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September 29, 2015

Mr. Douglas Walker, Deputy County Executive  
Albemarle County, Virginia  
401 McIntire Road  
Charlottesville, VA, 22902

**RE: Albemarle County – Summary of Options  
Waste Transfer - Ivy Material Utilization Center  
Draper Aden Associates Project No.: C11123R-08B**

Dear Mr. Walker:

As requested, Draper Aden Associates has prepared a summary of the primary alternatives under consideration for the transfer of waste from the Ivy Material Utilization Center (MUC). As you are aware, the Rivanna Solid Waste Authority (RSWA) is working under a Letter of Agreement dated March 19, 2015 with the Virginia Department of Environmental Quality (VDEQ) which requires that the RSWA either improve the existing transfer station to meet the current VDEQ regulations or to cease the transfer operation and vacate the permit. A commitment by the RSWA as to its future activities is required by December 31, 2015.

Over the past year, Draper Aden Associates has been assisting the County with consideration of various alternatives that would allow the transfer operation to continue at the Ivy MUC. Continuation of the use of the Ivy MUC location for transfer was directed by the Board of Supervisors after previous considerations of alternative operations and locations. The two primary alternatives under consideration at this time for use of the Ivy site include:

- Option 1 - the placement of a canopy over the existing operation to shield the waste and waste handling operations from stormwater; and
- Option 2 - the construction of a new transfer station on RSWA property located immediately west of the existing scales at the Ivy MUC and immediately south of the closed landfill.

The following letter summarizes the efforts to date, outlines the goals and assumptions used for the evaluation and provides a comparative analysis of the options under discussion. The

information included in this document is based on the conceptual engineering completed to date, discussions with equipment vendors, and communications with the RSWA. Use of the information herein is appropriate for planning and comparative purposes only, and should not be construed as “final,” or appropriate for financing.

## **A. GOALS FOR IMPROVEMENTS TO THE CURRENT TRANSFER OPERATIONS**

During discussions with the County and after obtaining guidance from the RSWA and VDEQ, the following goals were set for improvements to and/or replacement of the existing operation:

1. **Structure:** Eliminate storm water from contact with the wastes as they are handled. A structure over the operations is required.
2. **Customer Service:** Improve customer service at the unloading area to reduce the waiting time for off-loading of the waste materials;
3. **Improved trailer weights:** Increase trailer weights to reduce transportation costs. Staging of the waste materials for loading into the trailers should be considered to allow operations to mix the wastes to maximize the weights of the loads.
4. **Flexibility:** Enhance flexibility of operation. Operation should be flexible to adjust to waste loads, materials, recycling efforts or other changes in the operations as warranted to adjust to future budgets, regulations, recycling initiatives or other directives.

## **B. ASSUMPTIONS FOR THE EVALUATION**

After discussions with the County which included the RSWA, the following assumptions were developed for this evaluation:

- **Tonnage:** Average daily tonnage for the evaluation was set at 50 tons per day and the number of days of operation held constant at 253 days (12,650 tons per year). This tonnage is higher than is currently being received on an average day at the Ivy Transfer Station ( in FY 2015 this equaled 28 tons per day) and is less than the permitted average daily tonnage set for the transfer station of 150 tpd. Discussions indicate that some tonnage may return if a more efficient system is implemented but this cannot be guaranteed and so was not considered. Tonnage is critical for determination of the size of the facilities and development of transportation costs.
- **Time frame:** The time frame for the evaluation was set at 20 years (7/1/16 (FY 17) through 6/30/36 (FY 36) and is based on the anticipated life expectancy of the structural facilities. This time frame exceeds the current expiration date of the organizational agreement that formed the RSWA which expires on June 30, 2030.

- **Waste composition:** Currently the waste composition (per discussions with the RSWA) is approximately 25% loose MSW, 50% construction and demolition debris (CDD) and 25% bulky waste which is an unusual mix of materials for a transfer station. CDD does not include inert materials like concrete or asphalt. The composition is important because the composition impacts the waste density and handling procedures.
- **Waste density (existing trailer weights):** Currently, the RSWA reports an average trailer weight of 13 tons per load for the trailers that have been compacted. While higher tonnages are theoretically possible, the RSWA has indicated that the bulky material and CDD materials require careful handling and compaction into the trailer so that the sides of the trailers are not punctured or damaged.
- **Waste density (alternative trailer weights):** After evaluation of the options available for continuation of the transfer operations, and after discussions with industrial representatives and the RSWA, the following trailer weights have been determined to be reasonable for the method of transfer under consideration and were used for the evaluation:
  - **Compaction directly into the trailer (current method):** Range: 12 – 14 tons per load; average used for report - 13 tons/load.
  - **Pre-compaction and discharge into the trailer as a block:** Range: 20 – 22 tons per load; average used for report - 21 tons/load.
  - **Open top loading – 100 cy trailer:** Range: 16 – 18 tons per load; average used for report – 17 tons per load. Note that this is based on the unusual waste stream received at the Ivy transfer station and would be higher for trailers receiving compacted MSW.

It is probable that with experience under any of the options higher trailer weights could be achieved but for the purposes of the evaluation, these average tonnages were agreed to by the project team as reasonable for comparative purposes.

- **Personnel:** For the purposes of this evaluation and after discussions with the RSWA, it was agreed that Option 1A/1B (compaction equipment) would not require additional personnel but that Option 2A/2/B (passive load) would require an additional equipment operator. This person would act as a spotter at the tipping floor, assist with tarping the trailers and switch out of the trailers as needed. The RSWA provided an estimated salary for this position which was incorporated into the financial evaluation.
- **Loading Equipment:** For the purposes of this discussion and after discussions with the RSWA, it was agreed that initially the mechanical compaction option would require the replacement of the extension boom loader (\$60,000) and that the passive load system would require a wheel loader with tamper. In discussions with Carter Equipment a CAT

938M loader with solid tires and rubber blade was recommended with the use of a tamping mechanism for an estimated cost of \$320,000.

- **Flexibility:** Given the unusual composition of the waste stream, the evaluation considered methods under each primary option to segregate bagged MSW from bulky materials and CDD. Segregation could allow operators to “mix” wastes to improve trailer weights and to separate out recyclable materials. Each primary option includes a secondary option which improves flexibility in operations and in support of recycling by providing a larger working area.
- **Operating Parameters:** *For purposes of this evaluation only*, it was assumed that all current programs and services at Ivy MUC (exclusive of the transfer operations) would be continued in a manner similar to current operations. Examples of other current services include but are not limited to clean fill, yard waste handling, tag-a-bag, and scrap metal/newspaper/cardboard recycling operations. Nothing considered in evaluation of the transfer operation would preclude modifications or improvements to the other services provided. It was also assumed for this evaluation that the hours and days of operation would not change. Changes in services and/or hours of operation could impact other assumptions.

### C. DESCRIPTION OF OPTIONS UNDER CONSIDERATION

There are two primary operational configurations under discussion for the continued use of the Ivy Transfer Station. One configuration continues use of a mechanical loading system; the other a passive load system. The first would require the construction of a canopy over the existing operations with the replacement of all equipment (hopper, conveyor and compactor) given the equipment’s age. The second would require the construction of a passive load transfer station located on the western site. Attachment B includes a location map for the two options.

Within the first option is embedded alternatives for compaction equipment. The first alternative (Option 1A) considers the use of a Marathon M-series 800 XW which would compact the waste directly into the hauling trailer (similar to the current operation). The second alternative (Option 1B) is the use of a Marathon BlokPak 3000 which pre-compacts the waste into a block which is pushed into the trailer. Because of the pre-compactive effort, the BlokPak can achieve significantly higher trailer tonnage.

The passive loading system consists of a covered tipping floor with push walls, hopper and 16’ grade break to accommodate the haul trailers. Waste is unloaded on the tipping floor and pushed into a hopper and into the trailer. Scales are included under the haul trailer to assure that

the proper road weights are maintained. Variability in the options under the passive load alternative are related to the size of the building only. The passive load option requires significant site work and alters the current traffic patterns at the site.

These primary options are described in Attachment B. Attachment F includes building layouts, site plans where available and the concept estimates for each option used for preparation of the cost estimates included in Attachment C.

#### **D. SIZING OF BUILDING STRUCTURES**

As indicated tonnage directs sizing of facilities. To put a perspective on the relationship of tonnage to sizing of transfer facilities, the table below summarizes information taken from the document entitled, “*Managing Transfer Station Design and Operations – A Training Course*,” Publication # MSW-D2360, as prepared by the Solid Waste Association of North America (SWANA), dated 1996.

**TABLE 1  
TRANSFER STATION SIZING  
FLOOR SPACE REQUIREMENTS - OPEN TOP LOADING FACILITIES  
(Table I-F SWANA)**

<b>TONNAGE</b>	<b>MINIMUM (Square feet)</b>	<b>RECOMMENDED (Square feet)</b>	<b>ADDITIONAL SPACE FOR MRF (Square feet)</b>
50	2,400	3,600	1,200
100	3,600	6,400	1,200
200	6,400	8,000	1,600

For the purposes of this evaluation and in consideration of the planning tonnage of 50 tons per day (average) which would include peaks higher than this, a tipping floor size of 6,000 square feet was considered to be the minimum for the passive loading system (Option 2A) with the total building size determined to be 7,800 square feet when the loading bay is included. A second building size which would promote segregation and/or recycling was also considered. Option 2B includes a tipping floor of 10,000 square feet with a total building size of 11,800 square feet.

#### **E. ESTIMATED COSTS**

Attachment C contains the following preliminary engineering cost tables for comparison of each of the options under consideration based on the concepts developed to date and the information available:

- Table 1 – Estimated Capital Costs with Engineering
- Table 2 – Estimated Operation Costs
- Table 3 – Estimated Transportation Costs
- Table 4A – Summary Table of Costs – 30 tpd (average)
- Table 4B – Summary Table of Costs – 50 tpd (average)

Capital costs are based on conceptual estimates for the buildings, site work and equipment as provided by the companies referenced in the notes. Debt service for these costs was divided into two categories: building and site work assumed to be financed over 20 years and equipment assumed to be financed over 10 years. A four-percent interest rate was used for the calculation.

Operation costs (exclusive of hauling and disposal) are based on the RSWA FY 2016 budget as modified for the various options based on the assumptions indicated in the table. This information is still evolving as discussions continue with the RSWA. The RSWA operational costs for FY 2016 included a \$98,875 allocation to RSWA for administrative costs (split between the various operations of the RSWA) as indicated in their FY 2016 budget and depreciation. These two items are included in this evaluation but separated from the operation costs and included as separate line items in Tables 4A and 4B. No change was assumed in the RSWA allocation and depreciation was calculated for each option as total capital costs divided by the period indicated in the table (considered the ‘useful’ life of the capital item).

Transportation costs are based on RSWA FY 2016 budgeted cost per haul as considered for a 30 tpd and 50 tpd facility at the various trailer weights assumed for the options. Disposal costs are based on the RSWA FY 2016 budgeted cost for disposal for a 30 tpd and 50 tpd facility.

The summary table includes information from Tables 1 through 3 and includes the RSWA administration cost and depreciation.

## **F. PERMITTING**

There are two general categories of permitting for the options under consideration. The first is the VDEQ – Solid Waste permitting under 9VAC20-81 (Virginia Solid Waste Management Regulations). The second is the County’s site planning and land disturbance permitting subject to the zoning ordinances of Albemarle County. This permitting is overseen by Community Development. A brief overview of each permit type is provided below.

1. **VDEQ Permitting:** Per VDEQ guidance dated 12/8/14, modification of the existing operation (e.g. construction of a canopy; replacement of equipment) would constitute an improvement and not require permit action.

A new transfer station (Options 2A or 2B) would require submittal of a package of documents that meet the permit by rule criteria outlined under 9VAC20-81-410 as identified for Transfer Stations. These submittals include:

- Notice of intent (9VAC20-81-450.B);
- Certification that the facility meets the siting standards (9VAC20-81-320);
- Certification that the facility meets the statutory requirements for consistency with solid waste management plans;
- Certification that the standards of 9VAC20-81-340 are met in an operations manual;
- Certification by professional engineer that the facility has been designed and constructed in accordance with the regulations and that a closure plan has been prepared in accordance with the regulations;
- Demonstration of legal control over the site;
- Closure cost estimates and proof of financial responsibility have been filed; and
- Evidence that public participation, if required, has been initiated as required by the regulations. The level of public comment for a new transfer station will be subject to interpretation of the regulations and Code section 10.1.1408.

Documentation will be based on the design documents, narrative submittals and final construction certifications.

VDEQ has no specific regulations addressing the structural requirements for the canopy or building.

Timing of submittal of the documents for the new transfer station is related to completion of construction. Once construction is completed, the documents are filed with VDEQ and final approval granted in 30 – 45 days. Provided there are no variances required from the regulations, this process moves forward relatively rapidly.

2. **County Site Planning and Land Disturbance Permitting:** The County has a set of requirements for approval of site plans for new projects. Their oversight includes assurance that the project conforms to the zoning ordinance and water protection ordinance requirements as well as other aspects under the County's authority. The site plan review process consists of three parts in accordance with County Code Chapter 18 (Zoning Ordinance) Section 32.4:
  - Pre-application plan
  - Initial site plan review; and
  - Final site plan review

Information on the requirements of this process can be found at the website below:

[http://www.albemarle.org/upload/images/forms\\_center/departments/Community\\_Development/forms/Site\\_Plan\\_Applications/Site\\_Plan\\_Review\\_Manual.pdf](http://www.albemarle.org/upload/images/forms_center/departments/Community_Development/forms/Site_Plan_Applications/Site_Plan_Review_Manual.pdf)

In addition, the County's Water Protection Ordinance will govern the site and will require submittals relative to storm water management and erosion and sediment control. Information on this process can be found at the website below:

<http://www.albemarle.org/deptforms.asp?department=cdengwpo>

Option 1 will require a minor site plan amendment estimated by Community Development to require approximately 4 months for final approval (from the date of initial submittal).

Option 2 will require a major site plan amendment. The time frame for the County's permitting process from the initial submittal to final site plan approval is estimated by Community Development to require 6 – 9 months from the initial submittal.

## **G. SCHEDULE (Design and Construction)**

The schedules for the design and construction of the various options varies with the complexity of the design, permitting requirements, equipment delivery times and construction requirements. Attachment E provides conceptual projected schedules for each primary option. These schedules begin upon finalization of agreements and procurement of the engineer.

## **H. ADVANTAGES AND DISADVANTAGES**

Attachment D summarizes the potential advantages and disadvantages of each option. This information is meant to provide a relative comparison between options and because of the relative nature of the comparison, some of the items identified are subjective in nature.

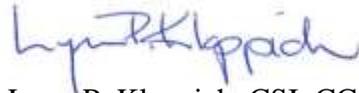
## **I. SUMMARY**

It is intended that the above information facilitate further discussions on the continued use of the Ivy MUC as a transfer station. The information included in this document is based on the conceptual engineering completed to date, discussions with equipment vendors, and communications with the RSWA. Use of the information herein is appropriate for planning and comparative purposes only, and should not be construed as "final," or appropriate for financing. As you are aware, the RSWA must provide VDEQ with a formal response on proposed activities by the end of this year.

Mr. Douglas Walker  
September 29, 2015  
Page 9 of 9

Please review at your convenience and if you have any questions, please do not hesitate to contact me.

Sincerely,  
**DRAPER ADEN ASSOCIATES**



Lynn P. Klappich, CSI, CCCA  
Program Manager

LPK:lk

**ATTACHMENTS:**

- Attachment A – Background Information
- Attachment B – Description of Options and location map
- Attachment C – Cost Summaries
- Attachment D – Advantages and Disadvantages
- Attachment E - Schedule
- Attachment F – Technical Information on Options

**Attachment A**  
**Background Information**

**ATTACHMENT A  
BACKGROUND INFORMATION**

The following information provides historical background on tonnages and transactions at the Ivy MUC directly related to the transfer of MSW and CDD waste materials for the years FY 2011 and FY 2014. Information was taken from RSWA records.

**TABLE A-1  
FY 2011 AND FY 2014 WASTE AND TRANSACTIONS**

<b>ITEM</b>	<b>FY 2011</b>	<b>FY 2014</b>
Tonnage (MSW/CDD only)	26,735	6,864
Days of operation	307	253
Tons per day (Average)	87	27
Transactions	36,664	25,089
Tons per transactions	0.7	0.3
Personnel (FTE)	15.9	11.8

*Taken from FY 2014 RSWA audit – Table 10 and 11.*

**TABLE A-2  
FY 2011 – TRANSACTIONS BY VEHICLE**

<b>VEHICLE TYPE</b>	<b>MSW + Construction</b>		<b>Construction only</b>	
	<b>TRANSACTIONS</b>	<b>TONNAGE</b>	<b>TRANSACTIONS</b>	<b>TONNAGE</b>
Rear Loader	78	132	0	0
Side Loader	0	0	0	0
Front Loader	3	1	0	0
Roll Off	337	228	11	21
Dump Truck	3,102	2,073	989	948
Pickup Truck	23,820	5,591	6,303	2,607
Car/Van	6,443	896	1,034	330
Not classified	54	10	3	1
<b>TOTAL</b>	<b>33,837</b>	<b>8,931</b>	<b>8,340</b>	<b>3,906</b>
<b>% total</b>			<b>25%</b>	<b>44%</b>

**TABLE A-3  
FY 2014 – TRANSACTIONS BY VEHICLE**

<b>VEHICLE TYPE</b>	<b>MSW + Construction</b>		<b>Construction only</b>	
	<b>TRANSACTIONS</b>	<b>TONNAGE</b>	<b>TRANSACTIONS</b>	<b>TONNAGE</b>
Rear Loader	167	418	0	0
Side Loader	0	0	0	0
Front Loader	4	13	0	0
Roll Off	242	128	1	2
Dump Truck	2,294	1,641	788	842
Pickup Truck	17,546	3,948	4,481	1,812
Car/Van	4,650	677	834	269
Not classified	182	40	16	9
<b>TOTAL</b>	<b>25,085</b>	<b>6,864</b>	<b>6,120</b>	<b>2,934</b>
<b>% total</b>			<b>24%</b>	<b>43%</b>

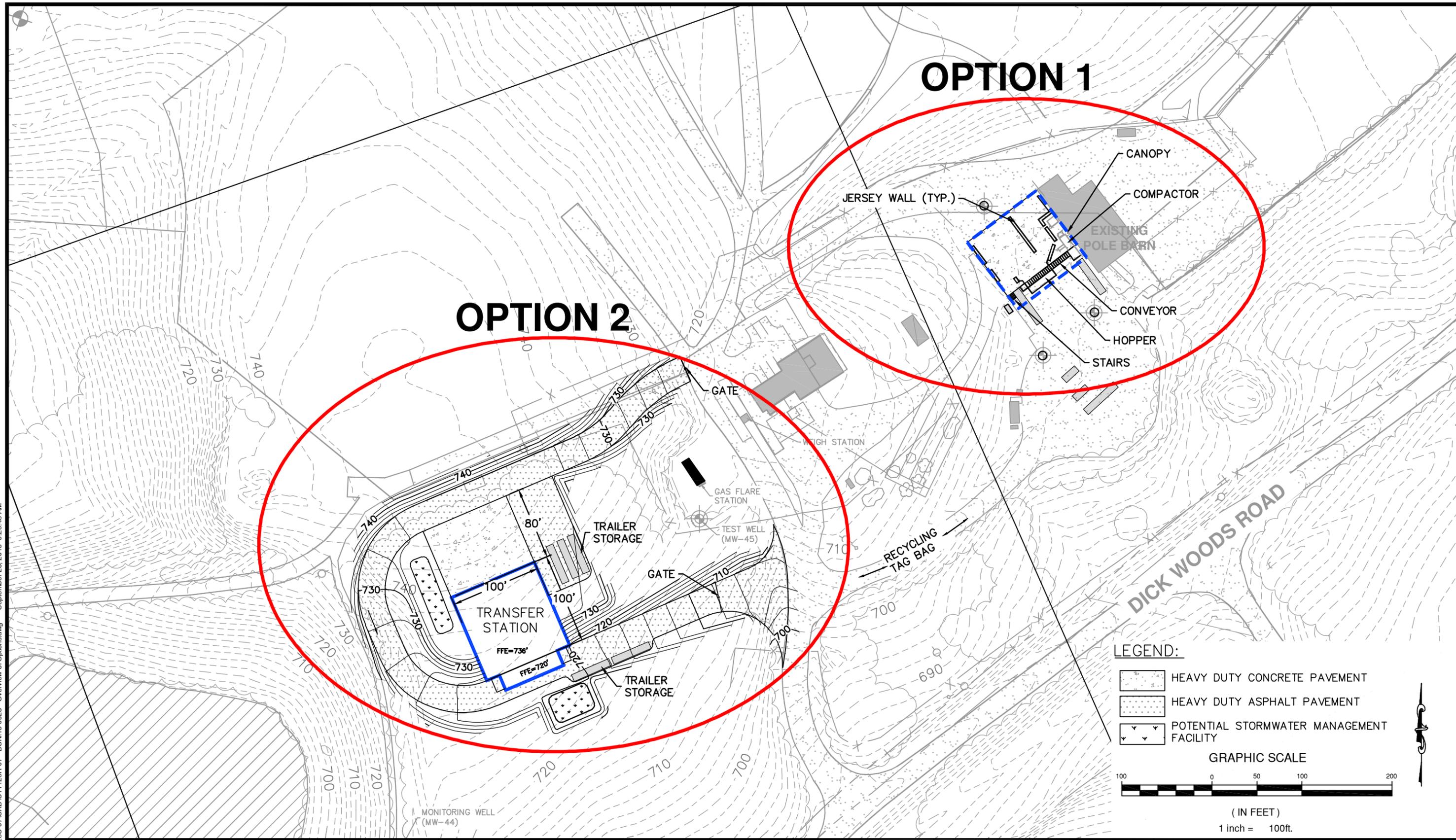
**ATTACHMENT A  
BACKGROUND INFORMATION**

**TABLE A-4  
SAMPLE MONTH - TRANSACTIONS  
JUNE 1 – JUNE 30, 2015**

<b>PER DAY</b>	<b>VEHICLES</b>	<b>CITIZEN-CAN (tons)</b>	<b>CONSTRUCTION (tons)</b>	<b>DOMESTIC (tons)</b>	<b>MSW/CDD TOTAL (tons)</b>
<b>Average</b>	157	0.28	13.97	18.55	32.8
<b>Median</b>	147	0.17	13.26	17.39	31.81
<b>Maximum</b>	224	0.96	23.96	39.63	59.35
<b>Minimum</b>	89	0.03	3.20	8.66	14.64

**Attachment B**  
**Description of Options**  
**And**  
**Location Map**

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Blacksburg, VA  
 Richmond, VA  
 Hampton Roads, VA

DESIGNED DAA  
 DRAWN AJH  
 CHECKED LPK  
 DATE 09/28/2015

GENERAL LOCATION OF OPTIONS  
 IVY LANDFILL TRANSFER STATION  
 CHARLOTTESVILLE, VIRGINIA

SCALE: 1" = 100'  
 PROJECT: C11123C-08C

FIGURE  
 1

**ATTACHMENT B  
DESCRIPTION OF TRANSFER OPTIONS  
AND  
CAPITAL REQUIREMENTS**

<b>OPTION</b>	<b>DESCRIPTION</b>	<b>CAPITAL REQUIREMENTS</b>
<p>Option 1A Canopy (Status Quo)</p>	<p>Option 1A considers the installation of a canopy over the existing hopper and conveyor operation. DEQ is requiring that stormwater be eliminated from contact with the waste.</p> <p>Estimate assumes that equipment is replaced with compactor fed via a similar hopper/conveyor system. The existing TS-2000 compactor cannot be replaced in-kind. For this option a Marathon M-800 is considered which compacts directly into the haul trailers. Compaction must be carefully controlled to prevent damage to the trailers.</p> <p>This facility could handle 50 tpd. Minimum average tonnage per load estimated to be 13 tons based on existing operations but newer equipment may improve.</p> <p>Customers accessing the site for recycling and/or Tag-a-Bag disposal, will not cross the scales but will exit to the east before the scales.</p> <p>Short submittal to VDEQ will be required to provide VDEQ with information on the canopy and change in equipment. Financial assurance costs may require modification.</p> <p>A minor site plan amendment is required which is anticipated to require 4 months for final approval. Requirements of County water protection ordinance must be met.</p>	<p>Capital expenditures include the following:</p> <ul style="list-style-type: none"> <li>• Canopy – 2,400 sf</li> <li>• Marathon M-800 series/30 HP</li> <li>• Hopper/conveyor – similar to current equipment.</li> <li>• Extension boom loader requires replacement.</li> </ul>
<p>Option 1B Canopy - extended</p>	<p>Option 1B considers the installation of a canopy over the hopper and conveyor operation but <u>expanded</u> to create a tipping floor area with the conveyor lengthened. The canopy would become more similar to a transfer station building with the operating area increased. This</p>	<p>Capital expenditures include the following:</p> <ul style="list-style-type: none"> <li>• Canopy – 6,120 sf</li> <li>• Marathon BlokPak 3000 / 100 HP</li> </ul>

**ATTACHMENT B  
DESCRIPTION OF TRANSFER OPTIONS  
AND  
CAPITAL REQUIREMENTS**

OPTION	DESCRIPTION	CAPITAL REQUIREMENTS
	<p>configuration would allow more than one vehicle to unload at a time improving customer service.</p> <p>Segregation of the waste is also considered. This would allow the operator more flexibility in loading the trailers to maximize the trailer weights and could also promote consideration of alternate disposal or processing facilities depending on the materials.</p> <p>Estimate assumes that equipment is replaced with one compactor fed via the hopper/conveyor system but for this option the conveyor is extended to 40 feet in length. Compactor assumed for this option is the BlokPac 3000 which pre-compresses waste materials into a block which is then pushed into a receiving trailer.</p> <p>This facility could handle at least 50 tpd. BlokPac rated at 90 tons per hour for MSW. Tonnage per load ranges from 20 – 22 tons per load depending on materials. For the evaluation 21 tons per load was assumed.</p> <p>Customers accessing the site for recycling and/or Tag-a-Bag disposal, will not cross the scales but will exit to the east before the scales.</p> <p>Short submittal to VDEQ will be required to update operations manual and closure information. Financial assurance costs must be modified.</p> <p>A minor site plan amendment is required which is anticipated to require 4 months for final approval. Requirements of County water protection ordinance must be met.</p>	<ul style="list-style-type: none"> <li>• Hopper/conveyor – extended to total length of 40’</li> <li>• Jersey wall barriers to allow waste segregation and to protect equipment.</li> <li>• Trench drain to prevent run-on.</li> <li>• Expanded leachate handling system.</li> <li>• Extension boom loader requires replacement.</li> </ul> <p>Significant installation costs associated with BlokPak.</p>

**ATTACHMENT B  
DESCRIPTION OF TRANSFER OPTIONS  
AND  
CAPITAL REQUIREMENTS**

<b>OPTION</b>	<b>DESCRIPTION</b>	<b>CAPITAL REQUIREMENTS</b>
<p>Option 2A New facility 7,800 sf</p>	<p>Option 2A considers the construction of a 7,800 sf stand-alone passive-load (top load) transfer station located to the west of the existing scales. This facility consists of a 6,000 sf tipping floor and 1,800 sf loading bay.</p> <p><u>This facility would be intended for transfer of solid waste only and would not be large enough for significant recycling.</u></p> <p>A facility this size could handle at least 50 tpd with some peaking capability. Minimum average tonnages per load estimated to range from 16 - 18 tons but segregation of materials may allow higher tonnages. An average of 17 tons per load was used for the evaluation.</p> <p>Customers accessing the site for recycling and/or Tag-a-Bag disposal, will not cross the scales but will exit to the east before the scales.</p> <p>Note that the site plan provides an area that could be used for an expansion in the future for recycling. Expanding the facility for transfer would be more difficult. This area is approximately 4,500 sf.</p> <p>Full PBR documentation will be required for submittal to VDEQ. Likely that existing PBR number would transfer to the new facility.</p> <p>A major site plan amendment will be required by the County to assure conformance with all zoning and water protection ordinances. It is estimated that final approval would require 6 – 9 months.</p>	<p>Capital expenditures include the following:</p> <ul style="list-style-type: none"> <li>• Building and site work</li> <li>• Loading scales</li> <li>• Front end loader (CAT 938)</li> <li>• Site work for future expansion for recycling which initially would be used for trailer storage.</li> </ul> <p>Capital costs do not include the additional expansion building costs estimated to be \$80 - \$100/sf.</p>

**ATTACHMENT B  
DESCRIPTION OF TRANSFER OPTIONS  
AND  
CAPITAL REQUIREMENTS**

<b>OPTION</b>	<b>DESCRIPTION</b>	<b>CAPITAL REQUIREMENTS</b>
<p>Option 2B New facility 11,800 sf</p>	<p>Option 2B considers the construction of an 11,800 sf standalone passive-load (top load) transfer station located to the west of the existing scales. This facility consists of a 10,000 sf tipping floor and 1,800 sf loading bay.</p> <p><u>This facility would be large enough to address some recycling activities but not large enough to incorporate major processing operations such as the Paper Sort Facility.</u></p> <p>A facility this size could handle at least 50 tpd with some peaking capability. Minimum average tonnages per load estimated to range from 16 - 18 tons but segregation of materials may allow higher tonnages. An average of 17 tons per load was used for the evaluation.</p> <p>Customers accessing the site for recycling and/or Tag-a-Bag disposal, will not cross the scales but will exit to the east before the scales.</p> <p>Full PBR documentation will be required for submittal to VDEQ. Likely that existing PBR number would transfer to the new facility.</p> <p>A major site plan amendment will be required by the County to assure conformance with all zoning and water protection ordinances. It is estimated that final approval would require 6 – 9 months.</p>	<p>Capital expenditures include the following:</p> <ul style="list-style-type: none"> <li>• Building and site work</li> <li>• Loading scales</li> <li>• Front end loader (CAT 938)</li> </ul>

**Attachment C**  
**Cost Summaries**

<b>TABLE 1</b>				
<b>ALBEMARLE COUNTY</b>				
<b>IVY MUC - TRANSFER STATION ANALYSIS</b>				
<b>CAPITAL COST ESTIMATES - CONCEPT ONLY - For planning purposes</b>				
<b>9/29/2015</b>				
<b>ITEM</b>	<b>OPTION 1A</b>	<b>OPTION 1B</b>	<b>OPTION 2A</b>	<b>OPTION 2B</b>
Description	Canopy	Expanded Canopy	7,800 sf top load facility	11,800 sf top load facility
Marathon equipment	M-Series - 875/Replacement of existing conveyor	BlokPak/Extended conveyor	None	None
Building construction costs (10% contingency)	\$99,000	\$332,300	\$775,000	\$1,168,500
Allowance for working in operations area (10%)	\$9,900	\$33,200	NA	NA
Additional electrical and instrumentation	NA	\$10,000	NA	NA
Site work - construction costs (15% contingency)	\$57,000	\$175,000	\$806,000	\$751,000
Equipment				
Conveyor	\$264,000	\$319,512	NA	NA
Loading hopper at conveyor (Est)	\$20,000	\$40,000	NA	NA
Compactor (includes freight for conveyor)	\$126,000	\$618,000	NA	NA
Loading scales and installation	NA	NA	\$102,000	\$102,000
Equipment installation costs (Estimated)	\$15,000	\$30,000	NA	NA
Rolling stock				
Extension boom/loader	\$60,000	\$60,000	NA	NA
Wheel loader (CAT 938M) + tamper	NA	NA	\$320,000	\$320,000
<b>SUBTOTAL</b>	<b>\$650,900</b>	<b>\$1,618,012</b>	<b>\$2,003,000</b>	<b>\$2,341,500</b>
Additional "soft" costs (e.g. surveying, geotechnical, site planning, design, bidding, construction phase services, testing, subsurface utilities, waste location, permitting)	\$99,750	\$154,350	\$200,550	\$245,700
<b>TOTAL</b>	<b>\$750,650</b>	<b>\$1,772,362</b>	<b>\$2,203,550</b>	<b>\$2,587,200</b>
<b>DEBT SERVICE - Estimated at 4% over period indicated</b>				
Building and site work and engineering (20 years)	\$20,000	\$52,000	\$131,000	\$159,000
Equipment (10 Years)	\$60,000	\$132,000	\$52,000	\$52,000
<b>TOTAL</b>	<b>\$80,000</b>	<b>\$184,000</b>	<b>\$183,000</b>	<b>\$211,000</b>
<b>DEPRECIATION FUND (Capital costs/period indicated)</b>				
Building and site work (20 years)	\$8,000	\$28,000	\$79,000	\$96,000
Equipment (10 Years)	\$49,000	\$107,000	\$42,000	\$42,000
<b>TOTAL</b>	<b>\$57,000</b>	<b>\$135,000</b>	<b>\$121,000</b>	<b>\$138,000</b>
<b>NOTES:</b>				
1. Building costs (concept) from Reynolds Architects and include 10% contingency.				
2. Site work costs (concept) estimated by Draper Aden Associates. Site plans for Option 1 have not been prepared. Conceptual site plan prepared for Option 2 and concept OPC prepared. Site work cost for 7,800 sf building higher due to concrete extension.				
3. Equipment costs for conveyor and compactor provided by Marathon Equipment. Loading hopper at conveyor not provided by Marathon Equipment and represents an estimate by Draper Aden Associates. Installation estimated by Draper Aden Associates.				
4. Equipment cost for loader provided by Carter Equipment. Cost for tamping mechanism estimated.				
4. Conveyor estimate is only for a heavy duty replacement conveyor - exclusive of freight				
5. Loading scales estimated by Draper Aden Associates.				
6. Site work costs modified based on information from County relative to current bid prices for asphalt and earthwork.				
7. Soft costs added at suggestion of County to cover design and construction contingencies and permitting costs.				
8. Debt service does not include cost of issuance or other costs associated with financing.				
9. Depreciation does not account for inflation impact on future replacement costs. Straight line calculation as capital costs / years indicated.				

