

## ADDENDUM NO. 2

DATE: November 11, 2011

PROJECT: CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

BY: COGDELL & MENDRALA ARCHITECTS, PC  
517 East Congress Street  
Savannah, GA 31401

This Addendum forms a part of the Contract Documents and modifies the original Drawings and Project Manual dated September 29, 2011.

### I. PROJECT MANUAL:

- A. Volume I Table of Contents: Remove and replace section in its entirety (attached).
- B. Clarification to "Instructions to Bidders," Paragraph 1.11: It is the intent of this paragraph that all required documents specified in Parts I and II of the "Invitation for Bids" shall be included in the sealed envelope with the Bid Proposal by the specified date and time set forth in the Bidding Documents. The Apparent Low Bidder will be allowed to make minor adjustments to complete or revise these forms up until 5:00 p.m., EST, on the day in which bids are received. These documents shall include the following forms:
  - 1. Bid Form IFB No. 2012-01 (revised November 10, 2011).
  - 2. LEED Qualification Information as defined in Addendum No. 1.
  - 3. All Certifications and Assurances, identified as "Attachments," which immediately follow Bid Form IFB No. 2012-01.
  - 4. Bid Bond (AIA Document A310).
- C. Clarification: FTA requirements for this project, such as "Buy America" and "Davis Bacon Act" are enumerated in the Part II, Terms and Conditions, Division 00 - Procurement and Contracting Requirements.
- D. Invitation for Bid No. 2012-1 Proposal Form (pages 49 - 52): Remove and replace form in its entirety (attached).
  - 1. Clarification: The basis of award and determination of the Apparent Low Bidder shall be based on the sum of Line A "Base Bid" plus Line B "Unit Costs" (the total of Column C of the Unit Price Schedule), termed the "Bid Amount."
  - 2. Paragraphs commencing with "No Withdrawal;" "Execution of the Contract;" and Obligation of Bid Bond:" The time frame "sixty days" has been replaced with "ninety days."
  - 3. Commencement and Completion of Work: 18 Months is clarified to equate to 550 calendar days.
- E. Clarification: Responsibility for paying building permit and other fees is specified in "General Conditions of the Contract for Construction" (Addendum No. 1). The building permit shall be issued by Chatham County Department of Building Safety and Regulatory Services.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- F. Section 01 50 00, Temporary Facilities and Controls, delete text in sub-paragraph 3.3I.2. and replace with: "During Phase I, the existing tenant will pay for power and other utilities associated with its use of the existing terminal building. All construction-related activities within and outside of the building shall be serviced by temporary power and other temporary utilities furnished by the Contractor. At the time the Tenant is relocated to temporary quarters during Phase II, the Contractor shall be responsible for the cost of all power, water and sewer utilities.
- G. Section 01 21 00, Allowances, remove paragraph 3.1A and replace with "Allowance No. 1, Inspections and Monitoring Allowance: Include the sum of \$15,000.00 for Inspections and Monitoring as specified in Division 02, Section 02 65 00, UST Removal, and Section 02 82 13, Asbestos Abatement. This allowance shall include the Owner Representative Costs specified in Articles 02 65 00-3.13 and 02 82 13-1.08, in addition to the cost for conducting a representative sampling of the existing built-up roofing assembly to determine whether or not ACM's are contained therein. The Environmental Consultant to perform inspections and monitoring services shall be selected by the Owner."
- H. Clarification, Section 01 22 00, Unit Prices:
  - 1. Paragraph 3.1D, Unit Price No. 4, delete paragraph in its entirety and replace with: "In the event that asbestos containing materials are detected in the existing roofing materials to be removed, provide for the unit price for the additional cost per square foot associated with abatement and disposal measures in accordance with Division 02, Section 02 82 13 "Asbestos Abatement."
    - a. Clarification: The base bid shall include the cost of demolition and removal of the existing roofing assembly without provisions for asbestos abatement. If ACM's are discovered, the additional cost related to asbestos abatement and disposal measures shall be covered under Unit Price No. 4.
  - 2. Paragraph 3.1E, Unit Price No. 5: As noted on Sheet P1.1, SANITARY SEWER FLOOR PLAN – PLUMBING & FIRE PROTECTION, the installation of the new storm lines serving the roof drains shall be included in the base bid. The credit for retaining and reusing the existing storm lines shall be documented as Unit Price No. 5.
- I. Clarification: Project information and submittals shall be transmitted between construction team members in electronic format using a pre-approved website service as specified in Section 01 33 00, Submittal Procedures.
- J. Refer to Section 01 78 39, paragraph 2.1B for Record Digital Data Files to be prepared by Contractor, such as transferring marked up as-built drawings to digital data files.
- K. Clarification, Section 01 79 00, Demonstration and Training: All videography of demonstration and training sessions shall be provided by Contractor.
- L. Section 01 81 13.13, Sustainable Design Requirements – LEED for New Construction and Major Renovations, Paragraph 2.4 CERTIFIED WOOD, add: "A.2. Vendor invoices must provide a line-item identification of each wood product identifying FSC products as FSC "Pure" or FSC Mixed (%)."

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- M. Add: Appendix A – Test Boring and Sub-Surface Investigation Report No. 4-19-11-1 by Whitaker Laboratory, Inc., with Two Addenda, dated April 25, 2011 and July 1, 2011 (attached).
- N. Section 02 65 00, UST Removal, paragraph 3.1, add subparagraph 3.1.1 “Notify Architect at least two weeks prior to removal of fuel tank.”
- O. Section 03 30 00, Cast-In-Place Concrete, Paragraph 1.4b LEED Submittals: Item 1, replace “Product Data for Credit 4” with “Product Data for Credit MR 4.” add “Item 2. Product Data for Credit IEQ 4.3: For curing and sealing compounds, documentation including printed statement of VOC content.”, and add “Item 3. Certificates for Credit MR 5: For products and materials required to comply with requirements for regionally manufactured and regionally extracted and manufactured materials. Include statement indicating cost for each regionally manufactured material. Include statement indicating location of manufacturer and point of extraction, harvest, or recovery for each raw material used in regionally extracted and manufactured materials. Indicate distance to Project and fraction by weight of each regionally manufactured material that is regionally extracted.”
- P. Remove and replace in its entirety the following specification: Section 03 52 16 Lightweight Insulating Concrete Roof Deck” (attached).
- Q. Section 06 16 00, Sheathing, Paragraph 1.3B LEED Submittals; delete Item 4 in its entirety and replace with “4. Certificates for Credit MR 5: For products and materials required to comply with requirements for regionally manufactured and regionally extracted and manufactured materials. Include statement indicating cost for each regionally manufactured material. Include statement indicating location of manufacturer and point of extraction, harvest, or recovery for each raw material used in regionally extracted and manufactured materials. Indicate distance to Project and fraction by weight of each regionally manufactured material that is regionally extracted.”
- R. Remove and replace in its entirety the following specification: Section 07 54 19 “Polyvinyl-Chloride (PVC) Roofing (attached).
- S. Section 06 40 23, Interior Architectural Woodwork, Paragraph 1.4F LEED Submittals, Item 3, replace “Product Data for Credits MR 4.1 and MR 4.2” with “Product Data for Credit MR 4.”
- T. Section 08 14 16, Flush Wood Doors, add paragraph 2.7, Pocket Door Kit: Comply with ANSI/BHMA A156.14, with 1 preassembled header assembly, 2 heavy duty hangers, 2 pairs steel encased, 3/4 inch (19 mm) by 1 5/8 inches (41 mm) wood split studs, 2 door hanger plates, 1 end bracket, 1 bumper stop, 1 pair of door guides, 2 floor plates and 1 end bracket.
  - a. Track: Galvanized steel; Box design; Jump-proof.
  - b. Hanger Bearings: Steel ball.
  - c. Capacity: Door thickness: 1-3/4- inches; door weight to 275 lb.
  - d. Door Hardware: Standard Solid Brass Pocket Door Passage Pull (Satin Chrome) sized to fit 1-3/4" thick door.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- U. Specification Section 09 24 00, Portland Cement Plaster, Paragraph 1.3 SUBMITTALS, add "Paragraph 1.3E LEED Submittals: Item 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content." and "Item 2. Product Data for Credit IEQ 4.1: For coatings, documentation including printed statement of VOC content."
- V. Specification Section 09 29 00, Gypsum Board, Paragraph 1.3C LEED Submittals; delete Item 1 in its entirety, add "1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.", add "3. Certificates for Credit MR 5: For products and materials required to comply with requirements for regionally manufactured and regionally extracted and manufactured materials. Include statement indicating cost for each regionally manufactured material. Include statement indicating location of manufacturer and point of extraction, harvest, or recovery for each raw material used in regionally extracted and manufactured materials. Indicate distance to Project and fraction by weight of each regionally manufactured material that is regionally extracted."
- W. Section 09 30 00, Tiling, Paragraph 1.4B LEED Submittals; add "2. Product Data for Credit IEQ 4.3: For adhesives and grouts, documentation including printed statement of VOC content." and add "3. Product Data for Credit IEQ 4.3: For tile floors, documentation from an independent testing agency indicating compliance with the FloorScore Standard."
- X. Section 09 51 13, Acoustical Panel Ceilings:
  - 1. Paragraph 1.4E LEED Submittals, Item 1, replace "Product Data for Credits MR 4.1 and MR 4.2" with "Product Data for Credit MR 4."
  - 2. Paragraph 1.4E LEED Submittals, add Item 2. Certificates for Credit MR 5: For products and materials required to comply with requirements for regionally manufactured and regionally extracted and manufactured materials. Include statement indicating cost for each regionally manufactured material. Include statement indicating location of manufacturer and point of extraction, harvest, or recovery for each raw material used in regionally extracted and manufactured materials. Indicate distance to Project and fraction by weight of each regionally manufactured material that is regionally extracted."
  - 3. Section 09 51 13, Acoustical Panel Ceilings, paragraphs 2.5A, Acoustical Cloud Ceiling ACC-1, and 2.6A, Acoustical Cloud Ceiling ACC-2, subject to compliance with requirements, add the following manufacturer and product to the manufacturer's list:
  - 4. Conwed "Soft Texture" ceiling panels. Panels to be painted in the field.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- Y. Section 09 65 13, Resilient Base and Accessories, Paragraph 1.3B LEED Submittals; add "2. Product Data for Credit IEQ 4.3: For adhesives, documentation including printed statement of VOC content." and add "3. Product Data for Credit IEQ 4.3: For resilient stair accessories, documentation from an independent testing agency indicating compliance with the FloorScore Standard."
- Z. Section 09 65 19, Resilient Tile Flooring, Paragraph 1.3B LEED Submittals; add "2. Product Data for Credit IEQ 4.3: For adhesives and chemical bonding compounds, documentation including printed statement of VOC content." and add "3. Product Data for Credit IEQ 4.3: For resilient tile flooring, documentation from an independent testing agency indicating compliance with the FloorScore Standard."
- AA. Section 09 66 23, Resinous Matrix Terrazzo Flooring, Paragraph 1.3B LEED Submittals; delete Item 1 in its entirety, add "1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.", add "3. Product Data for Credit IEQ 4.3: For sealers, documentation including printed statement of VOC content." and add "3. Product Data for Credit IEQ 4.3: For terrazzo flooring, documentation from an independent testing agency indicating compliance with the FloorScore Standard."
- BB. Section 09 87 13, Polished Concrete Floor Finish with Colored Dye:
  - 1. Paragraph 1.4 Submittals; add "E. LEED Submittal: Item 1, Product Data for Credit IEQ 4.2: For interior coatings, documentation including printed statement of VOC content." Final selection of material may require compliance with IEQ 4.3 instead of IEQ 4.2.
  - 2. Paragraph 3.2D.6., remove sentence and replace with "Polish sheen level shall be Gloss."
- CC. Remove and replace in its entirety the following specification: Section 10 14 00, "Signage" (attached).
  - 1. A Sign Message Schedule has been added to this specification section.
- DD. Section 10 51 13, Metal Lockers, paragraph 2.2J: Delete paragraph in its entirety and replace with "Not used."
- EE. Section 23 34 23, HVAC Power Ventilators, paragraph 2.2F, Inline Fans, add the following manufacturer to the manufacturer's list:
  - 1. Twin City.
- FF. Section 23 36 00 Air Terminal Units, paragraph 2.4G, Variable Air Volume Boxes, add the following manufacturer to the manufacturer's list:
  - 1. Metalaire.
- GG. Section 23 37 23 HVAC Gravity Ventilators, paragraph 2.1H, Roof Hoods, add the following manufacturer to the manufacturer's list:
  - 1. Twin City.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- HH. Section 23 82 19 Fan Coil Units, paragraph 2.2I, Inline Cabinet Fans, add the following manufacturer to the manufacturer's list:
1. International Environmental.
- II. Clarification, Section 31 31 16 Soil Treatment: Termite control application is required at renovated building slab pour-back only.
- JJ. SECTION 32 14 43, Porous Unit Paving, paragraph 2.1C.1, Solid Concrete Pavers for Porous Paving, add the following product and manufacturer to the manufacturer's list:
1. Aqua Bric by Belgard.
- KK. Section 32 31 19, Decorative Metal Fences and Gates, delete text in paragraph 2.2G, Electric Strikes, in its entirety and replace with the following:
- G. Surface Mount Exit Bar. Device to match width of gate; reversible; hex key dogging device; stainless steel latch mechanism; release to activate at 8 lbs. of touch pressure; anodized aluminum bar with black ABS cover on head and push bar; weather resistant. Hardware to include the following features and accessories:
1. Mounting plate: Configuration necessary for mounting exit bar. Fabricate from 1/8-inch thick, aluminum plate.
  2. Adjustable receiver bracket for 3" O.D. (outside diameter) post.
  3. Lock box.
  4. Keyed cylinder with two keys.
  5. Reversible lever style handle with black finish.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

II. DRAWINGS:

- A. Sheet TS1.0, Schedule of Drawings:
1. Sheet A2.11, delete "ENLARGED PLANS" and replace with "GREYHOUND CANOPY PLAN."
  2. Sheet A2.13, OVERALL ROOF PLAN & ROOF TYPES: Revise sheet no. to A2.12.
  3. Sheet A2.14, TRANSFER PLATFORM ROOF PLAN: Revise sheet no. to A2.13.
  4. Sheet A2.15, GREYHOUND AND TROLLEY ROOF PLANS: Revise sheet no. to A2.14.
  5. Sheet M1.2, HVAC - ROOF: Revise sheet no. to M1.3.
  6. Sheet M2.2, HVAC - ROOF PIPING: Revise sheet no. to M2.3.
  7. Add Sheet M3.1, HVAC - ENLARGED FLOOR PLANS
  8. Add Sheet E2.3, ROOF PLAN PHOTOVOLTAIC SYSTEM LAYOUT - ALTERNATE #1.
  9. Sheet AG1.10, revise drawing title to: SIGN LOCATION PLANS.
  10. Add Sheet AG2.08, ARCHITECTURAL SIGNAGE.
  11. Delete the following Drawing Titles and Numbers in their entirety:
    - a. A2.15, GREYHOUND AND TROLLEY ROOF PLANS.
    - b. A4.10, CANOPY WALL SECTIONS.
    - c. A4.11, CANOPY WALL SECTIONS.
    - d. A4.12, CANOPY WALL SECTIONS.
    - e. A10.1, OVERALL SITE 3D VIEWS.
    - f. Y2.10, CODE COMPLIANCE PLAN - FIRST FLOOR.
- B. Clarification to Sheet C1.2, LAYOUT PLAN: The stamped concrete shall have the same pattern and shall be tinted the same color as the porous concrete pavers specified in the architectural drawings. The paver color, and subsequently the stamped concrete color, shall be determined during the submittal process. The hatch pattern shown around the CAT Platform is detectable warning and shall be brick pavers meeting ADA requirements. No "stamped" concrete is located within or around the CAT transfer platform.
- C. Sheet C3.1, DRAINAGE AND PAVING PLAN, Add the following notes:
1. Contractor shall provide maintenance/warranty bond, certified check, or Letter of Credit for a period of three (3) years covering correction of defective work and materials, and based on 10% of the final cost of publicly maintained utilities and roadways. Cash bonds are not acceptable. The maintenance period will begin on the date of the acceptance letter issued by the City of Savannah Engineering Department.
  2. This project is located within the historic district. All concrete sidewalks located along Ann Street, Oglethorpe Avenue and Fahm Street will require Savannah Brown per City Requirements.
- D. Clarifications to Sheet C5.3 PAVING, GRADING & DRAINAGE DETAILS:
1. Pavers detailed to be installed over 6" concrete slab are typically located beneath a roof canopy.
  2. One Steel Crash Guard shall be located at the front of each Greyhound Bay.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- E. Clarifications to Sheet L-1 LANDSCAPE PLAN:
  - 1. No grassing, neither seed nor sod, is included in the scope of work for finished landscaping. Grassing shall be provided as required for erosion control as indicated in Sheets EC1.1 through EC5.1.
  - 2. Hatched and black filled areas to the north and south of the project represent paving.
- F. Sheet S0.00, STRUCTURAL NOTES, Clarification to note DP3: All uplift piles are to be auger cast piles; hence, steel casings would not be required. The contractor shall take whatever precautions necessary to deal with loose sands.
- G. Sheet S2.11, TRANSFER CANOPY - FRAMING PLAN, Note 7: Delete "Drawing S3.10" and replace with "Drawing S2.12."
- H. Sheet S2.21, GREYHOUND CANOPY - FRAMING PLANS, Greyhound Canopy Roof Notes (High & Low): At the call out for the roof deck delete "Epicore E3.5A" and replace with "Epicore ER3.5" (i.e. non-acoustical).
- I. Clarification to Sheet D2.2, TERMINAL BUILDING - DEMOLITION ROOF PLAN & WALL SECTIONS: Per the original contract documents (circa 1964) there is a lightweight concrete fill topping. Thickness varies to provide positive drainage. A rigging analysis has not been performed as this is considered means and methods. The contractor is responsible for rigging analysis due to the magnitude of ways these pieces could be rigged.
- J. Sheet A1.2, TERMINAL BUILDING - PHASING PLAN, "Phasing Requirements:" In reference to temporary restroom facilities, the Two accessible restrooms (one per sex) maybe be separate from or provided within the structure housing the other two stalls per sex. If provided within the same trailer with the other stalls, access to and inside the enclosure must be ADA accessible.
- K. Sheet A2.1, TERMINAL BUILDING - FLOOR PLAN: Furnish and install 6" x 6" x 42" high stainless steel bollard for door actuators in accordance with Section 08 71 00, DOOR HARDWARE, at Doors 101C and 101E. Locate bollards at exterior face of wall, located 42" off face of wall. Refer to attached Sketch A2.1.R!, TYPICAL BOLLARD ENTRANCE, for typical location.
- L. Sheet A2.2, TERMINAL BUILDING - ROOF PLAN:
  - 1. Remove and replace sheet in its entirety (attached).
  - 2. Clarification: The call-out for three "4-INCH T LINES FOR NEW CANOPY" indicates lines for the two 40'-0" x 7'-5" pre-engineered metal canopies attached to the rear of the existing building. General Contractor is to coordinate the connection from these three lines to the drain outlets at the two canopy roofs.



CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

M. Signage Drawings

1. Remove and replace sheets AG1.10 through AG 2.07 in their entirety (attached).
2. Add Sheet AG2.08, ARCHITECTURAL SIGNAGE (attached).

N. Sheet P0.01, PLUMBING FIXTURES SCHEDULE:

1. Delete Sloan # 113 1.28 flush valve from fixtures P4. Replace with Sloan 111 1.28 model.
2. Delete Kohler #K-10949 flush valve from fixtures P5 & P6. Replace with Sloan 195-0.13 ES-S model with 120 volt transformer.

O. Sheet P0.02, Detail 7, WET PIPE FIRE SERVICE RISER DETAIL: Delete wall mounted Fire Dept. Connection (FDC) at riser assembly. Connection shall be free-standing and located near Ann Street as indicated on Sheet C2.2, WATER/SEWER PLAN.

P. Sheet E6.3, PANEL SCHEDULES, add the following note:

The contractor shall provide current transformers (CT's) on the feeder phase and neutral conductors to the lighting panelboards for collection of lighting power consumption by the building energy management system. Coordinate the specific type of CT with the mechanical contractor. Provide CT's in the following panelboards:

1. Panel CP.
2. Panel GHP

Q. Sheet E7.2, POWER PLANS:

1. At Doors 101C and 101E (refer to Sheet A2.1, TERMINAL BUILDING FLOOR PLAN, for locations), revise location of j-box for actuators from exterior face of wall to bollard located 42" off face of exterior wall. Refer to attached Sketch A2.1.R1 for typical location.
2. At south face of south partition at Security 102, height of power outlet for Clock shall be 10'-2" as indicated on Elevation MY, Sheet DP5.2, DEMOUNTABLE PARTITIONS ELEVATIONS.

R. Sheet Ref E7.3, ROOF PLAN - ELECTRICAL:

1. Circuits GHP-10&12 are for powering the building illuminated sign.
2. The existing sign shall be refurbished as required; replacement of existing ballasts, lamp sockets, lamps and wiring as necessary for a completely functional sign shall be considered work of this project.
3. An existing blank section panel pair shall be replaced with new CAT logo signage.
  - a. Refer to the architectural signage drawings for required artwork and location.
  - b. The new panel pair shall be illuminated, extension of wiring and additional lamps, ballasts, lamp sockets, etc. shall be considered work of this project.

CAT DOWNTOWN INTERMODAL TRANSIT CENTER  
CHATHAM AREA TRANSIT AUTHORITY

- S. Sheet E8.1, FIRE ALARM, INTRUSION DETECTION AND ACCESS CONTROL SYSTEMS PLAN: The contractor shall provide system smoke detectors on both sides of the smoke doors between rooms 101 and 208. The contractor shall provide system smoke detectors on both sides of the coiling shutter at the Greyhound ticket desk, rooms 101 and 201. These smoke detectors shall be provided with auxiliary contacts to interface with the door holders or coiling shutter control. Detection of smoke shall initiate both an alarm and closure of the doors or coiling shutter.
- T. Sheet T2.2, STRUCTURED CABLING PLAN: At south face of south partition at Security 102, height of data outlet for Clock is revised to 10'-2" as indicated on Elevation MY, Sheet DP5.2, DEMOUNTABLE PARTITIONS ELEVATIONS.

END OF ADDENDUM NO. 2

## VOLUME I

### DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS (Addendum No. 2)

Public Notice/Invitation for Bids

I. Instructions to Bidders

II. Terms and Conditions

Attachments: Bid Form

Federal Transit Administration (FTA) Required Clauses and Certifications)

Instructions to Bidders AIA A701 (Supplement to CAT's Instructions to Bidders)

Bid Bond AIA 310

Standard Form of Agreement Between Owner and Contractor AIA A101

General Conditions of the Contract for Construction AIA A201

Performance Bond and Payment Bonds AIA A312

Appendix A – Test Boring and Sub-Surface Investigation Report No. 4-19-11-1 by Whitaker Laboratory, Inc., with Two Addenda, dated April 25, 2011 and July 1, 2011

Section  
Number TITLE

### DIVISION 1 - GENERAL REQUIREMENTS

010000	General Requirements	
011000	Summary	5
012100	Allowances	2
012200	Unit Prices	3
012300	Alternates	2
012500	Substitution Procedures	3
012600	Contract Modification Procedures	3
012900	Payment Procedures	6
013100	Project Management and Coordination	11
013200	Construction Progress Documentation	10
013300	Submittal Procedures	11
014000	Quality Requirements	10
014100	Special Inspections and Structural	13
014200	References	14
015000	Temporary Facilities and Controls	10
016000	Product Requirements	5
017300	Execution	10
017419	Construction Waste Management and Disposal	9
017700	Closeout Procedures	5
017823	Operation and Maintenance Data	8
017839	Project Record Documents	5
017900	Demonstration and Training	5
018113.13	Sustainable Design Requirements Construction and Major Renovations	9
019113	General Commissioning Requirements	3

### DIVISION 02 - SITEWORK (Civil)

02100	Clearing (Civil) COS	5
02200	Earthwork (Civil) COS	6
02270	Erosion and Sedimentation Control (Civil) COS	8
02400	Storm Drainage (Civil) COS	10
02550	Water Distribution System (Civil) COS	36
02554	Wastewater Collection System (Civil) COS	19
02600	Pavement (Civil) COS	26
TABLE OF CONTENTS		1

## **DIVISION 02 - EXISTING CONDITIONS**

024113	Selective Site Demolition	3
024119	Selective Structure Demolition	8
026500	Underground Storage Tank Removal	12
028213	Asbestos Abatement	24

## **DIVISION 3 - CONCRETE**

03300	Cast-in-place Concrete (Civil) COS	13
030000	Concrete (Civil) Site	8
033000	Cast-in-place Concrete (Structural)	26
034500	Precast Architectural Concrete	15
035216	Lightweight Insulating Concrete Roof Deck (Addendum No. 2)	5

## **DIVISION 4 - MASONRY**

042000	Unit Masonry	14
--------	--------------	----

## **DIVISION 5 - METALS**

051200	Structural Steel Framing	11
053100	Steel Decking	7
054000	Cold-Formed Metal Framing	7
055000	Metal Fabrications	9
055133	Alternating Tread Steel Stairs	4
055213	Pipe and Tube Railings	7

## **DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES**

061053	Miscellaneous Rough Carpentry	5
061600	Sheathing	3
064023	Interior Architectural Woodwork	9

## **DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

071113	Bituminous Dampproofing	3
072100	Thermal Insulation	4
072700	Air Barriers	5
074200	Metal Wall Panels	6
074243	Solid Phenolic Wall Panels	4
074600	Siding	5
075419	Polyvinyl-Chloride (PVC) Roofing (Addendum No. 2)	9
076100	Sheet Metal Roofing	21
076200	Sheet Metal Flashing and Trim	8
077200	Roof Accessories	6
078413	Penetration Firestopping	5
078446	Fire-Resistive Joint Systems	5
079200	Joint Sealants	7

TABLE OF CONTENTS	2
-------------------	---

## **DIVISION 08 - OPENINGS**

081113	Hollow Metal Doors and Frames	7
081416	Flush Wood Doors	5
083113	Access Doors and Frames	3
083323	Overhead Coiling Doors	10
084113	Aluminum-framed Entrances and Storefronts	9
084513	Structured-Polycarbonate-Panel Assemblies	7
087100	Door Hardware	21
088000	Glazing	10

## **DIVISION 9 - FINISHES**

092216	Non-Structural Metal Framing	6
092400	Portland Cement Plastering	5
092900	Gypsum Board	8
093000	Tiling	10
095113	Acoustical Panel Ceilings	10
096513	Resilient Base and Accessories	5
096519	Resilient Tile Flooring	5
096623	Resinous Matrix Terrazzo Flooring	7
096624	Restoration of Cementitious Terrazzo Flooring	3
096813	Tile Carpeting	7
098413	Fixed Sound-Absorptive Panels	5
098713	Polished Concrete Floor Finish with Colored Dye	5
099113	Exterior Painting	6
099123	Interior Painting	8
099500	Interior Epoxy Coatings	5
099600	High-Performance Coatings	7

## **DIVISION 10 - SPECIALTIES**

101400	Signage (Addendum No. 2)	5
102113	Toilet Compartments	4
102213	Wire Mesh Partitions	7
102220	Demountable Partitions	13
102600	Wall Protection	6
102800	Toilet, Bath, and Building Accessories	7
104400	Fire Protection Specialties	6
105113	Metal Lockers	6
107326	Manufactured Walkway Covers	4
107500	Flagpoles	4

## **DIVISION 11 - EQUIPMENT**

113100	Residential Appliances	6
--------	------------------------	---

**DIVISION 12 - FURNISHINGS**

122113	Horizontal Louver Blinds	4
122200	Curtains and Drapes	4
122413	Roller Window Shades	6
129313	Bicycle Racks	2

**DIVISION 13 - SPECIAL CONSTRUCTION**

Not Used

**DIVISION 14 - CONVEYING EQUIPMENT**

Not Used

## VOLUME II

Section  
Number TITLE

### DIVISION 21 - FIRE SUPPRESSION

210517	Sleeves and Sleeve Seals for Fire-suppression Piping	3
210518	Escutcheons for Fire-suppression Piping	2
210548	Vibration and Seismic Controls for Fire-suppression Piping and Equipment	4
210553	Identification for Fire-suppression Piping and Equipment	3
211100	Facility Fire-suppression Water-service Piping	7
211313	Wet-pipe Sprinkler Systems	18

### DIVISION 22 - PLUMBING

220517	Sleeves and Sleeve Seals for Plumbing Piping	3
220518	Escutcheons for Plumbing Piping	2
220523	General-duty Valves for Plumbing Piping	14
220529	Hangers and Supports for Plumbing Piping and Equipment	8
220548	Vibration and Seismic Controls for Plumbing Piping and Equipment	6
220553	Identification for Plumbing Piping and Equipment	3
220719	Plumbing Piping Insulation	16
221116	Domestic Water Piping	11
221119	Domestic Water Piping Specialties	6
221316	Sanitary Waste and Vent Piping	10
221319	Sanitary Waste Piping Specialties	7
221413	Storm Drainage Piping	6
221423	Storm Drainage Piping Specialties	4
224223	Commercial Showers, Receptors, and Basins	4
224716	Pressure Water Coolers	3
224213.13	Commercial Water Closets	5
224213.16	Commercial Urinals	4
224216.13	Commercial Lavatories	6
224216.16	Commercial Sinks	7

### DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

230500	Common Work Results for HVAC	5
230513	Common Motor Requirements for HVAC Equipment	4
230519	Meters and Gages for HVAC Piping	7
230523	General-duty Valves for HVAC Piping	6
230529	Hangers and Supports for HVAC Piping and Equipment	7
230533	Heat Tracing for HVAC Piping	2
230548	Vibration and Seismic Controls for HVAC Piping and Equipment	3
230553	Identification for HVAC Piping and Equipment	3
230593	Testing, Adjusting, and Balancing for HVAC	4
230700	HVAC Insulation	9
230900	Instrumentation and Control for HVAC	9
230993	Sequence of Operations for HVAC Controls	4
232113	Hydronic Piping	4
232123	Hydronic Pumps	4

232300	Refrigerant Piping	3
232500	HVAC Water Treatment	3
233113	Metal Ducts	4
233300	Air Duct Accessories	5
233423	HVAC Power Ventilators	2
233600	Air Terminal Units	3
233713	Diffusers, Registers, and Grilles	4
233723	HVAC Gravity Ventilators	2
234100	Particulate Air Filtration	2
235213	Electric Boilers	3
236426	Rotary-screw or Scroll Air Cooled Water Chiller	3
237213	Air to Energy Recovery Equipment	4
237313	Modular Indoor Central-station Air-handling Unit	10
238126	Split System Units-Ductless Air Conditioners	3
238219	Fan Coil Units	2
238239	Unit Heaters	2

## **DIVISION 26 - ELECTRICAL**

260500	Basic Electrical Requirements	7
260519	Wires and Cables	4
260526	Secondary Grounding	4
260529	Supporting Devices	4
260533	Raceways	7
260533.01	Boxes	5
260533.02	Electrical Connections for Equipment	5
260553	Electrical Identification	5
260573	Short-Circuit/Coordination Study/Arc Flash hazard Analysis	6
260690	Photovoltaic System	13
260923	Lighting Control Equipment	5
262416	Panelboards	5
262726	Wiring Devices	2
262816	Circuit and Motor Disconnects	4
262913	Motor Controllers	3
265100	Interior Lighting Fixtures	3
265100.01	Emergency Lighting Fixtures	3
265100.02	Lamps	2
265100.03	Security and Vandal-resistant Fixtures	2
265100.04	Ballasts	2
265600	Exterior Lighting	17
265600.01	Building-Mounted Exterior Lighting Fixtures	2

## **DIVISION 27 - COMMUNICATIONS**

271000	Structured Cabling System	10
--------	---------------------------	----

## **DIVISION 28 - ELECTRONIC SAFETY AND SECURITY**

283111.01	Digital, Addressable Fire-alarm System	9
-----------	--	---



**DIVISION 31 - EARTHWORK**

310000	Earthwork	4
311000	Site Clearing	4
312500GA	Erosion and Sedimentation Controls (GA)	59
313116	Termite Control	3
313700	Rip-Rap	3
316329	Drilled Concrete Piers and Shafts	10

**DIVISION 32 - EXTERIOR IMPROVEMENTS**

321123	Aggregate Base Courses	3
321216GA	Asphalt Paving (GA)	4
321443	Porous Unit Paving	6
321723	Pavement Markings	3
323113	Chain Link Fences and Gates	5
323119	Decorative Metal Fences and Gates	5
329300	Planting	3

**DIVISION 33 - UTILITIES**

334000	Storm Drainage Utilities	11
--------	--------------------------	----

**INVITATION FOR BID 2012-01**

To: OWNER \_\_\_\_\_  
\_\_\_\_\_

Re: Chatham Area Transit Authority (CAT) Downtown Intermodal Transit Center

**THE BID**

- A. Base Bid:** Having carefully examined the Bidding Documents describing PROJECT NO. 2012-01, CAT Downtown Intermodal Transit Center and Addendum(a) No.(s) \_\_\_\_\_, as well as the site and conditions affecting the Work, bidder hereby proposes to furnish all services, labor, materials, and equipment called for by them for the entire Work, in accordance with the aforesaid documents, for the sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

Which sum is hereinafter called the Base Bid Amount.

