

HEARINGS, MEETINGS, LICENSES

6/20/16



The Board of Selectmen will hold a public hearing in the Selectmen's Meeting Room at the Town Hall, 10 Nickerson Avenue, Middleborough, MA on **Monday, May 2, 2016 at 8:00 PM**, for the purpose of discussing an application filed by the Town of Middleboro for a Special Permit under the Water Resource Protection District By-law to allow for the **reconstruction of the existing outfall pipe which drains the Plain Street municipal system and a portion of the Oak Point project**. This property is shown as Assessors Map 013, Lot 6384, Zoning District - RR, WRPD District Z4. Anyone wishing to be heard on this matter should appear at the time and place designated.

Allin Frawley
Leilani Dalpe
John M. Knowlton
Diane C. Stewart
Stephen J. McKinnon
BOARD OF SELECTMEN
April 14 & 21, 2016
The Middleboro Gazette Newspaper

Continued from 5.9.16

Selectman: Jim Mclaughlin-Mass DEP
Con-Com: Gary Makuch DEP
DPW: C. Peck USD-Wareham Ma

RE: Drainage water Plain Street-Beaver Dam Brook,

I am forwarding this information to be a permanent record concerning the DPW hearing on behalf of Oak Point.

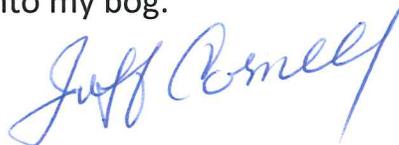
After reading the posted notice concerning the hearing, I attended the selectman's meeting on 5/3/16.

At the meeting, I aired my concern regarding the expansion of the water volume to the drainage system on Plain Street. The said drainage enters Beaver Dam Brook bypassing all wetlands and flows directly to my cranberry bog. The volume of water is already a problem during heavy rains and any additional water would not be manageable through my bog flumes and Summer Street culvert.

I am asking the town (Selectmen –Con Com) to deny the permit and not allow any additional water into my bog.

Respectfully,
Jeffrey Cornell

35 Summer Street
Middleboro, Ma 02346
774-306-1247





May 27, 2016

Board of Selectmen
Town Hall Building
10 Nickerson Avenue
Middleborough, MA 02346

**Re: Final Engineering Review
WRPD Application – Plain Street Drainage Outfall
ADE Project #2518.43**

Dear Board Members:

Atlantic Design Engineers, Inc. (ADE) has completed our final engineering review of site plans and application materials for the above referenced project relative to a Special Permit request under the Water Resource Protection District (WRPD) bylaw. The plans are revised dated 5/13/16, and the Application is dated 3/22/16. Both are prepared by Allen & Major Associates, Inc. for the Town of Middleborough DPW.

The proposed work is permissible under the WRPD bylaw Section 8.2.9.3.d.iii as it can be considered reconstruction of a drainage outfall where no alternative is feasible.

The comments from our initial 4/28/16 review letter have been adequately addressed.

We also offer the following for consideration of the Board (and possible Conditions of Approval):

- A copy of the Order of Conditions, when issued, should be provided to the Board along with any plan changes that result from the Commission's approval.
- Further disturbance to the 25' zone beyond the limits of work shown on the plan is to be avoided (re: machinery not allowed in the remaining portion of the no work zone).

If you have any questions, please do not hesitate to call me at (508) 888-9282.

Sincerely,

ATLANTIC DESIGN ENGINEERS, INC.



Richard W. Tabaczynski, P.E.
Vice President

cc: Allen & Major Associates, Inc.

May 23, 2016

Town of Middleborough
Board of Selectman
10 Nickerson Avenue
Middleboro, MA 02346

RE: A&M Project # 1830-01B
WRPD Application
Plain Street Drainage Outfall
Response to Peer Review Comments

Dear Board Members:

On behalf of our Applicant, Town of Middleborough Department of Public Works, Allen & Major Associates Inc. (A&M) would like to provide responses, summarized below as related to a peer review memo prepared by Atlantic Design Engineers, Inc. (ADE) dated April 28, 2016. Revisions to the site plan drawings incorporating these changes are denoted as revision 1 dated May 13, 2016.

The responses to the comments are shown below in **bold** preceded by the original comment shown in *italics*.

Comment 1: Conservation Commission approval is required. A copy of the Order of Conditions should be provided to the Board.

Response 1: The project is currently before the Conservation Commission and a copy of the Order of Conditions will be provided when issued by the Commission. Please be advised that the Conservation Commission may not approve the project until the Board of Selectmen approve the proposed work within the WRPD.

Comment 2: Further disturbance to the 25' zone beyond the limits of work shown on the plan is to be avoided (i.e.: machinery/staging areas not allowed in the remaining portion of the 25 foot no work zone).

Response 2: A&M agrees and this can be accomplished through the conditions of approval.

Comment 3: It is recommended that erosion protection/rip-rap be provided at the roof drain outfall from the adjacent dwelling. It appears to be just daylighting onto a proposed 3:1 slope.

Response 3: The plans have been revised as requested.

Comment 4: It is recommended that the rip-rap at the new box culvert outfall be flared out in front of the wing wall to the northeast and also be extended around the side of the box culvert to the southwest.

Response 4: The plans have been revised as requested.

Comment 5: Provide a detail for the connections of the 42" pipe to the box culvert.

Response 5: The 42" pipe will be mortared to the box culvert to provide a watertight connection.

Comment 6: The Town requires O-Ring joints/gaskets for RCP.

Response 6: The drainage system and pipe will be installed in accordance with the Town's regulation.

Comment 7: Provide a detail for the wing wall. Also, it is recommended that the wing wall be extended to the existing retaining wall. It appears there is a 2' – 3' gap between the walls?

Response 7: The wing wall is a precast section that will be attached to the end of the box culvert. Shop drawings will be provided by the manufacturer prior to fabrication. The wall has been extended as requested.

Comment 8: Please specify/clarify what design storm the 77.65 CFS used in the calculations is based upon.

Response 8: The design storm is the 100-year storm event and the 77.65 cfs was based on the HydroCAD report for the Oak Point as-built conditions at the outfall. The calculations have been further revised to reflect the results utilizing the Storm and Sanitary Analysis software from AutoDesk. The updated energy dissipater calculations reflect the revised peak discharge for the 100-year storm event.

Comment 9: The slope of 0.0055 used in the calculations for the box culvert roughness element is the slope of the 42" inlet pipe, not the slope of the box culvert. Does this affect the design?

Response 9: The calculations have been revised accordingly.

Comment 10: Section 7.2.2 on Page 7-27 of the FHWA design guidelines appears to recommend that the initial roughness element row be larger (twice the height) than the rest of the element rows. Confirm whether this should apply to this design.

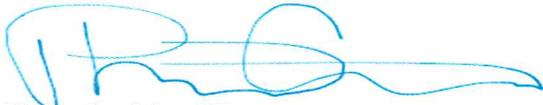
Response 10: The increased size of the initial roughness element is only a recommendation and not a requirement, therefore left to the discretion of the design engineer. The proposed design accomplishes the intent of the regulation which is to reduce the velocity to an acceptable value.

A&M believes these responses will provide sufficient information for the final review of this application.

If you require any additional information, please feel free to contact me.

Very truly yours,

ALLEN & MAJOR ASSOCIATES, INC.



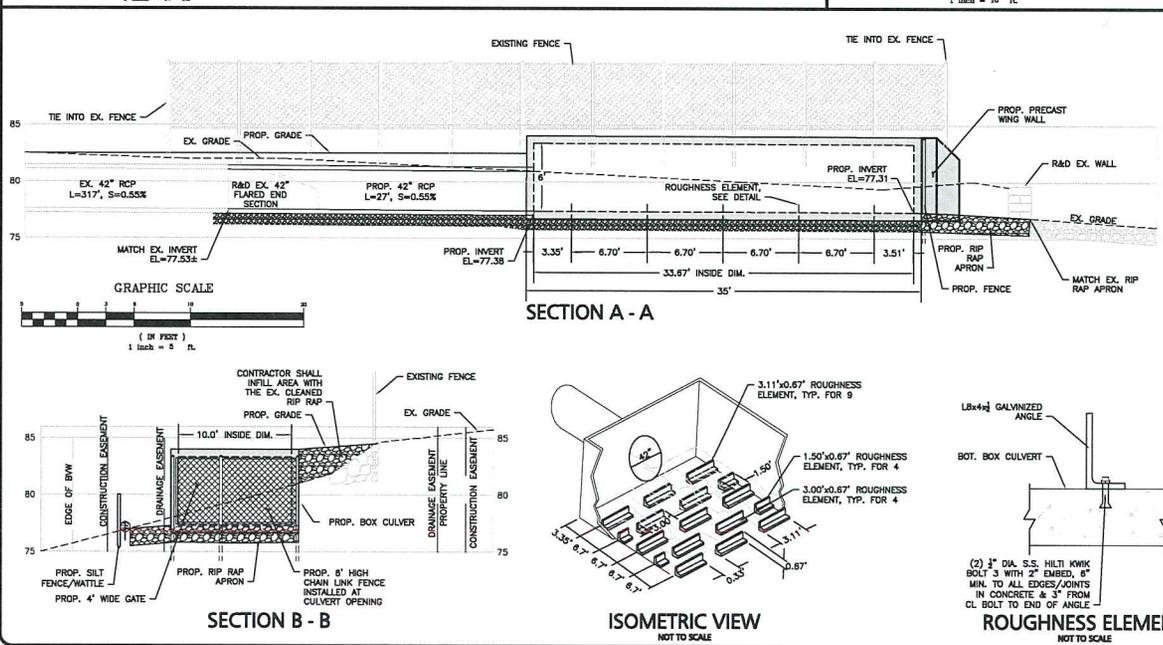
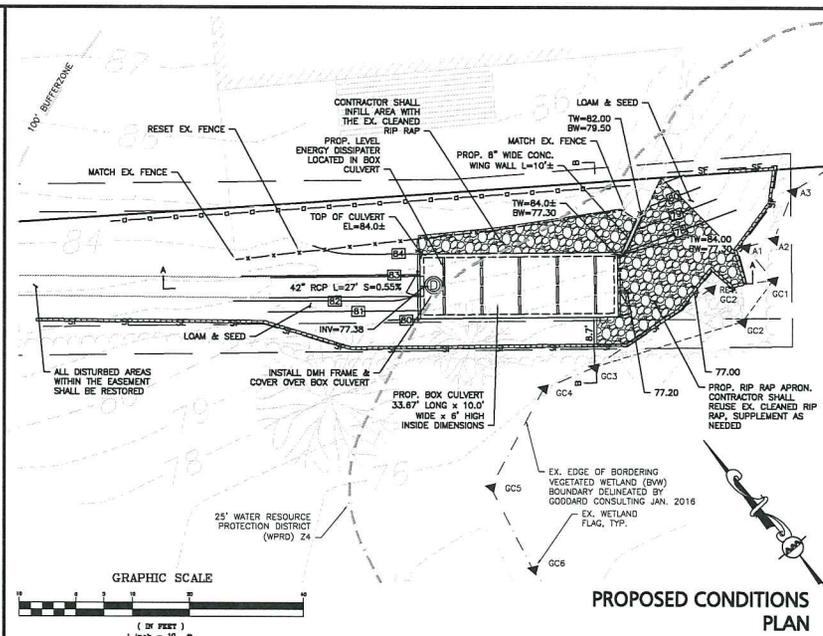
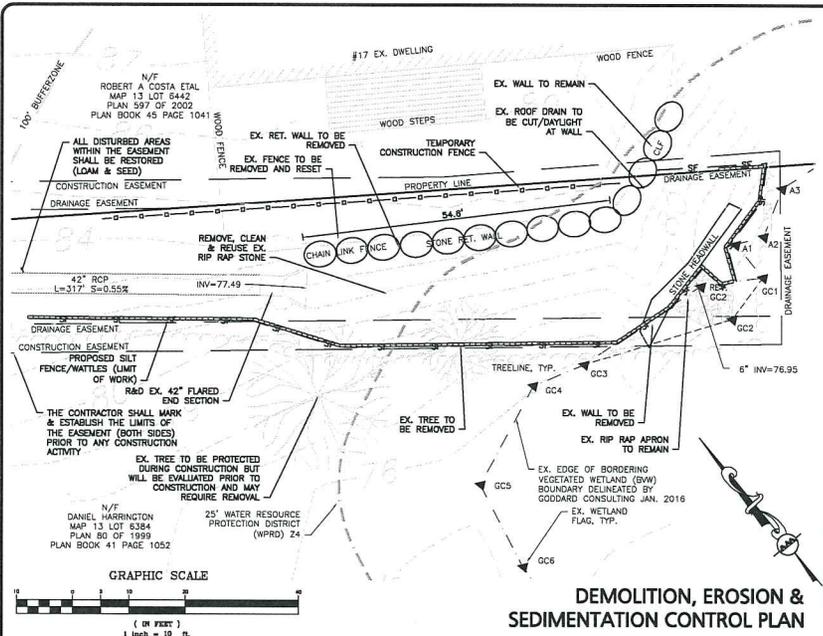
Philip Cordeiro, PE

Project Manager

pcordeiro@allenmajor.com

cc: C. Peck, Middleborough DPW
P. Conant, Hometown Oak Point

Enclosure



- GENERAL NOTES:**
1. THE CONTRACTOR SHALL INSTALL A CONSTRUCTION ENTRANCE AT THE INTERSECTION OF PLAIN STREET AND THE DRAINAGE EASEMENT.
 2. THE CONTRACTOR SHALL INSTALL SILT SACKS IN THE EXISTING CATCH BASINS ON PLAIN STREET WITHIN 100 FEET IN EITHER DIRECTION FROM THE CONSTRUCTION ENTRANCE.

LEGEND:

PROP. PROPERTY LINE	---
EX. PROPERTY LINE	- - -
WETLAND	~~~~~
WETLAND BUFFER 25'	~~~~~
WETLAND BUFFER 100'	~~~~~
STABILIZED CONST. ENTRANCE	---
SILT FENCE	---SF---
DRAIN MANHOLE	⊙
FLARED END SECTION	□
DRAIN LINE	---
RIPRAP OUTFALL	---RIPRAP---
5' CONTOUR	150
1' CONTOUR	128
SPOT GRADE	x128
CHAIN LINK FENCE	---X---
CONSTRUCTION FENCE	---X---
RETAINING WALL	---
TREE LINE	---

ALLEN & MAJOR ASSOCIATES, INC.
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

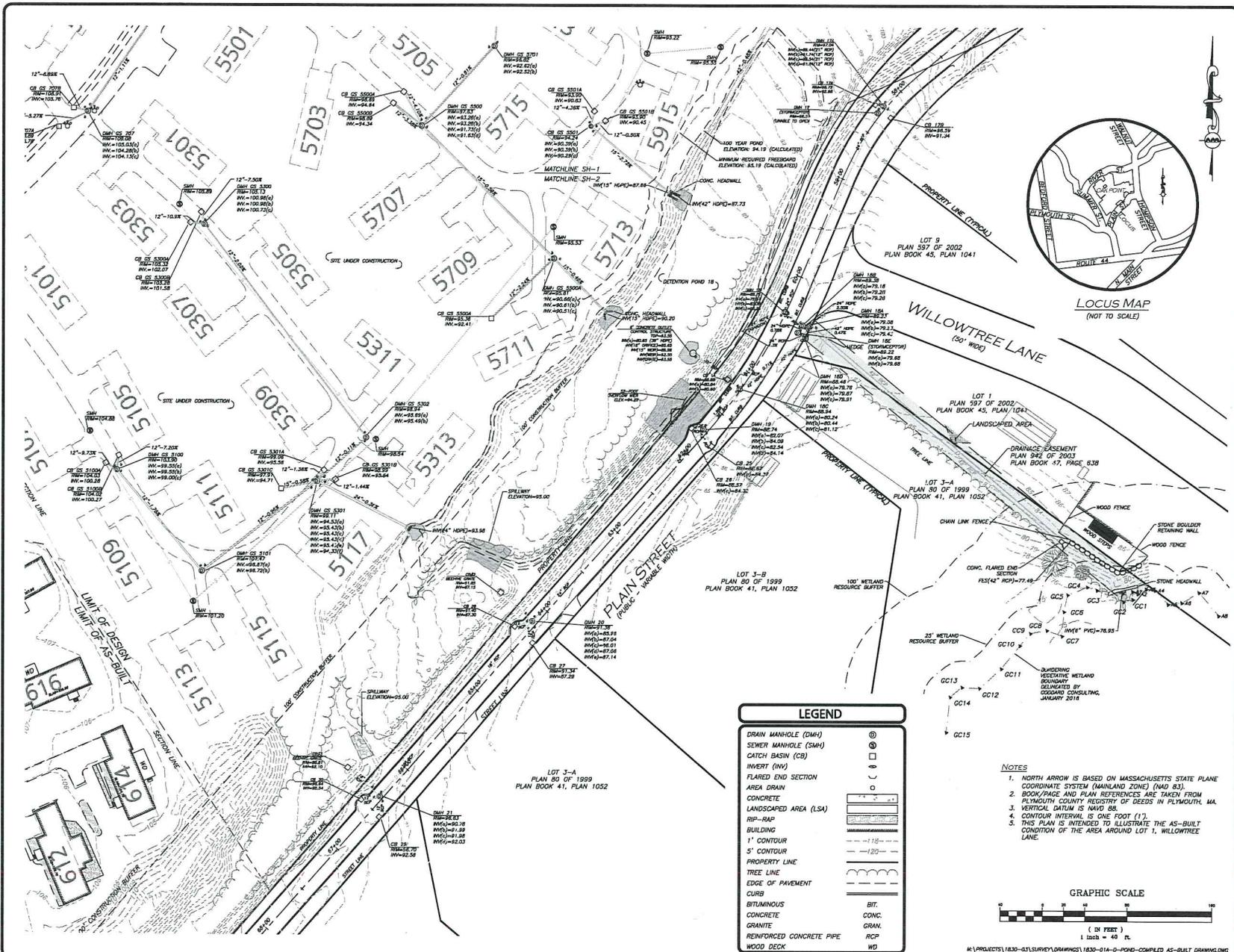
PROJECT: STORMWATER MITIGATION PLAN
OFF PLAIN STREET
MIDDLEBOROUGH, MA

PROJECT NO. 1839-03 DATE: 03/21/2016
SCALE: AS NOTED DWG. NAME: NOI DESIGN
DESIGNED BY: PGM CHECKED BY: PLC

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering • land surveying
environmental consulting • landscape architecture
www.a11c.com

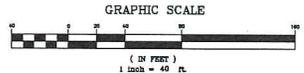
10 MAIN STREET
LAKEVILLE, MA 02447-1474
TEL: (908) 923-0110
FAX: (908) 923-0309

DRAWING TITLE: DRAINAGE MODIFICATION PLAN
SHEET NO. C-1



LEGEND	
DRAIN MANHOLE (DMH)	⊙
SEWER MANHOLE (SMH)	⊙
CATCH BASIN (CB)	⊠
INVERT (INV)	□
FLARED END SECTION	○
AREA DRAIN	—
CONCRETE	▬
LANDSCAPED AREA (LSA)	▬
IMP-ASP	▬
BUILDING	▬
1' CONTOUR	—
5' CONTOUR	—
PROPERTY LINE	▬
TREE LINE	▬
EDGE OF PAVEMENT	▬
CURB	▬
BITUMINOUS	BIT.
CONCRETE	CONC.
GRANITE	GRAN.
REINFORCED CONCRETE PIPE	RCP
WOOD DECK	WD

- NOTES**
1. NORTH ARROW IS BASED ON MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
 2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM PLYMOUTH COUNTY REGISTRY OF DEEDS IN PLYMOUTH, MA.
 3. VERTICAL DATUM IS NAVD 88.
 4. CONTOUR INTERVAL IS ONE FOOT (1').
 5. THIS PLAN IS INTENDED TO ILLUSTRATE THE AS-BUILT CONDITION OF THE AREA AROUND LOT 1, WILLOWTREE LANE.



PROFESSIONAL LAND SURVEYOR
FOR ALLEN & MAJOR ASSOCIATES, INC.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
01	05/13/16	PER PEER REVIEW LETTER

APPLICANT/TOWNER:
TOWN OF MIDDLEBOROUGH
DEPARTMENT OF PUBLIC WORKS
48 WAREHAM ST
MIDDLEBOROUGH, MA 02346

PROJECT:
STORMWATER MITIGATION PLAN
OFF PLAIN STREET
MIDDLEBOROUGH, MA

PROJECT NO. 1830-03 DATE: 03/21/2016

SCALE: AS NOTED DWG. NAME: NOT DESIGN

DESIGNED BY: PLK/KAC CHECKED BY: KJK/PLC

PREPARED BY:



ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering • land surveying
environmental consulting • landscape architecture

10 MAIN STREET
LAKEVILLE, MA 02347-1674
TEL: (508) 928-0108
FAX: (508) 928-6889

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

THIS DRAWING HAS BEEN PREPARED BY ELECTRONIC FORMS. CLIENTS/CUSTOMERS REPRESENTATIVE OR CONSULTANT MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS ON MAGNETIC MEDIA FOR HIS/HER INFORMATION AND USE FOR SPECIFIC APPLICATION TO THIS PROJECT. DUE TO THE POTENTIAL THAT THE MAGNETIC INFORMATION MAY BE REPRODUCED UNINTENTIONALLY OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE ASSOCIATES, INC. FROM THE MAGNETIC MEDIA. PRINTED REPRESENTATIONS OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC. WORK PRODUCTS.

DRAWING TITLE: EXISTING CONDITIONS PLAN SHEET NO. E-1

\\PROJECTS\1830-03\SURVEY\DRAWINGS\1830-03A-D-FINAL-COMPLETED AS-BUILT DRAWING.DWG

GENERAL NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND DEPTH OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF MASS DEP, DEP OF TRANSPORTATION AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS AT NO ADDITIONAL COST.
2. ALL SITE WORK DONE FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE SITE PLANS AND SITE WORK SPECIFICATIONS FOR CONSTRUCTION.
3. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
4. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THEM SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED WITH THE STATE OF MASSACHUSETTS AT THE CONTRACTOR'S EXPENSE.
5. ALL DISTURBED AREAS SHALL BE MAINTAINED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, MA DEP, AND THE REQUIREMENTS OF THE MIDDLEBOROUGH CONSERVATION COMMISSION.
6. ALL APPLICABLE PERMITS AND AN APPROVED SET OF PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE.
7. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A MEETING WITH THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.
8. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAG MEN SHALL BE PROVIDED TO REGULATE TRAFFIC DURING CONSTRUCTION. SIGNS SHALL BE IMPLEMENTED AND OPERATED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.
9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE SURVEYED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.
10. ALL PERMITS AND APPROVALS NECESSARY FROM AGENCIES GOVERNING THE WORK SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR EARTHWORK OPERATIONS. SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY PER ON SITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR REGULATORY AGENCIES HAVING JURISDICTION AT NO ADDITIONAL COST TO THE OWNER.
12. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.
14. DISPOSAL OF ALL DEMOLISHED MATERIALS INCLUDING EXISTING WIRE CONDUIT, CONDUIT BERRIS, IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS AT NO ADDITIONAL COST.
15. ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER TREATMENT ARE TO RECEIVE SIX INCHES (6") MINIMUM OF TOPSOIL & SEED, AND BE MAINTAINED UNTIL ESTABLISHED & ACCEPTED.
16. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF MIDDLEBOROUGH GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.
18. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AND DISCONNECTION AT EXISTING UTILITY.
19. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUND-BREAK.

