



New-Indy Catawba LLC  
P.O. Box 7  
5300 Cureton Ferry Road  
Catawba, SC 29704

**SENT VIA ELECTRONIC MAIL and CDX**

February 10, 2023

Denis B. Kler  
U.S. Environmental Protection Agency (U.S. EPA), Region 4  
Enforcement and Compliance Assurance Division  
Policy, Oversight and Liaison Office  
61 Forsyth Street, S.W.  
Atlanta, GA 30303  
Kler.Denis@epa.gov

Re: New-Indy Catawba LLC Consent Order Response to Appendix A Condition IV

Mr. Kler:

New-Indy Catawba LLC (New-Indy Catawba) owns and operates a pulp and paper mill in Catawba, SC (Mill). The installation of the new cover and carbon filtration system on the Post Aeration Tank was completed on June 29, 2022. As required by Condition IV.c.i, New -Indy Catawba is submitting this information regarding this new installation.

**Information Request:**

*Message from Andrew Mills dated February 3, 2023, via eMail, asking for additional detail about the Post Aeration Basin cover as quoted below.*

Please provide the following information that will assist the EPA in understanding the filtration system.

1. Please describe how the post aeration tank cover was installed and how the cover will be monitored to ensure that no detectable VOC emissions are detected from the edges of the cover, or the seams in the cover, or penetrations in the cover, or general cover failures.
2. Please provide a detailed description of the material that is being used in the bed of the primary filtration system.

**Response:**

The permanent Post Aeration Basin cover installation summary was described and included in the Completion notification which was sent to you via email by Dan Mallett on July 28, 2022. This was again highlighted in additional document submittals to EPA as well as being thoroughly detailed in the Post Aeration Basin Package documents made available to EPA through the ParkerPoe ShareFile site in late January 2023. I've attached to this message the bid specification document for this project which includes the requested details.

- a) Bidding Specifications for PAB Odor Abatement:
- Page 2, Introduction: summary description of cover installation
  - Page 5, 3.1.4.1-2: cable installation and configuration summary
  - Appendix B, Page 16: overhead layout view of installed cover on basin
  - Appendix B, Pages 36-52: vendor installation manuals
    - Appendix B, Pages 27-52: system installation manual
    - Appendix B, pages 49-52: sealing membrane around protrusions

b) Filtration Media - Screen Shot and weblink from TIGG:

- a. <https://tigg.com/activated-carbon/activated-carbon-filter-media-for-vapor-phase-applications/>

**Activated Carbon Filter Media for Vapor Phase Applications**

TIGG offers virgin coal, wood, and coconut shell based activated carbon filter media which can be used for removal of trace particles that occur in air or vapor streams. TIGG also provides reactivated coal based granular and pelletized carbons.

Vapor phase activated carbon adsorption media have a high activity level in combination with a selection of transport and adsorption pores that accommodate adsorbates of varied molecular sizes.

Activated carbon media can be used to recover solvents, remove VOCs from the air in tank vents, air stripper off gas, soil venting, and remediation of vapors generated when soil is being remediated.



TIGG Product Name	Base Material	Mesh Size	Activity
TIGG 5CP 4mm 60	Coal GAC	4 mm	60

- Various particle sizes, base materials, and activity are selected for pressure drop and application parameters, including type of contaminant and concentration.
- Traditionally, coal-based activated carbon filter media have been preferred as they provide excellent performance for a broad range of contaminants and a wide array of concentrations.
- Activity is an indicator of the capability of the particular adsorbate to provide surface loading. Higher values show a generally higher capability to provide surface loading.
- All virgin vapor phase activated carbon filter media are capable of producing non-detectable effluent quality for adsorbates, which are cost-effectively adsorbed. Re-activated carbon media are available for applications where lower capacity and less stringent effluent quality will permit better cost-efficiency.

Leakage around cover protrusions do not emit VOC's into the ambient space around the cover because the system's blower creates a low pressure (vacuum) environment inside the vapor space of the basin beneath the cover membrane. Air leakage into the basin vapor space is necessary through unsealed areas to provide an air sweep across the basin to facilitate the extraction of vapors from the basin to the slightly pressurized filtration tank.

Monitoring of the cover's effectiveness is accomplished by using either the Scentroid TR\*+ Polluttracker or some other Method 21 compatible PID instrument to check VOC levels at both the inlet to the Filter and in the filter discharge ducting. Sampling for these checks are accomplished by ensuring that the sample tube is collecting from the approximate midpoint of the duct's diameter in either position (before or after the filter).

Sincerely,

Pete Cleveland

Technical Director

**STATEMENT OF WORK**

**FOR:**

**NEW-INDY CONTAINERBOARD  
Post Aeration Basin – Odor Abatement  
Bidding Specifications**

**Catawba, SC**

**May, 2022**

**Prepared by:**



**ENGINEERING | COMPLIANCE | CONSTRUCTION**

**13000 CANTRELL ROAD**

**LITTLE ROCK, AR 72223**

**PHONE 501-975-8100**

**Project No. 5107-6004**

## INTRODUCTION

The New-Indy Containerboard (NICB) mill in Catawba, SC has identified the need to install an odor abatement system onto the Post Aeration Basin (PAB). This system will consist of a passive activated carbon cover and a forced air activated carbon scrubber. As part of the installation, a new platform will be built for the carbon scrubber blower.

The passive carbon cover is a large plastic sheet with integrated carbon filters that will be laid on a wire lattice structure over the PAB opening. The forced air carbon scrubber consists of a TIGG activated carbon tank and a blower. The scope of work covered by this bid document is for the installation of both systems, as well as all materials needed for the installation of the blower platform. The scope of work will also include all needed modifications to the PAB prior to the installation of the filtration systems.

## 1 APPLICABLE REFERENCE DOCUMENTS (APPENDIX B)

- 1.1 General Arrangement drawings – PAB
- 1.2 P&ID drawing
- 1.3 New Blower Platform drawings
- 1.4 Vendor drawings
- 1.5 Vendor Cover Installation Instructions

## 2 GENERAL

### 2.1 The purpose of this document is to:

- 2.1.1 Distribute to prospective contractors identified by NICB the basic project details and facility requirements to solicit interest and preliminary bids.
- 2.1.2 Provide example to contractors the format by which a Contract will be issued for this and other similar projects.

### 2.2 Equipment furnished for the completion of the stated scope of work shall be fabricated in full compliance with drawings, specifications, standards, regulations, engineering data, instructions, and recommendations of the Owner's Engineer (ECCI) or the Owner (NICB), unless otherwise noted and documented. Any new drawings or changes that are not "in-kind" must be presented to the Owner and the Owner's Engineer for review and approval.

### 2.3 Contractors are not to begin work on-site without a PO in hand. Additionally, all contractors and sub-contractors must be pre-approved through the Owner's contractor safety process before performing any work on-site.

### 2.4 Expected Positions/Roles to be filled: As part of the bidding process, the Contractors shall provide names and qualifications for positions identified who would be

anticipated to be placed on-site at Catawba Mill to execute this project. The positions include but are not limited to: (Note that some roles may be combined).

- 2.4.1 Site Management and Project Controls
- 2.4.2 On-site Project Manager and Site Superintendent
- 2.4.3 Discipline Superintendents/Foremen
- 2.4.4 Safety Manager
- 2.4.5 Scheduler
- 2.4.6 Cost Controls
- 2.4.7 Materials Manager
- 2.4.8 QA/QC personnel
- 2.4.9 Check-out and Commissioning Coordinator

## 2.5 General

- 2.5.1 It is the intent of this Request for Quote to not provide in depth detailed specifications for routine industrial construction items. It is expected that the vendor will comply with all appropriate standards, specifications, and practices as it applies to a pulp and paper facility.
- 2.5.2 Contractor shall furnish all supervision, labor, confined space attendants and fire watches as required to mobilize, demobilize and perform the required work for the system installation.
- 2.5.3 Contractor shall provide all materials, labor, tools, equipment, welding machines, scaffolding, safety equipment, labor force personal protective equipment, consumables/expendables, office trailers, and rentals to complete the system installation. This includes all mobilization and demobilization costs, travel expenses, clean up expenses and supervision for any demolition as required and to install the new system. Contractor shall also provide an independent air supply and electrical power if needed, as NICB cannot guarantee uninterrupted services.
- 2.5.4 Contractor will develop a pre-construction and construction schedule for the project that includes all activities associated with the project. This schedule is to include a timeline for the existing system removal and new system installation. This schedule is to be submitted to the NICB project manager within 15 days of contract issuance, and updated weekly during the installation. Changes in the agreed schedule should be transmitted and discussed with NICB in advance, regarding the reason for a schedule change.
- 2.5.5 The Contractor may provide input on any options that will satisfy the requirements and provide NICB with the most cost-effective project result

as a separate offering. These alternatives or options shall be identified separately from the base scope proposal.

- 2.5.6 Any and all questions asked through the bidding process will be answered and shared with all bidders.

### 3 PROJECT SCOPE

#### 3.1 Mechanical/Structural

##### 3.1.1 Demolition to include the following:

- 3.1.1.1 Removal and disposal of existing tarp over PAB opening;
- 3.1.1.2 Section of safety railing where new blower skid is to be installed; (8' section of railing on North-East corner of PAB)
- 3.1.1.3 Existing floating aerator and 3 support columns;
- 3.1.1.4 Top of ladder cage at West end of PAB. Ladder and cage must not protrude above the opening of the PAB;
- 3.1.1.5 Abandoned PVC piping around the top rim of the PAB and all connections. Approximately 200 feet of 2 inch PVC;
- 3.1.1.6 Any various obstructions at top edge of PAB. (Old piping supports, cables, etc.) A 4-inch-wide area around the top of the PAB must be free of any obstructions;
- 3.1.1.7 Existing 1-1/4" drain piping for DO test pot will need to be removed for relocation of drain;
- 3.1.1.8 Removal of existing carbon scrubber and all ancillary items from the new proposed TIGG location.

##### 3.1.2 Inspections and repairs to include the following:

- 3.1.2.1 Integrity inspection of concrete at all edges of PAB opening. All concrete within 4 inches of PAB opening must be continuous and unobstructed.
- 3.1.2.2 Integrity inspection of all installed cables. Cable attachment points must be secure, and cables must be undamaged and free of significant rust. Any existing cables that are damaged will need to be replaced during installation of new cables.

##### 3.1.3 Modifications/Relocations to include the following:

- 3.1.3.1 All currently installed cables that pass inspection criteria will need to be removed from the current mounting location on the external wall of the basin, and mounted on the internal wall of the basin per 3.1.4.1, as close to the top of the wall as possible.
- 3.1.3.2 The drain for the DO test pot will be removed from its current position over the edge of the PAB opening. The new drain will be

drilled through the concrete directly below the DO test pot. The concrete in this area is 6 inches thick. The new drain piping will be a 1-1/4" carbon steel pipe extending a minimum of 12" below the concrete.

3.1.4 New Installations to include the following:

- 3.1.4.1 New support cables will be installed between each existing support cable. The cables will be installed in a lattice structure, each cable interwoven with the adjacent cables. Each cable will be spaced 24 inches apart, with a double set of cables in the center of the PAB opening in each direction. (Cables provided by NICB)
- 3.1.4.2 Installation of new cover. (Cover provided by others, see vendor details in appendix B)
- 3.1.4.3 Supply and installation of new blower platform per attached drawings. Handrails and toe plates are to be made from 304L SS. All structural steel and grating to be galvanized unless otherwise accepted by NICB. Electrical cables and cable tray to be relocated by NICB as needed to allow for platform installation.
- 3.1.4.4 Installation of new carbon scrubber system, TIGG unit and new blower. (Provided by others)
- 3.1.4.5 Installation of piping for carbon scrubber system. New TIGG unit and blower will be connected using the existing 16" corrugated plastic piping. Corrugated piping will need to be connected to the cover opening using a 16" 304L schedule 5 stainless steel pipe at the opening in the North-East corner of the cover. All piping is to be field routed. Field routing shall be discussed and approved by the Owner prior to installation.
- 3.1.4.6 Supply, install, and modify pipe supports as required.
- 3.1.4.7 Installation of new aerator on the North end of the PAB. (Aerator provided by NICB)

3.1.5 Electrical to include the following:

- 3.1.5.1 Contractor to supply qualified electricians for all supervision involving electrical scope of work items. All electricians are to be NFPA 70E trained. Contractor to supply supporting documentation.
- 3.1.5.2 Supply and installation of electrical wiring to the new blower
- 3.1.5.3 Supply and installation of electrical wiring to the new aerator.

#### 4 SAFETY

- 4.1 Safety is the main priority at the plant. If the contractor feels uncomfortable about completing a portion of the work, the job is to be stopped and the supervisor is to be contacted immediately to assist in addressing the concern.
- 4.2 Site-Specific contractor training is required upon arrival at the facility and prior to any work being performed on-site. Contractor training must be scheduled through NICB contact.
- 4.3 All work is to be performed with proven safety procedures and awareness of contractor personnel and other personnel working in the general area of the PAB.
- 4.4 Contractor is to verify Lockout Tagout has been performed as required and apply contractor locks as necessary to comply with LOTO requirements.

#### 5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

5.1 Minimum Required PPE for Site work includes the following:

- Hard Hat
- Safety Glasses
- Steel-Toed Boots
- Hearing Protection
- Level 4 Cut Resistant Gloves
- Personal H2S/VOC Monitor (As required by NICB representative)

#### 6 PROJECT SPECIFIC DETAILS

- 6.1 During the installation process, the flow to and from the PAB will be halted. It is important that the date of this work is coordinated with the plant and a guaranteed time frame is given. This is to include all work that will be performed from the time that the existing cover is removed, until the new cover is installed.

#### 7 BIDDING DETAILS

- 7.1 A bid walk for the project will be held at the Catawba facility. Please see Appendix A for a “Base Bid Form” – you may use your own bid form or quote but the line items listed on the sample form must be called out individually.

## 8 PROJECT ADDITIONS / CHANGE ORDERS

8.1 Project Additions and Change Orders will be handled using a Time and Materials (T&M) budgetary cost estimate. Any changes to the original scope of work or additions to the project shall be recorded using a "Project Change Form" supplied by the owner and will require signatures from the Owner and the Owner's Engineer prior to start of the new work requested.

8.2 The contractor is to supply a rate sheet for review by the Owner with the submittal of the bid.

## 9 GOVERNING STANDARDS

9.1 Except as modified or supplemented herein, all materials and construction methods shall comply with the applicable provisions of the following standards.

- A. International Building Code (2012);
- B. Local Building Codes;
- C. International Fire Code;
- D. AISI American Iron and Steel Institute;
- E. AWS "American Welding Society;"
- F. ASCE 7-10 "Minimum Design Loads for Buildings and Other Structures;"
- G. AISC "American Institute of Steel Construction;" and
- H. OSHA standards.

## 10 PROJECT TIMELINE / SCHEDULING

10.1 A detailed construction schedule with a guarantee of time required to complete the scope of work outlined in this document should be submitted to NICB and ECCI within two weeks ARO. The contractor is also to provide an expected staffing count and working hours for the project. Two weeks prior to commissioning, a detailed checkout list of items to be checked out prior to start-up should be provided to NICB and ECCI for review and approval.

10.2 The schedule is to include all of the following events:

- Arrival Onsite/Mobilization;
- Subcontractors arrival onsite;
  - All must go through the site-specific training and must be approved to work on-site prior to beginning work;
- Key Points of Project Completion;
- Any Critical Lifts;
- Major Shipments or Equipment Arrival;
- Any event that will need / use Plant resources to complete;

- Start of commissioning; and
- Final Inspection and Demobilization.

10.3 Any change to any of the items above are to be relayed to the Owner for approval.

## 11 DRAWINGS, CALCULATIONS, AND SUBMITTALS

11.1 The drawings provided include details of what is existing and the current scope of work for the project. If additional drawings or information is unveiled by the Owner or Owner's Engineer, the information will be sent to all parties as soon as it becomes available. For any discrepancies, clarifications, or additional information needed, a "Request for Information", RFI, should be submitted to the Owner and Owner's Engineer.

## 12 CONTRACTOR EXPECTATIONS

12.1 During the progress of the work, the Contractor shall keep the site in a neat and clean condition, and shall not permit any unsightly accumulation of rubbish, equipment, materials, or temporary structures. If the Contractor fails to clean up after completion of each portion of work or upon completion of the total work, the Owner holds the right to hold payments until the area meets the cleanliness standards of the Owner or Owner's Engineer.

12.2 Contractor is to provide their own trash removal, electrical, portable lighting, potable water, etc. Only company vehicles are allowed in the plant and must have their vehicles marked with their company's name or logo.

## 13 INCLIMENT WEATHER

13.1 During times of inclement weather, portions of the project may be stopped for contractor and worker safety. During a lightning warning (lightning strike within 10 miles), all outside work must stop and the contractors shall move to a shelter or vehicle until the warning is lifted. During a wind warning (a wind speed of 25+ mph), all lifts must stop, and the load must be returned to the ground. Work shall not proceed again until the "All-Clear" is received, 20-minutes after the last lightning strike or wind gust.

## 14 QUALITY CONTROL PROGRAM AND RECORD SYSTEM

14.1 The Owner reserves the right to inspect all of the equipment and installation during the fabrication process. The fabricator shall make available all quality control and safety documentation for review by the Owner during these inspections. At a minimum, the following shall be able to be obtained for inspection prior to starting construction:

- A. Welding Procedure Specifications (WPS);
- B. Procedure Qualification Records (PQR);
- C. Detailed Fabrication Drawings;
- D. Individual Welding Certifications; and
- E. Metallurgical Test Reports of Materials.

14.2 Post Fabrication/Installation, a full report shall be provided that includes all of the previous documents and all changes made to drawings during fabrication and installation shall be redlined on construction drawings. All records shall be provided two (2) weeks after delivery or demobilization. In addition, the following should be included for QA/QC testing methods:

- A. Visual Acceptance Report of Welds as required; and
- B. Detailed Checkout List from Commissioning.

## 15 EXCEPTIONS AND VARIANCES

15.1 No exceptions or variances to these specifications shall be accepted without prior written approval from the Owner's Engineer. Unapproved variances may require the complete replacement, or the removal of the item or area of exception, all at the expense of the Contractor/Installer. All design/specifications/construction questions must be submitted in writing to the Owner or the Owner's Engineer for a response and resolution.

- Art Welker – [Art.welker@new-indycb.com](mailto:Art.welker@new-indycb.com)
- Gregory Ballard – [gballard@ecci.com](mailto:gballard@ecci.com)
- Jordan Patrick – [jpatrick@ecci.com](mailto:jpatrick@ecci.com)

## 16 SHIPPING AND INSTALLATION

Facility Location:

New-Indy Containerboard – Catawba Mill  
C/O Art Welker  
5300 Cureton Ferry Road  
Catawba, SC 29704  
804-704-7457

- 16.1 All shipping claims shall be the responsibility of the shipper. Equipment will be received at the job site by the Owner and remain the responsibility of the supplier until the system is installed.
- 16.2 The equipment shall be adequately protected during fabrication and transportation to the jobsite. It is the fabricator's responsibility to provide proper loading, protection and the use of appropriate support items and straps to assure that the equipment arrives undamaged at the jobsite. Damaged pieces will be rejected and shall be replaced with undamaged pieces, unless proposed repairs are approved by the Owner's Engineer. Units shall be offloaded, stored and secured according to manufacturer's recommendations.