- B. Unit Costs:** All Unit Prices (Section 012200) as totaled at Column C on attached Schedule of Unit Prices

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

- C. The SUM of A and B Above:**

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Which is hereinafter called the Bid Amount**

- D. Alternates:** We further propose that, should any of the following alternates be accepted and be incorporated in the Contract, the Bid will be altered in each case as follows:

Alternate No. 1:

Photovoltaic System.

1. Alternate: Add to project scope all materials and work associated with installation of the Roof-Mounted Photovoltaic System as indicated on the Drawings and as specified in Project Manual Section 26 06 90 "Photovoltaic System."

Add the sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Errors or Revisions:** Prior to the bid opening date and hour, errors may be stricken or revisions may be made and corrections entered on this proposal form or on the bid envelope with sufficient clarity to be easily understood. All such annotations shall be made by the authorized representative of the bidder and identified as such. These annotations shall be binding on the bidder.

**No Withdrawal:** The bidder and Owner agree that this bid may not be revoked or withdrawn after the time set for the opening of bids, except as provided in Georgia law, but is an irrevocable offer that shall remain open for acceptance for a period of Ninety (90) days following the time set for the opening of bids.

**Execution of the Contract:** If bidder is notified in writing by statutory mail of the acceptance of this bid within Ninety (90) days after time set for the opening of bids, bidder agrees to execute within twenty-one days the Contract for the Work for the above stated Bid, as adjusted by the accepted Alternates, and at the same time to furnish and deliver to the Owner a Performance Bond and a Payment Bond on forms shown in the General Conditions of the Contract, both in an amount of equal to 100 percent of the Contract Sum.

**Commencement and Completion of Work:** Upon the Effective Date of the Contract, bidder agrees to commence all Preconstruction Activities. Within ten days of the date specified in the Proceed Order, bidder agrees to commence physical activities on the Site with adequate forces and equipment and to complete all work within Eighteen Months (550 days) of the date specified in the Proceed Order.

**Bid Bond:** Enclosed herewith is a Bid Bond (*NO OTHER FORM ACCEPTABLE*) in the amount of

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (being not less than five percent of the Bid). Bidder agrees that the above stated amount is the proper measure of liquidated damages that the Owner will sustain by bidder's failure to execute the Contract or to furnish the Performance and Payment Bonds should bidder's bid be accepted.

**Obligation of Bid Bond:** If this bid is accepted within Ninety (90) days after the date set for the opening of bids and bidder fails to execute the Contract within twenty-one days after Notice of Successful Bid, or if bidder fails to furnish both Performance and Payment Bonds, the obligation of the Bid Bond will remain in full force and effect and the money payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure; otherwise, the obligations of the Bid Bond will be null and void.

[CONTINUED ON FOLLOWING PAGE]

# Bidder Certification

## Certification under Oath:

OCGA Section 36-91-21

(d) Whenever a public works construction contract for any governmental entity subject to the requirements of this chapter is to be let out by competitive sealed bid or proposal, no person, by himself or herself or otherwise, shall prevent or attempt to prevent competition in such bidding or proposals by any means whatever. No person who desires to procure such work for himself or herself or for another shall prevent or endeavor to prevent anyone from making a bid or proposal therefore by any means whatever, nor shall such person so desiring the work cause or induce another to withdraw a bid or proposal for the work.

(e) Before commencing the work, any person who procures such public work by bidding or proposal shall make an oath in writing that he or she has not directly or indirectly violated subsection (d) of this Code section. The oath shall be filed by the officer whose duty it is to make the payment. If the contractor is a partnership, all of the partners and any officer, agent, or other person who may have represented or acted for them in bidding for or procuring the contract shall also make the oath. If the contractor is a corporation, all officers, agents, or other persons who may have acted for or represented the corporation in bidding for or procuring the contract shall make the oath. If such oath is false, the contract shall be void, and all sums paid by the governmental entity on the contract may be recovered by appropriate action.

## STATE OF GEORGIA

COUNTY OF \_\_\_\_\_

I do solemnly swear on my oath that, as to the Contract dated \_\_\_\_\_, 20\_\_\_\_,

between \_\_\_\_\_ and Chatham Area Transit Authority (CAT), Chatham County, Georgia, I have not directly or indirectly influenced or the attempted exertion of any influence on behalf of the firm on behalf of which this affidavit is made, in any way, manner, or form in the purchase of materials, equipment, or other items involved in construction, manufacture, or employment of labor under the aforesaid Contract by or on any employee, officer, or agent of the Board, or any person connected with CAT or Chatham County in any way whatsoever and I have not directly or indirectly violated subsection (d) of OCGA 36-91-21.

BY: \_\_\_\_\_  
*Authorized Signature (BLUE INK PLEASE)*

\_\_\_\_\_  
 Printed Name Title

Sworn to and subscribed before me this \_\_\_\_ Day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
 Notary Public

My commission expires: \_\_\_\_\_

(SEAL)

**NOTE: THE NOTARY SEAL MUST BE APPLIED UNDER GEORGIA LAW, WHETHER OR NOT THE LAW OF THE STATE WHERE EXECUTED PERMITS OTHERWISE.**

## SCHEDULE OF UNIT PRICES

	COL. A	COL. B	COL. C
Unit Price No. 1: Unsatisfactory soil excavation and disposal off site and replacement with satisfactory fill material or engineered fill from offsite (31 00 00)	250 CY	\$ _____ per CY	\$ _____ ("A" x "B")
Unit Price No. 2: Unsatisfactory soil excavation and disposal off site and replacement with #57 stone from offsite (31 00 00)	250 CY	\$ _____ per CY	\$ _____ ("A" x "B")
Unit Price No. 3: Cutting of new or existing concrete floor slabs up to 6 inches thick, removal and excavation as required, and subsequent backfill, compaction, and patching of concrete not otherwise indicated	150 SF	\$ _____ per SF	\$ _____ ("A" x "B")
Unit Price No. 4: In the event that asbestos containing materials are detected in the existing roofing materials to be removed, provide for the additional cost per SF for abatement and disposal measures (02 82 13)	15,000 SF	\$ _____ per SF	\$ _____ ("A" x "B")
Unit Price No. 5: Credit for re-using existing storm line serving existing roof drains at terminal building in place of installing new storm lines (P1.01)	_____ LF (Refer to P1.01)	\$ _____ per LF	\$ _____ ("A" x "B")
Unit Price No. 6: Additional uplift piling (316329)	200 LF	\$ _____ per LF	\$ _____ ("A" x "B")
Unit Price No. 7: Additional Fire Alarm System Audible and Visual Signal Devices as advised by the Authority Having Jurisdiction (283111.01)	5 EA	\$ _____ per EA	\$ _____ ("A" x "B")
TOTAL OF UNIT PRICES			\$ _____



## Test Boring and Sub-Surface Investigation

PROJECT: CAT Downtown Intermodal Transit Center  
Savannah, GA

CLIENT: Cogdell and Mendrala Architects

REPORT No. : 4-19-11-1

### **Whitaker Laboratory, Inc.**

2500 Tremont Road  
Savannah, Georgia 31405  
Phone (912) 234-0696  
[www.whitakerlab.net](http://www.whitakerlab.net)



## WHITAKER LABORATORY, INC.

P.O. Box 7078 2500 Tremont Road Savannah, Georgia 31405  
(912) 234-0696 Fax (912) 233-5061 Email: [info@whitakerlab.net](mailto:info@whitakerlab.net)

April 19, 2011

Cogdell & Mendrala Architects  
517 East Congress Street  
Savannah, Georgia 31401

Attention: Mrs. Barbara Cogdell, AIA  
[barbara@cogdellmendrala.com](mailto:barbara@cogdellmendrala.com)

Referencing: Report of Geotechnical Evaluation  
CAT Downtown Intermodal Transit Center Station – Additions/Improvements  
Savannah, Georgia  
Report No.: 4-19-11-1

Dear Mrs. Cogdell:

As requested, Whitaker Laboratory, Inc. has conducted a geotechnical investigation for the above referenced project. Authorization to perform this investigation was provided by your acceptance of our proposal dated March 8, 2011. Our findings and recommendations for design and construction are attached and it is important that you read the report in its entirety.

It is a pleasure to continue service to you and we look forward to further opportunities to assist you on this and other projects.

Respectfully submitted,  
WHITAKER LABORATORY, INC.

Carroll L. Crowther, PE  
GA Registered Engineer  
# 15017

Joseph M. Whitaker  
President

Jason H. Follo, P.E.  
GA Registered Engineer  
#31031

511044rpt

## TABLE OF CONTENTS

- I. INTRODUCTION
- II. AREA AND SITE GEOLOGY
- III. TEST BORINGS AND SUBSURFACE CONDITIONS
- IV. GROUND WATER TABLE
- V. SEISMIC SITE CLASSIFICATION AND RECOMMENDED DESIGN COEFFICIENTS
- VI. EARTHWORK AND FOUNDATION DESIGN CONSIDERATIONS
- VII. SITE WORK RECOMMENDATIONS
- VIII. PAVEMENT DESIGN CONSIDERATIONS
- IX. QUALITY CONTROL AND TESTING
- X. QUALIFICATIONS OF REPORT

## APPENDICES

- APPENDIX I SITE & BORING LOCATION PLANS
- APPENDIX II BORING RECORDS
- APPENDIX III SEISMIC SPECTRAL PARAMETERS
- APPENDIX IV IMPORTANT GENERAL NOTES



**REPORT OF GEOTECHNICAL INVESTIGATION**  
**CAT Downtown Intermodal Transit Center Station – Additions/Improvements**  
**Savannah, Georgia**

**INTRODUCTION**

At any time, we will be glad to discuss the contents of this report. This includes insuring that you fully consider potential problems for design and construction procedures in respect to interpretations of the data.

WHITAKER LABORATORY, INC. has completed this field investigation of the surface and subsurface conditions at this site. The preliminary conditions found, and how those conditions could affect the design and construction of foundations for the structures planned, form the basis for this report. Regardless of the thoroughness of any geotechnical investigation, there are limitations, and deviations from the conditions found in this investigation could be subsequently disclosed. We recommend that this report be provided to all parties involved in the planned development to include but not necessarily limited to the Owner, Architect, Design Engineers, General Contractor and sub-contractors. Unanticipated circumstances often arise during sitework, earthwork and foundation construction. Accordingly, we recommend that our firm be retained to provide the construction surveillance, inspection, and testing on the project, thereby being readily available to assist in the evaluation of any conditions encountered that differ from those anticipated.

We understand a new canopy structure and associated pavement improvements are planned for construction on this site. At this time, we have not been provided with anticipated foundation loads or site grading requirements for the planned construction. For the purpose of this report we will assume that column foundation loads for the canopy structure will not exceed 75 kips per column. We are also assuming finished site grades will approximate existing grades ( $\pm 2$  feet). If our assumptions are incorrect, we should be contacted immediately, provided the correct information and allowed an opportunity to change and/or modify the recommendations contained within this report if necessary. The scope of this investigation included a visual reconnaissance, the drilling of seven standard penetration test borings and the collection of two concrete cores.

Please note that this evaluation only applies to the foundations and pavements planned for construction. This evaluation does not apply to any future improvements, which may be made to the site. In particular, if at any time should additional fill be placed, adjacent to or nearby the structures referenced in this report, additional geotechnical borings and a follow up geotechnical analysis will be required. Standard billing rates will apply for this work.

## **AREA GEOLOGY**

This project is located in Savannah, Georgia. This overall project area lies near the eastern edge of the South Atlantic Coastal Plain. In South Carolina and Georgia, this broad, gently sloping region extends southeastward from the Fall Line (Chesterfield - Columbia - Augusta - Macon - Columbus) to the Atlantic Ocean. The soils encountered are sedimentary in origin, and consist of layered marine deposits of sands, silts, and clays. These deposits have since been subjected to successive erosion and re-deposition, by fluctuations of sea levels, storm tides, and winds. Many of the surface sands are the result of depositional forces along ancient beaches, which formed during the changing shoreline and river conditions. Intermittent deposits of shells occur within the strata at irregular intervals. The surface soils in a majority of this Coastal Plain area were deposited during the Pleistocene Era, however surface soils near the coast are likely of the Holocene Era.

## **TEST BORINGS AND SUBSURFACE CONDITIONS**

The field exploration to determine the characteristics of the subsurface materials included a reconnaissance of the project site, and the drilling of exploratory borings. Standard penetration test borings were performed using rotary head drilling equipment and advancing hollow stem augers. Sampling and Standard Penetration Testing, (SPT), was performed in accordance with ASTM-D-1586. SPT samples were taken at 2.5-foot intervals of depth for the first 10 feet, and at 5.0-foot intervals thereafter. Standard Penetration testing is done with a 140-pound hammer falling 30-inches and a 2-inch diameter-sampling spoon. Results of the Standard Penetration Testing (SPT N values) provide an indication of the relative consistency, density and in-situ strengths of the tested soils.

Soil samples from SPT testing and from the auger cuttings have been used for identification and visual classification. The subsurface stratification and the profile as presented in the boring logs, represent approximate boundary lines between the strata and materials encountered. These boundary lines are usually gradual and not clearly defined, and it is sometimes difficult to record changes in stratification precisely. It should be noted that underlying soil conditions, can, and do, vary considerably within short lateral distances. It is possible that conditions may be revealed between boring locations that are different from those found by our borings and used for our analysis.

The approximate locations of the borings are shown on the attached BORING LOCATION PLAN. Our drilling crews based on landmarks and features available at the time of drilling have estimated the locations of the borings in the field. If the precise location of the boreholes is critical, this can be determined by employing a land-surveying firm to plot the true locations. Such survey should be completed promptly and before any disturbance to the area has occurred. If desired, WHITAKER LABORATORY, INC. will be glad to coordinate surveying arrangements for an additional fee.

At the time of our site visit, the site contained an existing building and associated pavements. Ground surface topography sloped gradually downward across the site from east to west. Boring locations were accessible to our truck-mounted drilling equipment. Soil test borings were advanced within the planned canopy addition and pavement improvement areas to depths ranging from 10 to 40 feet below the ground surface. All borings were advanced within existing asphalt pavement areas.

Existing asphalt pavement sections consisted of asphalt pavement ranging in thickness from 2 ½ to 4 inches with associated base stone ranging in thickness from 4 to 7 inches. Concrete cores identified the existing concrete patch areas to contain 6 ¼ (C-2) to 8 ¾ (C-1) inches of concrete. Please note a steel reinforcement mat (#5 rebar mat) was encountered toward the bottom of core C-2.

Below existing pavement materials, the subsurface profile predominately consists of loose to very firm sands and silty sands (SP, SP-SM and SM) extending to the termination depth of the deepest soil test boring performed for this evaluation at 40 feet below the ground surface. Relatively thin layers/seams of firm clay (CL and CH) were intermittently encountered at depths approximating 10 and 30 feet below the ground surface.

Please note that a concrete obstruction was encountered at a depth of 3 ½ feet below the ground surface within the area of boring B-5. This boring was off-set multiple times within the area and could not be advanced past 3 ½ feet due to the presence of concrete materials at this depth.

The above description of the subsurface profile should be considered a general description intended to highlight the major strata encountered. More detailed profiles can be observed within the attached boring logs. Please note that boring logs are only representative of their location. Stratification transitions should be expected to occur outside and between boring locations. Taking into account that sampling was not performed on a continuous basis, lines drawn representing elevations of stratification changes shown on the boring logs were estimated.

## **GROUNDWATER TABLE**

The apparent groundwater table was measured at each boring location at the time of boring. Groundwater was measured to range from 6 ½ to 11 ½ feet below the ground surface with the shallower groundwater levels encountered on the lower west side of the site. The ground water elevation can be expected to fluctuate with the season of the year, surrounding ground surface conditions, and with recent rainfall amounts. Thus, groundwater elevations shown on the boring logs should be considered valid only for the date of observation.

WHITAKER LABORATORY, INC. recommends that the contractor determine a groundwater level just prior to site work begins. We have addressed groundwater concerns within the earthwork and foundation design considerations section of this report.

## **SEISMIC SITE CLASSIFICATION AND RECOMMENDED DESIGN COEFFICIENTS**

### Liquefaction Potential:

Whitaker Laboratory, Inc. performed a liquefaction analysis on the soils encountered within soil test boring B-2. Liquefaction typically occurs when very loose to loose non-cohesive soils encountered below the groundwater table experience a significant loss of shear strength due to the increase in porewater pressure resulting from seismic vibrations.

The design earthquake utilized in our analysis (Charleston, SC earthquake with magnitude 7.3 and a 2% probability of exceedance in 50 years) yielded peak horizontal ground surface accelerations of 0.159g on this site. Based upon the design earthquake and characteristics of subsurface soils within soil test boring B-2, the liquefaction analysis indicated that the encountered sand stratifications present below the groundwater table do not have potential to liquefy during the design seismic event.

### Seismic Parameters:

In accordance with International Building Code 2006 (IBC 2006), this site would be defined as a Site Class "D". The classification is determined by average soil properties in the top 100 feet of the soil profile, including standard penetration test N values, shear wave velocities, in-situ shear strengths and moisture contents, as specified by IBC 2006. Both short and long period, Mapped Spectral Response Accelerations have been determined.

0.2 Sec. Period Mapped Response Acceleration

$$S_s = 0.404$$

1.0 Sec. Period Mapped Response Acceleration

$$S_1 = 0.122$$

The long and short period site coefficients,  $F_a$  and  $F_v$ , have been calculated for this site, utilizing mapped spectral response accelerations shown above, the procedures established by The U. S. Geological Survey (USGS) and The Federal Emergency Management Agency (FEMA), and software from the National Seismic Hazard Mapping Project.

0.2 Sec. Period Site Coefficient

$$F_a = 1.477$$

1.0 Sec. Period Site Coefficient

$$F_v = 2.311$$

Design spectral response acceleration parameters  $S_{DS}$  and  $S_{D1}$ , are then determined by multiplying  $S_{MS}$  and  $S_{M1}$  by 2/3rds.

$$S_{MS} = 0.597 \text{ and } S_{DS} = 0.398$$

and

$$S_{M1} = 0.283 \text{ and } S_{D1} = 0.189$$

The design ground motion spectra is attached in the Appendix. If the size and design of this structure justifies additional investigation, a Site Specific Geotechnical Investigation and dynamic site response analysis should be performed. Our firm has the ability to provide our clients such testing and evaluation, and we will be available to discuss the cost, and potential benefit, if any, of such if you desire.

## **EARTHWORK AND FOUNDATION DESIGN CONSIDERATIONS**

The subject site can be made suitable for construction of the planned canopy structures, utilizing shallow spread footing foundations if our site grading and foundation loading assumptions are accurate and when site preparation and foundation design are in accordance with the recommendations of this report.

- We recommend that all structural areas be stripped of any existing pavement sections, organics, stumps, roots, buried concrete (old pavement or footings) and unsuitable surface soils.
- Test pits should be performed within the area of boring B-5 in an effort to determine the nature of the concrete obstruction encountered. If void space is present (potential concrete rubble, abandon utility lines, buried tanks etc.) the voids should be filled with grout or the materials removed and replaced with compacted sandy soil.
- After stripping, the exposed subgrade soils should be thoroughly compacted in-place to 95% of ASTM-D-1557 and pass proof-rolling inspections prior to filling operations begin. Areas found to pump or deflect should be undercut to a competent material and backfilled with an approved compacted material. The exposed subgrade soils should be inspected, tested and approved by Whitaker Laboratory personnel prior to fill placement begins. Particular attention should be given to backfill residing over existing or new utility lines and all areas surrounding existing or new buried tanks.
- Fill material required to replace the stripped areas and to raise the pad area to achieve finished subgrade elevations, should consist of granular soils and meet the requirements for material type and placement as outlined with the SITE WORK RECOMMENDATIONS section of this report.

- Bottom of footing excavations should be thoroughly compacted to meet or exceed 95% of the soils modified proctor maximum dry density in accordance with ASTM-D-1557. Footing inspections should also be conducted by performing dynamic cone penetrometer testing within hand auger holes to verify adequate bearing material is present. Subsurface bearing soils deemed unsuitable based upon dynamic cone penetrometer testing should be undercut to a competent material and backfilled with an approved material. Please note that loose sandy soils were intermittently encountered at possible bearing elevations. Undercutting and re-compaction of these loose near surface sands may be required below footings.
- Groundwater was encountered as shallow as 6 ½ feet below the ground surface on the western side of this site. Deep excavations (excavations extending 4 ½ feet or more below existing grades) may require dewatering to be performed. Typically the groundwater level needs to be 24 inches below subgrade elevations to properly compact the subgrade and subsequent backfill materials. Although dewatering techniques consisting of well point systems, sump pits with pumps, and/or drainage ditches are typically effective methods to lower groundwater, the means and methods for dewatering should ultimately be the responsibility of the contractor.

If the above mentioned recommendations are followed and verified by Whitaker Laboratory personnel during construction, individual spread footings or strip footings could be designed to bear in compacted and approved virgin soils or coarse grained structural backfill, as outlined above and soil bearing pressures of 1500 psf may be used. Overall and differential settlements are anticipated to be one inch and one half inch respectively or less. Any individual or strip footing should have a minimum plan dimension of 24 inches. Bearing elevations of foundations should be at least 12 inches below grade and above the groundwater table.

Lateral loads can be resisted by passive earth pressure due to compacted structural fill placed against the sides of the footings. The upper 1-foot of resistance should be neglected unless the fill is confined by a pavement or floor slab. A soil unit weight of 110 pcf and passive earth pressure coefficient of 3.0 can be utilized in the analysis. Additionally, a friction coefficient of 0.35 between the concrete footings and underlying soil can be used in combination with passive earth pressures to resist lateral loads. The coefficient of friction should be applied to dead normal loads only.

#### Up-Lift Forces:

We understand that the design will require resisting significant up-lift forces. For additional up-lift resistance, helical piers could be utilized in conjunction with shallow spread footing foundation elements. Helical piers designed for working up-lift loads approximating 10 to 15 kips per anchor should be anticipated to extend 20 to 25 feet below the ground surface. Please note that piers may require extending deeper than 25 feet to achieve the required torque, especially within the vicinity of boring B-2. Helical pier type foundations are designed, installed and warranted by specialty contractors. A specialty contractor should be contacted to ultimately determine the design criteria (capacity, depth & pile specifications) and perform the installation. We will be pleased to recommend contractors in the area if you desire.

Whitaker Laboratory recommends a field up-lift load test be included in this work. Whitaker Laboratory engineers should be present during the installation of the load test pier and anchors, during the load test, and during the installation of production anchors to be sure design considerations are being achieved.

#### Retaining Walls:

Whitaker Laboratory has to offer the following design parameters for use in your design of above or below grade retaining walls on site. Please note that we are assuming that fill material will consist of compacted soils classified as (SP-SM or SM). The below parameters are valid for a depth of 8 feet below the ground surface.

Stratum	Depth (ft)	Unit Weight (pcf)	Earth Pressure Active (Ka)	Earth Pressure Passive (Kp)
SP and SP-SM	0-8	115	0.33	3.0

Note: Effective, or buoyant unit weights should be used for soils below the groundwater table plus hydrostatic pressure. Earth pressure coefficients are based on Log-Spiral (Caquot-Keriesl) failure surface. Kp has been corrected for minimal wall friction. Whitaker Laboratory recommends that the design incorporate drainage behind the wall.

### **SITE WORK RECOMMENDATIONS**

We will be pleased to discuss these recommendations with the owner and the site work contractor selected to do the work. We believe it will be beneficial to the project, for the owner and the contractor to have a clear understanding of our recommendations.

1. Prior to construction, all building areas, plus at least 10 feet on each side and all areas to be paved, should be stripped of all vegetation, topsoil and root systems. Site drainage during construction should be considered prior to this clearing and stripping. Preventing the ponding of storm water is of particular importance.
2. Topsoil, organics, root-mat and other surface materials will likely vary across the site. Individual test borings may not accurately reflect the presence of, or the thickness of such materials due to site variability and/or surfacing clearing to facilitate access for drilling equipment. Site clearing and grubbing, when unsupervised, and particularly in areas of wet soils and times of wet weather, may push organic debris into otherwise stable soils. Undercutting and clearing with a track hoe in lieu of bulldozers can minimize this.
3. Any stump holes or other depressions should be cleared of loose material and debris, and should then be back-filled with approved fill. The backfill should be placed in 6-inch thick lifts and compacted to 95% density in accordance with ASTM D-1557.

4. Any existing utilities that underlie the site should be relocated and their trenches back-filled with approved soil. The backfill should be placed in 6-inch lifts and compacted to 95% density according to ASTM D-1557.
5. Prior to fill placement, the subgrade should be proof rolled with a loaded dump truck to locate unstable or soft areas. Any unstable areas should then be investigated to determine the cause of the instability. If due to unsuitable soils, such as highly organic soils or soft clays, the areas should be undercut to firm soil and replaced with approved fill compacted in 6-inch lifts to minimum density of 95% in accordance with ASTM D-1557. If the instability is due to excess moisture in otherwise stable soil, the area should be drained and compacted to 95% density.
6. Any fill or backfill required to level or raise the site should be placed in 8 to 10 inch thick, loose lifts and compacted by appropriate compaction equipment to 95% density in accordance with ASTM D-1557.
7. All of the fill and backfill (including utility line backfill) for this project should consist of clean, free draining granular soils. The fill should be free of objectionable roots, clay lumps, organics and other debris. The fill should be readily compactable during placement. Soils classified as SW, SP, SP-SM or SM with a maximum of 15% passing a #200 sieve may be acceptable. Soils with the minus #200 fraction classified as MH, CH, OH, ML, CL or SC may be rejected. Soils with a maximum plasticity index of 25 and a maximum liquid limit 40 may be acceptable for use only beneath building pads which are situated well above the groundwater table with approval from the geotechnical engineer. Soils classified as SC or CL, exhibiting moisture sensitivity, soils with excessive clay content, or excessive moisture should not be used without approval from the geotechnical engineer. Approved sands will also need to be moisture conditioned as necessary to facilitate proper compaction throughout its entire depth. If utility trenches cannot be sufficiently dewatered to readily allow compaction of the specified pipe bedding material, then a class I (ASTM-D-2321) gravel or gravel mixture will be required.
8. To assist in reducing moisture beneath the structure, and to reduce the potential for mold growth, the site shall be graded and filled as necessary to direct drainage away from the structure. If sub drains are installed, these alone may not prevent moisture vapor beneath the structure that can cause mold growth. (Also refer to paragraph 10 below). Care must be taken to not place concrete on top of wet soils. For example, if fill or natural soils experience heavy rain, the soils should be properly drained and dried, prior to placement of concrete. Otherwise moisture migration through the slab will occur.



9. Compact all footing excavations and slab subgrades to a minimum density of 95% in accordance with ASTM-D-1557, prior to placement on concrete. The footing excavations, and all prepared slab subgrade, should be maintained in a dry and compacted condition until the concrete is placed. Areas that are softened by water or that are disturbed by construction activity should be re-worked, re-compacted, or appropriately repaired to the required bearing and density. If necessary, stone backfill or other corrective measures may be implemented to stabilize footings.
10. All slabs-on-grade should be supported on a minimum of 4-inches of granular, free-draining gravel or coarse sand (maximum 5% passing the #200 Sieve) to reduce moisture migration by capillarity. A vapor retarding membrane, overlying this granular base, is recommended to further reduce moisture migration into finished areas of the structure. Note that the use of these measures will not totally prevent moisture under or on top of slabs or beneath structures. (Also refer to paragraph 8 above).
11. Any footing excavations that are directly adjacent to the existing foundations should be done in small increments to avoid undermining them and causing a loss of support to the existing structure. If necessary, the excavations should be sheeted and braced or grouting should stabilize the soil in the immediate area.

### **PAVEMENT DESIGN RECOMMENDATIONS**

Subgrade for driveways and parking areas should consist of a minimum of 24-inches of clean sand subgrade compacted to a density of 95% of its maximum dry density as determined by ASTM-D-1557. Pavement designs should also provide a minimum of 24-inches separation between the bottom of the base course material and the seasonal high ground water table. Undercutting, re-compacting, and/or replacing of existing surface soils will be required unless subgrade consists of organic free, virgin sandy soils that are proven to be a minimum of 24-inches thick, 24-inches above the seasonal high ground water table, compacted to 95% of ASTM D-1557 and passes a proof-roll. Final grades and elevations will determine the extent of any filling, undercutting and backfilling that may be required.

Due to near surface soils consisting of sands on this site combined with the depth to groundwater, Whitaker Laboratory does not foresee the need to install under drains below pavements. In addition, as long as the exposed sandy subgrade soils are compacted for a full depth of 24-inches below bottom of pavement section elevations, undercutting is not expected to be required within pavement areas.

All proof rolling, construction observations, compaction testing of paved areas must be in accordance with the SITE WORK section above.

If a rain event of 0.5 inches or more, occurs after initial proof rolling and prior to subsequent placement of base or surface wearing course, the proof roll testing must be repeated just prior to additional work.

#### LIGHT DUTY PAVEMENT (CARS & LIGHT TRUCKS)

SUBGRADE: Minimum – 24-inches of drained, compacted, coarse grained soil

BASE COURSE: 6-inches of Graded Aggregate Construction

SURFACE COURSE: 2-inches of 12.5 mm Superpave

#### HEAVY DUTY PAVEMENT (LOADED TRUCKS WITH 18+ kip AXLE LOADS)

SUBGRADE: Minimum – 24 inches of drained, compacted, coarse grained soil

BASE COURSE: 8-inches of Graded Aggregate Construction

INTERMEDIATE COURSE: 2-inches of 19 mm Superpave

SURFACE COURSE: 1.5-inches of 9.5 mm Type II Superpave, or  
1.5-inches of 12.5 mm Superpave

In all projects, a minimum mat temperature of 185° F must be maintained through final roller pass.

