TOWN OF NEWTOWN, CONNECTICUT

INVITATION TO BID

Sealed bids will be received at the office of the Financial Director, **3 Primrose Street**, Newtown, Connecticut 06470, until but no later than **11:00 am, Wednesday, June 20, 2012:**

Cover: **STREAM RESTORATION PROJECT-DICKINSON TOWN PARK**

The Purchasing Authority of the Town of Newtown reserves the right to accept or reject any or all options, bids or proposals; to waive any technicality in any bid or part thereof, and to accept any bid deemed to be in the best interest of the Town of Newtown. The Town of Newtown is an Affirmative Action Employer-MBE/WBE are encouraged to bid.

E. Patricia Llodra
First Selectman

Robert G. Tait
Financial Director

PURCHASING AUTHORITY

TOWN OF NEWTOWN PURCHASING AUTHORITY

INSTRUCTIONS TO BIDDERS

1. Submit bids in a sealed envelope plainly marked to identify the particular bid. It is the sole responsibility of the bidder to see that the bid is in the hands of the proper authority prior to the bid opening time.

2. Withdrawals of, or amendments to bids received later than the time and date specified for bid opening will not be considered.

3. The Purchasing Authority of the Town of Newtown reserves the right to accept or reject any or all options, bids, or proposals; to waive any technicality in any bid, or part thereof, and to accept any bid deemed to be in the best interest of the Town of Newtown, Connecticut.

4. Bidders may be present at the opening of the bids.

5. Bids may be held by the Town of Newtown for a period not to exceed sixty (60) days from the opening of the bids for the purpose of reviewing the bids and investigating the qualifications of bidders prior to the awarding of the contract.

6. Bids must be submitted on the Sealed Bid Request form enclosed at the end of this packet. All items must be filled in (unit cost, trade-in for each unit, etc.). Failure to comply with this requirement will automatically void the bid.

7. Trade-ins, when indicated, will be listed on the Sealed Bid Request form. The Town of Newtown reserves the right to trade all, some or none of the vehicles listed as deemed in the best interest of the Town. Bidders may submit a bid on the new vehicles with or without trade-ins or may submit bids on the trade-ins only, either individually or by lot. Trade-ins must be detailed individually as indicated on the Sealed Bid Request form. Trade-ins may be used in determining the lowest responsible bid.

8. Prior to awarding any contract exceeding $25,000.00 for the construction, alteration, or repair for any public building or public work, a labor or materialmen's bond must be furnished by the person to whom the contract is awarded.

9. The Town may consider proximity of the vendor's service as a factor in determining lowest price and reserves the right to award in whole or part to one or more vendors.

10. The Town agrees to pay for all equipment within thirty (30) working days after the equipment has been accepted and claim (invoice) presented.

11. Bid Security when required must be by a **certified check, letter of credit or surety bond** for five percent (5%) of the total bid, payable to the Town of Newtown. Surety companies and banks must be satisfactory to the Town of Newtown.

12. Performance Bond when required must be by a **certified check or letter of credit or performance bond** for one hundred percent (100%) of the total bid. Surety companies and Banks must be satisfactory to the Town of Newtown.

13. The successful bidder will be required to post a Certificate of Insurance, with the Town of Newtown named as additional insured, in an amount to be determined by the Town of Newtown.

TOWN OF NEWTOWN

Finance Office
3 Primrose Street
Newtown, CT 06470

Request for Bid

Deep Brook Stream Restoration Project

Newtown Parks and Recreation Department

Deep Brook Stream Daylighting

The Town of Newtown is seeking to engage a qualified contractor to provide excavation, bridge construction and stream channel creation for the restoration of a once natural stream at Dickinson Town Park.

All sealed bids will be accepted at the Finance Office until but no later than 11:00 AM, Wednesday, June 20, 2012 and will be opened at that time and date. No FAX or Electronic bids will be accepted.

Interested firms may obtain copies of the bid documents, electronically, from the Finance office at 3 Primrose Street, Newtown, CT 06470 or on-line at www.newtown-ct.gov under the Purchasing Dept. The Specs and Plans can also be found on the State of CT DAS website.

Questions regarding the project should be referred to Carl Samuelson, Asst. Director-Parks, at (203) 948-2523 or carl.samuelson@newtown-ct.gov. All project specific inquiries must be submitted in writing. Addendums will be prepared as necessary and distributed to all interested firms.

The Town of Newtown reserves the right to waive any informalities or defects in any bid. The Town reserves the right to accept other than the lowest bid if the Purchasing Authority, in its sole discretion, deems it to be in the best interest of the Town.

Instructions to Bidders:

All bidders shall bid on the following specifications as presented with the exception of the following:

Item #

0201013	Removal of existing fence – This item shall be provided by the Town.
0703011	6 C/Y intermediate Rip Rap – Material to be provided by the Town.
0728036	220 C/Y Stream Armor – Material to be provided by the Town.
0950006	Wetland seeding – Material and labor provided by the Town.
0950040	Conservation Seeding – Material and Labor provided by the Town.
0943001	Water for dust control – Material provided by the Town.
0939001	Sweeping for dust control – Provided by the Town.
0949085	Plant material and installation provided by the Town.
0949090	Plant material and installation provided by the Town.
0949099	Plant material and installation provided by the Town.
0949132	Plant material and installation provided by the Town.
0949138	Plant material and installation provided by the Town.
0949198	Plant material and installation provided by the Town.
0949314	Plant material and installation provided by the Town.
0949627	Plant material and installation provided by the Town.
0949629	Plant material and installation provided by the Town.
0949830	Plant material and installation provided by the Town.
0949832	Plant material and installation provided by the Town.
0949959	Plant material and installation provided by the Town.
0949960	Plant material and installation provided by the Town.

Construction of this project is set to commence immediately after bid award. Construction in regulated stream channel areas is anticipated to take place during low flow periods. Bridge construction shall be completed no later than September 1, 2012 with project completion no later than September 30, 2012.

BIDDING DOCUMENTS

PROJECT MANUAL

SPECIFICATIONS

Deep Brook Stream Restoration Project

At

Dickinson Memorial Park

Newtown, Connecticut

Contract Number 2011-XXX

January 2011

SECTION 00005 TABLE OF CONTENTS

BID FORM

FOR THE CONSTRUCTION OF

DEEP BROOK STREAM RESTORATION PROJECT

TOWN OF: NEWTOWN
FUNDS: ---
TOWN NO.:
PROJ. NO.: 18854

DEEP BROOK STREAM RESTORATION PROJECT
NEWTOWN, CT

DATE PRINTED: 18-Jan-11

THE FOLLOWING CONSTRUCTION ITEMS AND ESTIMATED QUANTITIES ARE CORRECT AND COMPLETE AND ARE TO BE USED IN PREPARING THE PROPOSAL FOR THIS PROJECT.

Item No.	Description	Unit	Quantity	Unit Price	Amount
0201013	REMOVAL OF EXISTING FENCE Unit Price in Words _____ _____	LF	440		
0201451	TEMPORARY PROTECTIVE FENCE Unit Price in Words _____ _____	LF	100		
0202003	EARTH EXCAVATION Unit Price in Words _____ _____	CY	650		
0202202	CHANNEL EXCAVATION EARTH Unit Price in Words _____ _____	CY	1,750		
0202308	EXCAVATION AND DISPOSAL OF UNSUITABLE FILL Unit Price in Words _____ _____	CY	225		
0202522	REMOVAL OF BITUMINOUS TYPE PAVEMENT Unit Price in Words _____ _____ _____	SY	1,267		

BID FORM

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0202529	CUT BITUMINOUS CONCRETE PAVEMENT Unit Price in Words _____ _____	LF	205		
0202533	REMOVAL OF EXISTING CURBING Unit Price in Words _____ _____	LF	115		
0204503	DEWATERING Unit Price in Words _____ _____	LS	1		
0205003	TRENCH EXCAVATION 0'-10' DEEP Unit Price in Words _____ _____	CY	44		
0209001	FORMATION OF SUBGRADE Unit Price in Words _____ _____	SY	1,650		
0213012	GRANULAR FILL (FINE AGGREGATE) Unit Price in Words _____ _____ _____	CY	150		

BID FORM

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0219001	SEDIMENTATION CONTROL SYSTEM Unit Price in Words _____ _____	LF	100		
0304002	PROCESSED AGGREGATE BASE Unit Price in Words _____ _____	CY	130		
0406011	BITUMINOUS CONCRETE CLASS 1 Unit Price in Words _____ _____	TON	45		
0406017	BITUMINOUS CONCRETE CLASS 2 Unit Price in Words _____ _____	TON	35		
0406236	MATERIAL FOR TACK COAT Unit Price in Words _____ _____	GAL	65		
0507005	ABANDON CATCH BASIN OR MANHOLE Unit Price in Words _____ _____ _____	EA	2		

BID FORM

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0507601	MANHOLE Unit Price in Words _____ _____	EA	1		
0601174	ALUMINUM BOX CULVERT w/FULL INVERT Unit Price in Words _____ _____	LS	1		
0651001	BEDDING MATERIAL Unit Price in Words _____ _____	CY	10		
0651013	18" R.C. PIPE Unit Price in Words _____ _____	LF	52		
0703011	INTERMEDIATE RIPRAP Unit Price in Words _____ _____	CY	6		
0703030	PLACEMENT OF CHANNEL BOULDER Unit Price in Words _____ _____ _____	EA	82		

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0714020	TEMPORARY SHEET PILING Unit Price in Words _____ _____	SF	800		
0715020	SHEET PILING MATERIAL LEFT IN PLACE Unit Price in Words _____ _____	SF	307		
0728014	BOULDER REINFORCEMENT OF SLOPE Unit Price in Words _____ _____	TON	120		
0728015	NO. 67 STONE Unit Price in Words _____ _____	CY	110		
0728036	STREAM ARMOR Unit Price in Words _____ _____	CY	220		
0751902	CONCRETE HEADWALL AND APRON Unit Price in Words _____ _____ _____	EA	1		

BID FORM

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0755005	FILTER FABRICK (SOIL REINFORCEMENT) Unit Price in Words _____ _____	SY	140		
0822001	TEMPORARY PRECAST CONCRETE BARRIER CURB Unit Price in Words _____ _____	LF	160		
0822002	RELOCATED TEMPORARY PCBC Unit Price in Words _____ _____	LF	60		
0910023	R-B TERMINAL SECTION Unit Price in Words _____ _____	EA	2		
0910047	METAL BEAM RAIL TYPE R-B 350 SYSTEM 5A Unit Price in Words _____ _____	LF	69		
0922500	BITUMINOUS CONCRETE DRIVEWAY (COMMERCIAL) Unit Price in Words _____ _____	SY	42		

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0939001	SWEEPING FOR DUST CONTROL Unit Price in Words _____ _____	HR	24		
0943001	WATER FOR DUST CONTROL Unit Price in Words _____ _____	MGAL	100		
0944106	STOCKPILING AND PLACING TOPSOIL Unit Price in Words _____ _____	CY	350		
0945324	STRIPPING AND STOCKPILING TOPSOIL Unit Price in Words _____ _____	CY	350		
0949085	CLETHRA ALNIFOLIA, SUMMERSWEET, 18"-24" HT., B.B. Unit Price in Words _____ _____	EA	73		
0949090	QUERCUS BICOLOR, SWAMP WHITE OAK, 2"-2 1/2" CAL., B.B. Unit Price in Words _____ _____	EA	6		

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0949099	CORNUS AMOMUM, SILKY DOGWOOD, 18"-24" HT., C.G. Unit Price in Words _____ _____	EA	49		
0949132	SAMBUCUS CANADENSIS, COMMON ELDERBERRY, 18"-24" HT., C.G. Unit Price in Words _____ _____	EA	18		
0949138	ALNUS RUGOSA, SPECKLED ALDER, 18"-24" HT., B.B. Unit Price in Words _____ _____	EA	23		
0949198	SALIX NIGRA BLACK WILLOW 1 GAL. Unit Price in Words _____ _____	EA	46		
0949314	SALIX DISCOLOR, PUSSY WILLOW, 18"-24" HT., B.R. Unit Price in Words _____ _____	EA	32		
0949627	PINUS STROBUS WHITE PINE SIZE IN HEIGHT 3'-4' Unit Price in Words _____ _____	EA	12		

DEEP BROOK STREAM RESTORATION PROJECT
NEWTOWN, CT

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0949629	PINUS STROBUS WHITE PINE 2-2.5" CALIPER B.B. Unit Price in Words _____ _____	EA	6		
0949830	ACER RUBRUM, RED MAPLE, 6'-8' SIZE IN HEIGHT, MULTISTEM Unit Price in Words _____ _____	EA	6		
0949832	ACER RUBRUM, RED MAPLE, 2" - 2.5" CAL., B.B. Unit Price in Words _____ _____	EA	8		
0949959	PLATANUS OCCIDENTALIS, AMERICAN SYCAMORE 1-1.5" CALIPER, B.B. Unit Price in Words _____ _____	EA	4		
0949960	PLATANUS OCCIDENTALIS, AMERICAN SYCAMORE 2-2.5" CALIPER, B.B. Unit Price in Words _____ _____	EA	3		
0950006	WETLAND SEEDING Unit Price in Words _____ _____	SF	3,595		

SECTION 0601174

ALUMINUM BOX CULVERT

PART I - GENERAL

1 .01 DESCRIPTION

A. The work covered under this Section includes the furnishing of all labor, equipment and materials and performing all operations in connection with the installation of an aluminum box culvert as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall also include delivery, placement and assembly; and all other incidental and necessary for the satisfactory completion of this Section.

