

PROJECT APPLICATION FORM – 2014

Applicant: Town of Acton Natural Resources Dept.

Submission Date: 10/18/13

Applicant's Address:

472 Main Street, Acton MA 01720

Phone Number: 978-929-6634

E-mail: NR@acton-ma.gov

Purpose: (Please select all that apply)

- Open Space
- Community Housing
- Historic Preservation



Town Committee (if applicable):

Project Name: Acton Arboretum Bog Boardwalk Rehabilitation

Project Location/Address: 2 Taylor Road, Acton MA

Amount Requested: \$30,000

Background and Project Summary:



The Acton Arboretum bog boardwalk was built in 1989 for approximately \$800.00 by two Eagle Scouts using recycled telephone poles and standard lumber.

***Project has high degree of urgency:**

For the past 5 years it has required constant repairs due to rot and heavy foot traffic. In recent years the boardwalk has been buried by deep snow and submerged in seasonal flooding. There are currently holes and gaps. It cannot sustain current use demands much longer .

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For the past 25 years, thousands of visitors have enjoyed this rare and beautiful area. Joggers, cross-country athletes, skiers, snow-shoers, hikers, dogwalkers, school groups, nature groups, families, painters and photographers regularly use this resource. Making it handicap accessible will increase its popularity. School groups with handicap students will be able to enjoy the new boardwalk. It will be strong and sturdy and large enough to accommodate bigger groups than before. It will become an even more popular resource than it is today.

Project Highlights:

- New boardwalk plans include raising the platform 18" above the plant life for reduced ecological impact.
- New fiberglass decking allows more light to flora and fauna beneath.
- Boardwalk will be ADA accessible, have wheelchair curbs the entire length, and handrails along open water sections.
- Project includes a paved, 'universal access' sidewalk ramp from Minot Ave. connecting to the boardwalk with a less than 5% grade. [Engineered drawing attached.]



Photo: Minot Avenue crosswalk site where paved ADA compliant ramp will connect to boardwalk.

- Acton Commission on Disabilities endorses this project because it improves recreational opportunities to an underserved population of the community.
- Non-slip grating: new boardwalk will have fiberglass grating. Decking will be slip-resistant and corrosion-resistant.
- A double-wide viewing platform will include a teak bench.
- New Boardwalk will need very little maintenance over a projected 30 year lifespan.

Feasibility:

Boardwalk construction materials (other than fiberglass decking) will be of traditional building products, already in widespread use by the Acton Land Stewardship Committee on Acton conservation lands (example, Grassy Pond). Boardwalk plans have been used dozens of times. [Portions attached.]

Community benefits: This new bog boardwalk can be used for active and passive recreation such as running and bird-watching; enhances resources for hiking; provides scenic vistas and open space appreciation; teaches about historic uses of bogs (cranberry and iron ore harvesting); satisfies main goals of OSRP to expand recreation opportunities, protect the environment and enhance quality of life in Acton.

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Costs:

- Traditional Lumber and hardware: **\$10,000**
- Tree work: 2 days for crane, operator and climber **\$3,128**
- Safe –T-Span grating (decking): **\$20,000**
- Educational Panels about Bog life and geology: **\$1,500**
- Labor to build boardwalk: **\$20,000**
- Teak Bench **\$905**

Total Costs: \$55,533

In Kind Contributions/Leverage:

1. Friends of the Acton Arboretum, Inc. is collecting donations for a boardwalk fund; and recently made a verbal commitment of **\$3,000** for this project. Community fundraiser activities are planned by the FAA to raise awareness and participation in project (*bog walk, bog talk, plant swap, etc.*)
2. A private donor has made a strong verbal commitment of **\$30,000** to this project.
3. Acton Engineering Department surveyed and created engineered plans for the paved ramp from Minot Ave. sidewalk.
4. Natural Resources Department has and will contribute:
 - hours for administrative work and design
 - According to the Wetlands Protection Acton, a **Notice of Intent** will be filed with the Acton Conservation Commission after town meeting approval and before construction (Summer, 2014).
5. Town Highway Dept. sidewalk ramp: site prep, fill, paving from Minot Ave. to boardwalk.
6. Acton Building Dept. has reviewed and approved plans.

This CPA Proposal Financial Summary:

Total Costs: \$55,533

Total Donations: \$33,000

Contingencies Allowance: \$7,467

Total Request: \$30,000

Concept Photos:



Boardwalk with viewing platform



boardwalk with paved ramp connection



Fibergrate boardwalk with handrails and toe rails.



