

AGENDA

Zoning Board of Appeals

April 08, 2015 – 6:00 p.m.

Evans Community Complex – 1100 37th Street

Zoning Board of Appeals packets are prepared several days prior to the meetings. This information is reviewed and studied by the Board, eliminating lengthy discussions to gain basic understanding. Timely action and/or short discussion on agenda items do not reflect lack of thought or analysis. An informational packet is available for public inspection and is posted on the bulletin board adjacent to the Council Chambers as soon as it is available. It can be accessed Monday through Friday 8:00 a.m. to 5:00 p.m. excluding holidays. You may also subscribe to receive notices of meetings and agendas at www.evanscolorado.gov

1) CALL TO ORDER

2) ROLL CALL:

Chairman: Marty Schanwolf
Vice-Chairman: Steve Bernardo
Board Members: John Clark
Michael Buck

3) APPROVAL OF MINUTES

a. Minutes of December 14, 2014 Meeting

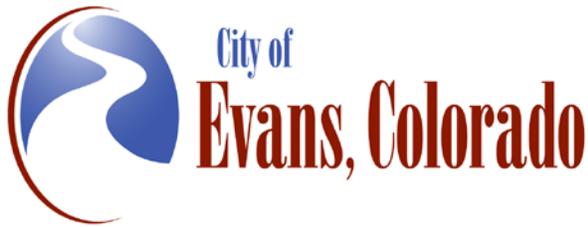
4) APPROVAL OF THE AGENDA

5) AGENDA ITEMS:

ARB Rail Terminal Variance Requests (File #15-VAR-01): Review of a Variance Request submitted by ARB Rail Terminal to exceed the maximum height allowance of 40-feet in the I-2 Industrial Zone for three different structural uses, at a site located at 7300 47th Avenue. Requested variance includes additional height allowances from 50-feet to 179-feet. Recommendation to City Council.

6) OPEN DISCUSSION

7) ADJOURNMENT



AGENDA

Zoning Board of Appeals
December 10, 2014 – 6:00 p.m.
Evans Community Complex – 1100 37th Street

Zoning Board of Appeals packets are prepared several days prior to the meetings. This information is reviewed and studied by the Board, eliminating lengthy discussions to gain basic understanding. Timely action and/or short discussion on agenda items do not reflect lack of thought or analysis. An informational packet is available for public inspection and is posted on the bulletin board adjacent to the Council Chambers as soon as it is available. It can be accessed Monday through Friday 8:00 a.m. to 5:00 p.m. excluding holidays. You may also subscribe to receive notices of meetings and agendas at www.evanscolorado.gov

1) CALL TO ORDER

Meeting was called to order at 6:18 p.m. by Chairman Schanwolf on 12/10/14.

2) ROLL CALL:

Chairman: Marty Schanwolf - Present
Vice-Chairman: Steve Bernardo – Present
Board Members: John Clark - Present
Michael Buck - Present

3) APPROVAL OF MINUTES

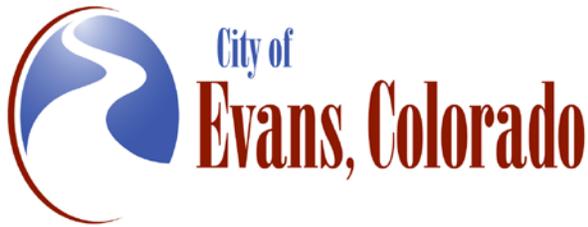
- a. Minutes of October 10, 2013 Meeting
Board Member Buck made the motion, seconded by Board Member Bernardo, to approve the minutes of October 10, 2013. The motion passed with all voting in favor thereof.
- b. Minutes of September 4, 2014 Meeting
Board Member Clark made the motion, seconded by Board Member Buck, to approve the minutes of September 4, 2014. The motion passed with all voting in favor thereof.

4) APPROVAL OF THE AGENDA

Board Member Buck made the motion, seconded by Board Member Clark, to approve the agenda for December 10, 2014. The motion passed with all voting in favor thereof.

5) AGENDA ITEMS:

Review of Upcoming Changes to the City of Evans Adopted Building Codes.
Recommendation to City Council.



PROJECT DESCRIPTION:

Throughout the application of the building code in day to day activities of the Evans building department, certain interpretations are subject to being made in order to address specific situations. This will be a review of formal administrative policy statements that have been made from the adoption of the 2012 building codes, with a recommendation for formal adoption made to the City Council.

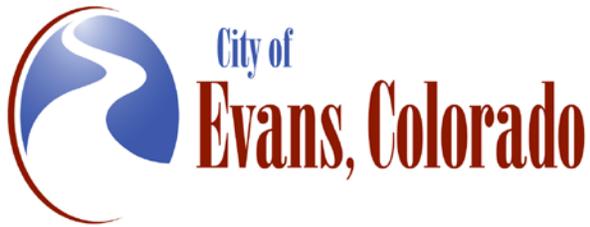
- Emergency HVAC and Plumbing repairs (typically conducted over a weekend or holiday) will not be required to have a building permit secured prior to the work being completed.
 - o Stipulated that a building permit must be pulled on the next business day by the contractor and an inspection scheduled.
- Coiling Doors in an "A-Assembly" occupancy.
 - o The placement of a coiling door for the internal entrance to the library will be allowed as stated on the notes during the initial plan review. Although the library is grouped as an A-3 occupancy, the intent of Section 1008.1.4.4 of the 2012 IBC can still be met as there exist three (3) point of egress from the A-3 area of the library. As noted in the above referenced section, the coiling door shall be openable from the inside without the use of a key or special knowledge or effort during periods when the space is occupied. The door shall also remain open during all hours of occupancy outside hours of operation.
- Use of waterless urinals in the City of Evans
 - o With no specific definition or guidance for use of waterless urinals in Evans, we will add a provision to not allow them beginning in 2015.

STAFF RECOMMENDATION:

Recommend approval to City Council.

Chairman Schanwolf asked for any ZBA discussion or clarification from the staff.

Board Member Bernardo wanted clarification if the coil doors meet the fire code. Mr. Ratkai advised that he will have the Evans Fire Chief review it before taking it to the City Council.



Board Member Buck wanted clarification on the ramifications of the emergency HVAC if someone doesn't come in and get the permit. Board member Buck thought that the reasonable amount of time should be changed to a period of 2 to 5 days. The board agreed.

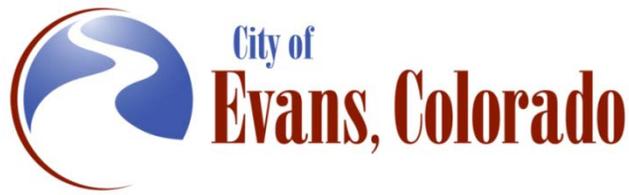
Board Member Clark addressed Chairman Schanwolf, on the issue of the amendments to Title 15 of the Evans Municipal Code, Board Member Clark moved that the Zoning Board of Appeals forward a recommendation of approval with conditions to the Evans City Council, seconded by Board Member Buck. The motion passed with all voting in favor thereof.

Conditions: On emergency HVAC remove the wording a reasonable amount of time and change to the following period of 2 to 5 days.

6) OPEN DISCUSSION

7) ADJOURNMENT

Board Member Bernardo made the motion, seconded by Board Member Clark to adjourn the meeting at 6:53 p.m.



ZONING BOARD OF APPEALS COMMUNICATION

DATE: April 8, 2015

AGENDA ITEM: ARB Rail Terminal Variance (File #15-VAR-01)

STAFF CONTACT: Sean Wheeler, City Planner

ACTION: Recommendation To City Council

APPROVED BY: Fred Starr, Public Works Director/Community Development Director

CITY COUNCIL: To Be Determined

BACKGROUND INFORMATION		
Location:	7300 47 th Avenue; on the east side of Weld County Road #33 (See Attached Map)	
Applicant:	ARB Niobrara Connector LLC Larry Stockton	
Existing Land Use:	Undeveloped Agricultural Land	
Proposed Land Use:	Crude Oil Trans-Loading Terminal	
Surrounding Land Use:	North	Envirotech Services Site, Undeveloped
	South	Weld County, Agricultural
	East	Weld County, Agricultural
	West	Weld County, Agricultural
Existing Zoning:	I-2 Industrial	
Proposed Zoning:	I-2 Industrial	
Surrounding Zoning:	North	City of Evans, I-2 Industrial
	South	Weld County, AG Zoning
	East	Weld County, AG Zoning
	West	Weld County, AG Zoning
Future Land Use Designation:	Industrial	

PROJECT DESCRIPTION:

1. The applicant is seeking a Variance of the existing 40-foot maximum height limit allowed in the I-2 Industrial Zone District. As part of the Crude Oil Trans-loading Terminal, the applicant is proposing to construct crude oil storage tanks, which would have a domed top approximately 83-feet in height, VCU (Vapor Combustion Unit) towers used to burn off gases that would be approximately 50-feet in height and Frac Sand Storage Silos that would reach approximately 179-feet in height. Graphic information provided by the applicant is attached to this report for illustration.
 2. The site is located on the east side of Weld County Road #33, south of Weld Co. Rd 394 as shown on the attached vicinity map. The subject property is approximately 222.43 acres.
 3. Additional Applications and Process:
 - A. In addition to the height variance request, the applicant is also processing requests for an Annexation Agreement Amendment, Site Plan approval and Subdivision Plat approval. These requests are separate applications which have been submitted to the City of Evans for review and processing. The Site Plan may be modified pending the result of the Height Variance request.
-

1. ANALYSIS / ISSUES:

Variance requests are subject to the requirements found in Chapter 19.58 (Variances) of the Evans Municipal Code.

A. 19.58.030 Criteria for Variances: The City Council must find all of the following circumstances to be true in order to approve a variance: Each of the review criterial is shown in bold below, with Staff's assessment immediately following each:

1. Approval of the variance would not jeopardize the health, safety or welfare of any person.

There does not appear to be any significant health, safety or welfare issue related to the height variance requests.

2. Denial of the variance would result in a practical difficulty and unnecessary hardship to the applicant.

The applicant has indicated they have alternatives which can be constructed should the request for a height variance be denied. At this time, the applicant has not provided any drawing or representations of these alternatives. By way of review, the "cost factor" is not generally considered a hardship issue.

3. Such practical difficulty and unnecessary hardship are due to an irregular, narrow or steep lot or other physical situation or condition of the building or land.

Based on the size and existing topography of the site, there is clearly no irregular, narrow or steep lot situation or other physical situation that supports the variance requests. This is a 222-acre site, and it is essentially flat.

4. Such practical difficulty and unnecessary hardship have not been unreasonably self-imposed by the applicant.

The property was rezoned from AG-Agriculture to the present I-2, Medium Industrial on November 2, 2004.

FINDINGS OF FACT AND CONCLUSIONS:

Section 19.58.030 - Criteria for Variances, of the City of Evans Municipal Code, identifies the four (4) criteria for a variance which all must be found true to consider a request for a variance. The ARB Rail Terminal variance request must appropriately and sufficiently meet all of the Review Criteria found in Section 19.58.030 of the Evans Municipal Code to be granted a variance.

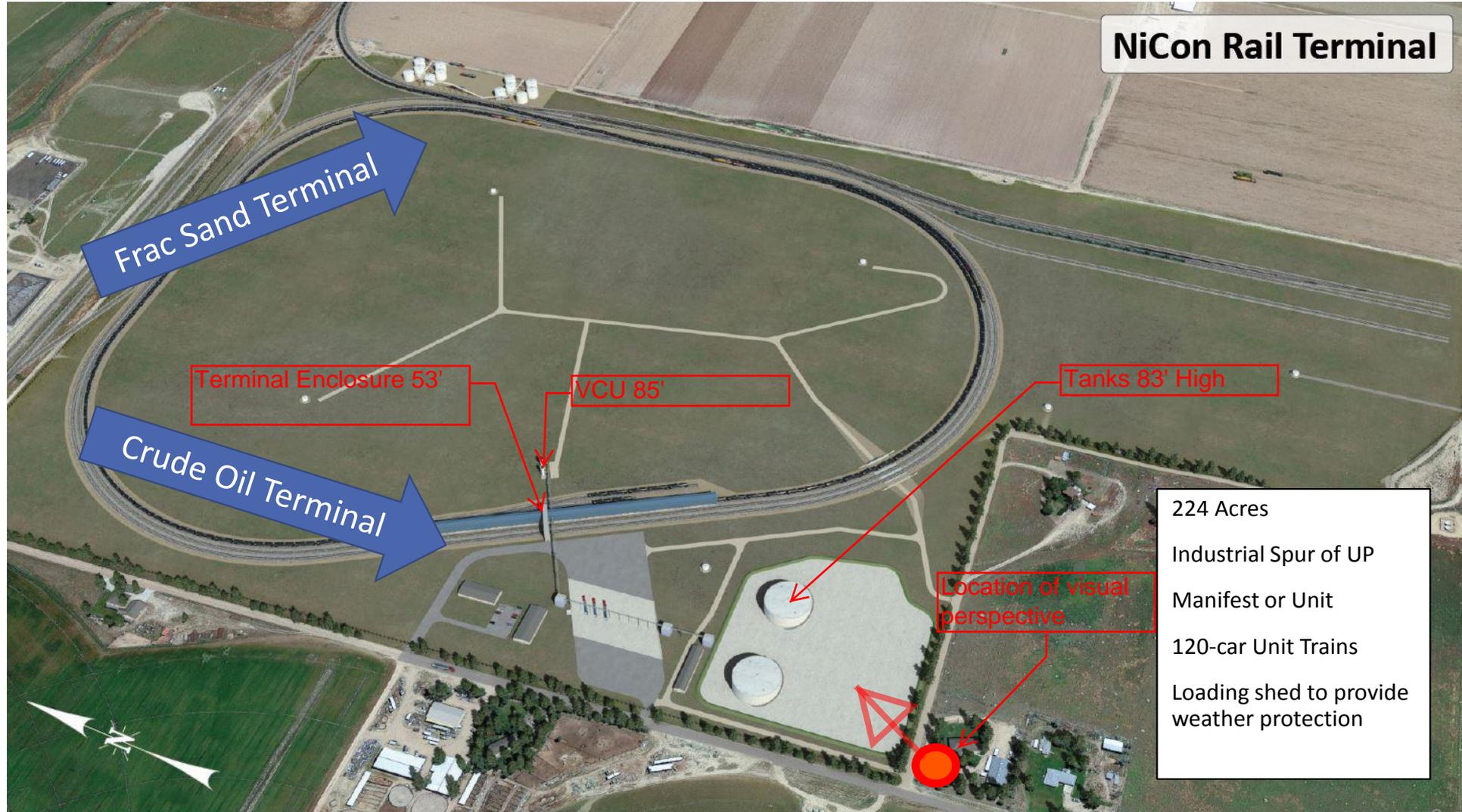
RECOMMENDED MOTIONS:

1. "I move to Approve the request for a height variance from the 40-foot maximum height limit in the I-2, Medium Industrial Zoning District as defined in Section 19.15.50 of the City of Evans Municipal Code for the purposes as identified in the Project Description section of this staff report, based upon a finding of hardship"
 2. "I move to Deny the request for a height variance from the 40-foot maximum height limit in the I-2, Medium Industrial Zoning District as defined in Section 19.15.50 of the City of Evans Municipal Code for the purposes as identified in the Project Description section of this staff report, based upon a finding that the applicant has failed to demonstrate a hardship"
-

Attachments:

Vicinity Map
Zoning Map
Variance Application Materials

Niobrara Connector Project







Larry Stockton
Vice President of Engineering and Operations
720 S. Colorado Blvd., Penthouse North
Denver, CO 80246
720-600-7512

March 6, 2015

Sean Wheeler
Community Development Manager
City of Evans, Colorado
1100 37th St
Evans, CO 80620
(970) 475-1167

RE: Height Variance Memo

Mr. Wheeler:

ARB Niobrara Connector, LLC and HiCrush Proppants are working concurrently on developing their respective rail served facilities occupying the Niobrara Connector (NiCon) property in Evans, Colorado. The operations of both facilities require industrial, non-building structures that exceed the 40 foot maximum height for buildings stated in the City of Evans I-2 Commercial zoning criteria. A variance for the height of these non-building structures is requested.

The overall site development is requesting variances for the following structures:

- Two crude oil storage tanks, 120'-0" in diameter with a highest point of the roof dome being 83'-1".
- Two vapor combustion units (VCU's) approximately 50'-0" high.
- One pedestrian crossover above the rail cars to access the loading rack weather enclosure
- Two frac sand silos, 129'-6" in diameter with the highest point of the silo being 131'-11". The conveyor delivering product to the top silos has a maximum height of 179'.

The planning and design of the site has considered alternative configurations, sizes and heights of the facilities based on safety, operations, sustainability and integration with associated improvements required for the site. The NiCon property has numerous existing easements (utility, oil & gas flowlines) as well as mineral rights interests and their associated agreements. The mineral rights lease agreements include requirements for providing access, easements that restrict development, and statutory buffer areas around the oil and gas production facilities. The planning and design of the site has also integrated the conformance to the codes and criteria of the City of Evans and the Union Pacific Railroad. The site and regional characteristics require extensive land area to properly capture and control storm water runoff to prevent negative impacts on adjacent properties. All of these factors have been accounted for in the layout, selection and sizing of the non-building structures associated with the requested variance.

Each of the non-building structures included in the variance request are presented below with a detailed explanation of the considerations that generated the dimensional characteristics.

Crude Oil Storage Tanks

Assessment of the site and consideration of the legal and statutory requirements drove the decision to utilize crude oil storage tanks over 40'-0" in height. Location of the storage tanks is important and is complicated by the site's restrictions. **Exhibit A, Surface Site Restrictions** provides a compiled illustration of the restrictions which limited the potential location and available land area. **Exhibit B, Storage Tank & Containment Area**, provides a template for storage tanks limited to a maximum height of 40'-0" and the associated secondary containment area. **Exhibit A** and **Exhibit B** are at the same scale allowing for a quick assessment of location options. A similar procedure was used to assess other tank diameters and height. Larger diameter tanks require increased separations and setbacks, which was also considered in these assessments. Through this process, it was determined that tanks 120'-0" in diameter were the optimal size to meet facility throughput and could be located within one of the available, unrestricted land areas on the site. Other considerations which have direct impact on the selection of the proposed tank size and location include:

- Proximity to public access for normal operations and maintenance
- Proximity to public access for emergency response
- Unrestricted access for emergency response
- Optimal diameter to height ratio to reduce fire protection water demand due to the limited water service available within the areas
- Smaller overall footprint reducing impervious area

VCU's

The 50'-0" height of the vapor combustion unit is dictated by the loading rate, vapor combustion characteristics and flame radiation regulated by the Colorado Department of Public Health and Environment (CDPHE). To comply with the CDPHE Air Permit requirements, the specifications obtained from VCU manufactures identify a required height of approximately 50'-0".

Pedestrian Crossover and Loading Rack Enclosure

The NiCon facility design includes a priority on the safety of the operating staff, emergency responders and visitors. The Pedestrian Crossover provides for safe access from the support facilities outside of the railroad track loops to the loading rack. At-grade crossings of the tracks are provided, but the crossover provides a route with no interaction with live train operations. The height of the crossover is driven primarily by the UPRR's requirement of a minimum of 24'-0" from top of rail to the bottom of any overhead structure. Above that defined clearance, the crossover provides the structural members supporting the mechanical and electrical systems required for loadout equipment and personnel, with the safe, OSHA compliant pedestrian crossing above that. The overall building height of the Pedestrian Crossover, including the peak of the weather enclosure roof is approximately 41'-3' per the City of Evans building.

