TO, LOCAL PLANNING BOARD, CONSERVATION COMMISSION, BOARD OF SELECTMEN, BOARD OF HEALTH, PUBLIC WORKS / HIGHWAY DEPARTMENT, STATE ENVIRONMENTAL PROTECTION DEPARTMENT, AND U.S. GOVERNMENT, ENVIRONMENTAL PROTECTION AGENCY. WHERE CONDITIONS OF REGULATORY APPROVAL DIFFER FROM REQUIREMENTS CONTAINED HEREIN OR ON THE DRAWINGS, COMPLY WITH THE MORE STRINGENT REQUIREMENT.

**PART 2 - PRODUCTS**

- STRAW WATTLES: NORTH AMERICAN GREEN MODEL WS925 OR APPROVED EQUAL.
- HAY BALES: DRY GRASS OR STRAW, MACHINE BOUND WITH JUTE OR WIRE, APPROXIMATE SIZE EACH BALE 42" X 16" X 16".
- SILT FENCE: NON-WOVEN, UV-RESISTANT, POLYPROPYLENE FABRIC, FLOW RATED AT 10 GPM/SF MINIMUM, GRAB TENSILE RATED AT 124 POUNDS MINIMUM, WITH INTEGRAL STAKE LOOPS, AND HARDWOOD STAKES, USE NO. 2130 BY AMOC FABRICS & FIBERS, OR APPROVED EQUAL.
- MULCH: ORGANICS INCLUDING PINE / HEMLOCK TWIGS AND NEEDLES.
- SEED MIXES: PERENNIAL RYEGRASS, KENTUCKY BLUEGRASS, AND / OR FINE FESCUE, DISEASE RESISTANT, NON-MAINTAINED AREA OPTION - ANNUAL RYEGRASS COMBINED WITH MEDIUM RED CLOVER.
- EXCELSOR BLANKET: CURLED WOOD FIBER ON PHOTOGRADABLE EXTRUDED PLASTIC MATRIX, 80% OF FIBERS 6-INCHES LONG OR LONGER, WEIGHT 0.975 POUNDS / SY, CONTAINING NO CHEMICAL ADDITIVES. USE CURLEX I BLANKET BY AMERICAN EXCELSOR COMPANY, OR APPROVED EQUAL.
- ROCK RIPRAP: SOUND, ANGULAR, 6-INCH MINUS PROCESSED ROCK, BLAST ROCK, OR TAILINGS.
- CRUSHED STONE: SOUND, ANGULAR, 2-INCH MINUS PROCESSED CRUSHED STONE.

**PART 3 - EXECUTION**

- 3.01 THROUGHOUT CONSTRUCTION
  - DEVELOP WORK SEQUENCE SO AS TO LIMIT DRAINAGE AREA THAT IS TRIBUTARY TO DISTURBED AREAS. DEVEISE, EMPLOY, AND MAINTAIN CONTROL MEASURES SUCH AS DIVERSION CHANNELS AND BERMS, STRATEGICALLY LOCATED STOCKPILES, AND SEDIMENT BASINS TO SUBSIDE DRAINAGE AREAS INTO SMALL, MANAGEABLE SUBAREAS, THEREBY MINIMIZING RUNOFF AND THE POTENTIAL FOR EROSION.
  - MAINTAIN BARRIER AT LIMIT OF WORK AND PROTECT EXISTING VEGETATION / FACILITIES OUTSIDE OF LIMIT OF WORK.
  - MAINTAIN SPARE MATERIAL STOCKPILES FOR IMMEDIATE EMPLOYMENT / REPAIR / EXPANSION OF CONTROL MEASURES. AT A MINIMUM, SUCH MATERIALS SHALL INCLUDE HAY BALES, SILT FENCE AND STAKES, AND CRUSHED STONE.
  - INSPECT AND MAINTAIN EFFECTIVENESS OF CONTROL MEASURES BY REPAIRING AS NECESSARY TO ENSURE INTENDED FUNCTION; BY SUPPLEMENTING AS NECESSARY FOR ADEQUATE EXTENT; BY REMOVING TRAPPED PRODUCTS OF EROSION AS NECESSARY TO MAINTAIN EFFECTIVE TRAP VOLUME.
  - LIMIT EXTENT OF WORK AREA SO THAT ALL DISTURBED AREAS CAN BE STABILIZED WITH CONTROL MEASURES WITHIN A 24-HOUR PERIOD.
  - INSTALL CONTROL MEASURES AS SOON AS PRACTICABLE AFTER EACH MANAGEABLE PORTION OF EARTHWORK IS COMPLETE. EMPLOY TEMPORARY MEASURES AS NECESSARY TO STABILIZE DISTURBED AREAS, EVEN WHERE SUBSEQUENT CONSTRUCTION OPERATIONS MAY REQUIRE RE-DISTURBANCE.
  - WHEN INTENSE RAINFALL IS EXPECTED, CONSIDER, DEVEISE, AND EMPLOY REINFORCING CONTROL MEASURES PRIOR TO THE RAINFALL EVENT TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A. IF NECESSARY, EMPLOY TEMPORARY CONTROL MEASURES ON MATERIAL STOCKPILES TO COUNTERACT POTENTIAL SEDIMENT TRANSPORT DURING INTENSE RAINFALL.
  - WHEN VEHICLE REFUELING IS REQUIRED ON SITE, CONDUCT REFUELING OPERATIONS OUTSIDE OF ENVIRONMENTALLY SENSITIVE AREAS.
  - PROPERLY DISPOSE OF DEBRIS, SOLID WASTE, TRASH, AND CONSTRUCTION WASTE / BYPRODUCTS OFF SITE.
  - SWEEP ON-SITE PAVED AREAS AND OFF-SITE STREETS AS NECESSARY TO PREVENT SILT AND DEBRIS ORIGINATING ON SITE FROM ENTERING CLOSED DRAINAGE SYSTEMS AND / OR ENVIRONMENTALLY SENSITIVE AREAS.
- 3.02 SITE PREPARATION AND ACCESS
  - WALK SITE AND IDENTIFY LOCATIONS OF LIMIT OF WORK AND ENVIRONMENTALLY SENSITIVE AREAS. ESTABLISH CONSTRUCTION STAGING AREA, LOCATED BEYOND ENVIRONMENTALLY SENSITIVE AREAS.
  - INSTALL CONTROL MEASURES AS SHOWN ON THE DRAWINGS, INCLUDING THOSE DEFINING THE LIMIT OF WORK.
  - LIMIT VEHICULAR TRAFFIC TO AND FROM SITE TO MINIMIZE TRANSPORT OF SEDIMENT.
- 3.03 CLEARING, GRUBBING, AND STRIPPING
  - SCHEDULE GRUBBING AND STRIPPING TO OCCUR IMMEDIATELY PRIOR TO EARTH DISTURBANCE. DEPENDING ON SITE AREA, CONSIDER MULTIPLE GRUBBING PHASES, SEQUENCED TO TAKE ADVANTAGE OF THE EROSION PREVENTION POTENTIAL OF EXISTING VEGETATIVE COVER.
  - MINIMIZE THE AREA OF EXISTING VEGETATION REMOVED WHEREVER POSSIBLE.
  - LOCATE AND SIZE STOCKPILES TO MINIMIZE EROSION POTENTIAL, TAKING ADVANTAGE OF TERRAIN SLOPE AND ASPECT, WHERE APPROPRIATE.
  - PROTECT VEGETATION, INCLUDING ROOT SYSTEMS, BEYOND LIMIT OF CLEARING.
  - PROCESS TIMBER, STUMPS, SLASH, AND BRUSH SO AS TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS AND INSTALLED CONTROL MEASURES. PROPERLY DISPOSE OF EXCESS OFF SITE. BURIAL OF STUMPS ON SITE IS PROHIBITED.
- 3.04 EXCAVATION FOR BUILDING FOUNDATIONS AND UTILITIES
  - DEVEISE AND INSTALL CONTROL MEASURES ADEQUATE TO HANDLE DISCHARGES AND TRAP SEDIMENT FROM FOOTING SUMP AND WELL POINT PUMPS PRIOR TO EXCAVATION.
  - ARMOR SUMP PUMP DISCHARGE LOCATIONS TO PREVENT EROSION AT POINT OF DISCHARGE AND AREAS DOWNSTREAM.
  - IF FOUNDATION EXCAVATIONS GRADE TO DAYLIGHT ON THE LOW SIDE, DEVEISE AND INSTALL CONTROL MEASURES TO HANDLE SURFACE AND GROUNDWATER FLOW FROM EXCAVATION LOW POINT.
  - STOCKPILE EXCAVATED MATERIALS TO BAFFLE OVERLAND RUNOFF, AVOIDING THE CREATION OF LENGTHY PATHS OF CONCENTRATED RUNOFF.
  - BACKFILL UTILITY TRENCHES AS SOON AS PRACTICABLE TO PREVENT FLOODING, SLOUGHING, POTENTIAL OVERFLOW, AND REPETITIVE EARTH DISTURBANCE.
- 3.05 SITE GRADING
  - WHERE APPLICABLE, FOLLOW EXCAVATION AND FILL PRACTICES SHOWN ON DRAWINGS TO LOCALIZE AND MINIMIZE EROSION.
  - MONITOR SEDIMENT VOLUME IN TEMPORARY SEDIMENT BASINS AND AT DIVERSION BERMS AND CHECK DAMS, IN ALL AREAS EXCEPT THOSE THAT DO NOT PRESENT POTENTIAL PROBLEMS WITH REGARD TO FUTURE SOIL STABILITY, DRAINAGE, OR BEARING CAPACITY. REMOVE AND PROPERLY DISPOSE OF TRAPPED SEDIMENT BEFORE BRINGING SITE TO FINAL SUBGRADE.

