CHEPACHET RIVER PARK

GLOCESTER · RHODE ISLAND

REMEDIAL ACTION PLAN

JULY 2012

REVISED SEPTEMBER 26, 2012

PREPARED FOR

RHODE ISLAND DEPT. OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WASTE MANAGEMENT
235 PROMENADE STREET
PROVIDENCE, RI 02908

PREPARED BY

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

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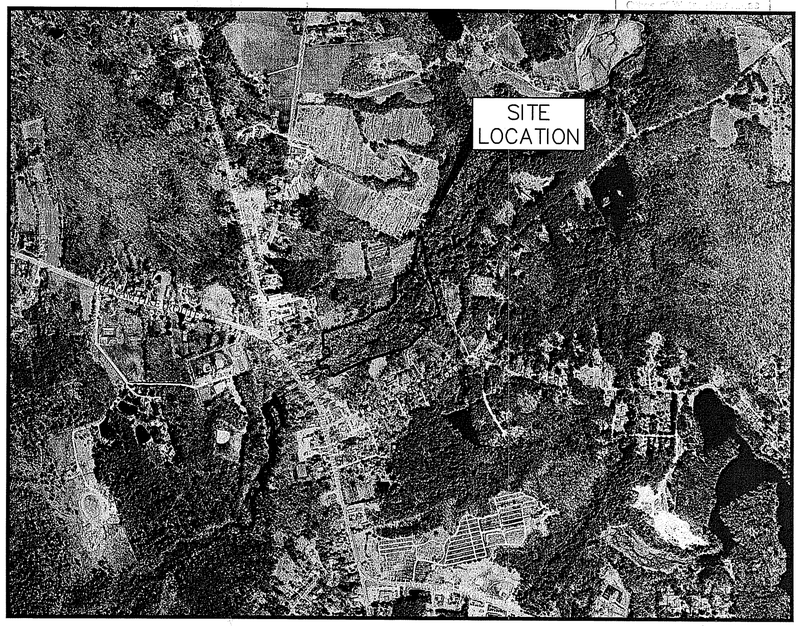
OWNER

TOWN OF GLOCESTER
1145 PUTNAM PIKE
CHEPACHET, RI 02814
401.568.6206



LOCATION MAP
SCALE: 1" = 800'

SHAWN M. MARTIN
No. 7487
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
9/26/12

PROJ. No.: 20040574A60
DATE: JULY 2012

GI-001

LEGEND

EXIST	PROP	
— — — —		PROPERTY LINE/RIGHT-OF-WAY
	—LOD—	LIMIT OF DISTURBANCE
— — —		EASEMENT
—···—		EDGE OF WATER
—△WF1—△WF2—		WETLAND LINE
—▲—▲—		BUFFER ZONE
		WETLAND SYMBOL
— ● —		200' RIVERBANK WETLAND
— • • • —		100' RIVERBANK WETLAND
— — — — —		50' PERIMETER WETLAND
—F—		FLOOD ZONE BOUNDARY
— • • —		FLOOD ANALYSIS CROSS SECTION
— — —		GRAVEL ROAD
▨		APPROXIMATE LOCATION OF EXISTING PATHS
	—□—□—□—	SPLIT RAIL FENCE
		TREE LINE
		SHRUB LINE
○○○○○○	●●●●●●	STONE WALL
		BUILDING REMNANTS/ STONEWALL
2— — — —	—4—	CONTOUR
▨		BUILDING
21.25		SPOT ELEVATION w/LEADER
x21.25		SPOT ELEVATION
◎		DRILL HOLE
○		IRON PIN
□		MONUMENT
▯		MAIL BOX
+		CONTROL POINT
	—SF—	SILT FENCE & BALED HAY COMBINED
⊕ TP-05		TEST PIT LOCATION
● SS-38		SURFICIAL SOIL SAMPLE LOCATION
▣ SB-12		SOIL BORING LOCATION (SAMPLE DEPTH IN PARENTHESES)
▲ SD-17		SEDIMENT SAMPLE LOCATION
⊕ MW-2		MONITORING WELL LOCATION
⊕ EK-2		OFFSITE MONITORING WELL LOCATION INSTALLED BY OTHERS
AOC		AREAS OF CONCERN (DASHED WHERE INFERRED)
	▨	WET VEGETATED TREATMENT SYSTEM AND ACCESS ROAD (BY OTHERS)

ABBREVIATIONS

GENERAL

APPROX.	APPROXIMATE
BIT.	BITUMINOUS PAVEMENT
ELEV	ELEVATION
EXIST	EXISTING
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
PROP	PROPOSED
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
TW	TOP OF WALL
TYP	TYPICAL

UTILITY

INV	INVERT ELEVATION
UP	UTILITY POLE

GENERAL NOTES

1. EXISTING CONDITIONS:
   A. SURVEY:

   PROPERTY BOUNDARY INFORMATION WAS OBTAINED FROM A PLAN PREPARED BY MARC N. NYBERG ASSOCIATES, INC. ENTITLED "PLAN OF LAND PLAT 10B, LOTS 3 & 46, FOR TOWN OF GLOCESTER, RHODE ISLAND", DATED AUGUST 3, 2000.

   EXISTING CONDITION AND TOPOGRAPHICAL INFORMATION WERE OBTAINED FROM A PLAN PREPARED BY THE HORSLEY WITTEN GROUP, INC. ENTITLED "EXISTING CONDITIONS PLAN, CHEPACHET VILLAGE STORMWATER SYSTEM RETROFIT, GLOCESTER, RHODE ISLAND". DATED NOVEMBER 24, 2010.

   EXISTING PATH LOCATIONS ARE APPROXIMATE ONLY.

   BUILDING REMNANTS AND STONE WALLS, NORTH OF THE CHEPACHET RIVER AND WEST OF SURFACE SOIL SAMPLE 91, WERE OBTAINED FROM A PHASE II ARCHAEOLOGICAL SURVEY, PREPARED BY PUBLIC ARCHEOLOGICAL LABORATORY INC. AND DATED OCTOBER 15, 2009. ALL OTHER BUILDING REMNANTS AND STONE WALLS ARE APPROXIMATE ONLY.

   B. FLOOD ZONE:

   THE SUBJECT SITE LIES WITHIN ZONE X, AN AREA DETERMINED TO BE OUTSIDE OF 0.2% ANNUAL CHANCE FLOOD, AND FLOOD ZONE AE, A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD WITH BASE ELEVATIONS RANGING FROM EL. 404 FEET (NAVD88) AT THE UPSTREAM END OF THE SITE TO EL. 360 FEET (NAVD88) AT THE DOWNSTREAM END OF THE SITE, AS DETERMINED PER FLOOD INSURANCE RATE MAP (FIRM) PANEL NO. 44007C0145G, PROVIDENCE, COUNTY RHODE ISLAND, DATED MARCH 2, 2009.

   FLOOD ZONE BOUNDARIES DEPICTED ON THESE PLANS WERE ADJUSTED BY FUSS & O'NEILL BASED ON DETAILED TOPOGRAPHY OBTAINED FOR THE SITE (FROM THE ABOVE-REFERENCED SURVEY) AND THE RESULTS OF A HEC-RAS ANALYSIS CONDUCTED FROM A POINT APPROXIMATELY 227 FEET UPSTREAM OF THE PROPOSED SOIL CAP (RIVER STA. 92+02) TO A POINT APPROXIMATELY 116 FEET DOWNSTREAM OF THE PROPOSED SOIL CAP (RIVER STA. 87+48).

   THE FLOODPLAIN BOUNDARY ASSOCIATED WITH THE CHEPACHET RIVER THROUGHOUT THE LIMIT OF HYDRAULIC ANALYSIS (AS SHOWN ON SHEETS CS-101 THROUGH CS-104 AND CG-101 THROUGH CG-102) WAS DELINEATED BY FUSS & O'NEILL AND CORRESPONDS TO FLOODPLAIN ELEVATIONS OBTAINED FROM THE HEC-RAS ANALYSIS. THE FLOODPLAIN BOUNDARY ASSOCIATED WITH THE CHEPACHET RIVER DOWNSTREAM OF THE LIMIT OF THE HEC-RAS ANALYSIS, WHICH ALSO INCLUDES THE FLOODPLAIN ASSOCIATED WITH THE ADJOINING INTERMITTENT STREAM, WAS DELINEATED BY FUSS & O'NEILL AND CORRESPONDS TO THE FLOODPLAIN ELEVATIONS LISTED WITHIN THE FLOOD INSURANCE STUDY (FIS) FOR PROVIDENCE COUNTY. FOR EXAMPLE, THE FLOODPLAIN ELEVATION OF THE CHEPACHET RIVER LISTED IN THE FIS AT THE DOWNSTREAM LIMIT OF THE HEC-RAS ANALYSIS IS APPROXIMATELY EL. 382.5 (NAVD88) WHILE THE ELEVATION LISTED IN THE VICINITY OF THE CONFLUENCE OF THE INTERMITTENT STREAM AND CHEPACHET RIVER IS APPROXIMATELY EL. 372.1 (NAVD88). SINCE NO INCREASES IN FLOOD PLAIN ELEVATIONS ARE PROPOSED UPSTREAM AND DOWNSTREAM OF THE HEC-RAS ANALYSIS AND SINCE ONLY MINOR INCREASES IN FLOODPLAIN ELEVATIONS OF 0.04 FEET OR LESS ARE PROPOSED WITHIN THE LIMIT OF ANALYSIS, THE FLOODPLAIN BOUNDARY BETWEEN PRE- AND POST-CONDITIONS REMAINS UNCHANGED.

   BASE FLOOD ELEVATIONS DOWSTREAM OF THE LIMIT OF THE HEC-RAS ANALYSIS WILL REMAIN UNIMPACTED BY THE PROJECT; AS SUCH, THERE WILL BE NO IMPACT TO THE FLOODPLAIN OF THE ADJACENT INTERMITTENT STREAM DOWNSTREAM OF PROPOSED GRADING ACTIVITIES.

   C. WETLANDS:

   WETLAND INFORMATION WAS OBTAINED FROM PLANS PLAN PREPARED BY THE HORSLEY WITTEN GROUP, INC. ENTITLED "EXISTING CONDITIONS PLAN, CHEPACHET VILLAGE STORMWATER SYSTEM RETROFIT, GLOCESTER, RHODE ISLAND". DATED NOVEMBER 24, 2010.