The Pedestrian Crossover connects directly into the Terminal Enclosure. The building height at the tie-in connection is 45'-3". The Terminal Enclosure provides a working environment protected from the natural elements. The height of the Terminal Enclosure, like the Pedestrian Crossover, is primarily driven by the

UPRR's requirement of a minimum of 24'-0" from the top of rail to the bottom of any overhead structure. The Terminal Enclosure height is 32'-9".

Frac Sand Silos

Silos are the most capital intensive or, in other words, the most expensive way, to handle frac sand. So why do we employ silos at our terminal sites? It comes down to a few words: Quality, Safety and Efficiency. From a quality standpoint, we are allowing the sand to flow out of the cars into a below rail hopper that then flows onto a bucket elevator to the top of the silos. All conveyors are 100% covered and the silos have passive flow dust collection systems. At the load out spouts we use dustless spouts that fit on top of the truck hatch. All dust is contained.

Unlike the silo closed-loop system, flat storage is essentially piles of sand in a building and is not a closed-loop system. In addition, flat storage results in product cross-contamination. From a safety standpoint, utilizing silos means the truck drivers never have to get out of their trucks, thus avoiding personnel having to work outside in inclement weather. The trucks are loaded quicker with silos, meaning that traffic backups due to slow mode loading systems. From an efficiency standpoint, 50 plus rail cars can be unloaded into the silo in one shot. This allows the lining up of one string of cars and unloading them in less than 8 hours, meaning we have one rail car unloading crew who is experienced and familiar with the issues. This also allows for more day light hour type operations. Silos require a considerably smaller footprint than horizontal storage, which minimizes land disturbance issues and permanent storm water drainage matters. The silos must be over 40'-0" due the combination of the minimal truck clearance and the associated hopper. The silo will not operate in a configuration of less than 40'-0".

ARB Niobrara Connector and HiCrush greatly appreciate the City's consideration of the height variance requests. Please feel free to contact me with any project related questions.

Sincerely,



Larry Stockton
Vice President Engineering and Operations



Larry Stockton
Vice President of Engineering and Operations
720 S. Colorado Blvd., Penthouse North
Denver, CO 80246
720-600-7512

March 6, 2015

Sean Wheeler
Community Development Manager
City of Evans, Colorado
1100 37th St
Evans, CO 80620
(970) 475-1167

RE: ARB Niobrara Connector project, City Submittal, Revised Site Plan and Height Variance Supporting Documentation

Mr. Wheeler:

ARB Niobrara Connector, LLC and HiCrush Proppants are working concurrently on developing their respective rail served facilities occupying the Niobrara Connector (NiCon) property. HDR is performing engineering design services for both rail projects. The intent of the meeting was to introduce the HiCrush project and gain insight on how to progress the project through the City's Site Plan Development Review process. Per your direction, a revised Site Plan showing both NiCon and HiCrush facilities is provided for the City's review, comment and approval.

The NiCon initial Site Plan submittal to the City included a Land Use Application Variance request. The HiCrush project requires a Land Use Application Variance as well. It is our understanding the City would like to process one variance request for the development of the site. Enclosed is a revised Land Use Application Variance related to height restrictions along with for both the NiCon and HiCrush projects the supporting documentation. The project teams have prepared a Memo outlining the justifications for the height variances which is included in the supporting documentation.

The ARB Niobrara Connector project greatly appreciates your time meeting with our consultant on March 3, 2105 and providing the City's direction on how to progress the two projects. If hard copies and/or additional information are needed, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Larry Stockton'.

Larry Stockton
Vice President Engineering and Operations

ARB Niobrara Connector, LLC



SITE PLAN

A TRACT OF LAND BEING ALL OF THE SOUTHWEST ONE-QUARTER OF SECTION 2, TOWNSHIP 4 NORTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN LYING SOUTHERLY OF THE UNION PACIFIC RAILROAD RIGHT-OF-WAY AND EASTERLY OF COUNTY ROAD 33 RIGHT-OF-WAY; ALL OF THE NORTH ONE-HALF OF THE NORTHWEST ONE-QUARTER OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN LYING EASTERLY OF COUNTY ROAD 33 RIGHT-OF-WAY; AND THE SOUTHEAST ONE-QUARTER OF THE NORTHWEST ONE-QUARTER OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 66 WEST, OF THE 6TH PRINCIPAL MERIDIAN BEING LOCATED IN THE CITY OF EVANS, WELD COUNTY, COLORADO.
 LOT SIZE: 222.43 ACRES (9,689,036 FEET)



HDR, INC.
 1670 BROADWAY, SUITE 3400
 DENVER, CO 80202-4824
 303-764-1520



PROJECT LOCATION AERIAL PHOTO

ARB NIOBRARA CONNECTOR 7300 47TH AVENUE CITY OF EVANS, WELD COUNTY, CO

SITE PLAN

Project No. _____

CITY OF EVANS, COLORADO
 MARCH 6th, 2015

OWNER:
 ARB NIOBRARA CONNECTOR, LLC.
 720 S. COLORADO BLVD
 PENTHOUSE NORTH
 DENVER, CO 80246
 LARRY STOCKTON, V.P.
 PHONE: (720) 600-7512
 EMAIL:
 larry.stockton@arbmstream.com



PROJECT VICINITY MAP

1500 0 1500 3000
 SCALE IN FEET



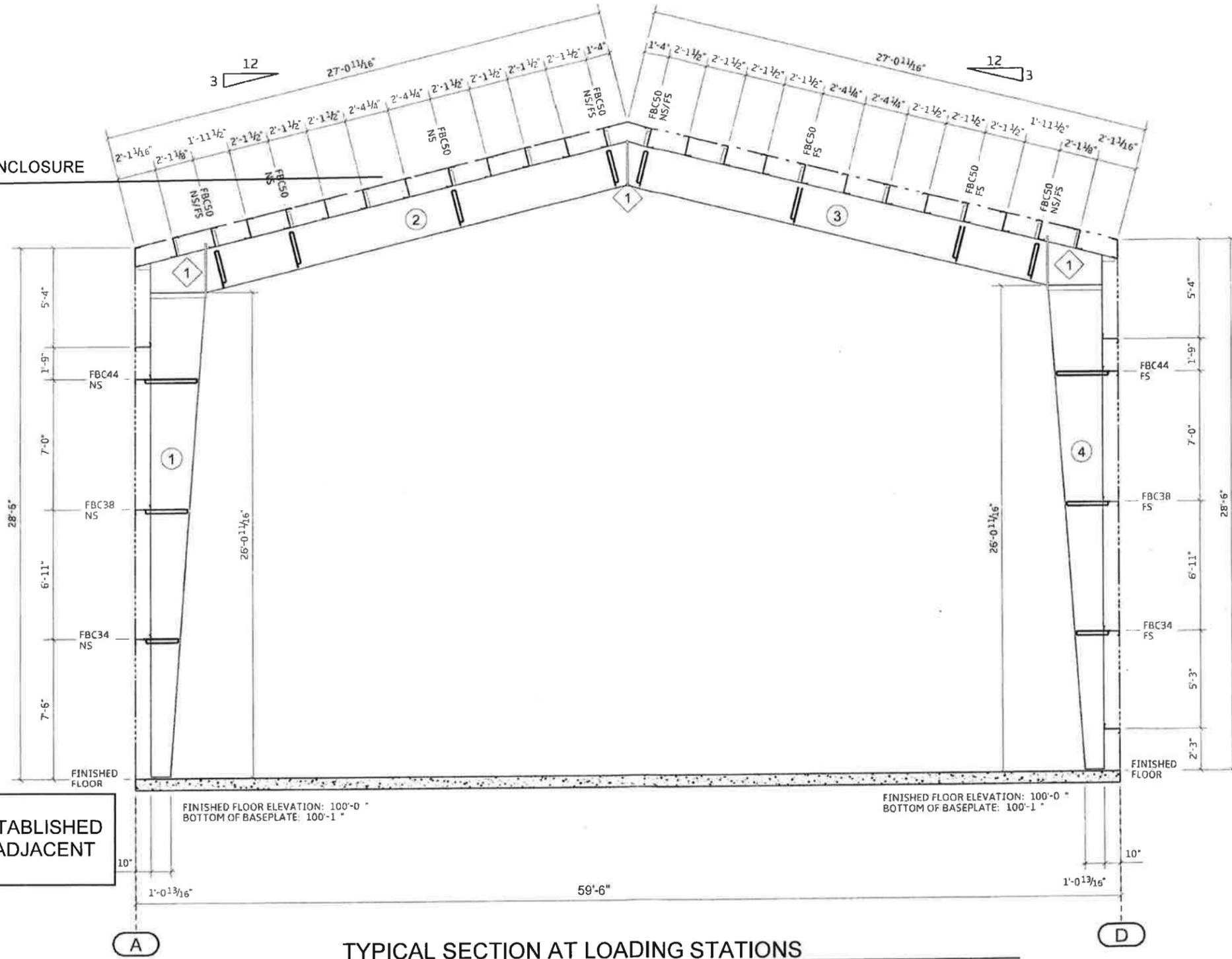
<p>Know what's below. Call before you dig.</p>	CALL UTILITY NOTIFICATION CENTER OF COLORADO 1-800-922-1987 or 811	CALL UTILITY NOTIFICATION UNION PACIFIC RAILROAD 1-800-336-9193
	<small>CALL 3-BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.</small>	

ALL WORK SHALL BE CONSTRUCTED TO THE CITY OF EVANS STANDARDS AND SPECIFICATIONS.

APPROVED BY: _____ DATE: _____
 DIRECTOR OF PUBLIC WORKS

SHEET NUMBER
 01C001

HEIGHT OF ENCLOSURE
32'-9"



NOTE:
ENCLOSURE HEIGHT IS ESTABLISHED
FROM PROPOSED GRADE ADJACENT
TO STRUCTURE.

FINISHED FLOOR ELEVATION: 100'-0" *
BOTTOM OF BASEPLATE: 100'-1" *

TYPICAL SECTION AT LOADING STATIONS

For column and rafter mark numbers, see Mark Number Plan.
NS/FS indicates that flange bracing is required on both sides of the frame line.
For expandable endwall rigid frames, if flange bracing is required on both sides (NS/FS) of an expandable endframe, the opposite side flange brace will have to be installed at the time of expansion. These flange braces have been provided, as required, for this future condition.
If NS/FS is NOT indicated, only one flange brace is required and can be located on either side of the frame.
** indicates the long side of the interior columns. Columns at the ridge are typically "flat-top" columns, unless indicated by the "*" symbol.
Rigid frames shall have 50% of their bolts installed and tightened on both sides of the web adjacent to each flange before the hoisting equipment is released.

Material Schedule

ID	Low Plate		High Plate		Outside Flange		Inside Flange		Web		
	Width	Thick	Width	Thick	Width	Thick	Width	Thick	Depth1	Thick	Depth2
1	8.00	0.38	6.00	0.63	6.00	0.31	6.00	0.50	34.50	0.19	34.50
2	6.00	0.63	6.00	0.63	6.00	0.31	6.00	0.31	27.00	0.25	27.00
3	6.00	0.63	6.00	0.63	6.00	0.31	6.00	0.31	27.00	0.25	27.00
4	8.00	0.38	6.00	0.63	6.00	0.31	6.00	0.50	34.50	0.19	34.50
									12.00	0.16	34.50

Bolt Schedule

ID	Qty	Bolt Description	Bolt #	Nut #
1	8	7/8" X 3" A325	H0635	H0325

NUCOR
BUILDING SYSTEMS GROUP

1050 North Watery Lane
Brigham City, UT 84302
Phone: (435) 919-3100
Fax: (435) 919-3101

PROJECT NAME: TERMINAL TANK CAR LOADING RACK HARDISTY, AB
CUSTOMER NAME: SAFE RACK LOADING RACK TECHNOLOGIES

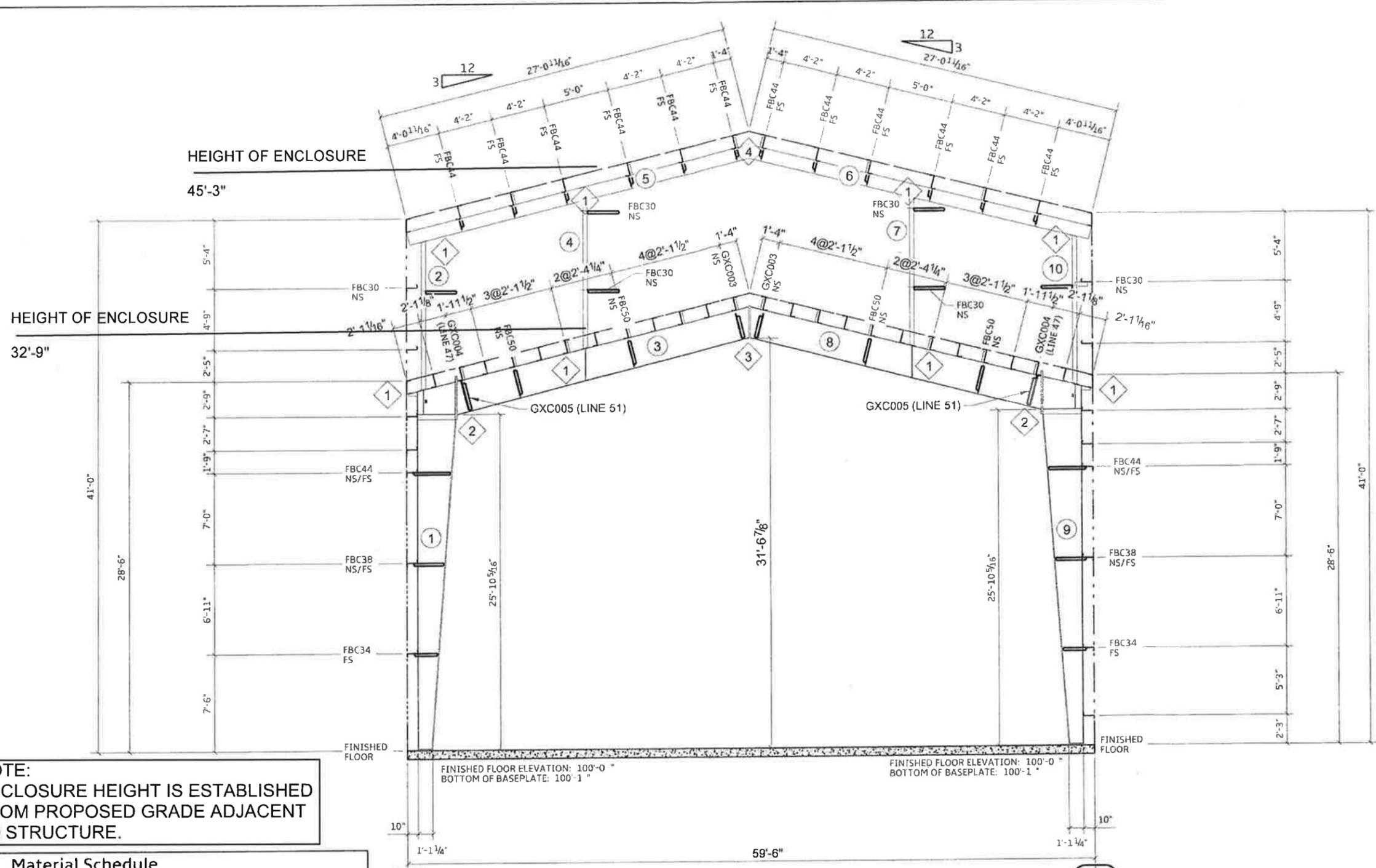
JOB NUMBER: U13X0194A
SHEET TITLE: Cross Section @ Lines 45 & 53

DATE: 5/23/2013
BY: BDB
CHECKED: BDB
DATE: 6/12/2013
BY: BDB
CHECKED: BDB
DATE: 6/24/2013
BY: BDB
CHECKED: BDB

For Build Dept. Rev: KDH CBB BWB BDB
REV. For Build Dept: NDD LJB BWS BDB
Finals: LJB CBB BWB BDB

NOT TO SCALE
This document was prepared by the author and is not to be used for construction without the approval of the author. The registered professional engineer responsible for the design and construction of the project shall be responsible for the design and construction of the project and shall be responsible for the design and construction of the project and shall be responsible for the design and construction of the project.

SHEET P5 OF 7



NOTE:
ENCLOSURE HEIGHT IS ESTABLISHED FROM PROPOSED GRADE ADJACENT TO STRUCTURE.

Material Schedule

ID	Low Plate		High Plate		Outside Flange		Inside Flange		Web		
	Width	Thick	Width	Thick	Width	Thick	Width	Thick	Depth1	Thick	Depth2
1	8.00	0.63	8.00	1.00	8.00	0.50	8.00	0.75	34.50	0.28	34.50
2	-	-	-	-	-	-	-	-	12.00	0.22	34.50
3	8.00	0.38	8.00	0.25	-	-	-	-	29.29	0.31	27.25
4	8.00	1.00	8.00	1.00	8.00	0.38	8.00	0.50	29.29	0.31	27.25
5	8.00	0.38	8.00	0.25	-	-	-	-	34.50	0.28	34.50
6	-	-	-	-	-	-	-	-	12.00	0.22	34.50
7	8.00	0.63	8.00	1.00	8.00	0.50	8.00	0.75	34.50	0.28	34.50
8	8.00	0.38	8.00	0.25	-	-	-	-	12.00	0.22	34.50
9	8.00	1.00	8.00	1.00	8.00	0.38	8.00	0.50	29.29	0.31	27.25
10	8.00	0.63	8.00	1.00	8.00	0.50	8.00	0.75	34.50	0.28	34.50
11	-	-	-	-	-	-	-	-	12.00	0.22	34.50
12	8.00	0.38	8.00	0.25	-	-	-	-	29.29	0.31	27.25

TYPICAL SECTION LOADING STATION ADJ TO CROSSOVER

For column and rafter mark numbers, see Mark Number Plan.

NS/FS indicates that flange bracing is required on both sides of the frame line.

For expandable endwall rigid frames, if flange bracing is required on both sides (NS/FS) of an expandable endframe, the opposite side flange brace will have to be installed at the time of expansion. These flange braces have been provided, as required, for this future condition.

If NS/FS is NOT indicated, only one flange brace is required and can be located on either side of the frame.

** indicates the long side of the interior columns. Columns at the ridge are typically "flat-top" columns, unless indicated by the "*" symbol.

Rigid frames shall have 50% of their bolts installed and tightened on both sides of the web adjacent to each flange before the hoisting equipment is released.