**EROSION AND SEDIMENT CONTROL REQUIREMENTS (CONT'D)**

- 3.05 SITE GRADING
  - WHERE APPLICABLE, FOLLOW EXCAVATION AND FILL PRACTICES SHOWN ON DRAWINGS TO LOCALIZE AND MINIMIZE EROSION.
  - MONITOR SEDIMENT VOLUME IN TEMPORARY SEDIMENT BASINS AND AT DIVERSION BERMS AND CHECK DAMS, IN ALL AREAS EXCEPT THOSE THAT DO NOT PRESENT POTENTIAL PROBLEMS WITH REGARD TO FUTURE SOIL STABILITY, DRAINAGE, OR BEARING CAPACITY. REMOVE AND PROPERLY DISPOSE OF TRAPPED SEDIMENT BEFORE BRINGING SITE TO FINAL SUBGRADE.
- 3.06 STORMWATER MANAGEMENT SYSTEM
  - THE STORMWATER MANAGEMENT SYSTEM INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, ALL PERMANENT DETENTION / RETENTION BASINS, DISCHARGE STRUCTURES // WEIRS, CURBWEIRS, OPEN CHANNELS, CURBS, GUTTERS, BARRIERS, SVALES, CATCH BASINS, DRAIN MANHOLES, DRAINAGE PIPES, ROOF DRAIN MANIFOLDS, WATER QUALITY SWALES, SEPARATORS, AND SIMILAR STORMWATER RUNOFF CONVEYANCE, TREATMENT, AND STORAGE FACILITIES.
  - INSTALL STORMWATER MANAGEMENT SYSTEM COMPONENTS STARTING AT THE DOWNSTREAM END AND PROCEED UPSTREAM. WHERE POSSIBLE, COMPLETE INSTALLATION OF PERMANENT DETENTION / RETENTION BASINS PRIOR TO BEGINNING WORK ON UPSTREAM SYSTEM COMPONENTS.
  - INSTALL CONTROL MEASURES AT FINISHED UPSTREAM AND DOWNSTREAM PIPE ENDS AS SOON AS POSSIBLE AFTER COMPLETION OF PIPE RUN. SUCH MEASURES INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, RIPRAP, CHECK DAMS, HAY BALE / SILT FENCE BARRIERS, AND VELOCITY DISSIPATORS.
  - AT THE END OF EACH DAY OR WHEN RAINFALL IS EXPECTED, PLUG UPSTREAM END OF PIPES / DAM OPEN CHANNELS OR OTHERWISE REDIRECT POTENTIAL RUNOFF AND PREVENT FLOW FROM ENTERING PARTIALLY COMPLETED SYSTEM / SYSTEM COMPONENTS.
  - WHERE PORTIONS OF A NEW SYSTEM ARE TO BE ACTIVATED PRIOR TO COMPLETION OF THE ENTIRE SYSTEM, EMPLOY CONTROL MEASURES TO PREVENT SILT AND DEBRIS FROM ENTERING THE SYSTEM. EMPLOY SILT SACKS OR FABRIC ON CATCH BASIN INLETS, AND PIPE AND CULVERT OPENINGS. EMPLOY CHECK DAMS AND TEMPORARY SEDIMENT BASINS UPSTREAM OF AND ALONG OPEN CHANNELS, SWALES, AND DITCHES TO TRAP SEDIMENT GRADIENT OF ENVIRONMENTALLY SENSITIVE AREAS.
  - REMOVE TRAPPED SEDIMENT AND DEBRIS FROM ALL SYSTEM COMPONENTS AFTER COMPLETION OF INSTALLATION, AND AGAIN AFTER THE ENTIRE SITE IS PERMANENTLY STABILIZED BY ESTABLISHED VEGETATION, FINISH LANDSCAPE MATERIALS, PAVED SURFACES, AND/OR ROOF AREA. REMOVE TRAPPED SEDIMENT AND DEBRIS FROM DETENTION / RETENTION BASIN BOTTOMS SO THAT FINISH BOTTOM MATERIALS / INFILTRATION FUNCTION CONFORM TO DESIGN.

- 3.07 LANDSCAPING
  - COMPLETE LANDSCAPING AS SOON AS POSSIBLE AFTER COMPLETION OF FINAL SUBGRADE.
  - IMMEDIATELY AFTER PLACEMENT OF TOPSOIL, STABILIZE WITH CONTROL MEASURES INCLUDING, BUT NOT NECESSARILY LIMITED TO, SEED MIX, MULCH, AND / OR BLANKET.

