FIFTH AMENDMENT
TO
PERMIT AND LICENSE AGREEMENT

(REVOCABLE LICENSE)

THIS IS A FIFTH AMENDMENT to the Revocable License granted this 7th day of June, 2016 by and between:

> **CITY OF FORT LAUDERDALE**, a Florida municipal corporation, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301, hereinafter, "CITY",
>
> and
>
> **B-cycle, LLC,** a Delaware Limited Liability Company authorized to do business in the State of Florida, FEI/EIN # 26-3412945, whose principal address is 801 WEST Madison Street, Waterloo, WI 53594, hereinafter "LICENSEE".

WHEREAS, CITY granted LICENSEE a Revocable License on July 6, 2011 for the implementation, installation, operation, maintenance, repair and replacement, from time to time of the Bicycle-Sharing Stations on Property described in said Revocable License; and

WHEREAS, pursuant to Motion at the City Commission meeting of August 21, 2012, CITY and LICENSEE entered into a First Addendum to Revocable License which provided for the expansion of the B-cycle Sharing Stations; and

WHEREAS, pursuant to Motion at the City Commission meeting of January 7, 2014, CITY and LICENSEE entered into a Second Addendum to Revocable License which provided for the expansion of the B-cycle Sharing Stations; and

WHEREAS, the City Commission on March 4, 2014 reviewed proposed plans for renovations of the bike station at D.C. Alexander Park. LICENSEE is aware that subsequent relocation of the D.C. Alexander Park bike station will be at LICENSEE'S expense; and

WHEREAS, the City Commission of the City of Fort Lauderdale has authorized the execution of this Third Amendment to the Revocable License by the proper government officials by adoption of a motion at its Regular Meeting of April 15, 2014; and

WHEREAS, the City Commission of the City of Fort Lauderdale authorized execution of the Fourth Amendment to the Revocable License by the proper government officials by adoption of a Motion at its Regualr Meeting of February 3, 2015; and

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WHEREAS, B-cycle has sought permission for the installation of an additional Sharing Station in South Beach Lot #2, approximately fifty (50) feet East from the North point of the B-Ocean Property located on the North side of the parking lot wall; and

WHEREAS, the City Commission finds that amending the Revocable License to provide for an additional Sharing Station serves a valid municipal purposes;

WHEREAS, the City Commission by Motion adopted at its Regular Meeting of December 15, 2015 authorized execution of the Fifth Amendment of the Revocable License by the proper City officials;

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained in this Third Amendment to the Revocable License, and other good and valuable conditions, the receipt and adequacy of which are hereby acknowledged, the parties agree to amend the Revocable License as follows:

1.   **Recitals.** The foregoing recitals are true and correct and are hereby ratified, confirmed and incorporated herein.

2.   Section 2, entitled *Defined Terms* is hereby amended to read as follows:

2.   **Defined Terms.** The following terms, as used and referred to herein, shall have the meanings set forth below, unless the context indicates otherwise:

. . .

License Area(s) means those areas shown in the attached Composite Exhibits A-1 through A-11 as set forth in that Permit and License Agreement (Revocable License) dated July 2, 2011, and Exhibits A-12 and A-13 as set forth in the First Addendum to Revocable License, dated August 21, 2012 and Exhibits A-14, A-15 & A-16, as set forth in this Second Amendment to Permit and License Agreement (Revocable License) dated January 7, 2014, all where Project Improvements will be constructed, installed, operated, repaired, replaced, from time to time and maintained. The areas shown within the License Areas identified as in the Third Amendment as Composite Exhibits A-1 through A-17 are within City owned real property or upon public rights-of-way within the CITY's jurisdiction under the Florida Transportation Code. The area shown within License Area A-20 in the Fourth Amendment to the Revocable License (East Sunrise Boulevard, South side, approximately 750 feet East of Bayview Drive) is within the roadway jurisdiction of the State of Florida Department of Transportation and therefore does not require the issuance of Engineering Permits by the City of Fort Lauderdale. Composite Exhibit A-20 is being presented herein for information purposes only. The areas shown within the License Area identified in this Fifth Amendment as Composite Exhibit A-21 are within CITY owned real property or upon public rights-of-way within the CITY's jurisdiction under the Florida Transportation Code.

3.   Section 4, entitled License Areas; General Locations, is amended to include License Area A-21 B-cycle Station as more particularly set forth below and as attached hereto:

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4. **Project Site Plan Approval Process.** The License Areas are generally located as set forth in the following Composite Exhibits:

A-1   Seventeenth Street Causeway - West Underdeck
A-2   Galt Ocean Mile - Beach Community Center
A-3   S.E. Fifth Street adjacent to D.C Alexander Park
A-4   Earl Lifshey Ocean Park
A-5   Esplanade Park (Alternate "A")
A-6   George English Park
A-7   Art Serve Library at Holiday Park
A-8   Las Olas Marina
A-9   CRA Property abutting Las Olas Circle & East Las Olas Blvd. (Option #1)
A-10   Sebastian Street Parking Lot
A-11   Willingham Park
A-12   Expanded Sebastian Street Parking Lot
A-13   Expanded Willingham Park
A-14   Fort Lauderdale Beach South (640 Seabreeze Boulevard)
A-15   Oceanside Parking Lot
A-16   Northwest Quadrant of the intersection of Bayshore Drive and State Road A-1-A
A-17   D.C. Alexander Park on S.E. 5th Street
A-18   East Las Olas Boulevard & S.E. 10th Terrace
A-19   Fort Lauderdale Beach Park (f/k/a South Beach Municipal Parking Lot)
A-20   E. Sunrise Boulevard, South side approximately 750 feet South of Bayview Drive.
A-21   South Beach Lot #2 (f/k/a South Beach Municipal Parking Lot) approximately 50 feet East from the North point of the B-Ocean (f/k/a Yankee Clipper) property, located on the North side of the parking lot wall.

N.B.#1 The location of A-20 is within the State of Florida, Department of Transportation ("FDOT") roadway jurisdiction. Accordingly, A-20 is not subject to City of Fort Lauderdale Engineering Permits. Permitting for A-20 is the responsibility of FDOT."

N.B.#2 As a condition of A-21, South Beach Lot #2, all bikes shall be removed from the station during special outdoor events in the area. Special outdoor events in the area refer to every event approved by the City Commission in the vicinity of South Beach Lot #2 and Fort Lauderdale Beach Park Area. Special outdoor events subject to this condition shall also include events approved by the Director of Parks and Recreation or his/her designee. Such events include, but are not limited to:

- Outdoor concerts
- Athletic events
- January – Swatch Volleyball
- February – Pride Fort Lauderdale
- March – Fort Lauderdale Aids Walk & Music Festival
- April – Tortuga Festival; Easter Sunrise Service
- May – EVP Volleyball; Lauderdale Air Show

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- July – July 4th on the beach; Dig the Beach Volleyball
- November – Fort LauderdaleBaot Show
- December – Rip Tide Music Festival

4.   The Effective Date of this Fifth Amendment shall be upon full execution by the parties after execution hereof is authorized by the City Commission.

5.   This Fifth Amendment to the Revocable License shall be recorded at LICENSEE'S sole cost and expense in the Public Records of Broward County, Florida and a copy thereof shall be filed with the City Clerk's Office and the City Attorney's Office of the City.