Bolt Schedule

ID	Qty	Bolt Description	Bolt #	Nut #
1	4	3/4" X 3" A325	H0633	H0320
2	8	1 1/4" X 3 1/2" A325	H0660	H0340
3	8	1" X 3 1/4" A325	H0640	H0330
4	4	1 1/4" X 3 1/2" A325	H0660	H0340

NUCOR
BUILDING SYSTEMS GROUP

1050 North Watery Lane
Brigham City, UT 84302
Phone: (435) 919-3100
Fax: (435) 919-3101

PROJECT NAME: TERMINAL TANK CAR LOADING RACK
HARDISTY, AB

CUSTOMER NAME: SAFE RACK LOADING RACK TECHNOLOGIES

JOB NUMBER: U13X0194A
SHEET TITLE: Cross Section @ Lines 47 & 51

SHEET: P6 OF 7

REV	DATE	BY	CHKD	APPD
1	5/23/2013	KDH	CBB	BWB
2	6/12/2013	NDD	LJB	BWB
3	6/24/2013	LJB	CBB	BWB

For Build Dept. Rev: REV. For Build Dept: Final

Notes and Specifications:

Building Erection Notes

1) The general contractor and/or erector is responsible to safely and properly erect the metal building system in conformance with these drawings, OSHA requirements, and MBMA standards pertaining to proper erection. This includes, but is not limited to, the correct use of temporary guys and bracing where needed for squaring, plumbing, and securing the structural and secondary framing. Secondary wall framing members (girts or bar joists) are not designed to function as a work platform or provide safety tie off attachment in accordance with OSHA requirements. Secondary roof framing members (purlins or bar joists) are not designed to provide safety tie off attachment in accordance with OSHA requirements.

2) All high strength bolts are type ASTM A325 and are to be installed to the "snug-tight" condition as defined by the RCSC specification for structural joints using A325 or A490 bolts, 2004 edition, section 8.1, unless noted otherwise. Also, note that bolts in standard holes do not require washers per the RCSC specification for structural joints using A325 or A490 bolts, section 6.

3) All A307 machine bolts are to be brought to a "snug tight" condition to ensure that the materials in the joint are brought into good contact with each other.

4) Washers are required at all slotted connections as follows:
 a) Hole to slot connection, one washer required on slotted side.
 b) Slot to slot connection, two washers required, one on each side of the connection.
 However at lapped zee members, whether purlins or girts, no washers are required in the 8-bolt lapped region.

5) The metal building supplier shall be notified prior to any field modifications. Modifications shall be approved by the metal building supplier before work is undertaken.

6) All welding must be performed by AWS qualified welders for the welding processes and positions indicated. All work must be completed and inspected in accordance with the applicable AWS specifications. Weld electrodes used for the SMAW (or stick) weld process must be 70 ksi steel and low hydrogen content.

7) Common Abbreviations
 a) TYP UNO - Typical Unless Noted Otherwise
 b) SLV - Short Leg Vertical
 c) LLV - Long Leg Vertical
 d) NS & FS - Near Side and Far Side
 e) O.A.L. - Overall Length
 f) SIM - Similar
 g) NIC - Not In Contract
 h) SL - Steel Line
 i) N/A - Not Applicable
 j) MBS - Metal Building Supplier

8) Construction loads shall not be placed on any structural steel framework unless such framework is safely bolted, welded, or otherwise adequately secured.

9) Purlins and girts shall not be used as an anchorage point for a fall arrest system unless written approval is obtained from the metal building supplier.

10) Purlins may only be used as a walking/working surface when installing safety systems, after all permanent bridging has been installed and fall protection is provided.

11) Construction loads may be placed only within a zone that is within 8 feet of the center-line of the primary support member. CFR bundles should be placed directly over the rigid frames.

12) All lifting devices must meet OSHA or MSHA standards and in no case is it acceptable to use structural members supplied by the MBS as a spreader bar or lifting device.

General Design Notes

1) All structural steel sections and welded plate members are designed in accordance with "CSA S16-01-Limit State Design of Steel Structures" and "CSA W59-03-Welded Steel Construction (Metal Arc Welding)".
 2) All cold-formed steel members and structures are designed in accordance with "CSA S136-07 North American Specification For The Design Of Cold-Formed Steel Members".

3) All welding of structural and cold-formed steel is based on "CSA W59-03-Welded Steel Construction (Metal Arc Welding)" and "CSA W47-1-03-Certification Of Companies For Fusion Welding Of Steel".

4) Nucor Building Systems-IN, is certified to manufacture steel building system per "CSA W47-1-03-Certification Of Companies For Fusion Welding Of Steel".

5) Nucor Building Systems-IN, is certified to manufacture steel building systems per "CSA A660-Certification Of Manufacturers Of Steel Building Systems".

6) The building erector should hold to the tolerances specified by "CSA S16-01-Limit State Design Of Steel Structures", Clause 29.7 On P. 112, during the erection of this structure.

Material Specifications

Plate and Flange Material

5'-12" Wide, Thru 1" Thick - A529, Grade 55
 Others - A572, Grade 50 or A36
 Built-Up Structural Web Material - A1011 SS (or HSLAS (L1) Grade 55
 Hot-Rolled Structural - A572 Grade 50 or A992 Grade 50
 Structural Tube - A500 Grade C (46 KSI)
 Structural Pipe - A500 Grade B (42 KSI)
 Cold-Formed Structural - A1011 or A1039 SS (or HSLAS (L1) Grade 55 MOD 57
 RPB Roof Panels - A792 Grade 80
 Standing Seam Roof Panels - A792 Grade 50, Class 1
 R-Panel and A-Panel - A653 Grade 80, Class 1 or A792 Grade 80, Class 1
 Rod Bracing - A529 Grade 50
 Welds - CSA W59 & W47 1 Latest Edition
 High-Strength Bolts - A325 Type 1 Heavy Hex or A490 Type 1 Heavy Hex
 Machine Bolts - A-307 Grade A Hex



A DIVISION OF NUCOR CORPORATION



EXHIBIT D- TERMINAL ENCLOSURE

Building Loads:

Design Code:	Alberta (ABC 2006)
Building End Use:	2A - Manufacturing - Production
Building Occupancy:	II - Normal
Roof Live Load:	1.00(20.89) kPa(PSF)
REDUCIBLE PER CODE	
Ground Snow Load:	1.700(35.51) kPa(PSF)
Roof Rain Load:	0.100(2.09) kPa(PSF)
Snow Importance Factor, Is:	1.00
Seismic Information:	Sa (0.2):0.120, Sa (0.5):0.060 Sa (1.0):0.020, Sa (2.0):0.010 Fa:1.30, Fv:1.40
Seismic Imp. Factor Ie:	1.00
Seismic Design Category:	D
Analysis Procedure:	NBC, Part 4, Sub-section 4.1.8
Basic SFRS	Conventional Steel Moment Frames & Conventional Steel Centrically-Braced Frames
Wind Load 1/50:	0.360(7.52) kPa(PSF)
Wind Importance Factor, Iw:	1.00
Exposure:	Open
UL90:	Yes

	Building	
	Name	#1, #3, & #4
Roof Dead kPa(PSF)		0.240(5.00)
Primary Collateral kPa(PSF)		0.480(10.00)
Secondary Collateral kPa(PSF)		0.480(10.00)
Snow Cw		1.00
Snow Cs		1.00
Roof Snow kPa(PSF)		1.460(30.49)
Wind Enclosure		Category 3
Transverse Response Modification RD		1.50
Longitudinal Response Modification RD		1.50
Overstrength Factor RO		1.30
Base Shear kN(KIPS)		NA

1) Collateral dead loads, unless otherwise noted, are assumed to be uniformly distributed. When suspended sprinkler systems, lighting, HVAC equipment, ceilings, etc., are suspended from roof members, consult the M.B.S. If these concentrated loads exceed 200 lbs. or if individual members are loaded significantly more than others.

2) The design of structural members supporting gravity loads is controlled by the more critical effect of roof live load or roof snow load, as determined by the applicable code.

Drawing Index

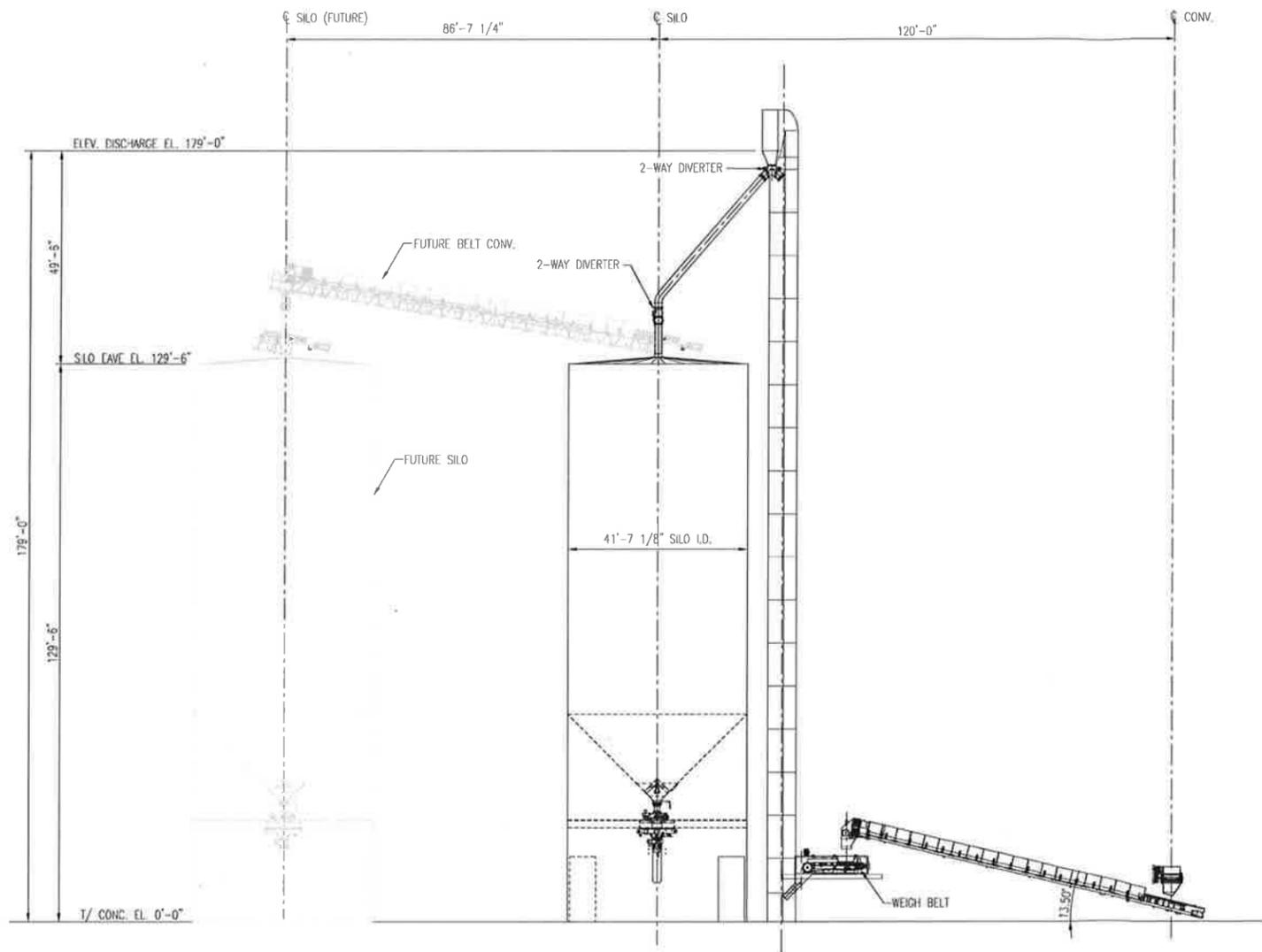
Cover Sheet:	<u>C1, C2</u>
Anchor Bolt Plan:	<u>F1, F2</u>
Anchor Bolt Details:	<u>FD1</u>
Primary Plans/Sections:	<u>P1, P2, P3, P4, P5, P6, P7</u>
Primary Details:	<u>PD1</u>
Roof Framing Plans:	<u>R1, R2, R3, R4, R5</u>
Roof Framing Details:	<u>RD1, RD2</u>
Wall Framing Elevations:	<u>W1, W2, W3, W4, W5, W6, W7</u> <u>W8</u>
Wall Framing Details:	<u>WD1, WD2</u>
Sheeting Drawings:	<u>S1, S2, S3, S4, S5, S6, S7</u> <u>S8, S9, S10, S11, S12, S13</u> <u>S14, S15, S16, S17, S18</u> <u>S19, S20, S21, S22, S23</u> <u>S24, S25, S26</u>
Sheeting Details:	<u>SD1, SD2, SD3, SD4, SD5</u> <u>SD6, SD7, SD8, SD9, SD10</u>

Required Manuals

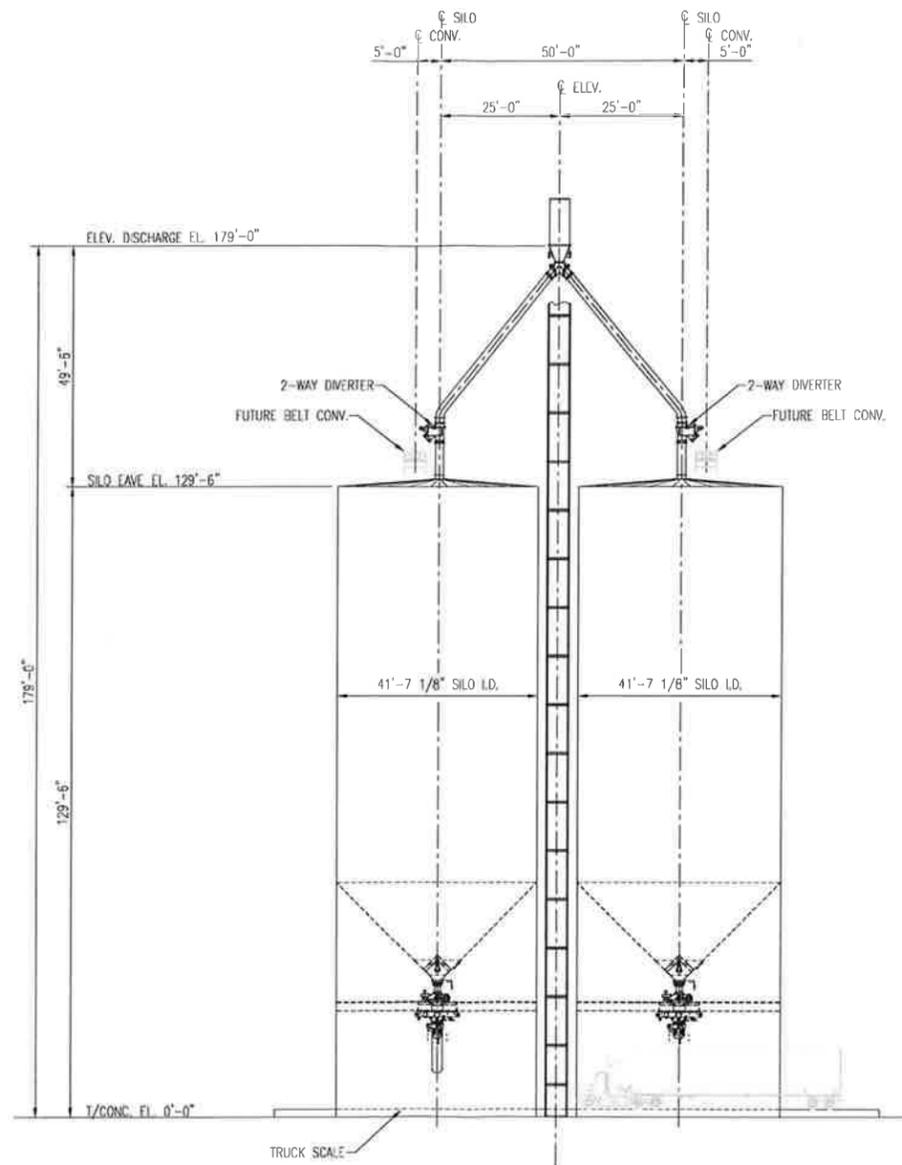
- Wall Sheeting
H9430 - Erection Manual
- CFR Roof Sheeting
H9700 - Erection Manual
- H9675 - Seaming Manual
- H9850 - Single Curb Manual

NUCOR BUILDING SYSTEMS GROUP 1050 North Watery Lane Brigham City, UT 84302 Phone: (435) 919-3100 Fax: (435) 919-3101	PROJECT NAME TERMINAL TANK CAR LOADING RACK HARDISTY, AB	SHEET TITLE Coversheet
	CUSTOMER NAME SAFE RACK LOADING RACK TECHNOLOGIES	JOB NUMBER U13X0194A
	SHEET 2 OF 2	
	DATE 5/23/2013 6/12/2013 6/24/2013	

JUN 27 2013



SECTION C-D
SCALE: 1/16"=1'-0" (01)



SECTION D-E
SCALE: 1/16"=1'-0" (01)

