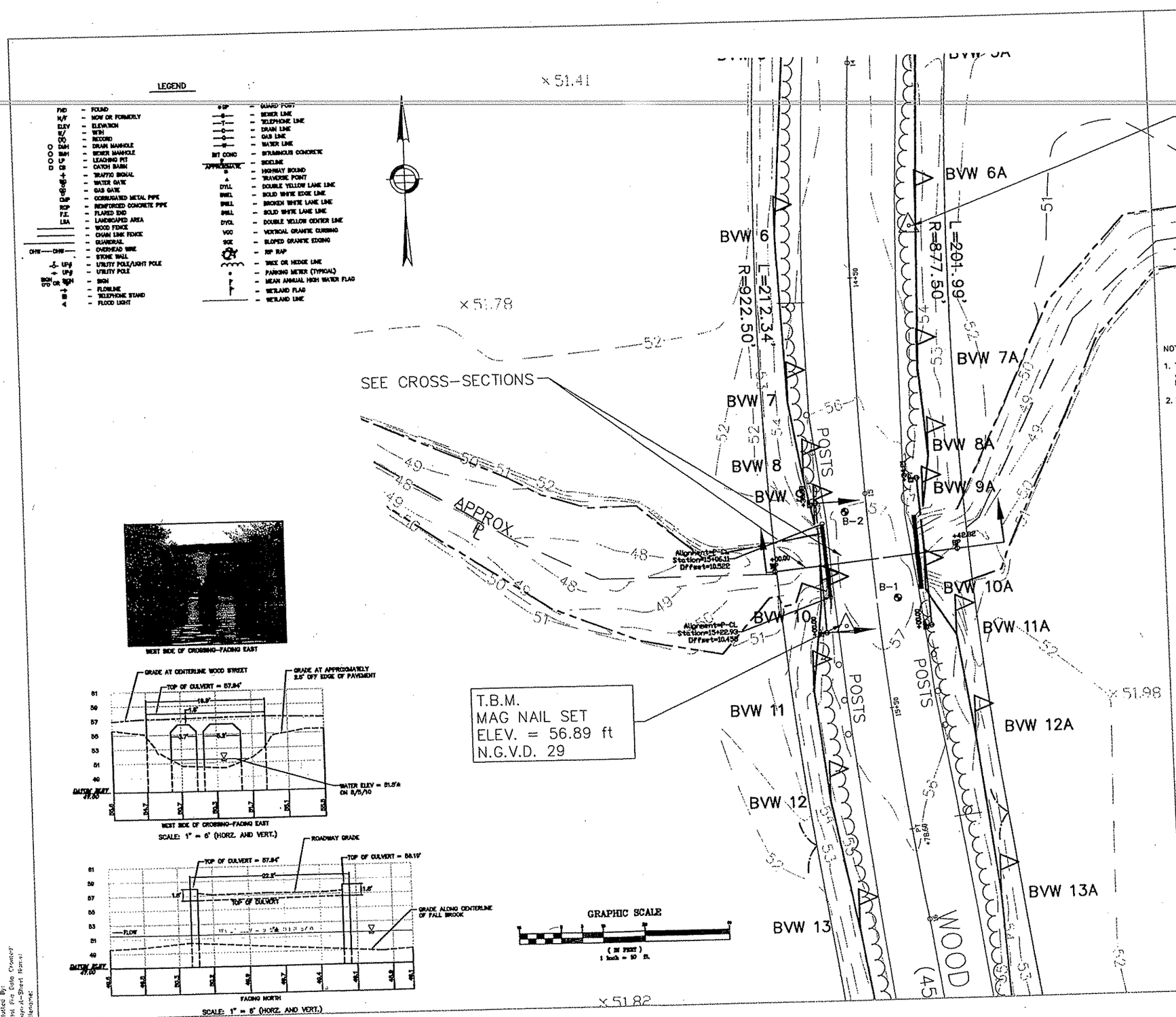

NOTES

1. TOPOGRAPHIC SURVEY WAS PERFORMED IN JUNE 2010 AND LEVEL RUN IN NOVEMBER 2011 BY JC ENGINEERING INC. OF WAREHAM MA.
2. NO PLANS OR RECORDS WERE FOUND AT THE TOWN OF MIDDLEBORO CLERKS OFFICE OR PLYMOUTH COUNTY COMMISSIONERS OFFICE TO ESTABLISH THE LAYOUT OR WIDTH OF WOOD STREET BETWEEN BRIDGE STREET AND VAUGHAN STREET. AN OFFSET OF 22.5 FEET ON EITHER SIDE OF THE CENTERLINE OF THE EXISTING PAVED ROADWAY WAS USED TO CREATE A 45 FEET WIDE LAYOUT AS SHOWN ON THIS PLAN. THE TOWN OF MIDDLEBORO ASSESSOR'S MAP STATES THE WIDTH OF WOOD STREET ALONG THIS SECTION TO BE 45 FEET WIDE.

NOT FOR CONSTRUCTION

Rev.	Description	Date
3	REVISED PER COMMENTS FROM 05/09/2011	05/19/2011
2	REVISED PER COMMENTS EMAILED 04/27/2011	05/03/2011
1	PERMITTING SET	04/01/2011

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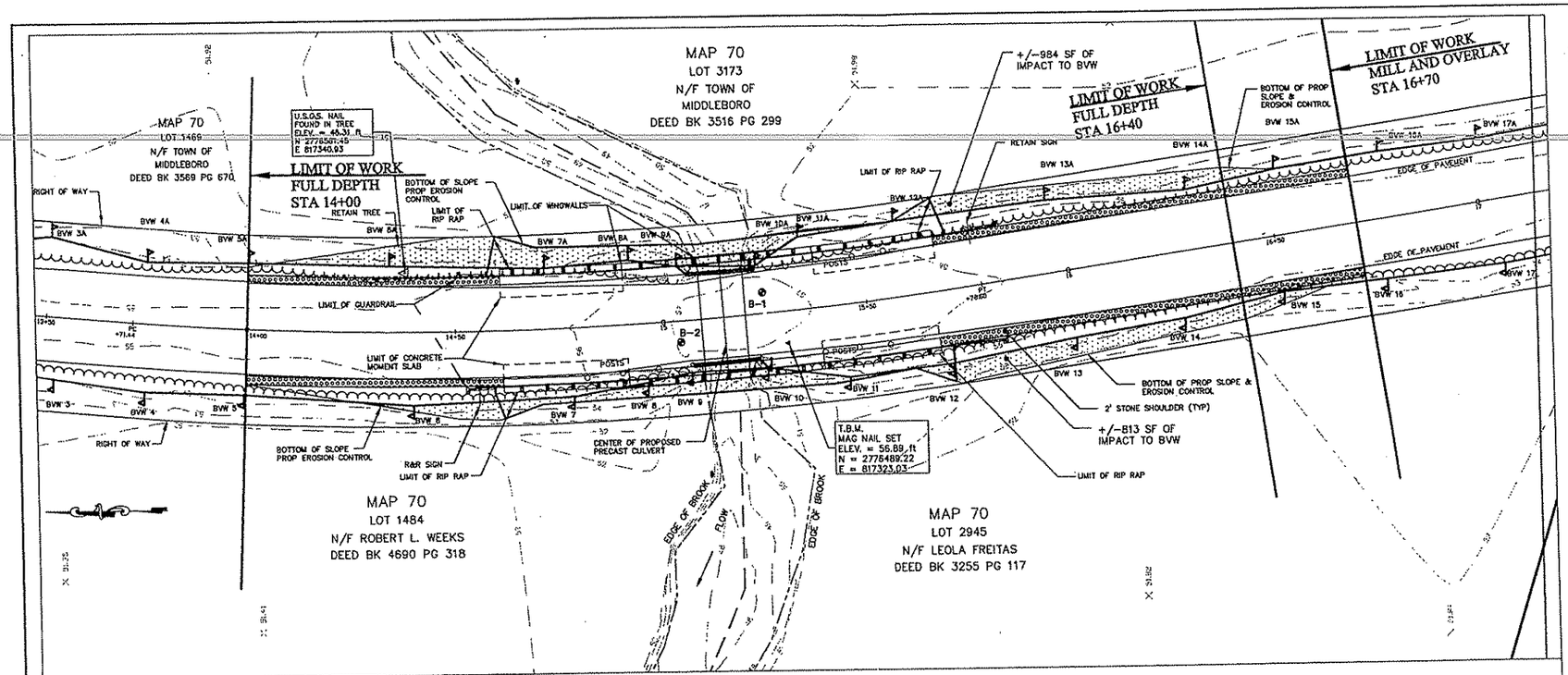
CULVERT REPLACEMENT
WOOD STREET
MIDDLEBOROUGH, MA