**GENERAL NOTES**

1. LOCATION OF EXISTING UNDERGROUND UTILITIES/OBSTRUCTIONS/SYSTEMS SHOWN HEREON ARE APPROXIMATE ONLY. ALL UTILITIES/OBSTRUCTIONS/SYSTEMS MAY NOT BE SHOWN. LOCATE AND PROTECT ALL UNDERGROUND UTILITIES/OBSTRUCTIONS/SYSTEMS, WHETHER OR NOT SHOWN HEREON.
2. INSTALL ALL NEW UTILITIES UNDERGROUND, UNLESS SPECIFICALLY INDICATED OTHERWISE.
3. EMPLOY A LICENSED PROFESSIONAL LAND SURVEYOR TO LAY OUT BUILDING AND SITE IMPROVEMENTS FOR CONSTRUCTION. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE. SEE PLAN REFERENCE HEREON.
4. CONTRACTOR IS RESPONSIBLE FOR SAFETY MEASURES, CONSTRUCTION METHODS, AND CONTROL OF WORK.
5. REPAIRS AND/OR REPLACEMENT OF ANY EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION THAT ARE NOT DESIGNATED FOR DEMOLITION AND/OR REMOVAL HEREON ARE THE RESPONSIBILITY OF CONTRACTOR. REPAIR SUCH DAMAGE TO THE SATISFACTION OF OWNER(S).
6. THIS PLAN IS NOT INTENDED TO SHOW AN ENGINEERED BUILDING FOUNDATION DESIGN, WHICH WOULD INCLUDE DETAILS AND ELEVATIONS OF FOOTINGS, WALLS AND SUBSURFACE DRAINS TO PREVENT INTERIOR FLOODING. SEE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS.
7. PRIOR TO IMPLEMENTATION, SEEK ENGINEER REVIEW AND APPROVAL OF ANY INTENDED REVISION OF HORIZONTAL AND/OR VERTICAL DESIGN LOCATION OF IMPROVEMENTS SHOWN HEREON.
8. PROMPTLY NOTIFY ENGINEER UPON COMMENCEMENT OF CONSTRUCTION IN ORDER TO ENSURE THAT REQUIRED INSPECTIONS ARE PERFORMED IN A TIMELY AND EFFICIENT MANNER. MAINTAIN DISPOSAL SYSTEM IN AN UNCOVERED CONDITION UNTIL AUTHORIZED TO BACKFILL BY ENGINEER AND LOCAL BOARD OF HEALTH.
9. NOTIFY ENGINEER UPON DISCOVERY OF ANY UNFORESEEN SURFACE OR SUBSURFACE CONDITIONS THAT MAY IMPACT SYSTEM INSTALLATION, REGULATORY APPROVAL, OR FUNCTION.
10. INSTALL FINISH RIM ELEVATIONS TO MATCH FINISH PAVEMENT, GRADING OR LANDSCAPING SURFACE, UNLESS SPECIFICALLY INDICATED OTHERWISE.
11. PLUG/CAP/FILL EXISTING UTILITY LINES/STRUCTURES THAT ARE TO BE CUT/BROKEN DOWN/ABANDONED, IN ACCORDANCE WITH UTILITY OWNER REQUIREMENTS.
12. WHERE THE WORD "INSTALL" IS USED HEREIN, IT IS INTENDED TO DIRECT CONTRACTOR TO "FURNISH, INSTALL, AND PLACE IN OPERATION" THE COMPONENT REFERRED TO.
13. THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE IS NOT A GUARANTEE THAT THE DISPOSAL SYSTEM WILL FUNCTION SATISFACTORILY.
14. INSTALL EROSION CONTROL MEASURES, SUCH AS SILT FENCE OR HAY BALES AS MAY BE SHOWN HEREON, BEFORE EARTH DISTURBANCE OCCURS.
15. THE SUBJECT SYSTEM HAS BEEN DESIGNED TO PROCESS ONLY DOMESTIC SEWAGE AT THE INDICATED LOADING RATE. THE SYSTEM IS NOT DESIGNED TO ACCOMMODATE A GARBAGE DISPOSAL.
16. COORDINATE WITH OWNER/ENGINEER REGARDING REMOVAL OF TREES AND OTHER VEGETATION NOT REQUIRING REMOVAL BY REGULATIONS AND CODES.
17. THESE DRAWINGS DO NOT ADDRESS PLUMBING REQUIRED INSIDE BUILDINGS TO ROUTE APPROPRIATE DRAINS TO BUILDING SEWER. OWNER SHALL EMPLOY A LICENSED PLUMBER TO COMPLETE SUCH WORK AS IS NECESSARY TO DRAIN ALL BLACKWATER AND GREYWATER TO THE PROPOSED SEWAGE DISPOSAL SYSTEM.
18. ENGINEER TO PERFORM CLEAR WATER TEST OF THE PRESSURE DISTRIBUTION NETWORK AND THE ASSOCIATED ADJUSTMENTS TO ENSURE EQUAL DISTRIBUTION THROUGHOUT NETWORK. TEST PERFORMED PRIOR TO CONTRACTOR BACKFILLING THE SOIL ABSORPTION AREA.
19. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

**SEWAGE DISPOSAL SYSTEM SPECIFICATIONS**

- PIPE (310 CMR 15.251)**
1. BUILDING SEWER: 4-INCH DIA. SCH 40 PVC, MIN. SLOPE 1/4 IN. PER FT.
  2. JET J-750 TO DOSING CHAMBER: 4-INCH DIA. SCH 40 PVC OR SDR35 PVC, MIN. SLOPE 1/8 IN. PER FT.
  3. USE PERC-RITE CONSTRUCTION DETAILS AND SPECIFICATIONS FOR PIPE TYPE.
  4. BED, HAUNCH, AND BACKFILL ALL PIPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. ALL JOINTS SHALL BE WATER TIGHT.
  5. VENT BUILDING SEWER THROUGH MAIN STACK IN BUILDING SERVED BY IT.
  6. CLEAR ALL PIPE AND ORIFICES OF DEBRIS BEFORE BACKFILL OF SYSTEM OCCURS.

**JET MODEL J-750 TANK**

1. TANK RATED FOR H-10 LOADING. MANUFACTURER: CLEARWATER RECOVERY, ROCKLAND, MA (781-878-3849).
2. SEAL TANK WATER TIGHT, USING RUBBER JOINT SEALER AND NON-SHRINK GROUT ALONG ALL JOINTS. A WATER TEST MAY BE REQUIRED.
3. JET TANK TO BE DELIVERED TO SITE FULLY ASSEMBLED, INCLUDING BAT MEDIA. AERATOR TO BE DELIVERED SEPARATELY.
4. CONTRACTOR SHALL VERIFY CONTRACT REQUIREMENTS WITH CLEARWATER RECOVERY FOR INSTALLATION OF UNDERGROUND ELECTRICAL CONDUITS AND ALL OTHER EXTERIOR OPERATIONAL COMPONENTS (ALARM, AERATOR WIRING, ETC.) AS NEEDED.