Exhibit E-1 - Silo



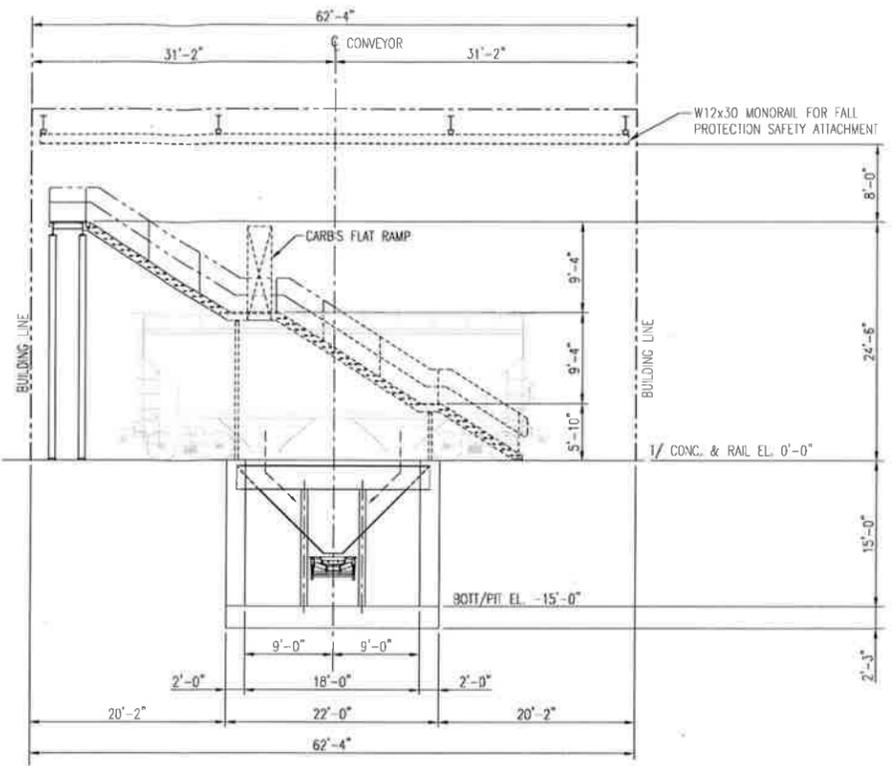
EVANS, CO

TITLE:
SAND DISTRIBUTION TERMINAL
SECTIONS

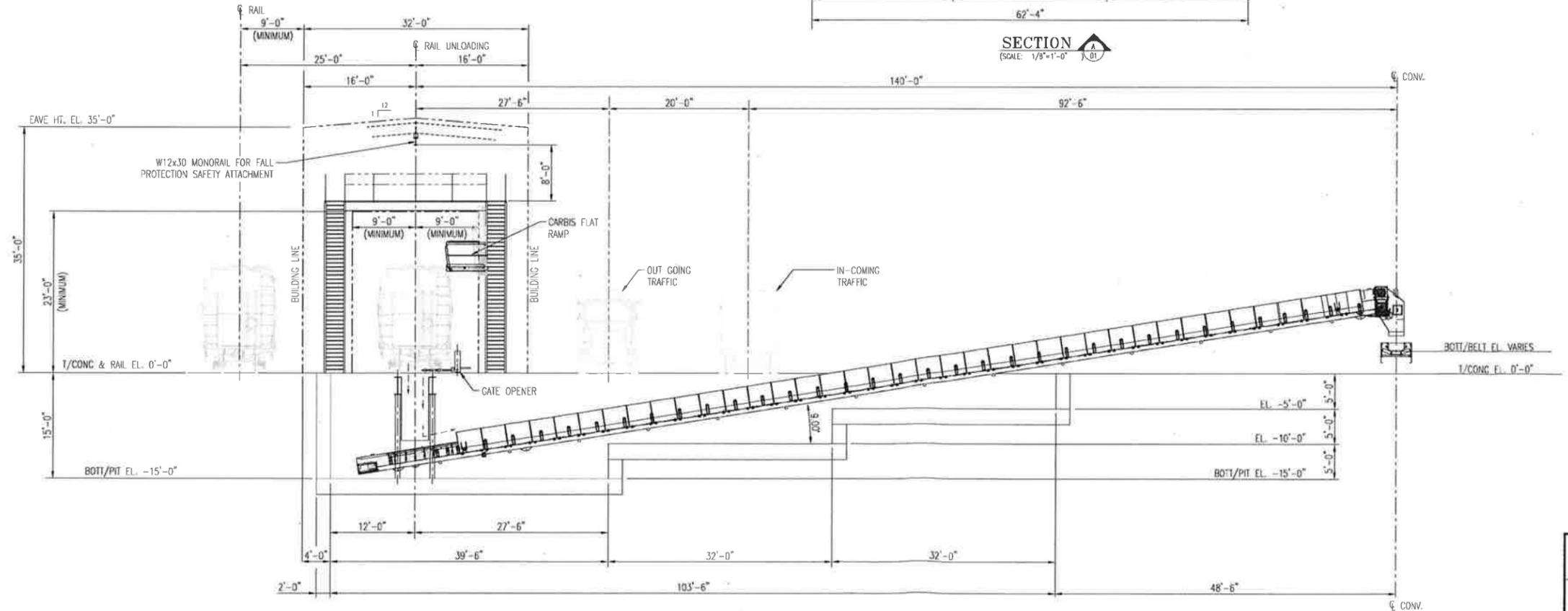
JOB NO. 14135	EnDeCo Engineers, Inc. Engineering-Design-Consulting 601 W. PINECREST DRIVE - MARSHALL, TEXAS 75670 (803) 835-9369	SHEET NO. 00000-03
DESIGN BY JMB	DRAWING BY WBM	CHECKED BY DATE 1-17-15
		REV. E

THIS DRAWING IS THE PROPERTY OF EnDeCo ENGINEERS, INC. AND IS PRODUCED FOR THE EXCLUSIVE USE OF OUR CLIENT. ALL INFORMATION CONTAINED HEREIN SHALL NOT BE USED, TRANSMITTED OR REPRODUCED FOR ANY PURPOSE WITHOUT THE EXPRESS WRITTEN PERMISSION OF EnDeCo ENGINEERS, INC.	EnDeCo ENGINEERS, INC. FIRM REGISTRATION NUMBERS AZ 14189-0 SC 4466 AR COA 686 TX F-501142 LA 5192 MI 3826-11 MS E-2638 NY 034789-00 MN OK CA 3631(FE)
--	---

REV	BY	DATE	DESCRIPTION
E	WBM	2-26-15	UPDATED ELEVATIONS
D	WBM	2-24-15	GENERAL REVISION
C	WBM	2-9-15	GENERAL REVISION
B	WBM	2-6-15	GENERAL REVISION
			REFERENCE DRAWINGS



SECTION A-A
(SCALE: 1/8"=1'-0")



SECTION B-B
(SCALE: 1/8"=1'-0")

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ENDECO ENGINEERS, INC.
FIRM REGISTRATION NUMBERS
AZ 14189-0 SC 4155
AR CDA 686 TX F-001142
LA 5192 WI 3826-11
MS T-2638 WY 024789-00
NH
OK CA 3633(PE)

REV	BY	DATE	DESCRIPTION
E	WEM	2-26-15	UPDATED ELEVATIONS
D	WEM	2-24-15	REVISED PIT AREA
C	WEM	2-9-15	GENERAL REVISION
B	WEM	2-6-15	GENERAL REVISION

Exhibit E-2 - Conveyor

HI CRUSH EVANS, CO

TITLE: SAND DISTRIBUTION TERMINAL SECTIONS

JOB NO.	EnDeCo Engineers, Inc. Engineering-Design-Consulting 601 W. PINECREST DRIVE - MARSHALL, TEXAS 75670 (903) 935-9369	SHEET NO.	00000-02
DESIGN BY	DRAWING BY	CHECKED BY	DATE
JWB	WEM		1-17-15



Staff Use Only \$500 Intake Date: _____

**Land Use Application
Variance**

All applications for a Variance shall comply with the requirements of Chapter 19.58 of the City of Evans Municipal Code and all applicable regulations, standards and plans. Please allow for a 60 day approval period following a complete and accepted submittal. This includes two (2) public hearings and meetings with the Planning Commission and City Council.

Project Name: ARB Niobrara Connector (NiCon), HiCrush - Evans
 Acres: 222.43 Current Zoning: I-2
 Property Address: 7300 47th Avenue City of Evans, Weld County, Co

Proposed Variance (brief description; please list the code section that will be varied by this request):

As part of the site development, **Exhibit A – Overall Site Plan**, the following unoccupied structures will exceed the City height codes.

1. The crude oil storage tanks (2) are 120'-0" in diameter and 64'-0" high to the seam with a geodesic dome top. The highest point on the dome is 83'-1", **Exhibit B – Preliminary General Arrangement Tank 101 & 102** (if they were reduced to a 40'-0' height tank they would expand to 200'-0" in diameter).
2. The VCU units (2) have stacks that are approximately 50'-0" high. The final height may vary a little depending on which manufacturer is used, **Exhibit C-1 – VCU Plan View and Exhibit C-2 – VCU Stack Height**.
3. The weather protection enclosure at the loadout rack requires a longer description. The loadout rack platform is located between the rails and has the equipment to load the oil from the storage tanks via an overhead pipe bridge into the rail tank cars, and is where the site staff will be working during operations. In consideration of inclement weather, a weather protection enclosure is being provided to protect the equipment and workers from exposure, but it is not tempered. The overall dimensions of the weather protection enclosure are 861'-9.5" feet long, 59'- 6" wide and 32'-9" building height per City of Evans definition of building height. However, there is one location that provides a pedestrian crossover from one side of the train cars to the other that extends to a building height of 45'-3". See **Exhibit D – Terminal Enclosure**.
4. The frac sand silos (2) are 42'- 2" inches in diameter and 129'- 6" to the eave. The silo has a dome top with the highest point at 131'-11". A conveyor will deliver the product to the silos and will extend above the silos and discharge at a height of 179'-0", **Exhibit E-1 – Silo and Exhibit E-2 - Conveyor**.

Land Owner Name: ARB Niobrara Connector, LLC Telephone: 720.600.7512

Email: Larry.Stockton@arbmidstream.com

Mailing Address: 720 South Colorado BLVD Denver, CO 80246

Applicant Name: ARB Niobrara Connector, LLC Telephone: 720.600.7512

Email: Larry.Stockton@arbmidstream.com

Mailing Address: 720 South Colorado BLVD Denver, CO 80246

SUBMITTAL CHECKLIST

The following items will need to be submitted for review of a Variance Application.
It is recommended that the applicant speak with a City representative prior to submittal of the application.

Applicant Initials	Submittal Documents Required to be Accepted for Review by City	City Staff Initial if Complete
LS	Electronic copy of all required forms (see below)	
2-17-15 LS	Variance Fee of \$500.00 Plus Actual Costs (check or credit card)	
2-17-15 LS	500' list Fee of \$25 (if needed)	
3-6-2015 LS	Letter indicating why the use should be allowed. (See Section 19.58.040 A for necessary information, need to address criteria in 19.58.030)	
N/A LS	Letters of support from surrounding or affected neighbors	
3-6-2015 LS	A site plan or master plan drawing of the location and use	
3-6-2015 LS	Photos of the site in question (<i>Perspective Renderings Supplied</i>)	
3-6-2015 LS	Photos showing the proposed use (if appropriate)	
3-6-2015 LS	An aerial map of the location	
3-6-15 LS	Any other documentation that would support the request	
2-17-15 LS	A list, in Excel format, of all land owners within 500' of the proposed use	
2-17-15 LS	Legal description of property	
N/A LS	Other documents (please list):	
N/A LS	If a minor variance (as defined in Section 19.58) a letter from EVERY	

I certify that to the best of my knowledge this Variance Application meets all of the criteria listed above and all the appropriate documentation has been submitted as requested:


Land Owner Signature

3-6-15
Date


Applicant Signature

3-6-15
Date

For City Staff Use Only

Date Submitted:

Date Reviewed:

Reviewer Name: _____

Corrections Needed? ___Yes___No

Date Returned as Incomplete to Applicant and Owner:

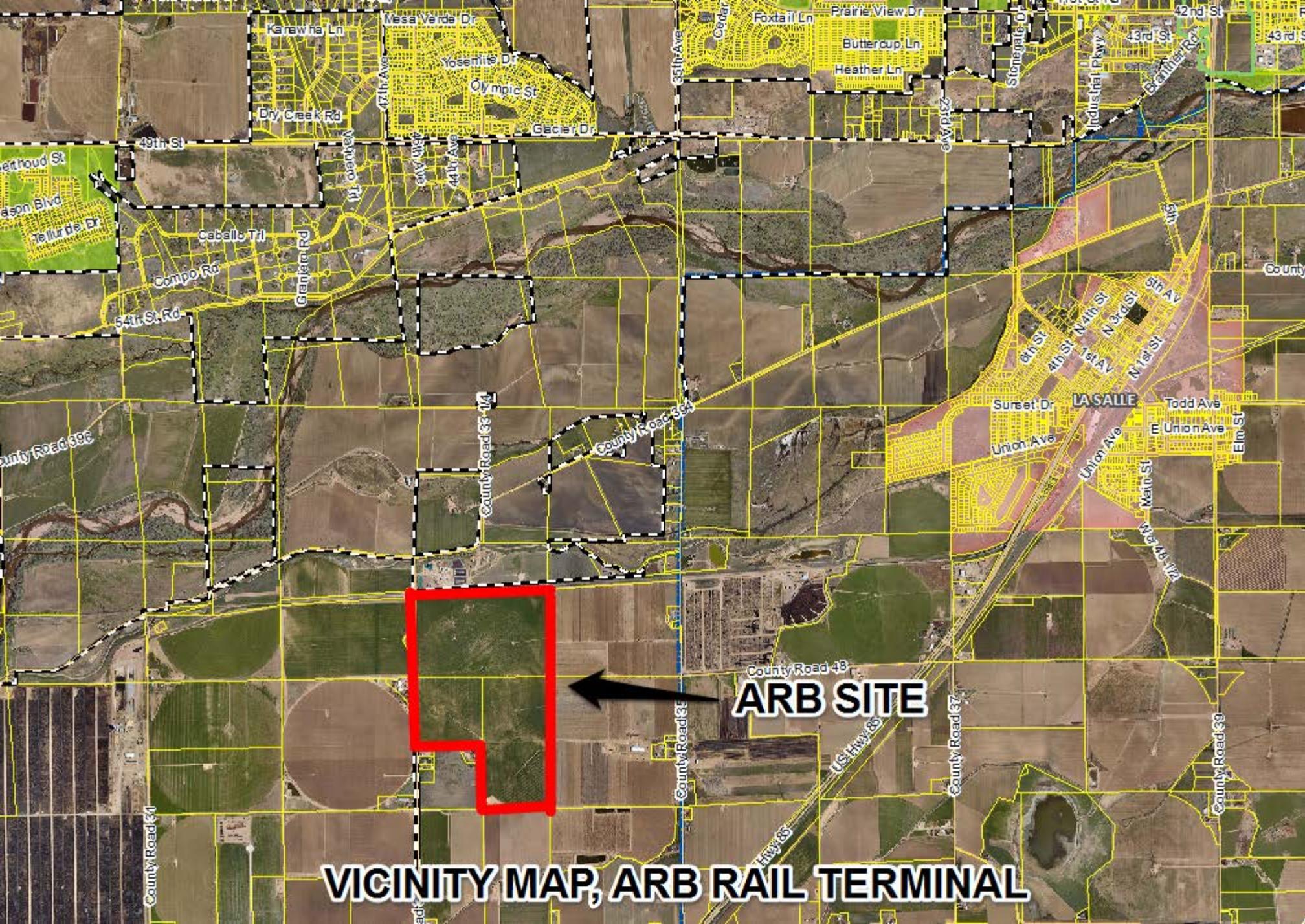
Date Accepted as Complete:

ZBA Date:

City Council Date:

Additional Comments:

Note to Staff: Formal comments will be found in the L:drive under Community Development/Variance/ (name of application)



ARB SITE

VICINITY MAP, ARB RAIL TERMINAL

March 16, 2015 11:37 p.m.

Larry Stockton

Vice President of Engineering and Operations

720 S Colorado Blvd., Penthouse North

Denver CO 80246

Larry.stockton@arbmstream.com

RE: ARB Niobrara Connector project, Easement Holder Notification

We, Tim & Laurie Cook, and family, 22740 WCR 33, La Salle CO 80645, are writing with concerns regarding the project that you have planned for the property immediately to the North and East of our property.

Tim had attended your open house at Evans on March 6, 2015, and received some information about your project. Now we have even more questions for you with our concerns regarding our property and quality of life that now is looming.

So that you realize, we have invested in our piece of property for quality of life. We have put a lot of time, money, and effort into how our property is set up. We built from the ground up in 1996 and have continued to maintain and improve on this piece of property. We had recently done an appraisal through a bank, before this project had been announced. We are very concerned about the opportunity to market our house now that there is a big oil off loading facility moving in. Wayne Howard had led us to believe that the water was going to be piped back up to the farm and it was going back into Ag Production with crops. We do know better than to believe anything Wayne Howard has to say, however the pipeline had been approved and the pipe was already brought to the property and ready to irrigate the crops. He also said that your company had a letter of intent ready for us to purchase our property. And he mentioned that we were really going to take a hit with our property values with a company such as yours, moving right next door.

Since your company has now purchased the properties around us, we are writing you with concerns about your project and how you are going to be a neighbor to us.

Concerns:

Weld County Road 33 is a county, dirt road that is not maintained. There are washboard areas and wash out areas. For the kind of traffic that you are proposing, CR 33 needs to be widened and paved. What are the improvements that you will be doing with this

road? We understand that the truck traffic will increase immensely with the delivery of oil to this facility. How many trucks? What is the speed limit? What about dust control from the trucks and open areas? What about Jake brakes? Are you paving this road? Where is the entrance for these trucks? Where are additional entrances for other traffic? How much employee traffic will there be? How many employees?

Landscaping and buffers for immediate property owners: Your computer image of the property at the open house shows only a row of deciduous trees. Deciduous means they shed their leaves in the fall. What about a berm that will help to buffer noise? Along with the deciduous trees, you need to plant Junipers or Cedars to help fill in the buffering of noise, wind, blowing and sifting ground, snow drifts, and fire line. And how do you plan on maintaining the tree line? They will need water to survive. And what about fire control? Where will you have fire hydrants? In case of a fire, what are your plans and how would a fire be contained? You have 2 storage tanks, 125,000 barrel capacity, 83' in height, and right next to our property. With all the open ground in the center of the rail line, why would you put the storage tanks where you did? When the proposed Ethanol Plant was working on their plans to build, they had a fully staffed fire station planned. And this was due to the response time from getting from Evans to La Salle.

Also on your picture, you have put a road access close to the property line. We are glad that you made mention that our entrance to our property and to the property to the east of us at 22744 WCR 33, is a private entrance to these properties, and only these properties. You said no more oil traffic will enter this road. We are glad to hear that due to the fact that in the past, the oil companies have been using this road – trespassing on private property.

With your road that you have in the picture, how far off the property line is it and what traffic will be using your road?

And what about the lighting for your facility? The facility located close to Keenesburg, CO, is very bright with their lighting. And they are located way off of Interstate 76. Are you expecting to turn lights off or down in the evenings? It is understood that your facility will be a 24 hour 7 day a week plant.

And how about security? Will you have security guards? How secure will our property be with the increase of traffic and people? And what about terrorism? Do you have plans to keep someone from coming in and blowing up your property and that around you? Are you going to be able to control any activist groups that can cause problems for oil companies? You are fracking on the east side, correct?

We live in the country to get away from all these problems. We were able to secure and protect our own property when there was no one around to bother us in the country. It is bad

enough that Agriculture is being prosecuted as it is today, but now we have an oil company coming into our neighborhood and disrupting a solitary, peaceful, traffic free way of life. You are the nuisance of the Pit Bull bad dog syndrome, moving into a very established neighborhood, with the quality of country lifestyle. You have moved in and will be dangerous and loud, for your personal gain. So now the neighborhood has to move or change our lifestyle because of the mean, biting, barking dog? Example, Aurora, CO, where the pit bull is banned. They took care of the issue and did not make the people change their lifestyle due to the bad dog moving in to the neighborhood.

We would appreciate fair and honest answers to our questions and concerns. I am sure we have even more questions that we have not thought of yet. Most of all, how are you going to alleviate the issues that your plant now possesses in reference to our property at 22740 WCR 33, La Salle, CO? We believe that since you are going forth with your plan, you owe it to us, to buy our residential property, at the most recent appraised value, so we can relocate to a place where we can have the quality of life that we had here. Or you could find us a similar property. When Wayne Howard was working with the proposed Ethanol Plant, on what is now your property, they were working with us to accommodate us with the same issues. They even had a letter of intent to buy our property, and had appraisals done back then. When this plan all fell through, Wayne assured us that he was going to get the land back into Agriculture Production.

You are putting in a 40 million dollar plus facility and can not afford to take care of the neighbors?

Thank you.