## Appendix A

## BASE BID FORM

Item No.	Description	Lump Sum Item Total
1	Mobilization	\$
Written Item Total:		DOLLARS
2	3.1.1 and 3.1.2	\$
Written Item Total:		DOLLARS
3	3.1.3	\$
Written Item Total:		DOLLARS
4	3.1.4 – Materials	\$
Written Item Total:		DOLLARS
5	3.1.4 - Labor	\$
Written Item Total:		DOLLARS
6	3.1.5 - Electrical	\$
Written Item Total:		DOLLARS

Total Base Bid .....\$\_\_\_\_\_

Written Total for Base Bid: \_\_\_\_\_DOLLARS

NOTES / COMMENTS:

May 9, 2022

Contractor will complete all work within \_\_\_\_\_ calendar days after receipt of Notice to Proceed. Complete drawings, calculations, design details, and specifications covering equipment and accessories shall be submitted to ECCI for review and approval. A detailed design, fabrication, and shipping schedule should be submitted within three weeks ARO.

Submitted this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Respectfully submitted,

\_\_\_\_\_

(Firm Name)

By \_\_\_\_\_

Attest: \_\_\_\_\_

Title \_\_\_\_\_

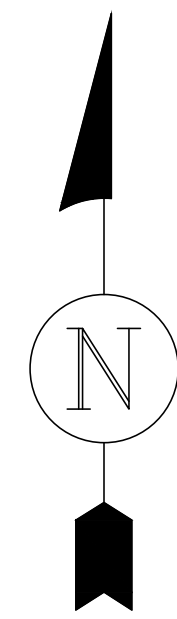
## Appendix B

# NEW INDY CONTAINERBOARD CATAWBA, SOUTH CAROLINA



## POST AERATION BASIN - ODOR ABATEMENT

DATE OF ISSUANCE: MAY 6, 2022



### SHEET INDEX:

G-001	COVER SHEET
G-002	GENERAL ARRANGEMENT
G-003	PAB SECTION VIEW A
PID-001	PIPING & INSTRUMENTATION DIAGRAM
S-001	PLATFORM 3D VIEW ABOVE
S-002	PLATFORM 3D VIEW BELOW
S-003	PLATFORM SECTION VIEWS
S-004	PLATFORM SUPPORTS
S-005	PLATFORM RAILS
S-006	PLATFORM DETAILS

### VENDOR DRAWINGS:

65580.01 NORTHERN BLOWER 6440  
N-4000-PDB-GA-001 TIGG CARBON SCRUBBER  
ODOR COVER DWG  
ODOR COVER INSTALL DOCUMENTS

PREPARED BY:

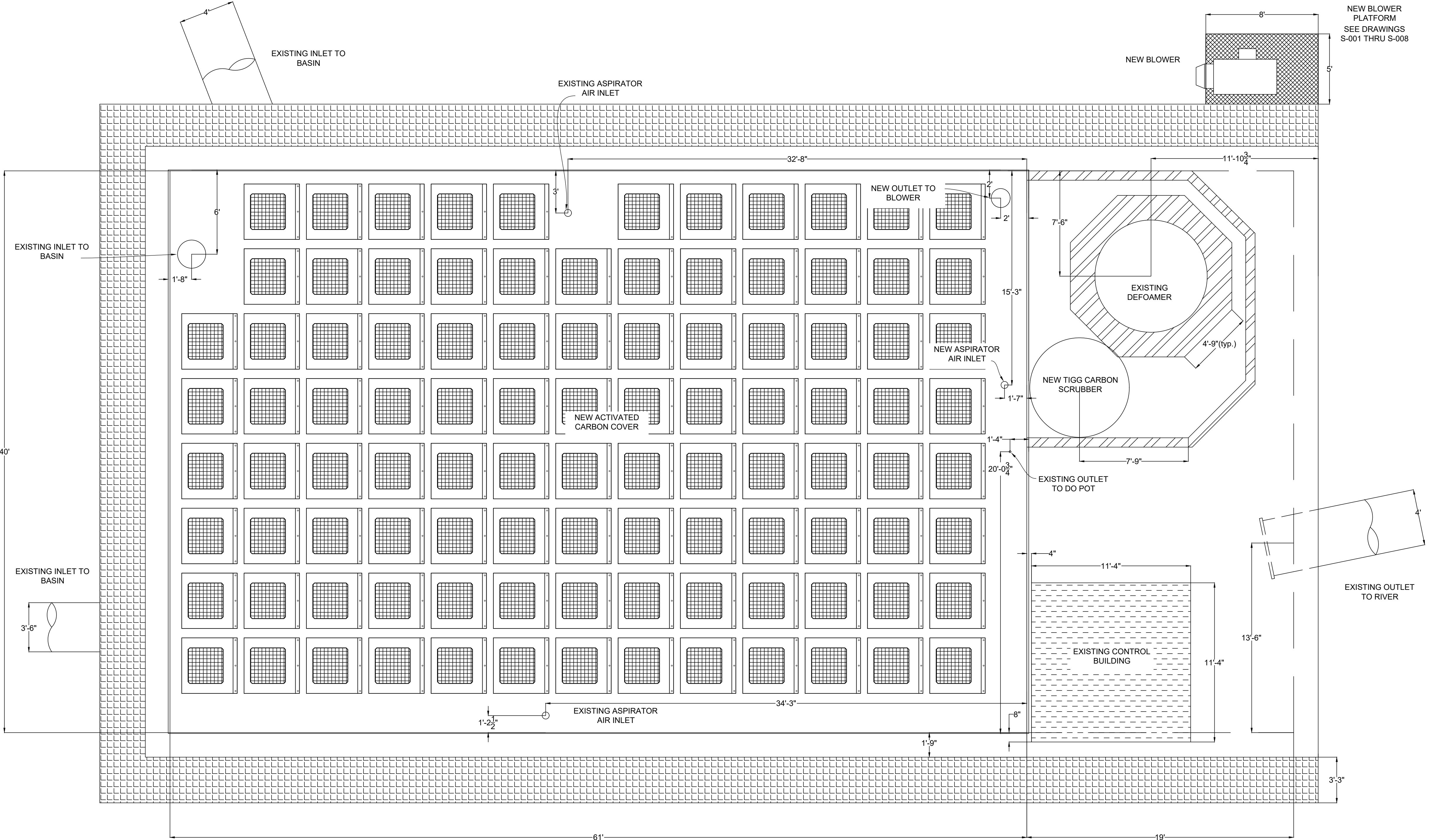


13000 CANTRELL ROAD  
LITTLE ROCK, AR 72223  
501.975.8100  
WWW.ECCI.COM

**FOR BID**

**G-001 COVER SHEET REV A**

GENERAL NOTES:



NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22



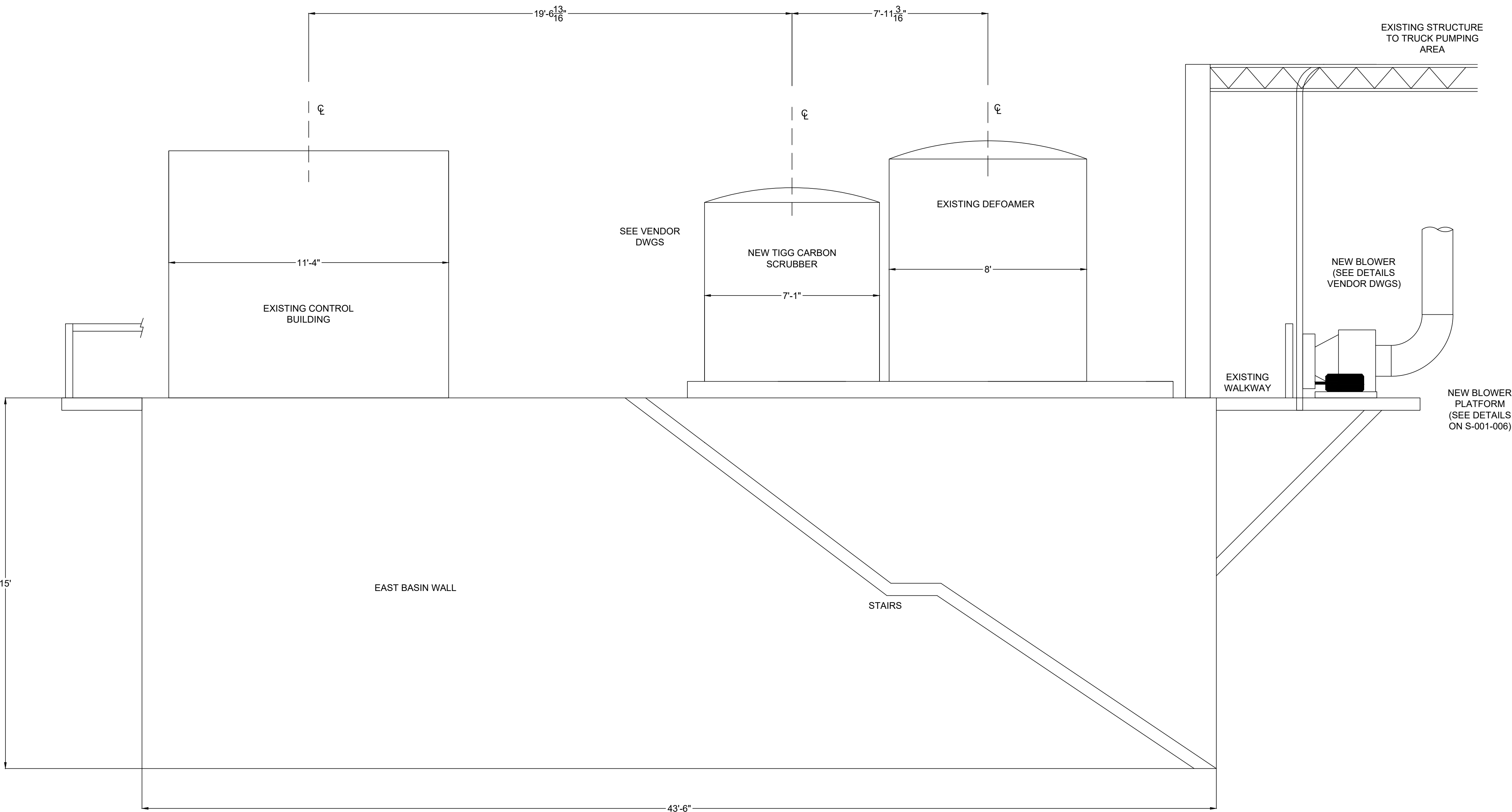
13000 CANTRELL ROAD  
LITTLE ROCK, AR 72223  
PHONE 501-975-8100  
WWW.ECCI.COM

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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
POST AERATION BASIN  
GENERAL ARRANGEMENT

SCALE	1/4"=1'-0"	APP'D	DATE	05.05.22
DESIGNED	GRB	PROJECT NO.	5107-6004	
DRAFTED	GRB	DRAWING NO.	G-002	REV. A
CHECKED				

FOR BIDDING PURPOSES ONLY



SECTION VIEW  
3/8" = 1'-0"

A  
003

GENERAL NOTES:

NO.	DESCRIPTION	BY	DATE
A	FOR REVIEW	GRB	10.21.21
B	FOR BID	GRB	05.05.22

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LITTLE ROCK, AR 72223  
PHONE 501-975-8100  
WWW.ECCI.COM

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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
POST AERATION BASIN  
PAB SECTION VIEW

SCALE	3/8" = 1'-0"	APP'D	DATE	10.21.21
DESIGNED	GRB	PROJECT NO.	5107-6004	
DRAFTED	GRB	DRAWING NO.		REV. B
CHECKED		G-003		

FOR BIDDING PURPOSES ONLY

EQUIPMENT:

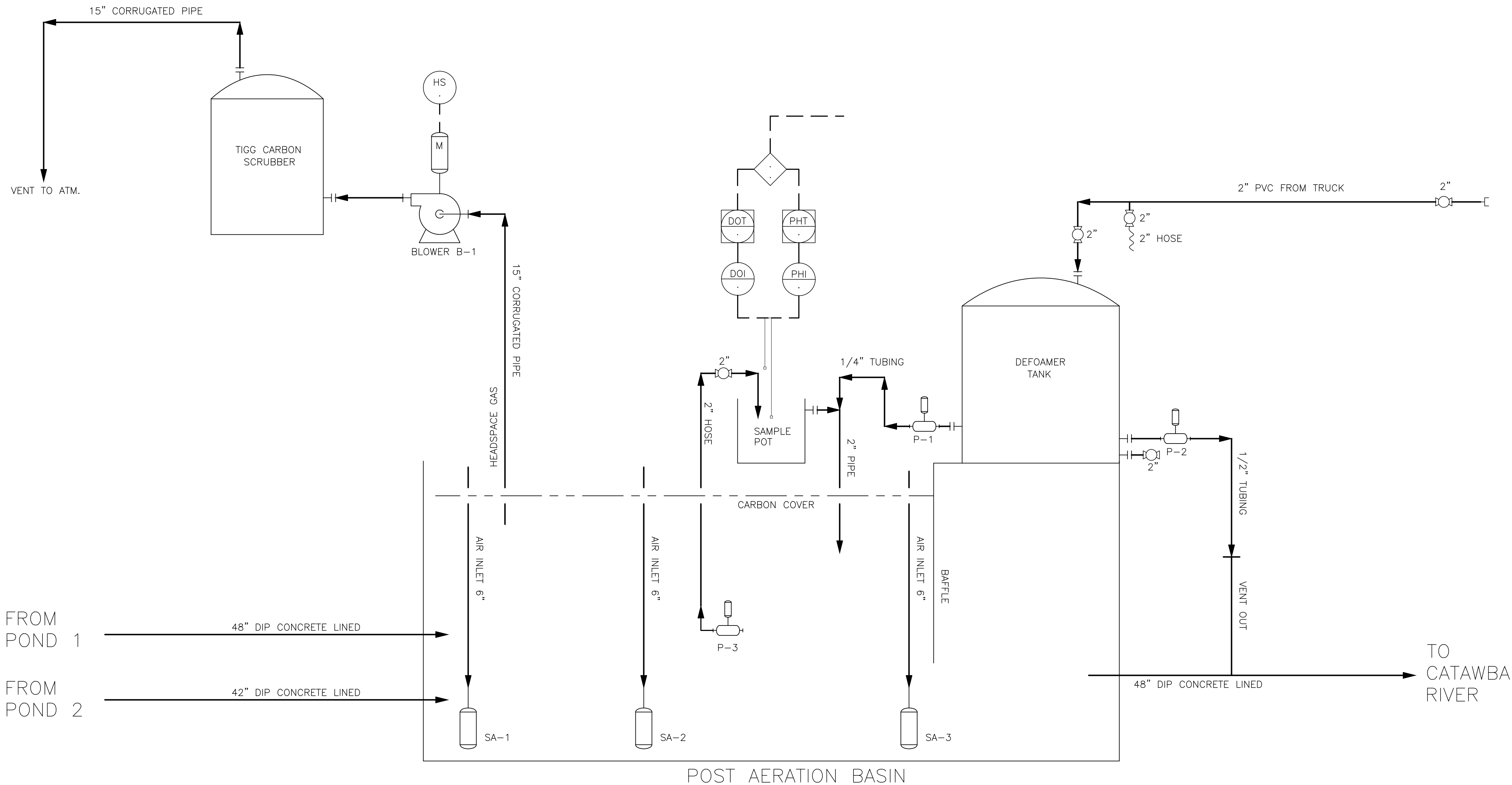
**BLOWER**  
B-1: NORTHERN BLOWER  
DESIGN 6440 SIZE 35  
2450 CFM

**PUMPS**  
P-1: PULSATRON METERING PUMP  
P-2: WEG PUMP 1/3 HP  
P-3: SUBMERGED PUMP

**CARBON COVER**  
P-2 ACTIVATED CARBON  
PASSIVE H2S FILTER COVER

**SUBMERSIBLE ASPIRATOR**  
SA-1/SA-2/SA-3  
SULZER SUBMERSIBLE TYPE  
ABS XTA 1800

**CARBON SCRUBBER**  
TIGG N-4000-PDB  
VAPOR PURIFICATION UNIT  
4000CFM MAX



GENERAL NOTES:

NO.	DESCRIPTION	BY	DATE
A	FOR REVIEW	GRB	10.21.21
B	FOR BID	GRB	05.05.22

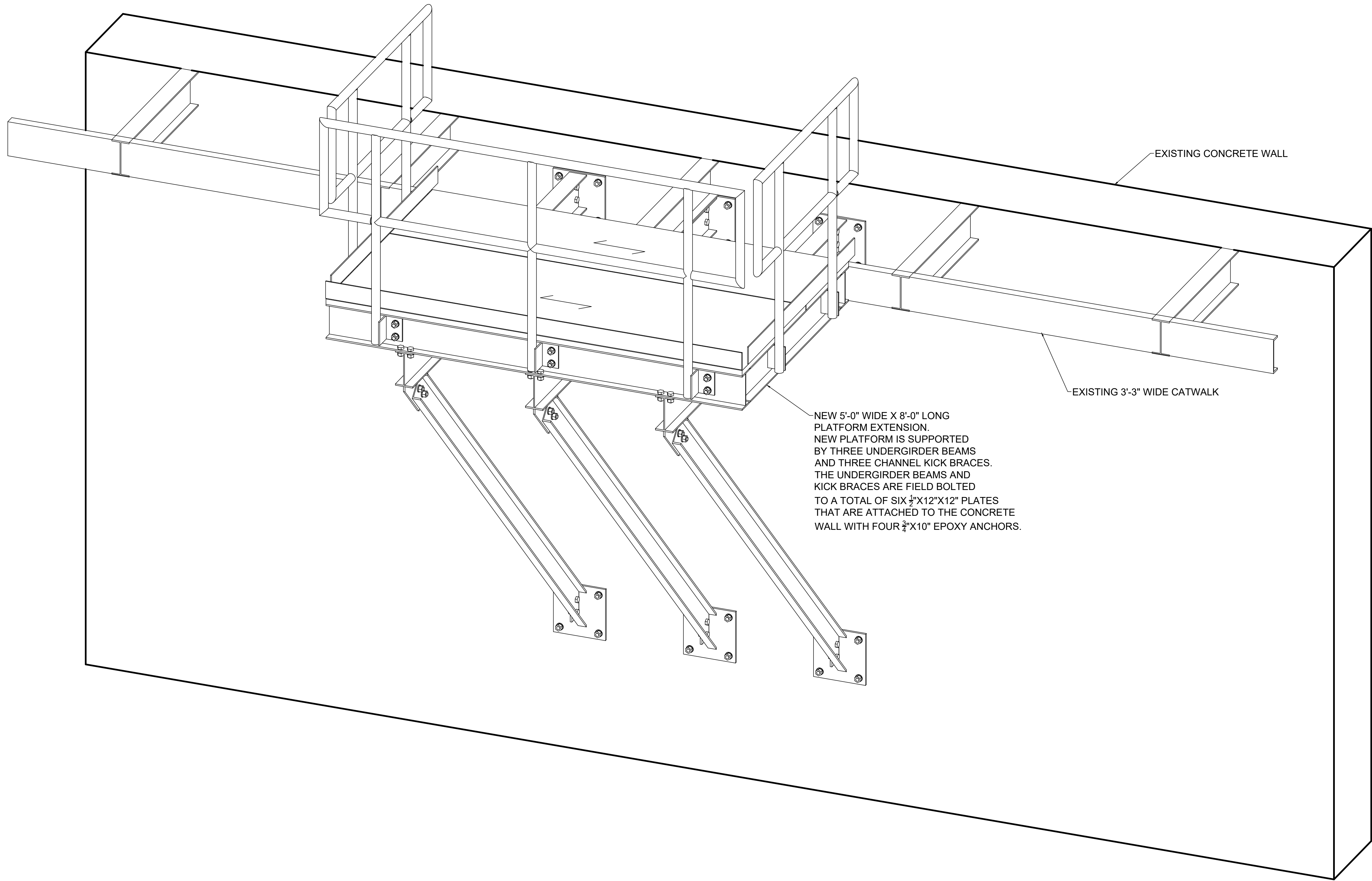
**ECCI** 13000 CANTRELL ROAD  
LITTLE ROCK, AR 72223  
PHONE 501-975-8100  
WWW.ECCI.COM

