

## STORMWATER CONSTRUCTION OVERSIGHT NOTES

THE CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES TO BE BUILT AS PART OF THIS PROJECT. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLANS FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER SHALL NOTIFY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN WRITING WITHIN 30 DAYS TO STATE THAT THE STRUCTURES HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION SHALL BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL, AGGREGATE OR MULCH MATERIALS USED IN THE CONSTRUCTION OF THE STORMWATER MANAGEMENT STRUCTURES AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION AND THE TIME INSPECTED ON EACH VISIT.

### WETPONDS WITH UNDERDRAINED GRAVEL TRENCH OUTLET

CONSTRUCTION INSPECTIONS - INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE BY THE ENGINEER TO INSPECT THE EMBANKMENT FOUNDATION PREPARATION, THE PLACEMENT OF THE EMBANKMENT FILL, THE CONSTRUCTION OF THE UNDERDRAINED GRAVEL TRENCH OUTLET, THE INSTALLATION OF THE OUTLET CONTROL STRUCTURE, THE PLACEMENT OF THE GEOSYNTHETIC LINER AND THE CONSTRUCTION OF THE EMERGENCY SPILLWAY FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE WETPOND.

TESTING AND SUBMITTALS - ALL SOIL AND AGGREGATE USED FOR CONSTRUCTION OF THE WETPOND'S IMPOUNDMENT EMBANKMENT AND THE UNDERDRAINED GRAVEL TRENCH OUTLET SHALL BE CONFIRMED AS SUITABLE BY TESTING. THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH FILL OR AGGREGATE AND OBTAIN SAMPLES FOR TESTING. ALL TESTING MUST BE DONE BY A CERTIFIED LABORATORY. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPLETION OF THE FOLLOWING SAMPLING AND TESTING BEFORE THE FILL OR AGGREGATE IS PLACED AS PART OF THE WETPOND'S CONSTRUCTION.

- OBTAIN A SAMPLE OF THE FILL MATERIAL. THE SAMPLE MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. THE SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY. PERFORM ANALYSES OF THE EMBANKMENT FILL, AS NEEDED, TO DETERMINE THE FILL GRADATION AND PERCENT CLAY. THE EMBANKMENT FILL MUST CONFORM TO THE GRADATION SPECIFIED ON THE PROJECT PLANS AND MUST BE APPROVED BY THE DESIGN OR RESIDENT ENGINEER.

- OBTAIN A SAMPLE OF THE GRAVEL FILL TO BE USED FOR THE UNDERDRAIN GRAVEL TRENCH OUTLET. THE SAMPLE MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. THE SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY. PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1936A) OF THE FILL FOR THE UNDERDRAINED GRAVEL TRENCH OUTLET. THE FILL MUST CONFORM TO MEDOT SPECIFICATION 103.22 TYPE B.

### VEGETATED UNDERDRAINED SOIL FILTER BASINS

CONSTRUCTION INSPECTIONS - AT A MINIMUM, THE PROFESSIONAL ENGINEER'S INSPECTION SHALL OCCUR AFTER FOUNDATION SOIL PREPARATION BUT PRIOR TO PLACEMENT OF THE EMBANKMENT FILL, AFTER THE UNDERDRAIN PIPES AND INSTALLED BUT NOT BACKFILLED, AFTER THE PIPE BEDDING IS PLACED BUT PRIOR TO THE PLACEMENT OF THE FILTER MEDIA AND AFTER THE FILTER MEDIA HAS BEEN PLACED AND THE FILTER SURFACE SEEDED.

TESTING AND SUBMITTALS - ALL THE SOIL, MULCH AND AGGREGATE USED FOR THE CONSTRUCTION OF THE VEGETATED UNDERDRAINED SOIL FILTER BASIN SHALL BE CONFIRMED AS SUITABLE BY TESTING. THE CONTRACTOR SHALL IDENTIFY THE SOURCE OF EACH MATERIAL AND OBTAIN SAMPLES FROM EACH MATERIAL FOR TESTING. ALL TESTING SHALL BE DONE BY A CERTIFIED LABORATORY. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPLETION OF THE FOLLOWING SAMPLING AND TESTING BEFORE THE FILL OR AGGREGATE IS PLACED AS PART OF THE VEGETATED UNDERDRAINED SOIL FILTER BASIN'S CONSTRUCTION.