Tim & Laurie Cook

tltkcook@kci.net

C:\pwworking\omald1687349\01C101.dwg, OVERALL SITE PLAN, 3/6/2015 7:48:18 AM, eolson

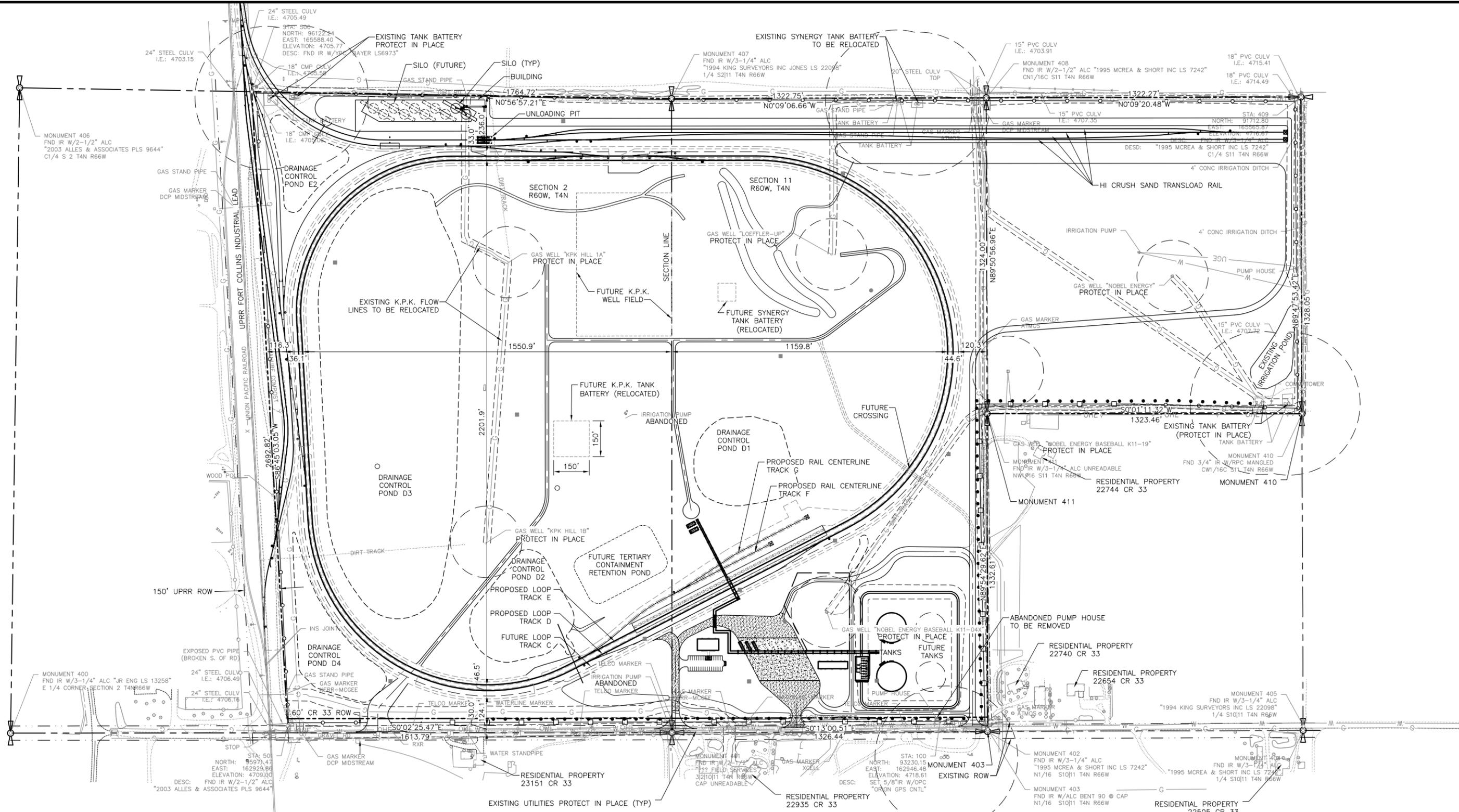
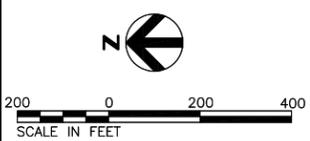


Exhibit A - Overall Site Plan

REV	DATE	AMR	PROJ. ENGR.	DESCRIPTION	BY	CKD	APP

DRAWN BY:	EO	LOCATION & DESCRIPTION:	ARB NIOBRARA CONNECTOR 7300 47TH AVENUE EVANS, COLORADO, 80645
CHECKED BY:	KB	SHEET TITLE:	OVERALL SITE PLAN
DATE:	03/06/2015		
SHEET NUMBER:	01C101		



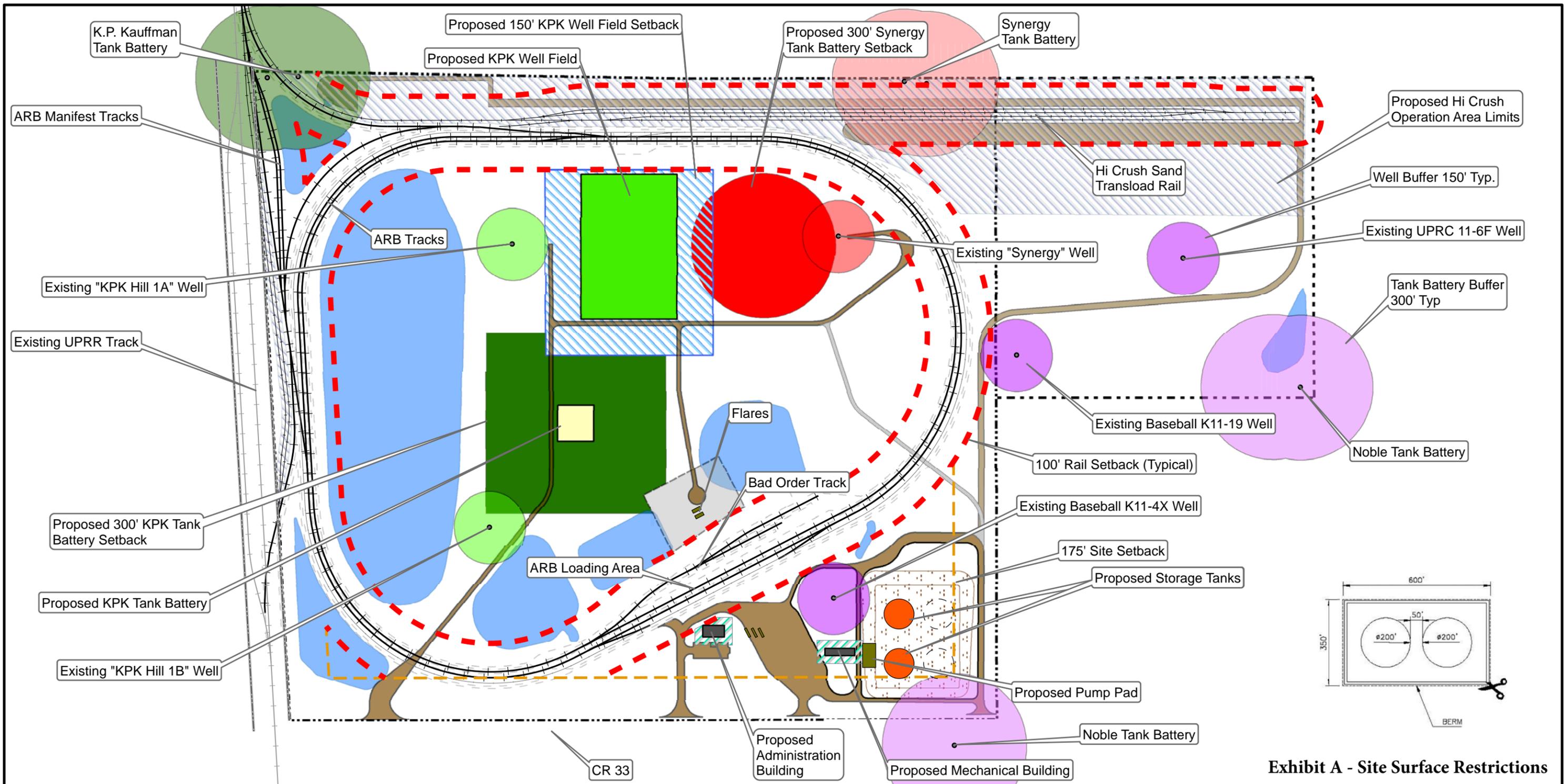


Exhibit A - Site Surface Restrictions

Legend

- | | | | |
|---|--|--|--|
| <ul style="list-style-type: none"> Proposed Building Proposed Storage Tanks Proposed Equipment Future Tanks 100' Rail Setback 175' Site Setback Existing UPRR Track Existing UPRR Right-of-Way | <ul style="list-style-type: none"> 33' Building Setback Proposed Hi Crush Operation Area Limits Existing 300' KPK Tank Battery Setback Existing 300' Synergy Tank Battery Setback Existing 300' Noble Tank Battery Setback Existing 150' KPK Well Setback Existing 150' Synergy Well Setback Existing 150' Noble Well Setback | <ul style="list-style-type: none"> ARB Access Roads Hi Crush Access Roads Future Road Rail Access Road Proposed 150' Flare Setback Proposed KPK Tank Battery Proposed KPK Well Field Proposed 150' KPK Well Field Setback | <ul style="list-style-type: none"> Proposed 300' KPK Tank Battery Setback Proposed 300' Synergy Tank Battery Setback Tank Containment Berm Proposed Drainage Ponds ARB Property Hi-Crush Property |
|---|--|--|--|

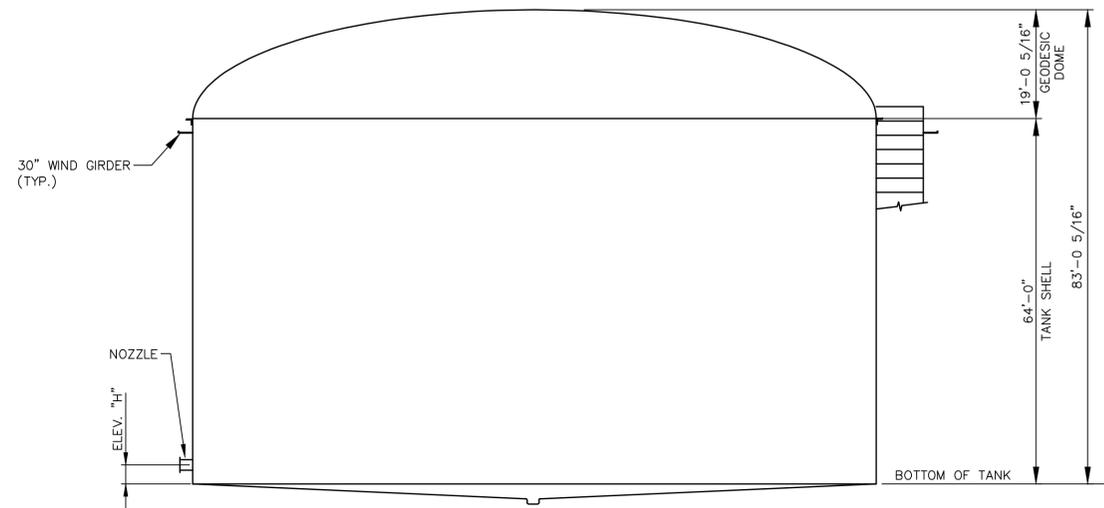
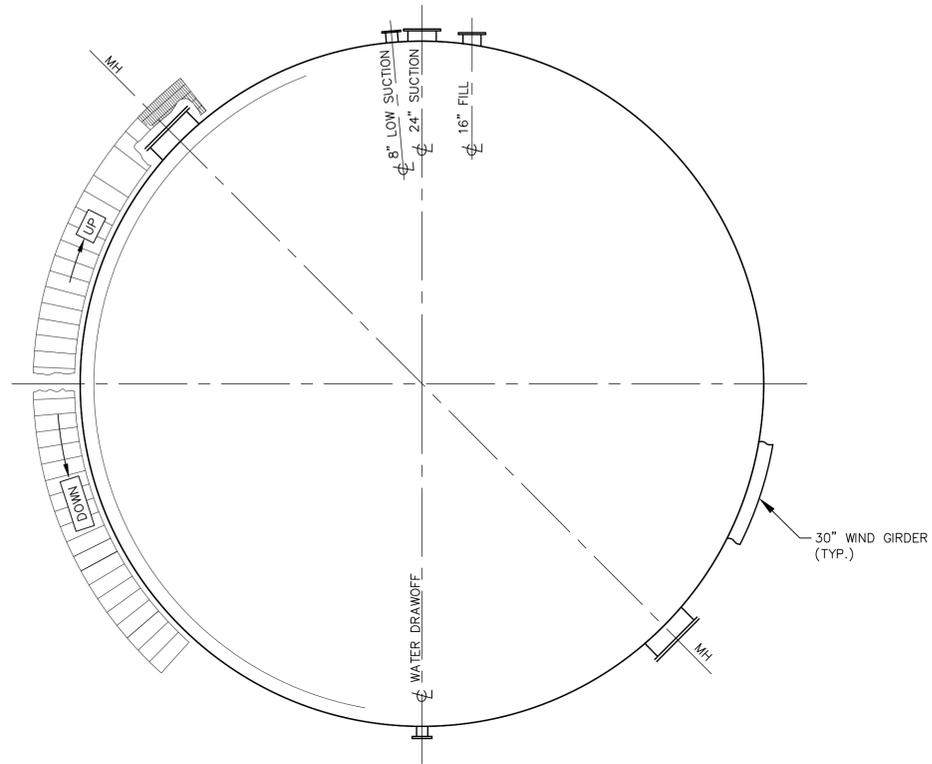


ARB Niobrara Connector

Site Setbacks



Last Updated On: 3/6/2015
Data Source(s): HDR, Esri



ELEVATION
SCALE: NONE

TANK No. 101 & 102

SCALE: NONE
(120'-0" DIA. x 64'-0" HIGH)

**PRELIMINARY
NOT FOR CONSTRUCTION**

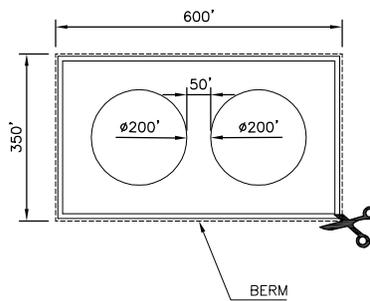
REV	DATE	AMR	PROJ. ENGR.	DESCRIPTION	BY	CKD	APP
0				ISSUED FOR REVIEW	SU		



DRAWN BY:	SU
CHECKED BY:	
DATE:	2/16/15
SHEET NUMBER	6537-T1

LOCATION & DESCRIPTION:
EVANS, COLORADO
NICON TERMINAL
ARB MIDSTREAM

SHEET TITLE:
Exhibit B
PRELIMINARY
GENERAL ARRANGEMENT
TANK 101 & 102



ARB NIOBRARA CONNECTOR
EXHIBIT B STORAGE TANK AREA & CONTAINMENT

PROJECT NUMBER

PROJECT MANAGER

DATE

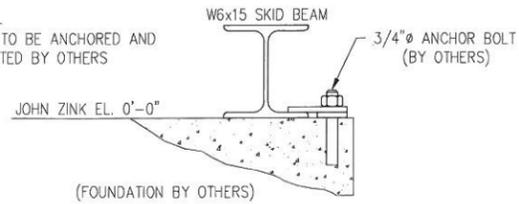
03/05/2015

REFERENCE SHEET

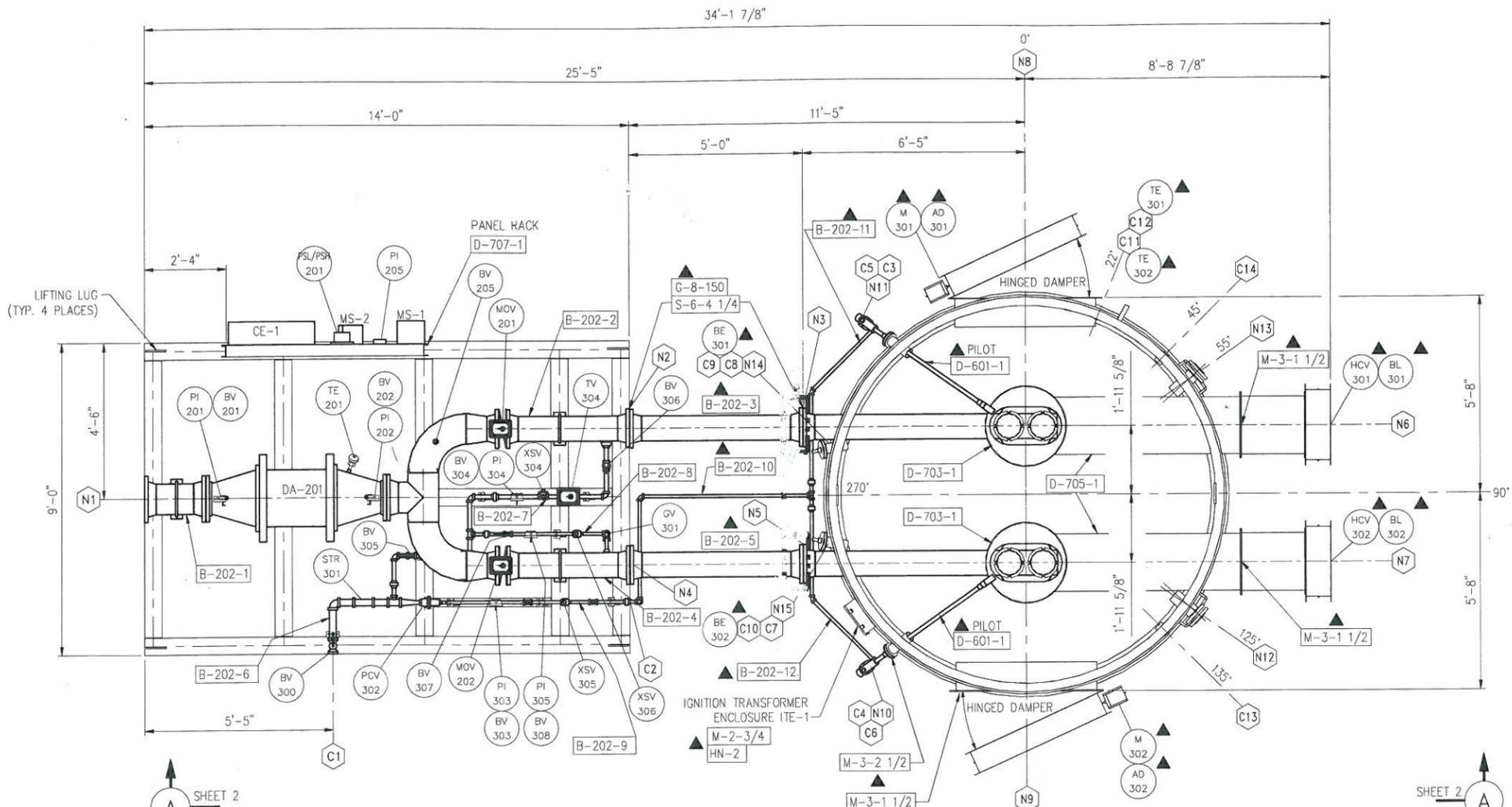
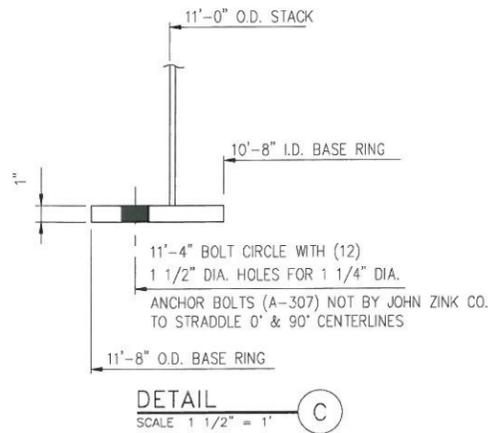
REFERENCE DOCUMENT