6.   In the event and to the extent of conflict between the terms and conditions of this Fifth Amendment and the terms and conditions of the underlying Revocable License, as previously amended by the previous Amendments and Addendum, then, to the extent of such conflict the terms and conditions of this Fifth Amendment shall supersede and prevail over the terms and conditions of the underlying Revocable License, as previously amended.

7.   Subject to the terms hereof, CITY and LICENSEE ratify and confirm the Revocable License, as amended by and through the First Amendment through to the Fifth Amendment.

IN WITNESS OF THE FOREGOING, the parties have set their hands and seals the day and year first above written.

CITY:

WITNESSES: CITY OF FORT LAUDERDALE, a municipal
                                        corporation of the State of Florida:

_____   By_____
                                            JOHN P. "JACK" SEILER, Mayor

_____
Witness Print Name

                                        By _____
_____   LEE R. FELDMAN, City Manager

_____
Witness Print Name

(CORPORATE SEAL)   ATTEST:

                                        _____
                                        JEFF MODARELLI, City Clerk

4

Approved as to form:
CYNTHIA EVERETT, City Attorney

By:_____
ROBERT B. DUNCKEL
Assistant City Attorney

STATE OF FLORIDA:
COUNTY OF BROWARD:

The foregoing instrument was acknowledged before me this _____, 2016, by JOHN P. "JACK" SEILER, Mayor of the City of Fort Lauderdale, a municipal corporation of Florida. He is personally known to me and did not take an oath.

(NOTARY SEAL)

_____
Notary Public, State of Florida
(Signature of Notary taking Acknowledgment)

_____
Name of Notary Typed,
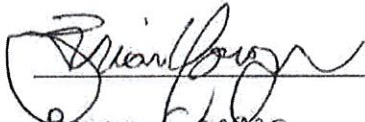Printed or Stamped

My Commission Expires:

_____
Commission Number

STATE OF FLORIDA:
COUNTY OF BROWARD:

The foregoing instrument was acknowledged before me this _____, 2016, by LEE R. FELDMAN, City Manager of the City of Fort Lauderdale, a municipal corporation of Florida. He is personally known to me and did not take an oath.

(NOTARY SEAL)

_____
Notary Public, State of Florida
(Signature of Notary taking Acknowledgment)

_____
Name of Notary Typed,
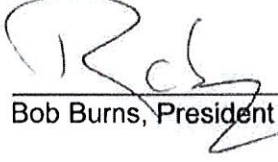Printed or Stamped

My Commission Expires:

_____
Commission Number

5

WITNESSES:

LICENSEE:
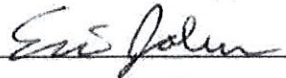
B-cycle, LLC, a Delaware Limited Liability Company authorized to do business in the State of Florida

By: TREK BICYCLE CORPORATION, a Wisconsin corporation, in its capacity as Manager for B-cycle, LLC

By: _____
Bob Burns, President

_____
Brian Conger
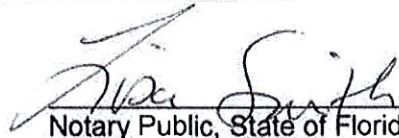[Witness print or type name]

_____
Eric Johnson
[Witness print or type name]

STATE OF Wisconsin:
COUNTY OF Jefferson

The foregoing instrument was acknowledged before me this 1 day of June, 2016, by **BOB BURNS**, as President of TREK BICYCLE CORPORATION, a Wisconsin corporation, Manager for B-cycle, LLC, a Delaware Limited Liability Company. They are personally known to me or have produced _____ as identification and did not take an oath.
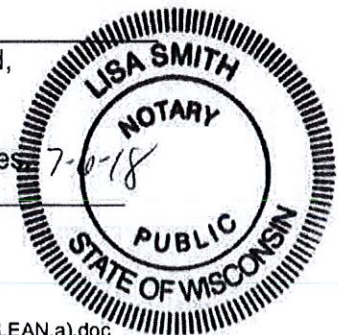
(NOTARY SEAL)