TABLE 2						
ALBEMARLE COUNTY						
IVY TRANSFER STATION EVALUATION						
ESTIMATED OPERATION COSTS - TRANSFER STATION ONLY						
FY 2016 RSWA BUDGET USED AS BASIS						
EXCLUSIVE OF HAULING AND DISPOSAL; DEPRECIATION AND RSWA ADMINISTRATIVE COSTS						
ITEM	FY 2016	OPTION 1A	OPTION 1B	OPTION 2A	OPTION 2B	COMMENTS
DESCRIPTION	Current operation	Smaller canopy	Larger canopy	New construction 7,800 sf building	New construction 11,800 sf building	
EQUIPMENT		No change in conveyor sizing; use of Marathon Series 875 (30 HP)	Longer conveyor; use of Marathon BlokPak (100 HP)	Passive load Requires wheel loader	Passive load Requires wheel loader	
<b>Salaries and Benefits</b>						
Salaries	\$167,965	\$167,965	\$167,965	\$167,965	\$167,965	Assumed no change.
Additional personnel (1 EQ operator)		\$0	\$0	\$41,600	\$41,600	From RSWA
Benefits	\$83,832	\$83,832	\$83,832	\$83,832	\$83,832	Assumed no change.
Additional personnel (1 EQ operator)		\$0	\$0	\$20,800	\$20,800	From RSWA
<b>Other Personnel Costs</b>						
Subtotal from budget	\$5,450	\$5,450	\$5,450	\$6,500	\$6,500	Estimated by DAA - Increased for additional personnel.
<b>Professional Services</b>						
Subtotal from budget	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	Assumed no change.
<b>Other Services and Charges</b>						
General liability/property insurance	\$6,500	\$6,500	\$10,000	\$10,000	\$10,000	Estimated by DAA - would vary ultimately property value.
Advertising	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	Assumed no change.
Administrative Services RSWA	\$0	\$0	\$0	\$0	\$0	
EMS Programs	\$0	\$0	\$0	\$0	\$0	
Safety Programs	\$100	\$100	\$500	\$500	\$500	Estimated by DAA - more training for operations
Authority Dues/Permit/Fees	\$5,200	\$5,200	\$5,200	\$5,200	\$5,200	Assumed no change.
Laboratory Analysis	\$0	\$0	\$0	\$0	\$0	
Utilities (Electrical and phone)	\$12,000	\$12,000	\$13,200	\$3,000	\$3,000	Estimated reduction for Option 2; no mechanical load
General Other Services	\$0	\$0	\$0	\$0	\$0	
Board/Committee	\$0	\$0	\$0	\$0	\$0	
Bad Debt Write-offs	\$0	\$0	\$0	\$0	\$0	
<b>Communication</b>						
Subtotal from budget	\$2,875	\$2,875	\$2,875	\$2,875	\$2,875	Assumed no change.
<b>Information Technology</b>						
Subtotal from budget	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	Assumed no change.
Additional assistance		\$0	\$1,000	\$500	\$500	New equipment may require additional input from IT.
<b>Vehicles and Equipment Maintenance</b>						
Vehicle Maintenance & Repair	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	Assumed no change.
Additional requirements - loader						
Equipment Maintenance & Repair	\$15,000	\$15,000	\$15,000	\$3,000	\$3,000	Option 1 more maintenance on equipment.
Fuel	\$14,500	\$14,500	\$14,500			Assumed no change.
Additional fuel costs for loader (est.)				\$17,500	\$17,500	Estimated by DAA; Fuel for loader function of hours of operation
Trailer Maintenance & Repairs	\$0	\$0	\$0	\$0	\$0	
<b>Supplies</b>						
Subtotal from budget	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	Assumed no change.
<b>Operation and Maintenance</b>						
Facility Maintenance	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	Assumed no change.
Materials & Supplies	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	Assumed no change.
HHW Disposal	\$0					
Contracted Labor	\$0					
Material Purchases	\$0					
Wood Grinding	\$0					
Building rental	\$0					
Leachate Treatment	\$0					Per RSWA - Included with landfill costs
Tire Disposal	\$0					
<b>Closure costs</b>						
Subtotal from budget	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	Assumed no change.
<b>TOTAL</b>	<b>\$369,422</b>	<b>\$369,422</b>	<b>\$375,522</b>	<b>\$419,272</b>	<b>\$419,272</b>	
<b>Equipment</b>						
Depreciation	\$70,000					See Table 1

**TABLE 3**  
**ALBEMARLE COUNTY**  
**ESTIMATED TRANSPORTATION COSTS - IVY TRANSFER STATION**  
**COMPARISON OF TONS PER DAY AND TRAILER WEIGHTS**

Days of operation 253 days Current  
Haul cost per load \$427.30 per haul FY 2016 - from RSWA (Verified on 8/24/15)

Current average tonnage per load 13 tons From RSWA

Note: FY 2016 Annual Tonnage identified in budget = 6,900 tons (fee based)

Tons per day (Average)		25		30		35		40		45		50	
Tons per year (Avg x days)		6,325		7,590		8,855		10,120		11,385		12,650	
AVERAGE TRAILER WEIGHT	Cost per ton	Hauls per year	COST PER YEAR										
13	\$33	487	\$207,898	584	\$249,477	681	\$291,057	778	\$332,637	876	\$374,216	973	\$415,796
14	\$31	452	\$193,048	542	\$231,658	633	\$270,267	723	\$308,877	813	\$347,486	904	\$386,096
15	\$28	422	\$180,178	506	\$216,214	590	\$252,249	675	\$288,285	759	\$324,321	843	\$360,356
16	\$27	395	\$168,917	474	\$202,700	553	\$236,484	633	\$270,267	712	\$304,051	791	\$337,834
17	\$25	372	\$158,981	446	\$190,777	521	\$222,573	595	\$254,369	670	\$286,165	744	\$317,961
18	\$24	351	\$150,148	422	\$180,178	492	\$210,208	562	\$240,238	633	\$270,267	703	\$300,297
19	\$22	333	\$142,246	399	\$170,695	466	\$199,144	533	\$227,593	599	\$256,043	666	\$284,492
20	\$21	316	\$135,134	380	\$162,160	443	\$189,187	506	\$216,214	569	\$243,241	633	\$270,267
21	\$20	301	\$128,699	361	\$154,438	422	\$180,178	482	\$205,918	542	\$231,658	602	\$257,397
22	\$19	288	\$122,849	345	\$147,419	403	\$171,988	460	\$196,558	518	\$221,128	575	\$245,698

<b>TABLE 4A</b> <b>ALBEMARLE COUNTY</b> <b>IVY TRANSFER STATION - COMPARISON OF OPTIONS</b> <b>SUMMARY OF ESTIMATED COSTS - CAPITAL AND OPERATIONS</b> <b>Assume 30 tons per day (average); 253 days per year</b> <b>Tipping fee (FY 2016)</b>				
<b>7,590 tons per year</b> <b>\$66.00 per ton</b>				
ITEM	OPTION 1A	OPTION 1B	OPTION 2A	OPTION 2B
DESCRIPTION	STATUS QUO - SMALLER CANOPY; SMALLER COMPACTOR; COMPACTION INTO TRAILERS	EXPANDED CANOPY AND LARGER COMPACTOR	TOP LOAD TRANSFER STATION - 7,800 SF	TOP LOAD TRANSFER STATION - 10,000 SF
TRANSFER TONNAGE PER HAUL	12 - 14 tons	20 - 22 tons	16 - 18 tons	16 - 18 tons
Tonnage used for transportation	13	21	17	17
Capital costs (Table 1)	\$650,900	\$1,618,000	\$2,003,000	\$2,341,500
Engineering (Table 1)	\$99,750	\$154,350	\$200,550	\$245,700
<b>TOTAL</b>	<b>\$750,650</b>	<b>\$1,772,350</b>	<b>\$2,203,550</b>	<b>\$2,587,200</b>
Debt service (Table 1)	\$80,000	\$184,000	\$183,000	\$211,000
Operations of transfer station (FY 16) (Table 2)	\$369,400	\$375,500	\$419,300	\$419,300
Administrative costs (RSWA) (FY 2016 budget)	\$98,875	\$98,875	\$98,875	\$98,875
Depreciation (Table 1)	\$57,000	\$135,000	\$121,000	\$138,000
Haul cost (See Table 3)	\$250,000	\$155,000	\$191,000	\$191,000
Disposal cost (\$18.35/ton)	\$139,277	\$139,277	\$139,277	\$139,277
<b>TOTAL ANNUAL COST</b>	<b>\$994,552</b>	<b>\$1,087,652</b>	<b>\$1,152,452</b>	<b>\$1,197,452</b>
<b>Revenues (Tipping fee only)(30 TPD)</b>	<b>\$500,940</b>	<b>\$500,940</b>	<b>\$500,940</b>	<b>\$500,940</b>
<b>Potential cost to County</b>	<b>(\$493,612)</b>	<b>(\$586,712)</b>	<b>(\$651,512)</b>	<b>(\$696,512)</b>

*Note: The information included in this document is based on the conceptual engineering completed to date, discussions with equipment vendors, and communications with the RSWA. Use of the information herein is appropriate for planning and comparative purposes only, and should not be construed as "final," or appropriate for financing.*

<b>TABLE 4B</b> <b>ALBEMARLE COUNTY</b> <b>IVY TRANSFER STATION - COMPARISON OF OPTIONS</b> <b>SUMMARY OF COSTS - CAPITAL AND OPERATIONS</b> <b>Assume 50 tons per day (average); 253 days per year</b> <b>Tipping fee (FY 2016)</b>				
<b>12,650 tons per year</b> <b>\$66.00 per ton</b>				
ITEM	OPTION 1A	OPTION 1B	OPTION 2A	OPTION 2B
DESCRIPTION	STATUS QUO - SMALLER CANOPY; SMALLER COMPACTOR; COMPACTION INTO TRAILERS	EXPANDED CANOPY AND LARGER COMPACTOR	TOP LOAD TRANSFER STATION - 7,800 SF	TOP LOAD TRANSFER STATION - 10,000 SF
TRANSFER TONNAGE PER HAUL	12 - 14 tons	20 - 22 tons	16 - 18 tons	16 - 18 tons
Tonnage used for transportation	13	21	17	17
Capital costs (Table 1)	\$650,900	\$1,618,000	\$2,003,000	\$2,341,500
Engineering (Table 1)	\$99,750	\$154,350	\$200,550	\$245,700
<b>TOTAL</b>	<b>\$750,650</b>	<b>\$1,772,350</b>	<b>\$2,203,550</b>	<b>\$2,587,200</b>
Debt service (Table 1)	\$80,000	\$184,000	\$183,000	\$211,000
Operations of transfer station (FY 16) (Table 2)	\$369,400	\$375,500	\$416,300	\$416,300
Administrative costs (RSWA) (FY 2016 budget)	\$98,875	\$98,875	\$98,875	\$98,875
Depreciation (Table 1)	\$57,000	\$135,000	\$121,000	\$138,000
Haul cost (See Table 3)	\$416,000	\$258,000	\$318,000	\$318,000
Disposal cost (\$18.35/ton)	\$232,128	\$232,128	\$232,128	\$232,128
<b>TOTAL ANNUAL COST</b>	<b>\$1,253,403</b>	<b>\$1,283,503</b>	<b>\$1,369,303</b>	<b>\$1,414,303</b>
<b>Revenues (Tipping fee only)(50 TPD)</b>	<b>\$834,900</b>	<b>\$834,900</b>	<b>\$834,900</b>	<b>\$834,900</b>
<b>Potential cost to County</b>	<b>(\$418,503)</b>	<b>(\$448,603)</b>	<b>(\$534,403)</b>	<b>(\$579,403)</b>

*Note: The information included in this document is based on the conceptual engineering completed to date, discussions with equipment vendors, and communications with the RSWA. Use of the information herein is appropriate for planning and comparative purposes only, and should not be construed as "final," or appropriate for financing.*

**Attachment D**  
**Advantages and Disadvantages**

**ATTACHMENT D**  
**ADVANTAGES AND DISADVANTAGES OF OPTIONS**  
**(For comparison – See note in narrative)**

Option	Description	Advantages	Disadvantages
<b>1A – Canopy (Status-quo)</b>	<ul style="list-style-type: none"> <li>• Install 2,400 sf canopy over existing hopper/conveyer operation.</li> <li>• Replace existing equipment with new hopper/conveyer/compactor equipment – direct compact into trailers (Similar to existing operation) (Marathon – M series).</li> <li>• Continue use of large haul trailers. Trailer weight assumed to average 13 tons per load.</li> <li>• Estimated annual costs per Table 4B is \$1,253,400.</li> </ul>	<ul style="list-style-type: none"> <li>• Same general operations as currently used – operating budget understood.</li> <li>• Meets DEQ permit requirements to keep storm water off of and out of waste materials.</li> <li>• Will require minor site amendment.</li> <li>• Less extensive submittal to VDEQ to update existing permit by rule.</li> <li>• Some expansion opportunity (see Option 1B).</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest trailer weights – assumed similar to existing trailer weights.</li> <li>• Construction must be coordinated with existing operations.</li> <li>• Small unloading area and less flexible space for receiving different types of waste loads.</li> <li>• Relies on the use of specialized mechanical equipment with added maintenance costs.</li> <li>• Must stop traffic when switching out trailers.</li> </ul>
<b>1B - Canopy Extended (BlokPak/longer conveyor)</b>	<ul style="list-style-type: none"> <li>• Install 6,120 sf canopy over extended hopper/conveyer operation AND portion of existing pad.</li> <li>• Replace existing equipment with new more robust compaction equipment and extended conveyor. (Pre-compact prior to loading trailers) Marathon BlokPak.</li> <li>• Enables multiple vehicles to unload simultaneously.</li> <li>• Continue use of large haul trailers. Trailer weights assumed to average 21 tons per load.</li> <li>• Estimated annual costs per Table 4B is \$1,283,500.</li> </ul>	<ul style="list-style-type: none"> <li>• Highest trailer weights due to pre-compaction prior to loading trailers.</li> <li>• Enhances customer service with extended conveyor which allows multiple vehicles to unload at same time.</li> <li>• Meets DEQ permit requirements to keep storm water off of and out of waste materials.</li> <li>• Larger tipping area allows for more efficient unloading and segregation of waste types.</li> <li>• Existing concrete pad can be used as tipping area.</li> <li>• Will require minor site plan amendment.</li> <li>• Less extensive submittal to VDEQ to update existing permit by rule.</li> <li>• Do not need to stop traffic when switching out trailers.</li> </ul>	<ul style="list-style-type: none"> <li>• Construction must be coordinated with existing operations.</li> <li>• Relies on the use of specialized mechanical equipment with added maintenance costs.</li> <li>• Size and complexity of equipment will have longer installation time and require more extensive electrical modifications than Option 1A.</li> <li>• Requires new drain from tipping area to existing leachate tank and may require improvements to handling system.</li> </ul>
<b>2A - New Transfer Station (7,800 SF)</b>	<ul style="list-style-type: none"> <li>• Construct new 7,800 sf Transfer Station building on a site just to the west of the existing scale house. (6,000 sf tipping floor)</li> <li>• Enables passive loading of MSW/CDD using loader (eliminates hopper/conveyer/compactor system).</li> </ul>	<ul style="list-style-type: none"> <li>• Haul trailer tonnage higher than Option 1A but less than Option 1B. Impacted by unusual mix of materials.</li> <li>• Enhances customer services as multiple vehicles can unload at same time.</li> <li>• Construction will not impact existing transfer operations.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant land disturbance. Major site plan amendment required.</li> <li>• Compaction limited to pre-crushing on tipping floor and tamping after loading into haul trailer – limited by depth of trailer and types of waste materials currently received.</li> </ul>

**ATTACHMENT D**  
**ADVANTAGES AND DISADVANTAGES OF OPTIONS**  
(For comparison – See note in narrative)

Option	Description	Advantages	Disadvantages
	<ul style="list-style-type: none"> <li>• Enables multiple vehicles to unload simultaneously.</li> <li>• Continue use of large haul trailers (top loaded). Trailer weights assumed to average 17 tons per load.</li> <li>• Allows for future building expansion.</li> <li>• Estimated annual cost per Table 4B is \$1,369,300.</li> </ul>	<ul style="list-style-type: none"> <li>• Meets DEQ permit requirements to keep storm water off of and out of waste materials.</li> <li>• Flexible space for receiving different types of waste loads.</li> <li>• Eliminates need for specialized mechanical components i.e. hopper/conveyer/compactor.</li> <li>• Can be expanded in the future to add approximately 4,000 sf of operations area.</li> <li>• Do not need to stop traffic when switching out trailers.</li> </ul>	<ul style="list-style-type: none"> <li>• Trailer circulation and switch out more involved than Options 1A or 1B.</li> <li>• Requires new leachate handling/holding system.</li> <li>• More comprehensive submittal requirements with VDEQ.</li> <li>• Requires one additional equipment operator.</li> </ul>
<b>2B - New Transfer Station (11,800 SF)</b>	<ul style="list-style-type: none"> <li>• Construct new 11,800 sf Transfer Station building on a site just to the west of the existing scale house. (10,000 sf tipping floor)</li> <li>• Enables passive loading of MSW/CDD using loader (eliminates hopper/conveyer/compactor system).</li> <li>• Enables multiple vehicles to unload simultaneously.</li> <li>• Continue use of large haul trailers (top loaded). Trailer weights assumed to average 17 tons per load.</li> <li>• Allows for segregation of materials on tipping floor and future recycling efforts.</li> <li>• Estimated annual costs per Table 4B is \$1,414,300.</li> </ul>	<ul style="list-style-type: none"> <li>• Haul trailer tonnage higher than Option 1A but less than Option 1B. Impacted by unusual mix of materials.</li> <li>• Enhances customer services as multiple vehicles can unload at same time.</li> <li>• Construction will not impact existing transfer operations.</li> <li>• Meets DEQ permit requirements to keep storm water off of and out of waste materials.</li> <li>• Largest and most flexible space for handling waste materials.</li> <li>• Eliminates need for specialized mechanical components i.e. hopper/conveyer/compactor.</li> <li>• Do not need to stop traffic when switch out trailers.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant land disturbance. Major site plan amendment required.</li> <li>• Compaction limited to pre-crushing on the tipping floor and tamping after loading into haul trailer – limited by depth of trailer and types of waste materials currently received.</li> <li>• Trailer circulation and switch out more involved than Options 1A or 1B.</li> <li>• Requires new leachate handling/holding system.</li> <li>• More comprehensive submittal requirements with VDEQ.</li> <li>• Requires one additional equipment operator.</li> </ul>

## **Attachment E**

### **Schedules**

**ALBEMARLE COUNTY  
 IVY TRANSFER STATION  
 ESTIMATED PROJECT SCHEDULES - CONCEPT  
 COMPARISON OF OPTIONS**

**OPTION 1 - MECHANICAL COMPACTION - BLOK PAC (Longest Scenario)**

ACTIVITY	MONTHS AFTER FINAL AGREEMENTS COMPLETED AND ENGINEER PROCURED																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Survey and geotechnical	█																											
Site plan development - minor site plan		█	█	█	█																							
Design of facility - construction documents		█	█	█	█																							
Bidding and award						█	█	█	█																			
Equipment delivery time									█	█	█	█	█															
Installation												█	█															
Construction of canopy															█	█	█	█	█									
Start-up																											█	

**OPTION 2 - PASSIVE LOAD - TRANSFER STATION - 11,800 square feet (Largest building)**

ACTIVITY	MONTHS AFTER FINAL AGREEMENTS COMPLETED AND ENGINEER PROCURED																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Survey and geotechnical	█	█																										
Site plan development			█	█	█	█	█	█	█	█	█	█	█	█														
County plan review						█	█	█	█	█	█	█	█	█														
Final design and construction documents							█	█	█	█	█	█																
Bidding and award															█	█	█											
Construction (???)																												
VDEQ permitting																												█

**Attachment F**

**Technical Information**



# QUOTATION

August 20, 2015

**Valid 30 Days**

**MARATHON EQUIPMENT COMPANY**  
**PO Box 1798**  
**Vernon, AL 35592**  
 Office phone: 205-695-9105 or 800-633-8974  
 Fax: 205-695-9150

Regional Sales Manager: **Tom Bailey** / Inside Sales Coordinator: **Lori Williams, 800.633.8974 x 1120**

**Sold To:**  
**Rivanna Solid Waste Auth.**  
**Charlottesville, VA 22903**

**Ship To:**  
**Same**  
**Attn:**  
**Ms. Lynn Klappach**

**Assy. #**

Assy. #	Quantity	Description	Unit Price	Total Price
	1	Marathon Transfer Compactor BlokPak 3000	\$583,925.00	\$583,925.00
	1	Compactor Module	\$0.00	\$0.00
	1	100 HP Power Unit with Oil Cooler	\$0.00	\$0.00
	1	Computer Diagnostics with Modem	\$0.00	\$0.00
	1	Transitional Hopper and Stand	\$10,522.00	\$10,522.00
	1	Start-Up Alarm- Fused Disconnect	\$0.00	\$0.00
	1	Lower Ultrasonic Senors Automatic Operation	\$0.00	\$0.00
	1	500 BHN Abrasion Resistant Liners	\$0.00	\$0.00
	1	Tongue and Groove Floor	\$0.00	\$0.00
	1	5' Full Penetration Ram	\$0.00	\$0.00
	1	Operational Start-Up	\$0.00	\$0.00
	1	Conveyor Belt	\$319,512.00	\$319,512.00
	1	Loading Hopper	\$0.00	\$0.00
				\$0.00
		<b>Sub Total:</b>		\$913,959.00
		<b>Steel Surcharge:</b>		\$0.00
		<b>Total List:</b>		\$913,959.00
		<b>Freight:</b>		\$22,867.00
		<b>Total:</b>		\$936,824.00

Terms are subject to credit approval. This Quote does not include City, State, or Local sales tax.

Thank you for the opportunity to provide you with all your recycling needs...

Installation not included

*Tom Bailey*

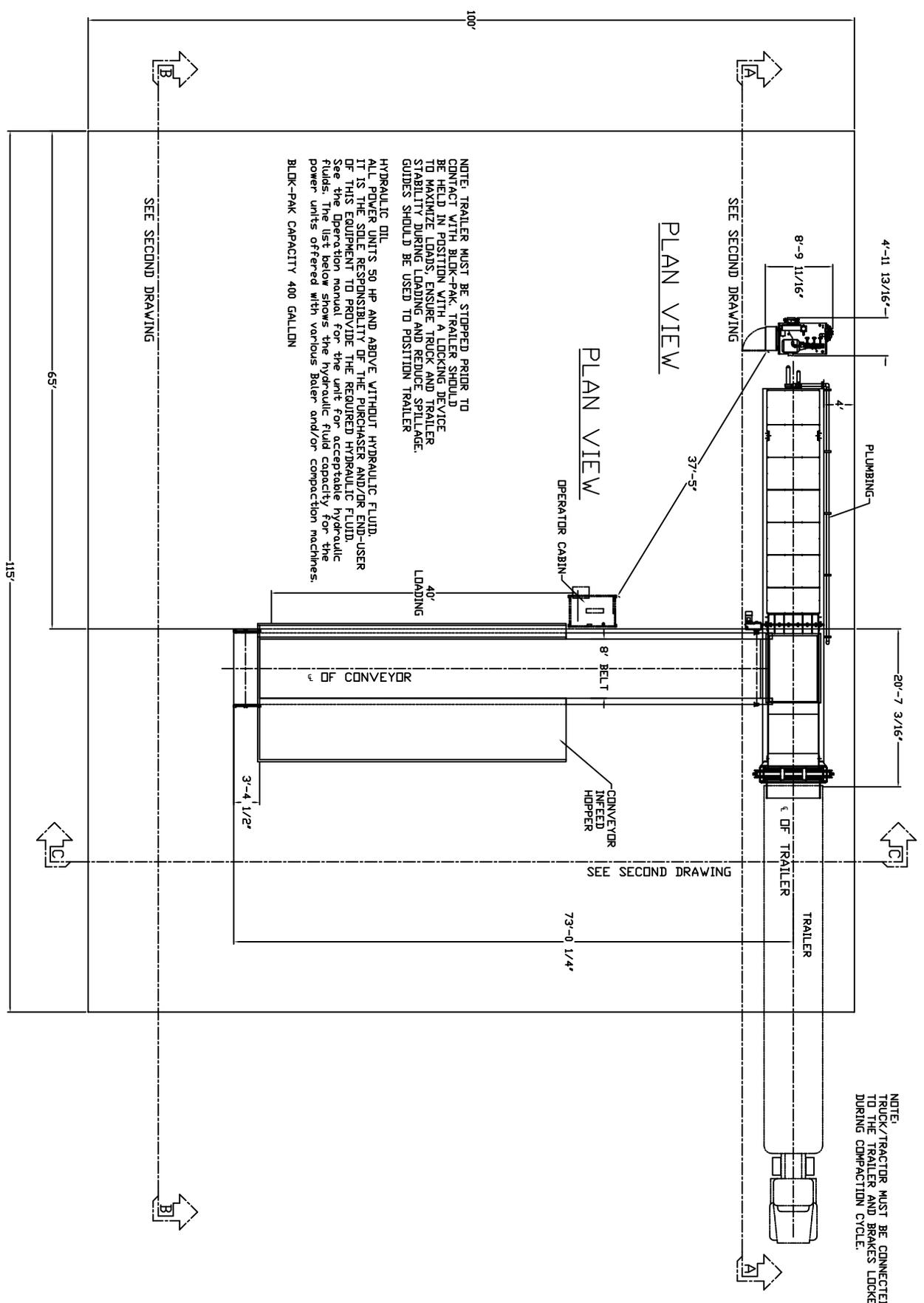
Regional Sales Manager  
 Tom Bailey  
[bailey@marathonequipment.com](mailto:bailey@marathonequipment.com)

Color: Will Advise

Ship With: \_\_\_\_\_  
 Comments: Rivanna Transfer  
 With 40' Loading Area  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

PO# \_\_\_\_\_  
 Mark For: \_\_\_\_\_

NOTE: TRUCK/TRACTOR MUST BE CONNECTED TO THE TRAILER AND BRAKES LOCKED DURING COMPACTION CYCLE.



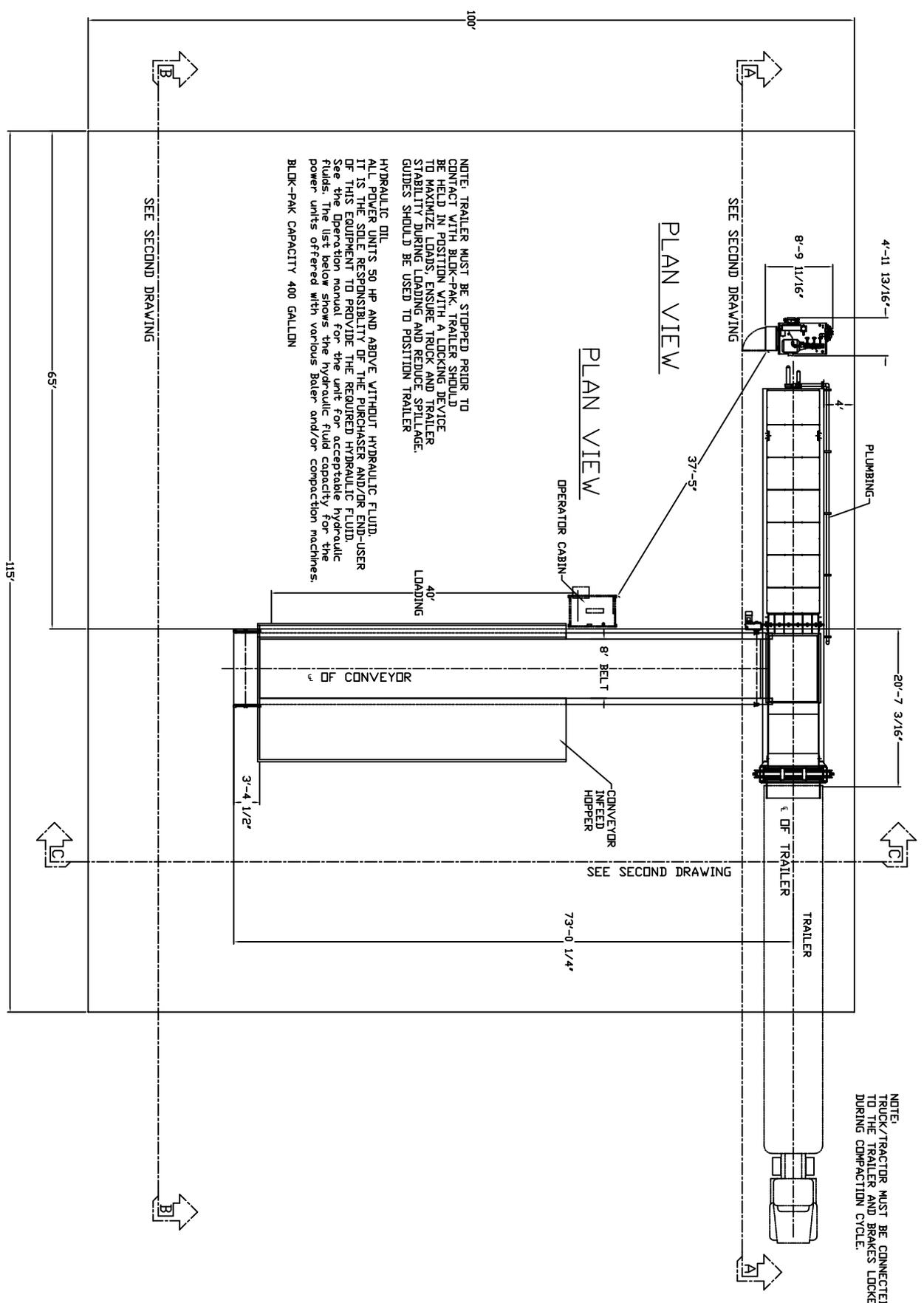
NOTE: TRAILER MUST BE STOPPED PRIOR TO CONTACT WITH BLOK-PAK. TRAILER SHOULD BE HELD IN POSITION WITH A LOCKING DEVICE TO MAXIMIZE LOADS, ENSURE TRUCK AND TRAILER STABILITY DURING LOADING AND REDUCE SPILLAGE. GUIDES SHOULD BE USED TO POSITION TRAILER.

HYDRAULIC OIL  
 AT POWER UNITS 50 HP AND ABOVE WITHOUT HYDRAULIC FLUID.  
 IT IS THE SOLE RESPONSIBILITY OF THE PURCHASER AND/OR END-USER OF THIS EQUIPMENT TO PROVIDE THE REQUIRED HYDRAULIC FLUID. See the Operation manual for the kit for acceptable hydraulic fluids. The kit below shows the hydraulic fluid capacity for the power units offered with various baler and/or compaction machines.  
 BLOK-PAK CAPACITY 400 GALLON

SEE SECOND DRAWING

PLAN VIEW

PLAN VIEW



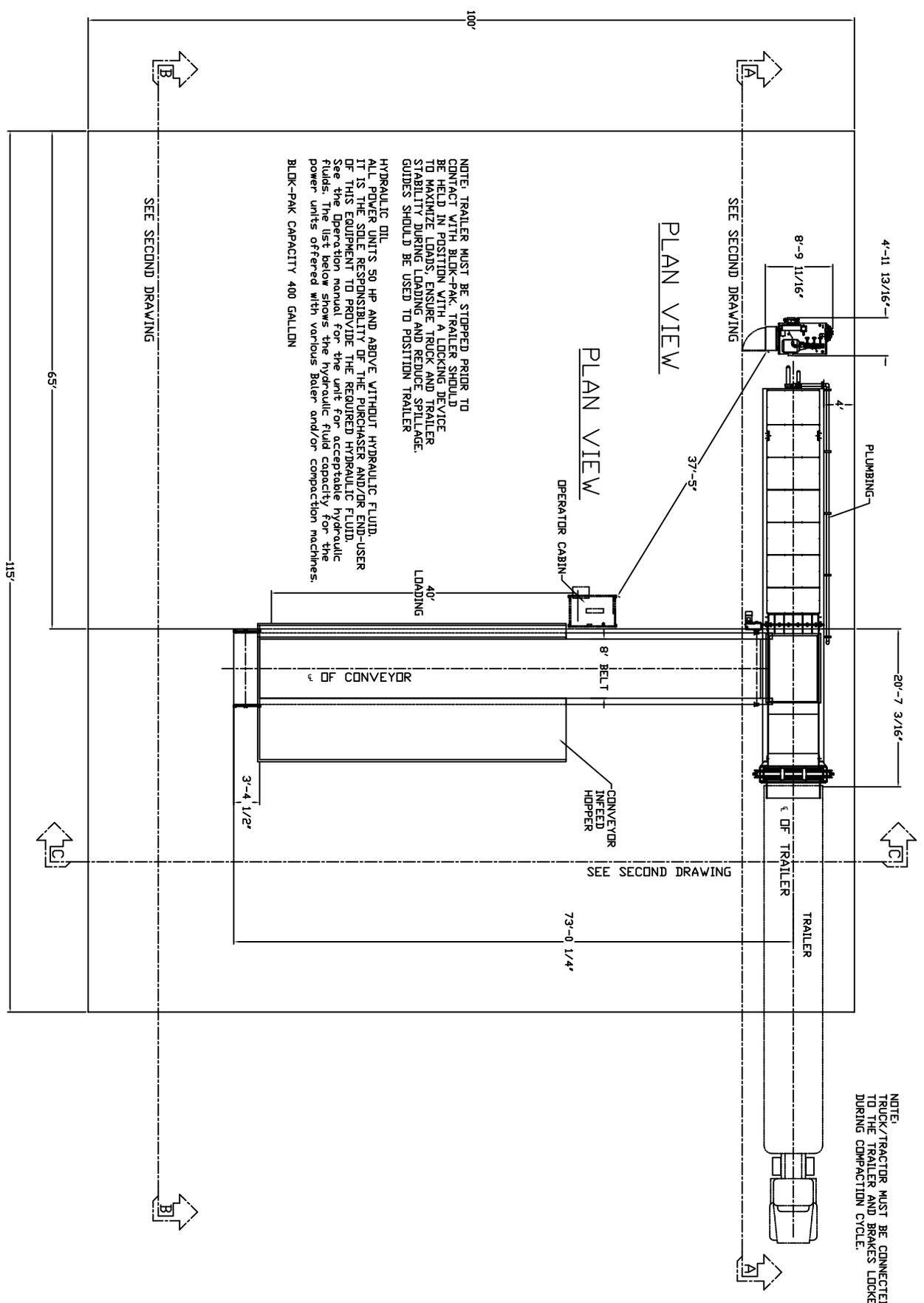
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CONVEYOR INFED HOPPER