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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
POST AERATION BASIN  
P&ID

SCALE	APP'D	DATE	10.21.21
DESIGNED	GRB	PROJECT NO.	5107-6004
DRAFTED	GRB	DRAWING NO.	REV.
CHECKED		PID-001	B

FOR BIDDING PURPOSES ONLY



3D View From Above



GENERAL NOTES:

Prepared in conjunction with:

MIDWEST DESIGN & DRAFTING, LLC  
Cliff Cole  
NISD Certified Class I Senior Detailer  
803 Chippewa St.  
Seneca, MO 64865  
417-621-1965

NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22



13000 CANTRELL ROAD  
LITTLE ROCK, AR 72223  
PHONE 501-975-8100  
WWW.ECCI.COM

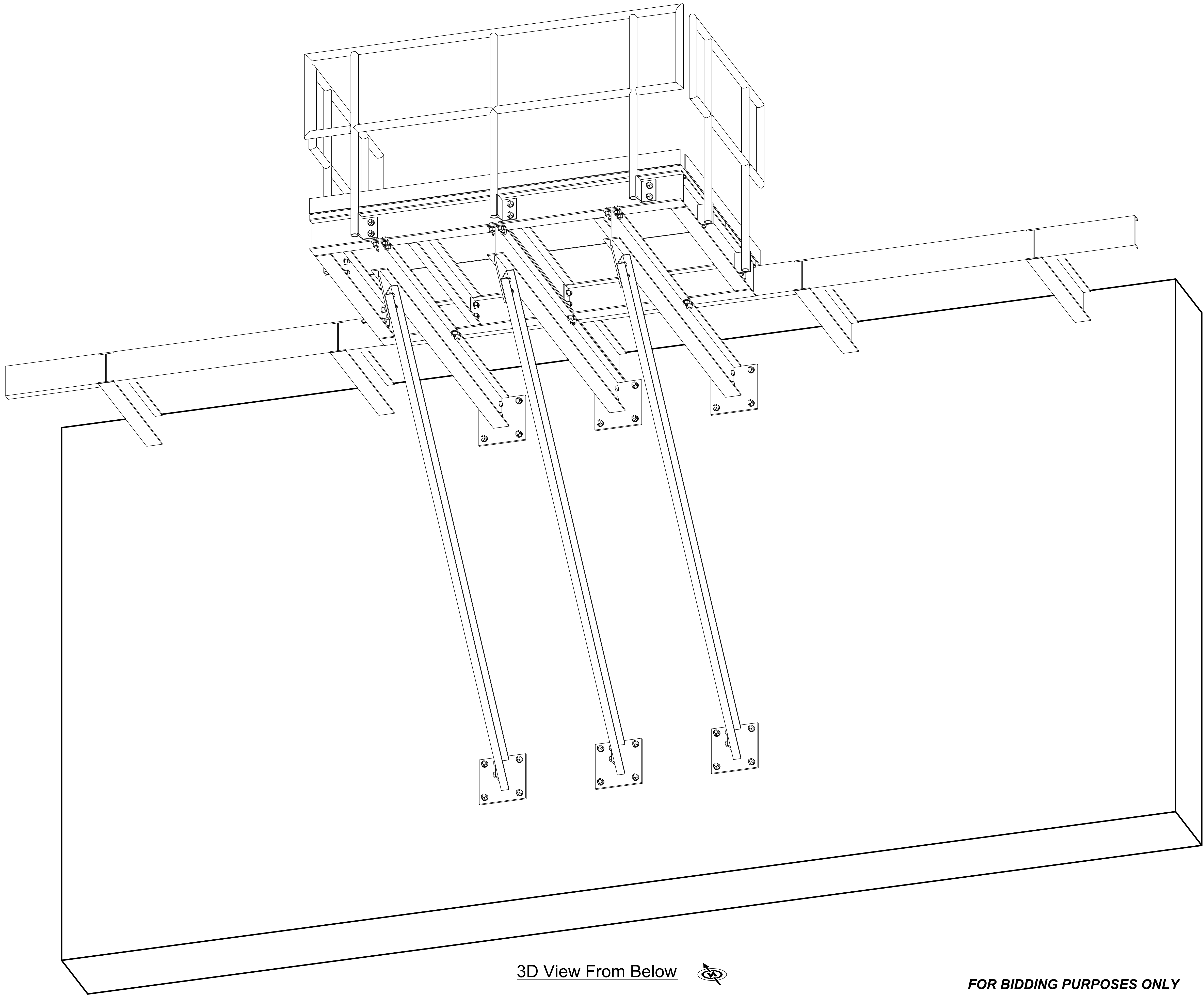
ENGINEERING | COMPLIANCE | CONSTRUCTION

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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
PAB SCRUBBER BLOWER PLATFORM  
PLATFORM 3D VIEW ABOVE

SCALE 1"=1'-0"		APP'D	DATE 3/11/2022
DESIGNED		PROJECT NO. 5107-6004	
DRAFTED	CLC	DRAWING NO. S-001	REV. A
CHECKED	GRB		

FOR BIDDING PURPOSES ONLY



3D View From Below

FOR BIDDING PURPOSES ONLY

GENERAL NOTES:

Prepared in conjunction with:

MIDWEST DESIGN & DRAFTING, LLC  
Cliff Cole  
NISD Certified Class I Senior Detailer  
803 Chippewa St.  
Seneca, MO 64865  
417-621-1965

NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22



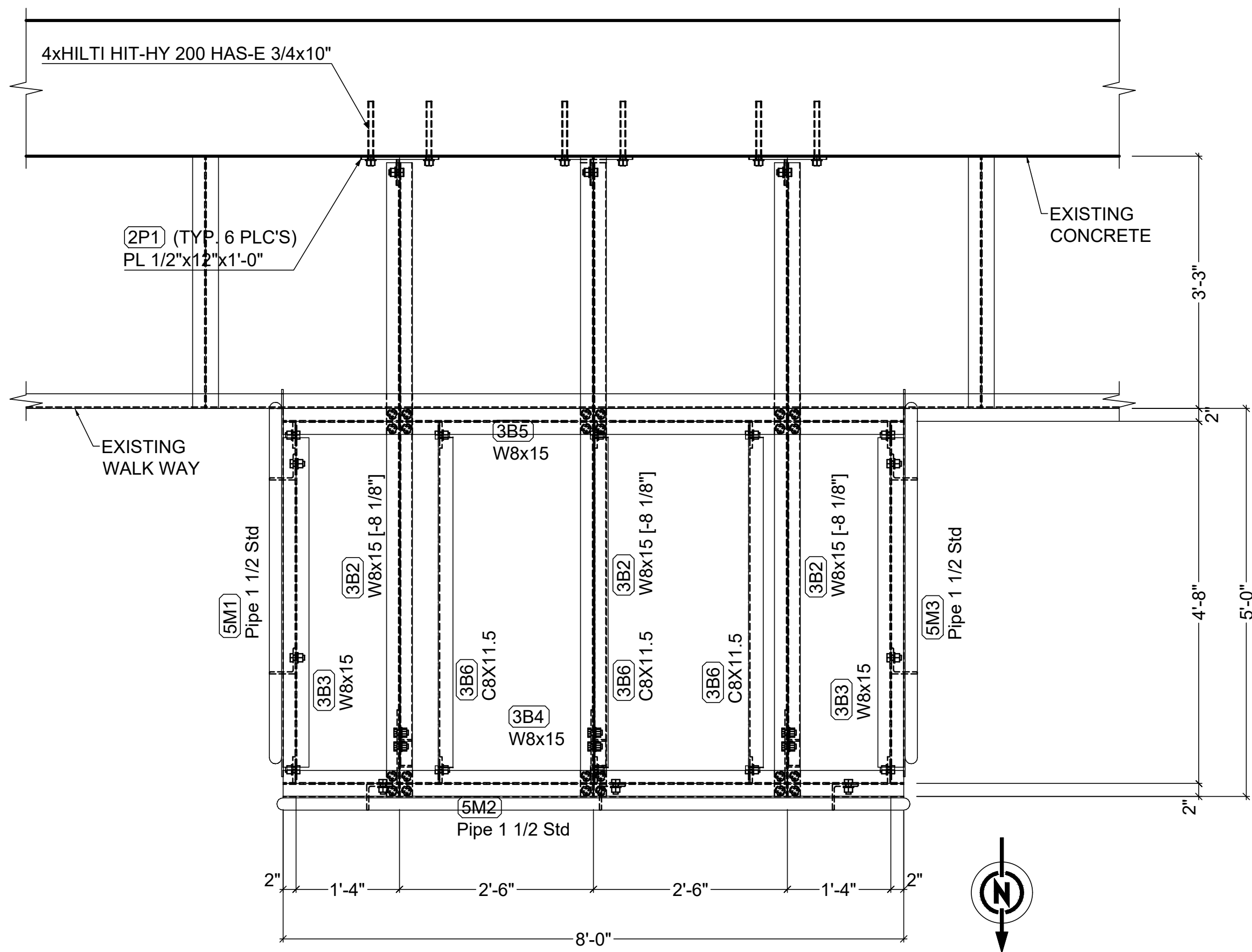
13000 CANTRELL ROAD  
LITTLE ROCK, AR 72223  
PHONE 501-975-8100  
WWW.ECCI.COM

ENGINEERING | COMPLIANCE | CONSTRUCTION

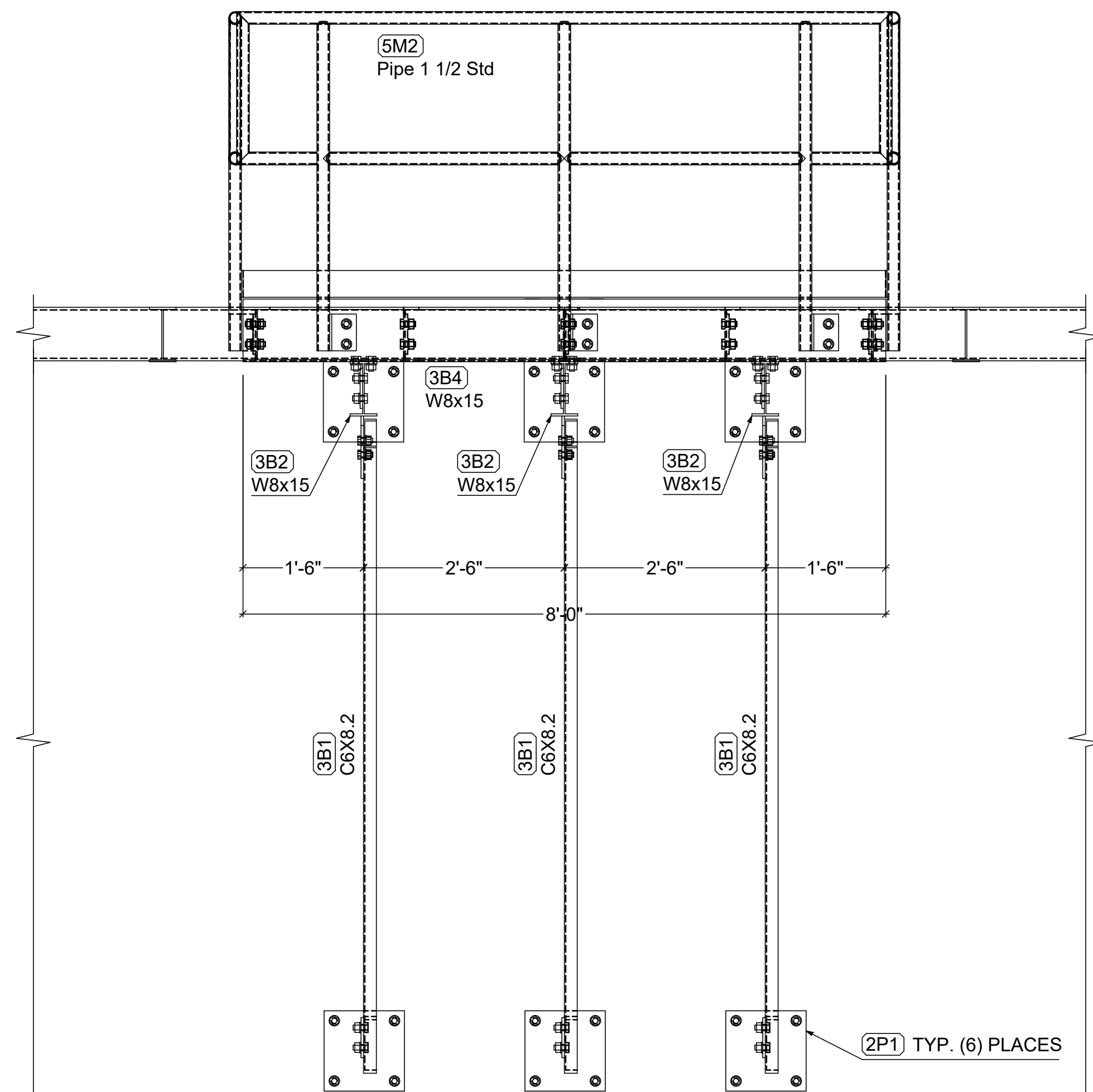
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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
PAB SCRUBBER BLOWER PLATFORM  
PLATFORM 3D VIEW BELOW

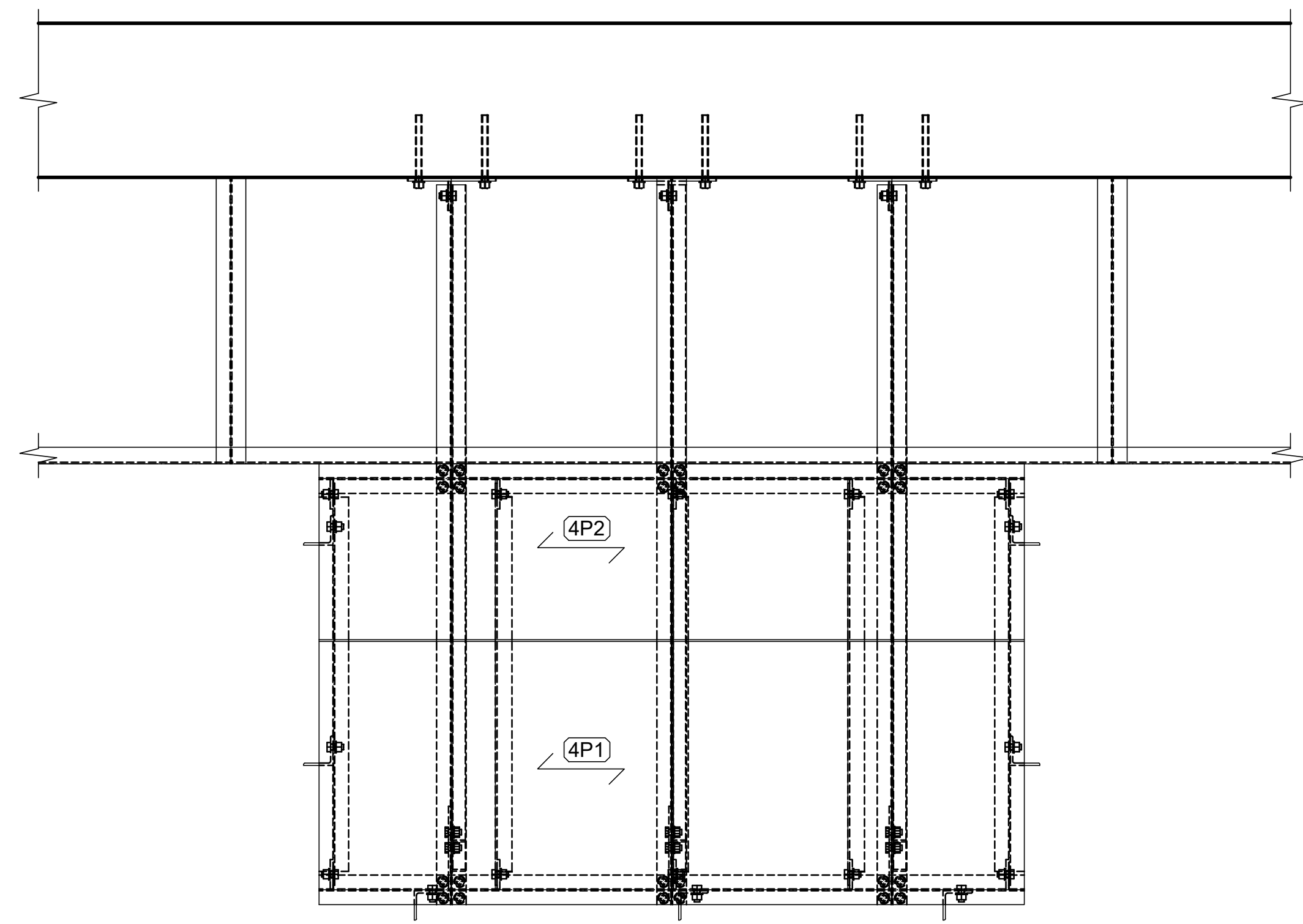
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DESIGNED		PROJECT NO. 5107-6004	
DRAFTED	CLC	DRAWING NO. S-002	REV. A
CHECKED	GRB		



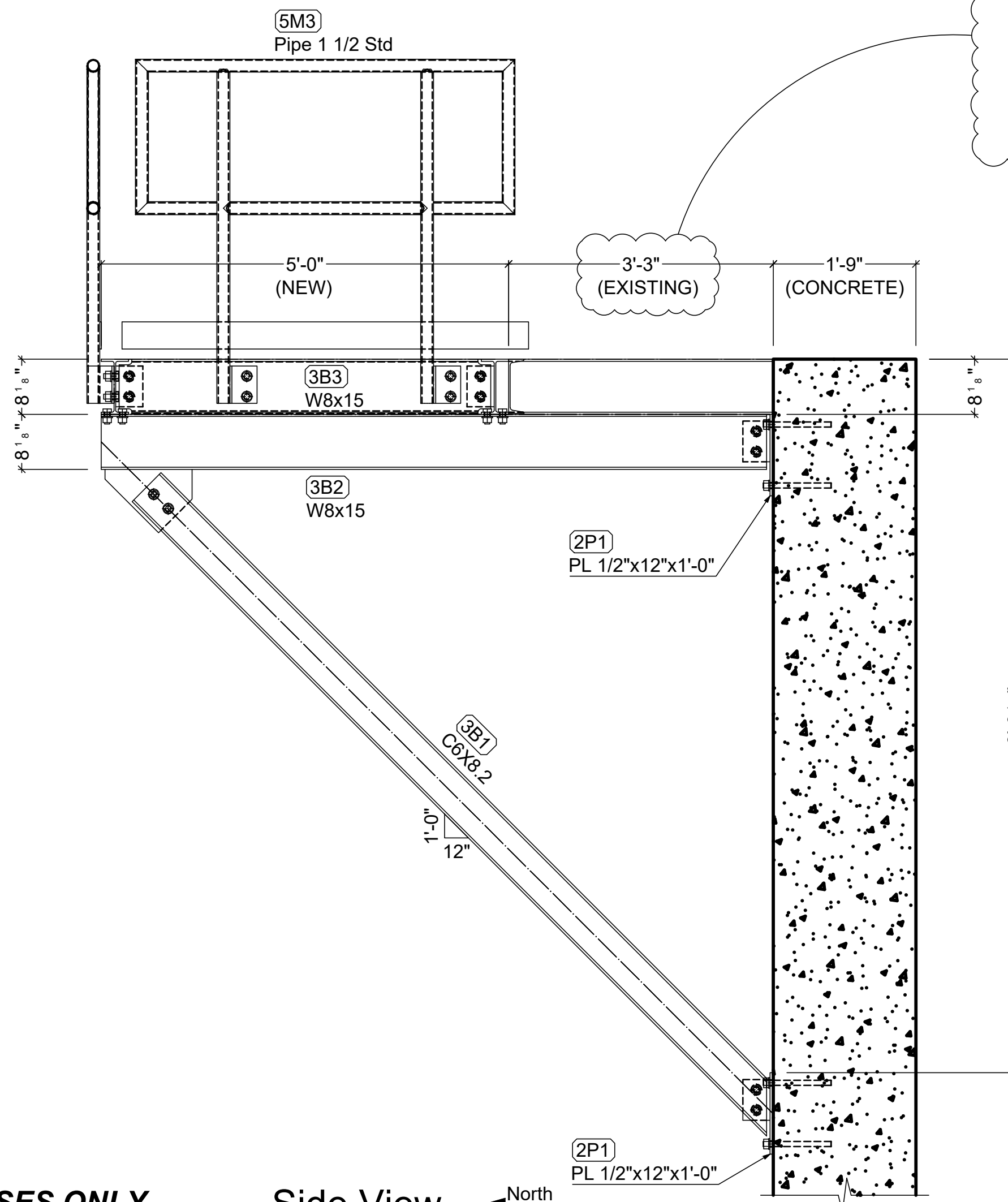
Plan view



Front View



Plan view - Gratings



Side View

IMPORTANT APPROVAL NOTE:  
THE OVERALL 3'-3" EXISTING  
WALK WAY WIDTH MUST BE  
FIELD VERIFIED PRIOR TO  
FABRICATION OF NEW  
PLATFORM EXTENSION.  
THE LENGTH OF THE  
KICKER BRACES WILL  
CHANGE IF THE 3'-3" WIDTH  
CHANGES ANY AT ALL.