**DOSING CHAMBER (310 CMR 15.221, 15.231, 15.254)**

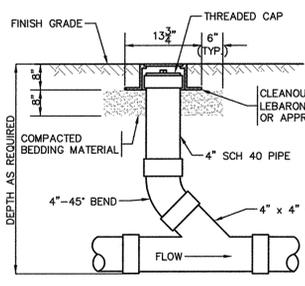
1. CHAMBER RATED FOR H-10 LOADING. MANUFACTURER: SHEA CONCRETE PRODUCTS, INC., WILMINGTON, MA (978-658-2645), OR EQUAL.
2. SEAL CHAMBER WATER TIGHT, USING RUBBER JOINT SEALER AND NON-SHRINK GROUT ALONG ALL JOINTS. A WATER TEST MAY BE REQUIRED.
3. BRING ENTRY MANHOLE ABOVE PUMPS TO FINISH GRADE.
4. INSTALL PUMP IN A SIMPLEX CONFIGURATION. PUMP SHALL BE SUPPLIED BY OAKSON, INC. AND INSTALLED PER THEIR SPECIFICATIONS FOR THE PERC-RITE DRIP SYSTEM.
5. INSTALL NON-MERCURY MAGNETIC REED SWITCHES TO CONTROL PUMP AND ALARM, SUCH THAT FLOATS ARE READILY REMOVABLE FROM CHAMBER. JUNCTION BOX: USE WATER TIGHT THERMOPLASTIC STRUCTURAL FOAM BOX BY MYERS OR APPROVED EQUAL. LOCATE BOX OUTSIDE CHAMBER. PERFORM ALL ELECTRICAL WORK IN ACCORDANCE WITH CODE REQUIREMENTS.
6. INSTALL NEMA 3 CONTROL PANEL ENCLOSURE, WITH WALL MOUNT CABINET, INCLUDING THE FOLLOWING:
  - A VISIBLE AND AUDIBLE ALARM TO SIGNAL HIGH WATER, POWERED BY A SEPARATE, DEDICATED CIRCUIT.
  - INSTALL FORCE MAIN WITHIN DOSING CHAMBER USING SOLVENT WELDED SCHEDULE 80 PVC. SECURE FORCE MAIN AGAINST MOVEMENT AND SHIELD FROM ABRASION. INSTALL A BALL VALVE ON THE VERTICAL FORCE MAIN RUN, ABOVE THE ALARM-ON LEVEL.

**SOIL ABSORPTION AREA**

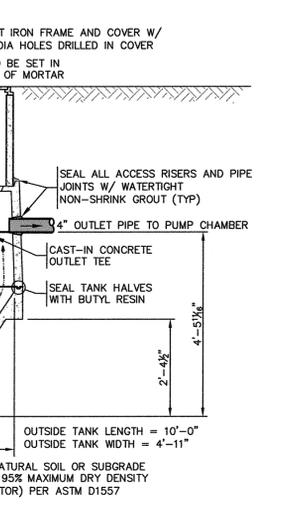
1. REMOVE FROM SOIL ABSORPTION AREA ALL TOPSOIL, BOULDERS LARGER THAN 24 INCHES (LONGEST DIMENSION), OR OTHER UNSUITABLE MATERIAL ENCOUNTERED DURING EXCAVATION.
2. SCARIFY ALL EXCAVATION INTERFACES PRIOR TO PLACEMENT OF FILL OR LEACHING AGGREGATE.
3. WHEN AREA IS TO BE INSTALLED WITHIN A & B SOIL HORIZONS (TOP & SUBSOIL), FILL OR ABOVE NATURAL GRADE, REMOVE TOP AND SUBSOIL AND OTHER IMPERVIOUS MATERIALS FROM BENEATH SOIL ABSORPTION AREA, AND FROM THE SURROUNDING 5-FOOT BUFFER (SEE PLAN), AND REPLACE WITH SELECT SOIL FILL. PLACE AND COMPACT FILL TO MINIMIZE SETTLEMENT. SCARIFY FILL PRIOR TO PLACEMENT OF LEACHING AGGREGATE.
4. COVER MATERIAL: FREE OF DEBRIS AND STONES LARGER THAN 6 INCHES. FINISH GRADE COVER OVER SOIL ABSORPTION AREA TO ENSURE ADEQUATE RUNOFF (2% MIN. SLOPE).

**SELECT SOIL FILL (310 CMR 15.255(3))**

1. SELECT SOIL FILL MATERIAL FOR CONSTRUCTION MAY CONSIST OF SELECT ON-SITE SOIL, OR IMPORTED SOIL.
  2. SELECT SOIL FILL MATERIAL: COMPRISED OF CLEAN, GRANULAR SAND, FREE FROM ORGANIC MATTER AND DELETERIOUS SUBSTANCES. MAXIMUM PARTICLE SIZE: 2 INCHES.
  3. PERFORM A SIEVE ANALYSIS ON A REPRESENTATIVE SAMPLE OF THE FILL. UP TO 45% BY WEIGHT OF THE FILL SAMPLE MAY BE RETAINED ON A #4 SIEVE. ALSO PERFORM A SIEVE ANALYSIS ON THE FRACTION OF THE FILL SAMPLE PASSING THE #4 SIEVE. SUCH ANALYSIS SHALL DEMONSTRATE THAT THE MATERIAL PASSING THE #4 SIEVE MEETS THE FOLLOWING GRADATION:
- | SIEVE | EFFECTIVE PARTICLE SIZE | PERCENT PASSING |
|-------|-------------------------|-----------------|
| #4    | 4.75 mm                 | 100             |
| #50   | 0.30 mm                 | 10 TO 100       |
| #100  | 0.15 mm                 | 0 TO 20         |
| #200  | 0.075 mm                | 0 TO 5          |



**CLEANOUT**  
TYPICAL CROSS SECTION  
NOT TO SCALE



**JET MODEL J-750 TANK**  
TYPICAL CROSS SECTION  
NOT TO SCALE

**REGULATORY NOTES**

1. A LICENSED DISPOSAL SYSTEM INSTALLER SHALL PERFORM ALL WORK ON THE SEWAGE DISPOSAL SYSTEM.
2. CONTACT DIG-SAFE FOR UNDERGROUND UTILITY MARKING AT 888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF ANY WORK.
3. OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY REGULATORY AUTHORITIES.
4. PRIOR TO COMMENCEMENT OF ANY WORK, REVIEW AND THOROUGHLY UNDERSTAND ALL CONSTRUCTION REQUIREMENTS, CONDITIONS, AND LIMITATIONS IMPOSED BY PERMITS AND APPROVALS ISSUED BY REGULATORY AUTHORITIES.
5. COMPLETE ALL WORK THAT IS OUTSIDE OF BUILDING AND LESS THAN 10 FEET FROM THE INSIDE FACE OF BUILDING FOUNDATION IN CONFORMANCE WITH THE UNIFORM STATE PLUMBING CODE OF MASSACHUSETTS, 248 CMR 2.00.

