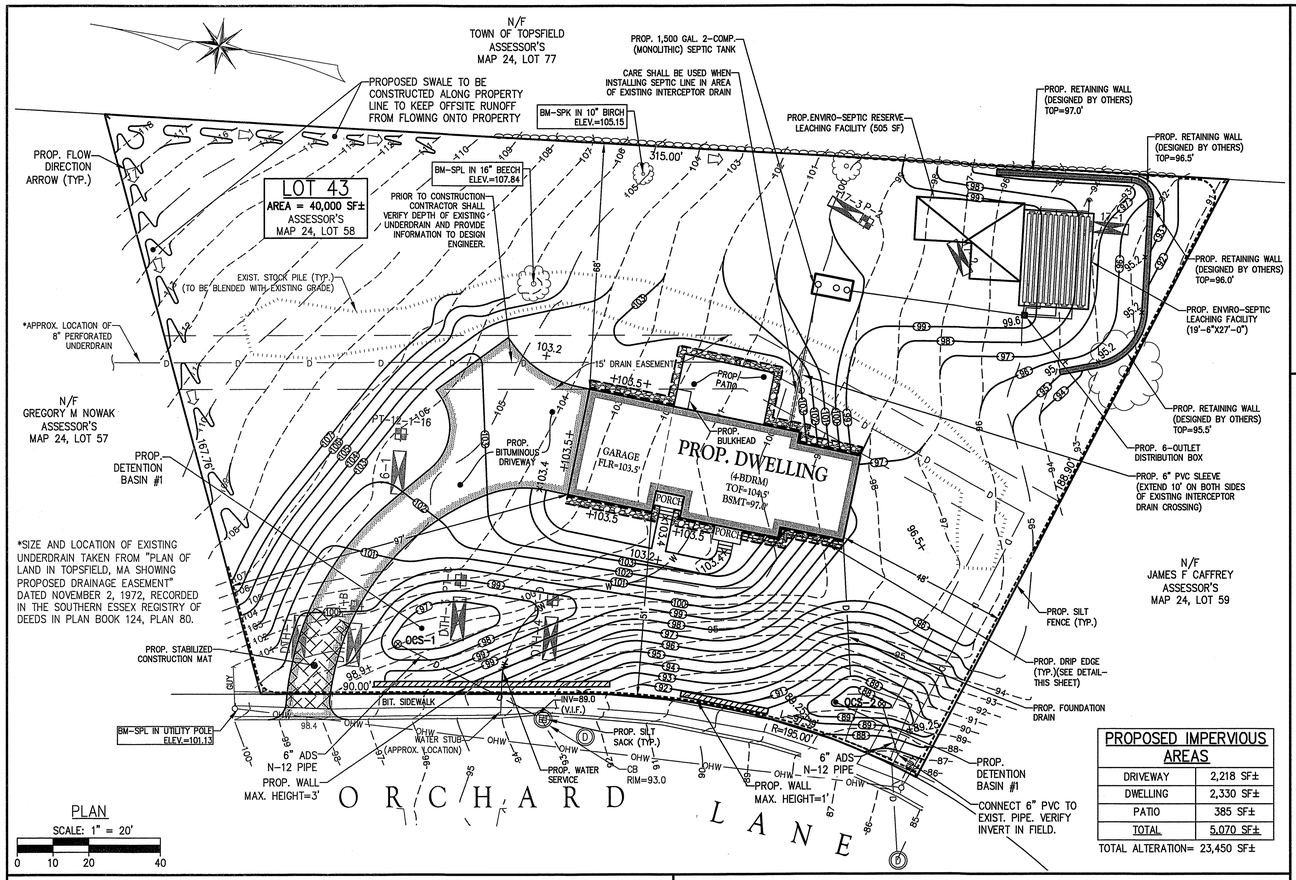
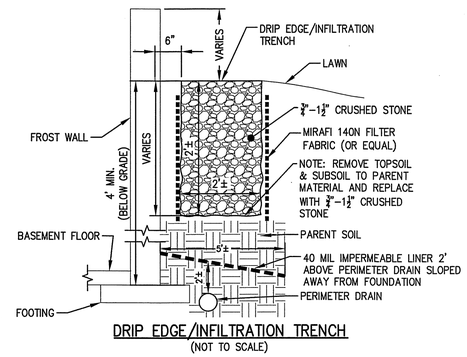