GENERAL NOTES:

Prepared in conjunction with:

MIDWEST DESIGN & DRAFTING, LLC  
Cliff Cole  
NISD Certified Class I Senior Detailer  
803 Chippewa St.  
Seneca, MO 64865  
417-621-1965

NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22

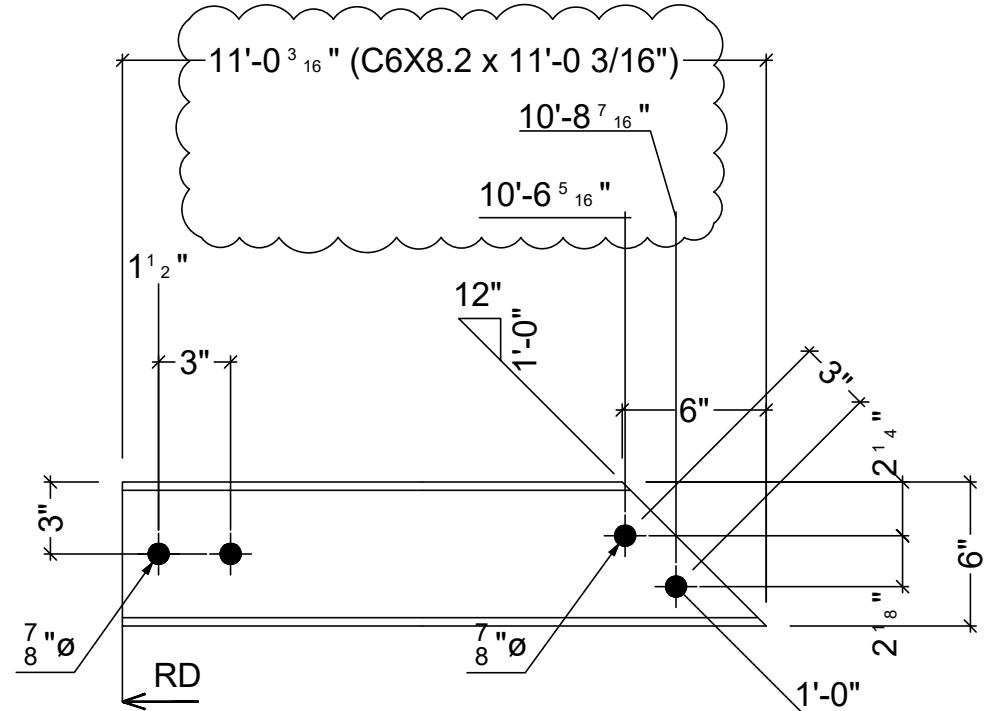


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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
PAB SCRUBBER BLOWER PLATFORM  
PLATFORM SECTION VIEWS

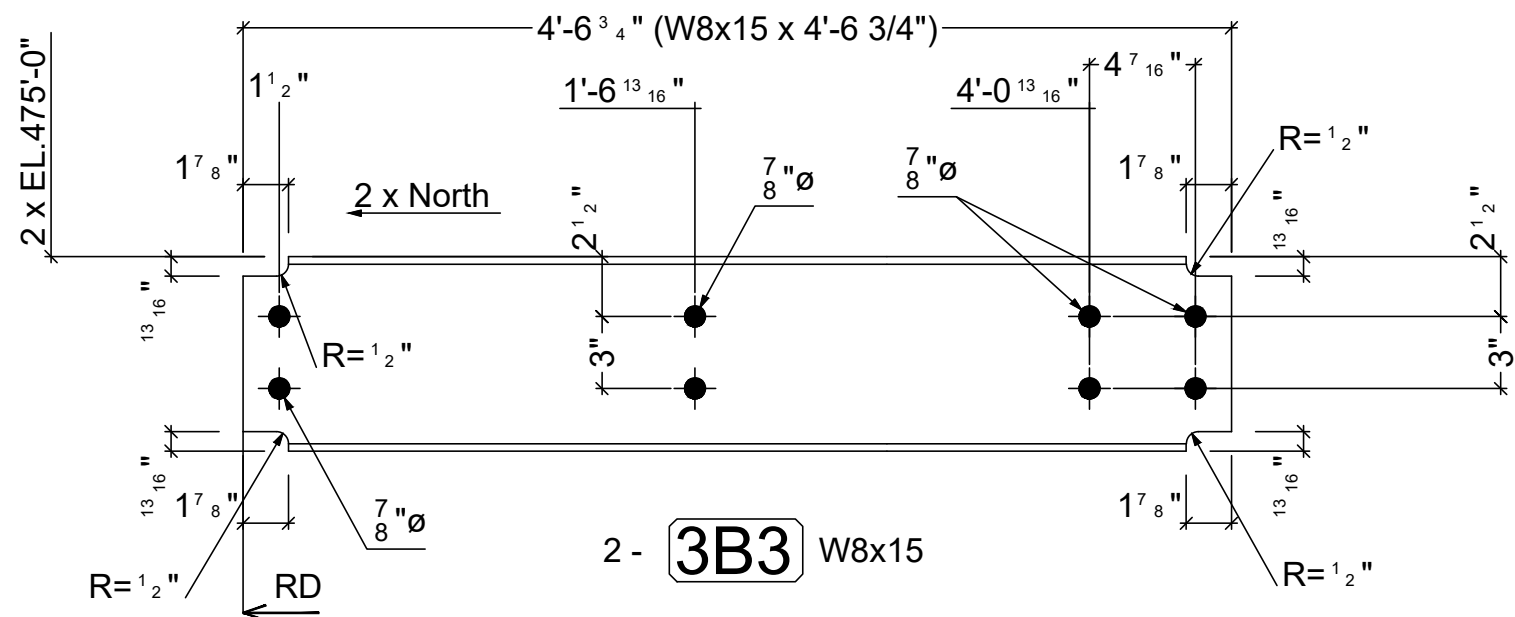
SCALE	3/4"=1'-0"	APP'D	DATE	3/11/2022
DESIGNED	CLC	PROJECT NO.	5107-6004	
DRAFTED	GRB	DRAWING NO.	S-003	REV.
CHECKED				A

FOR BIDDING PURPOSES ONLY

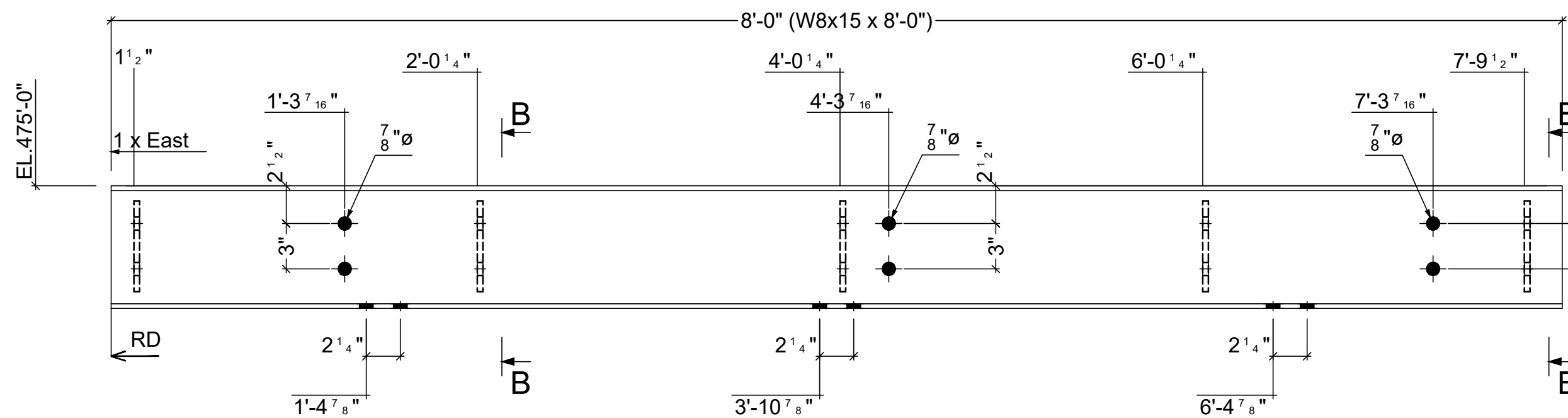


3 - 3B1 C6X8.2

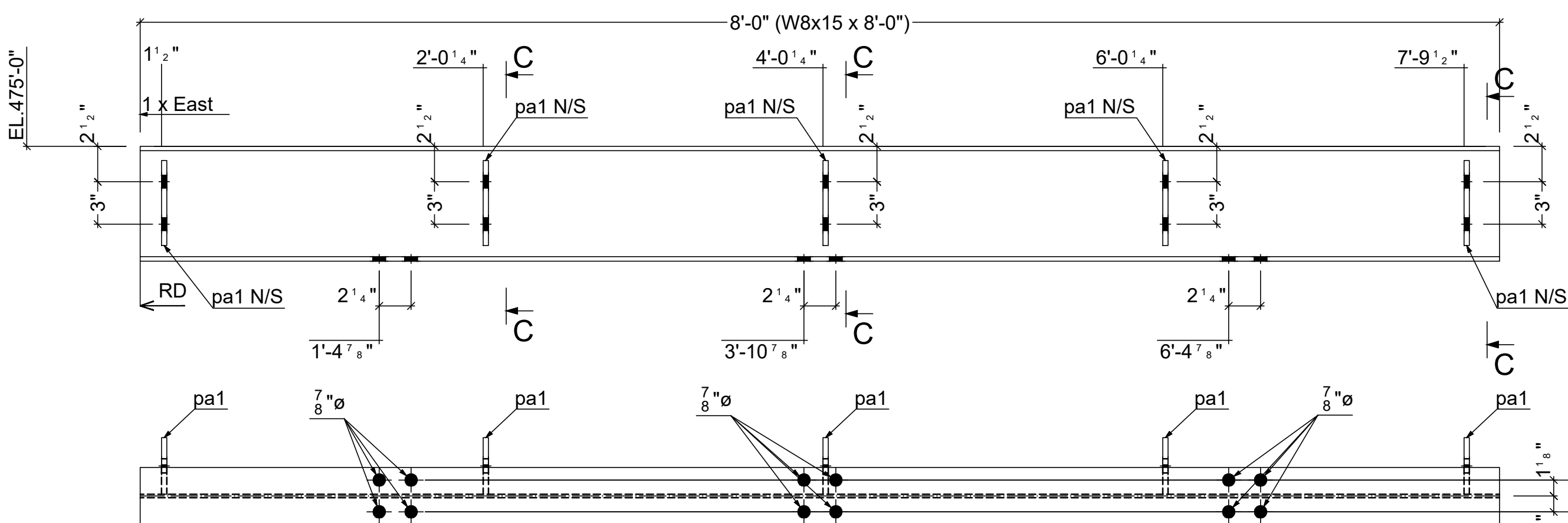
(THE 3B1 KICK BRACES SHALL BE EITHER GALVANIZED OR 304 S.S.)  
(THE 3B1 KICK BRACES SHALL BE PAINTED SAFETY YELLOW, UNLESS OTHERWISE SPECIFIED BY NICB)



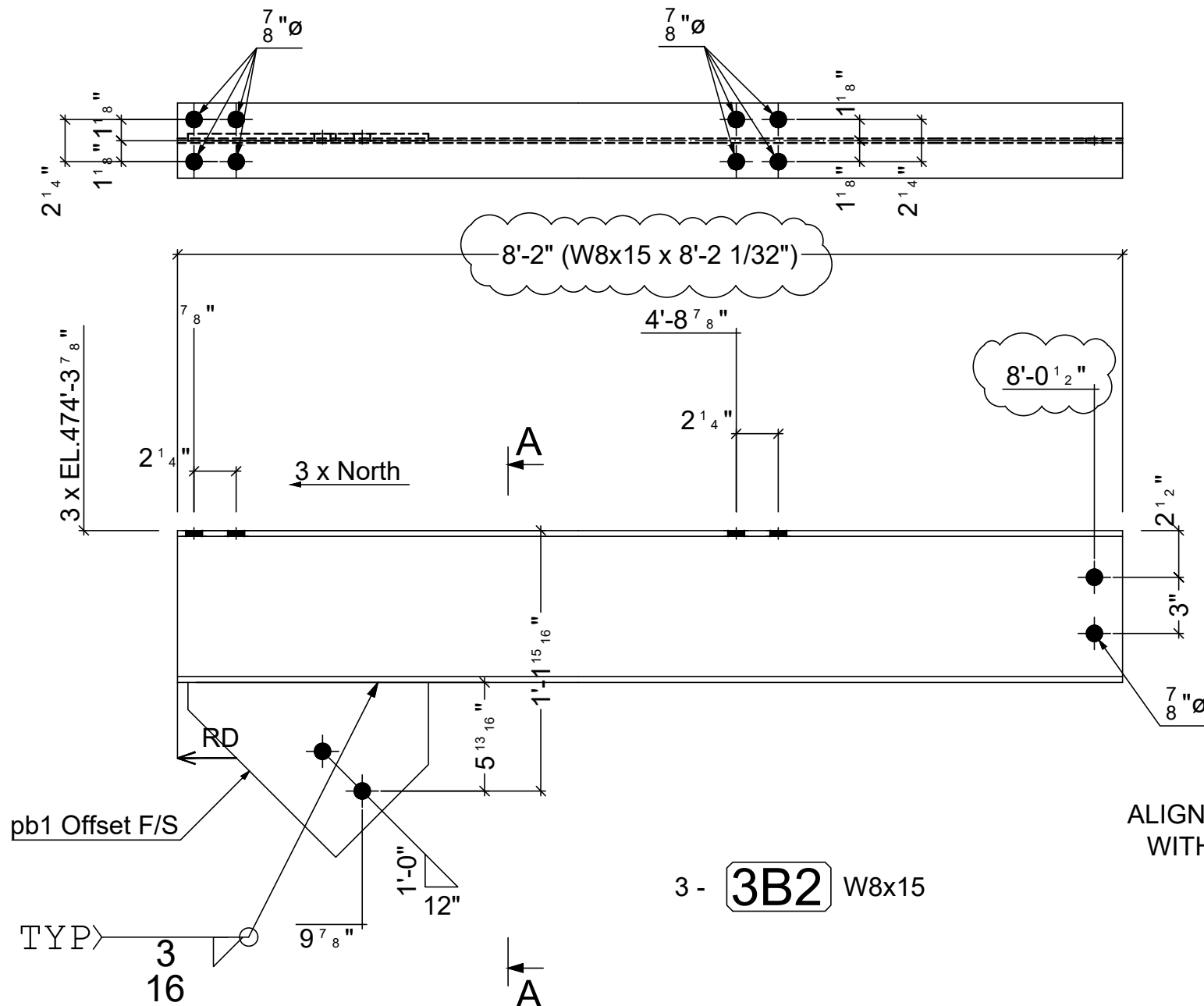
2 - 3B3 W8x15



1 - 3B4 W8x15



1 - 3B5 W8x15

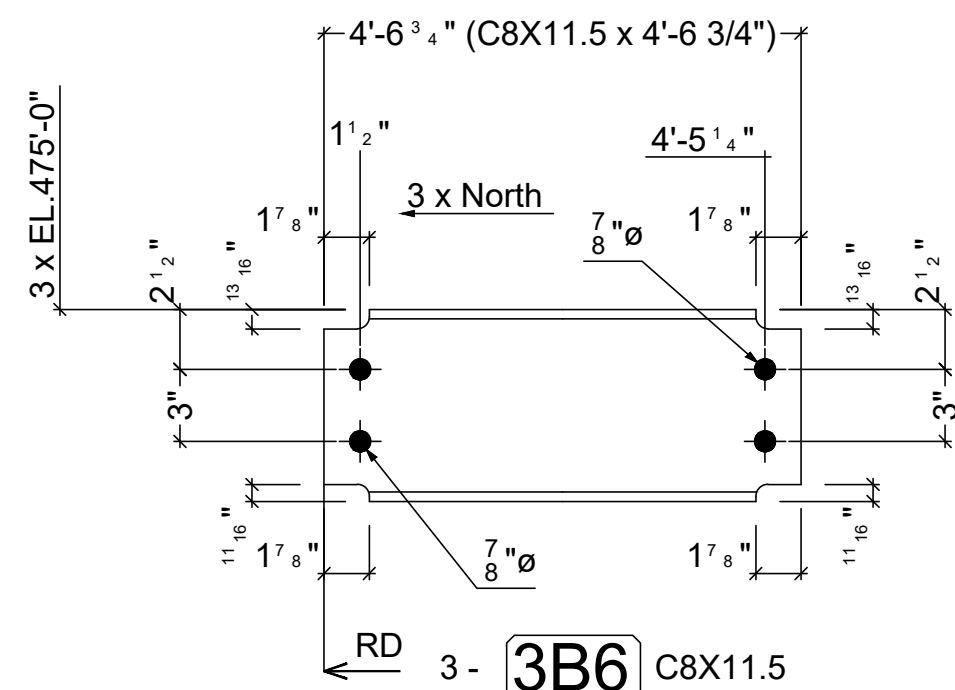


3 - 3B2 W8x15

ALIGN THIS FACE  
WITH BEAM C.L.