EXISTING CONDITIONS PLAN

APRIL 2011

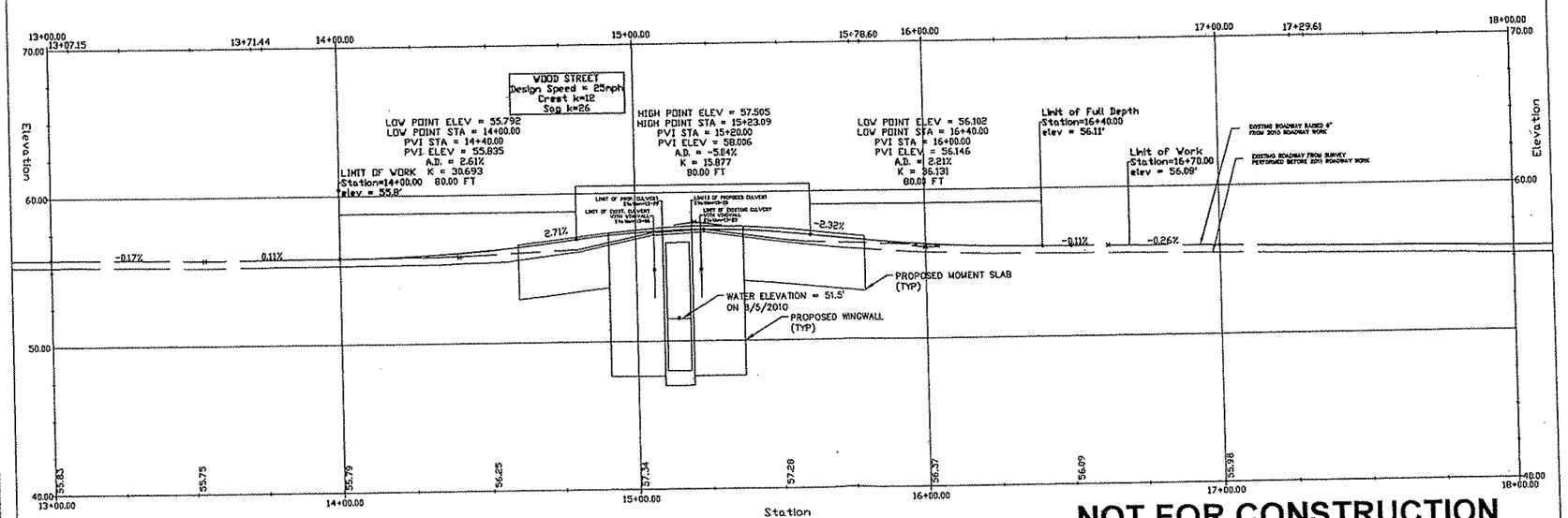
60158831

E-1



PLAN

SCALE IN FEET
20 10 0 20 40 60



WOOD STREET CENTERLINE PROFILE

SCALE IN FEET
20 10 0 20 40 60 HORIZONTAL
2 0 4 8 12 VERTICAL

NOT FOR CONSTRUCTION
FOR PERMITTING ONLY

1. WETLAND FLAGGING WAS PERFORMED BY AECOM ON JUNE 26, 2010.

2. FIELD SURVEY WAS PERFORMED BY JC ENGINEERING IN JULY AND DATUM UPDATED IN NOVEMBER 2010.

3. ROADWAY WORK WAS PERFORMED BY THE TOWN OF MIDDLEBOROUGH IN OCTOBER 2011 WITH THE EXISTING ROADWAY PULVERIZED IN PLACE AND OVERLAYED WITH AN AVERAGE OF 4 INCHES OF BINDER. THE PROPOSED PROFILE IS ESTIMATED TO TIE INTO THE FINISHED SURFACE 6 INCHES ABOVE THE SURVEYORS DATUM.

4. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONTROL OF WATER AND DETOUR TRAFFIC AROUND THE PROJECT SITE DURING CONSTRUCTION.

5. SILT FENCE WILL BE INSTALLED AT THE BOTTOM OF THE PROPOSED SLOPE TO CONTROL EROSION FROM LEAVING THE WORKSITE.

6. SHADED AREAS INDICATE LIMITS OF IMPACT AREAS, SEE SHEET L-1 FOR ADDITIONAL INFORMATION ON WETLAND REPLICATION AREAS.

VERIFY SCALE IF PLANS ARE REDUCED

3	REVISED PER COMMENTS FROM 05/05/2011 MEETING	MM	KS	05/12/2011
2	REVISED PER COMMENTS EMAILED 04/27/2011	MM	KS	05/03/2011
1	PERMITTING SET	MM	KS	04/01/2011
		DRN	CHK	DATE (MDY)

DRN BY: MM
DES BY: KS
CHK BY: KS
APP BY: AD
REV: AD

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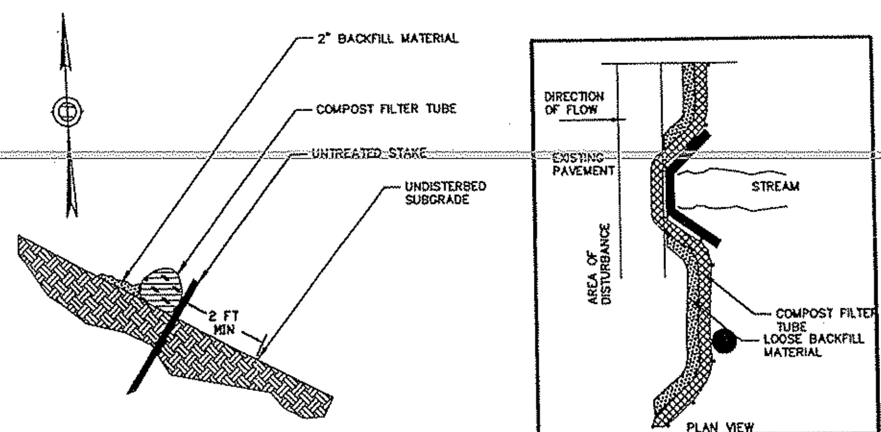
CULVERT REPLACEMENT
WOOD STREET
MIDDLEBOROUGH, MA

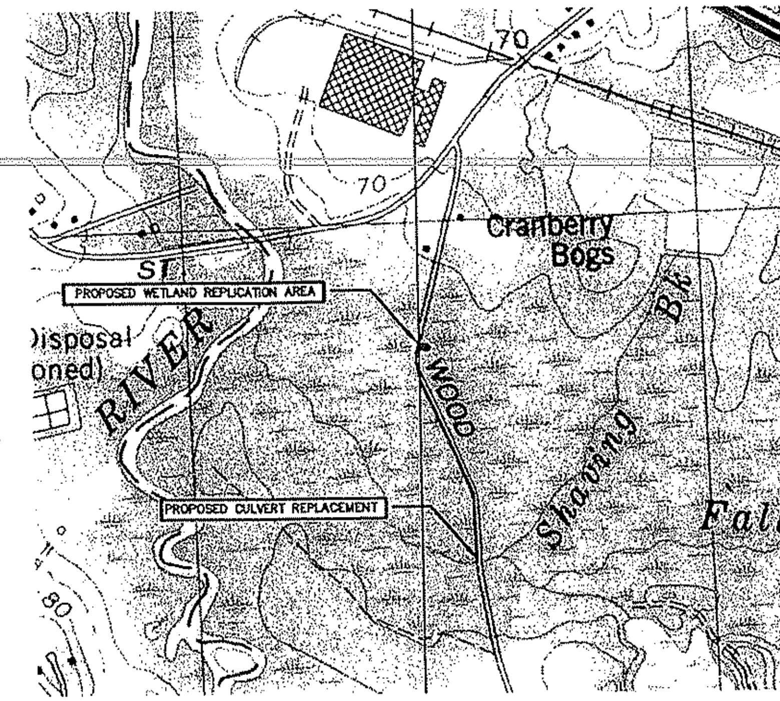
PERMITTING PLAN

PROJECT START DATE (MDY): APRIL 2011
PROJECT NO. 60158631
FILENAME
DRAWING NO. C-1

Plotted By: kulshesh
Plot Sim Date Crosscut May/20/2011
Layout-Sheet Plan n-5 2 GENERAL
Filename: L:\WORK\60158631\CADD\PRJ_C-TIL_SUPPORT_FILES\P-GENERAL.DWG