EXHIBIT NUMBER

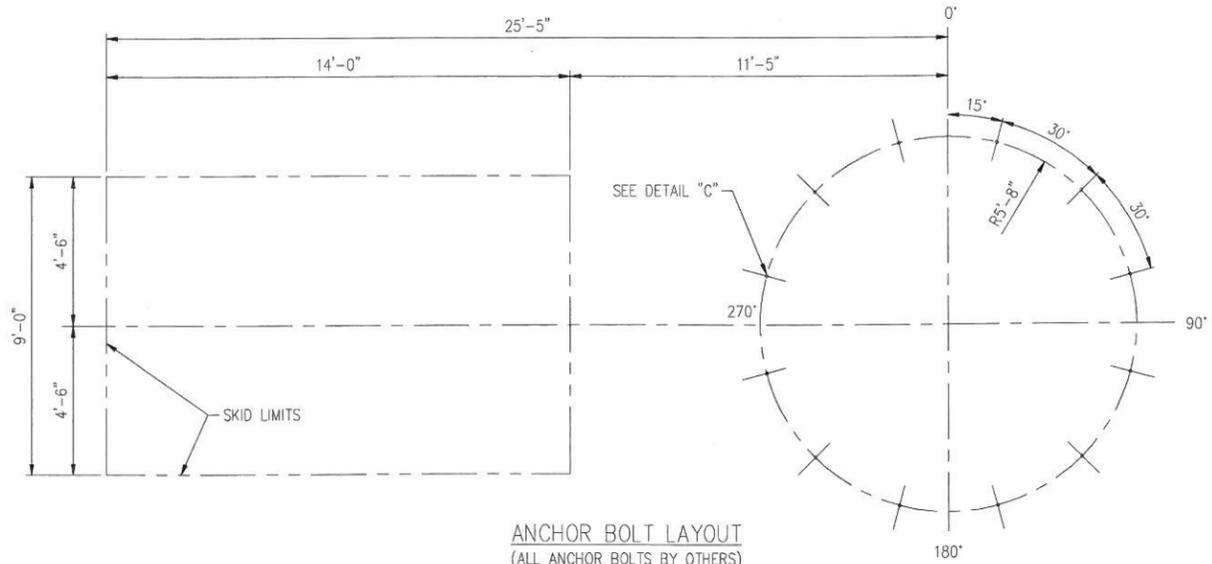
NOTE:
SKID TO BE ANCHORED AND GROUTED BY OTHERS



JOHN ZINK RECOMMENDED SKID ANCHOR DETAIL



PLAN
SCALE 1/4" = 1'-0"



ANCHOR BOLT LAYOUT
(ALL ANCHOR BOLTS BY OTHERS)
SEE SHEET D-VC-201 FOR DESIGN DATA

PRELIMINARY AND CONFIDENTIAL Exhibit C-1 -VCU Plan View

NO.	REVISION DESCRIPTION	BY	CK.	APP.	DATE

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JOHN ZINK
JOHN ZINK COMPANY LLC
PARTS AND SERVICE, CALL 1-800-755-4252 FAX (918) 234-1968

GENERAL ARRANGEMENT
PLAN VIEW
MODEL: ZCT 3-3-11-50-X-2/B-2/B

CERTIFIED: _____
SCALE: 1 of 3
REV: 0
DATE: _____

Notes and Specifications:

Building Erection Notes

- 1) The general contractor and/or erector is responsible to safely and properly erect the metal building system in conformance with these drawings, OSHA requirements, and MBMA standards pertaining to proper erection. This includes, but is not limited to, the correct use of temporary guys and bracing where needed for squaring, plumbing, and securing the structural and secondary framing. Secondary wall framing members (girts or bar joists) are not designed to function as a work platform or provide safety tie off attachment in accordance with OSHA requirements. Secondary roof framing members (purlins or bar joists) are not designed to provide safety tie off attachment in accordance with OSHA requirements.
- 2) All high strength bolts are type ASTM A325 and are to be installed to the " snug-tight " condition as defined by the RCSC specification for structural joints using A325 or A490 bolts, 2004 edition, section 8.1, unless noted otherwise. Also, note that bolts in standard holes do not require washers per the RCSC specification for structural joints using A325 or A490 bolts, section 6.
- 3) All A307 machine bolts are to be brought to a " snug tight " condition to ensure that the materials in the joint are brought into good contact with each other.
- 4) Washers are required at all slotted connections as follows:
 - a.) Hole to slot connection, one washer required on slotted side.
 - b.) Slot to slot connection, two washers required, one on each side of the connection.
 However at lapped zee members, whether purlins or girts, no washers are required in the 8-bolt lapped region.
- 5) The metal building supplier shall be notified prior to any field modifications. Modifications shall be approved by the metal building supplier before work is undertaken.
- 6) All welding must be performed by AWS qualified welders for the welding processes and positions indicated. All work must be completed and inspected in accordance with the applicable AWS specifications. Weld electrodes used for the SMAW (or stick) weld process must be 70 ksi steel and low hydrogen content.
- 7) Common Abbreviations
 - a) TYP UNO - Typical Unless Noted Otherwise
 - b) SLV - Short Leg Vertical
 - c) LLV - Long Leg Vertical
 - d) NS & FS - Near Side and Far Side
 - e) O.A.L. - Overall Length
 - f) SIM - Similar
 - g) NIC - Not In Contract
 - h) SL - Steel Line
 - i) N/A - Not Applicable
 - j) MBS - Metal Building Supplier
- 8) Construction loads shall not be placed on any structural steel framework unless such framework is safely bolted, welded, or otherwise adequately secured.
- 9) Purlins and girts shall not be used as an anchorage point for a fall arrest system unless written approval is obtained from the metal building supplier.
- 10) Purlins may only be used as a walking/working surface when installing safety systems, after all permanent bridging has been installed and fall protection is provided.
- 11) Construction loads may be placed only within a zone that is within 8 feet of the center-line of the primary support member. CFR bundles should be placed directly over the rigid frames.
- 12) All lifting devices must meet OSHA or MSHA standards and in no case is it acceptable to use structural members supplied by the MBS as a spreader bar or lifting device.

General Design Notes

- 1) All structural steel sections and welded plate members are designed in accordance with "CSA S16-01-Limit State Design of Steel Structures" and "CSA W59-03-Welded Steel Construction (Metal Arc Welding)".
- 2) All cold-formed steel members and structures are designed in accordance with "CSA S136-07 North American Specification For The Design Of Cold-Formed Steel Members".
- 3) All welding of structural and cold-formed steel is based on "CSA W59-03-Welded Steel Construction (Metal Arc Welding)" and "CSA W47.1-03-Certification Of Companies For Fusion Welding Of Steel".
- 4) Nucor Building Systems-IN, is certified to manufacture steel building system per "CSA W47.1-03-Certification Of Companies For Fusion Welding Of Steel".
- 5) Nucor Building Systems-IN, is certified to manufacture steel building systems per "CSA A660-Certification Of Manufactures Of Steel Building Systems".
- 6) The building erector should hold to the tolerances specified by "CSA S16-01-Limit States Design Of Steel Structures". Clause 29.7 On P. 112, during the erection of this structure.

Material Specifications

- Plate and Flange Material:
- 5"-12" Wide, Thru 1" Thick - A529, Grade 55
 - Others - A572, Grade 50 or A36
 - Built-Up Structural Web Material - A1011 SS (or HSLAS CL1) Grade 55
 - Hot-Rolled Structural - A572 Grade 50 or A992 Grade 50
 - Structural Tube - A500 Grade C (46 KSI)
 - Structural Pipe - A500 Grade B (42 KSI)
 - Cold-Formed Structural - A1011 or A1039 SS (or HSLAS CL1) Grade 55 MOD 57
 - RPB Roof Panels - A792 Grade 80
 - Standing Seam Roof Panels - A792 Grade 50, Class1
 - R-Panel and A-Panel - A653 Grade 80, Class 1 or A792 Grade 80, Class1
 - Rod Bracing - A529 Grade 50
 - Welds - CSA W59 & W47.1 Latest Edition
 - High-Strength Bolts - A325 Type 1 Heavy Hex or A490 Type 1 Heavy Hex
 - Machine Bolts - A-307 Grade A Hex



A DIVISION OF NUCOR CORPORATION



EXHIBIT D- TERMINAL ENCLOSURE

Building Loads:

Design Code:	Alberta (ABC 2006)
Building End Use:	2A - Manufacturing - Production
Building Occupancy:	II - Normal
Roof Live Load:	1.00(20.89) kPa(PSF)
REDUCIBLE PER CODE	
Ground Snow Load:	1.700(35.51) kPa(PSF)
Roof Rain Load:	0.100(2.09) kPa(PSF)
Snow Importance Factor, Is:	1.00
Seismic Information:	Sa (0.2):0.120, Sa (0.5):0.060 Sa (1.0):0.020, Sa (2.0):0.010 Fa:1.30, Fv:1.40
Seismic Imp. Factor Ie:	1.00
Seismic Design Category:	D
Analysis Procedure:	NBC, Part 4, Sub-section 4.1.8
Basic SFRS:	Conventional Steel Moment Frames & Conventional Steel Concentrically - Braced Frames
Wind Load 1/50:	0.360(7.52) kPa(PSF)
Wind Importance Factor, Iw:	1.00
Exposure:	Open
UL90:	Yes
	Classic Roof-Const. No. 161 Classic Roof w/Translucent Panel-Const. No. 167 CFR Roof-Const. No. 552 CFR Roof w/Translucent Pane-Const. No. 559 Composite CFR Roof-Const. No. 552A VR16 II Roof-Const. No. 332

Name	Building	
	#1, #3, & #4	
Roof Dead kPa(PSF)	0.240(5.00)	
Primary Collateral kPa(PSF)	0.480(10.00)	
Secondary Collateral kPa(PSF)	0.480(10.00)	
Snow Cw	1.00	
Snow Cs	1.00	
Roof Snow kPa(PSF)	1.460(30.49)	
Wind Enclosure	Category 3	
Transverse Response Modification RD	1.50	
Longitudinal Response Modification RD	1.50	
Overstrength Factor RO	1.30	
Base Shear kN(KIPS)	NA	

- 1) Collateral dead loads, unless otherwise noted, are assumed to be uniformly distributed. When suspended sprinkler systems, lighting, HVAC equipment, ceilings, etc., are suspended from roof members, consult the M.B.S. If these concentrated loads exceed 200 lbs, or if individual members are loaded significantly more than others.
- 2) The design of structural members supporting gravity loads is controlled by the more critical effect of roof live load or roof snow load, as determined by the applicable code.

Drawing Index

Cover Sheet:	<u>C1, C2</u>
Anchor Bolt Plan:	<u>F1, F2</u>
Anchor Bolt Details:	<u>FD1</u>
Primary Plans/Sections:	<u>P1, P2, P3, P4, P5, P6, P7</u>
Primary Details:	<u>PD1</u>
Roof Framing Plans:	<u>R1, R2, R3, R4, R5</u>
Roof Framing Details:	<u>RD1, RD2</u>
Wall Framing Elevations:	<u>W1, W2, W3, W4, W5, W6, W7</u> <u>W8</u>
Wall Framing Details:	<u>WD1, WD2</u>
Sheeting Drawings:	<u>S1, S2, S3, S4, S5, S6, S7</u> <u>S8, S9, S10, S11, S12, S13</u> <u>S14, S15, S16, S17, S18</u> <u>S19, S20, S21, S22, S23</u> <u>S24, S25, S26</u>
Sheeting Details:	<u>SD1, SD2, SD3, SD4, SD5</u> <u>SD6, SD7, SD8, SD9, SD10</u>

Required Manuals

- Wall Sheeting
H9430 - Erection Manual
- CFR Roof Sheeting
H9700 - Erection Manual
H9675 - Seaming Manual
H9850 - Single Curb Manual

PROJECT NAME TERMINAL TANK CAR LOADING RACK HARDISTY, AB	SHEET TITLE Coversheet	JOB NUMBER U13X0194A	SHEET 2 OF 2
	CUSTOMER NAME SAFE RACK LOADING RACK TECHNOLOGIES	JOB NUMBER U13X0194A	SHEET 2 OF 2
PROJECT NAME TERMINAL TANK CAR LOADING RACK HARDISTY, AB	SHEET TITLE Coversheet	JOB NUMBER U13X0194A	SHEET 2 OF 2
CUSTOMER NAME SAFE RACK LOADING RACK TECHNOLOGIES	JOB NUMBER U13X0194A	SHEET 2 OF 2	SHEET 2 OF 2

NUCOR
BUILDING SYSTEMS GROUP
1050 North Watery Lane
Brigham City, UT 84302
Phone: (435) 919-3100
Fax: (435) 919-3101

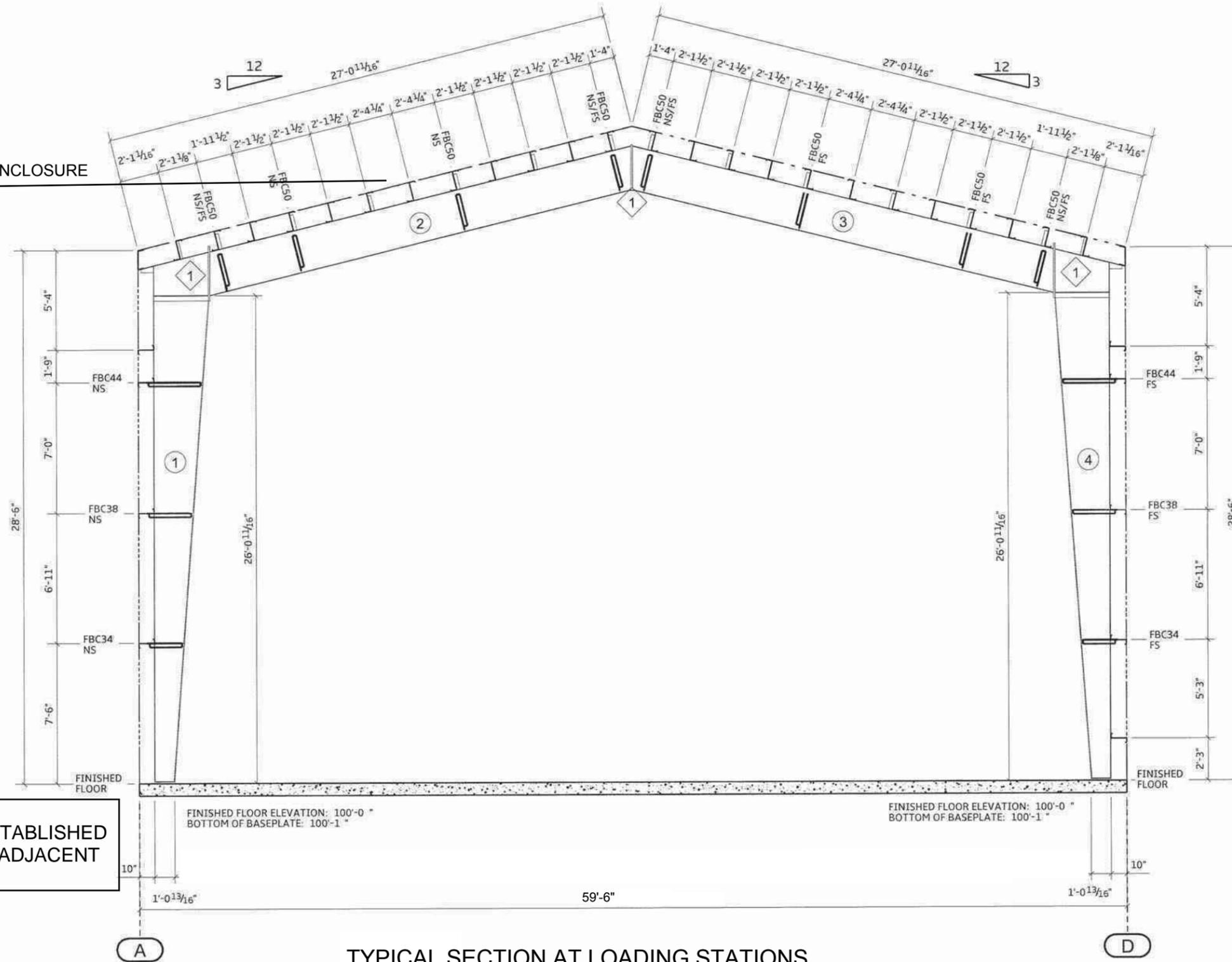
For Build Dept. Rev
REV. For Build Dept
Finals

TOWN	CHL	ENCL	DE	DATE
KDH	CBB	BWB	BDB	5/23/2013
NDD	LJB	BWB	BDB	6/12/2013
LJB	CBB	BWB	BDB	6/24/2013

JUN 27 2013

HEIGHT OF ENCLOSURE

32'-9"



NOTE:
ENCLOSURE HEIGHT IS ESTABLISHED FROM PROPOSED GRADE ADJACENT TO STRUCTURE.

FINISHED FLOOR ELEVATION: 100'-0" *
BOTTOM OF BASEPLATE: 100'-1" *

FINISHED FLOOR ELEVATION: 100'-0" *
BOTTOM OF BASEPLATE: 100'-1" *

TYPICAL SECTION AT LOADING STATIONS

For column and rafter mark numbers, see Mark Number Plan.

NS/FS indicates that flange bracing is required on both sides of the frame line.

For expandable endwall rigid frames, if flange bracing is required on both sides (NS/FS) of an expandable endframe, the opposite side flange brace will have to be installed at the time of expansion. These flange braces have been provided, as required, for this future condition.

If NS/FS is NOT indicated, only one flange brace is required and can be located on either side of the frame.

** indicates the long side of the interior columns. Columns at the ridge are typically "flat-top" columns, unless indicated by the "*" symbol.

Rigid frames shall have 50% of their bolts installed and tightened on both sides of the web adjacent to each flange before the hoisting equipment is released.