20. THE CONTRACTOR SHALL ADHERE TO ALL PERMIT CONDITIONS PROVIDED BY ALL GOVERNING AGENCIES AT NO ADDITIONAL COSTS. THIS INCLUDES BUT IS NOT LIMITED TO DEMOLITION PERMITS, PLUMBING, GAS, AND ELECTRICAL PERMITS.
21. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY DISPOSE OF AND ABATE ALL BUILDING MATERIALS OR HAZARDOUS BUILDING MATERIALS ON-SITE IN ACCORDANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS AND REGULATIONS AT NO ADDITIONAL COST TO THE OWNER.
22. DURING EXCAVATION, ANY EXISTING EARTH CUT MATERIALS THAT DOES NOT MEET THE ORDINARY FILL SPECIFICATIONS OR LOAM SPECIFICATIONS AND CANNOT BE REUSED SHALL BE REMOVED OFF-SITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. MATERIAL WHICH DOES NOT MEET THE SPECIFICATION INCLUDES ALL Boulders, ROCKS, CONSTRUCTION DEBRIS, AND MISC. MATERIAL. PRIOR TO REUSE, CONTRACTOR TO PROVIDE TESTING REPORT OF SIEVE ANALYSIS TO ENGINEER FOR APPROVAL. CONTRACTOR CAN AMEND MATERIAL AND CONTINUE TO RETEST AS NECESSARY AT NO ADDITIONAL COST TO OWNER. AFTER AMENDING IF MATERIAL STILL DOES NOT MEET THE SPECIFICATIONS IT IS TO BE REMOVED FROM SITE AT NO ADDITIONAL COST TO THE OWNER AND IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

GRADING & DRAINAGE NOTES:

1. ALL GRADING OPERATIONS SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
2. IN LANDSCAPED AREAS THE TOP ELEVATION OF MANHOLES SHALL BE FLUSH WITH FINISH GRADE OF THE LOAM. IN PAVED AREAS THE TOP ELEVATIONS OF MANHOLES SHALL MATCH FINISH GRADE.
3. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF CONSTRUCTION WORK IN THE AREA. REFER TO EROSION CONTROL PLAN.
4. TEMPORARY STRAW MATS PROTECTION AND/OR SILT SACK SHALL BE INSTALLED AND MAINTAINED AT EXISTING DRAINAGE STRUCTURES DURING CONSTRUCTION. TO PRECLUDE SEDIMENT LAIDEN RUNOFF FROM ENTERING THE DRAINAGE SYSTEM.
5. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE.
6. IF ANY EXISTING UTILITY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST.
7. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE SIX INCHES (6") OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3:1V/1H OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH CIVIL SPECIFICATIONS & DRAWINGS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
8. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.

MAINTENANCE:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A HEALTHY STAND OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. ALL SEDIMENT CONTROLS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE TUBULAR SEDIMENT CONTROLS WHEN IT REACHES HALF THE HEIGHT OF THE CONTROL MEASURE OR AS REQUESTED BY THE OWNER OR ENGINEER.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

EROSION & SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. ALL SELF CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH S.M.P. (BEST MANAGEMENT PRACTICES) PER THE E.P.A. 2012 "CONSTRUCTION GENERAL PERMIT" MANUAL, AND MASSACHUSETTS 2003 EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS. ALL SUCH REGULATIONS FROM THE ABOVE MANUALS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER.
2. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND/OR FINISHED GRADED SHALL BE STABILIZED AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY UNLESS THE TOWN HAS STRICTER REQUIREMENTS WHICH SHALL BE FOLLOWED. IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING OR MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF MULCH IS USED, STRAW MULCH SHALL BE APPLIED AT THE RATE OF 4 BALES PER 1,000 SQUARE FEET. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSSED WATERWAYS AND IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.
3. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY OCTOBER 1ST OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEEDDED WITH A WINTER COVER CROP AT THE RATE OF 3 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSSED WATERWAYS AND VEGETATED SLOPES IN EXCESS OF 15%, AND ALL DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.
4. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDDED WITH RYE AT 3LBS PER 1,000 SQUARE FEET AND AS SOON AS POSSIBLE. SLOPES SHALL BE STABILIZED WITH MULCH TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSSED WATERWAYS AND VEGETATED SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.
5. ALL FILTER BARRIERS, SILT SACKS, AND EROSION CONTROL BERRIS SHALL BE INSTALLED ACCORDING TO THE MTA ROAD SITE PREPARATION, EROSION CONTROL AND DEMOLITION PLAN. THESE SHALL BE MAINTAINED DURING DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERRIS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT. MAINTENANCE SHALL BE PERFORMED UNTIL ALL AREAS HAVE AT LEAST 85-90% VIGOROUS PERENNIAL COVER OF GRASSES.
6. ADJACENT ROADS SHALL BE PERIODICALLY SWEEP OR WASHED TO AVOID TRACKING MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AND WATERING TRUCK WILL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS.
7. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION BY THE USE OF STRAW BALE BARRIERS AROUND EACH INLET. SILT SACKS SHALL BE INSTALLED IN ALL EXISTING BASINS. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85-90% OF VIGOROUS PERENNIAL GROWTH.
8. AS APPLICABLE, EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISHED SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.
9. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS EXPENSE, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY MA DEP, THE ENGINEER AND THE MUNICIPALITY, AS AUTHORIZED BY THE OWNER. FAILURE TO COMPLY WITH THE OWNER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.
10. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED BY THE CONTRACTOR. IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL OR RUNOFF EVENT AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS.
11. IF ANY EVIDENCE OF SEDIMENTATION IS OBSERVED AT THE STORMWATER MANAGEMENT AREA INLETS THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE A PLAN TO THE ENGINEER TO REMOVE ANY ACCUMULATED SEDIMENT IN THESE AREAS. THE CONTRACTOR SHALL ALSO IMMEDIATELY PROVIDE ADDITIONAL ON SITE EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT FURTHER DEGRADATION OF THE AREA.
12. FOLLOWING THE TEMPORARY OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMI-MONTHLY TO ENSURE THE AREAS HAVE A MINIMUM OF 85-90% VEGETATED VIGOROUS GROWTH. RE-SEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.
13. CONTRACTOR & ALL SITE SUBCONTRACTORS SHALL BE FAMILIAR WITH & FOLLOW ALL APPROVED PERMITS AND CONDITIONS. CONTRACTOR SHALL MAINTAIN A COPY OF ALL APPROVED PERMITS ON-SITE, INCLUDING THE ORDER OF CONDITIONS FROM THE FRANKLIN CONSERVATION COMMISSION. ALL CONDITIONS & RECOMMENDATIONS WITHIN THE APPROVED PERMITS SHALL BE COMPLETED.
14. ALL EROSION MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE TOWN OF MIDDLEBOROUGH.
15. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
16. TOP OF STOCKPILES SHALL BE COVERED IN SUCH MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

16. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK OR SIX MONTHS AFTER SOIL HAS BEEN DISTURBED WHICHEVER IS LESS.
19. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR, CLEANED AND REPAIRED OR REPLACED AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION. IN ADDITION, INSPECTIONS SHALL TAKE PLACE WEEKLY AND BEFORE AND AFTER EACH 1/4" RAINFALL EVENT.
20. ALL PROPOSED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION UNTIL WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
21. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL HAYBALES AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER OR THE TOWN ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.
22. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL TOWN OF MIDDLEBOROUGH, MA DEP, EPA CONSTRUCTION GENERAL PERMIT STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE TOWN OF MIDDLEBOROUGH AND USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.
23. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED.
24. IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS: THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION, ALL CHANNELS, SWALES, AND DITCHES DUE FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL BE FULLY OPERATIONAL IN A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURE CAPACITY TO SETTLE AND FILTER FLOW OR ITS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL-VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS OR STREAMS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.
25. INTAKE STABILIZATION IMMEDIATELY IF CONSTRUCTION WORK TEMPORARILY OR PERMANENTLY CEASES.
26. ALL DISCHARGES FROM POLLUTION SOURCES SUCH AS FUELS, WASTEWATER FROM WASH OUT OF CONCRETE, WASTEWATER FROM CLEAN OUT OF PAINTS, PEARL RELEASE OILS, CURING COMPOUND AND OTHER CONSTRUCTION EQUIPMENT, CHEMICALS, POLLUTANT USED FOR MAINTENANCE OF VEHICLES AND EQUIPMENT, SOAPS & SOLVENTS, TOXIC OR HAZARDOUS SUBSTANCES, CHEMICALS AND OILS FROM EQUIPMENT IS PROHIBITED. IF A POLLUTANT IS DISCHARGED IT NEEDS TO BE IMMEDIATELY CLEANED UP BY REMOVING THE CHEMICAL AND AFFECTED SOIL OR AREA OF SPILL FROM THE SITE. DO NOT HOSE DOWN AND SPREAD SPILLED ITEM. ALL CHEMICALS USED ON THE SITE SHALL BE IN LEAK-PROOF CONTAINERS STORED AWAY FROM SURFACE WATERS, STORMWATER INLETS, AND DRAINAGE MEASURES. SPILL KITS SHALL BE AVAILABLE ON-SITE FOR EMERGENCY USE. THERE SHALL BE A SECONDARY CONTAINMENT OR ALL CHEMICALS IN ADDITION TO SPILL-PROOF CONTAINERS.
27. ALL SEDIMENT TRACKED ONTO ROADWAYS MUST BE REMOVED AT END OF EACH WORK DAY.
28. IF USING NON-VEGETATIVE STABILIZATION MEASURES, IT MUST BE COMPLETED NO LATER THAN 14 DAYS AFTER INITIATING STABILIZATION. ALL AREAS OF EXPOSED SOILS MUST BE COVERED.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
01	05/13/16	PER PER REVIEW LETTER

APPLICANT/TOWNER:
TOWN OF MIDDLEBOROUGH
DEPARTMENT OF PUBLIC WORKS
48 WAREHAM ST
MIDDLEBOROUGH, MA 02346

PROJECT:
STORMWATER MITIGATION PLAN
OFF PLAIN STREET
MIDDLEBOROUGH, MA

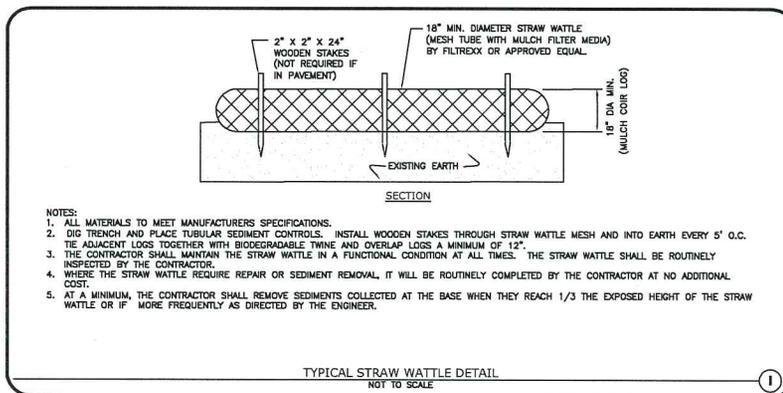
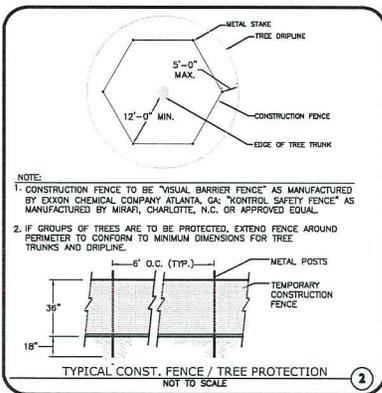
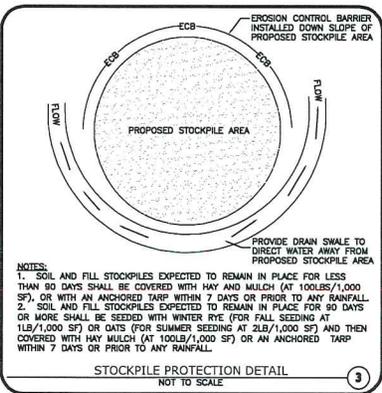
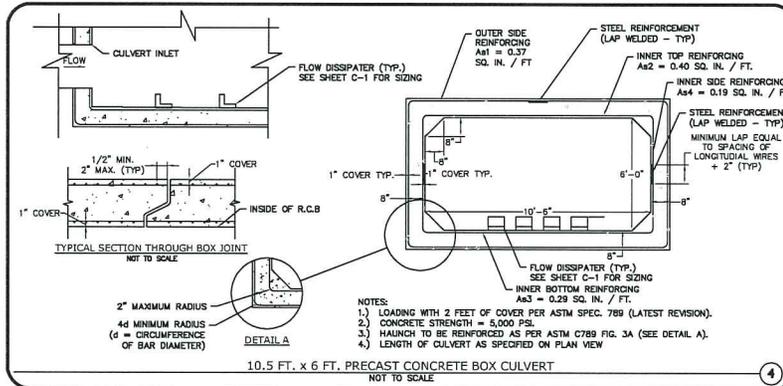
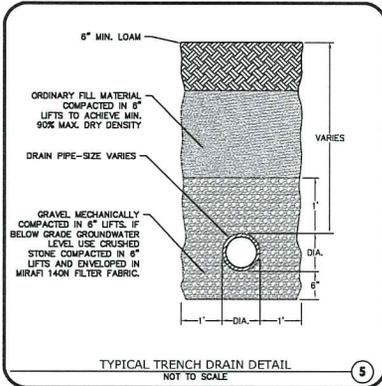
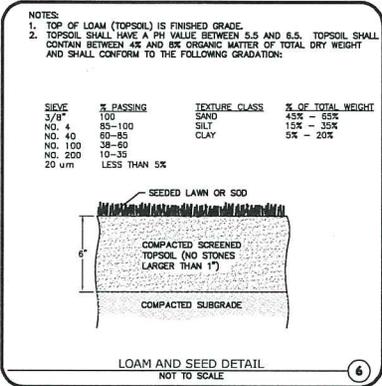
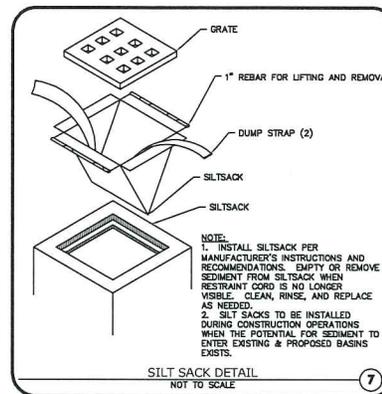
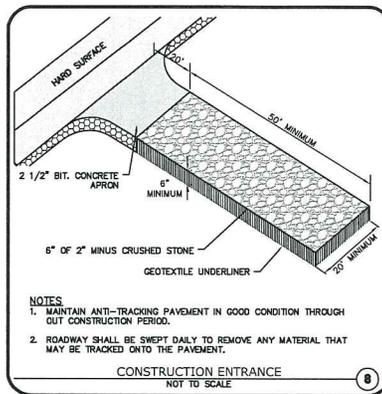
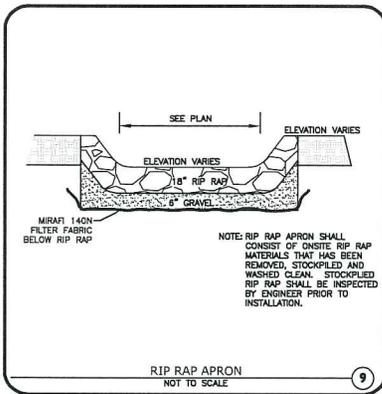
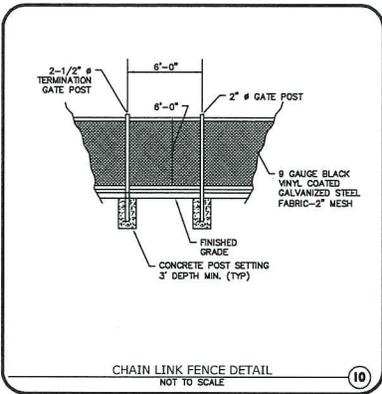
PROJECT NO. 1830-03 DATE: 03/21/2016
SCALE: DWG. NAME:
DESIGNED BY: CHECKED BY: PLC
PREPARED BY:



ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering and learning environmental consulting | landscape architecture
10 MAIN STREET
LAKESVILLE, MA 02457-0274
TEL: 508.923.4100
FAX: 508.923.4300
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DRAWING TITLE: SHEET NO.
NOTES D-1



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
01	05/13/16	PER PEER REVIEW LETTER

APPLICANT/OWNER:
TOWN OF MIDDLEBOROUGH
DEPARTMENT OF PUBLIC WORKS
48 WAREHAM ST
MIDDLEBOROUGH, MA 02346

PROJECT:
STORMWATER MITIGATION PLAN
OFF PLAIN STREET
MIDDLEBOROUGH, MA

PROJECT NO. 1830-03 DATE: 03/21/2016

SCALE: DWG. NAME:
DESIGNED BY: CHECKED BY: PLC

PREPARED BY:



10 MAIN STREET
LAKEVILLE, MA 02447-1874
TEL: (508) 925-4100
FAX: (508) 925-4300

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DETAILS DET-2

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May 5, 2016

Steven Ventresca, Chairman
Middleborough Conservation Commission
Town Hall Annex, Bank Building
20 Centre Street, 2nd floor
Middleborough, MA 02346

RE: Town of Middleborough Special Permit Application (via email)

Dear Chairman Ventresca:

On behalf of the Cape Cod Cranberry Growers' Association (CCCGA), I offer comments on the proposed special permit application from the Town of Middleborough under the Water Resource Protection District By-law for the reconstruction of the stormwater drainage outfall pipe on the Plain Street municipal district and Oak Point project area. CCCGA represents more than 325 cranberry growers in Southeastern Massachusetts, Cape Cod and Nantucket. Cranberries are the largest agricultural food commodity produced in the state with an annual crop value of \$99.8 million dollars. Massachusetts is home to 30% of all cranberry acreage and according to a recent Farm Credit East Knowledge Exchange Report, provides over 6,900 jobs and a total economic benefit of over \$1.4 billion to the Massachusetts economy.

I am concerned for the farm of Jeffrey Cornell, whose cranberry bog is located downstream of this project area on Summer Street. Mr. Cornell has farmed this bog for many years and has had significant historical water concerns, notably in 2003 and again in 2010 when he discussed this situation with the town. In 2010, I was part of that discussion, which included the designers of this current project, Allen and Major Associates. The concern then was due to the development of Oak Point, more water was discharging to the wetland area above Mr. Cornell's property, inundating his reservoir and ultimately flooding out his bogs. There was much discussion at the time but no resolution was attained. One of the ongoing concerns is the outflow flume under Summer Street is undersized and exacerbates the situation by not allowing the bogs to drain fast enough to keep up with the increased flows. Although a wetland plant, the cranberry vines cannot be underwater or remain overly saturated during the growing season. In fact, if the bog were to be flooded during the bloom period, the entire crop can be lost.

Since Mr. Cornell's bog is below the proposed project area and already has demonstrated that it cannot handle flows of upstream water, this drainage project will make a bad situation that much worse. It is very easy to overlook the unintended consequences of those impacted further down from project area. Although it may appear to be a sensible solution to allow further drainage into an existing wetland, this excess water will quickly flow into the cranberry bog with potentially devastating results. This proposed stormwater reconstruction project must take into account the direct impact on Mr. Cornell's bog before proceeding.

Sincerely,

A handwritten signature in black ink that reads "Brian Wick".

Brian Wick, Executive Director

cc: Patricia Cassady, Conservation Agent | Jeffrey Cornell

Cape Cod Cranberry Growers' Association

One Carver Square Boulevard • P.O. Box 97 • Carver, MA 02330
Telephone: (508) 866-7878 • Facsimile: (508) 866-4220
Email: cccga@cranberries.org • www.cranberries.org



Town of Middleborough
20 Centre Street, Second Floor
Middleborough, Massachusetts 02346

Robert J. Whalen
Building Commissioner
Tel. 508-946-2426
Fax 508-946-2305

April 20, 2016

Middleborough Board of Selectmen
Middleborough Town Offices
10 Nickerson Ave
Middleborough, MA 02346

RE: W.R.P.D. Application for Town of Middleborough for a Special Permit located at 55 Plain Street, Assessor's Map: 013 Lot: 6384, Zoning District Residence Rural, WPRD District Z4.

Honorable Board,

I have reviewed the plan submitted by the Town of Middleborough designed by Philip L. Cordeiro, Professional Engineer of Allen & Major Associates, Inc, Inc for W.R.P.D. application for the location of 55 Plain Street. This application is for a Special Permit under the Water Resource Protection District By-Law to allow the storm water mitigation within the twenty-five (25) feet of a fresh water wetland area.

This use would be allowed under 310 CMR 10.53 (e) limited projects.

Respectfully submitted,

Robert J. Whalen
Building Commissioner
Zoning Enforcement Officer

RJW/d



April 28, 2016

Board of Selectmen
Town Hall Building
10 Nickerson Avenue
Middleborough, MA 02346

**Re: Initial Engineering Review
WRPD Application – Plain Street Drainage Outfall
ADE Project #2518.43**

Dear Board Members:

Atlantic Design Engineers, Inc. (ADE) has completed our initial engineering review of site plans and application materials for the above referenced project relative to a Special Permit request under the Water Resource Protection District (WRPD) bylaw. The plans are dated 3/21/16 and the Application is dated 3/22/16. Both are prepared by Allen & Major Associates, Inc. for the Town of Middleborough DPW.

The proposed work is permissible under the WRPD bylaw Section 8.2.9.3.d.iii as it can be considered reconstruction of a drainage outfall where no alternative is feasible.

We have the following comments:

1. Conservation Commission approval is required. A copy of the Order of Conditions should be provided to the Board.
2. Further disturbance to the 25' zone beyond the limits of work shown on the plan is to be avoided (i.e.: machinery/staging areas not allowed in the remaining portion of the 25 foot no work zone).
3. It is recommended that erosion protection/rip-rap be provided at the roof drain outfall from the adjacent dwelling. It appears to be just daylighting onto a proposed 3:1 slope.
4. It is recommended that the rip-rap at the new box culvert outfall be flared out in front of the wing wall to the northeast and also be extended around the side of the box culvert to the southwest.
5. Provide a detail for the connections of the 42" pipe to the box culvert.
6. The Town requires O-Ring joints/gaskets for RCP.
7. Provide a detail for the wing wall. Also, it is recommended that the wing wall be extended to the existing retaining wall. It appears there is a 2' – 3' gap between the walls?
8. Please specify/clarify what design storm the 77.65 CFS used in the calculations is based upon.



9. The slope of 0.0055 used in the calculations for the box culvert roughness element is the slope of the 42" inlet pipe, not the slope of the box culvert. Does this affect the design?
10. Section 7.2.2 on Page 7-27 of the FHWA design guidelines appears to recommend that the initial roughness element row be larger (twice the height) than the rest of the element rows. Confirm whether this should apply to this design.

If you have any questions, please do not hesitate to call me at (508) 888-9282.

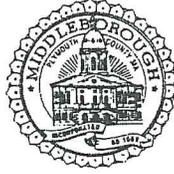
Sincerely,

ATLANTIC DESIGN ENGINEERS, INC.

A handwritten signature in black ink, appearing to read 'Richard J. Tabaczynski', is written over the printed name.

Richard J. Tabaczynski, P.E.
Vice President

cc: Allen & Major Associates, Inc.



DEP 220-1275
55 Plain St.

Town of Middleborough

CONSERVATION COMMISSION

20 CENTRE STREET
MIDDLEBOROUGH, MASSACHUSETTS 02346

PHONE: 1-508-946-2406
FAX: 1-508-946-2309

MEMORANDUM

✓ TO: Board of Selectmen

CC: Ruth Geoffroy, Planning Director
Robert Buker, Health Officer
Robert Whalen, Building Commissioner
Chris Peck, DPW Director

FROM: Patricia Cassady, Conservation Agent 

DATE: April 15, 2016

RE: W.R.P.D. Application: Filed by the Town of Middleborough Assessor's Map 13, Lot 6384, Zoning District -RR, WRPD District Z4

I have the following comments regarding the above-mentioned application:

- 1) This project is currently being reviewed by the Conservation Commission. The first hearing was on April 7, 2016 and was continued to the Commission's May 5th meeting.
- 2) The Commission is awaiting revised plans per the site visit to review the wetlands and stormwater calculations.

Please let me know if you have any questions by contacting me at 508-946-2406 or pcssdy@middleborough.com

Thank you
pjc

FILE



PEER REVIEW

2 Centre Plaza Suite 430
Boston, MA 02108-1928
T: 617-338-0063
F: 617-338-6472
www.nitscheng.com

April 4, 2016

Ms. Patricia Cassady
Agent
Middleborough Conservation Commission
10 Centre Street
Middleborough, MA 02346

RE: Nitsch Project #7190.12
Review of NOI submittal for
Drainage Outfall Improvements
off Plain Street
Hometown Oak Point
Middleborough, MA

Dear Ms. Cassady,

Nitsch Engineering has reviewed the Notice of Intent submittal for the "Drainage Outfall Improvements off Plain Street" prepared by Allen & Major Associates (A&M) on behalf of the Middleborough Department of Public Works and Hometown Oak Point, dated March 22, 2016. Nitsch Engineering received the following:

- Report entitled "Notice of Intent (NOI) for the Drainage Outfall Improvements off Plain Street" prepared by A&M, dated March 22, 2016
- Enclosed Plans entitled "Stormwater Mitigation Plan – Off Plain Street Middleborough, MA" prepared by A&M, dated March 21, 2016

Hometown Oak Point is proposing to reconstruct the existing buried 42-inch outfall pipe off Plain Street (located within a drainage easement adjacent to 55 Plain Street) to expose it to a free-flowing, dissipated condition. The proposed re-construction of the outfall includes the construction of a 10-foot by 6-foot box culvert with internal roughness elements to dissipate the flow. The proposed work will occur within 100-feet of a bordering vegetated wetland and within the 25-foot Water Resource Protection District (WPRD). The proposed work includes demolition, excavation, and re-grading within the buffer zone and WPRD. Erosion and sediment control measures are proposed.