_____
Notary Public, State of Florida
(Signature of Notary taking Acknowledgment)

Lisa Smith
Name of Notary Typed, Printed or Stamped

My Commission Expires 7-0-18

_____
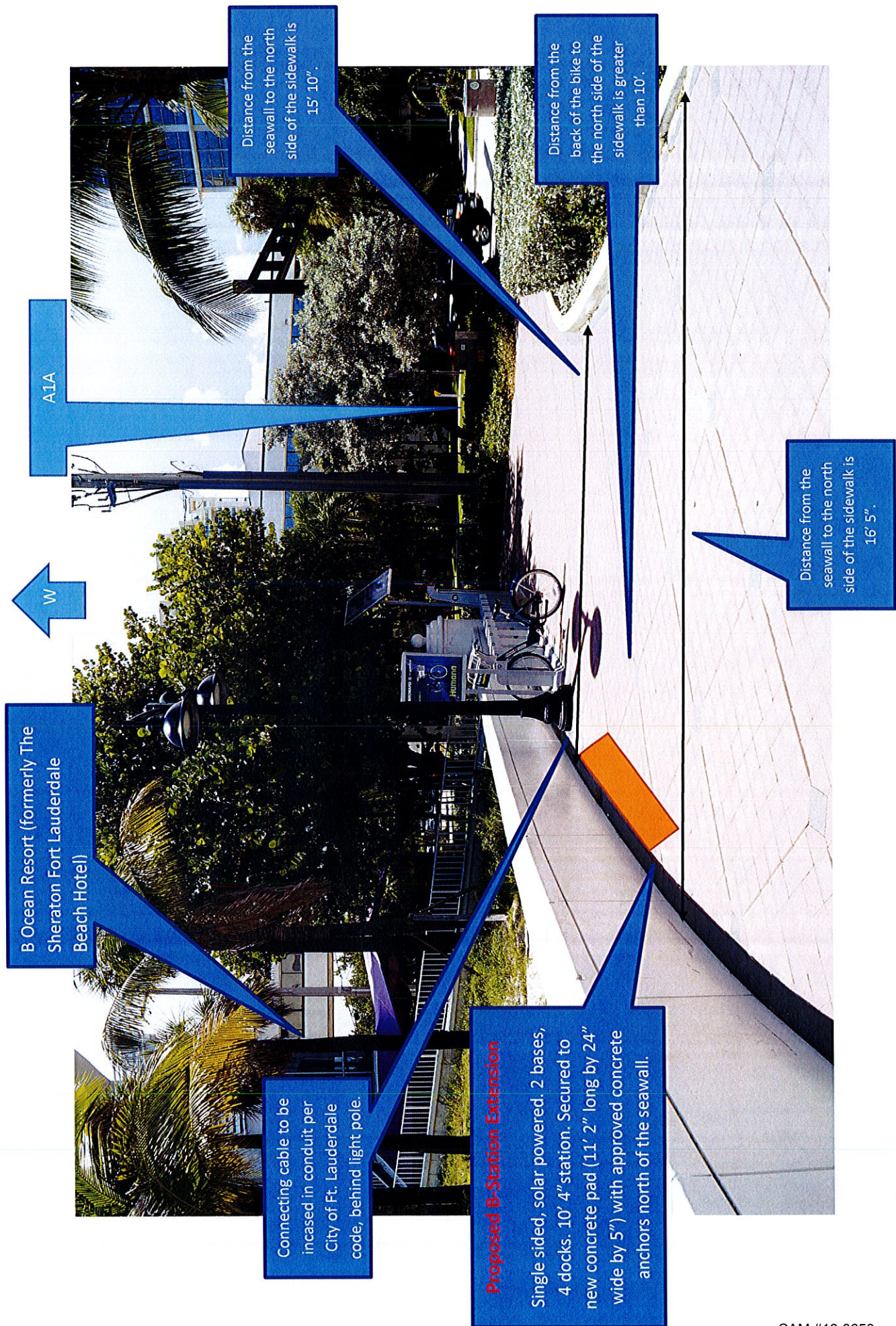Commission Number
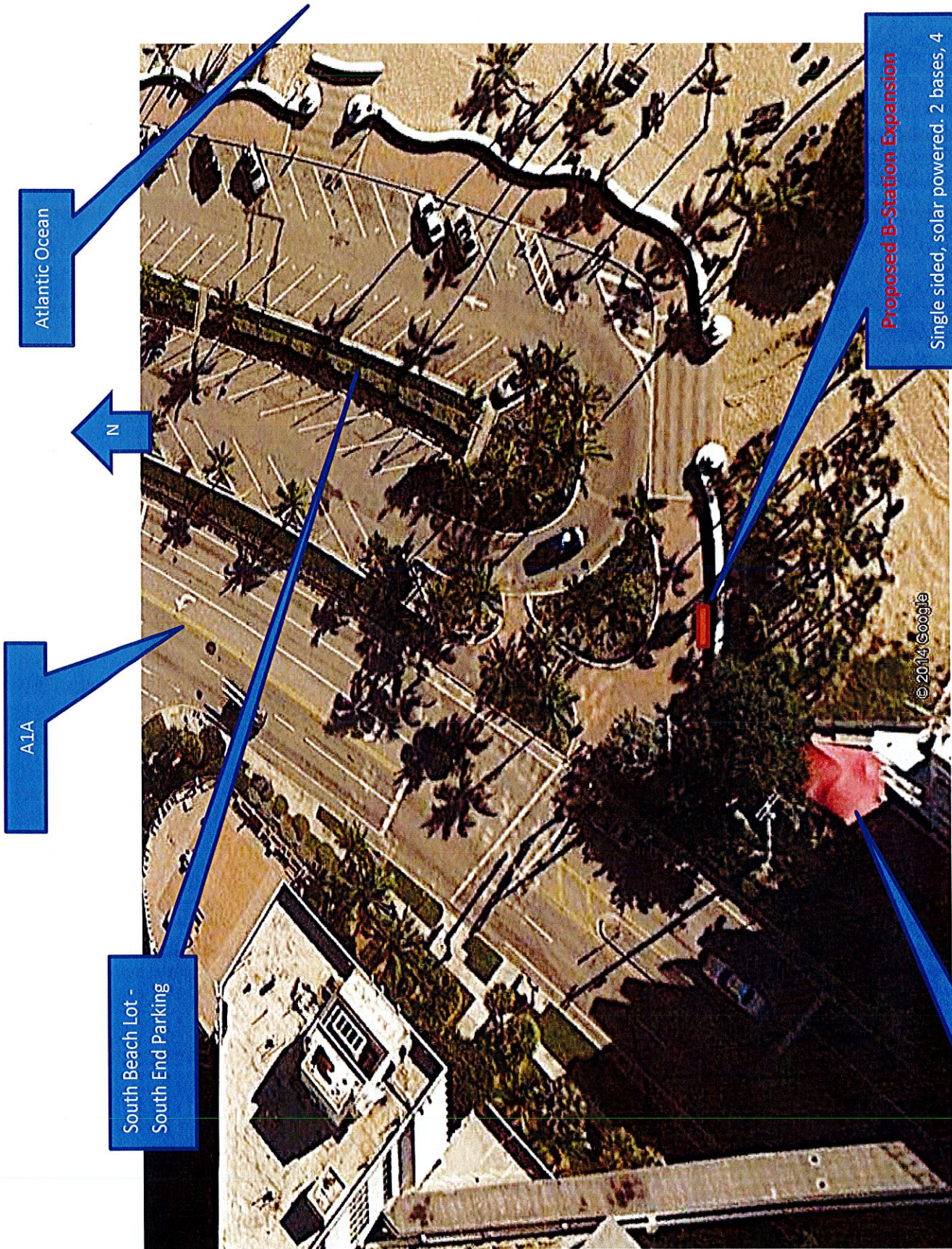
(Notary seal: LISA SMITH NOTARY PUBLIC STATE OF WISCONSIN)

L:\REALPROP\REV_LIC\2016\B-Cycle 5 Amendment\5th Amendment (rbd.2redline).doc
L:\REALPROP\REV_LIC\2016\B-Cycle 5 Amendment\5th Amendment (rbd.2.CLEAN).doc
E:\Recovered\rbd_office\2016\Revocable License\Fifth Amendment B-Cycle\5th Amendment (rbd.3.CLEAN.a).doc

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CAM #16-0650
Exhibit 1
Page 6 of 23

COMPOSITE EXHIBIT "A-21"

W

A1A

B Ocean Resort (formerly The Sheraton Fort Lauderdale Beach Hotel)

Distance from the seawall to the north side of the sidewalk is 15' 10".

Distance from the back of the bike to the north side of the sidewalk is greater than 10'.

Distance from the seawall to the north side of the sidewalk is 16' 5".

Connecting cable to be incased in conduit per City of Ft. Lauderdale code, behind light pole.

Proposed B-Station Extension

Single sided, solar powered. 2 bases, 4 docks. 10' 4" station. Secured to new concrete pad (11' 2" long by 24" wide by 5") with approved concrete anchors north of the seawall.

Atlantic Ocean

N

A1A

South Beach Lot - South End Parking

Proposed B-Station Expansion

Single sided, solar powered. 2 bases, 4 docks. 10' 4" station. Secured to new concrete pad (11' 2" long by 24" wide by 5") with approved concrete anchors north of the seawall.

B Ocean Resort (formerly The Sheraton Fort Lauderdale Beach Hotel)

© 2014 Google

B cycle™

B CYCLE STATION STRUCTURAL DRAWINGS FOR MULTIPLE LOCATIONS THROUGHOUT MIAMI-DADE AND BROWARD COUNTIES.

INDEX OF DRAWINGS:

S-1.0	GENERAL NOTES
S-2.0	STATION PLAN AND ELEVATION (3 DOCK)
S-2.1	STATION PLAN (MULTIPLE DOCK LAYOUT)

PREPARED BY:

bcc engineering

7300 North Kendall Drive, Suite 400
Miami, Florida 33156
Tel: 305.670.2350   Fax: 305.670.2351
Certificate of Authorization No. 7184
www.bcceng.com

DATE: JULY 14, 2011
REVISION No. 1: SEPTEMBER 26, 2011
REVISION No. 2: NOVEMBER 12, 2012

GENERAL NOTES

bcc engineering

Certificate of Authorization No. 7184
7290 North Kendall Drive, Suite 400
Miami, Florida 33156
Tel - 305.529.9020 Fax - 305.670.0191
www.bcceng.com

To the best of my knowledge these plans and specifications comply with the applicable code.

STEVEN GOLDSTEIN, P.E.
Florida License No. 44423

	Submittals / Revisions
△	11-16-12 PBC 2010

Drawn: CA
Checked: FD
Reviewed: SG △
BCC Project No.: 10037L.00
Date: 07-14-11

GENERAL NOTES:

1. THE GOVERNING CODE FOR THIS PROJECT IS THE FLORIDA BUILDING CODE, 2010 EDITION. THIS CODE PRESCRIBES WHICH EDITION OF EACH REFERENCED STANDARD APPLIES TO THIS PROJECT. △

2. TO THE BEST OF OUR KNOWLEDGE, THE STRUCTURAL DRAWINGS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE GOVERNING BUILDING CODE.

3. CONSTRUCTION IS TO COMPLY WITH THE REQUIREMENTS OF THE GOVERNING BUILDING CODE AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL CODES, STANDARDS, REGULATIONS AND LAWS.

4. THE STRUCTURAL DOCUMENTS ARE TO BE USED IN CONJUNCTION WITH THE PRODUCT DOCUMENTS.

5. CONTRACTORS WHO DISCOVER DISCREPANCIES, OMISSIONS OR VARIATIONS IN THE CONTRACT DOCUMENTS DURING BIDDING SHALL IMMEDIATELY NOTIFY THE ARCHITECT. THE ARCHITECT WILL RESOLVE THE CONDITION AND ISSUE A WRITTEN CLARIFICATION.

6. THE GENERAL CONTRACTOR SHALL COORDINATE ALL CONTRACT DOCUMENTS WITH FIELD CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

7. THE CONTRACTOR SHALL PROTECT ADJACENT PROPERTY, HIS OWN WORK AND THE PUBLIC FROM HARM. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND JOBSITE SAFETY INCLUDING ALL OSHA REQUIREMENTS.

8. DESIGN WIND LOADS △

   GOVERNING CODE   ASCE 7-10
   BASIC WIND SPEED   V = 165 MPH
   RISK CATEGORY   I
   DIRECTIONALITY FACTOR Kd = 0.85
   EXPOSURE   D

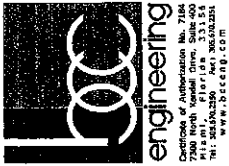9. MAXIMUM ALLOWABLE SOIL BEARING PRESSURES ARE PRESUMED TO BE 2000 PSF.

EXPANSION ANCHORS:

1. USE GALVANIZED WEDGE-TYPE EXPANSION ANCHORS SUCH AS THE HILTI KWIK BOLT III, ITW RAMSET RED HEAD TRUBOLT WEDGE, SIMPSON STRONG-TIE WEDGE-ALL OR EQUIVALENT. FOLLOW MANUFACTURER'S SPECIFICATIONS FOR USE AND INSTALLATION.

2. PROVIDE ANCHOR EMBEDMENT, SPACING AND EDGE DISTANCE AS SHOWN ON THE DRAWINGS.

bcc

B

S-1.0

B CYCLE STATION FRONT ELEVATION
3 DOCK CONFIGURATION - 19"/33"/45" WIDE BASE
SCALE: 1/2" = 1'-0"

B CYCLE STATION PLAN
3 DOCK CONFIGURATION - 19"/33"/45" WIDE BASE
SCALE: 1/2" = 1'-0"

B CYCLE STATION SIDE ELEVATION
3 DOCK CONFIGURATION - 19"/33"/45" WIDE BASE
SCALE: 1/2" = 1'-0"

SOLAR PANEL (TO BE REMOVED PRIOR TO STORM EVENT)

MAXIMUM AREA SHOWN ARE FOR THIS ELEVATION ONLY

SIGN MAX. AREA= 1.6 SQ. FT.

KIOSK MAX. AREA= 9.1 SQ. FT.

DOCK MAX. AREA= 1.7 SQ. FT./DOCK

EXPANSION ANCHOR (TYP.)

EXIST. SLAB ON GRADE (F.V.)

EDGE OF SLAB

3" MIN.

(6) ½"ø GALV. WEDGE ANCHOR (OR EQUIV.) EMBED. 3⅜" (3 PER SIDE)

SIGN

BASEPLATE

SOLAR PANEL

DOCK (TYP.)

KIOSK

EXIST. 5" (MIN.) CONC. SLAB ON GRADE (F.V.)

3" MIN.

MAX. 72"

3" TYP.

19"/33"/45"

10"/24"/36"

6'-0"

SIGN

KIOSK

WEDGE ANCHOR

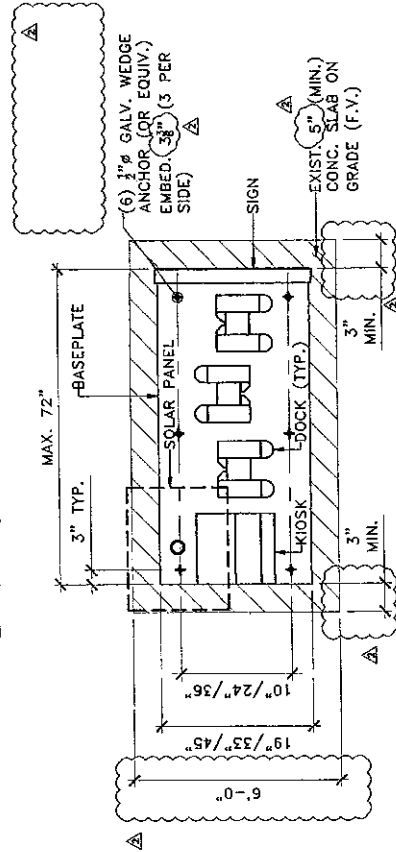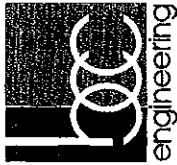SOLAR PANEL (TO BE REMOVED PRIOR TO STORM EVENT)

EDGE OF SLAB

3" MIN.

STATION PLAN AND
ELEVATION (3 DOCK)

CAM #16-0650
Exhibit 2
Page 5 of 17

S-2.0

B cycle™

bcc engineering

Certificate of Authorization No. 7184
7300 North Kendall Drive, Suite 400
Miami, Florida 33156
Tel: 305.670.2350 Fax: 305.670.2351
www.bcceng.com

STEVEN GOLDSTEIN, P.E.
Florida License No. 44423
PE: 2010

Submittals / Revisions

| | 09-26-11 | OWNER REV. |
| | 11-16-12 | PRC 2010 |

Drawn: CA
Checked: FO
Reviewed: SG
BCC Project No.: 100571.00
Date: 07-14-11

STATION PLAN (MULTIPLE)
DOCK LAYOUT)

B cycle

S-2.1

engineering

Certificate of Authorization No. 7156
7200 North Kendall Drive, Suite 400
Miami, Florida 33156
Tel.: 305.670.2500 fax: 305.670.2561
www.bcceng.com

STEVEN GOLDSTEIN, P.E.
Florida License No. 44423

To the best of my knowledge these plans and
specifications comply with the applicable
minimum building codes.

Submittals / Revisions	
⚠ 09-26-11	OWNER REV.
⚠ 12-16-12	FBC 2010

Drawn:	CA
Checked:	RD
Reviewed:	SG ⚠
BCC Project No.:	100571.00
Date:	07-14-11

MULTIPLE DOCK
CONFIGURATIONS MAY INCLUDE
SECTIONS AT 45° ANGLES

SIGN

MIN. (4) ½"∅ GALV. WEDGE
ANCHOR (OR EQUIV.) EMBED. 3⅜"
PER 3 DOCK ADDITION (TYP.)

DOCK (TYP.)

3⅜"

EXIST. 5" (MIN.) CONC.
SLAB ON GRADE (F.V.)

KIOSK STATION

SOLAR PANEL (TO BE REMOVED
PRIOR TO STORM EVENT)

KIOSK

MIN. (6) ½"∅ GALV. WEDGE
ANCHOR (OR EQUIV.) EMBED. 3⅜"
AT KIOSK STATION

MULTIPLE DOCK
CONFIGURATIONS MAY INCLUDE
SECTIONS OF 45° ANGLES

ADD. DOCK
PANEL (TYP.)

6" MIN.

SIGN

10"/24"/36"

19"/33"/45"

B CYCLE STATION PLAN
UP TO 21 DOCK CONFIGURATION - 19"/33"/45" WIDE BASE
SCALE: 3/8" = 1'-0"

REVISED STRUCTURAL CALCULATIONS

FOR

(B) cycle

Stations throughout
Miami-Dade and Broward County

Prepared by:
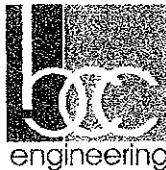
engineering

BCC Engineering, Inc.
Certificate of Authorization No. 7184
November 16, 2012- Revision 2

Calculations have been prepared by the undersigned engineer assuming
responsibility for manual and computer generated information.

No. 44423

Steven Goldstein, PE
Florida License No. 44423
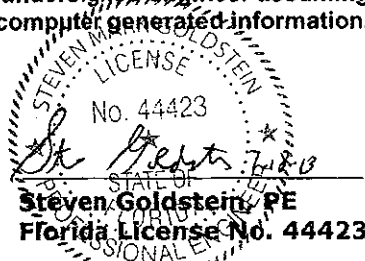
BCC ENGINEERING, INC. • 7300 N. Kendall Drive, Suite 400 • Miami, FL 33156 • Phone (305) 670-2350 • Fax (305) 670-2351

JOB	**B CYCLE WIND ANALYSIS**		
SHEET No.	OF	JOB No.	**100571.00**
CALCULATED BY	JJF	DRAWN BY	
SCALE		DATE	11/10

SOLAR PANEL (TO BE REMOVED PRIOR TO STORM EVENT)

KIOSK- AREA ① MAX. AREA= 8.1 SQ. FT.

DOCK- AREA ② MAX. AREA= 1.7 SQ. FT./DOCK

SIGN- AREA ③ MAX. AREA= 1.5 SQ. FT.
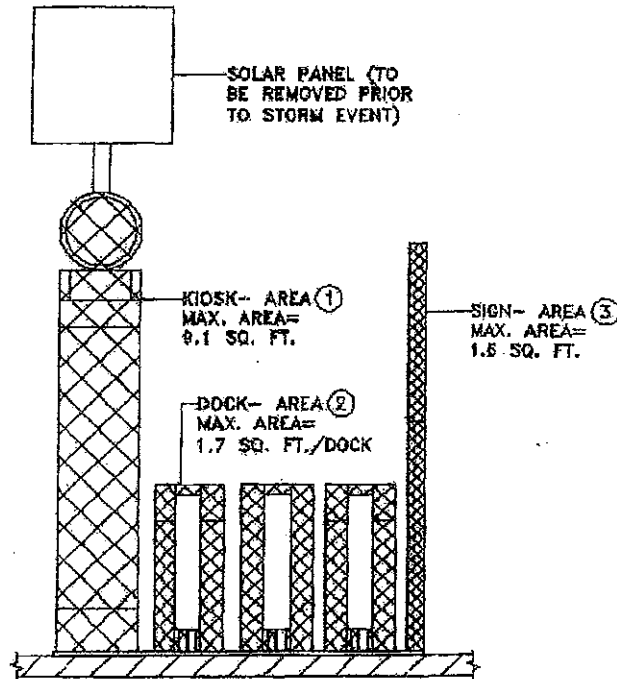
B CYCLE STATION FRONT ELEVATION
3 DOCK CONFIGURATION - 33"/45" WIDE BASE

B Cycle stations have multiple configurations from 3 to 21 docks in linear or variations of 45 deg. angle layouts. Of all configurations, the one shown above is the controlling case (single 3 dock station).

P:\100571.00- B Cycle\Calcs\Excel\B CYCLE WIND AREAS
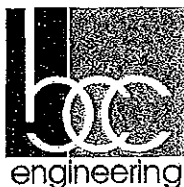
engineering

Governing Code: IBC 2010
Governing Wind Load Standard: 7-10

Risk Category I

Location: Miami-Dade or Broward County
    Design for worst case - Miami-Dade County
    $V = 165$ MPH

Exposure = C or D depending on location
    Design for worst case - Exposure D

$K_{zt} = 1.0$

Height: 7'-5" < 13' $\Rightarrow K_z = 1.03$

Load case A: Wind in short direction (wind acts on kiosk, 3 docks & narrow face of sign)

Load case B: Wind in long direction (wind acts on kiosk, 3 docks & broad face of sign)

Wind load for load case B slightly higher than for load case A, but by inspection, foundation loading much more critical for load case A due to much narrower base resisting overturning moment

Consider kiosk, docks and narrow face of sign as "Chimneys, Tanks, Similar Structures" (square) $\rightarrow K_d = 0.90$

$q_z = (.00256)(1.03)(1.0)(0.90)(165)^2 = 64.6$ psf

$G = 0.85$

$h/D_{kiosk} = 7.42/1.25 = 5.9 \quad C_f = 1.38$

$h/D_{sign} = 6.58/1.25 = 26 \quad C_f = 2.0$

$h/D_{dock} = 2.67/0.33 = 8 \quad C_f = 1.43$
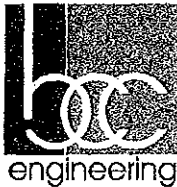
CAM #16-0650
Exhibit 2
Page 6 of 11
CAM #16-0650
Exhibit 1
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Wind pressure

Kiosk: $(64.6)(0.85)(1.38) = 75.8$ psf

Sign: $(64.6)(.85)(2.0) = 110$ psf

Dock: $(64.6)(.85)(1.43) = 78.5$ psf

Total shear

$(9.1)(75.8) + (1.6)(110) + (3)(1.7)(78.5) = 690 + 176 + 401 = 1267$ lb

Overturning moment $= (690)(\frac{7.43}{2}) + 176(\frac{6.58}{2}) + 401(\frac{2.67}{2}) = 3672$ ft-lb

For allowable stress design use 0.6 load factor

$M_{o.t} = 0.6(3672) = 2203$ ft-lb $V = (1267)(0.6) = 760$ lb

Weight

Kiosk   - 170 lb

Dock   3.58   - 174 lb

Base   95 lb
                  ------
                  439 lb

For 19" base $M_{resisting} = 439 \times \frac{19}{12} / 2 = 347$ ft-lb $\times 0.6 = 209$ ft-lb

Net overturning moment to be resisted by anchors = 2203-209 = 1994 ft-lb

Use 3 anchors per side (6 total) spaced at 10", edge distance = 6" min.

Shear per anchor = $760/6 = 127$ lb

Tension per anchor = $1994 /(3)(0.83) = 798$ lb

Assume existing concrete $f'_c = 2000$ psi (conservative)

Use ½" dia Wedge anchors (Wedge-All) by Simpson, or equivalent

Allowable tension = 1510 lb   ⎫
Allowable shear = 1675 lb   ⎬ See attached catalog table
No spacing or edge distance factors required ⎭

Interaction: $\frac{798}{1510} + \frac{127}{1675} = 0.60 < 1$ O.K
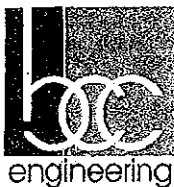
PROJECT NAME B Cycle

SUBJECT Foundation slab

CALCULATED BY SG   DATE 11/12/12

CHECKED BY _____ DATE _____

At stations without kiosk

Total shear = $(1.6)(110) + 3(1.7)(78.5) = 176 + 401 = 577$ lb

Overturning moment = $176\left(\frac{6.58}{2}\right) + 401\left(\frac{2.67}{2}\right) = 1114$ ft·lb

For allowable stress design

$M_{ot} = 0.6(1114) = 668$ ft·lb $V = (577)(0.6) = 347$ lb

Weight = $174 + 95 = 269$ lb

$M_{resisting} = 269 \times \frac{19}{12}/2 = 212$ ft·lb $\times 0.6 = 127$ ft·lb

Net overturning moment to be resisted by anchors = $668 - 127 = 541$ ft·lb

Shear per anchor = $347/4 = 87$ lb

Tension per anchor = $541/2(0.83) = 324$ lb

Forces less critical than for station with kiosk

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SIMPSON Strong-Tie

Wedge-All® Wedge Anchors

Tension Loads for Carbon-Steel Wedge-All® (and Tie-Wire) Anchors in Normal-Weight Concrete

Stud Anchor Dia. in (mm)	Embed. Depth in (mm)	Critical Edge Dist. in (mm)	Critical Spacing in (mm)	Tension Load — f'c = 2000 psi			f'c = 4000 psi		f'c = 6000 psi		Install Torque ft.-lbs (N·m)
				Ultimate lbs (kN)	Tie-Wire Allowable lbs (kN)	Allowable lbs (kN)	Allowable lbs (kN)	Ultimate lbs (kN)	Tie-Wire Allowable lbs (kN)	Allowable lbs (kN)	
¼ (6.4)	1½ (29)	2½ (64)	1½ (41)	688 (3.0)	167 (0.7)	170 (0.8)	205 (0.9)	960 (4.3)	233 (1.0)	240 (1.1)	8 (10.8)
	2¼ (57)	2½ (64)	3½ (79)	1,920 (8.5)	286 (1.3)	480 (2.1)	530 (2.4)	2,320 (10.3)	105 (0.5)	580 (2.6)	
½ (12.7)	2¼ (57)	5 (127)	3½ (79)	3,280 (14.6)	871 (3.9)	820 (3.6)	1,070 (4.8)	5,280 (23.5)	849 (3.8)	1,320 (5.9)	60 (81.3)
	3⅜ (86)	5 (127)	4¾ (121)	6,040 (26.9)	654 (2.9)	1,510 (6.7)	1,985 (8.8)	9,840 (43.8)	1,303 (5.8)	2,460 (10.9)	
	4½ (114)	5 (127)	6¼ (159)	6,960 (31.0)	839 (3.7)	1,740 (7.7)	2,350 (10.5)	11,840 (52.7)	2,462 (11.0)	2,960 (13.2)	
¾ (19.1)	3⅜ (86)	7½ (191)	4¾ (121)	6,760 (30.1)	1,452 (6.5)	1,698 (7.5)	2,090 (9.3)	9,960 (44.3)	1,324 (5.9)	2,490 (11.1)	150 (203.4)
	5 (127)	7½ (191)	7 (178)	10,040 (44.7)	544 (2.4)	2,510 (11.2)	3,225 (14.3)	15,760 (70.1)	1,550 (6.9)	3,940 (17.5)	
	6¾ (171)	7½ (191)	9½ (241)	10,040 (44.7)	1,585 (7.1)	2,510 (11.2)	3,380 (15.0)	17,000 (75.6)	1,668 (7.4)	4,250 (18.9)	
1 (25.4)	4½ (114)	10 (254)	6¼ (159)	15,400 (68.5)	2,440 (10.9)	3,850 (17.1)	3,885 (17.3)	15,680 (69.7)	1,876 (8.3)	3,920 (17.4)	300 (406.7)
	9 (229)	10 (254)	12⅝ (321)	20,760 (92.3)	3,116 (13.9)	5,190 (23.1)	6,365 (28.3)	30,080 (133.8)	1,612 (7.2)	7,520 (33.5)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance and spacing on pages 141 and 143.
3. Drill bit diameter used in base material corresponds to nominal anchor diameter.
4. Allowable loads may be linearly interpolated between concrete strengths listed.
5. Allowable loads for ¼-inch size at 1½-inch embedment apply to both the Wedge-All® and Tie-Wire anchors. Installation torque does not apply to the Tie-Wire anchor.
6. The minimum concrete thickness is 1½ times the embedment depth.

*See page 13 for an explanation of the load table icons

Mechanical Anchors

SIMPSON Strong-Tie

Wedge-All® Wedge Anchors

Shear Loads for Carbon-Steel Wedge-All® (and Tie-Wire) Anchors in Normal-Weight Concrete

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	2000 psi (13.8 MPa) Concrete Ultimate lbs. (kN)	Cold Draw lbs. (kN)	Allowable lbs. (kN)	4000 psi (27.6 MPa) Concrete Allowable lbs. (kN)	6000 psi (41.4 MPa) Concrete Allowable lbs. (kN)	Install. Torque ft.-lbs. (mm)
¼ (6.4)	1⅛ (29)	2½ (64)	1⅝ (41)	920 (4.1)	47 (0.2)	230 (1.0)	230 (1.0)	230 (1.0)	8 (10.8)
	2¼ (57)	2½ (64)	3⅛ (79)	•	•	230 (1.0)	230 (1.0)	230 (1.0)	
⅜ (9.5)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)
	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	
	(illegible)	(illegible)	(illegible)			(illegible)	(illegible)	(illegible)	
½ (12.7)	2¼ (57)	5 (127)	3⅛ (79)	6,560 (29.2)	850 (3.8)	1,345 (6.0)	1,485 (6.6)	1,625 (7.2)	60 (81.3)
	3⅜ (86)	5 (127)	4¾ (121)	8,150 (36.3)	880 (3.9)	1,675 (7.5)	1,850 (8.2)	2,020 (9.0)	
	4½ (114)	5 (127)	6¼ (159)	•	•	1,675 (7.5)	1,850 (8.2)	2,020 (9.0)	
⅝ (15.9)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)
	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	
	(illegible)	(illegible)	(illegible)			(illegible)	(illegible)	(illegible)	
¾ (19.1)	3⅜ (86)	7½ (191)	4¾ (121)	11,360 (50.5)	792 (3.5)	2,840 (12.6)	2,840 (12.6)	2,840 (12.6)	150 (203.4)
	5 (127)	7½ (191)	7 (178)	18,430 (82.0)	1,921 (8.5)	4,610 (20.5)	4,610 (20.5)	4,610 (20.5)	
	6¾ (171)	7½ (191)	9½ (241)	•	•	4,610 (20.5)	4,610 (20.5)	4,610 (20.5)	
⅞ (22.2)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)
	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	
1 (25.4)	4½ (114)	10 (254)	6¼ (159)	22,519 (100.2)	1,156 (5.1)	5,730 (25.5)	5,730 (25.5)	5,730 (25.5)	300 (406.7)
	9 (229)	10 (254)	12⅝ (321)	25,380 (112.9)	729 (3.2)	6,345 (28.2)	6,345 (28.2)	6,345 (28.2)	
	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)	(illegible)
	(illegible)	(illegible)	(illegible)	(illegible)		(illegible)	(illegible)	(illegible)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for spacing and edge distance on pages 141, 142 and 144.
3. Drill bit diameter used in base material corresponds to nominal anchor diameter.
4. Allowable loads may be linearly interpolated between concrete strengths listed.
5. Allowable loads for ¼-inch size at 1¼-inch embedment apply to both the Wedge-All® and Tie-Wire anchors. Installation torque does not apply to the Tie-Wire anchor.
6. The minimum concrete thickness is 1½ times the embedment depth.

*See page 13 for an explanation of the load table icons

Mechanical Anchors

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SIMPSON Strong-Tie

Wedge-All® Technical Information

Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All® Anchors in Normal-Weight Concrete:
Edge Distance, Tension and Shear Loads

How to use these charts:
1. The following tables are for reduced edge distance.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the edge distance (C_{act}) at which the anchor is to be installed.

4. The load adjustment factor (f_c) is the intersection of the row and column.
5. Multiply the allowable load by the applicable load adjustment factor.
6. Reduction factors for multiple edges are multiplied together.

Edge Distance Tension (f_c)

Edge Dist. C_{act} (in.)	Size	¼	⅜	½	⅝	¾	⅞	1	1¼
	C_{cr}	2½	3¾	5	6¼	7½	8¾	10	12½
	C_{min}	1	1½	2	2½	3	3½	4	5
	f_{cmin}	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
1		0.70							
1½		0.80	0.70						
2		0.90	0.77	0.70					
2½		1.00	0.83	0.75	0.70				
3			0.90	0.80	0.74	0.70			
3½			0.97	0.85	0.78	0.73	0.70		
3¾			1.00	0.88	0.80	0.75	0.71		
4				0.90	0.82	0.77	0.73	0.70	
4½				0.95	0.86	0.80	0.76	0.73	
5				1.00	0.90	0.83	0.79	0.75	0.70
5½					0.94	0.87	0.81	0.78	0.72
6					0.98	0.90	0.84	0.80	0.74
6¼					1.00	0.92	0.86	0.81	0.75
6½						0.93	0.87	0.83	0.76
7						0.97	0.90	0.85	0.78
7½						1.00	0.93	0.88	0.80
8							0.96	0.90	0.82
8½							0.99	0.93	0.84
8¾							1.00	0.94	0.85
10								1.00	0.90
12½									1.00
15									

*See page 13 for an explanation of the load table icons

*See Notes Below

Edge Distance Shear (f_c)
(Shear Applied Perpendicular to Edge)

Edge Dist. C_{act} (in.)	Size	¼	⅜	½	⅝	¾	⅞	1	1¼
	C_{cr}	2½	3¾	5	6¼	7½	8¾	10	12½
	C_{min}	1	1½	2	2½	3	3½	4	5
	f_{cmin}	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
1		0.30							
1½		0.53	0.30						
2		0.77	0.46	0.30					
2½		1.00	0.61	0.42	0.30				
3			0.77	0.53	0.39	0.30			
3½			0.92	0.65	0.49	0.38	0.30		
3¾			1.00	0.71	0.53	0.42	0.33		
4				0.77	0.58	0.46	0.37	0.30	
4½				0.88	0.67	0.53	0.43	0.36	
5				1.00	0.77	0.61	0.50	0.42	0.30
5½					0.86	0.69	0.57	0.48	0.35
6					0.95	0.77	0.63	0.53	0.39
6¼					1.00	0.81	0.67	0.56	0.42
6½						0.84	0.70	0.59	0.44
7						0.92	0.77	0.65	0.49
7½						1.00	0.83	0.71	0.53
8							0.90	0.77	0.58
8½							0.97	0.83	0.63
8¾							1.00	0.86	0.66
10								1.00	0.77
12½									1.00
15									

1. C_{act} = actual edge distance at which anchor is installed (inches).
2. C_{cr} = critical edge distance for 100% load (inches).
3. C_{min} = minimum edge distance for reduced load (inches).
4. f_c = adjustment factor for allowable load at actual edge distance.
5. f_{ccr} = adjustment factor for allowable load at critical edge distance. f_{ccr} is always = 1.00.
6. f_{cmin} = adjustment factor for allowable load at minimum edge distance.
7. $f_c = f_{cmin} + [(1 - f_{cmin}) (C_{act} - C_{min}) / (C_{cr} - C_{min})]$.

Load-Adjustment Factors for Reduced Spacing:
Critical spacing is listed in the load tables. No adjustment in load is required when the anchors are spaced at critical spacing.
No additional testing has been performed to determine the adjustment factors for spacing dimensions less than those listed in the load tables.

Mechanical Anchors

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Wedge-All *Technical Information* — SIMPSON Strong-Tie

Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All Anchors in Normal-Weight Concrete: Spacing, Tension Loads

How to use these charts:
1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for a tension load application.
3. Locate the anchor embedment (E) used for a tension load application.
4. Locate the spacing (S_{act}) at which the anchor is to be installed.
5. The load adjustment factor (f_s) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load adjustment factor.
7. Reduction factors for multiple spacings are multiplied together.

Spacing Tension (f_s)

*See page 13 for an explanation of the load table icons

S_{act} (in.)	Dia.	¼		⅜			½			⅝		
	E	1½	2¼	1¾	2½	3½	2¼	3½	4½	2½	4½	5½
	S_{cr}	1½	3¼	2¼	3½	4½	3¼	4¼	6¼	3½	6¼	7¾
	S_{min}	¾	1½	⅞	1¼	1¾	1¼	1¾	2¼	1½	2¼	2¾
	f_{smin}	0.43	0.70	0.43	0.43	0.70	0.43	0.43	0.70	0.43	0.43	0.70
¾		0.50										
1		0.64		0.48								
1¼		0.79	0.72	0.57			0.47					
1½		0.93	0.76	0.67	0.46		0.54			0.46		
1¾		1.00	0.79	0.76	0.53	0.70	0.61	0.43		0.52		
2			0.83	0.86	0.59	0.73	0.68	0.48		0.57		
2¼			0.87	0.95	0.65	0.75	0.75	0.53	0.70	0.63	0.43	
2½			0.91	1.00	0.72	0.78	0.82	0.57	0.72	0.69	0.47	
2¾			0.94		0.78	0.80	0.89	0.62	0.74	0.74	0.50	0.70
3			0.98		0.84	0.83	0.96	0.67	0.76	0.80	0.54	0.72
3½			1.00		0.97	0.88	1.00	0.76	0.79	0.91	0.61	0.75
4					1.00	0.93		0.86	0.83	1.00	0.68	0.78
4½						0.98		0.95	0.87		0.75	0.81
5						1.00		1.00	0.91		0.82	0.84
6									0.96		0.96	0.90
7									1.00		1.00	0.96
8												1.00

See Notes Below

Spacing Tension (f_s)