*Please note that specifications for the above mentioned base course and surface course can be found under Sections 310, 400, 815 and 828 of the Georgia Department of Transportation State of Georgia Standard Specifications Construction of Transportation Systems, 2001 Edition. The mix design must include "lime".*

#### PORTLAND CEMENT CONCRETE PAVEMENT

HEAVY DUTY: 8-inches of Portland cement concrete with minimum compressive strength of 4000 PSI.

LIGHT DUTY: 5-inches of Portland cement concrete with minimum compressive strength of 4000 PSI.

Whitaker Laboratory recommends incorporating a minimum of 4-inches of graded aggregate base course below the above concrete pavement sections for maintaining a smooth and level surface during placement of the pavement section.

Joints must be placed a MAXIMUM spacing in FEET of 2.5 times the pavement thickness in inches, and in no case more distant apart than 15 feet.

## QUALITY CONTROL AND TESTING

Documented inspections and/or testing performed by Whitaker Laboratory personnel, at the following critical milestones during construction, will be required for the recommendations contained within this report to be validated:

- After stripping/demo, and prior to backfill and/or fill placement: Perform density testing and proofrolling on exposed subgrade soil.
- Collect sample of proposed backfill and/or fill material, perform laboratory testing and determine suitability for use (approve or disapprove).
- During backfill and fill placement: Perform density testing on each lift of backfill and/or fill soil.
- Once footings are excavated: Perform footing inspections within open footing excavations prior to placement of reinforcing steel or concrete. Provide recommendations for undercutting and backfilling if deemed necessary to achieve 1500 psf bearing pressures.
- *Helical Piers*: Observe up-lift load test and installation of production augers if helical piers are utilized in the design.

At the appropriate time, please contact Whitaker Laboratory, Inc. for budgetary and scheduling purposes for the performance of the above required inspection and testing services.

We further offer concrete, asphalt, masonry, and structural steel inspections and testing. Whitaker Laboratory, Inc. also performs observational services for mold mitigation, including observation of installation of vapor retarding membranes, subdrains, overall site drainage, and regularly scheduled observations after construction of site and landscape drainage, and monitoring of humidity and moisture in slabs and basement walls.

## QUALIFICATIONS OF REPORT

Any recommendations or opinions offered in this report are based on our interpretation of the data obtained from this investigation. It should be noted that underlying subsurface and soil conditions can, and do, vary considerably within short lateral distances. Regardless of the thoroughness of any subsurface investigation, it is possible that conditions may be revealed between boring locations that are different from those found by our borings and used for our analysis. For this reason, we recommend that the site preparation and foundation construction for this project be monitored closely. If deviations of the soil conditions from those presented in this report appear, we will be glad to furnish any additional analyses and recommendations that may be required.

This report was made to investigate subsurface properties of the site and is not intended to serve as a wetlands survey, toxic mold assessment, or environmental site assessment. No effort has been made to define, delineate, or designate any area as wetlands or an area of environmental concern or contamination. Any references to low areas, poorly drained areas, etc. are related to geotechnical applications. Any recommendations regarding drainage and earthwork are made on the basis that such work can be permitted and performed in accordance with the current laws pertaining to wetlands, storm water runoff, and environmental contamination.

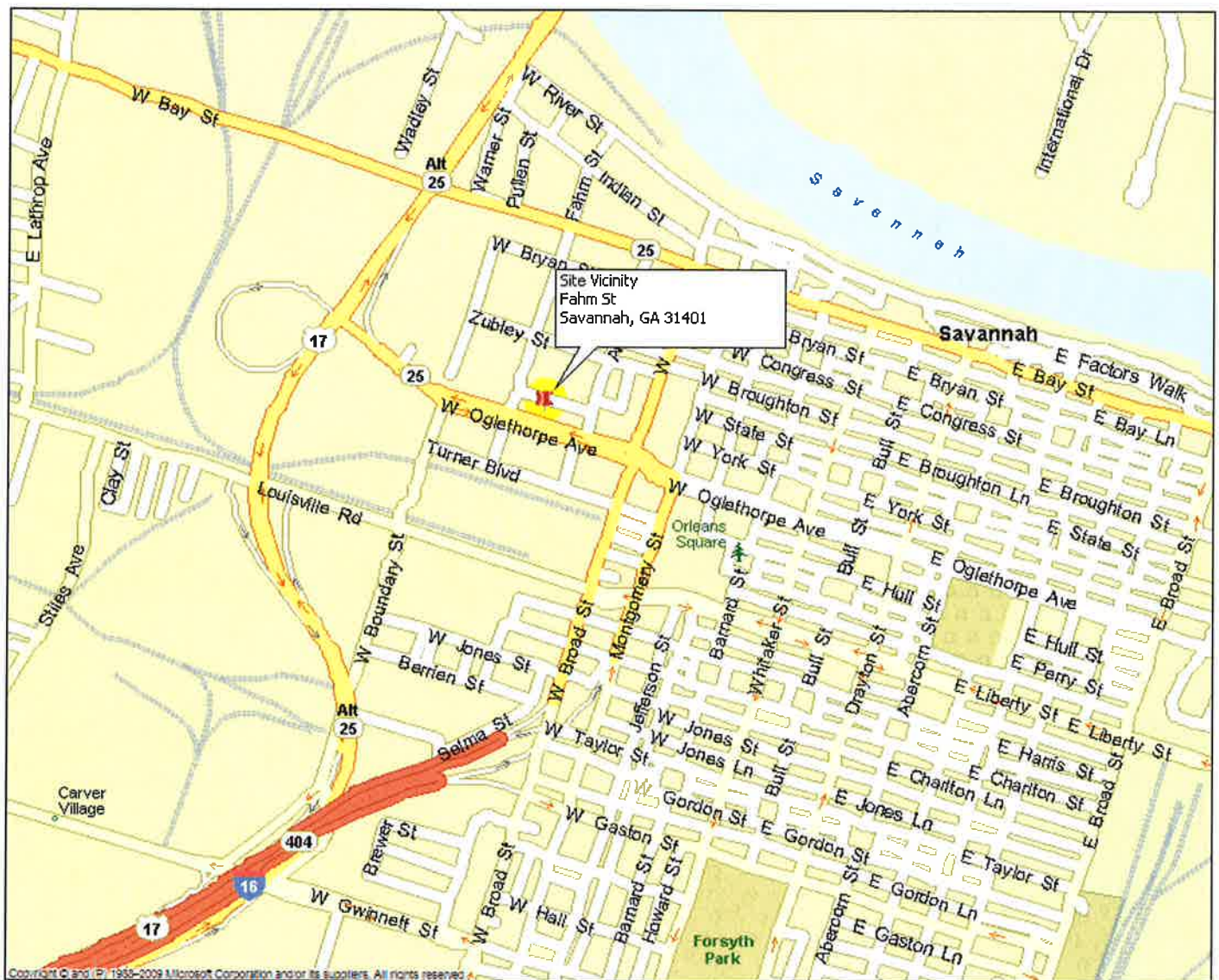
This report does not attempt to define or represent any FEMA, or otherwise designated, flood, erosion, scour, or other hazardous zones; nor does it presume to reflect that governmental or other authorities will grant approval of the project and issue appropriate permits.

**WARRANT:** WHITAKER LABORATORY, INC. and its professional engineers strive to perform all services in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering profession practicing in the same locality and under similar conditions. No other warranty or representation, expressed or implied, is included or intended in this agreement, in any report, opinion, document, or otherwise. We carry commercial general liability insurance, including completed operations, and professional liability insurance in aggregate amounts deemed adequate, and we comply with the statutory requirements for workmen's compensation insurance. Accordingly, the liability of WHITAKER LABORATORY, INC. and its professional engineers, to the client, owner, or any other party, for any loss or damage, resulting from any cause, including professional acts, errors, omissions, negligence, toxic mold and other environmental claims, breach of warranty or breach of contract, shall not exceed the total compensation received by us for services related to this project; and client will defend, settle, and discharge any claims or allegations of liability for same against us by others. If client desires higher monetary limits of our liability, we will be pleased to discuss such higher limits and the impact on liability and fees. In the event the client makes a claim against us, at law or otherwise, for any alleged act, error, omission, negligence, breach of warranty or breach of contract, arising from the performance of our services, and client fails to prove such claim, then client shall pay all costs accrued by us in defending ourselves.

**TITLE:** The ownership of opinions, technical ideas, methods and means, drawings, calculations, and other data developed by us during the course of preparing proposals or rendering engineering services remains exclusively with us. It is a condition of this report or proposal that the client agrees not to use the opinions, technical ideas, methods and means, drawings, calculations or any other data for projects or locations, other than those specifically addressed in the report, and that no one other than the client may use this report, without the written permission of WHITAKER LABORATORY, INC.

# **APPENDIX I**

## **SITE VICINITY & BORING LOCATION PLANS**

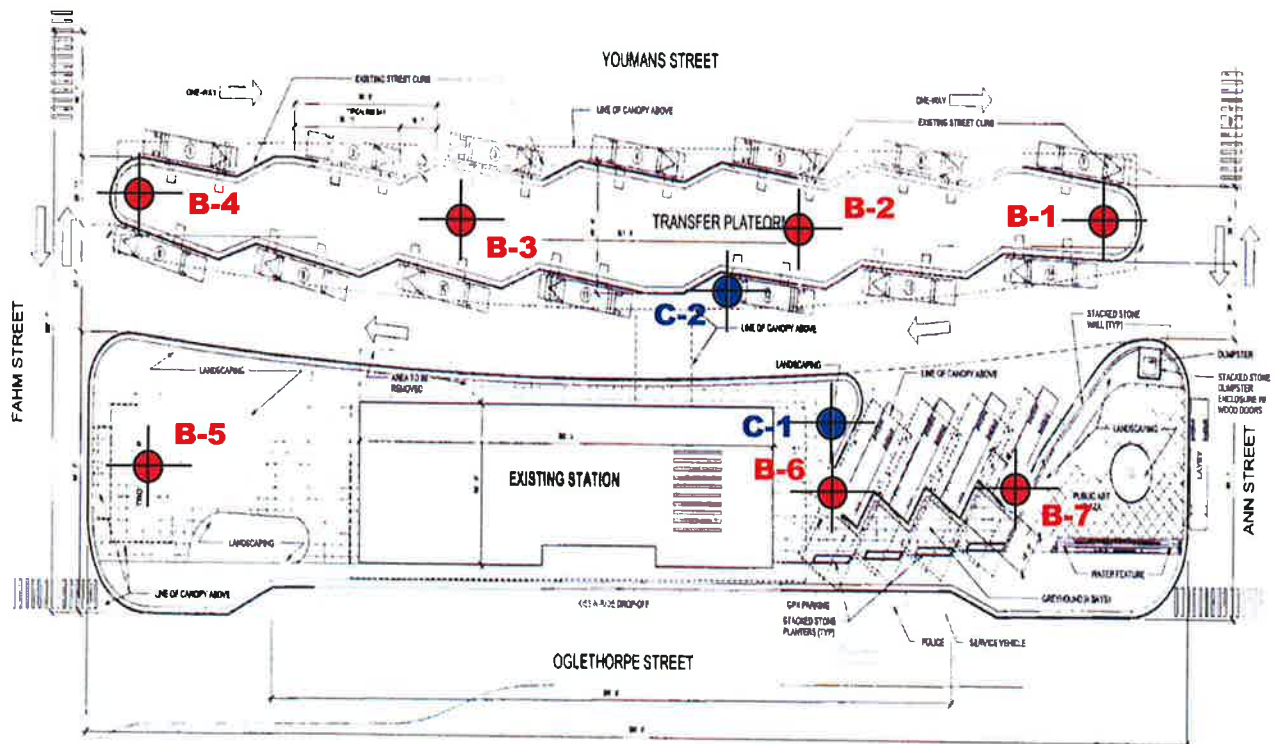


## Site Vicinity Map

Chatham Area Transit Authority Intermodal Facility  
Oglethorpe Street at Fahm Street  
Savannah, Georgia







# Boring & Core Location Plan

Chatham Area Transit Authority Intermodal Facility  
 Oglethorpe Street at Fahm Street  
 Savannah, Georgia



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.

WHITAKER LABORATORY, INC.



**APPENDIX II**  
**BORING RECORDS**



Client: Cogdell and Mendrala Architects

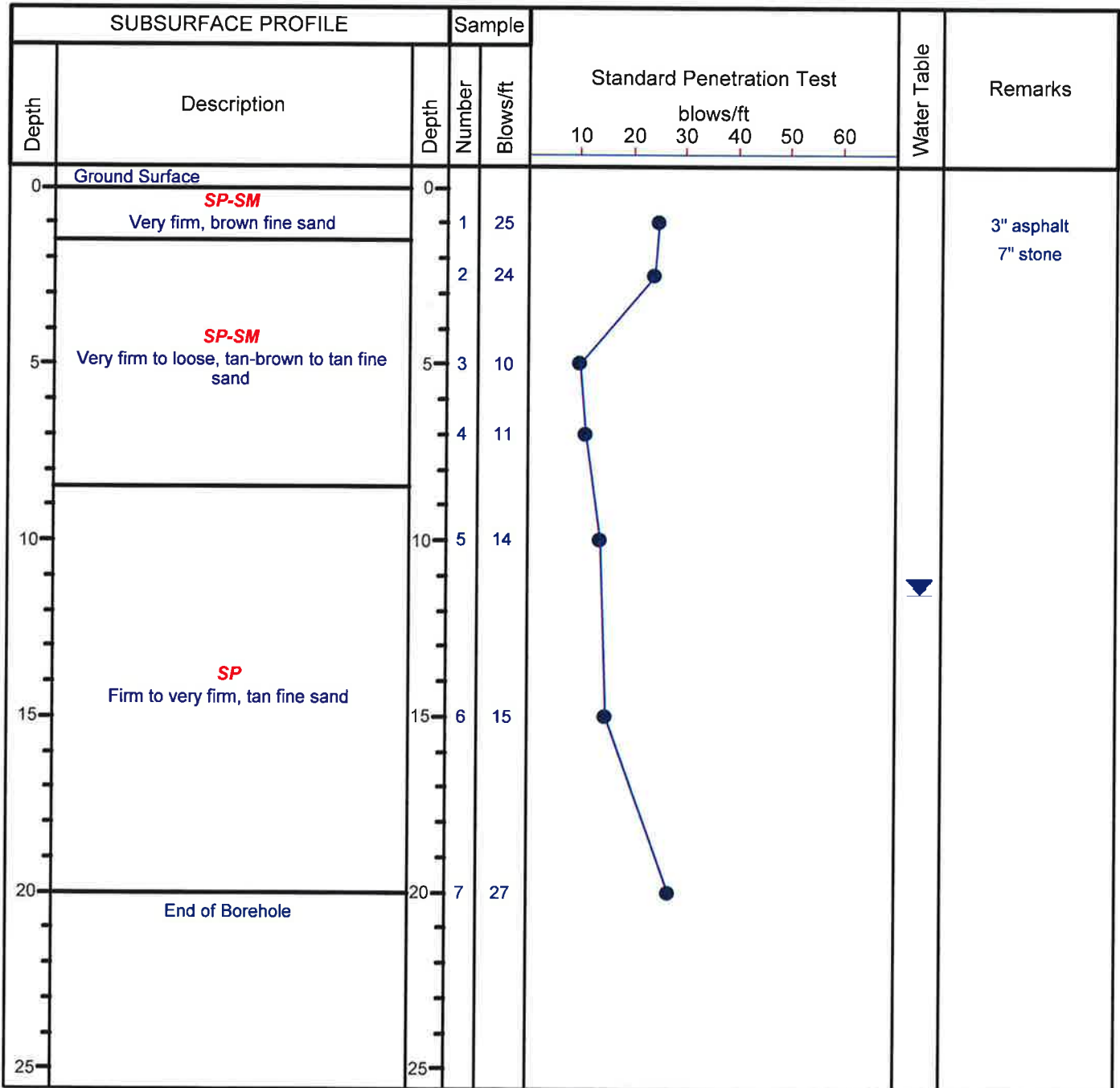
**Boring No. B-1**

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo



Drilled By: Wilkerson

Drill Method: H. S. Auger

Drill Date: 4/13/11

**WHITAKER LABORATORY  
INC.**  
2500 Tremont Road  
Savannah, GA 31405

Hole Size: 6.5"

Datum:

Sheet: 1 of 1

Client: Cogdell and Mendrala Architects

## Boring No. B-2

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo

SUBSURFACE PROFILE			Sample								Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft	Standard Penetration Test							
					blows/ft							
					10	20	30	40	50	60		
0	Ground Surface	0										
	<b>SP-SM</b> Loose, brown fine sand		1	3								2.5" asphalt 6" rock
			2	20								
5	<b>SP</b> Firm to loose, tan-brown to tan fine sand	5	3	8								
			4	11								
10	<b>CH</b> Firm, tan-gray clay	10	5	6								
15	<b>SP-SM</b> Firm, orange-tan fine sand	15	6	11								
20	<b>SM</b> Loose, orange-tan fine silty sand	20	7	8								
25	<b>SP-SM</b> Loose, orange-tan fine sand	25	8	9								
30	<b>CL</b> Firm, gray silty clay	30	9	8								
35	<b>SP</b> Loose to firm, orange medium to fine sand	35	10	10								
40	End of Borehole	40	11	12								
45		45										

Drilled By: Wilkerson

Drill Method: H. S. Auger

Drill Date: 4/13/11

**WHITAKER LABORATORY  
INC.**  
2500 Tremont Road  
Savannah, GA 31405

Hole Size: 6.5"

Datum:

Sheet: 1 of 1

Client: Cogdell and Mendrala Architects

## Boring No. B-3

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft						Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft								
0	Ground Surface	0										
	<b>SP-SM</b> Firm, brown fine sand	1	12									3" asphalt
		2	12									5" stone
5	<b>SP-SM</b> Loose, tan-brown fine sand	5	3	6								
		4	7									
10	<b>CL</b> Firm, gray silty clay	10	5	8								
15	<b>SM</b> Firm to very firm, orange-tan fine silty sand	15	6	12								
20	End of Borehole	20	7	21								
25		25										

Drilled By: Wilkerson

Drill Method: H. S. Auger

Drill Date: 4/13/11

**WHITAKER LABORATORY  
INC.**  
2500 Tremont Road  
Savannah, GA 31405

Hole Size: 6.5"

Datum:

Sheet: 1 of 1

Client: Cogdell and Mendrala Architects

**Boring No. B-4**

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft						Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft								
0	Ground Surface	0										
	<b>SP-SM</b> Firm to loose, brown sand with rubble debris	1	12									4" asphalt
		2	9									4" stone
	<b>SP-SM</b> Loose, brown fine sand	5	3	5								
	<b>SP</b> Loose, brown fine sand	4	10									
10	<b>SP-SM</b> Firm, brown fine sand	10	5	15								
	<b>SP-SM</b> Very firm, tan fine sand	15	6	22								
	<b>SC</b> Stiff, gray fine sand clay											
20	End of Borehole	20	7	10								
25		25										

Drilled By: Wilkerson

Drill Method: H. S. Auger

Drill Date: 4/13/11

**WHITAKER LABORATORY  
INC.**  
2500 Tremont Road  
Savannah, GA 31405

Hole Size: 6.5"

Datum:

Sheet: 1 of 1

Client: Cogdell and Mendrala Architects

**Boring No. B-5**

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft 10 20 30 40 50 60						Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft								
0	Ground Surface	0										4" asphalt 4" stone
	<b>SM</b> Very firm to firm, brown sand with rubble debris	1	22									
		2	13									
5		5	3									
		4										
	Terminated at 3.5 ft. on concrete debris											
10		10	5									
15	End of Borehole	15	6									
20		20										

Drilled By: Wilkerson

**WHITAKER LABORATORY  
INC.**

Hole Size: 6.5"

Drill Method: H. S. Auger

2500 Tremont Road  
Savannah, GA 31405

Datum:

Drill Date: 4/13/11

Sheet: 1 of 1

Client: Cogdell and Mendrala Architects

**Boring No. B-6**

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo

SUBSURFACE PROFILE			Sample								Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft	Standard Penetration Test							
					blows/ft							
					10	20	30	40	50	60		
0	Ground Surface	0										
		1	32									3" asphalt
		2	50									6" stone
	<b>SP</b> Dense to loose, tan fine sand											
5		5	3	9								
		4	12									
	<b>CH</b> Stiff, orange-gray clay											
10	End of Borehole	10	5	10								

Drilled By: Wilkerson

Drill Method: H. S. Auger

Drill Date: 4/13/11

**WHITAKER LABORATORY  
INC.**  
2500 Tremont Road  
Savannah, GA 31405

Hole Size: 6.5"

Datum:

Sheet: 1 of 1

Client: Cogdell and Mendrala Architects

**Boring No. B-7**

Project: CAT Downtown Intermodal  
Transit Center Station

Date: 4/13/11

Location: Savannah, GA

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft 10 20 30 40 50 60						Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft								
0	Ground Surface	0										3" asphalt 6" stone
	<b>SP-SM</b> Very firm, tan fine sand	1	28									
		2	22									
	<b>SP</b> Loose, tan fine sand											
5		3	8									
		4	8									
	<b>SP</b> Firm, brown fine sand											
10		5	14									
	End of Borehole											
15		15										

Drilled By: Wilkerson

Drill Method: H. S. Auger

Drill Date: 4/13/11

**WHITAKER LABORATORY  
INC.**  
2500 Tremont Road  
Savannah, GA 31405

Hole Size: 6.5"

Datum:

Sheet: 1 of 1

# **APPENDIX III**

## **SEISMIC SPECTRAL PARAMETERS**



# LIQUEFACTION ANALYSIS

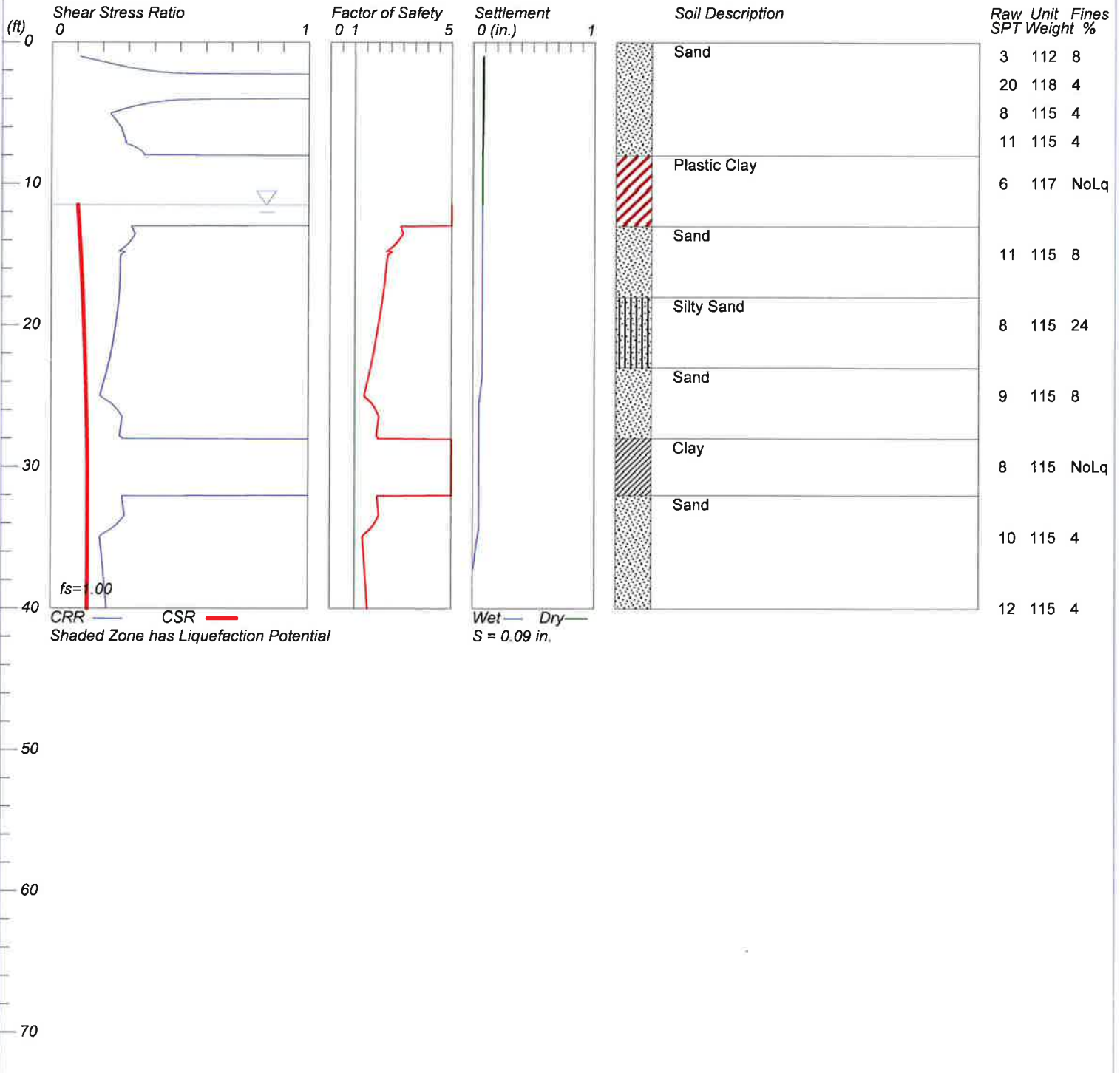
## CAT Downtown Transit Center

Hole No.=B-2 Water Depth=11.5 ft

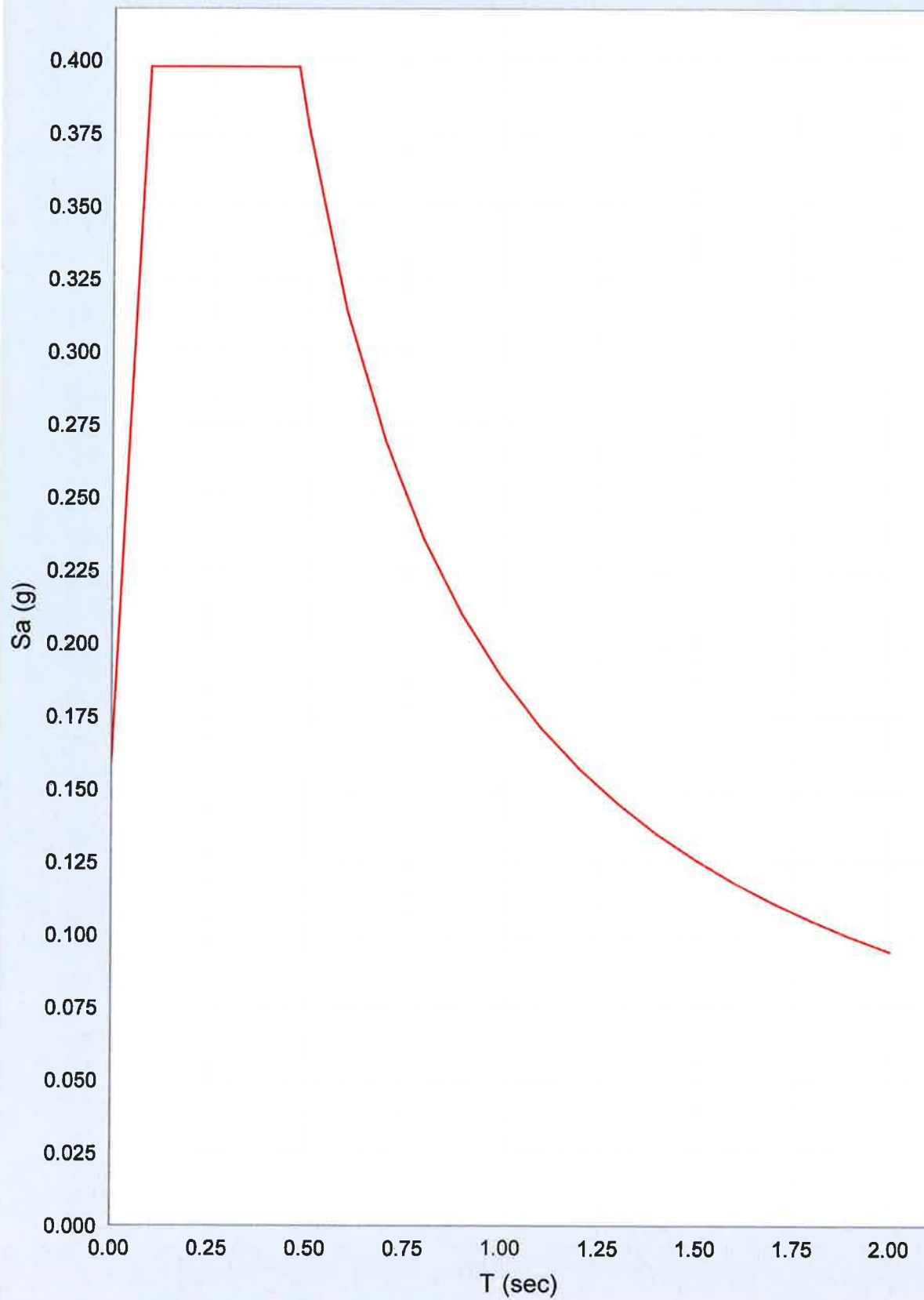
Ground Improvement of Fill=1 ft

Magnitude=6.9

Acceleration=0.159g



**Design Spectrum  $S_a$  Vs  $T$**



Conterminous 48 States  
2006 International Building Code  
Latitude = 32.079  
Longitude = -81.1  
Spectral Response Accelerations Ss and S1  
Ss and S1 = Mapped Spectral Acceleration Values  
Site Class B -  $F_a = 1.0$  ,  $F_v = 1.0$   
Data are based on a 0.05 deg grid spacing  
Period     $S_a$   
(sec)    (g)  
0.2    0.404 (Ss, Site Class B)  
1.0    0.122 (S1, Site Class B)

Conterminous 48 States  
2006 International Building Code  
Latitude = 32.079  
Longitude = -81.1  
Spectral Response Accelerations SMs and SM1  
 $SMs = F_a \times Ss$  and  $SM1 = F_v \times S1$   
Site Class D -  $F_a = 1.477$  ,  $F_v = 2.311$

Period     $S_a$   
(sec)    (g)  
0.2    0.597 (SMs, Site Class D)  
1.0    0.283 (SM1, Site Class D)

Conterminous 48 States  
2006 International Building Code  
Latitude = 32.079  
Longitude = -81.1  
Design Spectral Response Accelerations SDs and SD1  
 $SDs = 2/3 \times SMs$  and  $SD1 = 2/3 \times SM1$   
Site Class D -  $F_a = 1.477$  ,  $F_v = 2.311$

Period     $S_a$   
(sec)    (g)  
0.2    0.398 (SDs, Site Class D)

**APPENDIX IV**  
**IMPORTANT GENERAL NOTES**

## **GENERAL NOTES**

The "standard" penetration resistance is an indication of the density of cohesion less soils and of the strength of cohesive soils. The "standard" penetration test is measured with a 1.4 inch I.D., 2 inch O.D., sampler driven one (1) foot with a 140 pound hammer falling 30 inches.