INITIAL PERMITTING OF EASEMENT WAS FOR SUBSURFACE

Background and Project Understanding

The Plain Street Improvement Plans submitted to the Town of Middleborough Planning Board and Conservation Commission, dated April 25, 2003, proposed a 42-inch pipe discharge associated with the Plain Street closed drainage system. The original design included a typical outfall condition and standard rip rap flow dissipater. We understand that these plans were modified through a September 25, 2003 design change that resulted in the construction of the 42-inch outfall completely buried in rip rap. As part of our ongoing peer review consulting work for the Middleborough Planning Board, Nitsch Engineering recently reviewed information submitted by A&M relative to the buried pipe conditions and expressed concerns as documented in a letter to the Planning Board dated February 11, 2016 (attached for your convenience). Our primary concern was that all calculations prepared previously by A&M (and submitted to the Town for review) assumed that the outfall pipe was free-flowing and did not account for the significant obstructed flow condition of the actual outfall buried in rip rap.

Due to concerns over surcharge conditions in the Plain Street system as a result of the restricted outfall condition and a significant stormwater flow discharged to the pipe (77.64 cubic feet per second), A&M, on behalf of the Public Works Department and Hometown Oak Point, is requesting the outfall condition be modified to remove it from the completely buried as-built condition to a free-flowing, dissipated condition. Note, Hometown Oak Point has already partially removed some of the rip rap stone without permit and we understand the Conservation Commission has issued an enforcement order accordingly. Due to space requirements and site constraints, A&M determined that a traditional rip rap flow dissipater could not be accommodated in this location and are proposing an alternate dissipater technology located in a 10-foot by 6-foot box culvert.

Based on our review of the NOI package, Nitsch Engineering has several concerns relative to the proposed design. In summary:

- It appears the connection of Oak Point's discharge from 68-acres of developed land to the Plain Street drainage system and associated outfall were never reviewed nor permitted by the Conservation Commission.
- Hydraulic calculations were never prepared by A&M to evaluate the flow conditions associated with the Plain Street system and the 42-inch culvert. Since the outflow from Oak Point's development may exceed the hydraulic capacity of the Plain Street system, hydraulic calculations are necessary to evaluate the head and tailwater conditions as they impact the the outfall conditions, design of the flow dissipator, and compliance with the stormwater mitigation requirements established by the DEP Stormwater Management Standards.
- The proposed internal integrated flow dissipator at the 42-inch outfall requires a complicated design methodology (published by the Federal Highway Administration HEC No. 14) that does not appear to have been followed in completion by the calculations submitted. The calculations provided by A&M in this submittal do not appear to ensure that the flow and velocity of stormwater discharge will be appropriately managed prior to discharge to the wetlands in accordance with the Wetlands Protection Act and its Regulations.

Nitsch Engineering offers the following comments:

- EMERGENCY ?*
- DPW SAID WE COULD NOT ANSWER THAT QUESTION*
1. The Notice of Intent references that the project is not subject to the MassDEP Stormwater Management Standards because it is an emergency road repair project (See WPA Form 3, Part C.7). **Nitsch Engineering does not agree that the project is exempt from the MassDEP Stormwater Management Standards.** Although the Applicant is requesting to perform a modification to the existing outfall at this time, it is our understanding that a NOI was never filed for the discharges associated with this outfall. We understand that an RDA was filed by A&M on behalf of Oak Point in 2003 to construct an outfall associated with the closed drainage system for the Plain Street Improvements. At this time, it appears that the Conservation Commission was not made aware that the Plain Street closed drainage system would also receive stormwater discharges from approximately 68-acres of densely developed land associated with Oak Point's Watershed #10 (overflow from Oak Point Detention Basins #18, CB#2, and CB#3). Note that the calculated 100-year pipe flow to this discharge point is 77.65 cubic feet per second at a velocity of 8.08 feet per second according to A&M.
 2. As stated above, we understand that a NOI was never filed by Hometown Oak Point for the 42-inch pipe outfall connection that includes Oak Point's Watershed #10 discharges. As a result, it is our understanding that the Conservation Commission never reviewed nor approved the pre- vs. post-development hydrology associated with the outfall. Nitsch Engineering was not the Planning Board's review engineer for the project in 2003; however, we have performed cursory reviews of the Watershed #10 hydrologic reports dating back to the 2003 submission and have expressed concerns over the methodology and assumptions used. Various letters regarding these concerns by Nitsch Engineering are document in letters to the Middleborough Planning Board dated June 26, 2015; June 16, 2015; April 6, 2015; March 19, 2015; and November 12, 2014. These letters are attached for your convenience.

Nitsch Engineering recommends that the project demonstrate conformance with the MassDEP Stormwater Management Standards. We recommend that the pre- vs. post-development hydrology associated with the 42-inch outfall conditions, including the Oak Point discharges,

be reviewed and approved by the Middleborough Conservation Commission prior to issuing an Order of Conditions.

3. **The NOI WPA Form 3 is not signed by the Applicant (DPW) or Property Owner (Mr. Harrington). The final NOI Application should be signed by all parties.**
4. According to A&M's narrative, the proposed outflow to the Plain Street outfall is 77.65 cubic feet per second at a velocity of 8.08 feet per second. A&M has not provided calculations as part of the NOI submittal to support the proposed design flow and velocity. As recommended in numerous letters addressed to the Planning Board (attached for reference), we recommend that hydraulic calculations be prepared by A&M to evaluate the Plain Street drainage system and outfall conditions (note, these are recommended in addition to the hydrologic calculations). The hydraulic calculations should be capable of evaluating the system in backflow conditions anticipated as a result of the proposed flow exceeding the capacity of the Plain Street drainage system pipes. **It should be noted that the assumed design velocity of 8.08 feet per second flow may be an underestimate of the design velocity since it does not account for the upstream hydraulic conditions. Velocity calculations should be provided as discussed further in comment #5 below.**
5. The proposed re-construction of the outfall includes the construction of a 10-foot by 6-foot box culvert with internal roughness elements constructed of 5 rows of steel angle plates to dissipate the flow. According to A&M's narrative the proposed outflow discharge to the box culvert is 77.65 cubic feet per second at a velocity of 8.08 feet per second. A&M proposes to dissipate the flow velocity to below 2 feet per second in accordance with the Massachusetts Wetlands Protection Act and Regulations prior to discharge to the wetlands.

Nitsch Engineering has reviewed the calculations prepared by A&M included in the NOI report. The calculations prepared by A&M reference the guidance provided by the Federal Highway Administration (FHWA) HEC No. 14, Hydraulic Design of Energy Dissipators for Culverts and Channels, Chapter 7: Designing Internal (Integrated) Dissipators. Based on our review of A&M's calculations, the box culvert design appears to follow Tumbling Flow Design discussed in Section 7.1. The proposed design specifies 5 rows of roughness elements and a splash plate, sized and spaced as recommended in the case of tumbling flow. Following the FHWA procedures, it appears that the basic Tumbling Flow design will not adequately dissipate the assumed flow velocity below 2 ft/s. There is partial reference to the Increased Resistance Design method in the final calculations prepared by A&M, however the calculations do not appear to continue to follow the procedure or note any iterations that affect the initial Tumbling Flow design.

We further understand, however, that the Chapter 7 methodology cannot be used in isolation of the entire HEC No. 14 Manual. The calculations prepared by A&M are incomplete in that they do not perform the necessary hydraulic calculations to determine the velocity, flow depth, Froude number, and other critical factors necessary for selecting and designing an appropriate energy dissipator. As stated above, A&M is assuming a design velocity of 8.08 feet per second obtained from hydrologic calculations, which is not appropriate for this design application.

Therefore, Nitsch Engineering recommends that A&M provide complete calculations for the proposed system using the FHWA Methodology described in HEC No. 14. This should include calculations to determine both the upstream culvert and downstream channel conditions. Based on the calculated parameters, an appropriate energy dissipator should be selected and designed in accordance with the Manual. **It does not appear that the proposed internal energy dissipator will reduce the flow velocity below 2 feet per second as required since the calculations provided are incomplete.** Nitsch Engineering can review/discuss the technical details further with A&M if needed.

Ms. Patricia Cassady: Nitsch Proposal #7190.12
April 4, 2016
Page 4 of 4

6. The viewport of the proposed conditions plan (C-1) should be expanded to include some of the continuation of wetland flags beyond Flag A-3 as requested by Ms. Cassady during a working session at the Planning Board office on March 3, 2016.
7. It should be noted that as part of our ongoing peer review consulting for the Middleborough Planning Board, Nitsch Engineering has also expressed significant concerns regarding the upstream erosion and sediment control measures associated with the ongoing construction at Hometown Oak Point in Phase VII Section 2. These were most recently documented in field reports prepared by Nitsch Engineering for the Planning Board (and copy sent to the Conservation Commission) dated March 18, 2016 and March 3, 2016. It should be noted that these areas ultimately discharge to this 42-inch outfall.

Nitsch Engineering anticipates additional review of the plans and calculations will be required based on addressing the items above and pending discussions to occur at the April 7, 2016 Conservation Commission hearing.

Should you have any questions regarding these review comments, please do not hesitate to contact me.

Very truly yours,

Nitsch Engineering, Inc.



Nicole Holmes, PE, LEED AP BD+C
Project Manager – Nitsch Engineering

NH

cc: Middleborough Department of Public Works; Middleborough Planning Board; Allen & Major Associates; Hometown Oak Point LLC;

O:\7190.12 Oak Point 2016\Civil\Project Data\2016-04-01_Outfall Review for Con Com\2016-04-01_OP_PlainSt_NOI_Review.docx



KAREN AUGERI BENSON

LAW OFFICE OF ALAN A. AMARAL

226 South Main Street, Suite 6, Fall River, Massachusetts 02721

Telephone (508) 676-0011 Fax (508) 674-3488

OBJECTION

April 14, 2016

Via Email Only

Patricia J. Cassady, Conservation Agent
Middleborough Conservation Commission
Bank Building
20 Centre Street, 2nd Floor
Middleborough, MA 02346

**RE: Entry of Appearance
NOI for 55 Plain Street, DEP #SE220-1275**

Dear Ms. Cassady:

Please recall that this office represents Mr. and Mrs. Robert Costa of 17 Willow Tree Lane. We appeared at the April 7, 2016 Conservation Commission Hearing to object to the above-referenced Notice of Intent. My purpose for writing today is to set forth in more detail my clients' objections.

My clients' property is the subject of a 2003 easement to the Town of Middleboro. That grant is recorded in Book 27226, Page 129, of the Plymouth County Registry of Deeds and is referenced in the NOI. The easement is divided into two portions: a drainage easement and a construction easement. The pertinent language for the drainage easement indicates, *inter alia*, that it is part of Lot 1 (17 Willow Tree Lane) and contains 2,635 square feet of land, more or less. The use of the drainage easement area is limited. Its purpose is for the installation of a *subsurface* drainage pipe, to flow *road* drainage in and through the *subsurface* drainage pipe, and for maintenance, repair and replacement of the *subsurface* drainage pipe. *Emphasis added*. This language restricts the use to which the easement might be put. The NOI for 55 Plain Street goes far beyond what is allowed by the language of the easement.

It is the abutters' position that the Town, as the owner of the easement, may not use the easement for other land to which the easement is not appurtenant. We further submit that the proposed use would amount to an overloading or over burdening of the easement. The NOI proposes a different type of use than that for which the easement was originally intended. It is black letter law in the Commonwealth that the servient estate should not be burdened to a greater extent than was contemplated or intended at the time of the original grant.

Proposing to use this easement to benefit the Oak Point development is beyond what was granted to the Town.

Patricia J. Cassady
April 14, 2016
Page 2.

As you know, the current condition is a 42" subsurface pipe. The NOI requests that the outfall be modified to replace its completely buried as-built condition with a free-flowing, dissipated condition. See also, *Nitshe Engineering Peer Review*, p. 1, ¶15. Testimony at hearing confirms that the proposed box culvert would be significantly above grade. The NOI package also repeatedly refers to the need to deal with storm water generated by Oak Point's discharge. Clearly this is more than "road drainage".

Our position is that the scope of the easement is limited to *road* drainage. It did not contemplate storm water discharge from 68 acres of developed land into the Plain Street drainage system. Indeed, the Peer Review package confirms that this drainage system and associated outflow were never reviewed nor permitted by the Conservation Commission.

In light of the above we respectfully suggest that the proposed modifications will unduly burden the abutters. The NOI calls for a complete replacement of the pipe, not a repair or maintenance. The NOI calls for an above grade installation, not a subsurface one. Finally the NOI controls storm water from a large developed parcel, which includes much more than road drainage. The developed parcel generates discharge from driveways, lawns, roofs and other impermeable surfaces.

The issue with the easement is but one aspect of the Costa's objections. They also assert that Applicant has the burden to meet Storm Water Standards.

Finally please recall that we submitted an "as-built" plan of the Costa's Title V system as an Exhibit. That plan indicates that the system leach field is within 36 feet of, and upgrade from, the proposed construction. The Applicant should address this aspect of the proposal to ensure compliance with the eight interests of the Wetland Protection Act, MGL. c 131, § 40 and 310 CMR 10.01 (2). A failure of the leach field would compromise the Beaver Dam Swamp wetland.

Very truly yours,

Karen Augeri Benson
Law Office of Alan A. Amaral

KAB/ck
CC: Mr. & Mrs. Robert Costa



March 1

CHASE & DESSA

Town of Middleborough
Massachusetts

PLANNING DIRECTOR
Ruth McCawley Geoffroy

Planning Board

Telephone (508) 946-2425
Fax (508) 946-1991

February 10, 2016

Brian & Korrin Petersen
59 Plain Street
Middleborough, MA 02346

Robert Costa
17 Willowtree Drive
Middleborough, MA 02346

Daniel Harrington
55 Plain Street
Middleborough, MA 02346

William & Kim Hindmarsh
68 Plain Streets
Middleborough, MA 02346

Re: Oak Point Drainage System Tie-in to Plain Street Drainage System

Dear Residents,

On behalf of the Planning Board, I am writing to you as abutters to Oak Point Mobile Home Park, Phase VII Section 2, specifically Detention Basins #18 and #20 abutting Plain Street. These Basins slow down and retain storm water on the Oak Point property, discharge it to the Plain Street drainage system and then out a 42" drainage culvert to Beaver Dam Swamp. The Town of Middleborough has become aware that the 42" drainage pipe was designed and constructed differently than the drainage calculations submitted by Oak Point's engineers which have raised concern as to the adequacy of the entire system to function.

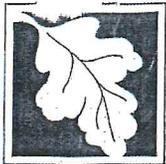
The Planning Board has determined that the potentially impacted abutters should be notified of this matter and of the time and place of the Planning Board meetings, where it is being discussed with Oak Point, so that you may attend to become informed of the issues and participate if you wish.

The Board has scheduled this matter on their Tuesday February 16, 2016 agenda, at approximately 8:15 P.M. in the Selectmen's Meeting Room at the Middleborough Town Hall, 10 Nickerson Avenue.

Please do not hesitate to contact me if you have any questions or wish to discuss this matter further.

Sincerely,

Ruth McCawley Geoffroy, AICP
Middleborough Planning Director



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Costa

DEP File Number: _____

A. Violation Information

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



This Enforcement Order is issued by:

Middleborough
 Conservation Commission (Issuing Authority)

February 12, 2016
 Date

To:

Phil Cordeiro, P.E. Allen & Major Associates, Inc.
 Name of Violator
10 Main Street, Lakeville, MA 02347-1374
 Address

1. Location of Violation:

Robert A. Costa Etal/Daniel Harrington (Easement for pipe)
 Property Owner (if different)
17 Willowtree Lane/55 Plain Street
 Street Address
Middleborough 02346
 City/Town Zip Code
Map 13 Lots 6442/6384
 Assessors Map/Plat Number Parcel/Lot Number

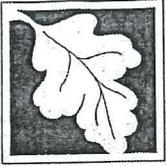
2. Extent and Type of Activity (if more space is required, please attach a separate sheet):

Working on an outlet pipe to a 42" pipe within 100-feet of a bordering vegetated wetland without an Order of Conditions from the Middleborough Conservation Commission. Work included digging and removing 20 inches of stone in front of the pipe. The pipe is now altered without submitting information on the pre-wetland & buffer zone conditions or the proposed impacts to the wetland & buffer zone. The area has exposed ground with silt laden stone that has the potential to impact the wetlands. There is silt fence and straw wattles around some of the work but not completely around the work.

B. Findings

The Issuing Authority has determined that the activity described above is in a resource area and/or buffer zone and is in violation of the Wetlands Protection Act (M.G.L. c. 131, § 40) and its Regulations (310 CMR 10.00), because:

the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone without approval from the issuing authority (i.e., a valid Order of Conditions or Negative



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

C. Order (cont.)

Complete the attached Notice of Intent (NOI). The NOI shall be filed with the Issuing Authority on or before:

Date

for the following:

No further work shall be performed until a public hearing has been held and an Order of Conditions has been issued to regulate said work.

The property owner shall take the following action (e.g., erosion/sedimentation controls) to prevent further violations of the Act:

Put additional silt fence and haybales around the work area.

Failure to comply with this Order may constitute grounds for additional legal action. Massachusetts General Laws Chapter 131, Section 40 provides: "Whoever violates any provision of this section (a) shall be punished by a fine of not more than twenty-five thousand dollars or by imprisonment for not more than two years, or both, such fine and imprisonment; or (b) shall be subject to a civil penalty not to exceed twenty-five thousand dollars for each violation". Each day or portion thereof of continuing violation shall constitute a separate offense.

D. Appeals/Signatures

An Enforcement Order issued by a Conservation Commission cannot be appealed to the Department of Environmental Protection, but may be filed in Superior Court.

Questions regarding this Enforcement Order should be directed to:

Patricia J. Cassidy, Conservation Agent

Name

508-946-2406

Phone Number

M-F 8:30 AM - 5:00 PM

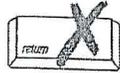
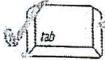
Hours/Days Available

Issued by:

Middleborough

Conservation Commission

your cursor -
do not use the
return key.



Phil Cordeiro, P.E. Allen & Major Associates, Inc.

Name of Violator

10 Main Street, Lakeville, MA 02347-1374

Address

1. Location of Violation:

Robert A. Costa Etal/Daniel Harrington (Easement for pipe)

Property Owner (if different)

17 Willowtree Lane/55 Plain Street

Street Address

Middleborough

City/Town

02346

Zip Code

Map 13

Lots 6442/6384

Assessors Map/Plat Number

Parcel/Lot Number

2. Extent and Type of Activity (if more space is required, please attach a separate sheet):

Working on an outlet pipe to a 42" pipe within 100-feet of a bordering vegetated wetland without an Order of Conditions from the Middleborough Conservation Commission. Work included digging and removing 20 inches of stone in front of the pipe. The pipe is now altered without submitting information on the pre-wetland & buffer zone conditions or the proposed impacts to the wetland & buffer zone. The area has exposed ground with silt laden stone that has the potential to impact the wetlands. There is silt fence and straw wattles around some of the work but not completely around the work.

B. Findings

The Issuing Authority has determined that the activity described above is in a resource area and/or buffer zone and is in violation of the Wetlands Protection Act (M.G.L. c. 131, § 40) and its Regulations (310 CMR 10.00), because:

- the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone without approval from the issuing authority (i.e., a valid Order of Conditions or Negative

or before:

Date

for the following:

No further work shall be performed until a public hearing has been held and an Order of Conditions has been issued to regulate said work.

The property owner shall take the following action (e.g., erosion/sedimentation controls) to prevent further violations of the Act:

Put additional silt fence and haybales around the work area.

Failure to comply with this Order may constitute grounds for additional legal action. Massachusetts General Laws Chapter 131, Section 40 provides: "Whoever violates any provision of this section (a) shall be punished by a fine of not more than twenty-five thousand dollars or by imprisonment for not more than two years, or both, such fine and imprisonment; or (b) shall be subject to a civil penalty not to exceed twenty-five thousand dollars for each violation". Each day or portion thereof of continuing violation shall constitute a separate offense.

D. Appeals/Signatures

An Enforcement Order issued by a Conservation Commission cannot be appealed to the Department of Environmental Protection, but may be filed in Superior Court.

Questions regarding this Enforcement Order should be directed to:

Patricia J. Cassidy, Conservation Agent

Name

508-946-2406

Phone Number

M-F 8:30 AM - 5:00 PM

Hours/Days Available

Issued by:

Middleborough

Conservation Commission

The activity has been being conducted in an area subject to protection under G. L. c. 131, § 40 or the buffer zone in violation of an issuing authority approval (i.e., valid Order of Conditions or Negative Determination of Applicability) issued to:

Name _____ Dated _____

File Number _____ Condition number(s) _____

The Order of Conditions expired on (date): _____
Date

The activity violates provisions of the Certificate of Compliance.

The activity is outside the areas subject to protection under MGL c.131 s.40 and the buffer zone, but has altered an area subject to MGL c.131 s.40.

Other (specify):

Please attend the Conservation Commission meeting on Thursday, February 18th, 2016 at 7:30 PM at the Town Hall in the Board of Selectmen's meeting room at 10 Nickerson Avenue, Middleborough, MA 02346 to discuss this Enforcement Order.

C. Order

The issuing authority hereby orders the following (check all that apply):

The property owner, his agents, permittees, and all others shall immediately cease and desist from any activity affecting the Buffer Zone and/or resource areas.

Resource area alterations resulting from said activity shall be corrected and the resource areas returned to their original condition.

A restoration plan shall be filed with the issuing authority on or before _____
Date

for the following:

The restoration shall be completed in accordance with the conditions and timetable established by the issuing authority.

agent of the Commission and ratified by majority of the members at the next scheduled meeting of the Commission.

Signatures:

Patricia J. Cassidy, Conservation Agent

Patricia J. Cassidy

Signature of delivery person or certified mail number

Water Resource Protection District Special Permit Application

Issued for:
Board of Selectmen Review

Of

Drainage Outfall Improvements
Off Plain Street
Middleborough, MA

Prepared for

Town of Middleborough
Department of Public Works
48 Wareham Street
Middleborough, MA 02346

Submitted to

Town of Middleborough
Board of Selectmen
10 Nickerson Avenue
20 Center Street

Prepared by

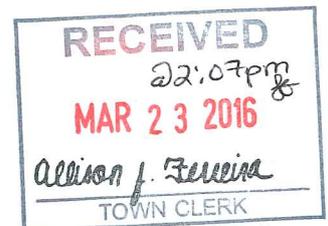


10 Main Street
Lakeville, MA 02347

Tel: (508) 923-1010
Fax: (508) 923-6309

A&M PROJECT #1830-01B

March 22, 2016





10 Main Street
Lakeville, MA 02347
Tel: (508) 923-1010
Fax: (508) 923-6309

March 22, 2016

Town of Middleborough
Board of Selectmen
10 Nickerson Avenue
Middleborough, MA 02346

RE: A&M Project #1830-01B
WRPD Application
55 Plain Street
(Drainage Easement)
Middleborough, MA

Dear Chairman Frawley and members of the Board of Selectmen:

On behalf of the Applicant, Town of Middleborough Department of Public Works, Allen & Major Associates is submitting this application for a Special Permit under the Water Resource Protection District bylaw. The application requests permission to make modifications to the existing stormwater outfall pipe which drains the Plain Street municipal system and a portion of the Oak Point project. The intent of the proposed construction is to remove the stone bleeder and allow the pipe to free flow towards the wetland resource area. The proposed work will occur within the twenty-five (25) foot no work buffer to a bordering vegetated wetlands. The property is located with Water Resource Protection District Z4 as illustrated on the Town of Middleborough Zoning Map. The work is permissible under section 3.d.iii for *“Installation of drainage outfalls or outlet swales where no alternative is feasible due to elevation and hydraulic connection but not including primary drainage structures such as detention/retention basins, berms, water quality swales, etc.”*

Application under the WRPD bylaws requires the following:

- a. Site plan prepared specifically for a WRPD Special Permit stamped by both a Registered Land Surveyor and Professional Engineer including but not limited to: existing and proposed topography, the extent of impervious areas, extent and area of natural vegetated areas, existing and proposed drainage facilities, layout and design of sewerage disposal facilities.