- OBTAIN A SAMPLE OF THE FILTER MEDIA CONSISTING OF A BLEND OF SAND, TOPSOIL AND WOOD FIBER MULCH (OR OTHER APPROVED ORGANIC SOURCE). THE SAMPLE MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE. THE SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY. PERFORM ANALYSES OF THE BLENDED FILTER MEDIA SHOWING IT HAS 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE AS DETERMINED BY ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1936A), HAS A CLAY CONTENT OF LESS THAN 2% AND HAS AN ORGANIC MATTER CONTENT OF NO LESS THAN 10% BY DRY WEIGHT.

- IF THE UNDERDRAIN PIPES WILL BE BEDDED IN GRAVEL, OBTAIN A SAMPLE OF THE GRAVEL FILL TO BE USED FOR THE PIPE BEDDING. THE SAMPLE MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE. THE SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY. PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1936A) OF THE GRAVEL TO BE USED FOR THE UNDERDRAIN PIPE BEDDING. THE GRAVEL FILL MUST CONFORM TO MEDOT SPECIFICATION 103.22 UNDERDRAIN TYPE B.

- IF THE UNDERDRAIN PIPE WILL BE BEDDED IN CRUSHED STONE, OBTAIN A SAMPLE OF THE CRUSHED STONE TO BE USED FOR THE PIPE BEDDING. THE SAMPLE MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE. THE SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY. PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1936A) OF THE CRUSHED STONE TO BE USED FOR THE UNDERDRAIN PIPE BEDDING. THE CRUSHED STONE FILL MUST CONFORM TO MEDOT SPECIFICATION 103.22 UNDERDRAIN TYPE C.

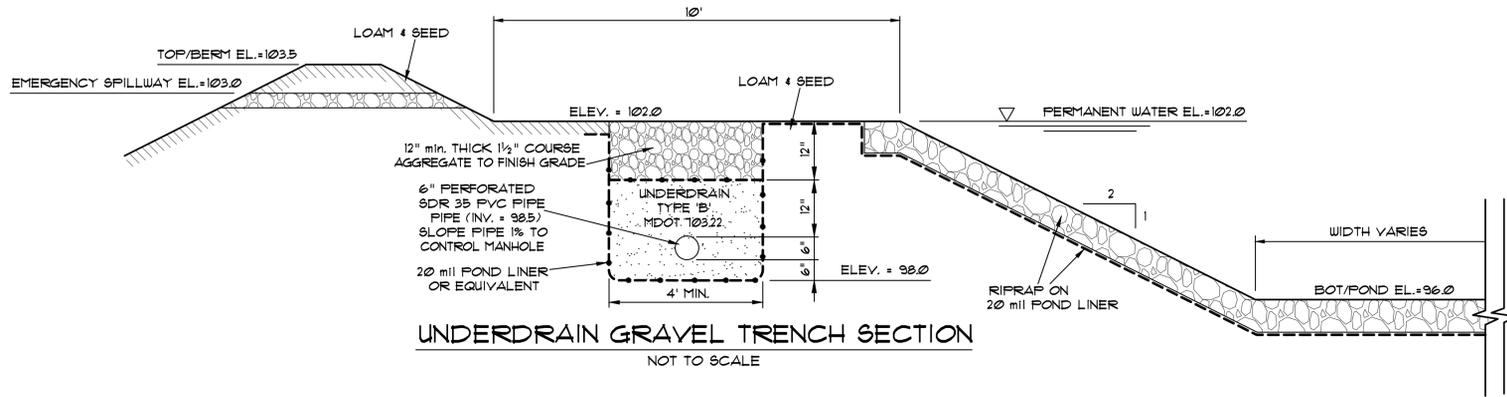
DATE	PROJECT
JAN 2016	SJR *
DRAWN BY	SCALE
SJR	AS NOTED

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SJR ENGINEERING, INC.