### **RELATIVE DENSITY OF SOIL THAT IS PRIMARILY SAND**

<b>Number of Blows</b>	<b>Relative Density</b>
<b>0 - 4</b>	<b>Very loose</b>
<b>5 - 10</b>	<b>Loose</b>
<b>11 - 20</b>	<b>Firm</b>
<b>21 - 30</b>	<b>Very firm</b>
<b>31 - 50</b>	<b>Dense</b>
<b>Over 51</b>	<b>Very dense</b>

### **CONSISTENCY OF SOIL THAT IS PRIMARILY SILT OR CLAY**

<b>Number of Blows</b>	<b>Consistency</b>
<b>0 - 2</b>	<b>Very soft</b>
<b>3 - 4</b>	<b>Soft</b>
<b>5 - 8</b>	<b>Firm</b>
<b>9 - 15</b>	<b>Stiff</b>
<b>16 - 30</b>	<b>Very stiff</b>
<b>Over 31</b>	<b>Hard</b>

While individual test boring records are considered to be representative of subsurface conditions at the respective boring locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.

The subsoil stratification shown on these profiles is not warranted but is estimated based on accepted soil engineering principles and practices and reasonable engineering judgment.

Unless notified, samples will be disposed of after 60 days.

## GROUP

**MAJOR DIVISIONS    SYMBOLS    TYPICAL NAMES**

### COARSE-GRAINED SOILS

More than 50% retained on No. 200 Sieve\*

#### GRAVELS

50% or more of coarse fraction retained on No. 4 sieve

CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silty mixtures
	GC	Clayey gravels, gravel sand clay mixtures

#### SANDS

More than 50% of coarse fraction passes No. 4 sieve

CLEAN SANDS	SW	Well graded sand and gravelly sands, little or no fines
	SP	Poor graded sands and gravelly sands, little or no fines
SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand clay mixtures

### FINE GRAINED SOILS

50% or more passes No. 200 Sieve\*

#### SILTS AND CLAYS

Liquid Limit 50% or less

ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL	Organic silts and organic silty clays of low plasticity

#### SILTS AND CLAYS

Liquid Limit greater than 50%

MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity

#### HIGHLY

#### ORGANIC SOILS

PT	Peat, muck and other highly organic soils
----	---

\*Based on the material passing the 3 in. (75 mm) sieve.



## WHITAKER LABORATORY, INC.

P.O. Box 7078 2500 Tremont Road Savannah, Georgia 31405  
(912) 234-0696 Fax (912) 233-5061 Email: [info@whitakerlab.net](mailto:info@whitakerlab.net)

April 25, 2011

Cogdell & Mendrala Architects  
517 East Congress Street  
Savannah, Georgia 31401

Attention: Mrs. Barbara Cogdell, AIA  
[barbara@cogdellmendrala.com](mailto:barbara@cogdellmendrala.com)

Referencing: Addendum to Report of Geotechnical Evaluation  
CAT Downtown Intermodal Transit Center Station – Additions/Improvements  
Savannah, Georgia  
Report No.: 4-19-11-1-A1

Dear Mrs. Cogdell:

As requested, Whitaker Laboratory, Inc. is providing auger cast pile recommendations to resist canopy uplift forces, which we were informed approximate 60 kips per pier.

Assuming a 14" diameter auger cast pile foundation, recommended allowable up-lift capacities per pile are as follows:

Pile Type	Depth (feet below *BOF)	Up-lift Capacity (Kips per pile)
14-inch Auger Cast	25 feet	15 kips
14-inch Auger Cast	35 feet	20 kips
14-inch Auger Cast	40 feet	30 kips

\* Bottom of footing/Grade Beam

Whitaker Laboratory recommends that pile up-lift capacity and penetration requirements be confirmed by a full-scale field load test. Please see below auger cast pile recommend requirements:

1. Augercast piles should be a minimum diameter of 14 inches, and be installed by firms with documented, successful experience in similar projects and soil profiles. Piles should be spaced a minimum of 3 pile diameters away from each other (center to center).

2. Augercast piles should be installed with a minimum grout factor of 1.5, unless otherwise proven by load testing. Grout fill should have a minimum 28 day strength of 4000 psi.
3. As a minimum, one full scale field load test should be required for the project. The load test location should reside within the vicinity of boring B-2 from the original geotechnical evaluation report. Load tests should be in accordance with the "quick" procedures of ASTM D-1143.
4. Installation records, to include all probe pile data, load test results, and production pile driving records should be maintained by an independent engineering consulting firm or testing laboratory.

Unanticipated circumstances often arise during pile installation. We recommend that our engineers be retained to provide on-site installation surveillance, inspection, and testing, thereby being readily available to assist in the evaluation of any events or conditions encountered, that differ from those anticipated.

It is a pleasure to continue service to you and we look forward to further opportunities to assist you on this and other projects.

Respectfully submitted,  
WHITAKER LABORATORY, INC.

A handwritten signature in black ink, appearing to read 'JH Follo', is written over a large, faint, light-gray watermark of the same signature.

Jason H. Follo, P.E.  
Project Engineer





## WHITAKER LABORATORY, INC.

P.O. Box 7078 2500 Tremont Road Savannah, Georgia 31405  
(912) 234-0696 Fax (912) 233-5061 Email: [info@whitakerlab.net](mailto:info@whitakerlab.net)

July 1, 2011

Cogdell & Mendrala Architects  
517 East Congress Street  
Savannah, Georgia 31401

Attention: Mrs. Barbara Cogdell, AIA  
[barbara@cogdellmendrala.com](mailto:barbara@cogdellmendrala.com)

Referencing: Coring & Hand Auger Services  
CAT Downtown Intermodal Transit Center Station – Additions/Improvements  
Savannah, Georgia  
Report No.: 7-1-11-1

Dear Mrs. Cogdell:

As requested, Whitaker Laboratory, Inc. personnel performed 4 asphalt cores incorporating hand auger borings (with Dynamic Cone Penetration (DCP) testing) within the areas denoted on the attached core location plan. Auger borings with DCP testing extended to depths reaching 24 to 48 inches below the asphalt surface.

DCP testing is done with a 15 pound hammer falling 20 inches, driving a 1.5 inch diameter cone point, in accordance with ASTM STP-339. Results of DCP testing provides an indication of the relative consistency, density and in-situ strengths of the tested soils.

We have attached the core/auger boring logs to this letter for your records. Please note that due to pipe obstructions, DCP testing was performed in only two of the 4 borings performed. Pipe obstructions were encountered within borings A2 through A4 at depths ranging from 24 to 48 inches below the asphalt surface.

In general, the asphalt ranges from 8 to 12 inches thick and no aggregate base was encountered below the asphalt. Subgrade soils residing below the asphalt consisted of sandy type soils (with brick debris) (SP-SM) extending to the termination depths of the auger borings at 24 to 48 inches below the asphalt surface. Subgrade soils were considered firm to very firm immediately below the asphalt and extending to depths reaching 24 inches below the asphalt surface. The sandy soils encountered exhibited loose consistencies below a depth of 24 inches below the asphalt surface.

It is a pleasure to continue service to you and we look forward to further opportunities to assist you on this and other projects.

Respectfully submitted,  
WHITAKER LABORATORY, INC.

A handwritten signature in black ink, appearing to read "J. Follo". The signature is fluid and cursive, with the first name "J" being large and the last name "Follo" written in a more compact, cursive style.

Jason H. Follo, P.E.  
Project Engineer

# **Attachments**

**Core Location Plan**

**Core / Auger Boring Log**



## Pavement Core and Auger Boring Log with DCP Testing

Date: July 1, 2011  
 Client: Cogdell & Mendrala  
 Project: CAT Downtown Intermodal Transit Center Station

Core #	Location	Depth	Material Description	DCP Results <small>(depth in ft from AC surface)</small>
A-1	see plan	0 - 12 inches 12 - 48 inches	Asphalt Firm to Loose Sand with Brick Debris (SP-SM)	-1 = 10-17-22 -2 = 7-9-9 -3 = 7-8-8
A-2	see plan	0 - 8 inches 8 - 24 inches	Asphalt Very Firm Sand with Brick Debris (SP-SM) Pipe Obstruction @ 24 inches	-1 = 25+
A-3	see plan	0 - 9 inches 9 - 36 inches	Asphalt Sand with Brick Debris (SP-SM) Pipe Obstruction @ 36 inches	
A-4	see plan	0 - 11 inches 11 - 48 inches	Asphalt Sand with Brick Debris (SP-SM) Pipe Obstruction @ 48 inches	

## SECTION 035216 - LIGHTWEIGHT INSULATING CONCRETE ROOF DECK

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary conditions and Division-1 Specification Section, apply to work of this scope.
- B. Division 7 Section,

#### 1.02 SUMMARY

- A. General: Furnish labor, materials, equipment, and service to complete the lightweight insulating concrete roof deck including rigid insulation board in accordance with this section and the requirements of the specifications. Extent of lightweight insulation concrete shown on drawings.
- B. Scope: Provide lightweight insulating concrete roof deck system as indicated on contract drawings. Lightweight to slope to interior roof drains as required on contract drawings.

#### 1.03 SUBMITTALS

- A. Test Reports: Submit minimum six (6) copies of test reports certified by independent testing laboratory stating materials and mix proposed for this project meet specified requirements.
- B. Catalog Data: Submit minimum of six (6) copies of manufacturer's current standard published catalog and technical data and details prescribing product and methods of mixing and application.
- C. Drawings and Details: Submit minimum of four (6) sets of complete plans including elevations and details to clearly indicate location and installation of specified products.
  - 1. Provide roof plan showing slope and thickness of insulation.
- D. Design Mixtures: For each lightweight insulating concrete mix.
- E. Qualification Data: For qualified Installer and testing agency.
- F. Product Certificates: For the following, from manufacturer:
  - 1. Cementitious materials.
  - 2. Admixtures.
  - 3. Molded-polystyrene insulation board.
- G. Material Test Reports: For lightweight aggregates, from a qualified testing agency, indicating compliance with requirements.
- H. Field quality-control test reports.

#### 1.04 QUALITY ASSURANCE

- A. Insulating Concrete Supplier: Regularly engaged in production of lightweight insulating concrete.
- B. Installer Qualifications: An Installer who employs and retains, throughout the project, supervisors who are trained and approved by manufacturer.
  - 1. A firm that has been evaluated by UL and found to comply with requirements of the National Roof Deck Contractors Association Lightweight Insulating Concrete Roof Deck Contractors (LWIC) Accreditation Program.
- C. Warranty: Provide a Twenty (20) year written guarantee from the manufacturer for the lightweight insulating concrete roof deck system to include the insulating concrete and the insulation board.
- D. Complete roof deck assembly must meet or exceed Factory Mutual (FM) 1-120 wind uplift requirements.

#### 1.05 DELIVERY & STORAGE

- A. Delivery: Deliver bulk materials in manufacturer's original undamaged package or containers with manufacturer's name and contents legibly indicated.
- B. Storage: Store materials in dry, well-ventilated areas.

#### 1.06 JOB CONDITIONS

- A. Do not place lightweight insulating concrete when ambient temperature below freezing (32 degree F, 0 degree C).
- B. Do not place lightweight insulating concrete on surfaces covered with standing water, snow or ice.

#### 1.07 SYSTEM DESCRIPTION

- A. System based on Siplast Roof Insulation Systems "NVS".
  - 1. "NVS" System consisting of rigid insulation set in slurry of insulating concrete and covered with insulating concrete.
- B. Other approved manufacturers:
  - 1. Strong-Lite, Inc. – Pine Bluff, AR.
  - 2. Vermiculite Products – Houston, TX.
  - 3. Palmetto Vermiculite.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. Portland Cement: ASTM C 150-89, Type I, II, or III.
- B. Aggregate: Stabilized Vermiculite, ASTM C 332-87, Group I.
- C. Water: Clean, potable and free from deleterious amounts of acid, alkali and organic materials.
- D. Rigid Insulation Board:
  - 1. Insulation board shall be premium, cellular, self-extinguishing expanded polystyrene with venting slots and keying holes. Density of insulation to be 1 pound pcf nominal as defined by ASTM C 578 and containing approximately three percent open area.
  - 2. Insulation board shall be minimum 1" thick, fabricated 24"x 48" board size.
  - 3. Approved Manufacturers:
    - a. Siplast Roof Insulation System's "Insuperm".
    - b. Strong-Lite, Inc. – Pine Bluff, AR.
    - c. Vermiculite Products – Houston, TX.
  - 4. Insulation board shall have a Factory Mutual and U.L. label on each bundle.

### **2.02 INSULATING CONCRETE DESIGN MIX**

- A. Design Properties:
  - 1. NVS System: 1:3.5 mix (1 c.f. Portland cement to 3.5 c.f. aggregate).
    - a. Oven Dry Density: 35 pcf, plus-or-minus 3 pcf (ASTM C 495-86).
    - b. Compressive Strength: Min. 300 psi (ASTM C 495-86)
    - c. Air Entrainment: Shall be approved by aggregate manufacturer. Control so in-place concrete shall have an air entrainment volume that shall have an air entrainment volume that shall not exceed 15% of the volume aggregate used.
    - d. Water: Use minimum amount of water to produce a workable mix.

## **PART 3 – EXECUTION**

### **3.01 INSPECTION**

- A. Conditions: Examine areas and conditions which lightweight insulating concrete deck system is to be placed. Notify contractor in writing of conditions detrimental to completion of work. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Absence of such notifications shall denote acceptance of substrate.



### 3.02 INSTALLATION

- A. Install lightweight insulating concrete per Manufacturer's instruction and specification. Should a conflict occur, request clarification in writing from architect/engineer prior to installation.

### 3.03 INSULATION BOARD

- A. Insulating Vent Board:
  - 1. Install insulation board in accordance with manufacturer's recommendation.
  - 2. Pour slurry of insulating concrete 1/8" over highest point of substrate.
  - 3. Place insulation in wet slurry with joints staggered in brick-like pattern.
  - 4. Place insulation board in slurry in manner to provide full filling of locking-keying openings in vent board.
  - 5. Vary thickness of insulation board, in conjunction with lightweight insulating concrete, to provide min. 1/4" slope. **Note: Thickness of insulation board at roof drain to be minimum 1" inch.**

### 3.04 INSULATING CONCRETE

- A. Insulating Concrete
  - 1. General:
    - a. Place in accordance with manufacturer's instruction using equipment and procedures to avoid segregation of mix and loss of air content.
    - b. Deposit and screed in continuous operation until entire panel or section of roof area completed. Do not vibrate or work mix except for screeding or floating.
    - c. Construct crickets around roof top equipment to provide positive slope. Form crickets out of lightweight insulating concrete.
  - 2. Thickness:
    - a. Pour to min. thickness of 1.25" over top of insulation board. Increase thickness of vent board to maintain lightweight concrete with this range.
    - b. Approx. depth of pour and slopes shall be as shown on drawings.
    - c. Provide a minimum of 1/4" sump at roof drain only.
  - 3. Screed:
    - a. Screed all surfaces to smooth even plane or slope.
    - b. Finished surface shall be free from ridges, protrusions or depressions.
  - 4. Curing:
    - a. Air cure for no less than 72 hours in strict accordance with manufacturer's written instructions.
    - b. No foot traffic on deck until curing time has lapsed.

3.05 FIELD QUALITY CONTROL

- A. The cast density shall be checked hourly at the point of placement.

3.06 ACCEPTANCE OF DECK

- A. Lightweight insulating concrete roof deck and roofing installers shall jointly inspect deck to verify suitability for roofing membrane.
  - 1. Noted deficiencies shall be corrected prior to installation of roofing membrane.
- B. The finished roof deck shall provide a minimum of 1/4" slope. Slope at crickets (between roof drains) is to be a minimum 1/8" per foot.
  - 2. No ponding water acceptable.

3.07 DEFECTIVE WORK

- A. Refinish in accordance with manufacturer's instructions or remove and replace lightweight insulating concrete surfaces not acceptable to receive finish roofing, or where physical properties do not meet specified requirements, as determined by architect.

END OF SECTION 035216

## SECTION 075419 - POLYVINYL-CHLORIDE (PVC) ROOFING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Mechanically attached PVC membrane roofing system.
- B. Related Sections:
  - 1. Division 03 Section, "Lightweight Insulating Concrete Roof Deck"
  - 2. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
  - 3. Division 07 Section "Sheet Metal Flashing and Trim"
  - 4. Division 07 Section "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

#### 1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.
- D. Roofing system shall be Underwriters Laboratory (UL) Class A listed and designed to withstand basic wind speed of 115 mph and three second gusts of 130 mph.
- E. Energy Performance: Provide roofing system with an R- Value of 20 or greater.

## SUBMITTALS

- F. Product Data: For each type of product indicated.
- G. LEED Submittals:
  - 1. Product Data for Credit SS 7.2: For roof materials, indicating that roof materials comply with Solar Reflectance Index requirement.
  - 2. Product Data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.
- H. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Base flashings and membrane terminations.
  - 2. Fastener pattern drawing shall indicate thicknesses of lightweight insulating concrete roof deck.
- I. Samples for Verification: For the following products:
  - 1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
  - 2. Walkway pads or rolls.
  - 3. Fasteners.
- J. Qualification Data: For qualified Installer and manufacturer.
- K. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  - 1. Submit evidence of compliance with performance requirements.
- L. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
- M. Research/Evaluation Reports: For components of membrane roofing system, from the ICC-ES.
- N. Field quality-control reports.
- O. Maintenance Data: For roofing system to include in maintenance manuals.
- P. Warranties: Sample of special warranties.

## 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for membrane roofing system identical to that used for this Project.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance, and has been in business under the same name for more than ten years, and has been approved by the manufacturer of the product being installed. Installer shall have an office within 50 miles of the jobsite. Firm shall have an Experience Modification Rating of less than 1.0. All work under this section must be approved employees of the approved applicator only. Foreman in charge of work shall have 10 years experience in successful installation of PVC roofing. Subcontracting of work under this section to lower tier subcontractors will not be allowed.
- C. Source Limitations: Obtain components including roof insulation, adhesives, sheet metal flashing, and fasteners for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.
- E. Preinstallation Roofing Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

#### 1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

#### 1.8 WARRANTY

- A. General: Warranty shall be provided at no additional expense to the Owner.
- B. Provide a 20 year Roofing manufacturer's Edge-to-Edge No Dollar Limit (NDL) warranty for PVC Roofing and insulation system, including all flashing, copings and similar system components. Warranty shall cover labor and materials to correct leaks and defects encountered during the warranty period and shall take effect on the date of Material completion. Warranty shall not be voided by emergency leak repairs.
- C. Special Project Warranty: Submit roofing Installer's warranty from this section, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners and walkway products, for the following warranty period. Contractor shall respond with correcting action within 24 hours of Owner's call.

### PART 2 - PRODUCTS

#### 2.1 PVC MEMBRANE ROOFING

- A. PVC Sheet: ASTM D 4434, Type III or Type IV, fabric reinforced.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Duro-Last Roofing, Inc.
    - b. Fibertite
    - c. Sarnafil Inc.
  - 2. Thickness: 60 mils minimum. Thinner membranes will not be acceptable.
  - 3. Exposed Face Color: White.

## 2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
  - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
  - 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Multipurpose Construction Adhesives: 70 g/L.
    - b. Fiberglass Adhesives: 80 g/L.
    - c. Contact Adhesive: 80 g/L.
    - d. Other Adhesives: 250 g/L.
    - e. PVC Welding Compounds: 510 g/L.
    - f. Adhesive Primer for Plastic: 650 g/L
    - g. Single-Ply Roof Membrane Sealants: 450 g/L.
    - h. Nonmembrane Roof Sealants: 300 g/L.
    - i. Sealant Primers for Nonporous Substrates: 250 g/L.
    - j. Sealant Primers for Porous Substrates: 775 g/L.
- B. Flashing: Manufacturer's standard PVC coated sheet metal flashings. No Membrane Flashings will be permitted.
- C. Bonding Adhesive: As required by manufacturer to meet performance requirements.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- E. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

## 2.3 ROOF-EDGE FASCIA:

Membrane Manufacturer's PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles. 24 gauge, G90 galvanized metal sheet with a 20 mil (1 mm) unsupported PVC or Vinyl membrane laminated on one side.

## 2.4 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads, approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
  - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
  - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

### 3.3 MECHANICALLY FASTENED MEMBRANE ROOFING INSTALLATION

- A. Mechanically fasten membrane roofing over area to receive roofing and install according to roofing system manufacturer's written instructions.
  - 1. Install sheet according to ASTM D 5082.
  - 2. For in-splice attachment, install membranes roofing with long dimension perpendicular to steel roof deck flutes.
  - 3. Fasteners or concrete deck damage from installation of roofing are not acceptable at areas of the concrete deck exposed to view at the completion of construction. Such damage shall be patched.
- B. Start installation of membrane roofing in presence of roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Mechanically fasten or adhere membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.



- F. In-Seam Attachment: Secure one edge of PVC sheet using fastening plates or metal battens centered within membrane seam and mechanically fasten PVC sheet to roof deck.
- G. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
  - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
  - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
  - 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

### 3.4 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

### 3.5 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

### 3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Interim Inspections: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation prior to commencement of installation to verify acceptability of substrate, and once during installation. Provide copies of reports to Owner's representative.
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation at completion. Provide copy of report to Owner's representative.

- D. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- E. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.7 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction. Clean PVC membrane using procedures recommended by manufacturer. Membrane soiled by asphalt compounds or other materials at completion of construction will be rejected and replaced.

### 3.8 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  - 1. Owner: <Insert name of Owner>.
  - 2. Address: <Insert address>.
  - 3. Building Name/Type: <Insert information>.
  - 4. Address: <Insert address>.
  - 5. Area of Work: <Insert information>.
  - 6. Acceptance Date: <Insert date>.
  - 7. Warranty Period: <Insert time>.
  - 8. Expiration Date: <Insert date>.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. lightning;
    - b. peak gust wind speed of 130 mph.
    - c. fire;
    - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    - f. vapor condensation on bottom of roofing; and
    - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
  2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
  3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
  4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
  5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
  6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
  7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.
- E. IN WITNESS THEREOF, this instrument has been duly executed this **<Insert day>** day of **<Insert month>**, **<Insert year>**.
1. Authorized Signature: **<Insert signature>**.
  2. Name: **<Insert name>**.
  3. Title: **<Insert title>**.

END OF SECTION 075419

## SECTION 101400 - SIGNAGE

### PART 1 GENERAL

- 1.01 RELATED DOCUMENTS: Drawings and general provisions of the Contract, including General and Special Conditions and Division 1 Specifications sections, apply to this section.
- 1.02 See division 1 for additive alternates
- 1.03 SUBMITTALS: The following outlines submittal requirements unique to this section of the work, especially shop drawing content and samples
- A. After award of contract, but prior to the beginning of detailed shop drawings, submit drawings showing typical details of connections. The Contractor shall arrange to meet with Architect and Architect's representative approximately one (1) week after submittal to review drawings and coordinate comments. The typical details as accepted shall be used to control detail design, shop drawing preparation and approval.
  - B. Shop drawings:
    - 1. Submit complete shop drawings for manufactured and fabricated items. Indicate materials, layouts, sizes, methods, finishes, footings and anchorage devices, connections and other details of construction, as well as the relation to supporting and adjacent work where applicable. Exact identification of the paint or ink shall be noted on the shop drawings along with method of application. Create and confirm layout conditions not shown on the contract documents.
      - a. Identify all pre-fabricated products proposed for use.
      - b. Indicate manufacturer, brand name, quality and type paint for each surface to be finished.
      - c. Submit complete shop drawings and erection drawings conforming to all current applicable industry standards and local codes. Preparation of shop drawings shall not be sublet without the written permission of Architect.
  - C. Samples: Submit two samples of each of the following, unless otherwise specified:
    - 1. Finishes:
      - a. Submit 4" x 4" samples of each finish specified. Submit five (5) of each finish.
      - b. Surface-applied graphics shall be on actual substrate upon which they will appear.
      - c. Hardware items: Submit samples of each type of anchor, insert or other fastener as requested by Architect.
  - D. Submit for review, approval and demonstration of representative craftsmanship complete sign units (quantities as noted) of the following sign types:
    - Sign Type AA
    - Sign Type BB
    - Sign Type CC
    - Sign Type DD
    - Sign Type EE
    - Sign Type FF
    - Sign Type HH
    - Sign Type JJ
    - Sign Type A1
    - Sign Type B1
    - Sign Type C
    - Sign Type D
    - Sign Type E

- Sign Type F
- Sign Type G
- Sign Type H
- Sign Type J
- Sign Type K
- Sign Type M

Sign types shall be an actual sign unit which may be installed on the project site after approval or correction.

- E. Maintenance data: Submit maintenance recommendations and instructions for each material used as part of contract close-out. Include recommendations for cleaning procedures, intervals and touch-ups.
- F. Scheduling: Submit the final schedule for construction of work and installation within ten (10) days of sample approvals. Indicate dates of completion for prototypical units for approval, dates of partial deliveries and total completion. Dates given shall be consistent with the time requirements submitted with the bid.
- G. Warranty

#### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Maintain neat, clean conditions in all building areas; remove trash, rags and waste materials at end of each day's work. Protect the floor and wall surfaces of this space against damage or defacement.
- B. Close any open containers at end of day's work. Leave no materials open.
- C. Acrylic and other glazing materials or finish materials with or requiring protective wrapping shall only have this protection removed as required during fabrication and installation and once the area is clear of work or activities which might cause damage to the installed work. Care shall be taken in handling surfaces and products to prevent scratching, chipping, or cracking.
- D. Store materials a minimum of 4" above ground on framework or blocking and cover with protective waterproof covering. Provide air circulation and ventilation. Store in dry, conditioned space.

#### 1.05 QUALITY CRITERIA

- A. Fabricators shall meet the following criteria:
  - 1. Sign contractors and/or subcontractors shall have been regularly engaged in the manufacture, fabrication and installation of sign systems of comparable scope and quality for a minimum of five (5) years.
  - 2. Sign contractors and/or subcontractors shall submit a minimum of five (5) references listing project type, scope of work, Architect and date of completion, Owner's address and telephone number.

#### 1.06 JOB CONDITIONS

- A. Environmental requirements:
  - 1. Comply with manufacturer's recommendation regarding environmental conditions under which materials may be applied.
  - 2. Apply no adhesive or coating materials in spaces where dust is being generated.
- B. Coordination: Coordinate work with the work of other sections of the specifications to ensure that surfaces to receive signs are properly completed, inspected, and approved prior to commencement of work. Commencement of work in any space shall constitute acceptance by the Contractor of surfaces to receive identifying devices.

1.07 WARRANTIES

- A. Warrant the joints in plastic constructions for a period of five (5) years from Date of Material Completion against failure or delamination.
- B. Warrant vinyl film for a period of five (5) years from Date of Material Completion against delamination from the substrate.
- C. Warrant raised letters for a period of five (5) years from Date of Material Completion against delamination from the substrate.
- D. Paints or inks and finishes shall be guaranteed not to cause discoloration, deterioration, or delamination of any materials used in fabrication. Warrant paint finishes on metal and plastic materials for a period of five (5) years from the date of Material completion.
- E. Warranty Provisions: During the warranty period, restore defective work to the standard of the contract documents without cost to the Using Agency, including all labor, materials, refinishing and all costs incidental to the work.

1.09 GRAPHICS, ARTWORK AND ELECTRONIC FILES:

The Architect or their consultants shall only furnish artwork in an electronic form if it already exists or was created in that form during the course of designing the project. Formats for graphic designs shall be in that of its original creation and may be manual or photo-mechanical or electronic/digital, and if digital, are likely to have been prepared in graphic design industry standard computer software on Macintosh™ platform computer hardware. Contract document drawings or layouts for the work shall not be transferred or transmitted to the contractor.

PART 2 - PRODUCTS

2.01 METALS

- A. Metal letterforms for the Dimensional Letters and Monument Sign as indicated on drawings SG2.04 and SG2.05:
  - 1. Fabricated letters from aluminum shall be heliarc welded in conformance with the American Welding Society and the Aluminum Association's specifications. Metal shall be 3003H14 or 60601 alloy. Thickness shall be as follows:
    - a. .063" aluminum sheet for letters 6" to 24" in capital height.
    - b. .087" aluminum sheet for letters 25" to 72" in capital height.
  - 3. Fabricated letters shall be braced internally where necessary to be free from waves, buckles, or warps.

2.02 ACCESSORIES:

- A. Anchors and fasteners:
  - 1. Anchors, inserts or fasteners shall be compatible with sign materials, shall not result in galvanic action or chemical interaction of adhesives and shall have demonstrable and sufficient strength for intended use.
  - 2. Anchors and fastenings for aluminum shall be stainless steel, zinc or cadmium coated steel. Anchors and fasteners shall be concealed where possible. Indicate locations on shop drawings.
  - 3. Anchors and fastenings for exterior use shall be galvanized steel in accordance with ASTM A153-82.
  - 4. Wherever possible, anchors to concrete and masonry shall be cast-in-place. Use expansion shields where anchors cannot be located before concrete is poured.
  - 5. Fasteners to solid masonry and concrete shall be one of the following:

- a. flat-head drop-in expansion bolts.
  - b. Powder-actuated fasteners; appropriate size drive pin for concrete and for masonry.
  - c. Fasteners to cells of hollow masonry shall be drive pins of the appropriate size.
  - d. Fasteners to roll or formed steel members shall be powder-actuated fasteners of the appropriate size.
  - e. Fasteners to metal deck shall be self-drilling, self-tapping screws.
  - f. Expansion shields shall be machine bolt type, tubular type, or self-drilling tubular type.
6. Anchor bolts for wood blocking to concrete and masonry shall be the appropriate size steel for masonry, unless otherwise noted, and provided with washer and nut at both ends.
  7. Anchor bolts for wood blocking to steel members shall be appropriate size steel and provided with washer and nut.
  8. Provide miscellaneous anchors and fasteners as required to secure work in place.
  9. Versilok® brand (mfr.: Lord Industrial Adhesives) or an approved equal shall be used as a structural adhesive for aluminum and may be employed in the concealed fastening of components for signs. Follow manufacturer's instructions for the correct formulation, preparation and procedures.

2.03 COATINGS (PAINTS):

Refer to manufacturers standards for paint finishes and preparation

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspection of substrates:
  1. Surfaces to receive identifying devices shall be free from defects and imperfections that would prevent an acceptable installation.
  2. Commencing of work in any space shall constitute acceptance by the Contractor of surfaces to receive identifying devices as being in a satisfactory condition to permit an acceptable installation. If the Contractor's inspection of such surfaces discloses unsatisfactory conditions, he shall notify the Architect in writing and await further instruction; otherwise, no claims will be considered for unsatisfactory work due to real or alleged faulty surfaces.

3.02 PREPARATION AND PROTECTION:

- A. Protect the work and adjacent work and materials against damage during progress of work until completion. Drop cloths of paper or plastic shall be used around all areas where paint is being applied and appropriate precautions shall be taken to prevent overspray, hazardous conditions or damage to adjacent work.

3.03 INSTALLATION, APPLICATION:

- A. Installation of sign panels and graphic units:
  1. Erect, mount or install all panels and units to be level, plumb and true.
  2. Use sufficient concealed fasteners and anchors to hold sign panels and graphic units in place. Use only concealed shims. Visible fasteners may only be used where approved in shop drawings or as part of an intentional design detail.

3. Make Architect aware of conflicts in sign locations as shown in the drawings.
4. Mount all sign panels at 60" AFF to centerline of sign.
5. Provide glass back-up panels to signs installed to glass as indicated in sign message schedule.
6. Provide appropriate adhesive for to signs installed on porcelain walls as indicated in sign message schedule.