Included with this application, is the Stormwater Mitigation Plan off Plain Street (4 sheets) which include Drainage Modification Plan, sheet C-1, Existing Conditions Plan, sheet E-1, Notes and Details, sheet D-1 – D-2, dated March 21, 2016. These plans illustrate the extent of the proposed modifications to the existing outfall pipe.

- b. Pre and post development drainage characteristics for surface runoff and groundwater recharge, including calculations for all drainage designs;

The extent of the construction proposed in the WRPD does not require a pre- and post-development rate of runoff analysis. As part of the review by the other Town departments, the rates of runoff for the project have been submitted, reviewed, and approved. The basis for proposed modifications is focused

solely on the outfall pipe and not the upstream contributory areas. These can be provided if determined to be required compliance with the bylaw.

- c. Location of and distance to the public supply wells effected by the subject site;

There are no public water supply wells in the vicinity of this project that will be affected.

- d. Soil characteristics underlying the site and within the area between the site and the public supply wells;

As noted previously, there are no public water supply wells in the vicinity of the proposed work. The Plymouth County soil survey map lists the area as Birchwood sand, 3 to 8 percent slopes with a water table generally between 12 and 29 inches. The soils are classified as Hydrologic soil group B/D.

- e. provisions and conditions designed to prevent and correct conditions detrimental to public and private water supply, health, safety and welfare

The reconstruction of the outfall pipe has been designed to reduce the exit velocity under 2 feet per second. In order to achieve this, within the box culvert are "roughness elements". These elements are designed to increase the friction acting on the stormwater thus reducing the velocity. Each block will disrupt the flow of water, removing a portion of its energy. The calculation for the size and number of blocks is included herein and is based on the Federal Highway Administration Hydraulic Engineering Circular (HEC)-14. The exit velocity of the stormwater from the box culvert is calculated at approximately 1 foot per second. Additional rip-rap stone has been specified from the culvert exit to the wetland and/or drainage easement limit as shown on the drawings to further reduce the exit velocity. During construction, best management practices will be used to prevent erosion including silt fence and straw wattles. A&M believes that no additional provisions are necessary.

- f. A stormwater management plan as outlined by DEP Stormwater Management Standards and any additional requirements of the Town of Middleborough.

The extent of the construction proposed in the WRPD does not require a pre- and post-development rate of runoff analysis. As part of the review by the other Town departments, the rates of runoff for the project have been submitted, reviewed, and approved. The basis for proposed modifications is focused solely on the outfall pipe and not the upstream contributory areas. These can be provided if determined to be required compliance with the bylaw.

- g. A plan with calculations for any spill containment structures required herein;

N/A.

- h. Evidence adequate to demonstrate that the project in no way, during construction or thereafter, will adversely affect the existing or potential quality or quantity of water that is available in the Water Resource Protection Districts or otherwise impact the water resources of the Town;

The modification to the existing outfall will occur in previously altered or disturbed areas within an existing drainage easement. Temporary stripping of existing topsoil is being proposed as well as the removal of one spruce tree to accommodate the proposed work. The potential loss of an additional spruce tree may occur and will only be determined in the field once the limit of work is established. The

Contractor will be required to implement and install erosion control measures as detailed on the plans to protect the resource areas as well as down gradient areas. All disturbed areas will be restored to their existing conditions. The proposed work will not reduce the overall quality and quantity of water available in the WRPD.

- i. Evidence that the project has been designed to avoid substantial disturbance of the soils, topography, drainage, vegetation, and other water-related natural characteristics of the site.

The modification to the existing outfall will occur in previously altered or disturbed areas within the existing drainage easement. No changes in the drainage patterns will result due to this project.

- j. Methods to prevent against loss of recharge such as preservation of ground cover, infiltration of pollution, alternative runoff, minimization of laws, making area of natural vegetative areas.

The modification to the existing outfall will occur in previously altered or disturbed areas within the existing drainage easement. No changes in the drainage patterns will result due to this project. The up gradient stormwater management systems have been previously designed to mitigate against the loss of recharge in accordance with the Massachusetts Stormwater Handbook. Minimal removal of vegetation is planned. The proposed mitigation does result in increased potential for pollutant infiltration.

- k. The SPGA may require additional information including but not limited to calculations, on-site testing, groundwater monitoring, groundwater modeling, etc. necessary to evaluate impacts from the proposed project.

To be determined upon Board review.

A&M believes that this application is in keeping with the provisions of the special permit requirements, which determine that the project is:

- a. Is in harmony with the purpose and intent of the WRPD By-law and will promote the purposes of the Water Resource Protection Districts.
- b. Is appropriate to the natural topography, soils and other characteristics of the site to be developed.
- c. Will not, during construction or thereafter, have an adverse environmental impact on the aquifer, recharge areas, water resources of the Town.
- d. Will not adversely affect any existing or potential water supply.

Enclosed is a check in the amount of \$50.00 for the WRPD Special Permit, WRPD application and checklist and site plans. A Notice of Intent (NOI) for the proposed modifications has been submitted to the Conservation Commission and a public hearing is scheduled for April 7, 2016. A copy of the NOI is attached hereafter. A&M looks forward to discussing this project at the next available Board of Selectmen public hearing. Please notify us to the date and time of the hearing for the proposed filing. Thank you for your time and consideration. If you have any questions regarding this submittal or require additional information please contact me at (508) 923-1010.

Very truly yours,

A&M Project #1830-01B

March 22, 2016

ALLEN & MAJOR ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read 'P. Cordeiro', written over a horizontal line.

Philip Cordeiro, P.E.
Branch Manager

CC: Town of Middleborough DPW
Hometown Oak Point
A&M File: 1830-01B

Enclosure

WPRD Special Permit Application

CHECKLIST FOR SITE PLANS

(Applicant must initial each item or the application/petition will not be accepted.)

No.	Description	Initial	N/A
1.	One (1) electronic copy of the site plans must be filed with the Board of Selectmen's office via jshanley@middleborough.com .	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	Seven (7) paper copies of the site plan must be filed with the Town Clerk's office, along with seven (7) paper sets of the petition application (see top of "Petition Application" form).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
a.	Show locus to reasonable scale (use corner of the site plan page).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Show existing and proposed street lines, number & name.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Show existing and/or proposed building, including accessory buildings.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Show driveway and driveway openings.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Show natural waterways (if any).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Show distance from structure to wetlands.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g.	Show the location of all wetlands, which must be determined by a wetland's specialist, i.e., flagged on site plans, the area which is within twenty-five (25) feet of the wetland, the total area and location of the portion of any lot within one hundred (100) feet of any wetland and the land disturbing activity or activities proposed within the one hundred (100) and twenty-five (25) foot zones.	<input type="checkbox"/>	<input type="checkbox"/>
h.	Show setback dimensions or distances from street and abutters.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i.	Show the footage for all lines of the property and the total area (either in square footage or acreage).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j.	Show topography, wetland delineations, local storm water discharge points, on site drainage systems and septic systems.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k.	Show details for work done or proposed for any component outlined in No. 1(j) (above).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.	The plan is stamped by BOTH a registered Land Surveyor and a Civil Professional Engineer.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: If the site has no approval required other than a home lot, then a Land Surveyor stamp will be accepted.

CHECKLIST FOR PROJECT WRITTEN NARRATIVE

No.	Description	Initial	N/A
1.	Provide a written narrative explaining how you see the project complying with the WRPD bylaws and regulations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	The submittal contains a Certified Abutter's list obtained from the Assessor's office, Town Hall, 10 Nickerson Ave.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.	If your petition requests alterations or additions to a building, or structure, you should bring detailed plans which show the proposed alterations or additions.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.	The submittal contains calculations for any proposed on-site stormwater retainage, storage tanks and spill containment, on site drainage and recharge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	The submittal contains a statement that the project has been designed to minimize large scale lot disturbances and has implemented methods to encourage infiltration of site runoff and preservation of groundcover.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6.	The submittal contains a statement that there will be no removal of soil closer than four (4) feet to the groundwater table, as determined through Title 5 Soil Evaluation methods.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.	The submittal contains a statement that if there is to be storage of hazardous wastes, sludges, deicing chemicals, fertilizers, or oil, that the appropriate methods have been provided to contain any spillage.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.	The submittal contains a statement that outside stored material will have no impact to the groundwater.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

PETITION APPLICATION FOR A WRPD SPECIAL PERMIT

One (1) electronic copy of the petition & engineering plans must be filed with the Selectmen's office via email: jshanley@middleborough.com and Seven (7) complete paper sets of the petition application, including all required documents, such as engineering plans, must be filed with the Town Clerk at 20 Centre Street (former Eastern Bank building), 1st floor, Middleborough, MA. The Town Clerk's office will forward all petitions for a Special Permit to the Board of Selectmen's office.

I/We hereby petition your Board for a public hearing for a Special Permit, which is subject to Board of Selectmen approval under the Water Resource Protection District By-law.

A. Location of property in question:

Street address: 55 Plain Street (Drainage Easement)
Map & Lot 13-6384
Zoning District Residence Rural
(General Use, Business, Industrial, Residence A, Residence B, or Residence Rural)
WRPD District Z4
(Z1, Z2, Z3, Z4)

B. To allow for:

To allow for the reconstruction of the existing outfall pipe which drains the Plain Street municipal system and a portion of the Oak Point project. The application is made on behalf of the Department of Public Works.

(As shown on the attached plan)

Example: To allow for an addition of 12' x 20' to the building at 1234 Nickerson Avenue, Map #, Zoning district, WRPD District (A or B), presently used as a residence for the purpose of a dental office by the owner occupant. There will be a maximum of three employees.

C. Submitted by:

Philip Cordeiro, PE
Printed full name (Individual)

Signature (Individual)

10 Main Street, Lakeville, MA 02347
Address

508-923-1010
Daytime telephone

Allen & Major Associates, Inc.
Printed company name/engineering firm

 3-22-16
Signature (company/engineering rep.)

pcordio@allenmajor.com
Email address

CRANBERRY CAPITAL
OF THE WORLD



Phone: 508-946-2405
Fax: 508-946-0058

Town of Middleborough
Massachusetts
Board of Selectmen

APPLICATION FOR LICENSE OR LICENSING TRANSACTION
(PLEASE TYPE OR PRINT CLEARLY)

DATE March 21, 2016
NAME OF APPLICANT Town of Middleborough DPW
ADDRESS OF APPLICANT 48 Wareham Street
ASSESSORS MAP & LOT 13 Lot 6384
DAYTIME TELEPHONE 508-946-2480

NAME OF BUSINESS _____
OWNER OF PROPERTY TO BE LICENSED Daniel Harrington
ADDRESS OF PROPERTY TO BE LICENSED 55 Plain St (Easement)
ASSESSORS MAP & LOT 13 Lot 6384

TYPE OF LICENSE REQUESTED (Check One)
2nd Hand _____
Class I Automobile Dealer License _____
Class II Automobile Dealer License _____
Class III Automobile Dealer License _____
Entertainment _____

WRPD
Earth Removal Permit _____
Liquor License _____
Junk Dealer _____
Other _____

Anticipated Start Date for Business: N/A
Days & Hours of Operation: N/A

Has the applicant previously held a similar license in the Town of Middleborough or elsewhere?
If yes, explain: _____
No

Signature [Handwritten Signature]

DATE OF HEARING: TBD

Please bring to the Treasurer/Collector's office @ the Town Hall Annex, 20 Center Street, 3rd floor to obtain confirmation/signature that no outstanding taxes/municipal charges exist.

Dear Treasurer/Collector:
Please inform this department as to whether or not the above listed property owner/applicant/petitioner owes the Town of Middleborough any outstanding taxes and/or municipal charges that remain unpaid for more than one year.

Does Property Owner/Applicant/Petitioner owe Taxes/Municipal Charges? NO

[Large Handwritten Signature]

Notice of Intent

Issued for:
Conservation Commission
Review

Of

Drainage Outfall Improvements
Off Plain Street
Middleborough, MA

Prepared for

Town of Middleborough
Department of Public Works
48 Wareham Street
Middleborough, MA 02346

Submitted to

Town of Middleborough
Conservation Commission
20 Center Street
Middleborough, MA 02346

Prepared by



10 Main Street
Lakeville, MA 02347

Tel: (508) 923-1010
Fax: (508) 923-6309

A&M PROJECT #1830-01B

March 22, 2016

TABLE OF CONTENTS

WPA Form 3 – Notice of Intent

Wetland Fee Transmittal Form

Copies of State and Local Checks

Project Narrative

Affidavit of Service

Notification to Abutters

Certified Abutters List

BVW Data Forms

WPA Form 9 – Enforcement Order

Calculation Sheets

Roughness Elements

Roughness Element Anchor Bolt

Splash Plate

Figures

USGS Topographical Map

Aerial Photograph

FEMA Flood Map

Natural Heritage Map

Plain Street Drainage Easement

Plain Street Design Documents

Allen & Major Associates, Inc. Site Development Drawings dated March 21, 2016

WPA Form 3 – Notice of Intent



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough
 City/Town

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
 Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

55 Plain Street (Drainage Easement) _____ Middleborough _____ 02346
 a. Street Address b. City/Town c. Zip Code
 Latitude and Longitude: 41d 56' 11.29" _____ 70d 54' 15.30"
 d. Latitude e. Longitude
 13 _____ 6384
 f. Assessors Map/Plat Number g. Parcel /Lot Number

2. Applicant:

Christopher _____ Peck _____
 a. First Name b. Last Name
 Town of Middleborough Department of Public Works _____
 c. Organization
 48 Wareham Street _____
 d. Street Address
 Middleborough _____ MA _____ 02346
 e. City/Town f. State g. Zip Code
 508-946-2480 _____ 508-946-2484 _____ cpeck@middleborough.com _____
 h. Phone Number i. Fax Number j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

Daniel _____ Harrington _____
 a. First Name b. Last Name

 c. Organization
 55 Plain Street _____
 d. Street Address
 Middleborough _____ MA _____ 02346
 e. City/Town f. State g. Zip Code

 h. Phone Number i. Fax Number j. Email address

4. Representative (if any):

Philip _____ Cordeiro _____
 a. First Name b. Last Name
 Allen & Major Associates, Inc. _____
 c. Company
 10 Main Street _____
 d. Street Address
 Lakeville _____ MA _____ 02347
 e. City/Town f. State g. Zip Code
 508-923-1010 _____ 508-923-6309 _____ pcordeiro@allenmajor.com _____
 h. Phone Number i. Fax Number j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$802.00 _____ \$388.50 _____ \$413.50 _____
 a. Total Fee Paid b. State Fee Paid c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough
City/Town

A. General Information (continued)

6. General Project Description:

See attached cover letter.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input checked="" type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Plymouth

a. County

17600

c. Book

b. Certificate # (if registered land)

282

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number _____

Document Transaction Number _____

Middleborough

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Bank	1. linear feet _____	2. linear feet _____
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet _____	2. square feet _____
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet _____	2. square feet _____
	3. cubic yards dredged _____	

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet _____	2. square feet _____
	3. cubic feet of flood storage lost _____	4. cubic feet replaced _____
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet _____	
	2. cubic feet of flood storage lost _____	3. cubic feet replaced _____
f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland _____	

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough
 City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet _____	
	2. cubic yards dredged _____	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet _____	2. cubic yards beach nourishment _____
e. <input type="checkbox"/> Coastal Dunes	1. square feet _____	2. cubic yards dune nourishment _____
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet _____	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet _____	
h. <input type="checkbox"/> Salt Marshes	1. square feet _____	2. sq ft restoration, rehab., creation _____
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet _____	
	2. cubic yards dredged _____	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet _____	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged _____	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet _____	
4. <input type="checkbox"/> Restoration/Enhancement	If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.	
	a. square feet of BVW _____	b. square feet of Salt Marsh _____
5. <input type="checkbox"/> Project Involves Stream Crossings		
	a. number of new stream crossings _____	b. number of replacement stream crossings _____



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough

City/Town

C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Notice of Intent – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. Yes No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

October 1, 2008

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); OR complete Section C.1.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. Percentage/acreage of property to be altered:

(a) within wetland Resource Area

_____ percentage/acreage

(b) outside Resource Area

_____ percentage/acreage

2. Assessor's Map or right-of-way plan of site

2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough

City/Town

C. Other Applicable Standards and Requirements (cont'd)

- (c) MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) Vegetation cover type map of site
- (e) Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following

- 1. Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
- 2. Separate MESA review ongoing. _____
a. NHESP Tracking # _____ b. Date submitted to NHESP
- 3. Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

- 3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. Not applicable – project is in inland resource area only b. Yes No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough
 City/Town

Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. Yes No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. Yes No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. A portion of the site constitutes redevelopment
 3. Proprietary BMPs are included in the Stormwater Management System.
 b. No. Check why the project is exempt:
 1. Single-family house
 2. Emergency road repair
 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Middleborough

City/Town

D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. List the titles and dates for all plans and other materials submitted with this NOI.

Stormwater Mitigation Plan off Plain Street Middleborough, MA

a. Plan Title

Allen & Major Associates, Inc.

Phil Cordeiro, PE

b. Prepared By

c. Signed and Stamped by

March 21, 2016

varies

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

590

3/21/16

2. Municipal Check Number

3. Check date

589

3/21/16

4. State Check Number

5. Check date

Allen & Major Associates, Inc.

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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Middleborough
City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Wetland Fee Transmittal Form



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

55 Plain Street (Drainage Easement) Middleborough
 a. Street Address b. City/Town
 589 \$388.50
 c. Check number d. Fee amount

2. Applicant Mailing Address:

Christopher Peck
 a. First Name b. Last Name
 Town of Middleborough Department of Public Works
 c. Organization
 48 Wareham Street
 d. Mailing Address
 Middleborough MA 02346
 e. City/Town f. State g. Zip Code
 508-946-2480 508-946-2484 cpeck@middleborough.com
 h. Phone Number i. Fax Number j. Email Address

3. Property Owner (if different):

Daniel Harrington
 a. First Name b. Last Name
 c. Organization
 55 Plain Street
 d. Mailing Address
 Middleborough MA 02346
 e. City/Town f. State g. Zip Code
 h. Phone Number i. Fax Number j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Cat. 2.g (storm drain discharge)	1	\$500.00	\$500.00
Cat. 6 (Flags GC8 - A4)	1	\$2.00 per ft x 151 ft	\$302.00

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee:	\$802.00
State share of filing Fee:	a. Total Fee from Step 5 \$388.50
City/Town share of filing Fee:	b. 1/2 Total Fee less \$12.50 \$413.50
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Project Narrative

Project Narrative

Existing Conditions

The project locus is approximately 350 feet off the sideline of Plain Street in Middleborough on the property of Daniel Harrington of 55 Plain Street. As a condition of the project Special Permit in effect at the time of construction, Oak Point Associates was required to provide improvements to Plain Street. This work included repaving of the roadway and installation of a closed drainage system to convey stormwater to receiving waters, in this case Beaver Dam swamp. The phase 1 roadway improvements to Plain Street were designed and constructed in 2003 under the purview of the Department of Public Works and the Board of Selectmen. The outfall from the drainage system is a 42 inch reinforced concrete pipe installed adjacent to the Harrington property line. This pipe is also the discharge point for the Watershed 10 post-development area of the Oak Point project, specifically a portion of Phase 7 Section 2 and a future phase of the project. The drain line and maintenance are allowed under an easement granted to the Town of Middleborough recorded with the Plymouth County Registry of Deeds as Plan 942 of 2003. The easement agreement is recorded in Book 27226 page 127. A portion of the easement extends onto the adjacent property of Robert Costa of 17 Willow Tree Lane. This easement agreement is recorded in Book 27226 Page 129 as issued to the CMG Group LLC. as the previous owner of the lot.

Resource Areas

The wetland resource area for this work was flagged by Nicole Hayes, senior scientist from Goddard Consulting, on February 9, 2016. During the walk, wetland flag series GC-1 through GC-15 were marked (approximately 272 linear feet). A second visit conducted on March 7, 2016 added flag series A1 through A8 (approximately 108 linear feet). These areas are identified as Bordering Vegetated Wetland (BVW) described by the attached letter and delineation forms.

The proposed project is to provide improvements to the outfall pipe. The area of work most pertinent to this Notice of Intent application occurs between wetland flags A-4 through GC-8, approximately 151 linear feet.

Proposed Project

In this Notice of Intent (NOI), the proposed project consists of reconstruction of the existing outfall pipe which drains the Plain Street municipal system and a portion of the Oak Point project. The application is made on behalf of the Department of Public Works and the property owner.

In 2003, roadway improvements drawings were prepared by A&M and submitted to the Town of Middleborough for Phase 1 reconstruction of Plain Street. As indicated on the site plan drawings dated April 23, 2003 the 42" outlet pipe was to be installed as an at grade pipe with a flow dissipater (rip-rap) outlet prior to discharge to the wetland resource area. In September 2003, a design change was made to embed the pipe in 12-15" diameter rip-rap stone bleeder outlet. The field change appears to have been driven by the inability to daylight the pipe within the defined limits of the drainage easement. This assumption is based on A&M's 2016 review of items that may have occurred in 2003 as no clear documentation exists on the reason for the change.

As part of a review of the stormwater systems for the project with the Town of Middleborough Planning Board, updated calculations entitled "Oak Point – Watershed #10 Stormwater Management Summary " dated March 4, 2015 revised through March 30, 2015 were prepared and approved by planning staff and the Planning Board. The intent of the watershed analysis was to incorporate modifications to stormwater basins 18 and 20 of the Oak Point project. The scope of the modifications also included additional work within Plain Street to upsize approximately 75 feet of drain pipe to 42" reinforced concrete pipe, add offline low-flow drainage bypass structures, and replace a Stormceptor water quality unit within Plain Street. This work was completed in 2015. In the approved drainage calculations, the outfall condition of the pipe was not modeled with the stone bleeder restriction that limits conveyance of the stormwater flows. The model used was consistent with the 2006 approved definitive site plan drawings and calculations but also lacked the bleeder restriction at the outfall.

The intent of the proposed construction is to remove the stone bleeder and allow the pipe to free flow towards the wetland resource area with the stormwater energy dissipated. All of the proposed work will be within 100 feet of the bordering vegetated wetlands. A portion of the work will occur within 25 feet to the BVW. This will necessitate a special permit under the Water Resource Protection District (WRPD 4) issued by the Board of Selectmen. The work is permissible under

section 3.d.iii for *“Installation of drainage outfalls or outlet swales where no alternative is feasible due to elevation and hydraulic connection but not including primary drainage structures such as detention/retention basins, berms, water quality swales, etc.”*

The proposed work shall take place entirely within the drainage easement held by the Town. There is an existing encroachment into the easement and the Harrington property by the rear yard of Costa. This includes a boulder retaining wall, chain link fence, and portion of lawn area enclosed by the fence. A&M has notified the DPW, Harringtons, and Costas regarding the encroachment. The plans presented herein assume the encroachment to be an existing condition that should be restored, however, Mr. Harrington may elect to require the encroachment to be removed or otherwise addressed upon consultation with his attorney.

The scope of the project shall include:

1. Establish a stone tracking pad at the intersection with Plain Street to prevent tracking of sediment and material onto public roadways.
2. Install a silt fence and straw wattle barrier along the limit of work as shown on the design drawings.
3. Remove and existing spruce tree as denoted on the plan. The root system will be impacted by construction that affects the long term survivability of the tree. Provide appropriate tree protection for an additional spruce tree that is close to the work limits. Once the work is laid out in the field, if the tree cannot be saved A&M shall coordinate with the Conservation Agent to determine if the tree can be removed.
4. Remove and stockpile the existing chainlink fence on the Costa property and provide appropriate construction fencing for safety.
5. Remove the existing stone boulder retaining wall.
6. Remove and stockpile loam. Stockpiling of materials will occur off property based on the limited width of the easement, proximity to wetlands, and private property.
7. Remove and stockpile existing rip-rap bleeder stone. The stone will be washed and cleaned for reuse.
8. Remove and excavate subsoil. The total excavation anticipated between items 7 and 8 shall be approximately 75 yards.
9. Remove the existing stone headwall (adjacent to wetland flags A2-GC3).
10. Remove and dispose of existing 42” concrete flared end section.
11. Install 27 linear feet of 42” RCP concrete pipe.
12. Install 12” gravel base for box culvert.
13. Furnish and install 35 linear feet of 6’ x 11’ four side concrete box culvert with velocity roughness elements.
14. Regard adjacent areas to box culvert elevation per the design drawings. Provide loam and seed and rip-rap per drawings.
15. Provide rip-rap stone bedding at box culvert using clean, washed stone. Grade to existing.
16. Replace chain link fence on Costa property and provide protective fencing on top of box culvert and discharge point.
17. Provide final cleanup including loaming and seeding of disturbed lawn areas.