Fibergrate boardwalk example.

Existing conditions at 4 acre Arboretum Bog:

Currently a 214 feet long and 3 feet wide wooden boardwalk. There is a five foot side and 10 feet long section where a bench once sat, but broke off.



Photo of current boardwalk



Photo: Northern Pitcher Plant

Tall grasses grow in along sides for half the length. There is open water on both sides halfway across the boardwalk. There are 2 holes in the boardwalk. It is no longer possible to hammer nails in to the saturated stringers beneath. There are wooden steps leading down from Minot Ave. to the site. A muddy trail runs along Minot Ave. Several boardwalks have been built in recent years due to high water levels. 15 Tall white pines are growing in a cluster along Minot Ave. NR and the Friends of the Acton Arboretum have put signs up on trees asking the public not to run on the fragile boardwalk, and ask for donations to a boardwalk fund. The western end of the boardwalk connects to a trail that leads up a rocky hill along an esker. Rare pitcher plants, leather leaf and other acid-loving plants and peat moss grow along and may be viewed from the boardwalk. Frogs, birds, dragonflies and butterflies live nearby. Fall foliage of red maples and staghorn sumac are vibrantly colorful.

—
Estimated Date for Commencement of Project: Summer 2014 Ramp; December, 2014 metal pilings; spring 2015 boardwalk construction.

Estimated Date for Completion of Project: Late spring, early summer, 2015

The old boardwalk may remain in use while new boardwalk is constructed.

Decking Material:

Safe-T-Span® Pultruded Gratings made by Fibergrate, Inc.



The following information was obtained from the company website, www.fibergrate.com.

Fibergrate began manufacturing in 1966. In 1996 it was acquired by RPM International Inc. a 4 billion dollar corporation.

Grating for applications where wide support spans are required

- Corrosion Resistant
- Slip Resistant
- Fire Retardant
- High Strength-to-Weight Ratio
- Non-Conductive
- Low Installation Cost
- Long Service Life
- Superior Ergonomics

Fibergrate's pultruded gratings are manufactured with a high percentage of glass, providing durability and an extremely high unidirectional strength and stiffness. Due to its exceptional stiffness, Safe-T-Span can be used with confidence in applications where wide support spans are required.

Fibergrate Composite Structures consistently exceeds the mark of excellence set forth by safety and regulation organizations and has earned certification and approval for many of its products. All Fibergrate's manufacturing facilities are ISO 9001:2008 certified. Some of Fibergrate's other certifications include the following Approvals and Regulatory Standards:

- American Bureau of Shipping (ABS) Type Approval
- Det Norske Veritas (DNV) Type Approval
- US Coast Guard (USCG) Level 2 Approval
- USDA Approvable
- City of Los Angeles (LARR)
- New York City Transit Authority (NYCTA) Approval
- Chicago Transit Authority (CTA) Approval
- Association of American Railroads (AAR)
- OSHA, IBC, UBC and ADA

Industry Memberships

International Association of Amusement Parks and Attractions Certifications

Fibergrate's products are designed to comply with the regulations of many internationally recognized safety organizations. These products have undergone extensive independent testing and received numerous certifications, approvals and authorizations including the following:

ADA Compliant

- **Rigidex® II Moltruded® Grating**
- **Pultruded Grating - T2510, T2515, T1210, T1215, I4010, I4015, T3320**

Safe-T-Span® Pultruded Grating

- Superior Corrosion Resistance Compared to Metal Gratings
- High Unidirectional Strength and Stiffness for Longer Spans
- Superior Slip Resistance (with grit top)
- Aqua Grate Pultruded Grating is Barefoot Friendly
- Light Gray Color Minimizes Heat Buildup
- Several ADA-compliant Configurations Available

for corrosion resistance, safety and high strength-to-weight properties.

Russian River Boardwalks - Anchorage, Alaska FRP boardwalks installed along the Russian River provide access for anglers, pedestrians and cross country skiers in the winter without ruining the vegetation on the riverbanks. Heavy pedestrian traffic and constant climbing up and down the banks by anglers caused the riverbanks to lose vegetation creating bank erosion and river shallowing. Needing to find a material that would meet ADA requirements, be safe for pedestrians and allow light through to recovering vegetation, the U.S. Forest Service chose Fibergrate's Safe-T-Span® pedestrian pultruded grating. The light gray color blends well with natural environments.

