

**AMENDMENT 1 to ADDENDUM NO. 38  
TO THE AGREEMENT DATED APRIL 24, 2018  
BETWEEN GREATER ORLANDO AVIATION AUTHORITY  
AND AVCON, INC.**

**Project:** No Cost Amendment to Provide Additional Condition Assessment, Design, Bid Documents & Award, and Construction Administration Services for W-00458, Airsides 2 & 4 Substructure Condition Assessment, Orlando International Airport

**THIS AMENDMENT** is effective this 29<sup>th</sup> day of August, 2023, by and between the **GREATER ORLANDO AVIATION AUTHORITY** ("Authority"), and **AVCON, INC.** ("Consultant").

**WITNESSETH:**

**WHEREAS**, by Agreement dated April 24, 2018, Authority and Consultant entered into an agreement for Consultant to provide Continuing Civil Engineering Services; and

**WHEREAS**, under the Agreement, Consultant agreed to perform such additional services for the Authority as are contained in any additional scope of work established by the Authority in any addendum to the Agreement and accepted in writing by the Consultant; and

**WHEREAS**, the Authority and the Consultant desire to enter into this Amendment to the Agreement to provide for no-cost additional services to be rendered by the Consultant under the terms of said Agreement.

**NOW, THEREFORE**, in consideration of the premises and the mutual covenants herein contained, the Authority and the Consultant do hereby agree as follows:

1. Consultant shall perform additional services in accordance with the terms of the Agreement and the attached Exhibit "A." Consultant shall be paid for such additional services according to the payment terms set forth in the Agreement.

2 Except as expressly modified in this Amendment, the Agreement dated April 24, 2018 and all prior addenda will remain in full force and effect.

**IN WITNESS WHEREOF**, the parties hereto by their duly authorized representatives, have executed this Amendment this day of Sep 1, 2023.

**GREATER ORLANDO AVIATION AUTHORITY**

Approved as to Form and Legality  
(for the benefit of GOAA only)  
this day of Aug 31, 2023

*Karen Ryan*

By:

box SIGN 1J8RLK51-469J5ZX2

**NELSON MULLINS BROAD AND  
CASSEL, Legal Counsel  
Greater Orlando Aviation Authority**

By:

*Max Marble*  
box SIGN 4W88Q9Z1-469J5ZX2

Max Marble  
Sr. Vice President, Capital Programs  
Construction Committee Chair

**AVCON, INC.**

*Sandeep Singh*  
box SIGN 4W8779J8-469J5ZX2

By:

Signature (Duly Authorized Rep.)

SANDEEP SINGH

Printed Name

President

Title



Orlando International Airport  
One Jeff Fuqua Boulevard  
Orlando, Florida, 32827-4392  
(407) 825-2001

# Memorandum

**To:** Members of the Construction Committee

**From:** Scott Shedek, Vice President, Construction  
(As prepared by Nils Johnson)

**Date:** August 29, 2023

**Re:** Request for Approval of a No Cost Amendment to Addendum 38 to the 2018 Continuing Civil Engineering Consultant Services Agreement with AVCON, Inc. to provide Additional Condition Assessment, Design, Bid Documents & Award, and Construction Administration Services for W-00458, Airsides 2 & 4 Substructure Condition Assessment Orlando International Airport

On May 31, 2022, the Construction Committee approved Addendum 38 in the amount of \$51,502.00 to the above-referenced agreement. Since that time, it has been determined that additional CA services are required to perform a condition assessment on the cast-in-place concrete beams supporting the guideway running surface, as further described in the proposal dated August 23, 2023.

If approved, these services would be effective the date of Construction Committee approval.

This continuing consultant was selected for this task based on (☒ all that apply):

☒ Experience ☒ Available Personnel ☐ Current Workload  
☒ Expertise ☐ Equitable Distribution ☐ Other: \_\_\_\_\_

The MWBE/LDB participation has been reviewed by the Office of Small Business Development. Their findings and recommendation are attached.

~~Funding is from General Airport Revenue Bonds. Funding source verified by \_\_\_\_\_ of Construction Finance on \_\_\_\_/\_\_\_\_/\_\_\_\_ as correct and available.~~

It is respectfully requested that the Construction Committee approve a No Cost Amendment to Addendum 38 to the 2018 Continuing Professional Services Agreement with AVCON, Inc. for the services contained herein and the amount as shown below:

Not to Exceed Fees	\$0.00
Lump Sum Fees	\$0.00
Not to Exceed Expenses	\$0.00
<b>TOTAL</b>	<b>\$0.00</b>
AAC – Compliance Review Date	MPG 8/25/23
AAC – Funding Eligibility Review Date	8/25/23



**AVCON, INC.**  
**Engineers & Planners**

5555 E. Michigan St., Suite 200  
Orlando, Florida 32822  
Phone: (407) 599-1122  
Fax: (407) 599-1133  
[www.avconinc.com](http://www.avconinc.com)

August 23, 2023

Mr. Scott Shedek, P.E.  
Director of Construction  
**Greater Orlando Aviation Authority**  
5850B Cargo Road  
Orlando, Florida 32827-4399

**Attn: Mr. Nils Johnson, CGC, EC, CCS/GOAA OAR**

**Reference: Transmittal of Scope of Work and Fee Re-Allocation  
W-00458 Airsides 2 & 4 Substructure Condition  
Assessment Supplemental Scope - Evaluation and  
Recommendations for Impacts of Alstom's Vehicle Weights  
Orlando International Airport**

Dear Scott:

In recent weeks, **AVCON, INC.** (AVCON), GOAA Staff, and Lee + Elliot (L+E) was tasked with coordinating information and discussing the structural impacts to the APM Guideways substructure elements with respect to Alstom's proposed replacement vehicle weights and Alstom's Structural Engineering evaluation provided in the technical report by Kimley Horn and Associates (KHA). AVCON met with the Authority's Proposal Evaluation team in mid-August to discuss the need for an alternative evaluation of the existing structural system to accommodate the new ride vehicles. In these meetings, the following technical information was discussed:

1. Authority's Proposal Evaluation team asked why AVCON could claim the original exclusion to prepare a Structural Identification Model (SIM) for the AS 2&4 APM guideway structures created under the past W-S107 project. AVCON explained the AS 2&4 APM guideway structures were sufficiently identical in make-up and span lengths to the AS 1&3 APM SIM model prepared in 2014, and that any strengthening of the substructure due to increased vehicle weights or lateral forces due to increased vehicle speeds with respect to the current AS 1&3 APM vehicles could be done by comparative analysis using the original AASHTO 1983 design code requirements. This approach also eliminated a year-long design schedule necessary to re-certify the 2014 SIM;
2. Authority's Proposal Evaluation team confirmed AVCON's review of the excerpts of the Alstom-KHA's technical proposal related to additional vehicle weight compared to the 2014 basis of design weight (i.e. the Mitsubishi design vehicles from the W-S107 package). The average additional weight of Alstom's vehicles as compared to AS 1&3 APM Cars was established as an increase of 6%. The actual weight overages are 2 cars at 3% over and 1 car at 12% over.

In the first meeting, AVCON provided a recap of the previous modeling work in 2014 to give the Authority an idea of the results of the model. AVCON identified the members that would be over the utilization rate or close to 100% utilization. More precisely, the results of the cantilever concrete beams were shown to be 2.6% beyond the code-prescribed beam flexural capacity and 11% capacity remaining in the tallest-worst case pier columns. With Alstom's proposed vehicle, the cantilever beam appeared to be over by 8.6% which exceeded the typical concrete codes allowance of 5% overages when it comes to evaluating existing structures. AVCON engaged a concrete strengthening Contractor to determine if the cantilever beam could be strengthened by 10%, and to provide an estimated costs for such construction. The reported model results were





found to be incorrect prior to when the team met for a second virtual meeting and the corrections were proposed to the team. AVCON inadvertently misinterpreted the results of the 2014 SIM model.

AVCON mistakenly informed the GOAA DBOM team on a virtual call that the cantilever concrete beam was 8.6% overloaded by the new vehicles. During the second meeting, this result was corrected. Current results show the cantilever beams have nearly 25% available capacity with respect to the proposed loading, and this result is aligned with the KHA evaluation results. Based on this more recent structural check, the need for concrete beam strengthening was eliminated, and attention was redirected to the pile capacities.

AVCON's review of KHA's pile load results conducted at two pier cap locations was 110% and 112% over the pile design capacities shown in table from sheet C-5.0.1 in the BP-270 AGT System Airside 2 (see below). The check is a Service I load combination, but there is no back-up calculation in the proposal to indicate KHA's inclusion of appropriate loads such as wheel centrifugal forces customary of loads in the curved parts of the tracks. KHA may have also included wind-on-live loads which would not be appropriate for Service I checks for wind speed greater than 65 mph, at which point, the vehicles are required to be parked in the station. Therefore, the Authority's Proposal Evaluation team proposed an addendum to request additional information from proposers to confirm the contribution of wind forces to the pile reaction.

AVCON did not include pile assessments in the 2014 SIM report because typical bridge evaluations stop short of pile analysis for a few reasons. First, structural evaluation of buried, inaccessible elements in legacy bridge structures is uncommon due to the lack of pile driving and pile installation records to substantiate the design capacities. As expected, no such information was available in this case. Second, pile group affects were not taken into consideration in the analysis. Pile group soil interaction capacities can produce capacities more than the summing of individual pile capacities. It is possible and quite likely that the 12% increase in vertical loads can be accommodated by the pile group affect once a more refined analysis can be made using in-situ soil data. And lastly, the short segment model used by KHA to derive the pile reactions are within acceptable ranges expected by a non-calibrated model. However, a more refined model using the Structural Identification techniques used in the 2014 APM Guideway SIM may reduce the overage to the industry accepted +5% limit for existing structures evaluations.

Given the information given above, it is considered a relatively low potential risk to the public safety and damage to the load carrying capacity of the substructure. AVCON recommends no pile strengthening be considered as part of the on-going DBOM selection process. We do, however recommend vertical settlement monitoring during vehicle testing trials prior to the release of the APM guideways to public use. This can be accomplished using standard survey measurements, to a precision of 0.01-inch, using fixed markers to a benchmark in the field and markers set on individual columns. Measurements can be made over the vehicle testing periods among regularly timed sessions and results interpreted by a Geotechnical Engineering/Testing firm with industry proven experience with monitoring structures for initial settlement. This approach will avoid complicating the selection process with time-consuming field soil data reconnaissance and refined pile analysis necessary to resolve this check to 100% confidence and reliability. Should the structure exhibit negative outcomes during testing, AVCON is prepared to assist with developing a more advanced plan to sample the soils for data necessary to model actual pile-soil interactions and capacities and recommend actions for additional stabilization.



PILE INFORMATION			
PIER NO.	CUT-OFF ELEVATION	NON. PILE CAPACITY (K)	* EST. LENGTH (FT.)
1	84.0	150	100
2	84.0	150	105
3	84.0	150	105
3A	83.5	60	105
4	83.5	150	105
5	83.5	150	95
6	83.0	150	100
7	82.5	150	100
8	82.5	150	105
9	82.0	150	95
10	80.5	150	100
11	80.5	150	100
12	80.0	160	100
13	80.5	160	100
14	80.0	160	100
15	80.0	160	100
16	80.5	160	100
17	82.5	160	100
18	83.0	160	100
19	85.72	160	100
20	82.40	160	100
21	84.05	150	100
22	85.78	150	100
23	87.04	150	100
24	88.30	150	100
25	94.35	160	100
26	PIERS ARE CONSTRUCTED WITH CAST-IN PLACE REINFORCED CONCRETE DRILLED SHAFT CAISSONS. FOR CAISSON DETAILS SEE DWG. NO. C-30.2		
27			
28			

\* ESTIMATED LENGTH DOES NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR BATTER.

Thank you for considering AVCON to perform these services on behalf of the Authority. We look forward to working with the Authority in continuing the work to maintain the life of this critical infrastructure at Orlando International Airport.

Sincerely,

AVCON, INC.

James A. Kriss, P.E.  
 Sr. Project Manager  
 Cc:

Luca DelVerme, P.E.  
 Structural Project Engineer

Rick Baldocchi, P.E., AVCON Structures  
 Dominick Fiorentino, P.E., AVCON Structures  
 Dan Nickols, P.E., AVCON Project Manager



## GREATER ORLANDO AVIATION AUTHORITY

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Orlando International Airport  
5850-B Cargo Road  
Orlando, Florida 32827-4399

### MEMORANDUM

To: Members of the Construction Committee

From: Edelis Molina, Sr. Small Business Administrator

Date: August 29, 2023

Re: Request for Approval of a No Cost Amendment to Addendum 38 to the 2018 Continuing Civil Engineering Consultant Services Agreement with AVCON, Inc. to provide Additional Condition Assessment, Design, Bid Documents & Award, and Construction Administration Services for W-00458, Airsides 2 & 4 Substructure Condition Assessment Orlando International Airport

The subject request does not have any impact on the small business participation.