Given the proximity to the wetlands, the contractor may anticipate water during excavation. If this occurs, the contractor shall work with A&M and the conservation agent to provide appropriate dewatering practices. The Contractor shall comply with 2012 CGP, Federal, State, and Local maintenance requirements and at a minimum, the requirements in CGP Part 2.1.3.4: *“With backwash water, either haul it away for disposal or return it to the beginning of the treatment process; and replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer’s specifications.”*

The construction outlined above is intended to provide a free flowing outfall through a stabilized path. The use of the box culvert sections accommodates the previous retaining wall of the Costa property and limits the amount of disturbance to the wetland buffer zone that would otherwise occur outside of the easement. The box culvert assembly will receive the stormwater flows as outlined in the Watershed 10 stormwater reported as appended by the as-built condition of stormwater basins 18 and 20 issued to the Planning Department. This outflow is 77.65 cubic feet per second at a velocity of 8.08 feet per second. In order to minimize erosion potential at the BVW, A&M’s maximum permissible velocity should be under 2 feet per second. In order to achieve this, within the box culvert are “roughness elements”. These elements are designed to increase the friction acting on the stormwater to reduce the velocity. Each block will disrupt the flow of water

thus removing a portion of its energy. The calculation for the size and number of blocks is included herein and is based on the Federal Highway Administration Hydraulic Engineering Circular (HEC)-14. The exit velocity of the stormwater from the box culvert is calculated at approximately 1 foot per second. Rip-rap stone has been specified from the culvert exit to the wetland and/or drainage easement limit as shown on the drawings to further mitigate any increase in runoff. No new stormwater calculations are proposed as part of this project. The basis for design is focused solely on the outfall pipe and not the upstream contributory areas.

An inspection manhole has been provided on the first culvert section. A chain-link fence shall be installed along the top of the culvert to prevent climbing while an additional fence shall be installed across the end of the box section to prevent humans or animals from entering the structure. It is the intent of the design to leave the box culvert exposed to alert anyone in the area of the structure to prevent accidental falls.

No work is proposed within the BVW area.

Environmental Due Diligence

Additional due diligence was completed by consulting the latest Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) map dated July 17, 2012. The property is located within Zone X (“areas of 0.2% annual chance flood “). There are no 100 Year Floodplains on or directly adjacent to the site. A review of the latest Massachusetts Natural Heritage Atlas; 13th Edition, reveals that there are no Estimated Habitats, Priority Habitats or Certified Vernal Pools onsite or directly adjacent to the site (See Exhibit 4 Priority & Estimated Habitats). The site is not located within any Areas of Critical Environmental Concern (ACEC) and a review of the most recent Town of Middleborough Zoning Map indicates the property is within area Water Resource Protection District (WRPD) Zone 4.

MA Stormwater Performance Standards

No new development or stormwater conveyances are created as a result of this project. For this activity, A&M is seeking exemption from the Stormwater Standards as the proposed work should be considered an “emergency repair to roads or their drainage systems”. As outlined by discussions with the Middleborough Planning Board, a higher event storm may lead to a surcharged condition of Plain Street or the Oak Point development through the municipal system.

Conservation Regulatory Review

In February 2016, Hometown Oak Point and A&M engaged in some construction activity at the pipe outfall location. This work included removal of some rip-rap stone to provide some open area for free flow of the pipe. This activity was not regulated by the Conservation Commission and as such an Enforcement Order (EO) was issued by the Commission on February 12, 2016. The EO required an immediate cease and desist on any activity and to supplement the area with additional erosion protection. The purpose of the Notice of Intent is to address the work covered under the EO. A&M requests that the attached site plans be used to satisfactorily address the EO and any conditions of the EO become part of an Order of Conditions issued in due course.

Narrative Conclusion

The applicant respectfully submits the proposed project for the review of the Town of Middleborough Conservation Commission. The proposed project will be of benefit to both the residents of Oak Point and the adjacent BVW resource. The project has avoided all disturbance to both the BVW and limited the disturbance to the 25-foot WRPD buffer. Through careful site design, the adverse impacts have been minimized and the interests of the Massachusetts Wetlands Protection Act and the Town of Middleborough wetlands policies have been protected.

Affidavit of Service

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

I, Phil Cordeiro hereby certify under the pains and penalties of perjury that on or before March 22, 2016 I gave notification to abutters in compliance with the second paragraph of the Massachusetts General Laws, Chapter 131, Section 40 and the DEP Guide to Abutter Notification in connection with the following matter:

A Notice of Intent (NOI) application was filed under the Massachusetts Wetlands Protection Act by Allen & Major Associates, Inc. c/o the Town of Middleborough DPW with the Middleborough Conservation Commission on

March 22, 2016 for a property located at
date
55 Plain Street (Drainage Easement), Middleborough, MA 02346

The form of notification and the list of abutters to whom it was given and their addresses are attached to this Affidavit of Service.



Signature

3-22-16

date

Notification to Abutters

Notification to Abutters Under the Massachusetts Wetlands Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following.

- A. The name of the applicant is Town of Middleborough DPW
- B. Property is owned by: Daniel Harrington
- C. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of Middleborough, Massachusetts seeking permission to remove, fill, dredge or alter an Area Subject to Protection Under the Wetlands Protection Act (General Laws Chapter 131, Section 40).
- D. The address of the lot where the activity is proposed is 55 Plain Street within the existing Drainage easement
- E. Assessors Map and Lot Number: Map 13 Lot 6384
- F. Copies of the Notice of Intent may be examined at Middleborough Conservation Commission between the hours of 9:00 a.m. and 4:30 p.m. Monday through Friday.
- G. Brief description of project: Upgrade to existing drainage outfall
- H. Copies of the Notice of Intent may be obtained from either (check one) the Applicant _____ or the applicant's representative _____, by calling this telephone number 508-923-1010 between the hours of 9:00 and 5:00 on the following days of the week:
Monday - Friday
- I. Information regarding the date, time, and place of the public hearing may be obtained from the Middleborough Conservation Commission by calling 508-946-2406 between 8:00 a.m. and 5:00 p.m. Monday through Friday.

NOTE: Notice of the public hearing, including its date, time, and place, will be Published at least five (5) days in advance in the Middleborough Gazette.

NOTE: You may contact the Department of Environmental Protection Regional office at 508-946-2800 for more information.

BVW Data Forms

February 3, 2016

Allen and Major Assoc.
10 Main Street
Lakeville, MA 02347

Re: 17 Willow Tree Lane, Middleboro

Dear Mr. Cordiero,

On January 22, 2016, the wetland resources were delineated on a portion of land located at the above referenced site. The wetland border was flagged using the criteria in the most recent edition of MA Wetland Protection Act (WPA) and Regulations 310 CMR 10.00 et al and the Middleboro Wetland Protection Bylaw. Hydric soil indicators, vegetation changes, hydrological indicators, and topography were all considered for delineation purposes.

One Bordering Vegetated Wetland and was delineated on-site. A portion of this wetland system was flagged with series GC1-15. This wetland is dominant in red maple, buckthorn, sweet pepperbush, arrow-wood, high bush blueberry, poison ivy and wetland ferns. The adjacent upland is dominant in oak, white pine, beech, cinnamon fern and hay-scented fern. Department of Environmental Protection BVW field data forms were documented at wetland flag # GC-8 (see attached form).

According to the Mass GIS data layers for NHESP, this site is not located within Estimated and/or Priority Habitat of Rare Wildlife and no mapped certified or potential vernal pools are located on site. The site is not located in an ACEC no a jurisdictional FEMA Flood Zone.

The local Wetland Protection Bylaw and the MA Wetlands Protection Act takes jurisdiction over BVW and its 100-foot buffer zone. Any work within the resource areas and/or 100-foot buffer zone requires a Request for Determination (RDA) or Notice of Intent (NOI) be filed with the Conservation Commission.

Very truly yours,
GODDARD CONSULTING, LLC

by



Nicole Hayes, PWS
Senior Scientist

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Allen and Major Assoc.

Prepared by: Goddard Consulting LLC

Project location: 17 Willow Tree Lane

DEP File #: _____

- Check all that apply:
- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
 - Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
 - Method other than dominance test used (attach additional information)

Section I. Vegetation	Observation Plot Number: <u>GC-8</u>	Transect Number: <u>Upgradient</u>	Date of Delineation: <u>22-Jan-16</u>			
Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*	
<u>Tree Layer</u>						
Red Oak	<i>Quercus rubra</i>	10%	10.1%	No	FACU	
Norway maple	<i>Acer platanoides</i>	3%	3.0%	No	UPL	
Red Maple	<i>Acer rubrum</i>	3%	3.0%	No	FAC*	
American beech	<i>Fagus grandifolia</i>	20%	20.2%	Yes	FACU	
White Pine	<i>Pinus strobus</i>	63%	63.6%	Yes	FACU	
<u>Sapling Layer</u>						
<u>Shrub Layer</u>						
American Holly	<i>Ilex opaca</i>	20%	100.0%	Yes	FACU	
<u>Climbing Woody Vine</u>						
<u>Ground Cover</u>						
Cinnamon fern	<i>Osmundastrum cinnamomeum</i>	10%	100.0%	Yes	FACW*	

Remarks: * An asterisk after common plant name indicates stunted growth; ** indicates extremely stunted growth

Morphological Adaptations: 0

Description: _____

* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FACW, or OBL.

Vegetation conclusion:

Number of dominant wetland indicator plants: 1

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes no

title/date: Soil Survey of Plymouth County - 1969

map number: _____

soil type mapped: Norwell Mucky fine sandy loam

hydric soil inclusions: _____

Are field observations consistent with soil survey? yes no

Remarks: Upland inclusions- Scituate

2. Soil Description

<u>Horizon</u>	<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
A	1-8	10YR2/1	
B	8-16	10YR4/6	

Remarks: _____

3. Other: _____

Conclusion: Is soil hydric? yes no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: _____
- Depth to free water in observation hole: _____
- Depth to soil saturation in observation hole: _____
- Water marks: _____
- Drift Lines: _____
- Sediment deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded data (stream, lake, or tidal gauge; aerial photo; other):

- Other: _____

Vegetation and Hydrology Conclusion for Upgradient of GC-8		
	<u>yes</u>	<u>no</u>
Number of wetland indicator plants >= number of non-wetland plants		X
Wetland hydrology present:		
hydric soils present		X
other indicators of hydrology present		X
Sample location is in a BVW		X

Submit this form with the Request for Determination of Applicability or Notice of Intent

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

 Applicant: Allen and Major Assoc.

 Prepared by: Goddard Consulting LLC

 Project location: 17 Willow Tree Lane

DEP File #: _____

- Check all that apply:
- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
 - Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
 - Method other than dominance test used (attach additional information)

Section I. Vegetation	Observation Plot Number: <u>GC-8</u>	Transect Number: <u>Downgradient</u>	Date of Delineation: <u>22-Jan-16</u>		
Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
<u>Tree Layer</u>					
Red Maple	<i>Acer rubrum</i>	20%	40.0%	Yes	FAC*
White Pine	<i>Pinus strobus</i>	20%	40.0%	Yes	FACU
American Beech	<i>Fagus grandifolia</i>	10%	20.0%	Yes	FACU
<u>Sapling Layer</u>					
Red maple	<i>Acer rubrum</i>	3%	100.0%	Yes	FAC*
<u>Shrub Layer</u>					
Highbush blueberry	<i>Vaccinium corymbosum</i>	10%	100.0%	Yes	FACW*
<u>Climbing Woody Vine</u>					
Eastern poison ivy	<i>Toxicodendron radicans</i>	10%	100.0%	Yes	FAC*
<u>Ground Cover</u>					
Sphagnum moss	<i>Sphagnum L.</i>	10%	20.4%	Yes	OBL*
Eastern poison ivy	<i>Toxicodendron radicans</i>	3%	6.1%	No	FAC*
Cinnamon fern	<i>Osmundastrum cinnamomeum</i>	36%	73.5%	Yes	FACW*

Remarks: * An asterisk after common plant name indicates stunted growth; ** indicates extremely stunted growth

 Morphological Adaptations: 0

Description: _____

* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FACW, or OBL.

Vegetation conclusion:

 Number of dominant wetland indicator plants: **6**

 Number of dominant non-wetland indicator plants: **2**

 Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes**

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes no

title/date: Soil Survey of Plymouth County - 1969

map number: _____

soil type mapped: Norwell mucky fine sandy loam

hydric soil inclusions: _____

Are field observations consistent with soil survey? yes no

Remarks: _____

2. Soil Description

<u>Horizon</u>	<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
O	1-12+	10YR2/1	

Remarks: _____

3. Other: _____

Conclusion: Is soil hydric? yes no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: _____
- Depth to free water in observation hole: 2"
- Depth to soil saturation in observation hole: _____
- Water marks: _____
- Drift Lines: _____
- Sediment deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded data (stream, lake, or tidal gauge; aerial photo; other):

- Other: _____

Vegetation and Hydrology Conclusion for Downgradient of GC-8		
	<u>yes</u>	<u>no</u>
Number of wetland indicator plants		
>= number of non-wetland plants	X	
Wetland hydrology present:		
hydric soils present	X	
other indicators of hydrology present	X	
Sample location is in a BVW	X	

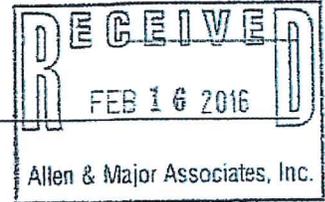
Submit this form with the Request for Determination of Applicability or Notice of Intent

WPA Form 9 – Enforcement Order



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:



A. Violation Information

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



This Enforcement Order is issued by:

Middleborough
 Conservation Commission (Issuing Authority)

February 12, 2016
 Date

To:

Phil Cordeiro, P.E. Allen & Major Associates, Inc.
 Name of Violator
10 Main Street, Lakeville, MA 02347-1374
 Address

1. Location of Violation:

Robert A. Costa Etal/Daniel Harrington (Easement for pipe)
 Property Owner (if different)
17 Willowtree Lane/55 Plain Street
 Street Address
Middleborough 02346
 City/Town Zip Code
Map 13 Lots 6442/6384
 Assessors Map/Plat Number Parcel/Lot Number

2. Extent and Type of Activity (if more space is required, please attach a separate sheet):

Working on an outlet pipe to a 42" pipe within 100-feet of a bordering vegetated wetland without an Order of Conditions from the Middleborough Conservation Commission. Work included digging and removing 20 inches of stone in front of the pipe. The pipe is now altered without submitting information on the pre-wetland & buffer zone conditions or the proposed impacts to the wetland & buffer zone. The area has exposed ground with silt laden stone that has the potential to impact the wetlands. There is silt fence and straw watties around some of the work but not completely around the work.

B. Findings

The Issuing Authority has determined that the activity described above is in a resource area and/or buffer zone and is in violation of the Wetlands Protection Act (M.G.L. c. 131, § 40) and its Regulations (310 CMR 10.00), because:

- the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone without approval from the issuing authority (i.e., a valid Order of Conditions or Negative



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

Determination).

B. Findings (cont.)

the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone in violation of an issuing authority approval (i.e., valid Order of Conditions or Negative Determination of Applicability) issued to:

Name _____ Dated _____

File Number _____ Condition number(s) _____

The Order of Conditions expired on (date): _____ Date _____

The activity violates provisions of the Certificate of Compliance.

The activity is outside the areas subject to protection under MGL c.131 s.40 and the buffer zone, but has altered an area subject to MGL c.131 s.40.

Other (specify):

Please attend the Conservation Commission meeting on Thursday, February 18th, 2016 at 7:30 PM at the Town Hall in the Board of Selectmen's meeting room at 10 Nickerson Avenue, Middleborough, MA 02346 to discuss this Enforcement Order.

C. Order

The issuing authority hereby orders the following (check all that apply):

The property owner, his agents, permittees, and all others shall immediately cease and desist from any activity affecting the Buffer Zone and/or resource areas.

Resource area alterations resulting from said activity shall be corrected and the resource areas returned to their original condition.

A restoration plan shall be filed with the issuing authority on or before _____ Date _____

for the following:

The restoration shall be completed in accordance with the conditions and timetable established by the issuing authority.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

C. Order (cont.)

- Complete the attached Notice of Intent (NOI). The NOI shall be filed with the Issuing Authority on or before:

_____ Date

_____ for the following:

_____ No further work shall be performed until a public hearing has been held and an Order of Conditions has been issued to regulate said work.

- The property owner shall take the following action (e.g., erosion/sedimentation controls) to prevent further violations of the Act:

_____ Put additional silt fence and haybales around the work area.

_____ Failure to comply with this Order may constitute grounds for additional legal action. Massachusetts General Laws Chapter 131, Section 40 provides: "Whoever violates any provision of this section (a) shall be punished by a fine of not more than twenty-five thousand dollars or by imprisonment for not more than two years, or both, such fine and imprisonment; or (b) shall be subject to a civil penalty not to exceed twenty-five thousand dollars for each violation". Each day or portion thereof of continuing violation shall constitute a separate offense.

D. Appeals/Signatures

An Enforcement Order issued by a Conservation Commission cannot be appealed to the Department of Environmental Protection, but may be filed in Superior Court.

Questions regarding this Enforcement Order should be directed to:

_____ Patricia J. Cassady, Conservation Agent

_____ Name

_____ 508-946-2406

_____ Phone Number

_____ M-F 8:30 AM - 5:00 PM

_____ Hours/Days Available

Issued by:

_____ Middleborough

_____ Conservation Commission



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

Conservation Commission signatures required on following page.

D. Appeals/Signatures (cont.)

In a situation regarding immediate action, an Enforcement Order may be signed by a single member or agent of the Commission and ratified by majority of the members at the next scheduled meeting of the Commission.

Signatures:

Patricia G. Messady, Conservation Agent

Patricia G. Messady

Signature of delivery person or certified mail number

Calculation Sheets

CALCULATION SHEET

Project Number 1830-01B Sheet 1 of
 Client Town of Middleborough DPW
 Project Plain St. outfall Location Plain St. Middleborough
 Calculated by PGM Date 3-21-16
 Check by Date



Given: $Q = 77.65$ cfs Box Culvert $B = 10.0$ ft
 $S = 0.55\%$ $H = 6.0$ ft
 $D = 42" = 3.5$ ft $S = 0.20\%$
 $V = 8.80$ fps Design $V = 2$ ft/sec or less
 $d = 3.02$ ft

Tumbling flow in Box Culvert (HEC No. 14, FHWA ch. 7)

$$y_c = \left(\frac{(Q/B)^2}{g} \right)^{1/3} = \left(\frac{(77.65/10.0)^2}{32.2} \right)^{1/3} \quad y_c = 1.23 \text{ ft}$$

$$h = \frac{y_c}{(3 - 3.7 S_0)^{2/3}} = \frac{1.23}{(3 - 3.7(0.0055))^{2/3}} \quad h = 0.59 \text{ ft use } 0.67 \text{ ft}$$

$$L = 10h = 10(0.67) = 6.7 \text{ ft}$$

$$W_2 = \frac{h}{2} = \frac{0.67}{2} = 0.33'$$

$$W_1 = \frac{B - N_2 W_2}{3} = \frac{10 - (2)(0.33)}{3} = 3.11 \text{ ft rows } 1, 3, 5$$

$$W_1 = \frac{B - N_3 W_2}{3} = \frac{10 - (3)(0.33)}{3} = 3.00 \text{ ft rows } 2, 4$$

CALCULATION SHEET

Project Number 1830-01B Sheet 2 of
 Client Town of Middleborough DPW
 Project Plain St outfall Location Plain St. Middleborough
 Calculated by PGM Date 3-21-16
 Check by Date

$$h_1 = 1.25 y_c = 1.25 (1.23) \quad h_1 = 1.54 \text{ ft}$$

$$h_2 = 1.5 (D - (h_1 + h)) = 1.5 (3.5 - (1.54 + 0.67)) = 1.94 \text{ ft}$$

Increased Resistance Box Culverts, compute n , solve for velocity

$$n_{ir} = n \left[1 + 200 \left(\frac{h}{L} \right) \left(\frac{L_r}{P} \right) \right]^{1/2}$$

$$= 0.013 \left[1 + 200 \left(\frac{0.67}{6.7} \right) \left(\frac{10}{10 + 2(1.23)} \right) \right]^{1/2}$$

$$n_{ir} = 0.054$$

$$V = \frac{1.49 R^{2/3} S^{1/2}}{n}$$

$$= \frac{1.49 \left(\frac{10(1.23)}{10 + 2(1.23)} \right)^{2/3} (0.002)^{1/2}}{0.054}$$

$$\underline{V = 1.22 \text{ ft/sec}} \quad \text{exit velocity less than } 2 \text{ ft/sec}$$



CALCULATION SHEET

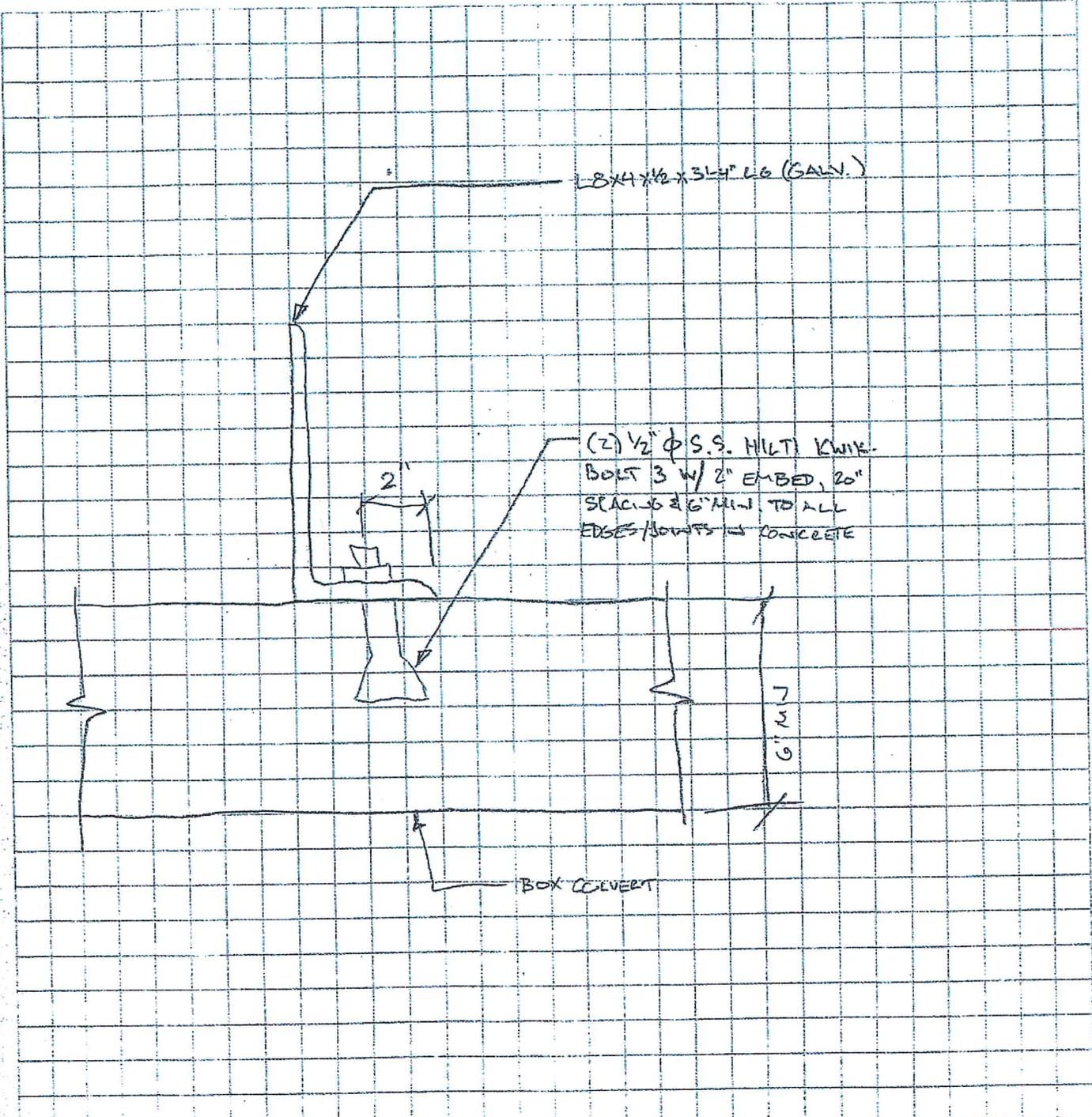
Project Number 1830-01B Sheet 3 of
Client Town of Middleborough DPW
Project Plain st. outfall Location Plain st. Middleborough
Calculated by PGM Date 3-21-16
Check by Date