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Printed in the USA

5151 Belt Line Rd. Suite 1212 Dallas, Texas 75254

An Company Phone: 800-527-4043 | Fax: 972-250-1530 | Email: info@fibergrate.com

Photo of a boardwalk/dock: <http://www.fibergrate.com/applications/?app=1172#1172>

Pedestrian load charts: <http://www.fibergrate.com/media/4065/stspedestrian.pdf>

Info about Safe-T-Span protruded gratings: <http://www.fibergrate.com/products/pultruded-grating/safe-t-span%C2%AE-pultruded-gratings/>

Recent Tree Crane Invoice - \$1,564.00

From: Andrea Ristine

Sent: Wednesday, October 16, 2013 2:09 PM

To: Tom Tidman

Subject: Tree Tech FY'14 Rate

Item 2. Daily rate for Crane, operator, and climber as specified, the sum of

Fiscal Year 2014:

One thousand five hundred sixty four
(written)

\$1,564.⁰⁰

(Numerals)

Signature of Bidder

Country Casual 6' Solid Teak Bench \$865.00 + 4 Steel Anchors \$40 = \$905.00



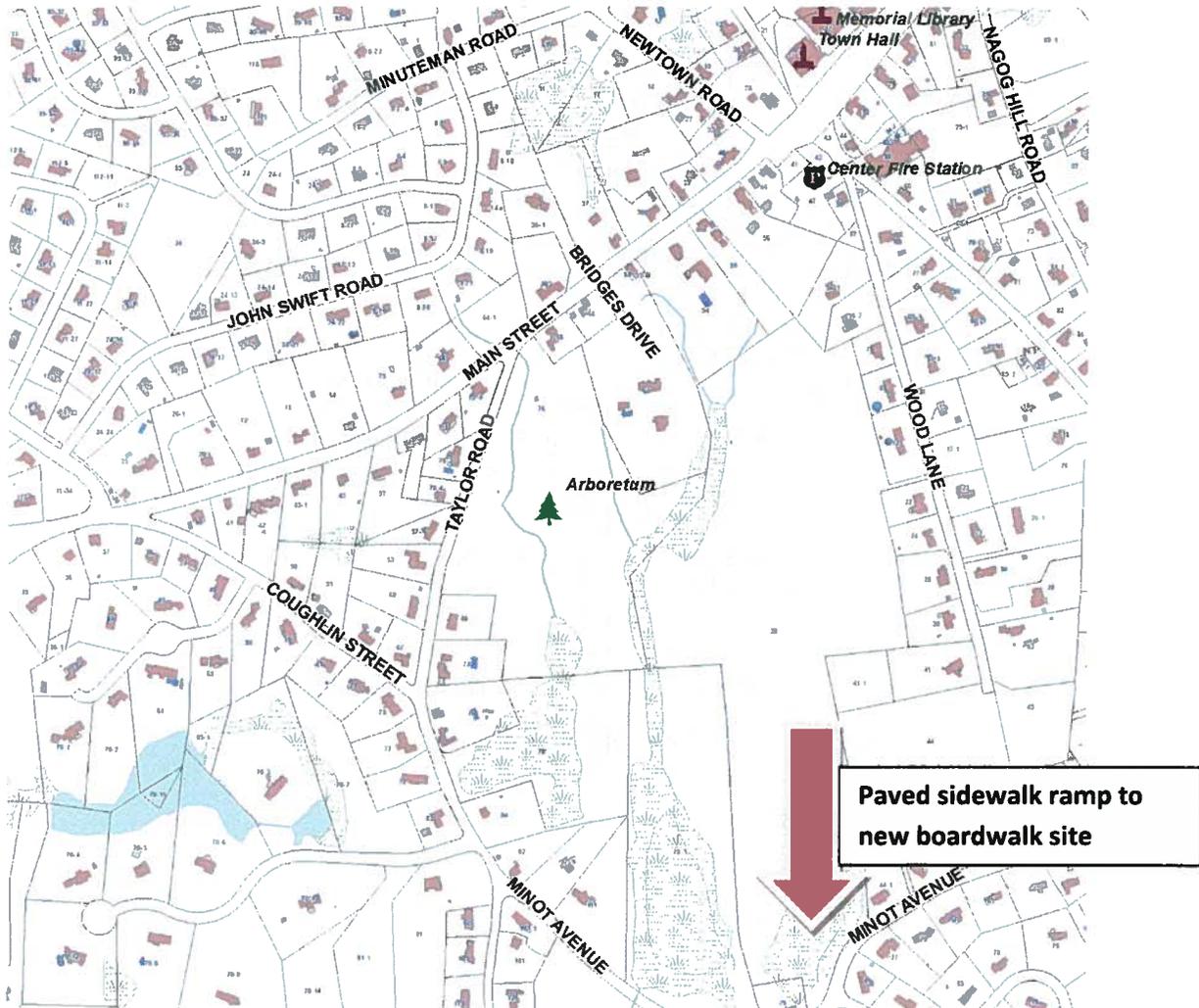
- Classic style, durable construction, reflecting historic park bench designs. Requires little to no maintenance. Traditional mortise and tenon joinery, stainless steel hardware ensure quality construction that will withstands public use.
- Can be left outside in all seasons, and will naturally oxidize to a soft, silvery grey.