3.04 ADJUSTING, CLEANING AND PROTECTION:

- A. Remove and replace damaged identifying devices with new identifying devices free of defects.
- B. Clean exposed surfaces promptly after completion of installation in accordance with recommendations of manufacturer.
- C. Clean exposed metal work with cleanser recommended by manufacturer of materials and rinse with clean water. Do not use harsh chemicals or abrasive. Surfaces with stains which cannot be removed by cleaning shall be refined or replaced to the satisfaction of Architect at no extra cost to Using Agency.
- D. Signs shall be free of tape, packing paper, dirt, smudges, and other foreign material.
- E. Spatters, drippings, smears, and / or spray shall be completely removed.
- F. Plastic surfaces shall be cleaned upon completion in accordance with manufacturer's instructions. Supply one pint of manufacturer's recommended cleaner for Using Agency's use.
- G. Touch up work after installation shall be performed by the sign manufacturer and approved by Architect.
- H. Protection:
  1. Work in progress shall be protected at all times from staining, scratching, chipping or other damage until acceptance by the Architect.
  2. Provide final protection in a manner acceptable to the fabricator and installer until Date of Substantial Completion.

3.05 SIGN LOCATIONS AND MESSAGES:

Proposed sign messages for all signs are provided in the following Sign Message Schedule and are subject to final owner review and comment.



## Sign Message Schedule

Page 1

NUMBER	SIGN TYPE	MESSAGE
01	FF	A
02	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
03	HH	<u>Side A:</u>  ← Terminal  <u>Side B:</u>  Terminal →
04	FF	B
05	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
06	FF	C
07	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
08	FF	D
09	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
10	FF	E
11	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
12	FF	F
13	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
14	KK	ROUTE MAP  (map artwork kiosk)
15	FF	G
16	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
17	FF	H
18	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
19	FF	I
20	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
21	HH	<u>Side A:</u>  Terminal ➔  <u>Side B:</u>  ← Terminal
22	FF	J
23	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
24	FF	K
25	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)


NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
26	HH	<u>Side A:</u>  Terminal →  <u>Side B:</u>  ← Terminal
27	FF	L
28	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
29	FF	M
30	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
31	HH	<u>Side A:</u>  Terminal →  <u>Side B:</u>  ← Terminal
32	FF	N
33	GG	(ROUTE NUMBER TBD) (ROUTE NUMBER TBD) (ROUTE NUMBER TBD)
34	BB	CAT  (monument sign)



NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
35	DD	<p><u>Side A:</u></p> <p>(blank)</p> <p><u>Side B:</u></p> <p>↑</p> <p>Entrance</p> <p>(Greyhound logo)</p> <p>(CAT logo)</p>
36	CC	INTERMODAL TRANSIT CENTER
37	JJ	<p>TELERIDE</p> <p>TR</p> <p>(picto)</p>
38	JJ	<p>GPX</p> <p>G</p> <p>(picto)</p>
39	JJ	<p>GPX</p> <p>G</p> <p>(picto)</p>
40	JJ	<p>KISS-N-RIDE</p> <p>KR</p> <p>(picto)</p>
41	AA	(refurbish existing sign; add CAT logo panels)
42	JJ	<p>VISITOR</p> <p>V</p> <p>(picto)</p>
43	JJ	<p>KISS-N-RIDE</p> <p>KR</p> <p>(picto)</p>

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
44	JJ	VISITOR V  (picto)
45	JJ	LOW EMISSION VEHICLE LEV  (picto)
46	JJ	POLICE P  (picto)
47	DD	<u>Side A:</u>  ↑  Entrance  (Greyhound logo) (CAT logo)  <u>Side B:</u>  (blank)
48	EE	(freestanding poster cabinet)
49	EE	(freestanding poster cabinet)
50	CC	(text to be determined; possible donor text/name)
51	F	CAT CHATHAM AREA TRANSIT   No smoking within 25 feet of the building

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
52	C	<p>116 (grade II braille)</p> <p>(name insert holder)</p> <p>CAT CHATHAM AREA TRANSIT (backplate required on inside of glass)</p>
53	C	<p>118 (grade II braille)</p> <p>(IN USE / VACANT slider)</p> <p>CAT CHATHAM AREA TRANSIT (backplate required on inside of glass)</p>
54	C	<p>118 (grade II braille)</p> <p>(IN USE / VACANT slider)</p> <p>CAT CHATHAM AREA TRANSIT</p>
55	D	<p>123 (grade II braille)</p>
56	D	<p>120 (grade II braille)</p>
57	E	ELECTRICAL
58	G	<p></p> <p>RESTROOM (grade II braille)</p>
59	G	<p></p> <p>RESTROOM (grade II braille)</p>

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.



NUMBER	SIGN TYPE	MESSAGE
60	E	SPRINKLER RISER
61	C	124 (grade II braille)  (name insert holder)  <i>CAT CHATHAM AREA TRANSIT</i>
63	A3	TICKETS
64	A3	BUSES
65	A3	TERMINAL
66	A1	CAT EXECUTIVE OFFICES
67	C	102 (grade II braille)  (name insert holder)  <i>CAT CHATHAM AREA TRANSIT</i>  <i>(backplate required on inside of glass)</i>
68	B3	GREYHOUND TICKETS & GPX
69	B1	(Greyhound dog logo)
70	A3	TERMINAL
71	H	202 (grade II braille)  (Greyhound logo)
72	H	201 (grade II braille)  (Greyhound logo)

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.





NUMBER	SIGN TYPE	MESSAGE
73	H	203 (grade II braille)  (Greyhound logo)
74	H	211 (grade II braille)  (Greyhound logo)
75	K	  RESTROOM (grade II braille)
76	H	205 (grade II braille)  (Greyhound logo)
79	B2	TERMINAL
80	B2	BUSES
83	J	213 (name insert holder)  (grade II braille)  (Greyhound logo)
84	J	212 (name insert holder)  (grade II braille)  (Greyhound logo)
85	J	212 (name insert holder)  (grade II braille)  (Greyhound logo)

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.





NUMBER	SIGN TYPE	MESSAGE
86	H	201 (grade II braille)  (Greyhound logo)
88	B2	BUSES
90	F	<p><u>Left Panel:</u></p> <p><b>CAT</b> CHATHAM AREA TRANSIT</p> <p> No smoking within 25 feet of the building</p> <p><u>Right Panel:</u></p> <p><b>(logo)</b> GREYHOUND</p> <p> No firearms or weapons allowed on this property</p>

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
91	F	<p><u>Left Panel:</u></p> <p><b>CAT</b> CHATHAM AREA TRANSIT</p> <p> No smoking within 25 feet of the building</p> <p><u>Right Panel:</u></p> <p><b>(logo)</b> GREYHOUND</p> <p> No firearms or weapons allowed on this property</p>
92	F	<p><u>Left Panel:</u></p> <p><b>CAT</b> CHATHAM AREA TRANSIT</p> <p> No smoking within 25 feet of the building</p> <p><u>Right Panel:</u></p> <p><b>(logo)</b> GREYHOUND</p> <p> No firearms or weapons allowed on this property</p>

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
93	G	  WOMEN (grade II braille)
95	H	209 (grade II braille)  (Greyhound logo)
96	D	103 (grade II braille)
97	G	  MEN (grade II braille)
99	C	107 (grade II braille)  <i>CAT CHATHAM AREA TRANSIT</i>
100	C	104 (grade II braille)  <i>CAT CHATHAM AREA TRANSIT</i>
101	C	108 (grade II braille)  <i>CAT CHATHAM AREA TRANSIT</i>
102	C	109 (grade II braille)  <i>CAT CHATHAM AREA TRANSIT</i>

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

NUMBER	SIGN TYPE	MESSAGE
103	C	<p>110 (grade II braille)</p> <p>(name insert holder)</p> <p><i>CAT CHATHAM AREA TRANSIT</i></p> <p><i>(backplate required on inside of glass)</i></p>
104	C	<p>111 (grade II braille)</p> <p>(name insert holder)</p> <p><i>CAT CHATHAM AREA TRANSIT</i></p> <p><i>(backplate required on inside of glass)</i></p>
105	C	<p>112 (grade II braille)</p> <p>(name insert holder)</p> <p><i>CAT CHATHAM AREA TRANSIT</i></p> <p><i>(backplate required on inside of glass)</i></p>
106	C	<p>113 (grade II braille)</p> <p>(name insert holder)</p> <p><i>CAT CHATHAM AREA TRANSIT</i></p> <p><i>(backplate required on inside of glass)</i></p>
107	C	<p>114 (grade II braille)</p> <p>(name insert holder)</p> <p><i>CAT CHATHAM AREA TRANSIT</i></p> <p><i>(backplate required on inside of glass)</i></p>
108	A2	(CAT logo)
109	M	(bronze plaque tbd)

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

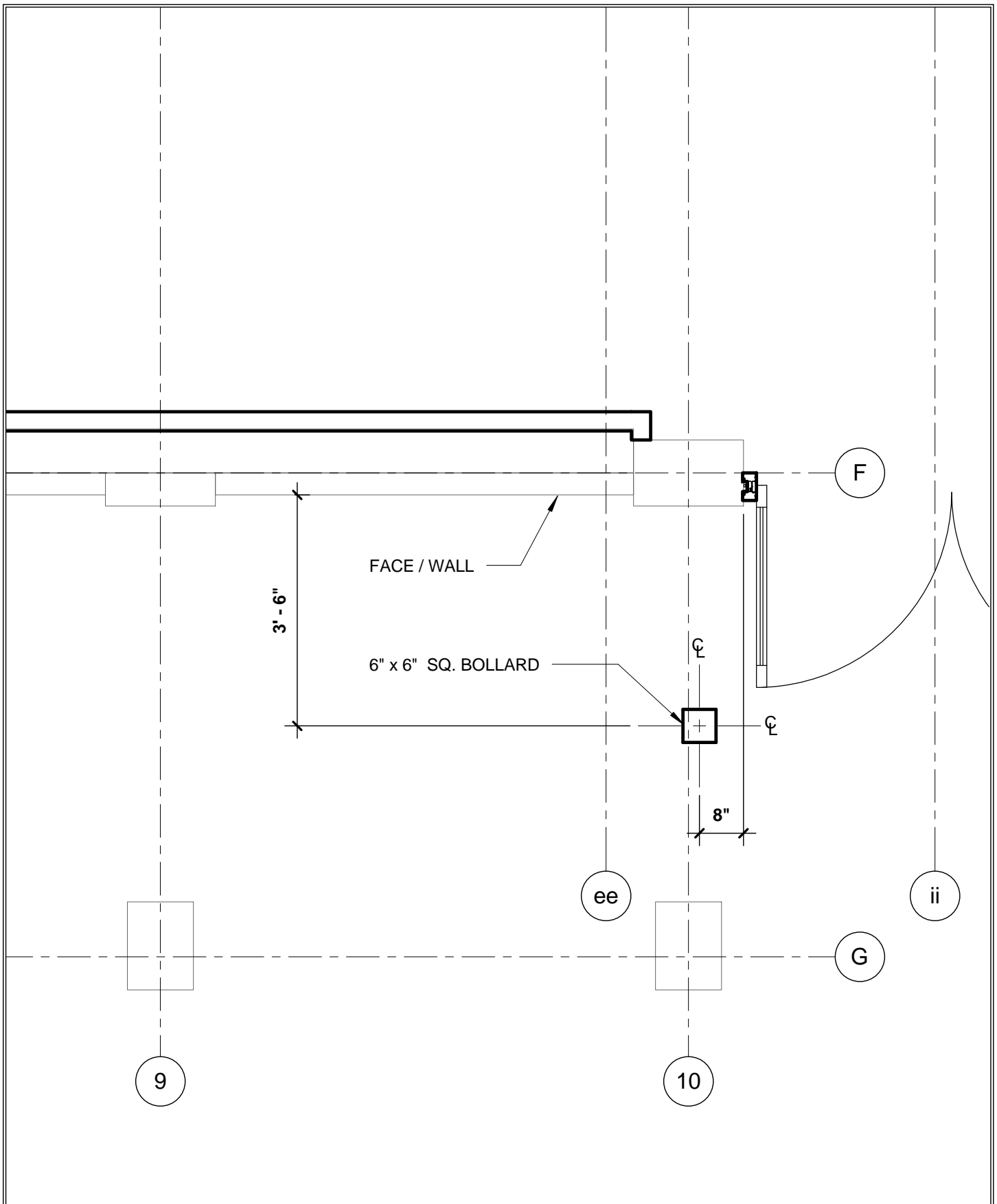
NUMBER	SIGN TYPE	MESSAGE
110	M	(bonze plaque tbd)

Total Sign Count For Project

101

NOTE 1: See layouts for the number of panels needed, and the correct placement of text and graphic symbols.

11/11/2011 9:58:59 AM



CAT DOWNTOWN INTERMODAL TRANSIT CENTER

TYPICAL BOLLARD ENTRANCE

Addendum No. 2

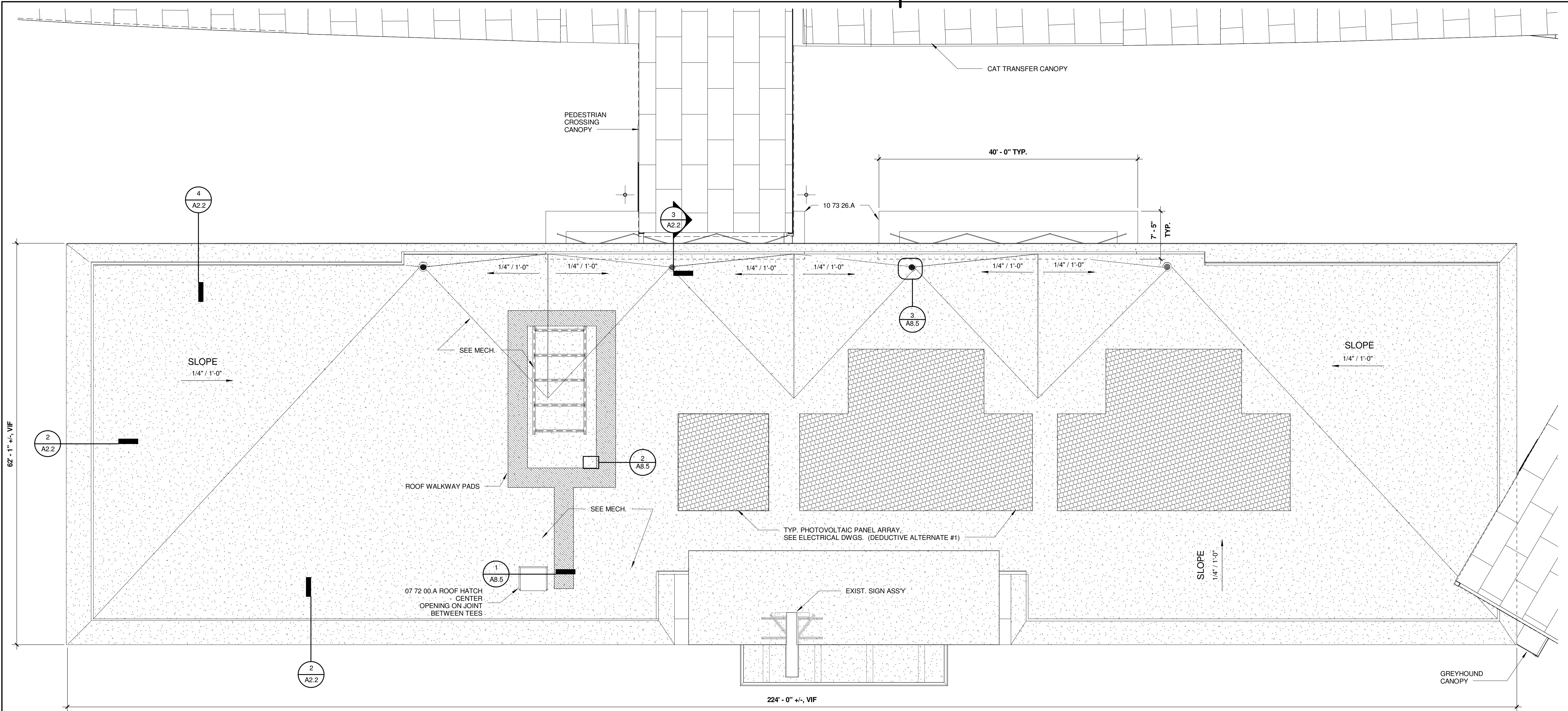
Scale: 1/2" = 1'-0"

Project No. 0603

Sketch A2.1.R1

November 10, 2011

11/10/2011 4:34:14 PM C:\Documents and Settings\rudm\My Documents\0603\_CAT\_rudd\Recovery\1.rvt



## PLAN KEYNOTES

**DIVISION 2 - EXISTING CONDITIONS**  
02 41 19 A SELECTIVE STRUCTURE DEMOLITION  
02 65 00 A UNDERGROUND STORAGE TANK REMOVAL  
02 82 13 A ASBESTOS ABATEMENT

**DIVISION 3 - CONCRETE**  
03 30 00 A CAST-IN-PLACE CONCRETE (STRUCTURAL)  
03 30 03 B VAPOR RETARDER, 15 MIL  
03 45 00 A PRECAST ARCHITECTURAL CONCRETE  
03 52 16 A LIGHTWEIGHT INSULATING CONCRETE ROOF DECK

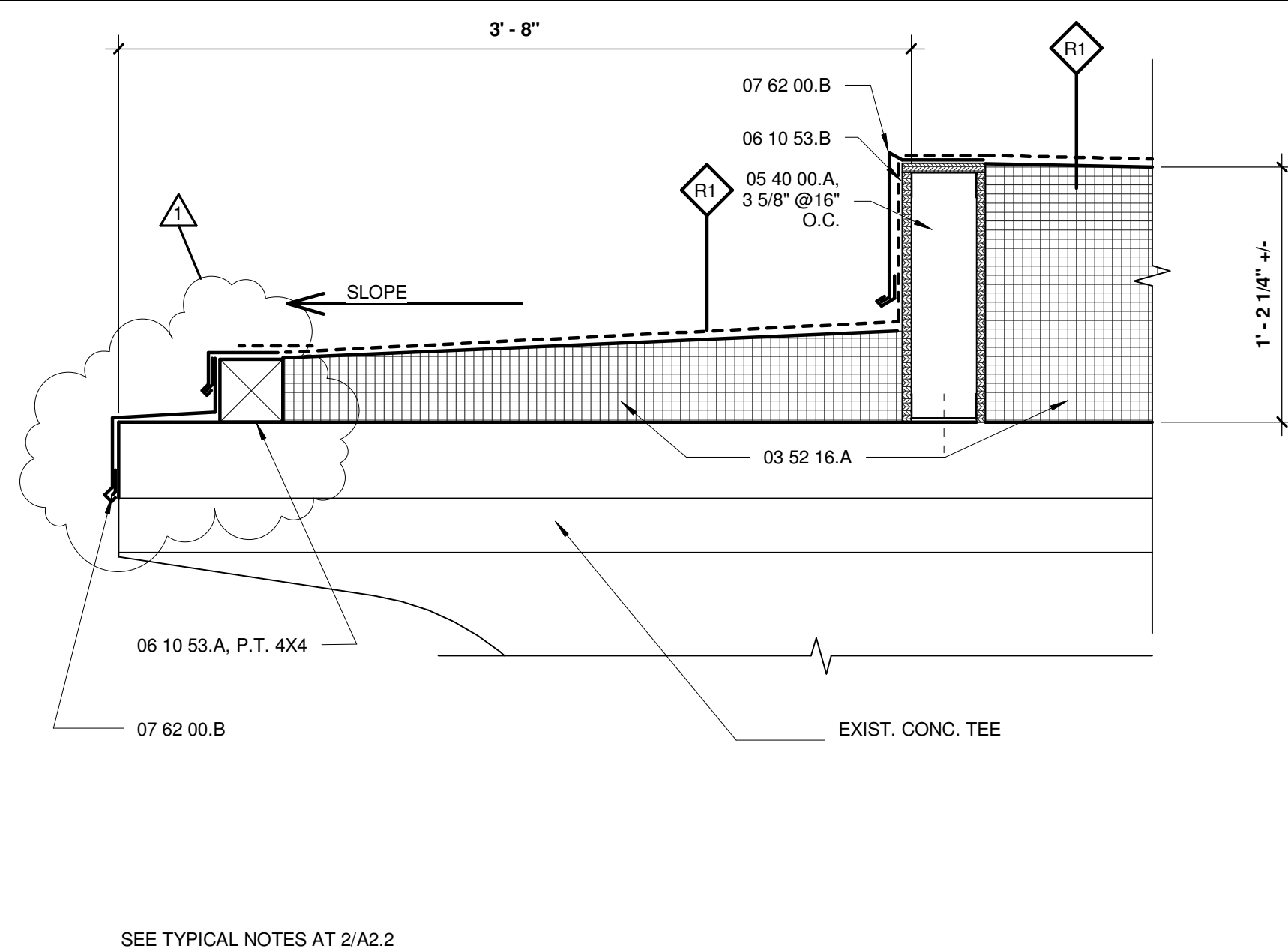
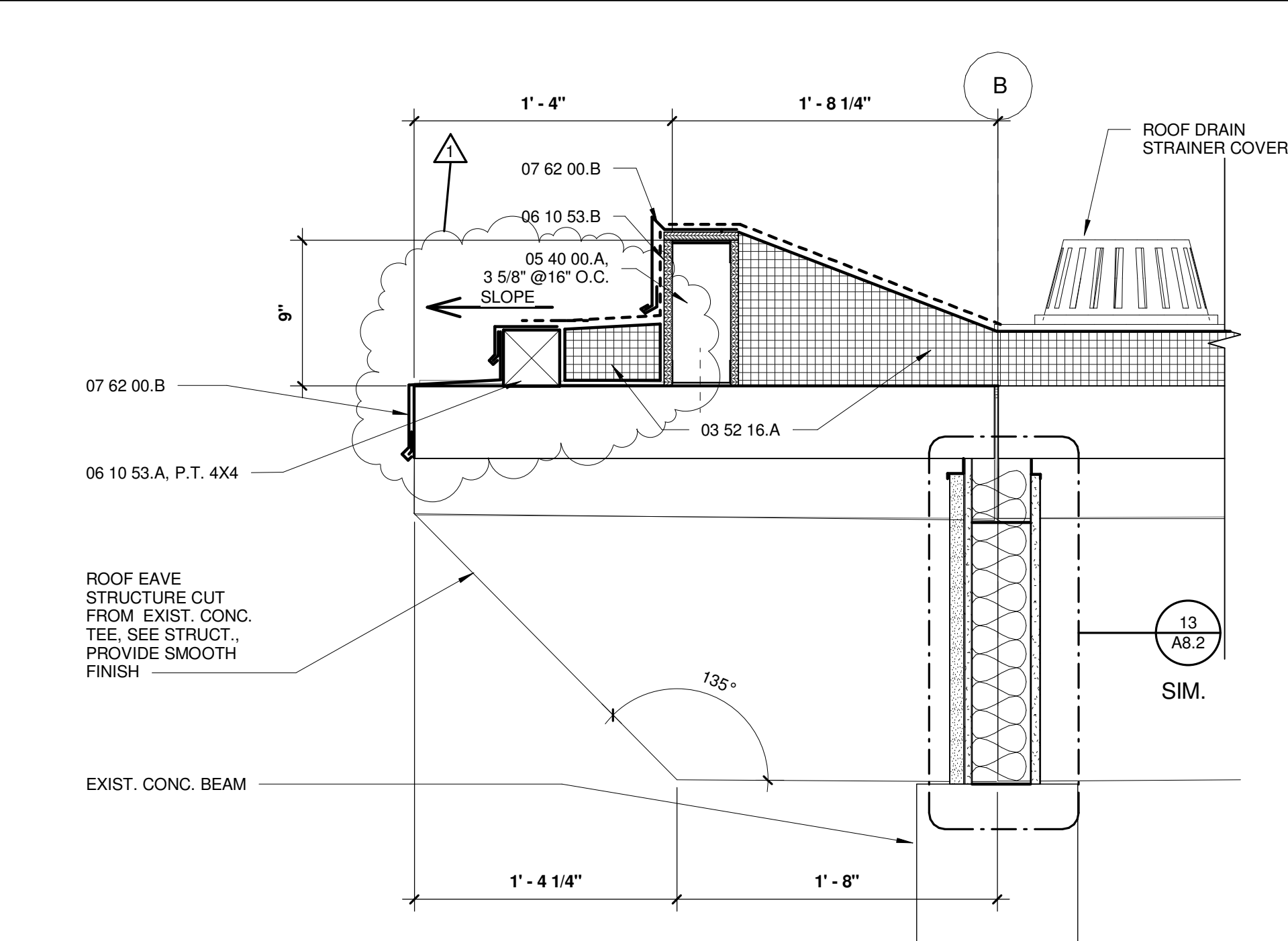
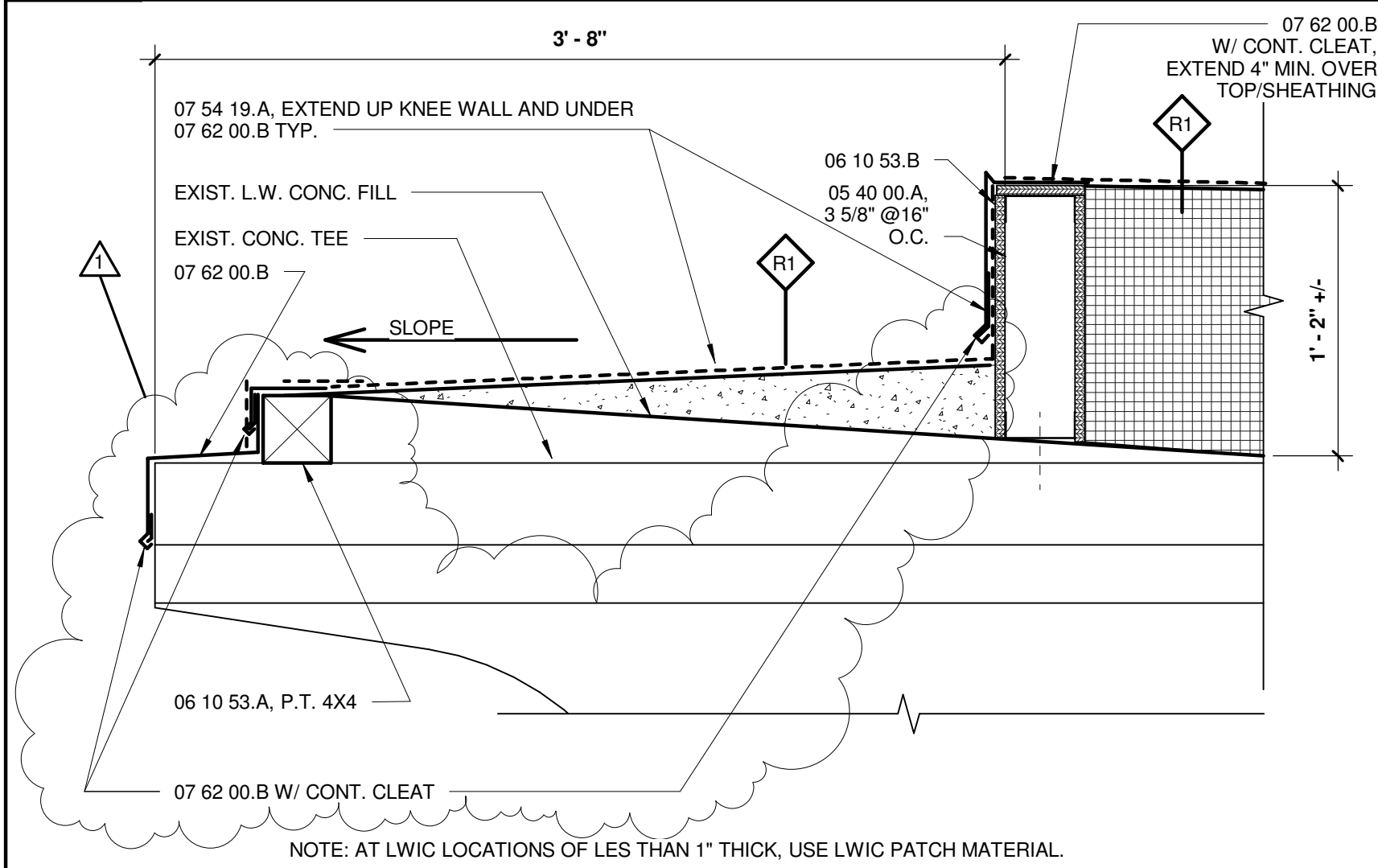
**DIVISION 4 - MASONRY**  
04 20 00 A UNIT MASONRY (FACE BRICK)  
04 20 00 C THRU WALL FLASHING  
04 20 00 D WEEP SYSTEM  
04 20 00 E MORTAR NET  
04 20 00 F MASONRY JOINT REINFORCING  
04 20 00 G CONCRETE MASONRY UNIT (CMU)  
04 20 00 H THERMAL INSULATION (RIGID AT WALLS)

**DIVISION 5 - METALS**  
05 12 00 A STRUCTURAL STEEL FRAMING  
05 31 00 A STEEL DECKING  
05 40 00 A COLD-FORMED METAL FRAMING  
05 50 00 A METAL FABRICATIONS  
05 50 00 B DOWNSPOUT BOOT  
05 50 00 C STEEL ANGLE LINTEL  
05 51 33 A ALTERNATING TREAD STEEL STAIR  
05 52 13 A PIPE AND TUBE RAILINGS

**DIVISION 6 - WOOD, PLASTICS, AND COMPOSITES**  
06 10 53 A MISCELLANEOUS ROUGH CARPENTRY  
06 10 53 B GYPSUM SHEATHING  
06 10 53 C 3/4\"/>

## 1 ROOF PLAN

A2.2 1/8" = 1'-0"



## ROOF GENERAL NOTES

- NOTE 1. SEE MECHANICAL & PLUMBING DRAWINGS FOR ADDITIONAL ROOF PENETRATIONS.
- NOTE 2. INFILL CONCRETE ROOF DECK IN ACCORDANCE WITH DETAILS SHOWN ON SHEET S2.01 WHERE EXIST. PENETRATIONS ARE REMOVED.