Y_c = critical depth, ft
 h = element height, ft
 S = culvert slope, ft/ft
 L = length between elements, ft
 W_2 = element spacing, ft
 W_1 = width of element, ft
 h_1 = jet height, ft
 h_2 = splash shield height, ft
 L_c = Bottom Culvert width, ft
 P = wetted perimeter, ft

CALCULATION SHEET



Project Number _____ Sheet _____ of _____
Client _____
Project _____ Location _____
Calculated by _____ Date _____
Check by _____ Date _____

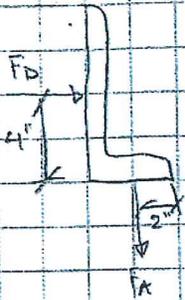


CALCULATION SHEET



Project Number 1830-01B Sheet _____ of _____
 Client _____
 Project _____ Location _____
 Calculated by EAT Date 3/15/16
 Check by _____ Date _____

USE LBX4 "ROUGH-NESS ELEMENT" X 3'-4" LGS



$$F_D = C_D A F P V^2 / 2$$

$$F_D = (1.98)(8')(3'-4')(1.94 \frac{\text{SLUGS}}{\text{FT}^3})(8.79 \frac{\text{FT}}{\text{S}})^2 / 2 = 328.1 \frac{\text{SLUGS} \cdot \text{FT}}{\text{S}^2}$$

1 SLUG = # S² / FT ∴ F_D = 328.1 #

$$F_A = \frac{h F_D}{2 L_c} = \frac{(8')(328.1 \#)}{(2)(2')} = 656.2 \#$$

SELECT ANGLE TO AVOID PRYING ACTION

$$t_{min} = \sqrt{\frac{6.66 T b^3}{P F_u}} = \sqrt{\frac{(6.66)(656.2 \#)(2')^3}{(140)(58,000 \text{ PSI})}} = 0.062"$$

SELECT LBX4x1/2 X 3'-4" LGS → NOTE: LENGTHS TO VARY; LOAD VARIES LINEARLY W/ LENGTH

∴ ANY LENGTH ≤ 3'-4" LOAD IS OK

CONSIDER 1/2" Ø SS HITCH W/ 3 W/ 2" EMBED & 20" SPACING & 6" MIN EDGE DIST

$$N_A = \frac{(2,150 \#)}{(1.6)} = 1,343 \#$$

$$V_A = \frac{(2,375 \#)}{(1.6)} = 1,484 \#$$

$$\Rightarrow \left(\frac{328.1 \#}{1,343 \#} \right)^{1/5} + \left(\frac{656.2 \#}{1,484 \#} \right)^{1/5} = 0.352 < 1.0 \text{ OK}$$

$$F_{AN} = 1.0 \text{ FOR } S \geq 6"$$

$$F_{RN} = 1.0 \text{ FOR } C \geq 6"$$

$$F_{AV} = 1.0 \text{ FOR } S \geq 12"$$

$$F_{RV} = 1.0 \text{ FOR } C \geq 4"$$

$$F_{R1V} = 1.0 \text{ FOR } C \geq 4"$$

$$F_{1V} = 1.0 \text{ FOR } t \geq 6"$$

NO ADJUSTMENTS NECESSARY

NOTE: 1'-6" IS SHORTEST

ANGLE. REVISE TO LOCATE BOLTS 3" TO

ANGLE ENDS FOR 12" ≤ S ≤ 34"

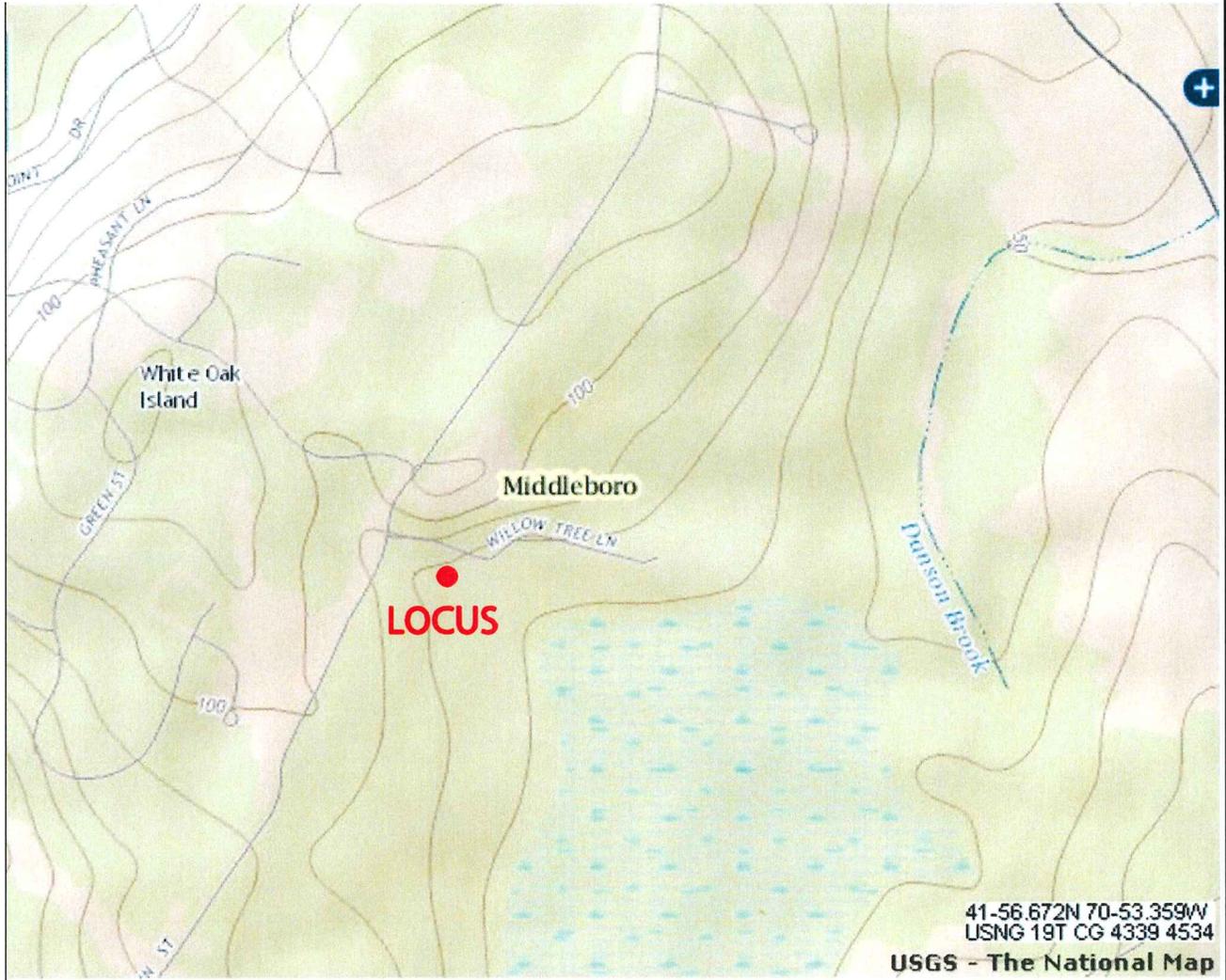
S_{MIN} = 10" @

ADJACENT ANGLES

∴ F_{AV} = 0.94 →

ANCHORS STILL OK

Figures



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civil & structural engineering • land surveying
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10 MAIN STREET
LAKEVILLE, MA 02347-1674
TEL: (508) 923-1010
FAX: (508) 923-6309

WOBBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

PROJECT:

**STORMWATER MITIGATION
OFF PLAIN ST
MIDDLEBOROUGH MA**

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USGS TOPOGRAPHICAL MAP

PROJECT NO. 1830-03 DATE: 03-21-2016

SCALE: NONE DWG. NAME: USGS AND AERIAL

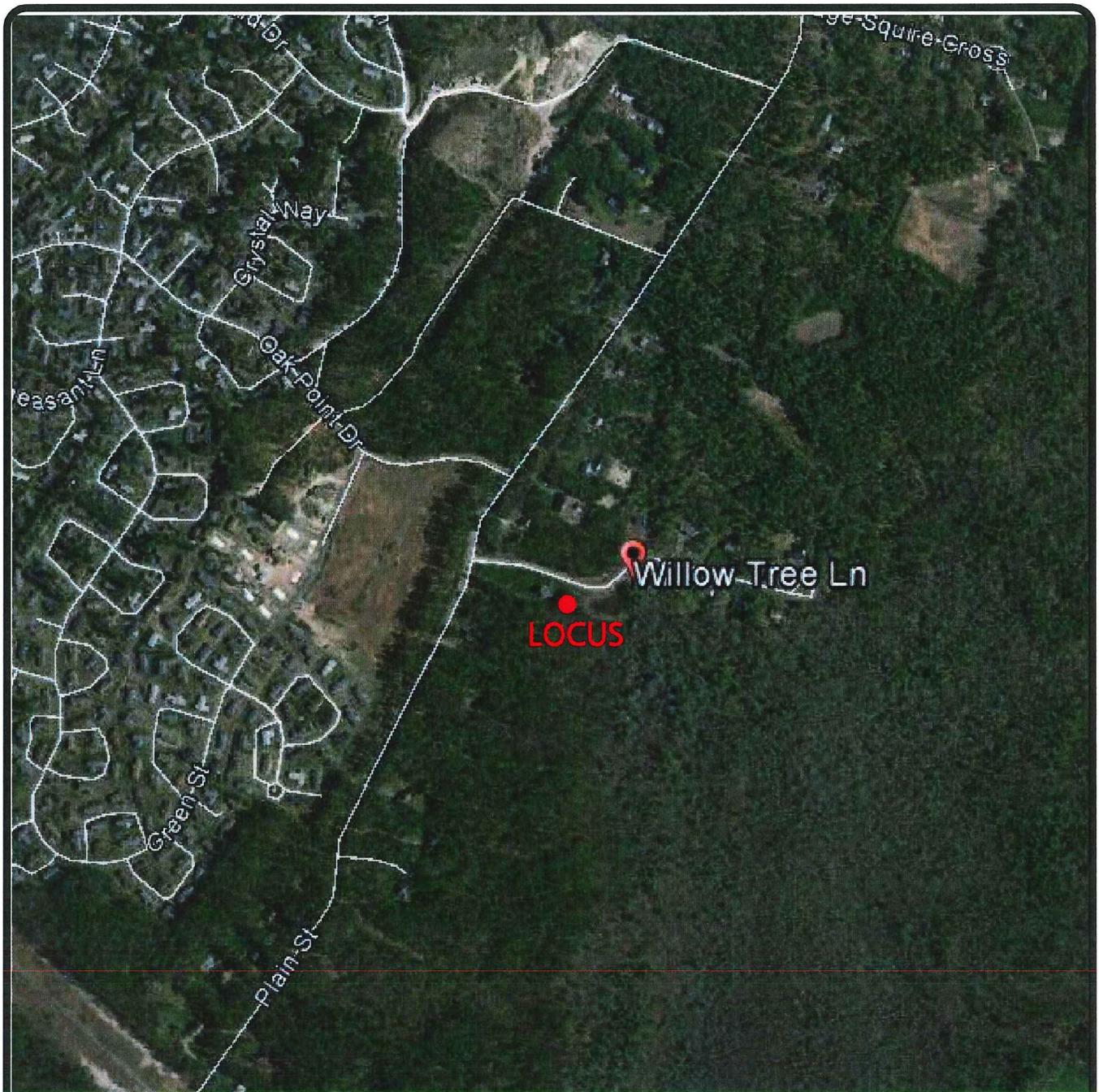
DESIGNED BY: SMW CHECKED BY: PM

APPLICANT/OWNER: TOWN OF MIDDLEBOROUGH DPW

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SHEET No.

FIG-1



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PROJECT:

**STORMWATER MITIGATION
OFF PLAIN ST
MIDDLEBOROUGH MA**

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AERIAL PHOTOGRAPH

PROJECT NO. 1830-03 DATE: 03-21-2016

SCALE: NONE DWG. NAME: ^{USGS} AND AERIAL

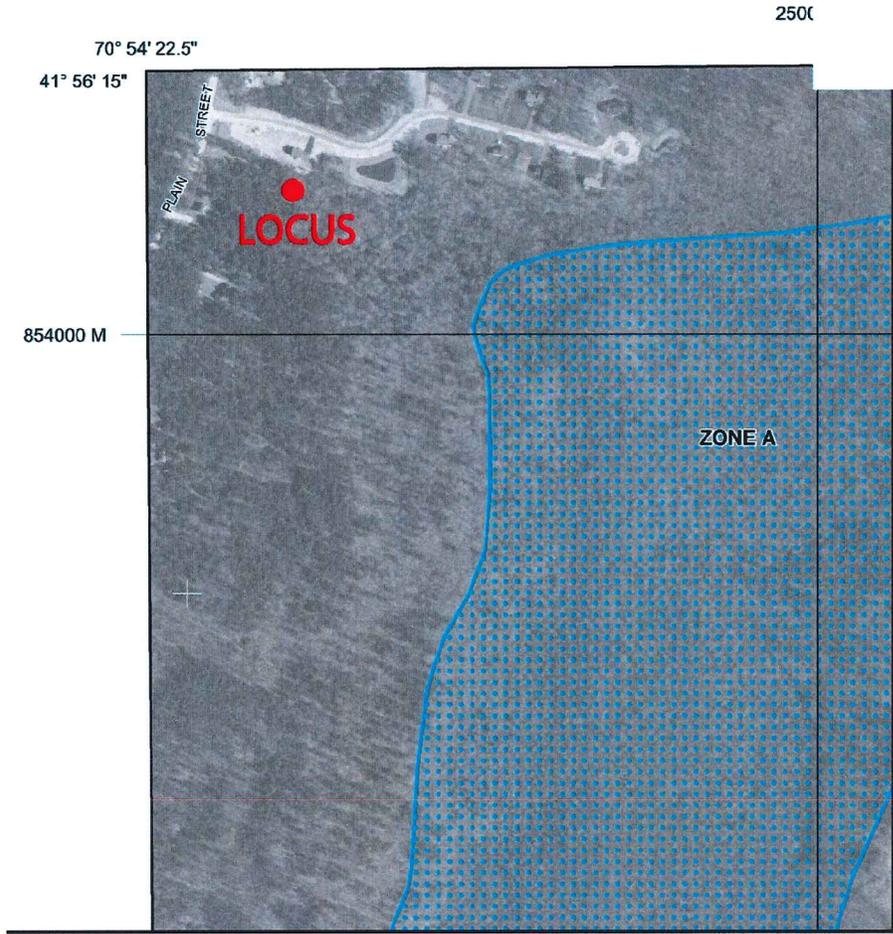
DESIGNED BY: SMW CHECKED BY: PM

APPLICANT/OWNER: TOWN OF MIDDLEBOROUGH DPW

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SHEET No.

FIG-2



PANEL 0317J

FIRM
FLOOD INSURANCE RATE MAP
PLYMOUTH COUNTY,
MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 317 OF 650
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MIDD_BOROUGH, TOWN OF	25275	0317	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
25023C0317J
EFFECTIVE DATE
JULY 17, 2012

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

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PROJECT:
**STORMWATER MITIGATION
OFF PLAIN ST
MIDDLEBOROUGH MA**
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FEMA FLOOD MAP	
PROJECT NO. 1830-03	DATE: 03-21-2016
SCALE: NONE	DWG. NAME: AND AERIAL
DESIGNED BY: SMW	CHECKED BY: PM

APPLICANT/OWNER: TOWN OF MIDDLEBOROUGH DPW

THIS DRAWING HAS BEEN PREPARED IN ELECTRONIC FORMAT. CLIENT/CLIENT'S REPRESENTATIVE OR CONSULTANT MAY BE PROVIDED COPIES OF DRAWINGS AND SPECIFICATIONS ON MAGNETIC MEDIA FOR HIS/HER INFORMATION AND USE FOR SPECIFIC APPLICATION TO THIS PROJECT. DUE TO THE POTENTIAL THAT THE MAGNETIC INFORMATION MAY BE MODIFIED UNINTENTIONALLY OR OTHERWISE, ALLEN & MAJOR ASSOCIATES, INC. MAY REMOVE ALL INDICATION OF THE DOCUMENT'S AUTHORSHIP ON THE MAGNETIC MEDIA. PRINTED REPRESENTATIONS OF THE DRAWINGS AND SPECIFICATIONS ISSUED SHALL BE THE ONLY RECORD COPIES OF ALLEN & MAJOR ASSOCIATES, INC.'S WORK PRODUCT.

SHEET No.
FIG-3



Legend

NavTeq MA Other Streets Names

Major MassDOT Routes

-  Interstate Highways
-  US Roads
-  State

Massachusetts Towns



NHESP Estimated Habitats of Rare Wildlife



NHESP Priority Habitats of Rare Species



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PROJECT:

**STORMWATER MITIGATION
OFF PLAIN ST
MIDDLEBOROUGH MA**

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NATURAL HERITAGE MAP

PROJECT NO. 1830-03	DATE: 03-21-2016
SCALE: NONE	DWG. NAME: <small>USGS</small> AND AERIAL
DESIGNED BY: SMW	CHECKED BY: PM

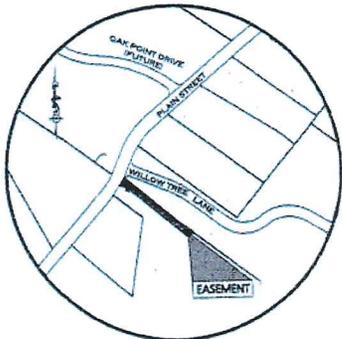
APPLICANT/OWNER: TOWN OF MIDDLEBOROUGH DPW

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SHEET No.

FIG-4

Plain Street Drainage Easement

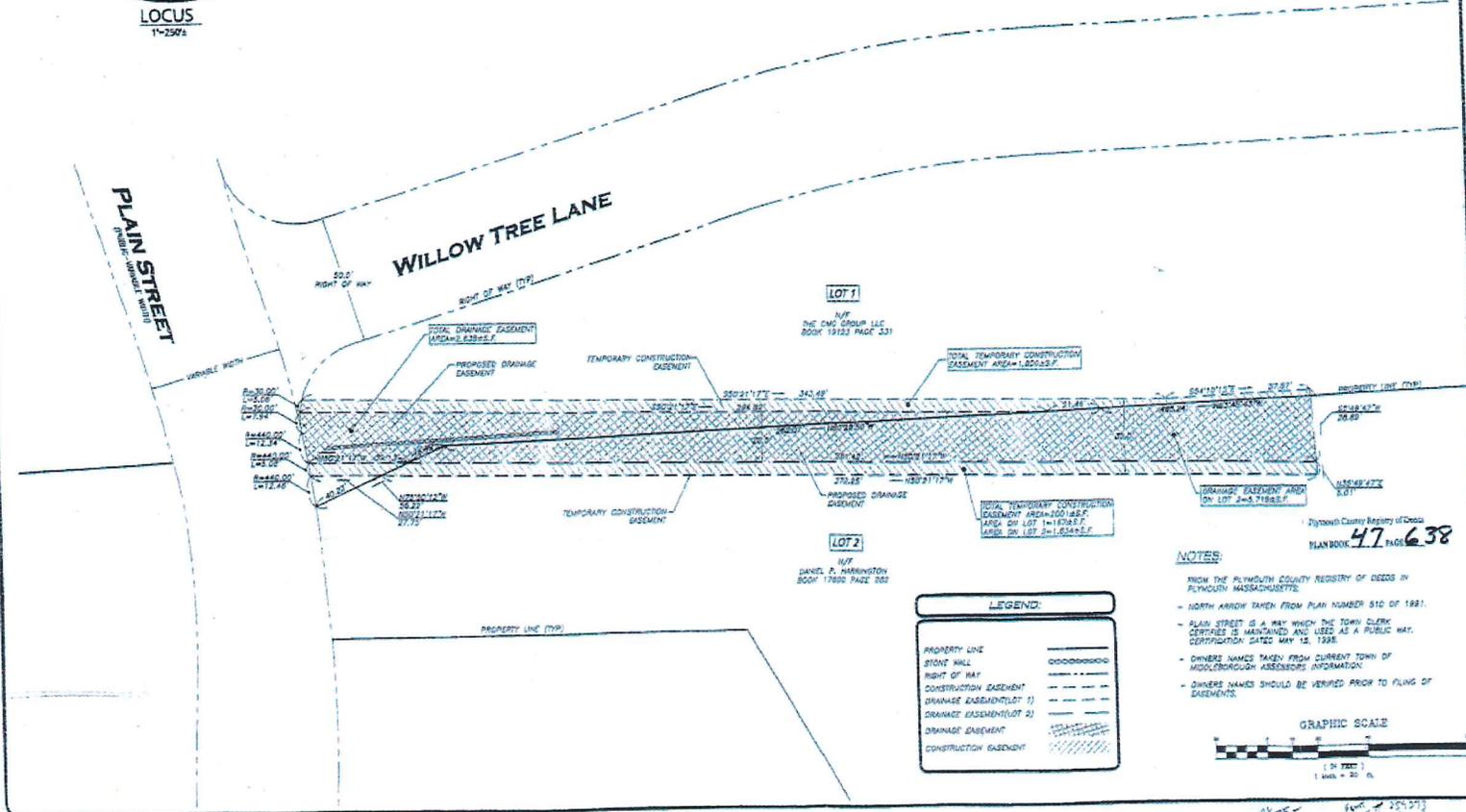


LOCUS
11-2594

PLYMOUTH COUNTY REGISTER
DEC 18 2003
12-14-03
RECORDED

'03-942

FOR REFS ONLY



LEGEND:

PROPERTY LINE	----
STONE WALL	-----
RIGHT OF WAY	-----
CONSTRUCTION EASEMENT	-----
DRAINAGE EASEMENT (LOT 1)	-----
DRAINAGE EASEMENT (LOT 2)	-----
DRAINAGE EASEMENT	-----
CONSTRUCTION EASEMENT	-----

NOTES:
FROM THE PLYMOUTH COUNTY REGISTER OF DEEDS IN PLYMOUTH MASSACHUSETTS
- NORTH ARROW TAKEN FROM PLAN NUMBER 810 OF 1981
- PLAIN STREET IS A WAY WHEN THE TOWN CLERK CERTIFICATE IS MAINTAINED AND USED AS A PUBLIC WAY. CERTIFICATION DATED MAY 12, 1988.
- DIMENS NAMES TAKEN FROM CURRENT TOWN OF MIDDLEBOROUGH ASSESSORS INFORMATION
- DIMENS NAMES SHOULD BE VERIFIED PRIOR TO FILING OF EASEMENTS.



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS DATED JANUARY 1, 1990 AND REVISED JANUARY 12, 1988.

ADDITIONAL TO NOTES AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP AND THE LINES OF THE STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED AND NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW STREETS OR WAYS ARE SHOWN.

THE ABOVE CERTIFICATION IS INTENDED TO MEET REQUIREMENTS OF DEEDS RECORDING FOR THE REGISTRATION OF PLANS AND IS NOT CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJACENT PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF MIDDLEBOROUGH ASSESSOR'S INFORMATION.

THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

PROFESSIONAL REGISTERED FOR ALLEN & MAJOR ASSOCIATES, INC.

REV.	DATE	DESCRIPTION
1	10/29/07	VARIOUS REVISIONS

PROJECT: TOWN OF MIDDLEBOROUGH 10 NICKERSON AVENUE MIDDLEBOROUGH, MA 02346

PROJECT: PLAIN STREET IMPROVEMENTS

PREPARED FOR: ALLEN & MAJOR ASSOCIATES, INC.