Educational Panel: Lynn Horsky, Process Corp. \$1,500

(based on recent 2013 *Trail Through Time* project at Nashoba Brook conservation land).

- Educates visitors about unique bog ecosystem, flora, fauna, geology.
- Solid construction, used on other conservation lands.

Acton GIS Site Map:



ACTON ARBORETUM



Construction Details: (additional drawing details can be furnished upon request)

Steel Pipes – An auger is permanently attached to 2" galvanized steel water pipe that is rotated into the firm sub-soil with a pipe wrench. A dock fitting is then attached to support the stringer.

**DOCK
AUGER
BASES**



SIZE	SHIP WT.	ITEM #
1 1/4" pipe	3 lbs	AVS 16
1 1/2" pipe	4 lbs	AVM 17
2" pipe	4 lbs	AVL 18

Easiest dock instal
support system -- j
Suitable for sand a
on larger augers al

↖ #12.85
2005

L ANDER

**STRAIGHT
DOCK
BRACKETS**

SIZE	SHIP WT.	ITEM #
1 1/4" pipe	4 lbs	STS 1
1 1/2" pipe	4 lbs	STM 2
2" pipe	7 lbs	STL 3

Perma Docks are the s
install. Two dock sectio
on the straight bracket.
bracket pipe. All bracke
pipe.