PLAN
SCALE: 1" = 20'
0 10 20 40

PROPOSED IMPERVIOUS AREAS	
DRIVEWAY	2,218 SF±
DWELLING	2,330 SF±
PATIO	385 SF±
TOTAL	5,070 SF±

TOTAL ALTERATION= 23,450 SF±



DRIP EDGE/INFILTRATION TRENCH
(NOT TO SCALE)

SITE NOTES:

1. RECORD OWNER: JAMES J. & TIFFANY K. KOLLIAS, 107 WENHAM ROAD, TOPSFIELD, MA 01983, BOOK 36170, PAGE 411
2. RECORD PLANS: PROPERTY LINE INFORMATION COMPILED FROM "DEFINITIVE PLAN, BARE HILL FARM-SECT. II, TOPSFIELD, MASSACHUSETTS" PREPARED BY HAYES ENGINEERING, INC. DATED APRIL 28, 1967, RECORDED WITH THE ESSEX REGISTRY OF DEEDS, PLAN BOOK 108 PLAN 83 AND SHOULD BE CONSIDERED APPROXIMATE.
3. WETLANDS: THERE ARE NO KNOWN WETLANDS WITHIN 100' OF THE PROPOSED LEACHING FACILITY.
4. WATER SUPPLY: THERE IS NO KNOWN DRINKING WATER SUPPLY ZONE II'S AND NO KNOWN INTERIM WELLHEAD PROTECTION ZONES ON THE SUBJECT PARCEL BASED ON THE DEPARTMENT OF ENVIRONMENTAL PROTECTION MAPS.
5. FLOOD PLAIN: THE AREA OF WORK ON THE PROPERTY IS SITUATED IN A ZONE 'X' AS ILLUSTRATED ON THE MOST RECENT FLOOD INSURANCE RATE MAP PANEL 25009C-0264-F WITH EFFECTIVE DATE OF JULY 3, 2012.
6. DATUM: ELEVATION SHOWN HEREON ARE BASED ON AN ASSUMED DATUM.
7. EXISTING CONDITIONS: EXISTING CONDITIONS INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY THE MORIN-CAMERON GROUP, INC. IN OCTOBER 2017.

OPERATION AND MAINTENANCE:

EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION:
THE SITE AND DRAINAGE CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STORMWATER SYSTEM DURING CONSTRUCTION. ROUTINE MAINTENANCE OF ALL ITEMS SHALL BE PERFORMED TO ENSURE ADEQUATE RUNOFF AND POLLUTION CONTROL DURING CONSTRUCTION.

PROPOSED EROSION CONTROL WILL BE PLACED AS SHOWN ON THE SITE PLAN PRIOR TO THE COMMENCEMENT OF ANY CLEARING, GRUBBING, AND EARTH REMOVAL OR CONSTRUCTION ACTIVITY. THE INTEGRITY OF THE EROSION CONTROL BARRIER WILL BE MAINTAINED BY PERIODIC INSPECTION AND REPLACEMENT AS NECESSARY. THE EROSION CONTROL BARRIER WILL REMAIN IN PLACE UNTIL THE FIRST COURSE OF PAVEMENT HAS BEEN PLACED AND ALL SIDE SLOPES HAVE BEEN LOAMED AND SEEDED AND VEGETATION HAS BEEN ESTABLISHED.

IF SEDIMENT TRACK OCCURS FROM CONSTRUCTION ACTIVITIES, SEDIMENT SHALL BE HAND SWEPT AND REMOVED FROM THE ROADWAY IMMEDIATELY. IF HAND SWEEPING IS NOT SUFFICIENT, MECHANICAL STREET SWEEPERS SHALL BE UTILIZED TO REMOVE EXCESS TRACK OUT SEDIMENT. THE EXISTING DRIVEWAY SHALL BE KEPT CLEAN AND CLEAR OF SEDIMENT TO REDUCE LIKELIHOOD OF TRACKING SEDIMENT INTO ROADWAY. IF NECESSARY, CONSTRUCTION VEHICLE TIRES SHALL BE RINSED AND HAVE SEDIMENT REMOVED PRIOR TO EXITING THE CONSTRUCTION SITE.