PROJECT NO. 1079-07 DATE: OCTOBER 1, 2007

SCALE: 1/4"=20' DRAWING NAME: 01079-07

DESIGNED BY: AIR CHECKED BY: EJK

PROJECTED BY: M

ALLEN & MAJOR ASSOCIATES, INC.
1500 NICKERSON AVENUE
MIDDLEBOROUGH, MASSACHUSETTS 02346
TEL: (508) 948-8888 FAX: (508) 948-8889

THIS DRAWING HAS BEEN PREPARED IN ELECTRONIC FORMAT. CLIENTS ARE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE PROPOSED LINES OF OWNERSHIP AND DIMENSIONS ON ALL PLANS. BEFORE ANY CONSTRUCTION BEGINS, THE CLIENT SHOULD OBTAIN A PROFESSIONAL SURVEY OF THE PROPERTY TO VERIFY THE ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. THE CLIENT'S RESPONSIBILITY FOR VERIFYING THE ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING IS NOT WAIVED BY THE PREPARATION OF THIS DRAWING BY ALLEN & MAJOR ASSOCIATES, INC. THE CLIENT'S RESPONSIBILITY FOR VERIFYING THE ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING IS NOT WAIVED BY THE PREPARATION OF THIS DRAWING BY ALLEN & MAJOR ASSOCIATES, INC. THE CLIENT'S RESPONSIBILITY FOR VERIFYING THE ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING IS NOT WAIVED BY THE PREPARATION OF THIS DRAWING BY ALLEN & MAJOR ASSOCIATES, INC.

DRAWING TITLE: PROPOSED DRAINAGE EASEMENT PLAN

SHEET NO. 1 OF 1

DRAWING NO. EA-1

107-942

259374
Received & Recorded
PLYMOUTH COUNTY
REGISTRY OF DEEDS
16 DEC 2003 09:54AM
JOHN R. BUCKLEY, JR.
REGISTER
Bk 27226 Pg 129-130

PL# 03-942

EASEMENT

The CMG Group LLC, a Massachusetts limited liability company, with a regular place of business in Sharon, Massachusetts in consideration of One Dollar (\$1.00) paid grant to the Town of Middleborough, a municipal corporation with a regular place of business at Town Hall, Nickerson Avenue, Middleboro, Massachusetts, with QUITCLAIM COVENANTS, the following easements:

1. Drainage Easement:

The right and easement to use an area of land on and off the easterly side of Plain Street in Middleborough, Massachusetts shown as "Proposed Drainage Easement" on a plan entitled "Proposed Drainage Easement Plan" dated October 1, 2003, revised October 2, 2003, prepared by Allen & Major Associates, Inc. and recorded herewith. The Proposed Drainage Easement area (the "drainage easement area") is part of Lot 1 on said plan and contains 2635 square feet of land more or less. The use of the drainage easement area shall be for the purpose of installation of a subsurface drainage pipe in the drainage easement area, to flow road drainage in and through the subsurface drainage pipe and for maintenance, repair and replacement of the subsurface drainage pipe.

2. Construction Easement

The right and easement to use two (2) areas of land on and off the easterly side of Plain Street in Middleborough, Massachusetts shown as "Temporary Construction Easement" on said plan recorded herewith. The Temporary Construction Easement areas (the "construction easement areas") are part of

Please return to:
Daniel F. Murray
Decas, Murray & Decas (box)

Lot 1 on said plan and contain a total of 1967 square feet of land more or less. The use of the construction easement areas shall be for the purpose of installation, maintenance, repair, and replacement of the subsurface drainage pipe in the drainage easement area described above.

The above described easements shall be appurtenant to Plain Street as layed out by the grantees' Board of Selectmen and taken as a public way by an order of taking recorded in the Plymouth County Registry of Deeds in Book 24197, Page 175.

See the deed recorded in the Plymouth County Registry of Deeds in Book 19123, Page 331 for title.

WITNESS the hand and seal of the undersigned this 24th day of November, 2003.

The CMG Group LLC, a Massachusetts limited liability company

By: Candace M. Gordon, Manager

COMMONWEALTH OF MASSACHUSETTS

Plymouth, ss.

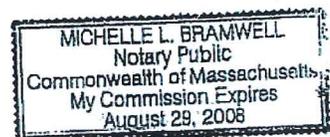
November 24, 2003

Then personally appeared the above named Candace M. Gordon and acknowledged the foregoing instrument to be the free act and deed of The CMG Group LLC, before me,

Michelle L. Bramwell

Notary Public:

My commission expires:



259373
Received & Recorded
PLYMOUTH COUNTY
REGISTRY OF DEEDS
16 DEC 2003 09:54AM
JOHN R. BUCKLEY, JR.
REGISTER
Bk 27226 Pg 127-128

EASEMENT

I, Daniel P. Harrington, of Middleborough, Plymouth County, Massachusetts in consideration of One Dollar (\$1.00) paid grant to the Town of Middleborough, a municipal corporation with a regular place of business at Town Hall, Nickerson Avenue, Middleboro, Massachusetts, with QUITCLAIM COVENANTS, the following easements:

1. Drainage Easement:

The right and easement to use an area of land on and off the easterly side of Plain Street in Middleborough, Massachusetts shown as "Proposed Drainage Easement" on a plan entitled "Proposed Drainage Easement Plan" dated October 1, 2003, revised October 2, 2003, prepared by Allen & Major Associates, Inc. and recorded herewith. The Proposed Drainage Easement area (the "drainage easement area") is part of Lot 2 on said plan and contains 5719 square feet of land more or less. The use of the drainage easement area shall be for the purpose of installation of a subsurface drainage pipe and stone rip-rap at the outlet of the drainage pipe in the drainage easement area, to flow road drainage in and through the subsurface drainage pipe and stone rip-rap and for maintenance, repair and replacement of said subsurface drainage pipe and stone rip-rap.

2. Construction Easement

The right and easement to use an area of land off the easterly side of Plain Street in Middleborough, Massachusetts shown as "Temporary Construction Easement" on said plan recorded herewith. The Temporary Construction Easement area ("the construction easement area") is part of Lot 2 on said plan

Please return to:
Daniel F. Murray
Decas, Murray & Decas (box)

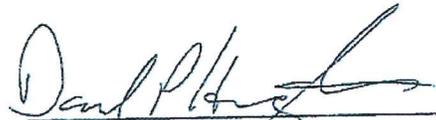
Plat # 03-942

and contains 1834 square feet of land more or less. The use of the construction easement area shall be for the purpose of installation, maintenance, repair and replacement of the subsurface drainage pipe and stone rip-rap in the drainage easement area described above.

The above described easements shall be appurtenant to Plain Street as layed out by the grantees' Board of Selectmen and taken as a public way by an order of taking recorded in the Plymouth County Registry of Deeds in Book 24197, Page 175.

See the deed recorded in the Plymouth County Registry of Deeds in Book 17600, Page 282 for title.

WITNESS my hand and seal this 5th day of December, 2003.

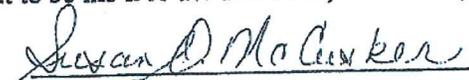

Daniel P. Harrington

COMMONWEALTH OF MASSACHUSETTS

Plymouth, ss

December 5, 2003

Then personally appeared the above named Daniel P. Harrington and acknowledged the foregoing instrument to be his free act and deed, before me,


Notary Public:

My commission expires:

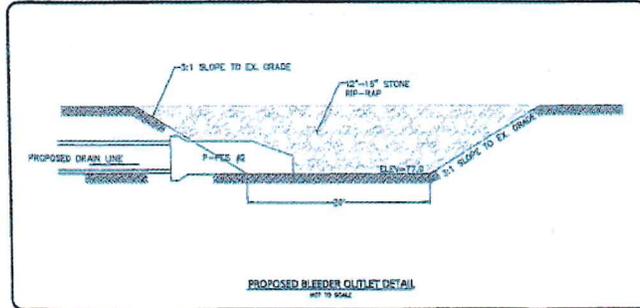
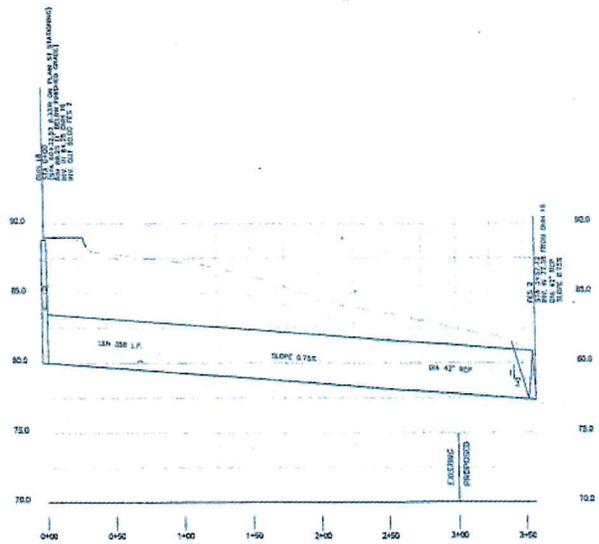
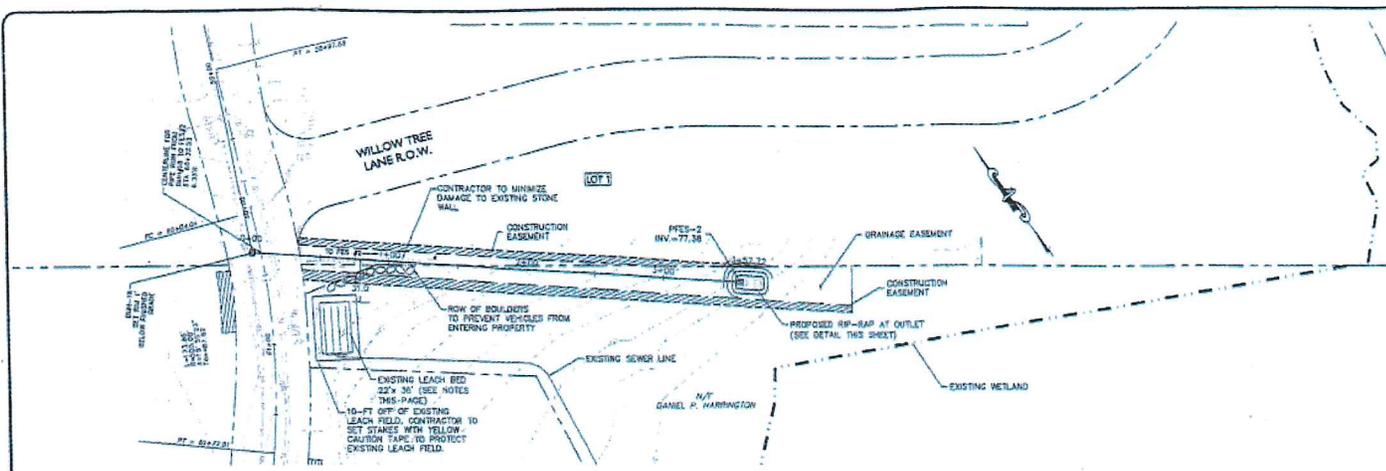
SUSAN O. McCUSKER
Notary Public
My Commission Expires
November 3, 2006

Plain Street Design Documents

ISSUED FOR BID
APRIL 25, 2003

NOTE: 1) DRIVEWAY GRADING BEYOND THE 8 FT APRON SHALL BE GRADED AT NOT MORE THAN 1:10 TO EXISTING GRADE.
2) ANY HYDRANT WITHIN 4 FT. OF TRAVELED WAY SHALL BE REMOVED AND RESET.
3) ANY SLOPES GRADED FROM SHOULDER TO RIGHT OF WAY WITH A SLOPE GREATER THAN 3:1 SHALL BE 3:1-SLOPED.
4) ALL EXISTING WATER AND GAS GATES SHALL BE RAISED TO GRADE.

- LEGEND
- EXISTING UTILITY PIPE
 - PROPOSED UTILITY PIPE
 - EXISTING FIRE HYDRANT
 - PROPOSED FIRE HYDRANT (MARK REMOVED AND RESET)
 - EXISTING DRAIN MANHOLE
 - EXISTING STORM DRAIN MANHOLE
 - PROPOSED STORM MANHOLE
 - EXISTING WATER GATE MARK
 - EXISTING MAINT. CONTROL
 - EXISTING MAINT. CONTROL
 - PROPOSED MAINT. CONTROL
 - EXISTING WATER
 - EXISTING GAS
 - PROPERTY LINE
 - PROPOSED RIGHT OF WAY
 - PROPOSED CURB (SEE MARK)
 - PROPOSED SIDE OF PAVEMENT
 - EXISTING SIDEWALK
 - EXISTING CURB LINE
 - CONSTRUCTION EASEMENT



NOTES:
1. HYDROSEED ALL DISTURBED AREAS
2. LOCATE AND FLAG EXISTING LEACHING AREA. ALL CONSTRUCTION VEHICLES ARE PROHIBITED FROM WORKING, TRAVELING, PARKING, OR DISTURBING THIS AREA IN ANY WAY.

REV.	DATE	DESCRIPTION
1	09-25-03	REVISED OUTLET

PREPARED FOR:
TOWN OF MIDDLEBOROUGH
10 NICKERSON AVENUE
MIDDLEBOROUGH, MA 02346

PROJECT:
PLAIN STREET IMPROVEMENTS

PROJECT NO. 1078-97 DATE: APRIL 25, 2002
SCALE: AS NOTED DWG. NAME: C-1078-97

DESIGNED BY: JF CHECKED BY: TJOHANN



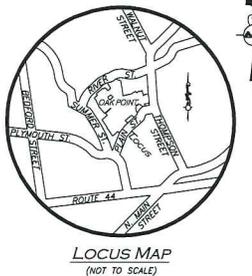
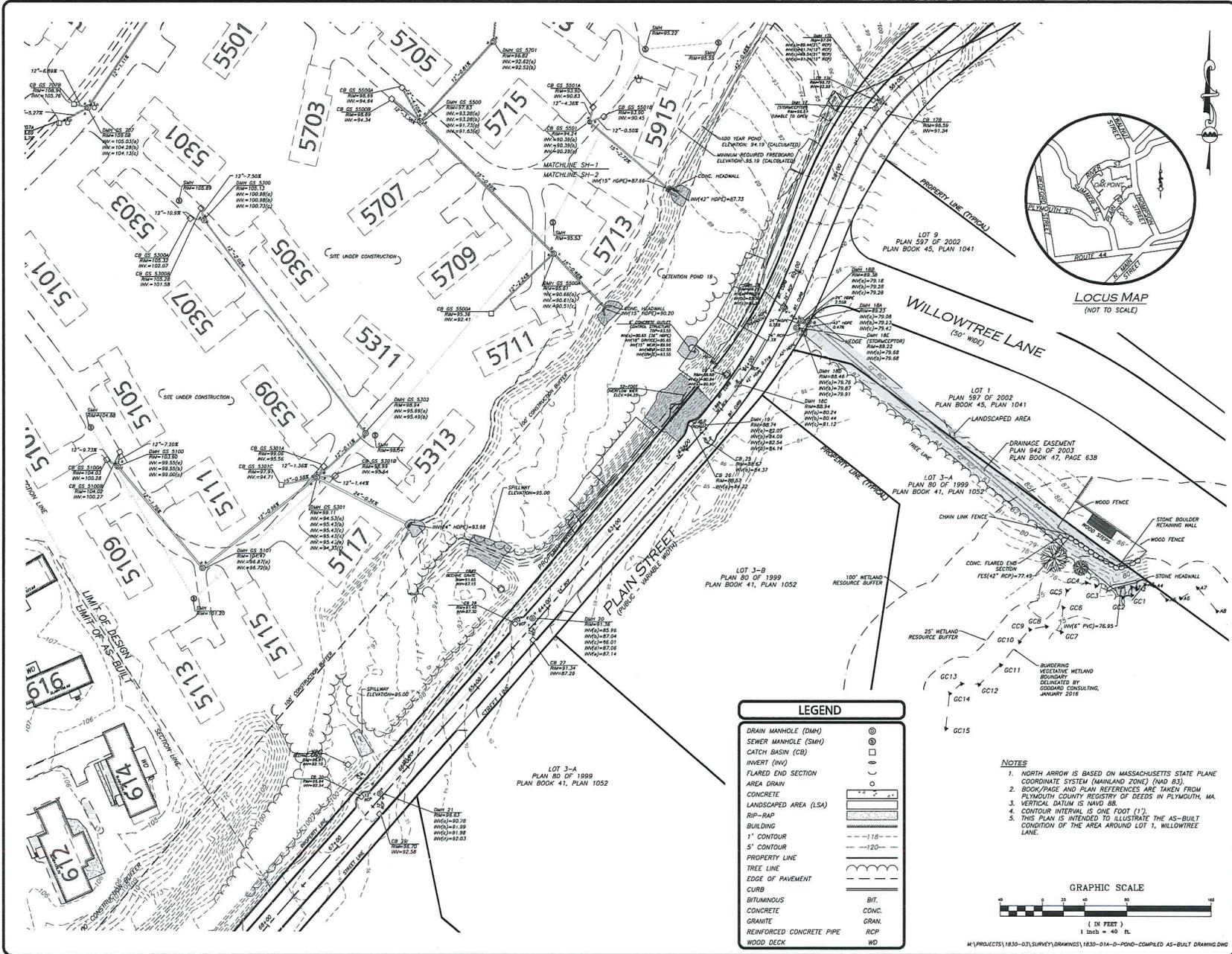
130 CONGRESS ROAD
720 BOX 213
MIDDLEBOROUGH, MA 02346
TEL: 508-925-1965
FAX: 508-925-0387

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DRAWING TITLE: PLAN & PROFILE
STA 60+30 TO FES#2

SHEET No. PR-7
SCALING No. 11 of 14

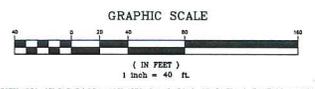
***Allen & Major Associates, Inc. Site Development Drawings dated
March 21, 2016***



LEGEND

DRAIN MANHOLE (DMH)	⊙
SEWER MANHOLE (SMH)	⊙
CATCH BASIN (CB)	□
FLARED END SECTION	⌒
AREA DRAIN	—
CONCRETE	▨
LANDSCAPED AREA (LSA)	▨
RIP-RAP	▨
BUILDING	▨
1' CONTOUR	-18-
5' CONTOUR	-120-
PROPERTY LINE	—
TREE LINE	—
EDGE OF PAVEMENT	—
CURB	—
BITUMINOUS	BIT.
CONCRETE	CONC.
GRANITE	GRAN.
REINFORCED CONCRETE PIPE	RCP
WOOD DECK	WD

- NOTES**
- NORTH ARROW IS BASED ON MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
 - BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM PLYMOUTH COUNTY REGISTRY OF DEEDS IN PLYMOUTH, MA.
 - VERTICAL DATUM IS NAVD 88.
 - CONTOUR INTERVAL IS ONE FOOT (1').
 - THIS PLAN IS INTENDED TO ILLUSTRATE THE AS-BUILT CONDITION OF THE AREA AROUND LOT 1, WILLOWTREE LANE.



PROFESSIONAL LAND SURVEYOR
FOR ALLEN & MAJOR ASSOCIATES, INC.

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV.	DATE	DESCRIPTION
APPLICANT/TOWNSHIP:		
TOWN OF MIDDLEBOROUGH DEPARTMENT OF PUBLIC WORKS 48 WAREHAM ST MIDDLEBOROUGH, MA 02346		
PROJECT:		
STORMWATER MITIGATION PLAN OFF PLAIN STREET MIDDLEBOROUGH, MA		
PROJECT NO.	1830-03	DATE: 03/21/2016
SCALE:	AS NOTED	DWG. NAME: NOI DESIGN
DESIGNED BY:	RJC/KAC	CHECKED BY: KJM/PLC
PREPARED BY:		

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering • land surveying
environmental • costumer • landscape architecture
www.allenmajor.com

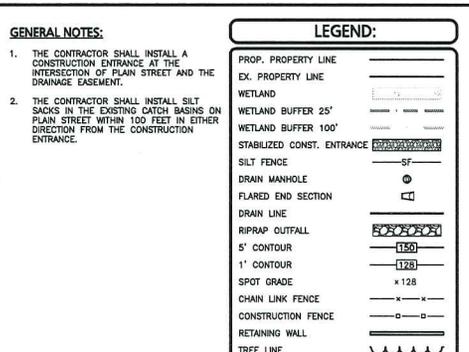
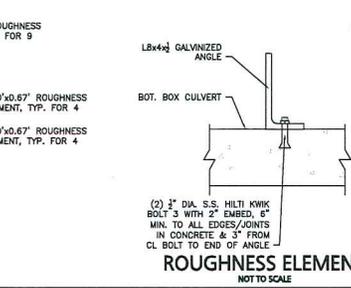
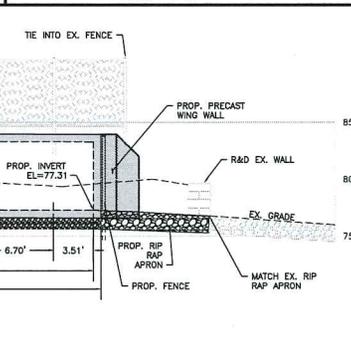
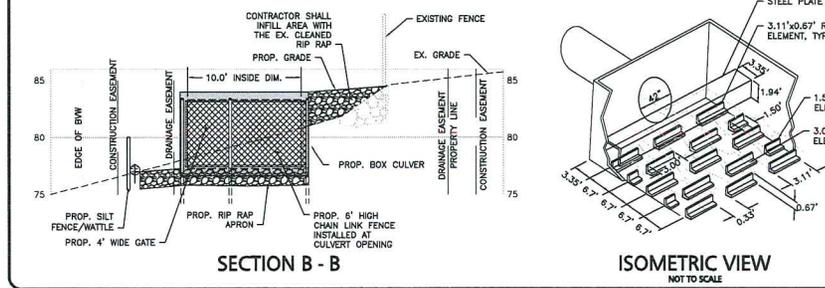
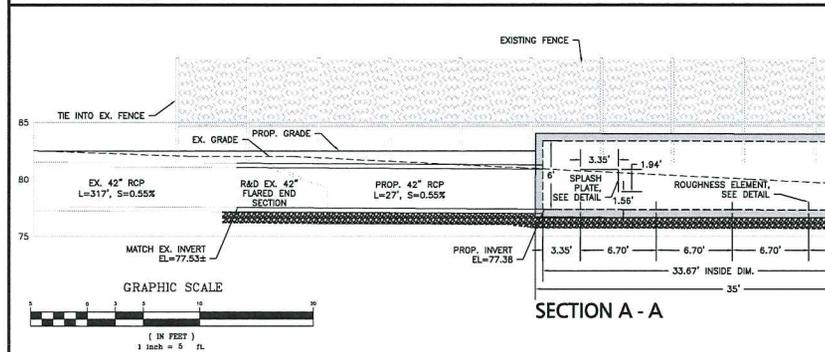
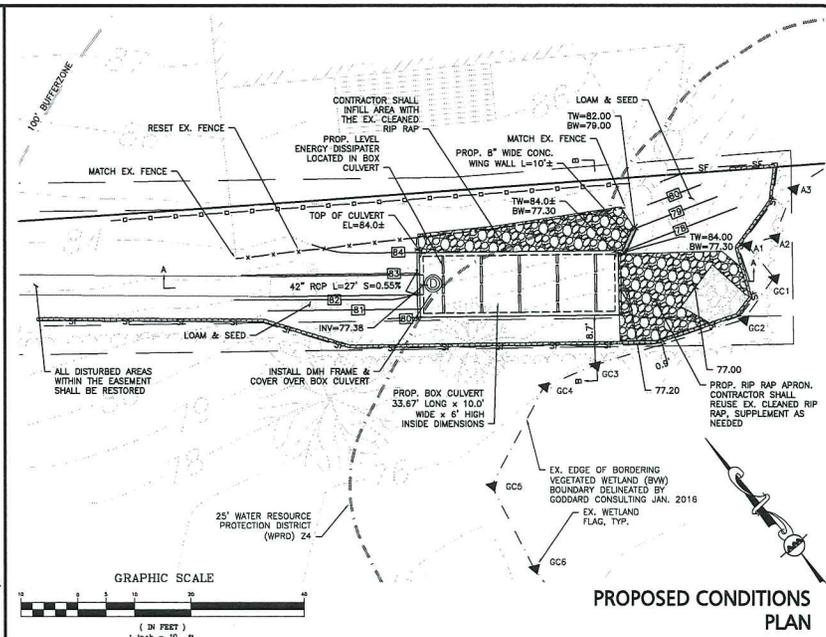
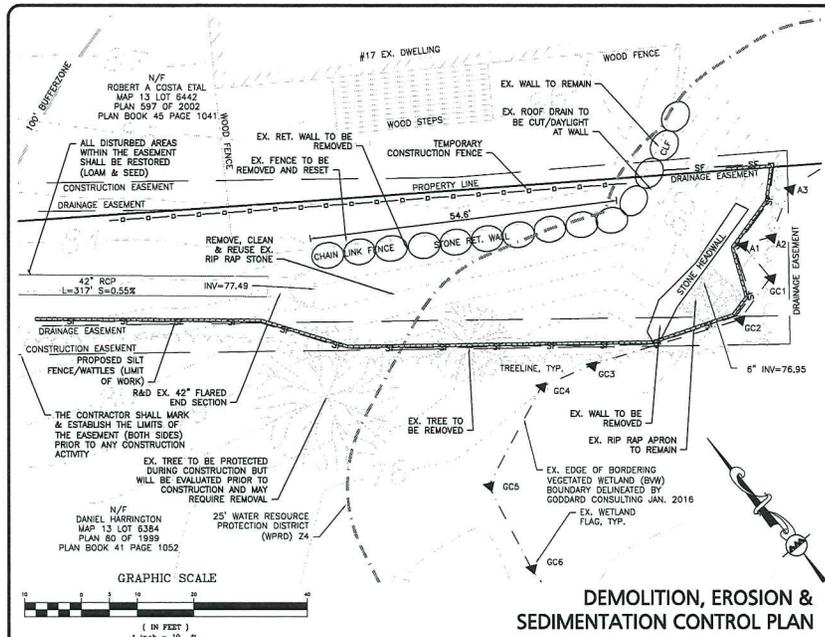
18 MAIN STREET
LAKEVILLE, MA 02447-1074
PHONE: (508) 928-1010
FAX: (508) 928-8909

WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE: **EXISTING CONDITIONS PLAN** SHEET NO. **E-1**

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GENERAL NOTES:

- THE CONTRACTOR SHALL INSTALL A CONSTRUCTION ENTRANCE AT THE INTERSECTION OF PLAIN STREET AND THE DRAINAGE EASEMENT.
- THE CONTRACTOR SHALL INSTALL SILT SACKS IN THE EXISTING CATCH BASINS ON PLAIN STREET WITHIN 100 FEET IN EITHER DIRECTION FROM THE CONSTRUCTION ENTRANCE.