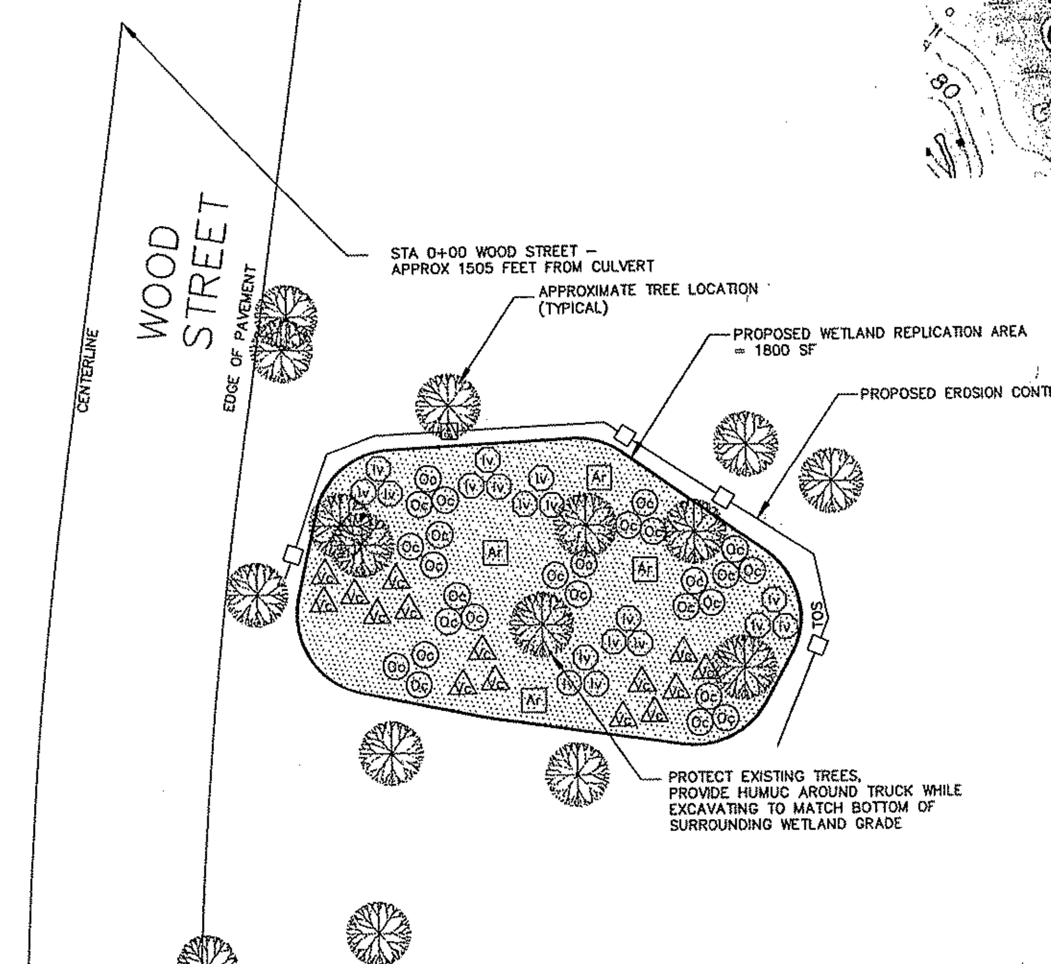
COMPOST FILTER TUBE DETAIL
N.T.S



LOCATION OF WETLAND REPLICATION AREA
SCALE: 1" = 10'

GENERAL NOTES:

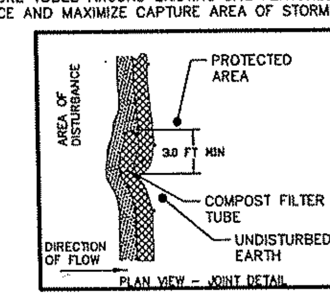
1.) PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE FATIO OF 3H:1V OR STEERER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2.) INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3.) DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4.) CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF.



DETAILED PLANTING PLAN
OF WETLAND REPLICATION AREA
SCALE: 1" = 4'

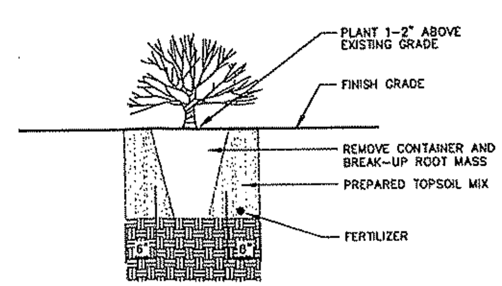
SYMBOL	QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
Ar	4	Ar	Acer rubrum	Red Swamp Maple	2'–3'	10' O.C.	Potted
Oc	27	Oc	Osmunda cinnemomea	Cinnamon Fern	1 GAL.	3' O.C.	Potted
Vc	15	Vc	Vaccinium corymbosum	Highbush Blueberry	2'–3'	3' O.C.	Potted
Iv	18	Iv	Ilex verticilliata	Winterberry	2'–3'	3' O.C.	Potted

WETLAND PLANTING SCHEDULE
(THIS SHEET ONLY)



EROSION CONTROL

NOT FOR CONSTRUCTION
FOR PERMITTING ONLY



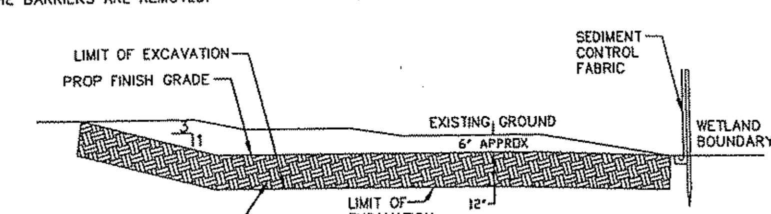
CONTAINER
WETLAND SHRUB PLANTING DETAIL
NOT TO SCALE

WETLAND NOTES:

1.) ALL OPERATIONS SHALL BE CONDUCTED/MONITORED UNDER THE SUPERVISION OF A PROFESSIONAL WETLAND SPECIALIST.
2.) SEED MIX SHALL BE PURE LIVE SEED AND SHALL BE A WETLAND MIX COMPRISED OF NATIVE NEW ENGLAND SPECIES FROM ONE OF THE FOLLOWING SUPPLIERS OR AN APPROVED EQUAL: NEW ENGLAND WETLAND PLANTS, AMHERST, MA (#413-549-400); ALLEN SEED, EXETER, RI (#800-527-3898); OR ERNST CONSERVATION SEEDS, MEADVILLE, PA (#800-873-3321). SUCH MIX SHALL BE SPECIFIC TO THE HYDROLOGIC CONDITIONS OF THE SITE AND APPROVED BY THE WETLAND SPECIALIST.
3.) ~~TOTAL WETLAND TO BE FILLED: 124 SQUARE FEET. AREA TO BE REPLICATED: 200 SQUARE FEET.~~

WETLAND REPLICATION/CONSTRUCTION SEQUENCE:

1.) THIS PROJECT WILL BE CONSTRUCTED UNDER THE GUIDELINES OF THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION PUBLICATION: "MASSACHUSETTS INLAND WETLAND AND REPLICATION GUIDELINES" EFFECTIVE DATE: MARCH 2002, AS WELL AS THE UNITED STATES ARMY CORPS OF ENGINEERS NEW ENGLAND DISTRICT "NEW ENGLAND DISTRICT COMPENSATORY MITIGATION GUIDANCE" EFFECTIVE DATE: JULY 20, 2010.
2.) ESTABLISH THE LIMIT-OF-WORK BOUNDARY IN THE FIELD BY INSTALLING ALL ENVIRONMENTAL PROTECTION MEASURES ALONG THE EDGE OF THE PROPOSED REPLACEMENT SITE PRIOR TO INITIATING CLEARING AND EXCAVATION ACTIVITIES. THE ENVIRONMENTAL PROTECTION MEASURES SHALL BE PLACED SO THAT NO EXCAVATED MATERIAL OR DISTURBED SOIL CAN ENTER ADJACENT WETLANDS OR WATERS. THE SILTATION BARRIER SHALL ACT AS A LIMIT OF WORK BARRIER FOR ALL HEAVY EQUIPMENT. THESE MEASURES SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL REMOVE SEDIMENT DEPOSITS AS NECESSARY TO MAINTAIN THE ENVIRONMENTAL PROTECTION MEASURES IN WORKING CONDITION.
3.) CLEAR AND GRUB, CHIP, STUMP GRIND, AND DISPOSE OF DEBRIS FROM ALL AREAS WITHIN THE LIMIT OF WORK. ALL TREES, STUMPS, BRUSH AND OTHER REMOVED VEGETATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR TO BE LEGALLY DISPOSED OF OFF SITE OR RECYCLED FOR USE.
4.) STRIP ALL TOPSOIL FROM THE EXCAVATION AREAS. TOPSOIL WHICH IS SUITABLE FOR REUSE, AS APPROVED BY THE ENGINEER, MAY BE TEMPORARILY STOCKPILED. IF NOT SUITABLE FOR REUSE, IT SHALL BE REMOVED FROM THE EXCAVATED AREA. THE STOCKPILED SOIL SHALL BE PLACED IN THE REPLACEMENT AREA AS SOON AS PRACTICABLE AND WITH A MINIMUM OF HANDLING.
5.) THE CONTRACTOR SHALL PROVIDE WATER TO KEEP THE SOIL MOIST, WHETHER STOCKPILED OR PLACED IN THE REPLACEMENT AREA. ALL STOCKPILED SOILS SHALL BE OUTSIDE THE RESOURCE AREA AND AT LEAST 10 FEET FROM THE EDGE OF RESOURCE AREAS AND BUFFER ZONES. ALL MATERIAL SHOULD BE COVERED WITH PLASTIC OR A TARPAULIN AND WATERED AS NECESSARY TO PREVENT DESICCATION. STOCKPILED SOIL SHALL BE SURROUNDED BY ENVIRONMENTAL PROTECTION MEASURES TO PREVENT MIGRATION OF SEDIMENT.
6.) UNLESS OTHERWISE DIRECTED, THE CONTRACTOR SHALL EXCAVATE THE REPLACEMENT AREA TO A DEPTH OF 12 INCHES BELOW FINISHED GRADE.
7.) FOLLOWING EXCAVATION AND GRADING OF THE SITE TO SUB-GRADE, AND AFTER THE SUB-GRADE ELEVATIONS ARE APPROVED BY THE ENGINEER, WETLAND SOILS SHALL BE PLACED IN TWO LIFTS OVER THE REPLACEMENT AREA, AS SHOWN ON THE PLANS AND CROSS SECTIONS OR AS DIRECTED BY THE WETLAND SPECIALIST.
8.) WETLAND SOIL FOR THE WETLAND REPLICATION AREA MAY BE EITHER SOIL EXCAVATED FROM THE IMPACTED WETLAND AREA(S) OR MANUFACTURED. SOIL FROM THE IMPACTED WETLAND AREA SHALL NOT BE COMPACTED OR GRUBBED, AND SHALL NOT BE INFESTED BY INVASIVE SPECIES. MANUFACTURED WETLAND SOIL SHALL CONSIST OF ON-SITE BORROW FROM THE REPLACEMENT SITE THOROUGHLY MIXED WITH COMPOST TO ACHIEVE A TARGET ORGANIC CONTENT OF 10-12% BY WEIGHT. OFF-SITE BORROW MAY BE USED FOR MIXING IF APPROVED IN ADVANCE BY THE ENGINEER. NO SOIL, COMPOST, OR OTHER SOIL AMENDMENT IMPORTED TO THE WORK SITE SHALL CONTAIN SEEDS, ROOTS, STEMS, OR OTHER VIABLE PARTS OF INVASIVE PLANTS. NO SOIL OR SOIL AMENDMENT SHALL BE BROUGHT ON SITE WITHOUT PRIOR APPROVAL OF THE MATERIAL SOURCE.
9.) CONTRACTOR SHALL PROVIDE SUFFICIENT BACKFILL TO REACH A DEPTH NOT TO EXCEED 12 INCHES. THE FINISH GRADES WITHIN THE REPLACEMENT AREA SHALL BE SURVEYED TO ENSURE THAT THE CORRECT TOPOGRAPHY AND HYDROLOGY ARE MET. THE FINISH GRADE SHALL BE AT AN ELEVATION THAT WILL PROVIDE A HYDROLOGIC CONNECTION BETWEEN THE REPLACEMENT AREA AND ADJACENT WETLAND OR WATER. THE CONTRACTOR SHALL VERIFY THAT THIS ELEVATION IS NOT AT A LEVEL THAT COULD DEWATER AN ADJACENT WETLAND. THE HYDROLOGIC CONNECTION SHOULD BE IN KEEPING WITH RESTORING THE INTENDED FUNCTION OF THE REPLACEMENT WETLAND.
10.) AFTER PLACEMENT OF THE SOIL IS COMPLETE, THE SOIL SURFACE SHALL BE RAKED TO A RELATIVELY SMOOTH PLANTING SURFACE. SOILS USED IN THE REPLACEMENT AREA SHOULD BE FREE OF ROCKS GREATER THAN 4 INCHES IN DIAMETER.
11.) ONCE SOILS HAVE BEEN PLACED, NO HEAVY EQUIPMENT SHALL TRAVEL ACROSS THE REPLACEMENT AREA.
12.) PLANTING AND SEEDING WILL TAKE PLACE UNDER THE SUPERVISION OF THE WETLAND SPECIALIST. AT LEAST 75% OF THE REPLACEMENT SURFACE AREA SHALL BE REESTABLISHED WITH WETLAND PLANT SPECIES WITHIN TWO GROWING SEASONS OF PLANTING IN ACCORDANCE WITH THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION ACT REGULATIONS, U.S. ARMY CORPS OF ENGINEERS MITIGATION GUIDANCE, AND APPLICABLE PERMIT CONDITIONS.
13.) WETLAND PLANTING SHALL BE PERFORMED BETWEEN APRIL 1 AND JUNE 15 OR BETWEEN SEPTEMBER 1 AND OCTOBER 30.
14.) AFTER PLANTING IS COMPLETE, THE REPLACEMENT AREA SHALL BE HAND RAKED UNTIL SOIL IS LOOSE TO ELIMINATE ALL SOIL COMPACTION DUE TO FOOT TRAFFIC. RAKING SHALL ALSO BE USED TO MAINTAIN FINISH GRADES ESTABLISHED PRIOR TO PLANTING.
15.) ALL PLANTED MATERIAL SHALL BE WATERED WITHIN THE SAME DAY AFTER PLANTING. IF FOR ANY REASON ALL PLANTINGS ARE NOT ACCOMPLISHED IN ONE DAY, THE FINISHED PLANTINGS MUST BE WATERED IN THE INTERIM.
16.) FOLLOWING PLANTING, A SECOND LINE OF EROSION CONTROL PROTECTION SHALL BE PLACED AT THE UPPER LIMIT OF THE WETLAND REPLACEMENT AREA.
17.) WETLAND SEED MIX SHALL BE APPLIED AFTER SOIL HAS BEEN RAKED OR AFTER MULCH HAS BEEN APPLIED. SEED SHALL BE SOWN BY HAND OR BY SMALL MECHANICAL LAWN SEEDER UNLESS OTHERWISE APPROVED BY THE ENGINEER. NO FERTILIZERS ARE NECESSARY UNLESS OTHERWISE DIRECTED BY THE WETLAND SPECIALIST. AREAS SEEDED SHALL BE WATERED WITHIN THE SAME DAY. ANY SEEDED AREA DISTURBED BY WATERING OR OTHER CONSTRUCTION ACTIVITY SHALL BE RE-SEEDED. WATERING SHALL CONTINUE AS NECESSARY FOR GERMINATION AND ESTABLISHMENT OF SEED.
18.) UPON COMPLETION OF SEEDING AND/OR PLANTING, ALL DISTURBED AREAS UP TO THE LIMIT OF THE REPLACEMENT AREA SHALL BE LIGHTLY MULCHED WITH 1-2 INCHES OF COMPOST AND SEEDED.
19.) UPON COMPLETION OF ALL CONSTRUCTION AND ONCE SOILS ARE STABILIZED WITH A UNIFORM COVER OF VEGETATION, THE EROSION CONTROL PROTECTION SHALL BE REMOVED AND DISPOSED OFF-SITE.
20.) THE GROUND UNDER THE SILTATION BARRIERS SHALL BE RESEEDED WITH THE WETLAND MIX WHEN THE BARRIERS ARE REMOVED.