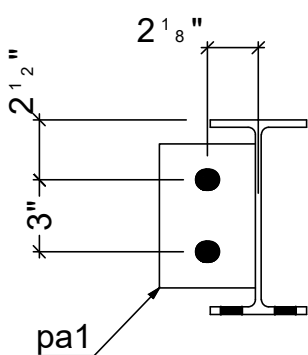
Section A - A

SHOP NOTE:  
CLOUDED DIMENSIONS ARE DEPENDENT  
ON THE EXISTING WALKWAY ADJACENT  
TO THIS PLATFORM BEING EXACTLY 3'-3\"/>



3 - 3B6 C8X11.5

Section B - B



Section C - C

Mark	Quantity	Description	Length	Grade	Part weight	Total weight
3B1	3	Beam		Galvanized (Or 304 S.S.)		
3B1	3	C6X8.2	11'-0 3/16"	A36	90.33	270.98
	3				90.33	270.98
3B2	3	Beam		Galvanized		
3B2	3	W8x15	8'-2"	A992	122.53	367.59
pb1	3	PL 3/8"x9-5/16"x1'-0 13/16"	1'-0 13/16"	A36	8.14	24.42
	6				130.67	392.01
3B3	2	Beam		Galvanized		
3B3	2	W8x15	4'-6 3/4"	A992	68.44	136.89
	2				68.44	136.89
3B4	1	Beam		Galvanized		
3B4	1	W8x15	8'-0"	A992	120.02	120.02
pa1	5	PL 3/8"x4"x6"	6"	A36	2.55	12.76
	6				132.78	132.78
3B5	1	Beam		Galvanized		
3B5	1	W8x15	8'-0"	A992	120.02	120.02
pa1	5	PL 3/8"x4"x6"	6"	A36	2.55	12.76
	6				132.78	132.78
3B6	3	Beam		Galvanized		
3B6	3	C8X11.5	4'-6 3/4"	A36	52.47	157.42
	3				52.47	157.42
	26					1222.86

GENERAL NOTES:

Prepared in conjunction with:

MIDWEST DESIGN & DRAFTING, LLC  
Cliff Cole  
NISD Certified Class I Senior Detailer  
803 Chippewa St.  
Seneca, MO 64865  
417-621-1965

NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22



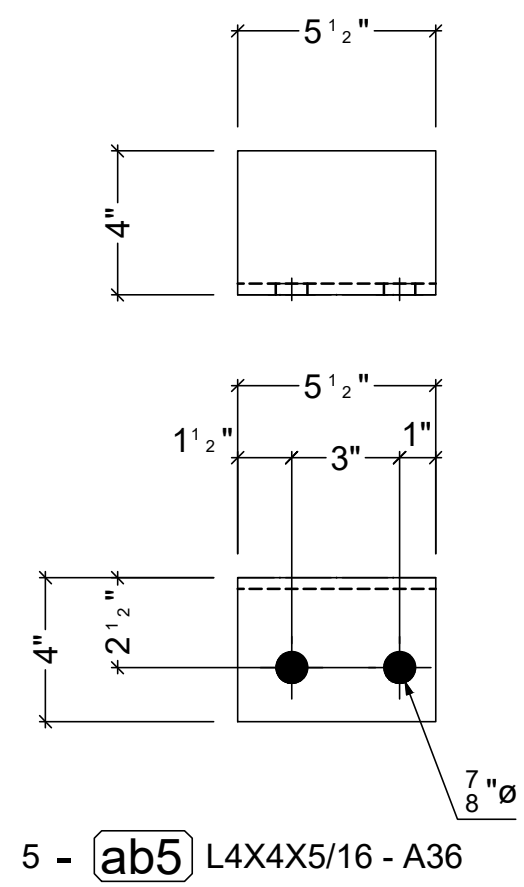
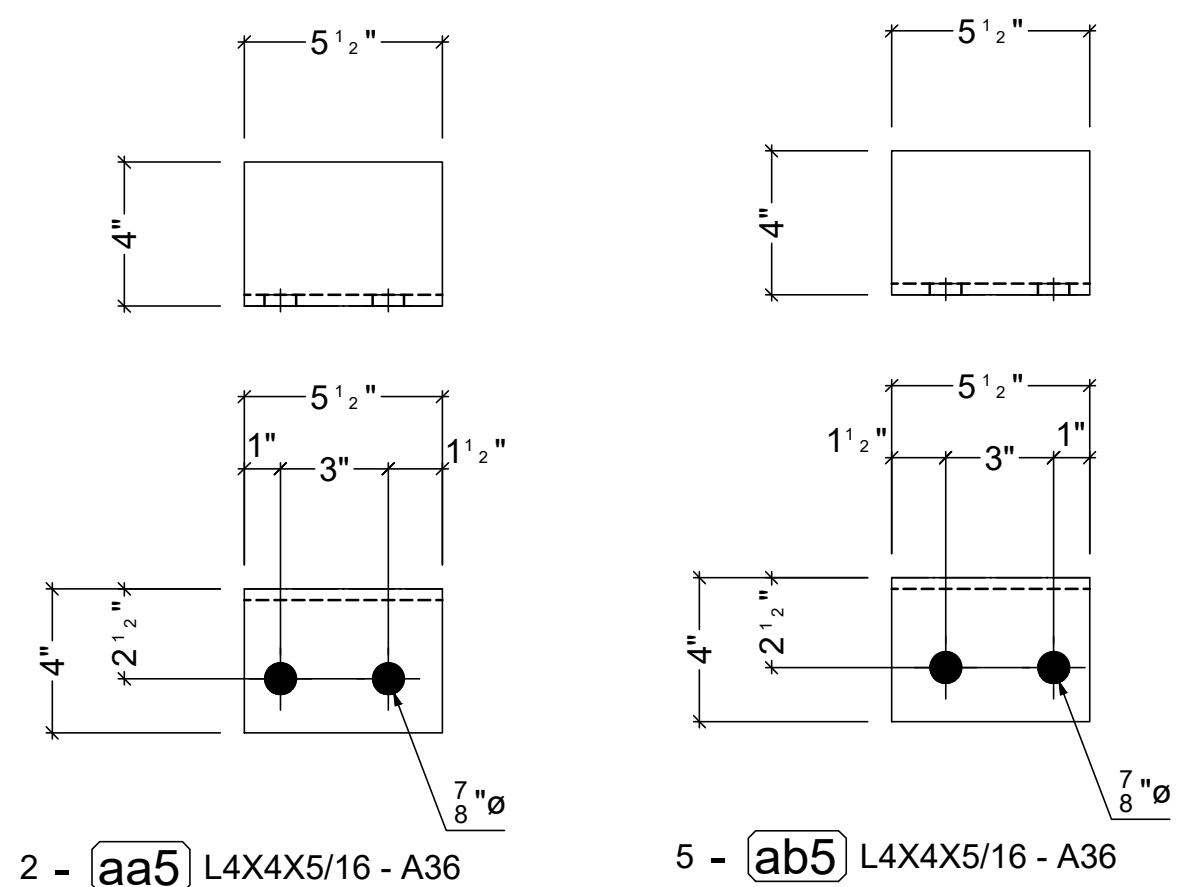
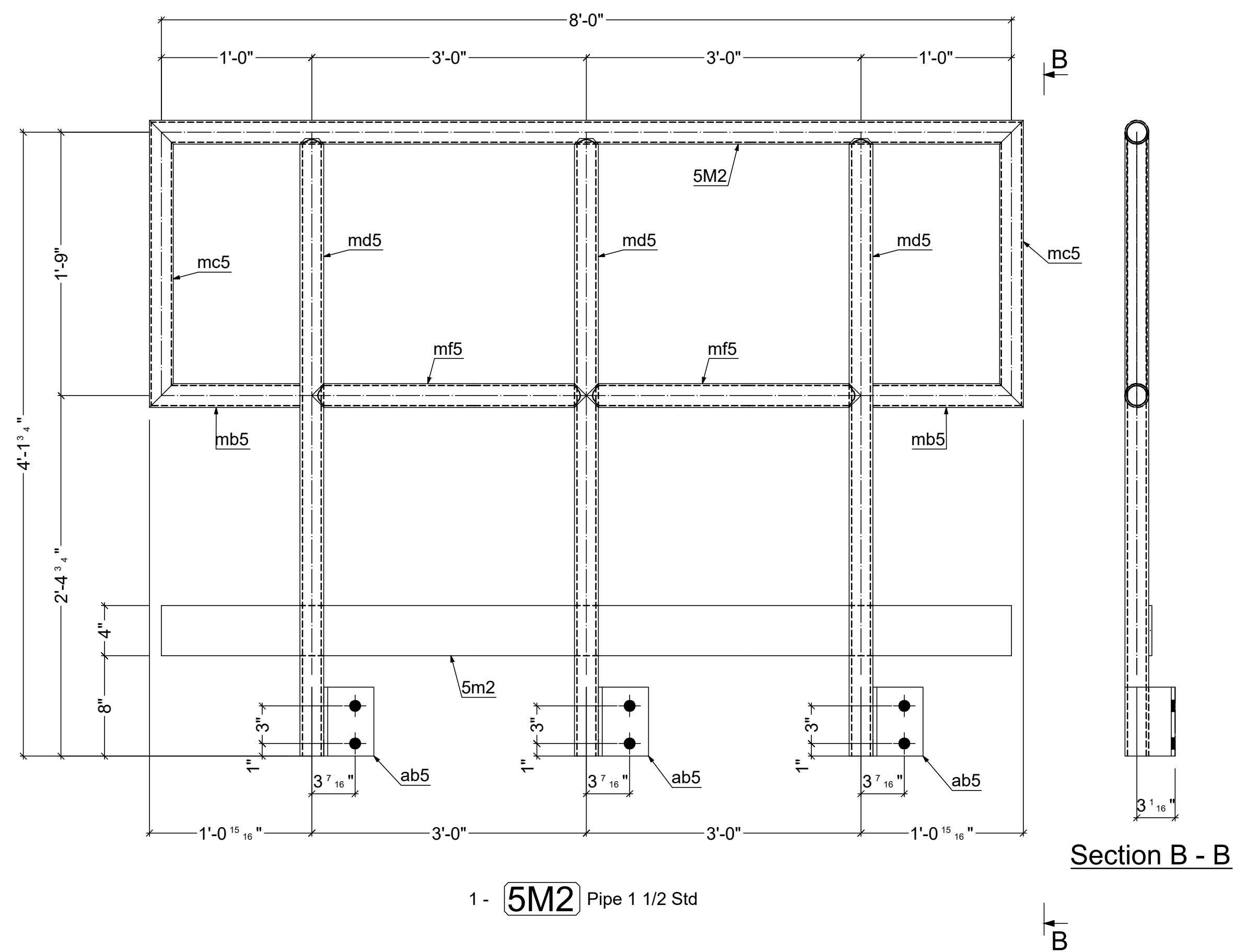
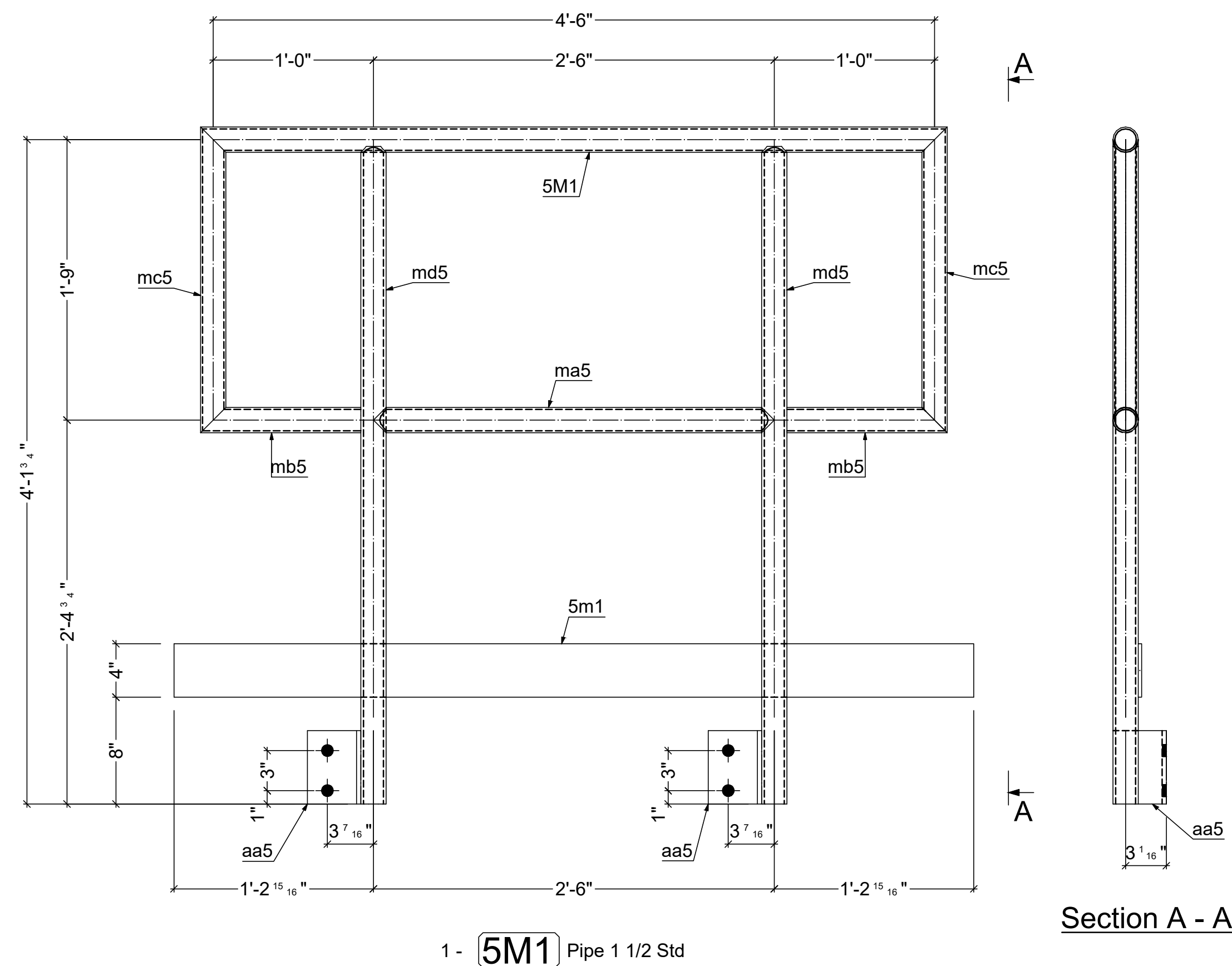
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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
PAB SCRUBBER BLOWER PLATFORM  
PLATFORM SUPPORTS

SCALE	NTS	APP'D	DATE
DESIGNED		PROJECT NO.	5107-6004
DRAFTED	CLC	DRAWING NO.	S-004
CHECKED	GRB	REV.	A

Quantity	Description	Length
72	3/4"Ø A325 (STAINLESS STEEL)	1 3/4"

FOR BIDDING PURPOSES ONLY



Mark	Quantity	Description	Length	Grade	Part weight	Total weight
5M1	1	Railing Handrail Landing		Galvanized (Or 304 S.S.)		
5M1	1	Pipe 1 1/2 Std	4'-7 15/16"	A53	12.68	12.68
5m1	1	FL 1/4X4	4'-11 7/8"	A36	16.98	16.98
md5	2	Pipe 1 1/2 x-Strong	4'-1 1/4"	A53	14.92	29.83
ma5	1	Pipe 1 1/2 Std	2'-6"	A53	6.81	6.81
mc5	2	Pipe 1 1/2 Std	1'-10 7/8"	A53	5.19	10.38
aa5	2	L4X4X5/16	5 1/2"	A36	3.76	7.52
mb5	2	Pipe 1 1/2 Std	1'-0"	A53	2.72	5.44
	11				89.64	89.64
5M2	1	Railing Handrail Landing		Galvanized (Or 304 S.S.)		
5M2	1	Pipe 1 1/2 Std	8'-1 15/16"	A53	22.20	22.20
5m2	1	FL 1/4X4	8'-0"	A36	27.23	27.23
md5	3	Pipe 1 1/2 x-Strong	4'-1 1/4"	A53	14.92	44.75
mf5	2	Pipe 1 1/2 Std	3'-0"	A53	8.16	16.33
mc5	2	Pipe 1 1/2 Std	1'-10 7/8"	A53	5.19	10.38
ab5	3	L4X4X5/16	5 1/2"	A36	3.76	11.28
mb5	2	Pipe 1 1/2 Std	1'-0"	A53	2.72	5.44
	14				137.60	137.60
5M3	1	Railing Handrail Landing		Galvanized (Or 304 S.S.)		
5M3	1	Pipe 1 1/2 Std	4'-7 15/16"	A53	12.68	12.68
5m1	1	FL 1/4X4	4'-11 7/8"	A36	16.98	16.98
md5	2	Pipe 1 1/2 x-Strong	4'-1 1/4"	A53	14.92	29.83
ma5	1	Pipe 1 1/2 Std	2'-6"	A53	6.81	6.81
mc5	2	Pipe 1 1/2 Std	1'-10 7/8"	A53	5.19	10.38
ab5	2	L4X4X5/16	5 1/2"	A36	3.76	7.52
mb5	2	Pipe 1 1/2 Std	1'-0"	A53	2.72	5.44
	11				89.64	89.64
	36					316.88

GENERAL NOTES:

ALL GUARDRAILS TO BE GALVANIZED  
OR 304 S.S. (NICB TO DETERMINE)  
ALL GUARDRAILS TO BE PAINTED  
SAFETY YELLOW, UNLESS OTHERWISE  
DIRECTED BY NICB.