4. UTILITIES:

   THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE NOT YET BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS TO CONTACT 'DIG SAFE' AT 811, 72-HOURS PRIOR TO ANY EXCAVATION PERFORMED ON SITE.

GENERAL CONSTRUCTION REQUIREMENTS

1. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
2. THE OWNER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS WITH THE TOWN OF GLOCESTER. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.
3. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE TOWN OF GLOCESTER AND THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION.
4. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER/OWNER.
5. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT AND THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS/HER EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION. ALL WATER, GAS, SEWER AND OTHER UTILITY SERVICES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, WALKS, CURBS, ETC. THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
8. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.
9. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER."
10. THE CURRENT EDITION OF STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, REVISIONS AND ALL CURRENT ADDENDA, AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF, AS IF ATTACHED HERETO.
11. THE LIMIT OF DISTURBANCE SHALL BE ESTABLISHED AND DEMARCATED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO PREVENT INADVERTENT IMPACTS TO EXISTING HISTORICAL RESOURCES.

ANTICIPATED CONSTRUCTION SEQUENCE

1. CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT ARE EXPECTED TO COMMENCE IN SEPTEMBER 2012 AND BE COMPLETED BY MAY 2013. THE GENERAL SEQUENCE OF CONSTRUCTION IS AS FOLLOWS:
   A. INSTALL PERIMETER SEDIMENT CONTROL BARRIERS AND THE CONSTRUCTION ENTRANCE, AS SHOWN ON THE SITE PLANS.
   B. CONDUCT SITE CLEARING AND INSTALL SWAMP MATS NECESSARY FOR THE CONSTRUCTION OF THE IMPERMEABLE GEOMEMBRANE EARTHEN CAP AND THE EXCAVATION OF SEDIMENT WITHIN THE RACEWAY.
   C. TEMPORARILY STOCKPILE BUILDING REMNANTS FOR REUSE.
   D. CONDUCT ROUGH GRADING WITHIN AREA TO RECEIVE IMPERMEABLE GEOMEMBRANE EARTHEN CAP.
   E. INSTALL TURBIDITY CURTAIN AND SANDBAG COFFERDAM.
   F. CONDUCT EXCAVATION OF SEDIMENT WITHIN RACEWAY. BACKFILL RACEWAY WITH STOCKPILE BUILDING REMNANTS STOCKPILED.
   E. REMOVE TURBIDITY CURTAIN AND SANDBAG COFFERDAM.
   F. INSTALL IMPERMEABLE GEOMEMBRANE EARTHEN CAP.
   G. INSTALL SPLIT RAIL FENCE.
   H. REMOVE SWAMP MATS AND RESTORE DISTURBED AREAS.
   I. CONDUCT SITE CLEARING NECESSARY FOR PATHWAY EXCAVATION AND BACKFILL.
   J. EXCAVATE EXISTING MATERIAL WITHIN AND ADJACENT TO PATHWAY AND BACKFILL.
   K. RESTORE DISTURBED AREAS. APPLY TEMPORARY VEGETATIVE COVER IF OUTSIDE OF RECOMMENDED SEEDING DATES.
   L. PLACE SEED AND INSTALL SHRUBS IN SPRING 2013.
   M. REMOVE TEMPORARY EROSION AND SEDIMENTATION CONTROLS MEASURES ONCE PERMANENT VEGETATION COVER HAS BEEN ESTABLISHED AND THE SITE IS STABILIZED.

EROSION CONTROL NOTES

1. DISTURBANCE OF SOIL SURFACES IS REGULATED BY STATE LAW AND LOCAL ORDINANCE. ALL WORK SHALL COMPLY WITH THE FOLLOWING CRITERIA TO PREVENT OR MINIMIZE SOIL EROSION.
2. THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL DEVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLAN, OR AS DIRECTED BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND THE TOWN OF GLOCESTER. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED IN EFFECTIVE CONDITION DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL USE THE LATEST EDITION OF THE "STATE OF RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" IN CONSTRUCTING THE EROSION AND SEDIMENT CONTROLS INDICATED ON THE PLANS. ALL EROSION AND SEDIMENT CONTROL MEASURES OR WORKS AND REHABILITATION MEASURES MUST CONFORM TO OR EXCEED THE SPECIFICATIONS OR STANDARDS SET OUT IN THIS HANDBOOK.
4. THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL DEVICES AT THE END OF EACH WORKING DAY, AFTER EACH STORM EVENT, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE TIMELY INSTALLATION, INSPECTION, MAINTENANCE, AND/OR REPLACEMENT OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES TO ENSURE PROPER OPERATION THROUGHOUT THE LIFE OF THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF PERMANENT MEASURES UNTIL CONSTRUCTION OF THE PROJECT IS COMPLETED OR UNTIL IT IS ACCEPTED BY THE OWNER. THE OWNER IS RESPONSIBLE THEREAFTER.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CLEAN ROADS, CONTROL DUST, AND TAKE ALL NECESSARY MEASURES TO ENSURE THAT THE SITE AND ALL ROADS BE MAINTAINED IN A MUD- AND DUST-FREE CONDITION AT ALL TIMES THROUGHOUT THE LIFE OF THE CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO, WATER AND/OR CRUSHED STONE OR COARSE GRAVEL, SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. THE PROPOSED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS AND DETAILS. ALL VEHICLE TRAFFIC ENTERING OR EXITING THE PROJECT SITE SHALL PASS OVER THE CONSTRUCTION ENTRANCE TO REDUCE THE TRACKING OR FLOWING OF SEDIMENT ONTO THE SURROUNDING ROADWAYS. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE SURROUNDING ROADWAYS. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE SURROUNDING ROADWAYS MUST BE REMOVED IMMEDIATELY. ADDITIONAL ENTRANCES FOR CONSTRUCTION PHASING SHALL BE INSTALLED AS REQUIRED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS.
8. THE CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT CONTROL BARRIERS AS SHOWN ON THE SITE DEVELOPMENT PLANS. A ROW OF STAKED HAYBALES OR A SILT FENCE SHALL ALSO BE INSTALLED AROUND ANY SOIL STOCKPILE AREAS. CLEANOUT OF ACCUMATED SEDIMENT BEHIND PERIMETER SEDIMENT CONTROL BARRIER IS NECESSARY IF ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER BECOMES FILLED WITH SEDIMENT. REPLACE BARRIER IMMEDIATELY IF BARRIER DECOMPOSED OR BECOMES INEFFECTIVE.
9. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS. AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESODDED, RESEEDED, OR OTHERWISE RESTORED TO THEIR ORIGINAL STATE. TREES AND OTHER EXISTING VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE.
10. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED TO ANY DISTURBED AREAS (INCLUDING SOIL STOCKPILE AREAS) THAT HAVE NOT YET REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS. TEMPORARY SEEDING MAY BE APPLIED ANYTIME BETWEEN MARCH 1 THROUGH JUNE 15 AND AUGUST 15 THROUGH OCTOBER 1.

    THIS TEMPORARY VEGETATIVE COVER SHALL CONSIST OF 60% OF ANNUAL OR PERENNIAL RYEGRASS AND 40% OF MILLET OR SUDANGRASS OR 100% OF WINTER RYE. ANNUAL OR PERENNIAL RYEGRASS SHALL BE PLANTED AT A RATE OF 1.5 POUNDS PER 1,000 SQUARE FEET, WINTER RYE SHALL BE PLANTED AT A RATE OF 2.5 POUNDS PER 1,000 SQUARE FEET, AND MILLET OR SUDANGRASS SHALL BE PLANTED AT A RATE OF 1.0 POUND PER 1,000 SQUARE FEET.

    LIMESTONE AND FERTILIZER SHALL BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS OFFERED BY THE UNIVERSITY OF MASSACHUSETTS SOIL TESTING LABORATORY. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 300 POUNDS PER ACRE OR 7.5 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 OR EQUIVALENT. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AS FOLLOWS: 3 TONS PER ACRE (OR 135 POUNDS PER 1,000 SQUARE FEET) FOR CLAY, CLAY LOAM AND HIGH ORGANIC SOIL, 2 TONS PER ACRE (OR 90 POUNDS PER 1,000 SQUARE FEET) FOR SANDY LOAM, LOAM, OR SILT LOAM, AND 1 TON PER ACRE (OR 45 POUNDS PER 1,000 SQUARE FEET) LOAMY SAND OR SAND. TEMPORARY VEGETATIVE COVER SHALL BE INSTALLED AS OUTLINED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK.
11. PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO ALL DISTURBED AREAS THAT HAVE REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS PERMANENTLY CEASED. THE RECOMMENDED PERMANENT SEEDING DATES ARE APRIL 1 TO JUNE 15 AND AUGUST 15 TO SEPTEMBER 30.

    PERMANENT VEGETATIVE COVER OUTSIDE IMPERVIOUS SURFACES, OR NOT OTHERWISE SPECIFIED ON THE PLANS, SHALL BE NEW ENGLAND LOGGING ROAD SEED MIX, BY NEW ENGLAND WETLAND PLANTS, INC., OR APPROVED EQUAL. APPLICATION RATE SHALL BE 20 LBS/ACRE.

    LIMESTONE AND FERTILIZER SHALL BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS OFFERED BY THE UNIVERSITY OF MASSACHUSETTS SOIL TESTING LABORATORY. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11.5 POUNDS PER 1,000 SQUARE FEET OF 10-20-20 OR EQUIVALENT. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AS FOLLOWS: 4 TONS PER ACRE (OR 180 POUNDS PER 1,000 SQUARE FEET) FOR CLAY, CLAY LOAM AND HIGH ORGANIC SOIL; 3 TONS PER ACRE (OR 135 POUNDS PER 1,000 SQUARE FEET) FOR SANDY LOAM, LOAM, OR SILT LOAM; AND 2 TONS PER ACRE (OR 90 POUNDS PER 1,000 SQUARE FEET) LOAMY SAND OR SAND.
12. AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING IN ADDITION TO AREAS WHICH CANNOT BE SEEDED WITHIN THE RECOMMENDED SEEDING DATES AND ANY SOIL STOCKPILE AREAS. TEMPORARY MULCHING SHOULD BE PERFORMED AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS.

    ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. WHERE EROSION IS OBSERVED, ADDITIONAL MULCH MUST BE APPLIED. IF NETTING IS USED, THE NET SHALL BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, THE NET MUST BE REINSTALLED AS NECESSARY AFTER REPAIRING DAMAGE TO SLOPE. INSPECTIONS SHALL TAKE PLACE UNTIL GRASSES ARE FIRMLY ESTABLISHED. GRASS IS CONSIDERED TO BE FIRMLY ESTABLISHED AT A MINIMUM HEIGHT OF THREE (3) INCHES.

    STRAW OR HAY MULCH, WOOD FIBER MULCH, AND HYDROMULCH ARE RECOMMENDED. STRAW OR HAY MULCH SHOULD BE APPLIED AT A RATE OF 2 TONS PER ACRE, WOOD FIBER MULCH SHOULD BE APPLIED AT A RATE OF 1,500-2,000 POUNDS PER ACRE, OR HYDROMULCH APPLIED AT A RATE OF 1,500 POUNDS PER ACRE. WOOD FIBER MULCH SHOULD NOT BE USED ALONE IN THE WINTER OR DURING HOT, DRY WEATHER. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING. MULCH ANCHORING SHOULD ALSO BE USED ON SLOPES GREATER THAN THREE (3) PERCENT AND CONCENTRATED FLOW AREAS SUCH AS DIVERSION AND WATERWAY CHANNELS.
13. IF SEEDING CANNOT BE COMPLETED IMMEDIATELY OR WITHIN THE RECOMMENDED SEEDING DATES, USE THE TEMPORARY MULCHING MEASURE TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
14. ANY EXISTING DRAINAGE STRUCTURES WHICH MAY BE SUBJECT TO SEDIMENTATION PROCESSES, INCLUDING INLET/OUTLET STRUCTURES AND OUTFALL AREAS SHALL BE PROTECTED WITH STAKED HAYBALES, SILT SACKS, OR OTHER APPROVED MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
15. ALL EXCESS EXCAVATED MATERIALS, EXCESS FILL, EXCESS CONSTRUCTION MATERIALS, AND DEBRIS SHALL BE REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.
16. WASTE DISPOSAL: MATERIALS WHICH COULD BE A POTENTIAL SOURCE OF STORMWATER POLLUTION SUCH AS GASOLINE, DIESEL FUEL, HYDRAULIC OIL, ETC., SHALL BE STORED AT THE END OF EACH DAY IN A STORAGE TRAILER OR COVERED LOCATION AND TAKEN OFF-SITE AND PROPERLY DISPOSED OF. ALL TYPES OF WASTE GENERATED AT THIS SITE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH STATE LAW AND/OR REGULATIONS.
17. CONTROL OF ALLOWABLE NON-STORMWATER DISCHARGES: IF ALLOWABLE NON-STORM WATER DISCHARGES ARE OCCURRING AT THE SITE, SUCH DISCHARGES SHALL BE VISUALLY OBSERVED AND RECORDED AS OUTLINED BELOW AND IN ACCORDANCE WITH PART II OF THE RIPDES GENERAL PERMIT. THE LIST OF EXPECTED SOURCES OF ALLOWABLE NON-STORM WATER DISCHARGES FOR THIS PROJECT ARE AS FOLLOWS: (1) DISCHARGE FROM VEHICLE WASHDOWN WHERE NO DETERGENTS ARE USED, (2) EXTERNAL BUILDING WASHDOWN WHERE NO DETERGENTS ARE USED, (3) THE USE OF WATER TO CONTROL DUST, (4) FIRE HYDRANT FLUSHINGS, (5) LAWN WATERING, (6) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS, (8) IRRIGATION DRAINAGE, (9) PAVEMENT WASHWATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS ALL SPILLED MATERIALS HAVE BEEN REMOVED) AND WHERE NO DETERGENTS ARE USED, AND (10) FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS SUCH AS SOLVENTS OR CONTAMINATED BY CONTACT WITH SOILS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAS OCCURRED.
18. GOOD HOUSEKEEPING: THE PROJECT SITE SHALL PROVIDE FOR THE MINIMIZATION OF EXPOSURE OF CONSTRUCTION DEBRIS (INCLUDING, BUT NOT LIMITED TO, INSULATION, WIRING, PAINTS AND PAINT CANS, SOLVENTS, WALL BOARD, ETC.) TO PRECIPITATION BY MEANS OF DISPOSAL AND/OR PROPER SHELTER OR COVER. CONSTRUCTION WASTE MUST BE PROPERLY DISPOSED OF IN ORDER TO AVOID EXPOSURE TO PRECIPITATION AT THE END OF EACH WORKING DAY.

EROSION CONTROL INSPECTION NOTES

1. ALL DISTURBED AREAS, AREAS USED FOR THE STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION (INCLUDING SOIL STOCKPILES), DISCHARGE LOCATIONS, AND LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE, MUST BE INSPECTED BY OR UNDER THE SUPERVISION OF THE PERMITTEE AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN TWENTY-FOUR (24) HOURS AFTER ANY STORM EVENT WHICH GENERATES AT LEAST 0.25 INCHES OF RAINFALL PER TWENTY-FOUR (24) HOUR PERIOD AND/OR AFTER A SIGNIFICANT AMOUNT OF RUNOFF. SUCH AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE WATERS OF THE STATE OR A SEPARATE STORM SEWER SYSTEM. ALL BEST MANAGEMENT PRACTICES (BMPS) SHALL BE MAINTAINED TO PREVENT UNCONTROLLED RELEASES OF MEASURABLE AMOUNTS OF SEDIMENT OR SEDIMENT LADEN WATER FROM TRAVELING BEYOND THE LIMITS OF DISTURBANCE.
2. IF AN INSPECTION REVEALS A DISCHARGE OF SEDIMENTS TO THE WATERS OF THE STATE OR A SEPARATE STORM SEWER SYSTEM, THE PERMITTEE MUST NOTIFY THIS OFFICE OF THE NATURE OF THE DISCHARGE, THE MEASURES TAKEN TO CLEAN UP THE DISCHARGE, AND THE MEASURES TAKEN TO PREVENT FUTURE RELEASES. BASED ON THE RESULTS OF THE INSPECTIONS, THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MUST BE REVISED AS APPROPRIATE, BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING THE INSPECTION. SUCH MODIFICATIONS MUST PROVIDE FOR IMPLEMENTATION OF ANY CHANGES TO THE SWPPP WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE INSPECTION.
3. A REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S), AND TITLES OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE SWPPP, AND ACTIONS MUST BE MADE AND RETAINED AS PART OF THE SWPPP FOR AT LEAST FIVE (5) YEARS FROM THE DATE THAT THE SITE HAS UNDERGONE FINAL STABILIZATION. SUCH REPORTS MUST IDENTIFY ANY INCIDENTS OF NONCOMPLIANCE. WHERE A REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NONCOMPLIANCE, THE REPORT MUST CONTAIN A CERTIFICATION THAT THE SITE IS IN COMPLIANCE WITH THE SWPPP AND THIS PERMIT. THE REPORT MUST BE SIGNED IN ACCORDANCE WITH PART V.G. OF THE RIPDES GENERAL PERMIT.

CLEAN SOIL ANALYTICAL REQUIREMENTS

SOIL MATERIALS TO BE IMPORTED FROM AN OFF-SITE SOURCE FOR USE AS PART OF SITE REMEDIATION, INCLUDING EXCAVATION BACKFILL, CLEAN SOIL-LOAM, CLEAN SOIL-GRAVEL BORROW, CLEAN SOIL-SAND, AND CLEAN FILL-COMMON BORROW MUST MEET THE DEFINITION OF "CLEAN SOIL" DOCUMENTED IN THE RIDEM RULES AND REGULATIONS FOR THE INVESTIGATION AND REMEDIATION OF HAZARDOUS MATERIALS RELEASES. TO EVALUATE COMPLIANCE WITH THIS REQUIREMENT, THESE IMPORTED SOIL MATERIALS SHALL CONSIST OF MATERIAL WHICH HAS BEEN CERTIFIED BY THE SUPPLIER TO NOT HAVE BEEN IMPACTED BY A RELEASE OF OIL AND/OR HAZARDOUS MATERIALS AND FOR WHICH REPRESENTATIVE SAMPLES COLLECTED AT A FREQUENCY OF ONE SAMPLE PER 500 TONS OF MATERIAL TO BE IMPORTED AND ANALYZED AT A RHODE ISLAND DEPARTMENT OF HEALTH (RIDOH)-CERTIFIED LABORATORY DO NOT CONTAIN CONCENTRATIONS OF REGULATED COMPOUNDS EXCEEDING THE RIDEM RESIDENTIAL DIRECT EXPOSURE CRITERIA (R-DEC). THE REPRESENTATIVE SAMPLES WILL BE ANALYZED FOR THE FOLLOWING PARAMETERS:

A. VOLATILE ORGANIC COMPOUNDS (VOC) BY USEPA METHOD 8260
B. SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) BY USEPA METHOD 8270
C. THIRTEEN PRIORITY POLLUTANT METALS, INCLUDING ANTIMONY, ARSENIC, BERYLLIUM, CADMIUM, CHROMIUM, COPPER, LEAD, MERCURY, NICKEL, SELENIUM, SILVER, THALLIUM, AND ZINC (PP13 METALS) BY USEPA METHOD 6010B/7471
D. TOTAL PETROLEUM HYDROCARBONS (TPH) BY USEPA METHOD 8100

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PRIOR TO APPROVING IMPORTATION OF THE CLEAN SOIL TO THE SITE, THE ENGINEER SHALL REVIEW ANALYTICAL TEST RESULTS TO WILL CONFIRM THAT THE REPORTED CONCENTRATIONS OF THE ABOVE-LISTED COMPOUNDS DO NOT EXCEED THE RIDEM R-DEC. ALL LABORATORY DETECTION LIMITS SHALL BE SUFFICIENTLY LOW TO COMPARE THE ANALYTICAL RESULTS TO THE R-DEC.