Material Schedule

ID	Low Plate		High Plate		Outside Flange		Inside Flange		Web		
	Width	Thick	Width	Thick	Width	Thick	Width	Thick	Depth1	Thick	Depth2
1	8.00	0.38	6.00	0.63	6.00	0.31	6.00	0.50	34.50	0.19	34.50
2	6.00	0.63	6.00	0.63	6.00	0.31	6.00	0.31	27.00	0.25	27.00
3	6.00	0.63	6.00	0.63	6.00	0.31	6.00	0.31	27.00	0.25	27.00
4	8.00	0.38	6.00	0.63	6.00	0.31	6.00	0.50	34.50	0.19	34.50
	-	-	-	-	-	-	-	-	12.00	0.16	34.50

Bolt Schedule

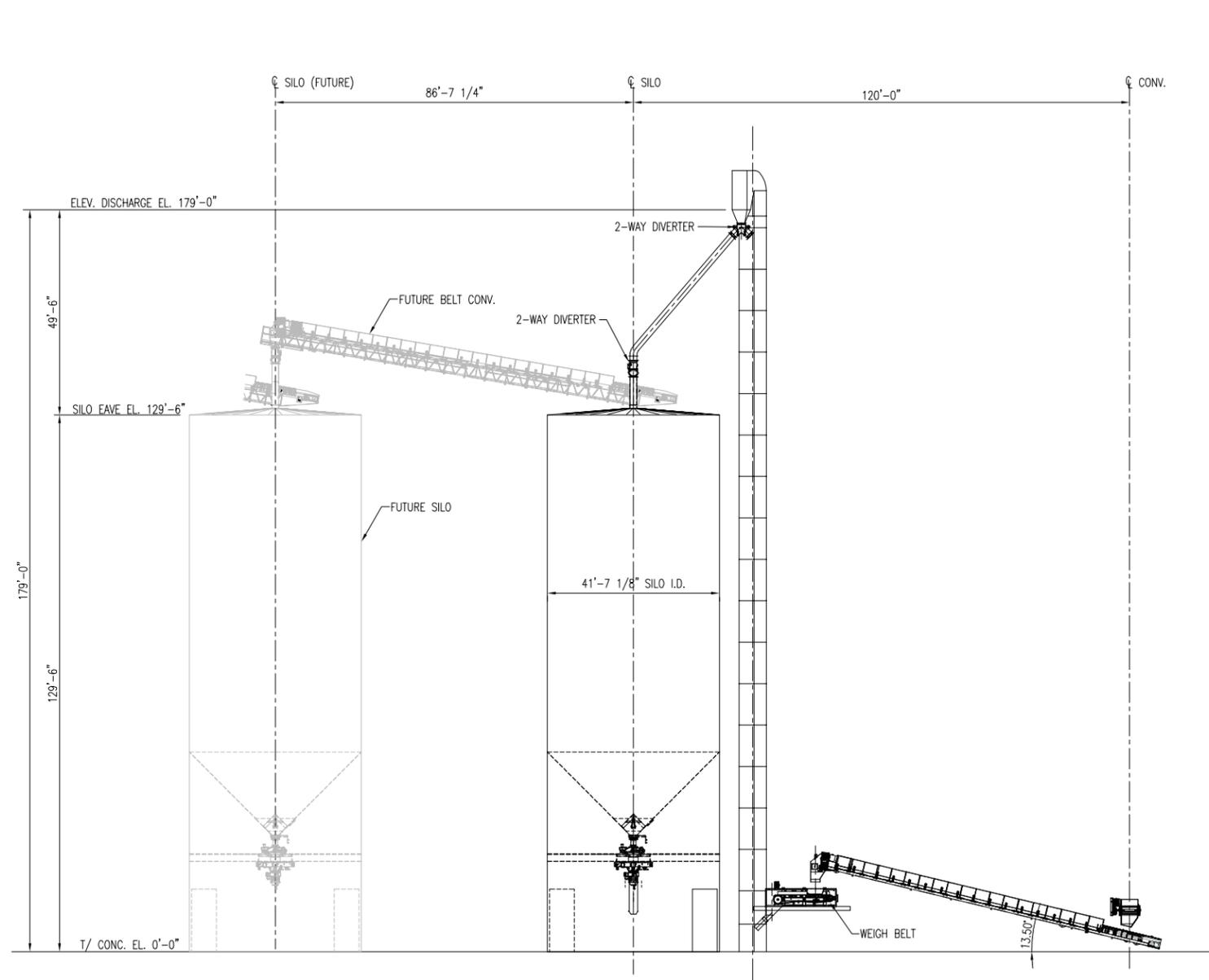
ID	Qty	Bolt Description	Bolt #	Nut #
1	8	7/8" X 3" A325	H0635	H0325

This seal remains only to the supplied by Nucor Building Systems, a division of Nucor, and the metal building which they represent are the product of Nucor Building Systems. The Nucor Building Systems engineer whose seal appears on these drawings is not to be construed as representing the project engineer or representing the project engineer (ACAT7)

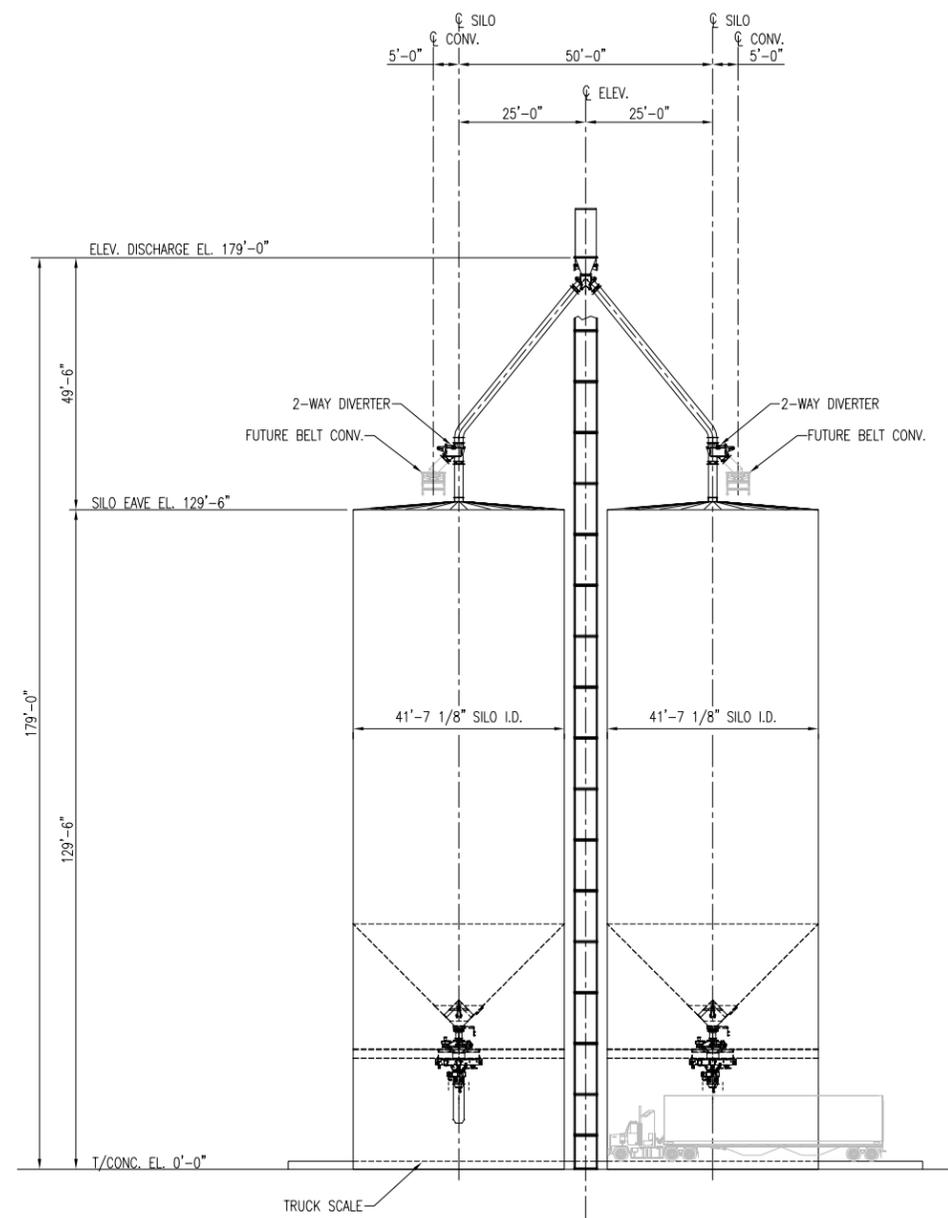
REV.	DATE	BY	CHK	APP	REV.	DATE	BY	CHK	APP
For Build Dept. Rev	5/23/2013	BDB	BDB						
REV. For Build Dept	6/12/2013	BDB	BDB						
Finals	6/24/2013	BDB	BDB						

NUCOR
BUILDING SYSTEMS GROUP
1050 North Watery Lane
Brigham City, UT 84302
Phone: (435) 919-3100
Fax: (435) 919-3101

PROJECT NAME
TERMINAL TANK CAR LOADING RACK
HARDISTY, AB
CUSTOMER NAME
SAFE RACK LOADING RACK TECHNOLOGIES
JOB NUMBER
U13X0194A
SHEET TITLE
Cross Section @ Lines 45 & 53



SECTION C-01
SCALE: 1/16"=1'-0"



SECTION D-01
SCALE: 1/16"=1'-0"

Exhibit E-1 - Silo

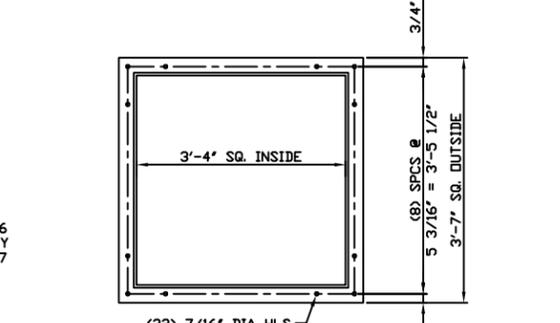
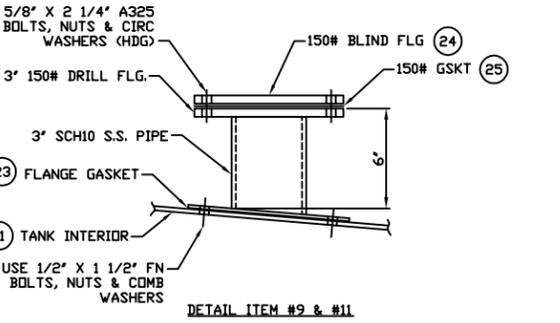
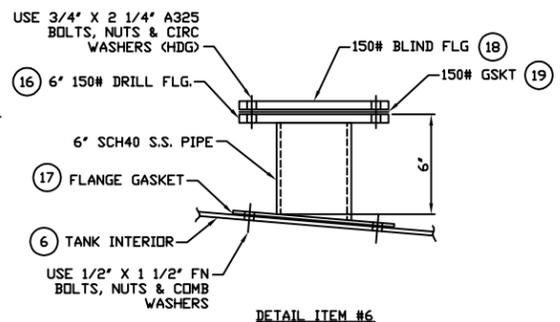
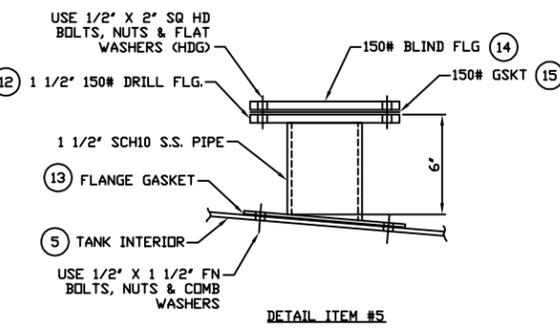
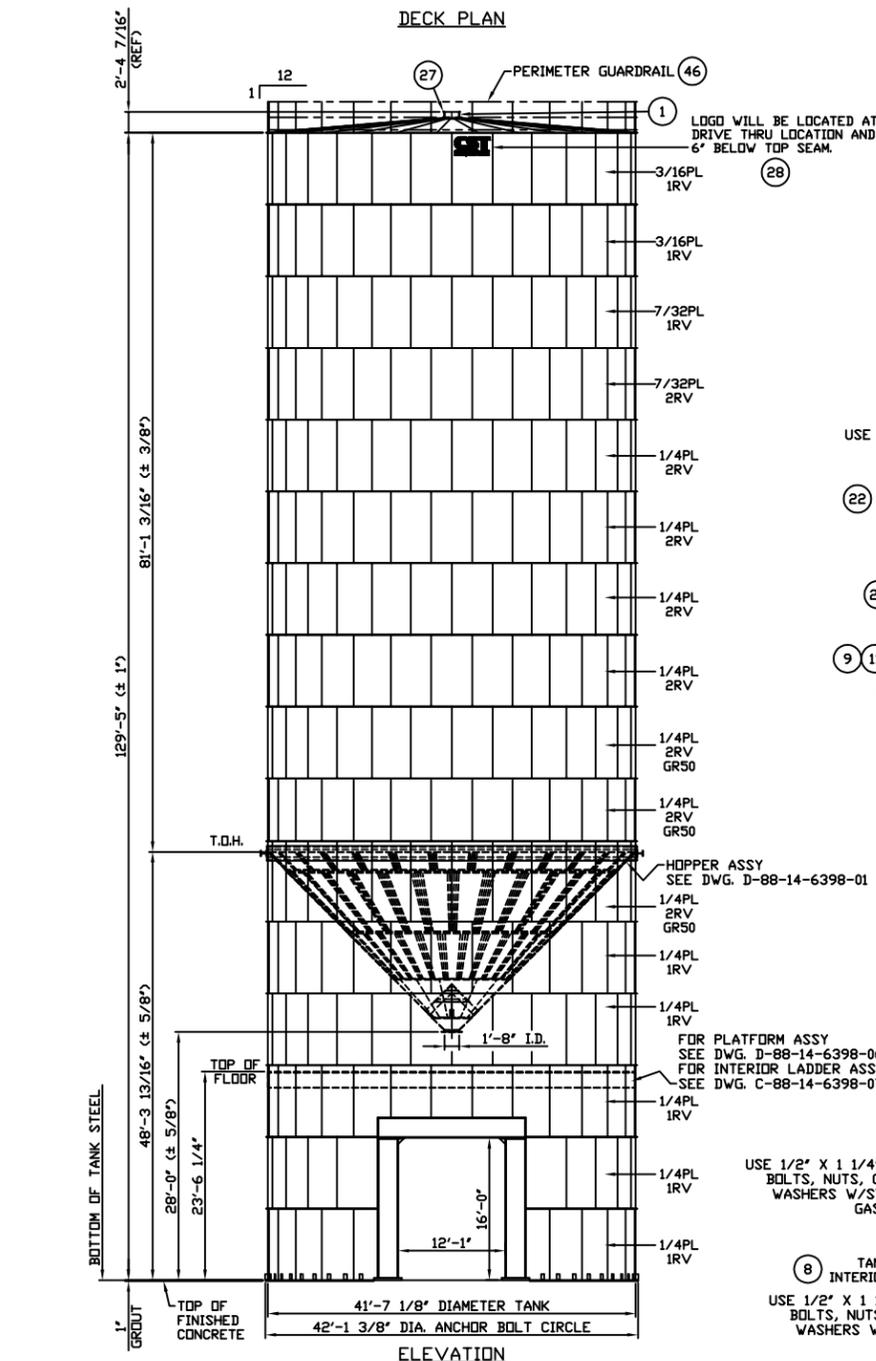
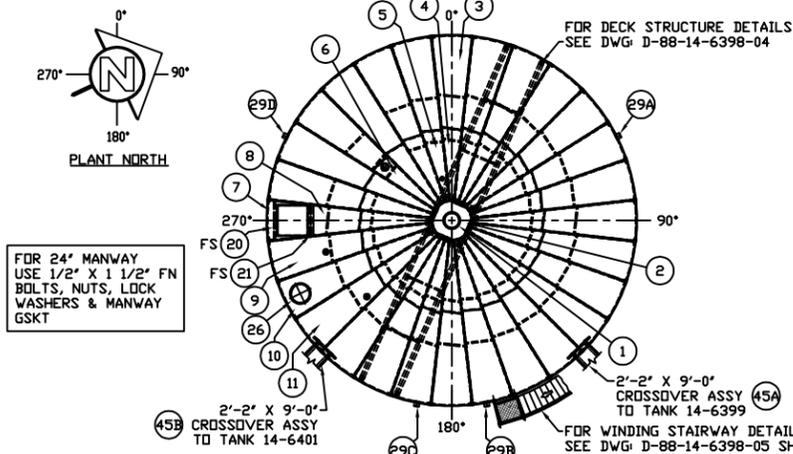
HICRUSH EVANS, CO
 TITLE: SAND DISTRIBUTION TERMINAL SECTIONS

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ENDECO ENGINEERS, INC.
 FIRM REGISTRATION NUMBERS
 AZ 14180-D SC 4460
 AR COA 686 TX F-001142
 LA 5192 WI 3826-11
 MS E-2638 WV CO4769-00
 MN OK CA 3633(FE)

REV	BY	DATE	DESCRIPTION
E	WBM	2-26-15	UPDATED ELEVATIONS
D	WBM	2-24-15	GENERAL REVISION
C	WBM	2-9-15	GENERAL REVISION
B	WBM	2-6-15	GENERAL REVISION
REFERENCE DRAWINGS			

JOB NO.	14135	ENDECO ENGINEERS, INC. Engineering-Design-Consulting 601 W. PINECREST DRIVE - MARSHALL, TEXAS 75670 (903) 935-9369	SHEET NO.	00000-03		
DESIGN BY	JMB	DRAWING BY	WBM	CHECKED BY	DATE	REV.
					1-17-15	E



ACCESSORY ORIENTATION CHART					
ITEM	SERVICE	SIZE	REF DEGREE	RADIUS	ELEVATION FROM BOTTOM OF TANK STEEL TO CTR OF ACCESSORY UNLESS NOTED OTHERWISE
1/27	DOMES NECK/COVER	20"	CTR	CTR	-----
2	351T10042	1			DECK COVER 30HL CTR 10GA
3	202T10042	24			DECK OUTER 10GA PLAIN
4	203T10042	26			DECK INNER 10GA
5	203T1042-146398A	1			DECK INNER 10GA W/1 1/2" FLG PCHG
6	203T0242-146398B	1			DECK INNER 1/4PL W/6" FLG PCHG
7	202T1042-146398A	1			DECK OUTER 10GA SPLC W/FILTER FLG ASSY
8	202T1042-146398B	1			DECK OUTER 10GA SPLC
9	202T1042-146398C	1			DECK OUTER 10GA W/3" FLG PCHG
10	202T1042-146398D	1			DECK OUTER 10GA W/24" MNWY PCHG
11	202T1042-146398E	1			DECK OUTER 10GA W/3" FLG PCHG
12	705T0514-146398A	1			FLG ASSY HILLSIDE 1 1/2" W/150# DF
13	8704BRV020HV	1			NOZZ HDW KIT W/GSKT 1 1/4"TD 2"
14	B 50-80-0921-02	1			FLANGE 1 1/2" DRILL BLIND 150#
15	747W00140	1			FLANGE GASKET 150# 1 1/2" EPDM
16	B 10-09-0879-96	1			FLG ASSY HILLSIDE 6" W/150# DF
17	8704BRV060HV	1			NOZZLE HDW KIT W/GSKT 6"
18	B 50-80-0921-60	1			FLANGE 6" DRILL BLIND 150#
19	747W00600	1			FLANGE GASKET 150# 6" EPDM
20	B 18-06-8025-00	1			STIFFENER ANGLE 2 1/2X 2 1/2X 1/4X 25HLS
21	B 18-06-8019-00	1			STIFFENER ANGLE 2 1/2X 2 1/2X 1/4X 19HLS
22	B 10-09-0905-39	2			FLG ASSY HILLSIDE 3" W/150# DF
23	8704BRV025HW	2			NOZZLE HDW KIT W/GSKT 2 1/2"TD 5"
24	B 50-80-0921-30	2			FLANGE 3" DRILL BLIND 150#
25	747W00300	2			FLANGE GASKET 150# 3" EPDM
26	L50-80-0548-42	1			MW/PRV 24" 2 OZ PRES-0.5 OZ VAC
27	351T10001	1			DOMES CVR 28 HL 10GA
28	10-00-0000-50	1			CST LOGO
29	695T0600-146398Z	4			CONVEYDR VERT SUPT W6 X 15# X 106 9/16"
30	777G00814	159			BOLT 1 1/2" X 1 1/2" LG FN M/G
31	790Z04000	180			WASHER 1/2" COMBINATION
32	782G00800	185			NUT 1 1/2" HEX HDG
33	751W00002	76			STRIP GASKET NON-REINF EPDM
34	777G00812	21			BOLT 1 1/2" X 1 1/4" LG FN M/G
35	775G00820	5			BOLT 1 1/2" X 2" LG SQ HD HDG
36	791M04125	5			WASHER 1/2" SAE FLAT MG
37	99-00-0206-30	9			BOLT 5/8" X 2 1/4" A325-93 TYPE 1 HDG
38	99-00-0205-15	9			WASHER 5/8" CIRCULAR TYPE 1 HDG
39	780GA1000	9			NUT 5/8" HEX GRADE DH A563 93 HDG
40	779GA1222	9			BOLT 3/4" X 2 1/4 A325-93 TYPE 1 HDG
41	791G06000	9			WASHER 3/4" CIRCULAR TYPE 1 HDG
42	780GA1200	9			NUT 3/4" HEX GRADE DH A563-93 HDG
43					
44	L50-00-0000-99	2			GUARDRAIL DPNG KIT
45	L50-83-0900-11	2			STANDARD CROSSOVER 9'-0" LG
46	L50-41-0504-00	1			41' PERIMETER GUARDRAIL DETAILS