B. Related Work Specified Elsewhere:

Section 2.02 "Roadway Excavation, Formation of Embankment and Disposal of Surplus Material"

PART 2 - PRODUCTS

A. Contech Aluminum Box Culvert No. 27 or approved equal. The aluminum box culvert shall consist of plates, ribs, and appurtenant items as shown on the plans and shall conform to the requirements of ASTM B864. Plate thickness, rib spacing and end treatment shall be as indicated on the plans. The structure shall have a full invert installed.

B. All manufacturing processes including corrugating, punching, curving and galvanizing shall be performed within the United States using raw materials made in the United States.

C. Bolts and nuts shall conform to the requirements of ASTM A307 or ASTM A449.

PART 3 - EXECUTION

3.01 ASSEMBLY

A. The box culvert shall be assembled in accordance with the shop drawings provided by the manufacturer and per the manufacturer's recommendations. Bolts shall be tightened using an applied torque of between 100 and 150 ft.-lbs.

3.02 INSTALLATION

A. The box culvert shall be installed in accordance with the plans and specifications, the manufacturer's recommendations, and the AASHTO Standard Specification

BID FORM

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Item No.	Description	Unit	Quantity	Unit Price	Amount
0950037	EROSION CONTROL MATTING TYPE C Unit Price in Words _____ _____	SY	385		
0950040	CONSERVATION SEEDING FOR SLOPES Unit Price in Words _____ _____	SY	2,500		
0970006	TRAFFICPERSON (MUNICIPAL POLICE OFFICER) Unit Price in Words _____ _____	EST	1		
0975002	MOBILIZATION Unit Price in Words _____ _____	LS	1		
1208906	SIGN FACE SHEET ALUMINUM BRIGHT WIDE ANGLE RETROFLECTIVE SHEETING Unit Price in Words _____ _____	SF	7		
1208907	TEMPORARY SIGN - SHEET ALUMINUM BRIGHT WIDE ANGLE RETRO-REFLECTIVE SHEETING Unit Price in Words _____ _____	SF	82		

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Item No.	Description	Unit	Quantity	Unit Price	Amount
1208996	METAL SIGN POST Unit Price in Words _____ _____	EA	1		
1210101	4" WHITE EPOXY RESIN PAVEMENT MARKINGS Unit Price in Words _____ _____	LF	310		
1210105	EPOXY RESIN PAVEMENT MARKINGS, SYMBOLS AND LEGEND Unit Price in Words _____ _____	SF	57		
1210106	12" WHITE EPOXY RESIN PAVEMENT MARKINGS Unit Price in Words _____ _____	LF	12		
1220011	CONSTRUCTION SIGNS - TYPE III REFLECTIVE SHEETING Unit Price in Words _____ _____	SF	82		
	PROJECT TOTAL				

SECTION 01150

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. For lump sum items, payment shall be made to the Contractor in accordance with accepted Progress Schedule and Schedule of Values on the basis of actual work completed.

B. For unit-price items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by the final measurements.

1. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and interpreted by the Engineer.

2. At the end of each day's work, the Contractor's Superintendent or other authorized representative of the Contractor shall meet with the Resident Project Representative and determine the quantities of unit price work accomplished and/or completed during the work day.

3. The Resident Project Representative will then prepare two "Daily Progress Reports" which shall be signed by both the Resident Project Representative and the Contractor's Representative.

4. Once each month the Resident Project Representative will prepare two "Monthly Progress Summation" forms from the month's accumulation of "Daily Progress Reports" which shall also be signed by both the Resident Project Representative and the Contractor's Representative.

5. These completed forms will provide the basis of the Engineer's monthly quantity estimate upon which payment shall be made. Items not appearing on both the Daily Progress Reports and Monthly Progress Summation will not be included for payment. Items appearing on forms not properly signed by the Contractor will not be included for payment.

6. After the work is completed and before final payment is made therefore, the Engineer will make final measurements to determine the quantities of various items of work accepted as the basis for final settlement.

1.2 SCOPE OF MEASUREMENT & PAYMENT

A. Measurement and Payment shall be in accordance with the method of measurement and payment described under applicable Contract items per the *State of Connecticut Standard Specifications for Roads, Bridges and Incidental Construction Form 816* and all supplements specifically including Section 1.09 Measurement and Payment.

PART 2 - PRODUCT

NOT USED

PART 3 - DESCRIPTION OF PAY ITEMS

A. The following section describes the measurement and payment for the work to be done under the respective items in the Bid form that are not included under applicable Contract items per *the State of Connecticut Stand Specifications for Roads, Bridges and Incidental Construction Form 816.*

B. Each unit or lump sum price in the bid form shall constitute full compensation, as herein specified, for each item of work complete.

3.1 ITEM DESCRIPTIONS

Item 0601174 Aluminum Box Culvert

a. Description- The work covered under this Item includes the furnishing of all labor, equipment and materials and performing all operations in connection with the installation of an aluminum box culvert as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall also include delivery, placement and assembly; and all other incidental and necessary for the satisfactory completion of this item.

b. Method of Measurement – "Aluminum Box Culvert " will be measured lump sum in accordance with Section 0601174 Aluminum Box Culvert and/or as directed by the Engineer.

c. Basis of Payment – The accepted quantity of "Aluminum Box Culvert" will be paid for at the contract unit price per LUMP SUM as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all labor, tools, equipment for trench excavation; except for Rock Excavation; the culvert bottom shall be shaped according to contract documents; payment shall also include dewatering, including pumping draining, or bailing; for furnishing, placing and compacting backfill; for stone bedding; geotechnical fabric, for legal disposal of all excess or unsuitable excavated material; for providing temporary plugs and plates for diverting water, for making all temporary and permanent connections and all other incidentals required to finish the work, complete and accepted by the Engineer.

Item 0703030 Placement of Boulder

a. Description - The work covered under this Item includes the furnishing of all labor, equipment and materials and performing all operations in connection with the placement of boulders within the new stream channel and along the outer edges of the pool sections as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall

also include all hauling, stockpiling, handling and placement of boulders; maintaining and protecting of stockpiled boulders; and all other incidental and necessary for the satisfactory completion of this Section.

b. Method of Measurement - "Placement of Boulders" will be measured by the cubic yard of boulders to include compensation for the boulders, delivery, stockpiling in an approved location, placement, equipment, supplies and labor and bonds required for the prosecution of the work not otherwise included in other pay items and upon completion of the work as specified and directed, the clean-up of the work areas, removal of equipment, materials and supplies from the work area.

c. Basis of Payment - The accepted quantity for "Placement of Boulders" will be paid for by the CUBIC YARD as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all materials, labor, tools, equipment and for all incidentals required to finish the work complete, in-place, and accepted by the Engineer. Payment for this unit price item will be made upon completion of project, as determined by the Engineer.

Item 0945324 Stripping and Stockpiling Topsoil

a. Description - The work covered under this Item includes the furnishing of all labor, equipment and materials and performing all operations in connection with the stripping and stockpiling of topsoil within the limits of the areas as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall also include protecting of stockpiled topsoil and all other incidental and necessary for the satisfactory completion of this item.

b. Method of Measurement -"Stripping and Stockpiling Topsoil" will be measured by the cubic yard of topsoil to include compensation for stripping and stockpiling in an approved location, equipment, supplies and labor and bonds required for the prosecution of the work not otherwise included in other pay items and upon completion of the work as specified and directed, the clean-up of the work areas removal of equipment, materials and supplies from the work are.

c. Basis of Payment - The accepted quantity for "Stripping and Stockpiling Topsoil" will be paid for by the CUBIC YARD as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all materials, labor, tools, equipment and for all incidentals required to finish the work complete, in-place, and accepted by the Engineer. Payment for this unit price item will be made upon completion of project, as determined by the Engineer.

Item 0950037 Coir Open Weave Erosion Control Matting

a. Description - A. The work covered under this Item includes the furnishing of all labor, equipment and materials and performing all operations in connection with the installation of an Coir Open Weave Erosion Control Matting as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall also include delivery, placement and assembly; and all other incidental and necessary for the satisfactory completion of this item.

b. Method of Measurement - Coir Open Weave Erosion Control Matting" will be measured by the square yard of matting to include compensation for procurement and installation of Coir Open Weave Erosion Control Matting, materials, supplies and labor and bonds required for the prosecution of the work not otherwise included in other pay items and upon completion of the work as specified and directed, the clean-up of the work areas, removal of equipment, materials and supplies from the work area.

c. Basis of Payment - The accepted quantity of "Coir Open Weave Erosion Control Matting" will be paid for by the SQUARE YARD as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all materials, labor, tools, equipment, including the Coir Open Weave Erosion Control Matting and for all incidentals required to finish the work complete, in-place, and accepted by the Engineer. Payment for this unit price item will be made upon completion of project, as determined by the Engineer.

for Highway Bridges, Section 26 (Division II).

3.03 BEDDING

A. The bedding should be constructed to a uniform line and grade using material outlined in the backfill section. The foundation must be capable of providing a bearing capacity of at least two (2) tons per square foot.

3.03 BACKFILL

A. The structure shall be backfilled using clean well graded granular material that meets the requirements of AASHTO M 145 for soil classifications A-1, A-3, A-2-4, r A-2-5. Backfill must be placed symmetrically on each side of the structure in 6 to 8 inch lifts. Each lift shall be compacted to a minimum of 90 percent density per AASHTO T 180.

3.04 LOADING

A. Construction loads that exceed highway load limits are not allowed on the structure without approval from the Engineer.

B. Live load traffic is not allowed on the structure until the structure has been backfilled and paved.

PART 4 – MEASUREMENT AND PAYMENT

A. Method of Measurement – "Aluminum Box Culvert" will be measured as the lump sum to include compensation for procurement, assembly and installation of the aluminum box culvert, materials, supplies and labor and bonds required for the prosecution of the work not otherwise included in other pay items and upon completion of the work as specified and directed, the clean-up of the work areas, removal of equipment, materials and supplies from the work area.

B. Basis of Payment – The accepted quantity of "Aluminum Box Culvert" will be paid for at the contract LUMP SUM price as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all materials, labor, tools, equipment, including the aluminum box culvert, head walls, wing walls, full invert, tie backs, angled aluminum to stop the transport of the bedding material within the channel and The price so-stated shall constitute full and complete compensation for all labor, tools, equipment for trench excavation; except for Rock Excavation; the culvert bottom shall be shaped according to contract documents; payment shall also include dewatering, including pumping draining, or bailing; for furnishing, placing and compacting backfill; for stone bedding; geotechnical fabric, for legal disposal of all excess or unsuitable excavated material; for providing temporary plugs and plates for diverting water, for making all temporary and permanent connections and all other incidentals required to finish the work, complete and accepted by the Engineer and for all

incidentals required to finish the work complete, in-place, and accepted by the Engineer. Payment for this lump sum price item will be made upon completion of project, as determined by the Engineer.

END OF SECTION

SECTION 0703030

PLACEMENT OF BOULDERS

PART I - GENERAL

1 .01 DESCRIPTION

A. The work covered under this Section includes the furnishing of all labor, equipment and materials and performing all operations in connection with the placement of boulders within the new stream channel and along the outer edges of the pool sections as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall also include all hauling, stockpiling, handling and placement of boulders; maintaining and protecting of stockpiled boulders; and all other incidental and necessary for the satisfactory completion of this Section.

B. Related Work Specified Elsewhere:

Section 2.02	"Roadway Excavation, Formation of Embankment and Disposal of Surplus Material"
Section 7.03	"Riprap"
Section 7.28	"Crushed Stone for Slope Protection"

PART 2 - PRODUCTS

A. Boulders within the stream shall 18" to 48" in diameter as indicated on the design plans.

PART 3 - EXECUTION

3.01 PLACEMENT PROCEDURE

A. In Stream

1. Boulders, 18" to 24" shall be installed in the stream in clusters of 3 to 5 boulders.
2. Boulders in the stream shall be buried a minimum of 50%.
3. Boulders shall be placed in clusters of 3 to 5 boulders with a cluster spacing of 1/3 the width of the stream.

B. Along Stream Bank

1. Boulders, 18" to 48" in diameter shall be installed to stabilize the outer bank

along the pool sections of the stream.

2. Boulders along the stream bank are to be embedded a minimum of 6".

3. A rectangular footer boulder shall be installed below each boulder along the stream bank.

3.02 STOCKPILES

A. Stockpiles:

Boulders shall be placed in an approved stockpile area prior to placement. The area is to be kept neat and shall not impound water.

PART 4 – MEASUREMENT AND PAYMENT

A. Method of Measurement – "Placement of Boulders" will be measured by the cubic yard of boulders to include compensation for the boulders, delivery, stockpiling in an approved location, placement, equipment, supplies and labor and bonds required for the prosecution of the work not otherwise included in other pay items and upon completion of the work as specified and directed, the clean-up of the work areas, removal of equipment, materials and supplies from the work area.

B. Basis of Payment – The accepted quantity for "Placement of Boulders" will be paid for by the CUBIC YARD as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all materials, labor, tools, equipment and for all incidentals required to finish the work complete, in-place, and accepted by the Engineer. Payment for this unit price item will be made upon completion of project, as determined by the Engineer.

END OF SECTION

SECTION 0945324

STRIPPING AND STOCKPILING TOPSOIL

PART I - GENERAL

1 .01 DESCRIPTION

A. The work covered under this Section includes the furnishing of all labor, equipment and materials and performing all operations in connection with the stripping and stockpiling of topsoil within the limits of the areas as indicated or directed, completed and accepted, in accordance with the drawings and specifications, and as directed. The work shall also include protecting of stockpiled topsoil and all other incidental and necessary for the satisfactory completion of this Section.