S_{act} (in.)	Dia.	¾			⅞		1		1¼	
	E	3¾	5	6¾	3½	7½	4½	9	5½	9½
	S_{cr}	4¾	7	9½	5¾	11	6¼	12½	7¾	13¼
	S_{min}	1¾	2½	3½	2	4	2¼	4½	2¾	4¾
	f_{smin}	0.43	0.43	0.70	0.43	0.70	0.43	0.70	0.43	0.70
2		0.48			0.43					
3		0.67	0.49		0.60		0.54		0.46	
4		0.86	0.62	0.73	0.77	0.70	0.68		0.57	
5		1.00	0.75	0.78	0.94	0.74	0.82	0.72	0.68	0.71
6			0.87	0.83	1.00	0.79	0.96	0.76	0.79	0.74
7			1.00	0.88		0.83	1.00	0.79	0.90	0.78
8				0.93		0.87		0.83	1.00	0.81
9				0.98		0.91		0.87		0.85
10				1.00		0.96		0.90		0.89
11						1.00		0.94		0.92
12								0.98		0.96
13								1.00		0.99
14										1.00

1. E = Embedment depth (inches).
2. S_{act} = actual spacing distance at which anchors are installed (inches).
3. S_{cr} = critical spacing distance for 100% load (inches).
4. S_{min} = minimum spacing distance for reduced load (inches).
5. f_s = adjustment factor for allowable load at actual spacing distance.
6. f_{scr} = adjustment factor for allowable load at critical spacing distance. f_{scr} is always = 1.00.
7. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
8. $f_s = f_{smin} + [(1 - f_{smin})(S_{act} - S_{min}) / (S_{cr} - S_{min})]$.

Mechanical Anchors

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Wedge-All® *Technical Information*

SIMPSON Strong-Tie

Load-Adjustment Factors for Carbon-Steel and Stainless-Steel Wedge-All® Anchors in Normal-Weight Concrete: Spacing, Shear Loads

How to use these charts:
1. The following tables are for reduced spacing.
2. Locate the anchor size to be used for a shear load application.
3. Locate the anchor embedment (E) used for a shear load application.
4. Locate the spacing (S_{act}) at which the anchor is to be installed.
5. The load adjustment factor (f_s) is the intersection of the row and column.
6. Multiply the allowable load by the applicable load adjustment factor.
7. Reduction factors for multiple spacings are multiplied together.

Spacing Shear (f_s)

*See page 13 for an explanation of the load table icons

S_{act} (in.)	1/4	1/4	3/8	3/8	3/8	1/2	1/2	1/2	5/8	5/8	5/8
E	1½	2¼	1¾	2½	3½	2¼	3½	4½	2½	4½	5½
S_{cr}	1½	3½	2½	3½	4½	3½	4½	6½	3½	6½	7½
S_{min}	⅝	1¼	⅞	1¼	1¼	1¼	1¾	2¼	1¼	2¼	2¼
f_{smin}	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
¾	0.82										
1	0.87		0.81								
1¼	0.92	0.80	0.84			0.80					
1½	0.97	0.83	0.88	0.80		0.83			0.80		
1¾	1.00	0.86	0.81	0.83	0.79	0.86	0.79		0.82		
2		0.88	0.95	0.85	0.81	0.88	0.81		0.84		
2¼		0.91	0.98	0.87	0.83	0.91	0.83	0.79	0.86	0.79	
2½		0.93	1.00	0.90	0.84	0.93	0.84	0.80	0.88	0.80	
2¾		0.95		0.92	0.86	0.96	0.86	0.82	0.91	0.82	0.79
3		0.99		0.94	0.88	0.99	0.88	0.83	0.93	0.83	0.80
3½		1.00		0.99	0.91	1.00	0.91	0.86	0.97	0.86	0.82
4				1.00	0.95		0.95	0.88	1.00	0.88	0.84
4½					0.98		0.98	0.91		0.91	0.86
5					1.00		1.00	0.93		0.93	0.88
6								0.99		0.99	0.93
7								1.00		1.00	0.97
8											1.00

See Notes Below

Spacing Shear (f_s)

S_{act} (in.)	¾	¾	¾	⅞	⅞	1	1	1¼	1¼
E	3½	5	6¼	3½	7½	4½	9	5½	9½
S_{cr}	4½	7	9½	5½	11	6½	12½	7½	13¼
S_{min}	1¾	2½	3½	2	4	2¼	4½	2½	4¾
f_{smin}	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
2	0.81			0.79					
3	0.88	0.81		0.85		0.83		0.80	
4	0.95	0.86	0.81	0.91	0.79	0.88		0.84	
5	1.00	0.91	0.85	0.98	0.82	0.93	0.80	0.88	0.80
6		0.95	0.88	1.00	0.85	0.99	0.83	0.92	0.82
7		1.00	0.91		0.88	1.00	0.85	0.96	0.85
8			0.95		0.91		0.88	1.00	0.87
9			0.98		0.94		0.91		0.90
10			1.00		0.97		0.93		0.92
11					1.00		0.96		0.94
12							0.98		0.97
13							1.00		0.99
14									1.00

1. E = Embedment depth (inches).
2. S_{act} = actual spacing distance at which anchors are installed (inches).
3. S_{cr} = critical spacing distance for 100% load (inches).
4. S_{min} = minimum spacing distance for reduced load (inches).
5. f_s = adjustment factor for allowable load at actual spacing distance.
6. f_{scr} = adjustment factor for allowable load at critical spacing distance. f_{scr} is always = 1.00.
7. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
8. $f_s = f_{smin} + [(1 - f_{smin})(S_{act} - S_{min}) / (S_{cr} - S_{min})]$.

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CAM #16-0650
Exhibit 1
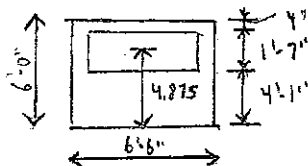Page 22 of 23

PROJECT NAME B Cycle
SUBJECT Foundation slab
CALCULATED BY SG   DATE 11/12/12
CHECKED BY _____ DATE _____

<u>Slab overturning</u> - 6'-0" x 6'-6" x 5" slab

$M_{oT} = 2203$ ft·lb

$M_{resisting} = (0.6)(150)(6)(6.5)(0.42)(6/2) = 4388$ ft·lb   O.K.

Check flexure in unreinforced slab. Assume station is placed eccentrically
on slab

$M_{oT} = 2203$ ft·lb + 439 lb (1.875) = 3026 ft·lb (service)
       ↑ wind   ↑ gravity

$P = (150)(6)(6.5)(0.42) = 2438$ lb + 439 lb = 2877 lb
        ↑ footing   ↑ station

$e = M/P = 3026/2877 = 1.05$ ft → outside of middle third

$m = 3 - 1.05 = 1.95'$

$f_b = 2P/3bm = 2(2877)/3(6.5)(1.95) = 151$ psf ≪ 2000 psf O.K.

$f_{b\ ultimate} = 151/0.6 = 252$ psf
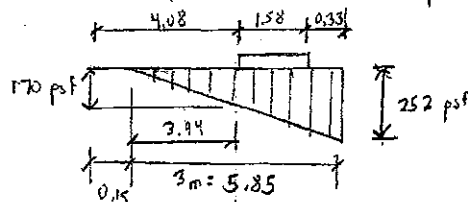
At face of support f_a gross = 170 psf, f_a net = 170 - 1.2(62.5) = 95 psf
$M_u = (.095)(6.5)(3.94/2)(3.94/3) = 1.60$ k·ft
$\phi M_n = (0.65)(5)(1)(\sqrt{3000}) \frac{(78)(5 \cdot 2)^2}{6} /12000 = 1.74$ k·ft $M_u < \phi M_n$