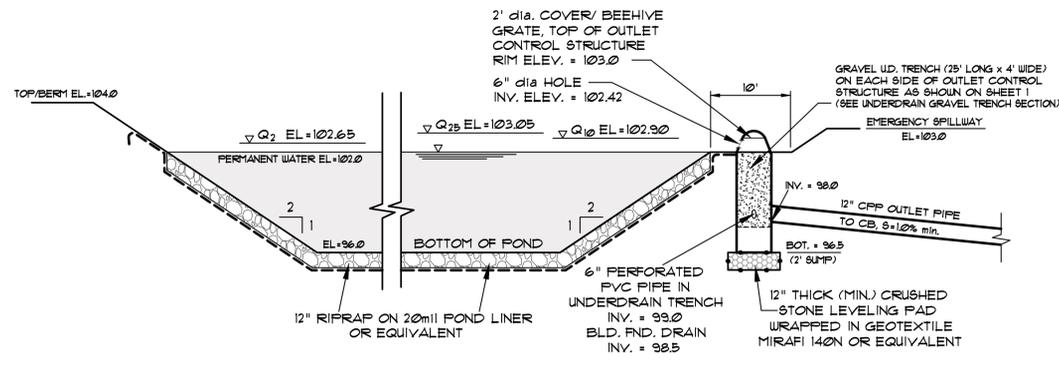
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**FILTER & WET POND NOTES & DETAILS**  
**MANCHESTER MOTORS**  
 1031 WESTERN AVENUE - MANCHESTER, MAINE  
 PREPARED FOR  
**MICHAEL SAUCIER**  
 22 STONE HILL DRIVE - WINTHROP, ME 04364

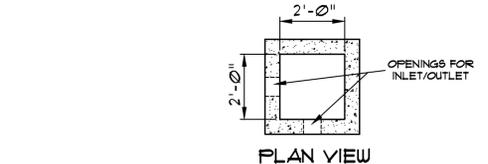
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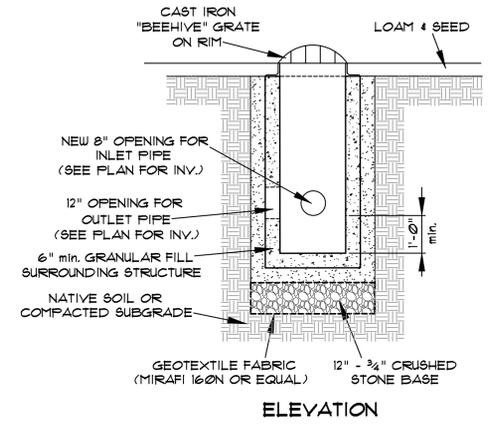
**UNDERDRAIN GRAVEL TRENCH SECTION**  
NOT TO SCALE