Prepared in conjunction with:

MIDWEST DESIGN & DRAFTING, LLC  
Cliff Cole  
NISD Certified Class I Senior Detailer  
803 Chippewa St.  
Seneca, MO 64865  
417-621-1965

NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22

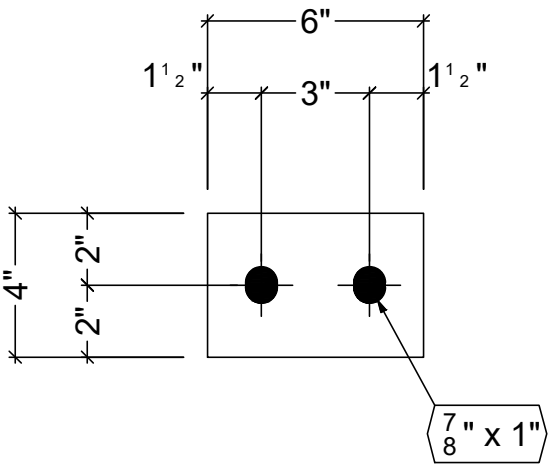


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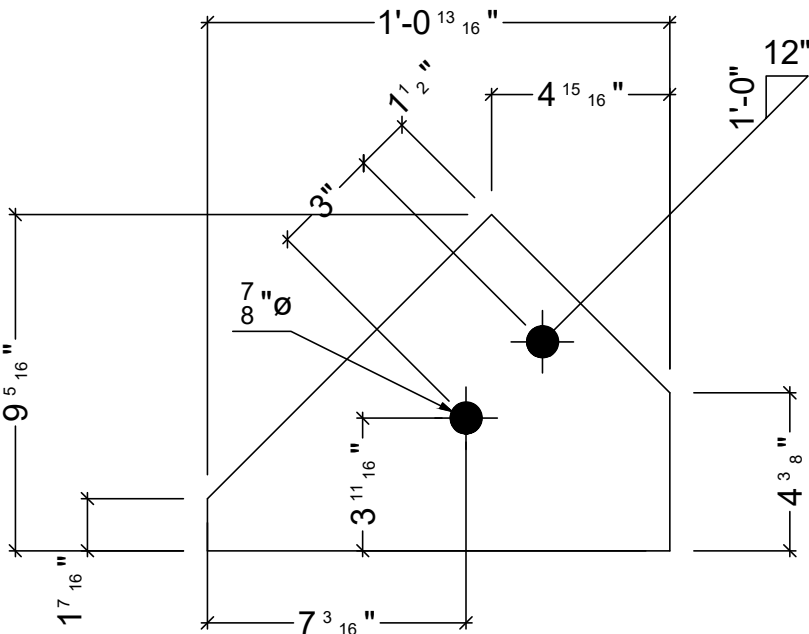
NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
PAB SCRUBBER BLOWER PLATFORM  
PLATFORM RAILS

SCALE NTS		APP'D	DATE 3/11/2022	
DESIGNED		PROJECT NO. 5107-6004		
DRAFTED	CLC	DRAWING NO. S-005		REV.
CHECKED	GRB			A

Mark	Quantity	Description	Grade	Part weight	Total weight
Galvanized					
pa1	16	PL 3/8"x4"x6"	A36	2.55	40.84
pb1	3	PL 3/8"x9-5/16"x1'-0 13/16"	A36	8.14	24.42
	19				65.26

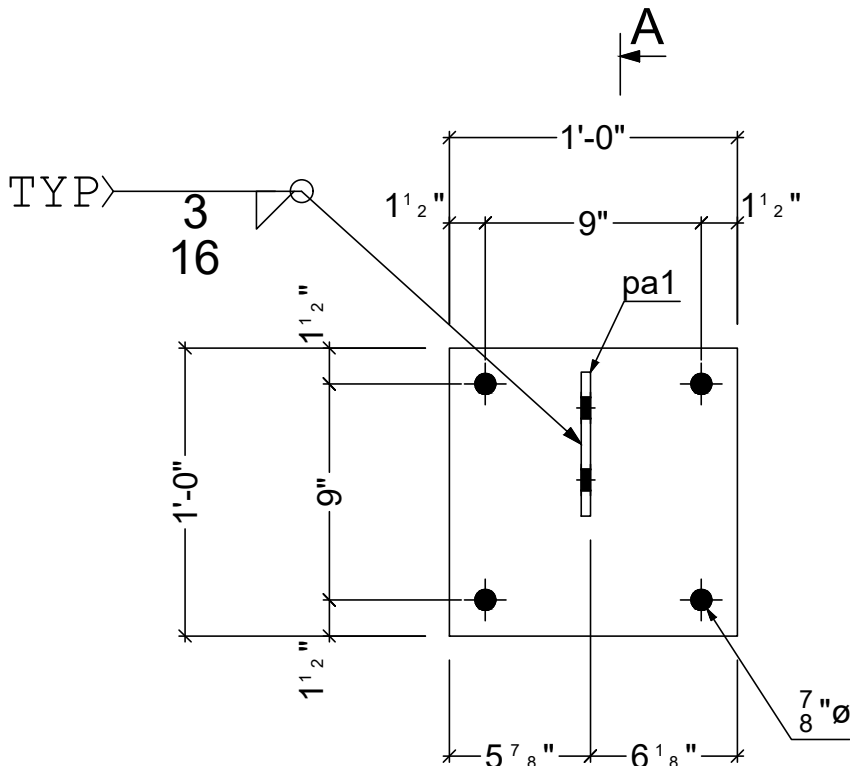


16 - **pa1** PL 3/8"x4"x6" - A36



3 - **pb1** PL 3/8"x9-5/16"x1'-0 13/16" - A36

Mark	Quantity	Description	Length	Grade	Part weight	Total weight
Galvanized						
2P1	6	Plate				
2P1	6	PL 1/2"x12"x1'-0"	1'-0"	A36	20.42	122.51
pa1	6	PL 3/8"x4"x6"	6"	A36	2.55	15.31
	12				22.97	137.83
	12					137.83



Section A - A

6 - **2P1** PL 1/2"x12"x1'-0"

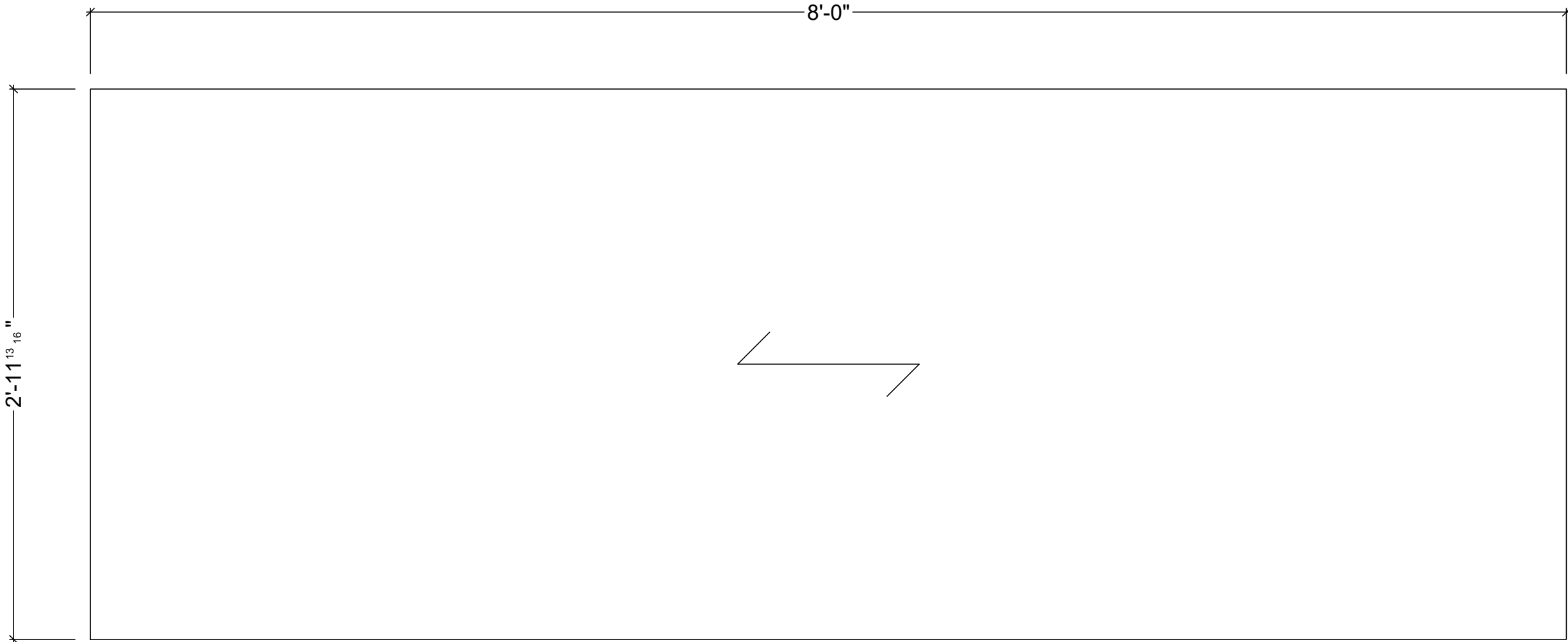
(GALVANIZED)

Quantity	Description	Length
24	3/4"Ø HILTI HY 200 HAS-E	10"

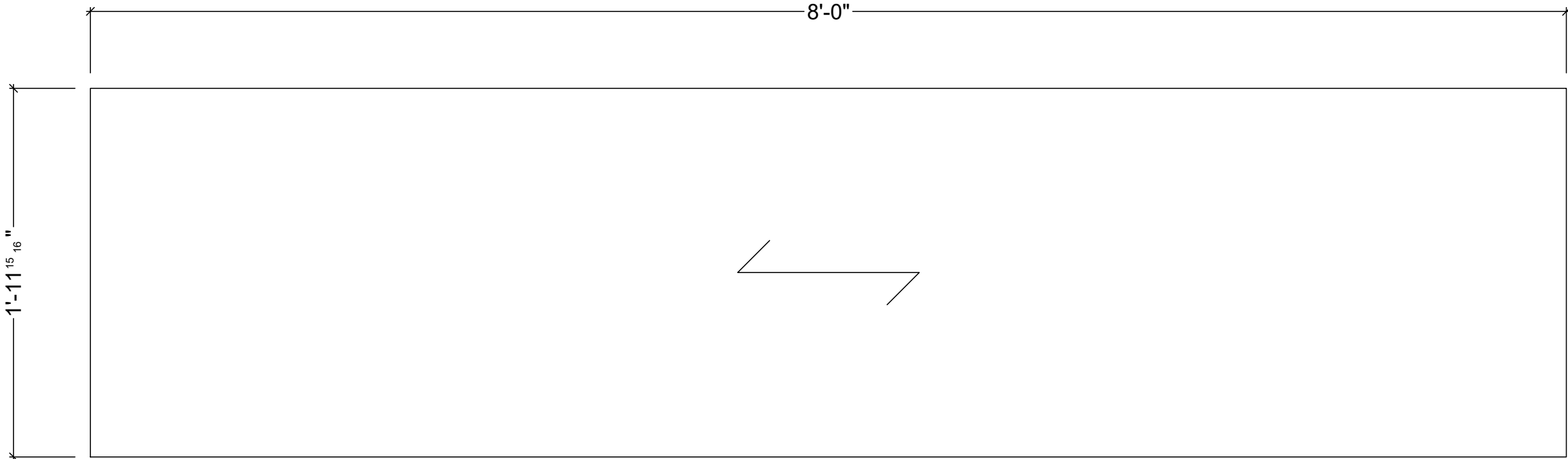
FOR BIDDING PURPOSES ONLY

MARK	QTY	DESCRIPTION	LENGTH	WIDTH	PART WT.(LBS)	TOTAL WT.(LBS)
4P1	1	McNichols GW (19W4) 1-1/4x3/16 - 8'-0"x2'-11 13/16"	96.015	35.828	217	217
4P2	1	McNichols GW (19W4) 1-1/4x3/16 - 8'-0"x1'-11 15/16"	96.015	23.953	145	145

(GALVANIZED GRATING)



1 - **4P1** McNichols GW (19W4) 1-1/4x3/16 - 8'-0"x2'-11 13/16"



1 - **4P2** McNichols GW (19W4) 1-1/4x3/16 - 8'-0"x1'-11 15/16"

GENERAL NOTES:

Prepared in conjunction with:

MIDWEST DESIGN & DRAFTING, LLC  
Cliff Cole  
NISD Certified Class I Senior Detailer  
803 Chippewa St.  
Seneca, MO 64865  
417-621-1965

NO.	DESCRIPTION	BY	DATE
A	FOR BID	GRB	05.05.22



13000 CANTRELL ROAD  
LITTLE ROCK, AR 72223  
PHONE 501-975-8100  
WWW.ECCI.COM

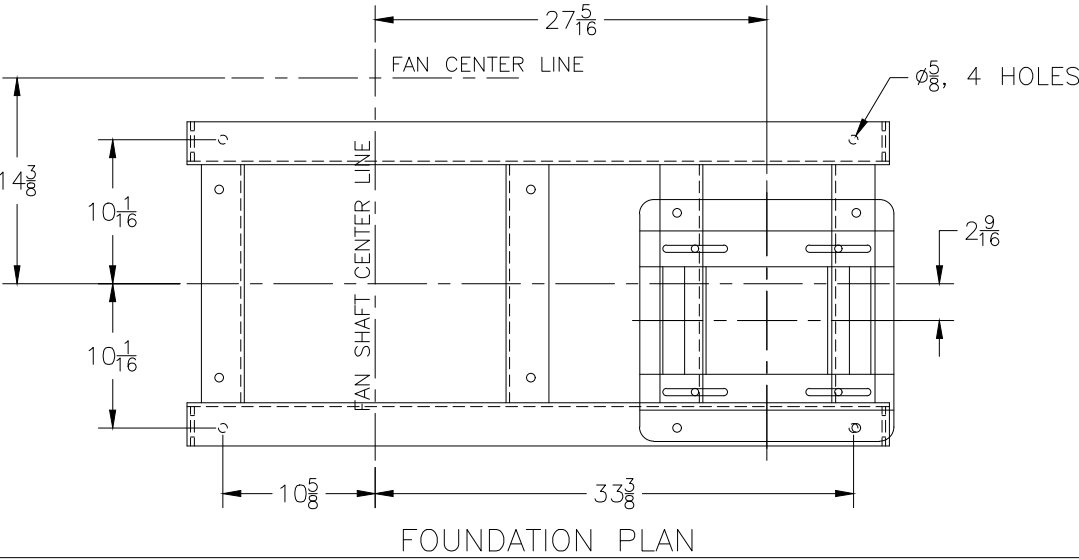
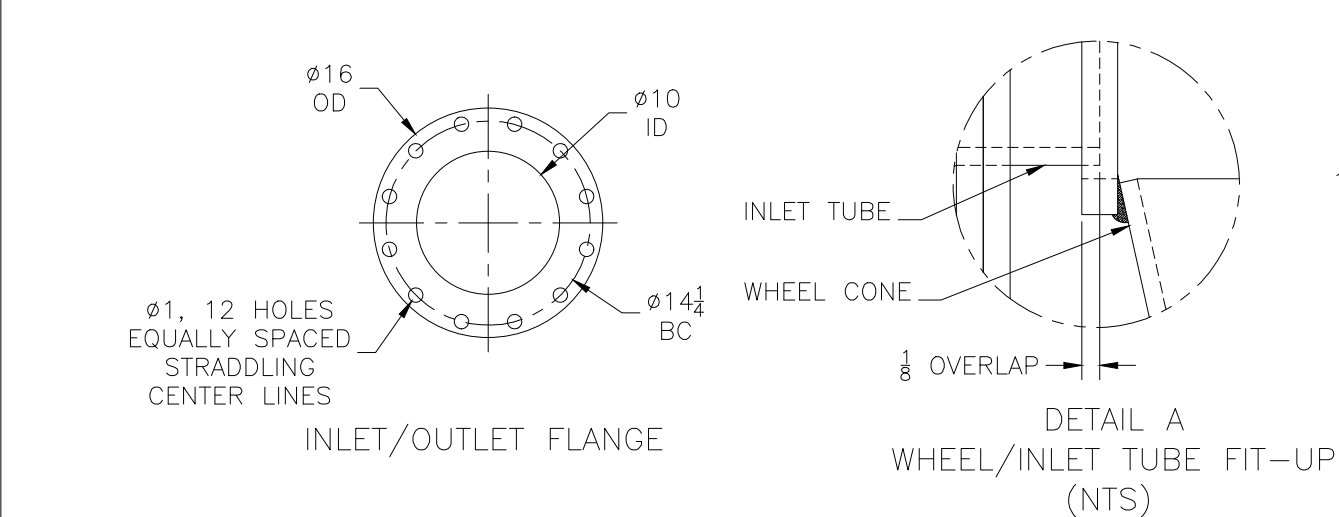
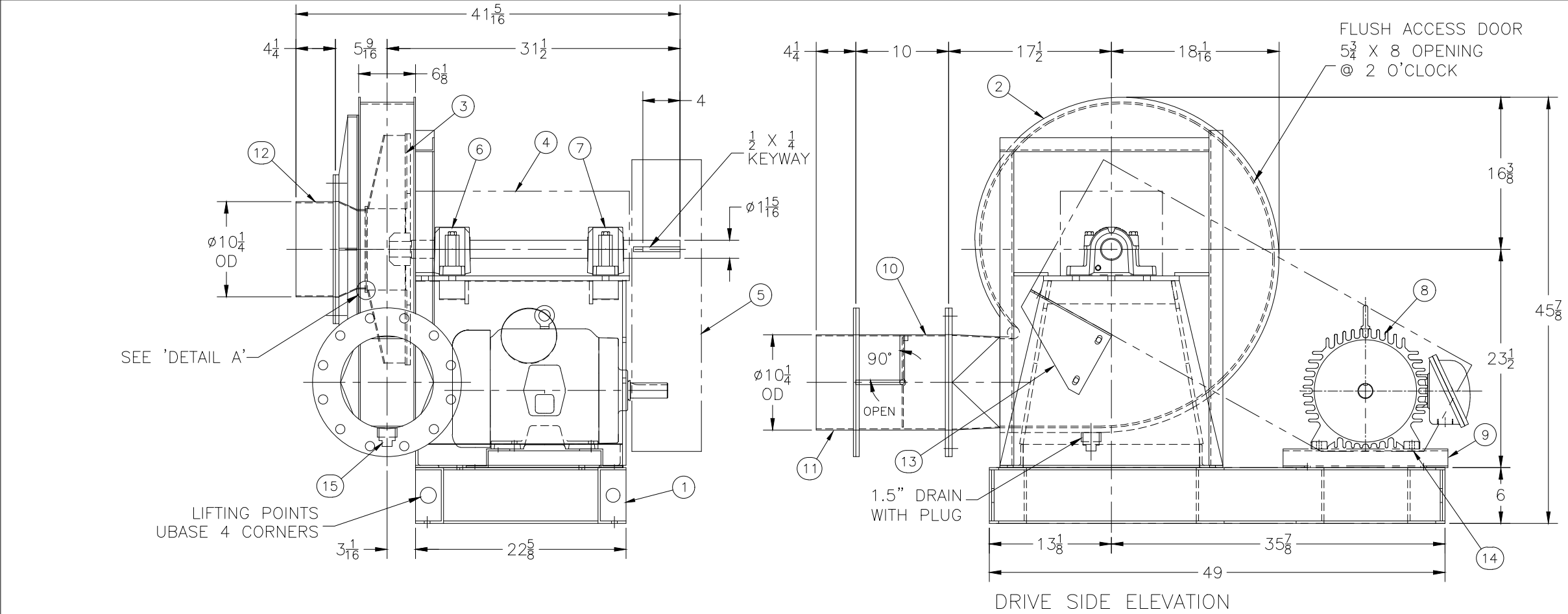
ENGINEERING | COMPLIANCE | CONSTRUCTION

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NEW-INDY CONTAINERBOARD  
CATAWBA, SC  
PAB SCRUBBER BLOWER PLATFORM  
PLATFORM DETAILS

SCALE	NTS	APP'D	DATE
DESIGNED		PROJECT NO.	5107-6004
DRAFTED	CLC	DRAWING NO.	S-006
CHECKED	GRB		REV. A

Quantity	Description	Length
----------	-------------	--------




- ACCESSORIES**
- HOUSING:  
MATERIAL OF CONSTRUCTION: A36 OR EQUAL  
FLANGES: INLET/PUNCHED OUTLET/PUNCHED  
SHAFT SEAL: GASKETTED  
NAMEPLATE: STANDARD  
DRAIN: 1.5" DIA. WITH PLUG  
DRAIN LOCATION: SCROLL  
FLUSH/HINGED ACCESS DOOR  
ACCESS DOOR TYPE: QUICK RELEASE  
ACCESS DOOR LOCATION: 2 O'CLOCK  
SLIP FIT COMPANION FLANGES - 4" LIP (INLET AND OUTLET) SUPPLIED AND MOUNTED BY NB
  - REGULAR BEARING PEDESTAL:  
MATERIAL OF CONSTRUCTION: A36 OR EQUAL  
COMMON INTEGRAL BASE / UNITARY BASE C/W LIFTING LUGS FOR RIGGING AND LIFTING TO PLATFORM
  - WHEEL & SHAFT:  
WHEEL CONSTRUCTION: CARBON STEEL  
SHAFT CONSTRUCTION: CARBON STEEL  
SHRINK FIT  
BALANCE GRADE: ISO 21940 G2.5  
SHAFT & BEARING GUARD: SUPPLIED & MOUNTED BY NB  
PROVISION FOR ZERO SPEED: CENTER DRILL THE SHAFT TO A DEPTH OF 0.5" WITH A NO. 21 DRILL, THEN TAP FOR A 10-32 UNF SCREW  
ZERO SPEED SWITCH SUPPLIED & MOUNTED BY OTHERS
  - BEARINGS:  
ANTI-FRICTION (GREASE LUBE)  
NO EXTENDED GREASE LINES
  - BLAST GATE - OUTLET:  
MATERIAL OF CONSTRUCTION: A36 OR EQUAL  
OPERATION: MANUAL
  - BELT DRIVE:  
MOTOR BASE: SLIDE  
BELT GUARD: SUPPLIED & MOUNTED BY NB  
GUARD FEATURES: INSPECTION LID & TACHOMETER HOLES
  - MECHANICAL RUN TEST: STANDARD 0.10 in/sec VELOCITY AT OPERATING SPEED
  - PAINT SYSTEM:  
INTERIOR & EXTERIOR:  
SURFACE PREP: SSPC-SP1 & SP2  
PRIMER: ALKYD, 03PR08ZP (1 COAT)  
FINISH: INTERLAC 665 ALKYD ENAMEL (1 COAT)  
TOTAL DFT: 2.9-3.3 MILS  
COLOR: ASA 70 GREY  
SAFETY YELLOW POWDER COAT ON GUARDS