B. Related Work Specified Elsewhere:

Section 9.44	"Topsoil"
Section 0950037	"Coir Open Weave Erosion Control Matting"

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 STRIPPING

A. Procedure

1. Topsoil shall be carefully removed to the depths and within the limits indicated or directed for removal and replacing of topsoil. Topsoil shall be transported and deposited in storage piles in approved locations convenient to the areas from which it is removed. The topsoil shall be stockpiled separate from other excavated materials and free of roots, stones, and other undesirable material. The Contractor shall take all necessary precautions to prevent other excavated materials or objectionable materials from becoming intermixed with topsoil during any operations. Stripping operations shall be completed prior to excavation, compacting or grading operations.

2. All excess topsoil shall be removed from the site and legally disposed of off site.

3.02 STOCKPILES

A. Stockpiles:

Stockpiles shall be neatly trimmed and graded to provide drainage from surfaces and to prevent depressions where water may become impounded. After being trimmed and graded, stockpiles shall be protected with a plastic membrane and shall not be disturbed except for subsequent reuse of topsoil. Any deficiencies in the quantities of topsoil obtained from the stripping operations and caused by the Contractor's operations shall be replaced by the Contractor with approved topsoil at no additional expense to the Owner.

PART 4 – MEASUREMENT AND PAYMENT

A. Method of Measurement – "Stripping and Stockpiling Topsoil" will be measured by the cubic yard of topsoil to include compensation for stripping and stockpiling in an approved location, equipment, supplies and labor and bonds required for the prosecution of the work not otherwise included in other pay items and upon completion of the work as specified and directed, the clean-up of the work areas, removal of equipment, materials and supplies from the work area.

B. Basis of Payment – The accepted quantity for "Stripping and Stockpiling Topsoil" will be paid for by the CUBIC YARD as listed in the Bid Proposal. The price so-stated shall constitute full and complete compensation for all materials, labor, tools, equipment and for all incidentals required to finish the work complete, in-place, and accepted by the Engineer. Payment for this unit price item will be made upon completion of project, as determined by the Engineer.

END OF SECTION

APPENDIX 1

SOIL EXPLORATION PROGRAM

Table 1, Boring Program Summary

Table 2, Soil Grain Size Testing Summary

Deep Brook Stream Day-Lighting Project
Dickinson Memorial Park
Newtown, Connecticut

Boring Program Summary

Boring[1] ID	Boring[1] Location	Date Performed	Boring[2] Type	G.S.[3] Elevation	Ground Water[4]		Footage in Soil (ft.)	Boring Termination[5]
					Depth (ft.)	G.W. Elev.		
MGI-1	Sta. 0+00, 7' east	January 15, 2010	2¼" H.S.A.	+399.0	3.5	+395.5	16.0	Programmed Depth
MGI-2	Sta 0+58, 10' east	January 15, 2010	2¼" H.S.A.	+399.3	4.5	+394.8	17.0	Programmed Depth
MGI-3	Sta 1+32, center line	January 15, 2010	2¼" H.S.A.	+396.5	3.5	+393.0	10.0	Programmed Depth
MGI-4	Sta 2+05, center line	January 15, 2010	2¼" H.S.A.	+396.4	2.0	+394.4	10.0	Programmed Depth
MGI-5	Sta 3+13, center line	January 15, 2010	2¼" H.S.A.	+394.3	1.5	+392.8	10.0	Programmed Depth
MGI-6	Sta 4+28, center line	January 15, 2010	2¼" H.S.A.	+394.6	1.0	+393.6	10.0	Programmed Depth

[1] For boring locations refer to Figure1, As-Drilled Boring Location Plan.

[2] Borings were advanced using 2¼ inch inside diameter, hollow stem auger (H.S.A.) rotation to pre-programmed depths. Borings were performed in conformance with ASTM procedures.

[3] G.S. = ground surface elevation at the borehole, obtained from the AS-Drilled Boring Location Plan. The project's elevation datum is referenced to the North American Vertical Datum (NAVD) 1988.

[4] Observed ground water level, depth below existing grade and elevation as of January 15, 2010. All ground water readings are from "open hole" observations at end of boring, and are stabilized readings. The auger boring technique did not introduce drill water into the boreholes, which would have altered the end of boring ground water readings.

[5] Borings were termination at pre-programmed depths.

Table 1

Deep Brook Stream Day-Lighting Project
Dickinson Memorial Park
Newtown, Connecticut

Soil Grain Size Testing Summary

Boring[1] Sample	Avg. Sample Location[1]		Test[2] Purpose	Test[3] Type	% Fines[4]			% Sand[4]			% Gravel[4]		Unified[5] Classification	Stratum[6] ID
	Depth (ft.)	Elevation			Clay	Silt	Tot.	Fine	Medium	Coarse	Fine	Coarse		
MGI-1, S-2	5.0	+394	Classification	S+H	4	40	44	34	11	4	7	--	SM	Natural
MGI-2, S-1	1.5	+398	Classification	S+H	1	18	19	68	10	2	1	--	SM	Fill
MGI-2, S-2	6.0	+393	Classification	S+H	2	12	14	45	19	5	11	6	SM	Fill
MGI-3, S-2	3.0	+394	Classification	S+H	4	17	21	32	20	10	17	--	SM	Fill
MGI-4, S-3	5.0	+391	Classification	S+H	4	23	27	32	17	7	17	--	SM	Fill
MGI-5, S-2	3.0	+391	Classification	S+H	3	19	22	29	11	4	18	16	SM	Fill

[1] For more detailed information, refer to the attached: Boring Logs and Laboratory Testing of Soil datas. The average sample location is referenced to depth below existing ground surface. The elevation datum is referenced to the North American Vertical Datum (NAVD) 1988.

[2] The purpose of the testing was to classify soils accurately within the below grade zone relevant to stream restoration design and construction.

[3] Grain size test type: S+H = washed sieve plus hydrometer analyses per ASTM D 422.

[4] Differentiation of sample grain size components: Clay, Silt, Sand and Gravel is per the Unified Soil Classification System.

[5] Unified Soil Classification System Group Symbol per ASTM D 2487.

[6] Stratum ID - Refer to the Boring Logs for interpreted stratum locations and limits.

Table 2

Boring Logs

MGI-1 through MGI-6
January 15, 2010

NEW HAMPSHIRE BORING, INC. 1215 W. CHESTNUT ST., BROCKTON, MA 02301	PROJECT Deep Brook Fishway Newtown, CT Maguire Group, Inc.	REPORT OF BORING No. MGI - 1 SHEET 1 OF 1 NHB No. 18273 MGI No. 18853

Driller: Jason Stokes Helper: James Olney INSPECTOR: Dave Nacci	BORING LOCATION South shoulder of Deep Brook Road, east side of existing culvert GROUND SURFACE ELEVATION +399.0 LINE & STA 0+00, 7' EAST DATE START 1/15/2010 DATE END 1/15/2010	

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.

CASING SIZE: OTHER: 2.25" H.S.A.

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME
1/15/2010		3.5'	Out	upon completion, open hole

DEPTH	CASING	BLOWS	SAMPLE NO.	SAMPLE PEN./REC	SAMPLE DEPTH (Ft.)	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	REMKS	STRATUM DESCRIPTION
0			S1	24/17	0-2	9-10	Brown, moist, medium dense, fine to medium SAND,		SAND trace gravel **FILL**
						10-9	little cinders, little silt, trace fine gravel, SM (Fill)		
								3.5'	ground water level, open hole, 3.5' depth, El. +395.5
5			S2	24/14	4-6	1-1	Brown/gray, mottled, saturated, very loose, fine		
			(grain size performed)			1-1	to medium SAND and SILT, trace fine gravel, trace coarse sand, trace clay, varved, ***SM***		varved SAND and SILT
								8.0'	
			S3	24/14	9-11	10-10	Top 4": WOOD (possible root)	8.3'	WOOD
10						11-9	Bottom 10": Gray/yellow brown, saturated, medium		
							dense, fine to coarse SAND, little fine gravel, little silt,		SAND little gravel
							SM		
			S4	24/15	14-16	7-9		15.0'	
15						10-11	Gray,saturated, med.dense,SILT,trace clay, varved, ML	16.0'	varved SILT trace clay
							Bottom of Boring 16'		
20									
25									
30									

GRANULAR SOILS Blows/Ft	Density	COHESIVE SOILS Blows/Ft	Density
0 - 4	V. LOOSE	<2	V. SOFt
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V. DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:
Soil sample Unified Soil Classification System (USGS) Group Symbols, e.g. (***SM*** - bold), were developed through laboratory grain size analysis. Otherwise USGS Group Symbols, e.g. (SM) were developed through visual examination. The Burmister System of visual soil description was utilized, where key words describe percent soil components by weight: trace = 1 to 10%, little = 10 to 20%, some = 20 to 35%, and = 35 to 50%, and the major soil component is capitalized.

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

BORING No MGI - 1

NEW HAMPSHIRE BORING, INC. 1215 W. CHESTNUT ST., BROCKTON, MA 02301	PROJECT Deep Brook Fishway Newtown, CT Maguire Group, Inc.	REPORT OF BORING No. MGI - 2 SHEET 1 OF 1 NHB No. 18273 MGI No. 18853

Driller: Jason Stokes Helper: James Olney INSPECTOR: Dave Nacci	BORING LOCATION	Paved parking lot, east of existing culvert	
	GROUND SURFACE ELEVATION	+399.3	LINE & STA 0+58, 10' EAST
	DATE START 1/15/2010	DATE END	1/15/2010

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.

CASING SIZE: OTHER: 2.25" H.S.A.

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME
1/15/2010		4.5'	Out	upon completion, open hole

DEPTH	CASING	BLOWS	SAMPLE NO.	SAMPLE PEN./REC	SAMPLE DEPTH (Ft.)	BLOWS/6"	SAMPLE DESCRIPTION	REMKS	STRATUM DESCRIPTION
0							4" Asphalt		
			S1	24/20	4"-2'4"	64-26	Yellow brown, moist, dense, fine SAND, little silt,		
			(grain size performed)			15-11	trace medium to coarse sand, trace fine gravel, trace		SAND trace gravel FILL
							clay, ***SM*** (top foot frozen soil)	4.0'	
								4.5'	ground water level, open hole,
5			S2	24/10	5-7	6-2	Gray, saturated, loose, fine to medium SAND, little		4.5' depth, El. +394.8
			(grain size performed)			3-1	fine to coarse gravel, little silt, trace coarse sand,		
							trace clay, ***SM*** (Fill)		SAND trace gravel FILL
								10.0'	
10			S3	24/19	10-12	9-12	Dark brown,saturated, m.dense, fine sandy, PEAT, PT	10.5'	PEAT FILL
						13-14	Gray, saturated, medium dense, fine to medium SAND		
							and fine SAND, varved, trace silt and fine gravel, SP		varved F/M SAND
15			S4	24/24	15-17	6-7	Gray, saturated, medium dense, very fine SAND and	16.5'	
						8-8	clayey SILT, varved, SM/ML	17.0'	varved SAND and SILT
							Bottom of boring 17'		
20									
25									
30									

GRANULAR SOILS Blows/Ft	Density	COHESIVE SOILS Blows/Ft	Density
0 - 4	V. LOOSE	<2	V. SOFt
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V. DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:
Soil sample Unified Soil Classification System (USGS) Group Symbols, e.g. (***SM*** - bold), were developed through laboratory grain size analysis. Otherwise USGS Group Symbols, e.g. (SM) were developed through visual examination. The Burmister System of visual soil description was utilized, where key words describe percent soil components by weight: trace = 1 to 10%, little = 10 to 20%, some = 20 to 35%, and = 35 to 50%, and the major soil component is capitalized.

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

BORING No MGI - 2

NEW HAMPSHIRE BORING, INC. 1215 W. CHESTNUT ST., BROCKTON, MA 02301	PROJECT Deep Brook Fishway Newtown, CT Maguire Group, Inc.	REPORT OF BORING No. MGI - 3 SHEET 1 OF 1 NHB No. 18273 MGI No. 18853

Driller: Jason Stokes
Helper: James Olney
INSPECTOR: Dave Nacci

BORING LOCATION West end of proposed stream bed
GROUND SURFACE ELEVATION +396.5 STA & LINE 1+32, CENTER LINE
DATE START 1/15/2010 DATE END 1/15/2010

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.

CASING SIZE: OTHER: 2.25" H.S.A.

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME
1/15/2010		3.5'	Out	upon completion, open hole

DEPTH	CASING	BLOWS	SAMPLE NO.	SAMPLE PEN./REC	SAMPLE DEPTH (Ft.)	BLOWS/6"	SAMPLE DESCRIPTION	REMKS	STRATUM DESCRIPTION
0			S1	24/15	0-2	7-8	6" Dark brown, fine sandy, organic TOPSOIL		
						6-5	Brown/gray, moist, med.dense, fine to medium SAND, some silt, little fine to medium gravel, SM (Fill)		
			S2	24/6	2-4	8-9	Gray, moist/saturated, med.dense, fine to coarse SAND,	3.5'	ground water level, open hole,
			(grain size performed)			14-15	little fine gravel, little silt, trace clay, asphalt frag., ***SM*** (Fill)		3.5' depth, El. +393.0
5			S3	24/14	4-6	12-8	Brown/gray, saturated, medium dense, fine to medium		
						7-8	SAND, some silt, trace wood fragments, SM (Fill)		SAND little gravel **FILL**
			S4	24/22	6-8	13-14	Gray, saturated, dense, fine SAND, trace roots, SP	7.5'	
						17-25			
			S5	24/24	8-10	12-13	Brown/orange brown, mottled, saturated, medium dense,		SAND trace gravel
10						14-15	fine to medium SAND, trace fine gravel, SP	10.0'	
							Bottom of boring 10'		
15									
20									
25									
30									

GRANULAR SOILS Blows/Ft	Density	COHESIVE SOILS Blows/Ft	Density
0 - 4	V. LOOSE	<2	V. SOFt
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V. DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:
Soil sample Unified Soil Classification System (USGS) Group Symbols, e.g. (*SM* - bold), were developed through laboratory grain size analysis. Otherwise USGS Group Symbols, e.g. (SM) were developed through visual examination. The Burmister System of visual soil description was utilized, where key words describe percent soil components by weight: trace = 1 to 10%, little = 10 to 20%, some = 20 to 35%, and = 35 to 50%, and the major soil component is capitalized.