OPERATOR CABIN

PLAN VIEW

PLAN VIEW



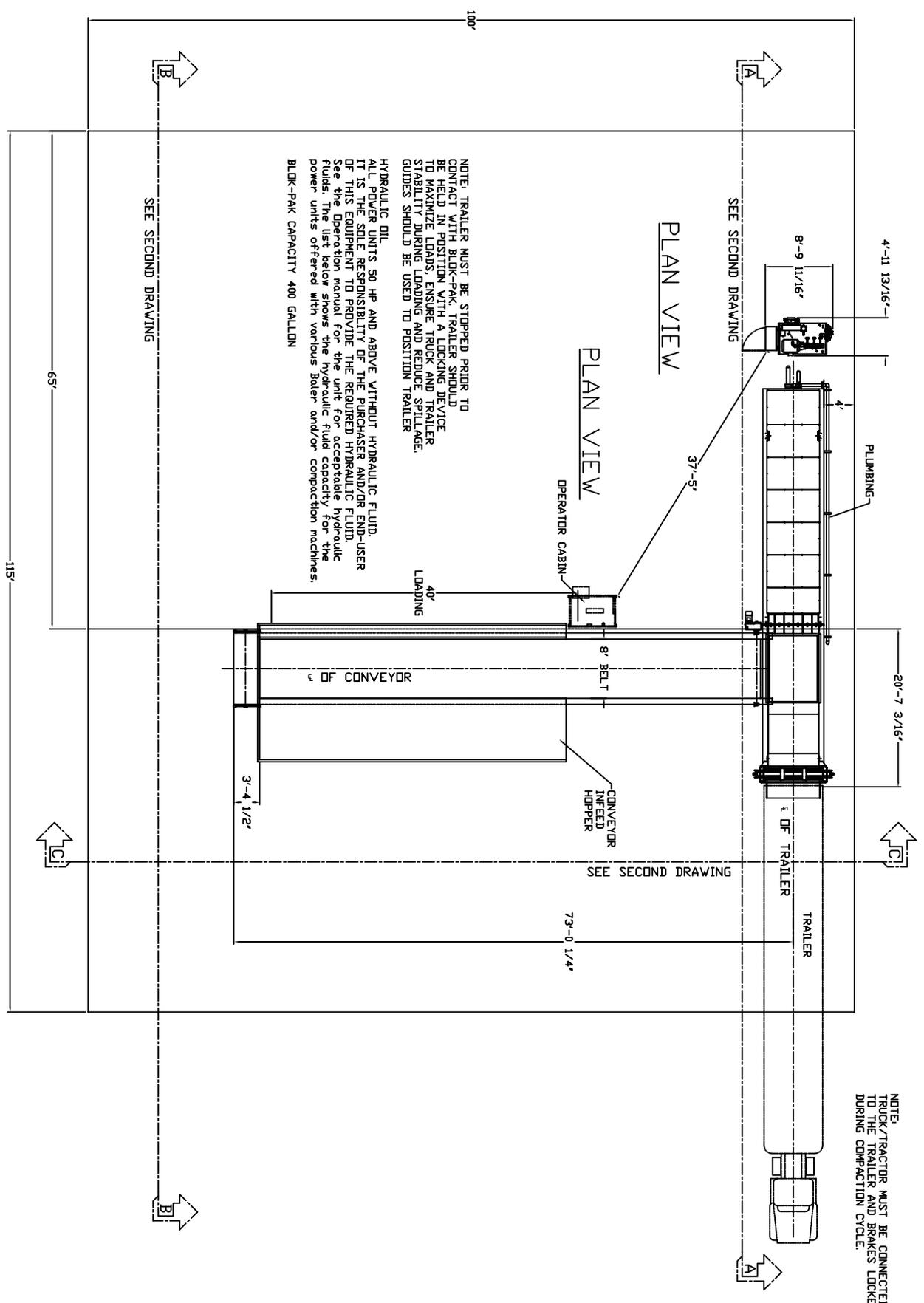
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OPERATOR CABIN

PLAN VIEW

PLAN VIEW



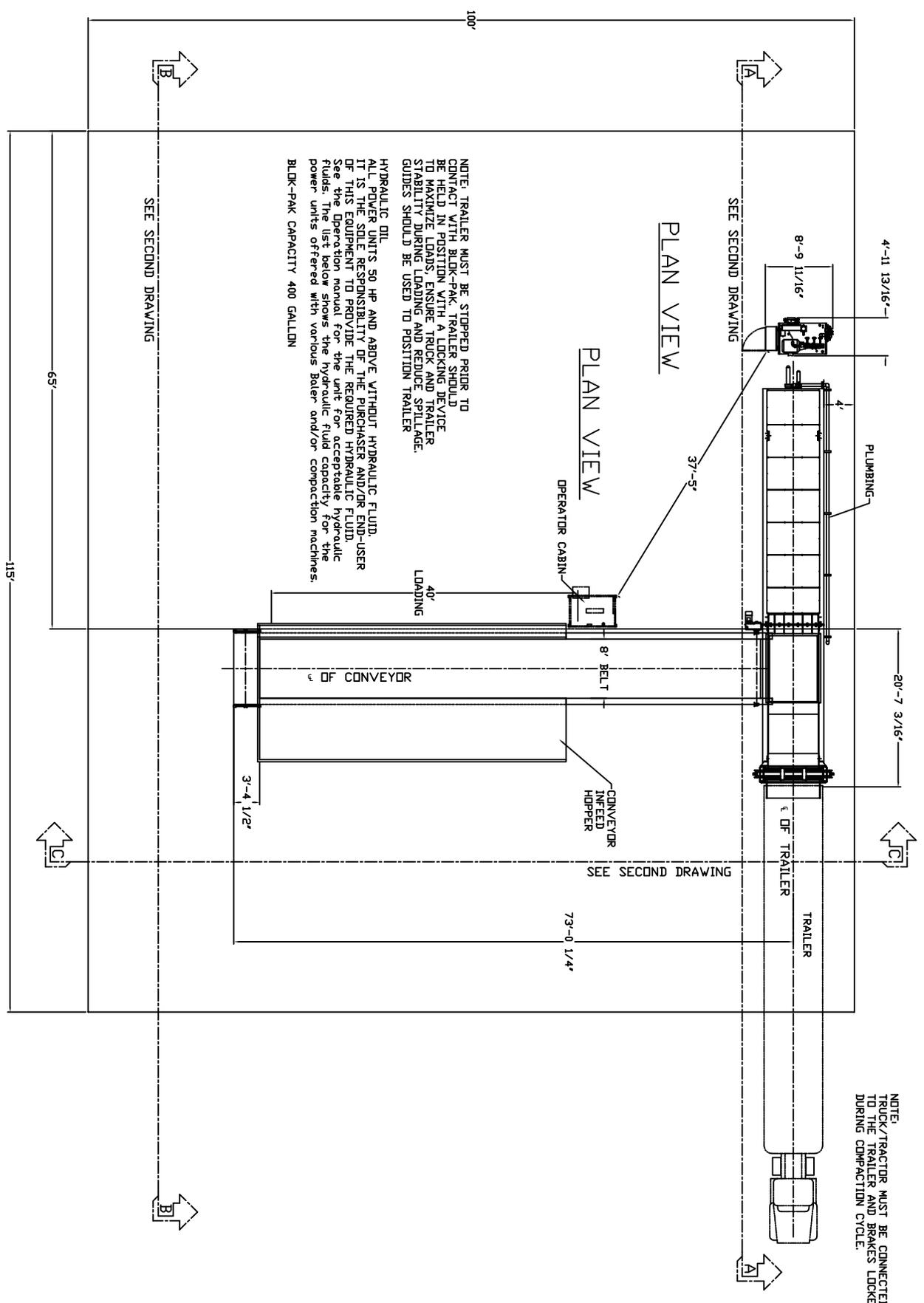
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CONVEYOR INFED HOPPER

OPERATOR CABIN

PLAN VIEW

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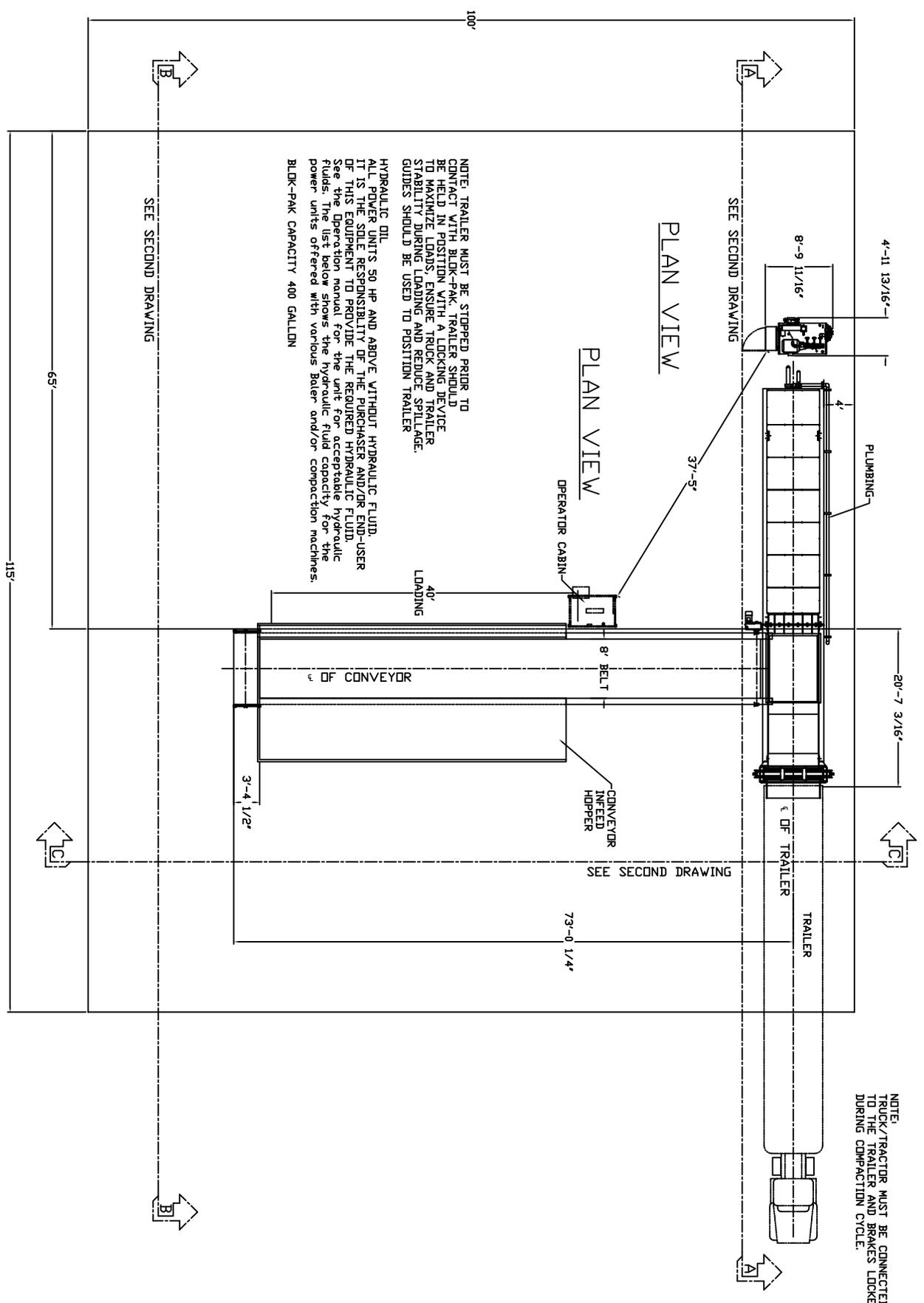
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CONVEYOR INFED HOPPER

OPERATOR CABIN

PLAN VIEW

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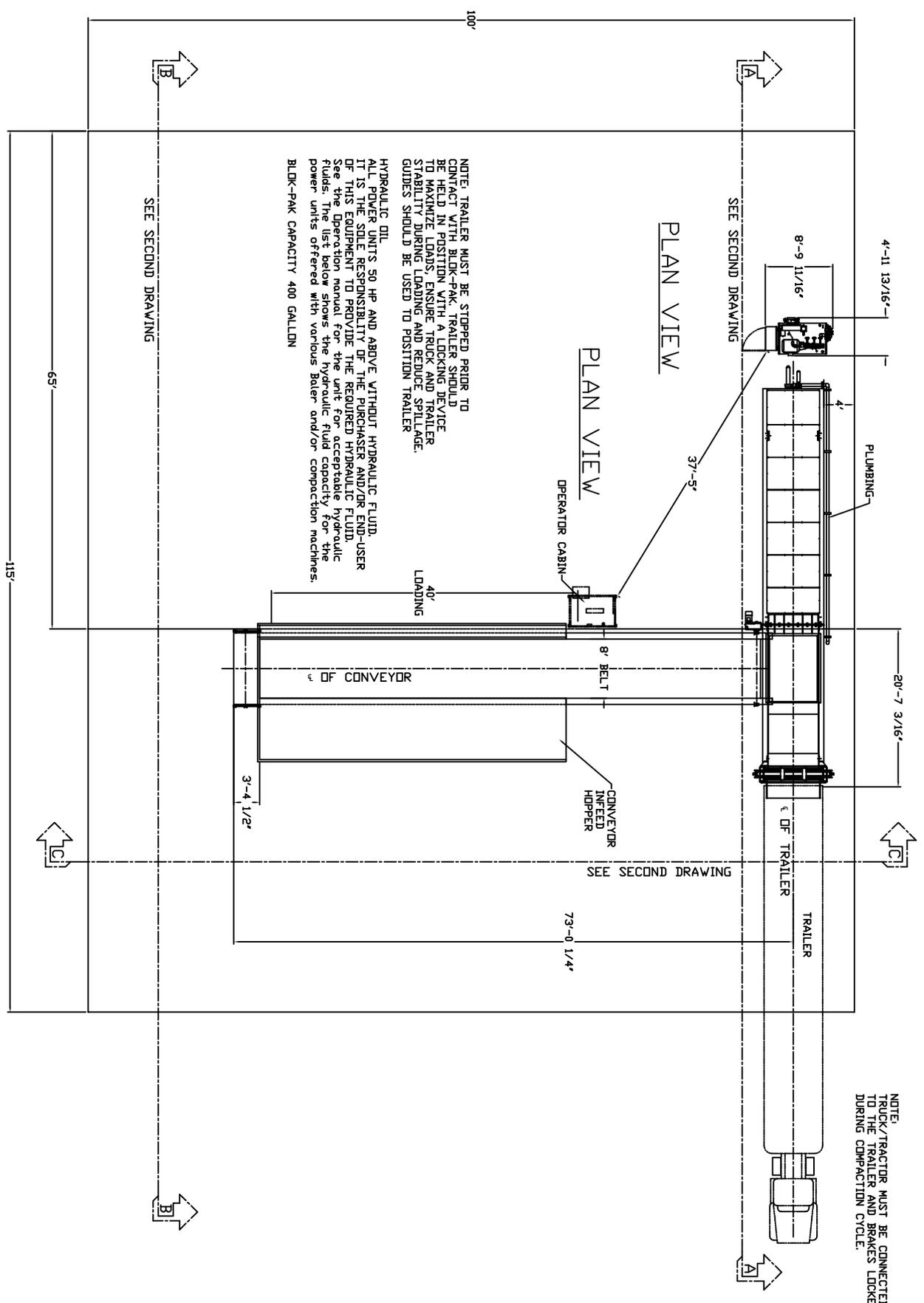
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CONVEYOR INFED HOPPER

OPERATOR CABIN

PLAN VIEW

PLAN VIEW



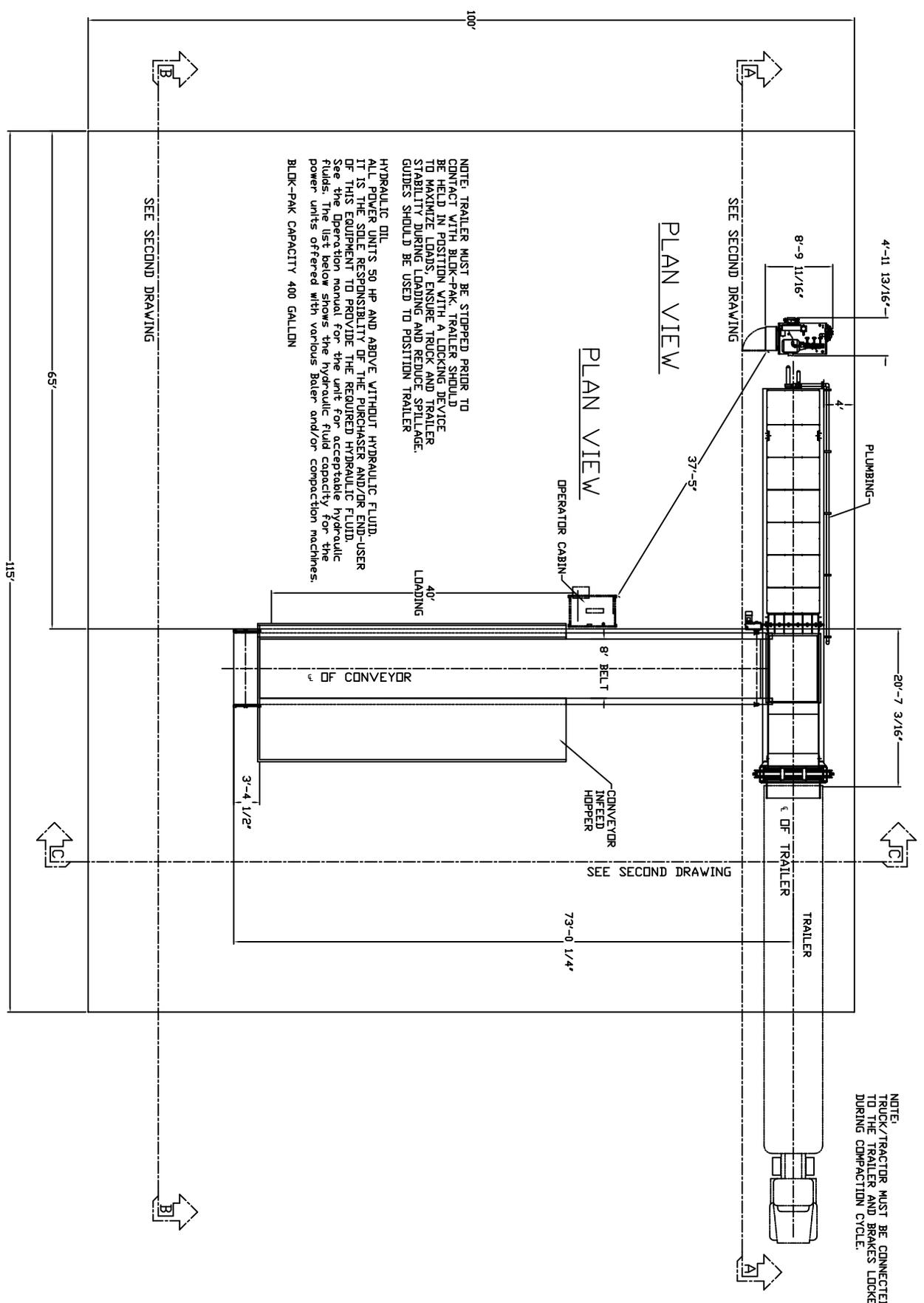
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OPERATOR CABIN

PLAN VIEW

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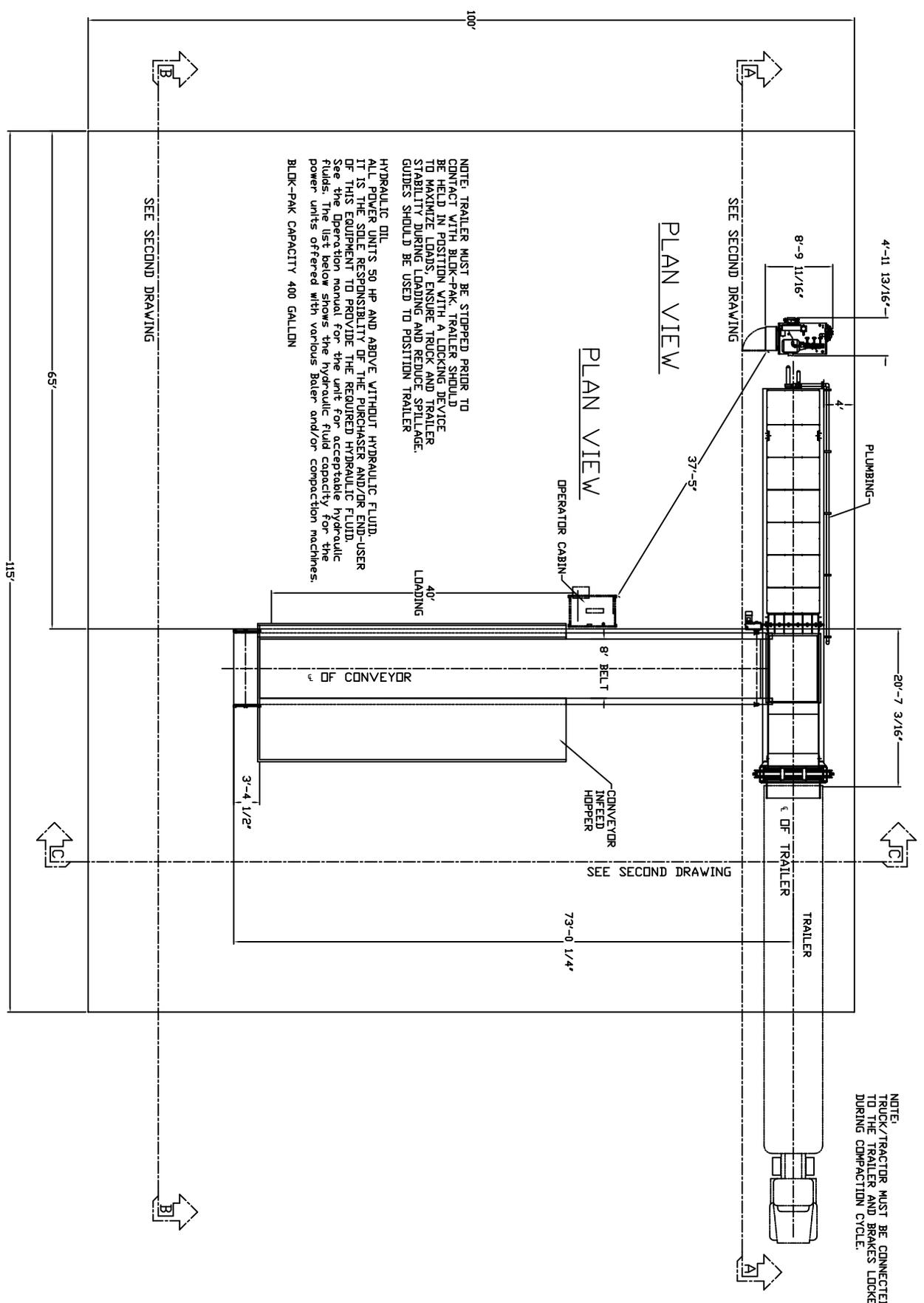
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OPERATOR CABIN

PLAN VIEW

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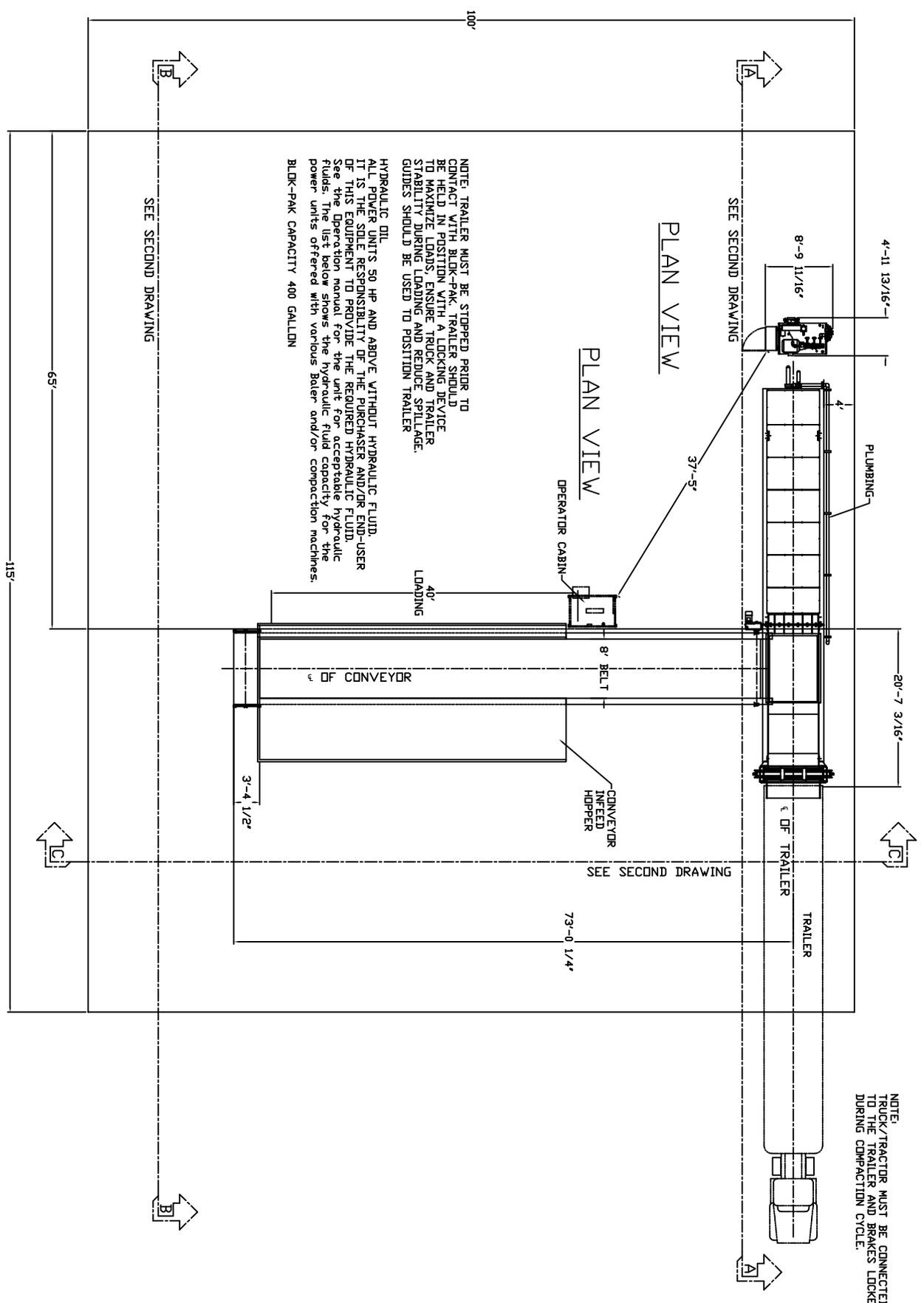
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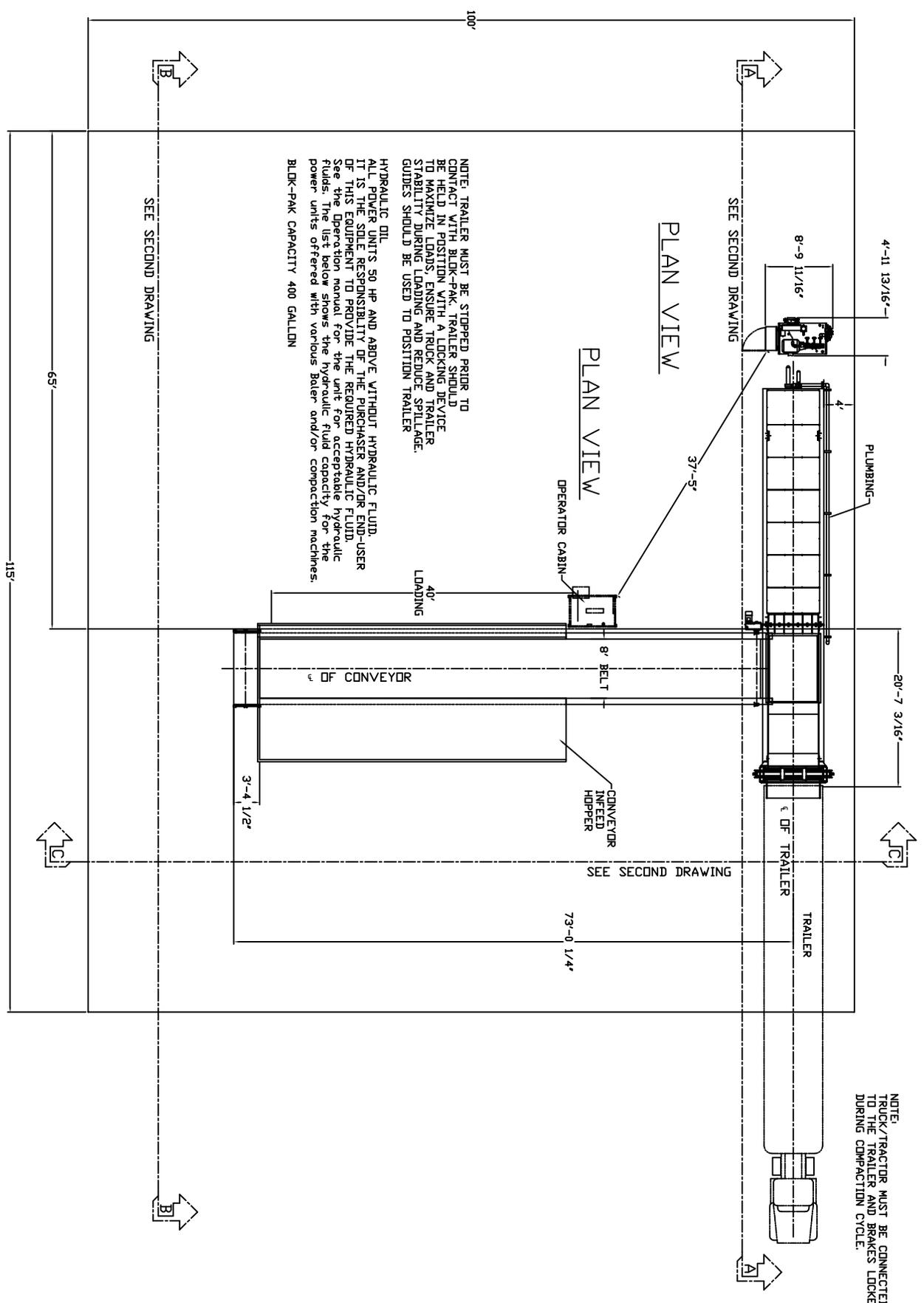
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PLAN VIEW