GENERAL CONDITIONS

1. THE DEVELOPER SHALL BE RESPONSIBLE FOR SCHEDULING REGULAR INSPECTIONS AND MAINTENANCE OF THE STORMWATER BMP'S. THE BMP MAINTENANCE SHALL BE CONDUCTED AS DETAILED IN THE FOLLOWING LONG-TERM POLLUTION PREVENTION PLAN AND ILLUSTRATED ON THE APPROVED DESIGN PLANS:
2. ALL STORMWATER BMP'S SHALL BE OPERATED AND MAINTAINED IN ACCORDANCE WITH THE DESIGN PLANS AND THE FOLLOWING LONG-TERM POLLUTION PREVENTION PLAN.
3. THE OWNER SHALL:
   a. MAINTAIN AN OPERATION AND MAINTENANCE LOG FOR THE LAST THREE YEARS. THE LOG SHALL INCLUDE ALL BMP INSPECTIONS, REPAIRS, REPLACEMENT ACTIVITIES AND DISPOSAL ACTIVITIES (DISPOSAL MATERIAL AND DISPOSAL LOCATION SHALL BE INCLUDED IN THE LOG);
   b. MAKE THE LOG AVAILABLE TO THE TOPSFIELD DEPARTMENT OF PUBLIC WORKS UPON REQUEST;
   c. ALLOW MEMBERS AND AGENTS OF THE TOPSFIELD DEPARTMENT OF PUBLIC WORKS TO ENTER THE PREMISES AND ENSURE THAT THE OWNER HAS COMPLIED WITH THE OPERATION AND MAINTENANCE PLAN REQUIREMENTS FOR EACH BMP.
4. A RECOMMENDED INSPECTION AND MAINTENANCE SCHEDULE IS OUTLINED BELOW BASED ON STATEWIDE AVERAGES. THIS INSPECTION AND MAINTENANCE SCHEDULE SHALL BE ADHERED TO AT A MINIMUM FOR THE FIRST YEAR OF SERVICE OF ALL BMP'S REFERENCED IN THIS DOCUMENT. AT THE COMMENCEMENT OF THE FIRST YEAR OF SERVICE, A MORE ACCURATE INSPECTION/MAINTENANCE SCHEDULE SHALL BE DETERMINED BASED ON THE LEVEL OF SERVICE FOR THIS SITE.
5. INSPECTIONS AND MAINTENANCE ACTIVITIES FOR THIS RESIDENTIAL DEVELOPMENT WILL GENERALLY BE PERFORMED BY THE DEVELOPER OR FUTURE HOMEOWNER. IF MAJOR REPAIRS ARE REQUIRED, THEN DETAILED COST ESTIMATES WILL BE PROVIDED BY LOCAL LANDSCAPING COMPANIES PRIOR TO COMMENCEMENT OF WORK.

LONG-TERM POLLUTION PREVENTION PLAN (LTPPP)

VEGETATED AREAS:
IMMEDIATELY AFTER CONSTRUCTION, MONITORING OF THE EROSION CONTROL SYSTEMS SHALL OCCUR UNTIL ESTABLISHMENT OF NATURAL VEGETATION. AFTERWARDS, VEGETATED AREAS SHALL BE MAINTAINED AS SUCH. VEGETATION SHALL BE REPLACED AS NECESSARY TO ENSURE PROPER STABILIZATION OF THE SITE.

GRASSED DETENTION BASIN:
THE DETENTION BASINS SHALL BE INSPECTED AFTER EVERY MAJOR STORM EVENT FOR FIRST 3 MONTHS AFTER CONSTRUCTION TO ENSURE THE STRUCTURES ARE WORKING PROPERLY AND THEREAFTER, TWICE A YEAR (APRIL/ OCTOBER). VERIFY NO STANDING WATER IS PRESENT 24 HOURS AFTER A STORM EVENT TO VERIFY OUTLET CONTROL STRUCTURE IS UNCLOGGED AND DRAINING. REHABILITATE STRUCTURE IF IT FAILS DUE TO CLOGGING.