REPLICATION AREA – TYPICAL CROSS SECTION

REV	DESCRIPTION	DRN	CHK	DATE
3	REVISED PER COMMENTS FROM 05/03/2011 MEETING	MM	KS	05/19/2011
2	REVISED PER COMMENTS EMAILED 04/27/2011		KS	05/03/2011
1	PERMITTING SET	MM	KS	04/01/2011

NOT FOR CONSTRUCTION

VERIFY SCALE IF PLAN SHEET IS REDUCED

DRN BY: DES BY: CHK BY: APP BY:

CONSULTANT:

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66 Long Wharf
Boston MA, 02110
T 617.723.1700 F 617.723.6856
WWW.AECOM.COM

CULVERT REPLACEMENT
WOOD STREET
MIDDLEBOROUGH, MA

PROJECT START DATE (M/Y): APRIL 2011
PROJECT NO.: 60156031
FILENAME:
DRAWING NO.: L-1

Plotted By:
Plot File Date Created: 3/1/2011 11:05:21 AM EST
Layout-Sheet Name:
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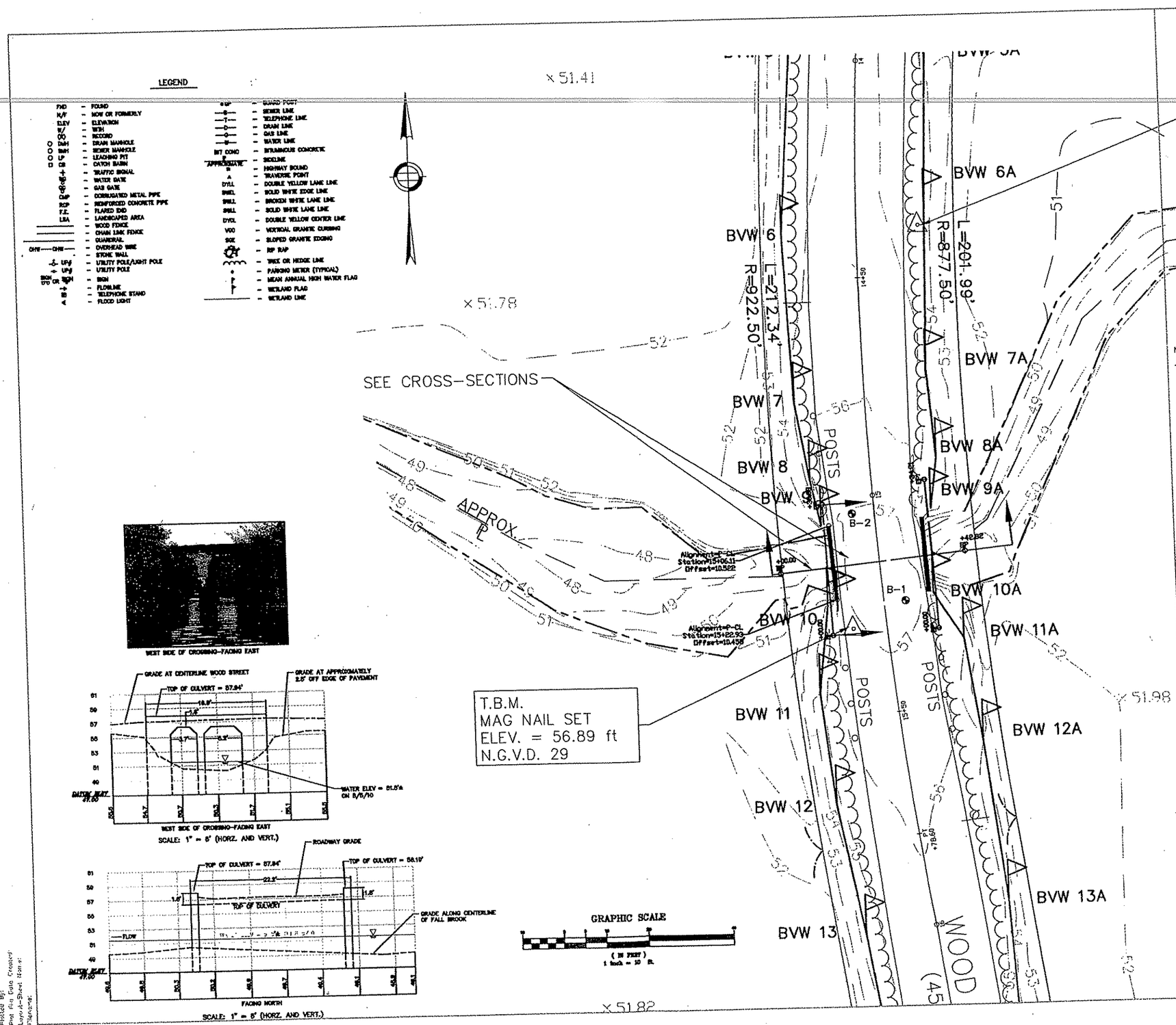

NOTES

1. TOPOGRAPHIC SURVEY WAS PERFORMED IN JUNE 2010 AND LEVEL RUN IN NOVEMBER 2011 BY JC ENGINEERING INC. OF WAREHAM MA.
2. NO PLANS OR RECORDS WERE FOUND AT THE TOWN OF MIDDLEBORO CLERKS OFFICE OR PLYMOUTH COUNTY COMMISSIONERS OFFICE TO ESTABLISH THE LAYOUT OR WIDTH OF WOOD STREET BETWEEN BRIDGE STREET AND VAUGHAN STREET. AN OFFSET OF 22.5 FEET ON EITHER SIDE OF THE CENTERLINE OF THE EXISTING PAVED ROADWAY WAS USED TO CREATE A 45 FEET WIDE LAYOUT AS SHOWN ON THIS PLAN. THE TOWN OF MIDDLEBORO ASSESSOR'S MAP STATES THE WIDTH OF WOOD STREET ALONG THIS SECTION TO BE 45 FEET WIDE.

NOT FOR CONSTRUCTION

3	REVISED PER COMMENTS FROM 05/03/2011	KS	05/19/2011
2	REVISED PER COMMENTS DATED 04/27/2011	KS	05/03/2011
1	PERMITTING SET	KS	04/01/2011

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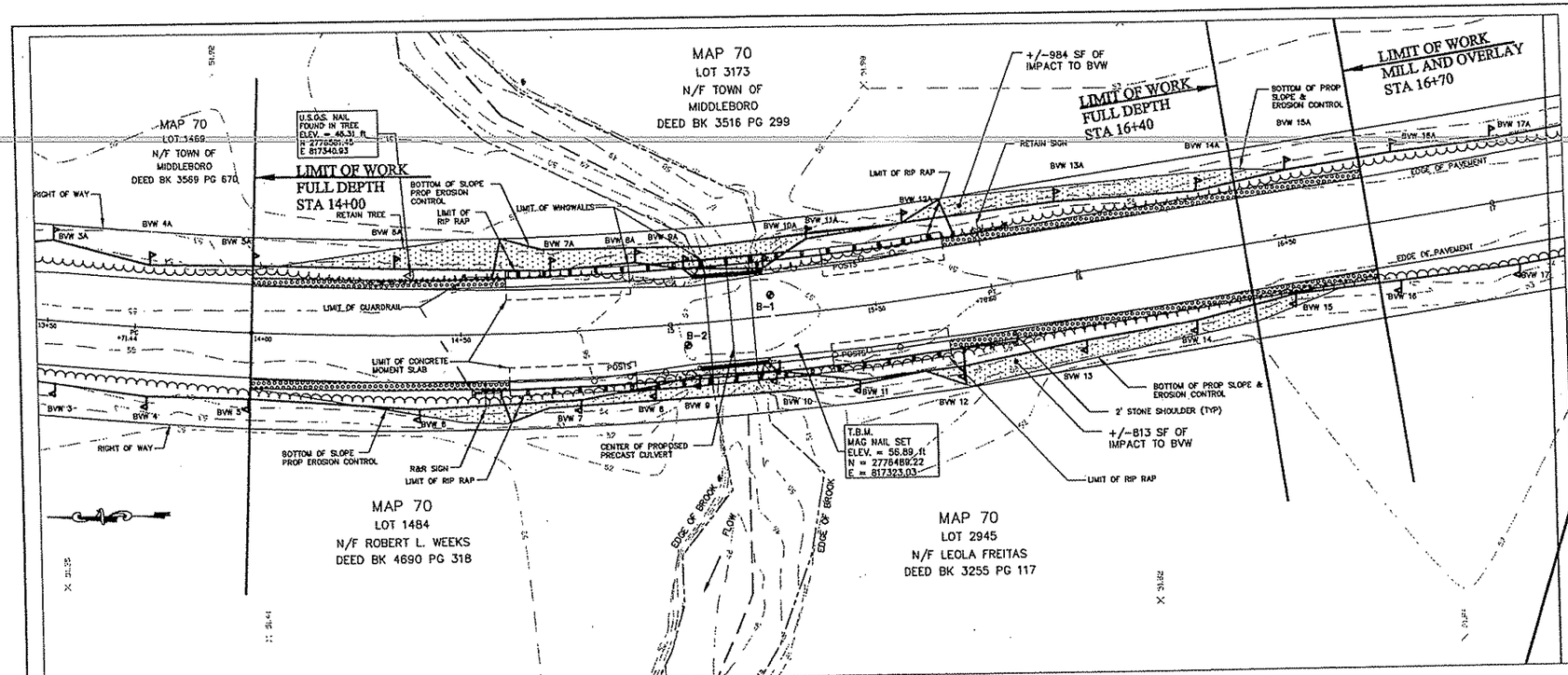
CULVERT REPLACEMENT
WOOD STREET
MIDDLEBOROUGH, MA