**CORNER
DOCK
BRACKETS**

4
26.06
2005

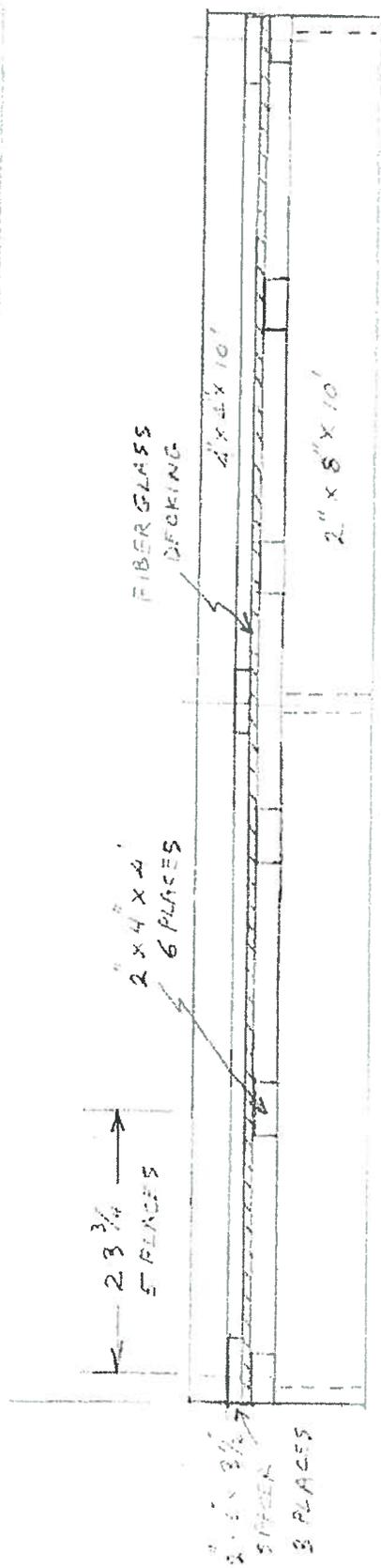
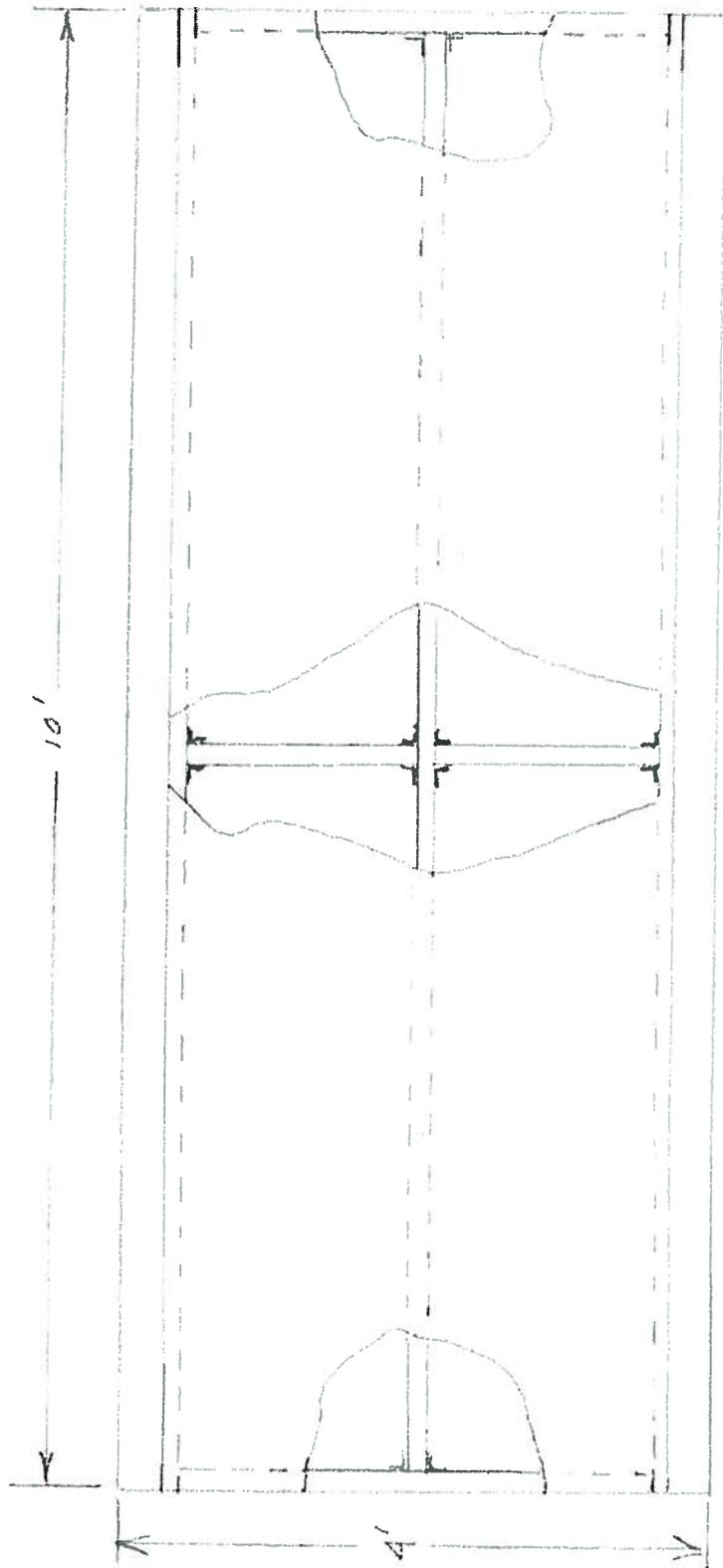
Fiberglass Grid Decking – Straight Section

<u>Qty</u>	<u>Description</u>	<u>Unit Cost</u>	<u>Total Cost</u>
4	– 2" x 8" x 10' pressure treated	\$7.94	\$31.76
3	– 2" x 4" x 8' pressure treated	\$3.61	\$10.83
2	– 4" x 4" x 10' pressure treated	\$12.52	\$25.04
	40 sq. ft. of fiberglass grid decking	tbd	tbd
6	– joist hangers for 2" x 8"	\$1.35	\$8.10
1	– box (1 lb) joist hanger nails – hot galvanized	\$2.63	\$2.63
1	lb – 16d common nails – hot galvanized	\$2.00/lb	\$2.00
4	– 3/8"-16 x 2-1/2" carriage bolts – galvanized	\$0.69	\$2.76
6	– 3/8"-16 x 8" carriage bolts –galvanized	\$1.99	\$11.94
10	– 3/8"-16 flat washers – galvanized	\$0.20	\$2.00
10	– 3/8"-16 hex nuts – galvanized	\$0.23	\$2.30
2	– straight dock brackets	\$26.06	\$52.12
2	– dock auger bases	\$12.85	\$25.70
2	– Steel pipe 2" x tbd ft. schedule 40 galvanized	\$5.87/foot	tbd
	add 1 2x8" per section		

Fiberglass Decking – Angled Section

<u>Qty</u>	<u>Description</u>	<u>Unit Cost</u>	<u>Total Cost</u>
4	– 2" x 8" x 10' pressure treated	\$7.94	\$31.76
3	– 2" x 4" x 8' pressure treated	\$3.61	\$10.83
2	– 4" x 4" x 10' pressure treated	\$12.52	\$25.04
1	– 6" x 6" x 41" pressure treated	\$2.65/ft.	\$9.06
	40 sq. ft. of fiberglass grid decking	tbd	tbd
4	– joist hangers for 2" x 8"	\$1.35	\$5.40
1	– box (1 lb) joist hanger nails – hot galvanized	\$2.63	\$2.63
1	lb – 16d common nails – hot galvanized	\$2.00/lb	\$2.00
4	– Simpson Strong Tie T Strap Model 66T	\$3.62	\$14.48
4	– 3/8"-16 x 2-1/2" carriage bolts – galvanized	\$0.69	\$2.76
6	– 3/8"-16 x 8" carriage bolts –galvanized	\$1.99	\$11.94
10	– 3/8"-16 flat washers – galvanized	\$0.20	\$2.00
10	– 3/8"-16 hex nuts – galvanized	\$0.23	\$2.30
– 2	– straight dock brackets	\$26.06	\$52.12
– 2	– dock auger bases	\$12.85	\$25.70
– 2	– Steel pipe 2" x tbd ft. schedule 40 galvanized	\$5.87/foot	tbd

open water section use 2'x12" at 16" on center



BOARDWALK SECTION
 USING FIBER GLASS DECKING

RFB

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Fibergrate Composite Structures Inc.



5151 Belt Line Rd Suite 700, Dallas, TX 75254 ~ (800) 527-4043 ~ (972) 250-1633 ~ Fax: (972) 250-1530

Bid Type: Firm **Quotation No.** MM101713242R1 (original)

Customer: Town of Acton Natural Resources Departmen **Date:** November 7, 2013

Address: 472 Main Street **Phone:** 978-621-8403

Acton, MA 01720

Fax:

Attention: Bettina Abe

Project:

Location: Acton, MA

Fibergrate appreciates the opportunity to bid on your FRP requirement, and offers the following quotation for your consideration.

Fibergrate is one of the original pioneers in the FRP fabrication industry and has amassed more years of experience in FRP fabrications than the majority of our competitors combined. FCS has the experience and capabilities necessary to design, manufacture, and fabricate the materials for your project to ensure that the assembly at the job site will proceed smoothly.

Fibergrate® will provide the following:

- 36 Panels- Safe-T-Span, T2510, 4' X 10', w/Aquagrit finish
- \$545.00 per panel
- 282 RT, Clip Only @ \$1.50 per clip

PRICING:

Fibergrate will provide prefabricated materials per this quotation for the amount of:

\$20,043.00 (sales tax not included)

Freight (additional) at time of bid: **\$1,463.00** (based on one shipment)

Freight price quoted is based on one shipment.

DELIVERY:

Approx. 4 weeks after receipt of purchase order, and credit approval.

(Lead times are subject to review upon receipt of order.)

Fibergrate Territory Representative: Mike Maheno Tel: 508-981-3547
Fax: 413-895-8958

Prices quoted are based on only one (1) shipment. Any variation will be invoiced as freight differential, i.e., split shipments, early releases, alternate destinations, or reduced quantities.