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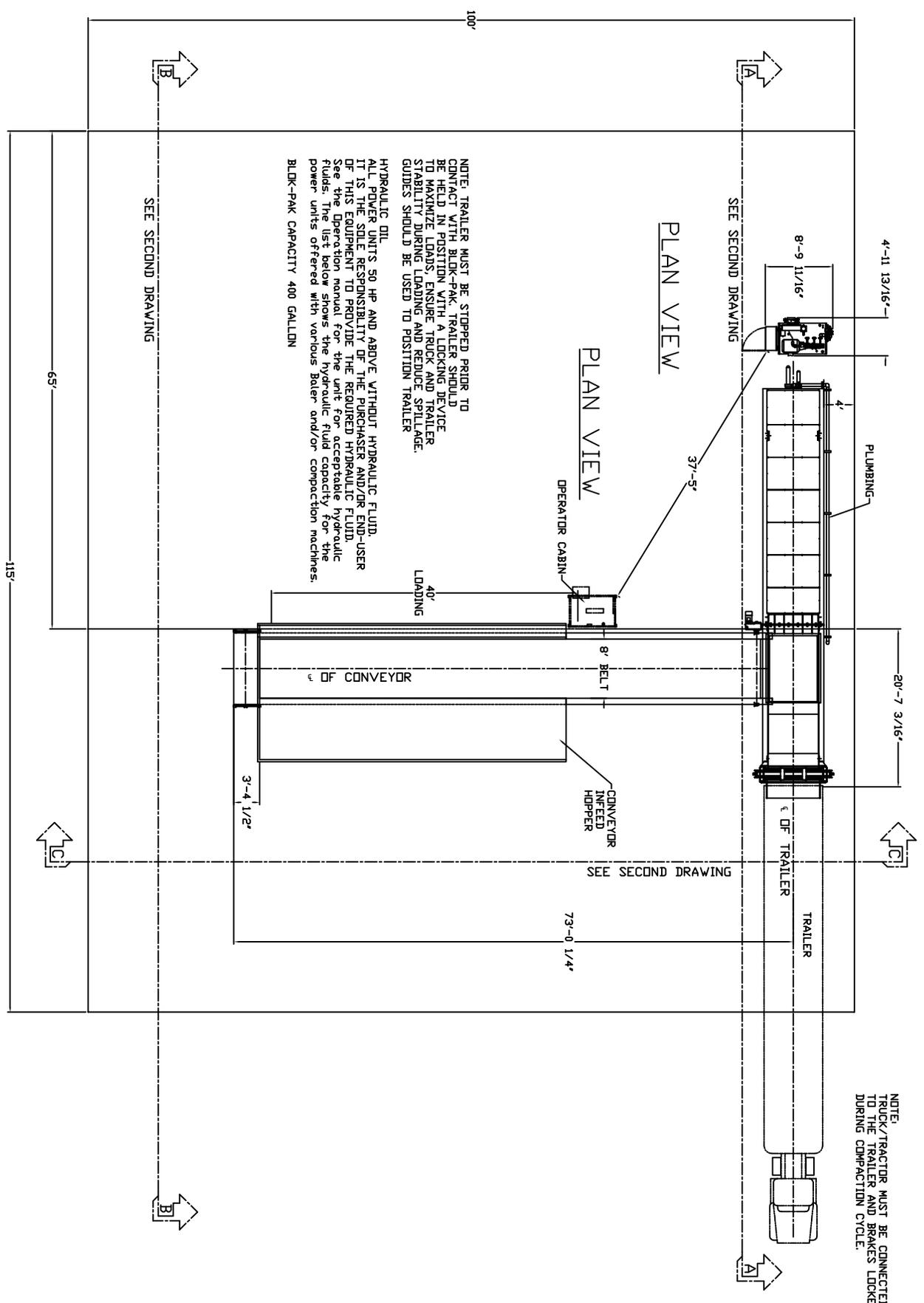
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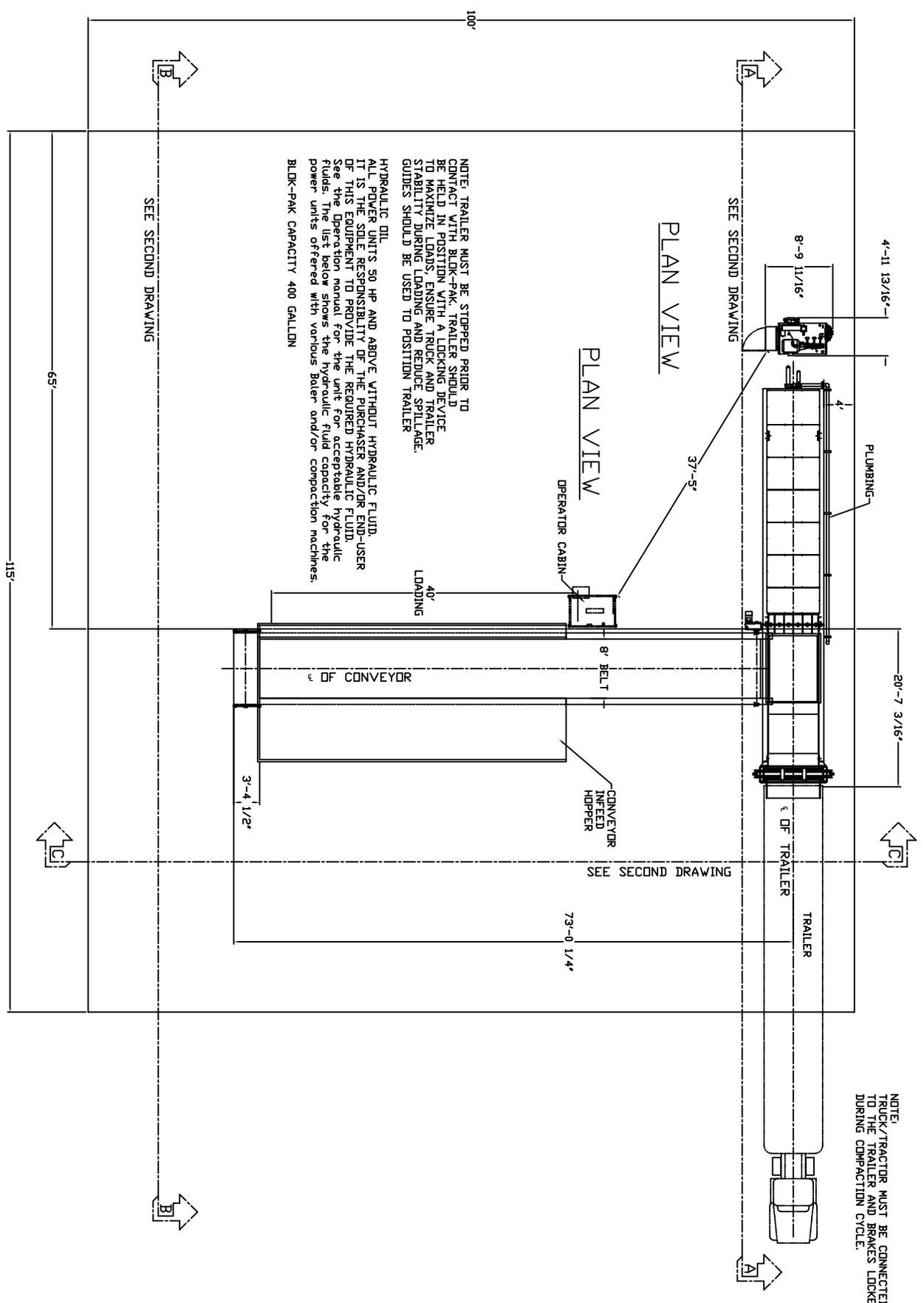
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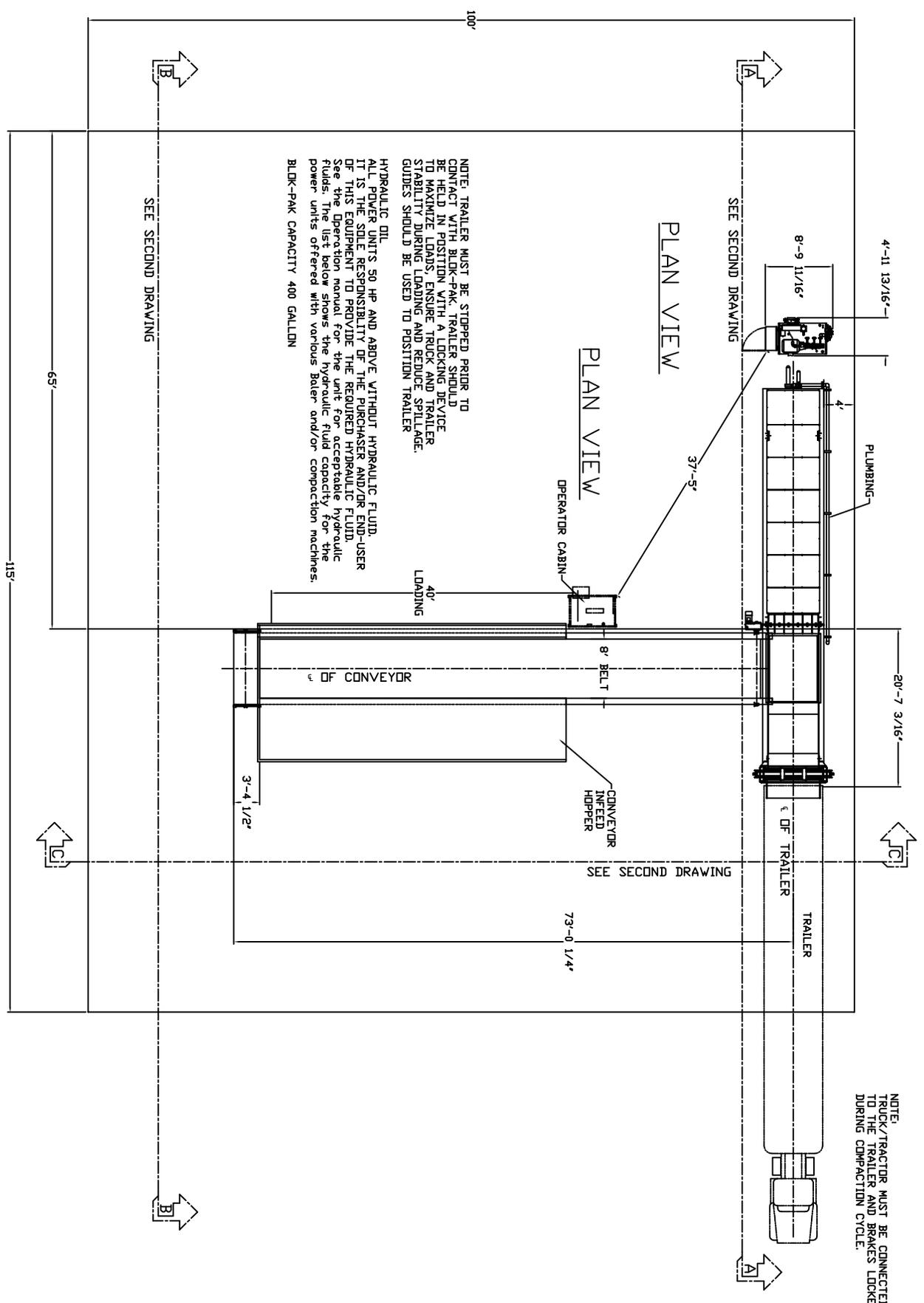
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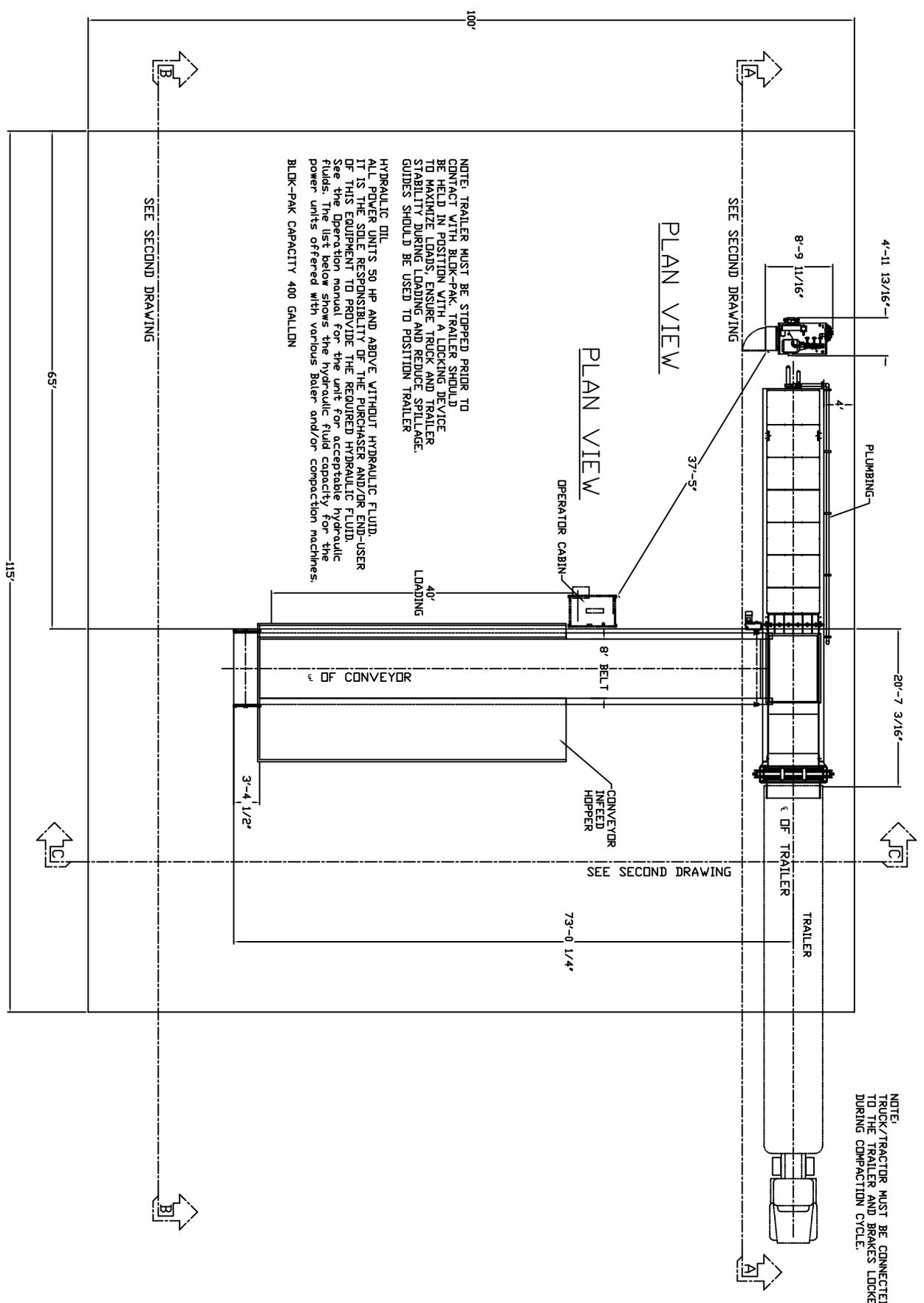
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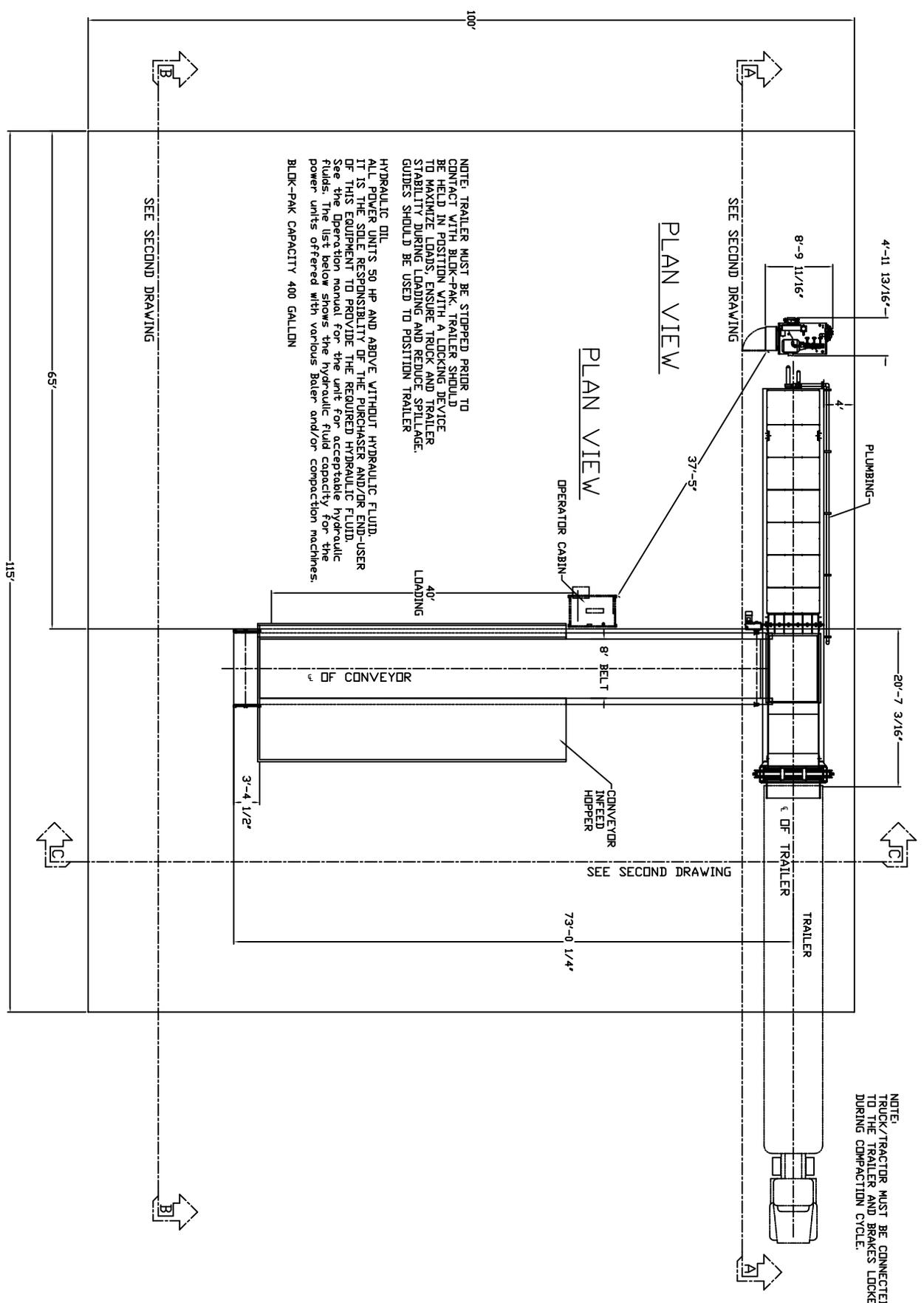
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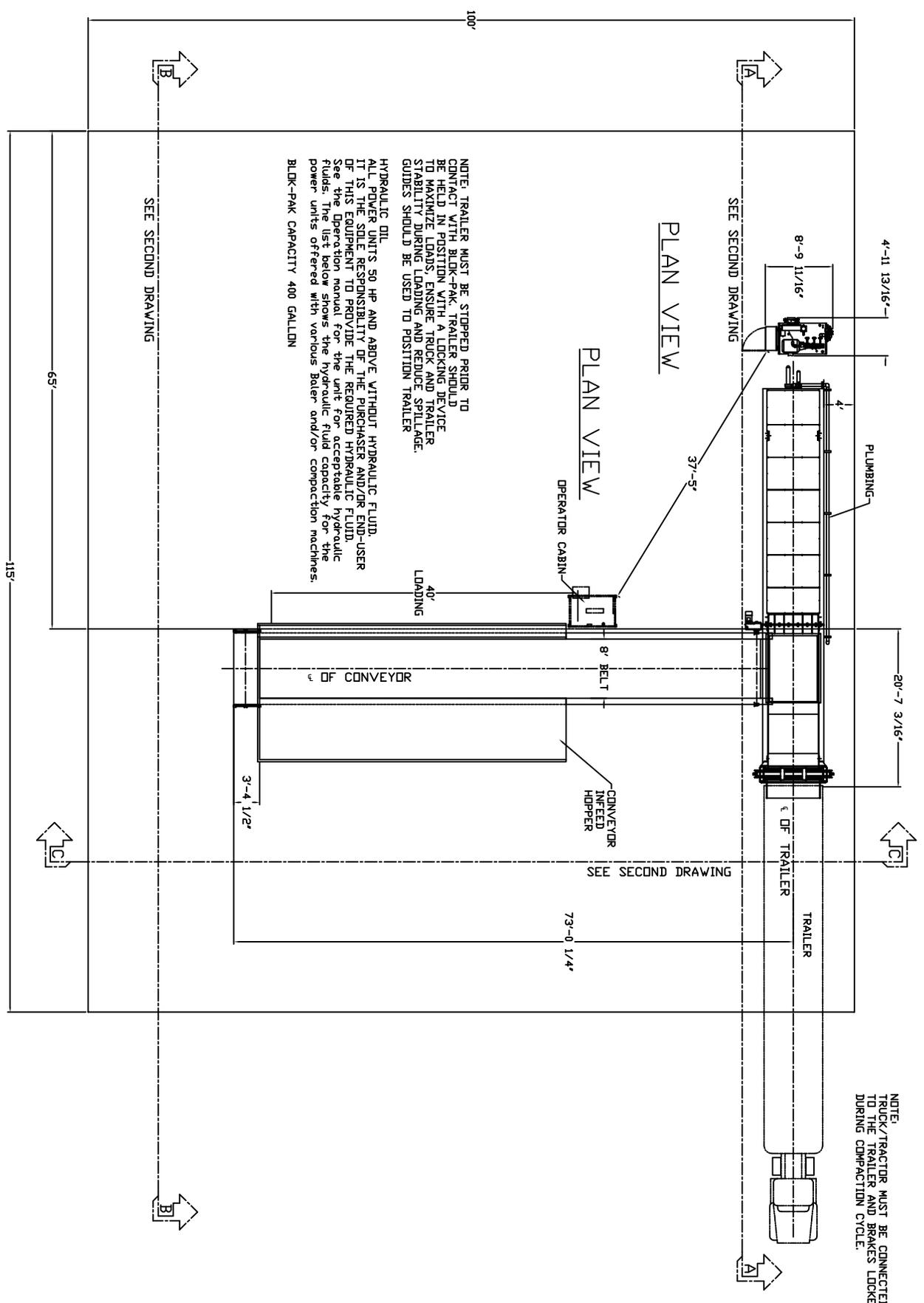
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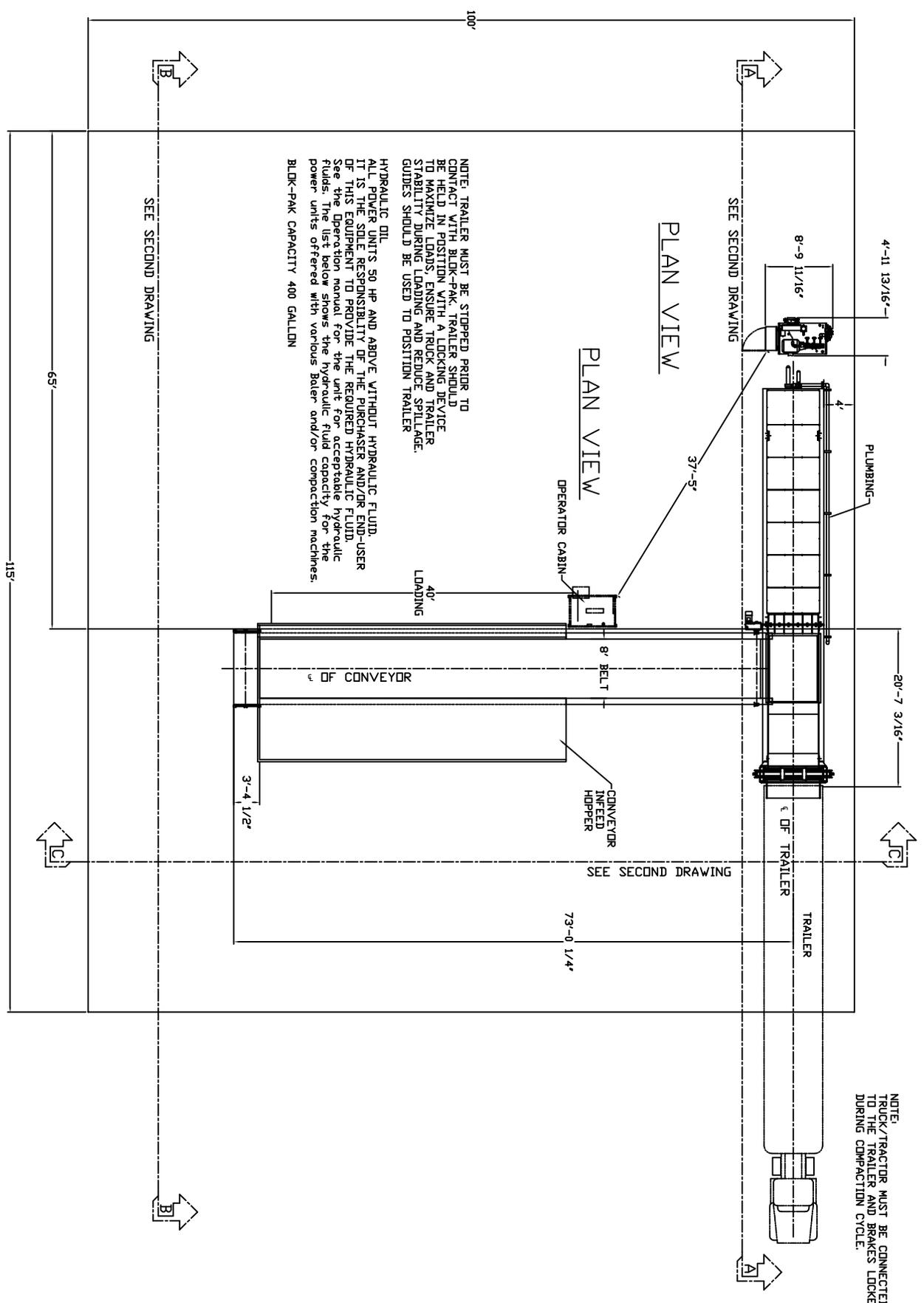
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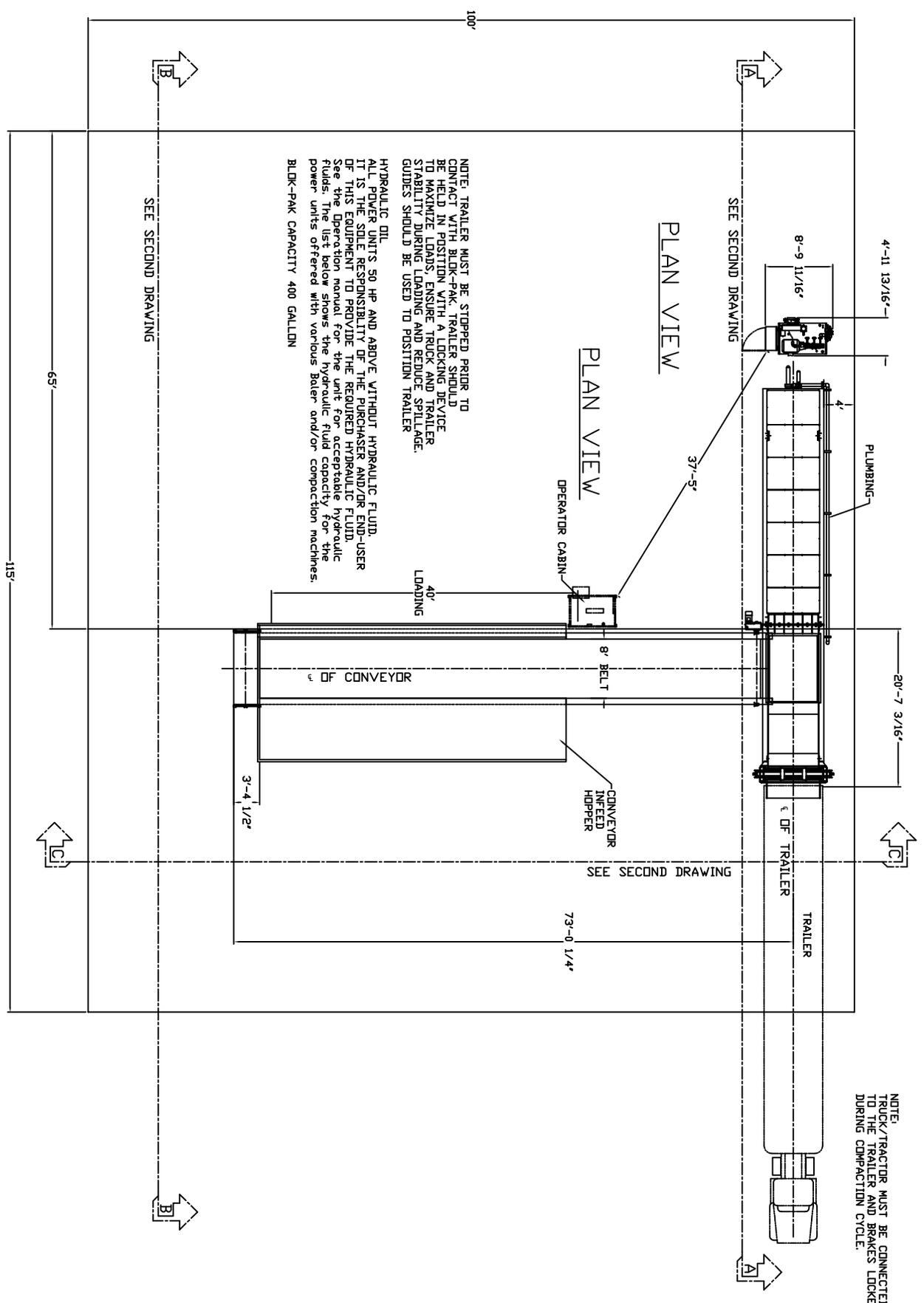
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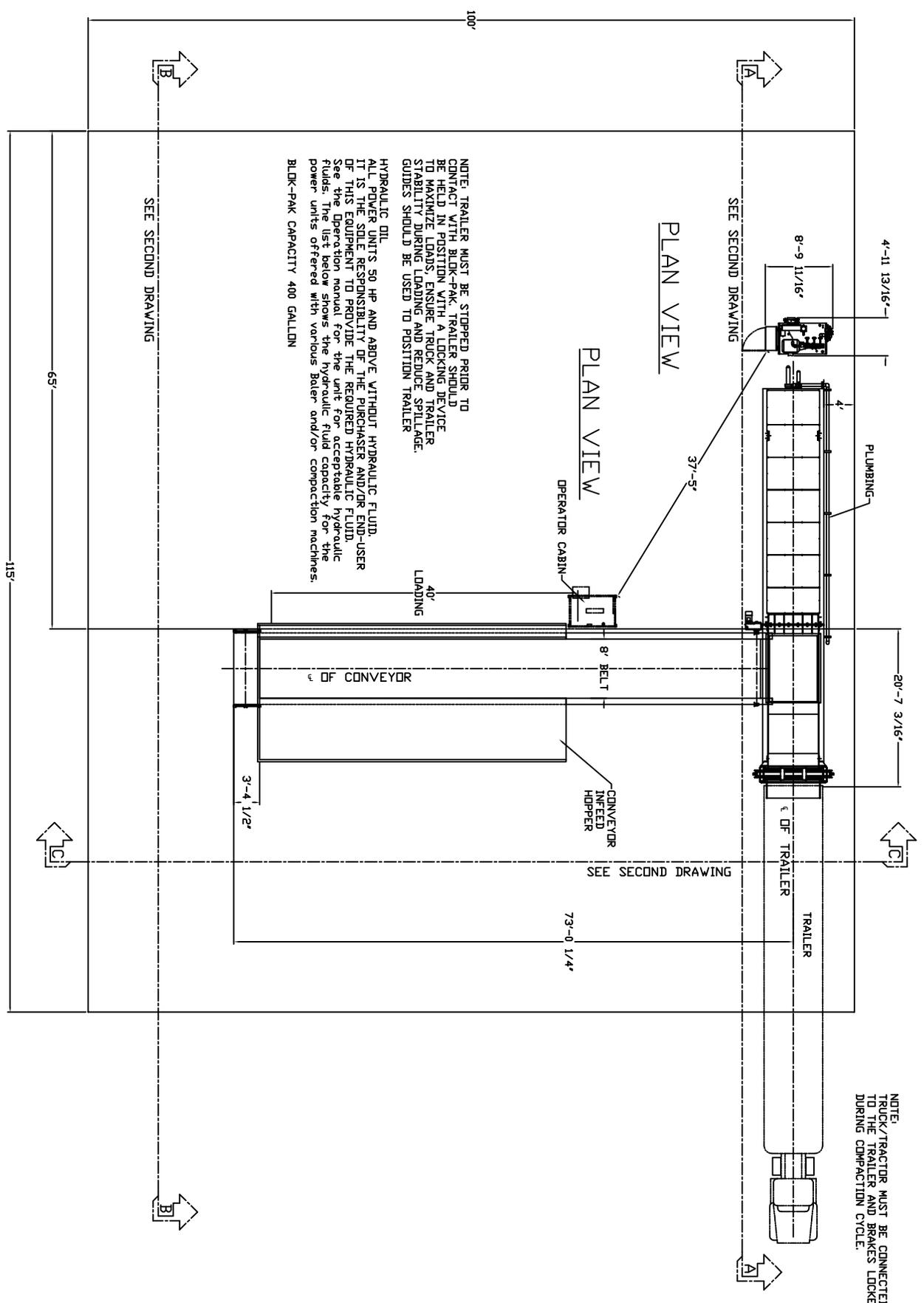
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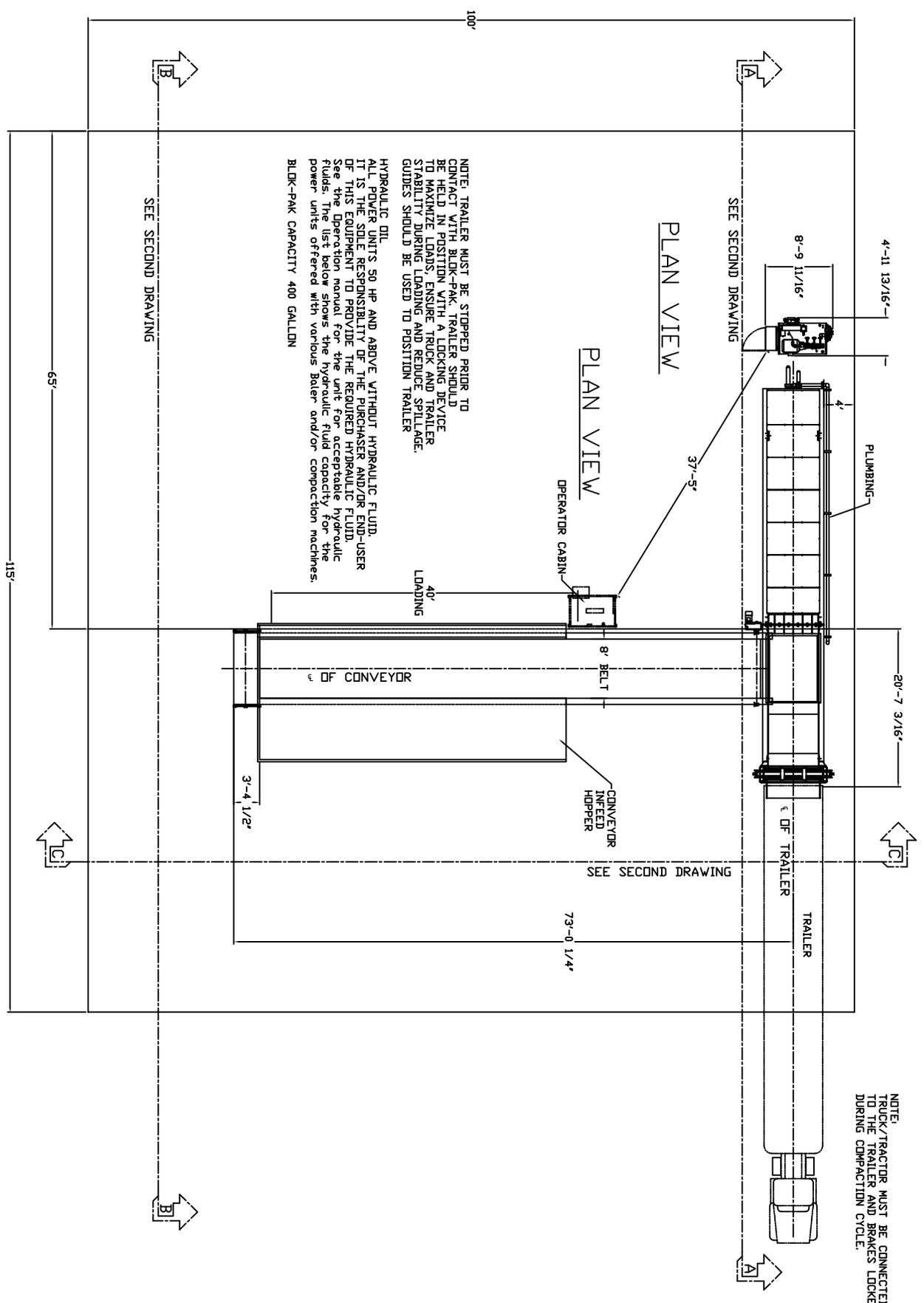
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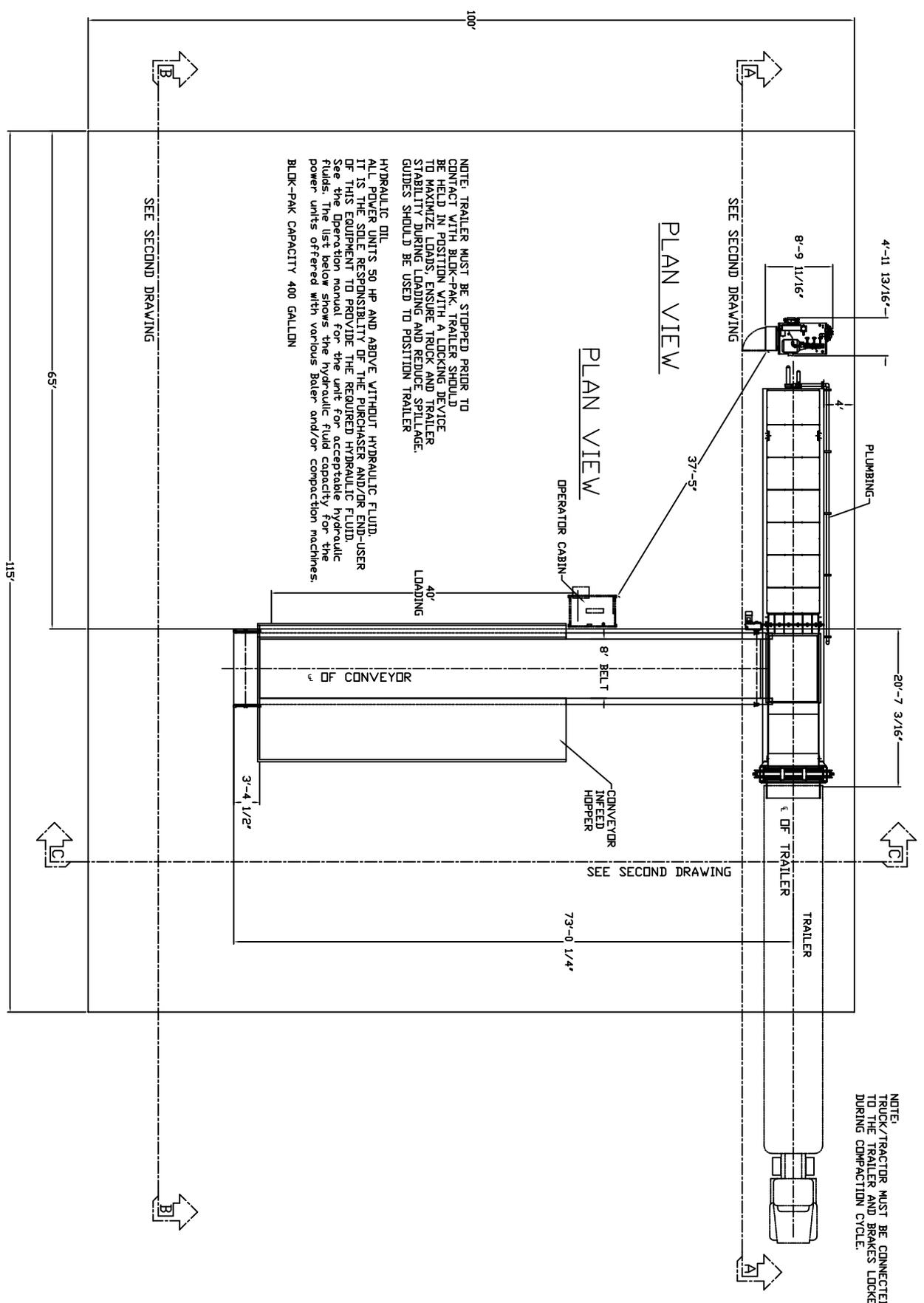
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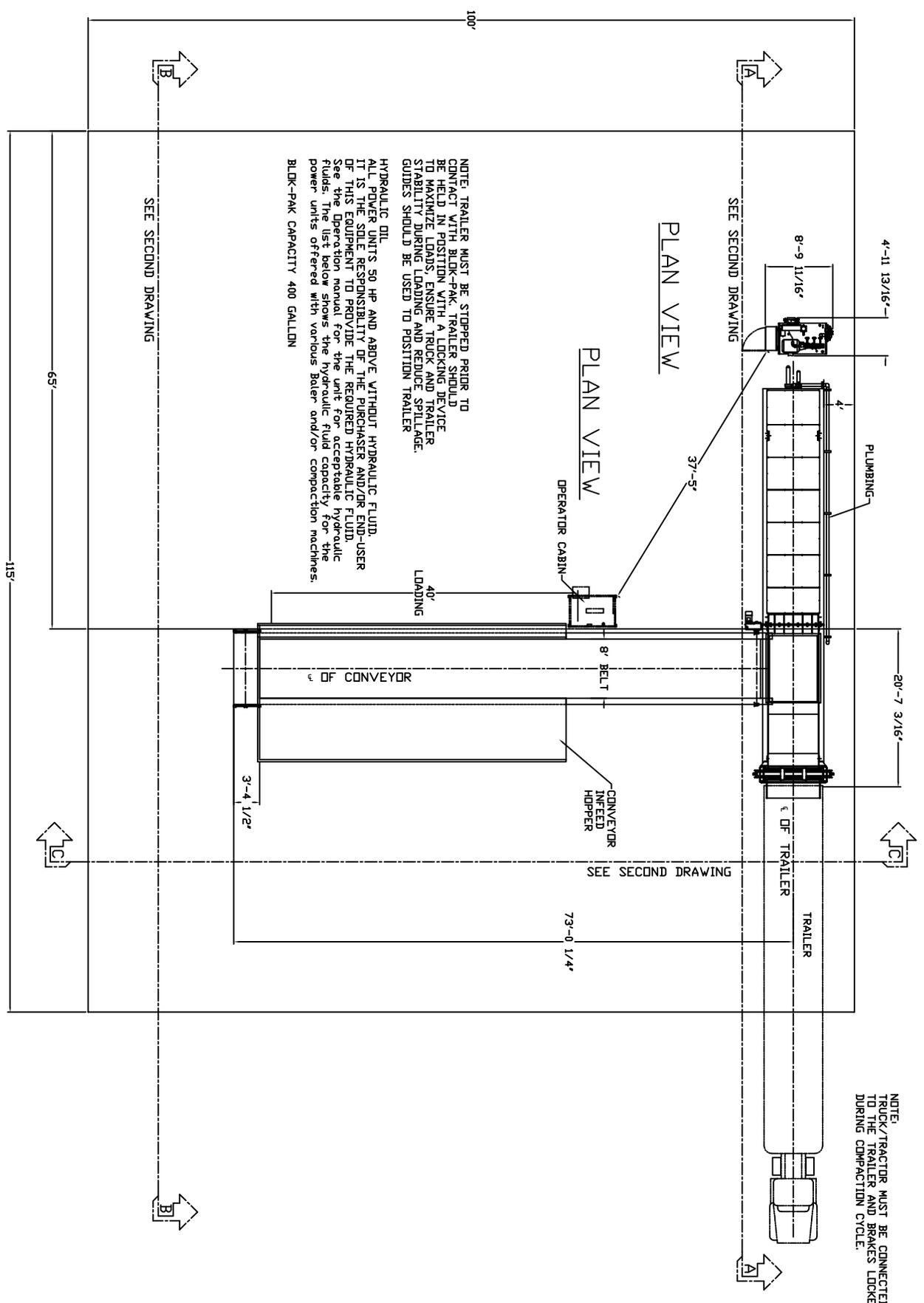
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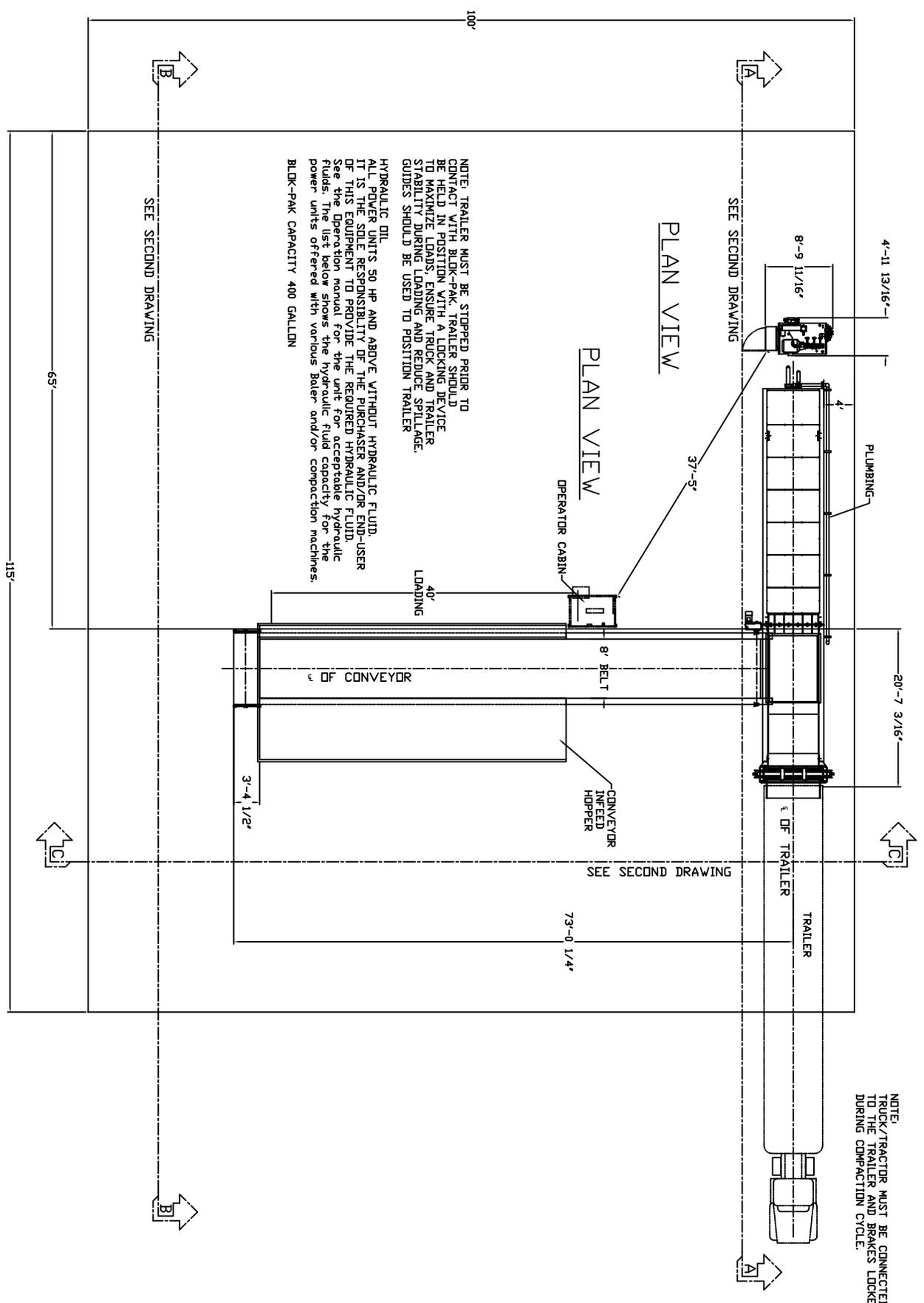
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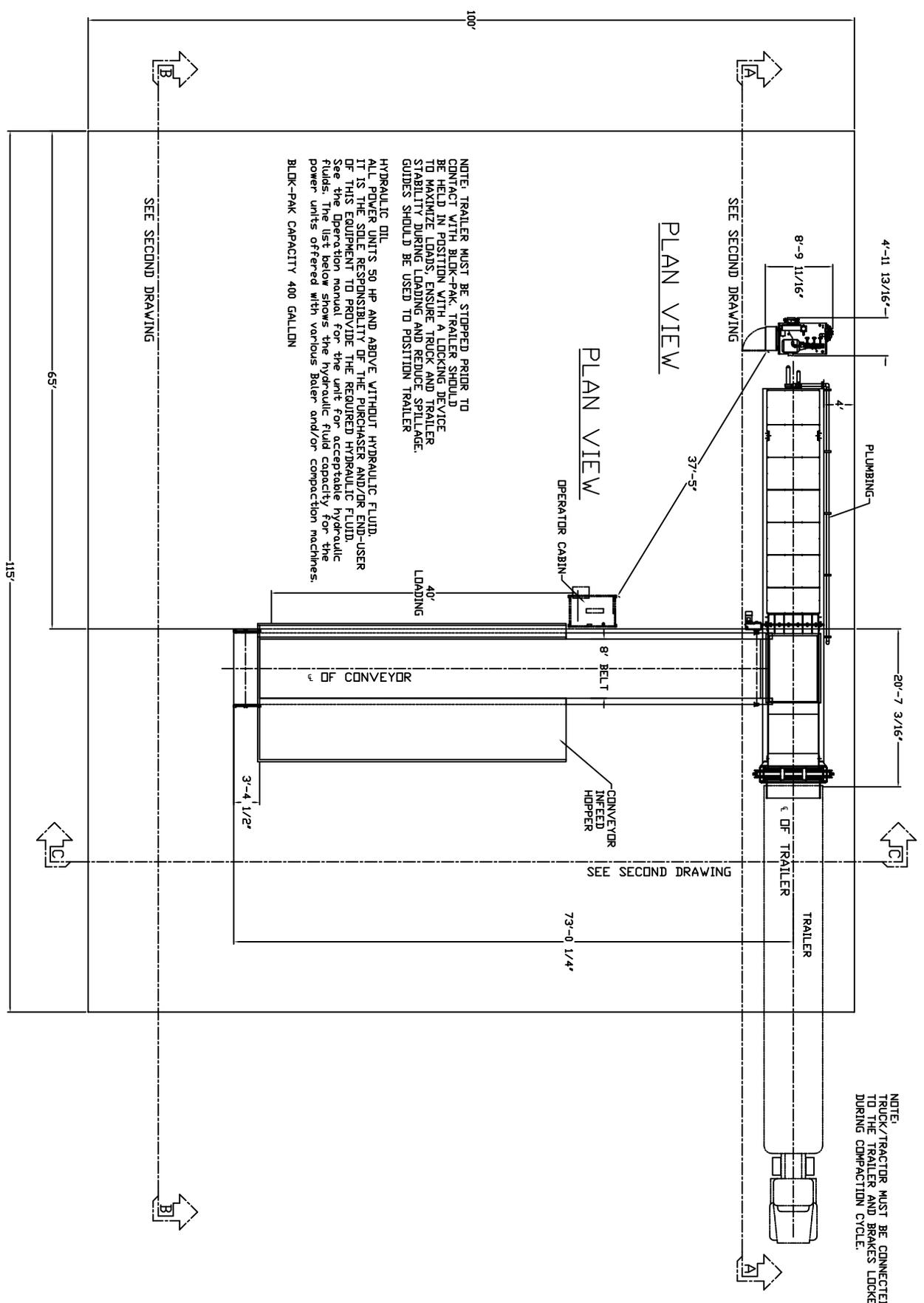
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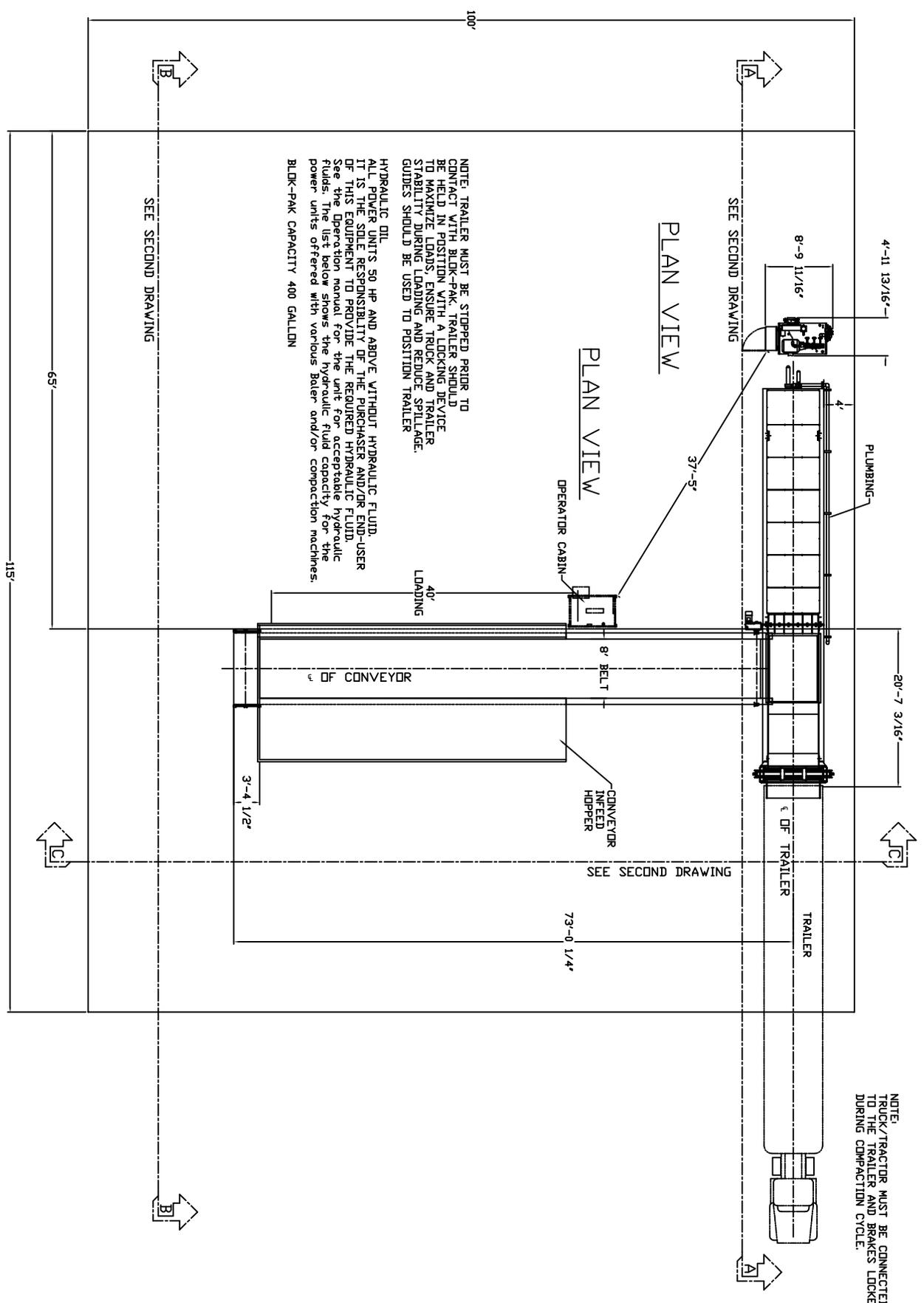
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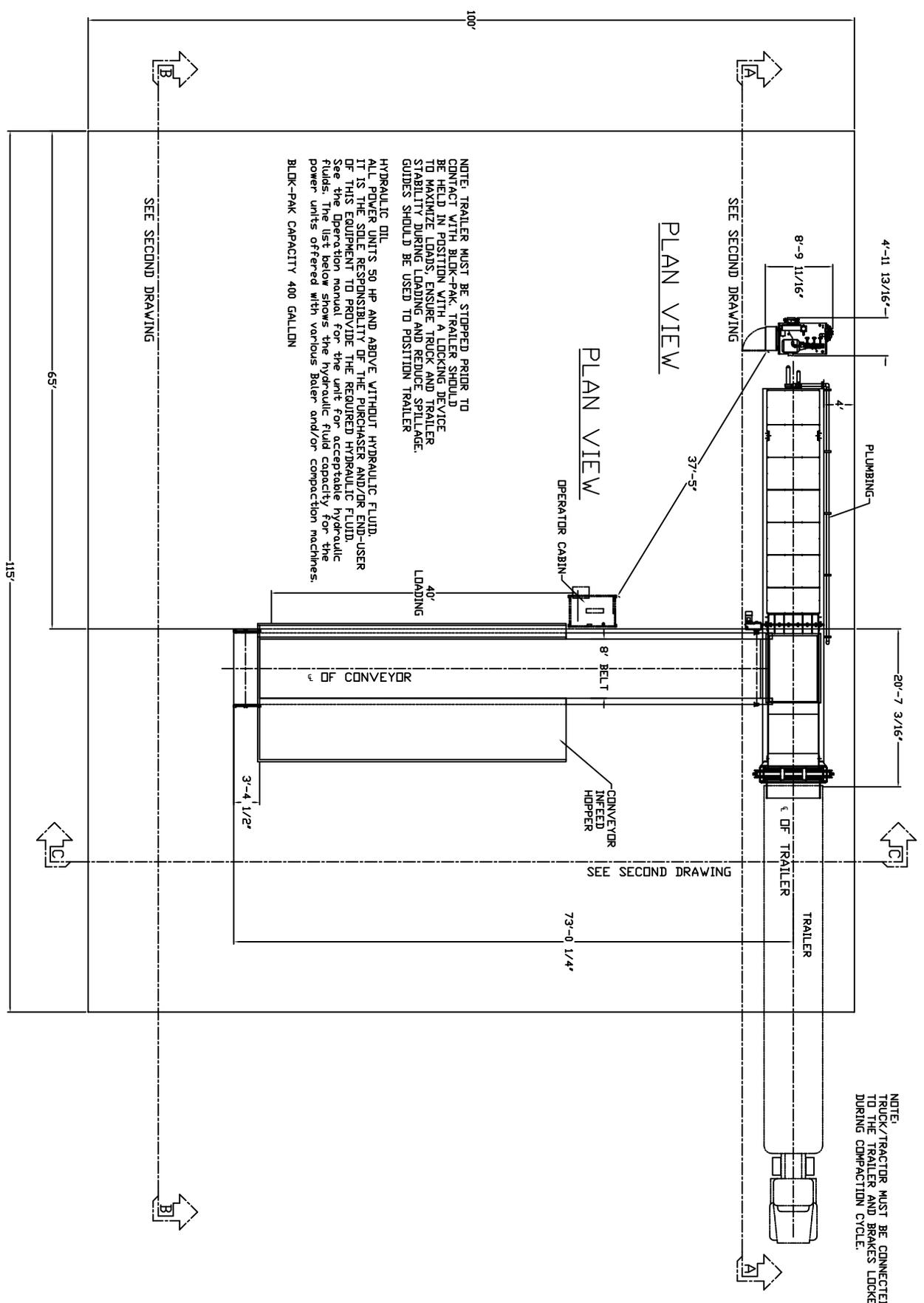
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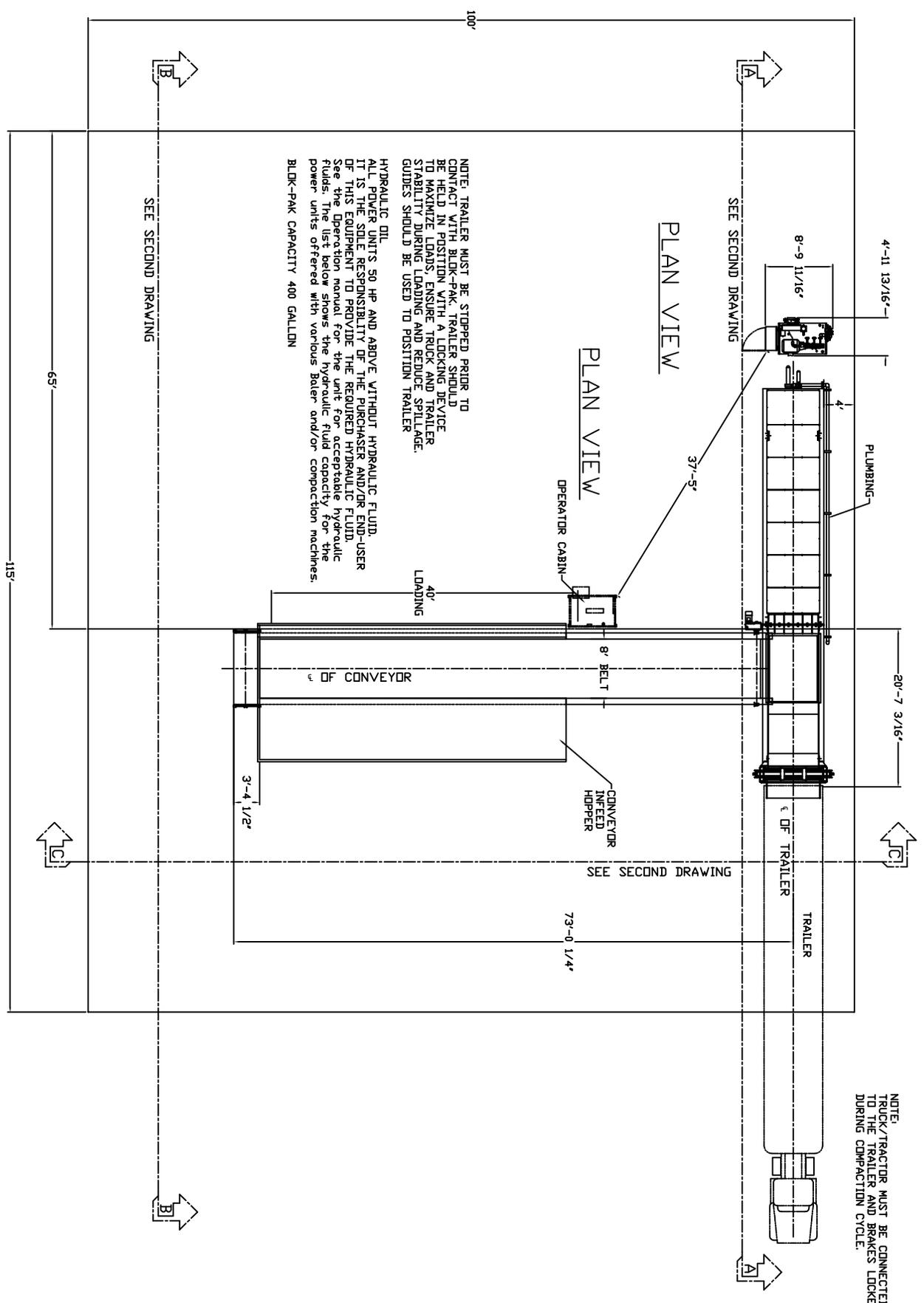