**WET POND CROSS SECTION**  
NOT TO SCALE



**PLAN VIEW**

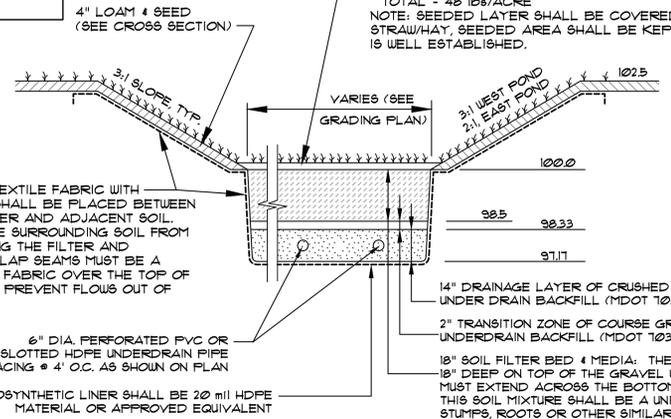


**ELEVATION**

**SOIL FILTER OUTLET CONTROL STRUCTURE**  
NOT TO SCALE

**NOTE:**  
 FILTER POND SOIL FILTER DETAILS DEFICITS ELEVATIONS AT THE BOTTOM PERIMETER OF THE POND AND NOT THE LOW POINT OF THE POND. SEE SITE PLAN GRADING AND SECTION FOR LOW POINT OF ELEVATION (TYPICALLY NEAR THE CONTROL STRUCTURE)

**VEGETATION:** THE SOIL FILTER SURFACE MUST BE PLANTED WITH 2" SANDY LOAM 4 SEED WITH MIXTURE SHOWN BELOW  
 CREEPING RED FESCUE - 15 lbs/ACRE  
 TALL FESCUE - 15 lbs/ACRE  
 BIRDFOOT TREFOIL - 8 lbs/ACRE  
 PERENNIAL RYE GRASS - 5 lbs/ACRE  
 REDTOP OR CLOVER - 5 lbs/ACRE  
 TOTAL - 48 lbs/ACRE  
 NOTE: SEEDED LAYER SHALL BE COVERED WITH A THIN LAYER OF STRAW/HAY, SEEDED AREA SHALL BE KEPT MOIST UNTIL VEGETATION IS WELL ESTABLISHED.



**GEOTEXTILE FABRIC:** A GEOTEXTILE FABRIC WITH SUITABLE CHARACTERISTICS SHALL BE PLACED BETWEEN THE SIDES OF THE FILTER LAYER AND ADJACENT SOIL. THE FABRIC WILL PREVENT THE SURROUNDING SOIL FROM MIGRATING INTO AND CLOGGING THE FILTER AND CLOGGING THE OUTLET. OVERLAP SEAMS MUST BE A MINIMUM OF 12". DO NOT WRAP FABRIC OVER THE TOP OF THE PIPE BEDDING AS IT WILL PREVENT FLOWS OUT OF THE FILTER.

### SOIL FILTER NOTES

- 1) THE SOIL FILTER IS PART OF A MAINE DEP PERMIT AND CONSTRUCTION SHALL FOLLOW CURRENT MAINE DEP GUIDELINES WHICH INCLUDE APPROVAL OF MATERIAL PRIOR TO PLACEMENT AND CONSTRUCTION OVERSIGHT BY THE DESIGN ENGINEER.
- 2) SUBMIT SAMPLES AND GRADATIONS FOR EACH MATERIAL TO BE USED. PROVIDE EXPECTED DESIGN MIX, PERFORM AND PROVIDE STANDARD PROCTOR ON COMBINED MIXTURE AS WELL AS A PERMEABILITY TEST.
- 3) FILTER BED MATERIAL SHALL NOT BE PLACED UNTIL SURROUNDING AREA HAS BEEN STABILIZED.
- 4) SCARIFY TO LOOSEN EXISTING SOIL AT LEAST 8" PRIOR TO LAYING FIRST LAYER OF THE SOIL FILTER SECTION.
- 5) MAXIMUM SPACING OF UNDERDRAIN PIPING IS 4' O.C. END CAPS SHALL BE INSTALLED ON ALL UNDER DRAIN PIPES.
- 6) AFTER APPROVAL OF MATERIAL, PLACE FILTER MEDIA IN TWO LIFTS WITH LOW WEIGHT VEHICLES TO 92% STANDARD PROCTOR.
- 7) PROVIDE 2" OF BARK MULCH OR EROSION CONTROL MIX ON TOP OF THE FILTER BED UNTIL THE SITE HAS PROPOSED HARDSCAPE PLACED AND HAS VEGETATION WELL ESTABLISHED EVERYWHERE ELSE. ONCE THE SITE IS STABILIZED, REMOVE THE MULCH AND ACCUMULATED SEDIMENT FROM THE FILTER AND ESTABLISH VEGETATION PER THE FILTER BED SEEDING PLAN.
- 8) PRIOR TO TURNING OVER TO OWNER, REMOVE SEDIMENT AND DEBRIS FROM FILTER SURFACE, OVERFLOW WEIR, INSIDE OVERFLOW STRUCTURE AND DISCHARGE PIPE.