EXISTING CONDITIONS PLAN

APRIL, 2011

E-1



PLAN

SCALE IN FEET
20 10 0 20 40 60

1. WETLAND FLAGGING WAS PERFORMED BY AECOM ON JUNE 26, 2010.

2. FIELD SURVEY WAS PERFORMED BY JC ENGINEERING IN JULY AND DATUM UPDATED IN NOVEMBER 2010.

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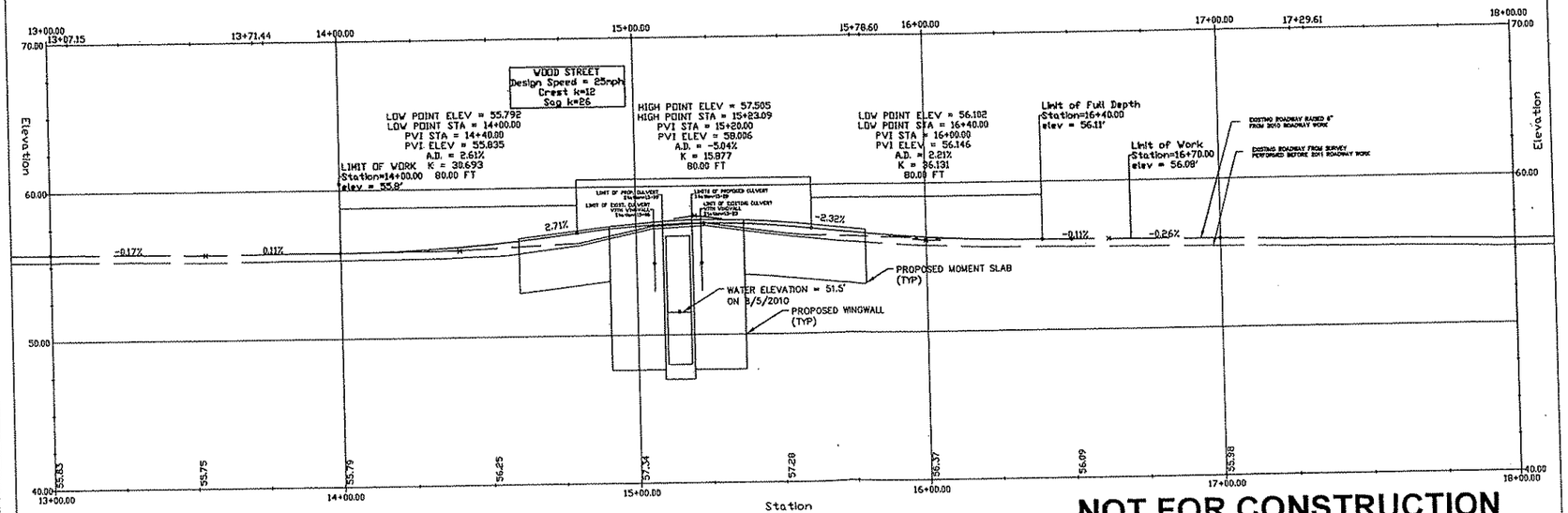

WOOD STREET CENTERLINE PROFILE

SCALE IN FEET
20 10 0 20 40 60 HORIZONTAL
2 0 4 8 12 VERTICAL

NOT FOR CONSTRUCTION
FOR PERMITTING ONLY

REV	DESCRIPTION	DWN	CHK	DATE
1	PERMITTING SET	MM	KS	05/10/2011
2	REVISED PER COMMENTS FROM 05/05/2011 MEETING	MM	KS	05/03/2011
3	REVISED PER COMMENTS EMAILED 04/27/2011	MM	KS	04/05/2011

DRN BY: MM
DES BY: KS
CHK BY: AD
APP BY: AD

VERIFY SCALE IF PLAN SHEET IS REDUCED

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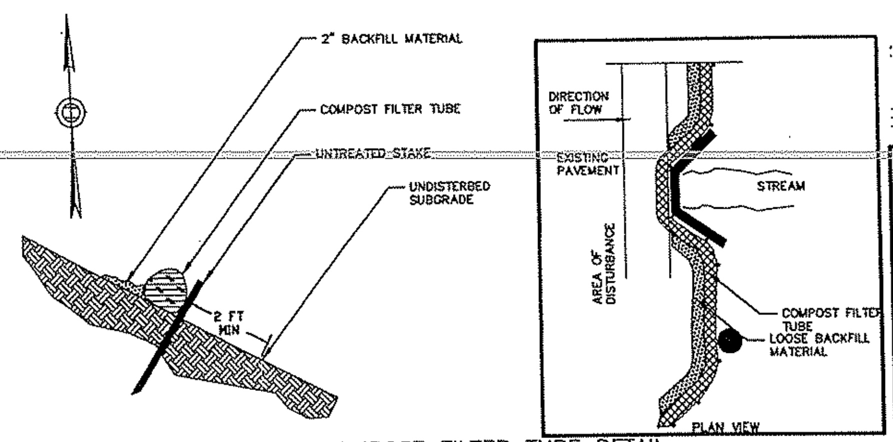
CULVERT REPLACEMENT
WOOD STREET
MIDDLEBOROUGH, MA