**SITE NOTES**

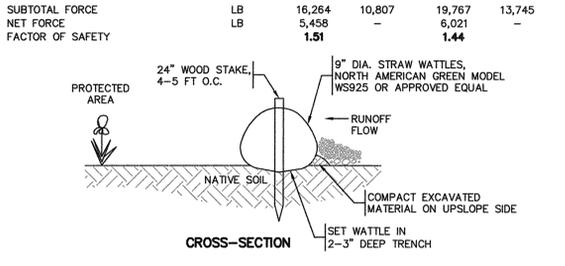
1. EXISTING CONDITION INFORMATION BASED ON AN ON-THE-GROUND TOPOGRAPHIC AND BOUNDARY SURVEY PERFORMED BY GOLDSMITH, PREST & RINGWALL, INC. DATED JUNE 2013.
2. WETLAND RESOURCE AREA DELINEATION DONE MAY, 2013 BY B&C ASSOCIATES, HUDSON, MA.
3. ALL SEWAGE DISPOSAL SYSTEM COMPONENTS ARE GREATER THAN 400 FEET FROM SURFACE WATER RESERVOIRS AND GREATER THAN 200 FEET FROM TRIBUTARIES TO SURFACE WATER RESERVOIRS.
4. THERE ARE NO KNOWN EXISTING WELLS WITHIN 150 FEET OF PROPOSED SOIL ABSORPTION AREA, OR WITHIN 50 FEET OF PROPOSED SEPTIC TANK.
5. ALL KNOWN WELLS WITHIN 200 FEET OF SEWAGE DISPOSAL SYSTEM ARE SHOWN HEREON.
6. WATER SERVICE VIA CONNECTION TO MUNICIPAL WATER MAIN.

**BUOYANCY CALCULATIONS**

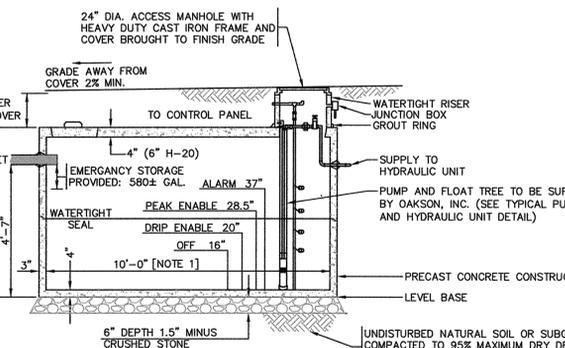
CONDITIONS	UNIT	JET J-750	DOSING CHAMBER
FINISH GRADE	EL.	143.2	143.2
ASSUMED WATER TABLE	EL.	139.9	139.9
		(34" ± BELOW EXISTING GRADE)	
OUTSIDE TOP OF STRUCTURE	EL.	142.1	141.8
OUTSIDE BOTTOM OF STRUCTURE	EL.	136.4	136.2
STRUCTURE OUTSIDE LENGTH	FT	10.0	10.5
STRUCTURE OUTSIDE WIDTH	FT	4.9	5.7
STRUCTURE FOOTPRINT	SF	49.2	59.5
SOIL COVER	FT	1.1	1.4
UNIT WEIGHT OF SOIL COVER (DRY)	PCF	100	100
UNIT WEIGHT OF SOIL (SATURATED)	PCF	125	125

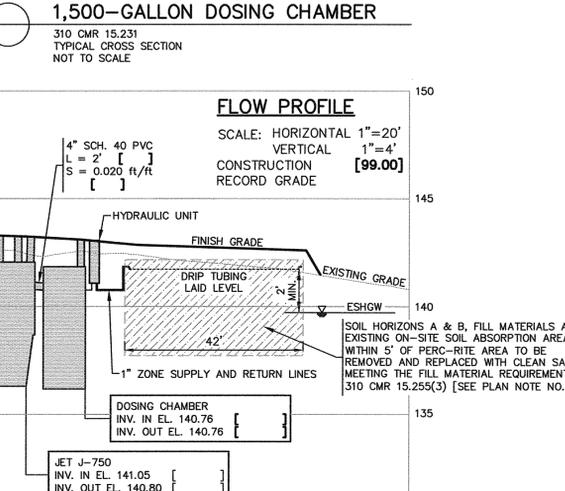
FORCES	UNIT	GRAVITY	BUOYANCY	GRAVITY	BUOYANCY
WEIGHT OF STRUCTURE	LB	11,000	-	11,670	-
WEIGHT OF SOIL COVER	LB	5,264	-	6,097	-
WEIGHT OF WATER	LB	-	10,807	-	13,745
DISPLACED (STRUCTURE)	LB	-	-	-	-
SUBTOTAL FORCE	LB	16,264	10,807	19,767	13,745
NET FORCE	LB	5,458	-	6,021	-
FACTOR OF SAFETY		1.51		1.44	



**STRAW WATTLE BARRIER**  
NOT TO SCALE



**1,500-GALLON DOSING CHAMBER**  
310 CMR 15.231  
TYPICAL CROSS SECTION  
NOT TO SCALE



**FLOW PROFILE**  
SCALE: HORIZONTAL 1"=20'  
VERTICAL 1"=4'  
CONSTRUCTION [99.00]  
RECORD GRADE

**SOIL EVALUATION SUMMARY**

SOIL EVALUATOR: MATTHEW BOMBACI, PE, GPR, INC.  
SOIL EVALUATOR APPROVED ON: OCTOBER 30, 2007  
WITNESSED BY: EVAN CARLONI, ACTON BOARD OF HEALTH  
EVALUATION PERFORMED: 6/26/2013

**Deep Observation Hole Log**

Hole #	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Moist	Other (Structure, Stones, Boulders, Consistency, % Gravel)
613-A	0-14	SL	10YR 3/3		gt. mfr. <2% gravel
	14-17	Ab	10YR 2/1		gt. mfr. <2% gravel
	17-46	C	LS	2.5Y 5/6	@ 34" 5Y 5/1

\*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) .....  
Depth to Groundwater - Standing Water in the Hole: .....  
Estimated Seasonal High Groundwater in the Hole: .....

**Deep Observation Hole Log**

Hole #	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Moist	Other (Structure, Stones, Boulders, Consistency, % Gravel)	
613-A	0-38	Fill	---	---	alternating layers of dark organic & sandy material	
	38-45	Bb	SL	10YR 5/6	alt. mfr. <2% gravel	
	45-76	C	SL	2.5Y 5/3	@ 49" 5Y 5/1	no. firm in place - loose in hand, 10% gravel, 1% cobbles, some boulders shale w/ dark & gleyed soils thru-out, hard refusal at bottom of layer
	76-80	Cr	---	---		

\*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) .....  
Depth to Bedrock: .....  
Depth to Groundwater - Standing Water in the Hole: .....  
Estimated Seasonal High Groundwater in the Hole: .....

**Deep Observation Hole Log**

Hole #	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Moist	Other (Structure, Stones, Boulders, Consistency, % Gravel)
613-A	0-18	Fill	---	---	alternating layers of dark organic & sandy material
	18-23	Ab	FSL	10YR 2/1	gt. mfr. <2% gravel
	23-31	Bb	SL	10YR 3/6	alt. mfr. <2% gravel
	31-60	C	SL	2.5Y 5/3	@ 36" 5Y 5/1

\*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

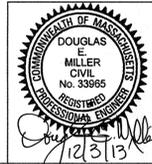
Parent Material (geologic) .....  
Depth to Bedrock: .....  
Depth to Groundwater - Standing Water in the Hole: .....  
Estimated Seasonal High Groundwater in the Hole: .....