STONE INFILTRATION TRENCH:
THE STONE INFILTRATION TRENCH SHALL BE CHECKED REGULARLY TO ENSURE THAT THE SURFACE IS FREE OF DEBRIS SUCH AS LEAVES, STICKS AND TRASH. REMOVE AND DISPOSE OF ANY DEBRIS. IF SURFACE PONDING IS VISIBLE, REMOVE TOP COURSE OF CRUSHED STONE AND ACCUMULATED SEDIMENT AND REPLACE WITH CLEAN STONE.

OVERALL SITE GRADING AND STORMWATER MANAGEMENT ON LOT:
AFTER CONSTRUCTION, AND DURING THE INITIAL VEGETATION ESTABLISHMENT PERIOD, THE SITE SHOULD BE INSPECTED AFTER EVERY RAINFALL. MOWING, LITTER REMOVAL, AND SPOT VEGETATION REPAIR SHOULD BE PERFORMED ON A REGULAR BASIS.

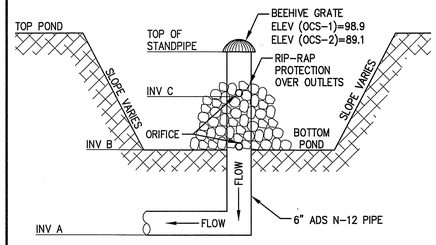
DEBRIS & LITTER:
ALL DEBRIS AND LITTER SHALL BE REMOVED FROM THE DRIVEWAY/PARKING AREAS AS NECESSARY TO PREVENT MIGRATION INTO THE DRAINAGE SYSTEM.

PREVENTION OF ILLICIT DISCHARGES:
ILLICIT DISCHARGES TO THE STORMWATER MANAGEMENT SYSTEM ARE NOT ALLOWED. ILLICIT DISCHARGES ARE DISCHARGES THAT ARE NOT COMPRISED ENTIRELY OF STORMWATER. PURSUANT TO MASS DEP STORMWATER STANDARDS THE FOLLOWING ACTIVITIES OR FACILITIES ARE NOT CONSIDERED ILLICIT DISCHARGES: FIREFIGHTING, WATER LINE FLUSHING, LANDSCAPE IRRIGATION, UNCONTAMINATED GROUNDWATER, POTABLE WATER SOURCES, FOUNDATION DRAINS, AIR CONDITIONING CONDENSATION, FOOTING DRAINS, INDIVIDUAL RESIDENT CAR WASHING, FLOWS FROM RIPARIAN HABITATS AND WETLANDS, DE-CHLORINATED WATER FROM SWIMMING POOLS, WATER USED FOR STREET WASHING AND WATER USED TO CLEAN RESIDENTIAL BUILDING WITHOUT DETERGENTS.

TO PREVENT ILLICIT DISCHARGES TO THE STORMWATER MANAGEMENT SYSTEM THE FOLLOWING POLICIES SHOULD BE IMPLEMENTED:

1. PROVISIONS FOR STORING MATERIALS AND WASTE PRODUCTS INSIDE OR UNDER COVER
2. REQUIREMENTS FOR ROUTINE INSPECTIONS OF THE STORMWATER MANAGEMENT SYSTEM
3. SPILL PREVENTION AND RESPONSE PLANS.

OUTLET CONTROL STRUCTURE INVERTS AND ELEVATIONS		
INVERT/ELEVATION	OCS-1	OCS-2
BOTTOM OF POND	97.0	88.0
INV A	94.0	86.0
INV B	97.0 (2")	88.0 (2.5")
INV C	98.0 (4")	88.75 (3")
TOP OF STANDPIPE	98.9	89.1
TOP OF POND	99.0	89.25



DETENTION SYSTEM OUTLET CONTROL STRUCTURE (OCS-1 & OCS-2)
(N.T.S.)