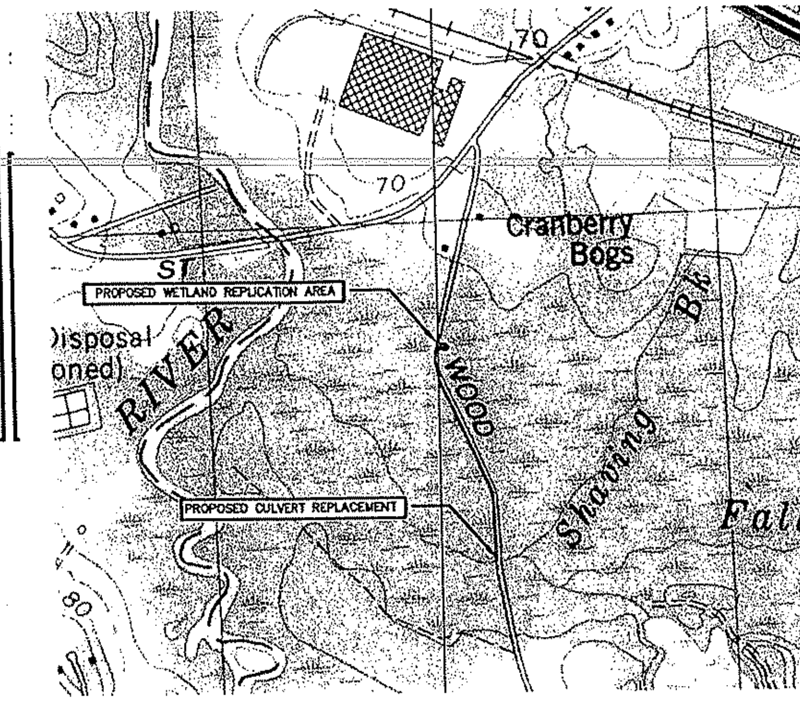
PERMITTING PLAN

PROJECT START DATE (MM/YY): APRIL 2011
PROJECT NO. 60156631
FILENAME
DRAWING NO. C-1



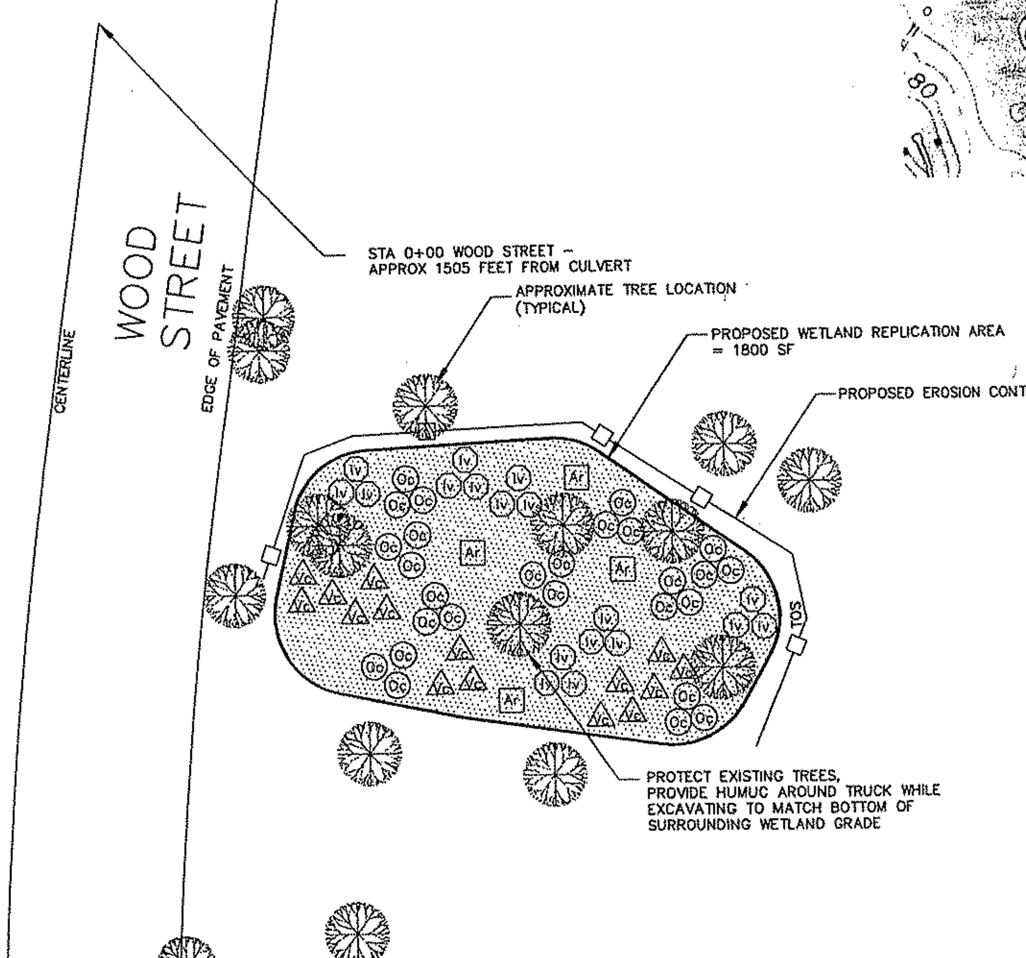
COMPOST FILTER TUBE DETAIL

N.T.S



LOCATION OF WETLAND REPLICATION AREA

SCALE: 1" = 10'



DETAILED PLANTING PLAN
OF WETLAND REPLICATION AREA

SCALE: 1" = 4'

SYMBOL	QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
Ar	4	Ar	Acer rubrum	Red Swamp Maple	2'–3'	10' O.C.	Potted
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Vc	15	Vc	Vaccinium corymbosum	Highbush Blueberry	2'–3'	3' O.C.	Potted
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WETLAND PLANTING SCHEDULE
(THIS SHEET ONLY)

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1.) PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE FATIO OF 3H:1V OR STEERER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
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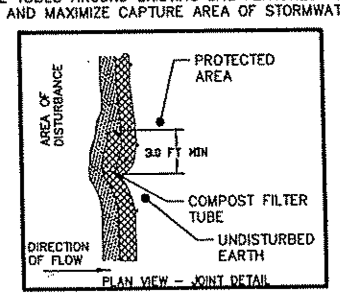
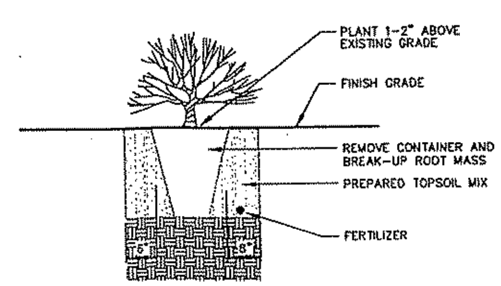


EROSION CONTROL

NOT FOR CONSTRUCTION
FOR PERMITTING ONLY



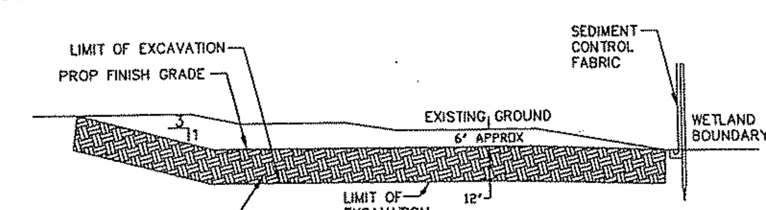
CONTAINER
WETLAND SHRUB PLANTING DETAIL
NOT TO SCALE

WETLAND NOTES:

1.) ALL OPERATIONS SHALL BE CONDUCTED/MONITORED UNDER THE SUPERVISION OF A PROFESSIONAL WETLAND SPECIALIST.
2.) SEED MIX SHALL BE PURE LIVE SEED AND SHALL BE A WETLAND MIX COMPRISED OF NATIVE NEW ENGLAND SPECIES FROM ONE OF THE FOLLOWING SUPPLIERS OR AN APPROVED EQUAL: NEW ENGLAND WETLAND PLANTS, AMHERST, MA (#413-549-400); ALLEN SEED, EXETER, RI (#800-527-3898); OR ERNST CONSERVATION SEEDS, MEADVILLE, PA (#800-873-3321). SUCH MIX SHALL BE SPECIFIC TO THE HYDROLOGIC CONDITIONS OF THE SITE AND APPROVED BY THE WETLAND SPECIALIST.
3.) ~~TOTAL WETLAND TO BE FILLED: 124 SQUARE FEET. AREA TO BE REPLICATED: 200 SQUARE FEET.~~

WETLAND REPLICATION/CONSTRUCTION SEQUENCE:

1.) THIS PROJECT WILL BE CONSTRUCTED UNDER THE GUIDELINES OF THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION PUBLICATION: "MASSACHUSETTS INLAND WETLAND AND REPLICATION GUIDELINES" EFFECTIVE DATE: MARCH 2002, AS WELL AS THE UNITED STATES ARMY CORPS OF ENGINEERS NEW ENGLAND DISTRICT "NEW ENGLAND DISTRICT COMPENSATORY MITIGATION GUIDANCE" EFFECTIVE DATE: JULY 20, 2010.
2.) ESTABLISH THE LIMIT-OF-WORK BOUNDARY IN THE FIELD BY INSTALLING ALL ENVIRONMENTAL PROTECTION MEASURES ALONG THE EDGE OF THE PROPOSED REPLACEMENT SITE PRIOR TO INITIATING CLEARING AND EXCAVATION ACTIVITIES. THE ENVIRONMENTAL PROTECTION MEASURES SHALL BE PLACED SO THAT NO EXCAVATED MATERIAL OR DISTURBED SOIL CAN ENTER ADJACENT WETLANDS OR WATERS. THE SILTATION BARRIER SHALL ACT AS A LIMIT OF WORK BARRIER FOR ALL HEAVY EQUIPMENT. THESE MEASURES SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL REMOVE SEDIMENT DEPOSITS AS NECESSARY TO MAINTAIN THE ENVIRONMENTAL PROTECTION MEASURES IN WORKING CONDITION.
3.) CLEAR AND GRUB, CHIP, STUMP GRIND, AND DISPOSE OF DEBRIS FROM ALL AREAS WITHIN THE LIMIT OF WORK. ALL TREES, STUMPS, BRUSH AND OTHER REMOVED VEGETATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR TO BE LEGALLY DISPOSED OF OFF SITE OR RECYCLED FOR USE.
4.) STRIP ALL TOPSOIL FROM THE EXCAVATION AREAS. TOPSOIL WHICH IS SUITABLE FOR REUSE, AS APPROVED BY THE ENGINEER, MAY BE TEMPORARILY STOCKPILED. IF NOT SUITABLE FOR REUSE, IT SHALL BE REMOVED FROM THE EXCAVATED AREA. THE STOCKPILED SOIL SHALL BE PLACED IN THE REPLACEMENT AREA AS SOON AS PRACTICABLE AND WITH A MINIMUM OF HANDLING.
5.) THE CONTRACTOR SHALL PROVIDE WATER TO KEEP THE SOIL MOIST, WHETHER STOCKPILED OR PLACED IN THE REPLACEMENT AREA. ALL STOCKPILED SOILS SHALL BE OUTSIDE THE RESOURCE AREA AND AT LEAST 10 FEET FROM THE EDGE OF RESOURCE AREAS AND BUFFER ZONES. ALL MATERIAL SHOULD BE COVERED WITH PLASTIC OR A TARPAULIN AND WATERED AS NECESSARY TO PREVENT DESICCATION. STOCKPILED SOIL SHALL BE SURROUNDED BY ENVIRONMENTAL PROTECTION MEASURES TO PREVENT MIGRATION OF SEDIMENT.
6.) UNLESS OTHERWISE DIRECTED, THE CONTRACTOR SHALL EXCAVATE THE REPLACEMENT AREA TO A DEPTH OF 12 INCHES BELOW FINISHED GRADE.
7.) FOLLOWING EXCAVATION AND GRADING OF THE SITE TO SUB-GRADE, AND AFTER THE SUB-GRADE ELEVATIONS ARE APPROVED BY THE ENGINEER, WETLAND SOILS SHALL BE PLACED IN TWO LIFTS OVER THE REPLACEMENT AREA, AS SHOWN ON THE PLANS AND CROSS SECTIONS OR AS DIRECTED BY THE WETLAND SPECIALIST.
8.) WETLAND SOIL FOR THE WETLAND REPLICATION AREA MAY BE EITHER SOIL EXCAVATED FROM THE IMPACTED WETLAND AREA(S) OR MANUFACTURED. SOIL FROM THE IMPACTED WETLAND AREA SHALL NOT BE COMPACTED OR GRUBBED, AND SHALL NOT BE INFESTED BY INVASIVE SPECIES. MANUFACTURED WETLAND SOIL SHALL CONSIST OF ON-SITE BORROW FROM THE REPLACEMENT SITE THOROUGHLY MIXED WITH COMPOST TO ACHIEVE A TARGET ORGANIC CONTENT OF 10-12% BY WEIGHT. OFF-SITE BORROW MAY BE USED FOR MIXING IF APPROVED IN ADVANCE BY THE ENGINEER. NO SOIL, COMPOST, OR OTHER SOIL AMENDMENT IMPORTED TO THE WORK SITE SHALL CONTAIN SEEDS, ROOTS, STEMS, OR OTHER VIABLE PARTS OF INVASIVE PLANTS. NO SOIL OR SOIL AMENDMENT SHALL BE BROUGHT ON SITE WITHOUT PRIOR APPROVAL OF THE MATERIAL SOURCE.
9.) CONTRACTOR SHALL PROVIDE SUFFICIENT BACKFILL TO REACH A DEPTH NOT TO EXCEED 12 INCHES. THE FINISH GRADES WITHIN THE REPLACEMENT AREA SHALL BE SURVEYED TO ENSURE THAT THE CORRECT TOPOGRAPHY AND HYDROLOGY ARE MET. THE FINISH GRADE SHALL BE AT AN ELEVATION THAT WILL PROVIDE A HYDROLOGIC CONNECTION BETWEEN THE REPLACEMENT AREA AND ADJACENT WETLAND OR WATER. THE CONTRACTOR SHALL VERIFY THAT THIS ELEVATION IS NOT AT A LEVEL THAT COULD DEWATER AN ADJACENT WETLAND. THE HYDROLOGIC CONNECTION SHOULD BE IN KEEPING WITH RESTORING THE INTENDED FUNCTION OF THE REPLACEMENT WETLAND.
10.) AFTER PLACEMENT OF THE SOIL IS COMPLETE, THE SOIL SURFACE SHALL BE RAKED TO A RELATIVELY SMOOTH PLANTING SURFACE. SOILS USED IN THE REPLACEMENT AREA SHOULD BE FREE OF ROCKS GREATER THAN 4 INCHES IN DIAMETER.
11.) ONCE SOILS HAVE BEEN PLACED, NO HEAVY EQUIPMENT SHALL TRAVEL ACROSS THE REPLACEMENT AREA.
12.) PLANTING AND SEEDING WILL TAKE PLACE UNDER THE SUPERVISION OF THE WETLAND SPECIALIST. AT LEAST 75% OF THE REPLACEMENT SURFACE AREA SHALL BE REESTABLISHED WITH WETLAND PLANT SPECIES WITHIN TWO GROWING SEASONS OF PLANTING IN ACCORDANCE WITH THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION ACT REGULATIONS, U.S. ARMY CORPS OF ENGINEERS MITIGATION GUIDANCE, AND APPLICABLE PERMIT CONDITIONS.
13.) WETLAND PLANTING SHALL BE PERFORMED BETWEEN APRIL 1 AND JUNE 15 OR BETWEEN SEPTEMBER 1 AND OCTOBER 30.
14.) AFTER PLANTING IS COMPLETE, THE REPLACEMENT AREA SHALL BE HAND RAKED UNTIL SOIL IS LOOSE TO ELIMINATE ALL SOIL COMPACTION DUE TO FOOT TRAFFIC. RAKING SHALL ALSO BE USED TO MAINTAIN FINISH GRADES ESTABLISHED PRIOR TO PLANTING.
15.) ALL PLANTED MATERIAL SHALL BE WATERED WITHIN THE SAME DAY AFTER PLANTING. IF FOR ANY REASON ALL PLANTINGS ARE NOT ACCOMPLISHED IN ONE DAY, THE FINISHED PLANTINGS MUST BE WATERED IN THE INTERIM.
16.) FOLLOWING PLANTING, A SECOND LINE OF EROSION CONTROL PROTECTION SHALL BE PLACED AT THE UPPER LIMIT OF THE WETLAND REPLACEMENT AREA.
17.) WETLAND SEED MIX SHALL BE APPLIED AFTER SOIL HAS BEEN RAKED OR AFTER MULCH HAS BEEN APPLIED. SEED SHALL BE SOWN BY HAND OR BY SMALL MECHANICAL LAWN SEEDER UNLESS OTHERWISE APPROVED BY THE ENGINEER. NO FERTILIZERS ARE NECESSARY UNLESS OTHERWISE DIRECTED BY THE WETLAND SPECIALIST. AREAS SEEDED SHALL BE WATERED WITHIN THE SAME DAY. ANY SEEDED AREA DISTURBED BY WATERING OR OTHER CONSTRUCTION ACTIVITY SHALL BE RE-SEEDED. WATERING SHALL CONTINUE AS NECESSARY FOR GERMINATION AND ESTABLISHMENT OF SEED.
18.) UPON COMPLETION OF SEEDING AND/OR PLANTING, ALL DISTURBED AREAS UP TO THE LIMIT OF THE REPLACEMENT AREA SHALL BE LIGHTLY MULCHED WITH 1-2 INCHES OF COMPOST AND SEEDED.
19.) UPON COMPLETION OF ALL CONSTRUCTION AND ONCE SOILS ARE STABILIZED WITH A UNIFORM COVER OF VEGETATION, THE EROSION CONTROL PROTECTION SHALL BE REMOVED AND DISPOSED OFF-SITE.
20.) THE GROUND UNDER THE SILTATION BARRIERS SHALL BE RESEEDED WITH THE WETLAND MIX WHEN THE BARRIERS ARE REMOVED.



REPLICATION AREA – TYPICAL CROSS SECTION

NOT FOR CONSTRUCTION

VERIFY SCALE IF PLAN SHEET IS REDUCED

KEY	DESCRIPTION	DRN	CHK	DATE
3	REVISED PER COMMENTS FROM 05/03/2011 MEETING	MM	KS	05/19/2011
2	REVISED PER COMMENTS EMAILED 04/27/2011	MM	KS	05/03/2011
1	PERMITTING SET	MM	KS	04/01/2011

DRN BY: DES BY: CHK BY: APP BY:

CONSULTANT:

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CULVERT REPLACEMENT
WOOD STREET
MIDDLEBOROUGH, MA

PROJECT START DATE (M/Y): APRIL 2011
PROJECT NO.: 60158831
FILENAME:
DRAWING NO.: L-1

Plotted By:
Plot File Date Created:
Layout-Sheet Name:
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