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

BORING No MGI - 3

NEW HAMPSHIRE BORING, INC. 1215 W. CHESTNUT ST., BROCKTON, MA 02301	PROJECT Deep Brook Fishway Newtown, CT Maguire Group, Inc.	REPORT OF BORING No. MGI - 4 SHEET 1 OF 1 NHB No. 18273 MGI No. 18853

Driller: Jason Stokes
Helper: James Olney
INSPECTOR: Dave Nacci

BORING LOCATION ON PLAN
GROUND SURFACE ELEVATION +396.4 STA & LINE 2+05, CENTER LINE
DATE START 1/15/2010 DATE END 1/15/2010

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.

CASING SIZE: OTHER: 2.25" H.S.A.

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME
1/15/2010		2.0'	Out	upon completion, open hole

DEPTH	CASING	BLOWS	SAMPLE NO.	PEN./ REC	DEPTH (Ft.)	BLOWS/6"	SAMPLE DESCRIPTION	REMKS	STRATUM DESCRIPTION
							6" Dark brown, fine sandy, organic TOPSOIL		
0			S1	24/14	0-2	7-6	Brown/gray/orange brown, moist/saturated, medium		
						8-9	dense, f/m SAND, some silt, little asphalt, SM (FILL)	2.0'	ground water level, open hole,
			S2	24/18	2-4	6-7	Gray/brown, saturated, med.dense, fine to med. SAND		2.0' depth, El. +394.4
						13-10	some silt, little f/m gravel, trace asphalt, SM (FILL)		
			S3	24/16	4-6	6-5	Gray/brown, saturated, loose to medium dense, fine to		SAND little gravel **FILL**
5			(grain size performed)			6-6	med.SAND, some silt, little fine to med.gravel,		
			S4	24/15	6-8	6-39	trace clay, ***SM*** (Fill)	7.0'	
						13-23	Black ASPHALT (Fill)	8.0'	**ASPHALT FILL**
			S5	24/15	8-10	48-71	Yellow/brown to orange/brown, very dense, fine to		SAND little gravel
						30-27	medium SAND, some silt, little fine to medium gravel, SM	10.0'	
10							Bottom of boring 10'		
15									
20									
25									
30									

GRANULAR SOILS Blows/Ft	Density	COHESIVE SOILS Blows/Ft	Density
0 - 4	V. LOOSE	<2	V. SOFt
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V. DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:
Soil sample Unified Soil Classification System (USGS) Group Symbols, e.g. (***SM*** - bold), were developed through laboratory grain size analysis. Otherwise USGS Group Symbols, e.g. (SM) were developed through visual examination. The Burmister System of visual soil description was utilized, where key words describe percent soil components by weight: trace = 1 to 10%, little = 10 to 20%, some = 20 to 35%, and = 35 to 50%, and the major soil component is capitalized.

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR I DUE TC OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

BORING No MGI - 4

NEW HAMPSHIRE BORING, INC. 1215 W. CHESTNUT ST., BROCKTON, MA 02301	PROJECT Deep Brook Fishway Newtown, CT Maguire Group, Inc.	REPORT OF BORING No. MGI - 5 SHEET 1 OF 1 NHB No. 18273 MGI No. 18853

Driller: Jason Stokes
Helper: James Olney
INSPECTOR: Dave Nacci

BORING LOCATION
GROUND SURFACE ELEVATION +394.3 STA & LINE 3+13, CENTER LINE
DATE START 1/15/2010 DATE END 1/15/2010

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.

CASING SIZE: OTHER: 2.25" H.S.A.

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME
1/15/2010		1.5'	Out	upon completion, open hole

DEPTH	CASING	BLOWS	SAMPLE NO.	SAMPLE PEN./ REC	SAMPLE DEPTH (Ft.)	BLOWS/6"	SAMPLE DESCRIPTION	REMKS	STRATUM DESCRIPTION
0			S1	24/15	0-2	5-5	Gray/brown, moist/saturated, loose, fine to medium	1.5'	ground water level, open hole,
						4-3	SAND, some clayey silt, little f/m gravel, SM (Fill)		1.5' depth, El. +392.8
			S2	24/9	2-4	5-6	Gray/brown, saturated, loose to medium dense, fine to		SAND little gravel FILL
			(grain size performed)			5-6	med SAND, some f/c gravel, little silt, trace clay ***SM*** (FILL)	4.0'	
5			S3	24/16	4-6	3-5	Gray, saturated, loose to medium dense, fine SAND		
						5-4	and SILT, varved, SM/ML		
			S4	24/17	6-8	7-10	Gray, Saturated, medium dense, very fine SAND, some		
						10-9	silt, varved, SM		varved SAND some silt
			S5	24/14	8-10	9-9	Gray, Saturated, medium dense, very fine SAND, some		
10						11-9	silt, varved, SM	10.0'	
							Bottom of boring 10'		
15									
20									
25									
30									

GRANULAR SOILS Blows/Ft	Density	COHESIVE SOILS Blows/Ft	Density
0 - 4	V. LOOSE	<2	V. SOFt
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V. DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:
Soil sample Unified Soil Classification System (USGS) Group Symbols, e.g. (***SM*** - bold), were developed through laboratory grain size analysis. Otherwise USGS Group Symbols, e.g. (SM) were developed through visual examination. The Burmister System of visual soil description was utilized, where key words describe percent soil components by weight: trace = 1 to 10%, little = 10 to 20%, some = 20 to 35%, and = 35 to 50%, and the major soil component is capitalized.

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR I DUE TC OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 1215 W. CHESTNUT ST., BROCKTON, MA 02301	PROJECT Deep Brook Fishway Newtown, CT Maguire Group, Inc.	REPORT OF BORING No. MGI - 6 SHEET 1 OF 1 NHB No. 18273 MGI No. 18853

Driller: Jason Stokes
Helper: James Olney
INSPECTOR: Dave Nacci

BORING LOCATION East end of proposed stream bed
GROUND SURFACE ELEVATION +394.6 STA & LINE 4+28, CENTER LINE
DATE START 1/15/2010 DATE END 1/15/2010

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.

CASING SIZE: OTHER: 2.25" H.S.A.

GROUNDWATER READINGS

DATE	TIME	WATER	CASING	STABILIZATION TIME
1/15/2010		1.0'	Out	upon completion, open hole

DEPTH	CASING BLOWS	SAMPLE NO.	SAMPLE PEN./ REC	SAMPLE DEPTH (Ft.)	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	REMKS	STRATUM DESCRIPTION
0		S1	24/15	0-2	4-8	Gray, saturated, medium dense, fine SAND, some silt,	1.0'	ground water level, open hole,
					5-4	little fine to medium gravel, SM (Fill)	2.0'	1.0' depth, El. +393.6
		S2	24/7	2-4	5-3	Gray, loose, angular, fine to medium GRAVEL,		SAND little gravel FILL
					4-5	processed stone, GP (Fill)		
		S3	24/7	4-6	4-4	Same as S-2, GP (Fill)		F/M PROCESSED STONE FILL
5					4-3			
		S4	24/16	6-8	92-60	Top 4": same as S-2, GP (Fill)	7.0'	
					7-12	Bottom 12": Black ASPHALT (Fill)	8.0'	ASPHALT FILL
		S5	24/15	8-10	75-38	Gray, saturated, very dense, very fine to fine SAND,		varved SAND some silt
					27-12	some silt, varved, SM	10.0'	
10						Bottom of Boring 10'		
15								
20								
25								
30								

GRANULAR SOILS Blows/Ft	Density	COHESIVE SOILS Blows/Ft	Density
0 - 4	V. LOOSE	<2	V. SOFt
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V. DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:
Soil sample Unified Soil Classification System (USGS) Group Symbols, e.g. (***SM*** - bold), were developed through laboratory grain size analysis. Otherwise USGS Group Symbols, e.g. (SM) were developed through visual examination. The Burmister System of visual soil description was utilized, where key words describe percent soil components by weight: trace = 1 to 10%, little = 10 to 20%, some = 20 to 35%, and = 35 to 50%, and the major soil component is capitalized.

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

BORING No MGI - 6

Laboratory Testing of Soil Data

Grain Size Analyses

Soil Samples
MGI-1, S-2, depth 4 to 6 feet
MGI-2, S-1, depth 0 to 2 feet
MGI-2, S-2, depth 5 to 7 feet
MGI-3, S-2, depth 2 to 4 feet
MGI-4, S-3, depth 4 to 6 feet
MGI-5, S-2, depth 2 to 4 feet

SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA			
Project:	Deep River	Description:	Fine to medium SAND and SILT, trace Gravel, trace Clay, trace coarse Sand
		USCS Classification:	SM
Location:	Newtown, CT	Boring Number	MGI-1
		Sample Number:	S-2
PBA Job Number:	^10001	Sample Depth	4'-6'
Date:	1/27/2010	Tested By:	BDD

MECHANICAL ANALYSIS I

Container Number:	53	Container Mass, g:	84.99
Container & Wet Soil, g:	261.86	Dry Soil Mass, g:	144.09
Container & Dry Soil, g:	229.08	Moisture Content, %:	22.7%
Mass of Water, g:	32.78	Control Sieve:	#200

Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass
2"	50.800	1.706	0.00	0.00%	100.00%
1-1/2"	38.100	1.581	0.00	0.00%	100.00%
1"	25.400	1.405	0.00	0.00%	100.00%
3/4"	19.100	1.281	0.00	0.00%	100.00%
1/2"	12.700	1.104	8.70	6.04%	93.96%
3/8"	9.525	0.979	8.70	6.04%	93.96%
# 4	4.760	0.678	10.19	7.07%	92.93%
# 10	2.000	0.301	15.82	10.98%	89.02%
#20	0.840	-0.076	23.61	16.39%	83.61%
#40	0.420	-0.377	32.13	22.30%	77.70%
#60	0.250	-0.602	43.61	30.27%	69.73%
#100	0.149	-0.827	60.73	42.15%	57.85%
#200	0.074	-1.131	80.40	55.80%	44.20%
PAN	0	---	144.09	100.00%	0.00%
Percent of Sample Lost:	0				

HYDROMETER ANALYSIS

Hydrometer Type:	152H	Dispersing Agent:	Sodium Hexametaphosphate
Zero Correction:	6	Amount:	125 ml at 4 Percent Concentration
Meniscus:	1	Specific Gravity of Solids:	2.65 (Assumed)
Dry Mass of Sample, g:	25.37	Specific Gravity Correction Factor, a:	1
Percent Fines:	44.20%	Hygroscopic Correction Factor:	1

Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Mln Cor	L	L/t	A	Diameter (mm)	Total % Finer
27-Jan	8:22:30 AM	0	20.1										
27-Jan	8:22:45 AM	0.25	20.1	30.5	24.68	97.26%	42.99%	31.5	11.13	44.523	0.01362	0.0909	42.99%
27-Jan	8:23:00 AM	0.5	20.1	28.5	22.68	89.38%	39.51%	29.5	11.46	22.918	0.01362	0.0652	39.51%
27-Jan	8:23:30 AM	1	20.1	25.5	19.68	77.55%	34.28%	26.5	11.95	11.951	0.01362	0.0471	34.28%
27-Jan	8:24:30 AM	2	20.1	22.5	16.68	65.73%	29.05%	23.5	12.44	6.222	0.01362	0.0340	29.05%
27-Jan	8:26:30 AM	4	20.1	18.5	12.68	49.96%	22.08%	19.5	13.10	3.275	0.01362	0.0246	22.08%
27-Jan	8:30:30 AM	8	20.1	16.5	10.68	42.08%	18.60%	17.5	13.43	1.679	0.01362	0.0176	18.60%
27-Jan	8:37:30 AM	15	20.1	14.0	8.18	32.22%	14.24%	15.0	13.84	0.923	0.01362	0.0131	14.24%
27-Jan	8:52:30 AM	30	20.3	13.0	7.18	28.28%	12.50%	14.0	14.00	0.467	0.01359	0.0093	12.50%
27-Jan	9:22:30 AM	60	20.5	11.0	5.23	20.60%	9.10%	12.0	14.33	0.239	0.01356	0.0066	9.10%
27-Jan	10:22:30 AM	120	20.7	10.0	4.28	16.85%	7.45%	11.0	14.49	0.121	0.01353	0.0047	7.45%
27-Jan	11:58:30 AM	216	20.9	9.0	3.33	13.11%	5.79%	10.0	14.66	0.068	0.01350	0.0035	5.79%
27-Jan	4:22:30 PM	480	20.9	8.0	2.38	9.36%	4.14%	9.0	14.82	0.031	0.01350	0.0024	4.14%
28-Jan	8:22:30 AM	1440	19.5	7.0	1.38	5.42%	2.40%	8.0	14.99	0.010	0.01373	0.0014	2.40%