NOTES			
1) MAKE: WEG, W22 SEVERE DUTY MOTOR CONDUIT BOX: F2			
15	1	DRAIN PLUG	0-2-1569- 7
14	1	LOWER BRACKET	104021
13	1	UPPER BRACKET	104652
12	1	INLET COMPANION FLANGE	65580.01.4
11	1	OUTLET COMPANION FLANGE	65580.01.31
10	1	BLAST GATE	64-9-0029
9	1	SLIDE BASE	256T FRAME
8	1	MOTOR	SEE MOTOR INFO
7	1	DRIVE BEARING (FLOAT)	SAFD22511C3 X 1.9375
6	1	INBOARD BEARING (FIX)	SAFD2511C3 X 1.9375
5	1	BELT GUARD	65580.01.9
4	1	SHAFT & BRG GUARD	65580.01.6
3	1	ROTOR	65580.01.5
2	1	HOUSING	65580.01.3
1	1	UNITARY BASE	65580.01.2
ITEM	QTY	NAME	DESCR / PART
PARTS LIST			

**CUSTOMER:**  
PITTSBURGH AIR SYSTEMS, INC.

**PROJECT:**  
TAGGING: PO 030440 TIGG CENTRIFUGAL FAN

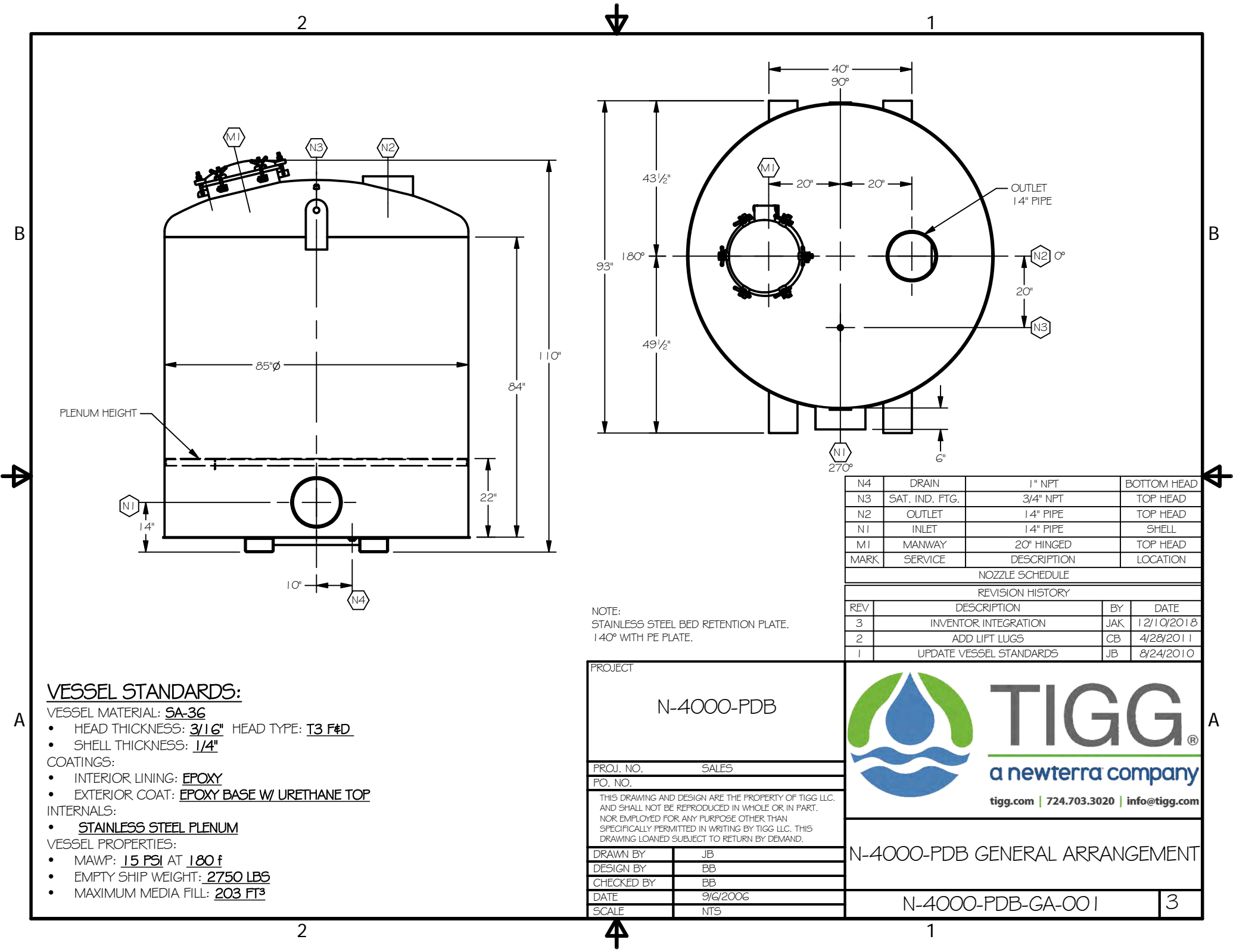


901 Regent Ave. West, Winnipeg,  
Manitoba, Canada, R2C 2Z8  
Telephone: (204) 222-4216,  
Telefax: (204) 222-7601

CERTIFIED FOR CONSTRUCTION NO APPROVAL REQUIRED		TOLERANCE: ±1/8 SCALE: TO SCALE
DRAWN BY: ADC	DATE: 2022-01-19	REV: 1
CHECKED BY: JCG	DATE: 2022-01-19	DRAWING NO.
APPROVED BY: JR	DATE: 2022-01-19	65580.01

1	REVISED APPROVAL STATUS TO RELEASED AND ADDED DRILL & TAP ON SHAFT FOR ZERO SPEED SWITCH.	2022-02-01	ADC	FAN DESCRIPTION												
				QUANTITY	DESIGN	SIZE	WIDTH	ARRANGEMENT	ROTATION	DISCHARGE	CLASS	MAX SPEED (RPM)	MAX ALLOW TEMP (F)	FAN WEIGHT (LBS)		
				1	6440	35-2450	100%	1	CW	270° / BH	HD	3550	100	1300		
				FAN PERFORMANCE												
				CONDITION	FLOW (ACFM)	SP (IN.WG)	SPEED (RPM)	POWER (BHP)	TEMP (F)	ELEV (FT)	DENSITY (LB/CU.FT)	OUTLET VEL (FT/MIN)				
				OPERATING	2,500	18	2412	12.07	70	670	0.0733	3609				
				MOTOR INFORMATION					DRIVE INFORMATION							
				SUPPLIED BY: NB MOUNTED BY: NB					SUPPLIED BY: NB MOUNTED BY: NB							
				HP	RPM	CURRENT	FRAME	TYPE	POSITION	TYPE	MTR SHEAVE	MTR BUSHING	FAN SHEAVE	FAN BUSHING	QTY / BELT	C.D.
				20	1800	3/60/460V	256T	SEE NOTE 1	W	MIN S.F. 1.4	9.0X3B-SK	SK X 1-5/8	6.4X3B-SD	SD X 1-15/16	3 / B85	31.3

REVISION			
----------	--	--	--



**VESSEL STANDARDS:**

- VESSEL MATERIAL: SA-36
- HEAD THICKNESS: 3/16" HEAD TYPE: T3 F&D
  - SHELL THICKNESS: 1/4"
- COATINGS:
- INTERIOR LINING: EPOXY
  - EXTERIOR COAT: EPOXY BASE W/ URETHANE TOP
- INTERNALS:
- STAINLESS STEEL PLENUM
- VESSEL PROPERTIES:
- MAWP: 15 PSI AT 180 f
  - EMPTY SHIP WEIGHT: 2750 LBS
  - MAXIMUM MEDIA FILL: 203 FT³

NOTE:  
STAINLESS STEEL BED RETENTION PLATE.  
140° WITH PE PLATE.

PROJECT	
N-4000-PDB	
PROJ. NO.	SALES
PO. NO.	
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DRAWN BY	JB
DESIGN BY	BB
CHECKED BY	BB
DATE	9/6/2006
SCALE	NTS

N4	DRAIN	1" NPT	BOTTOM HEAD
N3	SAT. IND. FTG.	3/4" NPT	TOP HEAD
N2	OUTLET	1 1/4" PIPE	TOP HEAD
N1	INLET	1 1/4" PIPE	SHELL
M1	MANWAY	20" HINGED	TOP HEAD
MARK	SERVICE	DESCRIPTION	LOCATION

NOZZLE SCHEDULE			
REVISION HISTORY			
REV	DESCRIPTION	BY	DATE
3	INVENTOR INTEGRATION	JAK	12/10/2018
2	ADD LIFT LUGS	CB	4/28/2011
1	UPDATE VESSEL STANDARDS	JB	8/24/2010



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N-4000-PDB GENERAL ARRANGEMENT	
N-4000-PDB-GA-001	3



## New Indy Containerboard Installation Manual

Project specific instructions for the installation of the PODZ Horizon system on a holding basin located at New Indy Containerboard, South Carolina.

For general instructions, consult the PODZ Horizon Installation Manual.



## Contents

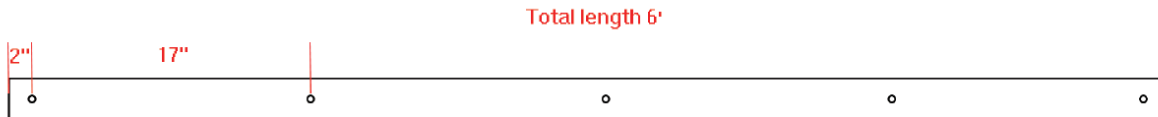
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## Parts list

A. 1 membrane, details in attached AutoCAD and in Fig. 2.

B. 34 batten bars:

- Width: 2"
- Caliper: 3/16"
- Length: 6'
- Holes: dia 1/4"
- Hole location: 1 hole 2" from each end and 3 holes between them at 17".



C. Hardware

Qty	Description
28	316 SS 1/2" x 6" Jaw and Jaw Turnbuckle
168	316ss 1/8 cable clips
56	316SS 1/4 Thimbles
1535'	304SS cable 1/4"
56	SS 3/16 shoulder eye bolt x 1/4 x 4"
56	Drop-in anchors ss 1/4-20 UNC
200	DeWalt anchors #1/4 x 3-1/4 in SS.

D. 101 activated carbon filters, 1 m x 1 m x 20 mm

## Preparation

1. Remove the existing tarps from the tank.
2. Verify the condition of the existing anchors, turnbuckles, cables, etc. and replace if deemed to be in poor condition.
3. Inspect the condition of the inside edges of the tank. The upper horizontal edges need to be in good condition and even. In case pieces of concrete are missing, make repairs. (See PODZ Horizon Installation Manual, § 7).
4. Remove the ladder and cage, Fig. 1.

Fig. 1



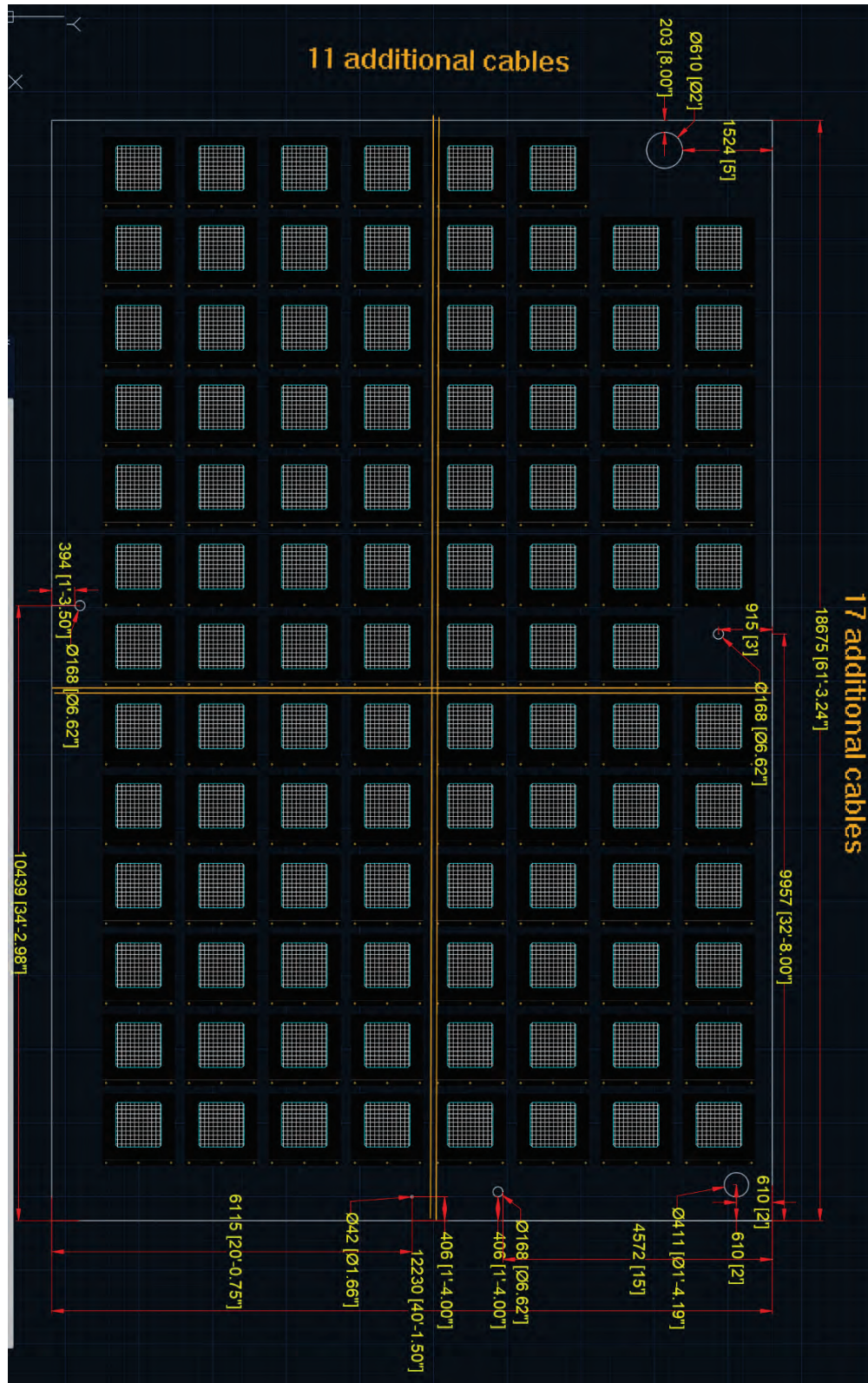
## Installation of the cables

For general instructions, refer to the PODZ Horizon Installation Manual, section 5.

1. AutoCAD drawing (New Indy Dim Final) for the membrane design is attached separately.
2. The additional cables supplied should be placed approximately in the middle in-between the existing ones so that they don't interfere with the pipes. There will be 11 additional cables across in the long direction and 17 additional cables across in the short direction.
3. Cut the cables in the length and width of the tank (point 2 above) + 6'.
4. Install turnbuckles only on one end of each cable.
5. Use 3 cable clips in each end of the cable.
6. In the middle of the tank, in both directions, there will be double cables installed. These can be 6" apart.
7. The double cables should ideally also fall between rows of filters. The AutoCAD drawing will show the approximate location of these filters over the tank. (Fig. 2).
8. The cables should be alternating under-over when installing.

## Drawing of the membrane

Fig. 2



## Membrane deployment

1. The membrane without filters weighs approx. 1100 lbs.
2. Spread the membrane on a sufficiently large surface next to the tank (Fig. 3).

Fig. 3



3. Decide in which direction the membrane should be lowered over the tank for easiest handling and deployment. Fold or roll the membrane accordingly before lifting into place.
  - ⇒ Pay attention to the direction of the membrane in relation to the pipes in tank (Fig. 2).
  - ⇒ Make sure the side which has the holes in the filter pockets is facing up when preparing the membrane as well as when placing it on the tank (Fig. 4). This is the side for opening the filter pockets for filter installation and change.

Fig. 4



4. Add slings around the rolled/folded membrane which can be used to lift with one or two cranes. It is recommended that slings are also added in each end to help laying the membrane across the tank (Fig. 5).

Fig. 5



5. Once the membrane has been placed on the tank, open it, and spread it across the cables (Fig. 6).
6. The membrane is equipped with handles to provide a better grip (Fig. 7).
  - ⇒ The handles may rip under high tension. This will not damage the membrane or affect its intended function.

Fig. 6



Fig. 7



7. Make sure the membrane is fully deployed and evenly laid over the cables.
8. The next step is for the pipe-boot installer to seal the membrane around the pipes.
  - ⇒ This work will be performed by a third-party installer who has to be scheduled in advance depending on completion of the previous installation steps.

## Batten bars

1. Batten bars can only be installed once the pipe installation has been completed.
2. For this project only top batten bars are required.
3. Use the anchors supplied and follow the general instructions are explained in the PODZ Horizon Installation Manual, section 6.

## Filters

1. **Do not open the bags!** This project requires the filters to remain in their individual plastic bags until further notice.
2. Completely open the lid of the pocket on all 3 sides.
3. Place one filter (without removing it from the bag) into each pocket.
4. Close all sides of the pocket ensuring all sides are evenly sealed.