## ROOF LEGEND

- SLOPE DIRECTION OF ROOF PITCH
- ROOF DRAIN

## 2 ROOF EDGE DETAIL 1

A2.2 1 1/2" = 1'-0"

## 3 ROOF EDGE DETAIL 2

A2.2 1 1/2" = 1'-0"

## 4 ROOF EDGE DETAIL 3

A2.2 1 1/2" = 1'-0"

**CAT DOWNTOWN INTERMODAL TRANSIT CENTER**  
610 WEST OGLETHERPE AVENUE  
SAVANNAH, GEORGIA 31401

**CMA**  
COGDELL & MENDRALA ARCHITECTS, PC  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel 912.234.6318  
fax 912.236.8414  
cogdellmendra.com

SEAL:  
W. DONALD COGDELL  
REGISTERED ARCHITECT

**PROJECT CONSULTANTS:**  
ASSOCIATE ARCHITECT & STRUCTURAL ENGINEER:  
**WENDEL DUCHSCHERER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219  
CIVIL ENGINEER:  
**THOMAS & HUTTON ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402  
CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322  
LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SORRELWOOD CROSS  
SAVANNAH, GA. 31411  
MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396  
PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

**KEY PLAN:**

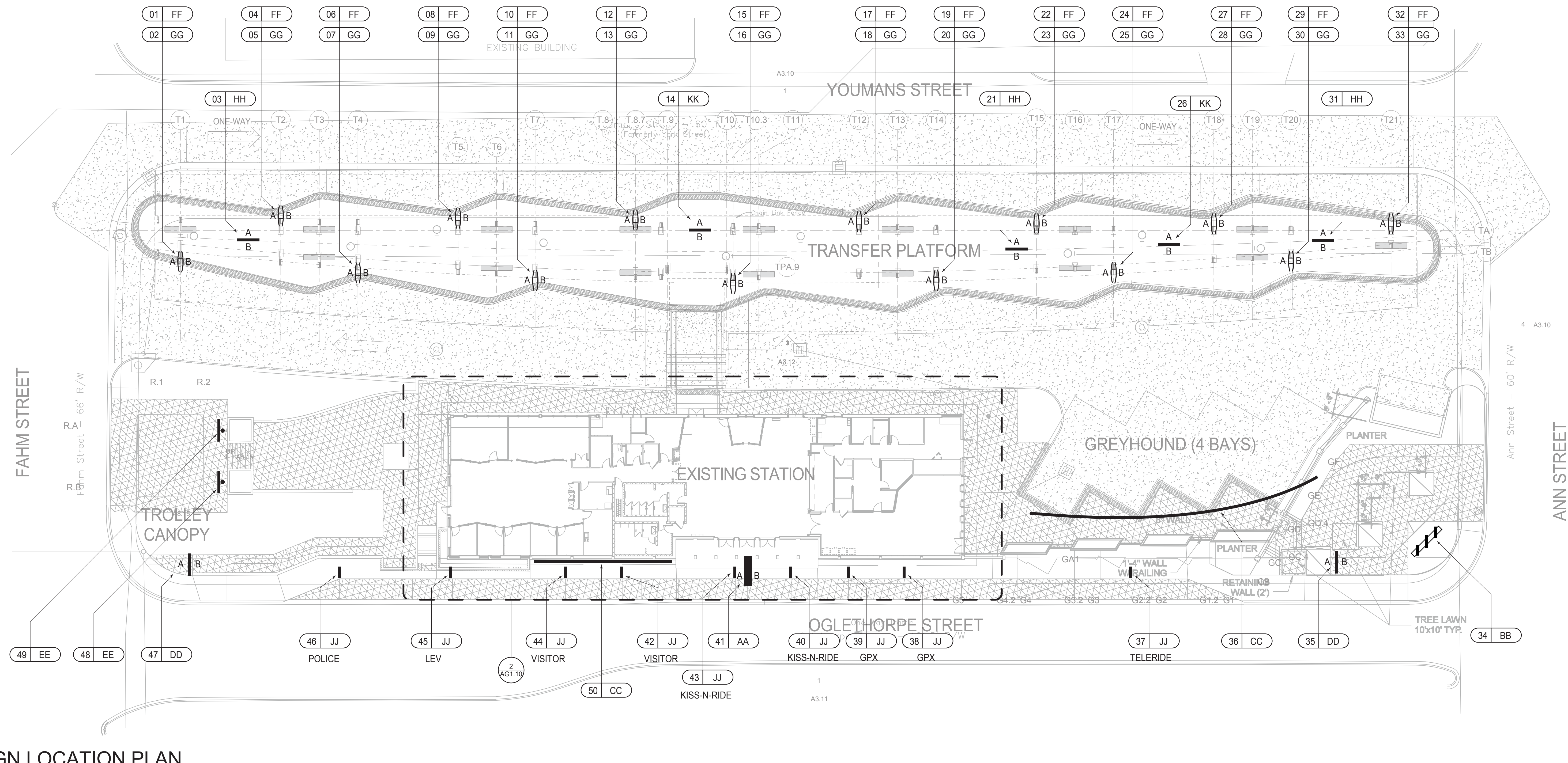
## SHEET TITLE: TERMINAL BUILDING - ROOF PLAN

REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	Addendum 2

PROJECT NO: 0603  
DATE: SEPTEMBER 29, 2011  
DRAWN BY: RML  
SCALE: As indicated

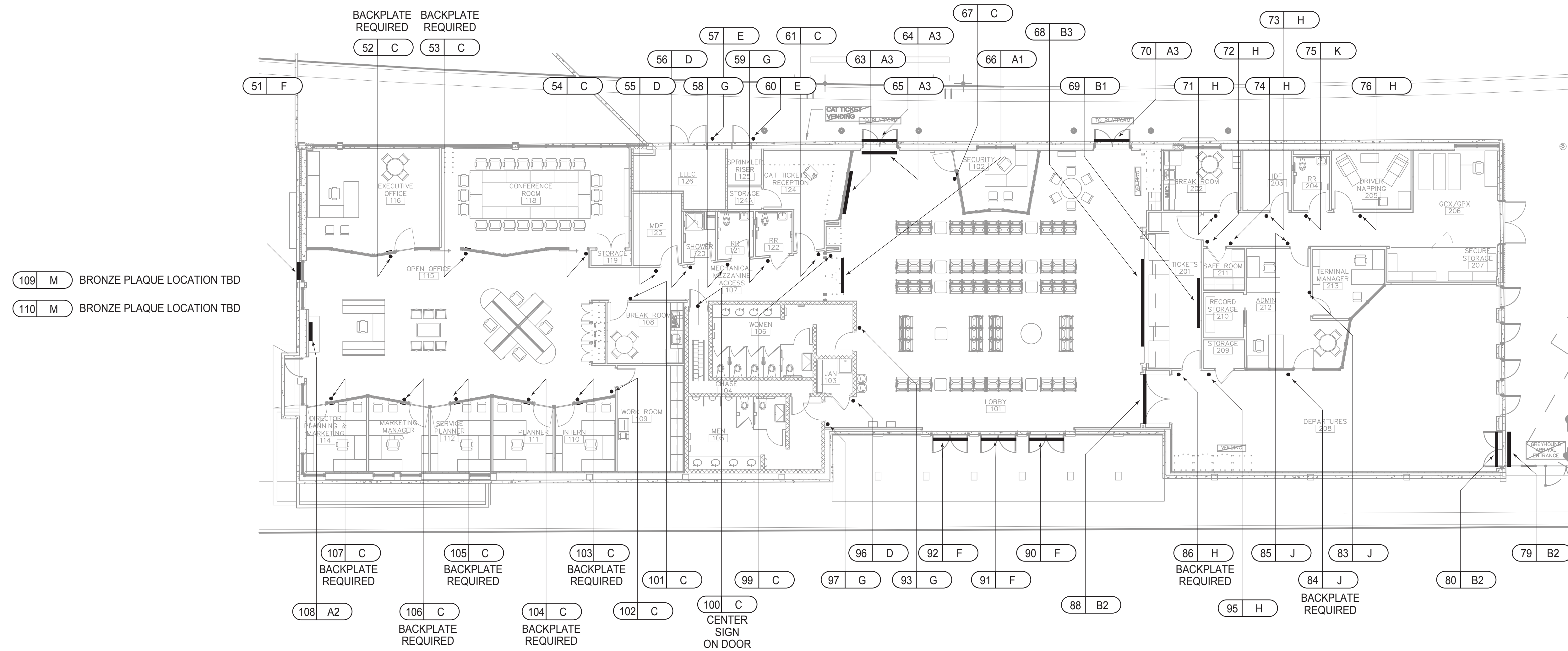
SHEET: **A2.2**





## 1 OVERALL SIGN LOCATION PLAN

AG1.10 1" = 20'-0"



## 2 SIGN LOCATION PLAN DETAIL

AG1.10 FULL SCALE



CHATHAM AREA TRANSIT

## CAT DOWNTOWN INTERMODAL TRANSIT CENTER

610 OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401

60% DESIGN DEVELOPMENT

**CMA**

COGDELL & MENDRALA ARCHITECTS, PC  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel 912.234.6318 fax 912.236.8414  
cogdelimendrala.com

SEAL:

### PROJECT CONSULTANTS:

ASSOCIATE ARCHITECT &  
STRUCTURAL ENGINEER:  
**WENDEL DUCHSCHERER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219

CIVIL ENGINEER:  
**THOMAS & HUTTON  
ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402

CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322

LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SORRELWOOD CROSS  
SAVANNAH, GA. 31411

MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396

PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

### SHEET TITLE:

**SIGN  
LOCATION  
PLANS**

ADDENDUM #2

### REVISION SCHEDULE

DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2

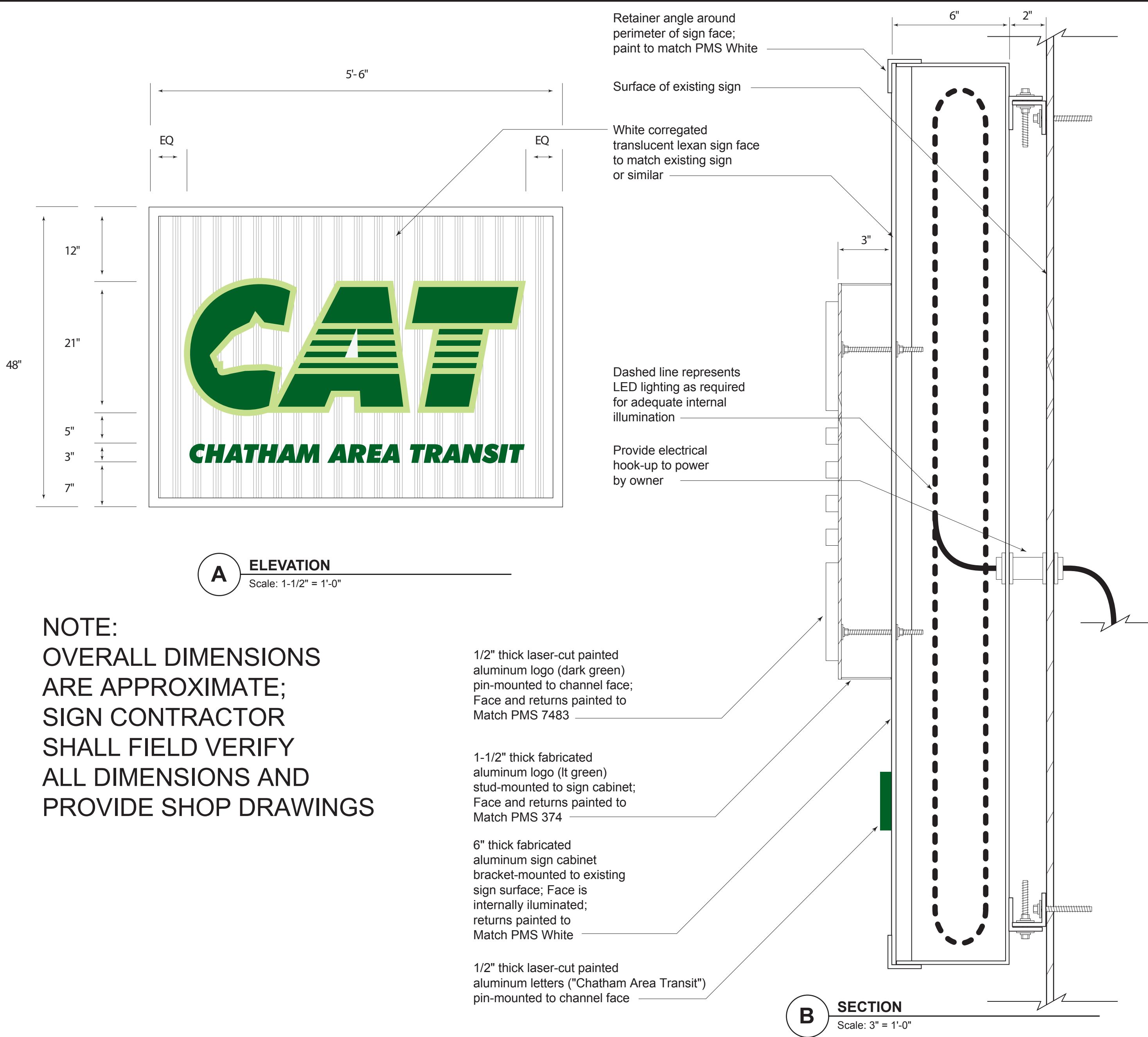
PROJECT NO: 0603  
DATE: NOVEMBER 9, 2011  
DRAWN BY: BN  
SCALE: AS NOTED

SHEET: **AG1.10**



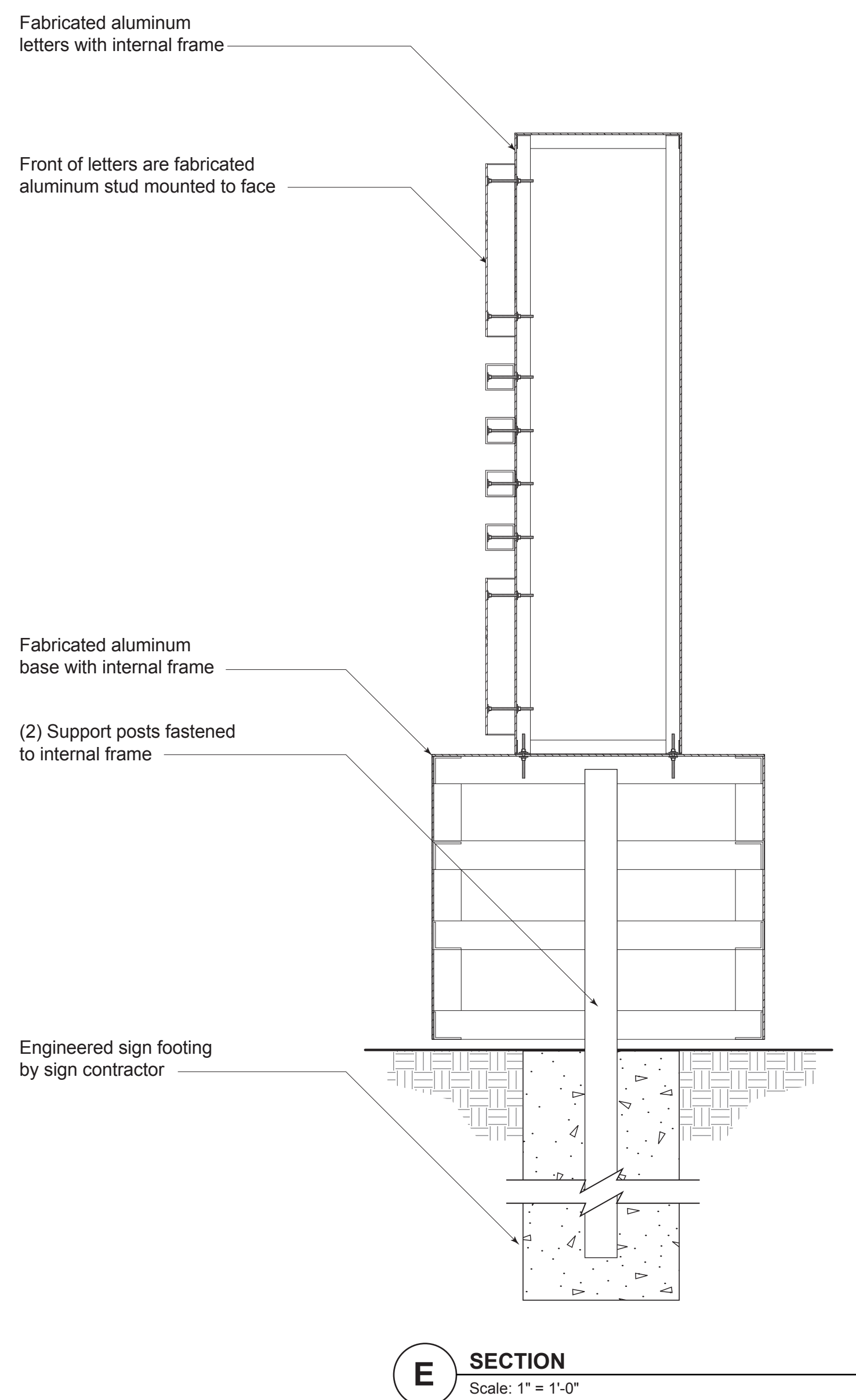
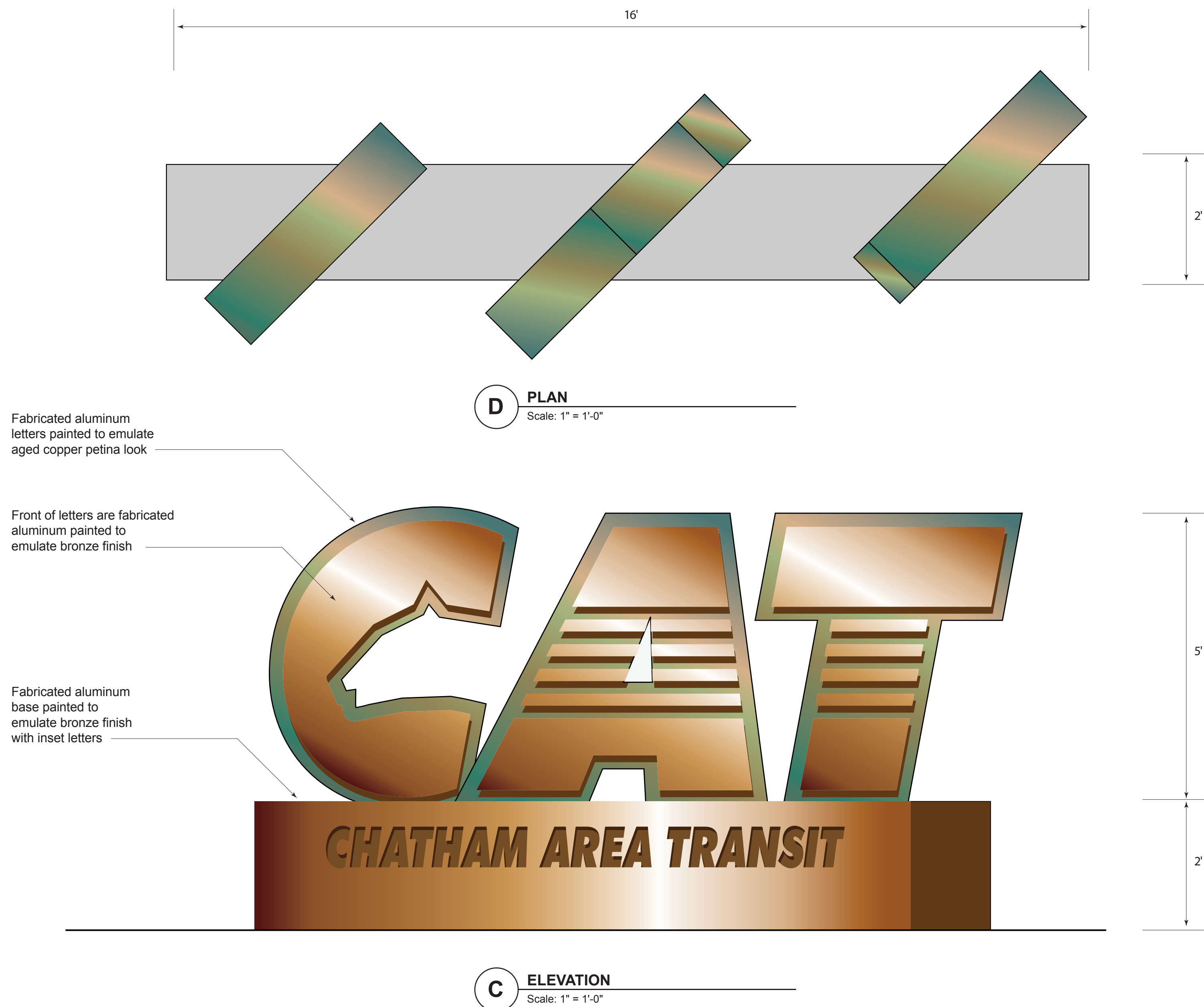


- INSTRUCTIONS TO BIDDERS:
- Existing sign is to be refurbished/ restored to working condition.
  - Add CAT logo to **both sides** of existing sign
  - Remove rust, clean, repair and repaint metal framing, panels and supports.



1 SIGN TYPE - AA

AG2.01 NO SCALE



3 SIGN TYPE - BB

AG2.01 3/4" = 1'-0"

**CAT DOWNTOWN INTERMODAL TRANSIT CENTER**  
610 OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401

**CHATHAM AREA TRANSIT**

60% DESIGN DEVELOPMENT

**CMA**  
COGDELL & MENDRALA ARCHITECTS, PC  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel 912.234.6316  
fax 912.236.8414  
cogdelimendrala.com

SEAL:

**PROJECT CONSULTANTS:**

ASSOCIATE ARCHITECT & STRUCTURAL ENGINEER:  
**WENDEL DUCHSCHERER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219

CIVIL ENGINEER:  
**THOMAS & HUTTON ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402

CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322

LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SORRELWOOD CROSS  
SAVANNAH, GA. 31411

MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396

PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

**SHEET TITLE:**  
ARCHITECTURAL SIGNAGE

ADDENDUM #2

REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2

**PROJECT NO:** 0603  
**DATE:** NOVEMBER 9, 2011  
**DRAWN BY:** BN  
**SCALE:** AS NOTED

**SHEET:** AG2.01



1	SIGN TYPE - CC
AG2.02	1/8" = 1'-0"

2	SIGN TYPE - DD
AG2.02	1" = 1'-0"

3	SIGN TYPE - EE
AG2.02	1" = 1'-0"

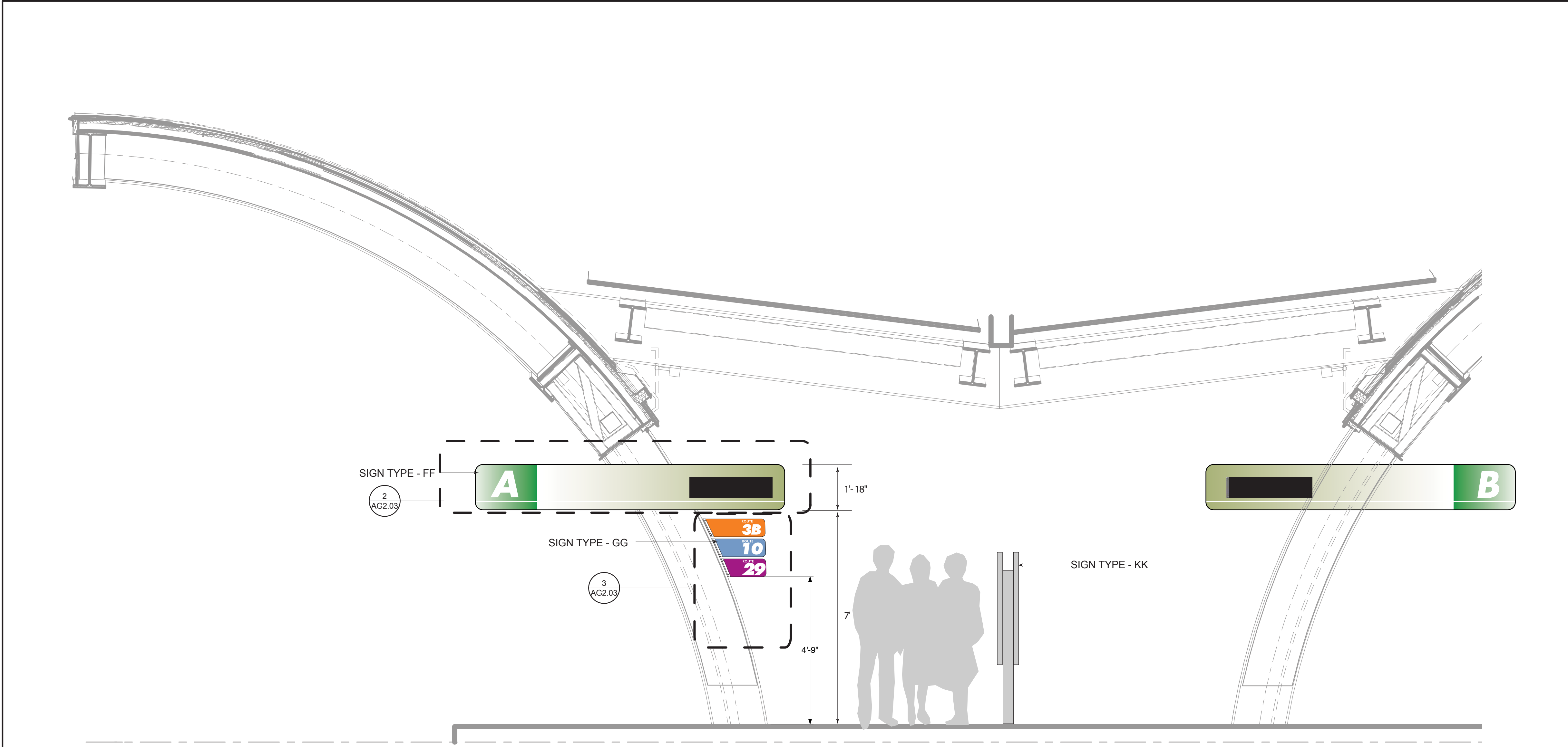
4	SIGN TYPE - HH
AG2.02	3/8" = 1'-0"

SEAL:

## ADDENDUM #2

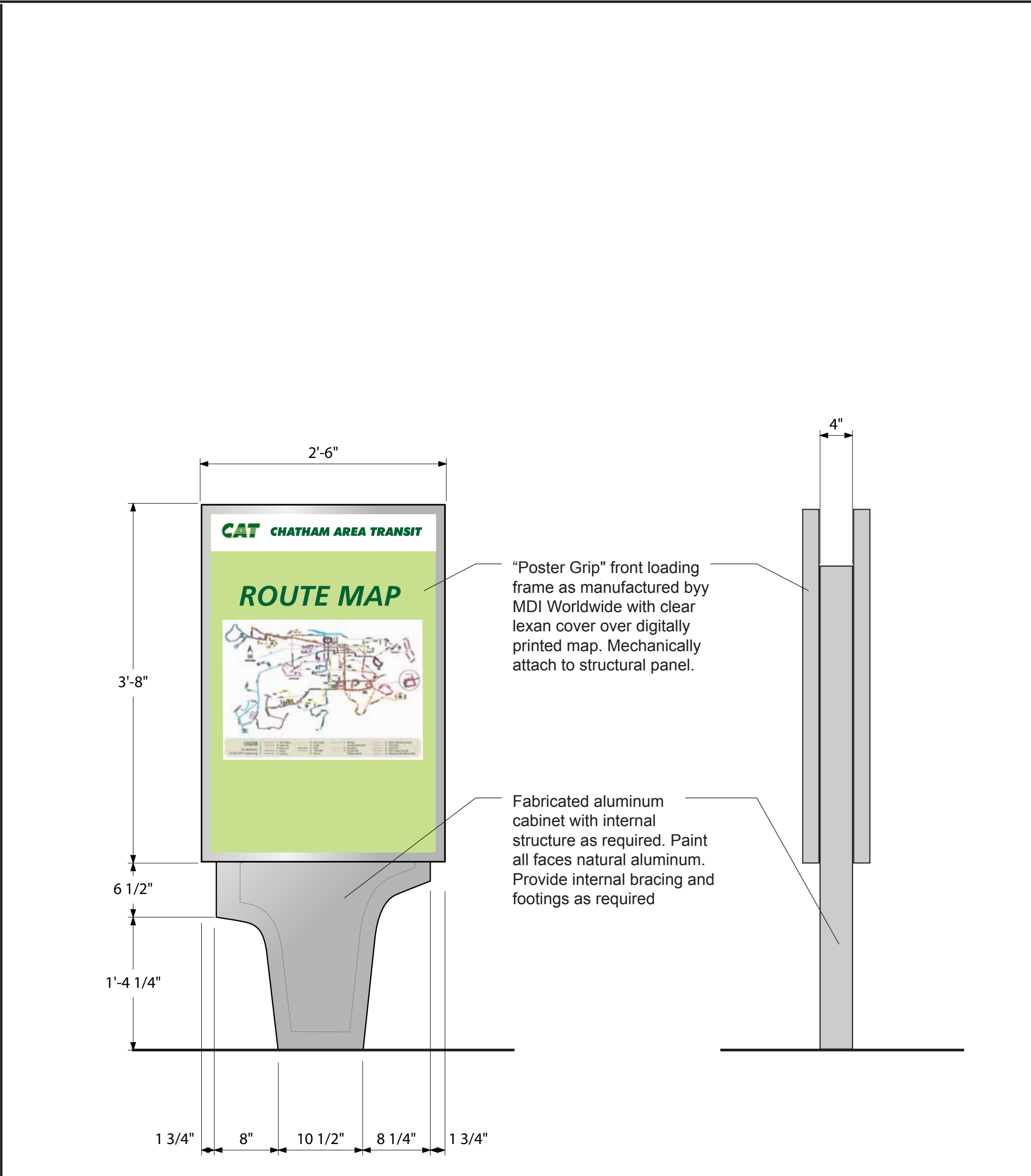
[illegible]





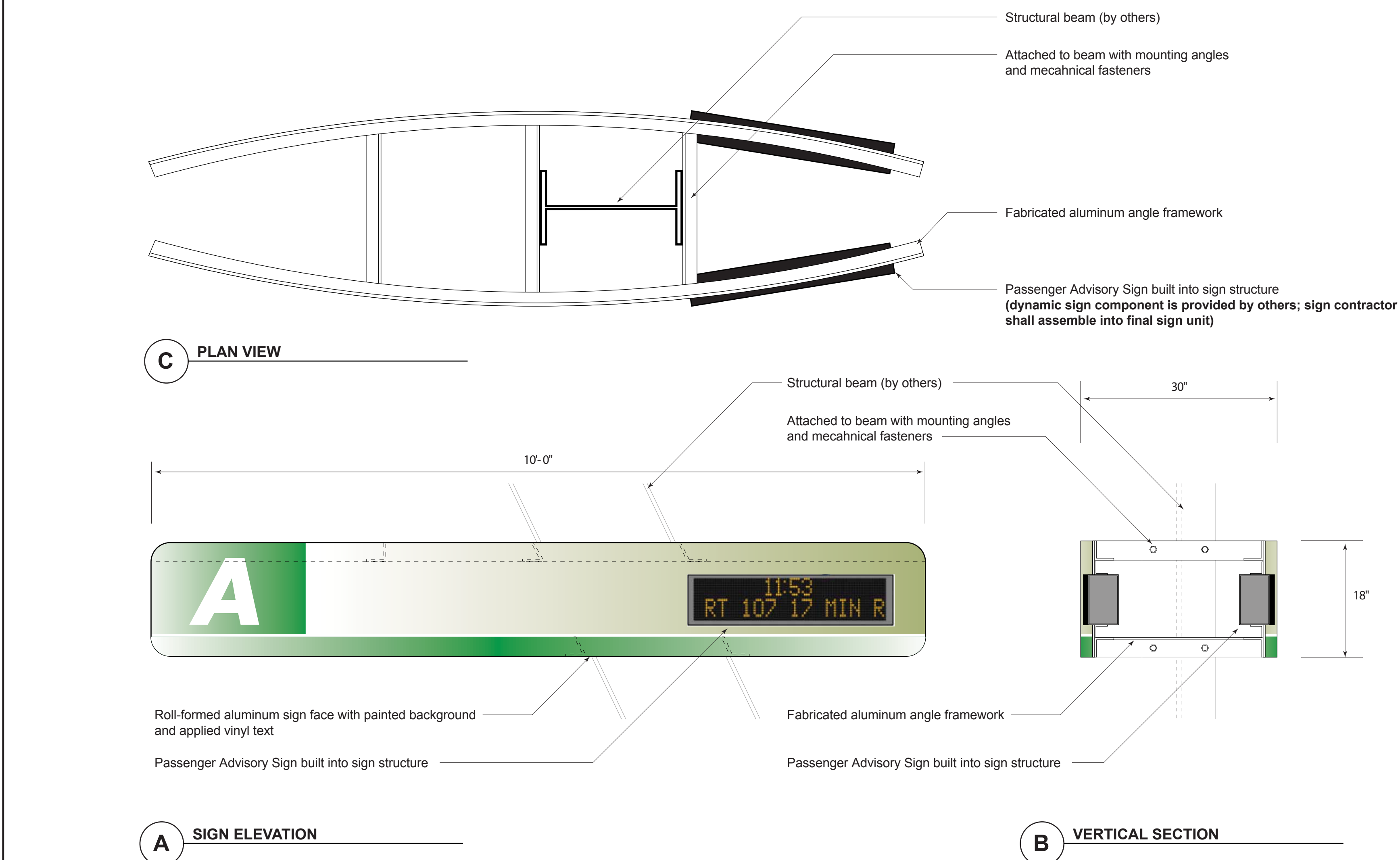
## 1 SIGN TYPES- FF/GG

AG2.03 1/2" = 1'-0"