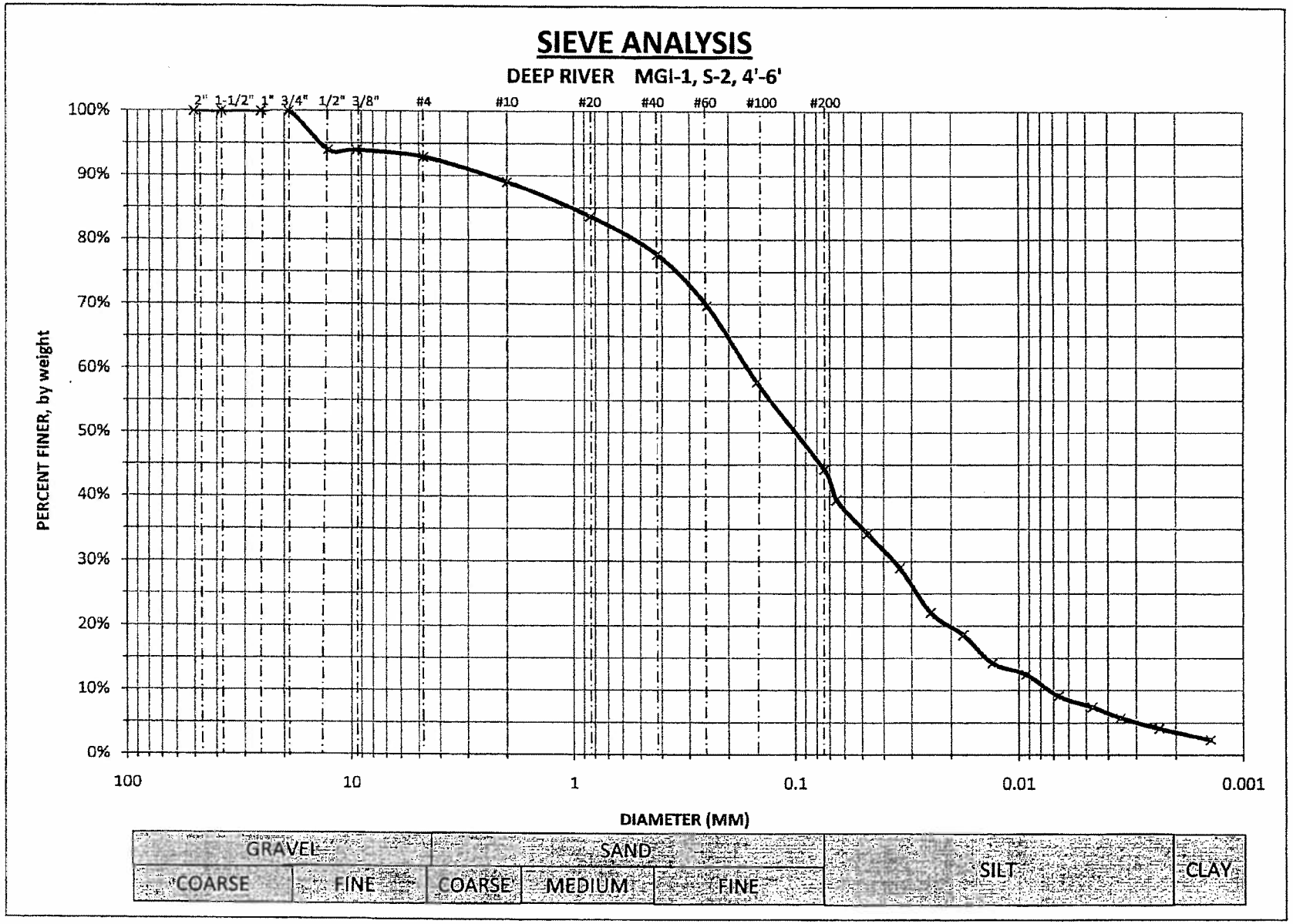
Container Number:		Container Mass, g:	
Container & Dry Soil, g:		Dry Soil Mass, g:	

GRAINSIZE SUMMARY

	Percent Gravel	Percent Sand	Percent Silt	Percent Clay		
					D_{10}= 0.0071 mm	Cu= 21.12
Coarse	0.00%	3.91%		---	D_{30}= 0.036 mm	Cc= 1.22
Medium	---	11.32%		---	D_{50}= 0.10 mm	
Fine	7.07%	33.50%		---	D_{60}= 0.15 mm	
Total	7.07%	48.73%	40.06%	4.14%		

SIEVE ANALYSIS

DEEP RIVER MGI-1, S-2, 4'-6'



Paul B. Aldinger and Associates, Inc.

SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA		Description:	Fine SAND, little Silt, little medium to coarse sand, trace Clay, trace fine Gravel
Project:	Deep River	USCS Classification:	SM
Location:	Newtown, CT	Boring Number	MGI-2
		Sample Number:	S-1
PBA Job Number:	^10001	Sample Depth	0'-2'
Date:	1/27/2010	Tested By:	BDD

MECHANICAL ANALYSIS

Container Number:	52	Container Mass, g:	85.04
Container & Wet Soil, g:	329.49	Dry Soil Mass, g:	228.22
Container & Dry Soil, g:	313.26	Moisture Content, %:	7.1%
Mass of Water, g:	16.23	Control Sieve:	#200

Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass
2"	50.800	1.706	0.00	0.00%	100.00%
1-1/2"	38.100	1.581	0.00	0.00%	100.00%
1"	25.400	1.405	0.00	0.00%	100.00%
3/4"	19.100	1.281	0.00	0.00%	100.00%
1/2"	12.700	1.104	0.00	0.00%	100.00%
3/8"	9.525	0.979	0.00	0.00%	100.00%
# 4	4.760	0.678	1.63	0.71%	99.29%
# 10	2.000	0.301	6.43	2.82%	97.18%
#20	0.840	-0.076	14.70	6.44%	93.56%
#40	0.420	-0.377	29.39	12.88%	87.12%
#60	0.250	-0.602	63.48	27.82%	72.18%
#100	0.149	-0.827	121.96	53.44%	46.56%
#200	0.074	-1.131	183.63	80.46%	19.54%
PAN	0	---	228.22	100.00%	0.00%

Percent of Sample Lost: 0

HYDROMETER ANALYSIS

Hydrometer Type:	152H	Dispersing Agent:	Sodium Hexametaphosphate
Zero Correction:	6	Amount:	125 ml at 4 Percent Concentration
Meniscus:	1	Specific Gravity of Solids:	2.65 (Assumed)
Dry Mass of Sample, g:	33.91	Specific Gravity Correction Factor, a:	1
Percent Fines:	19.54%	Hygroscopic Correction Factor:	1

Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Min Cor	L	L/t	A	Diameter (mm)	Total % Finer
27-Jan	7:35:00 AM	0	20.0										
27-Jan	7:35:15 AM	0.25	20.0	38.0	32.15	94.81%	18.52%	39.0	9.90	39.600	0.01364	0.0858	18.52%
27-Jan	7:35:30 AM	0.5	20.0	32.0	26.15	77.12%	15.07%	33.0	10.88	21.769	0.01364	0.0636	15.07%
27-Jan	7:36:00 AM	1	20.0	23.0	17.15	50.58%	9.88%	24.0	12.36	12.362	0.01364	0.0480	9.88%
27-Jan	7:37:00 AM	2	20.0	17.0	11.15	32.88%	6.42%	18.0	13.35	6.673	0.01364	0.0352	6.42%
27-Jan	7:39:00 AM	4	20.0	13.5	7.65	22.56%	4.41%	14.5	13.92	3.480	0.01364	0.0254	4.41%
27-Jan	7:43:00 AM	8	20.0	11.2	5.35	15.78%	3.08%	12.2	14.30	1.787	0.01364	0.0182	3.08%
27-Jan	7:50:00 AM	15	20.1	10.5	4.65	13.71%	2.68%	11.5	14.41	0.961	0.01362	0.0134	2.68%
27-Jan	8:06:00 AM	31	20.1	10.0	4.18	12.31%	2.41%	11.0	14.49	0.468	0.01362	0.0093	2.41%
27-Jan	8:35:00 AM	60	20.1	9.5	3.68	10.84%	2.12%	10.5	14.58	0.243	0.01362	0.0067	2.12%
27-Jan	9:35:00 AM	120	20.5	8.8	2.98	8.77%	1.71%	9.8	14.69	0.122	0.01356	0.0047	1.71%
27-Jan	11:35:00 AM	240	20.8	8.3	2.58	7.59%	1.48%	9.3	14.77	0.062	0.01351	0.0034	1.48%
27-Jan	3:35:00 PM	480	20.9	8.0	2.35	6.93%	1.35%	9.0	14.82	0.031	0.0135	0.0024	1.35%
28-Jan	7:35:00 AM	1440	19.5	8.0	2.38	7.00%	1.37%	9.0	14.82	0.010	0.01373	0.0014	1.37%

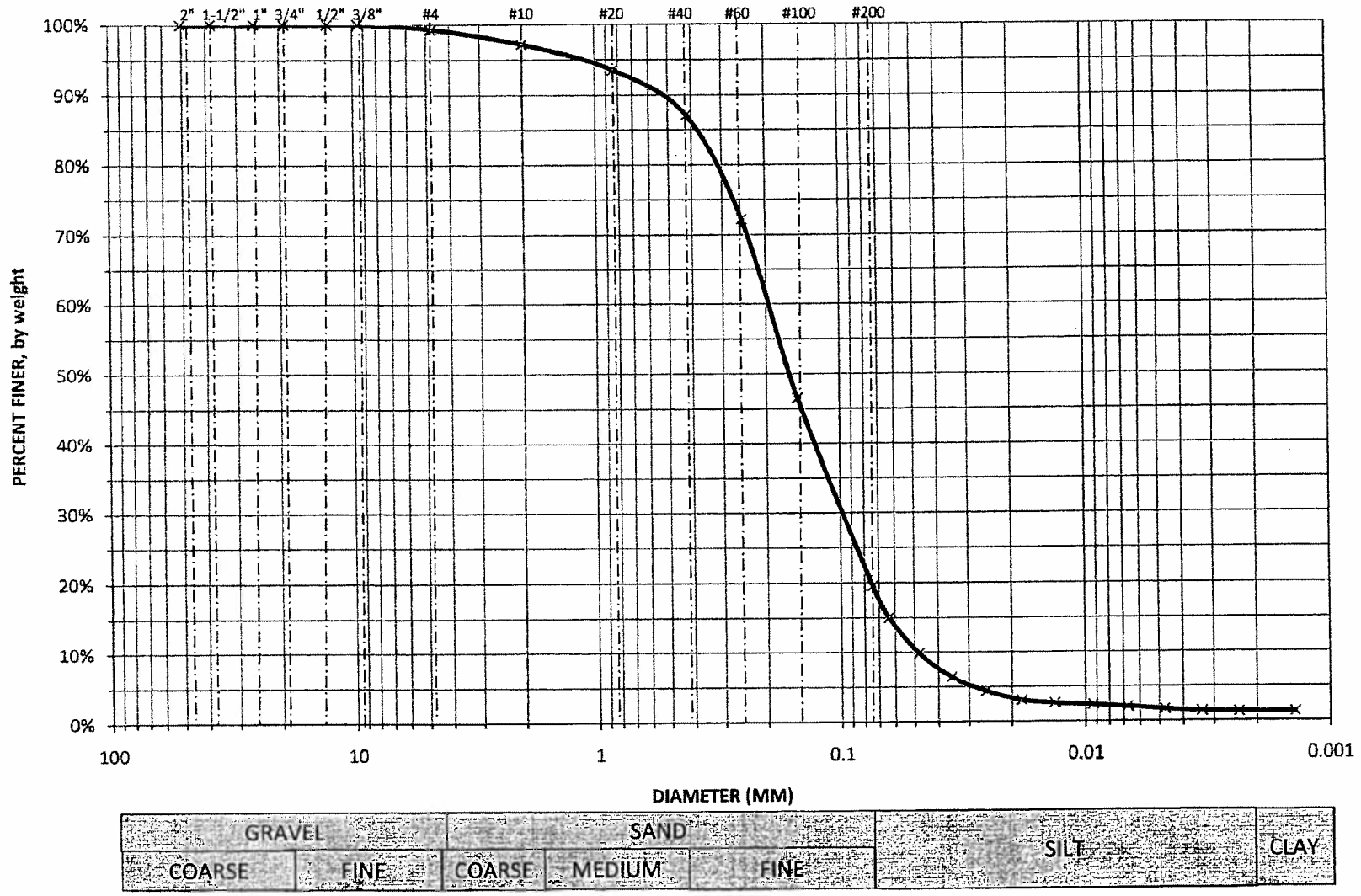
Container Number:		Container Mass, g:	
Container & Dry Soil, g:		Dry Soil Mass, g:	

GRAINSIZE SUMMARY

	Percent Gravel	Percent Sand	Percent Silt	Percent Clay	
					D_{10} = 0.048 mm Cu= 6.45
Coarse	0.00%	2.10%		---	D_{30} = 0.098 mm Cc= 1.55
Medium	---	10.06%		---	D_{50} = 0.16 mm
Fine	0.71%	67.58%		---	D_{60} = 0.20 mm
Total	0.71%	79.75%	18.18%	1.35%	

SIEVE ANALYSIS

DEEP RIVER MGI-2 S-1 0'-2'



Paul B. Aldinger and Associates, Inc.

SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA		Description:	Fine to medium SAND, little Gravel, littlrSilt trace coarse Sand, trace Clay
Project:	Deep River	USCS Classification:	SM
Location:	Newtown, CT	Boring Number	MGI-2
		Sample Number:	S-2
PBA Job Number:	10001	Sample Depth	5'-7'
Date:	1/27/2010	Tested By:	BDD

MECHANICAL ANALYSIS I

Container Number:	51	Container Mass, g:	85.04
Container & Wet Soil, g:	302	Dry Soil Mass, g:	187.83
Container & Dry Soil, g:	272.87	Moisture Content, %:	15.5%
Mass of Water, g:	29.13	Control Sieve:	#200

Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass
2"	50.800	1.706	0.00	0.00%	100.00%
1-1/2"	38.100	1.581	0.00	0.00%	100.00%
1"	25.400	1.405	0.00	0.00%	100.00%
3/4"	19.100	1.281	11.05	5.88%	94.12%
1/2"	12.700	1.104	20.21	10.76%	89.24%
3/8"	9.525	0.979	22.62	12.04%	87.96%
# 4	4.760	0.678	31.34	16.69%	83.31%
# 10	2.000	0.301	41.25	21.96%	78.04%
#20	0.840	-0.076	56.11	29.87%	70.13%
#40	0.420	-0.377	76.11	40.52%	59.48%
#60	0.250	-0.602	106.62	56.76%	43.24%
#100	0.149	-0.827	137.56	73.24%	26.76%
#200	0.074	-1.131	161.53	86.00%	14.00%
PAN	0	---	187.83	100.00%	0.00%

Percent of Sample Lost: 0

HYDROMETER ANALYSIS

Hydrometer Type:	152H	Dispersing Agent:	Sodium Hexametaphosphate
Zero Correction:	6	Amount:	125 ml at 4 Percent Concentration
Meniscus:	1	Specific Gravity of Solids:	2.65 (Assumed)
Dry Mass of Sample, g:	19.71	Specific Gravity Correction Factor, a:	1
Percent Fines:	14.00%	Hygroscopic Correction Factor:	1

Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Mln Cor	L	L/t	A	Diameter (mm)	Total % Finer
27-Jan	7:44:30 AM	0	20.0										
27-Jan	7:44:45 AM	0.25	20.0	26.0	20.15	102.23%	14.31%	27.0	11.87	47.477	0.01364	0.0940	14.31%
27-Jan	7:45:00 AM	0.5	20.0	24.0	18.15	92.09%	12.89%	25.0	12.20	24.395	0.01364	0.0674	12.89%
27-Jan	7:45:30 AM	1	20.0	21.0	15.15	76.86%	10.76%	22.0	12.69	12.690	0.01364	0.0486	10.76%
27-Jan	7:46:30 AM	2	20.0	16.8	10.95	55.56%	7.78%	17.8	13.38	6.690	0.01364	0.0353	7.78%
27-Jan	7:48:30 AM	4	20.1	14.0	8.15	41.35%	5.79%	15.0	13.84	3.460	0.01362	0.0253	5.79%
27-Jan	7:52:30 AM	8	20.1	12.0	6.18	31.33%	4.39%	13.0	14.17	1.771	0.01362	0.0181	4.39%
27-Jan	7:59:30 AM	15	20.1	11.0	5.18	26.26%	3.68%	12.0	14.33	0.955	0.01362	0.0133	3.68%
27-Jan	8:15:30 AM	31	20.1	10.5	4.68	23.72%	3.32%	11.5	14.41	0.465	0.01362	0.0093	3.32%
27-Jan	8:44:30 AM	60	20.1	10.2	4.38	22.20%	3.11%	11.2	14.46	0.241	0.01362	0.0067	3.11%
27-Jan	9:44:30 AM	120	20.5	9.2	3.38	17.12%	2.40%	10.2	14.63	0.122	0.01356	0.0047	2.40%
27-Jan	11:44:30 AM	240	20.8	8.8	3.08	15.60%	2.18%	9.8	14.69	0.061	0.01351	0.0033	2.18%
27-Jan	3:44:30 PM	480	20.9	8.5	2.85	14.46%	2.02%	9.5	14.74	0.031	0.0135	0.0024	2.02%
28-Jan	7:44:30 AM	1440	19.5	8.0	2.38	12.05%	1.69%	9.0	14.82	0.010	0.01373	0.0014	1.69%

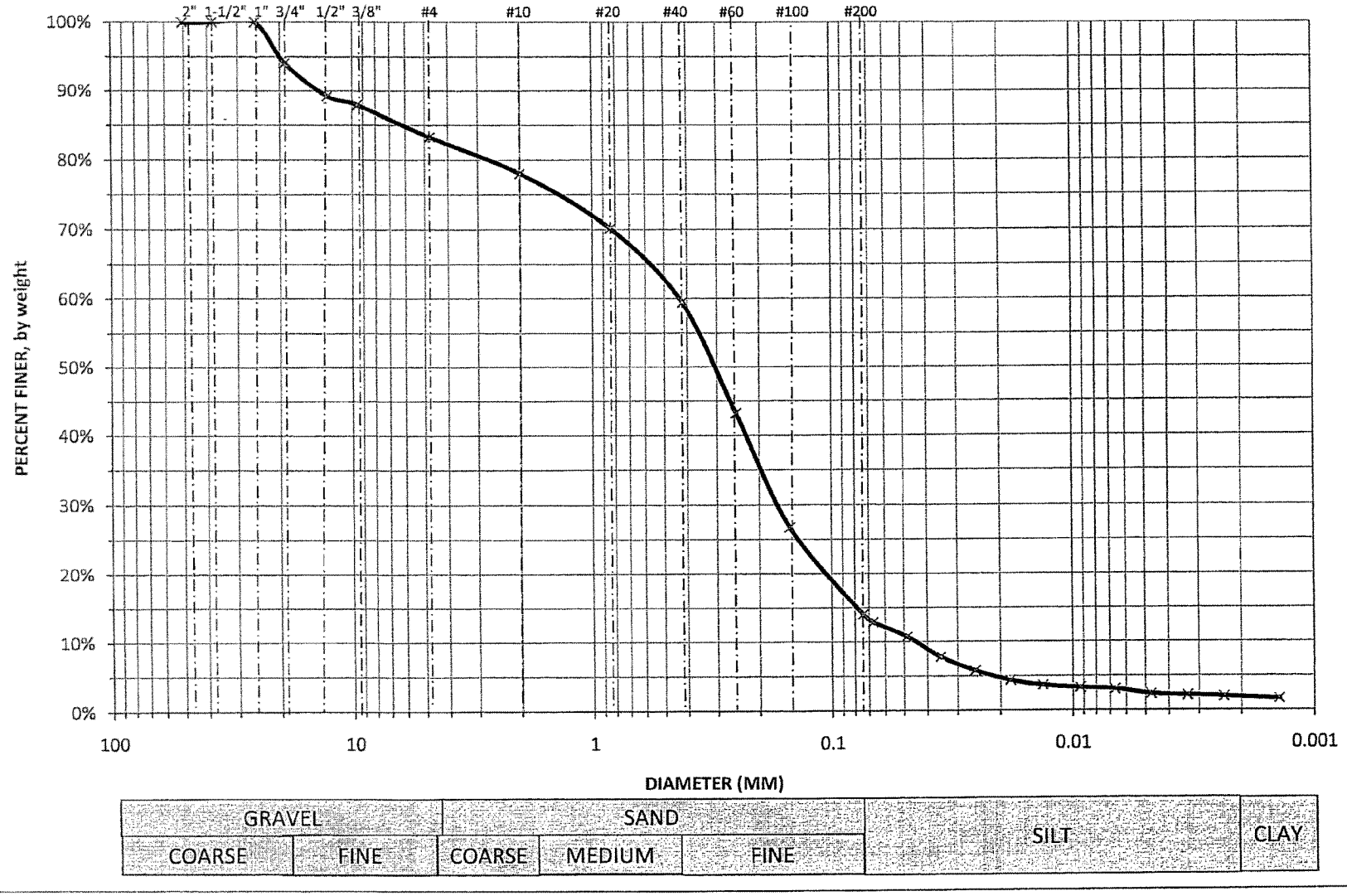
	Container Number:		Container Mass, g:
	Container & Dry Soil, g:		Dry Soil Mass, g:

GRAINSIZE SUMMARY

	Percent Gravel	Percent Sand	Percent Silt	Percent Clay		
					D_{10}= 0.048 mm	Cu= 8.75
Coarse	5.88%	5.28%		---	D_{30}= 0.16 mm	Cc= 1.27
Medium	---	18.56%		---	D_{50}= 0.30 mm	
Fine	10.80%	45.48%		---	D_{60}= 0.42 mm	
Total	16.69%	69.31%	11.98%	2.02%		

SIEVE ANALYSIS

DEEP RIVER MGI-2, S-2, 5'-'7



SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA

Project: Deep River

Location: Newtown, CT

PBA Job Number: ^10001

Date: 1/27/2010

Description: Fine to coarse SAND, little Silt, little Gravel, trace Clay

USCS Classification: SM

Boring Number MGI-3

Sample Number: S-2

Sample Depth 2' - 4'

Tested By: BDD

MECHANICAL ANALYSIS I

Container Number: 49

Container & Wet Soil, g: 316.88

Container & Dry Soil, g: 293.28

Mass of Water, g: 23.6

Container Mass, g: 110.9

Dry Soil Mass, g: 182.38

Moisture Content, %: 12.9%

Control Sieve: #200

Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass
2"	50.800	1.706	0.00	0.00%	100.00%
1-1/2"	38.100	1.581	0.00	0.00%	100.00%
1"	25.400	1.405	0.00	0.00%	100.00%
3/4"	19.100	1.281	0.00	0.00%	100.00%
1/2"	12.700	1.104	11.45	6.28%	93.72%
3/8"	9.525	0.979	16.73	9.17%	90.83%
# 4	4.760	0.678	30.44	16.69%	83.31%
# 10	2.000	0.301	48.60	26.65%	73.35%
#20	0.840	-0.076	67.70	37.12%	62.88%
#40	0.420	-0.377	84.70	46.44%	53.56%
#60	0.250	-0.602	102.78	56.35%	43.65%
#100	0.149	-0.827	123.94	67.96%	32.04%
#200	0.074	-1.131	143.17	78.50%	21.50%
PAN	0	----	182.38	100.00%	0.00%

Percent of Sample Lost: 0

HYDROMETER ANALYSIS

Hydrometer Type: 152H

Zero Correction: 6

Meniscus: 1

Dry Mass of Sample, g: 17.64

Percent Fines: 21.50%

Dispersing Agent: Sodium Hexametaphosphate

Amount: 125 ml at 4 Percent Concentration

Specific Gravity of Solids: 2.65 (Assumed)

Specific Gravity Correction Factor, a: 1

Hygroscopic Correction Factor: 1

Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Mln Cor	L	L/t	A	Diameter (mm)	Total % Finer
27-Jan	8:13:00 AM	0	20.1										
27-Jan	8:13:15 AM	0.25	20.1	25.0	19.18	108.70%	23.37%	26.0	12.03	48.134	0.01362	0.0945	23.37%
27-Jan	8:13:30 AM	0.5	20.1	23.0	17.18	97.36%	20.93%	24.0	12.36	24.723	0.01362	0.0677	20.93%
27-Jan	8:14:00 AM	1	20.1	22.5	16.68	94.53%	20.32%	23.5	12.44	12.444	0.01362	0.0480	20.32%
27-Jan	8:15:00 AM	2	20.1	19.0	13.18	74.69%	16.06%	20.0	13.02	6.509	0.01362	0.0347	16.06%
27-Jan	8:17:00 AM	4	20.1	16.5	10.68	60.52%	13.01%	17.5	13.43	3.357	0.01362	0.0250	13.01%
27-Jan	8:21:00 AM	8	20.1	14.8	8.98	50.88%	10.94%	15.8	13.71	1.713	0.01362	0.0178	10.94%
27-Jan	8:28:00 AM	15	20.1	13.0	7.18	40.67%	8.74%	14.0	14.00	0.934	0.01362	0.0132	8.74%
27-Jan	8:43:00 AM	30	20.2	12.0	6.18	35.01%	7.53%	13.0	14.17	0.472	0.01361	0.0094	7.53%
27-Jan	9:13:00 AM	60	20.4	11.0	5.20	29.48%	6.34%	12.0	14.33	0.239	0.01358	0.0066	6.34%
27-Jan	10:13:00 AM	120	20.7	10.0	4.25	24.09%	5.18%	11.0	14.49	0.121	0.01353	0.0047	5.18%
27-Jan	11:57:00 AM	224	20.9	9.9	4.23	23.95%	5.15%	10.9	14.51	0.065	0.01350	0.0034	5.15%
27-Jan	4:13:00 PM	480	20.9	9.0	3.38	19.13%	4.11%	10.0	14.66	0.031	0.01350	0.0024	4.11%
28-Jan	8:13:00 AM	1440	19.5	8.7	3.08	17.43%	3.75%	9.7	14.71	0.010	0.01373	0.0014	3.75%

Container Number:

Container & Dry Soil, g:

Container Mass, g:

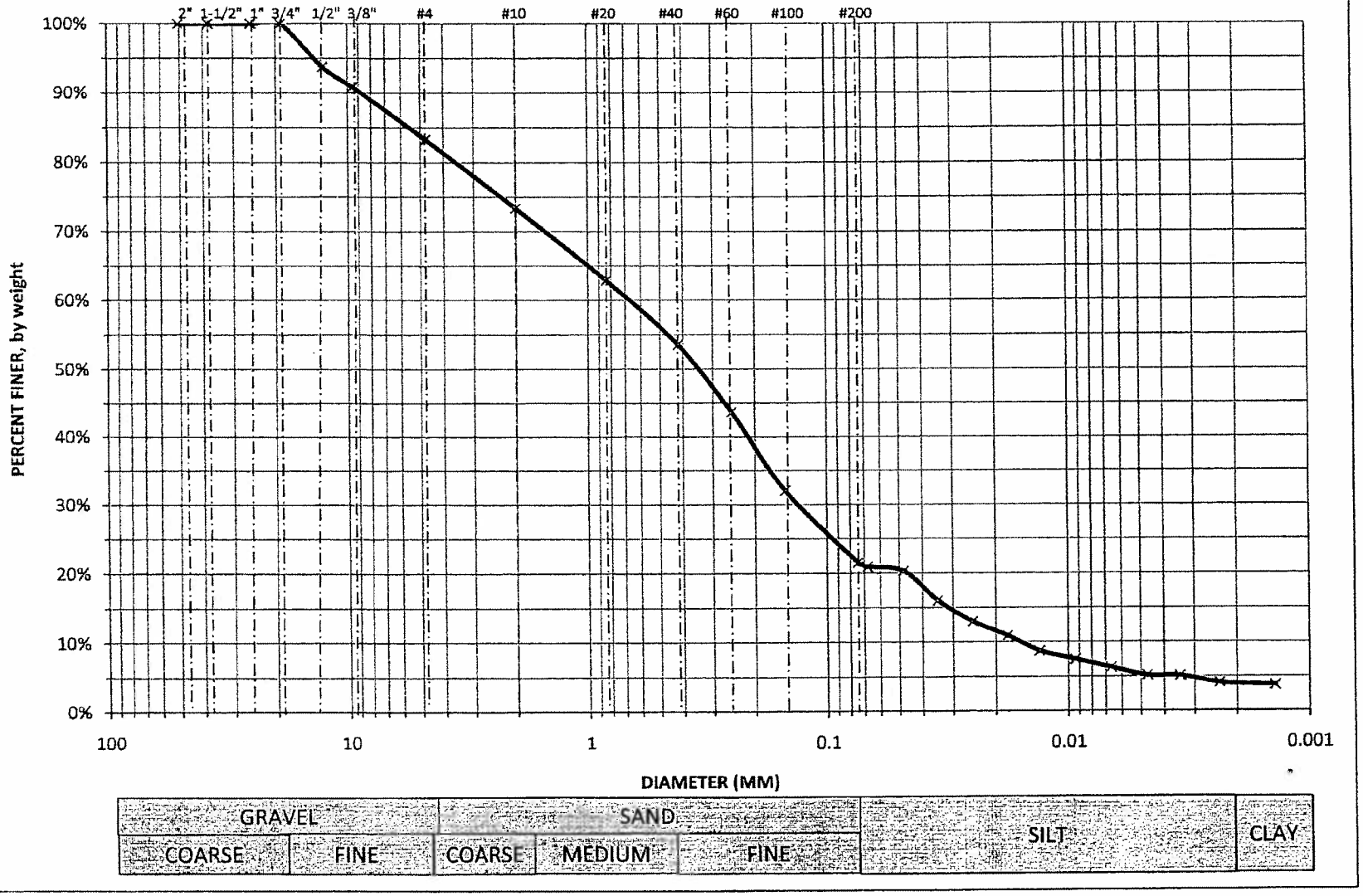
Dry Soil Mass, g:

GRAINSIZE SUMMARY

	Percent Gravel	Percent Sand	Percent Silt	Percent Clay	
					D_{10} = 0.015 mm Cu= 45.33
Coarse	0.00%	9.96%		----	D_{30} = 0.14 mm Cc= 1.92
Medium	----	19.79%		----	D_{50} = 0.34 mm
Fine	16.69%	32.06%		----	D_{60} = 0.68 mm
Total	16.69%	61.81%	17.39%	4.11%	

SIEVE ANALYSIS

DEEP RIVER MGI-3, S-2, 2'-4'



Paul B. Aldinger and Associates, Inc.

SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA

Project:	Deep River	Description:	Fine to medium SAND, some Silt, little Gravel trace coarse Sand, trace Clay
		USCS Classification:	SM
Location:	Newtown, CT	Boring Number	MGI-4
		Sample Number:	S-3
PBA Job Number:	^10001	Sample Depth	4'-6'
Date:	1/27/2010	Tested By:	BDD

MECHANICAL ANALYSIS

Container Number:	32	Container Mass, g:	97.69
Container & Wet Soil, g:	342.23	Dry Soil Mass, g:	212.27
Container & Dry Soil, g:	309.96	Moisture Content, %:	15.2%
Mass of Water, g:	32.27	Control Sieve:	#200

Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass
2"	50.800	1.706	0.00	0.00%	100.00%
1-1/2"	38.100	1.581	0.00	0.00%	100.00%
1"	25.400	1.405	0.00	0.00%	100.00%
3/4"	19.100	1.281	0.00	0.00%	100.00%
1/2"	12.700	1.104	10.41	4.90%	95.10%
3/8"	9.525	0.979	21.02	9.90%	90.10%
# 4	4.760	0.678	35.46	16.71%	83.29%
# 10	2.000	0.301	50.80	23.93%	76.07%
#20	0.840	-0.076	67.92	32.00%	68.00%
#40	0.420	-0.377	86.01	40.52%	59.48%
#60	0.250	-0.602	106.92	50.37%	49.63%
#100	0.149	-0.827	131.34	61.87%	38.13%
#200	0.074	-1.131	153.70	72.41%	27.59%
PAN	0	----	212.27	100.00%	0.00%

Percent of Sample Lost: 0

HYDROMETER ANALYSIS

Hydrometer Type:	152H	Dispersing Agent:	Sodium Hexametaphosphate
Zero Correction:	6	Amount:	125 ml at 4 Percent Concentration
Meniscus:	1	Specific Gravity of Solids:	2.65 (Assumed)
Dry Mass of Sample, g:	21.29	Specific Gravity Correction Factor, a:	1
Percent Fines:	27.59%	Hygroscopic Correction Factor:	1

Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Min Cor	L	L/t	A	Diameter (mm)	Total % Finer
27-Jan	8:03:30 AM	0	20.1										
27-Jan	8:03:45 AM	0.25	20.1	29.0	23.18	108.85%	30.04%	30.0	11.38	45.508	0.01362	0.0919	30.04%
27-Jan	8:04:00 AM	0.5	20.1	26.0	20.18	94.76%	26.15%	27.0	11.87	23.739	0.01362	0.0664	26.15%
27-Jan	8:04:30 AM	1	20.1	23.0	17.18	80.67%	22.26%	24.0	12.36	12.362	0.01362	0.0479	22.26%
27-Jan	8:05:30 AM	2	20.1	19.0	13.18	61.88%	17.08%	20.0	13.02	6.509	0.01362	0.0347	17.08%
27-Jan	8:07:30 AM	4	20.1	18.0	12.18	57.19%	15.78%	19.0	13.18	3.296	0.01362	0.0247	15.78%
27-Jan	8:11:30 AM	8	20.1	16.5	10.68	50.14%	13.83%	17.5	13.43	1.679	0.01362	0.0176	13.83%
27-Jan	8:18:30 AM	15	20.1	15.0	9.18	43.10%	11.89%	16.0	13.67	0.912	0.01362	0.0130	11.89%
27-Jan	8:33:30 AM	30	20.1	12.8	6.98	32.76%	9.04%	13.8	14.04	0.468	0.01362	0.0093	9.04%
27-Jan	9:03:30 AM	60	20.4	11.5	5.68	26.66%	7.35%	12.5	14.25	0.237	0.01358	0.0066	7.35%
27-Jan	10:03:30 AM	120	20.6	10.2	4.45	20.90%	5.77%	11.2	14.46	0.121	0.01354	0.0047	5.77%
27-Jan	11:55:30 AM	232	20.9	10.0	4.30	20.20%	5.57%	11.0	14.49	0.062	0.01350	0.0034	5.57%
27-Jan	4:03:03 PM	480	20.9	9.0	3.38	15.85%	4.37%	10.0	14.66	0.031	0.01350	0.0024	4.37%
28-Jan	8:03:30 AM	1440	19.5	8.9	3.28	15.38%	4.24%	9.9	14.68	0.010	0.01373	0.0014	4.24%

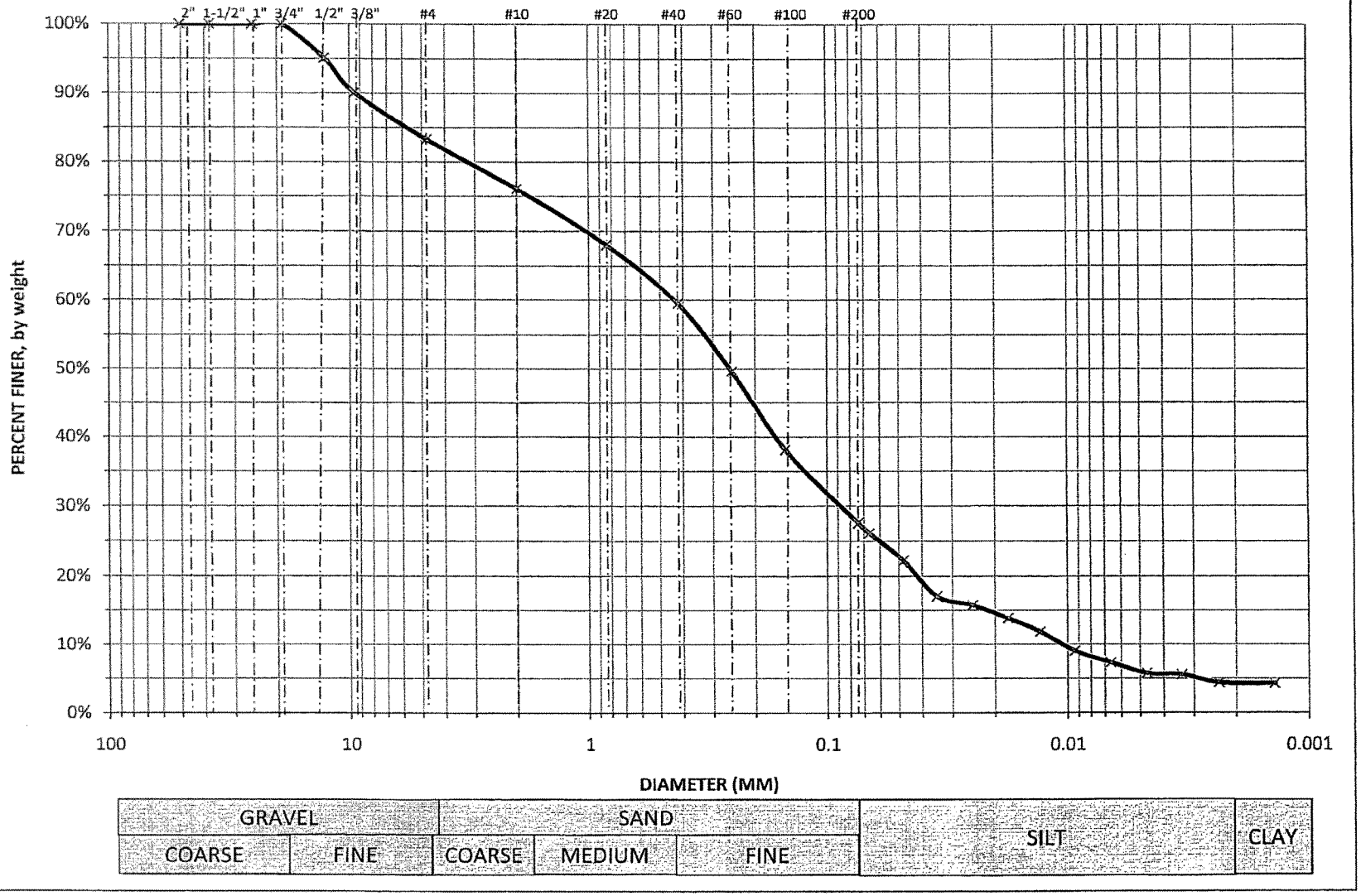
	Container Number:		Container Mass, g:
	Container & Dry Soil, g:		Dry Soil Mass, g:

GRAINSIZE SUMMARY

	Percent Gravel	Percent Sand	Percent Silt	Percent Clay		
					D_{10}= 0.010 mm	Cu= 42.00
Coarse	0.00%	7.23%		----	D_{30}= 0.089 mm	Cc= 1.88
Medium	----	16.59%		----	D_{50}= 0.25 mm	
Fine	16.71%	31.89%		----	D_{60}= 0.42 mm	
Total	16.71%	55.70%	23.22%	4.37%		

SIEVE ANALYSIS

DEEP RIVER MGI-4, S-3, 4'-6'



Paul B. Aldinger and Associates, Inc.

SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA

Project: Deep River
Location: Newtown, CT
PBA Job Number: ^10001
Date: 1/27/2010

Description: Fine to medium SAND, some Gravel, little Silt trace coarse Sand, trace Clay
USCS Classification: SM
Boring Number MGI-5
Sample Number: S-2
Sample Depth 2'-4'
Tested By: BDD

MECHANICAL ANALYSIS I

Container Number: 54
Container & Wet Soil, g: 328.66
Container & Dry Soil, g: 302.08
Mass of Water, g: 26.58

Container Mass, g: 84.8
Dry Soil Mass, g: 217.28
Moisture Content, %: 12.2%
Control Sieve: #200

Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass
2"	50.800	1.706	0.00	0.00%	100.00%
1-1/2"	38.100	1.581	0.00	0.00%	100.00%
1"	25.400	1.405	0.00	0.00%	100.00%
3/4"	19.100	1.281	34.04	15.67%	84.33%
1/2"	12.700	1.104	53.85	24.78%	75.22%
3/8"	9.525	0.979	63.38	29.17%	70.83%
# 4	4.760	0.678	72.45	33.34%	66.66%
# 10	2.000	0.301	80.92	37.24%	62.76%
#20	0.840	-0.076	93.03	42.82%	57.18%
#40	0.420	-0.377	105.36	48.49%	51.51%
#60	0.250	-0.602	123.90	57.02%	42.98%
#100	0.149	-0.827	147.34	67.81%	32.19%
#200	0.074	-1.131	169.10	77.83%	22.17%
PAN	0	---	217.28	100.00%	0.00%

Percent of Sample Lost: 0

HYDROMETER ANALYSIS

Hydrometer Type: 152H
Zero Correction: 6
Meniscus: 1
Dry Mass of Sample, g: 24.28
Percent Fines: 22.17%

Dispersing Agent: Sodium Hexametaphosphate
Amount: 125 ml at 4 Percent Concentration
Specific Gravity of Solids: 2.65 (Assumed)
Specific Gravity Correction Factor, a: 1
Hygroscopic Correction Factor: 1

Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Min Cor	L	L/t	A	Diameter (mm)	Total % Finer
27-Jan	7:54:00 AM	0	20.1										
27-Jan	7:54:15 AM	0.25	20.1	31.0	25.18	103.69%	22.99%	32.0	11.05	44.195	0.01362	0.0905	22.99%
27-Jan	7:54:30 AM	0.5	20.1	28.5	22.68	93.39%	20.71%	29.5	11.46	22.918	0.01362	0.0652	20.71%
27-Jan	7:55:00 AM	1	20.1	25.5	19.68	81.03%	17.97%	26.5	11.95	11.951	0.01362	0.0471	17.97%
27-Jan	7:56:00 AM	2	20.1	21.0	15.18	62.50%	13.86%	22.0	12.69	6.345	0.01362	0.0343	13.86%
27-Jan	7:58:00 AM	4	20.1	17.5	11.68	48.08%	10.66%	18.5	13.26	3.316	0.01362	0.0248	10.66%
27-Jan	8:02:00 AM	8	20.1	15.2	9.38	38.61%	8.56%	16.2	13.64	1.705	0.01362	0.0178	8.56%
27-Jan	8:09:00 AM	15	20.1	13.8	7.98	32.85%	7.28%	14.8	13.87	0.925	0.01362	0.0131	7.28%
27-Jan	8:25:00 AM	31	20.1	12.0	6.18	25.43%	5.64%	13.0	14.17	0.457	0.01362	0.0092	5.64%
27-Jan	8:54:00 AM	60	20.3	11.0	5.18	21.31%	4.73%	12.0	14.33	0.239	0.01359	0.0066	4.73%
27-Jan	9:54:00 AM	120	20.6	10.0	4.23	17.40%	3.86%	11.0	14.49	0.121	0.01354	0.0047	3.86%
27-Jan	11:54:00 AM	240	20.9	9.3	3.60	14.83%	3.29%	10.3	14.61	0.061	0.01350	0.0033	3.29%
27-Jan	3:54:00 PM	480	20.9	9.0	3.38	13.90%	3.08%	10.0	14.66	0.031	0.01350	0.0024	3.08%
28-Jan	7:54:00 AM	1440	19.5	8.3	2.68	11.02%	2.44%	9.3	14.77	0.010	0.01373	0.0014	2.44%

Container Number:
Container & Dry Soil, g:

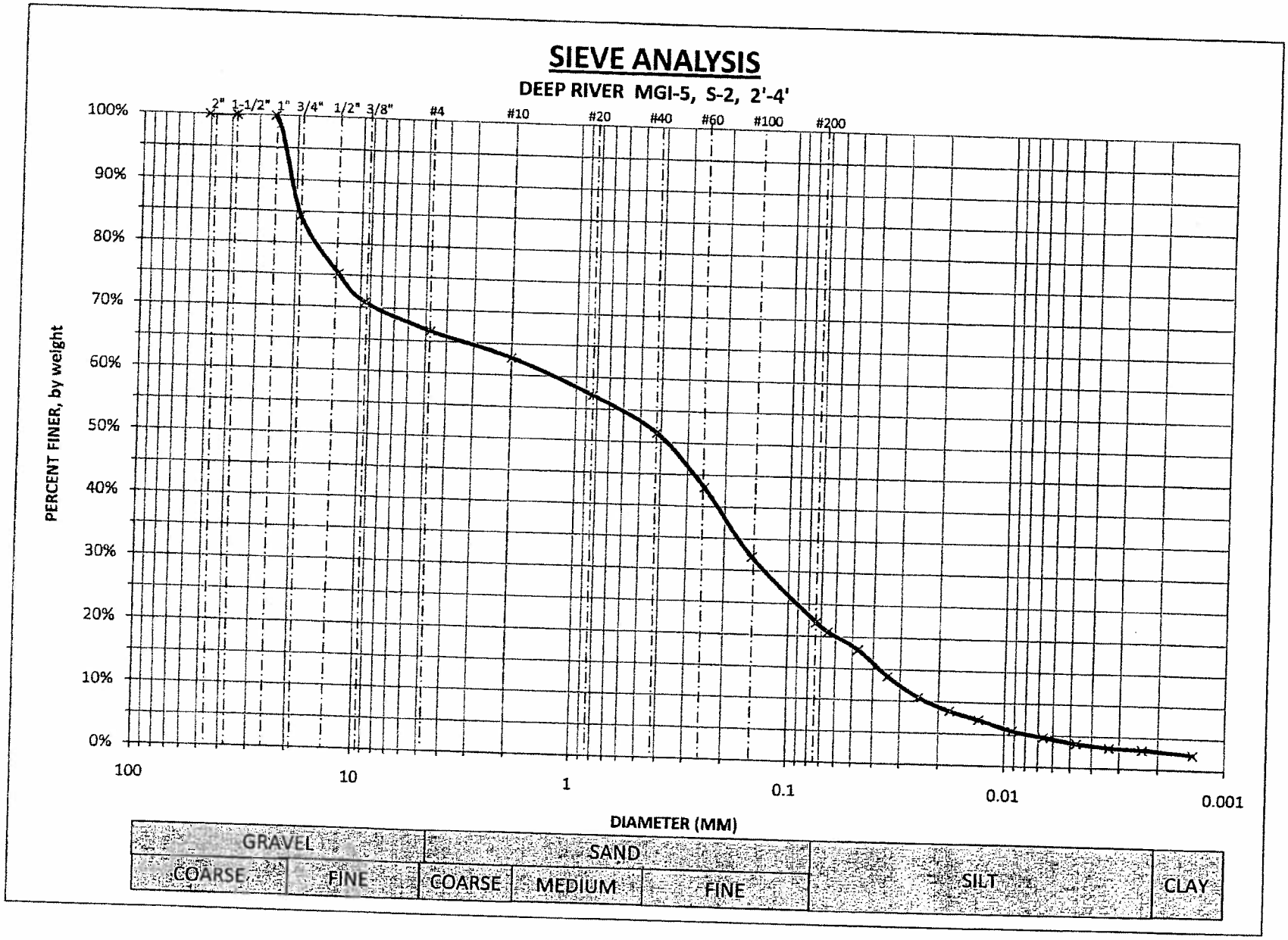
Container Mass, g:
Dry Soil Mass, g:

GRAINSIZE SUMMARY

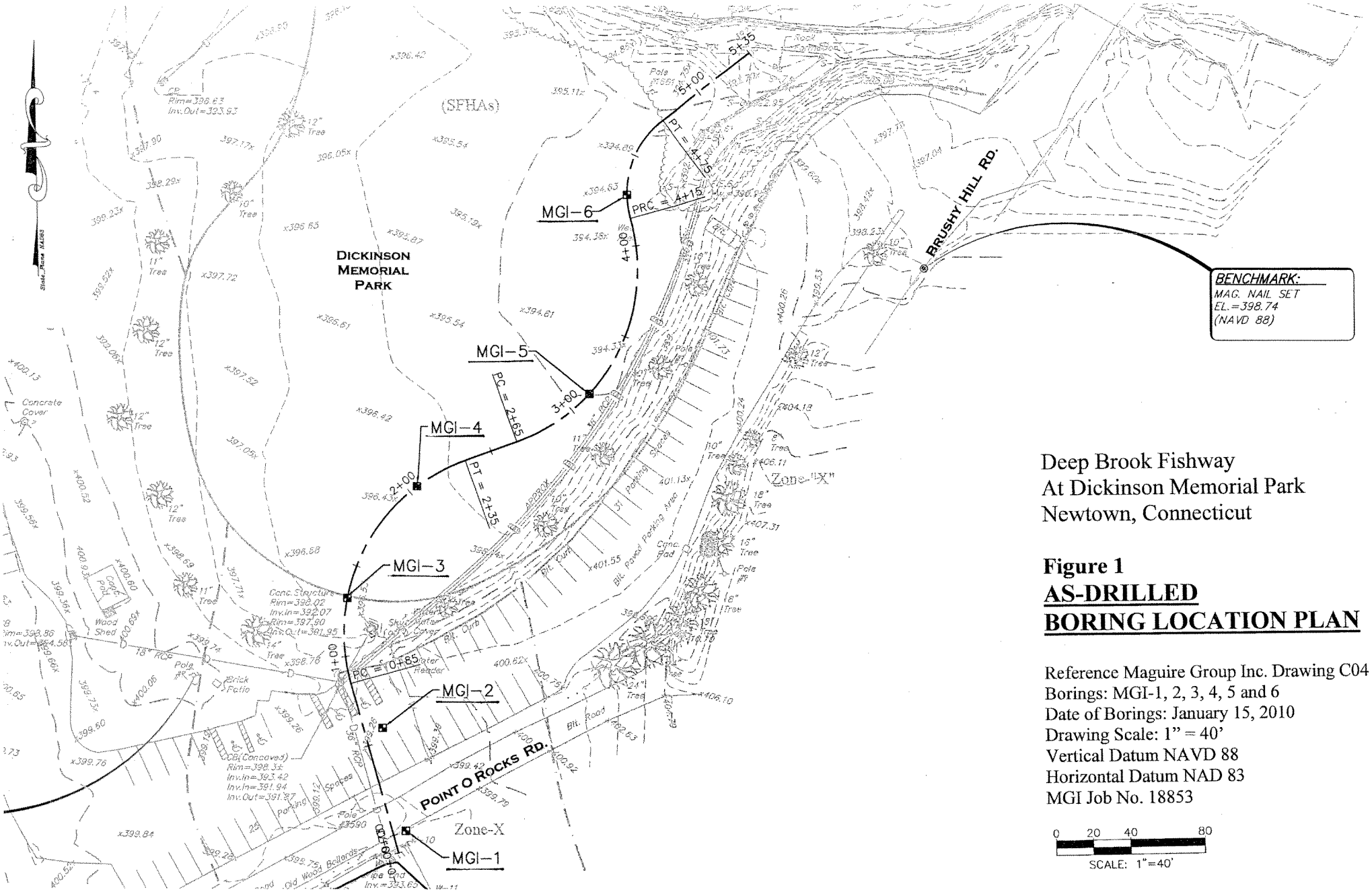
	Percent Gravel	Percent Sand	Percent Silt	Percent Clay		
Coarse	15.67%	3.90%		---	D_{10} = 0.024 mm	Cu= 50
Medium	---	11.25%		---	D_{30} = 0.14 mm	Cc= 0.68
Fine	17.68%	29.34%		---	D_{50} = 0.38 mm	
Total	33.34%	44.48%	19.09%	3.08%	D_{60} = 1.2 mm	

SIEVE ANALYSIS

DEEP RIVER MGI-5, S-2, 2'-4'



Paul B. Aldinger and Associates, Inc.



Deep Brook Fishway
At Dickinson Memorial Park
Newtown, Connecticut

Figure 1
AS-DRILLED
BORING LOCATION PLAN

Reference Maguire Group Inc. Drawing C04
Borings: MGI-1, 2, 3, 4, 5 and 6
Date of Borings: January 15, 2010
Drawing Scale: 1" = 40'
Vertical Datum NAVD 88
Horizontal Datum NAD 83
MGI Job No. 18853

0 20 40 80
SCALE: 1"=40'

TOWN OF NEWTOWN

SEALED BID REQUEST

BID OPENING DATE: Wednesday, June 20, 2012 **TIME:** 11:00 am

LOCATION: Finance Dept., Newtown Municipal Center, **3 Primrose Street**, Newtown, CT 06470

BID TITLE: STREAM RESTORATION PROJECT – DICKINSON TOWN PARK

SECURITY REQUIRED: Five Percent (5%) Bid Security. One Hundred percent (100%) Performance & Employees and Materialmen Security

DATED IN NEWTOWN: May 31, 2012

BID SECURITY $

(CERTIFIED CHECK OR LETTER OF CREDIT)

PLEASE NOTE: ONE (1) ORIGINAL AND ONE (1) COPY OF SEALED BID MUST BE SUBMITTED. Is your company a MBE/WBE business: _____ _____
(YES) (NO

TOTAL PROJECT: $_____

COMPANY	**SIGNATURE**
ADDRESS	**SIGNED BY (Print or Type)**
ADDRESS 2	**TITLE**
ADDRESS 3	**FAX NO.**
TELEPHONE NO.	**DATE**
TAX ID NUMBER	**E-MAIL**