Terms of Delivery: FOB point of origin

Terms of Payment: Net cash 30 days on credit approval

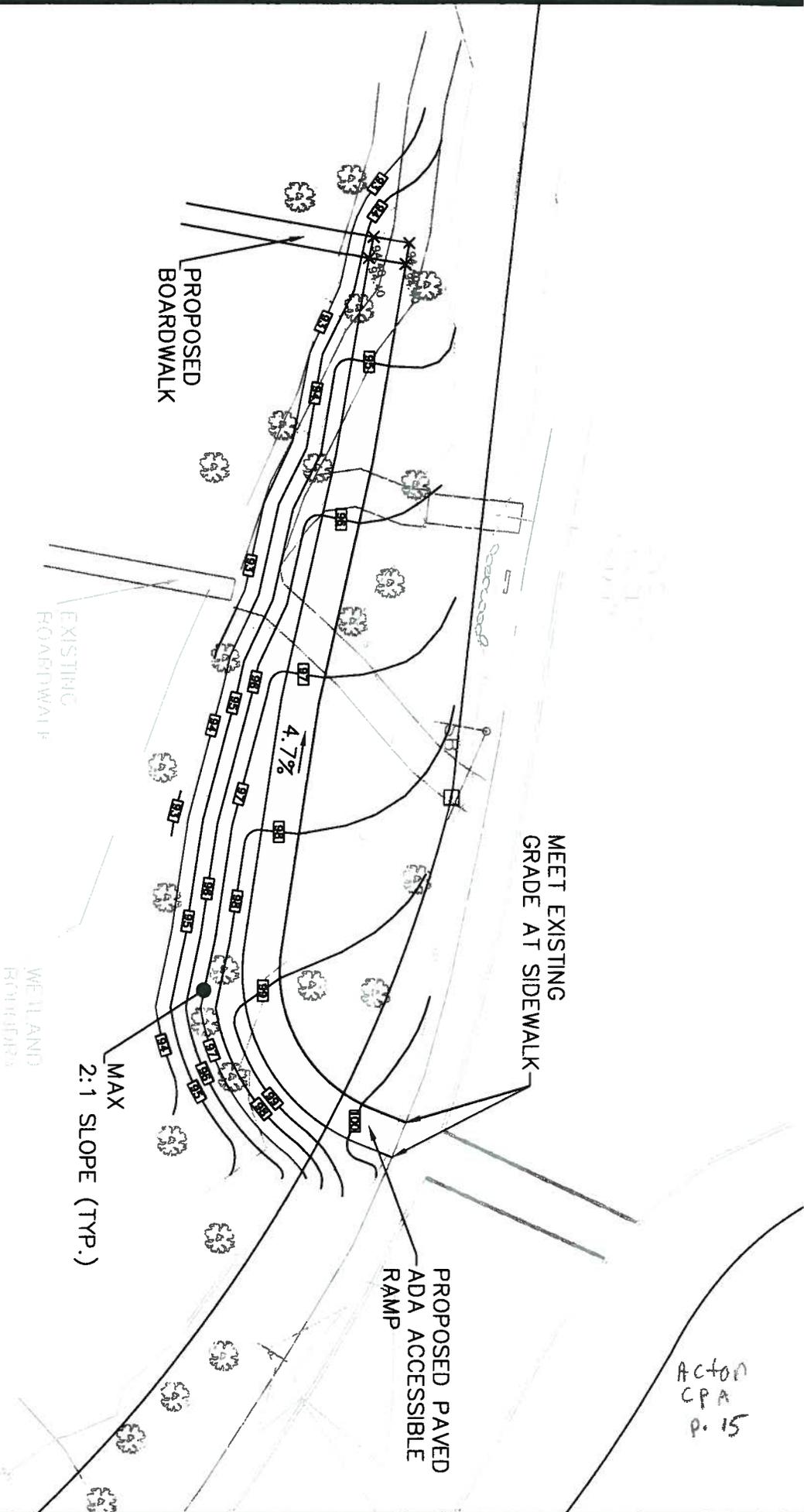
Fibergrate Composite Structure's terms and conditions govern this quote. [] See attached.

QUOTE VALIDITY: This quotation is firm for acceptance within sixty (60) days from the Bid Date.

SHIPMENT: Prices are firm for shipment within six (6) months of date of receipt of order. After six (6) months, prices may escalate by 3% and then continue to escalate an additional 0.5% per month (or portion of month) thereafter.

APPROVED

Acton
CPA
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SURVEY: PC/QRP	TOWN OF ACTON ENGINEERING DEPARTMENT
DESIGN: PC	ACTON ARBORETUM BOARDWALK
DRAFTING: QRP	
CHECKED: PC	
SCALE: 1" = 20'	DRAWING NO: 1
	DATE: 11/04/2013