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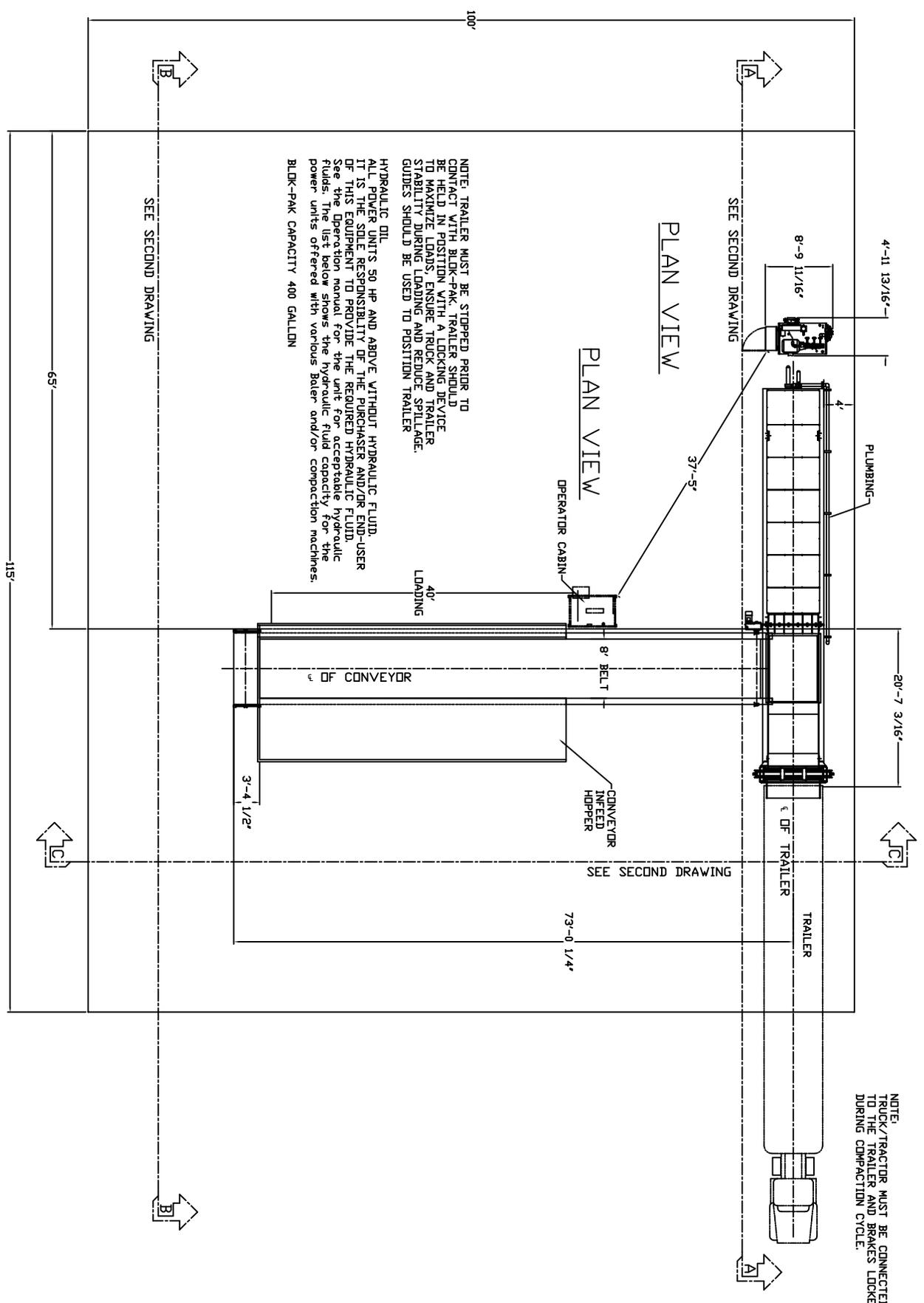
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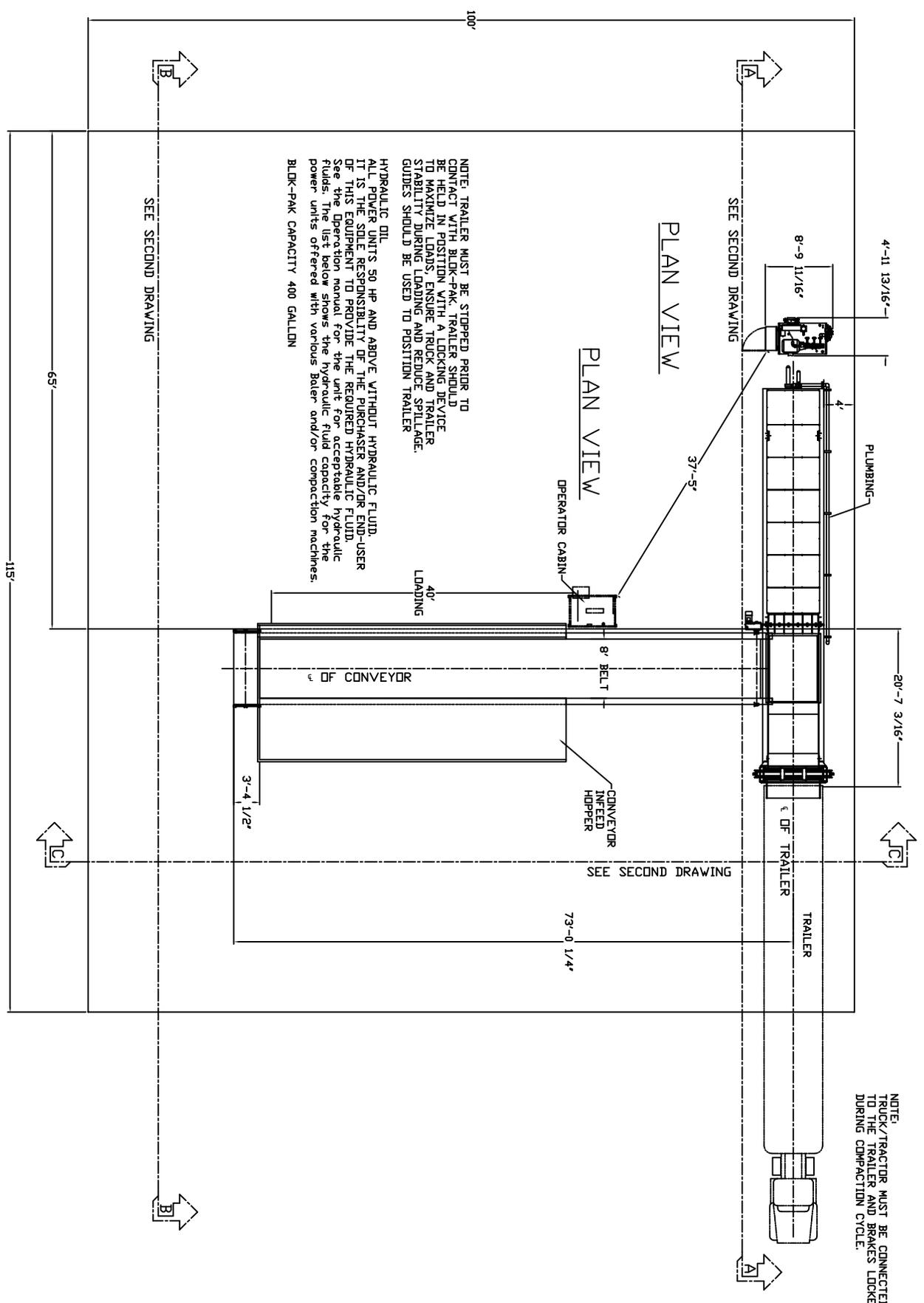
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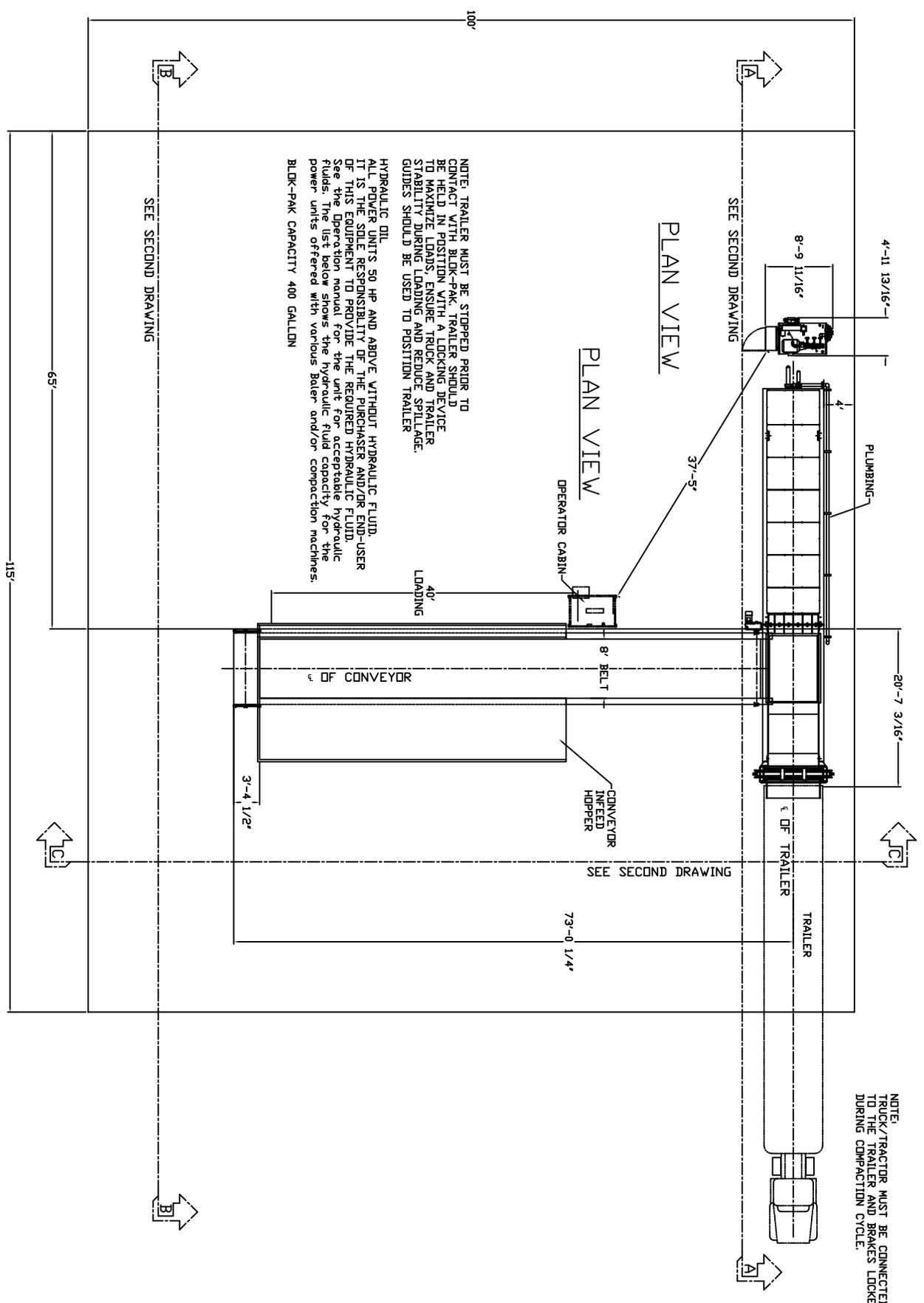
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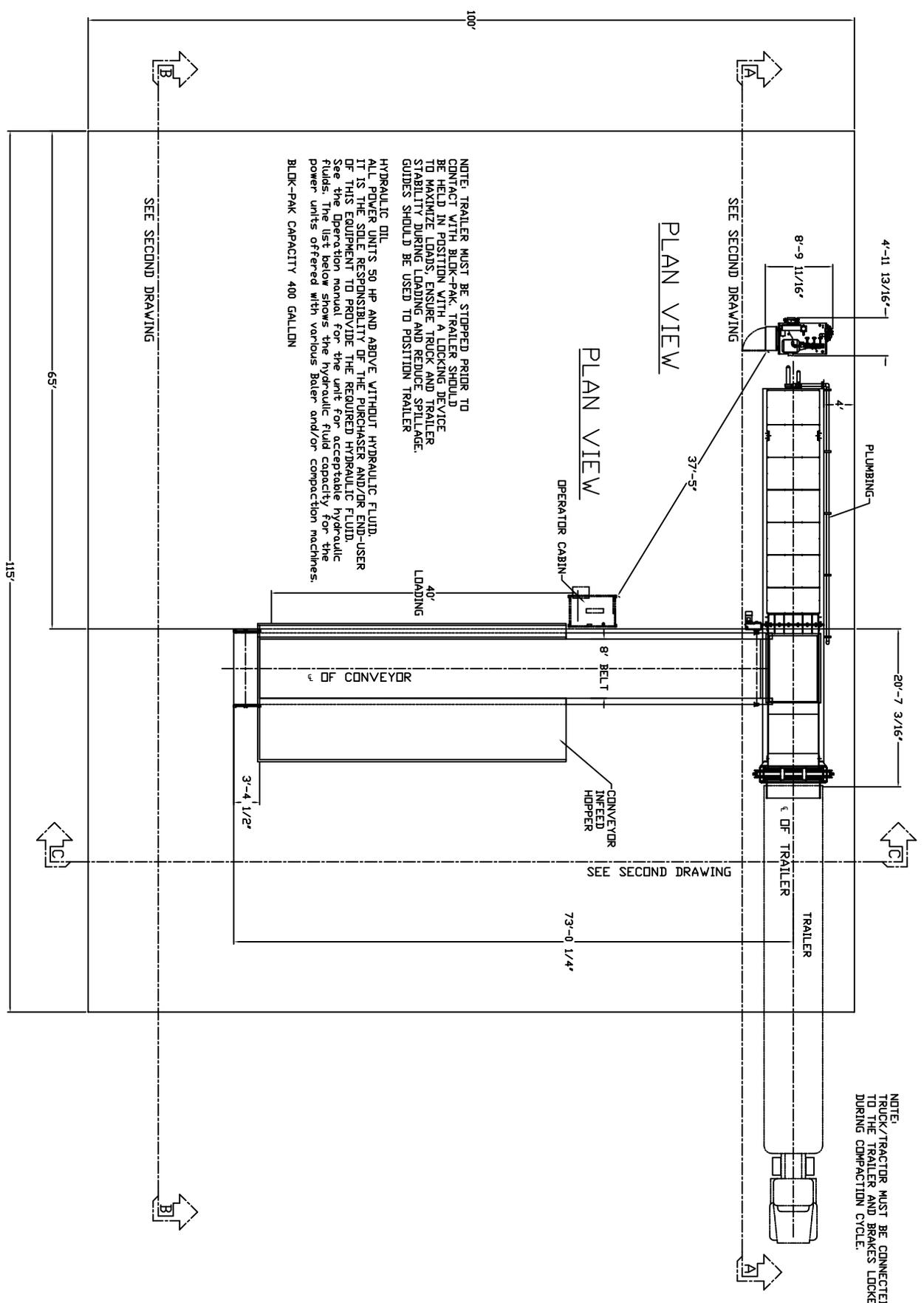
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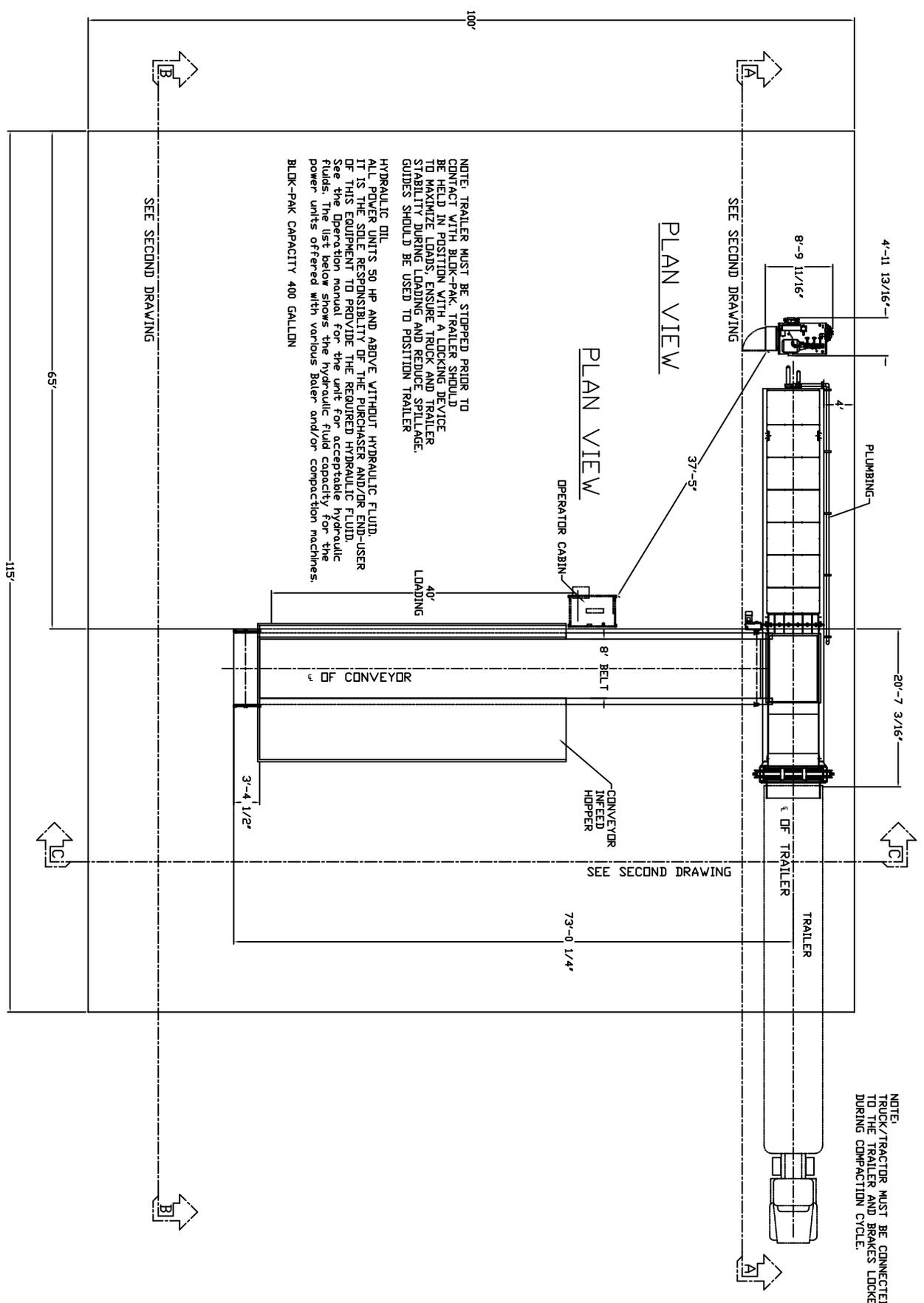
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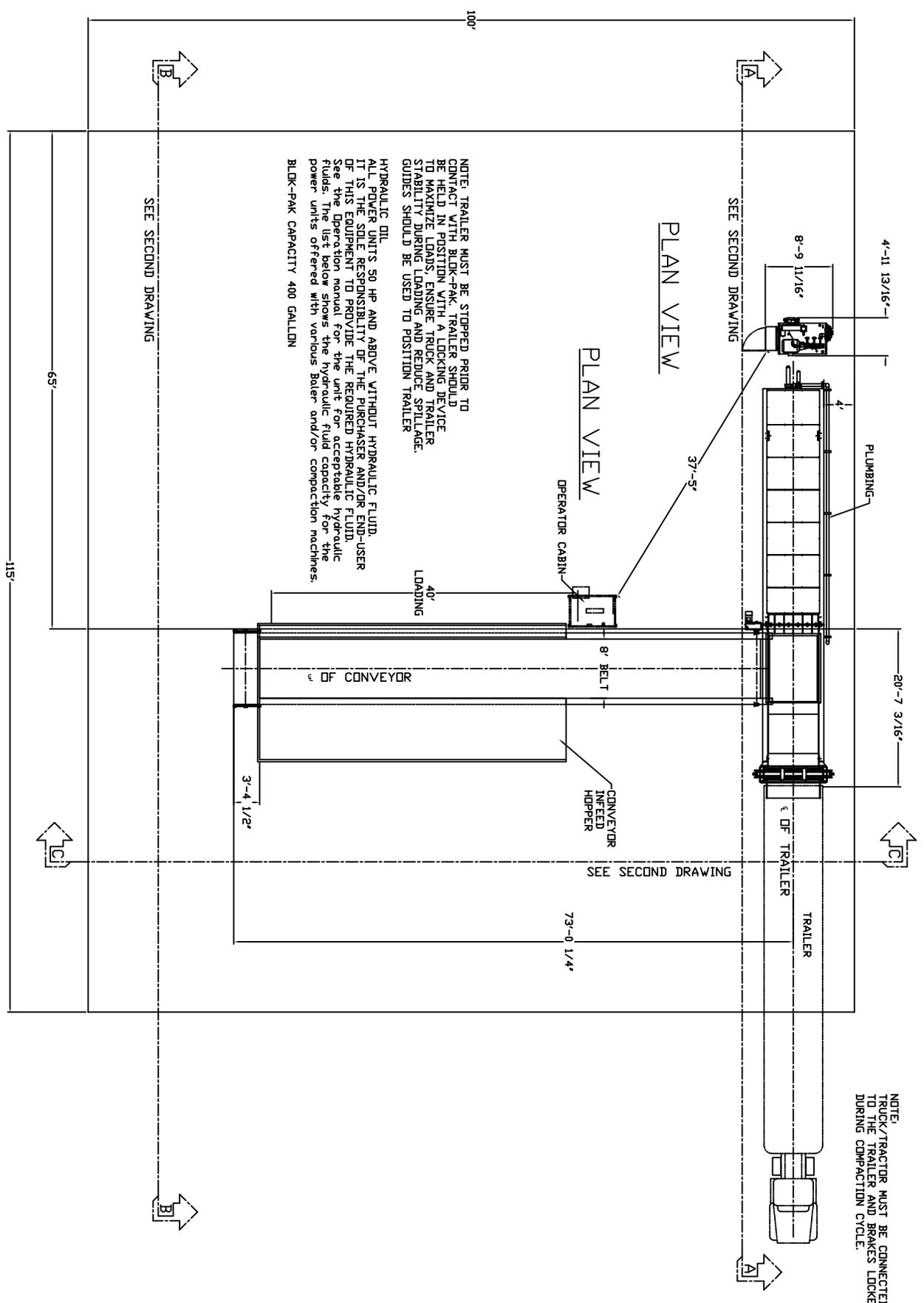
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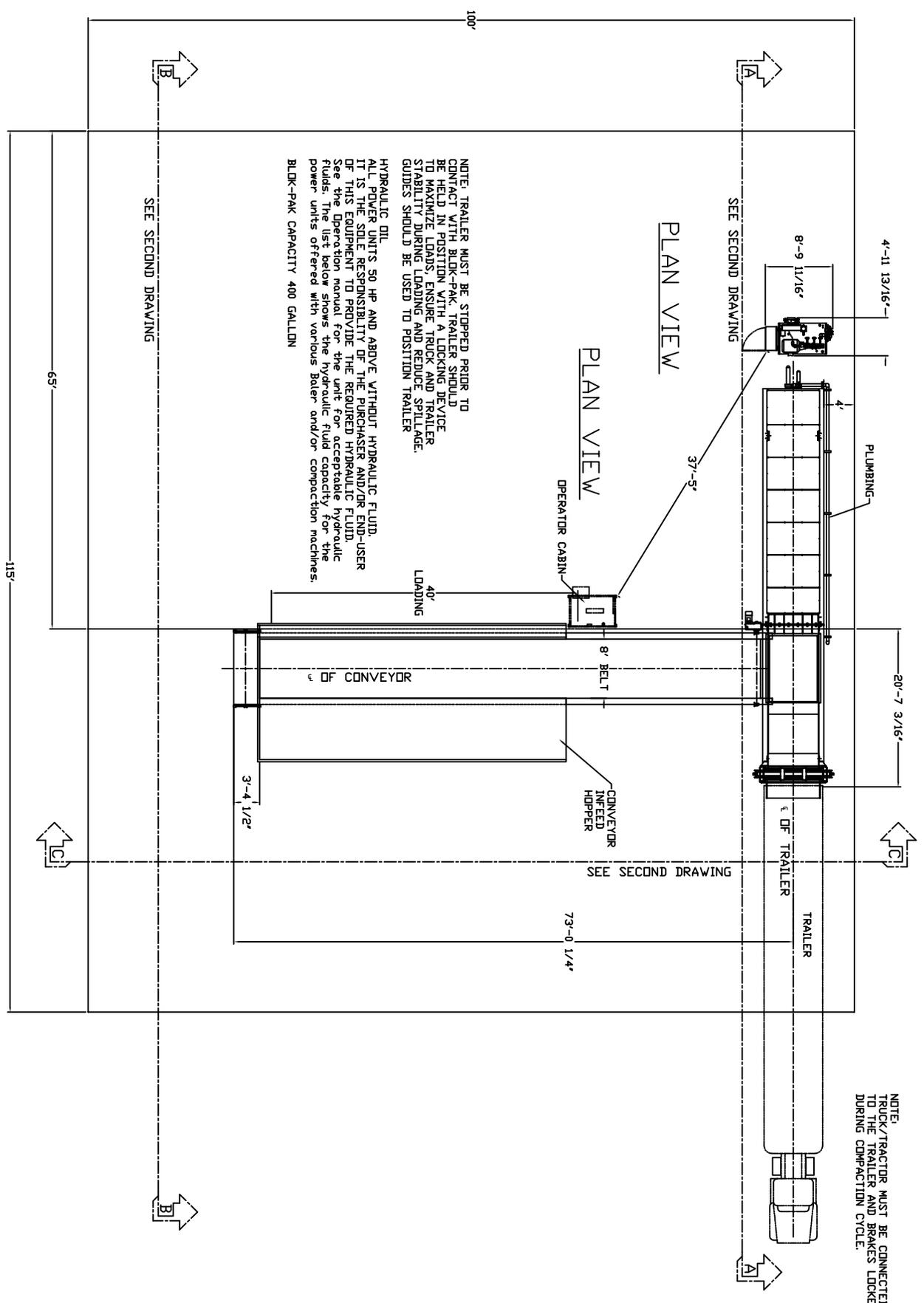
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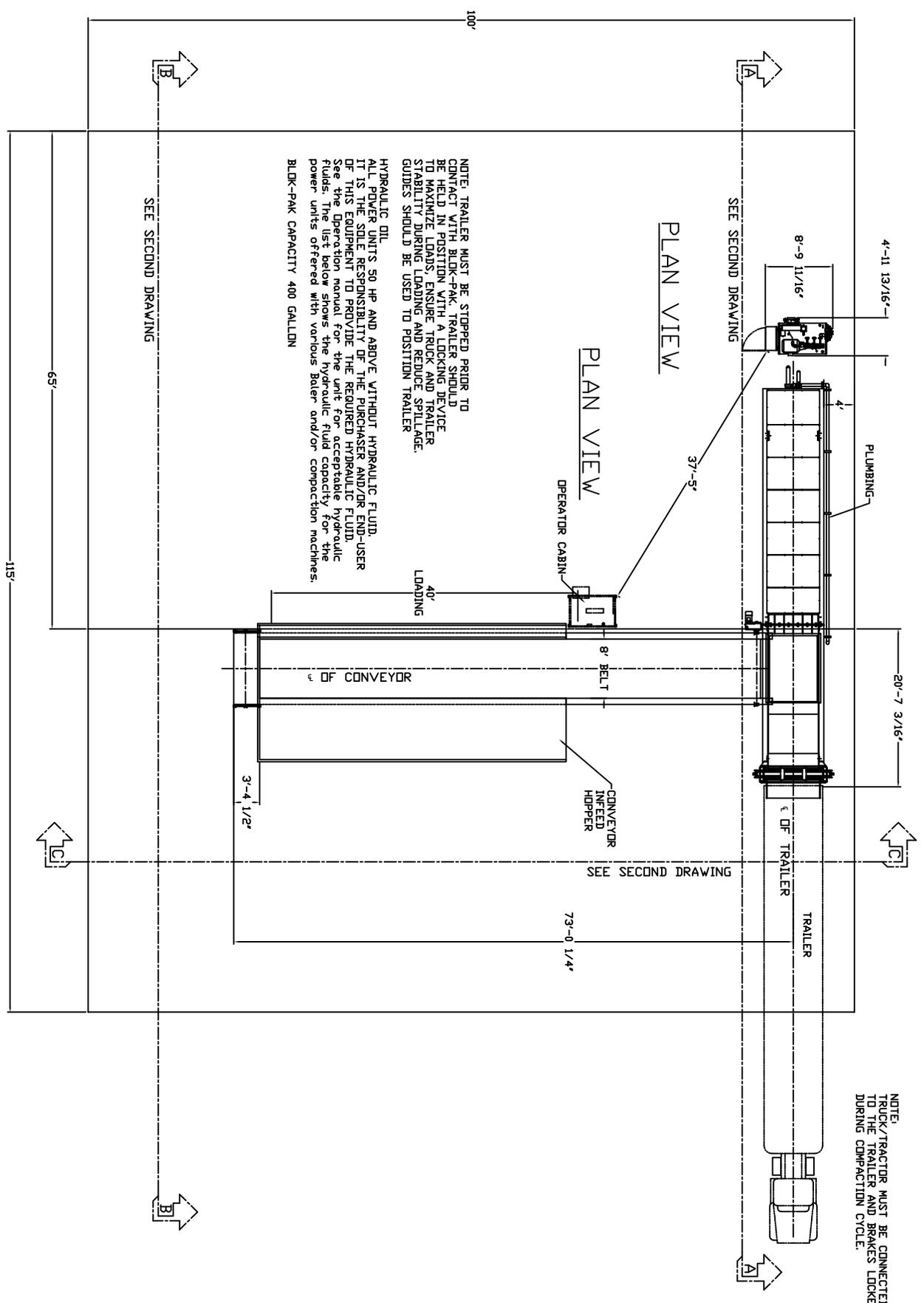
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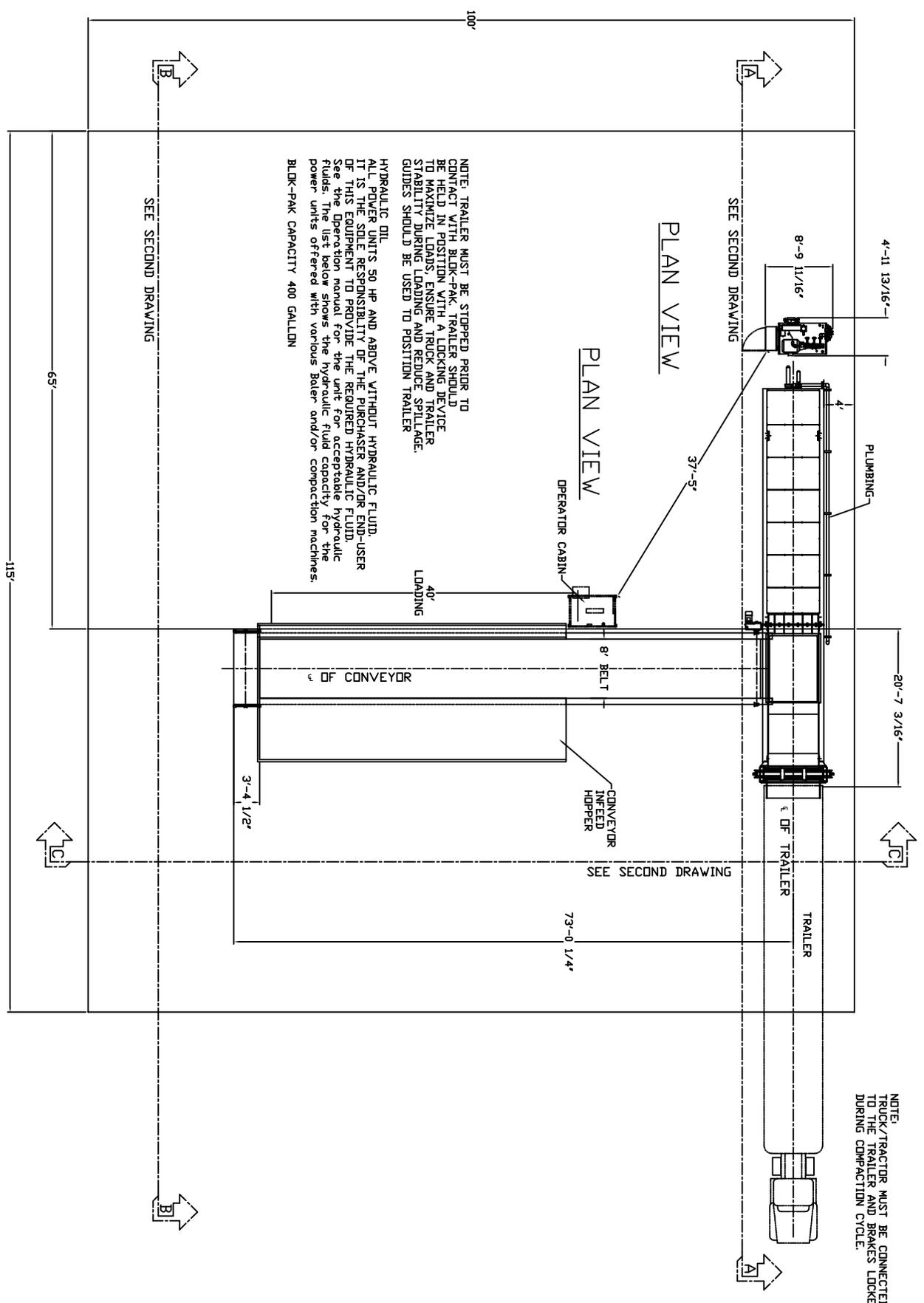
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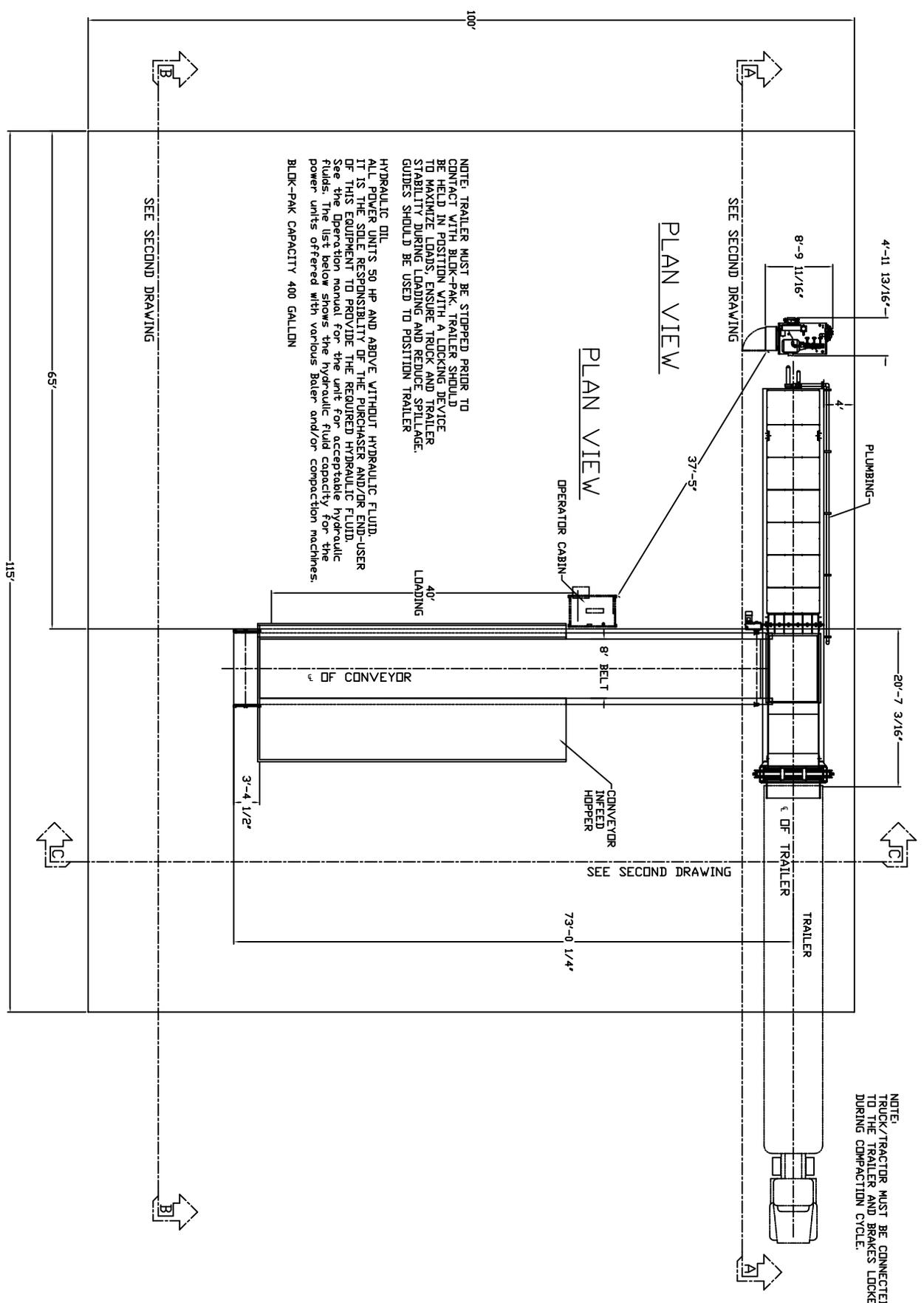
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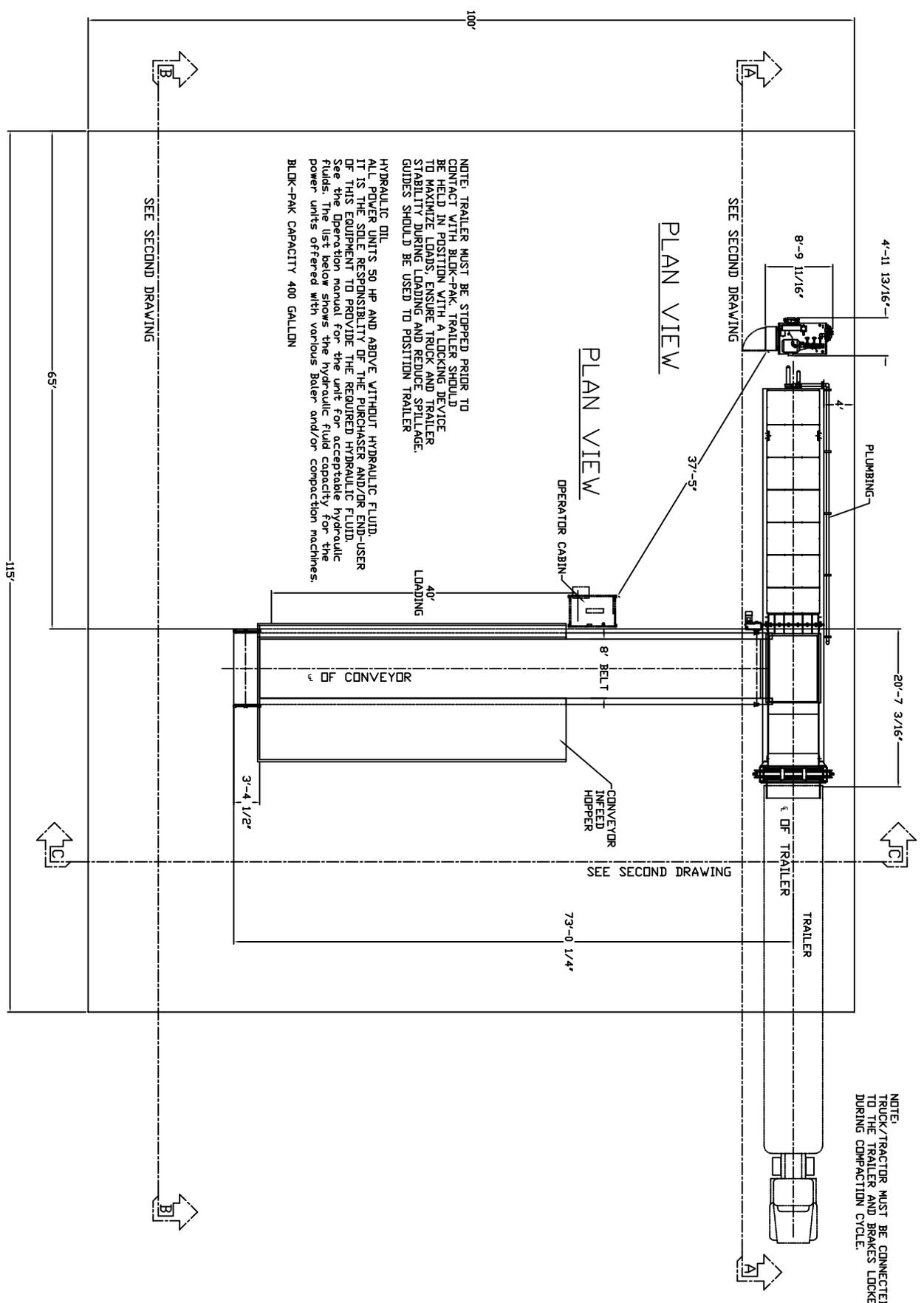
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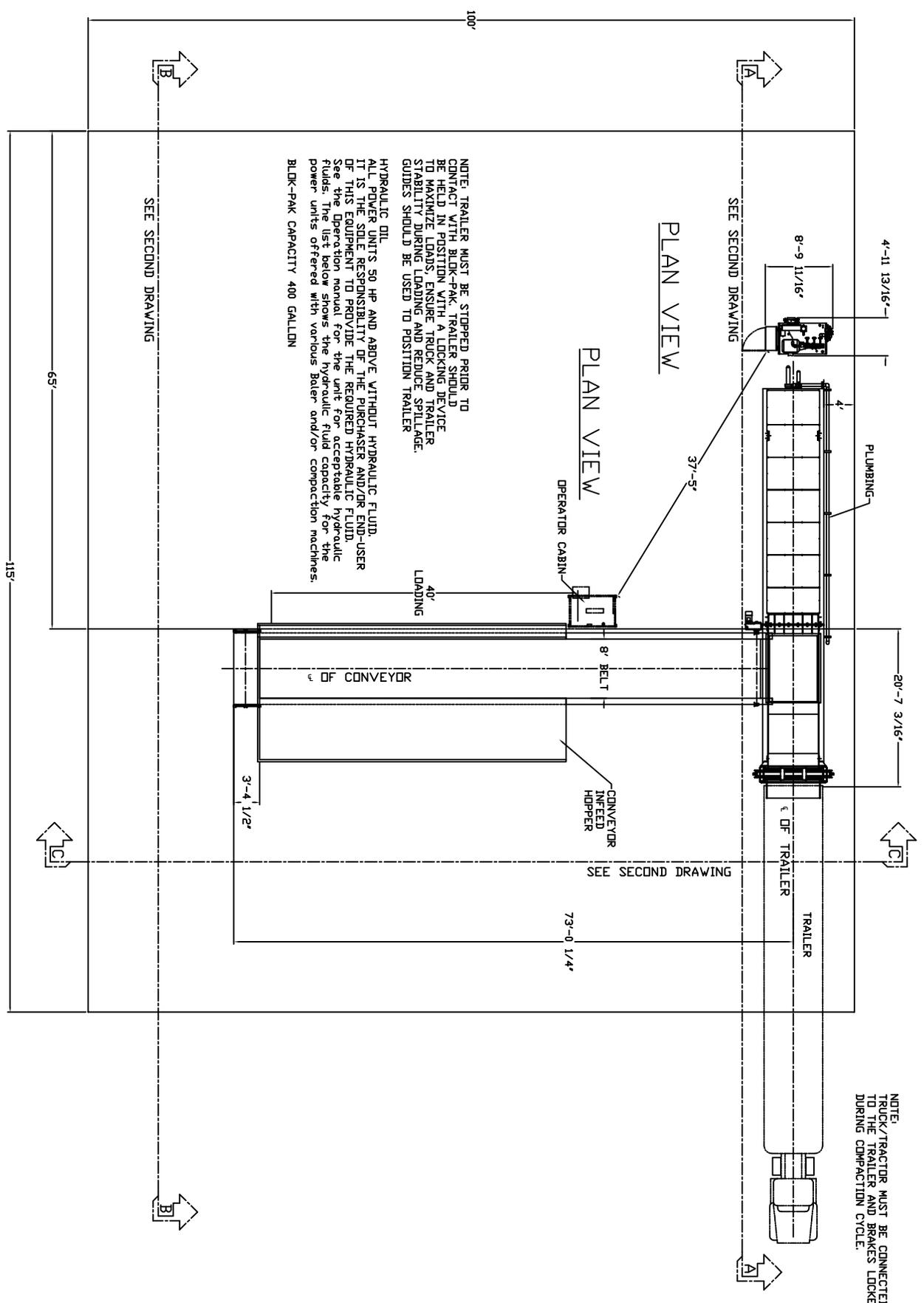
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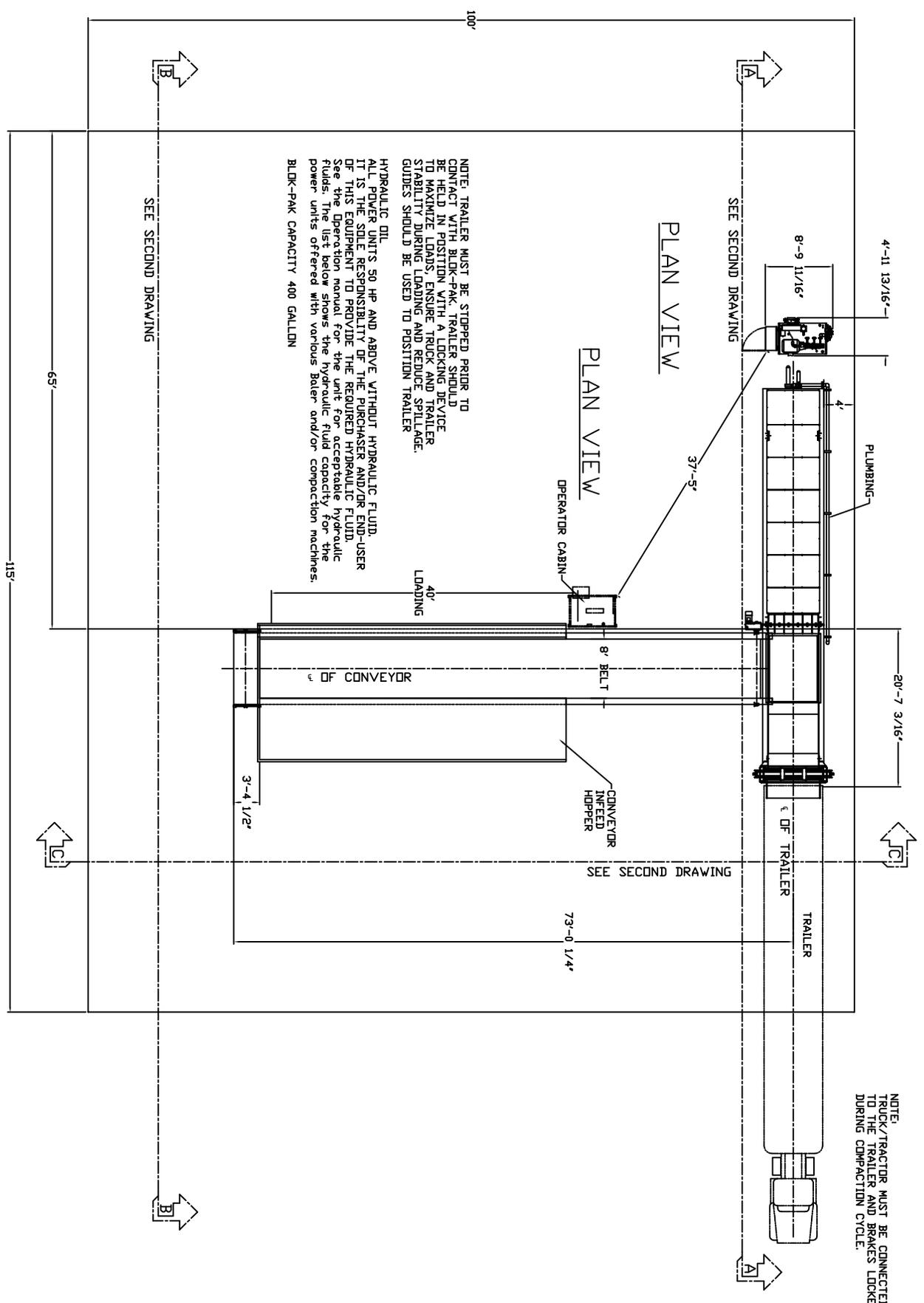
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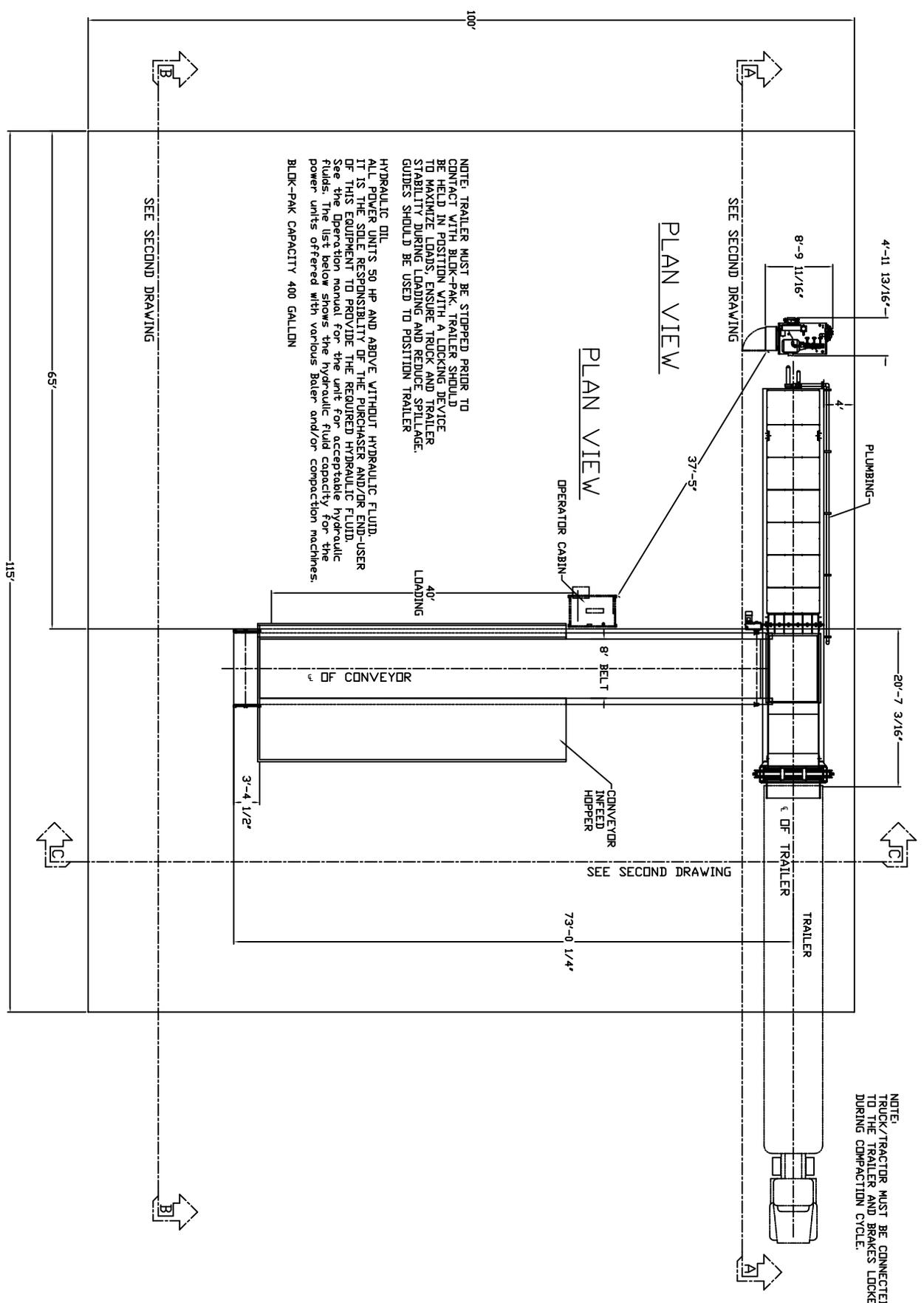
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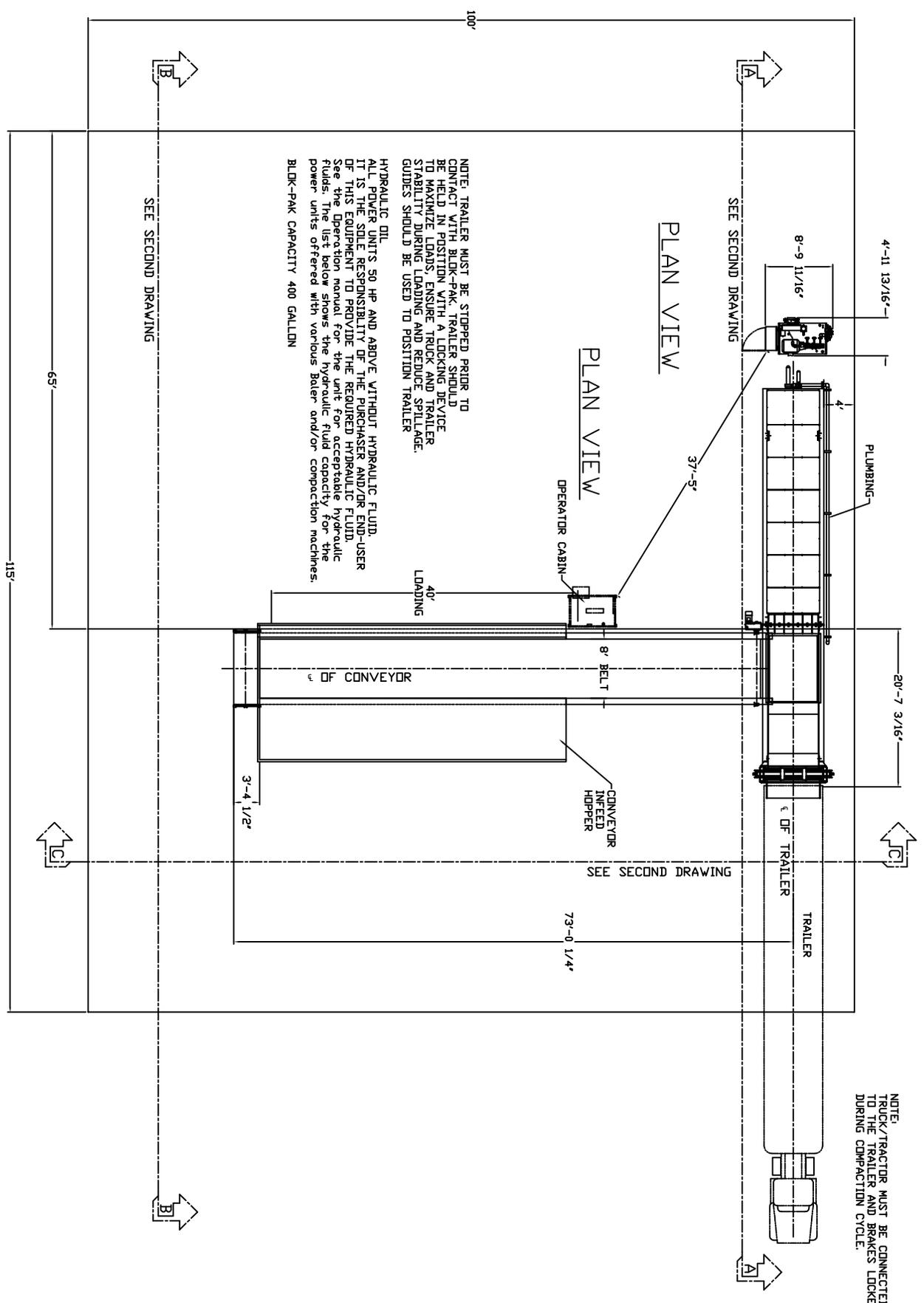
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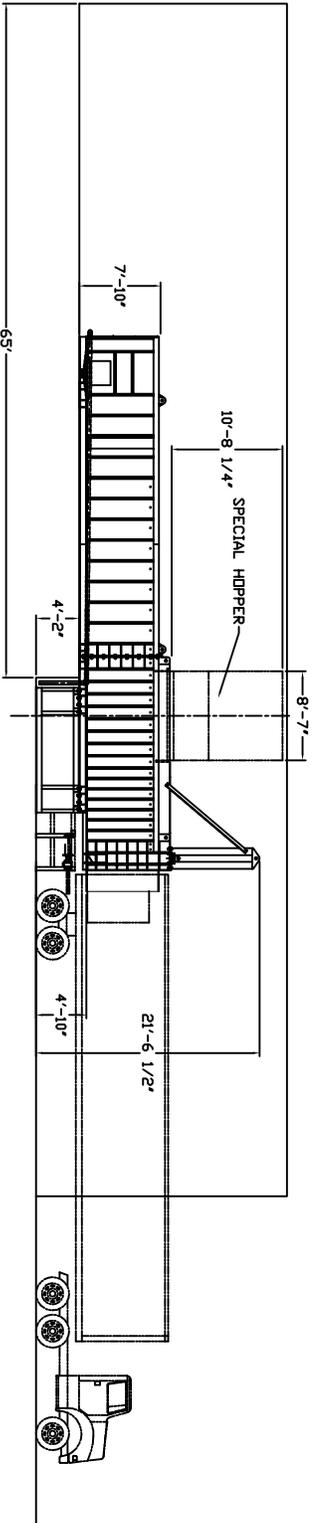