CLEAN SOIL TECHNICAL SPECIFICATIONS

CLEAN SOIL MATERIALS TO BE IMPORTED TO THE SITE FOR USE AS PART OF SITE REMEDIATION SHALL CONFORM TO THE FOLLOWING TECHNICAL SPECIFICATIONS:

A. CLEAN SOIL-LOAM SHALL CONFORM TO RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION SECTION M.18.01 FOR LOAM. THE MATERIAL TO BE FURNISHED SHALL CONSIST OF SCREENED LOOSE, FRIABLE, FINE SANDY LOAM OR SANDY LOAM, AS DEFINED BY THE USDA'S SOIL CONSERVATION SERVICE IN THE SOIL SURVEY MANUAL ISSUED IN 1993, FREE OF SUBSOIL, REFUSE, STUMPS, ROOTS, ROCKS, COBBLES, STONES, BRUSH, NOXIOUS WEEDS, LITTER AND OTHER MATERIALS WHICH ARE LARGER THAN ½-INCH IN ANY DIMENSION AND WHICH WILL PREVENT THE FORMATION OF A SUITABLE SEED BED. ORGANIC MATTER SHALL CONSTITUTE NOT LESS THAN 5 PERCENT NOR MORE THAN 20 PERCENT OF THE LOAM AS DETERMINED BY LOSS-ON-IGNITION OF OVEN DRIED SAMPLES THAT HAVE BEEN DRAWN BY THE ENGINEER, UNLESS OTHERWISE SPECIFIED OR DIRECTED. THE LOAM SHALL HAVE AN ACIDITY RANGE OF 5.5 PH TO 7.6 PH.

B. CLEAN SOIL-COMMON BORROW SHALL CONSIST OF SANDY LOAM TEXTURE ACCORDING TO THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CLASSIFICATION SYSTEM, HAVE NO MORE THAN 15% PASSING THE NO. 200 SIEVE, AND HAVE 100% PASSING THE ONE INCH SIEVE.

C. CLEAN SOIL-GRAVEL BORROW SHALL CONFORM TO RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION SECTION M.01.02.1 FOR BANK RUN OR PLANT-PROCESSED SAND AND GRAVEL. BANK RUN OR PLANT-PROCESSED SAND AND GRAVEL PROPOSED FOR GRAVEL BORROW SHALL BE WELL-GRADED AND MEET THE GRADATION REQUIREMENTS SPECIFIED IN BELOW COLUMN IA, TABLE I OF SUBSECTION M.01.09. IN ADDITION, THE MAXIMUM PARTICLE SIZE SHALL NOT EXCEED 9 INCHES OR THREE-FOURTHS OF THE LOOSE LIFT THICKNESS, WHICHEVER IS SMALLER.

COLUMN IA, TABLE I OF SUBSECTION M.01.09

SIEVE SIZE	PERCENT PASSING
3 INCH	60-100
1/2 INCH	50-85
3/8 INCH	45-80
NO. 4	40-75
NO. 40	0-45
NO. 200	0-10

D. CLEAN SOIL-BEDDING SAND SHALL CONFORM TO ASTM C 33 FOR FINE SAND, WHICH CONSISTS OF THE FOLLOWING GRADATION REQUIREMENTS.

SIEVE SIZE	PERCENT PASSING
3/8 INCH	100
NO. 4	95-100
NO. 8	85-100
NO. 16	50-85
NO. 30	25-60
NO. 50	10-30
NO. 100	2-10

SPILL PREVENTION AND RESPONSE PROCEDURE

1. ANY INADVERTENT OR DELIBERATE DISCHARGE OF WASTE OIL OR ANY OTHER POLLUTANT TO THE WETLANDS OR SURFACE WATERS REQUIRES IMMEDIATE NOTIFICATION TO THE RIDEM OIL POLLUTION CONTROL PROGRAM AT 401-277-2284, AS PER THE OIL POLLUTION CONTROL REGULATIONS. DURING NON-WORKING HOURS, NOTIFICATION OF SPILLS CAN BE MADE TO THE RIDEM DIVISION OF ENFORCEMENT AT 401-277-3070 (THE 24-HOUR EMERGENCY RESPONSE PHONE NUMBER).

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 16 2012 FILE # 12-0126
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

2 of 11

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/26/2012	REVISED PER RIDEM COMMENTS	LCB	SMM

SEAL

SHAWN M. MARTIN
No. 7487
9/26/12
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SCALE:
HORZ.:
VERT.:
DATUM:
HORZ.:
VERT.: NAVD 88
0
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER
LEGEND & GENERAL NOTES
CHEPACHET RIVER PARK
GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012
CN-001

MS VIEW:
LAYER STATE:

NOTES:

1. LOCATIONS OF TEST PITS, MONITORING WELLS, SOIL BORINGS, SOIL SAMPLES, AND SEDIMENT SAMPLES ARE APPROXIMATE.
2. REFER TO THE MARCH 2010 SITE INVESTIGATION REPORT/TARGETED BROWNFIELD ASSESSMENT FOR CHEPACHET RIVER PARK AND FEBRUARY 2012 SITE INVESTIGATION ADDENDUM, PREPARED BY FUSS & O'NEILL INC., FOR SUPPORTING INFORMATION REGARDING THE METHOD 2 DIRECT EXPOSURE CRITERIA FOR SOIL AND SEDIMENT.

SITE INVESTIGATION AREAS OF CONCERN (AOCs)

AOC 1 = FORMER LOWER COTTON MILL
AOC 2 = FORMER LOWER COTTON MILL STORE HOUSE
AOC 3 = FORMER LOWER OIL MILL
AOC 4 = FORMER LOWER MILL PEST HOUSE
AOC 5 = FORMER LOWER MILL DAM/IMPOUNDMENT
AOC 6 = FORMER TANNERY AND CHANNEL
AOC 7 = FORMER MIDDLE COTTON MILL
AOC 8 = FORMER MIDDLE COTTON MILL DYE HOUSE
AOC 9 = FORMER MIDDLE WOOLEN MILL OIL HOUSE
AOC 10 = FORMER MIDDLE WOOLEN MILL STORE HOUSE
AOC 11 = FORMER MIDDLE WOOLEN MILL WASTE HOUSE
AOC 12 = FORMER UPPER MILL SHEDS AND STORAGE
AOC 13 = CHEPACHET RIVER
BACKGROUND = REPRESENTATIVE OF BACKGROUND CONDITIONS

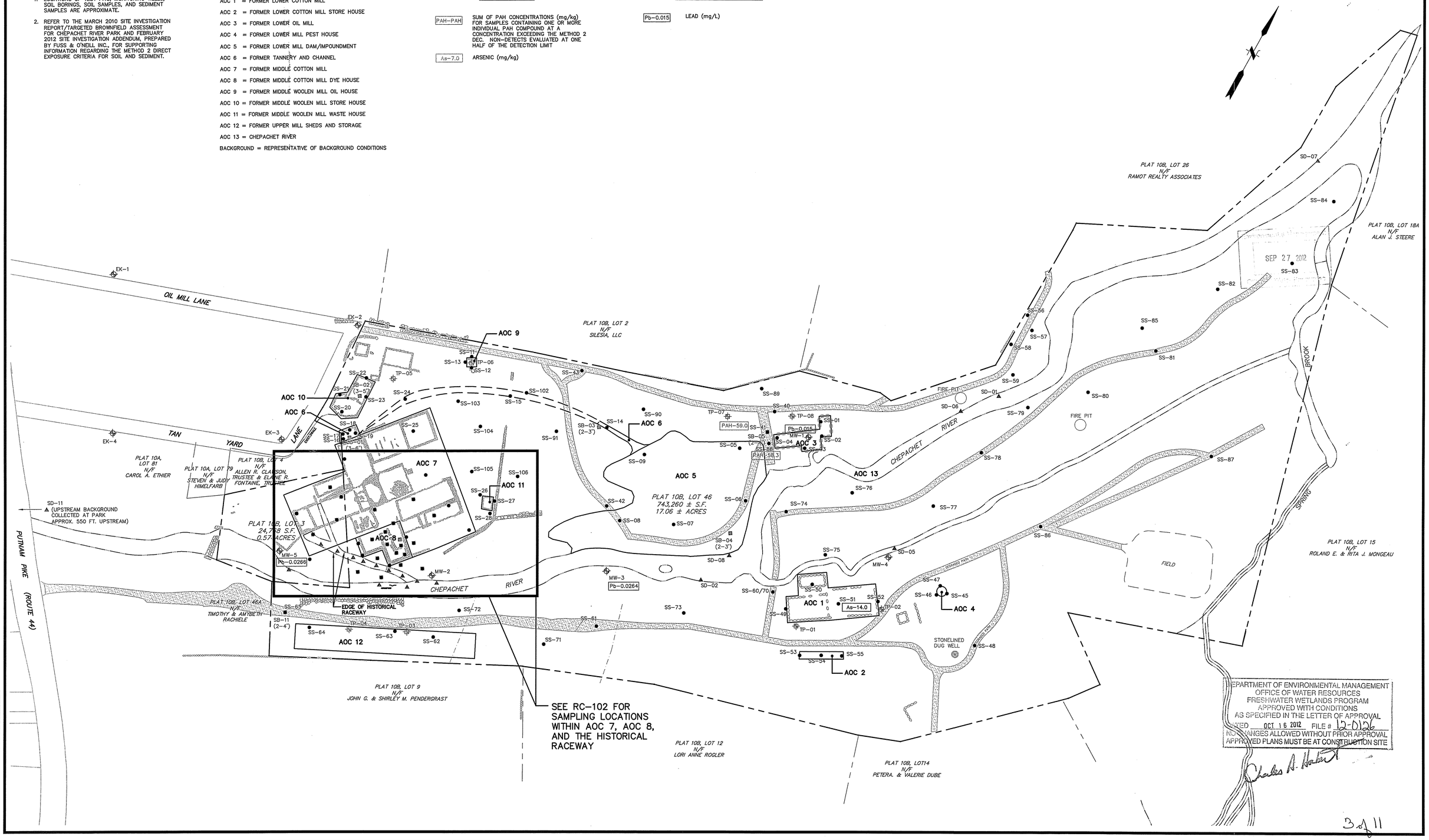
DETECTED EXCEEDANCES OF METHOD 2 DIRECT EXPOSURE CRITERIA IN SOIL

PAH–PAH — SUM OF PAH CONCENTRATIONS (mg/kg) FOR SAMPLES CONTAINING ONE OR MORE INDIVIDUAL PAH COMPOUND AT A CONCENTRATION EXCEEDING THE METHOD 2 DEC. NON–DETECTS EVALUATED AT ONE HALF OF THE DETECTION LIMIT

As–7.0 — ARSENIC (mg/kg)

DETECTED EXCEEDANCES OF RIDEM METHOD 1 GA GROUNDWATER OBJECTIVES

Pb–0.015 — LEAD (mg/L)



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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DATED OCT 16 2012 FILE # 12-0126
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

3 of 11

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/26/2012	REVISED PER RIDEM COMMENTS	LCB	SMM