**FILTER POND SOIL FILTER DETAIL**  
NOT TO SCALE

### EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUITABLE LOCATIONS OF DEWATERING DISCHARGE WATER RESULTING FROM SITE DEWATERING EFFORTS. ALL DEWATERING MUST BE PUMPED TO A BAG FILTER (DIRTYBAG OR EQUIVALENT) OR EXCAVATION DEWATERING SEDIMENT TRAP PLACED IN AN UPLAND AREA AT LEAST 15' FROM ANY PROTECTED NATURAL RESOURCE OR STORMWATER CONVEYANCE. THE DEWATERING EFFORT MUST NOT BE PUMPED TO AN AREA THAT WOULD DRAIN TO A STORMWATER TREATMENT DEVICE OR THE DEVICE WILL NEED TO BE REHABILITATED PRIOR TO THE END OF CONSTRUCTION.
2. WITHIN 1 DAYS OF THE CESSATION OF CONSTRUCTION ACTIVITIES IN AN AREA THAT WILL NOT BE WORKED FOR MORE THAN 1 DAYS, THEN CONTRACTOR MUST STABILIZE ANY EXPOSED SOIL WITH MULCH, OR OTHER NON-ERODIBLE COVER.
3. THE CONTRACTOR MUST STABILIZE AREAS WITHIN 15' OF WETLAND OR WATERBODY RESOURCES WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
4. A LOG (REPORT) MUST BE CONTEMPORANEOUSLY KEPT SUMMARIZING THE INSPECTION AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTION, THE DATES OF INSPECTIONS, AND THE MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION/SEDIMENTATION CONTROL, MATERIAL STORAGE AREA, AND VEHICLES ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMP'S THAT NEED MAINTENANCE, BMP'S THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMP'S ARE NEEDED. (SEE MANCHESTER MOTORS BMP NARRATIVE ATTACHED AS PART OF THE APPLICATION MATERIALS FOR ADDITIONAL DETAIL). THE LOG MUST BE MADE ACCESSIBLE TO MDEP STAFF AND A COPY PROVIDED UPON REQUEST. THE OWNER SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.

SOIL FILTER MEDIA SPECIFICATIONS *			
FILTER MEDIA	SAND	TOPSOIL	MULCH
MIXTURE BY VOL.	50% (±10%)	20% (±5%)	30% (±5%)
SPECIFICATION	MEDOT SPEC. #103.01 FINE AGGREGATE FOR CONCRETE	USDA LOAMY SANDY TOPSOIL	WOODY FIBER 4 MODERATELY FINE SHREDDED BARK SUPERHUMUS OR EQUAL, ADJUSTED FOR MINERAL SOIL CONTENT WITH LESS THAN 5% PASSING THE #200 SIEVE
GRADATION			
SIEVE SIZE	% BY WEIGHT	% BY WEIGHT	% BY WEIGHT
3/8"	100	-	-
4	90-100	75-95	-
8	80-100	-	-
10	-	60-90	-
16	50-85	-	-
30	25-60	-	-
40	-	35-85	-
60	10-30	-	-
100	2-10	-	-
200	0-5	20-70	-
200 CLAY	<2% **	<2% **	<2% **
* FOR GRASSSED UNDERDRAINED SOIL FILTER BMP, PER THE MAINE DEP VOLUME III : BMP'S TECHNICAL DESIGN MANUAL, MAY 2014			
** COMBINED MIXTURE CLAY CONTENT SHALL NOT EXCEED 2%			
NOTE: THE SOIL FILTER SHALL DRAIN IN NO LESS THAN 24 hrs BUT NO MORE THAN 48 hrs.			