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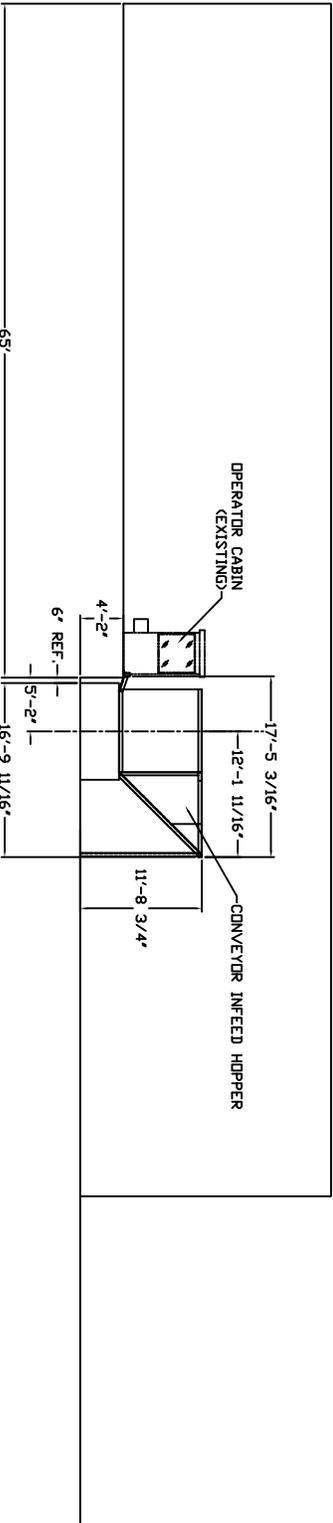
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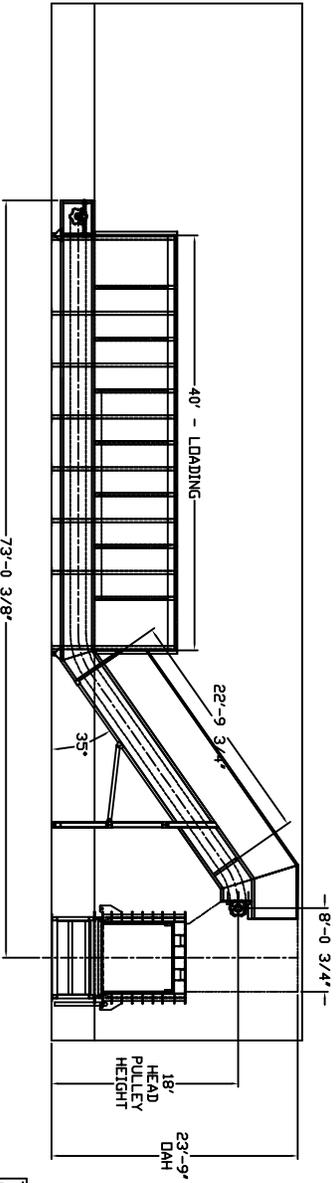
PLAN VIEW