SEAL

SEAL
SHAWN M. MARTIN
No. 7487
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
9/26/12

SCALE:
HORZ.: 1" = 60'
VERT.:
DATUM:
HORZ.:
VERT.: NAVD 88
60 30 0 60
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER

SAMPLING LOCATION PLAN 1

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

RC-101

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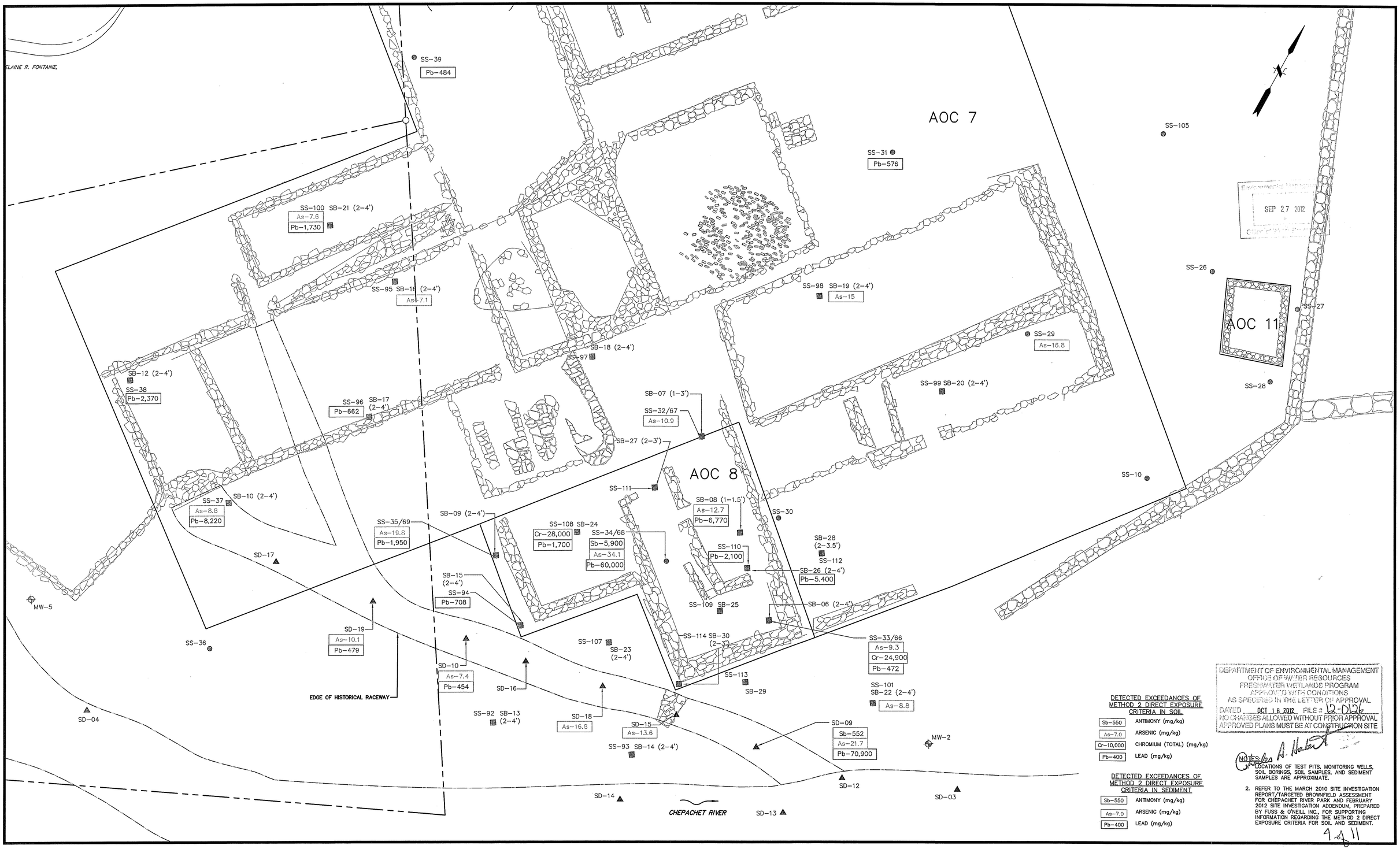

SEP 27 2012

DETECTED EXCEEDANCES OF METHOD 2 DIRECT EXPOSURE CRITERIA IN SOIL

Sb-550	ANTIMONY (mg/kg)
As-7.0	ARSENIC (mg/kg)
Cr-10,000	CHROMIUM (TOTAL) (mg/kg)
Pb-400	LEAD (mg/kg)

DETECTED EXCEEDANCES OF METHOD 2 DIRECT EXPOSURE CRITERIA IN SEDIMENT

Sb-550	ANTIMONY (mg/kg)
As-7.0	ARSENIC (mg/kg)
Pb-400	LEAD (mg/kg)

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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NOTES:

1. LOCATIONS OF TEST PITS, MONITORING WELLS, SOIL BORINGS, SOIL SAMPLES, AND SEDIMENT SAMPLES ARE APPROXIMATE.
2. REFER TO THE MARCH 2010 SITE INVESTIGATION REPORT/TARGETED BROWNFIELD ASSESSMENT FOR CHEPACHET RIVER PARK AND FEBRUARY 2012 SITE INVESTIGATION ADDENDUM, PREPARED BY FUSS & O'NEILL INC., FOR SUPPORTING INFORMATION REGARDING THE METHOD 2 DIRECT EXPOSURE CRITERIA FOR SOIL AND SEDIMENT.

9/28/11

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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SEAL

SEAL
SHAWN M. MARTIN
No. 7487
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
9/26/12

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10 5 0 10
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER

SAMPLING LOCATION PLAN 2

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

RC-102

File Path: J:\DWG\P2004\05740A60\CivilPlan\20040574A60_SAM01.dwg, Layout: RC-102, Plotted: Thu, Sep 27, 2012 - 12:19 PM User: lburton
MS VIEW: LAYER STATE: Plotter: DWG TO PDF.PC3 CTB File: FO.STB

NOTES:

1. THE LIMIT OF DISTURBANCE SHALL BE ESTABLISHED AND DEMARCATED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO PREVENT INADVERTENT IMPACTS TO EXISTING HISTORICAL RESOURCES.
2. THE FLOODPLAIN BOUNDARY ASSOCIATED WITH THE CHEPACHET RIVER THROUGHOUT THE LIMIT OF HYDRAULIC ANALYSIS (AS SHOWN ON SHEETS CS-101 THROUGH CS-104 AND CG-101 THROUGH CG-102) WAS DELINEATED BY FUSS & O'NEILL AND CORRESPONDS TO FLOODPLAIN ELEVATIONS OBTAINED FROM THE HEC-RAS ANALYSIS (OF BETWEEN EL. 396.8 FEET AND EL. 382.5 FEET). THE FLOODPLAIN BOUNDARY ASSOCIATED WITH THE RIVER UPSTREAM AND DOWNSTREAM OF THE LIMIT OF ANALYSIS, WHICH ALSO INCLUDES THE FLOODPLAIN ASSOCIATED WITH THE DOWNSTREAM ADJOINING INTERMITTENT STREAM, WAS DELINEATED BY FUSS & O'NEILL AND CORRESPONDS TO THE FLOODPLAIN ELEVATIONS LISTED WITHIN THE FIS FOR PROVIDENCE COUNTY. FOR EXAMPLE, THE FLOODPLAIN ELEVATION OF THE RIVER AT THE DOWNSTREAM LIMIT OF ANALYSIS IS APPROXIMATELY EL. 382.5 (NAVD88) WHILE THE ELEVATION LISTED IN THE VICINITY OF THE CONFLUENCE OF THE INTERMITTENT STREAM AND CHEPACHET RIVER IS APPROXIMATELY EL. 372.1 (NAVD88).

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SEAL: SHAWN M. MARTIN, No. 7487, REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SCALE: HORZ.: 1" = 30' VERT.:
DATUM: HORZ.: VERT.: NAVD 88
GRAPHIC SCALE: 30 15 0 30

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317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
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TOWN OF GLOCESTER
SITE PREPARATION PLAN
CHEPACHET RIVER PARK
GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CS-101

EXISTING ACCESS ROAD & WET VEGETATED TREATMENT SYSTEM PERMITTED OTHERS (RIDEM INSIGNIFICANT ALTERATION PERMIT 10-0229) (NOT IN PROJECT SCOPE)

PLANK AND RAIL FENCE

REPLACE ONE COURSE OF STOCKPILED BUILDING REMNANTS OF FOUNDATION STONE TO REESTABLISH FOOTPRINT OF BUILDING REMNANTS (TYP.)

LIMIT OF DISTURBANCE (TYP.

REMOVE SWAMP MATS USED FOR TEMPORARY ACCESS, SCARIFY AREA AND SEED

IMPERMEABLE GEOMEMBRANE EARTHEN CAP WITH AOC 8

SILT FENCE AND BALED HAY COMBINED/LIMIT OF DISTURBANCE (TYP.