REFERENCE DRAWINGS	
STANDARD DETAILS FOR FINE POWDER TANKS	B-50-00-0000-21 SHT 1
STANDARD PERIMETER GUARDRAIL ASSY	B-50-41-0504-00
STANDARD CROSSOVER ASSY	B-50-83-0900-11
ERECTION MANUAL (DRY)	CTT0369
INTERIOR LADDER ASSY	C-88-14-6398-07
HARDWARE	D-50-42-146398-01 SHTS 1 & 2
FLAT LAYOUT	D-88-14-6398-00
HOPPER ASSY	D-88-14-6398-01
PLAT PLAN	D-88-14-6398-02
DECK STRUCTURE ASSY W/(2) W18 X 35#	D-88-14-6398-04
WINDING STAIRWAY ASSY	D-88-14-6398-05 SHTS 1 & 2
INTERIOR PLATFORM ASSY	D-88-14-6398-06
DETAIL SHEET	D-88-14-6398-09
ANCHOR BOLT LAYOUT	D-88-14-6398-10

- NOTES:**
- THIS TANK IS DESIGNED FOR SYMMETRICAL LOADING (CENTER DISCHARGE) UNLESS DESIGNED FOR SIDE DISCHARGE. SOME DISCHARGE EQUIPMENT CONFIGURATIONS MAY CAUSE A NON-SYMMETRICAL DISCHARGE PATTERN WITH CERTAIN BULK SOLIDS WHICH COULD RESULT IN STRUCTURAL DAMAGE TO THE TANK. PRECAUTIONS SHOULD BE TAKEN TO INSURE THE PRODUCT FLOWS IN A SYMMETRICAL, CENTER DISCHARGE PATTERN. CST STORAGE IS NOT RESPONSIBLE FOR DAMAGE TO THE TANK AS A RESULT OF A PRODUCT FLOW PATTERN OTHER THAN THE INTENDED FLOW PATTERN. THIS TANK IS DESIGNED FOR LOADS FROM A DRY FREE FLOWING PRODUCT OF THE INDICATED DENSITY AND FLOW PATTERN, AND IS NOT DESIGNED FOR BRIDGING OR MASS FALLING CONDITIONS.
 - DO NOT FIELD CUT ANY OPENINGS IN TANK OR APPLY LOADS TO TANK FROM EQUIPMENT, OTHER THAN NOTED ON THIS DRAWING, WITHOUT APPROVAL IN WRITING BY CST STORAGE PRIOR TO INSTALLATION.
 - THIS TANK IS DESIGNED AS AN ATMOSPHERIC UNIT THAT OPERATES ON AN EQUALIZED PRESSURE INTERNALLY AND EXTERNALLY. CUSTOMER IS TO ASSURE PROPER VENTILATION IS PROVIDED AND MAINTAINED.
 - GROUT UNDER BASE PLATES OF COLUMNS AND ENTIRE TANK CHIME AS SHOWN ON ERECTION DRAWING. GROUT IS TO BE A HIGH STRENGTH NON-SHRINKING GROUT WITH A MINIMUM COMPRESSION STRENGTH OF 7000 P.S.I. AT 28 DAYS. AND IS TO BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - FOR COMPLETE ERECTION DETAILS, SEE CST STORAGE'S STANDARD DRY TANK ERECTION MANUAL CTT0369.
 - FOR TANKS SUPPORTED ON STRUCTURAL STEEL, SHIMMING MAY BE REQUIRED BETWEEN THE TANK BASE AND STRUCTURE TO ACHIEVE COMPLETE SUPPORT. SHIMS ARE TO BE FURNISHED AND INSTALLED BY OTHERS.
 - FOR TANKS WITH HOPPERS, ALLOWANCE FOR UNRESTRICTED EXPANSION AND CONTRACTION OF THE HOPPER IS REQUIRED. FLEXIBLE CONNECTIONS OR OTHER DEVICES TO BE DESIGNED, FURNISHED, AND INSTALLED BY OTHERS.

TANK DATA:

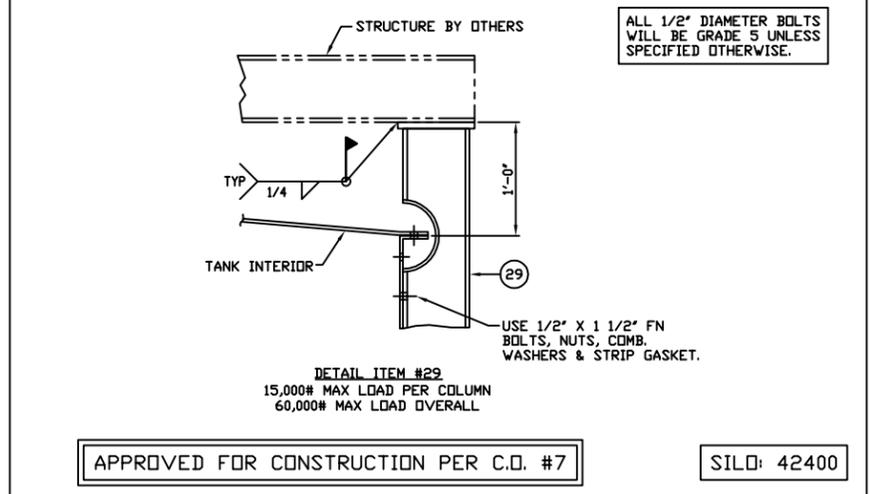
- TANK COATING: INTERIOR PRODUCT ZONE: TRICO BOND EP
INTERIOR SKIRT: TRICO BOND EP
EXTERIOR: TRICO BOND EP W/DOLYMPUS WHITE PERFORMANCE URETHANE
- HARDWARE: GALVANIZED BOLTS W/FLAT WASHERS & HDG HEX NUTS. COMBINATION WASHERS FOR HOPPER, DECK AND TOP CHIME.
- GASKETING: EPDM

DESIGN DATA:

1) PRODUCT	FRAC SAND
2) PRODUCT COMPACTED BULK DENSITY	110 LB./CU. FT.
3) ESTIMATED VOLUME	120,094 CU. FT. (LEVEL FULL)
4) FLOW PATTERN	FUNNEL FLOW
5) CENTER FILL, CENTER DISCHARGE	
6) DESIGN PRESSURE POSITIVE	2.00 OZ./SQ. IN.
DESIGN PRESSURE NEGATIVE	0.50 OZ./SQ. IN.
7) DECK LIVE LOAD	45 LB./SQ. FT.
8) WIND LOAD PER IBC 2009/ASCE 7-05	115 MPH, EXP. C, Iw=1.0
9) SEISMIC PER IBC 2009/ASCE 7-05	Ss=12.18%, S1=4.94%, Sds=0.130, Sd1=0.079

SITE CLASS D, OCCUPANCY CAT 2, DESIGN CAT. B, Ie=1.0, R = 3, V = 0.034W

ITEM NO./S	PART NO.	QTY	DESCRIPTION	PAINT
1	350T10005	1	DOMES NECK 30-28 HL W/NECK PCHG	E/ET
2	351T10042	1	DECK COVER 30HL CTR 10GA	E/ET
3	202T10042	24	DECK OUTER 10GA PLAIN	E/ET
4	203T10042	26	DECK INNER 10GA	E/ET
5	203T1042-146398A	1	DECK INNER 10GA W/1 1/2" FLG PCHG	E/ET
6	203T0242-146398B	1	DECK INNER 1/4PL W/6" FLG PCHG	E/ET
7	202T1042-146398A	1	DECK OUTER 10GA SPLC W/FILTER FLG ASSY	E/ET
8	202T1042-146398B	1	DECK OUTER 10GA SPLC	E/ET
9	202T1042-146398C	1	DECK OUTER 10GA W/3" FLG PCHG	E/ET
10	202T1042-146398D	1	DECK OUTER 10GA W/24" MNWY PCHG	E/ET
11	202T1042-146398E	1	DECK OUTER 10GA W/3" FLG PCHG	E/ET
12	705T0514-146398A	1	FLG ASSY HILLSIDE 1 1/2" W/150# DF	E/ET
13	8704BRV020HV	1	NOZZ HDW KIT W/GSKT 1 1/4"TD 2"	N
14	B 50-80-0921-02	1	FLANGE 1 1/2" DRILL BLIND 150#	E/ET
15	747W00140	1	FLANGE GASKET 150# 1 1/2" EPDM	N
16	B 10-09-0879-96	1	FLG ASSY HILLSIDE 6" W/150# DF	E/ET
17	8704BRV060HV	1	NOZZLE HDW KIT W/GSKT 6"	N
18	B 50-80-0921-60	1	FLANGE 6" DRILL BLIND 150#	E/ET
19	747W00600	1	FLANGE GASKET 150# 6" EPDM	N
20	B 18-06-8025-00	1	STIFFENER ANGLE 2 1/2X 2 1/2X 1/4X 25HLS	E
21	B 18-06-8019-00	1	STIFFENER ANGLE 2 1/2X 2 1/2X 1/4X 19HLS	E
22	B 10-09-0905-39	2	FLG ASSY HILLSIDE 3" W/150# DF	E/ET
23	8704BRV025HW	2	NOZZLE HDW KIT W/GSKT 2 1/2"TD 5"	N
24	B 50-80-0921-30	2	FLANGE 3" DRILL BLIND 150#	E/ET
25	747W00300	2	FLANGE GASKET 150# 3" EPDM	N
26	L50-80-0548-42	1	MW/PRV 24" 2 OZ PRES-0.5 OZ VAC	N
27	351T10001	1	DOMES CVR 28 HL 10GA	E/ET
28	10-00-0000-50	1	CST LOGO	N
29	695T0600-146398Z	4	CONVEYDR VERT SUPT W6 X 15# X 106 9/16"	ET
30	777G00814	159	BOLT 1 1/2" X 1 1/2" LG FN M/G	N
31	790Z04000	180	WASHER 1/2" COMBINATION	N
32	782G00800	185	NUT 1 1/2" HEX HDG	N
33	751W00002	76	STRIP GASKET NON-REINF EPDM	N
34	777G00812	21	BOLT 1 1/2" X 1 1/4" LG FN M/G	N
35	775G00820	5	BOLT 1 1/2" X 2" LG SQ HD HDG	N
36	791M04125	5	WASHER 1/2" SAE FLAT MG	N
37	99-00-0206-30	9	BOLT 5/8" X 2 1/4" A325-93 TYPE 1 HDG	N
38	99-00-0205-15	9	WASHER 5/8" CIRCULAR TYPE 1 HDG	N
39	780GA1000	9	NUT 5/8" HEX GRADE DH A563 93 HDG	N
40	779GA1222	9	BOLT 3/4" X 2 1/4 A325-93 TYPE 1 HDG	N
41	791G06000	9	WASHER 3/4" CIRCULAR TYPE 1 HDG	N
42	780GA1200	9	NUT 3/4" HEX GRADE DH A563-93 HDG	N
43				
44	L50-00-0000-99	2	GUARDRAIL DPNG KIT	Z
45	L50-83-0900-11	2	STANDARD CROSSOVER 9'-0" LG	Z
46	L50-41-0504-00	1	41' PERIMETER GUARDRAIL DETAILS	Z



APPROVED FOR CONSTRUCTION PER C.O. #7

SIL: 42400

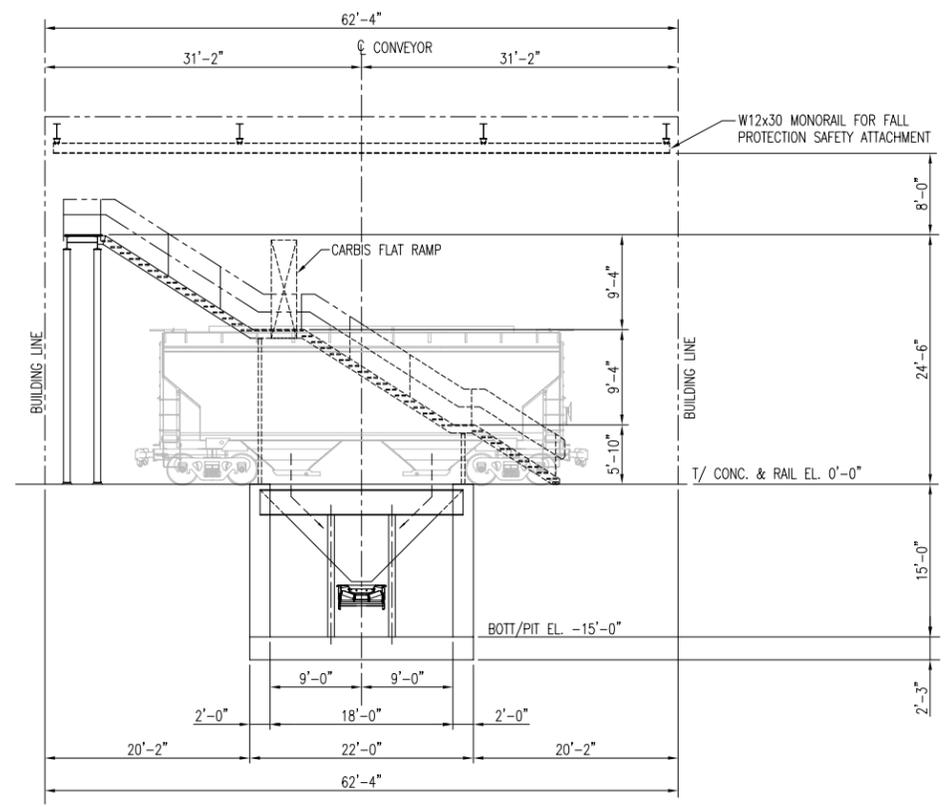
REV	REVISION	BY	CHKD	APR.	DATE

ELEVATION, DECK & BILL OF MATERIAL
41'-7 1/8"ø x 129' HIGH TANK
HI CRUSH
MINGO JUNCTION, OH; USA

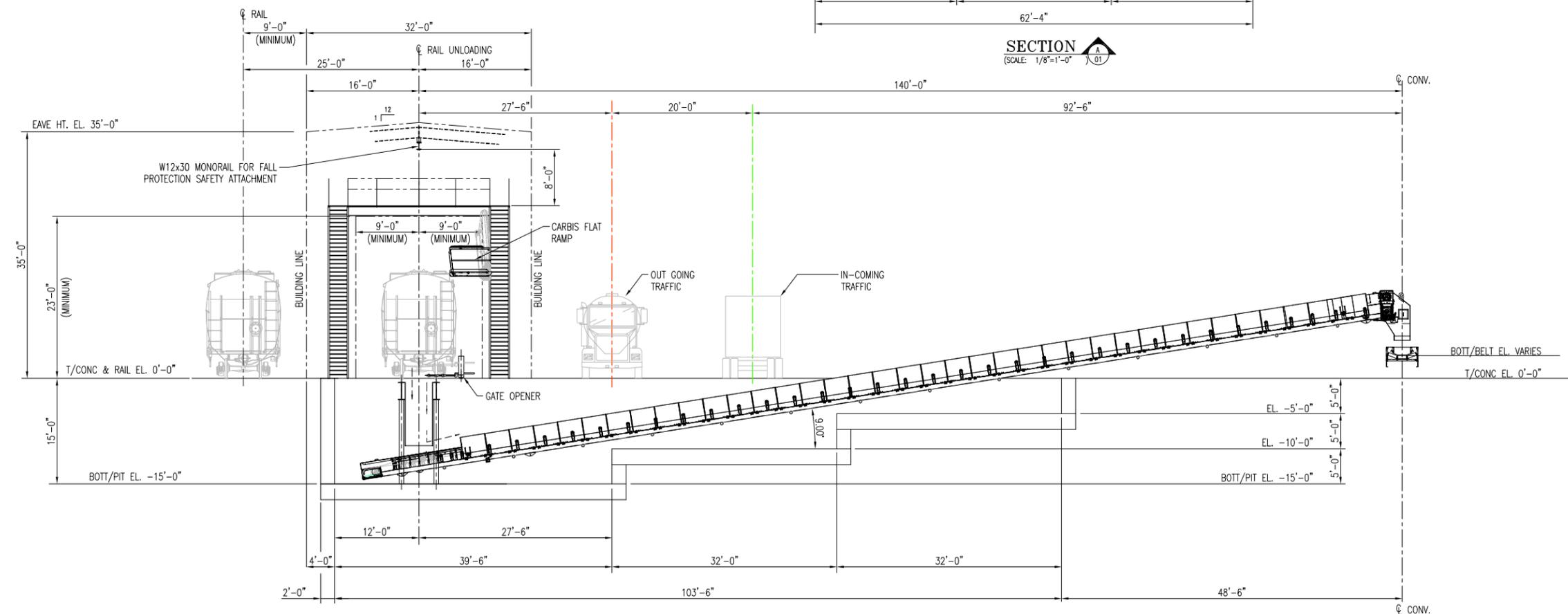
CST STORAGE

BY: JH DATE: 9/26/2014 ORDER NO.: DRAWING NO.:
 CHKD: DH DATE: 9/26/2014 14-6398 D-50-42-146398-00
 APPR: DRS DATE: 9/26/2014

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



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

Exhibit E-2 - Conveyor

HI CRUSH		EVANS, CO	
TITLE: SAND DISTRIBUTION TERMINAL SECTIONS			
JOB NO.	EnDeCo Engineers, Inc. Engineering-Design-Consulting 601 W. PINECREST DRIVE - MARSHALL, TEXAS 75670 (903) 935-9369	SHEET NO.	
14135		00000-02	
DESIGN BY	DRAWING BY	CHECKED BY	DATE
JMB	WBM		1-17-15
REV	BY	DATE	REV.
			E

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EnDeCo ENGINEERS, INC.
FIRM REGISTRATION NUMBERS:
AZ 14180-0 SC 4460
AR COA 686 TX F-001142
LA 5192 WI 3826-11
MS E-2638 WV CO4769-00
MN OK CA 3633(PE)

REV	BY	DATE	DESCRIPTION
E	WBM	2-26-15	UPDATED ELEVATIONS
D	WBM	2-24-15	REVISED PIT AREA
C	WBM	2-9-15	GENERAL REVISION
B	WBM	2-6-15	GENERAL REVISION
REFERENCE DRAWINGS			