SOIL LOGS

DATE PERFORMED: SEPTEMBER 18, 2017
PERFORMED BY: WILL SCHKUTA, SE #14030
WITNESSED BY: JOHN COULON, TOPSFIELD BOARD OF HEALTH AGENT

TP 17-1
ELEV. = 92.6
0" Ap: 10YR2/2, FSL
8" Bw: 10YR6/4, FSL
24" ESHWT@ 28" (90.3)
84" C1: 2.5Y5/6, FSL

TP 17-2
ELEV. = 97.0
0" Ap: 10YR2/2, FSL
8" Bw: 10YR6/4, FSL
26" ESHWT@ 30" (94.5)
90" C1: 2.5Y5/6, FSL

TP 17-3
ELEV. = 99.6
0" Ap: 10YR2/2, FSL
6" Bw: 10YR6/4, FSL
26" ESHWT@ 29" (97.2)
90" C1: 2.5Y5/6, FSL

PERCOLATION TEST 1
PRESOAK:
START: 9:50
END: 10:05
TIME @ 12"=10:05
TIME @ 9" =10:29
TIME @ 6" =11:22
TIME 9" TO 6" = 53 MIN.
RATE: 18 MPI

PERCOLATION TEST 2
PRESOAK:
START: 10:35
END: 10:50
TIME @ 12"=10:50
TIME @ 9" =11:24
TIME @ 6" = 12:23
TIME 9" TO 6" = 59 MIN.
RATE: 20 MPI

DATE PERFORMED: OCTOBER 10, 2014
PERFORMED BY: GERALD J. TOPPING
WITNESSED BY: JOHN COULON, TOPSFIELD BOARD OF HEALTH AGENT

DTH-1
ELEV. = 100.6
0" Ap: 10YR3/2, SL
6" Bw: 10YR5/8, SL
29" ESHWT@ 41" (97.18)
78" Cd: 2.5Y6/3, SL

DTH-2
ELEV. = 99.96
0" Ap: 10YR3/2, SL
6" Bw: 10YR5/8, SL
27" ESHWT@ 44" (96.29)
75" Cd: 2.5Y6/3, SL

DTH-3
ELEV. = 99.61
0" Ap: 10YR3/2, SL
5" Bw: 10YR5/8, SL
26" ESHWT@ 39" (96.36)
82" Cd: 2.5Y6/3, SL

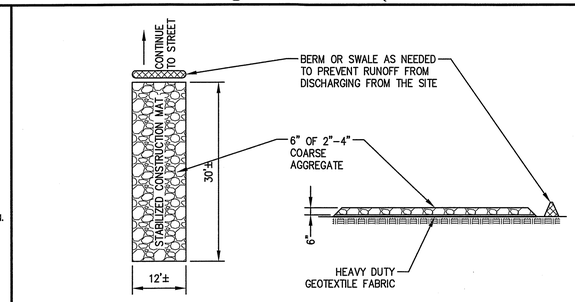
DTH-4
ELEV. = 99.01
0" Ap: 10YR3/2, SL
4" Bw: 10YR5/8, SL
27" ESHWT@ 41" (95.59)
76" Cd: 2.5Y6/3, SL

DATE PERFORMED: DECEMBER 1, 2016
PERFORMED BY: ALEXANDER PARKER, SE#1848
WITNESSED BY: JOHN COULON, TOPSFIELD BOARD OF HEALTH AGENT

TP 16-1
ELEV. = 105.68
0" Ap: 10YR3/2, SL
9" Bw: 10YR3/6, SL
23" ESHWT@ 24" (103.68)
90" 2Cd: 2.5Y4/3, SL

NOTE:
DTH-1, DTH-2, DTH-3, DTH-4, TP 16-1, PT-1, PT-B, PT-C & PT-D INFORMATION OBTAINED FROM APPROVED SEPTIC DESIGN PLAN ENTITLED "PROPOSED SEWAGE DISPOSAL SYSTEM, LOCATION, 5 ORCHARD LANE, TOPSFIELD, MA, ASSESSOR'S MAP 24 & PARCEL 58" PREPARED BY CMC HOME PROJECT, ENGINEERING AND SURVEY DIVISION" DATED 6/22/15 AND REVISED THROUGH 12-15-16, ON FILE WITH THE TOPSFIELD BOARD OF HEALTH.