REMOVE SWAMP MATS SCARIFY AREA AND SEED AREA

SANDBAG COFFERDAM

SEDIMENT EXCAVATION & BACKFILL WITHIN RACEWAY

CHEPACHET RIVER

FLOOD ZONE AE

FLOOD ZONE X

PERIMETER OF WETLAND

B1-11 B1-10 B1-9 B1-8 B1-7 B1-6R B1-5R B1-5A B1-4B A-6 A-7 A-8 A-9

SEP 27 2012

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Charles A. Horbert

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SEAL

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9/26/12

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10 5 0 10
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER

SITE REMEDIATION & RESTORATION PLAN 1

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CS-102

File Path: J:\DWG\P20040574\A60\Civil\Plan\20040574A60_STP01.dwg, Layout: CS-102, Plotted: Thu, Sep 27, 2012 - 12:19 PM User: lburton
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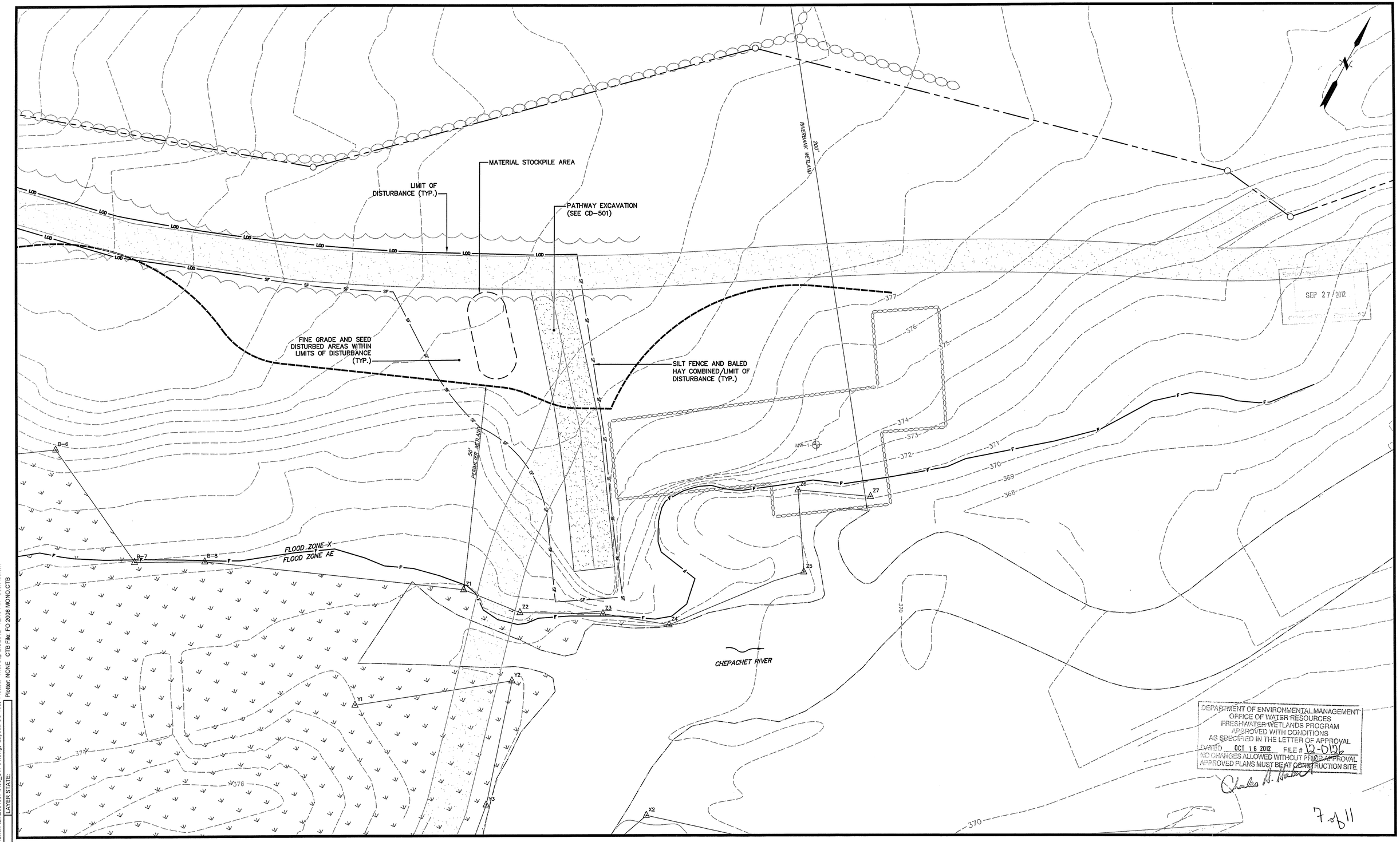

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Charles A. Horbert

7 of 11

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SEAL

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10 5 0 10
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FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER

SITE REMEDIATION & RESTORATION PLAN 2

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CS-103

File Path: J:\DWG\P20040574A60\Civil\Plan\20040574A60_STP01.dwg Layout: CS-103 Plotted: Thu, Sep 27, 2012 - 12:19 PM User: tburton
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INTERPRETIVE SIGNAGE CONTENT AND FINAL LOCATION TO BE DETERMINED BY OWNER

ACCESS ROAD & WET VEGETATED TREATMENT SYSTEM BY OTHERS (REFER TO RIDEM INSIGNIFICANT ALTERATION PERMIT 10-0229)

GATE WITH LATCH AND LOCK

ROSA PALUSTRIS (SWAMP ROSE) SPACED FIVE FEET ON CENTER

POST & PLANK FENCE WITH 4-FOOT WIRE MESH IN LOCATIONS WITHOUT ROSA PALUSTRIS (TYP.)

POST & PLANK FENCE (TYP.)

PROVIDE 7.5" OPENING ALONG BOTTOM OF FENCE FOR WILDLIFE TRAVEL ALONG 15' SEGMENT OF FENCE.

LIMIT OF DISTURBANCE (TYP.

INTERPRETIVE SIGNAGE CONTENT AND FINAL LOCATION TO BE DETERMINED BY OWNER

GATE WITH LATCH AND LOCK

SILT FENCE AND BALED HAY COMBINED/LIMIT OF DISTURBANCE (TYP.

FLOOD ZONE X

FLOOD ZONE AE

RIVERBANK WETLAND

PERIMETER WETLAND

WOODED

SCATTERED TREES

GRAVEL ROAD

PATH

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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SEP 27 2012

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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SEAL

SEAL
SHAWN M. MARTIN
No. 7487
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SCALE:
HORZ.: 1" = 20'
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DATUM:
HORZ.:
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20 10 0 20
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER

SITE REMEDIATION & RESTORATION PLAN 3

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CS-104

File Path: J:\DWG\P20040574A60\Civil\Plan\20040574A60_STP01.dwg, Layout: CS-104, Plotted: Thu, Sep 27, 2012 - 12:19 PM User: lburton
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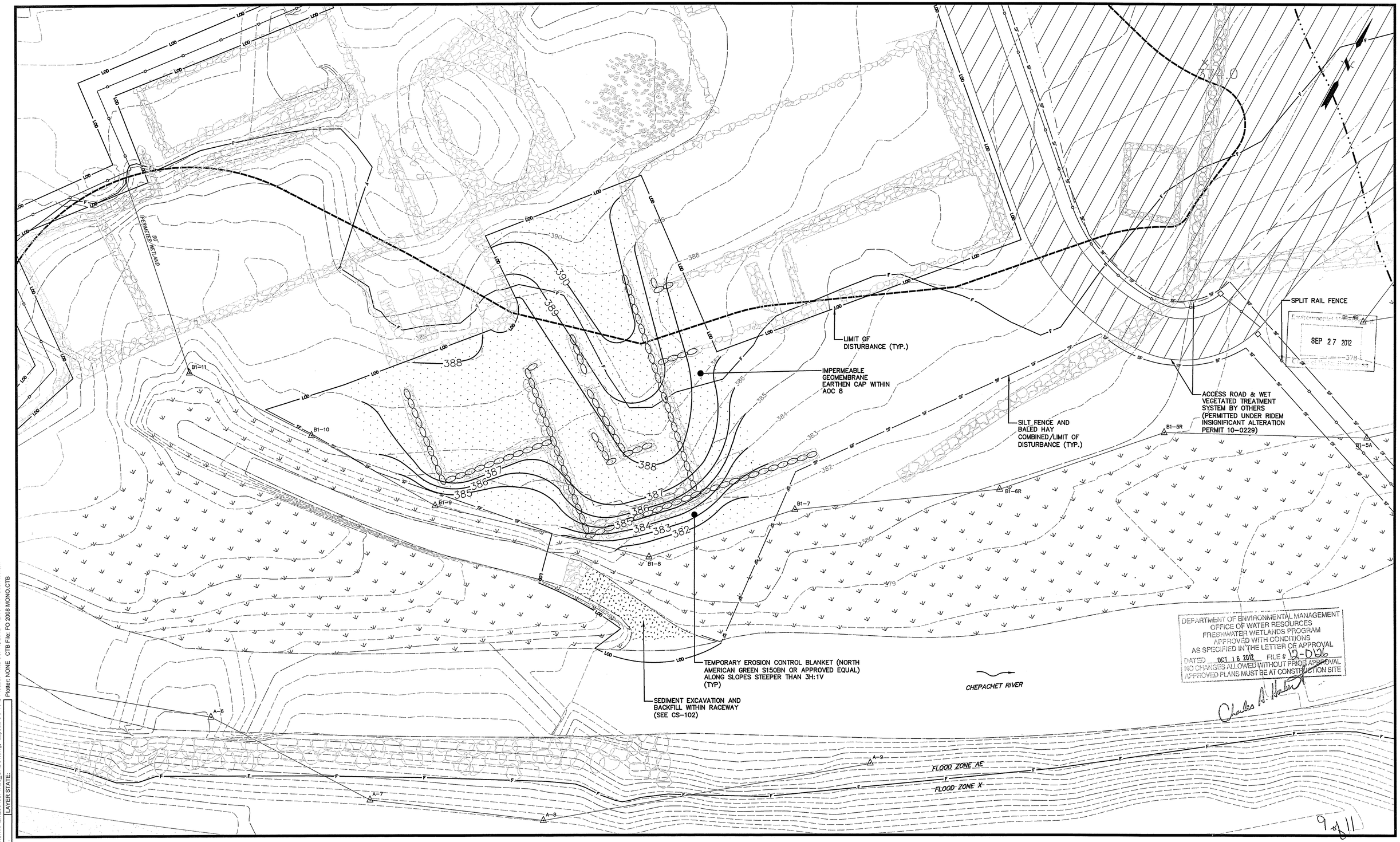

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
2	10/11/2012	REVISED PER RIDEM COMMENTS	LCB	SMM
1.	9/26/2012	REVISED PER RIDEM COMMENTS	LCB	SMM

SEAL

SHAWN M. MARTIN
No. 7487
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
10/11/12

SCALE:
HORZ.: 1" = 10'
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DATUM:
HORZ.:
VERT.: NAVD 88
10 5 0 10
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
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TOWN OF GLOCESTER