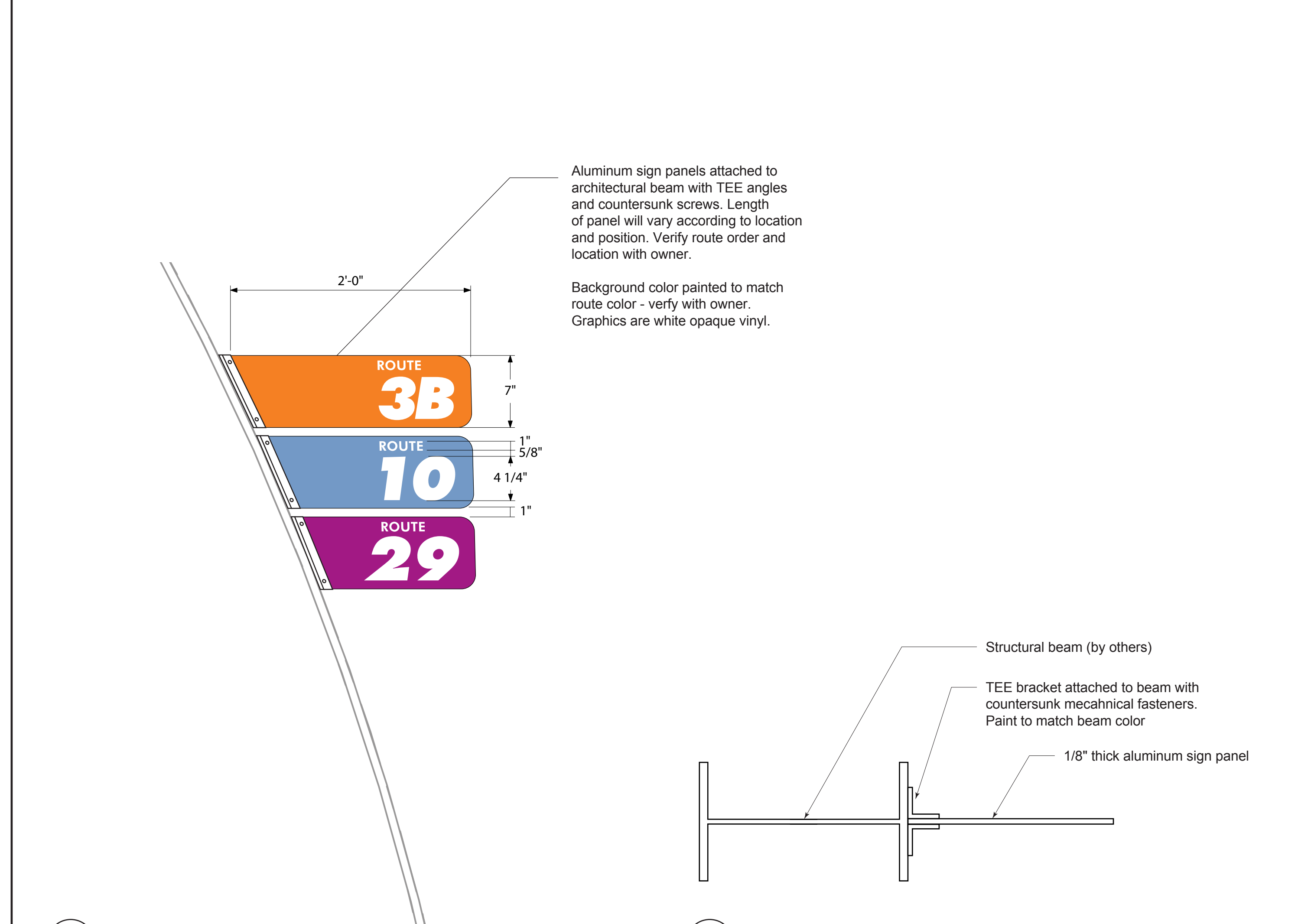
## 4 SIGN TYPE- KK

AG2.03 1" = 1'-0"



## 2 SIGN TYPE - FF

AG2.03 1" = 1'-0"



## 3 SIGN TYPE - GG

AG2.03 1-1/2" = 1'-0"

**CAT DOWNTOWN INTERMODAL TRANSIT CENTER**  
610 OGLETTHORPE AVENUE  
SAVANNAH, GEORGIA 31401  
60% DESIGN DEVELOPMENT

**CMA**  
COGDELL & MENDRALA ARCHITECTS, PC  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel. 912.234.6318  
fax 912.236.8414  
cogdellmendra.com

SEAL:

**PROJECT CONSULTANTS:**  
ASSOCIATE ARCHITECT & STRUCTURAL ENGINEER:  
**WENDEL DUCHSCHERER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219  
CIVIL ENGINEER:  
**THOMAS & HUTTON ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402  
CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322  
LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SORRELWOOD CROSS  
SAVANNAH, GA. 31411  
MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396  
PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

## SHEET TITLE: ARCHITECTURAL SIGNAGE

ADDENDUM #2

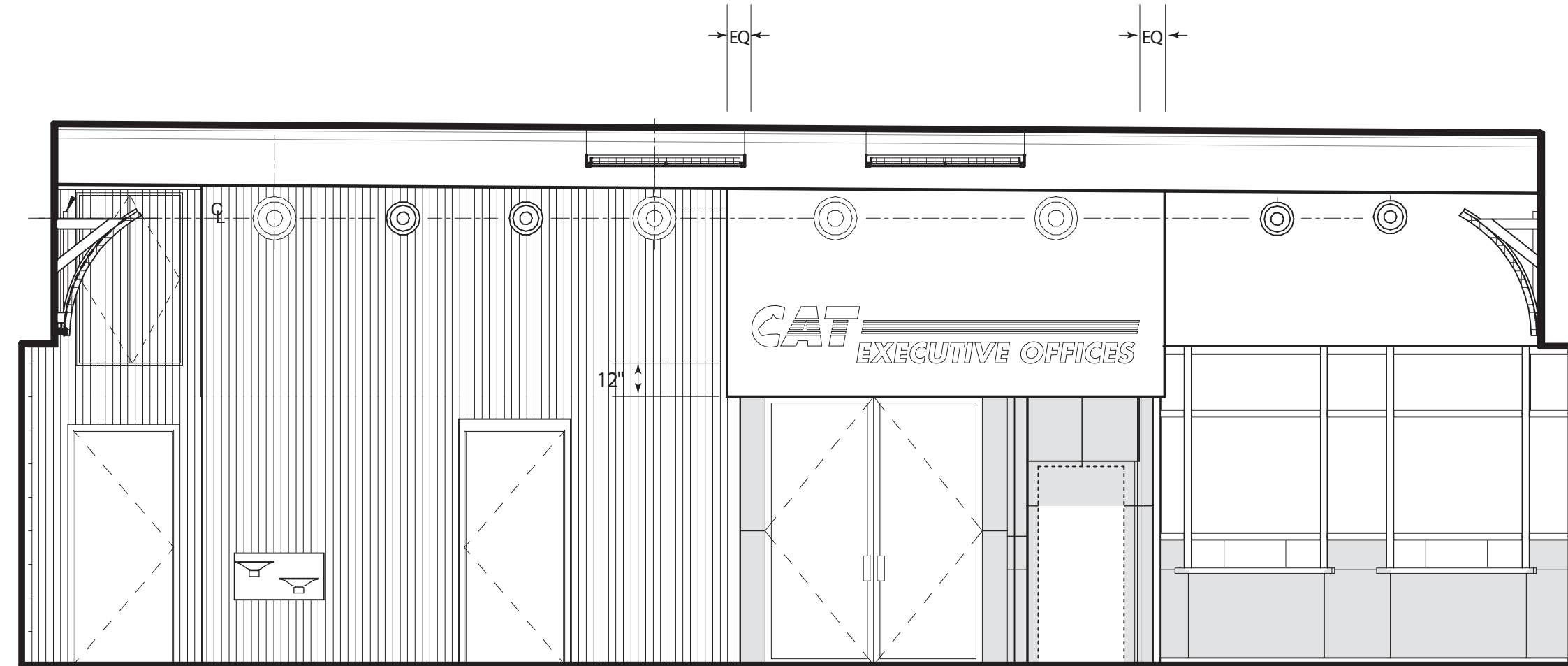
REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2

PROJECT NO: 0603  
DATE: NOVEMBER 9, 2011  
DRAWN BY: BN  
SCALE: AS NOTED

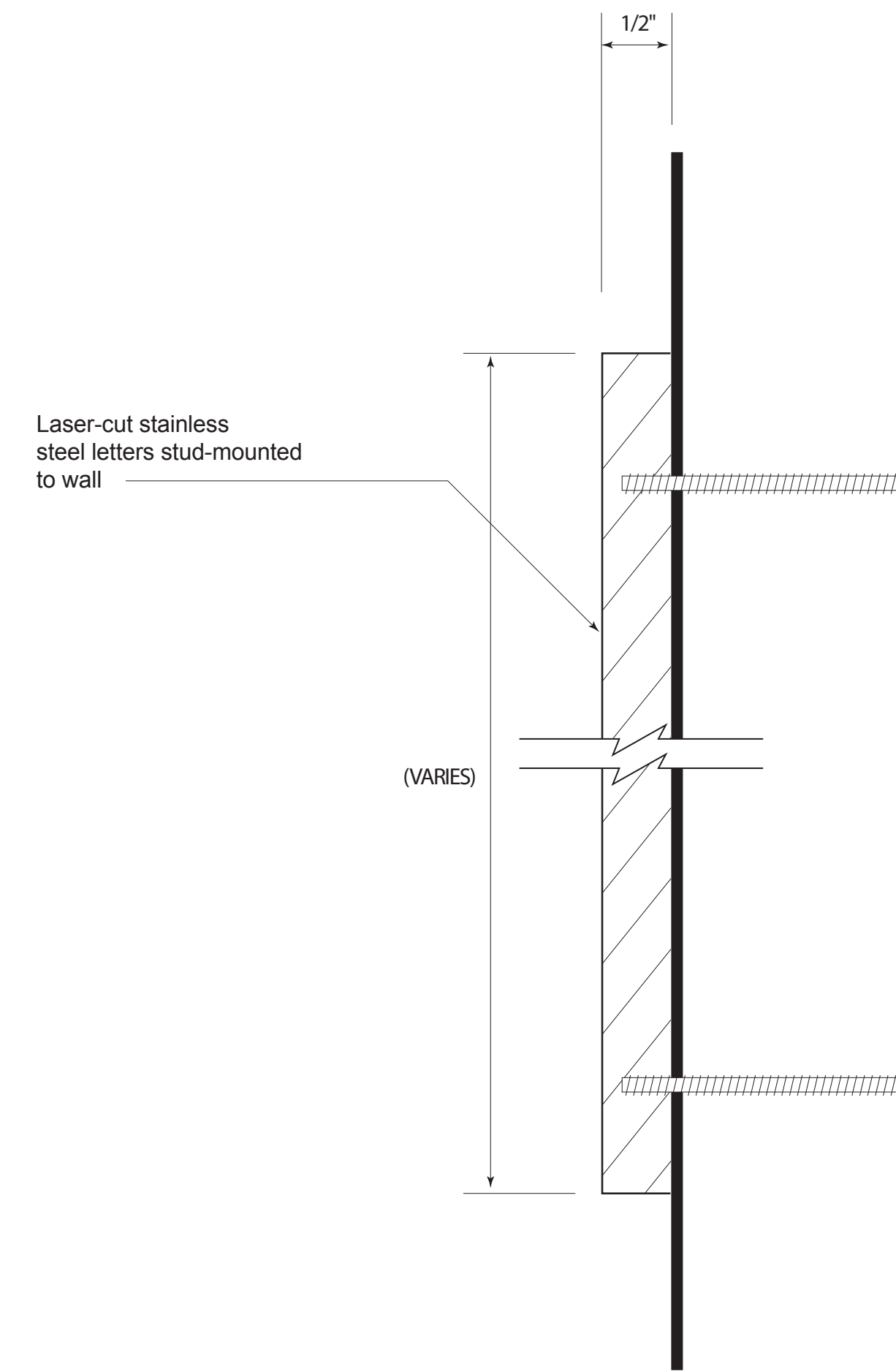
SHEET: **AG2.03**



**B** DETAIL ELEVATION  
Scale: 1-1/2" = 1'-0"



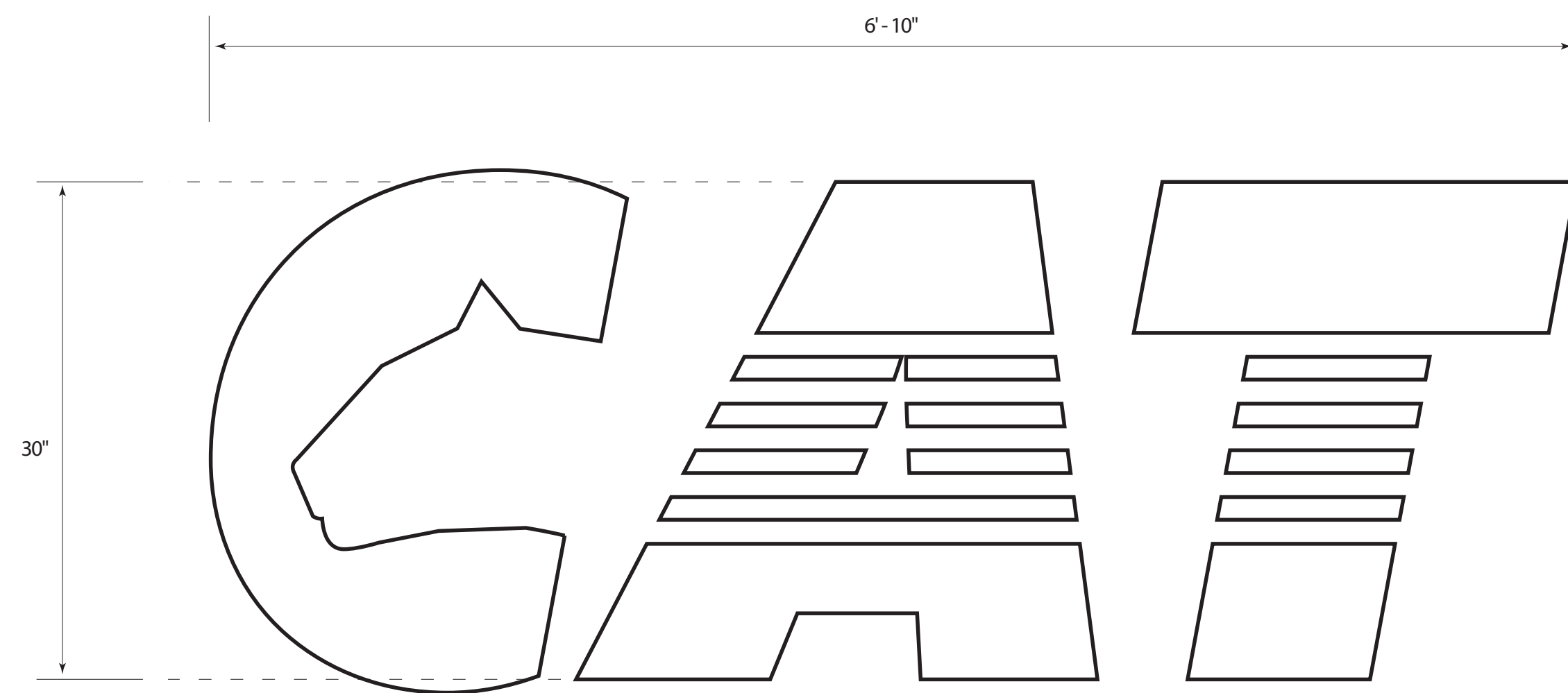
**A** KEY ELEVATION  
Scale: 1/4" = 1'-0"



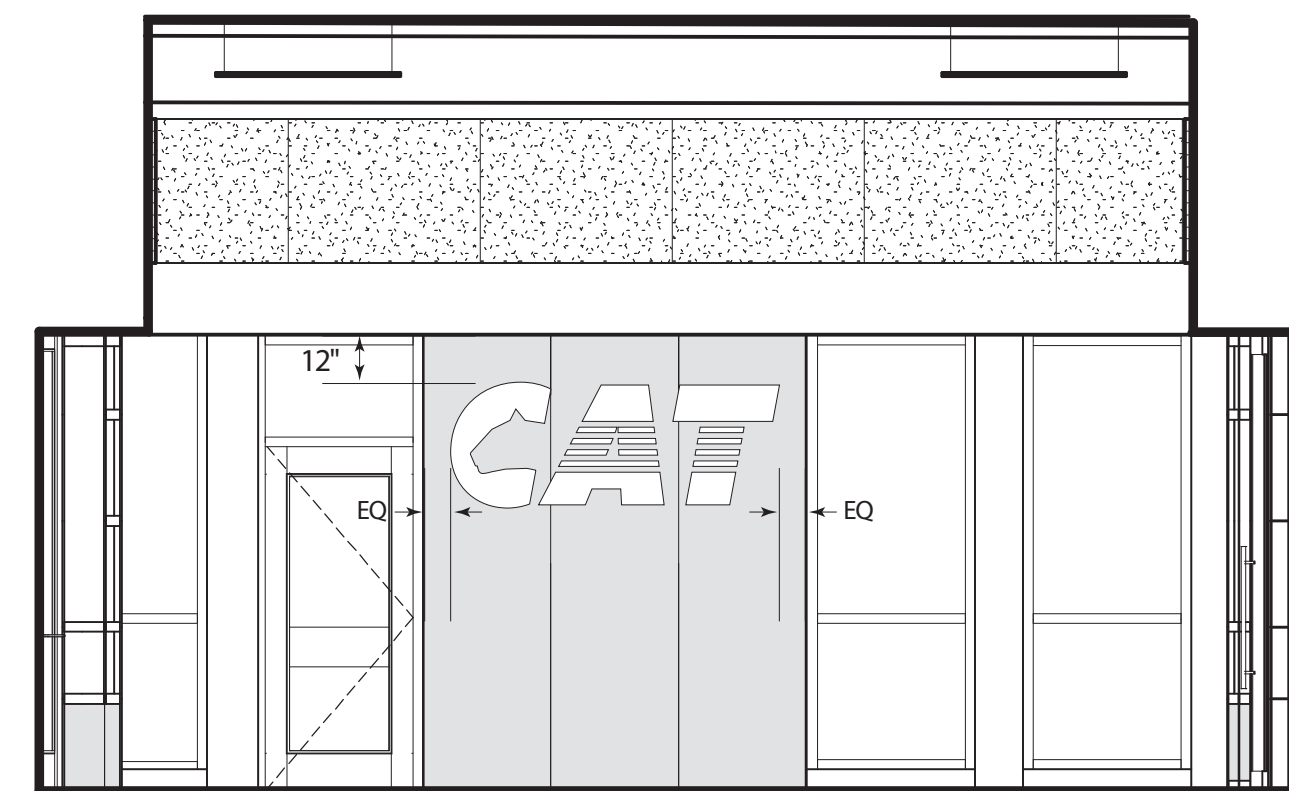
**C** SECTION  
Full Scale

1 SIGN TYPE - A1

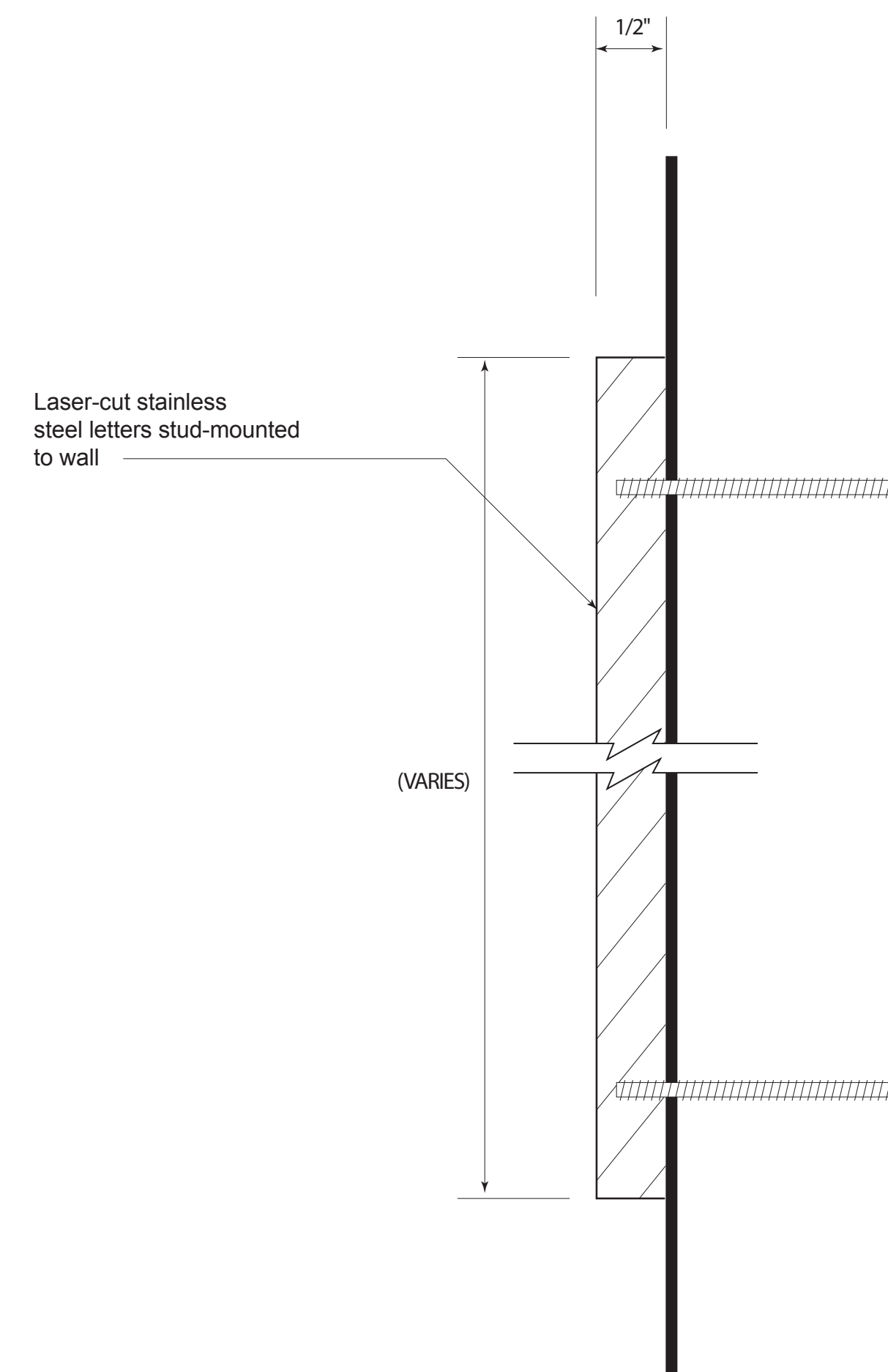
AG2.04



**E** DETAIL ELEVATION  
Scale: 1-1/2" = 1'-0"



**D** KEY ELEVATION  
Scale: 1/4" = 1'-0"



**F** SECTION  
Full Scale

2 SIGN TYPE - A2

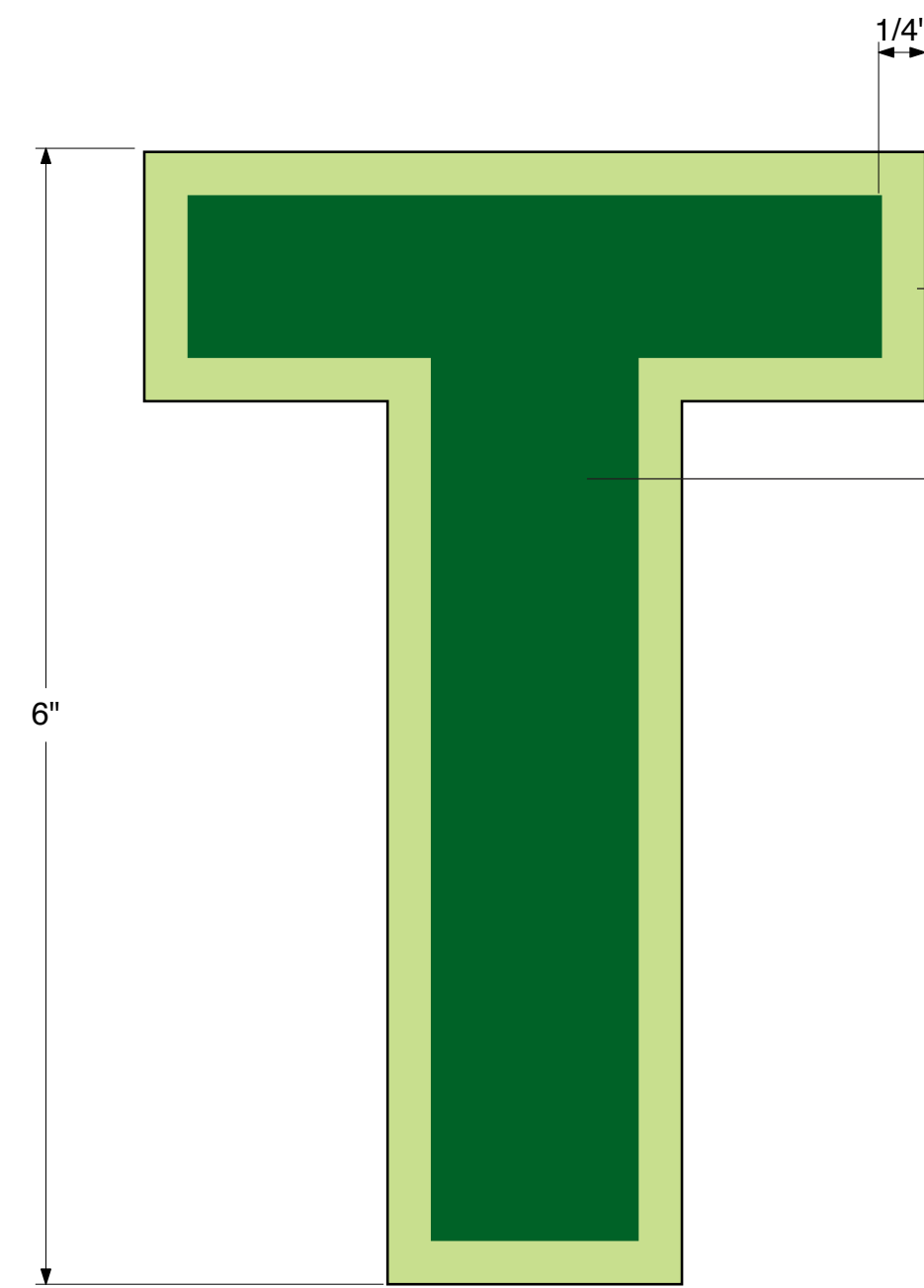
AG2.04

REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2





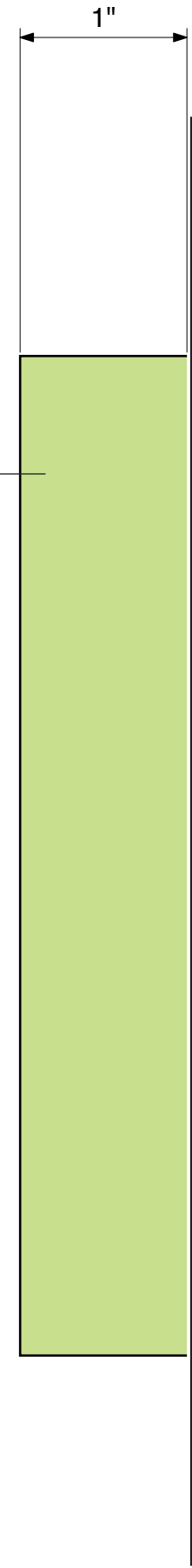
**A** ELEVATION  
Scale: 1" = 1'-0"