**PERFORMANCE TEST DATA**

PERFORMED BY: MATTHEW BOMBACI, PE, GPR, INC.  
WITNESSED BY: EVAN CARLONI, ACTON BOARD OF HEALTH  
TESTING PERFORMED: 6/26/2013  
613-A 20 MIN / INCH @ 5"

**DRAWING ISSUED FOR:**

- CONCEPT
- CONSTRUCTION
- PERMIT
- CONSTRUCTION RECORD



THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

NO.	DATE	BY	APP.	REVISION DESCRIPTION



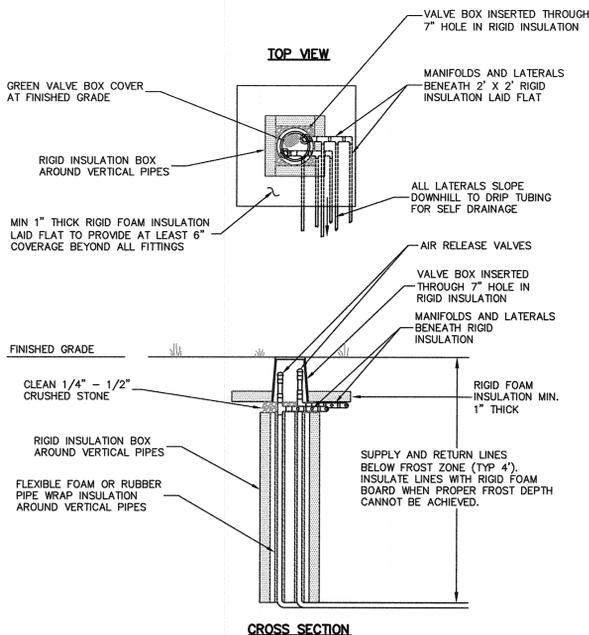
**GOLDSMITH, PREST & RINGWALL, INC.**<

**PERC-RITE DRIP DISPERSAL SYSTEM GENERAL CONSTRUCTION NOTES**

1. ALL PERC-RITE COMPONENTS SHALL BE OBTAINED FROM OAKSON, INC., GLOUCESTER, MA. (978-282-1322)
2. THE SYSTEM SHALL NOT BE INSTALLED IN WET OR FROZEN SOILS.
3. DO NOT PARK, DRIVE LARGE EQUIPMENT OR STORE MATERIALS ON THE DISPERSAL AREA. NO ACTIVITY SHOULD OCCUR ON THE DISPERSAL AREA OTHER THAN THE MINIMUM REQUIRED TO INSTALL THE SYSTEM.
4. ALL INSTALLATION AND CONSTRUCTION TECHNIQUES SHALL CONFORM TO THE STATE AND LOCAL CODES PERTAINING TO ON-SITE WASTEWATER SYSTEMS AND THE PERMIT FOR THE SITE.
5. THE CONTRACTOR SHALL BE FAMILIAR WITH THIS TYPE OF SYSTEM AND KNOWLEDGEABLE IN ITS INSTALLATION REQUIREMENTS. IF NEEDED A PRE-CONSTRUCTION MEETING WITH THE DESIGNER AND/OR SYSTEM MANUFACTURER AND THE CONTRACTOR SHOULD BE HELD PRIOR TO THE BEGINNING OF WORK TO REVIEW THE DESIGN TO ENSURE PROTECTION OF THE SITE CONDITIONS.
6. IF SITE CONDITIONS ARE DETERMINED TO REQUIRE THE INSTALLATION OF THE SYSTEM TO DEVIATE FROM THE DESIGN PLANS, ALL WORK SHALL STOP IMMEDIATELY AND THE DESIGNER AND BOARD OF HEALTH (OR ITS AGENT) SHALL BE NOTIFIED. ANY ONGOING WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. DRIP TUBING MAY BE INSTALLED WITH A VIBRATORY FLOW, A STATIC FLOW, A NARROW TRENCHER (< 6" WIDE), BY HAND TRENCHING, OR BY SCARIFYING THE SURFACE AND BEDDING THE DRIP TUBING IN CLEAN SAND MEETING THE REQUIREMENTS FOR FILL MATERIAL IN TITLE 5 AT 310 CMR 15.255(3) WITH COVER CONSISTING OF A MINIMUM 2" OF THE SAME SAND AND THEN TOPSOIL MEETING THE APPROVED DEPTH REQUIREMENT SHALL BE PROVIDED (IN NO CASE LESS THAN 6 INCHES).
8. ALL DRIP TUBING IS TO BE INSTALLED PARALLEL TO THE CONTOUR.
9. AIR RELEASE VALVES SHALL BE PLACED BELOW THE GROUND SURFACE IN A VALVE BOX BUT AT AN ELEVATION ABOVE THE HIGHEST DRIP LINE IN THAT PARTICULAR ZONE.
10. VEGETATIVE COVER MUST BE REPLACED FOR INSTALLATIONS WHERE IT IS REMOVED OR BURIED DURING INSTALLATION.
11. ALL CUTTING OF RIGID PVC PIPE, FLEXIBLE PVC, AND DRIP TUBING OF SIZE 2" OR SMALLER SHALL BE ACCOMPLISHED WITH PIPE CUTTERS. NO SAWING IS ALLOWED.
12. ALL RIGID PVC PIPE, FLEXIBLE PVC PIPE AND DRIP TUBING SHALL HAVE THE ENDS COVERED WITH DUCT TAPE AFTER CUTTING TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING THE PIPE.
13. PRIOR TO GLUING, ALL JOINTS SHALL BE INSPECTED FOR AND CLEARED OF ANY DEBRIS. ALL JOINTS SHALL BE CLEANED AND PRIMED WITH PVC PRIMER PRIOR TO BEING GLUED.
14. ALL PVC PIPE AND FITTINGS SHALL BE SCH 40.
15. WHENEVER POSSIBLE, ALL FORCE MAINS SHALL BE TESTED FOR LEAKS PRIOR TO BEING BACK FILLED BY PRESSURIZING THE SYSTEM AND OBSERVING FOR LEAKAGE.
16. THE HYDRAULIC UNIT SHALL BE PLACED ON TOP OF THE SEPTIC/TREATMENT TANK, PUMP CHAMBER, OR ON A BED OF 4" - 6" THICK 3/4" GRAVEL IN A LOCATION WITHIN 30' OF THE PUMP. IF STANDING WATER IS A PROBLEM IN THE VICINITY OF THE HYDRAULIC UNIT, A SCREENED DRAIN TO DAYLIGHT IS REQUIRED.
17. ELECTRICIAN TO PROVIDE SEPARATE CIRCUITS FOR THE PUMP AND CONTROLS/ALARM, OR AS REQUIRED BY STATE AND LOCAL CODES.
18. ALL CONDUIT ENTERING INTO THE CONTROL PANEL SHALL BE SEALED AT BOTH ENDS TO PREVENT CONDENSATION INSIDE THE PANEL.
19. PRIOR TO SYSTEM START UP, A CLEAN WATER TEST OF THE SYSTEM SHALL BE PERFORMED IN THE PRESENCE OF THE DESIGN ENGINEER, MANUFACTURER'S REPRESENTATIVE AND THE LOCAL BOARD OF HEALTH (OR ITS AGENT) TO CHECK FOR LEAKS AND TO ASCERTAIN AND VERIFY SYSTEM DESIGN FLUSH AND DOSE RATES.
20. SYSTEM UNIT MALFUNCTION AND HIGH WATER ALARMS SHALL EACH BE CONNECTED TO AN INDEPENDENT POWER SOURCE FROM THE OPERATING PUMP(S) RUN FROM THE MAIN POWER SOURCE OF THE FACILITY.