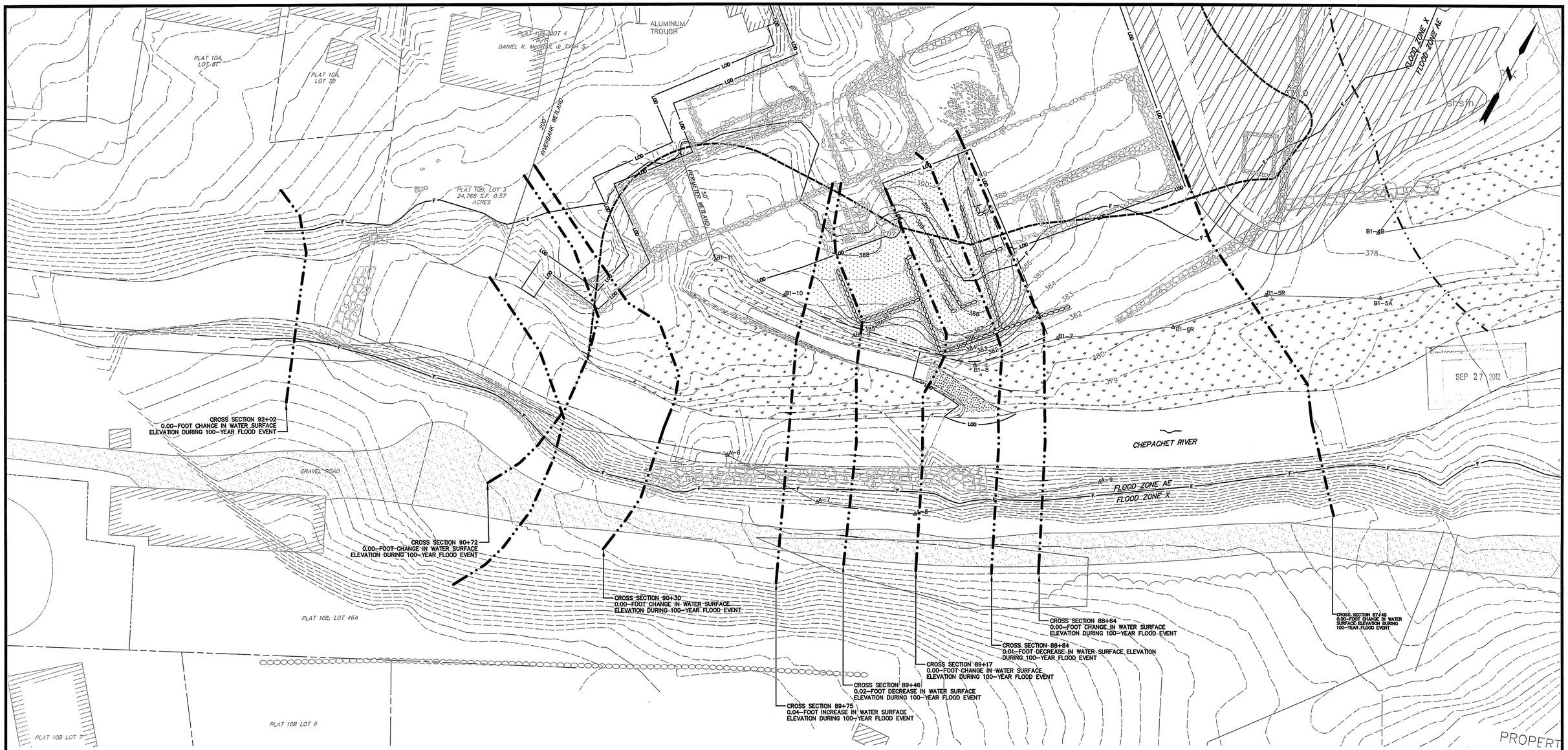
GRADING PLAN

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CG-101



SEP 27 2012

SITE IMPACTS TO 100-YEAR FLOOD PLAIN AREAS:

1. CROSS SECTION LINES ARE DEFINED BETWEEN TWO POINTS APPROXIMATELY 227 FEET UPSTREAM AND 116 FEET DOWNSTREAM OF THE PROPOSED SOIL CAP. GEOMETRY OF THESE SECTIONS WERE DETERMINED WITH TOPOGRAPHICAL INFORMATION OBTAINED FROM NARRAGANSETT ENGINEERING, INC.
2. THE RESULTS OF OUR ANALYSES INDICATE THAT THERE ARE MINOR IMPACTS TO THE FLOODPLAIN ELEVATIONS DUE TO THE PROPOSED WORK. THESE IMPACTS CONVERGE TO PRE-PROJECT CONDITION ELEVATIONS UPSTREAM AT STA. 90+30 AND DOWNSTREAM AT STA. 88+64, AND ARE SHOWN ON THIS PLAN.
3. FULL RESULTS AND ANALYSES MAY BE FOUND IN APPENDIX C OF THE WRITTEN NARRATIVE TO SUPPORT REQUEST FOR PRELIMINARY DETERMINATION FOR CHEPACHET RIVER PARK, DATED AUGUST 2012.
4. SINCE NO INCREASES IN FLOOD PLAIN ELEVATIONS ARE PROPOSED UPSTREAM AND DOWNSTREAM OF THE LIMITS OF HEC-RAS ANALYSIS, THERE WILL BE NO IMPACTS TO THE FLOODPLAIN OF THE RIVER UPSTREAM AND DOWNSTREAM OF THE LIMIT OF STUDY INCLUDING THE FLOODPLAIN ASSOCIATED WITH THE INTERMITTENT STREAM THAT IS IDENTIFIED WITHIN THE LEFT OVERBANK OF THE RIVER DOWNSTREAM OF THE LIMIT OF ANALYSIS.

DELINEATION OF 100-YEAR FLOODPLAIN:

1. THE FLOODPLAIN BOUNDARY ASSOCIATED WITH THE CHEPACHET RIVER THROUGHOUT THE LIMIT OF HYDRAULIC ANALYSIS (AS SHOWN ON SHEETS CG-101 THROUGH CG-102) WAS DELINEATED BY FUSS & O'NEILL AND CORRESPONDS TO FLOODPLAIN ELEVATIONS OBTAINED FROM THE HEC-RAS ANALYSIS (OF BETWEEN EL. 396.8 FEET AND EL. 382.5 FEET). THE FLOODPLAIN BOUNDARY ASSOCIATED WITH THE RIVER DOWNSTREAM OF THE LIMIT OF ANALYSIS, WHICH ALSO INCLUDES THE FLOODPLAIN ASSOCIATED WITH THE ADJOINING INTERMITTENT STREAM, WAS DELINEATED BY FUSS & O'NEILL AND CORRESPONDS TO THE FLOODPLAIN ELEVATIONS LISTED WITHIN THE FIS FOR PROVIDENCE COUNTY. FOR EXAMPLE, THE FLOODPLAIN ELEVATION OF THE RIVER AT THE DOWNSTREAM LIMIT OF ANALYSIS IS APPROXIMATELY EL. 382.5 (NAVD88) WHILE THE ELEVATION LISTED IN THE VICINITY OF THE CONFLUENCE OF THE INTERMITTENT STREAM AND CHEPACHET RIVER IS APPROXIMATELY EL. 372.1 (NAVD88).
2. SINCE ONLY MINOR INCREASES IN FLOODPLAIN ELEVATIONS OF 0.04 FEET OR LESS ARE PROPOSED WITHIN, UPSTREAM AND DOWNSTREAM OF THE LIMIT OF ANALYSIS, THE FLOODPLAIN BOUNDARY BETWEEN PRE- AND POST-CONDITIONS (AS REFLECTED ON THESE PLANS) REMAINS UNCHANGED.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 16 2012 FILE # 12-0126
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

10 of 11

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/26/2012	REVISED PER RIDEM COMMENTS	LCB	SMM

SEAL

SEAL

SCALE:
HORZ.: 1" = 20'
VERT.:
DATUM:
HORZ.:
VERT.: NAVD 88
20 10 0 20
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF GLOCESTER

FLOOD PLAIN IMPACT PLAN

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CG-102

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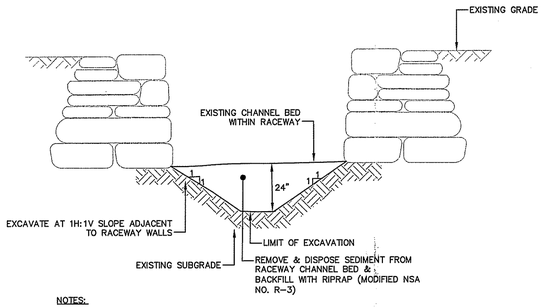


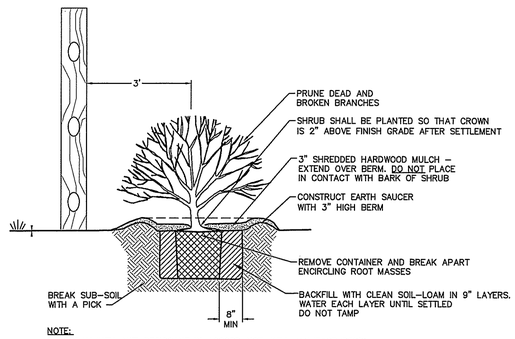
NOTES:

1. REMEDIATION WITHIN RACEWAY SHALL OCCUR DURING DRY WEATHER AND LOW FLOW CONDITIONS DURING THE PERIOD OF JULY 1 – OCTOBER 31.
2. CONTRACTOR SHALL INSTALL SANDBAG COFFERDAM AS SHOWN ON THE SITE PLANS. IF LESS THAN SIX INCHES OF SEPARATION BETWEEN WATER SURFACE ELEVATION AND TOP OF SAND BAG RESULTS, INSTALL ADDITIONAL ROW OF SAND BAGS. WIDEN BASE ROW AS REQUIRED TO PROVIDE STABLE BASE FOR UPPER ROW.
3. EXCAVATED SEDIMENT SHALL BE TEMPORARILY STOCKPILED WITHIN EXCAVATED AREA OF RACEWAY TO ALLOW IN PLACE DEWATERING.
4. SEED DISTURBED AREAS, OUTSIDE OF THE RACEWAY, WITH NEW ENGLAND LOGGING ROAD SEED MIX, BY NEW ENGLAND WETLAND PLANTS, INC.
5. RIPRAP STONE (MODIFIED NSA NO. R-3) SHALL BE GRADED AS FOLLOWS:

SIZE INCHES (SQUARE OPENINGS)	PERCENT PASSING
8	100%
4	0–50%
2	0–15%

SEDIMENT EXCAVATION AND BACKFILL WITHIN RACEWAY

NOT TO SCALE

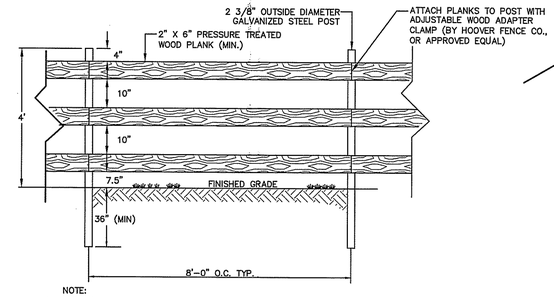


NOTE:

1. SPRAY WITH ANTI DESICCANT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS IF FOLIAGE IS PRESENT.
2. SHRUBS SHALL HAVE MINIMUM HEIGHT OF BE 2'–3' WHEN PLANTED.
3. USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.