SECTION A-A



SECTION B-B



SECTION C-C

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TITLE:  
BLOK-PAK W/8' WIDE CONVEYOR



VERNON, AL  
PHOENIX, AZ

DR. JW	APP.
CK.	
DATE: 8/5/15	
SCALE: 3/8" = 1'	
TOL:	
DRAWING NO.	
71653A	PAGE 2:2



# QUOTATION

August 20, 2015

**Valid 30 Days**

**MARATHON EQUIPMENT COMPANY**  
**PO Box 1798**  
**Vernon, AL 35592**  
 Office phone: 205-695-9105 or 800-633-8974  
 Fax: 205-695-9150

Regional Sales Manager: **Tom Bailey** / Inside Sales Coordinator: **Lori Williams, 800.633.8974 x 1120**

**Sold To:**  
**Rivanna Solid Waste Auth.**  
**Charlottesville, VA 22903**

**Ship To:**  
**Same**  
**Attn:**  
**Ms. Lynn Klappach**

**Assy. #**

Assy. #	Quantity	Description	Unit Price	Total Price
	1	Marathon Trash Compactor M800 XW	\$64,215.00	\$64,215.00
	1	Compactor Module 83075V	\$36,745.00	\$36,745.00
	1	30 HP Power Unit with Oil Cooler	\$0.00	\$0.00
	1	Hopper on Compactor	\$6,400.00	\$6,400.00
	1	Stand to Trailer Height	\$8,500.00	\$8,500.00
	1	Start-Up Alarm	\$0.00	\$0.00
	1	Tongue and Groove Floor	\$1,200.00	\$1,200.00
	1	Remote Controls on 20' of Sealite	\$144.00	\$144.00
	1	Fullness Pkg. Advance and Full Lighta	\$980.00	\$980.00
	1	Remote Jog Controls on 20; Sealite	\$980.00	\$980.00
	1	Remote Pressure Gauge on 20' Hose	\$550.00	\$550.00
	1	Conveyor Belt	\$319,512.00	\$319,512.00
				\$0.00
				\$0.00
		<b>Sub Total:</b>		\$439,226.00
		<b>Steel Surcharge:</b>	0.00%	\$0.00
		<b>Total List:</b>		\$439,226.00
		<b>Freight:</b>		\$10,180.00
		<b>Total:</b>		\$445,552.00

**Terms are subject to credit approval. This Quote does not include City, State, or Local sales tax.**  
**Thank you for the opportunity to provide you with all your recycling needs...**  
**Installation not included**

*Tom Bailey*

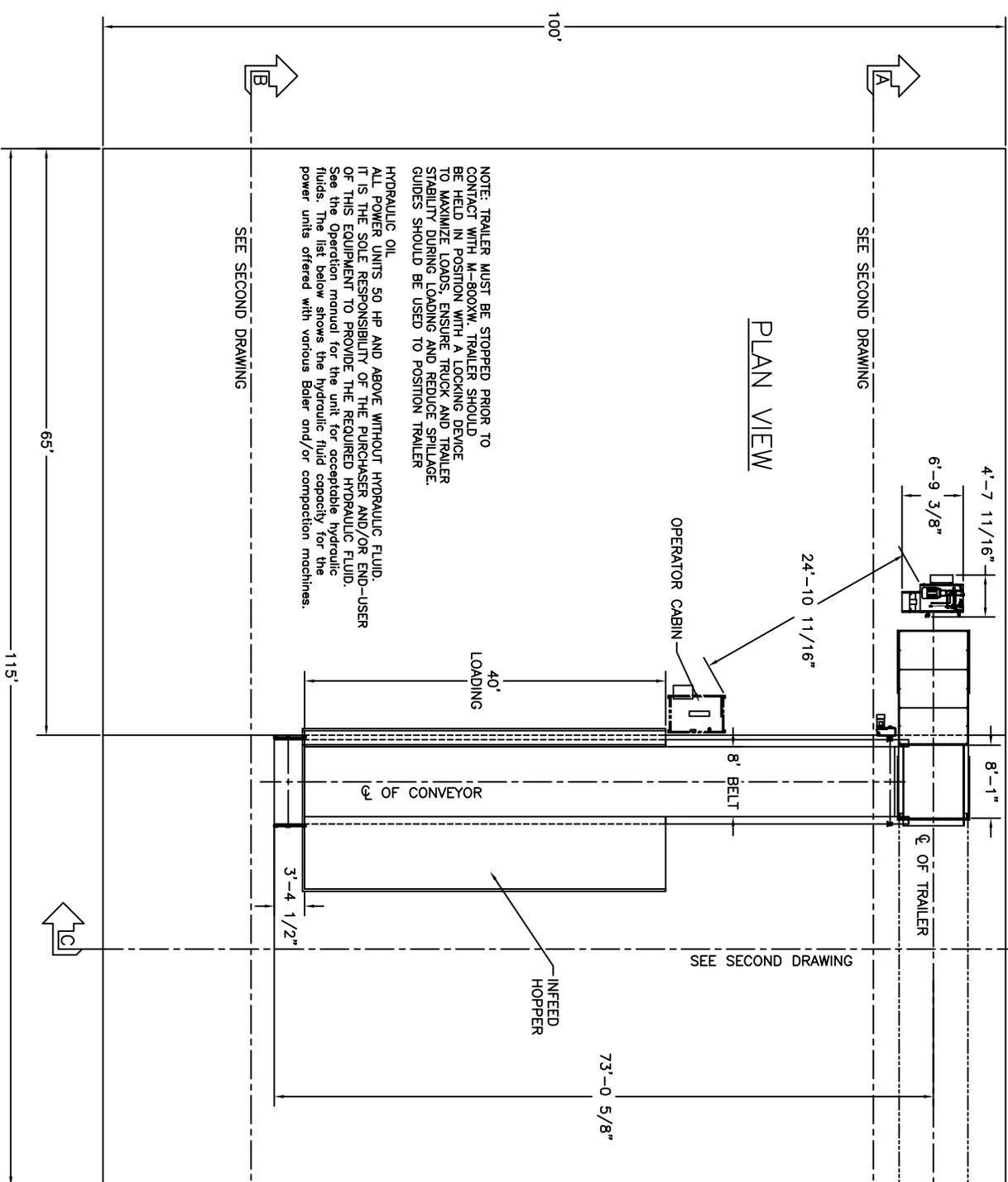
**Regional Sales Manager**  
**Tom Bailey**  
[bailey@marathonequipment.com](mailto:bailey@marathonequipment.com)

**Color:** Will Advise

**Ship With:** \_\_\_\_\_  
**Comments:** Rivanna Transfer  
 With 40' Loading Area  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PO#** \_\_\_\_\_  
**Mark For:** \_\_\_\_\_

NOTE:  
TRUCK/TRACTOR MUST BE CONNECTED  
TO THE TRAILER AND BRAKES LOCKED  
DURING COMPACTION CYCLE.



PLAN VIEW

NOTE: TRAILER MUST BE STOPPED PRIOR TO CONTACT WITH M-BOOM. TRAILER SHOULD BE HELD IN POSITION WITH A LOCKING DEVICE TO MAXIMIZE LOADS. ENSURE TRUCK AND TRAILER STABILITY DURING LOADING AND REDUCE SPILLAGE. GUIDES SHOULD BE USED TO POSITION TRAILER.

HYDRAULIC OIL:  
ALL POWER UNITS 50 HP AND ABOVE WITHOUT HYDRAULIC FLUID. IT IS THE SOLE RESPONSIBILITY OF THE PURCHASER AND/OR END-USER OF THIS EQUIPMENT TO PROVIDE THE REQUIRED HYDRAULIC FLUID. See the Operation manual for the unit for acceptable hydraulic fluids. The list below shows the hydraulic fluid capacity for the power units offered with various Boler and/or compaction machines.

SEE SECOND DRAWING

SEE SECOND DRAWING

100'  
65'  
115'

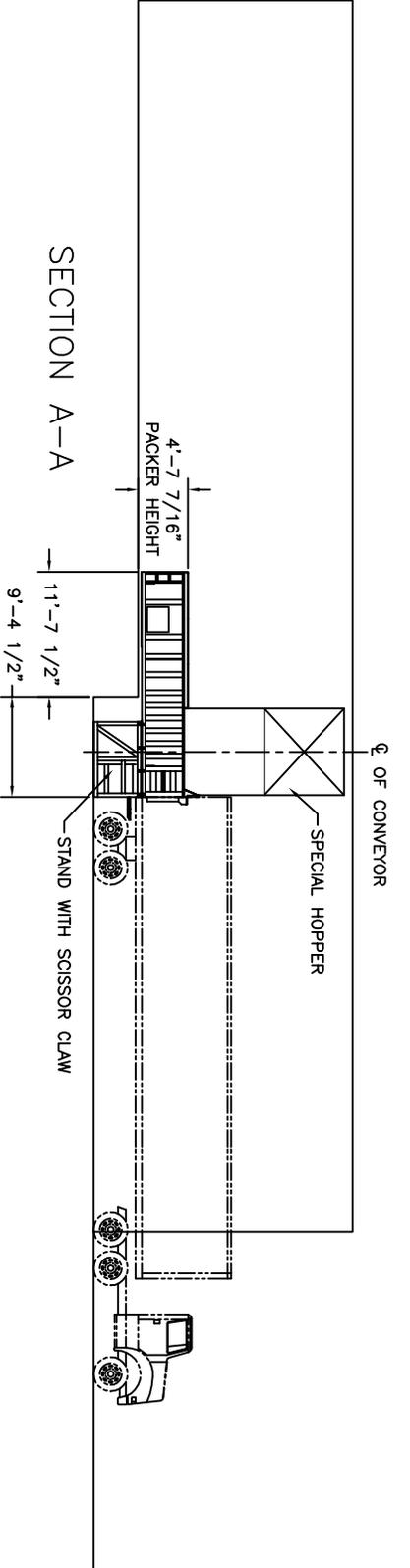
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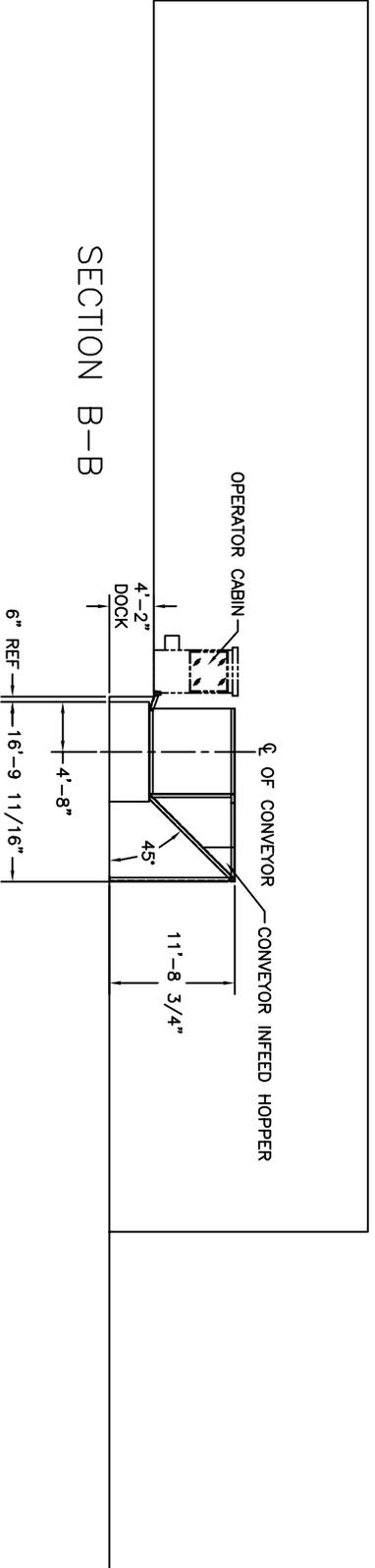
TITLE:  
M-800XW W/8' WIDE CONVEYOR

VERNON, AL  
PHOENIX, AZ

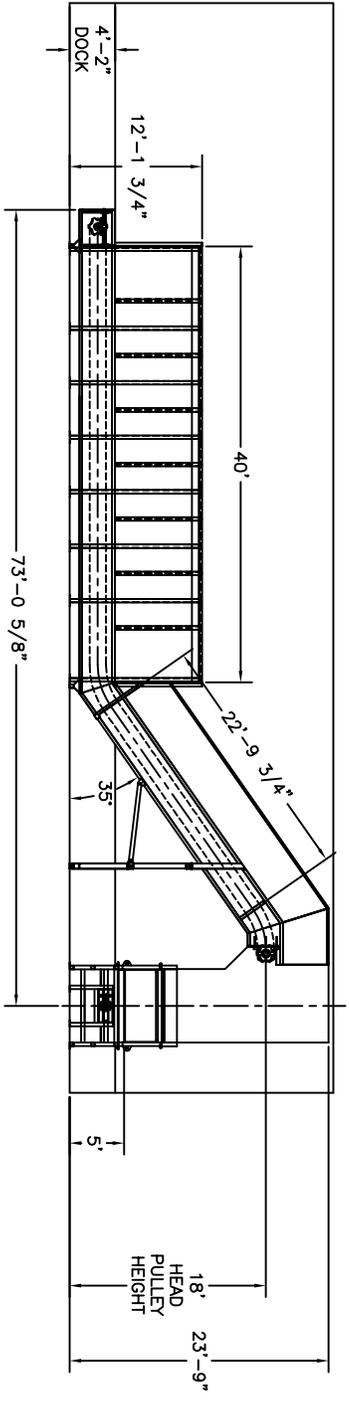
DR. JW	APP.
OK:	
DATE:	
SCALE:	3/8"=1'
TOL:	
DRAWING NO.	
71652	PAGE 1:2



SECTION A-A



SECTION B-B



SECTION C-C

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TITLE:  
M-800XW W/8' WIDE CONVEYOR



DR. JW	APP.
OK:	
DATE:	
SCALE: 3/8"=1'	
TOL:	
DRAWING NO.	
71652A PAGE 2:2	



**506 SOUTH MAIN STREET, BLACKSBURG, VIRGINIA 24060**

August 2, 2015

**IVY TRANSFER STATION – ROOF CANOPY  
ALBEMARLE COUNTY, VIRGINIA**

**ROOF CANOPY SQUARE FOOTAGE: 2,400 S.F.**

**Preliminary Cost Estimate**

General Requirements .....	\$8,000
Demolition (concrete removal) .....	2,500
Concrete Foundation.....	2,400
Pre-engineered Metal Building Structure.....	33,500
Metal Roof Panels.....	19,832
Metal Siding Panels .....	13,120
Electrical (lighting only) .....	10,500
	Subtotal
	\$89,852
	10% Contingency
	8,985
	Total
	\$98,837

- Does Not Include Equipment and Professional Services

• **BLACKSBURG 540/552-7575 • ROANOKE 540/387-3374 • FAX 540/552-6310** •

FORMERLY ROGERS & REYNOLDS ARCHITECTS, INC.

**Draper Aden Associates**  
 Engineering • Surveying • Environmental Services  
 Blacksburg, VA  
 2008 South Main Street  
 Blacksburg, VA 24060  
 540-552-0444 Fax: 540-552-0291  
 www.daa.com

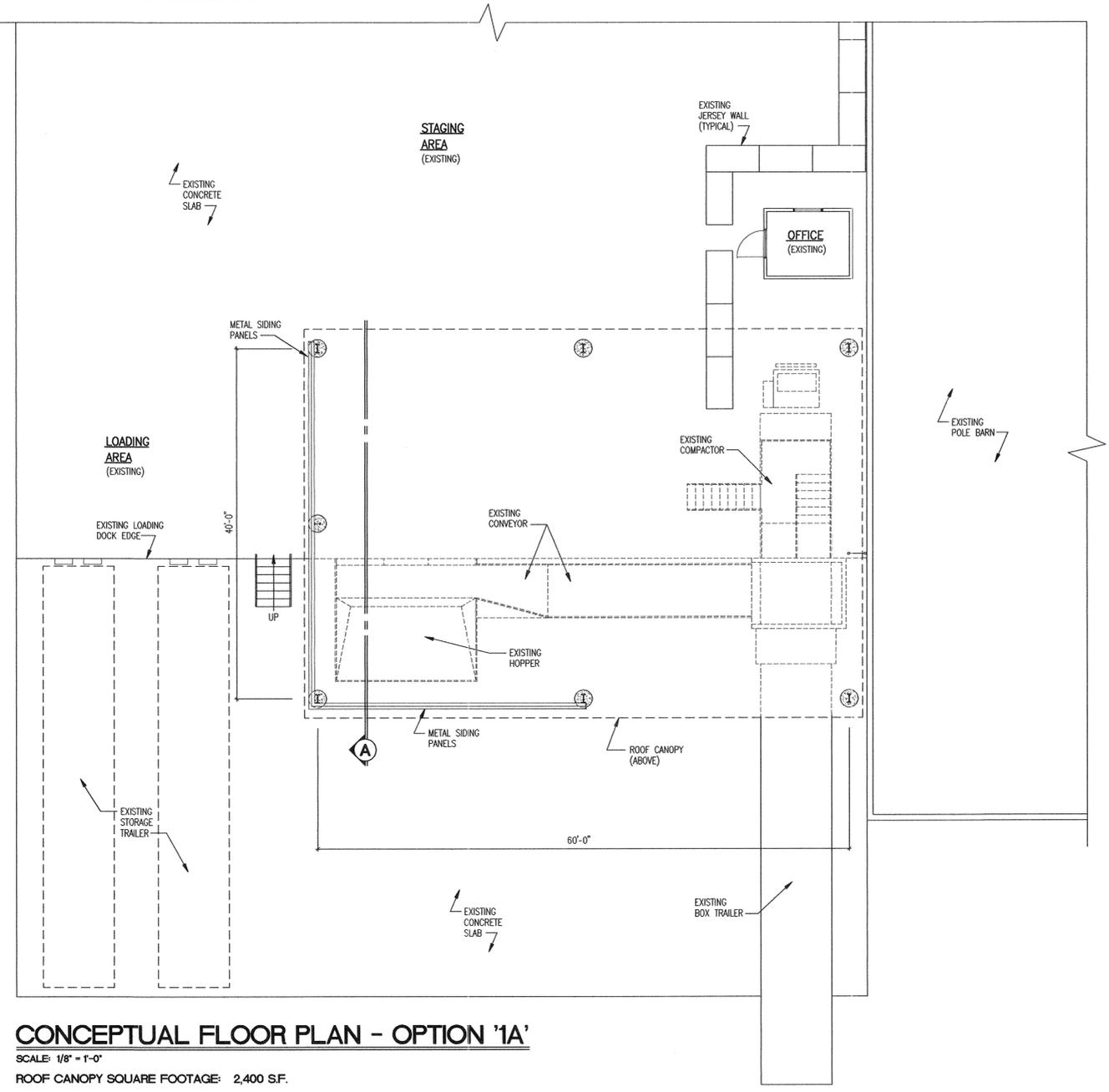


**IVY TRANSFER STATION - ROOF CANOPY -  
 OPTION '1A'**  
 ALBERMARLE COUNTY, VIRGINIA  
**CONCEPTUAL FLOOR PLAN, ELEVATION  
 AND SECTION**