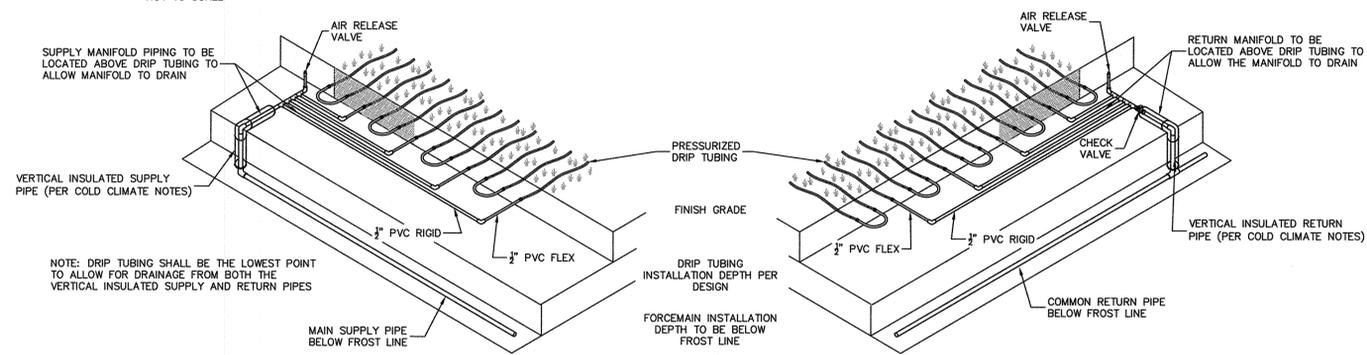
**COLD CLIMATE CONSTRUCTION NOTES**

1. TOP FEED MANIFOLDS ARE TO BE USED TO ALLOW FOR PROPER MANIFOLD DRAINAGE. TOP FEED MANIFOLDS ARE TO BE LOCATED SLIGHTLY HIGHER THAN THE DRIP TUBING.
2. ALL ATTEMPTS SHOULD BE MADE TO PLACE THE HYDRAULIC UNIT IN A LOCATION WITH AN OPEN SOUTHERN EXPOSURE FOR WARMING PURPOSES.
3. ALL PIPES ENTERING AND LEAVING THE HYDRAULIC UNIT SHALL ELBOW VERTICALLY DOWN 90° TO A DEPTH BELOW THE FROST LINE PRIOR TO EXTENDING AWAY FROM THE UNIT HORIZONTALLY.
4. THE SUPPLY AND RETURN LINES SHALL BE INSTALLED BELOW THE FROST LINE. WHEN THIS IS NOT POSSIBLE, RIGID FOAM INSULATION (MIN 1" THICK) SHALL BE PLACED OVER THOSE PIPES THAT ARE ABOVE THE FROST LINE.
5. THE VERTICAL SECTIONS OF PIPE THAT TRAVEL THROUGH THE FROST ZONE AND CONNECT THE SUPPLY AND RETURN LINES TO THE MANIFOLDS SHALL BE INSULATED SCH 40 PVC PIPE INSULATION SHALL CONSIST OF FOAM PIPE WRAP INSULATION AND 1" RIGID FOAM INSULATION STRIPS MADE INTO A BOX. (SEE INSULATION DETAIL)
6. RIGID FOAM INSULATION SHALL BE PLACED OVER THE SUPPLY AND RETURN MANIFOLDS SO THAT AT LEAST 6" OF INSULATION EXTENDS EACH DIRECTION BEYOND THE FITTINGS. (SEE INSULATION DETAIL)
7. AIR RELEASE VALVES SHALL BE INSULATED WITH BAGGED STYROFOAM PEANUTS OR EQUIVALENT PLACED INSIDE THE ENCLOSURE AROUND THE AIR RELEASE VALVE.
8. ALL LOOPS CONNECTING DRIP RUNS SHALL BE SLIGHTLY ELEVATED (MINIMUM 1" - 2") SO THAT THEY DRAIN INTO THE DRIP TUBING AFTER THE PUMP SHUTS OFF. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THESE LOOPS STAY ELEVATED DURING AND AFTER THE LOOPS ARE BACKFILLED.
9. DENSE VEGETATIVE COVER IS TO BE ESTABLISHED OVER THE SUPPLY TRENCH, RETURN TRENCH, MANIFOLDS, AND DRIP TUBING PRIOR TO THE FIRST EXPOSURE TO FREEZING TEMPERATURES. IF VEGETATION CANNOT BE ESTABLISHED THEN THE TRENCHES AND MANIFOLD ARE TO BE COVERED WITH A THICK LAYER (MINIMUM 6") OF MULCH, STRAW/HAY, OR FROST BLANKET UNTIL SUCH TURF COVER IS ESTABLISHED. THE TUBING SHOULD BE COVERED WITH MULCH OR STRAW/HAY TO PREVENT EROSION IF VEGETATIVE COVER CANNOT BE ESTABLISHED.
10. VEGETATION HEIGHT OVER THE DRIP DISPERSAL AREA SHOULD BE A MINIMUM OF 4" - 6" THROUGHOUT THE WINTER MONTHS.



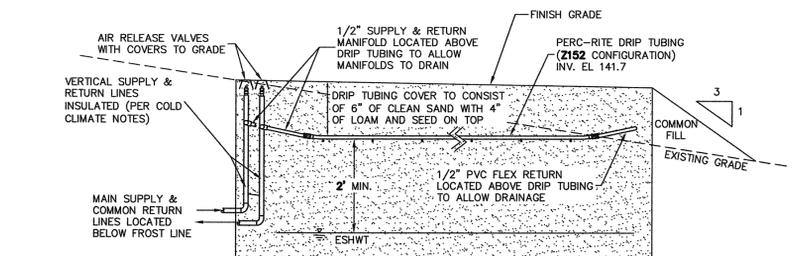
**PERC-RITE INSULATION DETAIL**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE



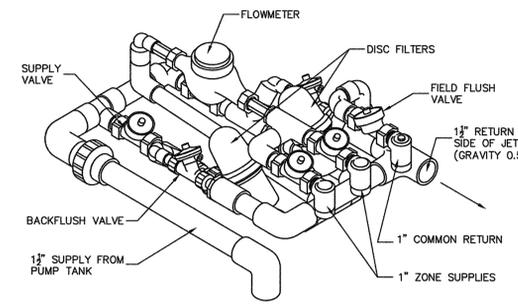
**SOIL ABSORPTION SYSTEM**

OAKSON, INC. STANDARD DETAIL - TOP FEED Z152 ZONE LAYOUT NOT TO SCALE



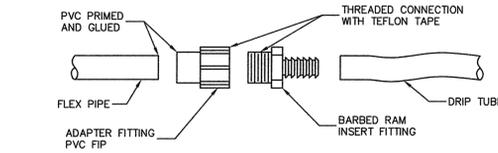
**PERC-RITE FIELD (42' x 13.7')**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE



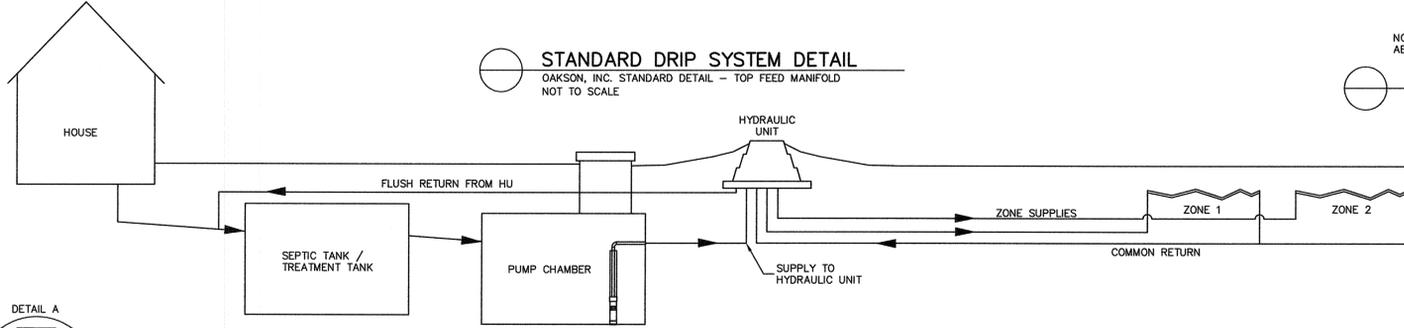
**HYDRAULIC UNIT DETAIL**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE



**CONNECTING DRIP TUBING TO FLEXIBLE PVC PIPE**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE



**TYPICAL SYSTEM HYDRAULIC PROFILE**

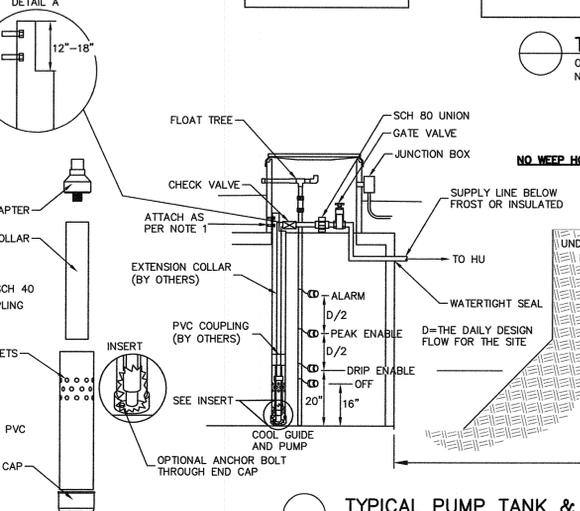
OAKSON, INC. STANDARD DETAIL - TOP FEED MANIFOLD NOT TO SCALE

**TYPICAL MANIFOLD CONNECTION**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE

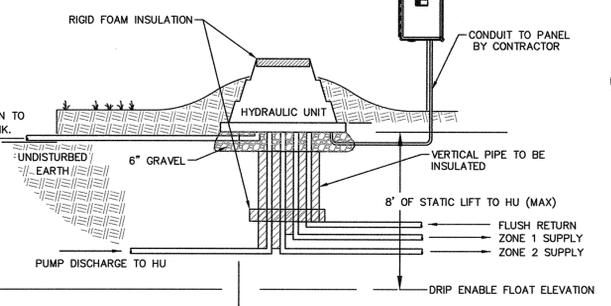
**INSTALLATION INSTRUCTIONS**

1. MEASURE THE DISTANCE FROM THE BOTTOM OF THE TANK TO 6" DOWN FROM THE TOP OF THE RISER. CUT THE EXTENSION PIPE (BY OTHERS) TO THE LENGTH NECESSARY TO REACH THIS HEIGHT. CUT HALF OF THE PIPE DOWN 12" TO 18" AWAY FROM THE TOP OF THE PIPE FOR A PUMP DISCHARGE PIPE AND ATTACH TO RISER. (SEE DETAIL A)
2. GLUE THE EXTENSION COUPLING (BY OTHERS) TO THE EXTENSION PIPE AND TO THE COOL GUIDE.
3. FOR REUSE OF EXISTING CONCRETE PUMP CHAMBERS: GLUE ON THE COOL GUIDE FLAT CAP AND PLACE THE COOL GUIDE FIRMLY IN THE BOTTOM OF THE TANK. ATTACH THE EXTENSION TO THE RISER WITH THE ANCHORS AS SHOWN.
4. FOR USE IN NEW CONCRETE PUMP CHAMBERS: ANCHOR THE FLAT CAP TO THE BOTTOM OF THE TANK IN THE PROPER LOCATION TO HOLD THE COOL GUIDE AND EXTENSION. THE CAP MAY OR MAY NOT BE GLUED TO THE DEVICE. ATTACH THE EXTENSION WITH THE ANCHORS AS SHOWN.
5. PLACE THE PIPE DOPE ON THE COOL GUIDE ADAPTER THREADS AND THREAD THEM INTO THE PUMP DISCHARGE.
6. ATTACH COOLING COLLAR TO ADAPTER WITH SET SCREW PROVIDED.
7. GLUE PIPE INTO FLOW COLLAR AND WITH PUMP ATTACHED, LOWER INTO THE GUIDE TUBE.
8. ATTACH TO DISCHARGE PIPE, VALVES, AND CONNECT ELECTRICAL AND SPECIFIED.



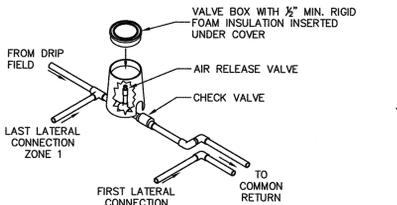
**TYPICAL PUMP TANK & HYDRAULIC UNIT DETAIL**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE



**TYPICAL DRIP LOOP CONNECTION**

OAKSON, INC. STANDARD DETAIL NOT TO SCALE

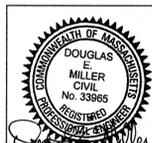


**AIR RELEASE & CHECK VALVE DETAIL**

OAKSON, INC. STANDARD DETAIL - SIDE FEED MANIFOLD NOT TO SCALE

**DRAWING ISSUED FOR:**

- CONCEPT
- CONSTRUCTION
- PERMIT
- CONSTRUCTION RECORD



THIS DRAWING MAY NOT SHOW CONSTRUCTION DETAILS AND SPECIFICATIONS FOR ALL PROPOSED IMPROVEMENTS, AND MAY NOT IDENTIFY ALL CONSTRUCTION WORK ITEMS/AREAS OF CONTRACTOR JURISDICTION.

NO.	DATE	BY	APP.	REVISION DESCRIPTION

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**SUBSURFACE SEWAGE DISPOSAL SYSTEM UPGRADE**

**PERC-RITE CONSTRUCTION DETAILS AND SPECIFICATIONS**

11 DUGGAN ROAD  
 ACTON, MA

PREPARED FOR:  
 WDMAYER REALTY TRUST  
 MICHAEL WDMAYER  
 11 DUGGAN ROAD  
 ACTON, MA 01720

DES. BY: NMP	DATE: OCTOBER 2013	JOB 131028	3 OF 3
CHK. BY: DEM			

P:13-11-131028.DWG:SSS:SSS DRIP.DWG 12-03-13 1:20:52 PM - LAYOUT PERC-RITE DETAILS

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