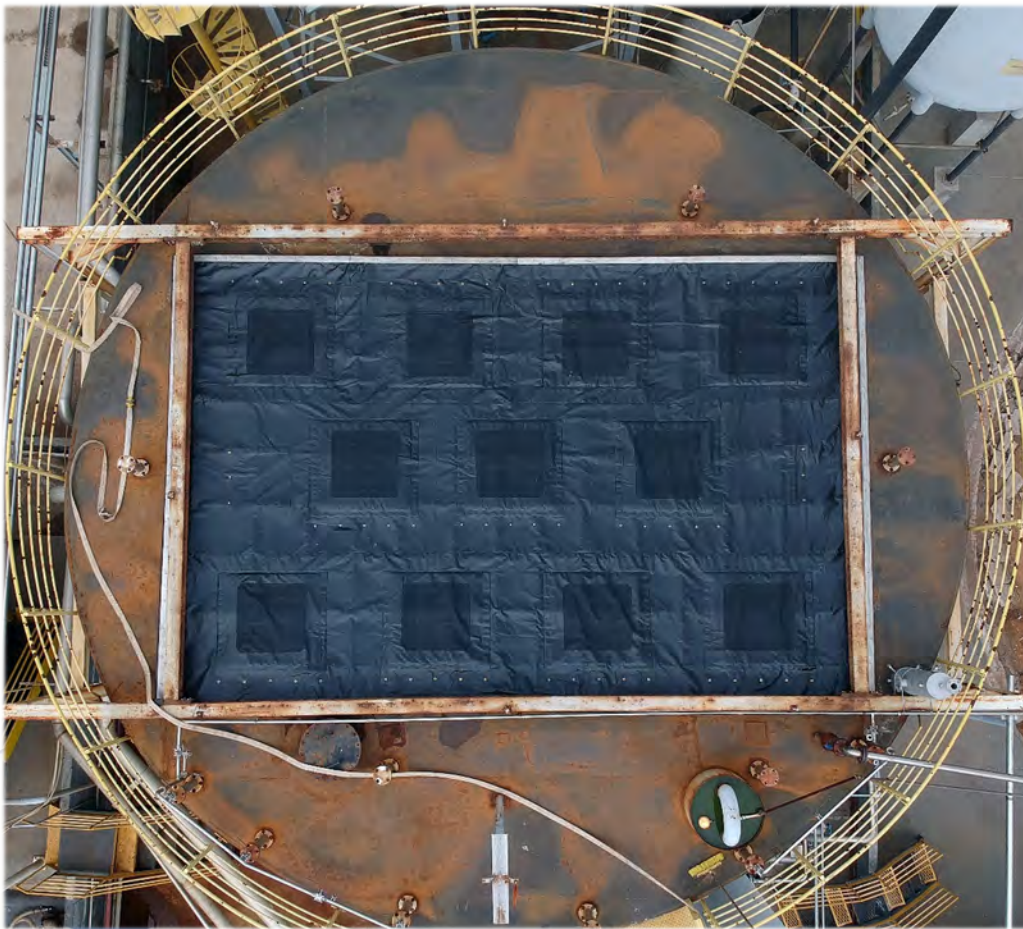
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Tel.: + 1 514 974 5343



# Installation Manual



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*This manual contains general instructions for the installation of the PODZ HORIZON odour control solution. Operation & Maintenance manuals can be provided separately with specific installation details for each individual project.*







## 1. Tools and accessories required for installation

- Hammer drill
- Set of carbide drill bits (for concrete)
- Industrial silicone/polyurethane (enough for the length of the edges of all tanks part of the project)
- Wrenches and sockets
- Grinder with cutting blades for metal
- Metal sander
- Hammer
- Cutting knife
- Punching tools ¼" (punching reinforced membrane)
- Heat gun (or blow torch) to fuse the reinforced membrane around pipes and to make repairs

This list is for reference only for standard projects. More specific tools might be required depending on the project.

## 2. Various parts typically required for installation

Example only. Varies per projects.

Stainless Steel parts:					
					
Clips	Thimbles	Turnbuckle	Eyebolt	Wedge Anchor	Cable

### 3. General description

The first part of the installation consists of placing support cables across the tank. The second part is installing and sealing the reinforced membrane (Fig. 1) containing the filters on the edges of the basin. This is done by securing the batten bars (or angle bars depending on the project) with wedge anchors. The reinforced membrane is then laid across the basin over the support cables. Once the reinforced membrane is properly aligned on all sides of the basins with some material going over the batten bars, the extra material is folded underneath the top of the membrane and holes are to be punched through both layers of the reinforced membrane using a punching tool at the exact location where the wedge anchors are. Finally, the yellow batten bar is placed over the wedge anchors and secured in place with nuts (Fig.2. a. and 2.b.).

Fig. 1

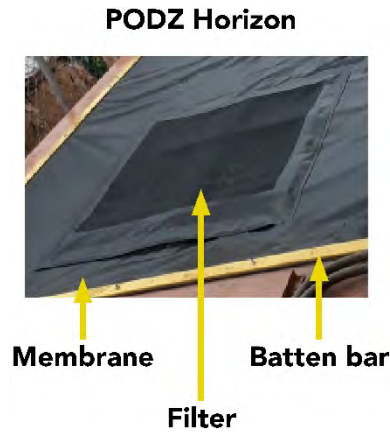


Fig. 2.a

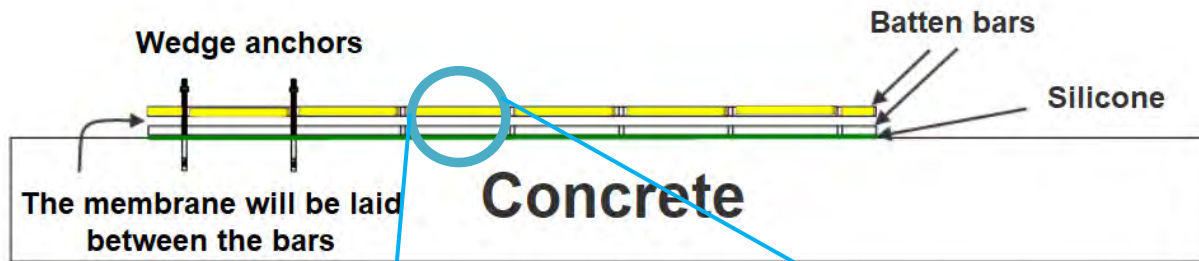


Fig. 2.b



## 4. Installation of the anchors for the support cables

Install the anchors as follows (Fig. 3a and 3b):

Fig. 3a

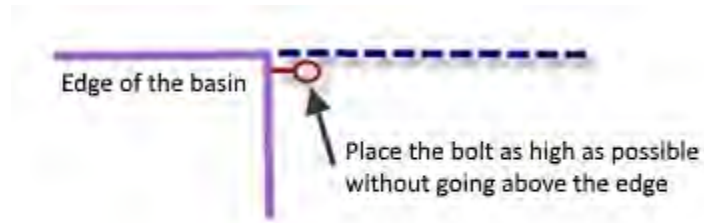
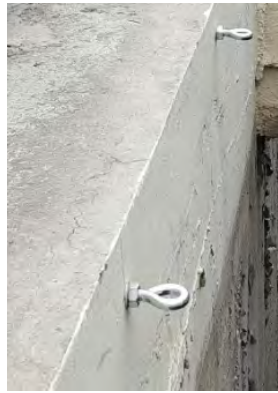


Fig. 3b



Anchor eyebolt + Turnbuckle + Cable

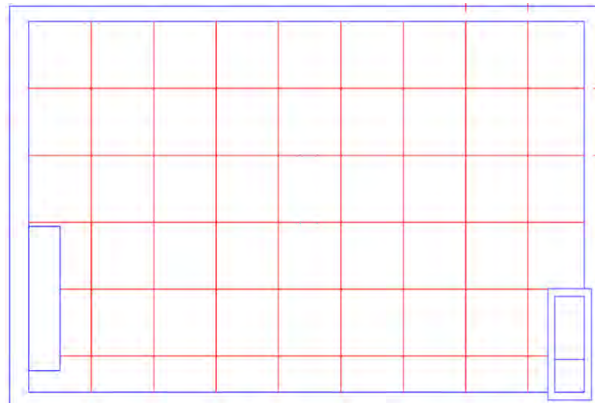
Fig. 4



## 5. Installation of the cables

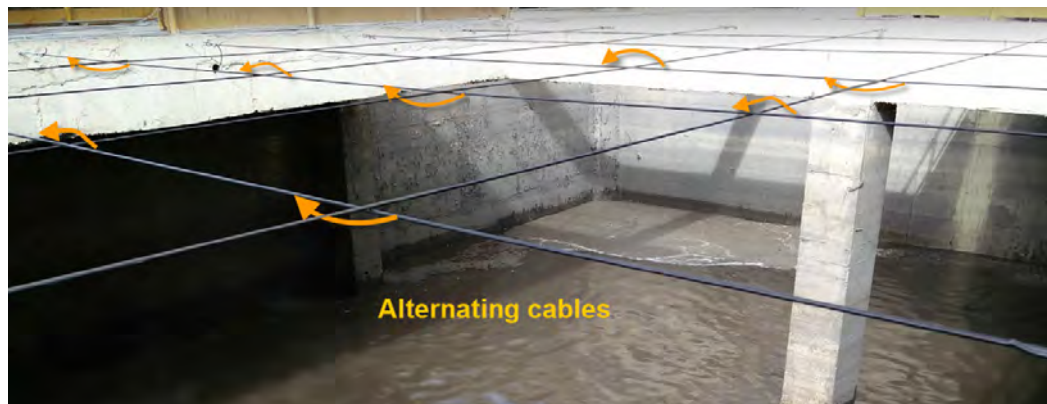
The red lines in this example (Fig. 5) represent the cables crossing the tanks in the two directions. The anchors are installed every 50 - 100 cm depending on the dimensions and design of the basin as well as on average rain (or snow) accumulation in the geographical location of the tanks. The ends of the lines (cables) represent the approximate places where the anchors need to be installed before starting the installation of the cables and the PODZ Horizon. The specific recommended distances between the cables will be provided by Pi<sup>2</sup> Technologies separately for each project.

Fig. 5



It is essential to alternate the cables under and on top of each other as shown in Fig. 6 for maximum stability:

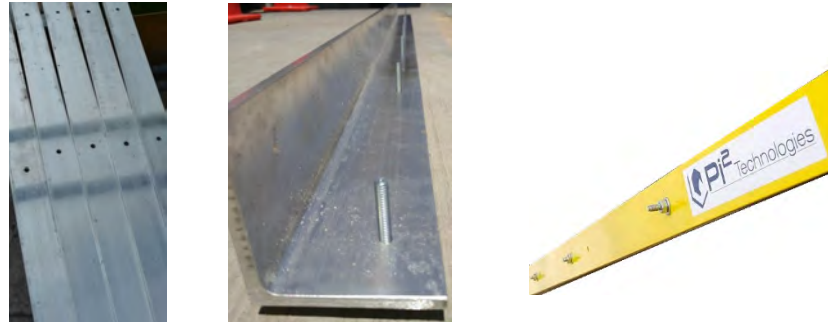
Fig. 6



## 6. Installation of the wedge anchors and batten bars

The typical dimensions of the batten bars (Fig. 7) with pre-drilled holes are: Length 80" (2032mm) Width 2" (508mm). Other length/sizes available.

Fig. 7



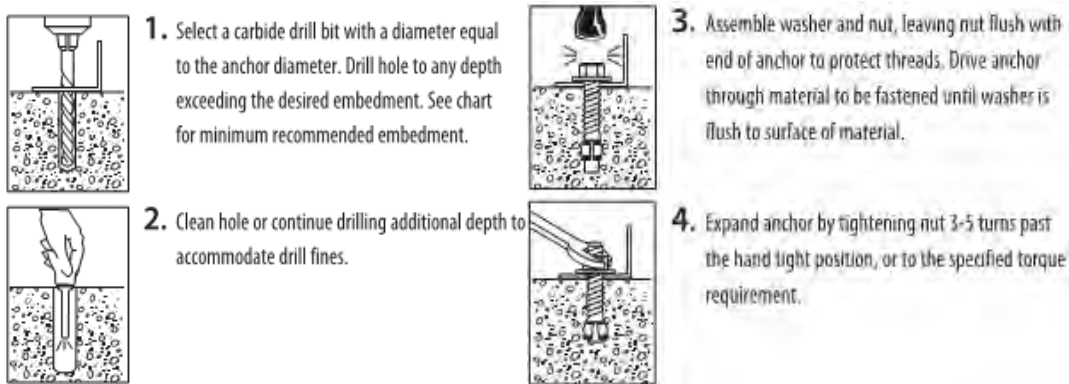
Installation of the wedge anchors (Fig. 8):

Drill bit required for the holes in the concrete needs to be the same diameter as the wedge anchors.

Fig. 8



- The depth of the hole should be at least 2" (51mm). To be sure, place masking tape on the drill bit to know the exact depth you should drill each time.
- Blow air (or use a vacuum) in each hole to remove the dust.
- Then, place a nut flush on the top of the bolt and hammer the bolt to secure it in the hole.



The example (Fig.9) shows the location of the batten bars in green.

Fig. 9



- Place the batten bars around the basins and cut them to match the edges of the basin before drilling the holes for the wedge anchors.
- If L-bars are supplied for vertical wall installation, align with horizontal bars (Fig. 10)
- It is highly recommended to mark where each batten bar goes. For example: "Homogenization tank #1, east side". This will make the next steps easier.
- Then cut an exact duplicate using the yellow bars by matching the holes. These are the ones that will go over the reinforced membrane.
- Drill the holes for the wedge anchors using the holes in the batten bar as a guideline.
- **IMPORTANT: apply silicone/polyurethane abundantly between the concrete and the lower batten bar to prevent any gases from escaping (Fig. 11 and 12):**

Fig. 10



Fig. 11



Fig. 12



- When cutting the batten bars, make sure there is a hole (anchor point) within approx. 2" or less from the end of the bar (Fig. 13). If needed, drill a new hole in the batten bars and add a wedge anchor.

Fig. 13



- The bars should not overlap. They must be cut exactly to fit one another to apply pressure evenly on the reinforced membrane and prevent gases from escaping.
- If there are obstructions that do not allow for a straight corner, make the necessary adjustments (Fig. 14).

Fig. 14



## 7. Preparing uneven surfaces and removing obstructions

To have a tight gas-seal between the tarp and the basin, any large uneven parts on the surface which will serve as contact point with the bottom batten bar must be repaired or flattened out (Fig.15 and 16).

Fig. 15



Fig. 16



Whenever possible, obstructions around the edges of the basins should be relocated to be underneath the bottom batten bar and reinforced membrane. Examples in Fig. 17-20.

**Cables:** Seal any space with silicone.

Fig. 17



Fig. 18

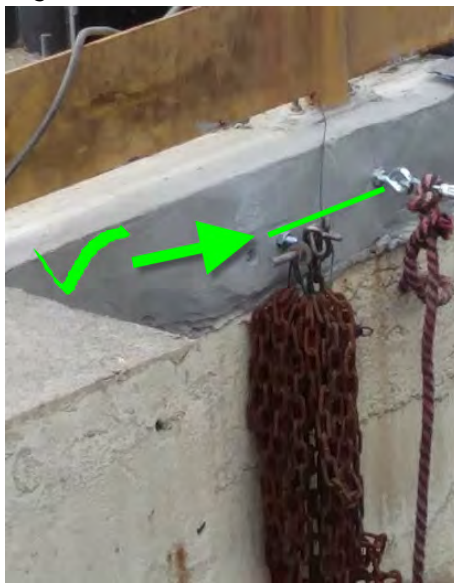


**Chains:** When possible, position and secure chains below the level of the support cables.

Fig. 19



Fig 20



## 8. Installing the reinforced membrane

The last step is the installation of the PODZ HORIZON reinforced membrane. Place the reinforced membrane over the cables and extend it to the edges (Fig. 21). The excess material should be folded underneath and holes punched using the punching tool for each wedge anchor to go through (Fig. 22).

Fig. 21



Fig. 22



The reinforced membrane should lightly rest on the supporting the cables. The purpose of the batten bars is mainly to seal the tarp and prevent the gases escaping by the edges, not to hold the weight of the system.

Fig. 23



## 9. Sealing off other odour sources

**Ventilation exhaust:** Below are some ventilations exhausts that can be fitted with PODZ filters.

Fig. 24



**Grids:** Filters can be used on grids (Fig. 25), by attaching them from below or above using plastic ties (Fig. 26). If the filter is to be installed above the grate where people need to walk, they can be protected by adding another grate on top, such as Fig. 27.

Fig. 25



Fig. 26



Fig. 27



## 10. Sealing the reinforced membrane around pipes

Fig. 28

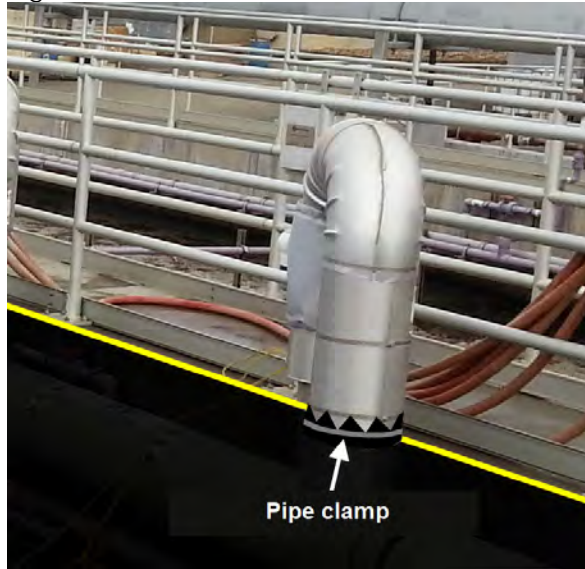
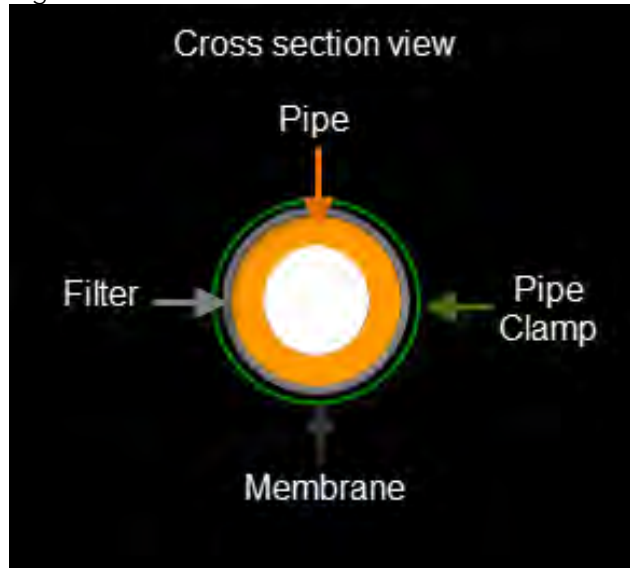


Fig. 29



How to do it:

### Step 1

Cut and attach filter using plastic ties to the pipe at the level where the reinforced membrane will be (Fig. 30). The filter will ensure that no gases are escaping and that a perfect seal will be had.

Fig. 30



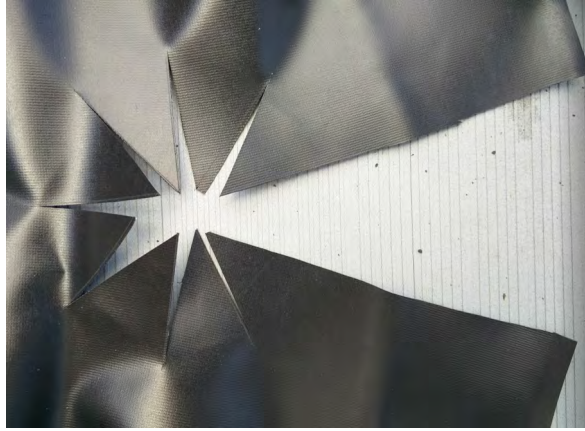
### Step 2

Measure the diameter of the pipe and the distance from the edge of the tank (Fig. 31). Cut four crosses accordingly (Fig. 32):

Fig. 31



Fig. 32



### Step 3

Tighten a pipe clamp around the middle of the filter while making sure that the flaps of reinforced membranes are under the clamp (Fig. 33):

Fig. 33



#### Step 4

To seal the rest of the reinforced membrane, use a heat gun and overlap the two pieces by starting as close as possible from the pipe clamp (Fig. 34 and 35):

Fig. 34



Fig. 35



### Step 5

Proceed by heating 2-3 cm at a time both surfaces to be fused together. Press together for a few seconds before moving forward (Fig. 36 and 37):

Fig. 36



Fig. 37



## 11. Undermount

For gratings and bridges over tanks, where unobstructed foot traffic is required, the membrane can be easily mounted underneath. For installation, the grate is turned upside down, the carbon filters are placed with the support membrane on top and attached to the "sandwich" with plastic ties before returning the grate to its designated position (Fig. 38-41).

Fig. 38



Fig. 39



Fig. 40



Fig. 41



## 12. Technical support & contact info



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## 13. Notes



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