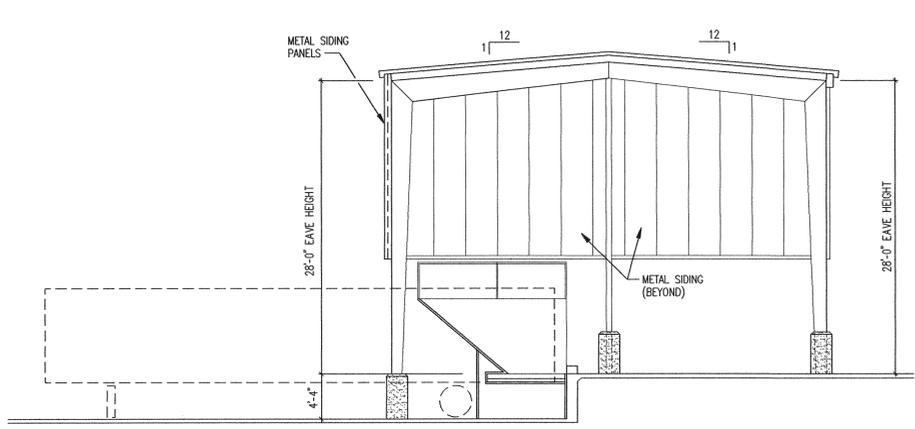
**REYNOLDS  
 ARCHITECTS  
 INCORPORATED**  
 BLACKSBURG, VIRGINIA

DESIGNED	RA	DRAWN	EAN
CHECKED	GPR	APPROVED	
PROJECT	1219		
DATE	8-2-15		

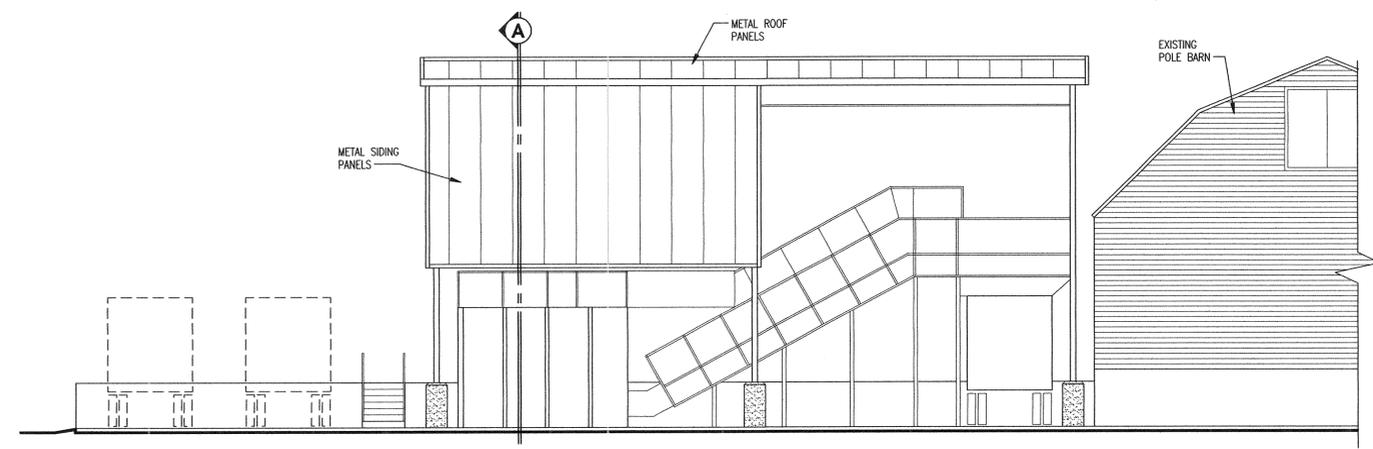
**1A**



**CONCEPTUAL FLOOR PLAN - OPTION '1A'**  
 SCALE: 1/8" = 1'-0"  
 ROOF CANOPY SQUARE FOOTAGE: 2,400 S.F.



**CONCEPTUAL SECTION**  
 SCALE: 1/8" = 1'-0"  
 A



**CONCEPTUAL ELEVATION**  
 SCALE: 1/8" = 1'-0"



**506 SOUTH MAIN STREET, BLACKSBURG, VIRGINIA 24060**

September 17, 2015

**IVY TRANSFER STATION – ROOF CANOPY EXTENSION  
ALBEMARLE COUNTY, VIRGINIA**

**ROOF CANOPY EXTENSION SQUARE FOOTAGE: 8,370 S.F.**

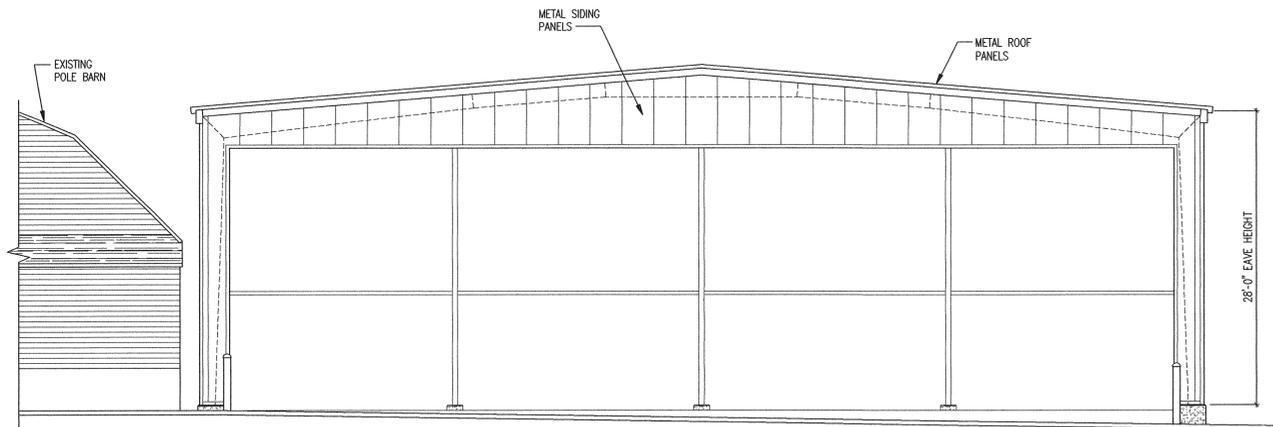
**Preliminary Cost Estimate**

General Requirements .....	\$22,375
Demolition (concrete removal) .....	4,700
Concrete Foundation.....	7,500
Pre-engineered Metal Building Structure.....	99,000
Metal Roof Panels.....	66,458
Metal Siding Panels .....	59,883
Trench Drain and Piping .....	12,200
Electrical (lighting only) .....	29,942
	<hr/>
Subtotal	\$302,058
10% Contingency	30,206
	<hr/>
Total	\$332,264

- Does Not Include Equipment and Professional Services

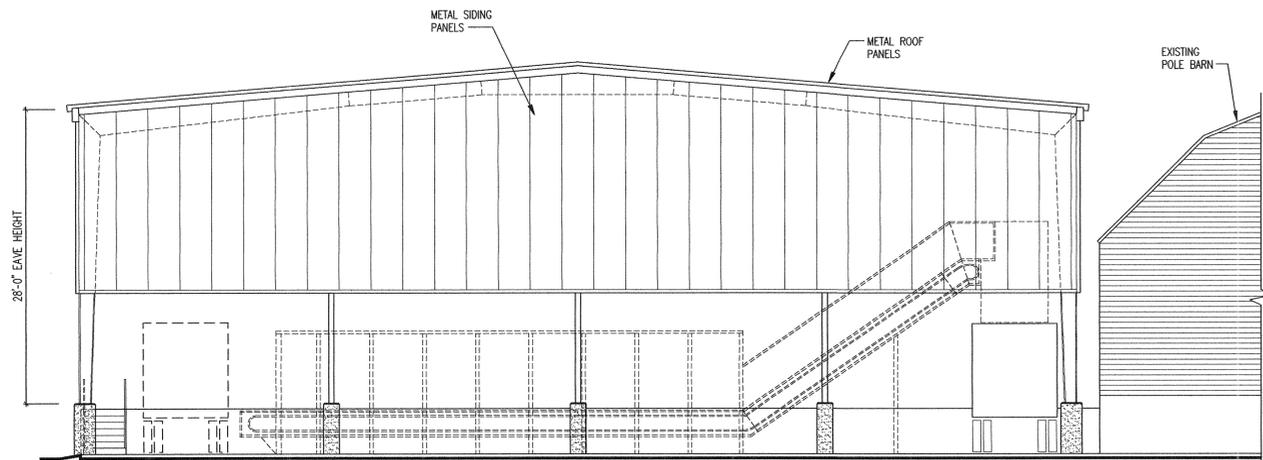
• **BLACKSBURG 540/552-7575 • ROANOKE 540/387-3374 • FAX 540/552-6310** •

FORMERLY ROGERS & REYNOLDS ARCHITECTS, INC.



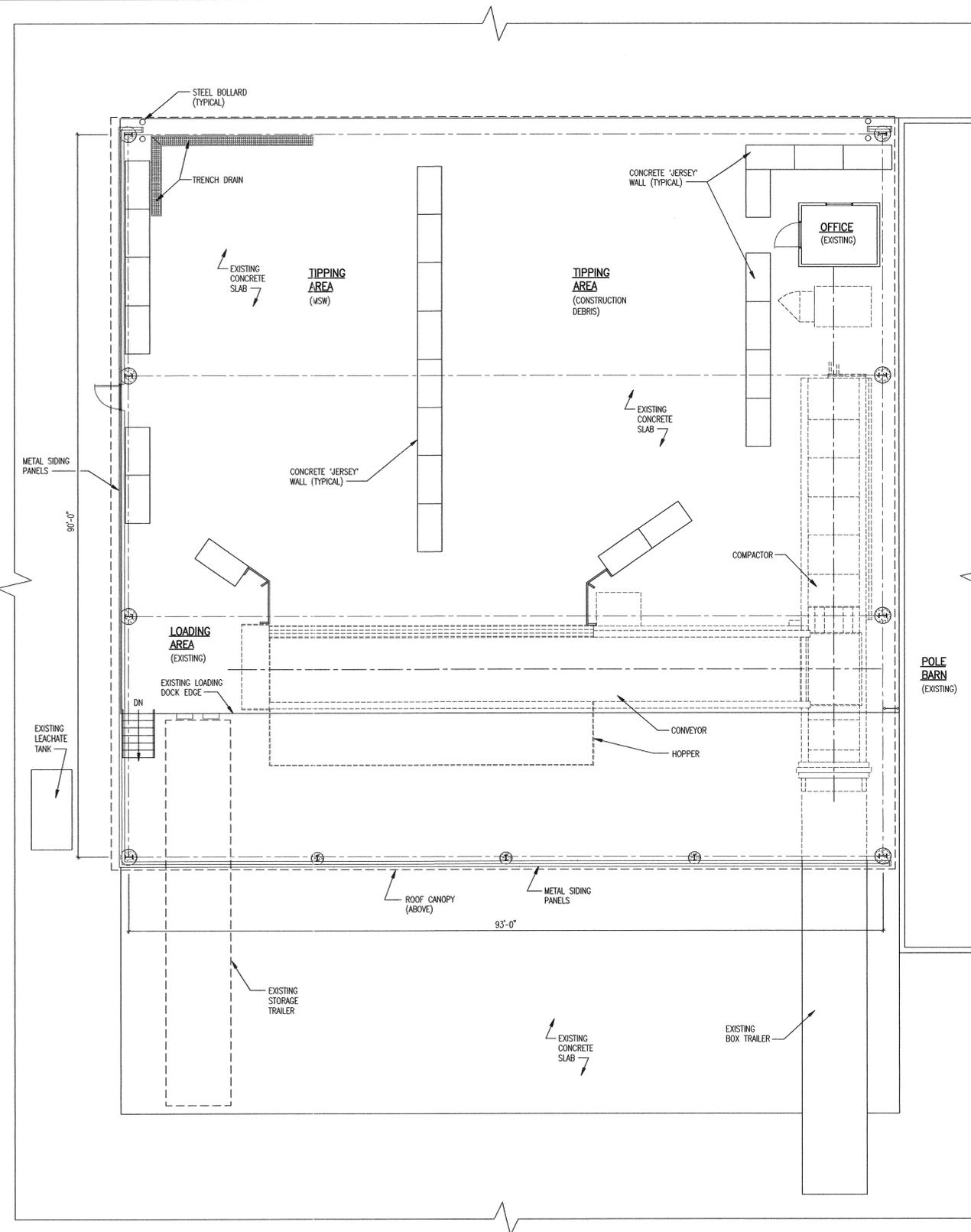
**CONCEPTUAL FRONT ELEVATION**

SCALE: 1/8" = 1'-0"



**CONCEPTUAL REAR ELEVATION**

SCALE: 1/8" = 1'-0"



**CONCEPTUAL FLOOR PLAN - OPTION '1B'**

SCALE: 1/8" = 1'-0"

ROOF CANOPY EXTENSION SQUARE FOOTAGE: 8,370 S.F.

NO.	REVISIONS	DATE

**Draper Aden Associates**  
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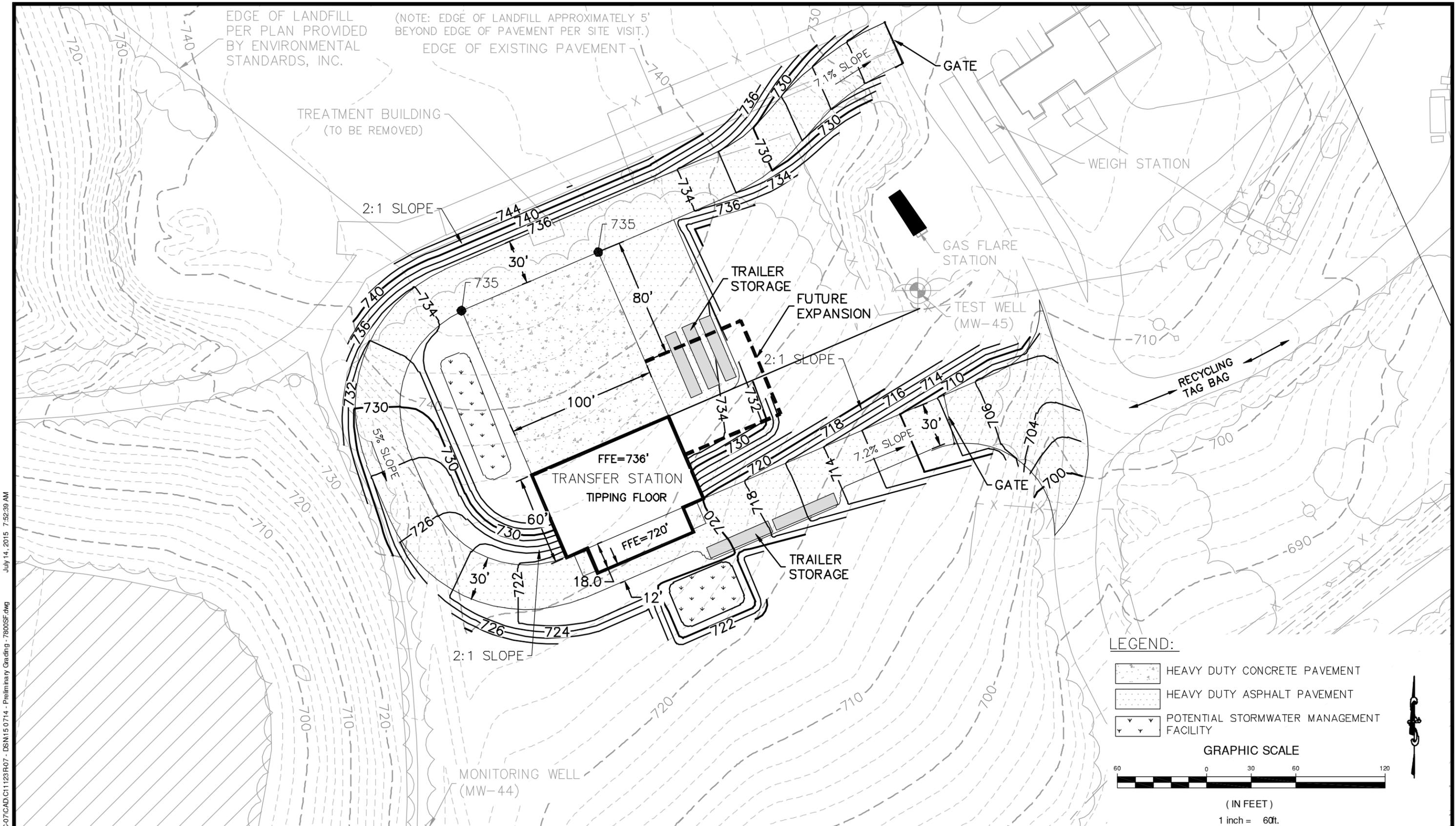
Richmond, VA  
 Charlottesville, VA  
 Blacksburg, VA 24060  
 Hampton Roads, VA  
 Coats, NC  
 540-552-0444 Fax: 540-552-0291  
 www.daa.com

**IVY TRANSFER STATION - ROOF CANOPY -**  
**EXTENSION - OPTION '1B'**  
 ALBERMARLE COUNTY, VIRGINIA

**CONCEPTUAL FLOOR PLAN AND**  
**ELEVATIONS**

**REYNOLDS**  
**ARCHITECTS**  
**INCORPORATED**  
 BLACKSBURG, VIRGINIA

DESIGNED RA	DRAWN EAN
CHECKED GPR	APPROVED
PROJECT 1219	<b>1B</b>
DATE 9-2-15	



July 14, 2015 7:52:39 AM  
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**Draper Aden Associates**  
 Engineering • Surveying • Environmental Services  
 700 Harris Street, Suite E  
 Charlottesville, VA 22903  
 434-295-0700 Fax: 434-295-2105

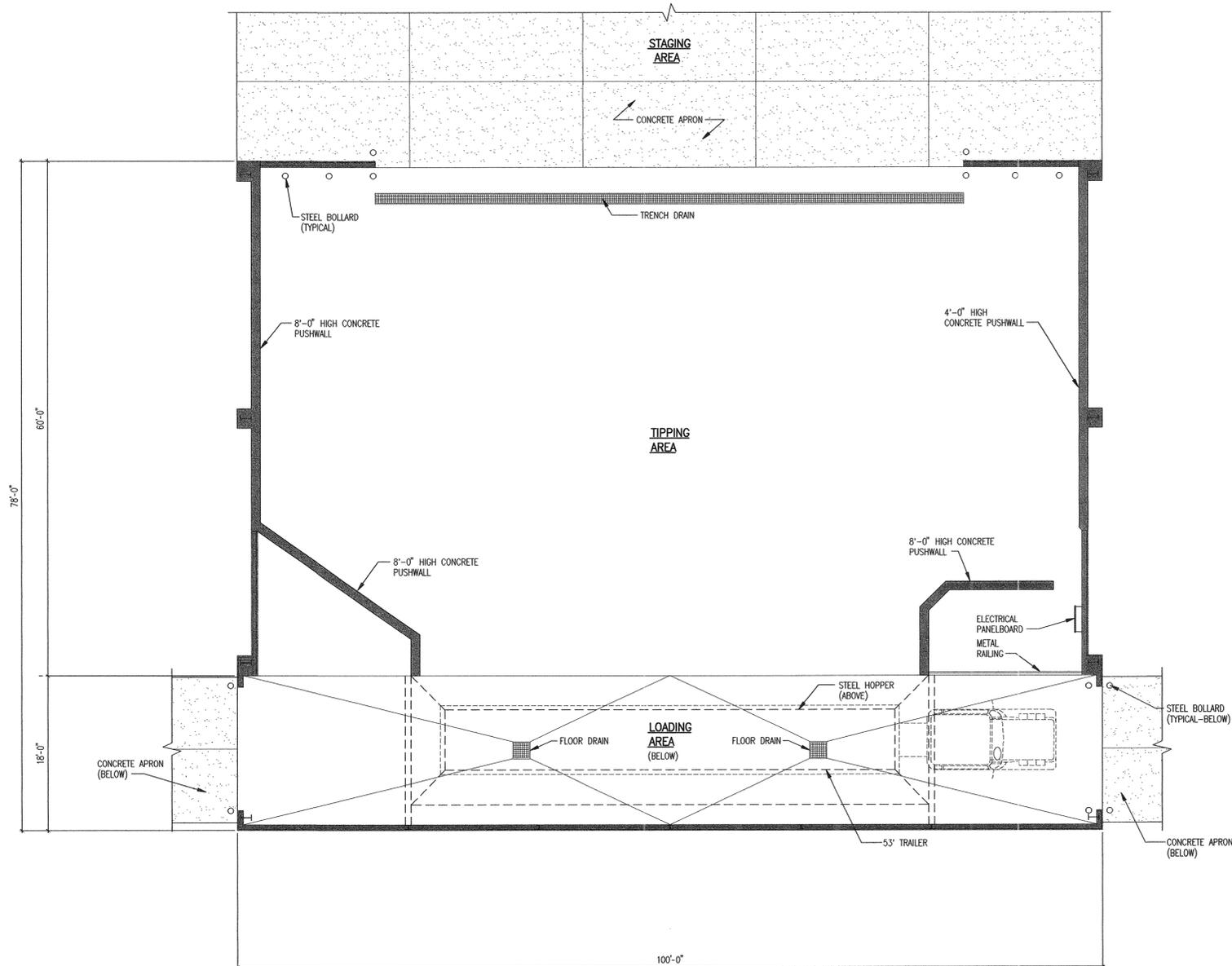
Blacksburg, VA  
 Richmond, VA  
 Hampton Roads, VA

DESIGNED LPK  
 DRAWN AJH  
 CHECKED LPK  
 DATE 07/14/2015

CONCEPT LAYOUT - 7,800 SF  
 IVY LANDFILL TRANSFER STATION  
 CHARLOTTESVILLE, VIRGINIA

SCALE: 1" = 60'  
 PROJECT: C11123C-08C

FIGURE  
 2A



**CONCEPTUAL FLOOR PLAN - OPTION '2A'**

SCALE: 1/8" = 1'-0"

TIPPING AREA: 6,000 S.F.  
 LOADING AREA: 1,800 S.F.  
 TOTAL SQUARE FOOTAGE: 7,800 S.F.

NO.	REVISIONS	DATE

**Draper Aden Associates**  
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Richmond, VA  
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 Hampton Roads, VA  
 Coats, NC

**IVY TRANSFER STATION**  
 ALBERMARLE COUNTY, VIRGINIA

**CONCEPTUAL FLOOR PLAN - OPTION '2A'**

**REYNOLDS ARCHITECTS INCORPORATED**  
 BLACKSBURG, VIRGINIA

DESIGNED: RA	DRAWN: EAN
CHECKED: GPR	APPROVED:
PROJECT: 1219	2A
DATE: 2-26-15	

**Opinion of Probable Cost:**

**Project:** Albemarle Convenient Center - Ivy Transfer Station - 7,800 sf

**Date:** July 9, 2015

**Location:** Albemarle County

**Owner:** County of Albemarle

**Preparer:** DRAPER ADEN ASSOCIATES

Modified based on comments from Albemarle County (Highlighted items)

Item	Quantity	Unit	Unit Price	Item Total	Category Sub-Total
<b>Demolition</b>					
Remove Trees & Grubbing	2.25	acre	\$5,000.00	\$11,250.00	
Demo asphalt	275	SF	\$7.00	\$1,925.00	
Demo building	1	Ea.	\$1,500.00	\$1,500.00	
					<b>\$14,675.00</b>
<b>Earthwork</b>					
Cut and Haul on site	17410	C.Y.	\$8.00	\$139,280.00	
Fill if using cut	1040	C.Y.	\$8.00	\$8,320.00	
Cut if hauled out	0	C.Y.	\$10.00	\$0.00	
Fill If hauled in	0	C.Y.	\$10.00	\$0.00	
					<b>\$147,600.00</b>
<b>Erosion and Sedimentation Control</b>					
Construction Entrance	1	Ea.	\$2,000.00	\$2,000.00	
Silt Fence	400	L.F.	\$3.50	\$1,400.00	
Seeding/Mulching/Topsoil	0.98	AC.	\$5,000.00	\$4,900.00	
Dust Control	2.25	AC.	\$1,000.00	\$2,250.00	
Blanket Matting	3100	SY	\$2.00	\$6,200.00	
					<b>\$16,750.00</b>
<b>Hardscape Construction</b>					
Heavy Duty Asphalt Pavement					
Supply, Place and Compact 8" VDOT 21B	1745	Tons	\$25.00	\$43,617.17	
Supply and Place 4" VDOT BM-25 Asphalt	1007	Tons	\$135.00	\$135,884.25	
Supply and Place 2.5" VDOT SM-9.5A Asphalt	629	Tons	\$135.00	\$84,927.66	
Heavy Duty Concrete Pavement					
Supply, Place and Compact 8" VDOT 21B	390	Tons	\$25.00	\$9,750.00	
Supply and Place 8" Hydraulic Cement Concrete	1333	SY	\$100.00	\$133,333.33	
					<b>\$407,512.41</b>
<b>Site Items</b>					
Security Gate	2	L.S.	\$4,000.00	\$8,000.00	
Pavement marking	1	L.S.	\$2,000.00	\$2,000.00	
					<b>\$10,000.00</b>
<b>Utility Construction</b>					
4" Sanitary Sewer					
Sanitary Sewer Manhole	1	Ea.	\$4,000.00	\$4,000.00	
Sanitary Sewer Clean Out	1	Ea.	\$500.00	\$500.00	
2" Waterline					
	385	L.F.	\$30.00	\$11,550.00	
Conduit					
	360	L.F.	\$5.00	\$1,800.00	
Lights	3	Ea.	\$1,500.00	\$4,500.00	
Light pole foundations	2	Ea.	\$750.00	\$1,500.00	
					<b>\$39,050.00</b>

Stormwater Management					
Stormwater Management Facility	1	LS	\$40,000.00	\$40,000.00	
					<b>\$40,000.00</b>
Landscaping					
					<b>\$0.00</b>
Miscellaneous					
Mobilization & Stakeout	1	L.S.	\$25,000.00	\$25,000.00	
					<b>\$25,000.00</b>
SUBTOTAL FOR ALL PROPOSED CONSTRUCTION				<b>\$700,587.41</b>	
15% CONTINGENCY				<b>\$105,088.11</b>	
TOTAL OPINION OF PROBABLE COST				<b>\$805,675.52</b>	



506 SOUTH MAIN STREET, BLACKSBURG, VIRGINIA 24060

February 24, 2015

Ivy Transfer Station  
Albemarle County, Virginia

**PRELIMINARY COST ESTIMATE FOR 7,800 S.F. TRANSFER STATION**

General Requirements.....	\$ 61,267
Concrete / Reinforcing Steel .....	329,870
Miscellaneous Steel / Hopper.....	94,723
Pre-Engineered Metal Building.....	149,635
Plumbing .....	15,015
Ventilation.....	4,805
Electrical .....	18,619
	<hr/>
Subtotal	\$673,934
15% Contingency	101,090
Total	<hr/> \$775,024

(Does not include sitework or equipment)

EDGE OF LANDFILL PER PLAN PROVIDED BY ENVIRONMENTAL STANDARDS, INC.

(NOTE: EDGE OF LANDFILL APPROXIMATELY 5' BEYOND EDGE OF PAVEMENT PER SITE VISIT.)  
EDGE OF EXISTING PAVEMENT

TREATMENT BUILDING (TO BE REMOVED)

GATE

WEIGH STATION

GAS FLARE STATION

TEST WELL (MW-45)

TRAILER STORAGE

RECYCLING TAG BAG

TRANSFER STATION  
FFE=736'

TRAILER STORAGE

MONITORING WELL (MW-44)

LEGEND:

-  HEAVY DUTY CONCRETE PAVEMENT
-  HEAVY DUTY ASPHALT PAVEMENT
-  POTENTIAL STORMWATER MANAGEMENT FACILITY

GRAPHIC SCALE



(IN FEET)

1 inch = 60ft.



**Draper Aden Associates**  
Engineering • Surveying • Environmental Services  
700 Harris Street, Suite E  
Charlottesville, VA 22903  
434-295-0700 Fax: 434-295-2105

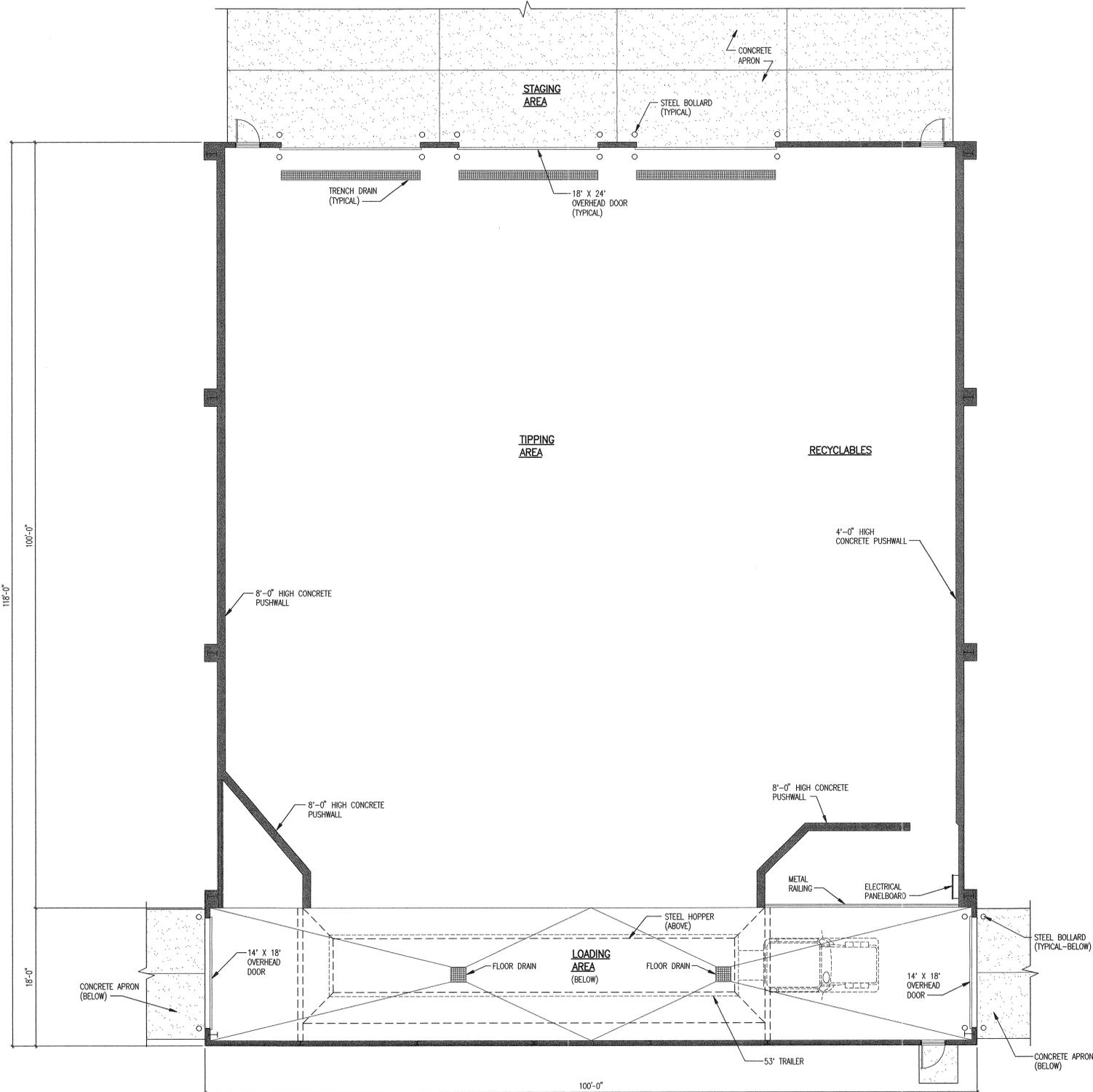
DESIGNED LPK  
DRAWN AJH  
CHECKED LPK  
DATE 07/08/2015

REVISED CONCEPT LAYOUT - REDUCED SIZE  
IVY LANDFILL TRANSFER STATION  
CHARLOTTESVILLE, VIRGINIA

SCALE: 1" = 60'  
PROJECT: C11123C-08C

FIGURE  
2B

P:\C11123C\CAD\C11123C-07\CAD\C11123R07 - DSN\15 0707 - Preliminary Grading - Transfer Station Only.dwg July 9, 2015 10:18:27 AM



**CONCEPTUAL FLOOR PLAN - OPTION '2B'**

SCALE: 1/8" = 1'-0"

TIPPING AREA: 10,000 SF.  
 LOADING AREA: 1,800 SF.  
 TOTAL SQUARE FOOTAGE: 11,800 SF.

NO.	REVISIONS	DATE

**Draper Aden Associates**  
 Engineering • Surveying • Environmental Services



Blacksburg, VA  
 2208 South Main Street  
 Blacksburg, VA 24060  
 540-552-0444 Fax: 540-552-0291  
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**IVY TRANSFER STATION**  
 ALBERMARLE COUNTY, VIRGINIA

**CONCEPTUAL FLOOR PLAN - OPTION '2B'**

**REYNOLDS ARCHITECTS INCORPORATED**  
 BLACKSBURG, VIRGINIA

DESIGNED	RA	DRAWN	EAN
CHECKED	GPR	APPROVED	
PROJECT	1219		
DATE	9-2-15		

**2B**

**Opinion of Probable Cost:**

**Project:** Albemarle Convenient Center - Ivy Transfer Station - 10,000 sf

**Date:** July 9, 2015

**Location:** Albemarle County

**Owner:** County of Albemarle

**Preparer:** DRAPER ADEN ASSOCIATES

Modified based on comments from Albemarle County (Highlighted items)

Item	Quantity	Unit	Unit Price	Item Total	Category Sub-Total
<b>Demolition</b>					
Remove Trees & Grubbing	2.25	acre	\$5,000.00	\$11,250.00	
Demo asphalt	275	SF	\$7.00	\$1,925.00	
Demo building	1	Ea.	\$1,500.00	\$1,500.00	
					<b>\$14,675.00</b>
<b>Earthwork</b>					
Cut and Haul on site	17410	C.Y.	\$8.00	\$139,280.00	
Fill if using cut	1040	C.Y.	\$8.00	\$8,320.00	
Cut if hauled out	0	C.Y.	\$10.00	\$0.00	
Fill If hauled in	0	C.Y.	\$10.00	\$0.00	
					<b>\$147,600.00</b>
<b>Erosion and Sedimentation Control</b>					
Construction Entrance	1	Ea.	\$2,000.00	\$2,000.00	
Silt Fence	400	L.F.	\$3.50	\$1,400.00	
Seeding/Mulching/Topsoil	0.98	AC.	\$5,000.00	\$4,900.00	
Dust Control	2.25	AC.	\$1,000.00	\$2,250.00	
Blanket Matting	3100	SY	\$2.00	\$6,200.00	
					<b>\$16,750.00</b>
<b>Hardscape Construction</b>					
Heavy Duty Asphalt Pavement					
Supply, Place and Compact 8" VDOT 21B	1745	Tons	\$25.00	\$43,617.17	
Supply and Place 4" VDOT BM-25 Asphalt	1007	Tons	\$135.00	\$135,884.25	
Supply and Place 2.5" VDOT SM-9.5A Asphalt	629	Tons	\$135.00	\$84,927.66	
Heavy Duty Concrete Pavement					
Supply, Place and Compact 8" VDOT 21B	260	Tons	\$25.00	\$6,500.00	
Supply and Place 8" Hydraulic Cement Concrete	889	SY	\$100.00	\$88,888.89	
					<b>\$359,817.96</b>
<b>Site Items</b>					
Security Gate	2	L.S.	\$4,000.00	\$8,000.00	
Pavement marking	1	L.S.	\$2,000.00	\$2,000.00	
					<b>\$10,000.00</b>
<b>Utility Construction</b>					
4" Sanitary Sewer					
Sanitary Sewer Manhole	1	Ea.	\$4,000.00	\$4,000.00	
Sanitary Sewer Clean Out	1	Ea.	\$500.00	\$500.00	
2" Waterline					
Conduit	360	L.F.	\$5.00	\$1,800.00	
Lights	3	Ea.	\$1,500.00	\$4,500.00	
Light pole foundations	2	Ea.	\$750.00	\$1,500.00	
					<b>\$39,050.00</b>

Stormwater Management					
Stormwater Management Facility	1	LS	\$40,000.00	\$40,000.00	
					<b>\$40,000.00</b>
Landscaping					
					<b>\$0.00</b>
Miscellaneous					
Mobilization & Stakeout	1	L.S.	\$25,000.00	\$25,000.00	
					<b>\$25,000.00</b>
SUBTOTAL FOR ALL PROPOSED CONSTRUCTION					<b>\$652,892.96</b>
15% CONTINGENCY					<b>\$97,933.94</b>
TOTAL OPINION OF PROBABLE COST					<b>\$750,826.91</b>



506 SOUTH MAIN STREET, BLACKSBURG, VIRGINIA 24060

September 17, 2015

Ivy Transfer Station  
Albemarle County, Virginia

**PRELIMINARY COST ESTIMATE FOR 11,800 S.F. TRANSFER STATION**

General Requirements.....	\$	75,263
Concrete / Reinforcing Steel .....		499,000
Trench Drain / Piping .....		27,200
Miscellaneous Steel / Hopper.....		94,723
Exterior Doors.....		3,500
Overhead Doors and Operators .....		36,225
Pre-Engineered Metal Building.....		226,324
Plumbing .....		22,420
Ventilation .....		6,440
Electrical .....		24,950
	Subtotal	<u>\$1,016,045</u>
	15% Contingency	152,407
	Total	<u>\$1,168,452</u>

(Does not include sitework or equipment)

• BLACKSBURG 540/552-7575 • ROANOKE 540/387-3374 • FAX 540/552-6310 •

FORMERLY ROGERS & REYNOLDS ARCHITECTS, INC.