PERCOLATION TEST							
HOLE NO. & DATE	TOP ELEVATION	DEPTH (IN.)	SATURATION (MIN.)	12"-9" DROP (MIN.)	9"-6" DROP (MIN.)	PERC. RATE (MIN./IN)	
PT-1 12-1-16	105.68	62	15	25	40	14	
PT-B 10-10-14	99.96	38	15	63	79	27	
PT-C 10-10-14	99.61	43	15	59	80	27	
PT-D 10-10-14	99.01	38	15	51	78	26	

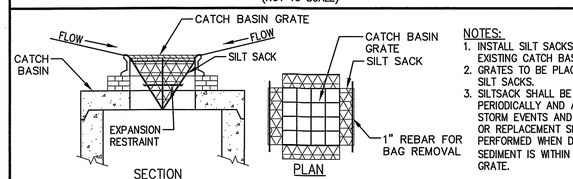


PLAN PROFILE

CONSTRUCTION MAT SPECIFICATIONS

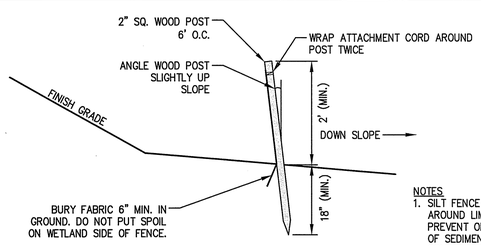
1. STONE FOR STABILIZATION CONSTRUCTION MAT SHALL BE 2"-4" STONE, RECLAIMED STONE.
2. THE LENGTH OF THE STABILIZED MAT SHALL NOT BE LESS THAN 30 FEET.
3. THE WIDTH OF THE MAT SHALL BE NO LESS THAN THE WIDTH OF THE INGRESS OR EGRESS DRIVE, OR 12 FEET, WHICHEVER IS GREATER.
4. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION MAT SHALL BE PIPED BENEATH THE MAT. IF PIPING IS IMPRACTICAL, A BERM WITH MINIMUM 1 TO 5 SLOPES THAT CAN BE CROSSED BY VEHICLES CAN BE SUBSTITUTED.
6. THE MAT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC OPPRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. SEDIMENT SPILLED, WASHED OR TRACKED ONTO THE RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION MAT DETAIL
(NOT TO SCALE)



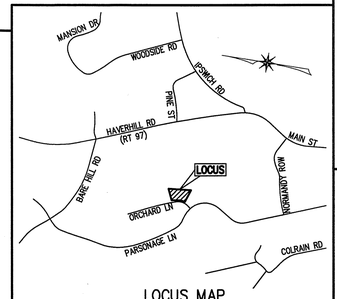
NOTES:
1. INSTALL SILT SACKS IN EXISTING CATCH BASIN.
2. GRATES TO BE PLACED OVER SILT SACKS.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED WHEN DEPTH OF SEDIMENT IS WITHIN 6" OF GRATE.

SILT SACK SEDIMENT TRAP
(NOT TO SCALE)



NOTES
1. SILT FENCE TO BE INSTALLED AROUND LIMIT OF WORK TO PREVENT OFFSITE MIGRATION OF SEDIMENT DURING CONSTRUCTION.

SILT FENCE
(NOT TO SCALE)



LOCUS MAP
(SCALE: 1"=500'±)

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
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JOHN M. JAMES No. 39836 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE DRAINAGE SYSYTEM	3-30-18
2	REVISE PER COMMENTS	4-18-18

SURVEY BY: PM/SR
DRAFTED BY: WAS/DJP
CHECKED BY: JMM
APPROVED BY: JMM
SCALE: 1"=20'
DATE: FEBRUARY 22, 2018

STORMWATER MANAGEMENT PLAN
IN
TOPSFIELD, MASSACHUSETTS
5 ORCHARD LANE
(ASSESSOR'S MAP 24, LOT 58)
PREPARED FOR:
JAY KOLLIAS

DRAWING NO.
SMP - 3514

SHEET NO.
1 OF 1