LEGEND:

PROP. PROPERTY LINE	---
EX. PROPERTY LINE	---
WETLAND	--- (wavy)
WETLAND BUFFER 25'	---
WETLAND BUFFER 100'	---
STABILIZED CONST. ENTRANCE	--- (hatched)
SILT FENCE	--- (dashed)
DRAIN MANHOLE	⊙
FLARED END SECTION	⊞
DRAIN LINE	---
RIPRAP OUTFALL	--- (hatched)
5' CONTOUR	150
1' CONTOUR	128
SPOT GRADE	x128
CHAIN LINK FENCE	x-x-x
CONSTRUCTION FENCE	--- (dashed)
RETAINING WALL	---
TREE LINE	---

PROFESSIONAL ENGINEER FOR
 ALLEN & MAJOR ASSOCIATES, INC.

REV.	DATE	DESCRIPTION

APPLICANT OWNER:
 TOWN OF MIDDLEBOROUGH
 DEPARTMENT OF PUBLIC WORKS
 48 WAREHAM ST
 MIDDLEBOROUGH, MA 02346

PROJECT:
 STORMWATER MITIGATION PLAN
 OFF PLAIN STREET
 MIDDLEBOROUGH, MA

PROJECT NO. 1830-03 DATE: 03/21/2016
 SCALE: AS NOTED DWG. NAME: NOI DESIGN
 DESIGNED BY: PGM CHECKED BY: PLC

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
 civil & structural engineering & land surveying
 environmental consulting landscape architecture
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DRAWING TITLE: DRAINAGE MODIFICATION PLAN
 SHEET NO. C-1

GENERAL NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS AT NO ADDITIONAL COST.
2. ALL SITE WORK DONE FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE SITE PLANS AND SITE WORK SPECIFICATIONS FOR CONSTRUCTION.
3. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
4. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS TO BE PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THE STATE OF MASSACHUSETTS AT THE CONTRACTOR'S EXPENSE.
5. ALL DISTURBED AREAS SHALL BE MAINTAINED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, MA DEP, AND THE RESTORE AND REUSE PLAN OF THE MIDDLEBOROUGH CONSERVATION COMMISSION.
6. ALL APPLICABLE PERMITS AND AN APPROVED SET OF PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRECONSTRUCTION MEETING WITH THE APPROPRIATE TOWN DEPARTMENTS, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.
7. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAG MEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROLS SHALL BE IMPLEMENTED AND OPERATED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.
8. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.
9. ALL PERMITS AND APPROVALS NECESSARY FROM AGENCIES GOVERNING THE WORK SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR EARTHWORK OPERATIONS. SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY PER ON SITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR REGULATORY AGENCIES HAVING JURISDICTION AT NO ADDITIONAL COST TO THE OWNER.
11. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST.
12. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.
13. DISPOSAL OF ALL DEMOLISHED MATERIALS INCLUDING EXISTING MISC. CONSTRUCTION DEBRIS FILL IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS AT NO ADDITIONAL COST.
14. ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER TREATMENT ARE TO RECEIVE SIX INCHES (6") MINIMUM OF TOPSOIL & SEED, AND BE MAINTAINED UNTIL ESTABLISHED & ACCEPTED.
15. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNALS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF MIDDLEBOROUGH GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.
17. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AND DISCONNECTION AT EXISTING UTILITY.
18. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUND/BREAK.

20. THE CONTRACTOR SHALL ADHERE TO ALL PERMIT CONDITIONS PROVIDED BY ALL GOVERNING AGENCIES AT NO ADDITIONAL COSTS. THIS INCLUDES BUT IS NOT LIMITED TO DEMOLITION PERMITS, PLUMBING, GAS, AND ELECTRICAL PERMITS.
21. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY DISPOSE OF AND ABATE ALL BUILDING MATERIALS OR HAZARDOUS BUILDING MATERIALS ONSITE IN ACCORDANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS AND REGULATIONS AT NO ADDITIONAL COST TO THE OWNER.
22. DURING EXCAVATION, ANY EXISTING EARTH CUT MATERIALS THAT DOES NOT MEET THE ORDINARY FILL SPECIFICATIONS OR LOAM SPECIFICATIONS AND CANNOT BE REUSED SHALL BE REMOVED OFFSITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS. MATERIAL WHICH DOES NOT MEET THE SPECIFICATION INCLUDES ALL BOLLIDERS, ROCKS, CONSTRUCTION DEBRIS, AND MISC. MATERIAL. PRIOR TO REUSE, CONTRACTOR TO PROVIDE TESTING REPORT OF SIEVE ANALYSIS TO ENGINEER FOR APPROVAL. CONTRACTOR CAN AMEND MATERIALS AND CONTINUE TO REUSE AS NECESSARY AT NO ADDITIONAL COST TO OWNER. AFTER AMENDING IF MATERIAL SILT DOES NOT MEET THE SPECIFICATIONS IT IS TO BE REMOVED FROM SITE AT NO ADDITIONAL COST TO THE OWNER AND IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

GRADING & DRAINAGE NOTES:

1. ALL GRADING OPERATIONS SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
2. IN LANDSCAPED AREAS THE TOP ELEVATION OF MANHOLES SHALL BE FLUSH WITH FINISH GRADE. THE TOP OF PAVED AREAS THE TOP ELEVATIONS OF MANHOLES SHALL MATCH FINISH GRADE.
3. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF CONSTRUCTION WORK IN THE AREA. REFER TO EROSION CONTROL PLAN.
4. TEMPORARY STRAW WATTLE PROTECTION AND/OR SILT SACK SHALL BE INSTALLED AND MAINTAINED AT EXISTING DRAINAGE STRUCTURES DURING CONSTRUCTION, TO PRECLUDE SEDIMENT LADEN RUNOFF FROM ENTERING THE DRAINAGE SYSTEM.
5. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE.
6. IF ANY EXISTING UTILITY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST.
7. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE SIX INCHES (6") OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH CIVIL SPECIFICATIONS & DRAWINGS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
8. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.

MAINTENANCE:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A HEALTHY STAND OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. ALL SEDIMENT CONTROLS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE TUBULAR SEDIMENT CONTROLS WHEN IT REACHES HALF THE HEIGHT OF THE CONTROL MEASURE OR AS REQUESTED BY THE OWNER OR ENGINEER.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD AND ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

EROSION & SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH B.M.P. (BEST MANAGEMENT PRACTICES) PER THE E.P.A. 2012 CONSTRUCTION GENERAL PERMIT MANUAL AND MASSACHUSETTS EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS. ANY SUCH MODIFICATIONS FROM THE ABOVE MANUALS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER.
2. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND/OR FINISHED GRADED SHALL BE STABILIZED AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY (UNLESS THE TOWN HAS STRICTER REQUIREMENTS WHICH SHALL BE FOLLOWED) IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING OR MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF MULCH IS USED, STRAW MULCH SHALL BE APPLIED AT THE RATE OF 4 BALES PER 1,000 SQUARE FEET. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSED WATERWAYS AND IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.
3. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY OCTOBER 1ST OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEEDDED WITH A WINTER COVER CROP AT THE RATE OF 3 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSED WATERWAYS ON EXPOSED SLOPES OF 15% AND ANY DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.
4. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDDED WITH RYE AT 3 LBS PER 1,000 SQUARE FOOT AND MULCHED, AND REUSE AS REQUIRED. SILTATION FENCING SHALL BE PLACED DOWN GRADIENT FROM STOCKPILED LOAM. LOAM SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY THE OWNER AND ENGINEER.
5. ALL FILTER BARRIERS, SILT SACKS, AND EROSION CONTROL BERMS SHALL BE INSTALLED ACCORDING TO THE MBTA ROAD SITE PREPARATION, EROSION CONTROL AND DEMOLITION PLAN. THESE SHALL BE MAINTAINED DURING DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERMS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT, MAINTAINED AND CLEANED UNTIL ALL AREAS HAVE AT LEAST 85-90% WOODOUS PERENNIAL COVER OF GRASSES.
6. ADJACENT ROADS SHALL BE PERIODICALLY SWEEPED OR WASHED TO AVOID TRACKING MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. A WATERING TRUCK WILL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS.
7. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION BY THE USE OF STRAW BALE BARRIERS AROUND EACH INLET. SILT SACKS SHALL BE INSTALLED IN ALL DISTURBED BASIN. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85% WOODOUS PERENNIAL GROWTH.
8. AS APPLICABLE, EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISHED SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.
9. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS OPTION, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY MA DEP, THE ENGINEER AND THE MUNICIPALITY, AS AUTHORIZED BY THE OWNER. FAILURE TO COMPLY WITH THE OWNER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.
10. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED BY THE CONTRACTOR AND LOCATED IN THE CONTRACTOR'S FIELD OFFICE ONSITE. IN ADDITION TO THE NORMAL WEEKLY INSPECTIONS, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL OR RUNOFF EVENT, AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS.
11. IF ANY EVIDENCE OF SEDIMENTATION IS OBSERVED AT THE STORMWATER MANAGEMENT AREA INLETS, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE A PLAN TO THE ENGINEER TO REMOVE ANY ACCUMULATED SEDIMENT IN THESE AREAS. THE CONTRACTOR SHALL ALSO IMMEDIATELY PROVIDE ADDITIONAL ON SITE EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT FURTHER DEGRADATION OF THE AREA.
12. FOLLOWING THE TEMPORARY OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMI-MONTHLY TO ENSURE THE AREAS HAVE A MINIMUM OF 85-90% VEGETATION. SEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.
13. CONTRACTOR & ALL SITE SUBCONTRACTORS SHALL BE FAMILIAR WITH AND FOLLOW ALL APPROVED PERMITS AS CONDITIONS BY THE CONTRACTOR SHALL MAINTAIN A COPY OF ALL APPROVED PERMITS ONSITE, INCLUDING THE ORDER OF CONDITIONS FROM THE FRANKLIN CONSERVATION COMMISSION. ALL CONDITIONS & RECOMMENDATIONS WITHIN THE APPROVED PERMITS SHALL BE COMPLETED.
14. ALL EROSION MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE TOWN OF MIDDLEBOROUGH.
15. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
16. TOP OF STOCKPILES SHALL BE COVERED IN SUCH MANNER THAT STORMWATER DOES NOT INFILTRATE. THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

16. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK OR SIX MONTHS AFTER SOIL HAS BEEN DISTURBED WHICHEVER IS LESS.
19. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR, CLEANED AND REPAIRED OR REPLACED AS NECESSARY. INSPECTIONS SHALL TAKE PLACE WEEKLY AND BEFORE AND AFTER EACH 1/4" RAINFALL EVENT.
20. ALL PROPOSED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION UNTIL WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
21. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL HYALES AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER OR THE TOWN ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.
22. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL TOWN OF MIDDLEBOROUGH, MA DEP, EPA CONSTRUCTION GENERAL PERMIT STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE TOWN OF MIDDLEBOROUGH AND USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.
23. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED.
24. IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS: THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL EMPTY THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURES CAPACITY TO SETTLE AND FILTER FLOW OR ITS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL-VEGETATED BUFFER BY SHEET FLOW WHILE MAINTAINING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS OR STREAMS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.
25. INITIATE STABILIZATION IMMEDIATELY IF CONSTRUCTION WORK TEMPORARILY OR PERMANENTLY CEASES.
26. ALL DISCHARGES FROM POLLUTION SOURCES SUCH AS FUELS, WASTEWATER FROM WASH OUT OF CONCRETE, WASTEWATER FROM CLEAN OUT OF PAINTS, FORM RELEASE OILS, CURING COMPOUND AND OTHER CONSTRUCTION CHEMICALS, POLLUTANT USED FOR MAINTENANCE OF VEHICLES AND EQUIPMENT, SOAPS & SOLVENTS, TOXIC OR HAZARDOUS SUBSTANCES, CHEMICALS AND OILS FROM EQUIPMENT IS PROHIBITED. IF A POLLUTANT IS DISCHARGED IT NEEDS TO BE IMMEDIATELY CLEANED UP BY REMOVING THE CHEMICAL AND AFFECTED SOIL OR AREA OF SPILL FROM THE SITE. DO NOT HOSE DOWN AND SPREAD SPILLED ITEM. ALL CHEMICALS USED ON THE SITE SHALL BE IN LEAK-PROOF CONTAINERS STORED AWAY FROM SURFACE WATERS, STORMWATER INLETS, AND DRAINAGE MEASURES. SPILL KITS SHALL BE AVAILABLE ONSITE FOR EMERGENCY USE. THERE SHALL BE A SECONDARY CONTAINMENT OR ALL CHEMICALS IN ADDITION TO SPILL-PROOF CONTAINERS.
27. ALL SEDIMENT TRACKED ONTO ROADWAYS MUST BE REMOVED AT END OF EACH WORK DAY.
28. IF USING NON-VEGETATIVE STABILIZATION MEASURES, IT MUST BE COMPLETED NO LATER THAN 14 DAYS AFTER INITIATING STABILIZATION. ALL AREAS OF EXPOSED SOILS MUST BE COVERED.



PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

TOWN OF MIDDLEBOROUGH DEPARTMENT OF PUBLIC WORKS 48 WAREHAM ST MIDDLEBOROUGH, MA 02346

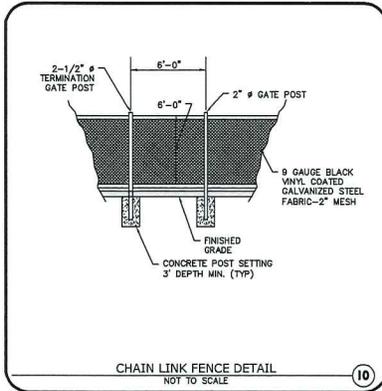
PROJECT: STORMWATER MITIGATION PLAN OFF PLAIN STREET MIDDLEBOROUGH, MA

PROJECT NO. 1830-03 DATE: 03/21/2016 SCALE: DWG. NAME: DESIGNED BY: CHECKED BY: PLC



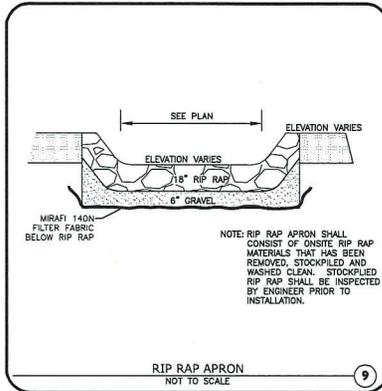
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DRAWING TITLE: SHEET NO. NOTES D-1



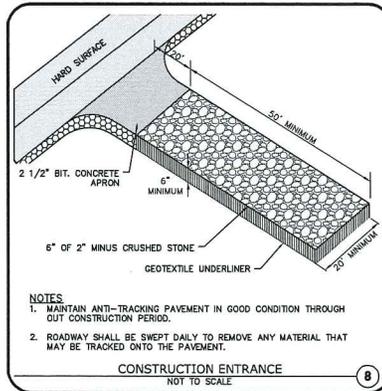
CHAIN LINK FENCE DETAIL
NOT TO SCALE

10



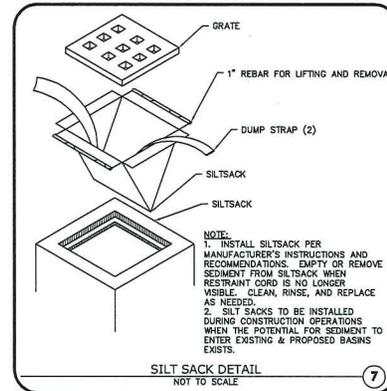
RIP RAP APRON
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9



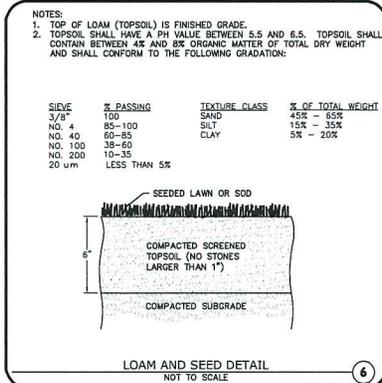
CONSTRUCTION ENTRANCE
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8



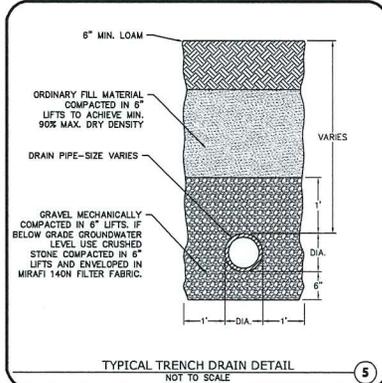
SILT SACK DETAIL
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7



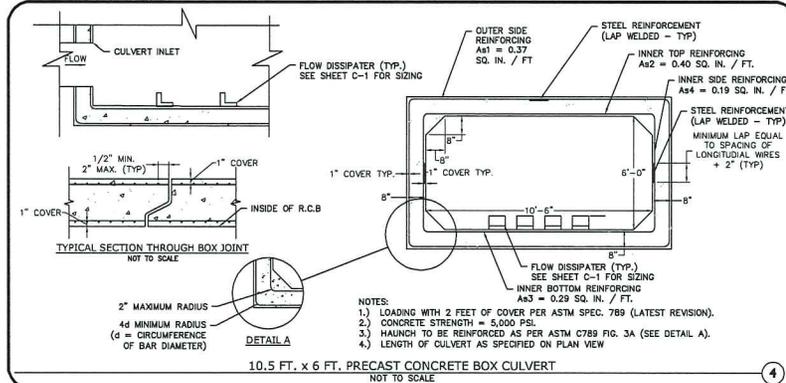
LOAM AND SEED DETAIL
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6



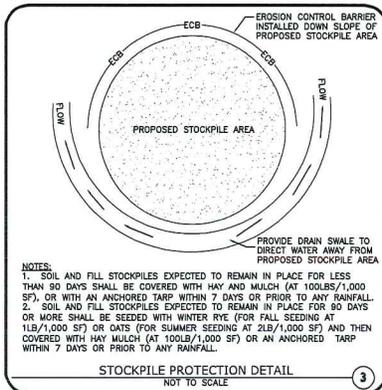
TYPICAL TRENCH DRAIN DETAIL
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5



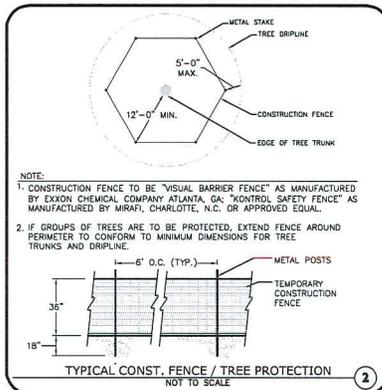
10.5 FT. x 6 FT. PRECAST CONCRETE BOX CULVERT
NOT TO SCALE

4



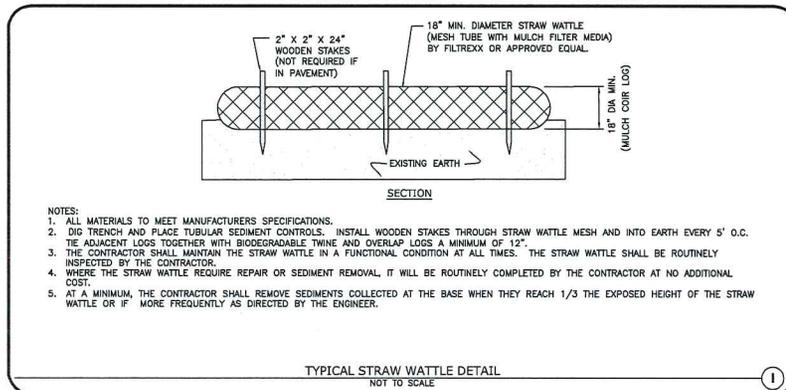
STOCKPILE PROTECTION DETAIL
NOT TO SCALE

3



TYPICAL CONST. FENCE / TREE PROTECTION
NOT TO SCALE

2



TYPICAL STRAW WATTLE DETAIL
NOT TO SCALE

1

PROFESSIONAL ENGINEER FOR
 ALLEN & MAJOR ASSOCIATES, INC.

REV.	DATE	DESCRIPTION

PROJECT OWNER:
 TOWN OF MIDDLEBOROUGH
 DEPARTMENT OF PUBLIC WORKS
 48 WAREHAM ST
 MIDDLEBOROUGH, MA 02346

PROJECT:
 STORMWATER MITIGATION PLAN
 OFF PLAIN STREET
 MIDDLEBOROUGH, MA

PROJECT NO. 1830-03	DATE: 03/21/2016
SCALE:	DWG. NAME:
DESIGNED BY:	CHECKED BY: PLC

PREPARED BY:

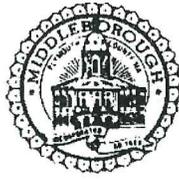
ALLEN & MAJOR ASSOCIATES, INC.
 civil & structural engineering • land surveying
 environmental consulting • landscape architecture

10 MAIN STREET
 LAKEVILLE, MA 02447-1074
 TEL: (508) 928-0100
 FAX: (508) 928-0809

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DRAWING TITLE:	SHEET NO.
DETAILS	DET-2

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 03/21/2016 10:00 AM



The Board of Selectmen will hold a public hearing in the Selectmen's Meeting Room at the Town Hall, 10 Nickerson Avenue, Middleborough, MA on Monday, May 23, 2016 at 7:30 PM, for the purpose of discussing an application filed by Outback Engineering for a Special Permit under the Water Resource Protection District By-law to allow for septic system design flow greater than 440 GPD per 20,000 SF of lot area. This property is shown as Assessors Map 072, Lot 5571, Zoning District - GU, WRPD District Z3. Anyone wishing to be heard on this matter should appear at the time and place designated.

Diane C. Stewart
Stephen J. McKinnon
Allin Frawley
Leilani Dalpe
John M. Knowlton

BOARD OF SELECTMEN

Publish: May 12, 2016 and May 19, 2016

Continued to 6.6.16

@ 8:15 PM

3rd Waseham St.

Continued to 6.20.16 @ 7:45 pm