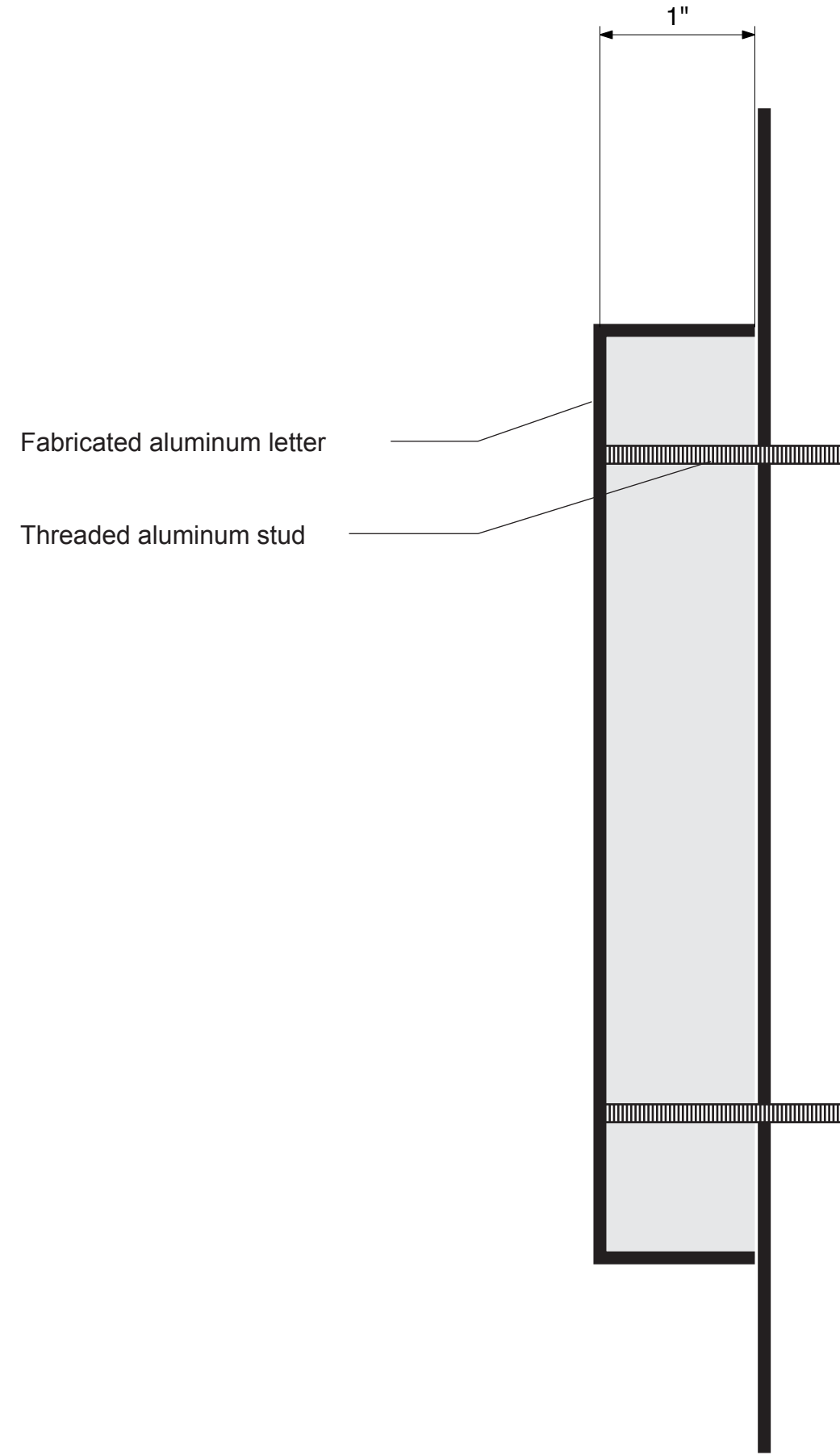
**B** DETAIL ELEVATION

Fabricated aluminum letter.  
Face and returns painted to  
Match PMS 374

Vinly overlay inset 1/4" from  
edge of letter color to match  
PMS 7483



**C** SIDE VIEW



**D** SCHEMATIC SECTION

6" BUSES

**E** DETAIL ELEVATION  
Scale: 1" = 1'-0"

6" TICKETS

**F** DETAIL ELEVATION  
Scale: 1" = 1'-0"

1 SIGN TYPE - A3

AG2.05

2 SIGN TYPE - A3: OTHER LAYOUTS

AG2.05

Fabricated aluminum letter stud monted to wall. Center  
over doorway

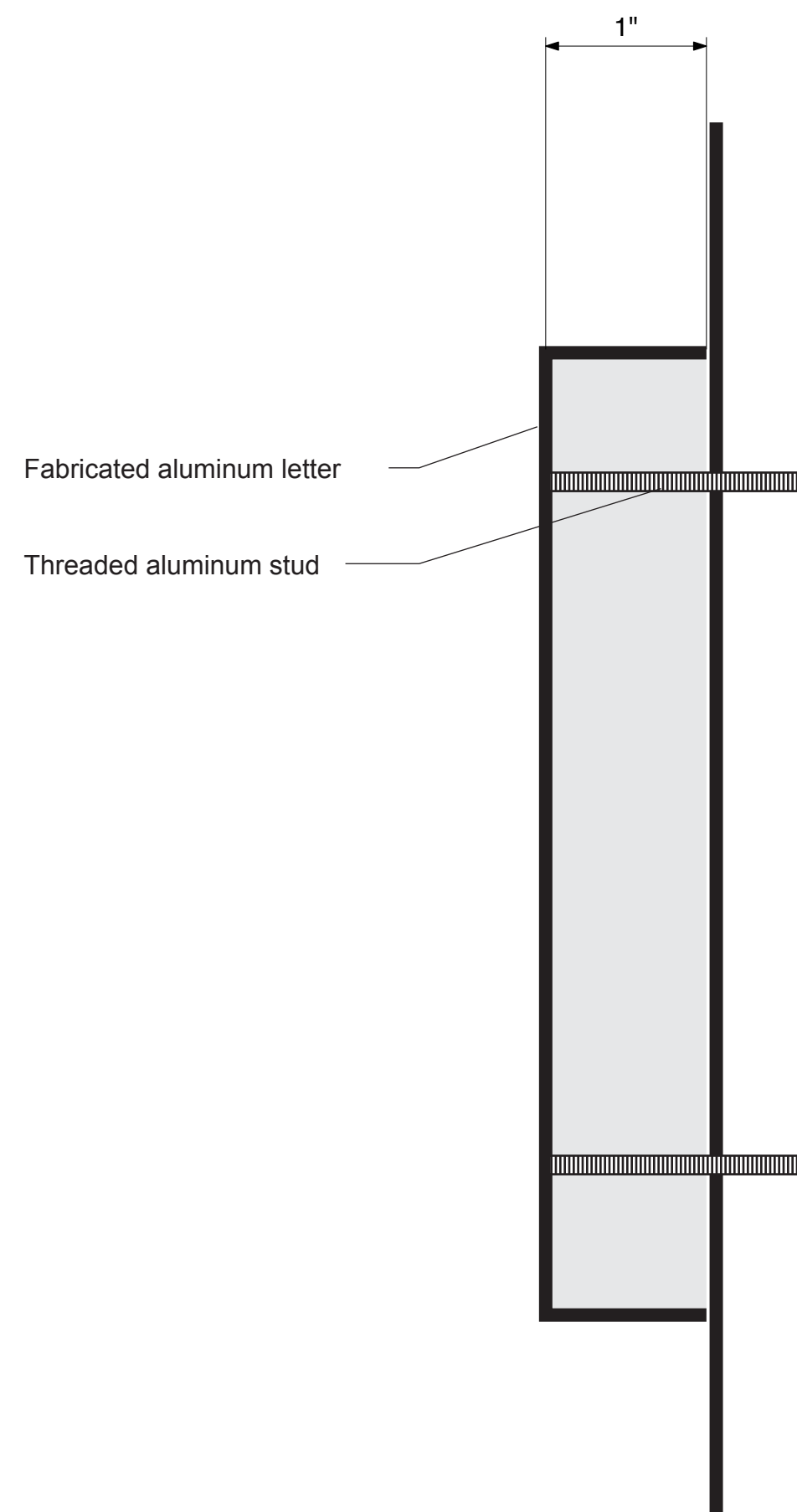
9"  
4"  
6"  
GREYHOUND  
TICKETS & GPX

**H** DETAIL ELEVATION  
Scale: 1" = 1'-0"

Fabricated aluminum letter.  
Face and returns painted to match PMS 286



**I** SIDE VIEW



**J** SCHEMATIC SECTION

6" BUSES

**K** DETAIL ELEVATION  
Scale: 1" = 1'-0"

6" TERMINAL

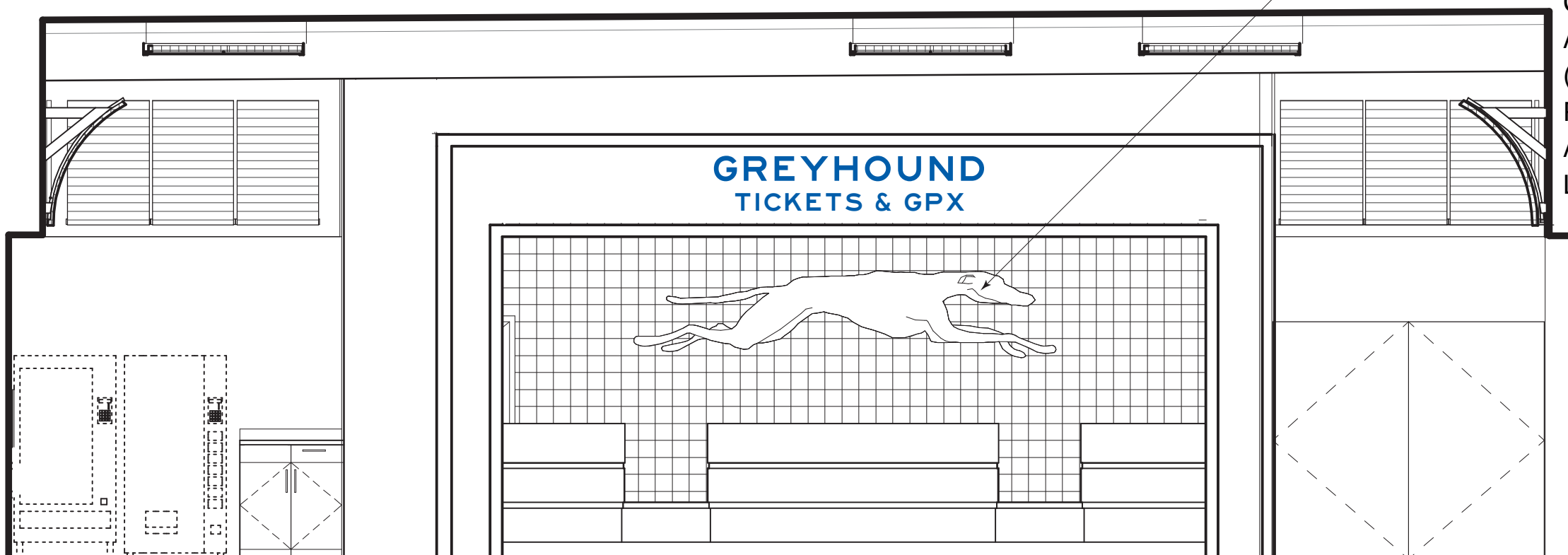
**L** DETAIL ELEVATION  
Scale: 1" = 1'-0"

3 SIGN TYPE - B1

AG2.05

4 SIGN TYPE - B2: OTHER LAYOUTS

AG2.05



**G** KEY ELEVATION  
Scale: 1/4" = 1'-0"

**SIGN TYPE - B3**  
60" L x 12.625"H GREYHOUND LOGO  
LOGO TO BE 2" DEEP ALUMINUM, REVERSE  
CHANNEL WITH A DIGITAL PRINT  
APPLIED TO FACE TO MIMIC GRADIENTS  
(SAMPLE GUIDE TO BE PROVIDED)  
PROVIDE REVERSE LED LIGHTING TO  
ADD HALO EFFECT.  
LOGO TO BE MOUNTED 2" OFF FACE/WALL

CAT DOWNTOWN INTERMODAL  
TRANSIT CENTER

610 OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401

60% DESIGN DEVELOPMENT

CHATHAM AREA TRANSIT

**CMA**  
COGDELL & MENDRALA ARCHITECTS, PC  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel 912.236.6318  
fax 912.236.8414  
cogdellmendrala.com

SEAL:

**PROJECT CONSULTANTS:**  
ASSOCIATE ARCHITECT &  
STRUCTURAL ENGINEER:  
**WENDEL DUCITSCHER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219  
CIVIL ENGINEER:  
**THOMAS & HUTTON**  
**ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402  
CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322  
LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SUNRELWOOD CROSS  
SAVANNAH, GA. 31411  
MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396  
PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

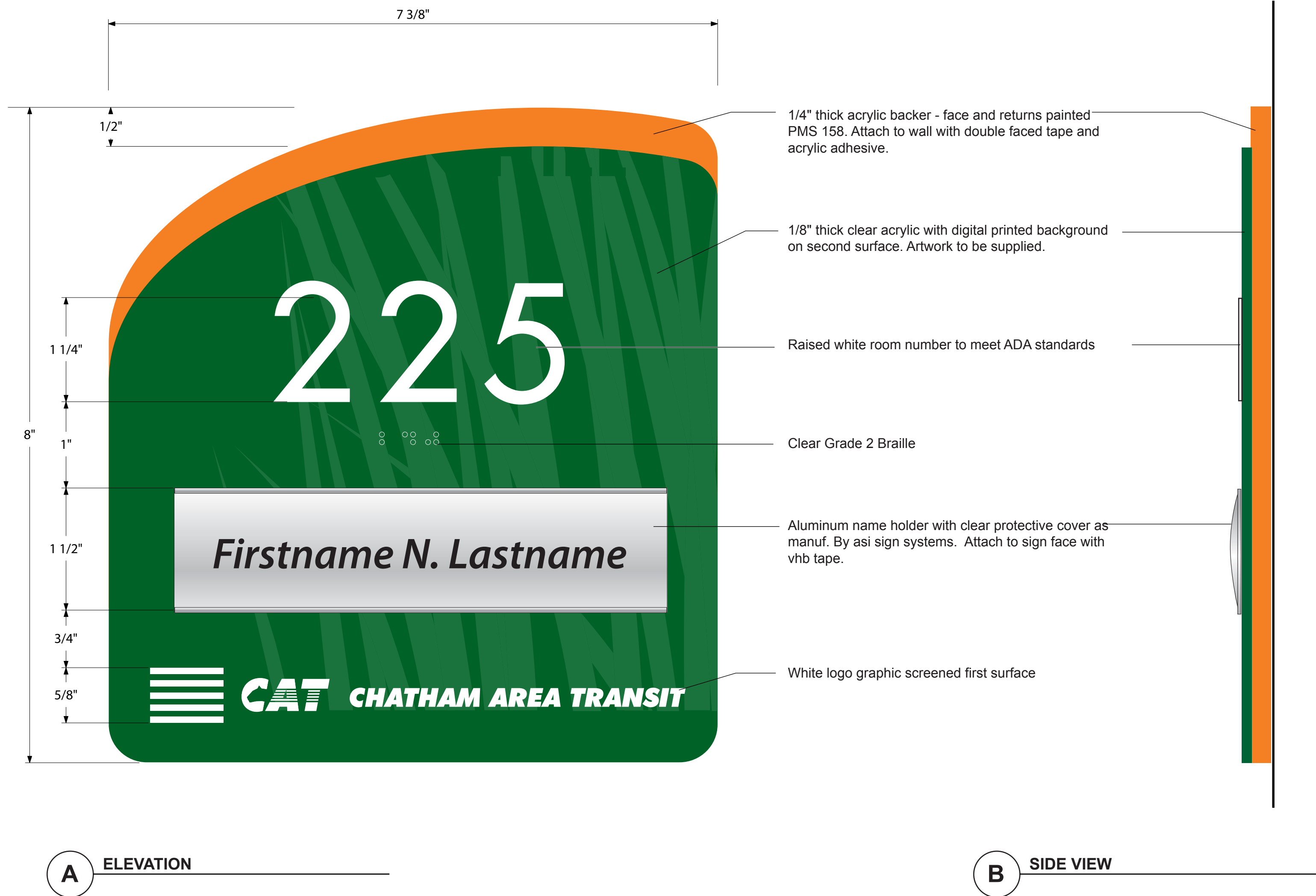
**SHEET TITLE:**  
ARCHITECTURAL  
SIGNAGE

ADDENDUM #2

REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2

**PROJECT NO:** 0603  
**DATE:** NOVEMBER 9, 2011  
**DRAWN BY:** BN  
**SCALE:** AS NOTED

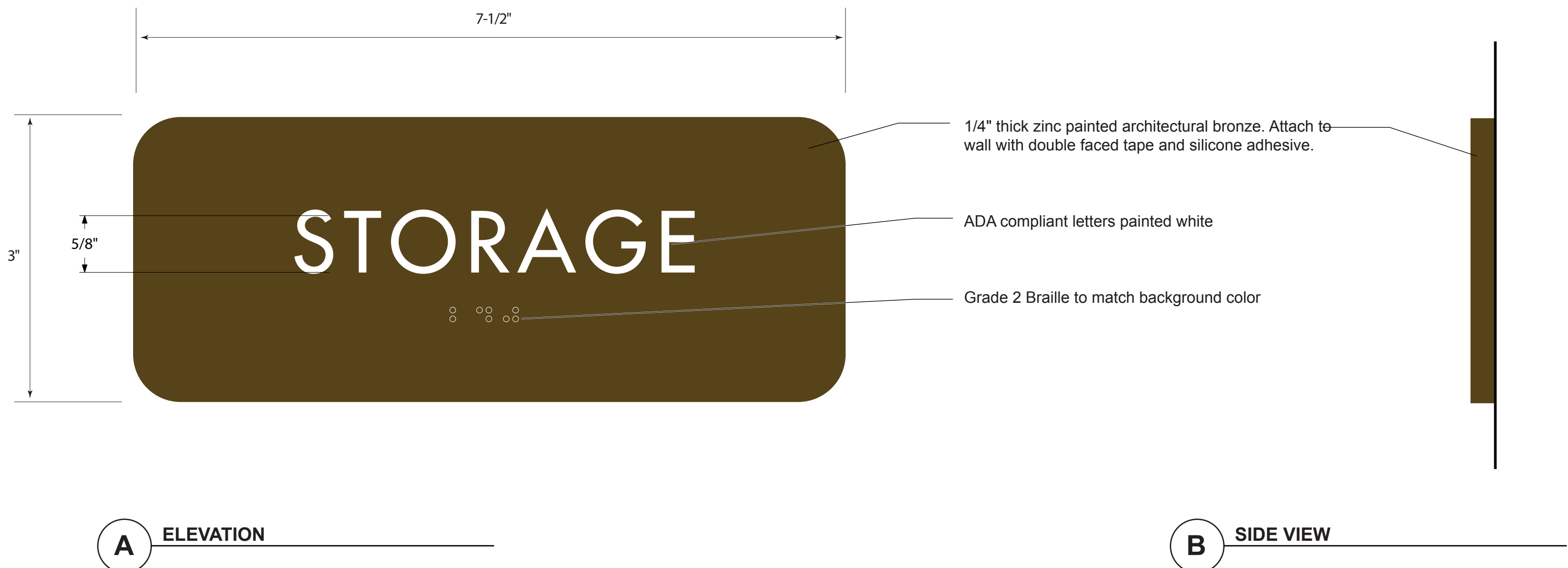
**SHEET:** **AG2.05**



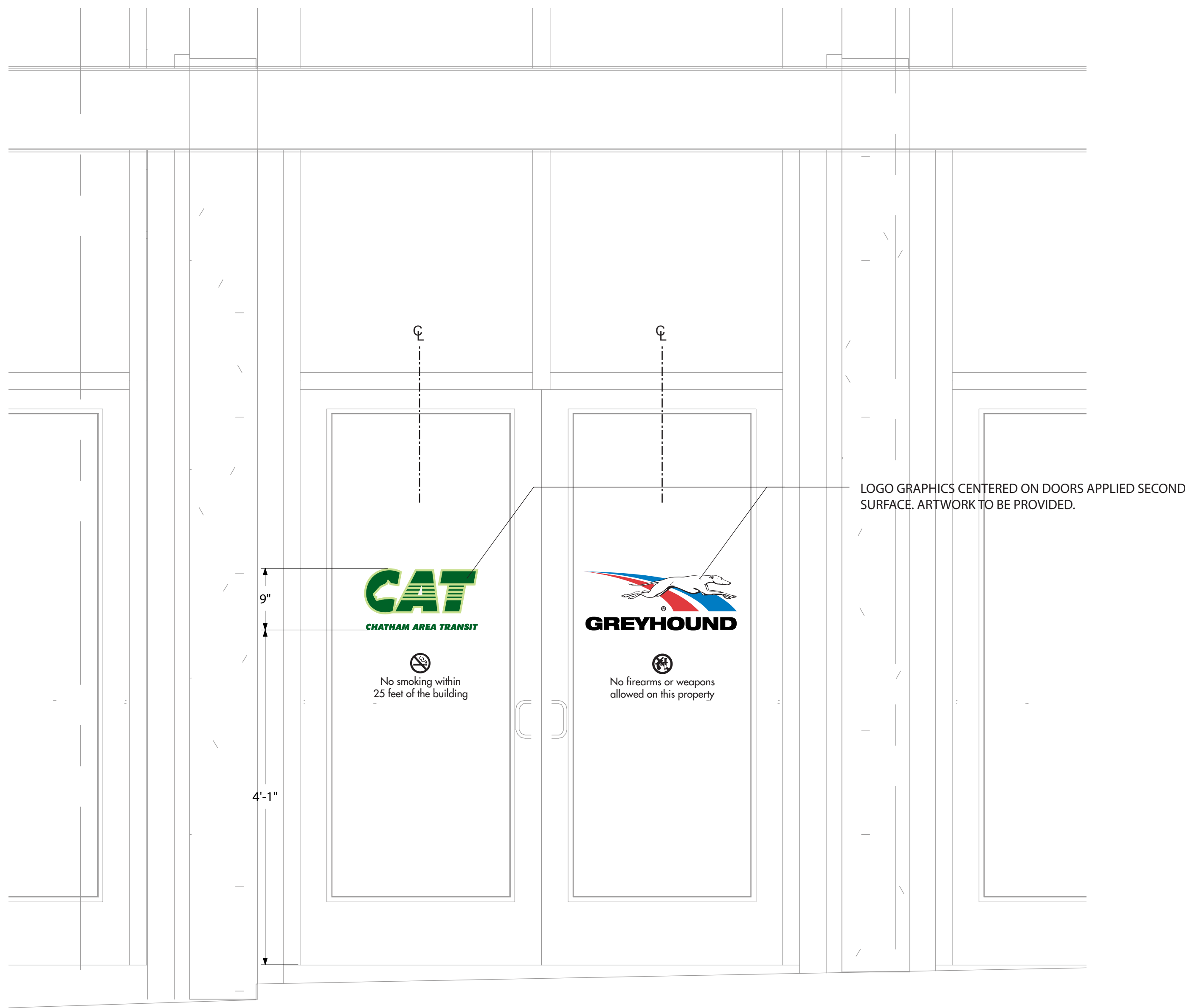
1 SIGN TYPE - C  
AG2.06 FULL SCALE



3 SIGN TYPE - E  
AG2.06 FULL SCALE



2 SIGN TYPE - D  
AG2.06 FULL SCALE



4 SIGN TYPE - F  
AG2.06 1" = 1'-0"

**CMA**  
COGDELL & MENDRALA ARCHITECTS, PC  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel 912.234.6318 fax 912.236.8414  
cogdellmendrala.com  
SEAL:

**PROJECT CONSULTANTS:**  
ASSOCIATE ARCHITECT &  
STRUCTURAL ENGINEER:  
**WENDEL DUCHSCHERER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219  
CIVIL ENGINEER:  
**THOMAS & HUTTON  
ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402  
CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322  
LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SORRELWOOD CROSS  
SAVANNAH, GA. 31411  
MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396  
PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

**SHEET TITLE:**  
ARCHITECTURAL  
SIGNAGE

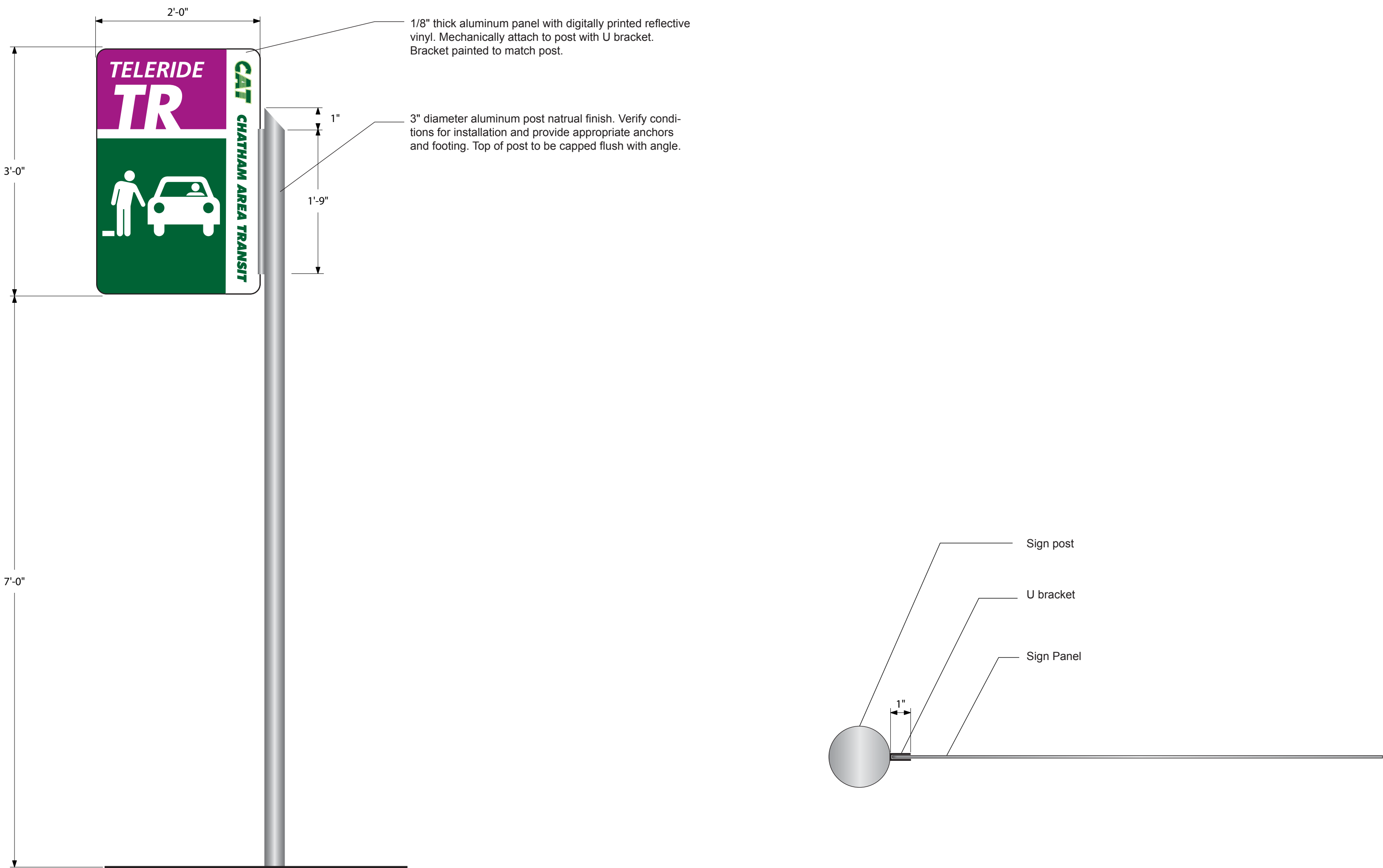
ADDENDUM #2

REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2

**PROJECT NO:** 0603  
**DATE:** NOVEMBER 9, 2011  
**DRAWN BY:** BN  
**SCALE:** AS NOTED  
**SHEET:** **AG2.06**







A ELEVATION

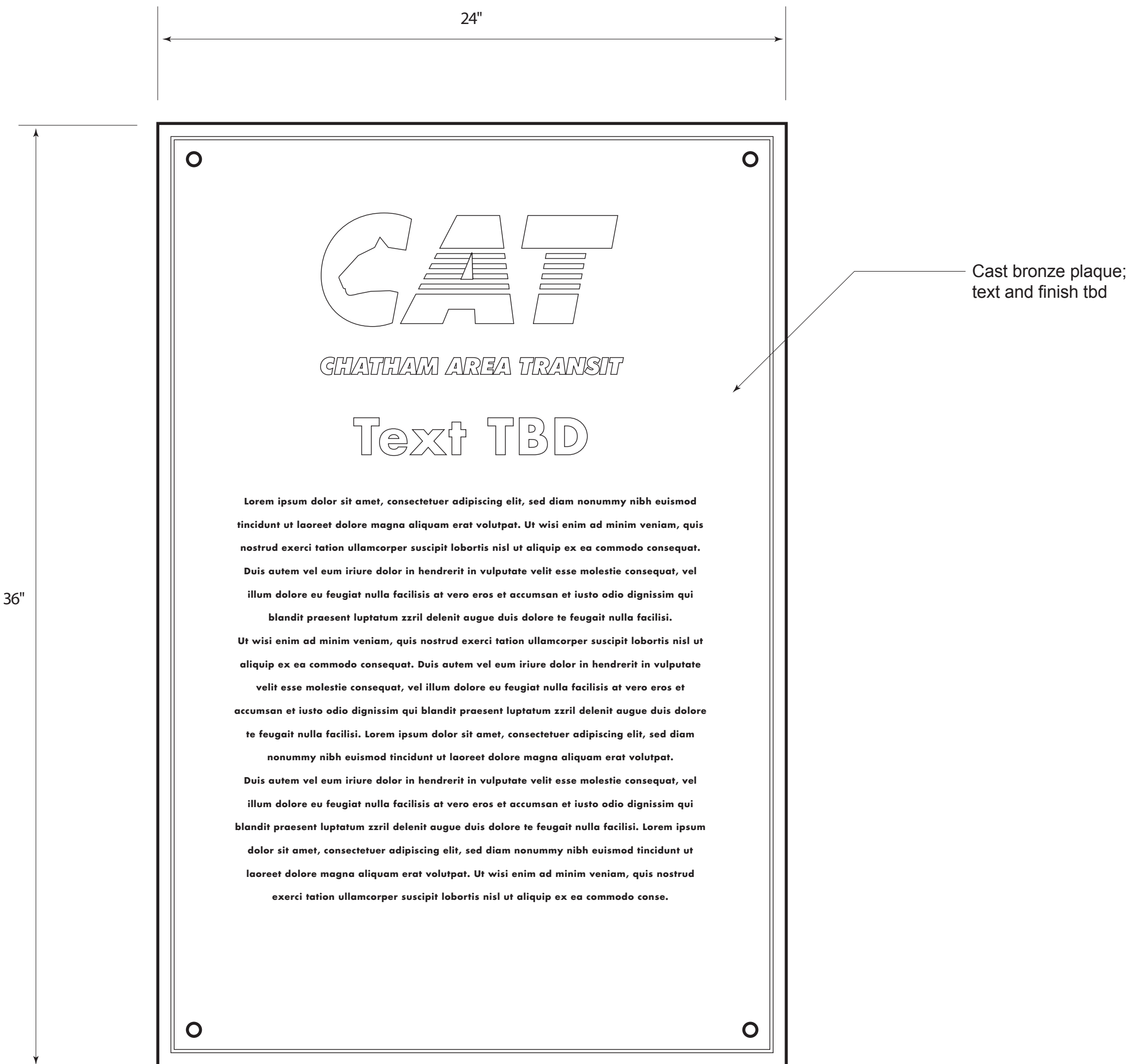
D PLAN VIEW  
Scale: 3" = 1'-0"



C SIGN FACES

## 1 SIGN TYPE - JJ

AG2.08 1" = 1'-0"



F ELEVATION

## 2 SIGN TYPE - M

AG2.08 1" = 1'-0"

**CAT DOWNTOWN INTERMODAL  
TRANSIT CENTER**  
610 OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401



CHATHAM AREA TRANSIT

60% DESIGN DEVELOPMENT

**CMA**  
COGDELL & MENDRALA ARCHITECTS, P.C.  
517 EAST CONGRESS STREET  
SAVANNAH, GEORGIA 31401  
tel 912.234.6318  
fax 912.236.8414  
cogdellmendra.com

SEAL:

### PROJECT CONSULTANTS:

ASSOCIATE ARCHITECT &  
STRUCTURAL ENGINEER:  
**WENDEL DUCHSCHERER**  
9 SOUTH, 12TH STREET  
RICHMOND, VA. 23219  
CIVIL ENGINEER:  
**THOMAS & HUTTON  
ENGINEERING, CO.**  
P. O. BOX 2727  
SAVANNAH, GA. 31402  
CIVIL ENGINEER:  
**COASTLINE CONSULTING**  
128 CANAL STREET, UNIT 307  
POOLER, GA. 31322  
LANDSCAPE ARCHITECT:  
**HINESLEY & ASSOCIATES**  
1 SORRELWOOD CROSS  
SAVANNAH, GA. 31411  
MECHANICAL & ELECTRICAL ENGINEER:  
**ROSSER INTERNATIONAL**  
109 PARK OF COMMERCE DRIVE, SUITE 6  
SAVANNAH, GA. 31405-1396  
PLUMBING & FIRE PROTECTION ENGINEER:  
**S. L. KING & ASSOCIATES, INC.**  
270 PEACHTREE STREET, N.W., SUITE 1600  
ATLANTA, GA. 30303-1283

### SHEET TITLE: ARCHITECTURAL SIGNAGE

ADDENDUM #2

REVISION SCHEDULE	
DATE	DESCRIPTION
11/10/11	ADDENDUM NO. 2

PROJECT NO: 0603  
DATE: NOVEMBER 9, 2011  
DRAWN BY: BN  
SCALE: AS NOTED

SHEET: **AG2.08**