SHRUB PLANTING

NOT TO SCALE

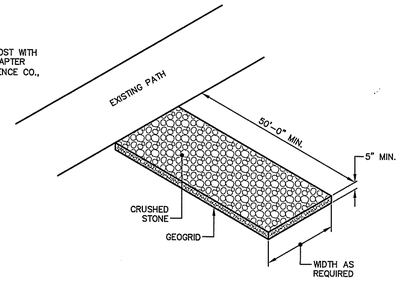


NOTE:

1. ATTACH 4 FOOT HIGH WELDED WIRE MESH TO BACK OF FENCE WHERE SHOWN ON CS–104. MESH SHALL BE 12.5 GAUGE WITH 2 INCH BY 4 INCH OPENINGS. PROVIDE 6–INCH OPENING ALONG BOTTOM OF FENCE IN AREAS SHOWN ON CS–104 TO ALLOW FOR WILDLIFE TRAVEL.

POST AND PLANK FENCE

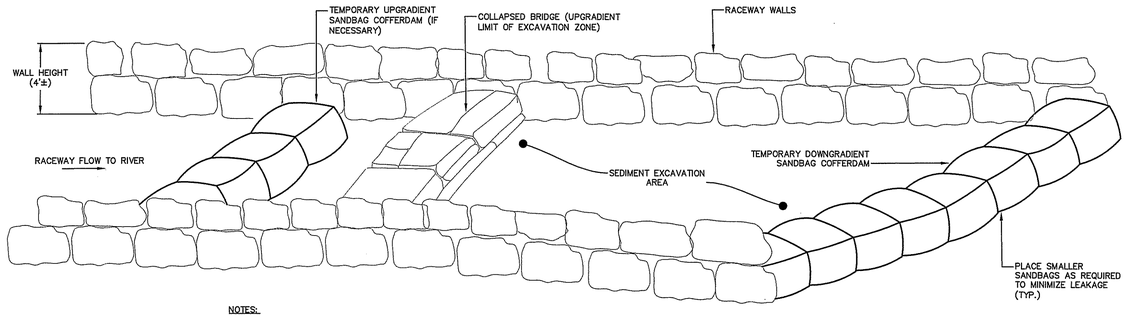
NOT TO SCALE



NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

CONSTRUCTION ENTRANCE (R.I. STD. 9.9.0)

NOT TO SCALE

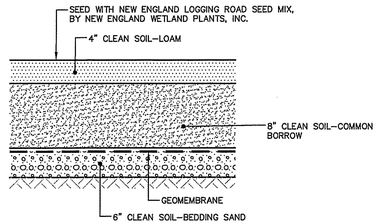


NOTES:

1. INSTALL SAND BAGS DOWNGRADIENT OF THE EXCAVATION AREA.
2. IF NECESSARY, INSTALL SAND BAGS UPGRADIENT OF THE EXCAVATION AREA AND PUMP WATER INTO CONTAINER FOR OFFSITE DISPOSAL IN ACCORDANCE WITH THE REMEDIAL ACTION WORK PLAN.
3. SET TOP OF SAND BAGS 12–INCHES ABOVE THE WATER SURFACE ELEVATION WITHIN THE CHEPACHET RIVER. IF LESS THAN SIX INCHES OF SEPARATION BETWEEN WATER SURFACE ELEVATION AND TOP OF SAND BAGS RESULTS DURING CONSTRUCTION, INSTALL ADDITIONAL ROW OF SAND BAGS TO ACHIEVE 12–INCHES OF SEPARATION AND WIDEN BASE ROW AS REQUIRED TO PROVIDE STABLE BASE FOR UPPER ROWS.
4. DEWATERING, IF NECESSARY, SHALL CONSIST OF PUMPING STANDING WATER, CONTAINERIZING, AND OFFSITE DISPOSAL PER THE REMEDIAL ACTIVE WORK PLAN.

SANDBAG COFFERDAM

NOT TO SCALE

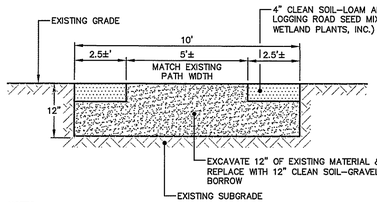


NOTES:

1. CLEAN SOIL–LOAM, CLEAN SOIL–COMMON BORROW, AND CLEAN SOIL–SAND SHALL CONFORM TO TECHNICAL SPECIFICATIONS ON CN–001 AND SHALL BE TESTED AND CERTIFIED AS CLEAN SOIL PRIOR TO IMPORTATION TO THE SITE AS REQUIRED BY THE REMEDIAL ACTION WORK PLAN AND THE CLEAN SOIL ANALYTICAL REQUIREMENTS ON CN–001.
2. IMPERMEABLE GEOMEMBRANE SHALL BE GSE ULTRAFLEX SMOOTH, LINEAR–LOW DENSITY POLYETHYLENE GEOMEMBRANE WITH A MINIMUM THICKNESS OF 40 MIL, OR APPROVED EQUAL.
3. ALL DISTURBED AREAS SHALL BE SCARIFIED AND SEEDED WITH NEW ENGLAND LOGGING ROAD SEED MIX, BY NEW ENGLAND WETLAND PLANTS, INC..

IMPERMEABLE GEOMEMBRANE EARTHEN CAP WITHIN AOC8 CROSS–SECTION

NOT TO SCALE

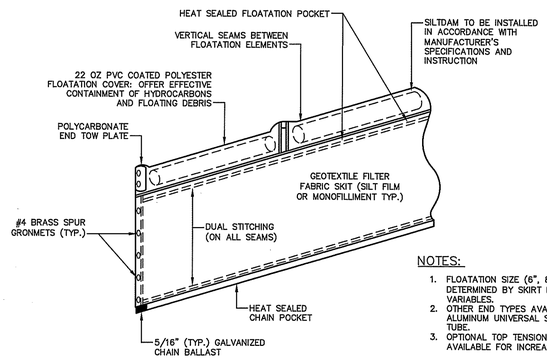


NOTES:

1. CLEAN SOIL–GRAVEL BORROW AND CLEAN SOIL–LOAM SHALL CONFORM TO TECHNICAL SPECIFICATIONS ON CN–001 AND SHALL BE TESTED AND CERTIFIED AS CLEAN SOIL PRIOR TO IMPORTATION TO THE SITE AS REQUIRED BY THE REMEDIAL ACTION WORK
2. ALL DISTURBED AREAS SHALL BE SCARIFIED AND SEEDED WITH NEW ENGLAND LOGGING ROAD SEED MIX, BY NEW ENGLAND WETLAND PLANTS, INC.

PATHWAY EXCAVATION AND BACKFILL

NOT TO SCALE



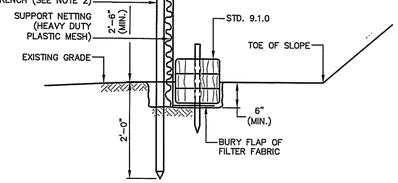
NOTES:

1. FLOATATION SIZE (6", 8" OR 12" DIA.) DETERMINED BY SKIRT DEPTH/SITE VARIABLES.
2. OTHER END TYPES AVAILABLE SUCH AS ALUMINUM UNIVERSAL SLIDE OR SLOTTED TUBE.
3. OPTIONAL TOP TENSION CABLE (5/16" TYP.) AVAILABLE FOR INCREASED STRENGTH.

SILTDAM CONTAINMENT BARRIERS FORM A STURDY, ECONOMICAL, AND PURPOSE TURBIDITY BARRIER WHICH CAN ACCOMMODATE A WIDE VARIETY OF WIND, SEA AND CURRENT CONDITIONS, AN EXCELLENT BARRIER FOR DREDGE AND DRAGLINE OPERATIONS IN OPEN WATER WHERE INCREASED FLOATATION, DEPTH, AND TENSILE STRENGTHS ARE REQUIRED. FLOTATION IS PROVIDED THROUGH A SERIES OF CLOSED CELL EXPANDED POLYETHYLENE LOGS, WHICH ARE RESILIENT IN NATURE AND CAPABLE OF BEING SUBJECTED TO ROUGH SERVICE DURING THE DEPLOYMENT AND RECOVERY OF THE CONTAINMENT BARRIER. THE FLOTATION LOGS ARE COMPLETELY ENCLOSED IN A VINYL COATED FABRIC WHICH IS HEAT SEALED TO PROVIDE A WATERTIGHT FLOTATION COMPARTMENT AND GREATER STRENGTH. THE CONTAINMENT BARRIER MATERIAL CONSISTS OF A FILTER FABRIC COMPOSED OF WOVEN POLYPROPYLENE WHICH ALLOWS THE PASSAGE OF WATER, BUT RETAINS SOIL PARTICLES.

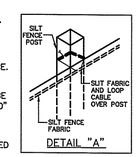
TURBIDITY CURTAIN

NOT TO SCALE



NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. STD. 9.1.0 IS INSTALLED "TIGHT" AGAINST SILT FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILT FENCE FABRIC SHALL NOT BE SLIT. STD 9.1.0 POST SHALL BE DRIVEN THROUGH SILT FENCE FABRIC. 2"x2"x4'–6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'–0" (MAX.) O.C. IN WETLAND AREAS AND 4'–0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP–OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'–6" (MIN.) POSTS PERMITTED FOR PRE–FABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.



DETAIL "A"

BALED HAY EROSION CHECK AND SILT FENCE COMBINED (R.I. STD. 9.3.0)

NOT TO SCALE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/26/2012	REVISED PER RIDEM COMMENTS	LCB	SMM

SEAL

SEAL
SHAWN M. MARTIN
No. 7487
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SCALE:
HORZ.: AS NOTED
VERT.:
DATUM:
HORZ.:
VERT.: NAVD 88
0
GRAPHIC SCALE

FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

DETAILS

CHEPACHET RIVER PARK

GLOCESTER RHODE ISLAND

PROJ. No.: 20040574.A60
DATE: JULY 2012

CD-501

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MS VIEW: