PORT CORPUS CHRISTI

Project No. 17-033B

September 13, 2017

TO ALL POTENTIAL BIDDERS

Subject: Addendum No. 3 for the Bulk Liquid Handling Facility at Bulk Dock 3

Ladies/Gentlemen:

This addendum is considered part of the Contract Documents and is issued to change, amplify, add to, delete from, or otherwise explain the Contract Documents. Where provisions of this addendum differ from those of the original Contract Documents, this addendum will take precedence and govern.

Bidders are hereby notified that they must incorporate this addendum into their bids, and it will be construed that the contractor's bid reflects with full knowledge all items, changes, and modifications to the Contract Documents herein specified. Bidders will acknowledge receipt of this addendum in the space provided on the Bid form.

BID BREAKDOWN SHEET

REMOVE Bid Breakdown Sheet in its entirety and **REPLACE** with *2nd Revision* Bid Breakdown Sheet

SPECIAL CONDITIONS

REMOVE Special Conditions in its entirety and **REPLACE** with *2nd Revision* Special Conditions

DRAWINGS ISSUED FOR BID

ADD notes to drawing number 17-033B-35 SHIP MOORING LAYOUT:
"2. This layout is for reference only."
"3. See drawing number 17-033B-47 for locations of new monopile mooring structures."

ADD drawing number 17-033B-47 MOORING STRUCTION LAYOUT

ADD drawing number 17-033B-48 MOORING MONOPILE NMS1 & NMS2 DETAILS

ADD drawing number 17-033B-49 EXISTING BREASTING STRUCTURE MODIFICATION DETAILS

ADD attached BILL OF MATERIALS table to drawing number 17-033B-134 BILL OF MATERIAL-2 for reference

REMOVE 50 KVA transformer reference on drawing number 17-033B-302, and **REPLACE** with 75KVA transformer Square-D manufacturer (EX75T3HCU) or equal

ADD note to drawing number 17-033B-302:
"Conduits 113 – 117 are shown incorrectly on drawing 17-033B-302. Refer to Conduit and Cable Schedule (drawing 17-033B-304) and Conduit Layout (drawing 17-033B-305) for conduit numbering."

ADD note to drawing number 17-033B-307:
"5. The Pull Boxes shall be manufactured by Old Castle or equal. Large Pull Box shall be Carson 2436 and 36" deep and E-PB-01 & 02 will be Carson 2424 and 24" deep."

ADD note to drawing number 17-033B-322:
"5. Static ground system shall be RETRACT-A-CLAMP-COILED MOD#RAC 20 or equal."

ADD drawing number 17-033B-356 DETAILS in reference to Cable Trays

ADD drawing number 17-033B-357 MISCELLANEOUS DETAILS & VCU #2 BUILDING LAYOUT

REFERENCE DRAWINGS

ADD the following drawings to Appendix A - Control Narrative and Reference Drawings:

CHAMPION TECHNOLOGY SERVICES DRAWINGS

SH 001	974-004+A01-WN-001	TITLE SHEET AND DRAWINGS INDEX
SH 002	974-004+A01-WN-002	TITLE SHEET AND DRAWINGS INDEX
SH 101	974-004+A01-WL-101	PLC ENCLOSURE LAYOUT
SH 102	974-004+A01-WL-102	PLC BACKPANEL LAYOUT
SH 301	974-004+A01-WE-301	PLC PANEL RACK 0
SH 401	974-004+A01-WE-401	PLC PANEL RACK 0
SH 411	974-004+A01-WE-411	RACK 0, MODULE 1
SH 412	974-004+A01-WE-412	RACK 0, MODULE 2, 3
SH 413	974-004+A01-WE-413	RACK 0, MODULE 4, 5
SH 414	974-004+A01-WE-414	RACK 0, MODULE 6

FLINT HILLS RESOURCES TRANSLOADER PHASE
PR-PID-0002_06 REV 2: TRANSLOADER TRAILER P&ID (TYP 8 PLACES)
PD-PID-0002_03 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PID-0002_02 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PIP-0002_04 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PIP-0002_01 REV 1: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PR-PFD-0001_01 REV 4: PROCESS FLOW DIAGRAM
PR-PID-0002_06 REV 3: TRANSLOADER TRAILER P&ID (TYP 8 PLACES)

Sincerely,

Carlos Martinez, P.E.
Project Manager

CM/clh

Enclosures

Cc: Sean Strawbridge
Kresten Cook
David L. Krams
David Michaelsen
Sarah Garza
Brett Flint
Sonya Lopez-Sosa

(Company Name)

2nd Revision BID BREAKDOWN SHEET
BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
PORT OF CORPUS CHRISTI AUTHORITY

BREAKDOWN OF BID PRICES

This breakdown is a part of the Contract Documents and is designed to help the PCCA evaluate the bids to detect possible errors or omissions and to establish values for the individual items of work so that modifications to the contract can be more easily resolved. Please fill out the items listed below so that the total matches the prices shown on the bid. The bidder is invited to include his own estimates if he so chooses.

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
BASE BID						
General						
1.01	Mobilization/Demobilization	LS	1		$	$
1.02	Bonds and Insurance	LS	1		$	$
General Civil & Site Improvements						
2.01	Best Management Practices/StormWater Pollution Prevention Plan implementation and monitoring	LS	1		$	$
2.02	Site Demolition and Clearing (including dock modification)	LS	1		$	$
2.03	Limestone Flexible Base (TxDOT Item 247, TY A GR 1)	CY	200		$	$
2.04	Security Personnel Gate	EA	1		$	$
Foundation and Structural Work						
3.01	30-inch diameter pile foundation system for Convey System (Dock to Road Crossing)	LF	300		$	$
3.02	Pipe bridge foundation for Convey System	CY	19		$	$
3.03	Structural Steel and modifications for Convey System	LB	10,500		$	$
3.04	Relocation, transport, un-assembly/reassembly and erection of existing steel bridge for Convey System	LS	1		$	$
3.05	18-inch diameter pile foundation system for miscellaneous pipe supports	LF	400		$	$

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
3.06	Concrete cap for miscellaneous pipe supports	CY	12		$	$
3.07	Insepct, receive, and take delivey of up to nine mettering skids	LS	1		$	$
3.08	Structural Steel for miscellaneous pipe supports	LB	21,650		$	$
3.09	Excavation work for VCU #1, Blower and Knockout Drum Foundations	CY	35		$	$
3.10	Concrete foundations for VCU #1 Blower and Knockout Drum Skid	CY	40		$	$
3.11	18-inch diameter pile foundation system for VCU #2, Blower & Knockout Drum	LF	1,185		$	$
3.12	Excavation work for VCU #2, Blower and Knockout Drum Foundations	CY	80		$	$
3.13	Concrete foundations for VCU #2 Blower and Knockout Drum Skid	CY	75		$	$
3.14	Excavation work for Misc. Pipe Support Sleepers	CY	85		$	$
3.15	Concrete foundation for Misc. Pipe Support Sleepers	CY	50		$	$
3.16	18-inch diameter pile foundation system for Slop Tank	LF	160		$	$
3.17	Concrete slab and containment walls for Slop Tank	CY	50		$	$
3.18	18-inch diameter pile foundation system for control room VCU#1 & control room VCU#2	LF	280		$	$
3.19	18-inch diameter pile foundation system for miscellaneous T supports	LF	170		$	$
3.20	Miscellaneous Structural Steel	LB	31,900		$	$
3.21	Concrete Pad for AEP Transformer	LS	1		$	$
3.22	Miscellaneous Concrete Slabs and Pads including compressor, Nitrogen Service, stairs, etc.	LS	1		$	$
3.23	Asphalt Parking Lot Repair (Full Depth)(existing cross section or better)	SY	40		$	$

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
3.24	Temporary VCU#1 (if requred as determined by the Contractor), including providing, installation Commissioning, Testing, Fuel, and all other requirements for a functioning system	LS	1		$	$
Prefabricated Buildings						
4.01	Furnish and Install climate controlled Prefab Building for Electrical Main Power Panel and Vapor Combustor Unit (VCU) #1 Programmable Logic Controller	LS	1		$	$
4.02	Relocate and reinstall existing climate controlled building from Oil Dock 1	LS	1		$	$
Piping & Mechanical						
5.01	Piping & Mechanical Demolition on Flaoting Barge to accommodate the installation of new piping	LS	1		$	$
5.02	Acquire and install rental VCU unit for seven months complete with rental propane gas tank, as per specifications of John Zink	LS	1		$	$
5.03	Purchase & install VCU #1 piping per specifications	LS	1		$	$
5.04	16-inch Dia Carbon Steel Pipe with Appurtenances	LF	880		$	$
5.05	12-inch Dia Carbon Steel Pipe with Appurtenances	LF	1,390		$	$
5.06	4-inch Dia Carbon Steel Pipe with Appurtenances	LF	920		$	$
5.07	2-inch Dia Carbon Steel Pipe with Appurtenances (A53)	LF	450		$	$
5.08	2-inch Dia Carbon Steel Pipe with Appurtenances (A106)	LF	340		$	$
5.09	15 HP Air Compressor	EA	2		$	$
5.10	6-inch Dia Carbon Steel Pipe with Appurtenances	LF	1,650		$	$
5.11	3-inch Dia Carbon Steel Pipe with Appurtenances	LF	330		$	$
5.12	1 1/2-inch Dia Carbon Steel Pipe with Appurtenances	LF	120		$	$
5.13	1-inch Dia Carbon Steel Pipe with Appurtenances	LF	250		$	$
5.14	4-inch Flex Hose Vapor Line with Fittings (9 Locations)	LF	405		$	$
5.15	2-inch Flex Hoses	LF	24		$	$
5.16	1 1/2-inch Flex Hoses	LF	350		$	$

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
5.17	1-inch Flex Hoses	LF	400		$	$
5.18	8-Foot Dia. Slop Tank	LS	1		$	$
5.19	Slop Tank Pump	LS	1		$	$
5.20	12-inch Flex Hoses	LF	90		$	$
5.21	3-inch Flex Hoses for conduit	LF	300		$	$
5.22	16-inch Flex Hoses	LF	225		$	$
5.23	Spill Pan at Rail Loading	EA	18		$	$
5.24	Relocation of VCU #2 from Oil Dock 1, including removal, transport and installation	LS	1		$	$
5.25	VCU # 2 Repair, Testing, Calibration & Start-up	LS	1		$	$
5.26	Reinstallation and modification of existing Dock Safety Unit on Barge, including inspection, calibration, testing and startup	LS	1		$	$
5.27	Hydraulic Crane	LS	1		$	$
5.28	Furnish and Install Misc Valves & Controls	LS	1		$	$
Electrical						
6.01	Electrical Demolition	LS	1		$	$
6.02	Site Power Distribution complete with conduits, wiring and accessories, and inspection and testing	LS	1		$	$
6.03	Area Lighting Fixtures and Poles	LS	1		$	$
Instrumentation						
7.01	Furnish and Install Instrumentation & Controls complete in place	LS	1		$	$
7.02	Furnish and Install Main Programmable Logic Controller (PLC), with Programming	LS	1		$	$
7.03	Install and program existing PLC cabinet for Floating Barge	LS	1		$	$
7.04	Commissioning and Testing	LS	1		$	$
Total Base Bid						**$**

The preceding design quantities are approximate and are not guaranteed. Bidders will prepare their own estimate of work and bid accordingly. Bidders will indicate their own estimate of work under the column labeled "Bidder's Quantity" and calculate the "Total Amount" based on same. If this column is left blank, the bidder will be deemed to be in agreement with the design quantities and no adjustment in contract price will be made for variance.

LIST OF SUBCONTRACTORS & SUPPLIERS

Please list all intended subcontractors and major suppliers below. The bidder awarded the contract will be

Material Item:	Name of Suppler:
Concrete	
Reinforcing Steel	
Steel Piling	
Structural Steel	
Electrical System	
Piping/Mechanical	
Instrumentation System	
Vapor Combustion Unit	
Programmable Logic Controllers	

Subcontractors: *(If Any)*

2nd Revision SPECIAL CONDITIONS

1.1 GENERAL. The provisions of this section of the Contract Documents will govern in the event of any conflict between the Special Conditions and the General Conditions.

1.2 PROJECT DESCRIPTION / SCOPE OF WORK. The Contract Documents intend to provide and secure **BULK LIQUID HANDLING FACILITY AT BULK DOCK 3.**

Scope of work generally includes the construction and commissioning of a bulk liquids handling facility transfer of petroleum products from vessels to railcars. Site work improvements include fabrication of piping, racks, pile foundations, cast in place concrete, electrical improvements, area lighting, and mooring bollards. Equipment installation includes mechanical systems, instrumentation, control building, and Vapor Combustion Unit (VCU). Work also includes the relocation of 105-foot long pipe bridge.

1.3 TIME OF COMPLETION. It is anticipated this contract will be awarded at the PCCA Commission Meeting of Tuesday, September 19, 2017. It is further anticipated that the Notice to Proceed will be issued upon execution of the Agreement by Monday, October 9, 2017. Contractor will achieve Substantial Completion by December 31, 2017, and Contractor will be required to reach Final Acceptance by March 1, 2018.

1.4 VAPOR COMBUSTION UNITS. Vapor Combustion Unit (VCU) #1 – If the fabrication, delivery and installation of the new VCU #1 extends beyond the required substantial completion time, Contractor shall provide a temporary VCU #1 until such new VCU #1 is furnished and installed. Contractor will be responsible for delivery, installation, commissioning, and temporary fueling of temporary VCU #1 until the new (permanent) (VCU #1 is delivered for installation by the Contractor. If a temporary VCU #1 is required, completion of temporary VCU #1 shall be provided prior to achieving Substantial Completion. A Notice of Substantial Completion and Final Acceptance will be issued for the Work to exclude the VCU #1. A separate Notice of Substantial Completion and Final Acceptance will be issued for the Work related to the new (permanent) VCU #1.

Owner Supplied Vapor Combustion Unit (VCU) #2 – Repairs to the Owner supplied VCU #2 are detailed in the construction drawings. Completion of VCU #2 repairs and installation are required prior to Substantial Completion.

1.5 LIQUIDATED DAMAGES. Liquidated damages in the amount of $2,000 per day will be assessed against the Contractor for each day beyond the required Substantial Completion time that the project remains substantially incomplete. Liquidated damages in the amount of $300 per day will be assessed against the Contractor for each day beyond the required Final Acceptance time that the project remains incomplete.

1.6 SCHEDULING CONSTRAINTS. The Contractor shall not interrupt operations of the PCCA, its Users, or service providers for the Users or the vessels moored at the Bulk Terminal Docks 1 and 2. Access to all the areas of the Bulk Terminal has priority over construction activities and the Contractor will coordinate construction work with the surrounding bulk material handling activities. The Contractor will stage material and equipment to not conflict with ship and barge traffic, adjacent rail facilities and/or gantry crane operations. Contractor may be required to move materials and equipment as directed or as necessary during construction.

Furthermore, the Contractor is required to protect any work-in-progress from dock activity. The Contractor shall work during daylight hours and around the vessel loading schedule. Work that can be accomplished without disruption to cargo transfer activities may be allowed during loading activities. The Contractor shall coordinate the work schedule with the vessel loading schedule weekly at progress meetings with PCCA. Details and procedures for communicating this information will be established at the Pre-Construction conference.

See Special Conditions, 1.12 MATERIALS TO BE FURNISHED BY OWNER.

1.7 ACCESS. To access Bulk Dock 3 from the Joe Fulton Corridor, Contractor must use the PCCA Bulk Terminal Gate. For accessing Oil Dock 1 and adjacent areas from the Joe Fulton Corridor, Contractor must use the PCCA Avenue F Gate. Contractor is advised that there are active railroad tracks that traverses the entrance/access roads and that train delays are possible. These areas are "Restricted" or "TWIC Secure" areas as defined by Technical Section 01 14 13, and provisions of this specification apply. Contractor employees are also required to have Contractor Safety Council of the Coastal Bend for Basic Plus of Marsec Security training at this project site.

1.8 PERMITS. Contractor shall comply with applicable terms and conditions mandated in the permits/licenses and the permits/licenses are part of the contract. A City of Corpus Christi building permit is not required for this Project, however, applicable codes and regulations do apply.

Changes in applicable laws and regulations or modification to permits and licenses that occur after Contract Award will be incorporated into the Contract by a written change order that will address any applicable cost or schedule impacts.

1.9 GEOTECHNICAL ENGINEERING STUDY. A geotechnical report prepared by Professional Service Industries, Inc. (PSI) titled "Subsurface Exploration and Foundation Evaluation for Proposed PCCA Bulk Dock 3," dated July 9, 1996 is available on request.

1.10 ENVIRONMENTAL POLICY. The following Environmental Policy supersedes the policy listed in the General Conditions. The new Environmental Policy states:

The Port of Corpus Christi Authority ("***Port***") Commission formally adopts a set of guidelines designed to further demonstrate Environmental Leadership in the South Texas Coastal Bend region.

In its commitment to be "***An Environmental Leader,"*** the Port of Corpus Christi Authority in collaboration with stakeholders will strive to exceed what is required as a minimum by applicable rules and regulations to mitigate environmental impacts, prevent pollution, and employ continuous improvement policies and environmental stewardship initiatives that promote the following five (5) key precepts:

- **Air Quality** in attainment of national air quality standards and in support of the Corpus Christi region's efforts to stay in attainment through voluntary actions;
- **Water Quality** that maintains or improves the health of the coastal bend ecosystems;
- **Soils & Sediments** protective of human health and the environment;
- **Wildlife Habitat** development, improvements, and replacement when modification to existing habitat is necessary; and
- **Environmental Sustainability** in the development of port facilities and in ongoing port operations.

The Port's Environmental Policy is the formalization of many existing environmental programs that address soil, sediment, wildlife, air and water quality impacts. Together, these programs have already realized tremendous positive impacts in the surrounding communities and estuaries. The Port also intends to use legislative channels, where appropriate, to help meet its environmental agenda.

The Environmental Policy is one of the strategic imperatives that will be considered and integrated into decisions related to the development of infrastructure or the operations of Port facilities, supporting the Port of Corpus Christi's vision *To Be the Energy Port of the Americas* and its mission of *Leveraging Commerce to Drive Prosperity* for the Port, its stakeholders, and the Community, Region, State, and Nation.

1.11 MATERIALS TO BE FURNISHED AND INSTALLED BY CONTRACTOR. All equipment specified on the drawings and included as part of the bill of materials for valves, fittings, instrumentation, etc. shall be purchased and installed by the contractor unless otherwise specified on this Special Conditions, Engineer's Plans and Specifications and bid documents.

1.12 MATERIALS TO BE FURNISHED BY OWNER. The following items are furnished by the Owner for use on this project. Bidders shall contact Mr. Carlos Martinez at 361.885.6692 or via email at carlos@pocca.com to arrange to inspect these systems during bidding. Bidders shall provide a minimum of 48 hours' notice for inspection requests.

a. Vapor Combustion Unit #2 – Vapor Combustion Unit (VCU) #2 is available for inspection at Oil Dock 1 during project bidding. Oil Dock 1 is an active terminal and inspections shall be coordinated to not interfere with ongoing dock operations.

Contractor shall inspect VCU #2 to determine repairs required to provide for a fully functioning VCU #2 system. By submitting a bid, Contractor acknowledges that the Owner furnished VCU #2 is suitable for repair, installation and use with the Project.

b. Steel Bridge for Convey System – The steel bridge system is currently erected and located to the west of Oil Dock 1 and south of the PCCA Maintenance facility and is available for inspection during project bidding. Contractor shall take ownership of the bridge system upon Award of Contract. Steel bridge superstructure shall be unassembled as required, transported to, and re-assembled/erected at the project site in accordance with the Construction Documents. The PCCA shall retain ownership of the existing capped/flanged steel pipe segments located in the top section of the bridge and the Contractor shall deliver these pipe segments to a PCCA identified area within the PCCA Inner Harbor.

c. Floating Barge System with Hose Tower, Hydraulic Crane and Dock Safety Unit Skid - The floating barge system is located at Bulk Dock 3 and is available for inspection during project bidding. Bidders shall contact Mr. Carlos Martinez (see paragraph above). Providing for safe and effective barge mooring during construction shall be the Contractor's responsibility. Contractor to inspect current barge mooring system and make adjustments as necessary to provide for safe and effective mooring during construction activities. By submitting a bid, Contractor acknowledges that the floating barge system can be moored safely during Contractor's activities.

d. Climate Controlled Building – The Climate Controlled Building is currently located at Oil Dock 1. The building is available for inspection during project bidding. By submitting a bid, Contractor acknowledges that the Owner furnished building is suitable for transport and installation for this Project.

e. Metering Skids – Metering skids are not currently located onsite and are scheduled to arrive on or before December 1, 2017. Contractor shall inspect, receive, and take ownership of up to nine metering skids upon arrival of equipment on site. Contractor shall coordinate with the third party metering skid provider (contact information for third party provider to be provided after Award of Contract). Metering skids are wheel mounted units that can be transported/maneuvered upon delivery with a light pickup truck (approximately 20,000 pound towing capacity). It will be contractor's responsibilities to modify the metering skid's control circuit to interphase its operation in conjunction with the overall system.

f. As soon as the PCCA has determined the project is Substantially Complete, Contractor will provide, at a minimum, 14 day notice to PCCA for coordination of a vessel loaded with crude oil or petroleum products ready to be discharged at Bulk Dock 3 for systems acceptance testing, provided that such vessel will not be required to remain at Bulk Dock 3 for such purposes for more than 72 hours.

1.13 INSURANCE. USL&H, Maritime, Builder's Risk, Contractor's Pollution Liability, Railroad Protection and Umbrella Liability Coverage is required for this project.

In addition to the required insurance coverage's pursuant to the GENERAL CONDITIONS, Contractor shall provide and maintain the following insurance coverages (the "Policies") as follows:

a. To the extent that Contractor owns and/or will operate vessels in order to perform the work within the specifications for this Project, a Protection and Indemnity insurance policy is required, with a minimum limit of $10,000,000 any one accident or occurrence, naming the Port of Corpus Christi Authority, its PCCA Commissioners, officers, officials employees and agents as additional insured's.

b. See Section 3.36 of the General Conditions for all other requirements.

1.14 BONDS. Performance and Payment Bonds are required when the successful bidder executes the contract, each for 100% of the total contract price.

1.15 QUALIFICATION OF CONTRACTORS. Contractor, subcontractors, vendors and material suppliers must be able to demonstrate a level of experience satisfactory to the PCCA in performing work similar to this project.

a. The Contractor shall employ for this Project, as its field administration staff, superintendents, and foremen who are careful and competent and acceptable to the PCCA. The Project Superintendent must have at least five years of recent experience in the oversight of projects that include similar work and are equal to or greater in size and complexity to this Project. This experience must include scheduling of manpower and materials, safety, coordination of Subcontractors, experience with the submittal process and contract closeout procedures. The Project Superintendent is to be present at the Site at all times that Work is being performed, Foremen must have at least five years of recent experience in similar work and be subordinate to the Project Superintendent. Foremen cannot act as a superintendent without prior written approval from the PCCA.

b. Contractors shall submit documentation concerning these requirements for PCCA review within 14 calendar days of Notice of Award of Contract is issued. Written approval is also necessary prior to a change in field administration staff during the term of this Contract. The Contractor's field administration staff, and any subsequent substitutions or replacement thereto, much be approved by the PCCA in writing prior to such Project Superintendent of Foreman assuming responsibilities on the Project.

c. Contractors and Subcontractors shall have a documented safety record that meets industry standards as applicable for their respective work categories.

1.16 PRE-CONSTRUCTION CONFERENCE. A pre-construction conference will be scheduled prior to commencement of construction.

1.17 RAILROAD WORKPLACE SAFETY. Attached for reference is Exhibit A - the Roadway Worker Protection (RWP), Roadway Maintenance Machines (RMM) and On-Track Safety Rules for the GWRR – Rail Link Region effective Monday, May 2, 2016. The Rail Link is the Corpus Christi Terminal Railroad (CCTR). The Port's Manager of Rail Operations is John Slubar and he will be the point of contact for setting up communications with the CCTR. Mr. Slubar can be reached at 361-885-6185.

1.18 USE OF PCCA FACILITIES AND UTILITIES. During execution of the Project, the Contractor will be allowed to use PCCA facilities and utilities as follows:

Facility/Utility	Allowed	Not Allowed
Restrooms / Lunchrooms		X
Offices		X
Telephones		X
Vending Machines		X
Water		X
Electricity		X
Sewage		X

Contractor is responsible for any required hookup or installation costs associated with use of the above. Contractor will not be allowed to overload any circuits with construction equipment or tool loads. PCCA needs and utilization of these facilities will have priority over those of Contractor. Contractor will be responsible for any damage to PCCA facilities or utilities caused by Contractor's use.

1.19 TESTING SCHEDULE. The following construction materials testing program will be performed in accordance with the Technical Specifications and General Conditions. Testing initially paid by PCCA that fails and requires follow-up testing will be paid by the Contractor:

(See Testing Chart on Page 7/13)

DESCRIPTION	RATE	EST QTY
SOIL:		
STANDARD PROCTOR - TRENCH BACKFILL	PER MATERIAL SOURCE	1
STANDARD PROCTOR - SUBGRADE	PER PROJECT SITE	1
DENSITIES - TRENCH BACKFILL	PER 200 LF TRENCH/LIFT	5
DENSITIES - SUBGRADE	PER 10000 SF/LIFT	5
FLEXIBLE BASE:		
SIEVE ANALYSIS	PER 3000 CY	1
ATTERBURG LIMITS	PER 3000 CY	1
DENSITIES OF COMPACTED BASE	PER 10000 SF/LIFT	3
CONCRETE:		
(UNCONFINED COMPRESSION, 7, 14, & 28 DAY)		
CONCRETE CAP	PER 50 CY OR PER DAY	3
CONCRETE FOUNDATION	PER 50 CY OR PER DAY	4
CONCRETE SLAB	PER 50 CY OR PER DAY	3
PIPING:		
STEEL PIPE WELDS	10% OF FIELD WELDS PER DAY (RADIOGRAPH)	30

Contractor shall coordinate and cooperate with PCCA's construction material testing contractor to schedule and conduct construction material tests as appropriate. Contractor to provide at least 24 hours advance notice to schedule construction materials tests. The PCCA may conduct additional testing at the PCCA's discretion.

1.20 LIST OF DRAWINGS. Accompanying these specifications and included herein by reference are the drawings listed as follows:

SHEET #	DRAWING #	DESCRIPTION
01	17-033B-01	TITLE SHEET
02	17-033B-02	GENERAL NOTES
03	17-033B-03	OVERALL PLAN
04	17-033B-04	PARTIAL FOUNDATION LOCATION PLAN-1
05	17-033B-05	PARTIAL FOUNDATION LOCATION PLAN-2
06	17-033B-06	FOUNDATION DETAILS
07	17-033B-07	VCU#1 FOUNDATION PLANS & SECTIONS
08	17-033B-08	VCU#2 FOUNDATION PLAN & SECTION
09	17-033B-09	FOUNDATION DETAILS
10	17-033B-10	FOUNDATION DETAILS
11	17-033B-11	TRANSFORMER FOUNDATION
12	17-033B-12	MCC/VCU #1 CONTROL ROOM FOUNDATION
13	17-033B-13	VCU #1 CONTROL ROOM FOUNDATION
14	17-033B-14	SLOP TANK FOUNDATION & DETAILS
15	17-033B-15	MISCELLANEOUS PIPE SUPPORTS
16	17-033B-16	ANCHOR BOLTS DETAILS
17	17-033B-17	PILING DETAILS

SHEET #	DRAWING #	DESCRIPTION
18	17-033B-18	MISCELLANEOUS PIPE SUPPORTS ON SPACER BARGE
19	17-033B-19	DEMOLITION ELEVATIONS AT OIL DOCK 1
20	17-033B-20	PIPE SUPPORT LOCATION PLAN
21	17-033B-21	PIPERACK PLAN ON DOCK
22	17-033B-22	ELEVATIONS AT PIPERACK ON DOCK
23	17-033B-23	PIPERACK AT RAILROAD
24	17-033B-24	STEEL BASE DETAIL AT BENT 4
25	17-033B-25	STEEL BASE DETAIL AT BENT - 3
26	17-033B-26	STEEL BASE DETAIL AT BENTS 1 & 2
27	17-033B-27	MISCELLANEOUS PIPE SUPPORTS
28	17-033B-28	STEEL FRAMING BETWEEN BRIDGES
29	17-033B-29	BRIDGE FRAMING MODIFICATION PLANS
30	17-033B-30	BRIDGE MODIFICATION ELEVATIONS - 1
31	17-033B-31	BRIDGE MODIFICATION ELEVATIONS - 2
32	17-033B-32	BRIDGE MODIFICATION DETAILS - 1
33	17-033B-33	BRIDGE MODIFICATION DETAILS - 2
34	17-033B-34	OCEAN GOING BARGE MOORING LAYOUT
35	17-033B-35	SHIP MOORING LAYOUT (Dated 9/6/17)
36	17-033B-36	INLAND BARGE MOORING LAYOUT
37	17-033B-37	OCEAN & INLAND BARGES
38	17-033B-38	ELEVATION AT RAILROAD
39	17-033B-39	CONCRETE AT WASHOUT AREA
40	17-033B-40	NOT CURRENTLY USED
41	17-033B-41	DRAINAGE PLAN
42	17-033B-42	STORM WATER POLLUTION PREVENTION PLAN
43	17-033B-43	STORM WATER POLLUTION PREVENTION DETAILS
44	17-033B-44	ASPHALT REPAIR DETAILS
45	17-033B-45	CATCH BASIN MODIFICATION DETAILS
46	17-033B-46	CATCH BASIN PLANS, SECTIONS & DETAILS
47	17-033B-47	MOORING STRUCTURE LAYOUT
48	17-033B-48	MOORING MONOPILE NMS1 & NMS2 DETAILS
49	17-033B-49	EXISTING BREASTING STRUCTURE MODIFICATION DETAILS
101	17-033B-101	TITLE SHEET
102	17-033B-102	PIPING SPECIFICATION SHEET
103	17-033B-103	PIPING & INSTRUMENTATION DIAGRAM
104	17-033B-104	PIPING & INSTRUMENTATION DIAGRAM
105	17-033B-105	PIPING & INSTRUMENTATION DIAGRAM
106	17-033B-106	PIPING & INSTRUMENTATION DIAGRAM
107	17-033B-107	PIPING & INSTRUMENTATION DIAGRAM
108	17-033B-108	PIPING KEY PLAN
109	17-033B-109	PIPING & SUPPORTS LOCATION PLAN
110	17-033B-110	PIPING & SUPPORTS LOCATION PLAN
111	17-033B-111	PIPING & SUPPORTS LOCATION PLAN
112	17-033B-112	PIPING & SUPPORTS LOCATION PLAN
113	17-033B-113	PIPING & SUPPORTS LOCATION PLAN
114	17-033B-114	PIPING & SUPPORTS LOCATION PLAN
115	17-033B-115	PIPING & SUPPORTS LOCATION PLAN
116	17-033B-116	PIPING & SUPPORTS LOCATION PLAN

SHEET #	DRAWING #	DESCRIPTION
117	17-033B-117	PIPING & SUPPORTS LOCATION PLAN
118	17-033B-118	OVERALL SECTIONAL VIEW DRAWING - 1
119	17-033B-119	OVERALL SECTIONAL VIEW DRAWING - 2
120	17-033B-120	OVERALL SECTIONAL VIEW DRAWING - 3
121	17-033B-121	OVERALL SECTIONAL VIEW DRAWING - 4
122	17-033B-122	OVERALL SECTIONAL VIEW DRAWING - 5
123	17-033B-123	OVERALL SECTIONAL VIEW DRAWING - 6
124	17-033B-124	STANDARD DRAWING NON ADJUSTABLE SUPPORT
125	17-033B-125	STANDARD DRAWING - PIPE SHOE SUPPORT FOR INSULATED PIPE
126	17-033B-126	STANDARD DRAWING - PIPE HANGER SUPPORT
127	17-033B-127	STANDARD DRAWING - PIPE GUIDE (NO WELD AREA)
128	17-033B-128	STANDARD DRAWING - PIPE GUIDE (WELD AREA)
129	17-033B-129	DEMO AT FLOATING BARGE
130	17-033B-130	LINE LIST - 1
131	17-033B-131	LINE LIST - 2
132	17-033B-132	LINE LIST - 3
133	17-033B-133	BILL OF MATERIAL - 1
134	17-033B-134	BILL OF MATERIAL – 2
135	(120 Sheets)	ISOMETRICS
301	17-033B-301	TITLE SHEET
302	17-033B-302	ELECTRICAL ONE LINE DIAGRAM
303	17-033B-303	ELECTRICAL EQUIPMENT LOCATION PLAN
304	17-033B-304	ELECTRICAL CONDUIT / CABLE SCHEDULE
305	17-033B-305	OVERALL ELECTRICAL CONDUIT LAYOUT
306	17-033B-306	FLOATING BARGE ELECTRICAL CONDUIT LAYOUT
307	17-033B-307	CONDUIT LOCATION PLAN
308	17-033B-308	CONDUIT LOCATION PLAN
309	17-033B-309	CONDUIT LOCATION PLAN
310	17-033B-310	CONDUIT LOCATION PLAN
311	17-033B-311	CONDUIT DETAILS
312	17-033B-312	ELECTRICAL LOAD CALCULATION
313	17-033B-313	ELECTRICAL LOAD LIST
314	17-033B-314	POWER BUILDING LAYOUT
315	17-033B-315	RISER DIAGRAM BARGE POWER PANEL
316	17-033B-316	POWER DISTRIBUTION BOARD DB-01 SCHEDULE
317	17-033B-317	BARGE POWER PANEL SCHEDULE PP-01
318	17-033B-318	VCU #2 & ECR-3 BUILDING PANELS LP-1/32 SCHEDULE
319	17-033B-319	LIGHTING PLAN
320	17-033B-320	LIGHTING DETAILS
321	17-033B-321	GROUNDING LAYOUT - 1
322	17-033B-322	GROUNDING LAYOUT - 2
323	17-033B-323	GROUNDING LAYOUT - 3
324	17-033B-324	GROUNDING LAYOUT - 4
325	17-033B-325	GROUNDING LAYOUT - 5
326	17-033B-326	GROUNDING DETAILS - 1
327	17-033B-327	GROUNDING DETAILS - 2
328	17-033B-328	GROUNDING DIAGRAM
329	17-033B-329	INSTRUMENTATION LOCATION PLAN

SHEET #	DRAWING #	DESCRIPTION
330	17-033B-330	INSTRUMENT CONDUIT & CABLE TRAY PLAN
331	17-033B-331	INSTRUMENT BLOCK DIAGRAM
332	17-033B-332	BARGE INSTRUMENTATION BLOCK DIAGRAM
333	17-033B-333	INSTRUMENT CONDUIT / CABLE SCHEDULE - 1
334	17-033B-334	INSTRUMENT CANDUIT / CABLE SCHEDULE - 2
335	17-033B-335	INSTRUMENT INDEX
336	17-033B-336	INSTRUMENT INDEX
337	17-033B-337	INSTRUMENT I/O INDEX
338	17-033B-338	INSTRUMENT JUNCTION BOX AND PANEL WIRING SCHEDULE
339	17-033B-339	INSTRUMENT JUNCTION BOX AND PANEL WIRING SCHEDULE
340	17-033B-340	FLOW LOOP DIAGRAM
341	17-033B-341	FLOW LOOP DIAGRAM
342	17-033B-342	FLOW LOOP DIAGRAM
343	17-033B-343	FLOW LOOP DIAGRAM
344	17-033B-344	FLOW LOOP DIAGRAM
345	17-033B-345	FLOW LOOP DIAGRAM
346	17-033B-346	FLOW LOOP DIAGRAM
347	17-033B-347	FLOW LOOP DIAGRAM
348	17-033B-348	FLOW LOOP DIAGRAM
349	17-033B-349	FLOW LOOP DIAGRAM
350	17-033B-350	FLOW LOOP DIAGRAM
351	17-033B-351	FLOW LOOP DIAGRAM
352	17-033B-352	FLOW LOOP DIAGRAM
353	17-033B-353	LEVEL LOOP DIAGRAM
354	17-033B-354	LEVEL LOOP DIAGRAM
355	17-033B-355	INSTRUMENT & ELECTRICAL B.O.M
356	17-033B-356	CABEL TRAY DETAILS
357	17-033B-357	MISCELLANEOUS DETAILS & VCU #2 BUILDING LAYOUT

REFERENCE DRAWINGS: *(Found in APPENDIX A - Control Narrative and Reference Drawings)*

JOHN ZINK DRAWINGS VCU# 2:

D-VC-9118202-151: PIPING & INSTRUMENT DIAGRAM VAPOR BLOWER SKID
D-VC-9118202-152: PIPING & INSTRUMENT DIAGRAM 15,000 BPH VAPOR BLOWER SKID
D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT
D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT ELEV.
D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT ELEV.
D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT 3D VIEW
D-VC-9118202-205: GENERAL ARRANGEMENT - BLOWER SKID
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID
D-VC-9118202-204: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT

D-VC-9118202-204: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT 2D ELEV.
D-VC-9118202-205: GENERAL ARRANGEMENT BLOWER SKID VAPOR COMBUSTOR UNIT
D-VC-9118202-205: GENERAL ARRANGEMENT BLOWER SKID 3D VIEW
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 1 OF 4
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 2 OF 4
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 3 OF 4
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 4 OF 4
D-VC-9118202-404: ELECTRICAL ONE-LINE DIAGRAM MVSU 1 OF 5
D-VC-9118202-404: ELECTRICAL ONE-LINE DIAGRAM MVSU 2 OF 5
D-VC-9118202-404: ELECTRICAL ONE-LINE DIAGRAM MVSU 3 OF 5
D-VC-9118202-405: PLC COMMUNICATION NETWORK LAYOUT
D-VC-9118202-406: VFD PANEL LAYOUT OFF SKID MOUNTING VCU 1 OF 2
D-VC-9118202-406: VFD PANEL LAYOUT OFF SKID MOUNTING VCU 2 OF 2
D-VC-9118202-431: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-432: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-433: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-434: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-435: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID BCP-103
D-VC-9118202-436: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID BCP 103
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 1 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 2 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 3 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 4 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 5 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 6 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 7 OF 7

<u>JOHN ZINK DRAWINGS DSU # 3</u>
VC-9136369-400: DRAWING INDEX
VC-9136369-401: ELECTRICAL ONE-LINE POWER WIRING DIAGRAM
VC-9136369-401: PLC COMMUNICATION NETWORK LAYOUT
VC-9136369-411: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-412: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-413: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-414: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-415: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-416: MCP-103 SHIP DOCK SAFETY & INJECTION SKID LOOP DIAG.

SERVOMEX (OXYGEN ANALYZER –JZ UNIT)
631045025-1 PROCESS, CUSTOMER CONNECTIONS AND BOM
631045025-2 ANALYZER & SAMPLE SYSTEM FLOW DRAWING
631045025-3 ANALYZER & SAMPLE SYSTEM VAC WIRING DIAGRAM
631045025-4 ANALYZER & SAMPLE SYSTEM ALARM & SIGNAL WIRING DIAGRAM
631045025-5 ANALYZER & SAMPLE SYSTEM DIMENSIONAL DRAWINGS

CH2M HILL DRAWINGS
CCT-00909 GROUNDING PLAN FOR FLOATING BARGE AREA
CCT-00909 LIGHTING PLAN
CCT-00914 POWER PLANS

FARWEST CORROSION CONTROL COMPANY
9723-5 SPUD ELECTRICAL BONDING DETAIL

CHAMPION TECHNOLOGY SERVICES DRAWINGS

SH 001	974-004+A01-WN-001	TITLE SHEET AND DRAWINGS INDEX
SH 002	974-004+A01-WN-002	TITLE SHEET AND DRAWINGS INDEX
SH 101	974-004+A01-WL-101	PLC ENCLOSURE LAYOUT
SH 102	974-004+A01-WL-102	PLC BACKPANEL LAYOUT
SH 301	974-004+A01-WE-301	PLC PANEL RACK 0
SH 401	974-004+A01-WE-401	PLC PANEL RACK 0
SH 411	974-004+A01-WE-411	RACK 0, MODULE 1
SH 412	974-004+A01-WE-412	RACK 0, MODULE 2, 3
SH 413	974-004+A01-WE-413	RACK 0, MODULE 4, 5
SH 414	974-004+A01-WE-414	RACK 0, MODULE 6

FLINT HILLS RESOURCES TRANSLOADER PHASE
PR-PID-0002_06 REV 2: TRANSLOADER TRAILER P&ID (TYP 8 PLACES)
PD-PID-0002_03 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PID-0002_02 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PIP-0002_04 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PIP-0002_01 REV 1: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PR-PFD-0001_01 REV 4: PROCESS FLOW DIAGRAM
PR-PID-0002_06 REV 3: TRANSLOADER TRAILER P&ID (TYP 8 PLACES)

1.21 CONTRACTOR'S DAILY REPORTS. Daily reports will be prepared by the Contractor and submitted to PCCA Project Engineer at the conclusion of each week.

1.22 EXPLORATORY EXCAVATION. Underground utilities and structures shown on the project plans are shown as accurately as possible; however PCCA does not guarantee that all utilities are shown, or shown in the exact location. It shall be the responsibility of the Contractor at its sole expense to determine the exact location of underground utilities and structures that may interfere with construction by exploratory excavation prior to

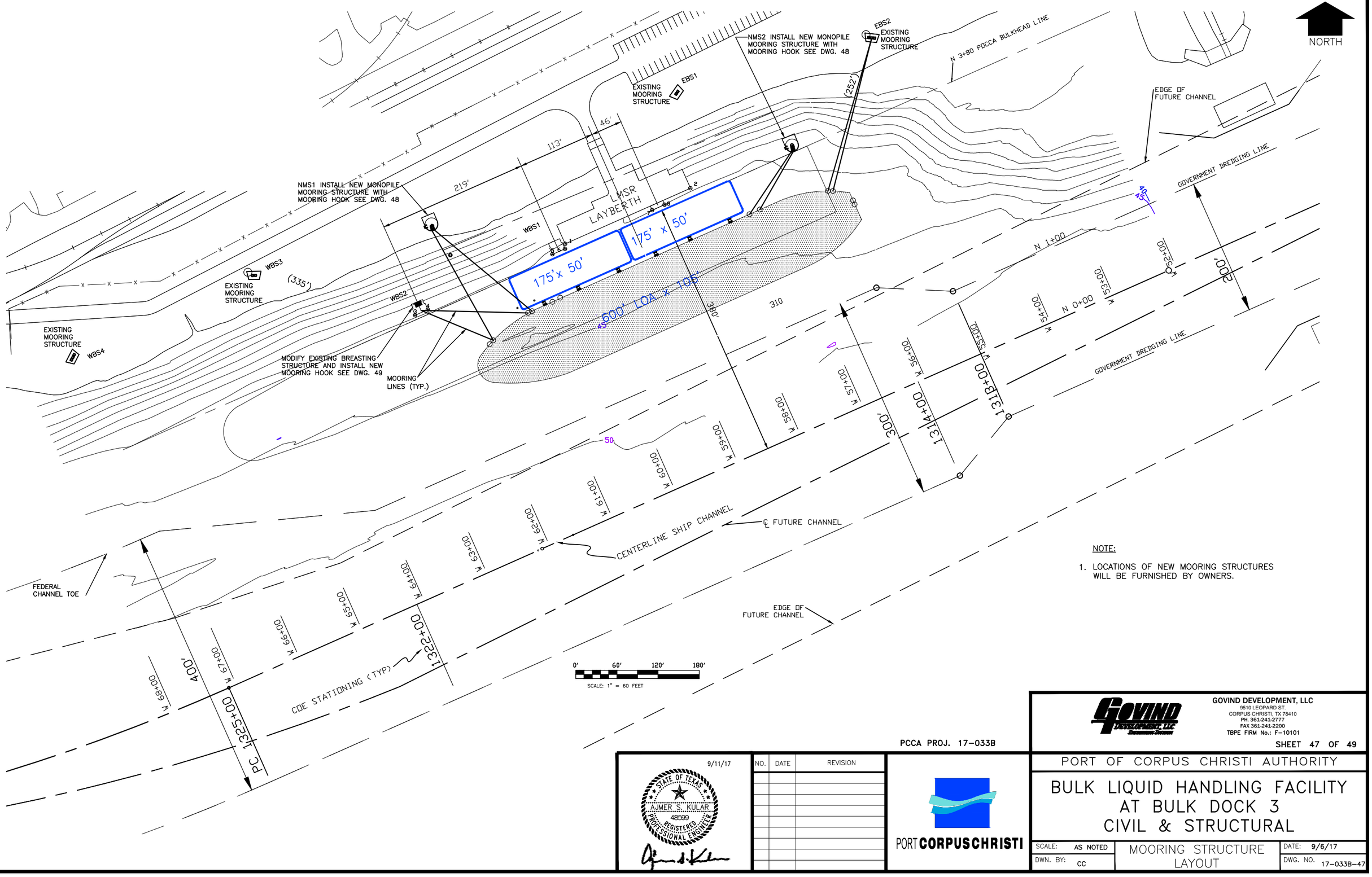
commencing work. The Contractor shall proceed with caution in the excavation so that the exact location of underground utilities and structures, both marked and unmarked, may be determined. In the event that an underground utility or structure is encountered, it shall be the Contractor's responsibility at its sole expense to determine the utility and its owner, and notify the Engineer for a determination of direction for continuing work. The Contractor will be held responsible for the repair of any utility or structure damaged by the Contractor's actions or inactions during excavation. Prior to the end of each work day, exploratory excavations made shall be backfilled with the native excavated material and compacted to prevent subsequent settlement. Excavations made within paved areas shall be permanently resorted to its original condition. Excavated materials shall not be placed in storm drainage conveyances, temporarily or permanently.

1.23 CONCRETE WASHING. Washing out of concrete trucks serving the construction project is only allowed in areas approved by PCCA Project Manager. The Contractor will ensure that the discharge of the washout water will not cause groundwater contamination. Discharges from the washout of form release oils, curing compounds, and other materials are not permitted. All wastes must be properly disposed of offsite by Contractor.

1.24 AIR MONITORING NETWORK. PCCA maintains a system to monitor dust originating from the Bulk Terminal site. Contractor shall ensure at all times that construction activities are conducted in such a way as to not produce dust. If dust becomes an issue, contractor must immediately remedy the situation by the use of water sprays or whatever means necessary to prevent causing dust.

1.25 PREVAILING WAGE RATE. The following pages are lists of wage rates that have been determined to be the prevailing minimum rates in this area. Contractor will not pay less than these rates.

END OF SECTION



NOTE:

1. LOCATIONS OF NEW MOORING STRUCTURES WILL BE FURNISHED BY OWNERS.

PCCA PROJ. 17-033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

SHEET 47 OF 49

9/11/17
AJMER S. KULAR
48599

NO.	DATE	REVISION

PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

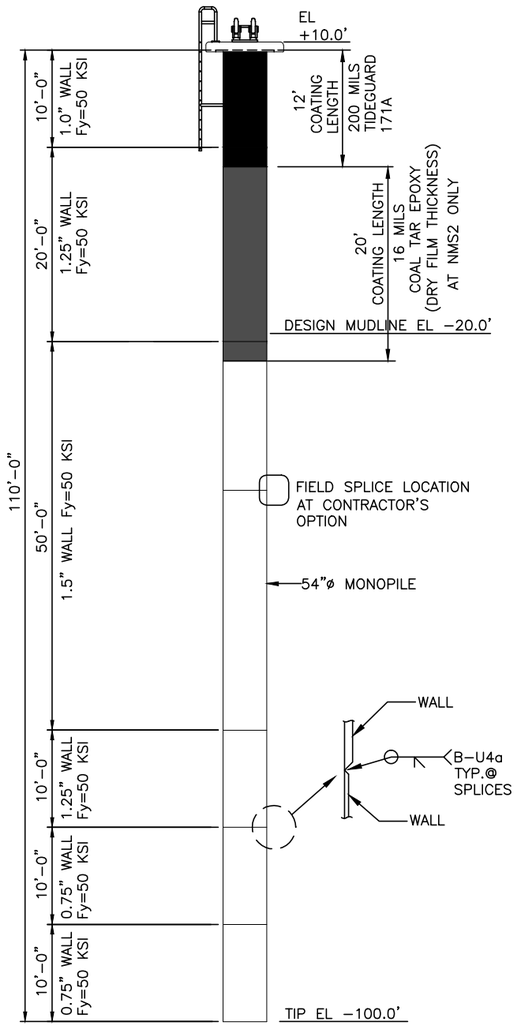
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 CIVIL & STRUCTURAL

SCALE: AS NOTED
DWN. BY: CC

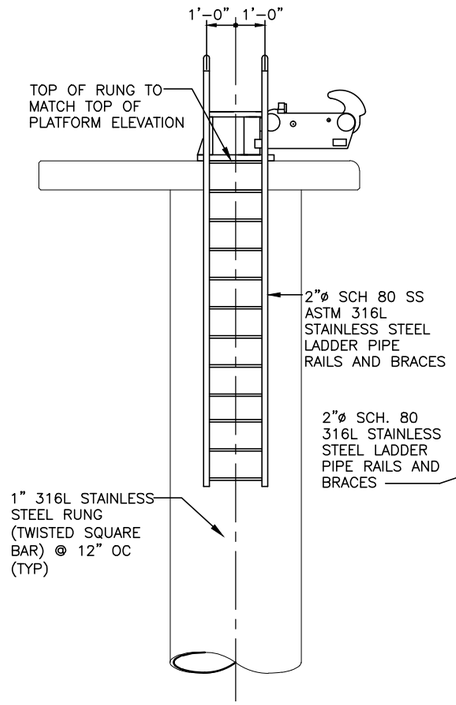
MOORING STRUCTURE LAYOUT

DATE: 9/6/17
DWG. NO. 17-033B-47

JOB NO. 17POC0139

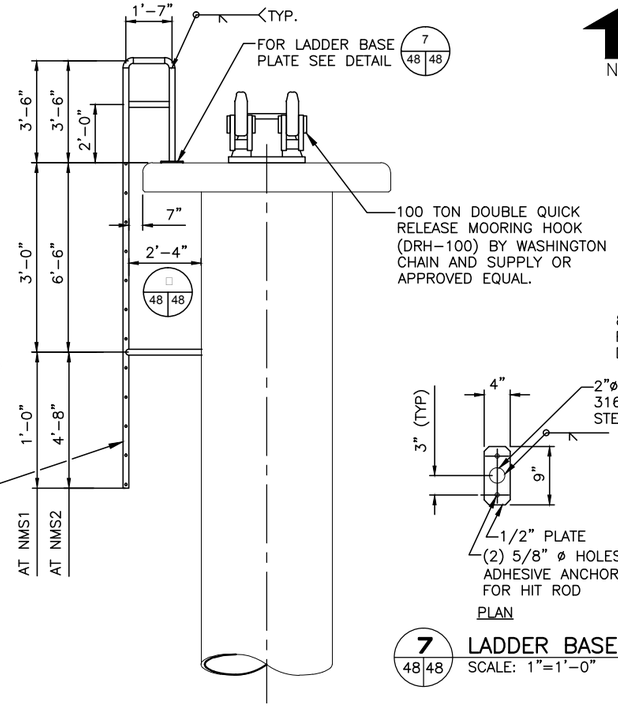


1 47|48 54"ø MOORING MONOPILE NMS1 & NMS2
SCALE: 1/8"=1'-0"



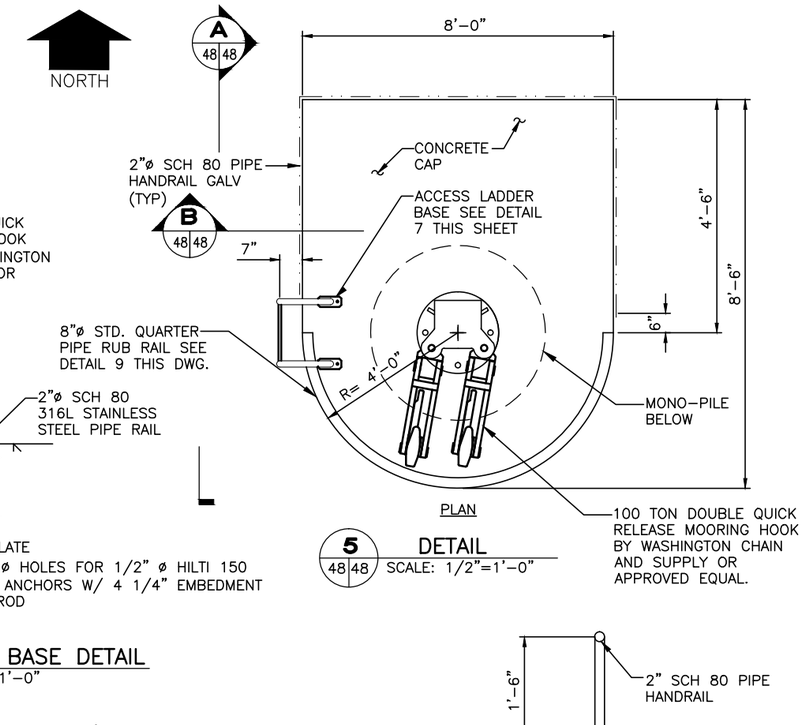
SIDE ELEVATION

2 48|48 DETAIL
SCALE: 3/8"=1'-0"



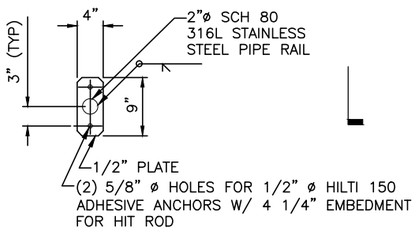
FRONT ELEVATION

3 48|48 DETAIL
SCALE: 3/8"=1'-0"



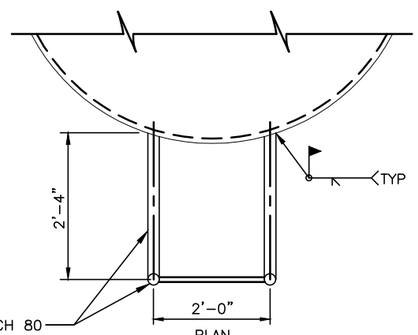
PLAN

5 48|48 DETAIL
SCALE: 1/2"=1'-0"



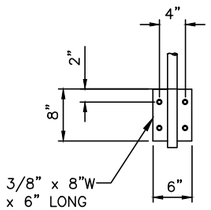
PLAN

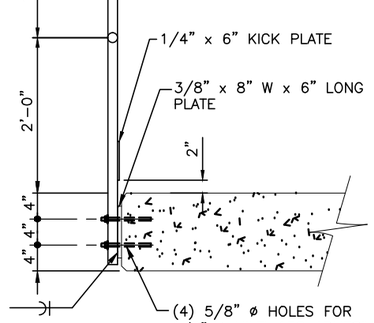
7 48|48 LADDER BASE DETAIL
SCALE: 1"=1'-0"



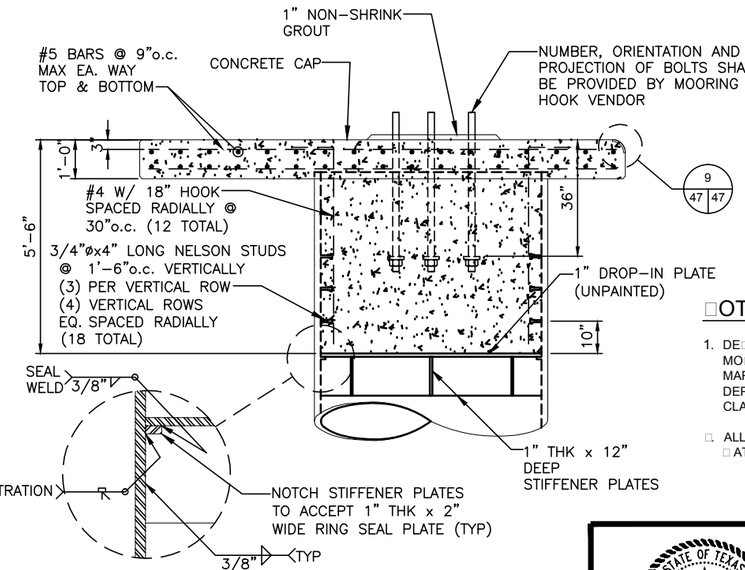
PLAN

6 48|48 DETAIL
SCALE: 3/4"=1'-0"

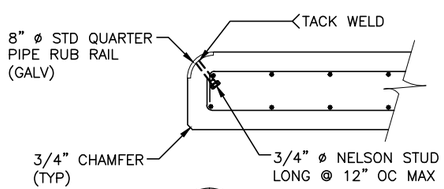




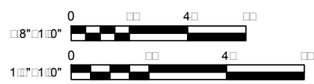
B 48|48 SECTION
SCALE: 1"=1'-0"



A 48|48 ELEVATION
SCALE: 1/2"=1'-0"



9 48|48 DETAIL
SCALE: 1"=1'-0"



NOTES

1. DE□RIS IS LI□EL□ TO □E E□COU□TERED O□ SOME O□ THE MOORI□□ MO□OPILE I□STALLATIO□ AREAS E□E□ A□TER THE SLOPE IS DRED□ED SO MARI□E CO□TRACTOR SHALL REMO□E ALL MATERIAL I□ A 10□RADIUS TO A DEPTH O□ □□OR AS RE□UIRED TO ELIMI□ATE DE□RIS I□TER□ERE□CE □ ITH A CLAMSHELL □UC□ET OR □AC□HOE A□D DISPOSED O□□SITE.

□. ALL ELE□ATIO□S ARE □ASED O□ CORP O□ E□□I□EERS DATUM MEA□ LO□ □ ATER □MLL□ □.

PCCA PROJ. #17-033B

9/11/17

NO.	DATE	REVISION

PORT CORPUSCHRISTI

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

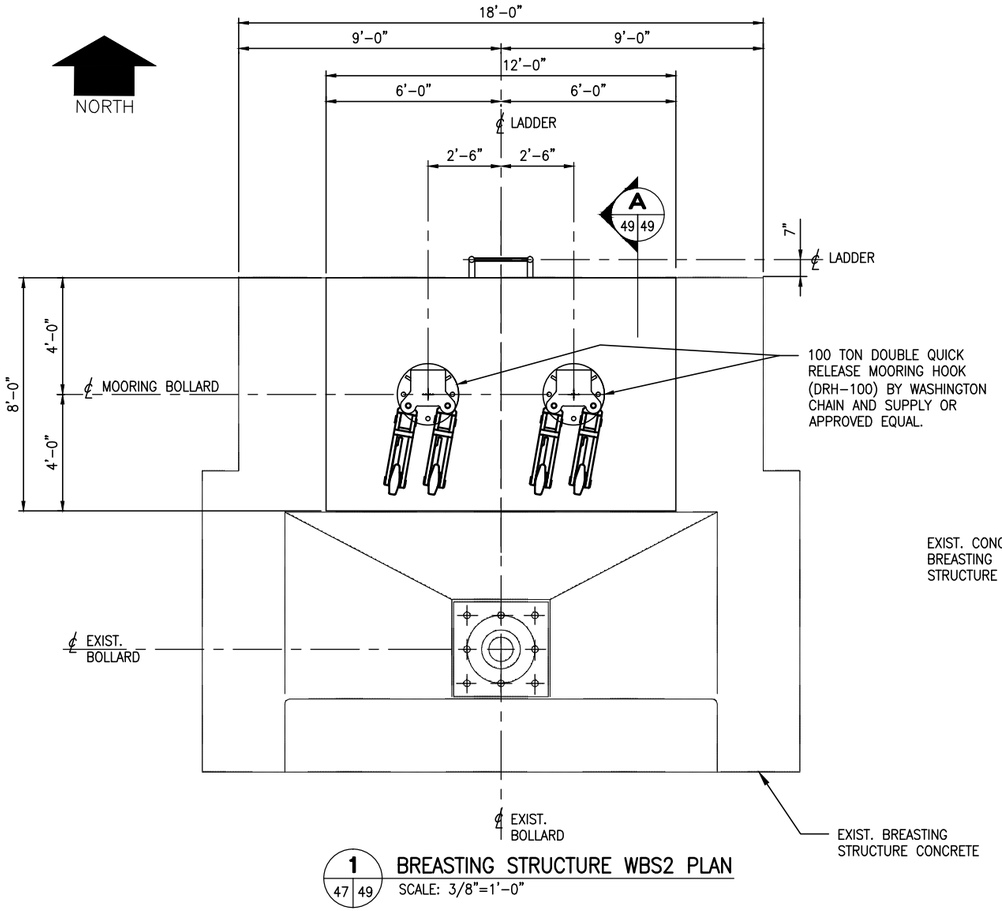
SHEET 48 OF 49

PORT OF CORPUS CHRISTI AUTHORITY

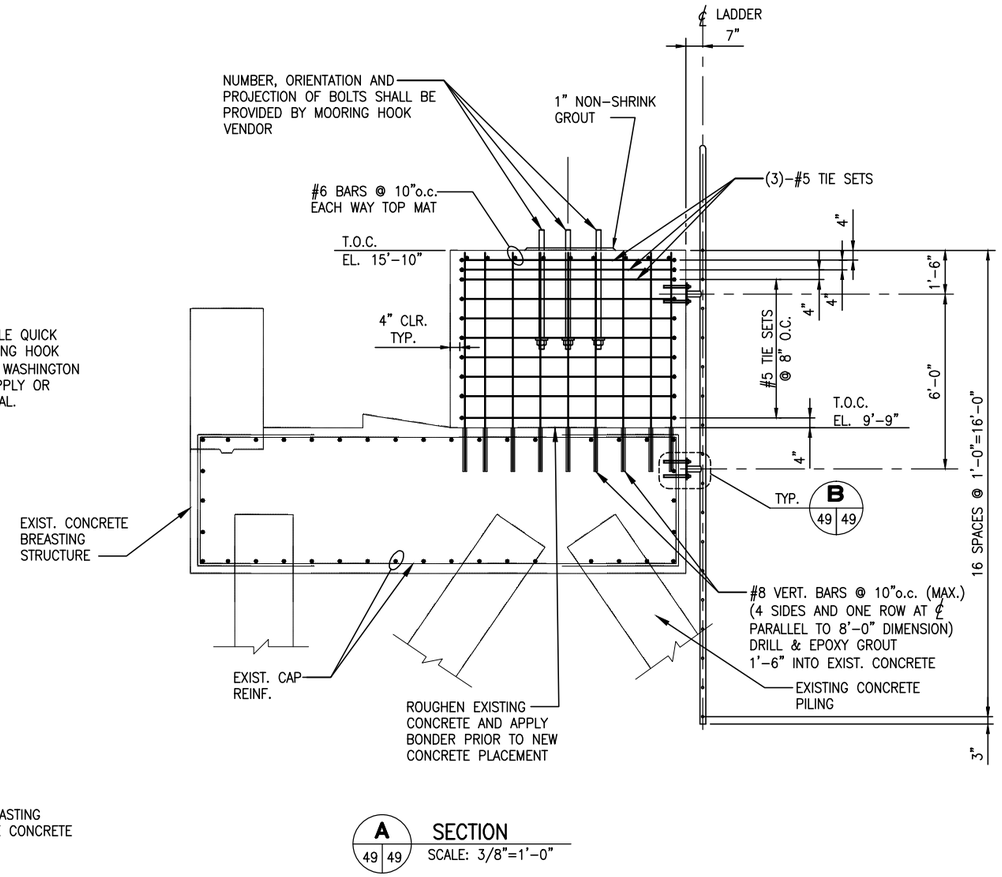
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 CIVIL & STRUCTURAL

SCALE: AS NOTED	MOORING MONOPILE NMS1 & NMS2 DETAILS	DATE: 9/11/17
DWN. BY: RJA		DWG. NO. 17-033B-48

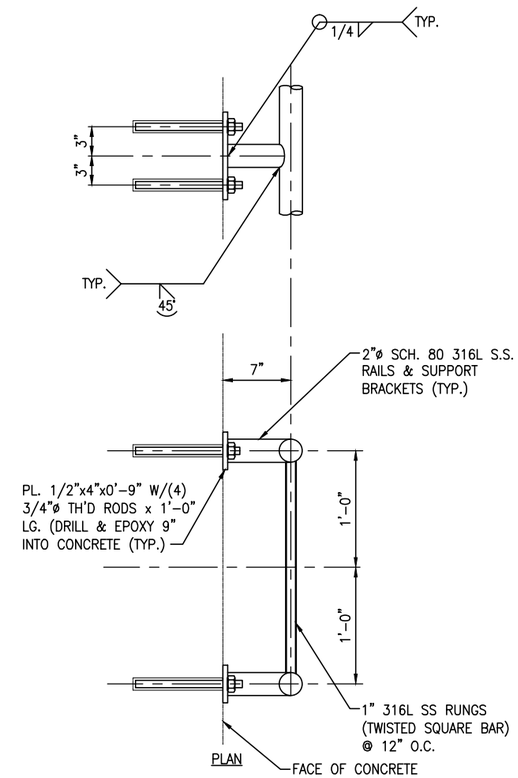
JOB NO. 17POC0139



1 47 | 49 BREASTING STRUCTURE WBS2 PLAN
SCALE: 3/8"=1'-0"



A 49 | 49 SECTION
SCALE: 3/8"=1'-0"



B 49 | 49 SECTION
SCALE: 3/8"=1'-0"

PCCA PROJ. 17-033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

SHEET 49 OF 49

9/11/17
STATE OF TEXAS
AJMER S. KULAR
48599
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 CIVIL & STRUCTURAL

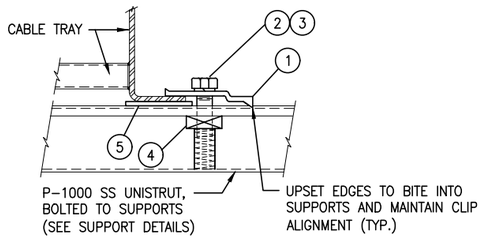
SCALE: AS NOTED	EXISTING BREASTING STRUCTURE MODIFICATION DETAILS	DATE: 9/11/17
DWN. BY: CC		DWG. NO. 17-033B-49

JOB NO. 17POC0139

BILL OF MATERIALS

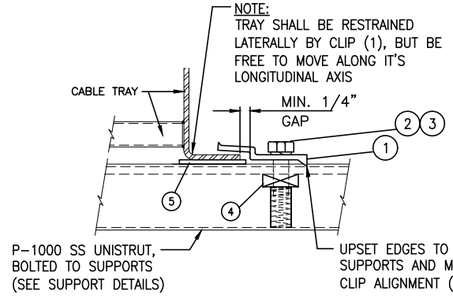
(To be added to Drawing 17-033B-134 BILL OF MATERIAL-2)

Sr. No.	Equipments / Instruments	Quantity	Manufacturers	Reference Drawing No.	Reference Document No.	Size
1	Flow Meter Orifice Type	2	**ROSEMOUNT OR EQUAL**	17-033B-103	17-033B-359	
2	Flow Control Valves	2	**SULLIVAN & SONS, FISCHER OR EQUAL**	17-033B-103	17-033B-357	4"
3	XV - Isolation Valve	1	**FISHER AND EQUAL**	17-033B-105		
4	Light Beacons	12	**MEDC OR EQUAL**	17-033B- 347	17-033B-364	
5	Manual Switchs	9	**MEDC OR EQUAL**	17-033B- 347	17-033B-364	
6	Electrical Sensors Sounders	11	**MEDC OR EQUAL**	17-033B- 347	17-033B-364	
7	Reflex Level Guage	2	**REFLEX ARMORED OR EQUAL**	17-033B-105		
8	Radar Type Level Transmitter	4	**SULLIVAN & SONS, FISCHER OR EQUAL**	17-033B-105		
9	Temperature Indicator	1	**ASCHROFT OR EQUAL**	17-033B-105		
10	Pressure Indicator	2	**ASCHROFT OR EQUAL**	17-033B-105		
11	PLC Panel	1	**ROCKWELL AUTOMATION OR EQUAL**	17-033B- 347	17-033B-364	
12	Power Panel(1600A, 480V, 3PH,60Hz)	1	**EATON OR EQUAL**	17-033B-348	17-033B-365	
13	TSV	4	**MERCER OR EQUAL**	17-033B-103		
14	PSV	1	**FISHER AND EQUAL**	17-033B-105		
15	Junction Boxes	11	**Pentair Protect or Equal**	17-033B-303		
16	Pull Box	3	**Pentair Protect or Equal**	17-033B-303		
17	Slop Tank Pump	1	**TEIKOKU OR EQUAL**	17-033B-109 to 117		10HP
18	Slop Tank	1	**MEET STANDARDS**	17-033B-109 to 117		DIA 8' - 0" X HT. 24' - 0" T/T
19	Knock Out Drum	1	**MEET STANDARDS**	17-033B-109 to 117		OD 0' - 30" X 8' - 0" S -S
20	Diaphragm Pump	2	**HUSKY OR EQUAL**	17-033B-103 to 107		
21	Butterfly Valve, Pneumatic	4	**FISHER POSI SEAL OR EQ**	17-033B-109 to 117		12"
22	Butterfly Valve	2	**FISHER POSI SEAL OR EQ**	17-033B-109 to 117		16"
23	Butterfly Valve, Pneumatic	4	**FISHER POSI SEAL OR EQ**	17-033B-109 to 117		16"
24	Butterfly Valve	2	**FISHER POSI SEAL OR EQ**	17-033B-109 to 117		8"
25	Check Valve	2	**DUOCHEK X15SPF OR EQUAL**	17-033B-109 to 117		16"
26	Check Valve	2	**DUOCHEK G15CMF OR EQUAL**	17-033B-109 to 117		2"
27	Check Valve	2	**DUOCHEK G15CMF OR EQUAL**	17-033B-109 to 117		3"
28	Check Valve	1	**DUOCHEK G15CMF OR EQUAL**	17-033B-109 to 117		4"
29	Check Valve	2	**DUOCHEK G15CMF OR EQUAL**	17-033B-109 to 117		6"
30	Check Valve	2	**CRANE 147XU OR EQUAL**	17-033B-109 to 117		8"
31	Check Valve	18	**CRANE 47XUF OR EQUAL**	17-033B-109 to 117		1"
32	Gate Valve	1	**CRANE 47XUF OR EQUAL**	17-033B-109 to 117		2"
33	Gate Valve	3	**CRANE 47XUF OR EQUAL**	17-033B-109 to 117		3"
34	Gate Valve, Pneumatic	18	**CRANE 47XUF OR EQUAL**	17-033B-109 to 117		4"
35	Gate Valve	3	**CRANE 47XUF OR EQUAL**	17-033B-109 to 117		6"
36	Gate Valve	1	**CRANE 47XUF OR EQUAL**	17-033B-109 to 117		6"
37	Gate Valve	18	**VOGT TSW - 13111 OR EQUAL**	17-033B-109 to 117		1 1/2"
38	Gate Valve	24	**VOGT TSW - 13111 OR EQUAL**	17-033B-109 to 117		3/4"
39	Ball Valve	12	**JAMES BURY 9150 - 31 - 2236 - MTT -1 OR EQUAL**	17-033B-109 to 117		2"
40	Ball Valve	4	**JAMES BURY 9150 - 31 - 2236 - MTT -1 OR EQUAL**	17-033B-109 to 117		3"
41	Ball Valve	1	**JAMES BURY 9150 - 31 - 2236 - MTT -1 OR EQUAL**	17-033B-109 to 117		4"
42	Ball Valve	1	**JAMES BURY 9150 - 31 - 2236 - MTT -1 OR EQUAL**	17-033B-109 to 117		3/4"
43	Ball Valve	2	**UNIBODY, QUADRANT VALVE F1 - R - C -S -V -G-LH-1F OR EQUAL**	17-033B-109 to 117		2"
44	Ball Valve	2	**UNIBODY, QUADRANT VALVE F1 - R - C -S -V -G-LH-1F OR EQUAL**	17-033B-109 to 117		3/4"



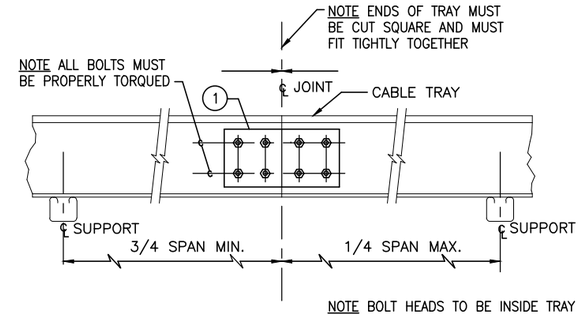
ITEM	QTY	MATERIAL DESCRIPTION
1	2	ANCHOR CLIP, FOR NEMA 20C TRAY, FIXED, S.S.
2	2	BOLT – 3/8–16 UNC x 1 1/4" HEX HEAD CAP SCREW S.S.
3	2	SPLIT LOCKWASHER 3/8" STAINLESS STEEL STD–DUTY
4	2	UNISTRUT NUT 3/8–16 THD'D W/SPRING, S.S.
5	1	1/4" NEOPRENE GASKET MATERIAL SPACER

1 CABLE TRAY RIGID HOLD DOWN
N.T.S.



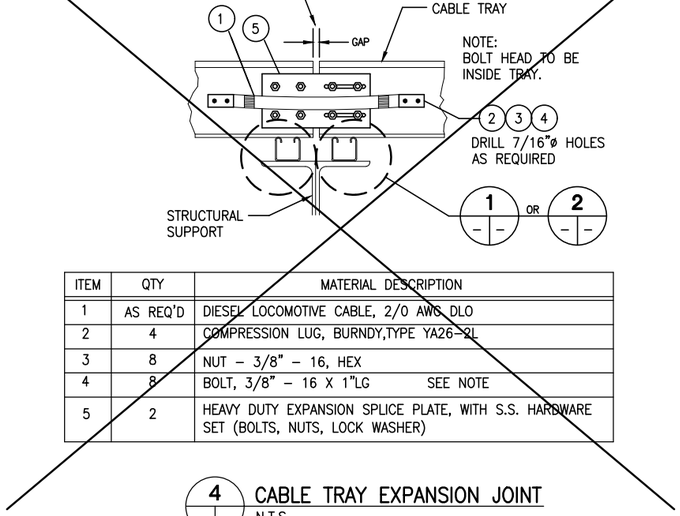
ITEM	QTY	MATERIAL DESCRIPTION
1	2	ANCHOR CLIP, FOR NEMA 20C TRAY, FIXED, S.S.
2	2	BOLT – 3/8–16 UNC x 1 1/4" HEX HEAD CAP SCREW S.S.
3	2	SPLIT LOCKWASHER 3/8" STAINLESS STEEL STD–DUTY
4	2	UNISTRUT NUT 3/8–16 THD'D W/SPRING, S.S.
5	1	1/4" NEOPRENE GASKET MATERIAL SPACER

2 CABLE TRAY EXPANSION GUIDE CLIP
N.T.S.



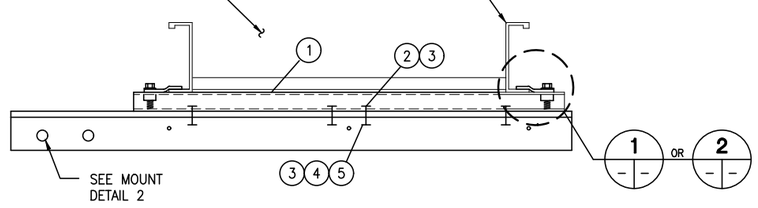
ITEM	QTY	MATERIAL DESCRIPTION
1	2	HEAVY–DUTY SPLICE PLATE WITH HARDWARE SET (BOLTS, NUTS & LOCKWASHERS – ALL S.S.)

3 CABLE TRAY SPLICE PLATE DETAIL
N.T.S.



ITEM	QTY	MATERIAL DESCRIPTION
1	AS REQ'D	DIESEL LOCOMOTIVE CABLE, 2/0 AWG, DLO
2	4	COMPRESSION LUG, BURNDY,TYPE YA26–2L
3	8	NUT – 3/8" – 16, HEX
4	8	BOLT, 3/8" – 16 X 1"LG SEE NOTE
5	2	HEAVY DUTY EXPANSION SPLICE PLATE, WITH S.S. HARDWARE SET (BOLTS, NUTS, LOCK WASHER)

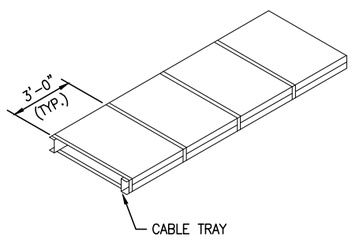
4 CABLE TRAY EXPANSION JOINT
N.T.S.



ALL HARDWARE SHALL BE 316 STAINLESS STEEL

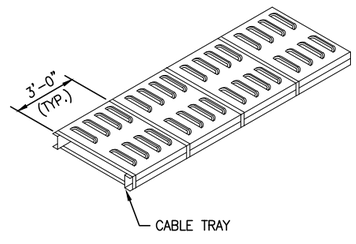
ITEM	QTY	MATERIAL DESCRIPTION
1	AS REQ'D.	STRUT, CHANNEL, P–1000 SS
2	5	BOLT BY REQUIRED LENGTH, 5/8" S.S.
3	10	FLAT WASHER, 5/8" S.S.
4	5	LOCK WASHER, 5/8" S.S.
5	5	NUT, 5/8" – 13 S.S.
6	5	RESILIENT SEAL WASHER, OUTSIDE

5 CABLE TRAY WALL SUPPORT
N.T.S.



POWER CABLE TRAY SHALL BE P&W ALUMINUM SOLID CABLE TRAY, SIZE 6" WITH CLAMPED COVER & STAINLESS STEEL HARDWARE.

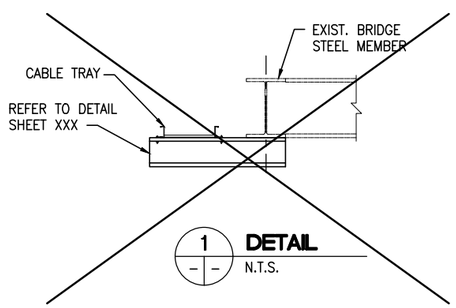
6 CABLE TRAY WITH SOLID COVER
N.T.S.



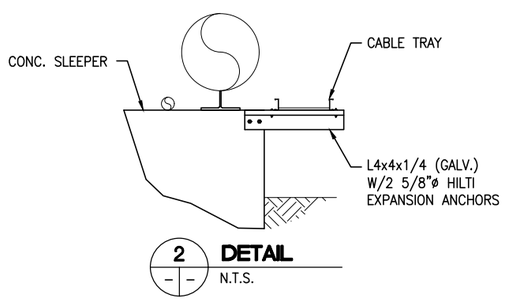
INSTRUMENT CABLE TRAY SHALL BE P&W ALUMINUM LOUVERED CABLE TRAY, SIZE 6" WITH CLAMPED COVER & STAINLESS STEEL HARDWARE.

6 CABLE TRAY WITH LOUVERED COVER
N.T.S.

CABLE TRAY AND ACCESSORIES MANUFACTURED BY LEGRAND OR EQUAL.



1 DETAIL
N.T.S.



2 DETAIL
N.T.S.

GENERAL NOTES:
1. ALL UNISTRUT CHANNEL SHALL BE 316 STAINLESS STEEL.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.

PCCA PROJ. 17–033B

9/6/17

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER

NO.	DATE	REVISION

PORT CORPUS CHRISTI

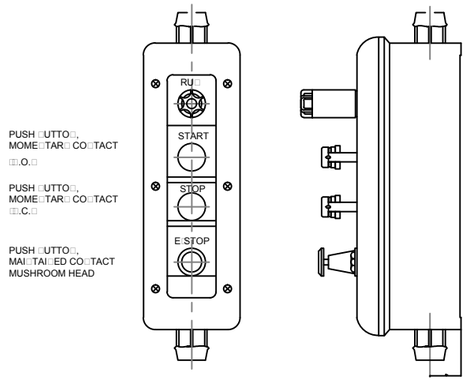
GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

PORT OF CORPUS CHRISTI AUTHORITY

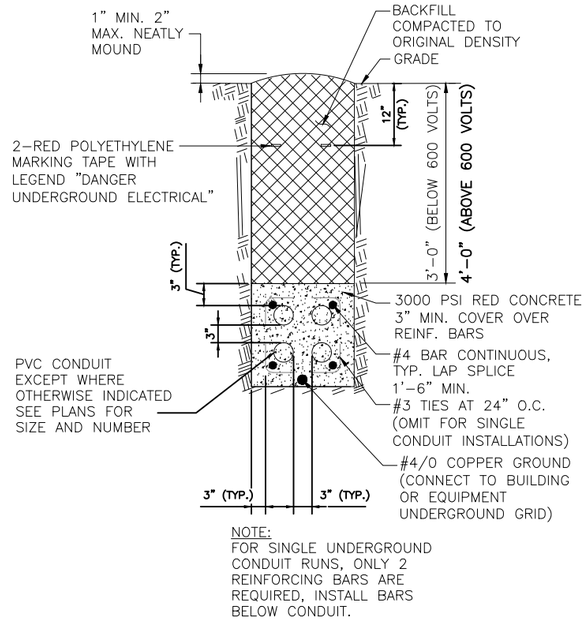
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE:	DETAILS	DATE: 9/6/17
DWN. BY: CC		DWG. NO. 17–033B–356

JOB NO. 17POC0139

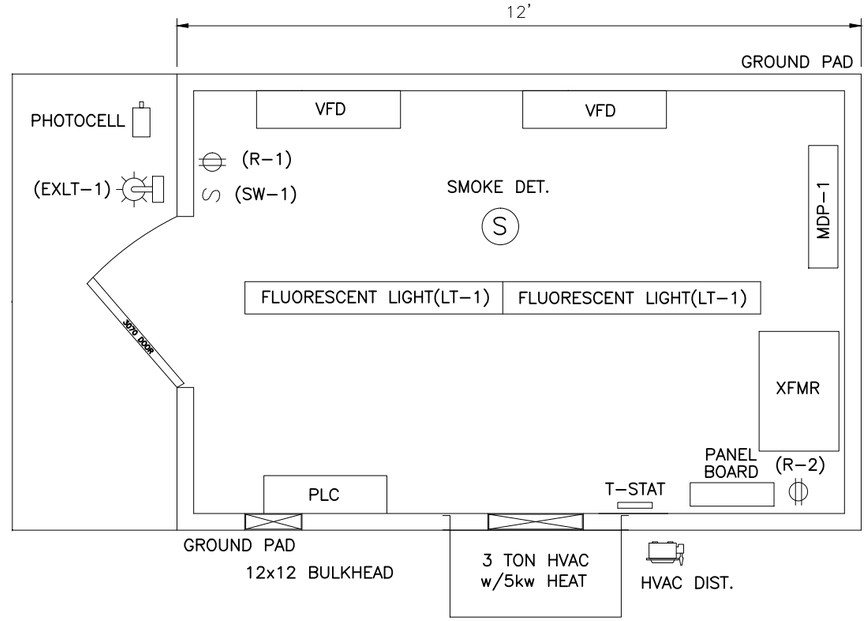


PUMP START / STOP STATION

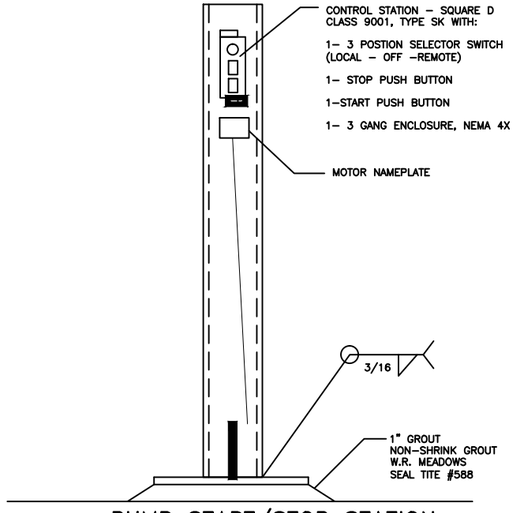


NOTE:
FOR SINGLE UNDERGROUND CONDUIT RUNS, ONLY 2 REINFORCING BARS ARE REQUIRED, INSTALL BARS BELOW CONDUIT.

CONDUIT DUCT BANK
TYPICAL DETAILS

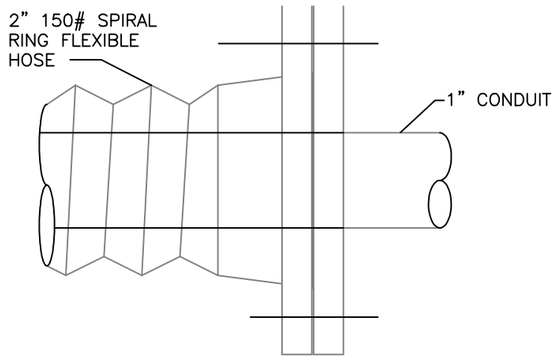


EXISTING VCU #2 BUILDING
TO BE RELOCATED FROM DOCK 1
REFERENCE DRAWING: 17-033B-303

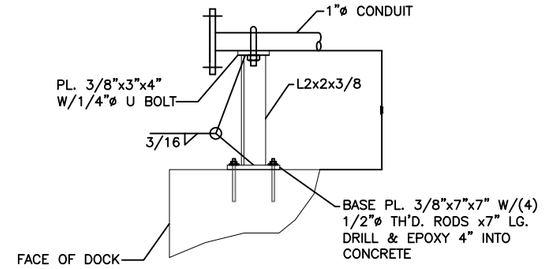


PUMP START/STOP STATION
REFERENCE DRAWING: 17-033B-303

100A DISCONNECT
REFERENCE DRAWING: 17-033B-303



1/306 DETAIL
REFERENCE DRAWING: 17-033B-306



2/306 TYPICAL CONDUIT SUPPORT AT EDGE OF DOCK
REFERENCE DRAWING: 17-033B-306

NOTE:

1. SEE DISCONNECT VENDOR DETAILS . NEMA 7 ENCLOSURE TYPE.

PCCA PROJ. 17-033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER

9/6/2017

NO.	DATE	REVISION

PORT CORPUSCHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: NTS	MISCELLANEOUS DETAILS & VCU #2 BUILDING LAYOUT	DATE: 08/23/17
DWN. BY: VS		DWG. NO. 17-033B-357

JOB NO. 17POC0139

Martin Midstream Partners
Corpus Christie, TX
Dock 10 PLC and Integration
Champion Technology Services, Inc.
Project No. 974-004 (Location Code +A01)

PLC- 4 DRAWINGS

REFERENCE ONLY

NOTES:

DRAWING NO.	REFERENCE DRAWINGS

NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RRJ	RRJ
1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES

WWW.CHAMPTECHNOLOGY.COM

Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
Title Sheet and Drawings Index
Wiring Index, Notes and Network Diagrams

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	N.T.S.	974-004+A01-WN-001	2

Drawings Index

SH	SHDWGNAM	DWGDESC	DWGDESC2	DWGDESC3
001	974-004+A01-WN-001	Dock 10 PLC and Integration Panel	Title Sheet and Drawings Index	Wiring Index, Notes and Network Diagrams
002	974-004+A01-WN-002	Dock 10 PLC and Integration Panel	Title Sheet and Drawings Index	Wiring Index, Notes and Network Diagrams
101	974-004+A01-WL-101	Dock 10 PLC and Integration Panel	PLC Enclosure Layout	Layout Diagram
102	974-004+A01-WL-102	Dock 10 PLC and Integration Panel	PLC Backpanel Layout	Layout Diagram
301	974-004+A01-WE-301	Dock 10 PLC and Integration Panel	PLC Panel Rack 0	120VAC Input Power and Distribution (Primary Feed)
401	974-004+A01-WE-401	Dock 10 PLC and Integration Panel	PLC Panel Rack 0	Main 24VDC Power and Distribution
411	974-004+A01-WE-411	Dock 10 PLC and Integration Panel	Rack 0, Module 1	Analog Input Module, 4-20mA
412	974-004+A01-WE-412	Dock 10 PLC and Integration Panel	Rack 0, Module 2, 3	Analog Output Module, 8AO, Digital Input Module, 16DI. 24VDC
413	974-004+A01-WE-413	Dock 10 PLC and Integration Panel	Rack 0, Module 4, 5	Relay Output Module, 8DO, 24VDC, Digital Input Module, 16DI, 120VAC
414	974-004+A01-WE-414	Dock 10 PLC and Integration Panel	Rack 0, Module 6	Relay Output Module, 8DO, 120VAC

NOTES:

DRAWING NO.	REFERENCE DRAWINGS

NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RRJ	RRJ
1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES
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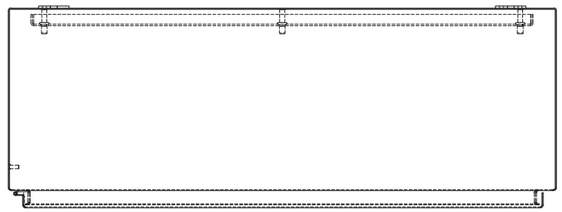
Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
Title Sheet and Drawings Index
Wiring Index, Notes and Network Diagrams

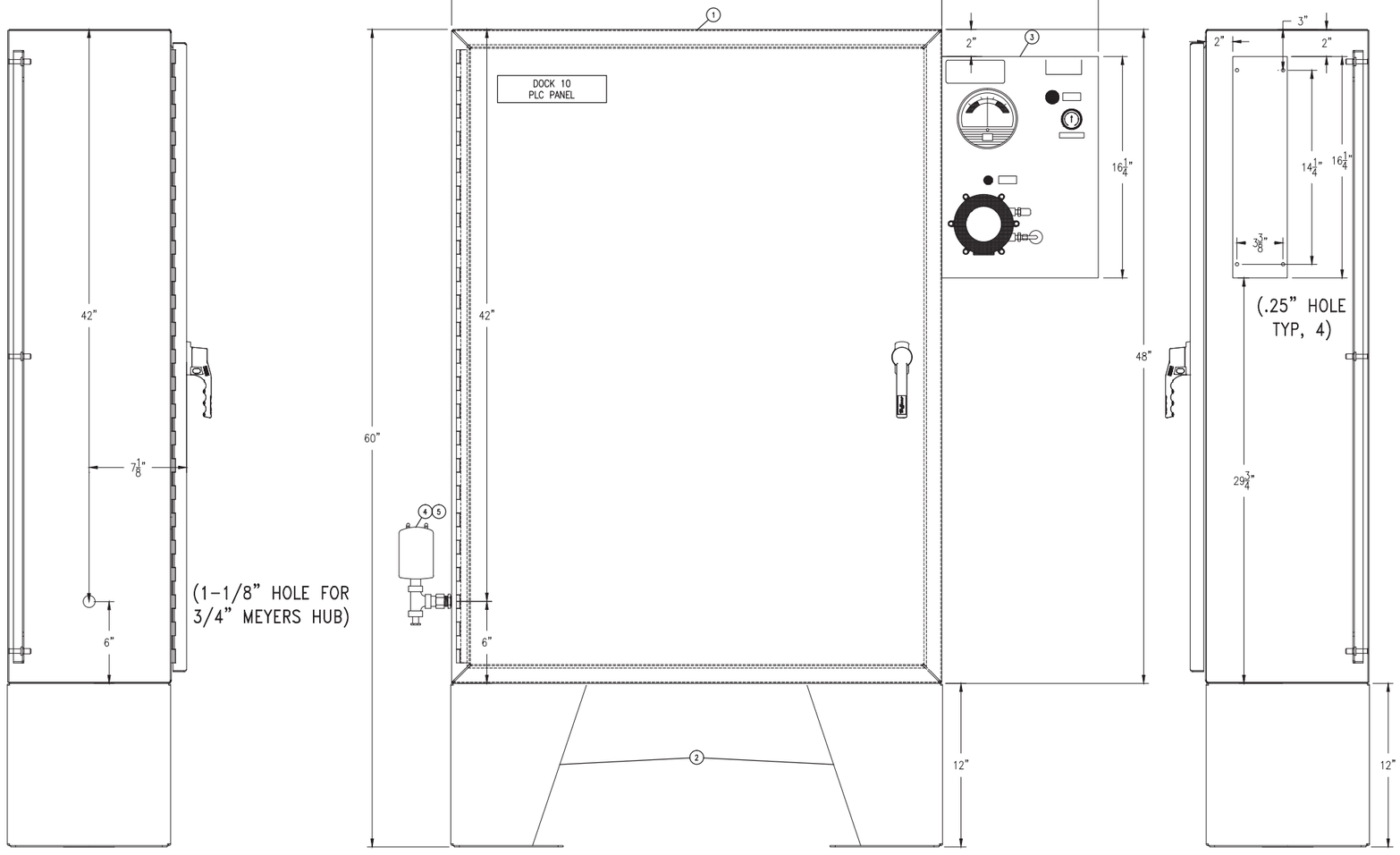
DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	N.T.S.	974-004+A01-WN-002	2

BILL OF MATERIALS

ITEM	MFR	PART NO	DESCRIPTION	QTY
1	HOFFMAN	A48H3612SS6LP3PT	STAINLESS STEEL ENLCOSURE, 48"H X 36"W X 12"D, 3 POINT LATCH, TYPE 12	1
2	HOFFMAN	AFK1212SS6-CUSTOM	FLOOR STAND KIT, 12"H X 12"D, 316 STAINLESS STEEL	1
3	D&M INSTRUMENTS	YZ-103-CI-W-V	TYPE W AND Z PURGE UNIT	1
4	D&M INSTRUMENTS	PV-3-S	SPARK ARRESTING PURGE VENT	1
5	D&M INSTRUMENTS	BCK-103	BULKHEAD MOUNTING KIT	1
6	BW INDUSTRIES	BW-LOGO-NP-6X6X125	LOGO NAMEPLATE, 6"H X 6"W, REVERSE ENGRAVED, BLACK/COLOR LETTERS	1
7	BW INDUSTRIES	BW-SYSTEMID-NP-2X8X125	LOGO NAMEPLATE, 2"H X 8"W, SURFACE ENGRAVED, BLACK/COLOR LETTERS	1
8				
9				
10				



(TOP VIEW)



(LEFT SIDE VIEW)

DOCK 10 PLC AND INTEGRATION (+A01)
ENCLOSURE LAYOUT
(FRONT VIEW)

(RIGHT SIDE VIEW)

NOTES:

DRAWING NO.	REFERENCE DRAWINGS

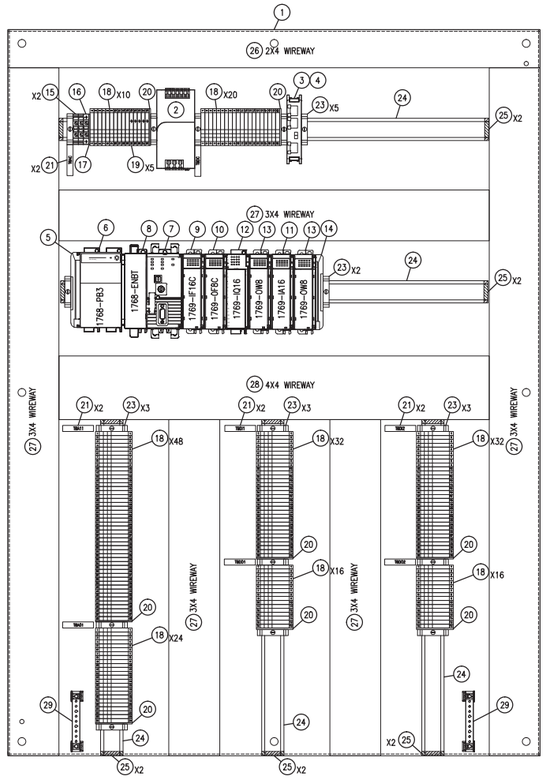
NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RKS	RKS
1	FOR FABRICATION	2013-07-31	PRR	RKS	RKS
0	FOR APPROVAL	2013-07-26	PRR	RKS	RKS

CHAMPION TECHNOLOGY SERVICES
WWW.CHAMPTECHNOLOGY.COM

Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
PLC Enclosure
Layout Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	3"=1'	974-004+A01-WL-101	2



DOCK 10 PLC AND INTEGRATION (+A01)
BACKPANEL LAYOUT

BILL OF MATERIALS

ITEM	MFR	PART NO	DESCRIPTION	QTY
1	HOFFMAN	A48P36	BACK PANEL, 45"H X 33"W	1
2	ALLEN-BRADLEY	1606-XLS240E	PERFORMANCE POWER SUPPLY, 24-28VDC, 240W, 100/240VAC INPUT VOLTAGE	1
3	ALLEN-BRADLEY	1783-US03T01F	STRATIX 2000 SWITCH, UNMANAGED, 3 COPPER PORTS. 1 FIBER W/LC CONN	1
4	INFINITE CABLES	CAT5ESE-10GY	CAT5E ETHERNET CABLE, 10', GRAY, SHIELDED STRANDED PATCH CABLE	1
5	ALLEN-BRADLEY	1769-ECL	COMPACTLOGIX LEFT END CAP	1
6	ALLEN-BRADLEY	1768-PB3	COMPACTLOGIX POWER SUPPLY,19.2-31VDC INPUT,4A@5VDC/2A@24VDC OUTPUT	1
7	ALLEN-BRADLEY	1768-L43	COMPACTLOGIX PROCESSOR, 2MBYTE	1
8	ALLEN-BRADLEY	1768-ENBT	COMPACTLOGIX SCANNER, ETHERNET	1
9	ALLEN-BRADLEY	1769-IF16C	COMPACTLOGIX ANALOG INPUT, 16AI, CURRENT	1
10	ALLEN-BRADLEY	1769-OF8C	COMPACTLOGIX ANALOG OUTPUT, 8AO (CURRENT), 16-BIT RESOLUTION	1
11	ALLEN-BRADLEY	1769-IA16	COMPACTLOGIX DIGITAL INPUT, 16DI, 120VAC	1
12	ALLEN-BRADLEY	1769-IQ16	COMPACTLOGIX DIGITAL INPUT, 16DI, 24VDC	1
13	ALLEN-BRADLEY	1769-OW8	COMPACTLOGIX RELAY OUTPUT, 8DO ISOLATED (2 GROUPS OF 4DO)	2
14	ALLEN-BRADLEY	1769-ECR	COMPACTLOGIX RIGHT END CAP	1
15	PHOENIX	3044131	UT6 FEED THROUGH TERMINAL BLOCK, GRAY	2
16	PHOENIX	3044157	UT6 PE, GREEN YELLOW TERMINAL BLOCK	1
17	PHOENIX	3047028	UT6 TERMINAL BLOCK END BARRIER	1
18	PHOENIX	3046184	UT4 FEED THROUGH TERMINAL BLOCK, GRAY	198
19	PHOENIX	3046223	UT4 GROUND TERMINAL BLOCK, GREEN	5
20	PHOENIX	3047141	UT4 TERMINAL BLOCK END BARRIER	8
21	PHOENIX	1004348	TERMINAL MARKERS	8
22	PHOENIX	0818085	MARKER FOR UT4 TERMINAL BLOCKS, (80 PER SHEET)	5
23	PHOENIX	0800886	END ANCHOR	16
24	PHOENIX	81733	DIN RAIL	2
25	PHOENIX	1206560	DIN RAIL END COVER	10
26	PHOENIX	3240263	2X4 WIREWAY	1
27	PHOENIX	3240264	3X4 WIREWAY	3
28	PHOENIX	3240205	4X4 WIREWAY	1
29	CULTER-HAMMER	CHNEUT	6 HOLE GROUNDING BAR	2
30				

NOTES:

DRAWING NO.	REFERENCE DRAWINGS

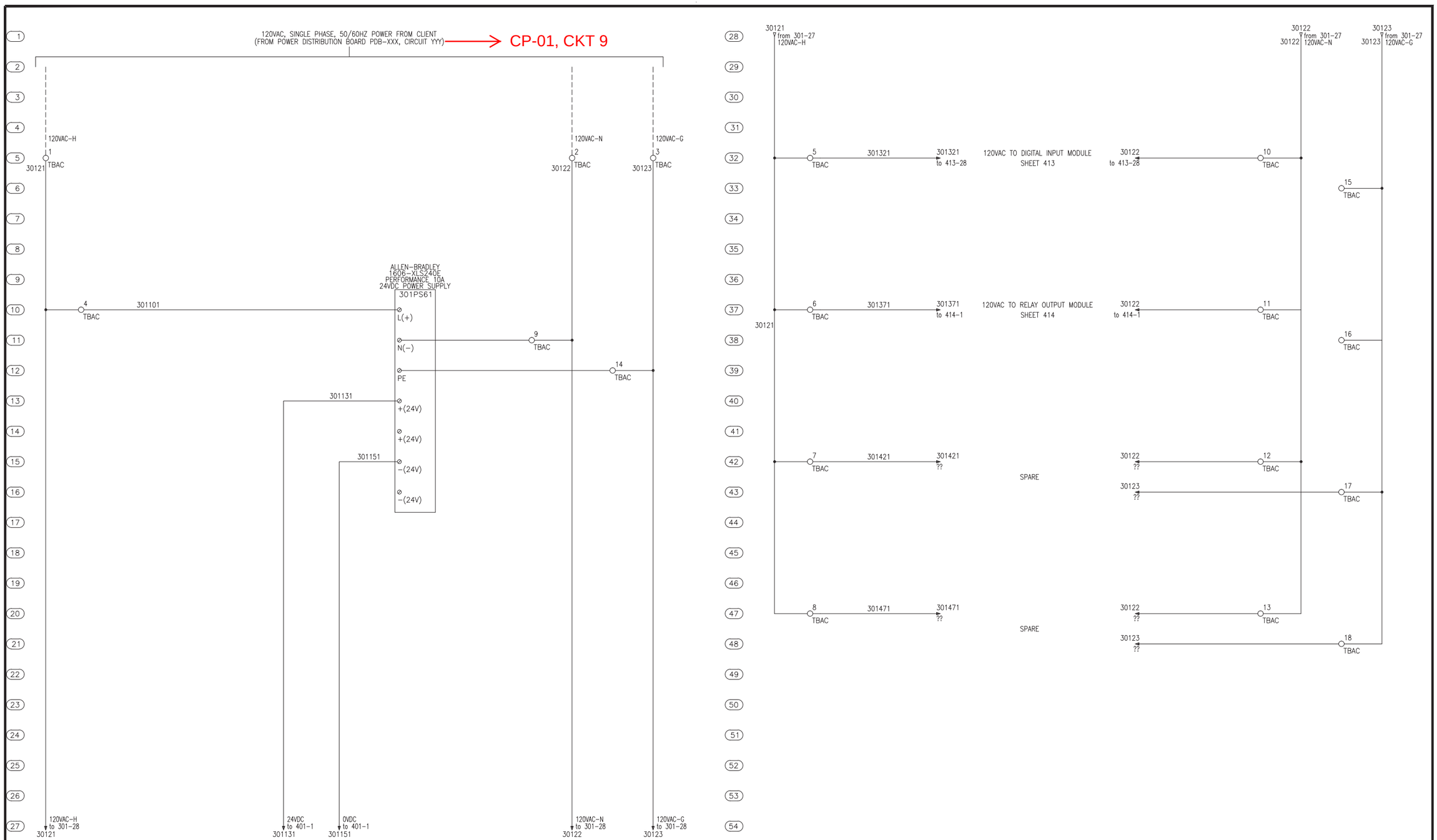
NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RKS	RKS
1	FOR FABRICATION	2013-07-26	PRR	RKS	RKS
0	FOR APPROVAL	2013-07-26	PRR	RKS	RKS

CHAMPION TECHNOLOGY SERVICES
WWW.CHAMPTECHNOLOGY.COM

Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
PLC Backpanel
Layout Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	3"=1'	974-0004+A01-WL-102	2



NOTES:

DRAWING NO.	REFERENCE DRAWINGS

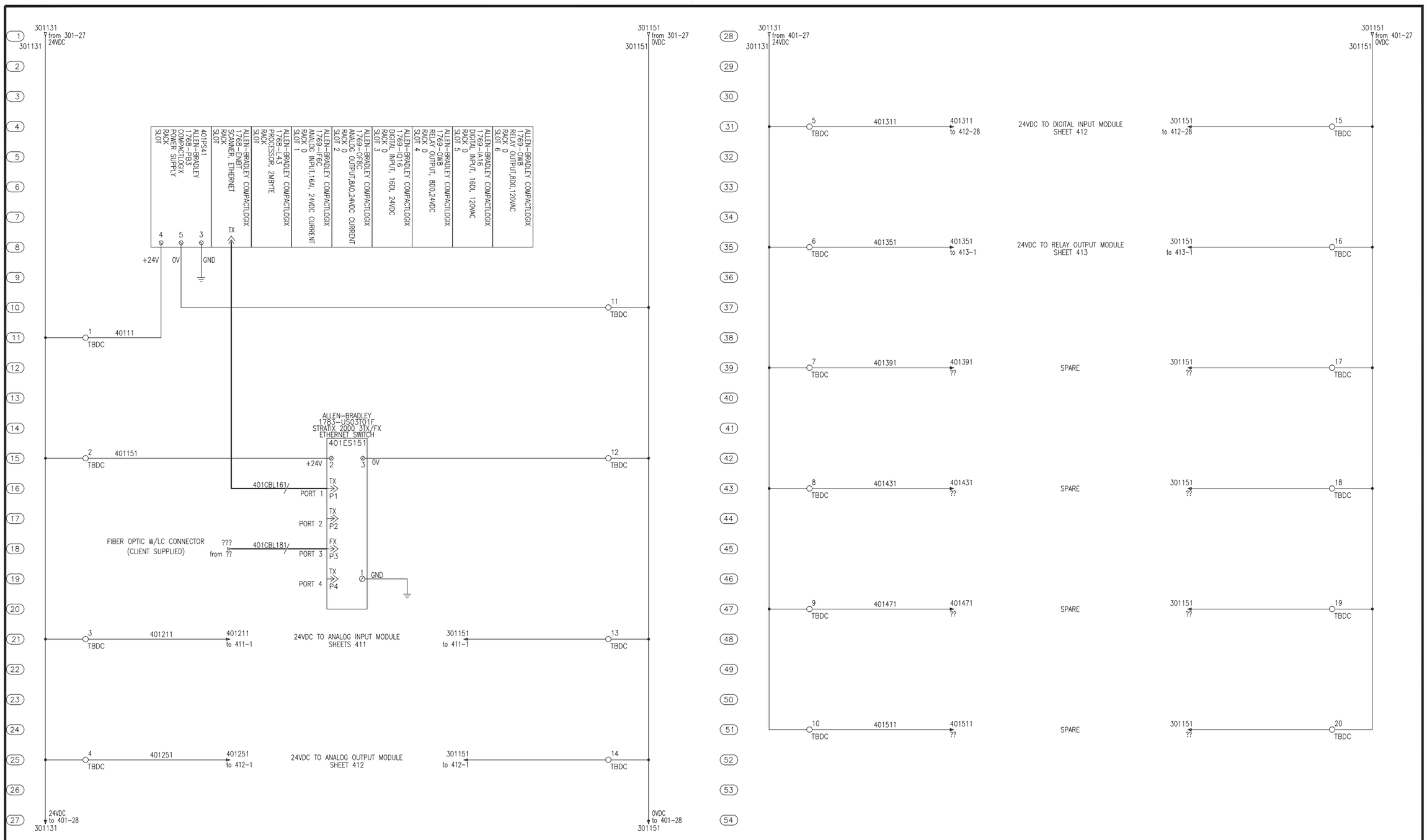
NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RRJ	RRJ
1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES
WWW.CHAMPTECHNOLOGY.COM

Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
PLC Panel Rack 0
120VAC Input Power and Distribution (Primary Feed)
Wiring Electrical Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	NONE	974-004+A01-WE-301	2



NOTES:

DRAWING NO.	REFERENCE DRAWINGS

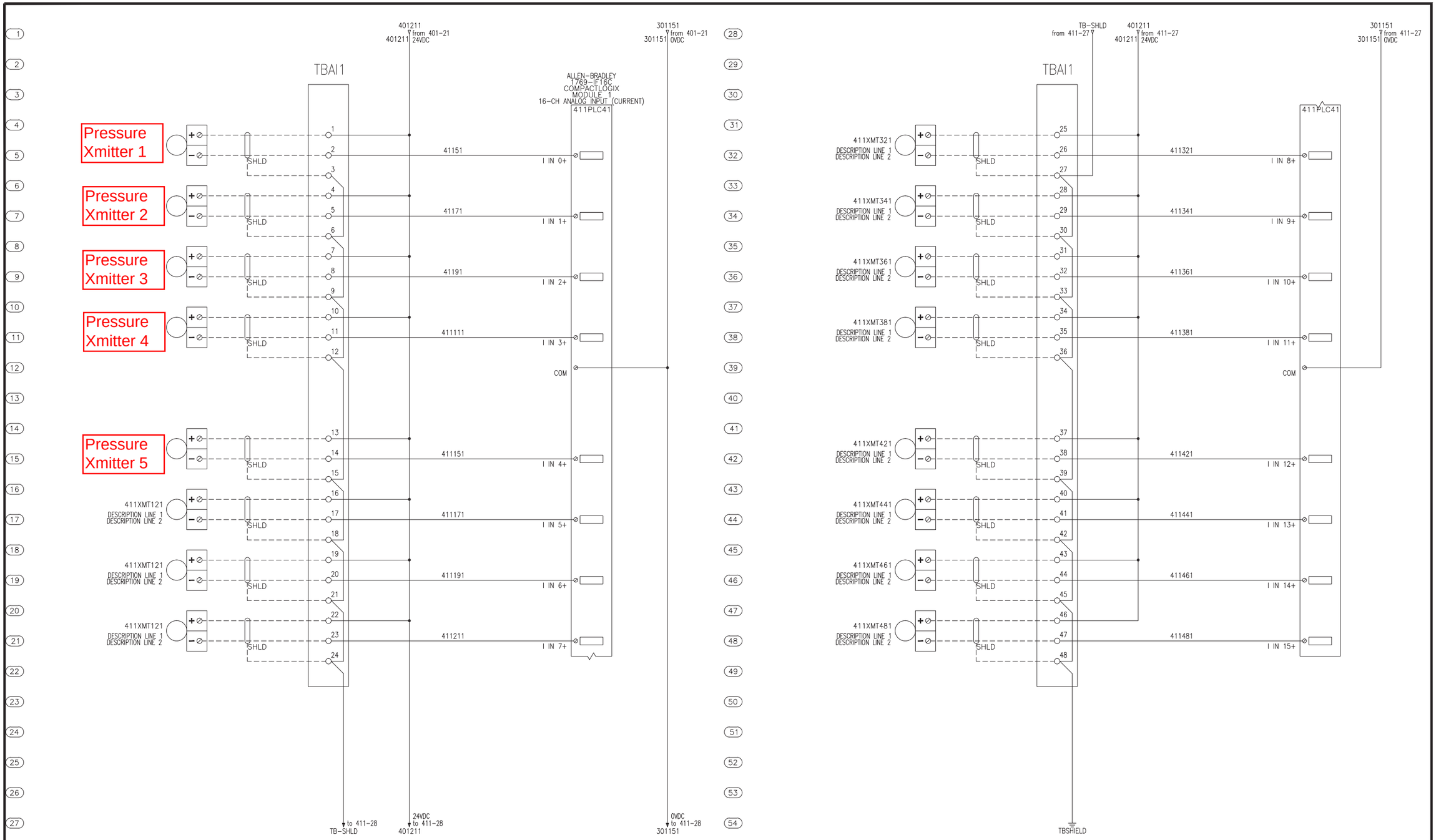
NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RRJ	RRJ
1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES
WWW.CHAMPTECHNOLOGY.COM

Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
PLC Rack 0
Main 24VDC Power and Distribution
Wiring Electrical Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	NONE	974-004+A01-WE-401	2



NOTES:

DRAWING NO.	REFERENCE DRAWINGS

NO.	REVISION	DATE	DRWN	CHKD	APPD
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1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES
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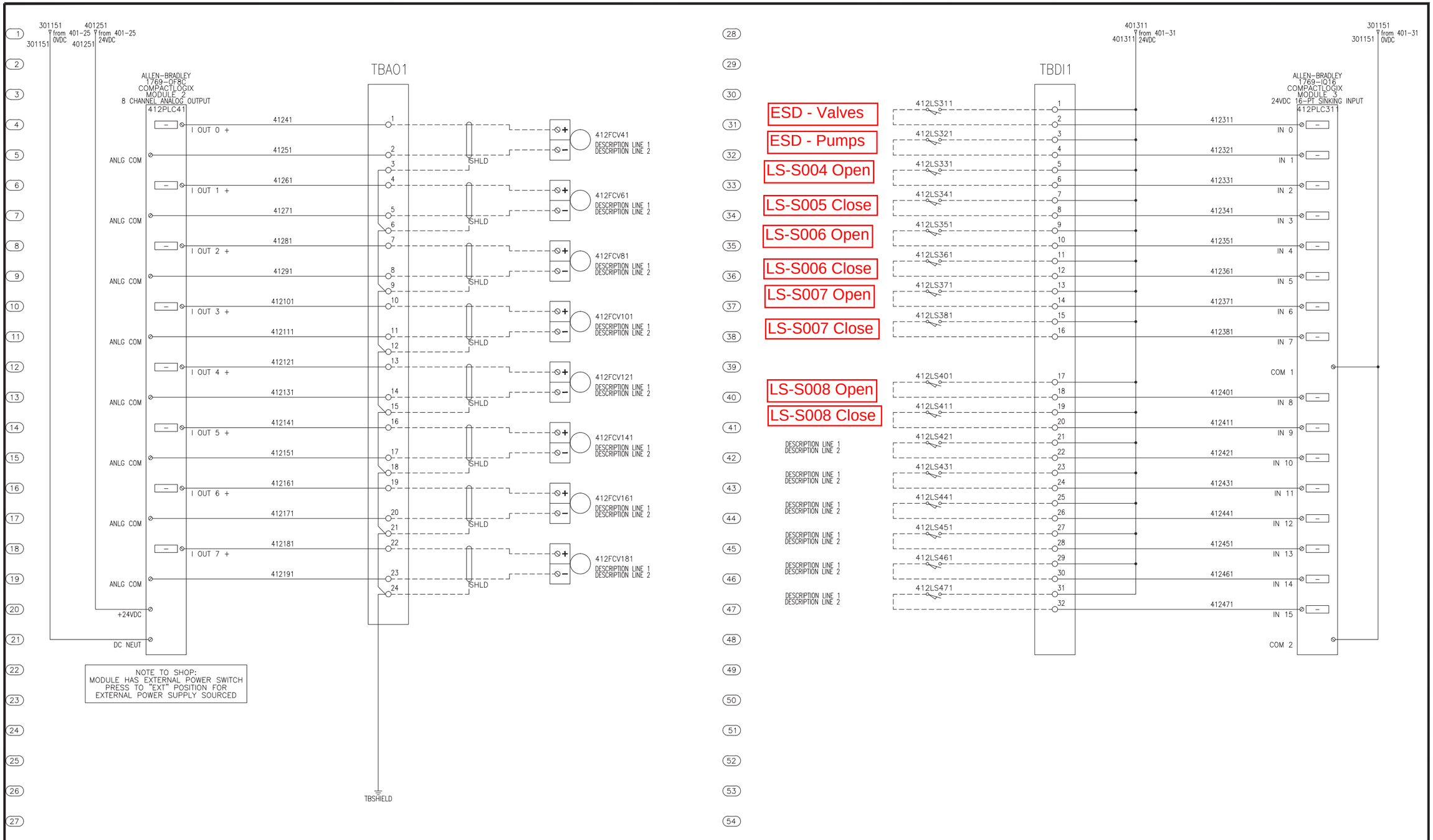
Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
Rack 0, Module 1
Analog Input Module, 4-20mA
Wiring Electrical Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	NONE	974-004+A01-WE-411	2



NOTES:

DRAWING NO.	REFERENCE DRAWINGS

NO.	REVISION	DATE	DRWN	CHKD	APPD
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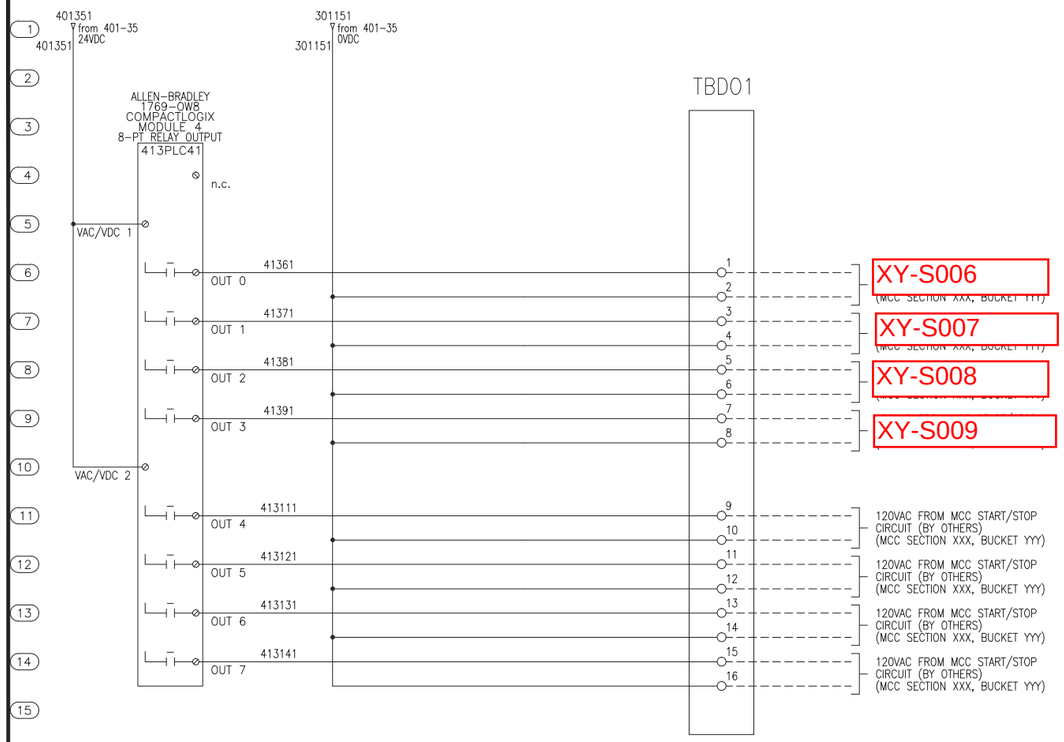
1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

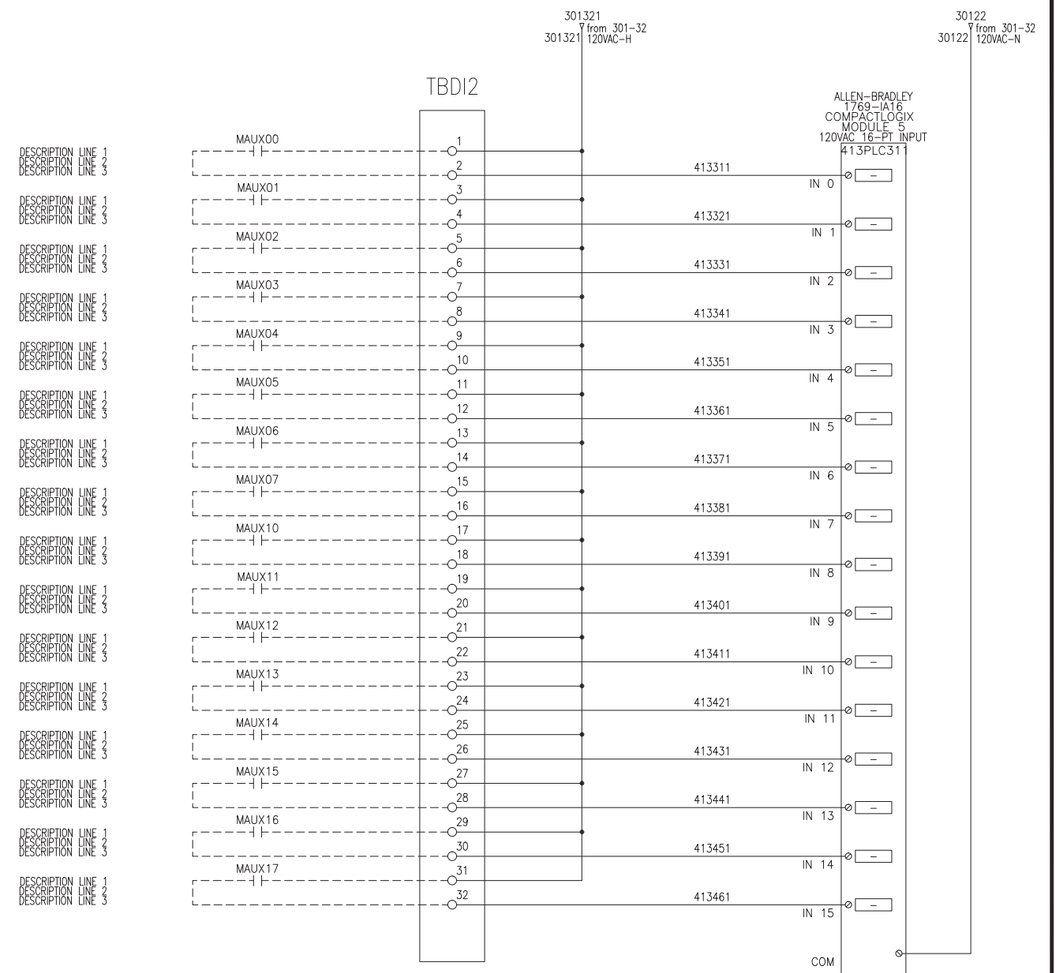
CHAMPION TECHNOLOGY SERVICES
WWW.CHAMPTECHNOLOGY.COM

Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
Rack 0, Modules 2,3
Analog Output Module, 8AO, Digital Input Module, 16DI, 24VDC
Wiring Electrical Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	NONE	974-004+A01-WE-412	2





NOTES:

DRAWING NO.	REFERENCE DRAWINGS

NO.	REVISION	DATE	DRWN	CHKD	APPD
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1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES
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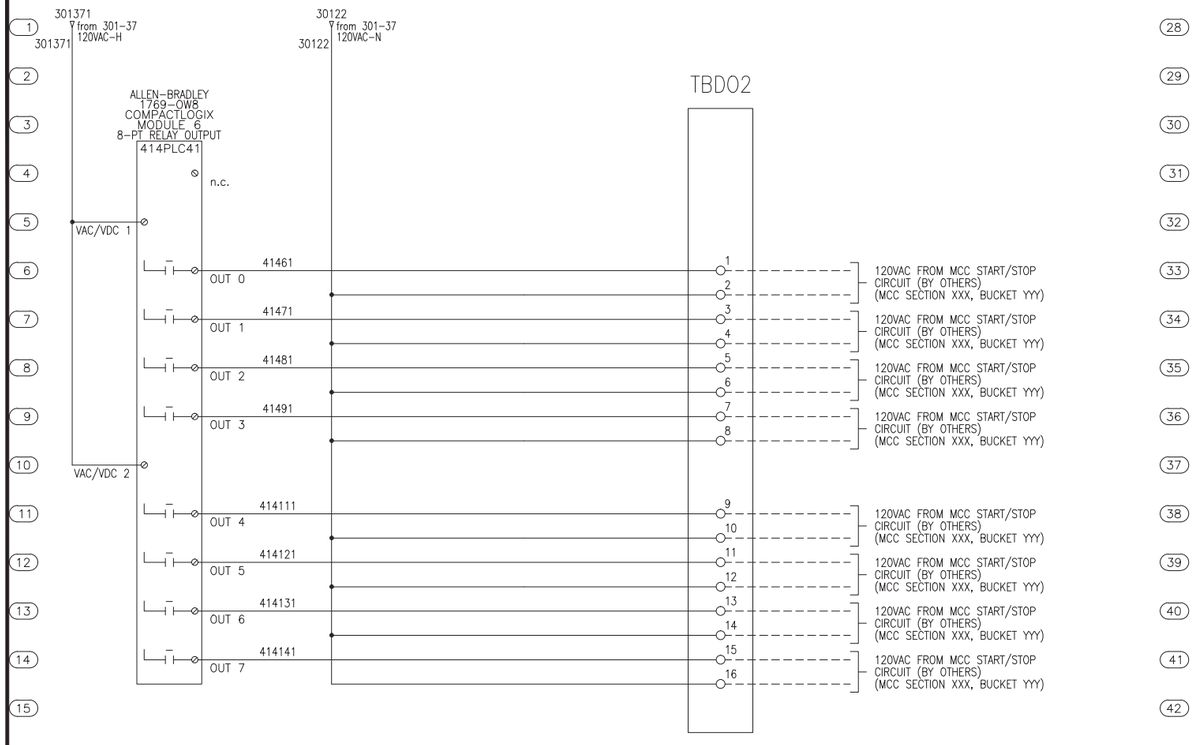
Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
Rack 0, Modules 4,5
Relay Output, 8DO, 24VDC/Digital Input, 16DI, 120VAC
Wiring Electrical Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	NONE	974-004+A01-WE-413	2



NOTES:

DRAWING NO.	REFERENCE DRAWINGS

NO.	REVISION	DATE	DRWN	CHKD	APPD
2	AS SHIPPED	2013-08-30	PRR	RRJ	RRJ
1	FOR FABRICATION	2013-08-02	PRR	RRJ	RRJ
0	FOR APPROVAL	2013-08-01	PRR	RRJ	RKS

CHAMPION TECHNOLOGY SERVICES
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Martin Midstream Partners
Corpus Christie, TX

Dock 10 PLC and Integration
Rack 0, Module 6
Relay Output Module, 8DO, 120VAC
Wiring Electrical Diagram

DWG. SIZE	SCALE	DRAWING NUMBER	REVISION
D	NONE	974-004+A01-WE-414	2

F-_01
BASKET STRAINER
TYPE: ISLIP FLOW CONTROLS, INC
MODEL: B150FSBW
SIZE: 4"
DESIGN PRESSURE: 285 PSI
DESIGN TEMPERATURE: 100° F

CP-_01
PUMP, CENTRIFUGAL
TYPE: GUSHER
MODEL: PCL3X4X132E-C0-4-A
FLOW: 480 GPM
DESIGN PRESSURE: 67.5 PSI
MAX PRESSURE: 195 PSI
DESIGN POWER REQ'D: 30.6 BHP
PUMP MOTOR: 40 HP
FLUID: CRUDE OIL

T-_01
TANK, OVERFLOW
TYPE: STROBEL STAROSTKA CONSTRUCTION
MODEL: OVERFLOW TANK
MATERIAL: CARBON STEEL, A36
DESIGN PRESSURE: ATMOSPHERIC
DESIGN TEMPERATURE: 100
SIZE: 12"x12"x15.5"
TOTAL CAPACITY: 10.85 GAL
USABLE CAPACITY

C-_01
COMPRESSOR
TYPE: SANBORN
MODEL: SP1682256
FLOW: 6.3 CFM @ 40 PSI, 5.5 CFM @ 90 PSI
DESIGN PRESSURE
MAX PRESSURE: 135 PSI
COMPRESSOR MOTOR: 1.6 HP, 120V 15AMP
FLUID: AIR SUPPLY
TANK CAPACITY: 20 GAL

XS-_03
AUTOMATIC SAMPLER
TYPE: LINCO-CAMERON
MODEL: 3L-1/2"x1/4"x3"
FLOW: 0-10 CC
DESIGN PRESSURE:
MAX PRESSURE: 100 PSI
SAMPLE CONTAINER: 5-GAL

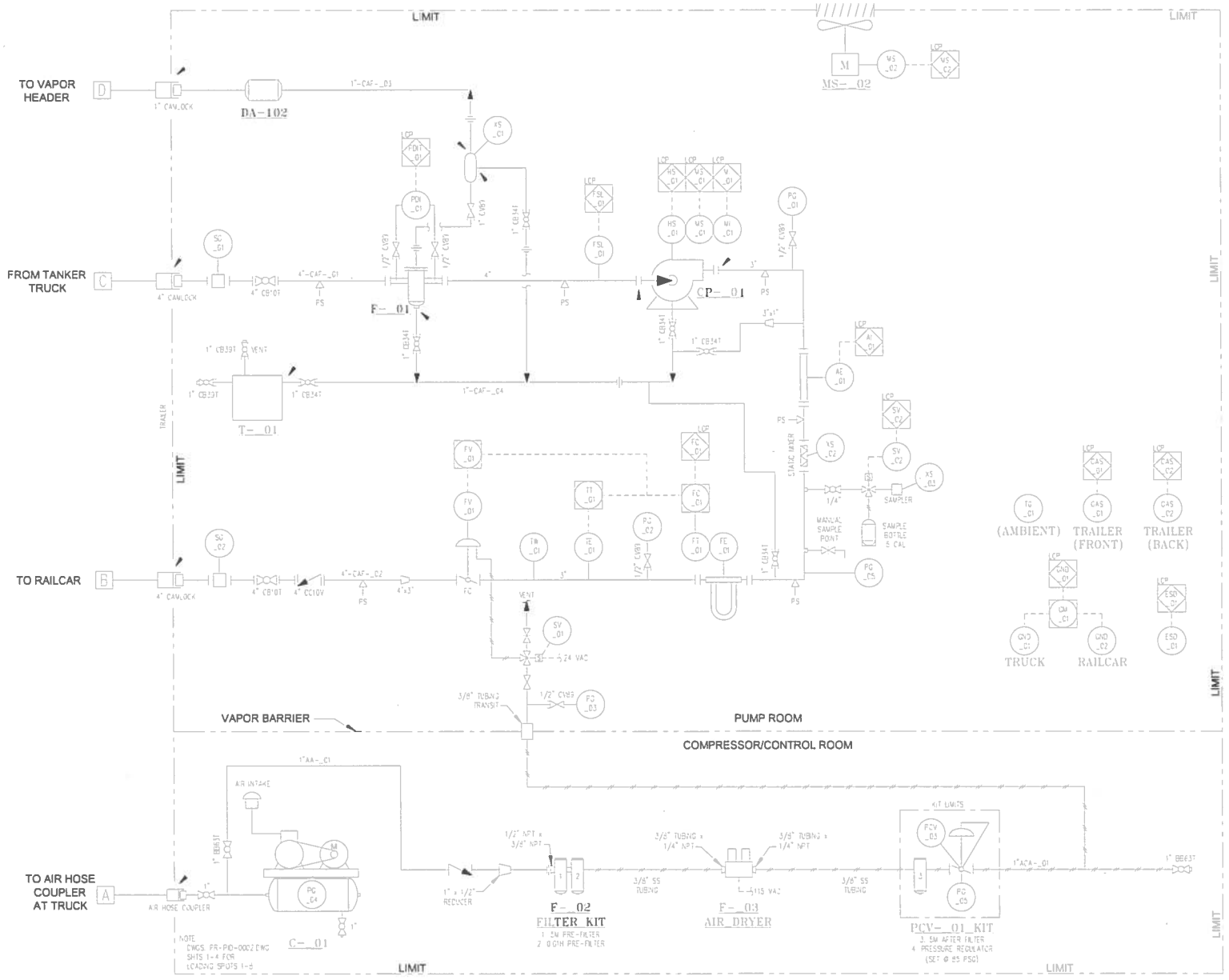
AE-_01
BS&W MONITOR
TYPE: FMC INVALCO
MODEL: 4278-5XP MONITOR
CX-645-3-00 PROBE
F/4528 DETECTOR
FLOW: BS & W

FE-_01
CORIOLIS FLOW METER
TYPE: FMC/E+H
MODEL: 83F80-AAASASP1BBAM
FLOW: 480 GPM
SIZE: 3"

MS-_02
EXHAUST FAN
TYPE: GRAINGER
MODEL: 1HKL5
DESIGN PRESSURE: 1/8" SP
DESIGN TEMPERATURE: 80° F
TOTAL CAPACITY: 820 CFM
BLOWER MOTOR: 1/20 HP, 115V, 60Hz
STARTER TYPE: ACROSS THE LINE

AE-_01
BS&W MONITOR
TYPE: FMC INVALCO
MODEL: 4278-5XP MONITOR
CX-645-3-00 PROBE
F/4528 DETECTOR
FLOW: 0-5% BS&W

FE-_01
CORIOLIS FLOW METER
TYPE: FMC/E&H
MODEL: 83F80-AAASASP1BBAM
FLOW: 480 GPM
SIZE: 3"
DESIGN PRESSURE: 285 PSI
DESIGN TEMP: -4°F TO 145°F



NOTE: LINE NUMBERING LEGEND
- TRAILERS: LINE SIZE (IN) - FHR SERVICE CLASS - TRAILER NO (1-5) FOLLOWED BY 2 DIGIT (01-04)
- YARD PIPING: LINE SIZE (IN) - FHR SERVICE CLASS - LOADING SPOT (01-40) FOLLOWED BY 2 DIGITS STARTING WITH 05.
- VENT SYSTEM (5000) SERIES
- PROPANE SYSTEM (6000 SERIES)

EQUIPMENT TAG NUMBERS

ITEM	TT-101 (SPOTS 01-05)	TT-102 (SPOTS 06-10)	TT-103 (SPOTS 11-15)	TT-104 (SPOTS 16-20)	TT-105 (SPOTS 21-25)	TT-106 (SPOTS 26-30)	TT-107 (SPOTS 31-35)	TT-108 (SPOTS 36-40)	TT-109 (PROTOTYPE)
P&ID#	0002_01	0002_01	0002_02	0002_02	0002_03	0002_03	0002_04	0002_04	NONE
EXHAUST FAN MOTOR	MS-102	MS-202	MS-302	MS-402	MS-502	MS-602	MS-702	MS-802	MS-902
SIGHT FLOW INDICATOR (INLET)	SG-101	SG-201	SG-301	SG-401	SG-501	SG-601	SG-701	SG-801	SG-901
SIGHT FLOW INDICATOR (OUTLET)	SG-102	SG-202	SG-302	SG-402	SG-502	SG-602	SG-702	SG-802	SG-902
BASKET STRAINER	F-101	F-201	F-301	F-401	F-501	F-601	F-701	F-801	F-100
AIR ELIMINATOR	XS-101	XS-201	XS-301	XS-401	XS-501	XS-601	XS-701	XS-801	XS-901
TRANSLOAD PUMP	CP-101	CP-201	CP-301	CP-401	CP-501	CP-601	CP-701	CP-801	CP-901
BS&W MONITOR	AE-101	AE-201	AE-301	AE-401	AE-501	AE-601	AE-701	AE-801	AE-901
STATIC MIXER	XS-102	XS-202	XS-302	XS-402	XS-502	XS-602	XS-702	XS-802	XS-902
AUTOMATIC SAMPLER	XS-103	XS-203	XS-303	XS-403	XS-503	XS-603	XS-703	XS-803	XS-903
CORIOLIS FLOW METER	FE-101	FE-201	FE-301	FE-401	FE-501	FE-601	FE-701	FE-801	FE-901
FLOW VALVE	FV-101	FV-201	FV-301	FV-401	FV-501	FV-601	FV-701	FV-801	FV-901
AIR COMPRESSOR	C-101	C-201	C-301	C-401	C-501	C-601	C-701	C-801	C-901
FILTER KIT	F-102	F-202	F-302	F-402	F-502	F-602	F-702	F-802	F-902
AIR DRYER	F-103	F-203	F-303	F-403	F-503	F-603	F-703	F-803	F-903
AIR REGULATOR KIT	PCV-101	PCV-102	PCV-103	PCV-104	PCV-105	PCV-106	PCV-107	PCV-108	PCV-109
INSTRUMENTS & CONTROLS TAG NUMBERS									
DIFFERENTIAL PRESSURE INDICATOR	PDI-101	PDI-201	PDI-301	PDI-401	PDI-501	PDI-601	PDI-701	PDI-801	PDI-901
DIFFERENTIAL PRESSURE TRANSMITTER	PDIT-101	PDIT-201	PDIT-301	PDIT-401	PDIT-501	PDIT-601	PDIT-701	PDIT-801	PDIT-901
LOW FLOW SWITCH	FSL-101	FSL-201	FSL-301	FSL-401	FSL-501	FSL-601	FSL-701	FSL-801	FSL-901
HAND SWITCH	HS-101	HS-201	HS-301	HS-401	HS-501	HS-601	HS-701	HS-801	HS-901
MOTOR STARTER	MS-101	MS-201	MS-301	MS-401	MS-501	MS-601	MS-701	MS-801	MS-901
MOTOR RUN INDICATION	MI-101	MI-201	MI-301	MI-401	MI-501	MI-601	MI-701	MI-801	MI-901
FLOW CONTROLLER	FC-101	FC-201	FC-301	FC-401	FC-501	FC-601	FC-701	FC-801	FC-901
FLOW TRANSMITTER	FT-101	FT-201	FT-301	FT-401	FT-501	FT-601	FT-701	FT-801	FT-901
DIFFERENTIAL PRESSURE GUAGE	PDG-102	PDG-202	PDG-302	PDG-402	PDG-502	PDG-602	PDG-702	PDG-802	PDG-902
TEMPERATURE ELEMENT	TE-101	TE-201	TE-301	TE-401	TE-501	TE-601	TE-701	TE-801	TE-901
TEMPERATURE TRANSMITTER	TT-101	TT-201	TT-301	TT-401	TT-501	TT-601	TT-701	TT-801	TT-901
PRESSURE GAUGE	PG-101	PG-201	PG-301	PG-401	PG-501	PG-601	PG-701	PG-801	PG-901
PRESSURE GAUGE	PG-102	PG-202	PG-302	PG-402	PG-502	PG-602	PG-702	PG-802	PG-902
INSTRUMENT AIR PRESSURE	PG-103	PG-203	PG-303	PG-403	PG-503	PG-603	PG-703	PG-803	PG-903
PRESSURE GAUGE	PG-104	PG-204	PG-304	PG-404	PG-504	PG-604	PG-704	PG-804	PG-904
THERMOWELL	TW-101	TW-201	TW-301	TW-401	TW-501	TW-601	TW-701	TW-801	TW-901
SOLENOID VALVE (AIR)	SV-101	SV-201	SV-301	SV-401	SV-501	SV-601	SV-701	SV-801	SV-901
SOLENOID VALVE (SAMPLER)	SV-102	SV-202	SV-302	SV-402	SV-502	SV-602	SV-702	SV-802	SV-902
AMBIENT TEMPERATURE INDICATOR	TG-101	TG-201	TG-301	TG-401	TG-501	TG-601	TG-701	TG-801	TG-901
GAS SENSOR	GAS-101	GAS-201	GAS-301	GAS-401	GAS-501	GAS-601	GAS-701	GAS-801	GAS-901
GAS SENSOR	GAS-102	GAS-202	GAS-302	GAS-402	GAS-502	GAS-602	GAS-702	GAS-802	GAS-902
GROUND INDICATOR	GND-101	GND-201	GND-301	GND-401	GND-501	GND-601	GND-701	GND-801	GND-901
GROUND INDICATOR	GND-102	GND-202	GND-302	GND-402	GND-502	GND-602	GND-702	GND-802	GND-902
ESD INDICATION	ESD-101	ESD-201	ESD-301	ESD-401	ESD-501	ESD-601	ESD-701	ESD-801	ESD-901
GROUND MONITOR	GM-101	GM-201	GM-301	GM-401	GM-501	GM-601	GM-701	GM-801	GM-901
PRESSURE GAUGE	PG-105	PG-205	PG-305	PG-405	PG-505	PG-605	PG-705	PG-805	PG-905

"_" INDICATES EQUIPMENT TAG NUMBERS REFERENCED IN CHART ABOVE

STROBEL SS STAROSTKA
CONSTRUCTION, LLC
COMMERCIAL & INDUSTRIAL CONSTRUCTION
P.O. BOX 187, CLARKS, NE. 68628
(308)548-2264 FAX (308)548-2164

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PHONE: (918) 298-5500
FAX: (918) 298-5501
WEB: WWW.EEINCO.COM

PROJECT LOCATION:

2505 S. Grandview Ave.
Odessa, TX 79766

OWNER:

FLINT HILLS RESOURCES

TRANSLOAD PHASE

MARK	DATE	DESCRIPTION
2	11/29/11	REVISED FOR WEST TRACK LOADING ONLY
1	10/28/11	ISSUED FOR CONSTRUCTION

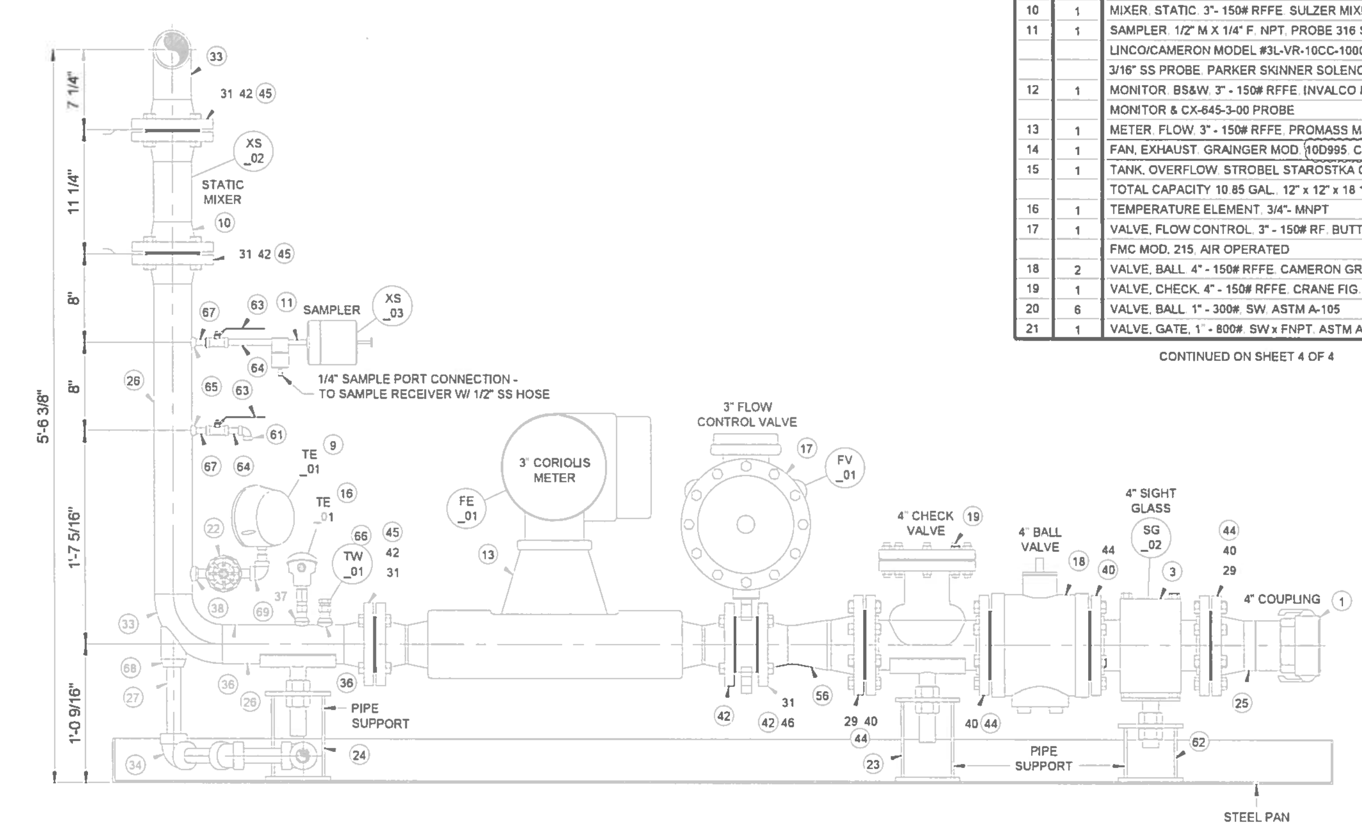
PROJECT NO: 1131
CAD DWG FILE: PR-PID-0002_06.DWG
DRAWN BY: JRW
DATE: 7/8/2011
CHK'D BY: TLG
COPYRIGHT:

SHEET TITLE

TRANSLOAD TRAILER
P&ID
(TYP 8 PLACES)

ODESSA, TX
1131

DRAWING NUMBER: PR-PID-0002_06
SHEET: 6 of 6
REV No. 2



SECTION "B" - "B"

SCALE 1" = 1'-0"

ITEM	QTY	DESCRIPTION
1	2	QUICK DISCONNECT. 4" MALE X BW. 150# CAMLOCK
2	1	QUICK DISCONNECT. 1" MALE X 1" FNPT. CAMLOCK
3	2	SIGHT FLOW INDICATOR. 4" - 150# RFFE
4	1	STRAINER. BASKET. 4" - 150# RFFE. IFC SERIES B-150
5	1	FREE FLOATING LEVER GAS VENT. 1" FNPT CONNECTIONS
6	-	DELETED
7	1	SWITCH. FLOW. 1-1/2" MNPT. 3000#. PUMP SUCTION
8	1	PUMP. CENTRIFUGAL. 4" x 3". 40 H.P. MOTOR
9	2	PRESSURE, INDICATOR. 4 - 1/2" DIAL. 1/2" MNPT CONNECTION.
		RANGE 0-160
10	1	MIXER. STATIC. 3" - 150# RFFE. SULZER MIXER SMV
11	1	SAMPLER. 1/2" M X 1/4" F. NPT. PROBE 316 SS. CAMERON W/
		LINCO/CAMERON MODEL #3L-VR-10CC-100C/W. 3L-1/8" x 1/4" x 3"
		3/16" SS PROBE. PARKER SKINNER SOLENOID #3L-713355N2GNJ4
12	1	MONITOR. BS&W. 3" - 150# RFFE. INVALCO MODEL # 4278-5XP
		MONITOR & CX-645-3-00 PROBE
13	1	METER. FLOW. 3" - 150# RFFE. PROMASS MOD. 83F
14	1	FAN, EXHAUST. GRAINGER MOD. 10D995. CAP. 1262 CFM
15	1	TANK, OVERFLOW. STROBEL STAROSTKA CONSTR. DESIGN
		TOTAL CAPACITY 10.85 GAL. 12" x 12" x 18 1/2"
16	1	TEMPERATURE ELEMENT. 3/4" - MNPT
17	1	VALVE, FLOW CONTROL. 3" - 150# RF. BUTTERFLY.
		FMC MOD. 215. AIR OPERATED
18	2	VALVE, BALL. 4" - 150# RFFE. CAMERON GROVE MOD. B4
19	1	VALVE, CHECK. 4" - 150# RFFE. CRANE FIG. 147
20	6	VALVE, BALL. 1" - 300#. SW. ASTM A-105
21	1	VALVE, GATE. 1" - 800#. SW x FNPT. ASTM A-105

CONTINUED ON SHEET 4 OF 4

STROBEL STAROSTKA CONSTRUCTION, LLC
P.O. BOX 187, CLARKS, NE 68628
(308)548-2264 FAX (308)548-2154

JFSCO ENGINEERING, P.C.
Civil • Structural Engineers

E.E.I. EXCELLENCE IN ENGINEERING

PROJECT LOCATION:

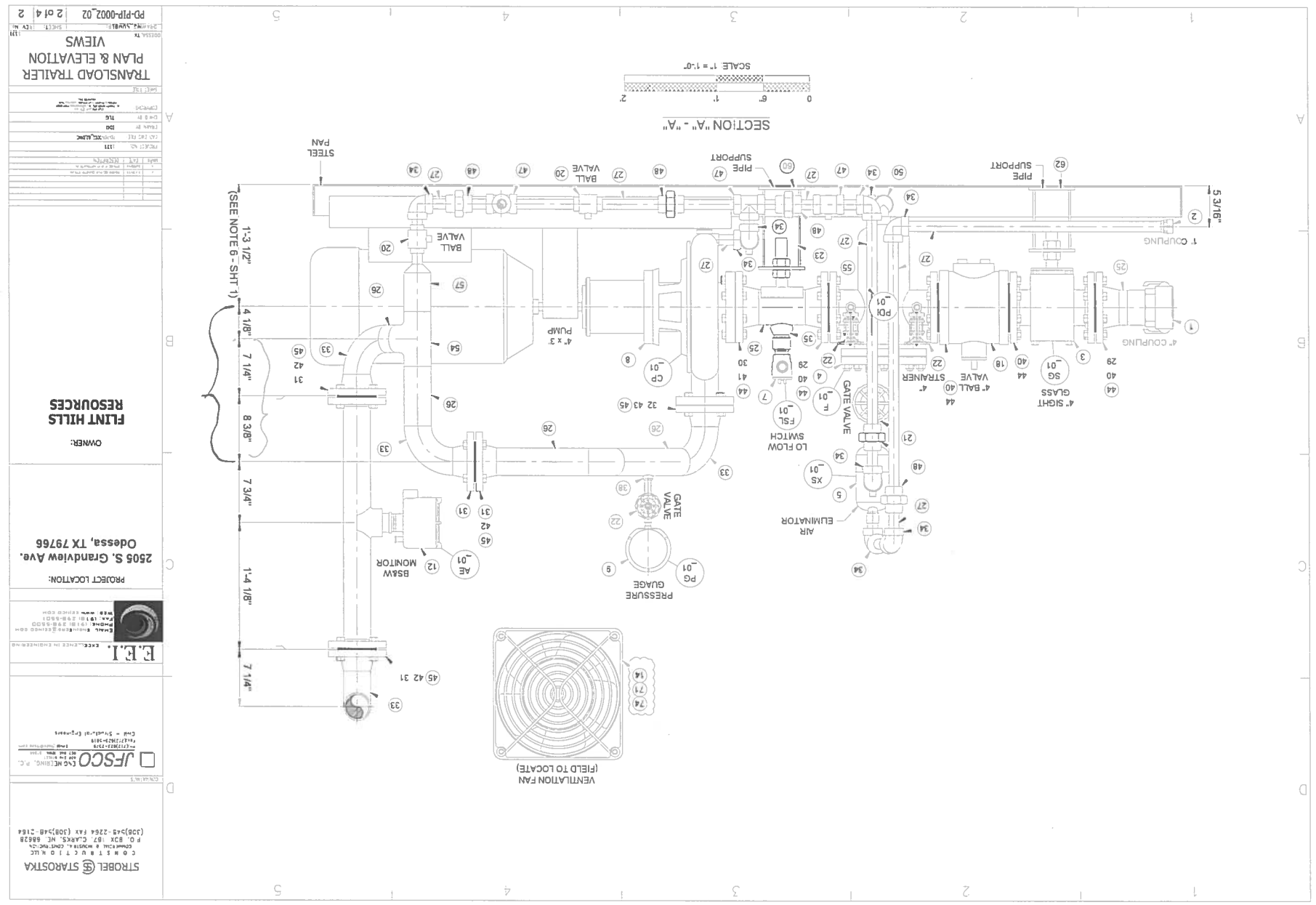
2505 S. Grandview Ave.
Odessa, TX 79766

OWNER:

FLINT HILLS RESOURCES

TRANSLOAD TRAILER PLAN & ELEVATION VIEWS

DRAWING NUMBER	SHEET	REV. No.
PD-PIP-0002_03	3 of 4	2



TRANSLOAD TRAILER
PLAN & ELEVATION
VIEWS

PD-PIP-0002_02 | 2 of 4 | 2

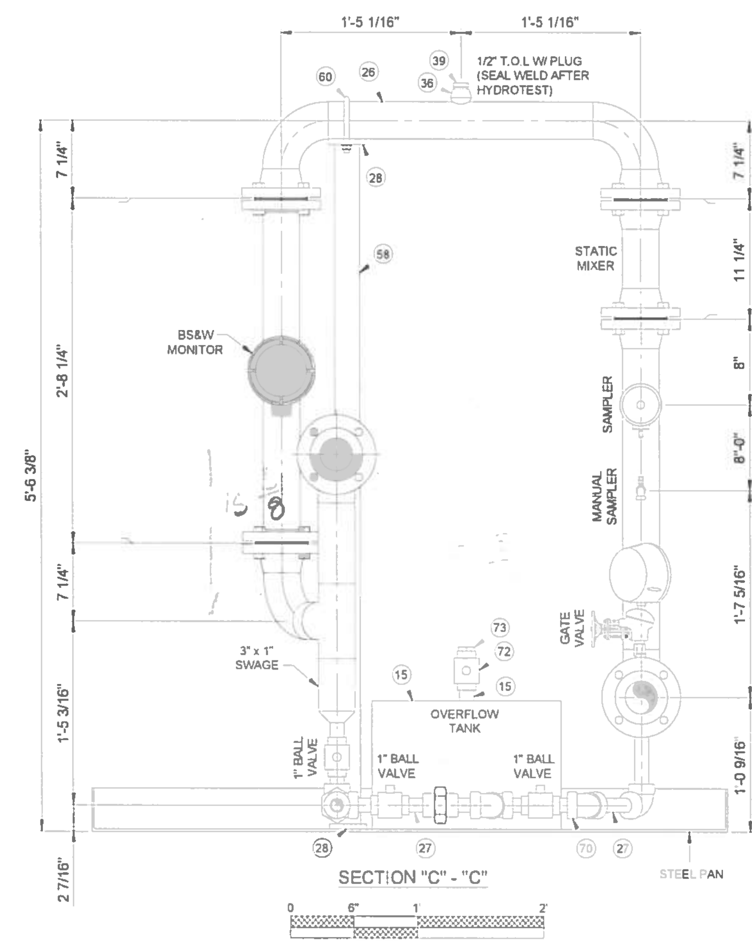
OWNER:
FLINT HILLS RESOURCES

PROJECT LOCATION:
2505 S. Grandview Ave.
Odessa, TX 79766

E.E.I.

JFSCO ENGINEERING, P.C.

STROBEL & STAROSTKA
CONSULTING LLC
P.O. BOX 187, CLARKS, NE 68628
(308)543-2264 FAX (308)543-2164



SECTION "C" - "C"

SCALE 1" = 1'-0"

CONTINUED ON SHEET 3 OF 4

ITEM	QTY	DESCRIPTION
22	4	VALVE, GATE, 1/2"- 800#, SW X FNPT, ASTM A-105
23	2	PIPE SUPPORTS, E-Z LINE 4" W/ SADDLES
24	1	PIPE SUPPORTS, E-Z LINE 3" W/ SADDLES
25	5 LF	PIPE, 4" STD. WT., SMLS ASTM A53 GR.B
26	20 LF	PIPE, 3" STD. WT., SMLS ASTM A53 GR.B
27	20 LF	PIPE, 1", SCH. 160, PE, SMLS ASTM A53 GR.B
28	2	PLATE, 3 1/2" x 1/4" THK x 5 1/2" LG, A36
29	4	FLANGE, 4" - 150#, RFWN, STD. BORE, ASTM A-105
30	1	FLANGE, 4" - 150#, FFWN, STD. BORE, ASTM A-105
31	8	FLANGE, 3" - 150#, RFWN, STD. BORE, ASTM A-105
32	1	FLANGE, 3" - 150#, FFWN, STD. BORE, ASTM A-105
33	6	ELBOW, 3" - 90 DEG., STD. WT., BW, ASTM A234 GR. WPB
34	13	ELBOW, 1" - 90 DEG., 3000#, SW, ASTM A-105
35	1	THREADOLET, 1-1/2" ON 4", FS, 3000#, GR. B
36	3	THREADOLET, 1/2" ON 3", FS, 3000#, GR. B
37	1	THREADOLET, 3/4" ON 3", FS, 3000#, GR. B
38	1	SOCKOLET, 1/2" ON 3", FS, 3000#, GR. B
39	1	PLUG, 1/2" HEXHEAD SOLID, NPT, ASTM A-105
40	8	GASKET, 1/8" THK. SPIRAL WOUND FLEXITALIC, 4" - 150#RF
41	1	GASKET, 1/8" THK. NON ASBESTOS, 4" - 150# FF
42	8	GASKET, 1/8" THK., SPIRAL WOUND FLEXITALIC, 3" - 150# RF
43	1	GASKET, 1/8" THK. NON ASBESTOS, 3" - 150# FF
44	72	BOLT, STUD 5/8 x 3-3/4 , ASTM A193 GR. B BOLTS w/
		2- ASTM A194 GR. HH NUTS EA., 4" - 150# RF
45	28	BOLT, STUD 5/8 x 3-3/4 , ASTM A193 GR. B BOLTS w/
		2- ASTM A194 GR. HH NUTS EA., 3" - 150# RF
46	4	BOLT, STUD 5/8 x 5-1/2 , ASTM A193 GR. B BOLTS w/
		2- ASTM A194 GR. HH NUTS EA., 3" - 150# RF S.L.
47	4	TEE, STRAIGHT, 1" - 3000#, SW, ASTM A-105
48	6	UNION, 1"-3000#, SW, ASTM A-105
49	1	ELBOW, 45 DEG, 3", STD. WT., BW, ASTM A234 GR.WPB
50	1	ELBOW, STREET, 1"-3000#, MNPT x SW, ASTM A-105
51	-	DELETED
52	-	DELETED
53	-	DELETED
54	1	TEE, SRAIGHT, 3", STD. WT., BW, ASTM A234 GR. WPB
55	1	INDICATOR, DIFFERENTIAL PRESSURE, 4 1/2" DIA x 1/2" NPT
		CONNECTIONS 0-15 PSIG
56	1	REDUCER, 4" x 3", STD. WT., BW, ASTM A234 GR.WPB
57	1	NIPPLE, SWAGE, 3" x 1", STD. WT., BLE x PSE , ASTM A234 GR.WPB
58	6 LF	PIPE, 2" STD. WT., SMLS ASTM A53 GR.B
59	1 LF	PIPE, 10" STD. WT., SMLS ASTM A53 GR.B
60	1	U-BOLT FOR 3" PIPE, C/W 2-ASTM A194 GR. HH NUTS
61	3	ELBOW, 1/4" - 90 DEG, SW, 3000#, ASTM A-105
62	2	PIPE SUPPORTS, EZ LINE 4" W/ FLAT PLATE
63	2	VALVE, BALL, 1/4" - 300#, SW, ASME A-105
64	2	PIPE, NIPPLES, 1/4" STD. WT., 2" LONG, SMLS ASTM A53 GR. B
65	2	THREADOLET, 1/4" ON 3", FS, 3000#, GR. B
66	1	THERMOWELL, WIKA, TAPERED, 1/2" MNPT, 316 SS, U=2.5",
		H=1.75", C/W 1/2" 316 SS PLUG
67	2	SAMPLE PROBE, LINCO MODEL, 3L-1/2x1/4x3, 316SS
68	1	ELBOLET, 1" ON 3", FS, 3000#, GR. B
69	1	ELBOW, 1/2" - 90 DEG., SW x FNPT, 3000#, ASTM A-105
70	1	ELBOW, 1" - 45 DEG, SW, 3000#, ASTM A-105
71	1	GRAINGER ALUMINUM WALL SHUTTER, CAT# 4C556
72	1	VALVE, BALL, 1" - 300#, SW x FNPT, ASME A-105
73	1	PLUG, 1" HEXHEAD SOLID, NPT, ASTM A-105
74	1	GRAINGER, INTAKE GUARD, CAT# 1WBT8

STROBEL SS STAROSTKA
CONSTRUCTION, LLC
P.O. BOX 187, CLARKS, NE 68628
(308)548-2264 FAX (308)548-2164

JFSCO ENGINEERING, P.C.
Civil · Structural Engineers

E.E.I. EXCELLENCE IN ENGINEERING

PROJECT LOCATION:

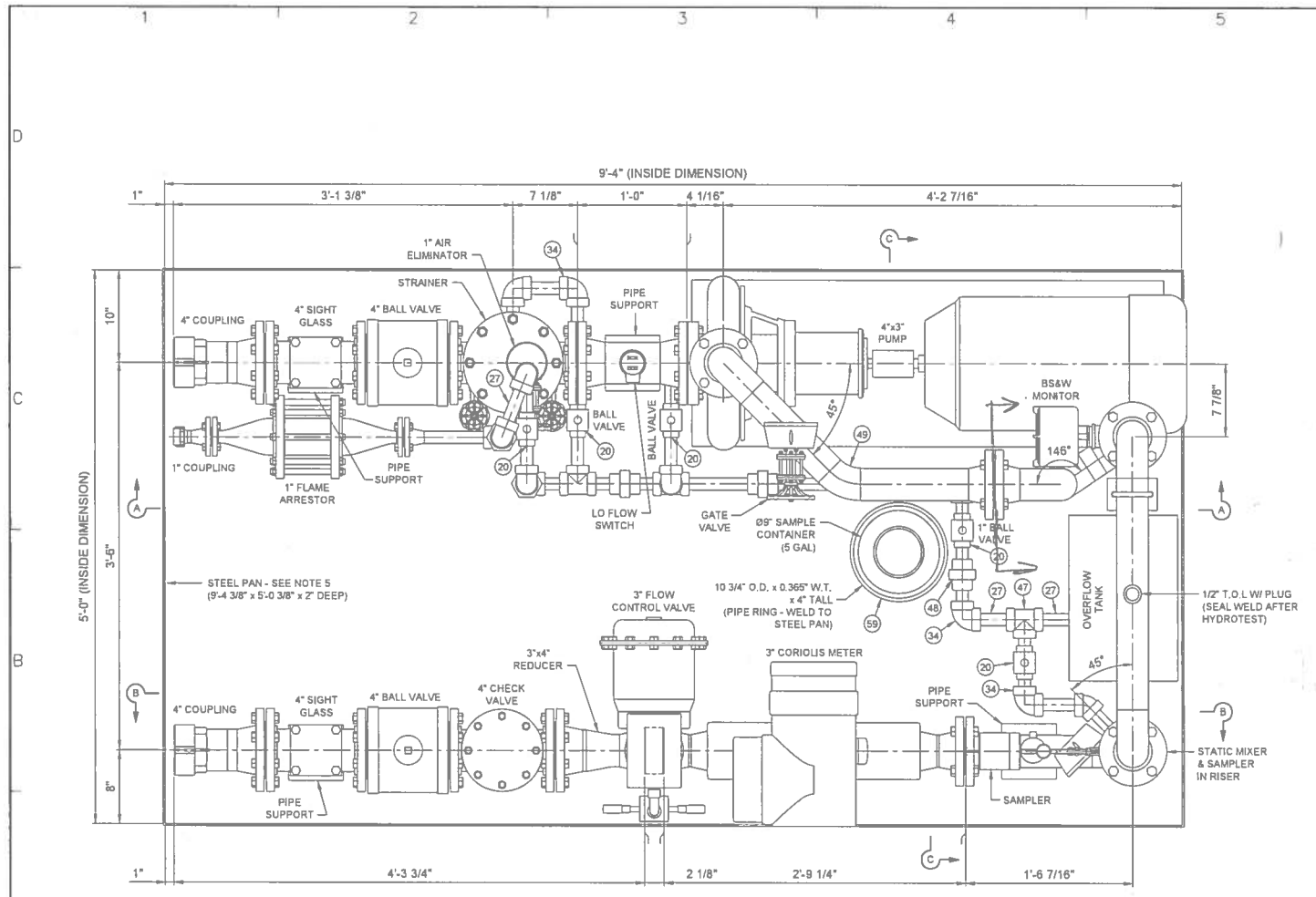
2505 S. Grandview Ave.
Odessa, TX 79766

OWNER:

FLINT HILLS RESOURCES

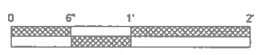
TRANSLOAD TRAILER
PLAN & ELEVATION
VIEWS

PD-PIP-0002_04 | 4 of 4 | 2



NOTES:
1. ALL PIPING TO CONFORM TO FLINT HILLS RESOURCES (FHR) PIPING SPECIFICATIONS 2.3 CAF - GENERAL PROCESS, CLASS 150 RF
2. SEAL WELD THREADS AFTER HYDROTESTING EXCEPT WHERE CONNECTED TO EQUIPMENT & INSTRUMENTATION.
3. MATERIALS SHOWN ON SHEETS 3 & 4 ARE FOR (1) TRAILER ASSY ONLY.
4. SEE P&ID DRAWING # PR-PID-0002_06 FOR EQUIPMENT / INSTRUMENT TAGS.
5. CONTRACTOR TO PROVIDE NON-SKID, OIL RESISTANT MAT FOR SAFE ACCESS TO VALVES AND EQUIPMENT.
6. CONTRACTOR TO RAISE PUMP & BASE PLATE AS REQUIRED.

PLAN VIEW



SCALE 1" = 1'-0"

STROBEL & STAROSTKA CONSTRUCTION LLC
MECHANICAL & INDUSTRIAL CONSTRUCTION
P.O. BOX 187, CLAFLIN, KS. 67525
(316)548-2284 FAX (316)548-2184

JFSCO ENGINEERING, P.C.
Civil - Structural Engineers

E.E.I.
EMAIL: ENGINEERS@EEIHCO.COM
PHONE: (918) 299-5500
FAX: (918) 299-5501
WEB: WWW.EEIHCO.COM

PROJECT LOCATION:
2505 S. Grandview Ave.
Odessa, TX 79766

OWNER:
FLINT HILLS RESOURCES

PROJECT NO.	1171
CAD DWG FILE	PD-P2-0002_1.DWG
DRAWN BY:	DDC
CHK'D BY:	TLC

TRANSLOAD TRAILER PLAN & ELEVATION VIEWS

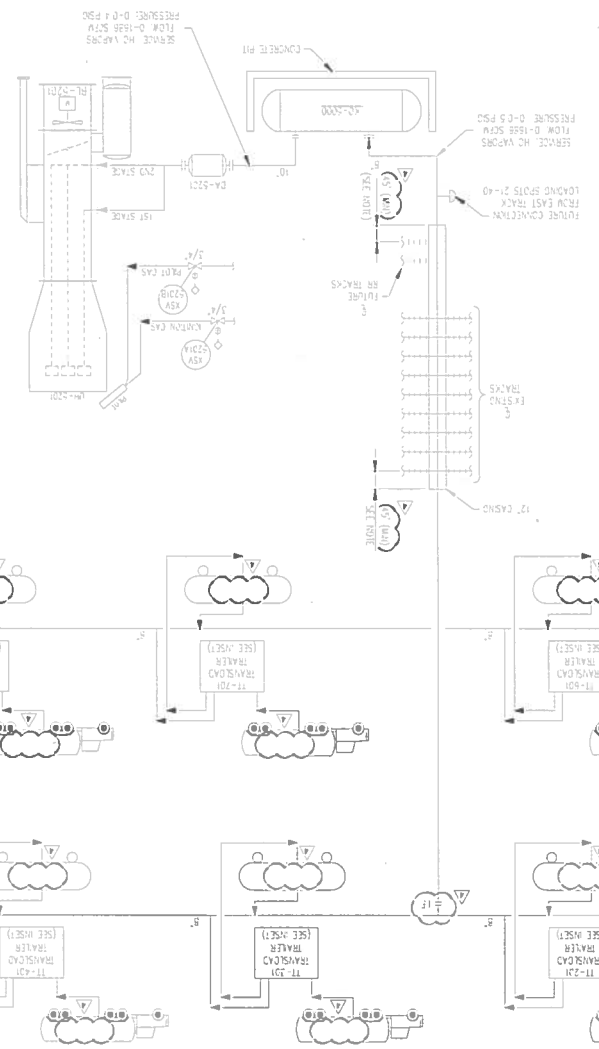
DRAWING NUMBER:	SHEET:	REV No.
PD-PIP-0002_01	1 of 4	1

REFERENCE PR-PD-0002.01 THROUGH PR-PD-0002.06

NOTICE: CYMBLES WITH LARGE PEAK1 RECOMMENDED FOR BOARD DEPOSITS

1 2 3 4 5

A B C D


SERVICE: HC VAPORS
FLOW: 0-210 SCFH
PRESSURE: 0-0.8 PSIG
(TYPICAL 3 PLACES)
CONDENSED TO BELOW LEFT
SERVICE: HC VAPORS
FLOW: 0-1688 SCFH
PRESSURE: 0-0.5 PSIG
CONDENSATE POT
EA-5201
1ST STAGE
2ND STAGE
PUMP OUT
FUSIBLE CONNECTION
FROM EAST PACK
LOADING DOCKS 21-40
FUSIBLE
RR TRACKS
EXISTING TRACKS
CONDENSED FROM UPPER MAST
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(TYPICAL 8 PLACES)
NS21
TT-101 ~ TT-801
SERVICE: CRUDE OIL
FLOW: 0-420 GPM
PRESSURE: 0-67 PSIG
TEMP: 20-100° F
CT-X01
0-65 ESAM
SAMPLE
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S CAL
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TRANSFER TRUCK_01
TRANSLOAD TRAILER
TT-101-801
RAILCAR_01
DA-5201:
M0-C0001:
LH-5201:
STROBEL STAROSTKA
CONSULTING & ACCOUNTING SERVICE
P.O. BOX 7127, CLARKS, NE 68628
(308)946-2264 FAX (308)946-2164
E.E.I.
ENGINEERED ENVIRONMENTAL
PHONE: (918) 398-5001
FAX: (918) 398-5002
WEB: www.eeiweb.com
E-MAIL: engineering@eeiweb.com
JFSCO
ENGINEERED PRODUCTS
PROJECT LOCATION:
2505 S. Grandview Ave.
Odessa, TX 79766
OWNER:
PROCESS FLOW DIAGRAM
TRANSLOAD PHASE
FLINT HILLS RESOURCES
ODESSA, TX
1121
PR-PFD-0001_01
1 OF 1
4

F-_01
BASKET STRAINER
TYPE: ISUP FLOW CONTROLS, INC.
MODEL: BI50FSBW
SIZE: 4"
DESIGN PRESSURE: 285 PSI
DESIGN TEMPERATURE: 100° F

CP-_01
PUMP, CENTRIFUGAL
TYPE: QUISHER
MODEL: PCI_3X4X13ZE-CG-4-A
FLOW: 480 GPM
DESIGN PRESSURE: 67.8 PSI
MAX PRESSURE: 195 PSI
DESIGN POWER REQ'D: 30.6 BHP
PUMP MOTOR: 40 HP
FLUID: CRUDE OIL

T-_01
TANK, OVERFLOW
TYPE: STROBEL STAROSTKA CONSTRUCTION
MODEL: OVERFLOW TANK
MATERIAL: CARBON STEEL, A36
DESIGN PRESSURE: ATMOSPHERIC
DESIGN TEMPERATURE: 100
SIZE: 12'x12'x18.5"
TOTAL CAPACITY: 10.85 GAL
USABLE CAPACITY:

C-_01
COMPRESSOR
TYPE: SANBORN
MODEL: SP1682065
FLOW: 6.3 CFM @ 40 PSI, 5.5 CFM @ 90 PSI
DESIGN PRESSURE:
MAX PRESSURE: 135 PSI
COMPRESSOR MOTOR: 1.6 HP, 120V 15AMP
FLUID: AIR SUPPLY
TANK CAPACITY: 20 GAL

XS-_03
AUTOMATIC SAMPLER
TYPE: LINCO-CAMERON
MODEL: 3/4-1/2" x1/4"x3"
FLOW: 0-10 CC
DESIGN PRESSURE:
MAX PRESSURE: 100 PSI
SAMPLE CONTAINER: 5-GAL

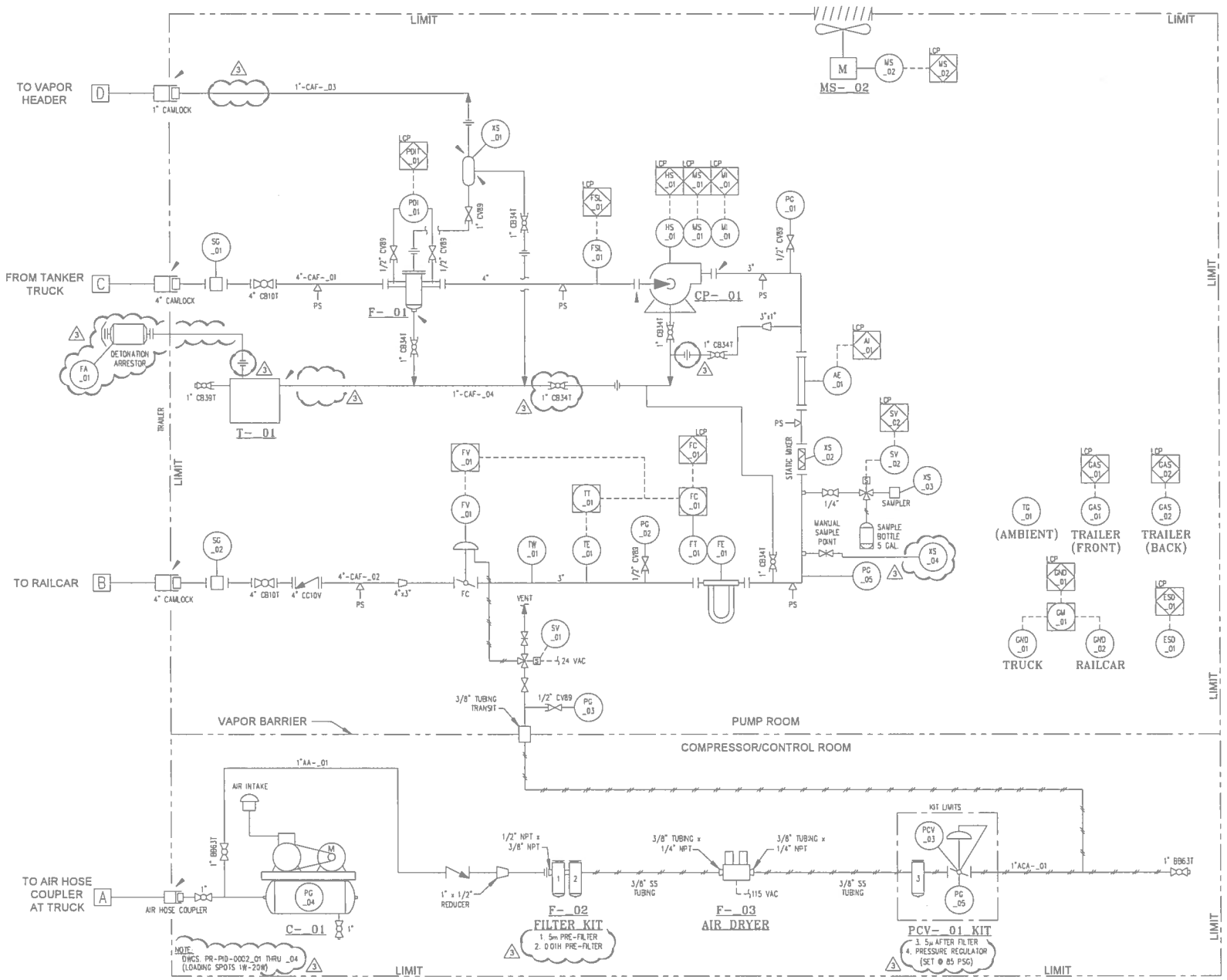
AE-_01
BS&W MONITOR
TYPE: FMC INVALCO
MODEL: 4276-SVP MONITOR
CK-645-3-00 PROBE
F/452B DETECTOR
FLOW: 85 & W

FE-_01
CORIOLIS FLOW METER
TYPE: FMC/E+H
MODEL: 83F80-AAASASP1BBAW
FLOW: 480 GPM
SIZE: 3"

MS-_02
EXHAUST FAN
TYPE: GRAINGER
MODEL: 1XD93
DESIGN PRESSURE: 1/8" SP
DESIGN TEMPERATURE: 80° F
TOTAL CAPACITY: 1262 CFM
BLOWER MOTOR: 1/4 HP, 115V, 60Hz
STARTER TYPE: ACROSS THE LINE
3

AE-_01
BS&W MONITOR
TYPE: FMC INVALCO
MODEL: 4276-SVP MONITOR
CK-645-3-00 PROBE
F/452B DETECTOR
FLOW: 0-5% BS&W

FE-_01
CORIOLIS FLOW METER
TYPE: FMC/E&H
MODEL: 83F80-AAASASP1BBAW
FLOW: 480 GPM
SIZE: 3"
DESIGN PRESSURE: 285 PSI
DESIGN TEMP: -4°F TO 145°F



EQUIPMENT TAG NUMBERS

ITEM	TT-101	TT-102	TT-103	TT-104	TT-105	TT-106	TT-107	TT-108	TT-109 (PROTOTYPE)
P&ID#	0002_01	0002_01	0002_02	0002_02	0002_03	0002_03	0002_04	0002_04	NONE
EXHAUST FAN MOTOR	MS-102	MS-202	MS-302	MS-402	MS-502	MS-602	MS-702	MS-802	MS-902
SIGHT FLOW INDICATOR (INLET)	SG-101	SG-201	SG-301	SG-401	SG-501	SG-601	SG-701	SG-801	SG-901
SIGHT FLOW INDICATOR (OUTLET)	SG-102	SG-202	SG-302	SG-402	SG-502	SG-602	SG-702	SG-802	SG-902
BASKET STRAINER	F-101	F-201	F-301	F-401	F-501	F-601	F-701	F-801	F-100
AIR ELIMINATOR	XS-101	XS-201	XS-301	XS-401	XS-501	XS-601	XS-701	XS-801	XS-901
TRANSLOAD PUMP	CP-101	CP-201	CP-301	CP-401	CP-501	CP-601	CP-701	CP-801	CP-901
BS&W MONITOR	AE-101	AE-201	AE-301	AE-401	AE-501	AE-601	AE-701	AE-801	AE-901
STATIC MIXER	XS-102	XS-202	XS-302	XS-402	XS-502	XS-602	XS-702	XS-802	XS-902
AUTOMATIC SAMPLER	XS-103	XS-203	XS-303	XS-403	XS-503	XS-603	XS-703	XS-803	XS-903
3 MANUAL SAMPLER	XS-104	XS-204	XS-304	XS-404	XS-504	XS-604	XS-704	XS-804	XS-904
CORIOLIS FLOW METER	FE-101	FE-201	FE-301	FE-401	FE-501	FE-601	FE-701	FE-801	FE-901
FLOW VALVE	FV-101	FV-201	FV-301	FV-401	FV-501	FV-601	FV-701	FV-801	FV-901
3 DETONATION ARRESTOR	FA-101	FA-201	FA-301	FA-401	FA-501	FA-601	FA-701	FA-801	FA-901
AIR COMPRESSOR	C-101	C-201	C-301	C-401	C-501	C-601	C-701	C-801	C-901
FILTER KIT	F-102	F-202	F-302	F-402	F-502	F-602	F-702	F-802	F-902
AIR DRYER	F-103	F-203	F-303	F-403	F-503	F-603	F-703	F-803	F-903
AIR REGULATOR KIT	PCV-101	PCV-102	PCV-103	PCV-104	PCV-105	PCV-106	PCV-107	PCV-108	PCV-109

INSTRUMENTS & CONTROLS TAG NUMBERS

DIFFERENTIAL PRESSURE INDICATOR	PDI-101	PDI-201	PDI-301	PDI-401	PDI-501	PDI-601	PDI-701	PDI-801	PDI-901
DIFFERENTIAL PRESSURE TRANSMITTER	PDIT-101	PDIT-201	PDIT-301	PDIT-401	PDIT-501	PDIT-601	PDIT-701	PDIT-801	PDIT-901
LOW FLOW SWITCH	FSL-101	FSL-201	FSL-301	FSL-401	FSL-501	FSL-601	FSL-701	FSL-801	FSL-901
HAND SWITCH	HS-101	HS-201	HS-301	HS-401	HS-501	HS-601	HS-701	HS-801	HS-901
MOTOR STARTER	MS-101	MS-201	MS-301	MS-401	MS-501	MS-601	MS-701	MS-801	MS-901
MOTOR RUN INDICATION	MI-101	MI-201	MI-301	MI-401	MI-501	MI-601	MI-701	MI-801	MI-901
FLOW CONTROLLER	FC-101	FC-201	FC-301	FC-401	FC-501	FC-601	FC-701	FC-801	FC-901
FLOW TRANSMITTER	FT-101	FT-201	FT-301	FT-401	FT-501	FT-601	FT-701	FT-801	FT-901
DIFFERENTIAL PRESSURE GUAGE	PDG-102	PDG-202	PDG-302	PDG-402	PDG-502	PDG-602	PDG-702	PDG-802	PDG-902
TEMPERATURE ELEMENT	TE-101	TE-201	TE-301	TE-401	TE-501	TE-601	TE-701	TE-801	TE-901
TEMPERATURE TRANSMITTER	TT-101	TT-201	TT-301	TT-401	TT-501	TT-601	TT-701	TT-801	TT-901
PRESSURE GAUGE	PG-101	PG-201	PG-301	PG-401	PG-501	PG-601	PG-701	PG-801	PG-901
PRESSURE GAUGE	PG-102	PG-202	PG-302	PG-402	PG-502	PG-602	PG-702	PG-802	PG-902
INSTRUMENT AIR PRESSURE	PG-103	PG-203	PG-303	PG-403	PG-503	PG-603	PG-703	PG-803	PG-903
PRESSURE GAUGE	PG-104	PG-204	PG-304	PG-404	PG-504	PG-604	PG-704	PG-804	PG-904
THERMOWELL	TW-101	TW-201	TW-301	TW-401	TW-501	TW-601	TW-701	TW-801	TW-901
SOLENOID VALVE (AIR)	SV-101	SV-201	SV-301	SV-401	SV-501	SV-601	SV-701	SV-801	SV-901
SOLENOID VALVE (SAMPLER)	SV-102	SV-202	SV-302	SV-402	SV-502	SV-602	SV-702	SV-802	SV-902
AMBIENT TEMPERATURE INDICATOR	TG-101	TG-201	TG-301	TG-401	TG-501	TG-601	TG-701	TG-801	TG-901
GAS SENSOR	GAS-101	GAS-201	GAS-301	GAS-401	GAS-501	GAS-601	GAS-701	GAS-801	GAS-901
GAS SENSOR	GAS-102	GAS-202	GAS-302	GAS-402	GAS-502	GAS-602	GAS-702	GAS-802	GAS-902
GROUND INDICATOR	GND-101	GND-201	GND-301	GND-401	GND-501	GND-601	GND-701	GND-801	GND-901
GROUND INDICATOR	GND-102	GND-202	GND-302	GND-402	GND-502	GND-602	GND-702	GND-802	GND-902
ESD INDICATION	ESD-101	ESD-201	ESD-301	ESD-401	ESD-501	ESD-601	ESD-701	ESD-801	ESD-901
GROUND MONITOR	GM-101	GM-201	GM-301	GM-401	GM-501	GM-601	GM-701	GM-801	GM-901
PRESSURE GAUGE	PG-105	PG-205	PG-305	PG-405	PG-505	PG-605	PG-705	PG-805	PG-905

3

NOTE: LINE NUMBERING LEGEND
- TRAILERS: LINE SIZE (IN) - FHR SERVICE CLASS - TRAILER NO. (1-5) FOLLOWED BY 2 DIGIT (01-04)
- YARD PIPING: LINE SIZE (IN) - FHR SERVICE CLASS - LOADING SPOT (01-40) FOLLOWED BY 2 DIGITS STARTING WITH 05.
- VENT SYSTEM (5000) SERIES
- PROPANE SYSTEM (6000 SERIES)

STROBEL STAROSTKA
CONSTRUCTION, LLC
COMMERCIAL & INDUSTRIAL CONSTRUCTION
P.O. BOX 187, CLARKS, NE. 68628
(308)548-2264 FAX (308)548-2164

CONSULTANTS

JFSCO ENGINEERING, P.C.
808 2nd STREET
RED OAK, IOWA 51566
Ph:(712)623-2579 Email:jfsco@jfsco.com
Fax:(712)623-5819
Civil - Structural Engineers

Xref P:\EEI Logo (TB).dwg

PROJECT LOCATION:

2505 S. Grandview Ave.
Odessa, TX 79766

OWNER:

FLINT HILLS RESOURCES

TRANSLOAD PHASE

MARK	DATE	DESCRIPTION
3	01/18/12	REVISED AS NOTED
2	11/29/11	REVISED FOR WEST TRACK LOADING ONLY
1	10/28/11	ISSUED FOR CONSTRUCTION

PROJECT NO:	1131
CAD DWG FILE:	TRANSLOAD TRAILER P&ID.DWG
DRAWN BY:	JRW
DATE:	7/8/2011
CHK'D BY:	TLG

SHEET TITLE

TRANSLOAD TRAILER P&ID (TYP 8 PLACES)

ODESSA, TX 1131

DRAWING NUMBER:	SHEET:	REV No.
PR-PID-0002_06	6 of 6	3

PORT CORPUS CHRISTI

Project No. 17-033B

September 13, 2017

TO ALL POTENTIAL BIDDERS

Subject: Addendum No. 4 for the Bulk Liquid Handling Facility at Bulk Dock 3

Ladies/Gentlemen:

This addendum is considered part of the Contract Documents and is issued to change, amplify, add to, delete from, or otherwise explain the Contract Documents. Where provisions of this addendum differ from those of the original Contract Documents, this addendum will take precedence and govern.

Bidders are hereby notified that they must incorporate this addendum into their bids, and it will be construed that the contractor's bid reflects with full knowledge all items, changes, and modifications to the Contract Documents herein specified. Bidders will acknowledge receipt of this addendum in the space provided on the Bid form.

NOTICE TO BIDDERS

The time and date of the bid opening has been changed to **2:00 p.m., Monday, September 18, 2017.**

We anticipate providing additional clarifications Thursday, September 14, 2017.

Sincerely,

Carlos Martinez, P.E.
Project Manager

CM/clh
Cc: Sean Strawbridge
Kresten Cook
David L. Krams
David Michaelsen
Sarah Garza
Brett Flint
Sonya Lopez-Sosa

PORT CORPUS CHRISTI

Project No. 17-033B

September 14, 2017

TO ALL POTENTIAL BIDDERS

Subject: Addendum No. 5 for the Bulk Liquid Handling Facility at Bulk Dock 3

Ladies/Gentlemen:

This addendum is considered part of the Contract Documents and is issued to change, amplify, add to, delete from, or otherwise explain the Contract Documents. Where provisions of this addendum differ from those of the original Contract Documents, this addendum will take precedence and govern.

Bidders are hereby notified that they must incorporate this addendum into their bids, and it will be construed that the contractor's bid reflects with full knowledge all items, changes, and modifications to the Contract Documents herein specified. Bidders will acknowledge receipt of this addendum in the space provided on the Bid form.

BID BREAKDOWN SHEET

REMOVE *2nd Revision* Bid Breakdown Sheet in its entirety and **REPLACE** with *3rd Revision* Bid Breakdown Sheet

SPECIAL CONDITIONS

2nd Revision SPECIAL CONDITIONS, Section 1.4 VAPOR COMBUSTION UNITS.

ADD the following sentence:
"The natural gas main line extension is being installed by others. Should this natural gas line not be available for a service connection, Contractor shall supply temporary fuel sources for testing and commissioning of all applicable dock equipment, systems, and VCUs. Contractor will then be responsible for connection of the VCUs to the utility supplied natural gas when the natural gas utility becomes available."

TECHNICAL SPECIFICATIONS

REMOVE technical specification Section 26 05 33 RACEWAYS in its entirety and **REPLACE** with attached technical specification *Revised* Section 26 05 33 RACEWAYS

APPENDIX A – CONTROL NARRATIVE AND REFERENCE DRAWINGS

ADD attached equipment data sheets at the end of appendix (6 sheets total)

DRAWINGS ISSUED FOR BID

REMOVE and **REPLACE** the following attached drawings:

SHEET NO.	DRAWING NO.	DESCRIPTION
1	17-033B-01	TITLE SHEET
48	17-033B-48	MOORING MONOPILE NMS2 DETAILS
108	17-033B-108	PIPING KEY PLAN
109	17-033B-109	PIPING & SUPPORTS LOCATION PLAN
129	17-033B-129	DEMO AT FLOATING BARGE
133	17-033B-133	BILL OF MATERIAL - 1
134	17-033B-134	BILL OF MATERIAL - 2
302	17-033B-302	ELECTRICAL ONE LINE DIAGRAM
303	17-033B-303	ELECTRICAL EQUIPMENT LOCATION PLAN
304	17-033B-304	ELECTRICAL CONDUIT / CABLE SCHEDULE
307	17-033B-307	CONDUIT LOCATION PLAN
314	17-033B-314	POWER BUILDING LAYOUT
316	17-033B-316	POWER DISTRIBUTION BOARD DB-01 SCHEDULE
317	17-033B-317	BARGE POWER PANEL SCHEDULE PP-01
319	17-033B-319	LIGHTING PLAN
321	17-033B-321	GROUNDING LAYOUT - 1
322	17-033B-322	GROUNDING LAYOUT - 2
323	17-033B-323	GROUNDING LAYOUT - 3
324	17-033B-324	GROUNDING LAYOUT - 4
325	17-033B-325	GROUNDING LAYOUT - 5
326	17-033B-326	GROUNDING DETAILS - 1
327	17-033B-327	GROUNDING DETAILS - 2
329	17-033B-329	INSTRUMENTATION LOCATION PLAN
357	17-033B-357	MISC. DETAILS & VCU BUILDING LAYOUT (09/14/17)

ADD the following attached drawings:

SHEET NO.	DRAWING NO.	DESCRIPTION
48A	17-033B-48A	MOORING MONOPILE NMS2 DETAILS
358	17-033B-358	INSTRUMENT JUNCTION BOX
359	17-033B-359	EXISTING FLOATING BARGE ELECTRICAL MODIFICATIONS - 1
360	17-033B-360	EXISTING FLOATING BARGE ELECTRICAL MODIFICATIONS - 2
361	17-033B-361	EXISTING FLOATING BARGE ELECTRICAL MODIFICATIONS - 3
362	17-033B-362	EXISTING FLOATING BARGE ELECTRICAL MODIFICATIONS - 4

Sincerely,

Carlos Martinez, P.E.
Project Manager

CM/clh

Enclosures

Cc: Sean Strawbridge
Kresten Cook
David L. Krams
David Michaelsen
Sarah Garza
Brett Flint
Sonya Lopez-Sosa

(Company Name)

3rd Revision BID BREAKDOWN SHEET
BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
PORT OF CORPUS CHRISTI AUTHORITY

BREAKDOWN OF BID PRICES

This breakdown is a part of the Contract Documents and is designed to help the PCCA evaluate the bids to detect possible errors or omissions and to establish values for the individual items of work so that modifications to the contract can be more easily resolved. Please fill out the items listed below so that the total matches the prices shown on the bid. The bidder is invited to include his own estimates if he so chooses.

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
BASE BID						
General						
1.01	Mobilization/Demobilization	LS	1		$	$
1.02	Bonds and Insurance	LS	1		$	$
General Civil & Site Improvements						
2.01	Best Management Practices/StormWater Pollution Prevention Plan implementation and monitoring	LS	1		$	$
2.02	Site Demolition and Clearing (including dock modification) and drainage improvements	LS	1		$	$
2.03	Limestone Flexible Base (TxDOT Item 247, TY A GR 1)	CY	200		$	$
2.04	Security Personnel Gate	EA	1		$	$
Foundation and Structural Work						
3.01	30-inch diameter pile foundation system for Convey System (Dock to Road Crossing)	LF	300		$	$
3.02	Pipe bridge foundation for Convey System	CY	25		$	$
3.03	Structural Steel and modifications for Convey System	LB	10,500		$	$
3.04	Relocation, transport, un-assembly/reassembly and erection of existing steel bridge for Convey System	LS	1		$	$
3.05	18-inch diameter pile foundation system for miscellaneous pipe supports	LF	400		$	$

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
3.06	Concrete cap for miscellaneous pipe supports	CY	126		$	$
3.07	Insepct, receive, and take delivey of up to nine mettering skids	LS	1		$	$
3.08	Structural Steel for miscellaneous pipe supports	LB	21,650		$	$
3.09	Excavation work for VCU #1, Blower and Knockout Drum Foundations	CY	35		$	$
3.10	Concrete foundations for VCU #1 Blower and Knockout Drum Skid	CY	40		$	$
3.11	18-inch diameter pile foundation system for VCU #2, Blower & Knockout Drum	LF	1,185		$	$
3.12	Excavation work for VCU #2, Blower and Knockout Drum Foundations	CY	80		$	$
3.13	Concrete foundations for VCU #2 Blower and Knockout Drum Skid	CY	75		$	$
3.14	Excavation work for Misc. Pipe Support Sleepers	CY	85		$	$
3.15	Concrete foundation for Misc. Pipe Support Sleepers	CY	50		$	$
3.16	18-inch diameter pile foundation system for Slop Tank	LF	160		$	$
3.17	Concrete slab and containment walls for Slop Tank	CY	50		$	$
3.18	18-inch diameter pile foundation system for control room VCU#1 & control room VCU#2	LF	280		$	$
3.19	18-inch diameter pile foundation system for miscellaneous T supports	LF	170		$	$
3.20	Miscellaneous Structural Steel	LB	31,900		$	$
3.21	Concrete Pad for AEP Transformer	LS	1		$	$
3.22	Miscellaneous Concrete Slabs and Pads including compressor, Nitrogen Service, stairs, etc.	LS	1		$	$
3.23	Asphalt Parking Lot Repair (Full Depth)(existing cross section or better)	SY	40		$	$
3.24	Mooring Structure	LS	2		$	$

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
3.24	Temporary VCU#1 (if requred as determined by the Contractor), including providing, installation Commissioning, Testing, Fuel, and all other requirements for a functioning system	LS	1		$	$
Prefabricated Buildings						
4.01	Furnish and Install climate controlled Prefab Building for Electrical Main Power Panel and Vapor Combustor Unit (VCU) #1 Programmable Logic Controller	LS	1		$	$
4.02	Relocate and reinstall existing climate controlled building from Oil Dock 1	LS	1		$	$
Piping & Mechanical						
5.01	Piping & Mechanical Demolition on Flaoting Barge to accommodate the installation of new piping	LS	1		$	$
5.02	Acquire and install rental VCU unit for seven months complete with rental propane gas tank, as per specifications of John Zink	LS	1		$	$
5.03	Purchase & install VCU #1 piping per specifications	LS	1		$	$
5.04	16-inch Dia Carbon Steel Pipe with Appurtenances	LF	880		$	$
5.05	12-inch Dia Carbon Steel Pipe with Appurtenances	LF	1,390		$	$
5.06	4-inch Dia Carbon Steel Pipe with Appurtenances	LF	920		$	$
5.07	2-inch Dia Carbon Steel Pipe with Appurtenances (A53)	LF	450		$	$
5.08	2-inch Dia Carbon Steel Pipe with Appurtenances (A106)	LF	340		$	$
5.09	15 HP Air Compressor	EA	2		$	$
5.10	6-inch Dia Carbon Steel Pipe with Appurtenances	LF	1,650		$	$
5.11	3-inch Dia Carbon Steel Pipe with Appurtenances	LF	330		$	$
5.12	1 1/2-inch Dia Carbon Steel Pipe with Appurtenances	LF	120		$	$
5.13	1-inch Dia Carbon Steel Pipe with Appurtenances	LF	250		$	$
5.14	4-inch Flex Hose Vapor Line with Fittings (9 Locations)	LF	405		$	$
5.15	2-inch Flex Hoses	LF	24		$	$
5.16	1 1/2-inch Flex Hoses	LF	350		$	$

ITEM	DESCRIPTION	UNIT	DESIGN QUANTITY	BIDDER'S QUANTITY	UNIT AMOUNT	TOTAL AMOUNT
5.17	1-inch Flex Hoses	LF	400		$	$
5.18	8-Foot Dia. Slop Tank	LS	1		$	$
5.19	Slop Tank Pump	LS	1		$	$
5.20	12-inch Flex Hoses	LF	90		$	$
5.21	3-inch Flex Hoses for conduit	LF	300		$	$
5.22	16-inch Flex Hoses	LF	225		$	$
5.23	Spill Pan at Rail Loading	EA	18		$	$
5.24	Relocation of VCU #2 from Oil Dock 1, including removal, transport and installation	LS	1		$	$
5.25	VCU # 2 Repair, Testing, Calibration & Start-up	LS	1		$	$
5.26	Reinstallation and modification of existing Dock Safety Unit on Barge, including inspection, calibration, testing and startup	LS	1		$	$
5.27	Hydraulic Crane	LS	1		$	$
5.28	Furnish and Install Misc Valves & Controls	LS	1		$	$
Electrical						
6.01	Electrical Demolition	LS	1		$	$
6.02	Site Power Distribution complete with conduits, wiring and accessories, and inspection and testing	LS	1		$	$
6.03	Area Lighting Fixtures and Poles	LS	1		$	$
Instrumentation						
7.01	Furnish and Install Instrumentation & Controls complete in place	LS	1		$	$
7.02	Furnish and Install Main Programmable Logic Controller (PLC), with Programming	LS	1		$	$
7.03	Install and program existing PLC cabinet for Floating Barge	LS	1		$	$
7.04	Commissioning and Testing	LS	1		$	$
Total Base Bid						**$**

The preceding design quantities are approximate and are not guaranteed. Bidders will prepare their own estimate of work and bid accordingly. Bidders will indicate their own estimate of work under the column labeled "Bidder's Quantity" and calculate the "Total Amount" based on same. If this column is left blank, the bidder will be deemed to be in agreement with the design quantities and no adjustment in contract price will be made for variance.

LIST OF SUBCONTRACTORS & SUPPLIERS

Please list all intended subcontractors and major suppliers below. The bidder awarded the contract will be

Material Item:	Name of Suppler:
Concrete	
Reinforcing Steel	
Steel Piling	
Structural Steel	
Electrical System	
Piping/Mechanical	
Instrumentation System	
Vapor Combustion Unit	
Programmable Logic Controllers	

Subcontractors: *(If Any)*

Revised

SECTION 26 05 33

RACEWAYS

PART 1 - GENERAL

1.01 SUMMARY:

A. Section includes requirements for conduits and conduit fittings. Conduit types shall be as shown on the Contract Drawings and as specified herein:

1. PVC-Coated Rigid Galvanized Steel (CRGS) – Aboveground Only

2. PVC Conduit (PVC) – Underground Only

3. Flexible Conduit - Connector to Motor

4. Associated Fittings

5. Pull and Junction Boxes

1.02 REFERENCES:

A. American National Standards Institute (ANSI):

1. C 80.1 Rigid Galvanized Steel Conduit
2. C80.5 Rigid Aluminum Conduit

B. National Electrical Manufacturers Association (NEMA):

1. TC 2 Electrical Plastic Tubing (EPT) and Conduit (EPC-4 and EPC-80)

2. TC 3 PVC Fitting for Use with Rigid PVC Conduit and Tubing

C. National Fire Protection Association (NFPA):

1. 70 National Electrical Code

D. Underwriters Laboratories Inc. (UL):

1. 1 Flexible Metal Conduit

2. 6 Rigid Metal Conduit

3. 360 Liquid-Tight Flexible Steel Conduit

4. 514B Fittings for Conduit and Outlet Boxes

5. 1660 Liquid-Tight Flexible Nonmetallic Conduit

1.03 SUBMITTALS – FOR APPROVAL:

A. Procedure:

1. Submit in accordance with Section 26 00 00, Electrical Provisions.

2. Provide one (1) complete submittal containing all items required herein.

3. Partial or incomplete submittals or submittals not complying with the requirements of Section 26 00 00 will be returned Disapproved without comment.

B. Product Data: Submit for each type of conduit, fitting, connector, pull and junction box, and wireway used on the project.

1.04 SUBMITTALS – RECORD DATA:

A. Procedure: Submit in accordance with Section 26 00 00, Electrical Provisions.

B. Product Data: Approved, as furnished data as listed above.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC - SCHEDULE 40):

A. Conduit: Conduit, elbows and couplings shall be Schedule 40 rigid polyvinyl chloride (PVC) conduit per NEMA TC 2 with a 90^0 UL rating, and shall be the standard product of Krayloy or Carlon or approved equal.

B. Fittings: Fittings and accessories for use with Schedule 40 PVC conduit shall conform to NEMA TC 3 and shall be of the same material and manufacturer as the conduit.

2.02 PVC COATED RIGID GALVANIZED STEEL (CRGS):

A. Conduit: Prior to coating, all conduits, including elbows, couplings and nipples shall be standard weight, threaded, rigid galvanized steel.

B. Fittings: Prior to coating, fittings, accessories and device boxes for rigid galvanized steel conduit systems shall be the standard threaded type as manufactured by Crouse-

Hinds, or equal. Both fittings and covers shall be galvanized steel. All screws shall be stainless steel. Covers shall be gasketed.

D. PVC Coating: Conduit, fittings, boxes and accessories shall be Plasti-Bond 2 coated, as produced by Robroy Industries Inc. or an approved equal. Exterior surfaces shall have a 40 mil PVC coating applied by dip method. Interior surfaces of conduits, fittings, boxes, etc. shall have a fusion bonded phenolic coating with a thickness of 4-6 mils.

E. Fasteners and Supports: U-bolts, conduit clamps, straps, modular framing channels shall be 1-5/8" & 1-5/8" minimum section dimensions, Type 316 stainless steel, and shall be the product of Unistrut. Fasteners and attachment hardware shall be Type 316stainless steel.

2.03 RIGID ALUMINUM CONDUIT:

A. Conduit: Conduit, including elbows, couplings and nipples shall be standard weight, threaded, rigid aluminum 6063 alloy, with a copper content not to exceed 0.20%. The conduit shall have a silicon or lacquer coating inside.

B. Fittings: Fittings, accessories and device boxes for aluminum conduit systems shall be the standard threaded type as manufactured by Crouse-Hinds, or equal. Both fittings and covers shall be aluminum containing less than 0.4 of 1% copper. All screws shall be stainless steel. Covers shall be gasketed.

C. Fasteners: All straps and clamps used to support aluminum conduit shall be hot-dipped galvanized steel or malleable iron, with a 40 mil fused PVC coating, Plastibond, Ocal or equivalent. Strut type framing channels shall be either PVC coated galvanized steel or fiberglass.

D. Hardware: Nuts, bolts, screws, washers, etc. shall be stainless steel. Galvanized or cadmium-plated hardware will not be acceptable for use with aluminum conduit.

2.04 LIQUID-TIGHT FLEXIBLE METAL CONDUIT:

A. Flexible Conduit: Flexible conduit shall have a spiraled, flexible, galvanized steel inner core and an outer jacket of neoprene. Sizes 3/8" through 4" shall have a continuous, internal copper ground. Liquid-tight connectors shall be galvanized steel or malleable iron with neoprene sealing gaskets, external ground lugs and insulated throats. Connectors shall be Appleton type STB or Gedney or equal.

PART 3 - EXECUTION

3.01 APPLICATION:

A. General:

1. All field wiring shall be installed in conduit except as otherwise indicated.

2. Minimum conduit size shall be 1 inch nominal diameter.

3. Contractor to verify size requirements of all conduits in accordance with NEC fill requirements and with the actual conductors and cables furnished or required and furnish and install accordingly

B. Exposed:

1. Conduits installed exposed outdoors shall be plastic coated rigid galvanized steel.

2. Conduit installed exposed indoors shall be rigid galvanized steel.

C. Underground:

1. Conduit installed underground shall be Schedule 40 PVC with a reinforced steel concrete encasement.

2. Elbows used for underground conduit stub-ups from below grade shall be PVC coated rigid galvanized steel.

D. Conduit Risers to Cable Trays

1. Contractor to provide conduit take-offs from cable trays in sufficient quantities and sizes for the conductors and cables furnished or required for each installation.

E. Flexible Connections:

1. Indoor-dry areas: Liquid-tight, flexible metal conduit.

2. Indoor-wet, damp areas: Liquid-tight, flexible metal conduit.

3. Outdoors: Liquid-tight, flexible metal conduit.

3.02 INSTALLATION:

A. General:

1. Installation Methods: Conduit shall be installed exposed or underground as indicated on the drawings.

2. Cleaning: All conduit systems shall be completed and shall be swabbed clean before conductors are pulled in.

3. Field cuts: Do not cut conduit with pipe cutters.

4. Bends: Field made bends and offsets shall be made with a hickey or conduit bending machine. Crushed or deformed raceways shall not be installed. The maximum number of 90° bends, or equivalent between pulling points in any conduit run shall be three. Pull and junction fittings and/or boxes shall be provided as necessary to satisfy this requirement.

5. Protection: The ends of all conduit runs shall be closed immediately after installation to prevent the accumulation of water, dirt and other foreign material.

6. Locknuts: Conduits shall be fastened to all sheet metal boxes and cabinets with two locknuts. Locknuts shall have sharp edges for digging into the wall of metal enclosures. Bushings shall be installed on the ends of all conduits and shall be the insulating type.

7. Spare conduits: Spare conduits shall have a pull cord installed. The pull cord shall be plastic with a minimum tensile strength of 200 pounds. Not less that 12 inches of slack shall be left at each end of the pull cord.

8. Supports: Conduits shall be rigidly supported between couplings, on either side of bends and at terminations and fittings.

9. Boxes: Boxes shall be provided in the raceway system as indicated on the drawings and also wherever required for pulling of wires or making connections. Unless otherwise shown on the drawings, boxes installed in normally wet locations or on the outside of exterior surfaces shall be NEMA 4X, stainless steel sheet construction. Boxes shall be furnished with hinged and gasketed doors and stainless steel back panels. Each box shall have the volume required by the NEC for the number of conductors enclosed in the box. All boxes shall be securely anchored in place.

10. Flexible Connections: Flexible connections of short length shall be provided for equipment subject to vibration, noise transmission or movement. A separate ground conductor shall be provided across all flexible connections. Flexible conduit connections shall be rigidly and securely supported in an approved manner at intervals not exceeding 24 inches in length and within 12 inches of each conduit termination. Lengths of not more than 36 inches may be installed without such supports where flexibility is required.

11. Identification: Identify conduits in accordance with Industry Standards.

12. PVC: PVC conduit joints shall be solvent cement welded and shall be watertight. All PVC conduits shall have a separate grounding conductor installed. Where transition is made to the metallic conduit or enclosures, the grounding conductor shall be bonded to the metal conduit or enclosure.

B. Exposed Conduit:

1. Routing: Exposed conduit shall be run straight and true to structure lines. Changes in direction of runs shall be made with fittings or symmetrical bends. Conduit in damp locations or outdoors shall be exposed to the air on all sides and shall not be installed tight against walls, ceilings and structural members, etc. Clamp backs and/or offsets shall be used as necessary to maintain uniform clearances.

2. Supports: Acceptable supporting and clamping materials for exposed conduit include one-hole straps and clampback, "U" bolts, parallel or right angle conduit clamps, hot-dipped galvanized structural steel frames or modular stainless steel channel as manufactured by Unistrut or equal. Perforated steel tape, stamped steel one- and two-hole straps shall not be used. Conduits shall be supported in accordance with NEC 346-12.

3. Obstructions: Conduit shall be routed so as not to create any tripping or head banging hazard and so as not to create any obstruction to Owner's operation and maintenance activities.

4. Hubs: Watertight conduit hubs shall be installed where conduits enter the tops or sides of sheet metal or non-metallic enclosures.

5. Drains: Drain fittings shall be installed at low points throughout the conduit system where condensation is likely to occur.

C. PVC Coated Conduit:

1. PVC coated conduit requires special care to minimize damage to the PVC coating during cutting, threading, bending and installation. Contractor shall install conduit in accordance with manufacturer's recommended installation procedures.

2. Contractor shall be responsible for providing strap wrenches, cutting dies, vises, and other special tools required to install PVC coated conduit. Standard pipe wrenches, chain wrenches or channel locks shall not be used. Conduit bending equipment shall have the proper diameter shoes or dies to allow for the thickness of the PVC coating.

3. PVC coated conduit shall be supported with Type 304 stainless steel clamps, straps, hangers and supports. Attachment hardware shall be Type 316 stainless steel.

4. All PVC coated conduit and fittings that have teeth marks, cuts, nicks or are otherwise damaged shall be repaired by coating damaged area with a liquid PVC touch-up compound. Spray-type compound is not acceptable.

5. Unistrut channel supports and related accessories for use with PVC coated conduit shall be Type 304 stainless steel.

D. Rigid Galvanized Steel:

1. Rigid galvanized steel (RGS) conduit shall not be installed in direct contact with earth, concrete, steel, copper, brass or bronze. Where RGS conduit comes into contact with dissimilar metals or passes through concrete walls or floors, it shall be wrapped with 2 layers, half-lapped, of corrosion preventative pipe tape, Scotch 50 or equal.

2. RGS conduit threads shall have a coating of clear urethane and Penetrox, No-Ox-ld or equal, applied when installed.

E. Underground Conduit:

1. Concrete Encasement:
   a. Underground conduit runs shall be encased in or covered with red concrete as indicated on the drawings.

   b. Where conduits rise above grade, the concrete encasement shall extend to 6 inches above grade. Exposed concrete shall be natural color, not red. Where conduits run through equipment foundations or floor slabs, the concrete encasement shall butt the underside of the slab.

   c. The top of concrete encasement shall be a minimum of 36 inches below grade, unless otherwise indicated and must go below conflicts, such as yard piping, if the 36 inches minimum depth cannot be met. Compact trench backfill to original density.

   d. The concrete encasement shall be reinforced with a minimum of four (4) No. 4 steel reinforcing bars.

2. Separation: Minimum separation between the outside edges of adjacent conduits shall be 3 inches.

3. Elbows: All elbows shall be long radius type.

4. Spacers: Conduit spacers shall be installed at 5 feet on centers.

5. Expansion Fittings: Provide expansion fittings in above-ground, vertical portion of each underground conduit stub-up.

6. Bonding and Grounding: Metal conduits connected to underground PVC conduits shall be suitably bonded and grounded by connection to the equipment grounding conductor at the first above ground conduit termination or by an external grounding clamp and connection to a grounding electrode.

PART 4 – MEASUREMENT & PAYMENT

(Not Used)

END OF SECTION

PORT CORPUS CHRISTI

Rev.No		
	By	Date
Prepared	AJH	08/24/17
Check	PNS	08/24/17
Approved		

SPECIFICATION SHEET
KNOCK OUT DRUM

DWG. No. 17-033B-137 Item No. T-201
P&ID No. 17-033B-105 Inq. No.
Project BULK LIQUID HANDLING FACILITY AT BULK DOCK -3

REV

CLIENT **PORT CORPUS CHRISTI AUTHORITY** SERVICE **KNOCK OUT DRUM** No. REQUIRED **ONE**
LOCATION **CORPUS CHRISTI,TX** MANUFACTURER

1 VESSEL TYPE: **VERTICAL**
2 SIZE: **2.5 (OD)** DIA (ft) **8** TT (ft)

DESIGN DATA

4	OPERATING TEMP.	°F	100
5	OPERATING PRESS.	psi	ATM
6	LIQ. SPECIFIC GRAVITY (Operating / Design)		0.72 / 1
7	CONTENTS LETHAL?		NO
8	DESIGN TEMP.	°F	550
9	MIN. DESIGN METAL TEMP.	°F	-20
10	DESIGN PRESS.	psig	50
11	DESIGN VACUUM RATING	psia	FULL VACCUM
12	M.A.W.P.	psig	By Vendor
13	M.A.P. (NEW & COLD)	psig	By Vendor
14	LIMITED BY		By Vendor
15	HYDROSTATIC TEST	psig	By Vendor
16	SHELL/HEADS CORR. ALLOW.	In.	0.125 / 0.125
17	NOZZLE CORR. ALLOW.	In.	0.125
18	SHELL/HEADS JOINT EFF.	%	
19	CODE: **ASME Section VIII, Latest**	STAMP REQD?:	Yes
20	RADIOGRAPH?: **By Vendor**	STRESS REL.?:	By Vendor
21			
22			

TOTAL VOLUME (GAL) 290
WORKING VOLUME (GAL) 100

MATERIALS

ITEM	MATERIAL / THICKNESS
SHELL	SA-516-70
TOP HEAD	SA-516-70
BOTTOM HEAD	SA-516-70
LINING	N/A
REINFORCED PADS	SA-516-70
LIFTING LUGS	N/A
INTERNALS	N/A
NOZZLE NECKS	SA-106B
FLANGES	SA-105
M.H. COVER	SA-105
COUPLINGS	SA-105
SUPPORTS	NOTE-2
ATTACHMENTS	N/A
STUDS / NUTS	SA-193-B7 WITH SA-194-2H
GASKETS	304 SS (See note 6)

DESIGN DETAILS

24	TYPE SUPPORTS		
25	INSULATION TYPE	N/A	
26	INSULATION THK.	YES	
27	FIREPROOFING	NO	
28	SANDBLAST	NO	
29	PAINT	YES	
30	MANHOLE	YES	
31	LADDER CLIPS	NO	
32	PLATFORM CLIPS	NO	
33	INSUL. RINGS	NO	
34	RAIN SHIELD	NO	
35			
36	WT. EMPTY	By Vendor	lbs.
37	SHIPPING WT.	By Vendor	lbs.
38	FULL OF H2O	By Vendor	lbs.
39	OPERATING WT.	By Vendor	lbs.
40			
41			
42			
43			
44			
45			
46			
47			

NOZZLE SCHEDULE

SERVICE	Nozzle Proj.	MARK	NO.	SIZE	RATING	FACE	TYPE
INLET	8"	A	1	6"	150#	RF	WN
VAPOR OUTLET	8"	B	1	6"	150#	RF	WN
LIQUID OUTLET (DRAIN)	8"	C	1	2"	150#	RF	WN
LT	8"	D	1	2"	150#	RF	WN
Bridal (LSHH / LG)	8"	E	1	2"	150#	RF	WN
Bridal (LSHH / LG)	8"	F	1	2"	150#	RF	WN
MANWAY	10"	G	1	24"	150#	RF	WN

48 **NOTES:**
49 **1. Vessel Orientation:Vertical (OD = 30 inch, T/T length = 8 feet)**
50 **2.Vendor to size the skirt to elevate the vessel by 2 feet.**

PORT CORPUS CHRISTI

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SPECIFICATION SHEET
KNOCK OUT DRUM

DWG. No. 17-033B-137 Item No. T-201

P&ID No. 17-033B-105 Inq. No.

Project BULK LIQUID HANDLING FACILITY AT BULK DOCK -3

REV

CLIENT	PORT CORPUS CHRISTI AUTHORITY	SERVICE	KNOCK OUT DRUM	No. REQUIRED	ONE
LOCATION	CORPUS CHRISTI,TX	MANUFACTURER			

DESIGN DATA	
U- STAMP REQUIRED	YES
NATIONAL BOARD REGISTRATION REQUIRED	YES
MANUFACTURE'S SERIAL NUMBER	BY VENDOR
OPERATING POSITION	VERTICAL
HYDROSTATIC POSITION	VERTICAL
OPERATING MEDIUM	LIQUID - 30% FULL
PWHT	NOT REQUIRED
IMPCT TEST	NOT REQUIRED
INSPECTION OPENING	YES
INSULATION CLEATS	NO
RT (SHELL/HEAD)	-

NOTES-

1. Vendor to supply nozzle total loads and moments and dynamic loads and moments for equipment.
2. Vortex breakers shall be provided for the Liquid Outlet Nozzle (Nozzle D)
3. Veseel MDMT shall be considered as minimum design temprature.
4. All Carbon / low alloy Steel Boltes / Studs / Nuts etc. shall be coated with flurocrbon polymer resin such as Omekote 4000 or Takecot 1000 with a thickness of 1000 microns
5. Spiral wound Gasket with Inconel 625 metal winding & Grafoil filler material with SS inner & CS Outer Ring as per ASME B16.20
6. All removable internals shall be pass through vessle manway (Manway ID= 24inch)
7. Mechanical Design of the vessel to be carried out considering full of liquid having maximum density.
8. Dimension of flanges shall be as per ASME B16.5 for size upto 24'' NB and as per ASME 16.47 series A for size greater than 24'' NB, unless otherwise stated.
9. ID of weld neck flanges shall match with corresponding ID of nozzle pipe/shell
10. For nozzle on shell,projections are preferred from vessel corner to flange contact face.
11. For nozzle on Head, projections are preferred from head T.L to flange contact face.
12. It shall be Vendors responsibility to select nozzle schedules.
13. All nozzle fabricated from plates shall be 100% radiographed.
14. Weight values,foundation loadings & template & ancorbolt size to be provided by Vendor.
15. Lifting lug details shall be provided by vendor.
16. Nozzle 2'' NB abd below except LWN type shall be stiffened with 2 nos. of 40x6 . Flat at 90^0 apart.
17. Connection in the bottom head of the skirt shall be brought to the outside of the skirt by piping adequate for the vessel desigh condition. No flanged joint will be allowaed inside the skirt.
18. The standard nozzle length shall be 8'' for nozzles12'' diameter and smaller and 10'' for nozzles and manway 14'' diameter and larger are required for removal of bolts, without damaging vessle insulation or for avoiding external obstructions such as top platform on vertical vessel.
19. Surface prepration , Paint system and protective coatings will be done according to paint specifications.

PORT CORPUS CHRISTI

Rev.No		
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SPECIFICATION SHEET
KNOCK OUT DRUM

DWG. No. 17-033B-137 Item No. T-201

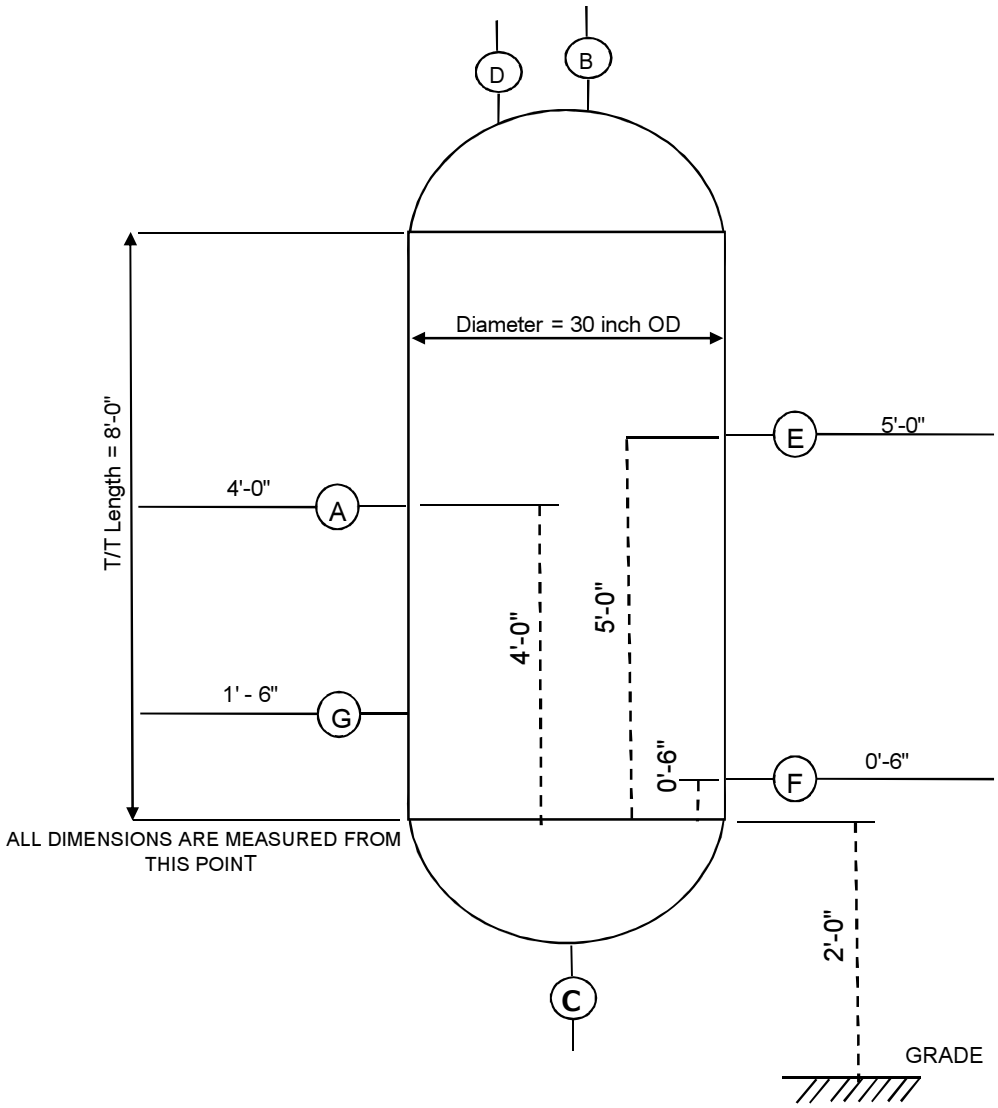
P&ID No. 17-033B-105 Inq. No.

Project BULK LIQUID HANDLING FACILITY AT BULK DOCK -3

REV

CLIENT	PORT CORPUS CHRISTI AUTHORITY	SERVICE	KNOCK OUT DRUM	No. REQUIRED	ONE
LOCATION	CORPUS CHRISTI,TX	MANUFACTURER			

VESSEL SKETCH



PORT CORPUS CHRISTI

Rev.No		
	By	Date
Prepared	AJH	08/24/17
Check	PNS	08/24/17
Approved		

SPECIFICATION SHEET
SLOP TANK

DWG. No. 17-033B-136 Item No. T-101

P&ID No. 17-033B-105 Inq. No.

Project BULK LIQUID HANDLING FACILITY AT BULK DOCK -3

REV

CLIENT **PORT CORPUS CHRISTI AUTHORITY** SERVICE **SLOP TANK** No. REQUIRED **ONE**

LOCATION **Corpus Christi, TX** MANUFACTURER

1	VESSEL TYPE: **HORIZONTAL**		TOTAL VOLUME (GAL)	**9000**
2	SIZE: **8** DIA (ft)	**24** TT (ft)	WORKING VOLUME (GAL)	**6300**
3	**DESIGN DATA**		**MATERIALS**	
4	OPERATING TEMP. °F	**100**	ITEM	MATERIAL / THICKNESS
5	OPERATING PRESS. psi	**Atm.**	SHELL	**SA-516-70**
6	LIQ. SPECIFIC GRAVITY (Operating / Design)	**0.72** / **1**	TOP HEAD	**SA-516-70**
7	CONTENTS LETHAL?	**NO**	BOTTOM HEAD	**SA-516-70**
8	DESIGN TEMP. °F	**550**	LINING	**N/A**
9	MIN. DESIGN METAL TEMP. °F	**-20**	REINFORCED PADS	**SA-516-70**
10	DESIGN PRESS. psig	**50**	LIFTING LUGS	**N/A**
11	DESIGN VACUUM RATING psia	**FULL VACCUM**	INTERNALS	**SA-516-70**
12	M.A.W.P. psig	**By Vendor**	NOZZLE NECKS	**SA-106B**
13	M.A.P. (NEW & COLD) psig	**By Vendor**	FLANGES	**SA-105**
14	LIMITED BY	**By Vendor**	M.H. COVER	**SA-105**
15	HYDROSTATIC TEST psig	**By Vendor**	COUPLINGS	**SA-105**
16	SHELL/HEADS CORR. ALLOW. In.	**0.125** **0.125**	SUPPORTS	**Note 2**
17	NOZZLE CORR. ALLOW. In.	**0.125**	ATTACHMENTS	**N/A**
18	SHELL/HEADS JOINT EFF. %		STUDS / NUTS	**SA-193-B7 WITH SA-194-2H**
19	CODE: **ASME Section VIII, Latesh** STAMP REQD?: **Yes**		GASKETS	**304 SS (See Note 6)**
20	RADIOGRAPH?: **By Vendor** STRESS REL.?: **By Vendor**			
21				
22				

	DESIGN DETAILS		
23	TYPE SUPPORTS		
24	INSULATION TYPE	**N/A**	
25	INSULATION THK.	**N/A**	
26	FIREPROOFING	**NO**	
27	SANDBLAST	**NO**	
28	PAINT	**YES**	
29	MANHOLE	**YES**	
30	LADDER CLIPS	**NO**	
31	PLATFORM CLIPS	**NO**	
32	INSUL. RINGS	**NO**	
33	RAIN SHIELD	**NO**	
34			
35	WT. EMPTY	**By Vendor**	lbs.
36	SHIPPING WT.	**By Vendor**	lbs.
37	FULL OF H2O	**By Vendor**	lbs.
38	OPERATING WT.	**By Vendor**	lbs.

NOZZLE SCHEDULE

SERVICE	Nozzle Pro.	MARK	NO.	SIZE	RATING	FACE	TYPE
INLET	**8"**	**A**	**1**	**6"**	**150#**	**RF**	**WN**
VAPOR OUTLET	**8"**	**B**	**1**	**6"**	**150#**	**RF**	**WN**
DRAIN	**8"**	**C**	**1**	**2"**	**150#**	**RF**	**WN**
LIQUID OUTLET	**8"**	**D**	**1**	**3"**	**150#**	**RF**	**WN**
LT (Radar)	**8"**	**E**	**1**	**2"**	**150#**	**RF**	**WN**
LG	**8"**	**F**	**2**	**2"**	**150#**	**RF**	**WN**
MANWAY W/ Davit	**10"**	**G**	**1**	**36"**	**150#**	**RF**	**WN**
TI	**8"**	**H**	**1**	**2"**	**150#**	**RF**	**WN**
PI	**8"**	**J**	**1**	**2"**	**150#**	**RF**	**WN**

NOTES:

1. **Vessel Orientation: Horizontal (ID = 8 feet, T/T length = 24 feet)**
2. Vendor to size a saddle to elevate the vessel by 6 feet from grade. Center line of vessel to be 10 feet from Grade.
3. **Extend inlet line to 3" from bottom of the vessel. Inlet dip tube to have perforations with maximum open area.**

PORT CORPUS CHRISTI

Rev.No		
	By	Date
Prepared	AJH	08/24/17
Check	PNS	08/24/17
Approved		

DESIGN DATA SHEET
SLOP TANK

DWG. No.	17-033B-136	Item No.	T-101
P&ID No.	17-033B-105	Inq. No.	
Project	BULK LIQUID HANDLING FACILITY AT BULK DOCK - 3		

REV

CLIENT	PORT CORPUS CHRISTI AUTHORITY	SERVICE	SLOP TANK	No. REQUIRED	ONE
LOCATION	Corpus Christi, TX	MANUFACTURER			

DESIGN DATA	
U- STAMP REQUIRED	YES
NATIONAL BOARD REGISTRATION REQUIRED	YES
MANUFACTURE'S SERIAL NUMBER	BY VENDOR
OPERATING POSITION	HORIZONTAL
HYDROSTATIC POSITION	HORIZONTAL
OPERATING MEDIUM	LIQUID - 70% FULL
PWHT	NOT REQUIRED
IMPCT TEST	NOT REQUIRED
INSPECTION OPENING	YES
INSULATION CLEATS	NO
RT (SHELL/HEAD)	-

NOTES-

1. Vendor to supply nozzle total loads and moments and dynamic loads and moments for equipment.
2. Vortex breakers shall be provided for the Liquid Outlet Nozzle (Nozzle D)
3. Veseel MDMT shall be considered as minimum design temprature.
4. All Carbon / low alloy Steel Boltes / Studs / Nuts etc. shall be coated with flurocrbon polymer resin such as Omekote 4000 or Takecot 1000 with a thickness of 1000 microns
5. Spiral wound Gasket with Inconel 625 metal winding & Grafoil filler material with SS inner & CS Outer Ring as per ASME B16.20
6. All removable internals shall be pass through vessle manway (Manway ID= 36 inch)
7. Mechanical Design of the vessel to be carried out considering full of liquid having maximum density.
8. Dimension of flanges shall be as per ASME B16.5 for size upto 24" NB and as per ASME 16.47 series A for size greater than 24" NB, unless otherwise stated.
9. ID of weld neck flanges shall match with corresponding ID of nozzle pipe/shell
10. For nozzle on shell,projections are preferred from vessel corner to flange contact face.
11. For nozzle on Head, projections are preferred from head T.L to flange contact face.
12. It shall be Vendors responsibility to select nozzle schedules.
13. All nozzle fabricated from plates shall be 100% radiographed.
14. Weight values,foundation loadings & template & ancorbolt size to be provided by Vendor.
15. Lifting lug details shall be provided by vendor.
16. Nozzle 2" NB abd below except LWN type shall be stiffened with 2 nos. of 40x6 . Flat at 90^0 apart.
17. Surface prepration , Paint system and protective coatings will be done according to paint specifications.

PORT CORPUS CHRISTI

Rev.No		
	By	Date
Prepared	AJH	08/24/17
Check	PNS	08/24/17
Approved		

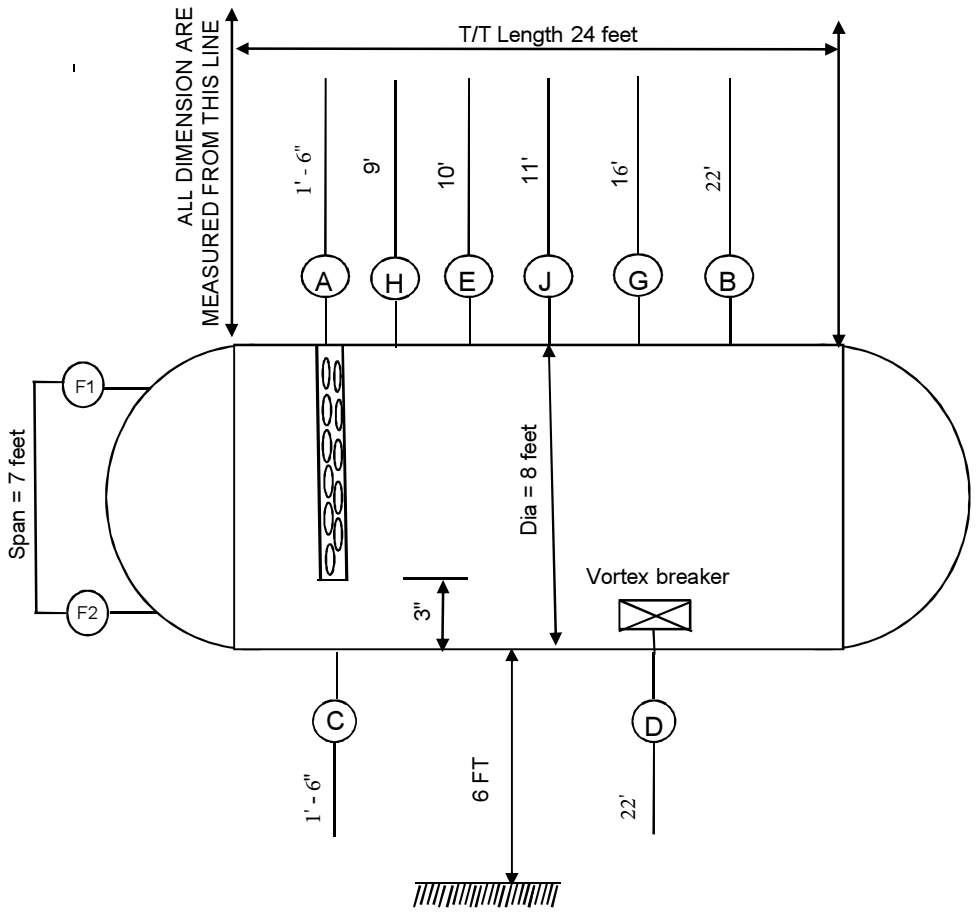
VESSEL SKETCH

DWG. No.	17-033B-136	Item No.	T-101
P&ID No.	17-033B-105	Inq. No.	
Project	BULK LIQUID HANDLING FACILITY AT BULK DOCK - 3		

REV

CLIENT	PORT CORPUS CHRISTI AUTHORITY	SERVICE	SLOP TANK	No. REQUIRED	ONE
LOCATION	Corpus Christi, TX	MANUFACTURER			

VESSEL SKETCH



ELEVATION VIEW

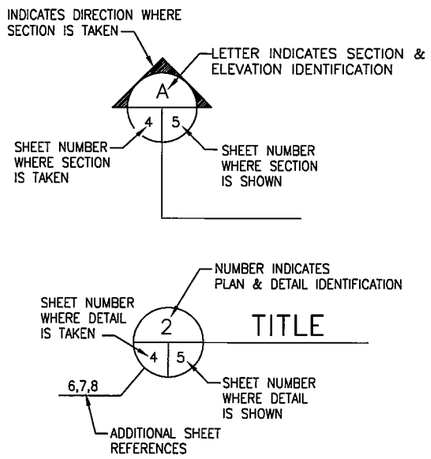
PORT **CORPUS CHRISTI**

CONSTRUCTION DRAWINGS FOR
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3

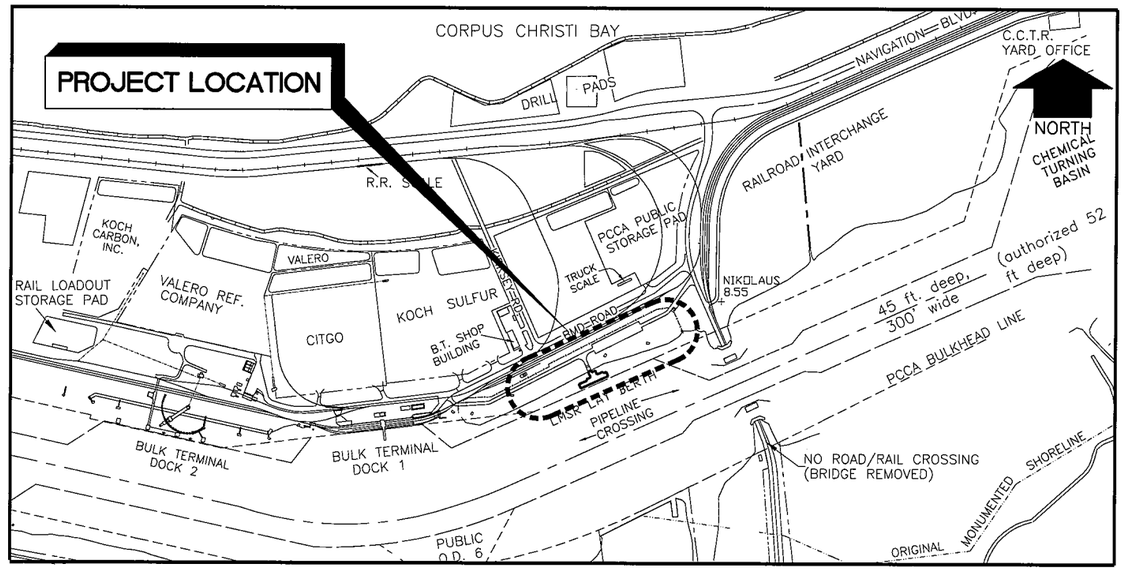
AUGUST 2017

PORT OF CORPUS CHRISTI AUTHORITY
CORPUS CHRISTI, TEXAS
PROJECT NO. 17-033B

BY AUTHORITY OF THE PORT COMMISSIONER
JOHN P. LaRUE, EXECUTIVE DIRECTOR



TYPICAL PLAN, ELEVATION, SECTION AND DETAIL SYMBOLS



LOCATION MAP
N.T.S.

CIVIL & STRUCTURAL DRAWING INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
01	17-033B-01	TITLE SHEET
02	17-033B-02	GENERAL NOTES
03	17-033B-03	OVERALL PLAN
04	17-033B-04	PARTIAL FOUNDATION LOCATION PLAN-1
05	17-033B-05	PARTIAL FOUNDATION LOCATION PLAN-2
06	17-033B-06	FOUNDATION DETAILS
07	17-033B-07	VCU#1 FOUNDATION PLAN & SECTION
08	17-033B-08	VCU#2 FOUNDATION PLAN & SECTION
09	17-033B-09	FOUNDATION DETAILS
10	17-033B-10	FOUNDATION DETAILS
11	17-033B-11	TRANSFORMER FOUNDATION
12	17-033B-12	MCC/VCU CONTROL ROOM FOUNDATION
13	17-033B-13	VCU #2 CONTROL ROOM FOUNDATION
14	17-033B-14	SLOP TANK FOUNDATION & DETAILS
15	17-033B-15	MISCELLANEOUS PIPE SUPPORTS
16	17-033B-16	ANCHOR BOLTS DETAILS
17	17-033B-17	PILING DETAILS
18	17-033B-18	MISCELLANEOUS PIPE SUPPORTS ON SPACER BARGE
19	17-033B-19	DEMOLITION ELEVATIONS AT OIL DOCK 1
20	17-033B-20	PIPE SUPPORT LOCATION PLAN
21	17-033B-21	PIPERACK PLAN ON DOCK
22	17-033B-22	ELEVATIONS AT PIPERACK ON DOCK
23	17-033B-23	PIPERACK AT RAILROAD
24	17-033B-24	STEEL BASE DETAIL AT BENT 4
25	17-033B-25	STEEL BASE DETAIL AT BENT 3
26	17-033B-26	STEEL BASE DETAIL AT BENTS 1 & 2
27	17-033B-27	MISCELLANEOUS PIPE SUPPORTS
28	17-033B-28	STEEL FRAMING BETWEEN BRIDGES
29	17-033B-29	BRIDGE FRAMING MODIFICATION PLANS
30	17-033B-30	BRIDGE MODIFICATION ELEVATIONS -1
31	17-033B-31	BRIDGE MODIFICATION ELEVATIONS -2
32	17-033B-32	BRIDGE MODIFICATION DETAILS -1
33	17-033B-33	BRIDGE MODIFICATION DETAILS -2
34	17-033B-34	OCEAN GOING BARGE MOORING LAYOUT
35	17-033B-35	SHIP MOORING LAYOUT
36	17-033B-36	INLAND BARGE MOORING LAYOUT
37	17-033B-37	OCEAN & INLAND BARGES
38	17-033B-38	ELEVATION AT RAILROAD
39	17-033B-39	CONCRETE AT WASHOUT AREA
40	17-033B-40	NOT CURRENTLY USED
41	17-033B-41	DRAINAGE, FIREWATER PLAN & DETAILS
42	17-033B-42	STORM WATER POLLUTION PREVENTION PLAN
43	17-033B-43	STORM WATER POLLUTION PREVENTION DETAILS
44	17-033B-44	ASPHALT REPAIR DETAILS
45	17-033B-45	CATCH BASIN MODIFICATION DETAILS
46	17-033B-46	CATCH BASIN PLANS, SECTIONS & DETAILS
47	17-033B-47	MOORING STRUCTURE LAYOUT
48	17-033B-48	MOORING MONOPILE NMS2 DETAILS
48A	17-033B-48	MOORING MONOPILE NMS1 DETAILS
49	17-033B-49	EXISTING BREASTING STRUCTURE MODIFICATION DETAILS

1

1

PCCA PROJ. 17-033B

9/6/17

STATE OF TEXAS
AJMER S. KULAR
48599
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION
1	9/17	REVISED AS SHOWN

PORT **CORPUS CHRISTI**

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

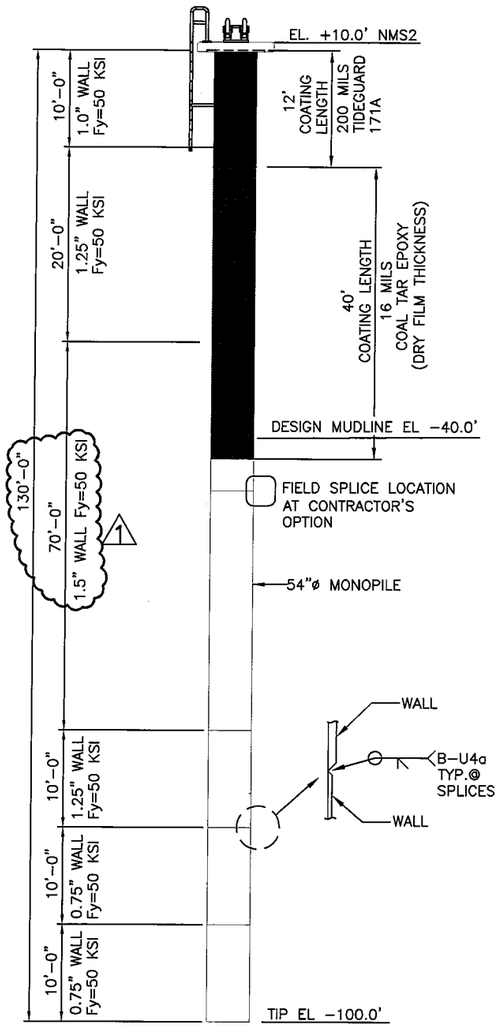
SHEET 1 OF 49

PORT OF CORPUS CHRISTI AUTHORITY

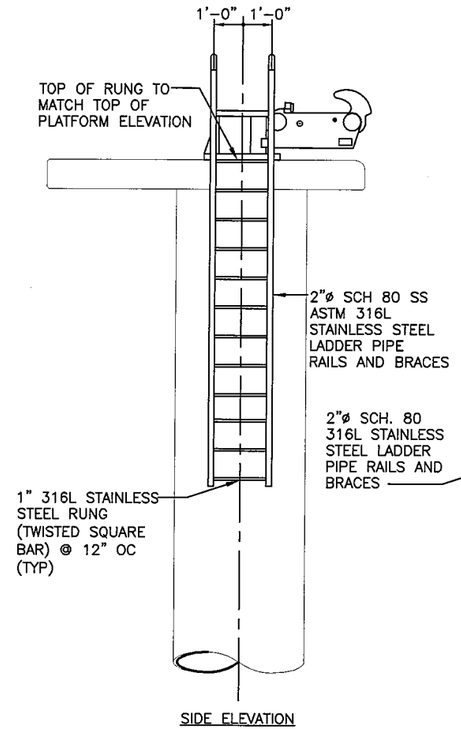
BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
CIVIL & STRUCTURAL

SCALE: AS NOTED	TITLE SHEET	DATE: 9/6/17
DWN. BY: CC		DWG. NO. 17-033B-01

JOB NO. 17POC0139

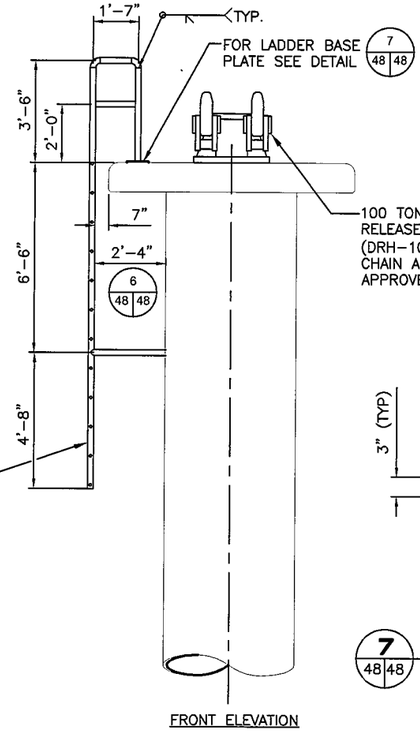


1 54"ø MOORING MONOPILE NMS2 1
47 48 SCALE: 1/8"=1'-0"



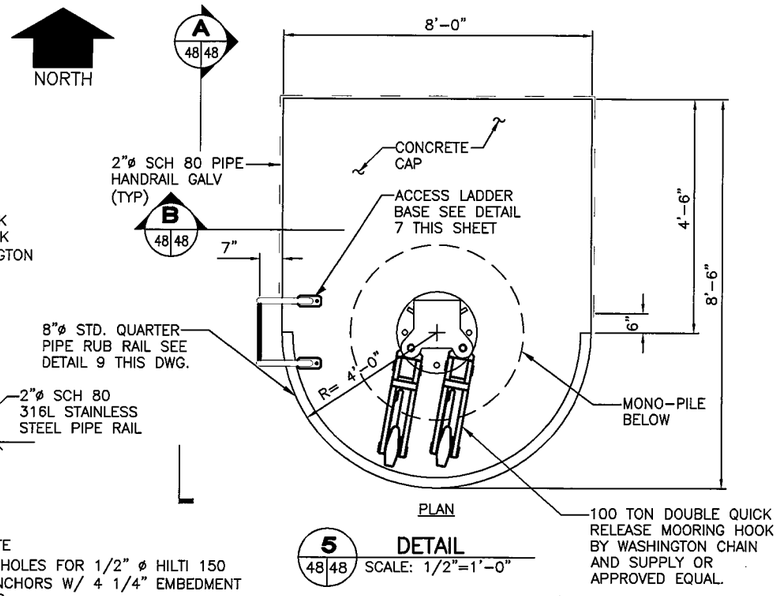
SIDE ELEVATION

2 DETAIL
48 48 SCALE: 3/8"=1'-0"



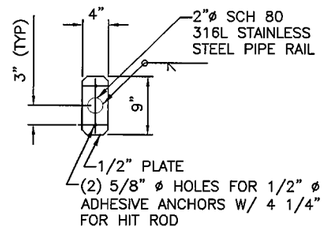
FRONT ELEVATION

3 DETAIL
48 48 SCALE: 3/8"=1'-0"



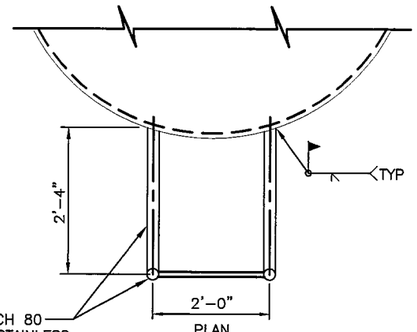
PLAN

5 DETAIL
48 48 SCALE: 1/2"=1'-0"



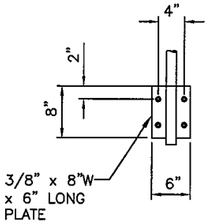
PLAN

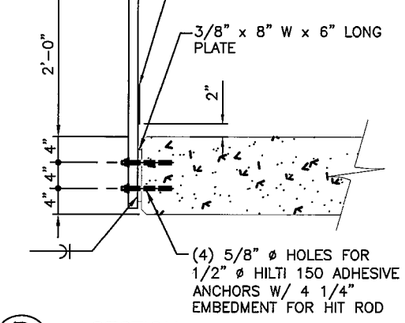
7 LADDER BASE DETAIL
SCALE: 1"=1'-0"



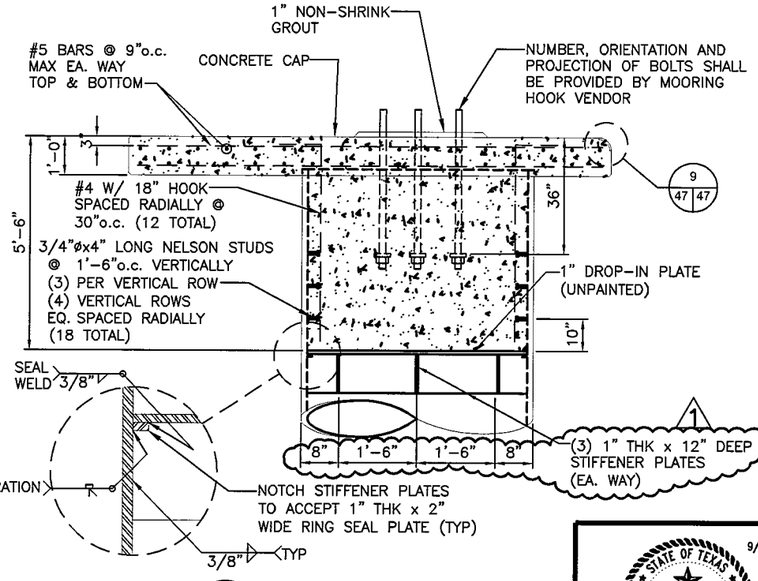
PLAN

6 DETAIL
48 48 SCALE: 3/4"=1'-0"

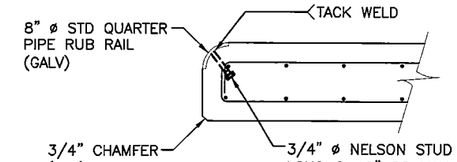




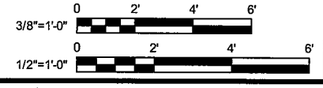
B SECTION
48 48 SCALE: 1"=1'-0"



A ELEVATION
48 48 SCALE: 1/2"=1'-0"



9 DETAIL
48 48 SCALE: 1"=1'-0"



NOTES:

1. DEBRIS IS LIKELY TO BE ENCOUNTERED ON SOME OF THE MOORING MONOPILE INSTALLATION AREAS EVEN AFTER THE SLOPE IS DREDGED SO MARINE CONTRACTOR SHALL REMOVE ALL MATERIAL IN A 10' RADIUS TO A DEPTH OF 3' OR AS REQUIRED TO ELIMINATE DEBRIS INTERFERENCE WITH A CLAMSHELL BUCKET OR BACKHOE AND DISPOSED OFFSITE.
2. ALL ELEVATIONS ARE BASED ON CORP OF ENGINEERS DATUM MEAN LOW WATER (MLLW).

PCCA PROJ. #17-033B

STATE OF TEXAS
AJMER S. KULAR
48599
REGISTERED PROFESSIONAL ENGINEER
9/11/17

NO.	DATE	REVISION
1	9/17	REVISED AS SHOWN

PORT CORPUS CHRISTI

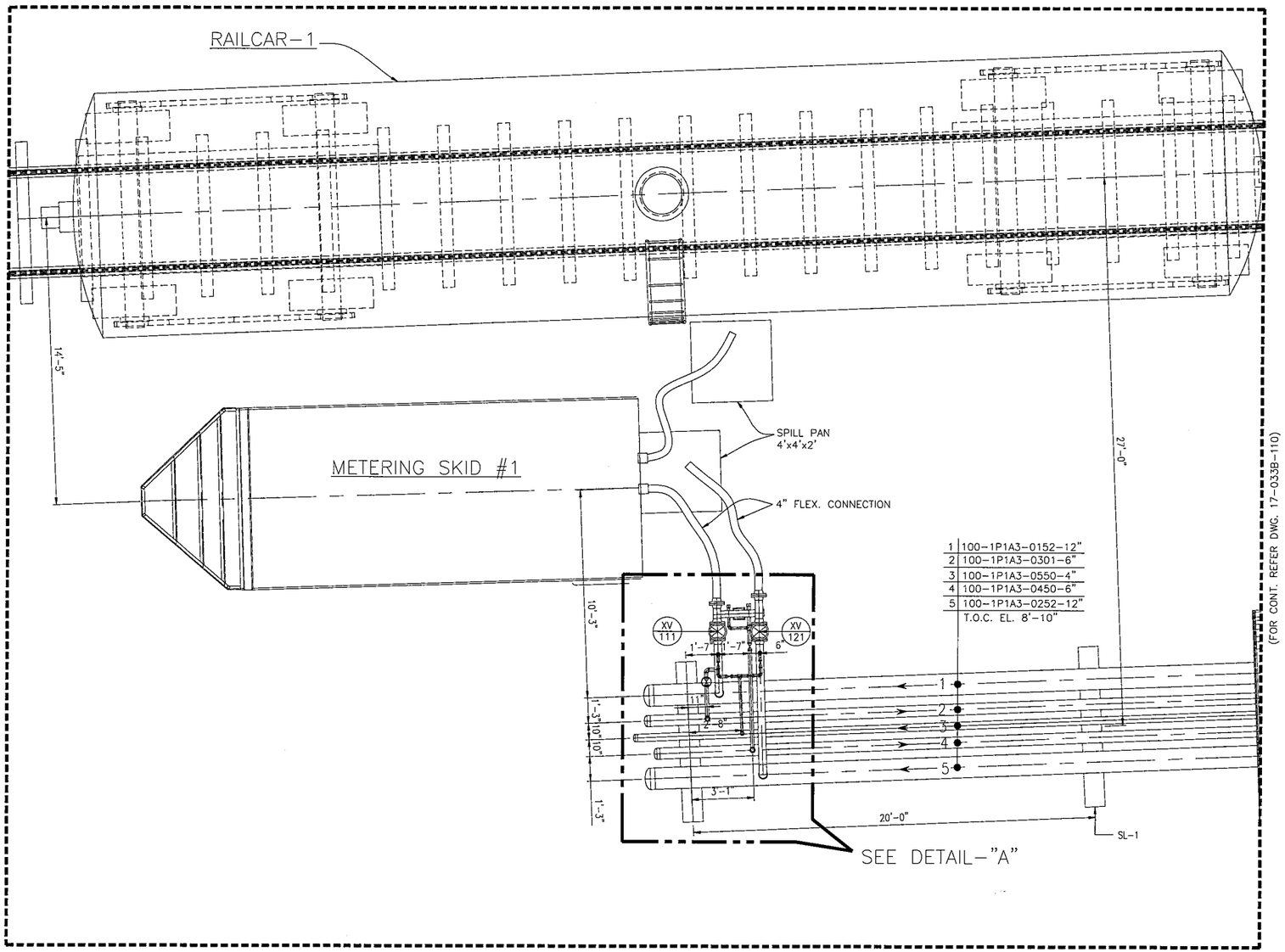
GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 CIVIL & STRUCTURAL

SCALE: AS NOTED	MOORING MONOPILE NMS2 DETAILS	DATE: 9/11/17
DWN. BY: RJA		DWG. NO. 17-033B-48

JOB NO. 17POC0139

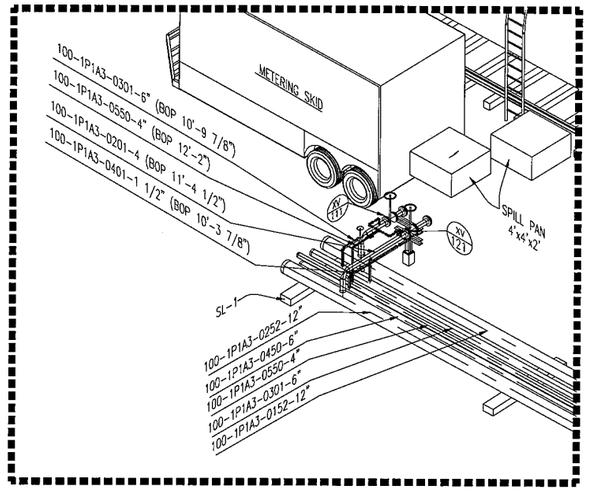


1	100–1P1A3–0152–12"
2	100–1P1A3–0301–6"
3	100–1P1A3–0550–4"
4	100–1P1A3–0450–6"
5	100–1P1A3–0252–12"

T.O.C. EL. 8'–10"

PLAN FOR PIPING & SUPPORT LOCATION

SCALE : 3/8"=1'–0"



DETAIL – "A"

MANUFACTURER FOR SPILL PAN :NEW PIG OR EQ

NOTE:

1. SEE PIPING ISOMETRICS FOR PIPING DETAILS
2. SEE STRUCTURAL DRAWINGS FOR SUPPORT DETAILS

STATE OF TEXAS
BHASKAR H. PATEL
63589
REGISTERED
PROFESSIONAL ENGINEER

09/12/17

NO.	DATE	REVISION
1	09/12/17	REV.–1, IFC

PCCA PROJ. 17–033B

PORT CORPUS CHRISTI

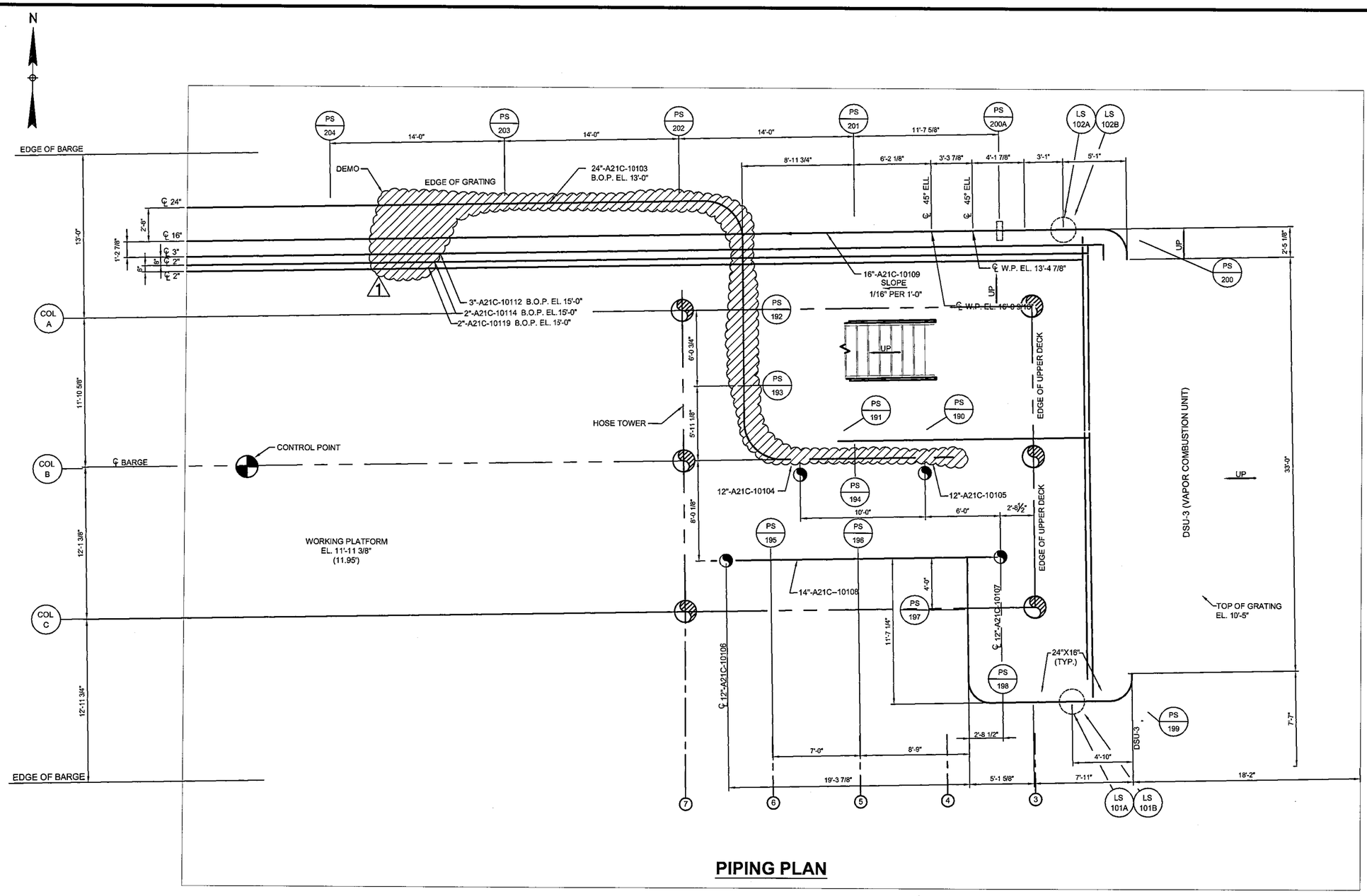
GOVIND DEVELOPMENT, LLC
ENGINEERING DIVISION

GOVIND DEVELOPMENT, LLC
5610 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F–10101

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 PIPING AND MECHANICAL

SCALE: NTS	PIPING AND SUPPORT LOCATION PLAN	DATE: 08/22/2017
DWN. BY: SP		DWG. NO. 17–033B–109



PIPING PLAN

PCCA PROJ. 033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER
09/07/17

NO.	DATE	REVISION
1	9/17	REVISED AS SHOWN

PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 PIPING AND MECHANICAL

SCALE: NTS	DEMO AT FLOATING BARGE	DATE: 09/07/17
DWN. BY: HA		DWG. NO. 17-033B-129

JOB NO. 17POC0139

BILL OF MATERIAL

MARK	QTY	DESCRIPTION	SIZE	"LENGTH LF"
1	36	90 DEG ELL, 3000# SW, ASTM A-105	1 1/2"	
2	17	90 DEG ELL, 3000# SW, ASTM A-105	1"	
3	1	90 DEG ELL, 3000# THRD ASTM A105, ZINC METALIZED COATED	3/4"	
4	1	PIPE, S.80 T&C ASTM A53, GR. B - SMLS, HOT DIPPED GALVANIZED AFTER FABRICATION	3/4"	1.7
5	1	PIPE, S.80 PE. ASTM A-106 GR.B - SMLS	1 1/2"	117.9
6	1	PIPE, S.80 PE. ASTM A-106 GR.B - SMLS	1"	246.4
7	1	PIPE, STD BE. ASTM A53, GR. B - SMLS	12"	1382.0
8	1	PIPE, STD BE. ASTM A53, GR. B - SMLS	16"	880.0
9	1	PIPE, S.40 BE. ASTM A53, GR.B - SMLS	3"	327.0
10	1	PIPE, S.40 BE. ASTM A53, GR.B - SMLS	4"	918.0
11	1	PIPE, S.40 BE. ASTM A53, GR.B - SMLS	6"	1550.0
12	1	PIPE, S.80 BE ASTM A-106, GR. B-SMLS	2"	340
13	26	90 DEG LR ELL,BW ASTM A-234 GR WPB,STD	16"	
14	20	90 DEG LR ELL,BW ASTM A-234 GR WPB,S.80	2"	
15	16	90 DEG LR ELL,BW ASTM A-234 GR WPB,S.40	3"	
16	28	90 DEG LR ELL,BW ASTM A-234 GR WPB,S.40	4"	
17	36	90 DEG LR ELL,BW ASTM A-234 GR WPB,S.40	6"	
18	2	45 DEG LR ELL, BW, ASTM A-234 GR WPB,STD	12"	
19	1	45 DEG LR ELL, BW, ASTM A-234 GR WPB,STD	16"	
20	2	45 DEG LR ELL, BW, ASTM A-234 GR WPB,S.40	6"	
21	2	TEE, STR. STD, ASTM A-234 GR WPB, BW	16"	
22	2	TEE, STR. S.40, ASTM A-234 GR WPB, BW	2"	
23	2	TEE, STR. S.40, ASTM A-234 GR WPB, BW	3"	
24	2	TEE, STR. S.40, ASTM A-234 GR WPB, BW	4"	
25	5	TEE, STR. S.40, ASTM A-234 GR WPB, BW	6"	
26	1	TEE, REDUCING S.40, ASTM A-234 GR WPB, BW	3"x2"	
27	2	REDUCER, 3000# THRD ASTM A105, ZINC METALIZED COATED	2"x3/4"	
28	4	REDUCER, CONC STD, ASTM A-234 GR WPB, BW	16"x12"	
29	2	REDUCER, CONC S.40, ASTM A-234 GR WPB, BW	4"x3"	
30	4	REDUCER, CONC S.40, ASTM A-234 GR WPB, BW	6"x4"	
31	1	FLG, 150# SW ASTM A105, S.80	1 1/2"	
32	1	FLG, 150# SW ASTM A105, S.80	1"	
33	4	CAP, STD, ASTM A-234 GR WPB, BW	12"	
34	2	CAP, S.40, ASTM A-234 GR WPB, BW	4"	
35	4	CAP, S.40, ASTM A-234 GR WPB, BW	6"	
36	32	ORIFICE NIPPLE, S.160 PBE.ASTM A106, GR. B - SMLS	3/4"	1.2
37	1	TEE, STR.3000#, SW, ASTM A-105	3/4"	
38	14	FLG, 150# RFWN ASTM A105, STD BORE	12"	
39	30	FLG, 150# RFWN ASTM A105, STD BORE	16"	
40	15	FLG, 150# RFWN ASTM A105, S.80 BORE	2"	
41	25	FLG, 150# RFWN ASTM A105, S.40 BORE	3"	
42	64	FLG, 150# RFWN ASTM A105, S.40 BORE	4"	
43	8	FLG, 150# RFWN ASTM A105, S.40 BORE	6"	
44	1	FLG, RFWN 150# STD BORE, ASTM A-105	16"	
45	1	FLG, RFWN 150# S.40 BORE, ASTM A-105	6"	
46	2	FLG, RF BLIND 150# STD, ASTM A-105	12"	
47	1	FLG, RF BLIND 150# S.40, ASTM A-105	4"	

Flex Hose Specs:
Gutteling Heavy Duty
Multi Oil Hoses to be
followed for all hoses

NOTE:

1. CONSIDER 15% MARGIN ON PIPE LF LENGTH
1. CONSIDER 3% TO 5% MARGIN ON VALVE & FITTINGS

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION
1	09/12/17	REV-1, IFC

PCCA PROJ. 17-033B

PORT CORPUS CHRISTI

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TBPE FIRM No.: F-10101

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
PIPING AND MECHANICAL

SCALE: NTS	BILL OF MATERIAL-1	DATE: 09/12/17
DWN. BY: SH		DWG. NO. 17-033B-133

JOB NO. 17POC0139

BILL OF MATERIAL

48	24	X160 ALLOY STEEL STUDS, ASTM A193 GR. B7, WITH 2 HEAVY HEX NUTS EACH, ASTM A194 GR. 2H	1"	0.5
49	1	X160 STUD BOLTS W/ NUTS	1"	0.5
50	2	X80 ALLOY STEEL STUDS, ASTM A193 GR. B7, WITH 2 HEAVY HEX NUTS EACH, ASTM A194 GR. 2H	3/4"	0.3
51	1	X80 STUD BOLTS W/ NUTS	3/4"	0.3
52	30	X40 ALLOY STEEL STUDS, ASTM A193 GR. B7, WITH 2 HEAVY HEX NUTS EACH, ASTM A194 GR. 2H	5/8"	0.3
53	36	X80 ALLOY STEEL STUDS, ASTM A193 GR. B7, WITH 2 HEAVY HEX NUTS EACH, ASTM A194 GR. 2H	5/8"	0.3
54	7	X120 ALLOY STEEL STUDS, ASTM A193 GR. B7, WITH 2 HEAVY HEX NUTS EACH, ASTM A194 GR. 2H	7/8"	0.4
55	1	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	1 1/2"	
56	1	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	1"	
57	14	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	18"	
58	38	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	16"	
59	1	GASKET, 1/8" THK, 150#304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	18"	
60	15	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	2"	
61	25	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	3"	
62	64	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	4"	
63	11	GASKET 1/8" THICK 304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	6"	
64	2	GASKET, 1/8" THK, 150#304 SS SPIRAL WOUND FLEXIBLE GRAPHITE FILLER WITH CS GAUGE RING, ASME B16.20	6"	
65	1	SWAGE, CONC. S.80, ASTM A-234 GR WPB PLE-PSE	3"x1 1/2"	
66	1	SWAGE, CONC. S.80, ASTM A-234 GR WPB PLE-PSE	3"x1"	
67	2	SWAGE, CONC. S.80, ASTM A-234 GR WPB PLE-PSE	8"x3/4"	
68	54	90 DEG ELL, SW 3000#, ASTM A-105	1"	
69	9	TEE, RED.3000#, SW, ASTM A-105	1 1/2"x1"	
70	9	CPLG, SW 3000# , ASTM A-105	1 1/2"	
71	9	CPLG, SW 3000# , ASTM A-105	1"	
72	1	CPLG, 3000# THRD ASTM A105, ZINC METALIZED COATED	3"	
73	2	CPLG, SW 3000# , ASTM A-105	3/4"	
74	4	BUTTERFLY VALVE, 150# FLGD, PNEUMATIC	18"	0.3
75	3	BUTTERFLY VALVE, 150# FLGD.	16"	0.3
76	2	CHECK VALVE, 150# WAFER 410 SPLIT DISC, BUCCHEK X2559F OR EQ.	16"	0.8
77	2	CHECK VALVE, 150# WAFER BUNA-N SPLIT DISC, BUCCHEK G150W OR EQ.	8"	0.7
78	2	CHECK VALVE, 150# WAFER BUNA-N SPLIT DISC, BUCCHEK G150W OR EQ.	3"	0.8
79	1	CHECK VALVE, 150# WAFER BUNA-N SPLIT DISC, BUCCHEK G150W OR EQ.	4"	1.0
80	2	CHECK VALVE, 150# WAFER BUNA-N SPLIT DISC, BUCCHEK G150W OR EQ.	6"	1.2
81	1	GATE VALVE, 150# FLGD F6/STCL. BB,OS&Y,CRANE 47XUF OR EQ.	8"	0.6
82	3	GATE VALVE, 150# FLGD F6/STCL. BB,OS&Y,CRANE 47XUF OR EQ.	3"	0.7
83	18	GATE VALVE, 150# FLGD PNEUMATIC	4"	0.8
84	3	GATE VALVE, 150# FLGD F6/STCL. BB,OS&Y,CRANE 47XUF OR EQ.	6"	0.9
85	13	THRD PLUG	3/4"	
86	3	SOCKOLET, 3000# , ASTM A-105	12"x3/4"	
87	1	SOCKOLET, 3000# , ASTM A-105	16"x8"	
88	18	SOCKOLET, 3000# , ASTM A-105	16"x3/4"	
89	1	SOCKOLET, 3000# , ASTM A-105	8"x1/4"	
90	2	SOCKOLET, 3000# , ASTM A-105	8"x3/4"	
91	4	SOCKOLET, 3000# , ASTM A-105	3"x3/4"	
92	15	SOCKOLET, 3000# , ASTM A-105	4"x1 1/2"	
93	39	SOCKOLET, 3000# , ASTM A-105	4"x1"	
94	4	SOCKOLET, 3000# , ASTM A-105	4"x3/4"	
95	87	SOCKOLET, 3000# , ASTM A-105	6"x1 1/2"	
96	18	WELDOLET ASTM A-105	12"x6"	
97	2	WELDOLET ASTM A-105	16"x3"	
98	2	WELDOLET ASTM A-105	16"x6"	
99	1	WELDOLET ASTM A-105	8"x8"	
100	12	BALL VALVE, 150# FLGD 316 SPC, FULL PORT, LEVER OP, JAMESBURY 9150-3I-2236-HTT-1 OR EQ.	8"	0.6
101	4	BALL VALVE, 150# FLGD 316 SPC, FULL PORT, LEVER OP, JAMESBURY 9150-3I-2236-HTT-1 OR EQ.	3"	0.7
102	1	BALL VALVE, 150# FLGD 316 SPC, FULL PORT, LEVER OP, JAMESBURY 9150-3I-2236-HTT-1 OR EQ.	4"	0.8
103	1	BALL VALVE, 800# SW 316 SPC, RED PORT, LEVER OP, JAMESBURY 4CB-2236-HTT OR EQ.	3/4"	0.1
104	18	CHECK VALVE, 800# SW	1"	0.3
105	1	GATE VALVE, 150# FLGD.	6"	0.9
106	18	GATE VALVE, 800# SW=FNPT F6/STCL BB. OS&Y, VOGT TSV-13111 OR EQ.	1 1/2"	0.3
107	24	GATE VALVE, 800# SW=FNPT F6/STCL BB. OS&Y, VOGT TSV-13111 OR EQ.	3/4"	0.2
108	4	RELIEF VALVE, 600# THRD	3/4"x1"	0.8
109	2	CONTROL VALVE, 150# FLGD.	4"	1.2
110	1	STRAINER, 150# FLGD.	2"	0.0
111	1	FLEXIBLE HOSE CONNECTION	12"	42.0
112	1	FLEXIBLE HOSE CONNECTION	16"	42.0
113	1	FLEXIBLE HOSE CONNECTION	8"	24.0
114	1	FLEXIBLE HOSE CONNECTION	2"	24.0
115	1	PIPE, S.80 T&C ASTM A53, GR. B - SMLS. HOT DIPPED GALVANIZED AFTER FABRICATION	2"	458
116	20	90 DEG LR ELL,3000# THRD ASTM A105, ZINC ZINC METALIZED COATED	2"	
117	2	TEE, RED3000#, SW, ASTM A-105	2"	
118	2	TEE, RED3000#, SW, ASTM A-105	3/4"	
119	2	ORIFICE NIPPLE, S.160 TBE ASTM A53, GR. B - SMLS. HOT DIPPED GALVANIZED	3/4"	1.2
120	18	FLG, 150# THRD ASTM A105, SCHEDULE TO MATCH PIPE, HOT DIPPED GALVANIZED AFTER FABRICATION	2"	
121	18	X-HALLOY STEEL STUDS, ASTM A193 GR B7, WITH 2 HEAVY HEX NUTS EACH, ASTM A194 GR 2H	5/8"	0.3
122	18	GASKET, 1/16" THICK FLAT RING TFE CORE TEX (GOOD GRADE) OR EQ., ASME B16.21	2"	
123	2	SWAGE, CONC REDUCER 3000# THRD ASTM A105, ZINC METALIZED COATED	2"x3/4"	
124	1	CPLG, 3000# THRD ASTM A105, ZINC METALIZED COATED	3/4"	
125	2	BALL VALVE,150# FLGD 316 LINEBODY, QUADRANT VALVE F1-R-C-S-V-G-LH-9' OR EQ.	2"	0.6
126	2	BALL VALVE,150# FLGD 316 LINEBODY, QUADRANT VALVE F1-R-C-S-V-G-LH-9' OR EQ.	3/4"	0.1
127	9	FLEXIBLE HOSE CONNECTION	1"	150
128	9	FLEXIBLE HOSE CONNECTION	1 1/2"	498
129	28	GATE VALVE,800#SW F6/STCL BB,OS&Y, VOGT ST 2001 OR EQ.	1"	
130	4	BUTTERFLY VALVE, 150#, POSI SEAL 8120, LUG TYPE (PNEUMATIC ACTUATED-AIR OPERATED)	16"	
131	4	GATE VALVE, 150# FLGD F6/STCL. BB,OS&Y,CRANE 47XUF OR EQ	8"	
132	2	CONTROL VALVE, 150# FLGD.	8"	
133	1	PIPE, S.40 BE ASTM A53, GR.B - SMLS	8"	88
134	27	FLEXIBLE HOSE CONNECTION	4"	270

1 REMOVED

Flex Hose Specs:

Gutteling Heavy Duty Multi Oil Hoses to be followed for all hoses

NOTE:

1. CONSIDER 15% MARGIN ON PIPE LF LENGTH
1. CONSIDER 3% TO 5% MARGIN ON VALVE & FITTINGS

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PCCA PROJ. 17-033B

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION
1	09/12/17	REV-1, IFC

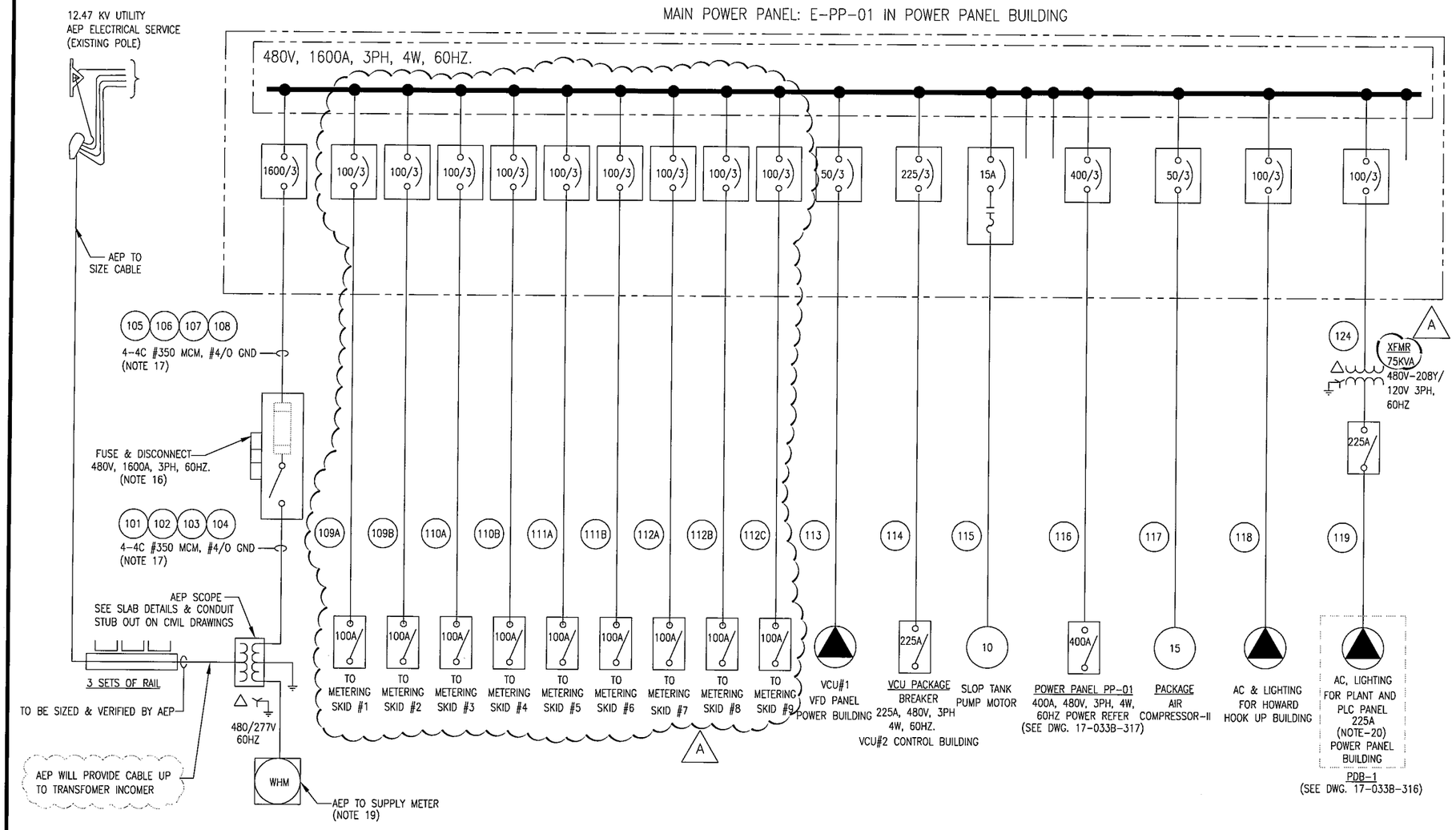
PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
PIPING AND MECHANICAL

SCALE: NTS	BILL OF MATERIAL-2	DATE: 09/12/17
DWN. BY: SH		DWG. NO. 17-0338-134

JOB NO. 17POC0139



NOTES :

1. ALL ELECTRICAL EQUIPMENT, CONSTRUCTION MATERIALS SHALL BE PURCHASED BY CONTRACTOR TO COMPLETETHE INSTALLATION.
   THE CONTRACTOR SHALL VERIFY THAT ALL WORK, APPLICABLE ELECTRICAL INSTALLATION METHODS, PROCEDURES, FITTINGS AND EQUIPMENT (PANELS, BOARDS, DISCONNECTS .XFMRs, CABLE, CONDUIT, AND CONDUCTOR TYPE AND SIZE, ETC.) SHALL BE IN COMPLIANCE WITH THE LATEST ADOPTED NEC, IEEE, UL, API, AND ASTM CODES AND STANDARDS AND ANY OTHER APPLICABLE LOCAL AND STATE CODES.
2. ALL AREAS ON DOCK THE FLOATING BARGE AREA CLASSIFIED AS CLASS 1, DIVISION 2.
3. ALL ELECTRICAL ENCLOSURES INSTALLED OUTSIDE SHALL BE NEMA 7.
   ALL POWER CABLES SHALL BE OF XHHW EXCEPT FOR WHERE NOTED TYPE.
4. THE LOAD ON THE MAIN POWER PANEL SHALL NOT EXCEED THE TRANSFORMER SECONDARY FLA LIMIT.
5. ALL ABOVE GROUND CONDUIT SIZES AND FITTINGS PURCHASED BY THE CONTRACTOR SHALL BE PVC COATED GALVANIZED CONDUIT, PLASTI-BOND OR ITS EQUIVALENT.
6. ALL UNDER GROUND CONDUIT SIZES AND FITTINGS PURCHASED BY THE CONTRACTOR SHALL BE PVC.
7. A TRANSITION AREA BETWEEN THE POWER PANELS AND FLOATING BARGE WILL USE FLEXIBLE CONDUITS. THE CONTRACTOR SHALL PURCHASE THE PROPER FITTINGS IN ORDER TO MAKE THE TRANSITIONS BETWEEN PVC COATED RGS AND THE FLEX CONDUIT.
8. THE CONTRACTOR SHALL MAKE SURE THE FLEXIBLE CONDUITS ARE NOT BENT MORE THAN THE BEND RADIUS OF THE POWER CABLES.
9. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 80 AND PROPER FITTINGS SHALL BE USED TO TRANSITION BETWEEN IT AND THE PVC COATED RGS CONDUIT.
10. UNDERGROUND CONDUIT SHALL BE AT A MINIMUM 30" & MAX. 48" BELOW GRADE, ENCASED IN A CONCRETE DUCT BANK.
11. THE CONTRACTOR SHALL INSPECT ALL NEW MATERIAL AND EQUIPMENT PRIOR TO INSTALLATION FOR DAMAGES AND SHALL VERIFY EQUIPMENT OPERATES SATISFACTORILY.
12. THE CONTRACTOR SHALL WARRANT ALL MATERIAL AND ELECTRICAL COMPONENTS FURNISHED TO COMPLETE ALL WORK FOR ONE YEAR AFTER FINAL ACCEPTANCE OF COMPLETION. MATERIALS AND ELECTRICAL COMPONENTS EFFECTS OF FAILURES DUE TO ABUSE, OR WORKMANSHIP NEGLECT SHALL BE MADE GOOD BY THE CONTRACTOR WITHOUT COST TO THE OWNER.
13. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL TEST ALL WIRING AND ELECTRICAL COMPONENTS INSTALLED AND SHALL BE IN PERFECT WORKING CONDITION IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS.
14. CONTRACTOR WORK SHALL PRESENT A NEAT APPEARANCE UPON COMPLETION OF ELECTRICAL INSTALLATION. ALL COMPONENTS INSTALLED SHALL BE PLUMB, STRAIGHT AND LEVEL.
15. DISCONNECT IS TO BE PROVIDED FOR PLC DSU & LIGHTING LOADS NEAR TO FLOATING BARGE AND PANEL PP-01 LOCATION.
16. FUSE SIZE AND DISCONNECT AT SERVICE ENTRANCE GROUNDING AS PER NEC.
17. FOR CABLE SIZE AND CONDUIT REFER ELECTRICAL CONDUIT & REFER ELECTRICAL CONDUIT & CABLE SCHEDULE DWG. NO. 17-033B-304
18. LOCATION DETAIL SHOWN IN ELECTRICAL EQUIPMENT LOCATION PLAN DWG. NO. 17-033B-303
19. METER SUPPLIED BY AEP AND INSTALLED IN METER BASE & BOX PROVIDED BY CONTRACTOR
20. PLC PANEL OF VCU#1 IS IN THE POWER PANEL BUILDING.

REFERENCES :

1.	DOC. 17-033B-312	ELECTRICAL LOAD CALCULATION
2.	DWG. 17-033B-303	ELECTRICAL EQUIPMENT LOCATION PLAN
3.	DOC. 17-033B-304	ELECTRICAL CONDUIT & CABLE SCHEDULE
4.	DOC. 17-033B-316	POWER BUILDING POWER DISTRIBUTION BOARD SCHEDULE
5.	DOC. 17-033B-317	BARGE POWER PANEL SCHEDULE PP-01
6	DWG. 17-033B-315	RISER DIAGRAM BARGE POWER PANEL

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PCCA PROJ. 17-033B

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION
A	9/14/17	REVISED

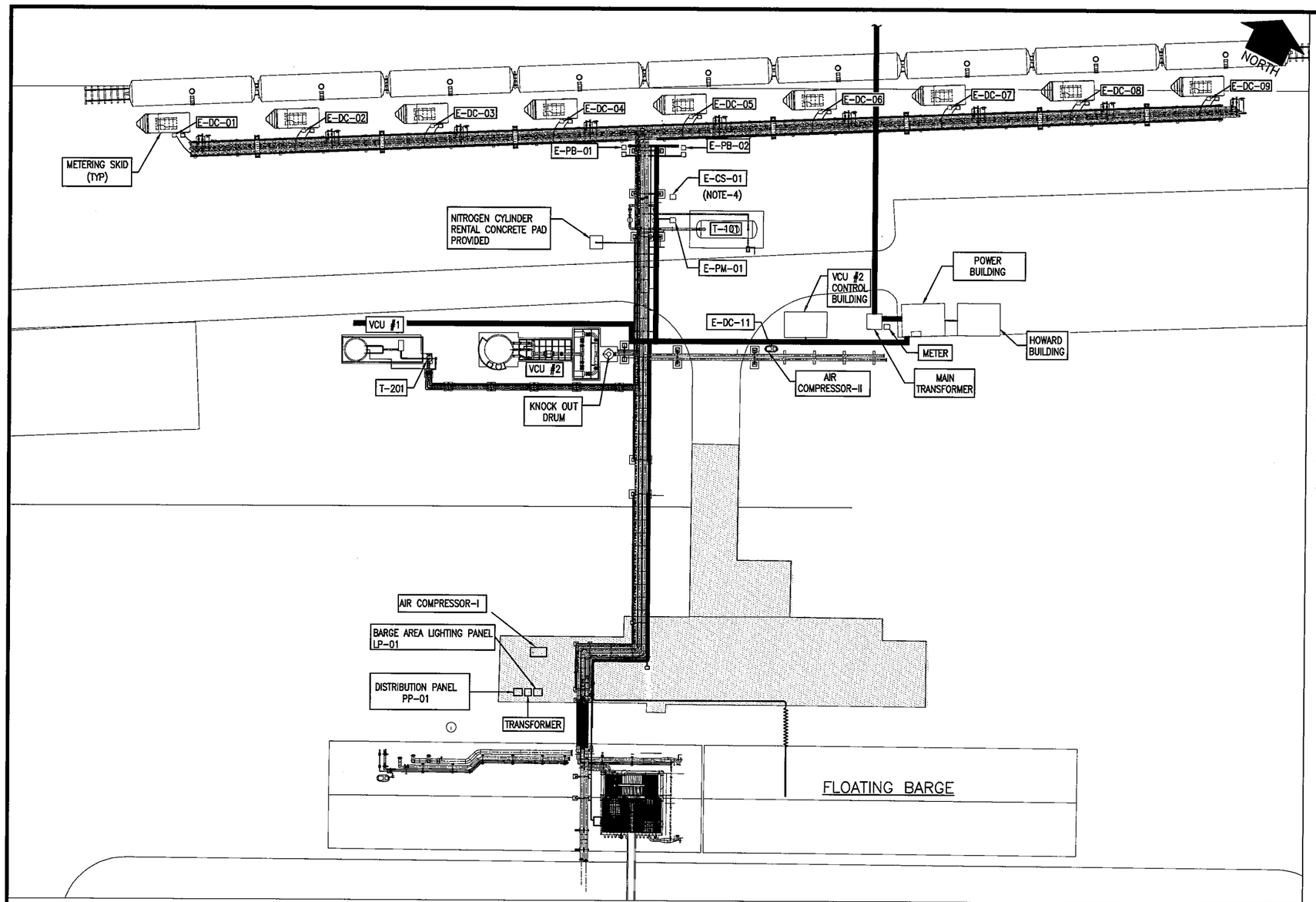
PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	ELECTRICAL ONE LINE DIAGRAM	DATE: 09/06/17
DWN. BY: VS		DWG. NO. 17-033B-302

JOB NO. 17POC0139



A ELECTRICAL EQUIPMENT LOCATION PLAN

PCCA PROJ. 17-033B

ELECTRICAL EQUIPMENT IDENTIFICATION

E – XX – XX1

- SEQUENCE NO.
- XX:
  - DC DISCONNECT
  - PB PULL BOX
  - PP POWER PANEL/SWITCH GEAR
  - PM PUMP MOTOR
  - PL ELECTRICAL POLE
  - CS CONTROL STATION
- ELECTRICAL

REFERENCES:–

1. DWG. 17-033B-302	ELECTRICAL ONE LINE DIAGRAM
2. DWG. 17-033B-03	PLOT PLAN
3. DWG. 17-033B-315	RISER DIAGRAM BARGE POWER PANEL
4. DWG. 17-033B-314	POWER BUILDING LAYOUT

NOTES:–

1. THE CONTRACTOR SHALL VERIFY THAT ALL WORK, APPLICABLE ELECTRICAL INSTALLATION METHODS, PROCEDURES, FITTINGS AND EQUIPMENT (PANELS, BOARDS, DISCONNECTS .XFMRs, CABLE, CONDUIT, AND CONDUCTOR TYPE AND SIZE, ETC.) SHALL BE IN COMPLIANCE WITH THE LATEST ADOPTED NEC, IEEE, UL, API, AND ASTM CODES AND STANDARDS AND ANY OTHER APPLICABLE LOCAL AND STATE CODES.
2. ALL AREAS ON DOCK EXCLUDING THE BARGE AREA ARE ASSUMED TO BE CLASSIFIED AS CLASS 1, DIVISION 2.
3. ALL ELECTRICAL ENCLOSURES INSTALLED OUTSIDE SHALL BE NEMA 7. ALL POWER CABLES SHALL BE OF XHHW EXCEPT FOR WHERE NOTED TYPE.
4. E-CS-01 IS THE PUSH BUTTON FOR SLOP TANK PUMP MOTOR. SEE REFERENCE DRAWING 17-033B-357.
5. LOCATION 7 PULL BOX, DISCONNECT & FIELD PANELS SHALL BE VERIFIED BY CONTRACTOR AT THE TIME OF FINAL INSTALLATION. TYPE.

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09/06/17

NO.	DATE	REVISION

PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	ELECTRICAL EQUIPMENT LOCATION PLAN	DATE: 09/06/17
DWN. BY: SH		DWG. NO. 17-033B-303

JOB NO. 17POC0139

ELECTRICAL CONDUIT / CABLE SCHEDULE

CABLE NUMBER	SERVICE DESCRIPTION	CABLE TYPE	APPROXIMATE CABLE LENGTH	CONDUIT SIZE	APPROX CONDUIT LENGTH	FROM	TO	REMARKS
101	AEP'S MAIN TRANSFORMER TO FUSE DISCONNECT	1 – 4C #350 MCM, #1 GND	50 FT	3"	48 FT	AEPS MAIN TRANSFORMER	FUSE & DISCONNECT	
102	AEP'S MAIN TRANSFORMER TO FUSE DISCONNECT	1 – 4C #350 MCM, #1 GND	50 FT	3"	49.5FT	AEPS MAIN TRANSFORMER	FUSE & DISCONNECT	
103	AEP'S MAIN TRANSFORMER TO FUSE DISCONNECT	1 – 4C #350 MCM, #1 GND	50 FT	3"	49.5FT	AEPS MAIN TRANSFORMER	FUSE & DISCONNECT	
104	AEP'S MAIN TRANSFORMER TO FUSE DISCONNECT	1 – 4C #350 MCM, #1 GND	50 FT	3"	49.5FT	AEPS MAIN TRANSFORMER	FUSE & DISCONNECT	
105	FUSE DISCONNECT TO POWER PANEL IN POWER PANEL BUILDING	1 – 4C #350 MCM, #1 GND	50 FT	3"	48 FT	FUSE & DISCONNECT	POWER PANEL: E-PP-01	
106	FUSE DISCONNECT TO POWER PANEL IN POWER PANEL BUILDING	1 – 4C #350 MCM, #1 GND	50 FT	3"	49.5FT	FUSE & DISCONNECT	POWER PANEL: E-PP-01	
A 107	FUSE DISCONNECT TO POWER PANEL IN POWER PANEL BUILDING	1 – 4C #350 MCM, #1 GND	50 FT	3"	49.5FT	FUSE & DISCONNECT	POWER PANEL: E-PP-01	
108	FUSE DISCONNECT TO POWER PANEL IN POWER PANEL BUILDING	1 – 4C #350 MCM, #1 GND	50 FT	3"	49.5FT	FUSE & DISCONNECT	POWER PANEL: E-PP-01	
109A	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #1	1-3C #1/0 W/1-#6 GND	600 FT	3"	300 FT / 275 FT	POWER PANEL: E-PP-01	METERING SKID 1 THROUGH PULL BOX – E-PB-01	"4 NOS OF 3"" CONDUITS ARE CONSIDERED FROM POWER PANEL TO E-PB-01 AND E-PB-02"
109B	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #2	1-3C #1/0 W/1-#6 GND	550 FT		300 FT / 225 FT	POWER PANEL: E-PP-01	METERING SKID 2 THROUGH PULL BOX – E-PB-01	
110A	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #3	1-3C #1/0 W/1-#6 GND	500 FT	3"	300 FT / 175 FT	POWER PANEL: E-PP-01	METERING SKID 3THROUGH PULL BOX – E-PB-01	
110B	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #4	1-3C #1/0 W/1-#6 GND	450 FT		300 FT / 125 FT	POWER PANEL: E-PP-01	METERING SKID 4 THROUGH PULL BOX – E-PB-01	
111A	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #5	1-3C #1/0 W/1-#6 GND	450 FT	3"	300 FT / 125 FT	POWER PANEL: E-PP-01	METERING SKID 5 THROUGH PULL BOX – E-PB-02	
111B	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #6	1-3C #1/0 W/1-#6 GND	500 FT		300 FT / 175 FT	POWER PANEL: E-PP-01	METERING SKID 6 THROUGH PULL BOX – E-PB-02	
112A	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #7	1-3C #1/0 W/1-#6 GND	550 FT	4"	300 FT / 225 FT	POWER PANEL: E-PP-01	METERING SKID 7 THROUGH PULL BOX – E-PB-02	
112B	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #8	1-3C #1/0 W/1-#6 GND	600 FT		300 FT / 275 FT	POWER PANEL: E-PP-01	METERING SKID 8 THROUGH PULL BOX – E-PB-02	
112C	POWER CABLE FROM POWER PANEL TO PULL BOX TO METERING SKID #9	1-3C #1/0 W/1-#6 GND	650 FT	A	300 FT / 325 FT	POWER PANEL: E-PP-01	METERING SKID 9 THROUGH PULL BOX – E-PB-02	
113	POWER CABLE FOR VCU-1 PANEL	1 – 4C #6, #8 GND	25 FT	NA	NA	POWER PANEL: E-PP-01	VCU-1 VFD	WITHIN POWER PANEL BUILDING
114	POWER CABLE FOR VCU-2 CONTROL BUILDING	1 – 4C 350 MCM, #1 GND	100 FT	4"	95 FT	POWER PANEL: E-PP-01	VCU-2 PACKAGE	
115	POWER CABLE FOR SLOP TANK PUMP MOTOR	1 – 3C #12, #10 GND	300 FT	1 1/2"	290 FT	POWER PANEL: E-PP-01	E-PM-01 SLOP TANK PUMP MOTOR	
116	POWER CABLE FOR POWER PANEL IN BARGE AREA	1-4C 600 MCM #1GND	1000 FT	4"	990 FT	POWER PANEL: E-PP-01	PADESTAL CRANE	400A/3 PP-01
117	POWER CABLE FOR AIR COMPRESSOR 2	1-4C #10, #10 GND	800 FT	4"	790 FT	POWER PANEL: E-PP-01	AIR COMPRESSOR 2	50A/3 POWER SUPPLY
118	POWER CABLE FOR POWER PANEL IN HOWARD	1-4C #1, #6 GND	50 FT	2"	45 FT	POWER PANEL: E-PP-01	HOWARD POWER SUPPLY	100A/3 SUPPLY
119	POWER CABLE TO PDB FROM 50KVA XFMR IN POWER PANEL BUILDING	1-4C #8, #10 GND	60 FT	NA	NA	POWER PANEL: E-PP-01	50 KVA XFMR	WITHIN POWER PANEL BUILDING
120	POWER CABLE FROM 50 KVA XFMR TO PDB IN POWER PANEL BUILDING	1-4C #1, #6 GND	60 FT	NA	NA	50 KVA XFMR	DISTRIBUTION BOARD DB-01	WITHIN POWER PANEL BUILDING
121	POWER CABLE TO PADESTAL CRANE MOTOR	1-3C #1, #1 GND	15 FT	3"	15 FT	BARGE POWER PANEL PP-01	PADESTAL CRANE MOTOR	LOCATION TO BE CHECK BY CONTRACTOR
122	POWER CABLE FOR AIR COMPRESSOR 1	1 – 4C #6, #8 GND	300 FT	2"	300 FT	BARGE POWER PANEL PP-01	AIR COMPRESSOR 1	
123	POWER CABLE FOR 45 KVA XFMR FROM PP-01 IN BARGE AREA	1-3C #1, #6 GND	10 FT	2"	9FT	POWER PANEL: E-PP-01	45KVA XFMR IN BARGE AREA	
124	POWER CABLE FOR LP-01 LIGHTING PANEL FROM 45 KVA XFMR IN BARGE AREA	1-3C #1, #6 GND	10 FT	2"	9FT	POWER PANEL: E-PP-01	45KVA XFMR IN BARGE AREA	

NOTES:

1. ALL CONDUITS ABOVE GROUND ARE GALVANISED TYPE AND ALL CONDUITS BELOW GROUND PVC CONDUITS
2. CONDUITS EXPOSED TO CLASS 1 DIVISION 2 AREA SHALL BE PROPERLY SEAL
3. REFER DRG. 17-033B-307 TO 311 FOR MORE DETAILS.
4. SMALLER LENGTH CONDUIT IS CONSIDERED FROM PULL BOX TO CABLE LADDER FOR CABLE FROM PULL BOX TO METERING SKID INSTALLED ON SLEEPER SUPPORT.

REFERENCE DRAWINGS :-

1. DWG. 17-033B-302 ELECTRICAL ONE LINE DIAGRAM
2. DWG. 17-033B-315 RISER DIAGRAM FOR BARGE POWER PANEL
3. DWG. 17-033B-303 ELECTRICAL EQUIPMENT LOCATION PLAN
4. DWG. 17-033B-305 OVERALL ELECTRICAL CONDUIT LAYOUT

PCCA PROJ. 17-033B

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STATE OF TEXAS
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PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION
A	9/14/17	REVISED

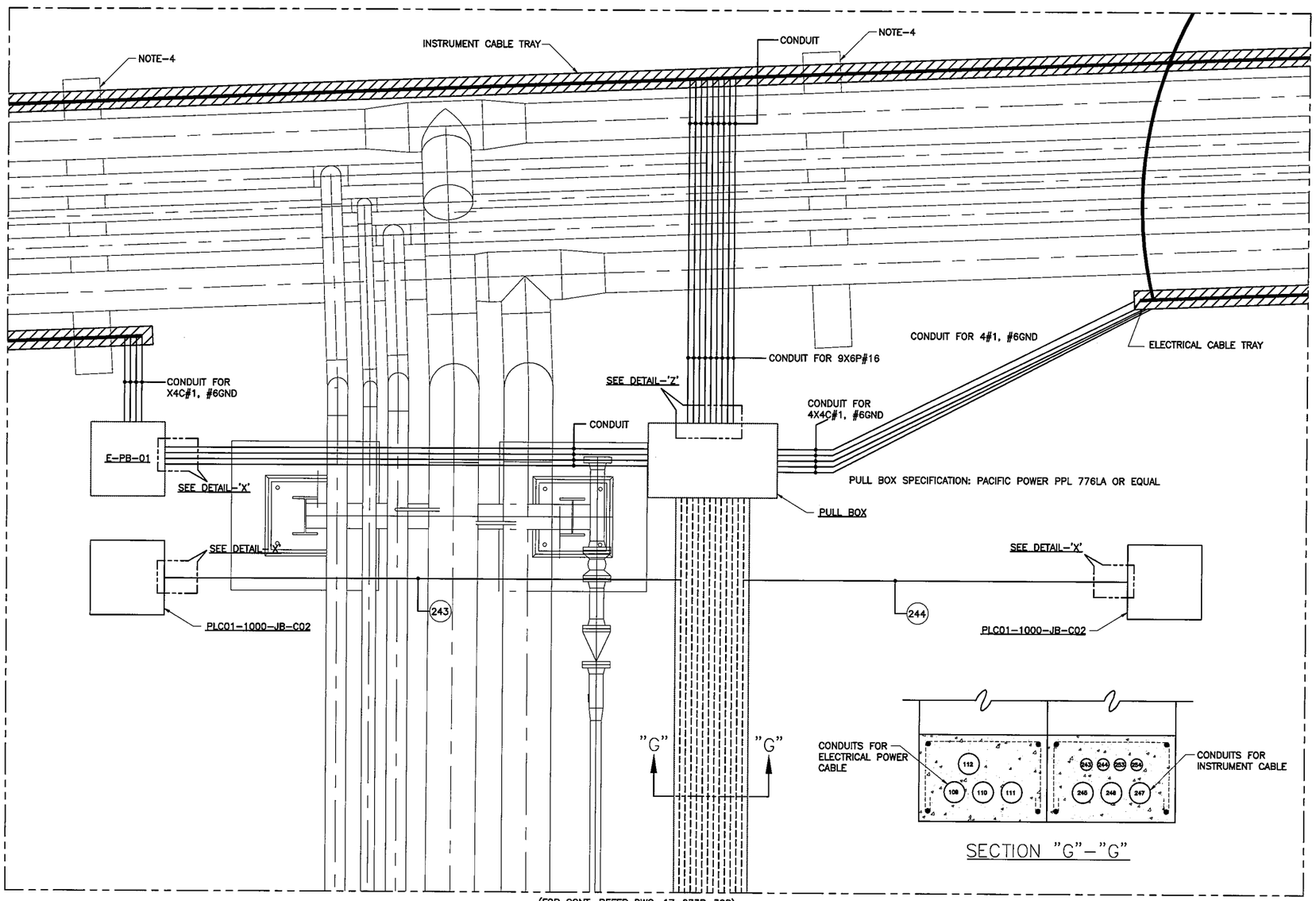
PORT CORPUSCHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3
ELECTRICAL & INSTRUMENTATION

SCALE: NTS	ELECTRICAL CONDUIT / CABLE SCHEDULE	DATE: 09/06/17
DWN. BY: VS		DWG. NO. 17-033B-304

JOB NO. 17POC0139



SECTION "G"-"G"

(FOR CONT. REFER DWG. 17-033B-308)

CONDUIT LOCATION PLAN

SCALE : NTS

NOTES :

1. SEE DWG. 17-033B-311 FOR CONDUIT DETAILS.
2. CONTRACTOR TO MAINTAIN 2" GAP BETWEEN ELECTRICAL & INSTRUMENT CABLE CONDUITS.
3. APPROXIMATE WIDTH TRENCH IS CONSIDER AS 2Ft.
4. FOR ALL SLEEPER DETAILS ON CABLE TRAY ROUTING SEE CIVIL & STRUCTURAL DRAWING.
5. ALL ABOVE GROUND CONDUIT SHALL BE GALVANISED CONDUIT & BELOW GROUND PVC.

STATE OF TEXAS
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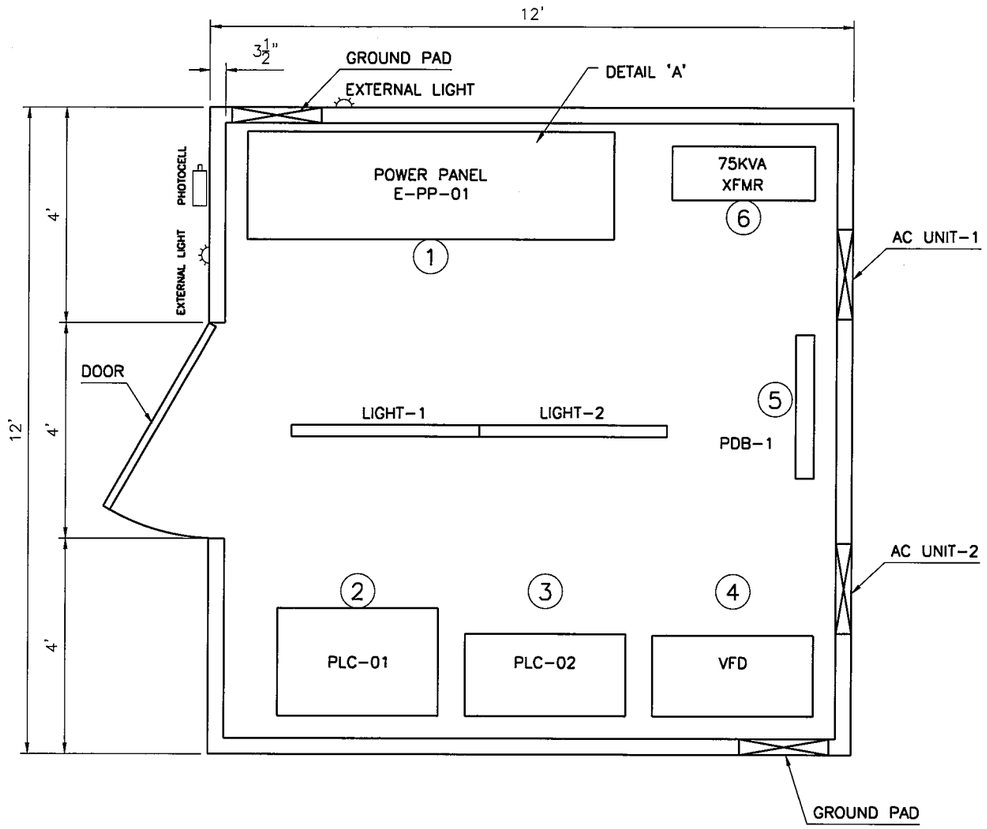
PORT OF CORPUS CHRISTI AUTHORITY

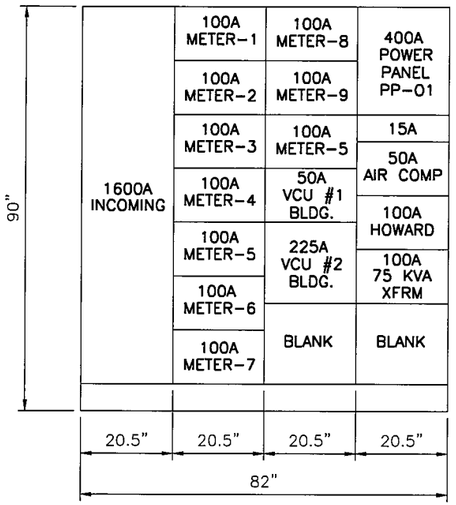
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL AND INSTRUMENTATION

SCALE: NTS	CONDUIT LOCATION PLAN	DATE: 09/06/17
DWN. BY: SP		DWG. NO. 17-033B-307

JOB NO. 17POC0139



EQUIPMENT LOCATION PLAN
PLAN VIEW DETAILS



DETAIL 'A'
POWER PANEL ELEVATION

SR. NO	PANEL DESCRIPTION	DIMENSION (NOTE-4)	MOUNTING TYPE
1	POWER PANEL : E-PP-01	90"(H)x82"(W)x24"(D)	FLOOR MOUNTED
2	PLC PANEL : PLC-01	90"(H)x36"(W)x24"(D)	FLOOR MOUNTED
3	PLC PANEL : PLC-02 (VCU#1)	90"(H)x36"(W)x24"(D)	FLOOR MOUNTED
4	VFD (VCU#1)	90"(H)x36"(W)x24"(D)	FLOOR MOUNTED
5	POWER DISTRIBUTION BOARD : PDB-01	50"(H)x64"(W)x8"(D)	WALL MOUNTED
6	75KVA TRANSFORMER	24"(H)x32"(W)x12"(D)	FLOOR MOUNTED

NOTE:-
1. ALL CABINETS DIMENSIONS ARE TO BE CONFIRMED BY SUPPLIERS.
2. ALL CABINETS ENCLOSURE ARE NEMA 12 TYPE.
3. HEIGHT OF THE BUILDING IS 10'-0". MANUFACTURED BY BABCO INDUSTRIES OR PROTECT CONTROLS

BUILDING SPECIFICATIONS

DESIGN CRITERIA REQUIREMENT:

1BC 2015, ASCE 7-10, 160 MPH WIND, EXPOSURE: "C"
IMPORTANCE FACTOR: 1.0, CATEGORY: III
FLOOR LIVE LOAD: 250 LBS PER SQUARE FOOT

BASE SPECIFICATIONS:

BASE STYLE: 12'WIDE EXTERIOR X 12' LONG EXTERIOR
MAJOR FRAME MEMBER SIZE: C12 X 20.7 CHANNEL
MINOR FRAME MEMBER SIZE: C5 X 6.7 CHANNEL
LIFTING FRAME MEMBER SIZE: C12 X 20.7 CHANNEL
FRAME MEMBER MATERIAL: CARBON STEEL
DECK PLATING: 1/4" CHECKERED PLATE CARBON STEEL
WELDING METHOD: STITCH WELDED TO FRAME, SEAM WELDED AT PLATE TO PLATE SEAMS, SKIP-STITCH WELDED TO ALL MAJOR, MINOR, AND SUB FRAME MEMBERS
FLOOR INSULATION: 4" POLYISOCYANURATE FOAM-(R21.2 RATING)
BASE FINISH: 2 MIL PRIMER UNDERCOAT, BLACK TRIM
DECK FINISH: 2 MIL PRIMER UNDERCOAT & GREY EPOXY NON-SKID
BASE BOTTOM FINISH: 2 MIL PRIMER UNDERCOAT WITH (20-25 MILS) MASTIC COATING
LIFTING PROVISIONS: FOUR (4) BOLT-ON REMOVABLE LIFTING LUGS

WALL & ROOF SPECIFICATIONS:

ROOF TYPE: STYLE LEG-LOW EAVE GABLE, WITH CORRUGATED FIBERGLASS COVER
WALL SIZE: 8' INTERIOR CEILING HEIGHT X 12' WIDE EXTERIOR X 12' LONG EXTERIOR
WALL MATERIAL: 16 GA. STEEL STUDS ON 24" CENTERS, WITH EXTERIOR CORRUGATED FIBERGLASS COVER AND INTERIOR FLAT FIBERGLASS SHEATHING
ROOF MATERIAL: 16 GA. STEEL ROOF JOIST ON 24" CENTERS, WITH EXTERIOR CORRUGATED FIBERGLASS COVER
WALL INSULATION: 4" STRUCTURAL POLYISOCYANURATE FOAM-(R-21.2 RATING)
ROOF INSULATION: 3" TO 5" STRUCTURAL POLYISOCYANURATE FOAM-(R-21.2 RATING)
WALL FINISH : ENCAPSULATED IN A NOMINAL 3/16" MIXTURE OF CHOPPED AND SPRAYED FIBERGLASS AND A CLASS ONE FLAME-RETARDANT RESIN.
A FINISH COAT OF WHITE GELCOAT WILL BE APPLIED TO ENSURE A SMOOTH U/V RESISTANT WEATHERPROOF FINISH.
ROOF/CEILING FINISH: COVERED WITH A NOMINAL 3/16" MIXTURE OF CHOPPED AND SPRAYED FIBERGLASS AND A CLASS ONE FLAME-RETARDANT RESIN.
A FINISH COAT OF WHITE GELCOAT WILL BE APPLIED TO ENSURE U/V RESISTANT WEATHERPROOF FINISH.
COMPLIANCE : EITHER UL 1897, UL 580, FM 4470 OR ASTME 1592

DOOR SPECIFICATIONS:

DOOR STYLE : SINGLE HUNG, OUTWARD OPENING
DOOR SIZE: 4'W X 7'H (QTY .1)
DOOR MATERIALS : FIBERGLASS
HINGE STYLE: STAINLESS STEEL-CONTINEOUS PIANO HINGE
THRESHOLD: STAINLESS STEEL STEP PLATE (QTY .1)
LOCKSET: STAINLESS STEEL SARGENT HEAVYDUTY SERIES 9U65, TWO (2) KEYS
DOOR INSULATION : 1-1/2" POLYISOCYANURATE FOAM (R-8 RATING)
COMPLIANCE: ASTM E 1886 AND ASTME 1996 REQUIREMENTS OF LARGE MISSILE TEST.

REFERENCE DRAWINGS :

1. DWG. 17-033B-302 ELECTRICAL ONE LINE DIAGRAM
2. DWG. 17-033B-03 PLOT PLAN
3. DWG. 17-033B-316 POWER DISTRIBUTION BOARD DB-01 SCHEDULE
4. DWG. 17-033B-321/325 GROUNDING LAYOUT

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PCCA PROJ. 17-033B

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NO.	DATE	REVISION
A	9/14/17	REVISED

PORT CORPUSCHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

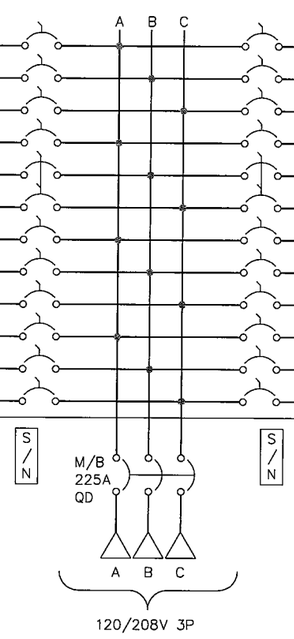
SCALE: NTS	POWER BUILDING LAYOUT	DATE: 09/06/17
DWN. BY: VS		DWG. NO. 17-033B-314

JOB NO. 17P0C0139

PANEL : "PDB-01"	VOLTAGE : ☒ 120/208V.,3 PHASE,4 WIRE ☐ 277/480V.,3 PHASE,4 WIRE ☐ 208V.,3 PHASE,3 WIRE ☐ 480V.,3 PHASE,3 WIRE	
MOUNTING : ☐ FLUSH ☒ SURFACE	MAINS : ☐ LUGS ONLY ☒ MAIN BREAKER : 225 AMPS	BUS RATING : ☐ TOP ☒ BOTTOM / NEUTRAL : ☐ 50% ☒ 100%
COVER : ☒ DOOR WITH LOCK ☐ DOOR WITHOUT LOCK	U/L LISTED BREAKER INTERRUPTING CAPACITY : 22KA SYMS.SCCR.	

LOCATION	LOAD	AMP	NO.
BUILDING LIGHT-1		15/1	1
BUILDING LIGHT-2		15/1	3
PLC PANEL PLC-01		20/1	5
BUILDING EXTERIOR LIGHT		15/1	7
BUILDING AC-1		50/2	9
			11
LIGHTS @ METER SKID LFL-01 THRU LFL-03	1044	20/1	13
LIGHTS @ METER SKID LFL-04 THRU LFL-06	1044	20/1	15
LIGHTS @ VCU & SLOP TK LFL-10 &U LFL-11	696	20/1	17
NON-EQUIPPED SPARE			19
NON-EQUIPPED SPARE			21
NON-EQUIPPED SPARE			23

NO.	AMP	LOAD	LOCATION
2	15/1		BUILDING RECEPTACLES-1
4	15/1		BUILDING RECEPTACLES-2
6	15/1		PLC-02 VCU#1
8	50/1		FIELD LED FLOOD LIGHTS
10	50/2		BUILDING AC-2
12			
14	20/1		PLC-02 VCU#1
16	20/1	1044	LIGHTS @ METER SKID LFL-07 THRU LFL-09
18			NON EQUIPPED SPARE
20			NON EQUIPPED SPARE
22			NON EQUIPPED SPARE
24			NON EQUIPPED SPARE



INCOMING CONDUCTORS : 1-4/C #300, #4 GND.

120/208 VOLT. 3 PHASE, 4 WIRE,
225 AMP/3 POLE MAIN BREAKER, BOTTOM FEED,
NEMA 1 SURFACE MOUNT ENCLOSURE,
SEPARATE GROUND AND NEUTRAL BUSSES

POWER BUILDING
POWER DISTRIBUTION BOARD-01

NOTES :

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE (NEC).
2. CONTRACTOR SHALL EQUALLY DISTRIBUTE ANY ADDITIONAL LOADS ON ALL THREE PHASES.

REFERENCE DRAWINGS :

1. DWG. 17-033B-302 ELECTRICAL ONE LINE DIAGRAM
2. DWG. 17-033B-331 INSTRUMENT BLOCK DIAGRAM
3. DWG. 17-033B-319 LIGHTING PLAN

PCCA PROJ. 17-033B

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NO.	DATE	REVISION
A	9/14/17	REVISED

PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

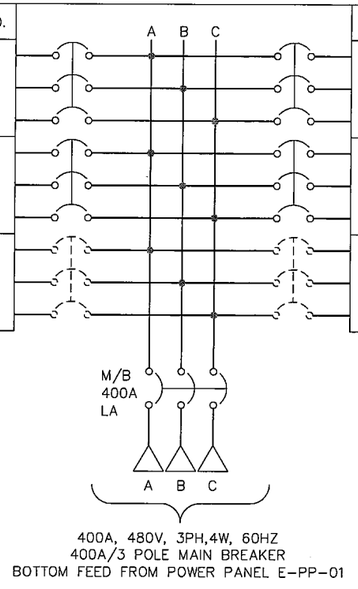
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	POWER DISTRIBUTION BOARD DB-01 SCHEDULE	DATE: 08/23/17
DWN. BY: VS		DWG. NO. 17-033B-316

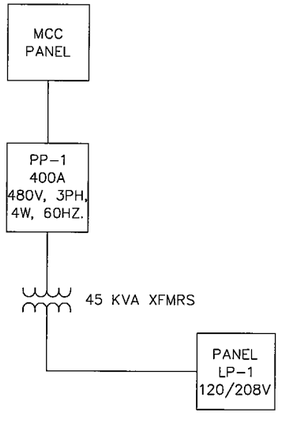
JOB NO. 17POC0139

PANEL : "PP-01"	VOLTAGE : ☐ 120/208V.,3 PHASE,4 WIRE ☐ 277/480V.,3 PHASE,4 WIRE ☐ 208V.,3 PHASE,3 WIRE ☒ 480V.,3 PHASE,3 WIRE		
MOUNTING : ☐ FLUSH ☒ SURFACE	MAINS : ☐ LUGS ONLY ☒ MAIN BREAKER : 400 AMPS	BUS RATING : ☐ TOP ☒ BOTTOM	NEUTRAL : ☐ 50% ☒ 100%
COVER : ☒ DOOR WITH LOCK ☐ DOOR WITHOUT LOCK	U/L LISTED BREAKER INTERRUPTING CAPACITY : 22KA SYMS.SCCR.		
CONNECTED LOAD TOTAL : 130680 VA			

LOCATION	LOAD	AMP	NO.	NO.	AMP	LOAD	LOCATION
PEDESTAL CRANE	69940	150/3	1	2	50/3	15740	PACKAGE-ROTARY SCREW COMPRESSOR, REFRIGERATION & COMPRESSED AIR DRYER
XFMR FOR PANEL "LP-01"	45000	110/3	3	4	150/3		EQUIPPED SPARE
NON-EQUIPPED SPARE			5	6			NON-EQUIPPED SPARE



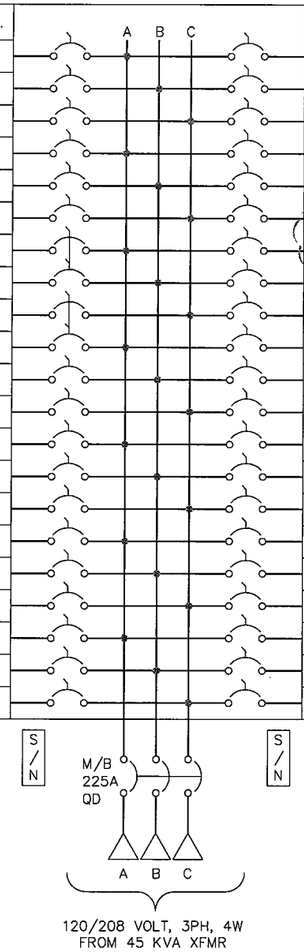
400A, 480V, 3PH,4W, 60HZ
400A/3 POLE MAIN BREAKER
BOTTOM FEED FROM POWER PANEL E-PP-01



POWER PANEL BLOCK DIAGRAM

PANEL : "LP-01"	VOLTAGE : ☒ 120/208V.,3 PHASE,4 WIRE ☐ 277/480V.,3 PHASE,4 WIRE ☐ 208V.,3 PHASE,3 WIRE ☐ 480V.,3 PHASE,3 WIRE		
MOUNTING : ☐ FLUSH ☒ SURFACE	MAINS : ☐ LUGS ONLY ☒ MAIN BREAKER : 225 AMPS	BUS RATING : ☐ TOP ☒ BOTTOM	NEUTRAL : ☐ 50% ☒ 100%
COVER : ☒ DOOR WITH LOCK ☐ DOOR WITHOUT LOCK	ALL BRANCH BREAKERS 20 AMP. 1 POLE UNLESS NOTED OTHERWISE U/L LISTED BREAKER INTERRUPTING CAPACITY : 22KA SYMS.SCCR.		
CONNECTED LOAD : PHASE A: 2240 VA/PHASE B: 2462 VA/PHASE C: 2880 VA. TOTAL : 7582 VA			

LOCATION	LOAD	AMP	NO.	NO.	AMP	LOAD	LOCATION
LIGHTS-ON LAND	311	20	1	2	20	415	LIGHTS-DSU & N.E. HOSE TOWER
LIGHTS-HOSE TOWER	907	20	3	4	20	415	LIGHTS-W. END OF BARGE & DSU
DOCK SAFETY UNIT (DSU)	2880	30	5	6	20	415	LIGHTS-EAST OF BARGE
LIGHTS-HOSE TOWER	974	20	7	8	20	540	RECEPTACLES-LAND, BRIDGE & DSU
PLC	600	20	9	10	20	540	RECEPTACLES-HOSE TOWER
EQUIPPED SPARE		20	11	12	20	348	LIGHTS LFL-12 & LFL-13
RECTIFIER-EAST BARGE		30	13	14	20	348	LIGHTS LFL-14 & LFL-15
			15	16			NON-EQUIPPED SPARE
RECTIFIER-WEST BARGE		30	17	18			NON-EQUIPPED SPARE
			19	20			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			21	22			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			23	24			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			25	26			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			27	28			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			29	30			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			31	32			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			33	34			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			35	36			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			37	38			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			39	40			NON-EQUIPPED SPARE
NON-EQUIPPED SPARE			41	42			NON-EQUIPPED SPARE



120/208 VOLT, 3PH, 4W
FROM 45 KVA XFMR

INCOMING CONDUCTORS : 1-4/C #300, #4 GND.

REFERENCE DRAWINGS :

1. DWG. 17-033B-302 ELECTRICAL ONE LINE DIAGRAM
2. DWG. 17-033B-319 LIGHTING PLAN
3. DWG. 17-033B-315 RISER DIAGRAM BARGE POWER PANEL

NOTES :

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE (NEC).
2. ALL ELECTRICAL ENCLOSURES ARE RECOMMENDED TO BE NEMA 7.
3. THE LOAD ON THE MAIN POWER PANEL "PP-01" SHALL NOT EXCEED THE XFMR SECONDARY FLA LIMIT OF 180A. THE 400A MAIN BREAKER TRIP SETTING SHALL BE ADJUSTED & POWER PANEL, "PP-01" LABELED CLEARLY NOT TO EXCEED THIS LIMIT.
4. CONTRACTOR SHALL EQUALLY DISTRIBUTE ANY ADDITIONAL LOADS ON ALL THREE PHASES.

PCCA PROJ. 17-033B

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09/06/17

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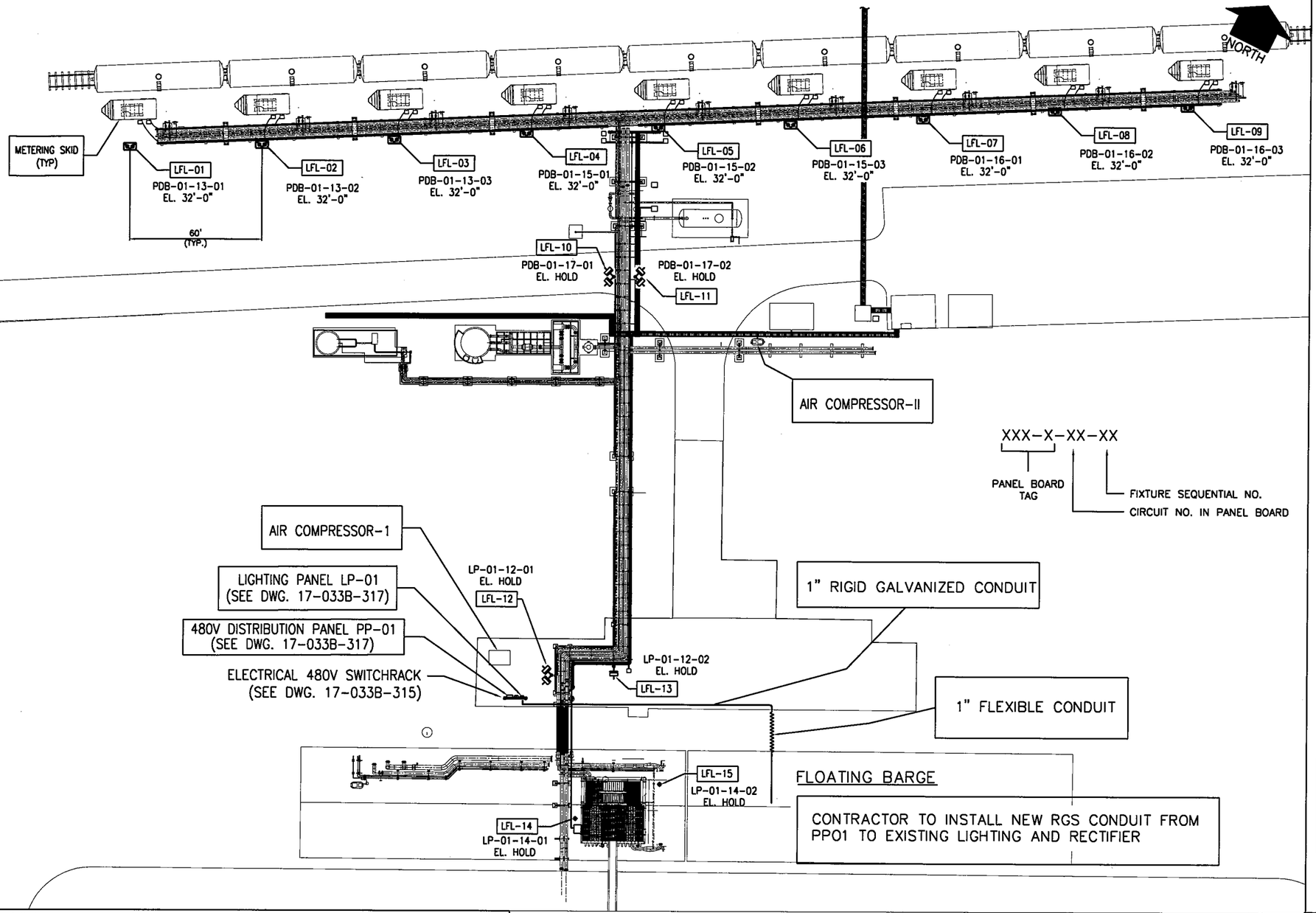
PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

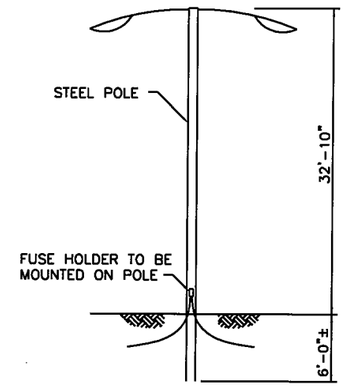
SCALE: AS NOTED	BARGE POWER PANEL SCHEDULE PP-01	DATE: 09/06/17
DWN. BY: VS		DWG. NO. 17-033B-317

JOB NO. 17P0C0139



NOTES:-
1. ALL LIGHT POLE ARE STEEL POLE.
2. ALL LIGHTS SHALL BE SUITABLE FOR CLASS-1, DIV.-2

REFERENCES:-
1. DWG. 17-033B-03 PLOT PLAN
2. DWG. 17-033B-303 ELECTRICAL EQUIPMENT LOCATION PLAN



TYPICAL LIGHT POLE LAYOUT

APPLETON AMLHL1CG6BU AREAMASTER FLOOD LIGHT 174W/23,500 LUMEN LEVEL LED 120V.
APPLETON GPB2 BULL HORN
APPLETON GFS20 SLIP FITTER
APPLETON GPRTH39GAL 39' ROUND TAPERED STEEL POLE-GALVANIZED (APPLETON ONLY OFFERS STEEL POLES)

BILL OF MATERIALS :-

LEGEND	DESCRIPTION	INSTALLATION TYPE	QTY.
	2x174W LED FLOOD LIGHTS (LFL) MOUNTED ON 32'-10" POLE (LFL-01 THRU 09)	POLE MOUNTED	9 NOS.
	32'-10" HEIGHT FLOOD LIGHT POLE (STEEL)		9 NOS.
	3CX6 AWG PVC INSULATED CU ARMOURED CABLE		1400 Ft.
	10 AWG PVC INSULATED COPPER WIRE		200 Ft.
	2x174W LED FLOOD LIGHTS (LFL) WALL MOUNTED (LFL-10 THRU 12)	WALL MOUNTED	2 NOS.
	1x174W LED FLOOD LIGHT (LFL) WALL MOUNTED (LFL-13)	WALL MOUNTED	1 NOS.

LUMINARIE SCHEDULE

SYMBOL	LABEL	QTY.	CATALOG NUMBER	DESCRIPTION	LAMP	LUMENS	LLF	WATTS
	P	2	AMLHL1CG6BU	AREAMASTER GENERATION 2 HL LED LUMINAIRE, CLASS 1, DIVISION 2, GROUPS A,B,C,D. 174A/23,500 LUMEN LEVEL LED, 120V (LFL-14 & LFL-15)	98 LEDs; 5000K CCT	23500	0.88	174

A — LIGHTING PLAN

PCCA PROJ. 17-033B

STATE OF TEXAS
BHASKAR H. PATEL
63585
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PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION
A	9/14/17	REVISED

PORT CORPUS CHRISTI

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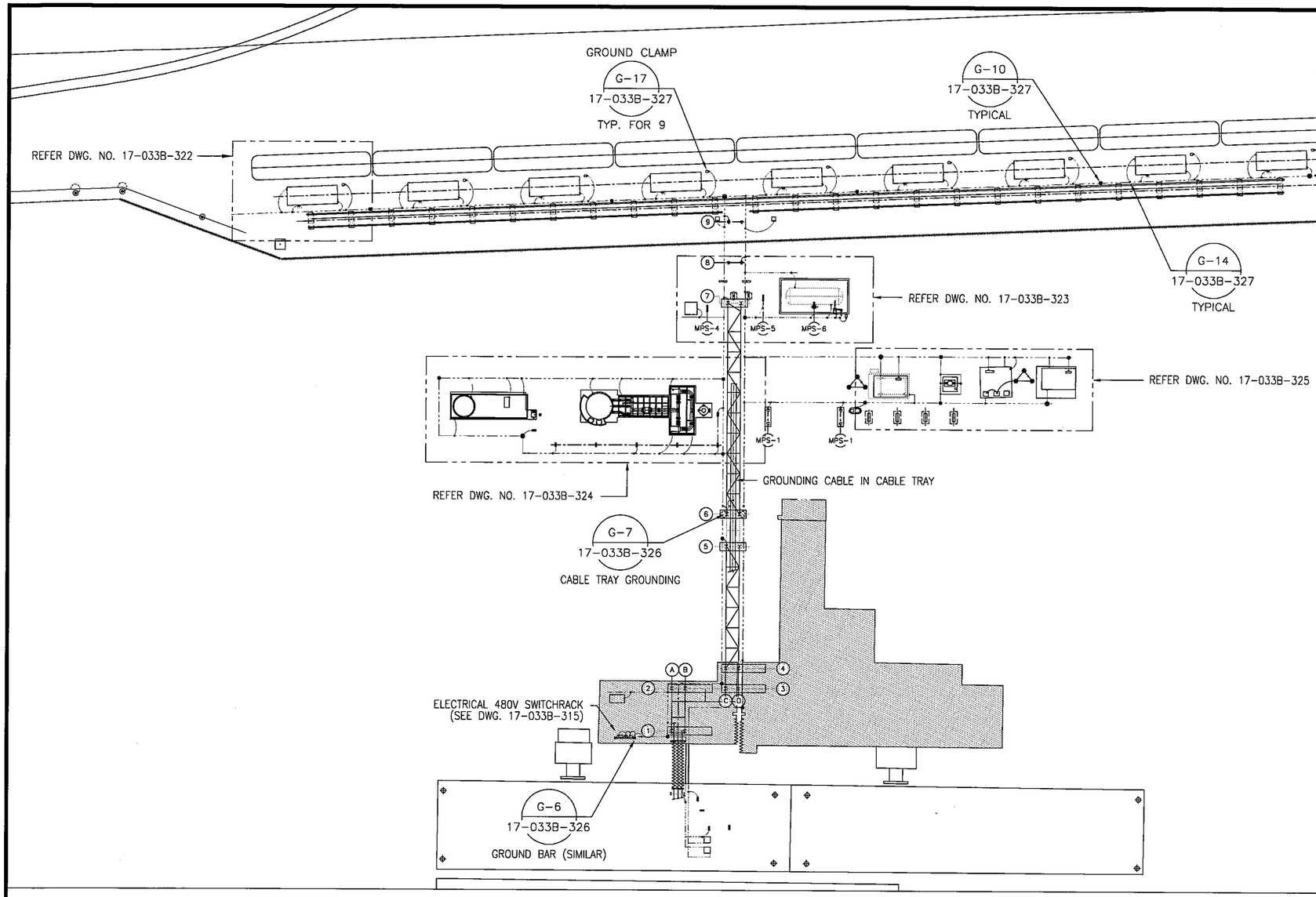
TBPE FIRM No.: F-10101

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	LIGHTING PLAN	DATE: 09/06/17
DWN. BY: SH		DWG. NO. 17-033B-319

JOB NO. 17POC0139



D GROUNDING LAYOUT

SCALE: 3"=1'-0"

TABLE 1.1

SR. NO.	LEGEND	DESCRIPTION
1	———	G. I. STRIP 75x6 mm. GROUND CONDUCTOR/STRIP
2	———	2/0 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING (REFER TABLE 1.2)
3	———	2 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING
4	⊙	GROUNDING ROD
5	⊢	CAD WELDED –T CONNECTION
6	▶—	EQUIPMENT GROUNDING BOLTED CONNECTION
7	◗—	ECR BUILDING GROUNDING CONNECTION
8	■—	BUILDING EQUIPMENT GROUNDING CLAMP CONNECTION

TABLE 1.2

SR. NO.	WIRE SIZE	EQUIPMENT
1	#2 AWG	MOTOR, TANKS, VCU SKIDS
2	#4 AWG	JB, PB, INSTRUMENTS
3	2/0 AWG	TRANSFORMER
4	4/0 AWG	CONTROL BUILDINGS

NOTES:

1. THE GROUNDING CABLE/STRIP ROUTING SHOWN HERE IS INDICATIVE ONLY. EXACT ROUTE SHALL BE DECIDED AT SITE ON PHYSICAL VERIFICATION FOR OTHER INSTALLED FACILITIES BEFORE INSTALLATION. IF REQUIRED GROUNDING CABLE/STRIP SHALL BE MODIFIED TO SUIT SITE CONDITION.
2. GROUNDING ELECTRODES LOCATIONS ARE INDICATIVE ONLY. EXACT LOCATION SHALL BE DEFINED AT SITE FOR EASE OF INSTALLATION WITHOUT INTERFERENCE. FURTHER GROUNDING CONNECTION FROM GROUNDING ROD TO EACH EUIPMENT / MOTOR TO BE COMPLETED BY CONTRACTOR AS PER SITE CONDITIONS.
3. ALL PIPE FLANGES, PIPE BENDING & PIPE GROUNDING SHALL BE DONE AS PER INSTALLATION STANDARD.
4. LIGHTING & SMALL POWER RECEPTACLE CIRCUIT SHALL BE WIRED IN 3-CORE CABLE, THE THIRD CORE SHALL BE THE GROUNDING CONDUCTOR.
5. ALL GROUNDING STRIPS INSTALLED BELOW GRADE SHALL BE BURIED MINIMUM OF 2 FEET.
6. ELEVATIONS OF EARTH BUS BARS SHALL BE DECIDED BY ELECTRICAL CONTRACTOR AS PER SITE CONDITION.
7. THE NEW STRUCTURE (PIPE RACK, RACK ETC.) GROUNDING SHALL BE PROVIDED AT EVERY 100 FEET INTERVAL.
8. THE EXCAVATION, BACKFILLING, LEVELLING ETC. FOR EARTH WORK (INCLUDING EARTH PIT WORK) SHALL BE CARRIED OUT BY ELECTRICAL CONTRACTOR.
9. THE REQUIRED NOS OF GROUNDING CABLE CU LUGS SHALL BE SUPPLIED BY ELECTRICAL SUB-CONTRACTOR.

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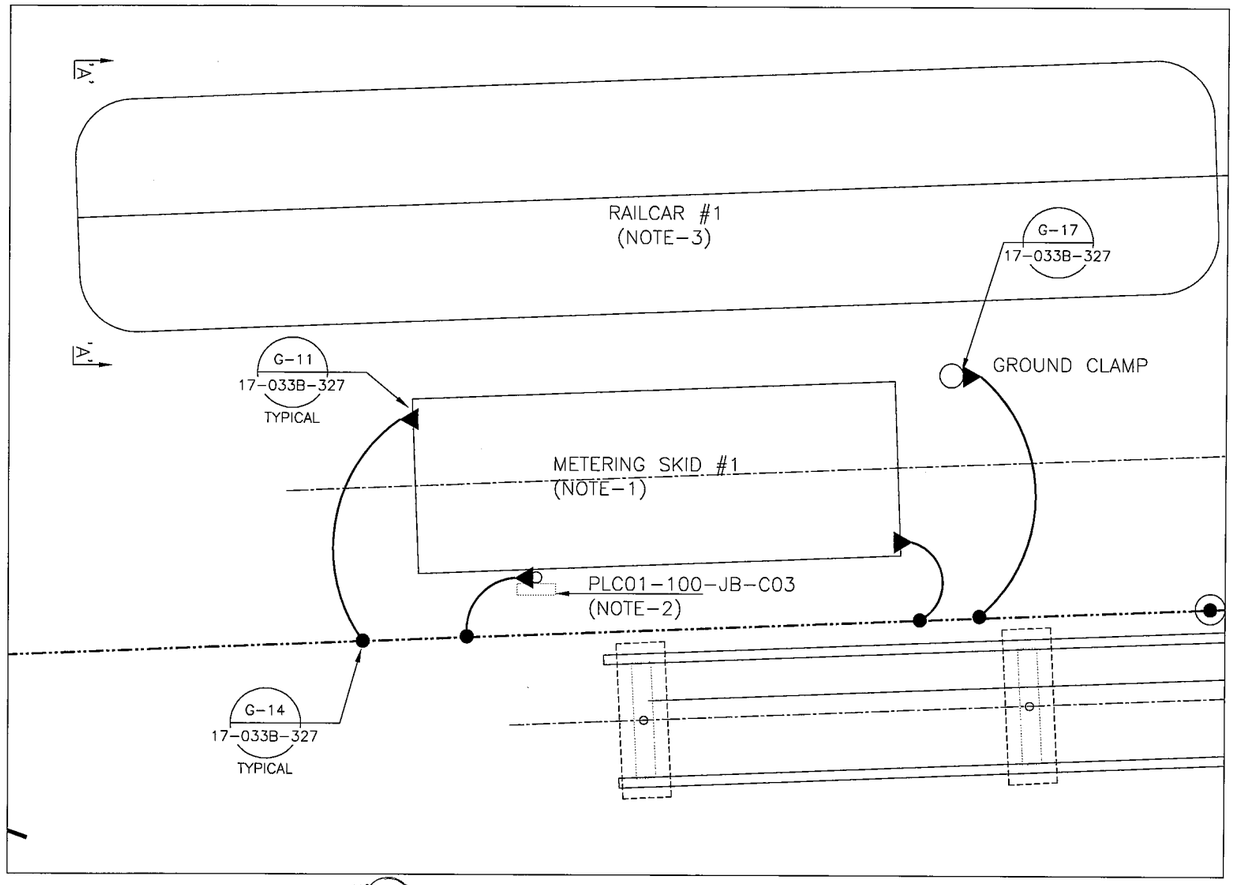
PORT OF CORPUS CHRISTI AUTHORITY

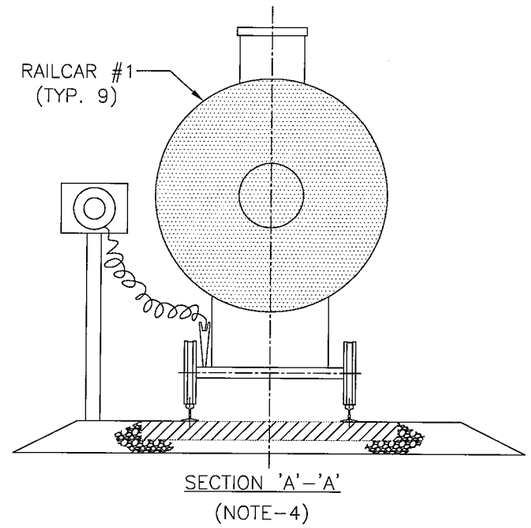
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	GROUNDING LAYOUT-1	DATE: 09/06/17
DWN. BY: SH		DWG. NO. 17-033B-321

JOB NO. 17POC0139



A GROUNDING PLAN FOR METERING SKID & JUNCTION BOX
SCALE: 3"=1'-0"



SECTION 'A'-'A'
(NOTE-4)

1. CONTRACTOR TO MEET REQUIREMENTS OF NFPA 77, API RP 2003 AND CENELEC CLC/TR; 50404 RECOMMENDED BEST PRACTICE ON CONTROLLING STATIC ELECTRICITY IN HAZARDOUS AREAS.
2. EXPLOSION-PROOF (XP/ExD) CONTROLLER WITH IN-TRINSICALLY SAFE MONITORING MODULE.
3. UNIVERSAL GROUNDING CLAMP WITH 10M (32ft) OF 2 CONDUCTOR HYTREL PROTECTED CABLE.
4. GROUND CONNECTION JUNCTION BOX WITH STOWAGE PIN FOR UNIVERSAL GROUNDING CALMP.

TABLE 1.1

SR. NO.	LEGEND	DESCRIPTION
1	———	G. I. STRIP 75x6 mm. GROUND CONDUCTOR/STRIP
2	———	2/0 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING (REFER TABLE 1.2)
3	———	2 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING
4	⊙	GROUNDING ROD
5	——•——	CAD WELDED -T CONNECTION
6	——▶——	EQUIPMENT GROUNDING BOLTED CONNECTION
7	——◗——	ECR BUILDING GROUNDING CONNECTION
8	——■——	BUILDING EQUIPMENT GROUNDING CLAMP CONNECTION

TABLE 1.2

SR. NO.	WIRE SIZE	EQUIPMENT
1	#2 AWG	MOTOR, TANKS, VCU SKIDS
2	#4 AWG	JB, PB, INSTRUMENTS
3	2/0 AWG	TRANSFORMER
4	4/0 AWG	CONTROL BUILDINGS

NOTES:-
1. TYPICAL FOR ALL METERING SKID.
2. TYPICAL FOR ALL JUNCTION BOXES.
3. TYPICAL FOR ALL RAILCARS.
4. CLAMP TYPE GROUND CONNECTION FOR ALL RAILCARS.

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09/06/17

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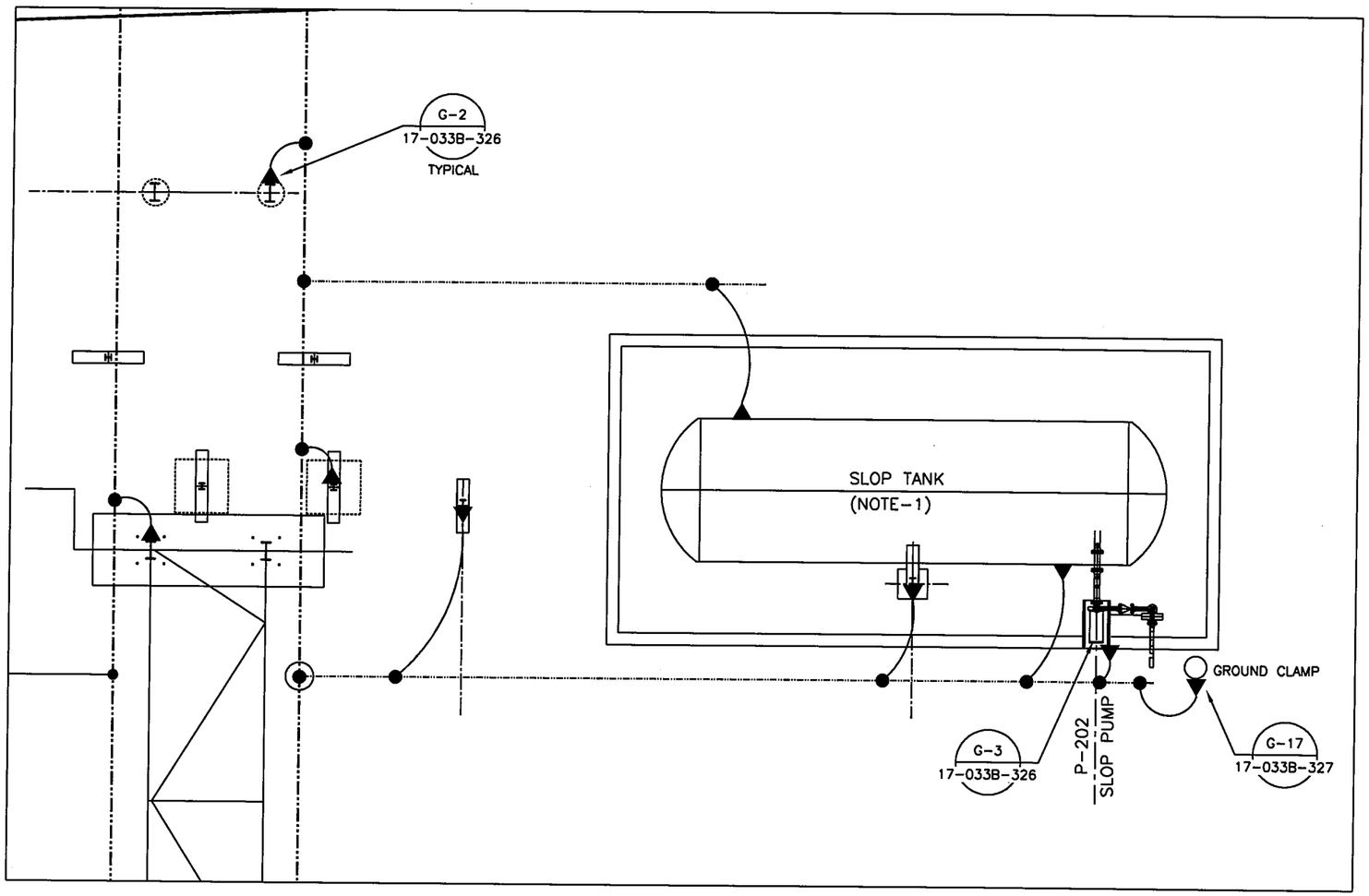
PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	GROUNDING LAYOUT-2	DATE: 09/06/2017
DWN. BY: SH		DWG. NO. 17-033B-322

JOB NO. 17POC0139



B GROUNDING PLAN FOR SLOP TANK
SCALE: 3"=1'-0"

TABLE 1.1

SR. NO.	LEGEND	DESCRIPTION
1		G. I. STRIP 75x6 mm. GROUND CONDUCTOR/STRIP
2		2/0 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING (REFER TABLE 1.2)
3		2 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING
4		GROUNDING ROD
5		CAD WELDED -T CONNECTION
6		EQUIPMENT GROUNDING BOLTED CONNECTION
7		ECR BUILDING GROUNDING CONNECTION
8		BUILDING EQUIPMENT GROUNDING CLAMP CONNECTION

TABLE 1.2

SR. NO.	WIRE SIZE	EQUIPMENT
1	#2 AWG	MOTOR, TANKS, VCU SKIDS
2	#4 AWG	JB, PB, INSTRUMENTS
3	2/0 AWG	TRANSFORMER
4	4/0 AWG	CONTROL BUILDINGS

NOTE:-
1. TYPICAL FOR KO DRUM.

PCCA PROJ. 17-033B

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09/06/17

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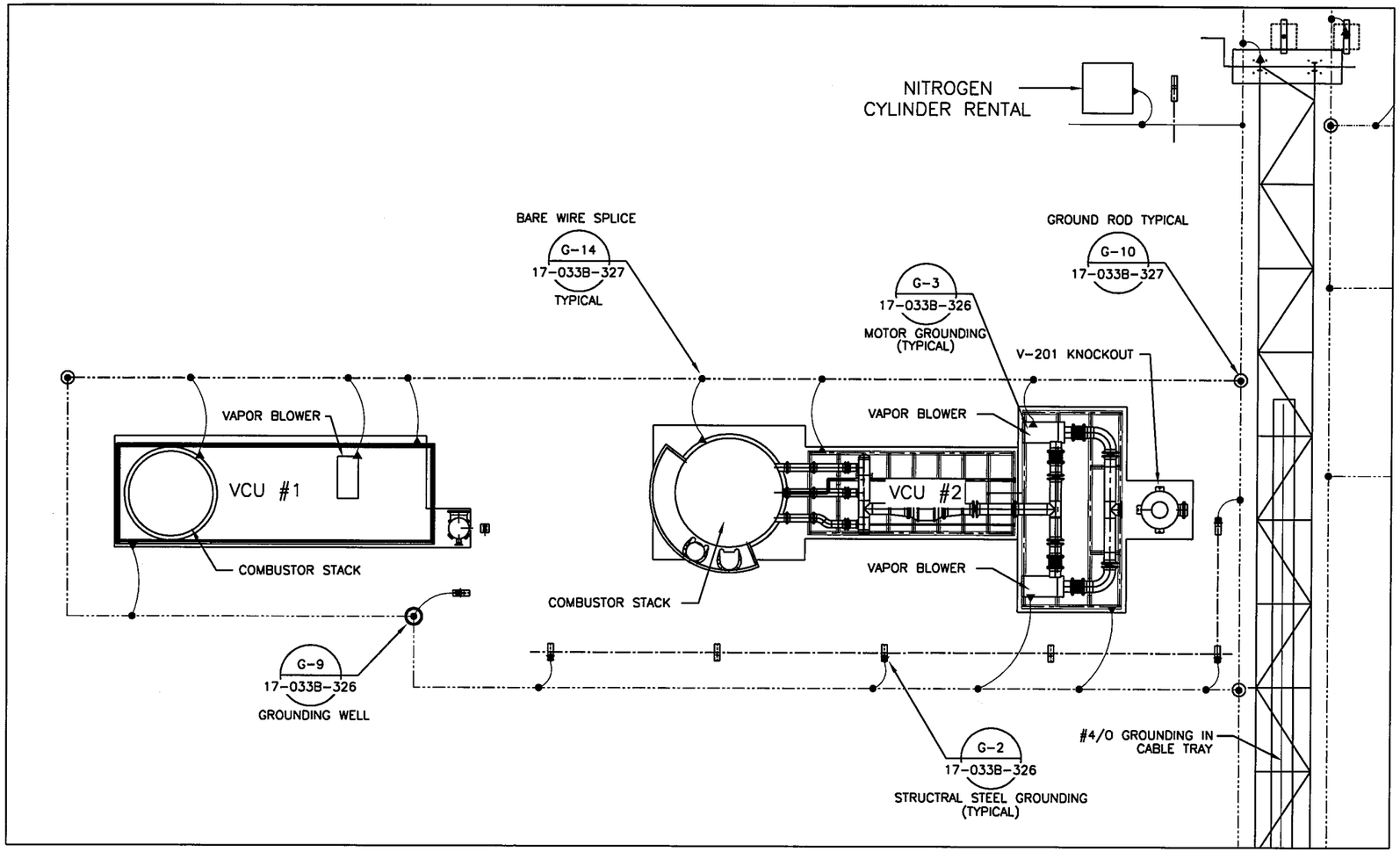
PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	GROUNDING LAYOUT-3	DATE: 09/06/17
DWN. BY: SH		DWG. NO. 17-033B-323

JOB NO. 17POC0139



C — GROUNDING PLAN FOR VCU UNIT #1 & #2, & NITROGEN SKID

SCALE: NONE

TABLE 1.1

SR. NO.	LEGEND	DESCRIPTION
1	———	G. I. STRIP 75x6 mm. EARTH CONDUCTOR/STRIP
2	———	2/0 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING (REFER TABLE 1.2)
3	———	2 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING
4	◉	GROUNDING ROD
5	⊢	CAD WELDED -T CONNECTION
6	▶—	EQUIPMENT GROUNDING BOLTED CONNECTION
7	▶—	ECR BUILDING GROUNDING CONNECTION
8	■—	BUILDING EQUIPMENT GROUNDING CLAMP CONNECTION

TABLE 1.2

SR. NO.	WIRE SIZE	EQUIPMENT
1	#2 AWG	MOTOR, TANKS, VCU SKIDS
2	#4 AWG	JB, PB, INSTRUMENTS
3	2/0 AWG	TRANSFORMER
4	4/0 AWG	CONTROL BUILDINGS

30 20 10 0 30
GRAPHIC SCALE IN FEET

PCCA PROJ. 17-033B

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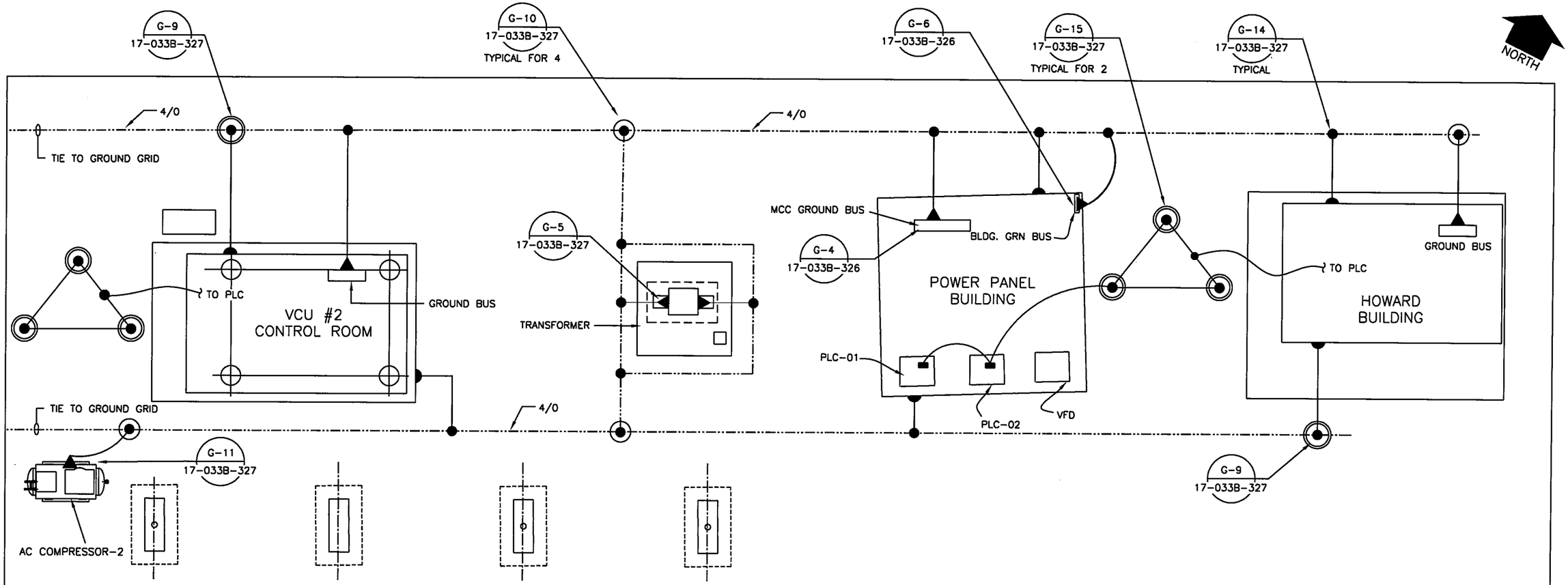
PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: NTS	GROUNDING LAYOUT-4	DATE: 09/06/17
DWN. BY: SH		DWG. NO. 17-033B-324

JOB NO. 17POC0139



D GROUNDING PLAN FOR POWER PANEL BUILDING / VCU #2 CONTROL ROOM/ HOWARD BUILDING/AC COMPRESSOR-2

SCALE: 3"=1'-0"

TABLE 1.1

SR. NO.	LEGEND	DESCRIPTION
1	———	G. I. STRIP 75x6 mm. EARTH CONDUCTOR/STRIP
2	——·——·——	2/0 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING (REFER TABLE 1.2)
3	———	2 AWG CU CONDUCTOR GREEN PVC CABLE FOR GROUNDING
4	◉	GROUNDING ROD
5	⊕	CAD WELDED -T CONNECTION
6	▶—	EQUIPMENT GROUNDING BOLTED CONNECTION
7	▶—	ECR BUILDING GROUNDING CONNECTION
8	■—	BUILDING EQUIPMENT GROUNDING CLAMP CONNECTION
9	◉	TEST GROUND WELL

TABLE 1.2

SR. NO.	WIRE SIZE	EQUIPMENT
1	#2 AWG	MOTOR, TANKS, VCU SKIDS
2	#4 AWG	JB, PB, INSTRUMENTS
3	2/0 AWG	TRANSFORMER
4	4/0 AWG	CONTROL BUILDINGS

NOTE:
1. CONNECTED TO GROUNDING STUD OUTSIDE BUILDING/BUILDING FOUNDATION.

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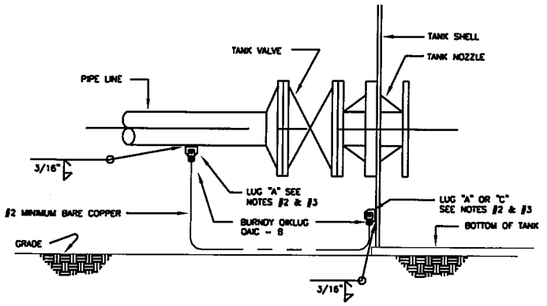
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	GROUNDING LAYOUT-5	DATE: 09/06/17
DWN. BY: SH		DWG. NO. 17-033B-325

JOB NO. 17POC0139

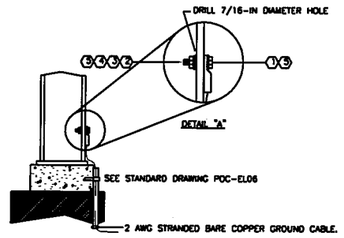


NOTES

1. ALL CONNECTIONS TO BE CLEANED AND BOLTED.
2. ALL BOLTED ELECTRICAL CONNECTIONS TO BE MADE WITH 1/4" HEX. HD. "EVERDUR" BOLTS 1 1/2" LONG WITH NUT AND LOCKWASHER.

G-1
STORAGE TANK AND PIPING GROUNDING

BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	BURNDY TYPE YAZ ONE HOLE OR APPROVED EQUAL COMPRESSION TERMINAL
2	1	EA	STAINLESS STEEL 3/8-IN - 16 HEX NUT
3	1	EA	STAINLESS STEEL 3/8-IN - 16 HEX BOLT
4	1	EA	STAINLESS STEEL LOCK WASHER FOR USE WITH ITEMS 2, 3 & 5
5	2	EA	STAINLESS STEEL FLAT WASHER FOR USE WITH ITEMS 2, 3 & 4



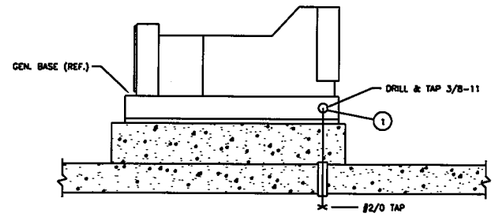
STRUCTURAL STEEL GROUNDING INSTALLATION
(FOR PIPE RACK, PROCESS STRUCTURE, BUILDING, AND OTHER STEEL COLUMNS)

GENERAL GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS OF COPPER-TO-COPPER AND COPPER-TO-STEEL SHALL BE CLEANED AND BOLTED. ALL UNDERGROUND CONNECTIONS TO BE MADE USING COMPRESSION CONNECTORS.
2. ALL CONNECTIONS SHALL BE TORQUED TO THE MANUFACTURER'S RECOMMENDED TORQUE LEVEL.
3. ANY PAINT OR OTHER NON CONDUCTIVE COATING MUST BE REMOVED AT THE POINT OF CONTACT OR A FASTENER WHICH WILL PENETRATE THE COATING MUST BE USED.
4. ANY PAINT OR OTHER NON CONDUCTIVE COATING REMOVED SHALL BE REPLACED AFTER GROUND CONNECTIONS HAVE BEEN MADE.

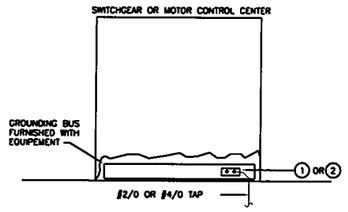
G-2
STRUCTURAL STEEL GROUNDING INSTALLATION

BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	SERVIT POST, "BURNDY" #KC-23 OR EQUAL



G-3
EQUIPMENT & MOTOR GROUNDING INSTALLATION

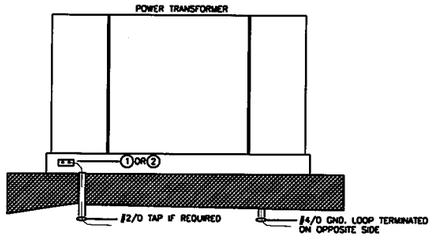
BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	CABLE LUG "BURNDY" YA26-2LN HYLUG OR EQUAL
2	1	EA	CABLE LUG "BURNDY" YA28-2LN HYLUG OR EQUAL



(SWITCHGEAR OR MOTOR CONTROL CENTER)

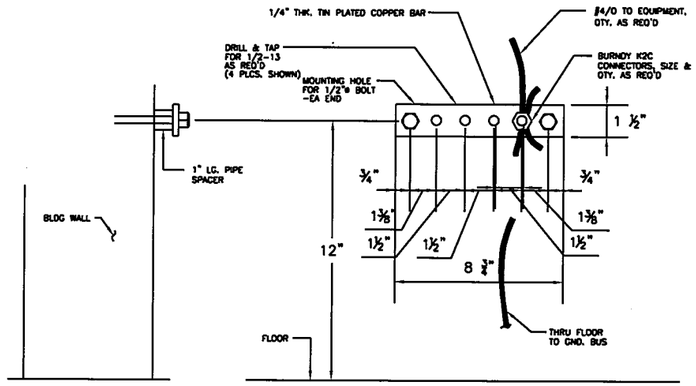
G-4
EQUIPMENT GROUNDING INSTALLATION

BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	CABLE LUG "BURNDY" YA26-2LN HYLUG OR EQUAL
2	1	EA	CABLE LUG "BURNDY" YA28-2LN HYLUG OR EQUAL

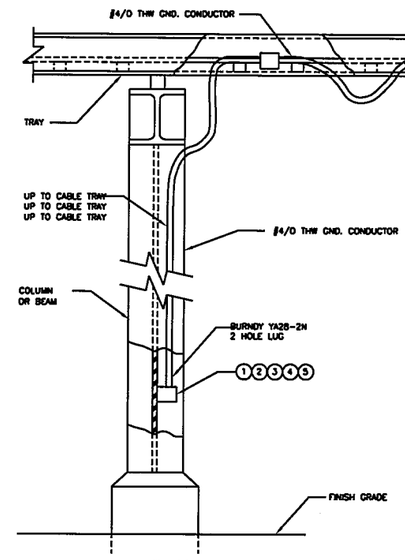


(POWER TRANSFORMER WITH #4/0 LOOP)

G-5
POWER TRANSFORMER GROUNDING INSTALLATION

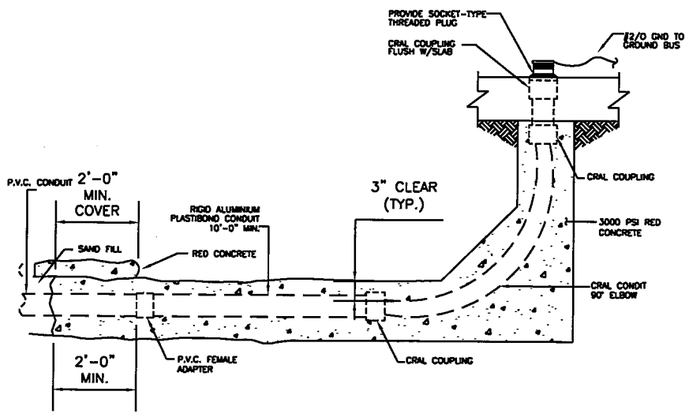


G-6
WALL MOUNTED GROUND BAR



G-7
CABLE TRAY GROUNDING

BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	CONNECTOR "BURNDY" YA26-2N YA28-2N
2	2	EA	BOLT, 1/2"- 13 x REQUIRED LENGTH SS
3	2	EA	NUT, HEX, 1/2" SS
4	4	EA	FLATWASHER 1/2" SS
5	2	EA	LOCKWASHER 1/2" SS



G-8
CONDUIT STUB UP FOUNDATION

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09/06/17

NO.	DATE	REVISION

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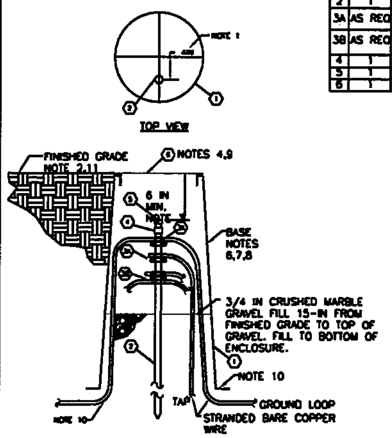
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	GROUNDING DETAILS-1	DATE: 09/06/17
DWN. BY: VS		DWG. NO. 17-033B-326

JOB NO. 17POC0139



G-9
GROUNDING WELL DETAILS

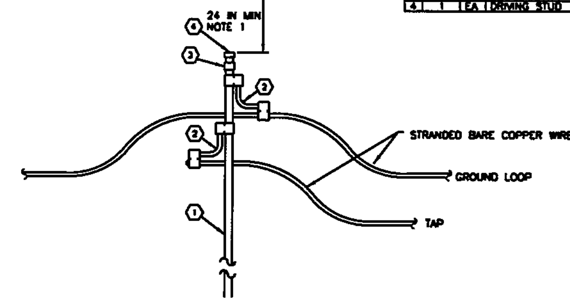
BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	PENCELL, PE-10HDH, GRADE LEVEL BURIED ENCLOSURE, 12 IN DIAMETER, VITRIFIED CLAY HUB OR 12 IN DIAMETER REINFORCED CONCRETE PIPE
2	1	EA	3/4 IN x 10 FT LONG COPPER CLAD OR COPPER-ALLOY SECTIONAL-TYPE GROUND ROD
3A	AS REQ	EA	BURNDY TYPE GAR FENCE POST GROUNDING CONNECTOR (ONE CONDUCTOR PERPENDICUALR OR PARALLEL TO GROUND ROD)
3B	AS REQ	EA	BURNDY TYPE GP GROUND CONNECTOR (TWO CONDUCTORS PERPENDICUALAR TO GROUND ROD)
4	1	EA	COUPLING
5	1	EA	DRIVING STUD
6	1	EA	REMOVABLE COVER. SEE NOTE 9

NOTES:

1. FIELD TO LOCATE GROUND ROD 4 IN OFF CENTER TO PROVIDE WORKING SPACE.
2. TOP OF GROUND WELL ELEVATION SHALL BE FLUSH WITH TOP OF FINAL GRADE.
3. THE DISTANCE FROM THE BOTTOM OF THE COVER TO THE TOP OF ROD SHALL BE 6 IN MINIMUM
4. THE GROUND WELL COVER MUST BE INSTALLED SO THAT IT IS ACCESSIBLE TO FACILITATE MAINTENANCE.
5. THE RESISTANCE TO GROUND OF EACH GROUND ROD SHALL BE 5 OHMS OR LESS BEFORE CONNECTION TO THE GRID. ADDITIONAL SECTIONS SHALL BE ADDED UNTIL 5 OHMS OR LESS IS MEASURED.
6. FOR INSTALLATION IN ROADWAYS, PARKING AREAS OR ANY VEHICULAR TRAFFIC, A 12 IN DIAMETER REINFORCED CONCRETE PIPE SHALL BE USED AS THE GROUND WELL ENCLOSURE.
7. THE BOTTOM 12 IN OF ALL VITRIFIED CLAY HUB ENCLOSURES USED SHALL BE PAINTED WITH TWO COATS OF ASPHALT PAINT FROM THE GRAVEL FILL LINE DOWN.
8. PENCELL PLASTICS BRAND MODEL PE-10HDH GRADE LEVEL BURIED CABLE ENCLOSURE; 12 IN DIAMETER; HIGH DENSITY POLYETHYLENE CONSTRUCTION; BASE FLANGE; AND REMOVABLE, HIGH DENSITY POLYETHYLENE LID WITH HEX HEAD BOLTS OR APPROVED EQUAL. OTHER ACCEPTABLE TYPES INCLUDE 12 IN DIAMETER VITRIFIED CLAY OR REINFORCED CONCRETE PIPE (SEE NOTE 6)
9. REMOVABLE COVER. REPLACEMENT PART NUMBER PE-10-PL FOR PENCELL BRAND ENCLOSURE. CAST CONCRETE FOR CLAY AND CONCRETE ENCLOSURE.
10. GROUND LOOP TO CLEAR ENCLOSURE BY MINIMUM OF 6 IN.
11. SOIL MUST BE TAMPED DOWN (COMPACTED) IN 12 INCH LAYERS AROUND THE ENCLOSURE TO STABLIZE THE ENCLOSURE AND REDUCE WATER EROSION.

GENERAL GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS OF COPPER-TO-COPPER AND COPPER-TO-STEEL SHALL BE CLEANED AND BOLTED. ALL UNDERGROUND CONNECTIONS TO BE MADE USING COMPRESSION CONNECTORS.
2. ALL CONNECTIONS SHALL BE TORQUED TO THE MANUFACTURER'S RECOMMENDED TORQUE LEVEL.
3. ANY PAINT OR OTHER NON CONDUCTIVE COATING MUST BE REMOVED AT THE POINT OF CONTACT OR A FASTENER WHICH WILL PENETRATE THE COATING MUST BE USED.
4. ANY PAINT OR OTHER NON CONDUCTIVE COATING REMOVED SHALL BE REPLACED AFTER GROUND CONNECTIONS HAVE BEEN MADE.



BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	3/4 IN x 10 FT LONG COPPER CLAD OR COPPER ALLOY SECTIONAL-TYPE GROUND ROD
2	AS REQ	EA	BURNDY TYPE YGL-C, YGLR-C, YGHP-C (NOT SHOWN) OR APPROVAL EQUAL IRREVERSIBLE COMPRESSION CONNECTOR
3	1	EA	COUPLING
4	1	EA	DRIVING STUD

NOTES:

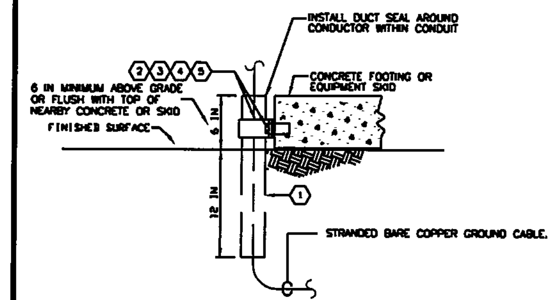
1. SEE PROJECT DRAWINGS FOR BURIAL DEPTH. GENERAL MINIMUM RECOMMENDED BURIAL DEPTH IS 24 IN.
2. THE RESISTANCE TO GROUND OF EACH GROUND ROD SHALL BE 5 OHMS OR LESS BEFORE CONNECTION TO THE GRID. ADDITIONAL SECTIONS SHALL BE ADDED UNTIL 5 OHMS OR LESS IS MEASURED.
3. SOIL MUST BE TAMPED DOWN (COMPACTED) IN 12 INCH LAYERS AROUND THE ROD TO STABILIZE THE ENCLOSURE AND REDUCE WATER EROSION.

GENERAL GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS OF COPPER-TO-COPPER AND COPPER-TO-STEEL SHALL BE CLEANED AND BOLTED. ALL UNDERGROUND CONNECTIONS TO BE MADE USING COMPRESSION CONNECTORS.
2. ALL CONNECTIONS SHALL BE TORQUED TO THE MANUFACTURER'S RECOMMENDED TORQUE LEVEL.
3. ANY PAINT OR OTHER NON CONDUCTIVE COATING MUST BE REMOVED AT THE POINT OF CONTACT OR A FASTENER WHICH WILL PENETRATE THE COATING MUST BE USED.
4. ANY PAINT OR OTHER NON CONDUCTIVE COATING REMOVED SHALL BE REPLACED AFTER GROUND CONNECTIONS HAVE BEEN MADE.

G-10
GROUNDING ROD DETAILS

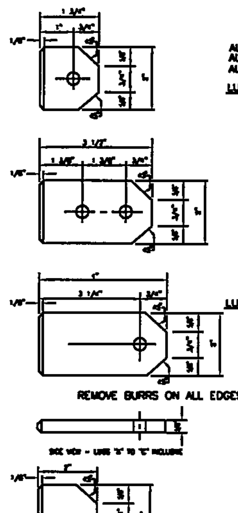
BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	AS REQ'D	FT	CONDUIT, 3/4-IN PVC SCHEDULE 80
2	1	EA	ONE HOLE CONDUIT CLAMP, 3/4-IN WITH BACK STRAP
3	1	EA	STAINLESS STEEL 3/8-IN - 16 HEX BOLT
4	1	EA	3/8-IN DROP-IN ANCHOR
5	1	EA	STAINLESS STEEL WASHER FOR USE WITH ITEM 3



GENERAL GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS OF COPPER-TO-COPPER AND COPPER-TO-STEEL SHALL BE CLEANED AND BOLTED. ALL UNDERGROUND CONNECTIONS TO BE MADE USING COMPRESSION CONNECTORS.
2. ALL CONNECTIONS SHALL BE TORQUED TO THE MANUFACTURER'S RECOMMENDED TORQUE LEVEL.
3. ANY PAINT OR OTHER NON CONDUCTIVE COATING MUST BE REMOVED AT THE POINT OF CONTACT OR A FASTENER WHICH WILL PENETRATE THE COATING MUST BE USED.
4. ANY PAINT OR OTHER NON CONDUCTIVE COATING REMOVED SHALL BE REPLACED AFTER GROUND CONNECTIONS HAVE BEEN MADE.

G-11
GROUND CABLE CONDUIT STUB UP



ALL LUGS - 3/8" FLAT MILD STEEL - WELDABLE QUALITY
ALL LUGS - BEVEL 1/8" @ 45 AS SHOWN
ALL HOLES - 7/16" DIAMETER

LUG "A" - 2" X 1 3/4" FOR LOADING RACKS

LUG "B" - 2" X 3 1/2" FOR TANK TRUCK LOADING RACK

LUG "C" - 2" X 4" FOR INSULATED TANKS, EXCHANGERS, VESSEL, SKID MOUNTING CHANNEL, AND STEEL COLUMNS.

LUG "D"

NOTES:

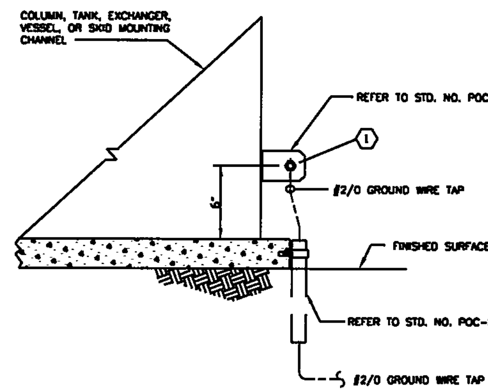
1. ALL LUGS SHALL BE 3/8" FLAT MATERIAL. LUG MATERIAL SHALL BE AUSTENITIC STAINLESS STEEL WHEN ATTACHED TO CARBON OR LOW ALLOY STEEL PARTS. WHEN ATTACHED TO OTHER MATERIALS, LUG MATERIAL SHALL BE SIMILAR TO THE MATERIAL TO WHICH ATTACHED. ALL MATERIAL SHALL BE SUITABLE FOR WELDING.
2. ALL LUGS - 45d, 1/8" IN BEVEL
3. ALL HOLES - 7/16" IN DIAMETER
4. REMOVE BURRS ON ALL EDGES AND ROUND ALL CONRNERS
5. LENGTH OF LUG DEPENDENT UPON APPLICATION.

GENERAL GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS OF COPPER-TO-COPPER AND COPPER-TO-STEEL SHALL BE CLEANED AND BOLTED. ALL UNDERGROUND CONNECTIONS TO BE MADE USING COMPRESSION CONNECTORS.
2. ALL CONNECTIONS SHALL BE TORQUED TO THE MANUFACTURER'S RECOMMENDED TORQUE LEVEL.
3. ANY PAINT OR OTHER NON CONDUCTIVE COATING MUST BE REMOVED AT THE POINT OF CONTACT OR A FASTENER WHICH WILL PENETRATE THE COATING MUST BE USED.
4. ANY PAINT OR OTHER NON CONDUCTIVE COATING REMOVED SHALL BE REPLACED AFTER GROUND CONNECTIONS HAVE BEEN MADE.

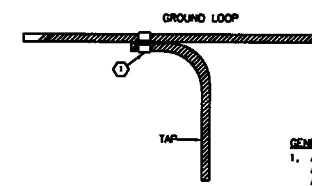
G-12
GROUNDING LUG DETAILS

BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	GROUND CONNECTOR, #2, BURNDY #KC23 (3/8" - 16NC STUD)



G-13
STORAGE TANK & PIPE GROUNDING

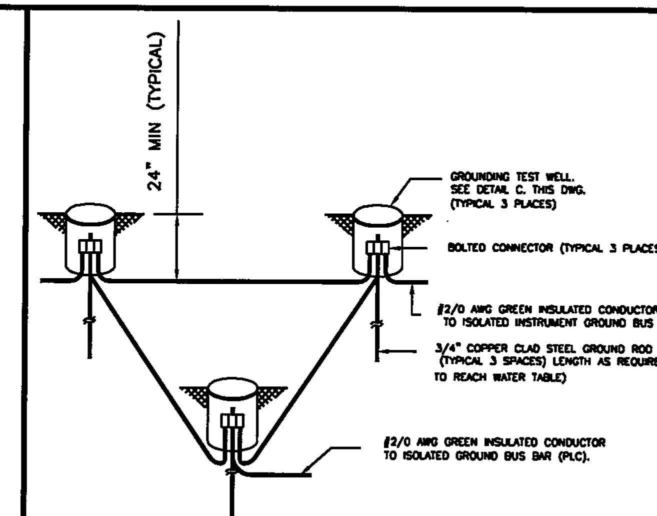
BILL OF MATERIAL			
ITEM	QTY	UNIT	DESCRIPTION
1	1	EA	[illegible]



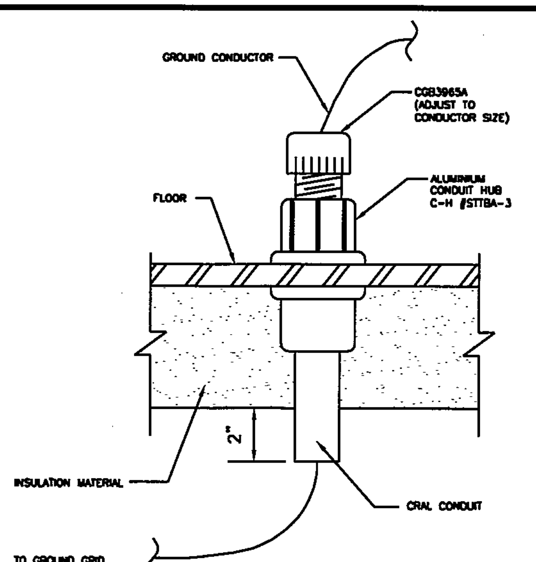
GENERAL GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS OF COPPER-TO-COPPER AND COPPER-TO-STEEL SHALL BE CLEANED AND BOLTED. ALL UNDERGROUND CONNECTIONS TO BE MADE USING COMPRESSION CONNECTORS.
2. ALL CONNECTIONS SHALL BE TORQUED TO THE MANUFACTURER'S RECOMMENDED TORQUE LEVEL.
3. ANY PAINT OR OTHER NON CONDUCTIVE COATING MUST BE REMOVED AT THE POINT OF CONTACT OR A FASTENER WHICH WILL PENETRATE THE COATING MUST BE USED.
4. ANY PAINT OR OTHER NON CONDUCTIVE COATING REMOVED SHALL BE REPLACED AFTER GROUND CONNECTIONS HAVE BEEN MADE.

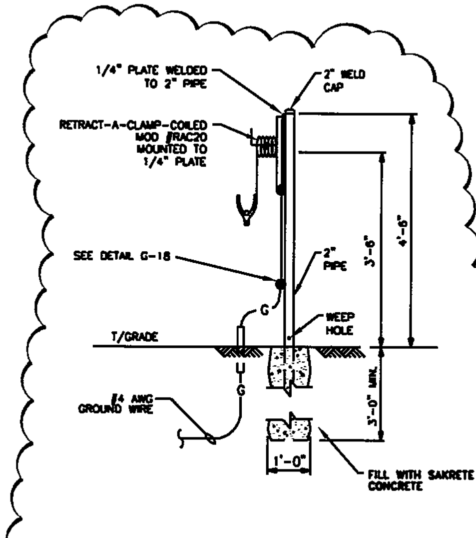
G-14
BARE WIRE SPLICE



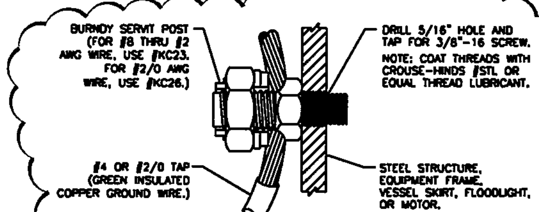
G-15
ISOLATED GROUND DETAIL



G-16
TYPICAL PENETRATION



G-17
GROUNDING CLAMP DETAILS



G-18
EQUIPMENT GROUND CONNECTOR

PCCA PROJ. 17-033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION

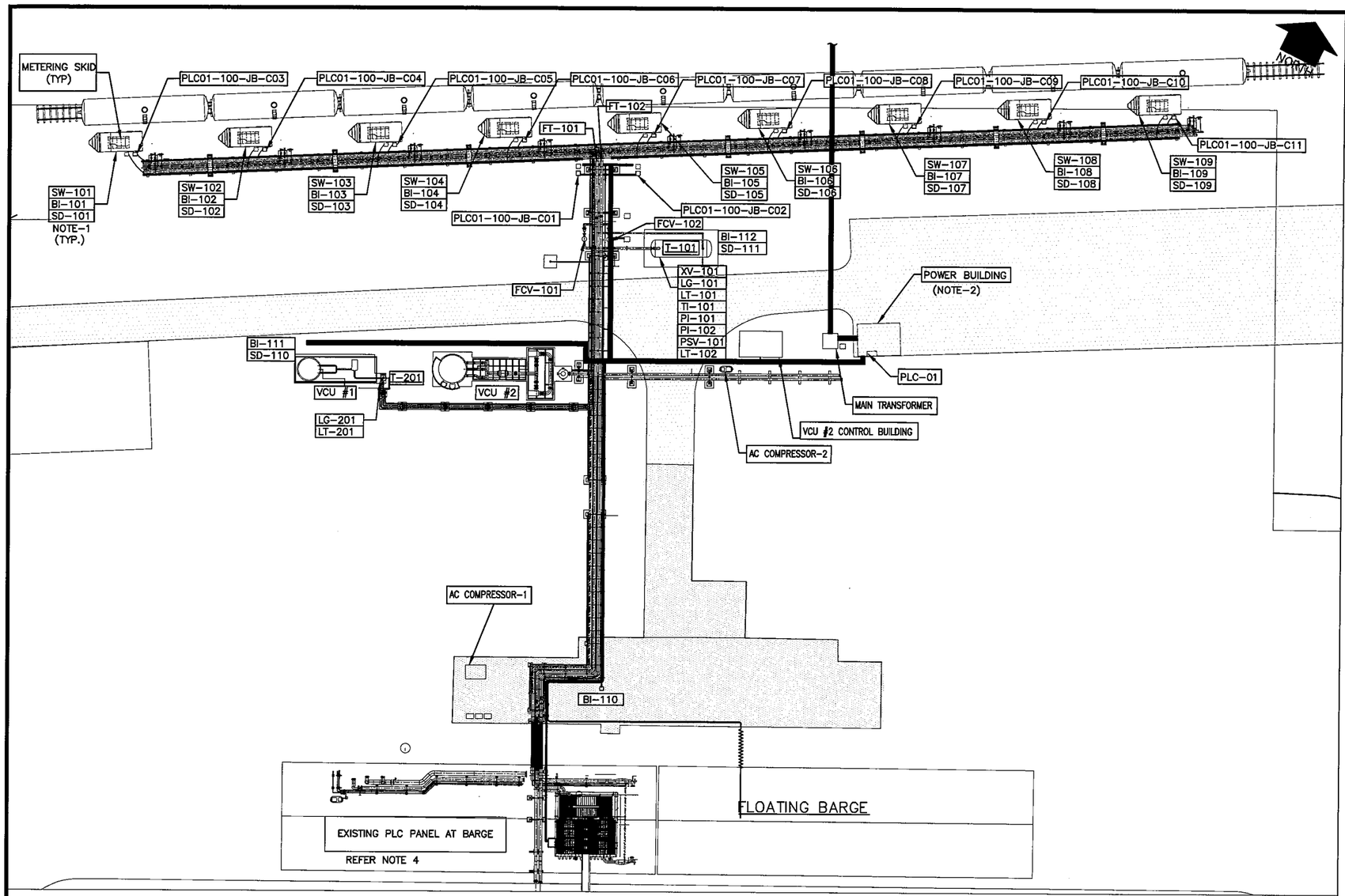
PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: AS NOTED	GROUNDING DETAILS-2	DATE: 09/06/17
DWN. BY: VS		DWG. NO. 17-033B-327

JOB NO. 17POC0139



A INSTRUMENTATION LOCATION PLAN

NOTES:–

1. FINAL LOCATION IS TO BE VERIFIED AT SITE.
2. PLC01–PLC CABINET IS LOCATED IN POWER BUILDING.
3. ALL INSTRUMENT ARE SUITABLE TO CLASS–1, DIVISION–2 AREA.
4. CONTRACTOR TO PROCURE AND INSTALL THE PLC PANEL FOR BARGE THE PLC PANEL DETAILS ARE AVAILABLE ATTACHED IN REFERENCE PACKAGE VENDOR DRAWINGS (CHAMPION & CH2MHILL)
5. ALL INSTRUMENTS WILL BE SUPPLIED BY THE CONTRACTOR.
6. INSTRUMENT CALIBRATION WILL BE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR WILL HIRE A QUALIFIED INSTRUMENT TECHNICIAN TO CALIBRATE AND TROUBLE SHOOT THE INSTRUMENT.
7. INSTRUMENT LOOP CHECKS WILL BE RESPONSIBILITY OF THE CONTRACTOR.

REFERENCES:–

1. DWG. 17–033B–335/336 INSTRUMENT INDEX
2. DWG. 17–033B–103 TO 107 PIPING AND INSTRUMENTATION DIAGRAM

CONTROL IDENTIFICATION LETTERS

PI = PRESSURE INDICATOR
LG = LEVEL GAUGE
TI = TEMPERATURE INDICATOR
LT = LEVEL TRANSMITTER
FT = FLOW TRANSMITTER
FCV= FLOW CONTROL VALVE
SW = SWITCH MANUAL (FLAP PUSH BUTTON)
BI = BEACON LIGHT
SD = ELECTRONIC SOUNDER

PCCA PROJ. 17–033B

STATE OF TEXAS
BHASKAR H. PATEL
63585
REGISTERED
PROFESSIONAL ENGINEER
09/06/17

NO.	DATE	REVISION

PORT CORPUS CHRISTI

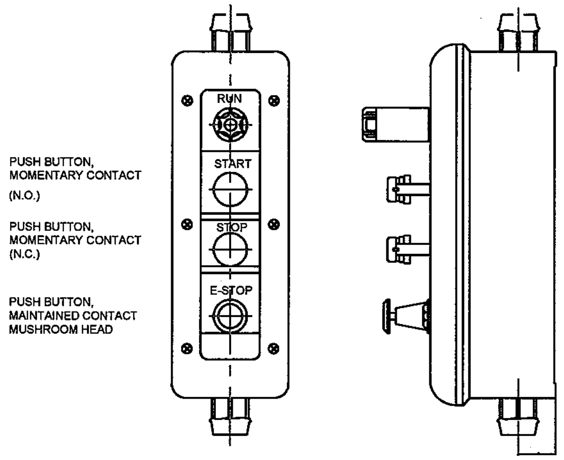
GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F–10101

PORT OF CORPUS CHRISTI AUTHORITY

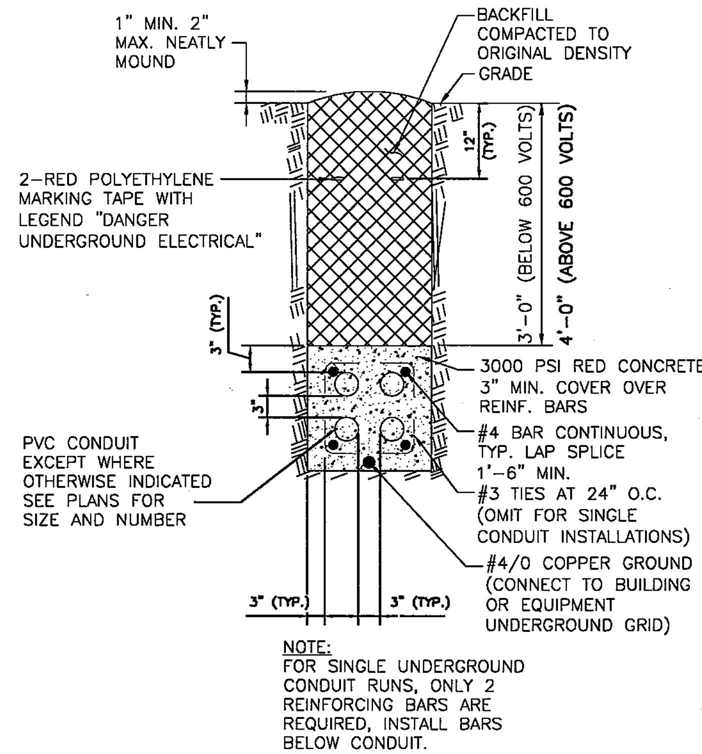
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: NTS	INSTRUMENTATION LOCATION PLAN	DATE: 09/06/2017
DWN. BY: VS		DWG. NO. 17–033B–329

JOB NO. 17POC0139

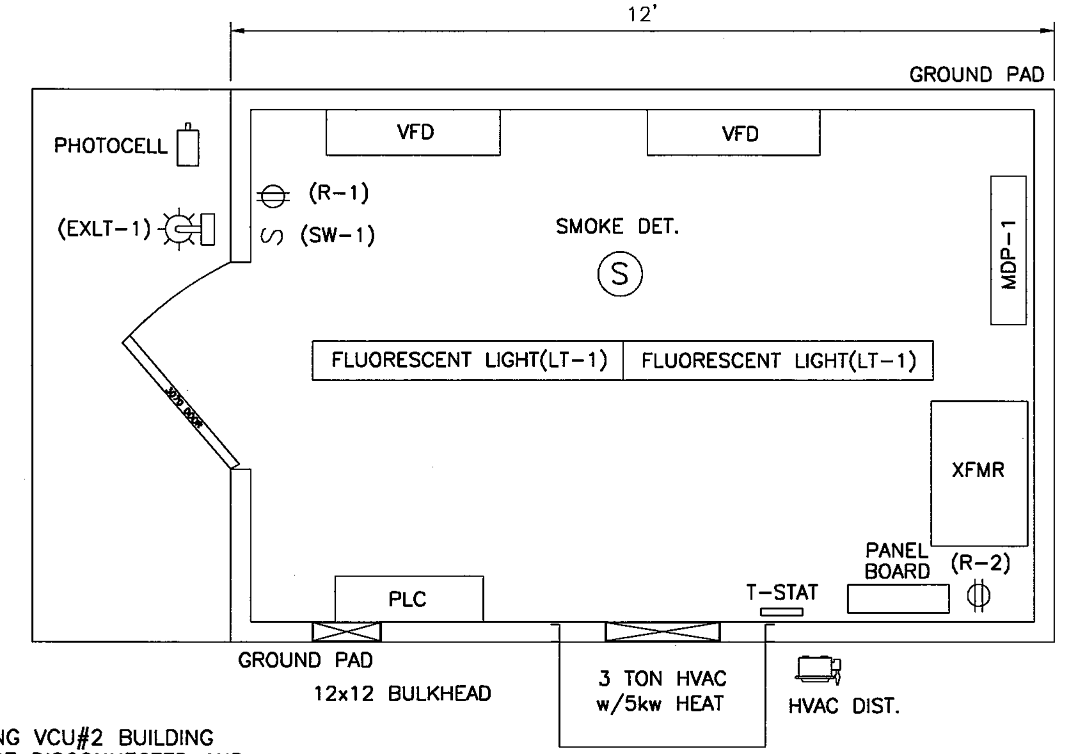


PUMP START / STOP STATION



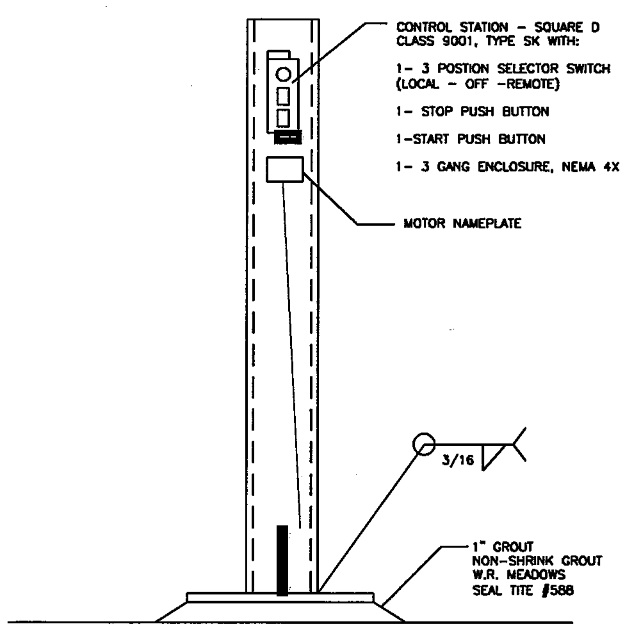
NOTE:
FOR SINGLE UNDERGROUND CONDUIT RUNS, ONLY 2 REINFORCING BARS ARE REQUIRED, INSTALL BARS BELOW CONDUIT.

CONDUIT DUCT BANK
TYPICAL DETAILS

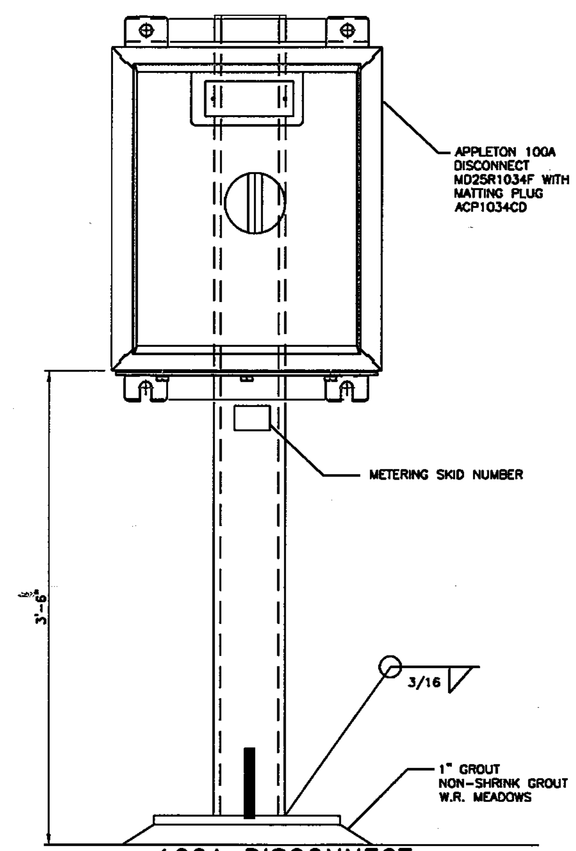


NOTE:
EXISTING VCU#2 BUILDING WILL BE DISCONNECTED AND ISOLATED FROM THE POWER SOURCE, UNBOLTED, REMOVED, TRANSPORTED AND INSTALLED ON PROJECT SITE BY CONTRACTOR.

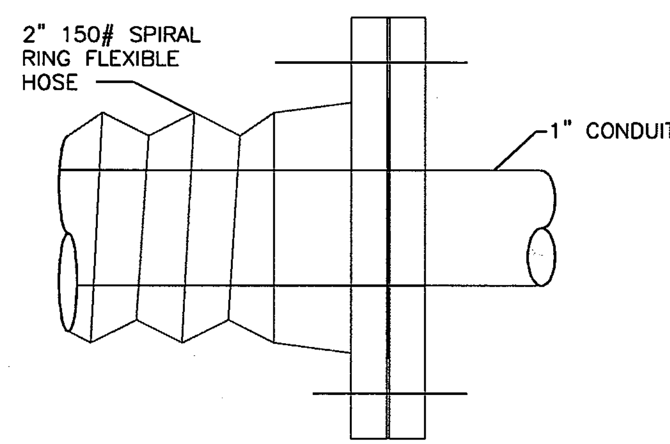
EXISTING VCU #2 BUILDING
TO BE RELOCATED FROM DOCK 1
REFERENCE DRAWING: 17-033B-303



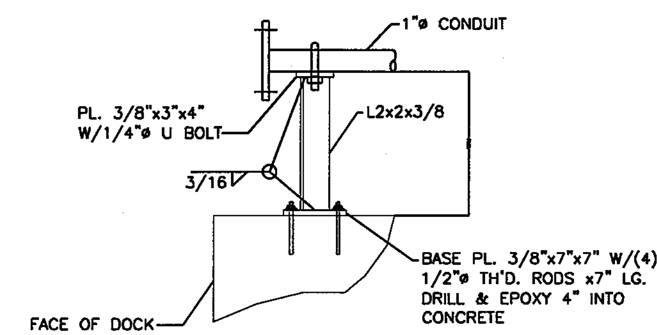
PUMP START/STOP STATION
REFERENCE DRAWING: 17-033B-303



100A DISCONNECT
REFERENCE DRAWING: 17-033B-303



1 / 306 DETAIL
REFERENCE DRAWING: 17-033B-306



2 / 306 TYPICAL CONDUIT SUPPORT AT EDGE OF DOCK
REFERENCE DRAWING: 17-033B-306

NOTE:

1. SEE DISCONNECT VENDOR DETAILS . NEMA 7 ENCLOSURE TYPE.

PCCA PROJ. 17-033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

STATE OF TEXAS — BHASKAR H. PATEL — 63585 — REGISTERED PROFESSIONAL ENGINEER
9/14/2017

NO.	DATE	REVISION

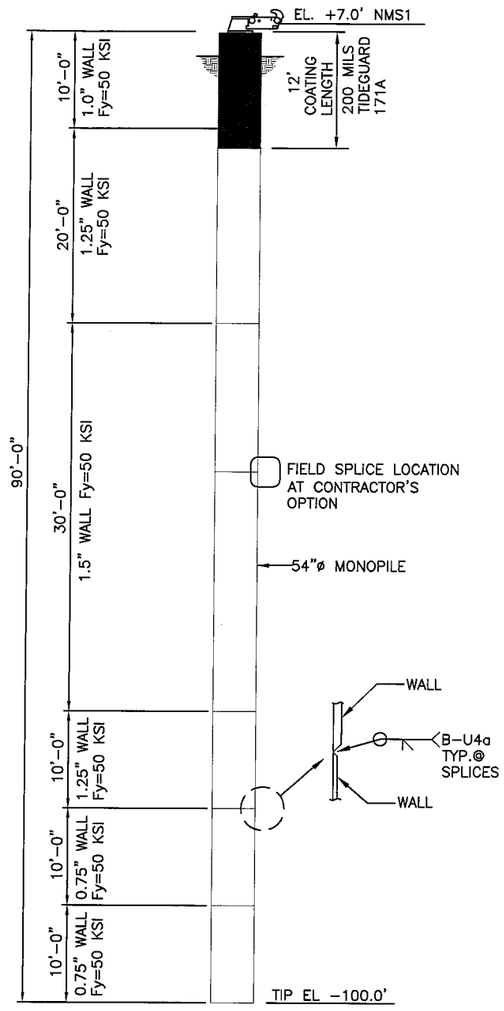
PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

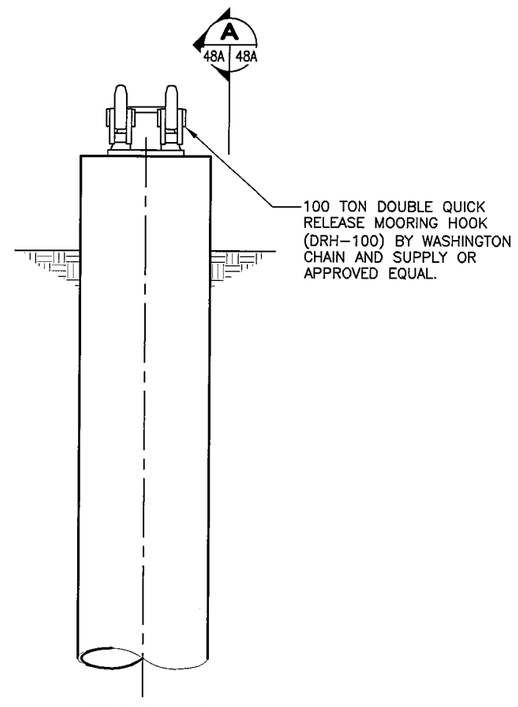
BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
ELECTRICAL & INSTRUMENTATION

SCALE: NTS	MISCELLANEOUS DETAILS & VCU #2 BUILDING LAYOUT	DATE: 09/14/2017
DWN. BY: VS		DWG. NO. 17-033B-357

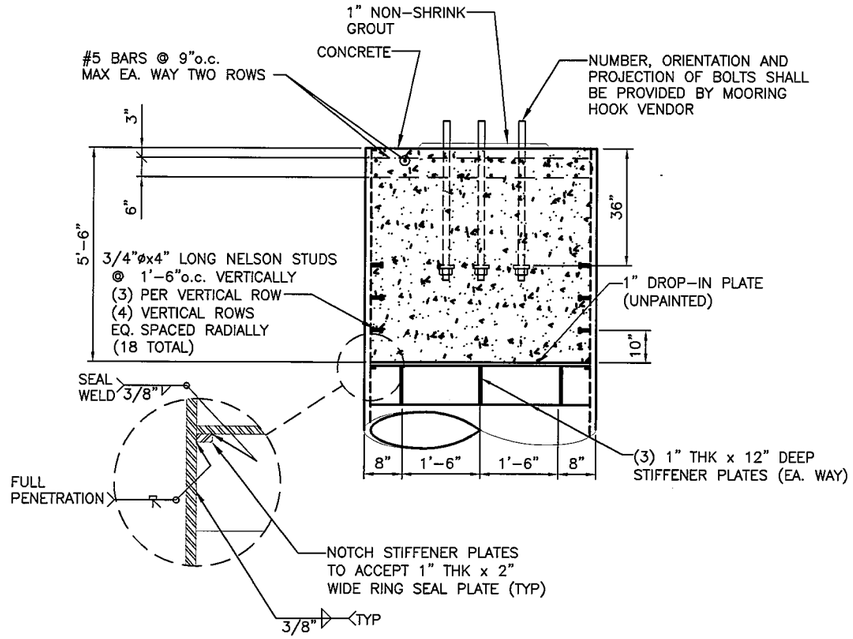
JOB NO. 17POC0139



1 | 47 | 48A — 54"ø MOORING MONOPILE NMS1 (LOOKING EAST)
SCALE: 1/8"=1'-0"



2 | 48A | 48A — DETAIL
SCALE: 3/8"=1'-0"



A | 48A | 48A — ELEVATION
SCALE: 1/2"=1'-0"

NOTES:

1. ALL ELEVATIONS ARE BASED ON CORP OF ENGINEERS DATUM MEAN LOW WATER (MLLW).

3/8"=1'-0" 0 2' 4' 6'

1/2"=1'-0" 0 2' 4' 6'

STATE OF TEXAS
AJMER S. KULAR
48599
REGISTERED PROFESSIONAL ENGINEER
9/11/17

NO.	DATE	REVISION

PCCA PROJ. #17-033B

PORT CORPUS CHRISTI

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

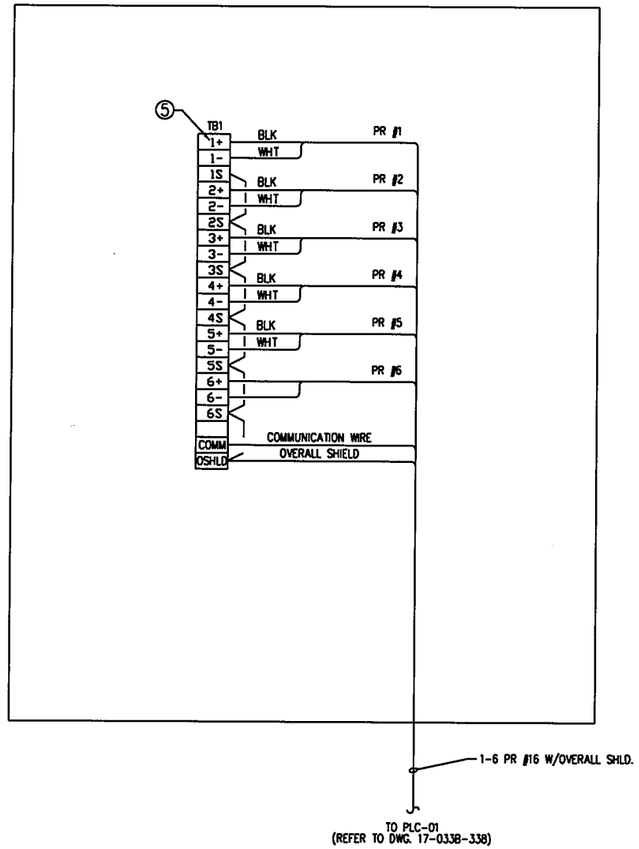
PORT OF CORPUS CHRISTI AUTHORITY

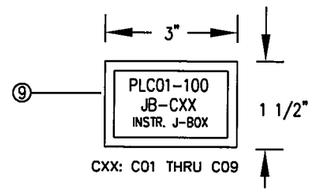
BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 CIVIL & STRUCTURAL

SCALE: AS NOTED	MOORING MONOPILE NMS1 DETAILS	DATE: 9/11/17
DWN. BY: RJA		DWG. NO. 17-033B-48A

JOB NO. 17POC0139

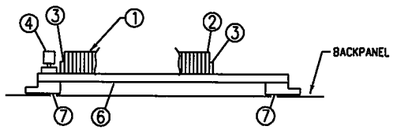
FIELD INSTRUMENT J-BOX





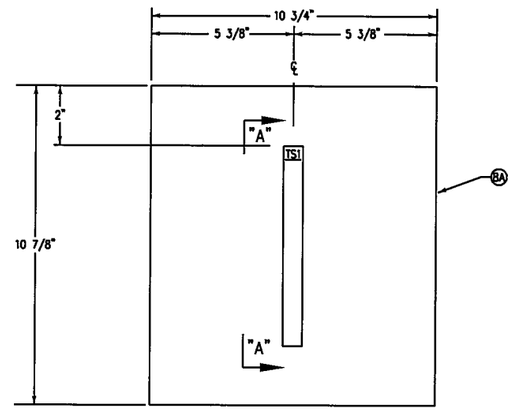
JUNCTION BOX NAMEPLATE

LAMINATED PLASTIC MATERIAL
3/16" WHITE LETTERS IN BLACK
BACKGROUND WITH DOUBLE
ADHESIVE TAPE



SECTION "A-A"
N.T.S.

JUNCTION BOX LAYOUT
N.T.S.



NOTE 1

MATERIAL LEGEND					
ITEM NO.	MANUF. & CAT. NO.	DESCRIPTION	QUANTITY FOR TS1	QUANTITY FOR TB2	TOTAL QUANTITY
①	PHOENIX #3003017	UK 4 TERMINAL BLOCK	18 EA.	-	18 EA.
②	#3003020	D-UK 4/10 END COVER	1 EA.	-	2 EA.
③	#1201442	E/UK END CLAMP	1 EA.	-	1 EA.
④	#1004076	UBE/D WITH ES/KMK 3 LABEL HOLDER	1 EA.	-	1 EA.
⑤	CUSTOM #	ZB6 CUSTOM MARKER, VERT. PRINTING	18 EA.	-	18 EA.
⑥	#1201028	NS 32-AL MOUNTING RAIL (6'-6" LONG)	1'-0"	1'-0"	2'-0"
⑦	#1201141	AB/NS SUPPORT	2 EA.	2 EA.	4 EA.
⑧	HOFFMAN #A1212CHNFSS6	12"H X 12"W X 6"D 316 S/S BOX	1 EA.		
8A	#A12P12G	10.88"H X 10.75"W CONDUCTIVE BACKPANEL	1 EA.		
⑨	CUSTOM MANUFACTURED	LAMINATED PLASTIC TAG	1 EA.		

NOTES :

1. PERMANENT MARKERS PRINTED AS SHOWN AT LEFT ON TB'S.
2. ALL WIRING TO BE DONE BY OTHERS.

PCCA PROJ. 17-033B

GOVIND DEVELOPMENT, LLC
9510 LEOPARD ST.
CORPUS CHRISTI, TX 78410
PH. 361-241-2777
FAX 361-241-2200
TBPE FIRM No.: F-10101

NO.	DATE	REVISION

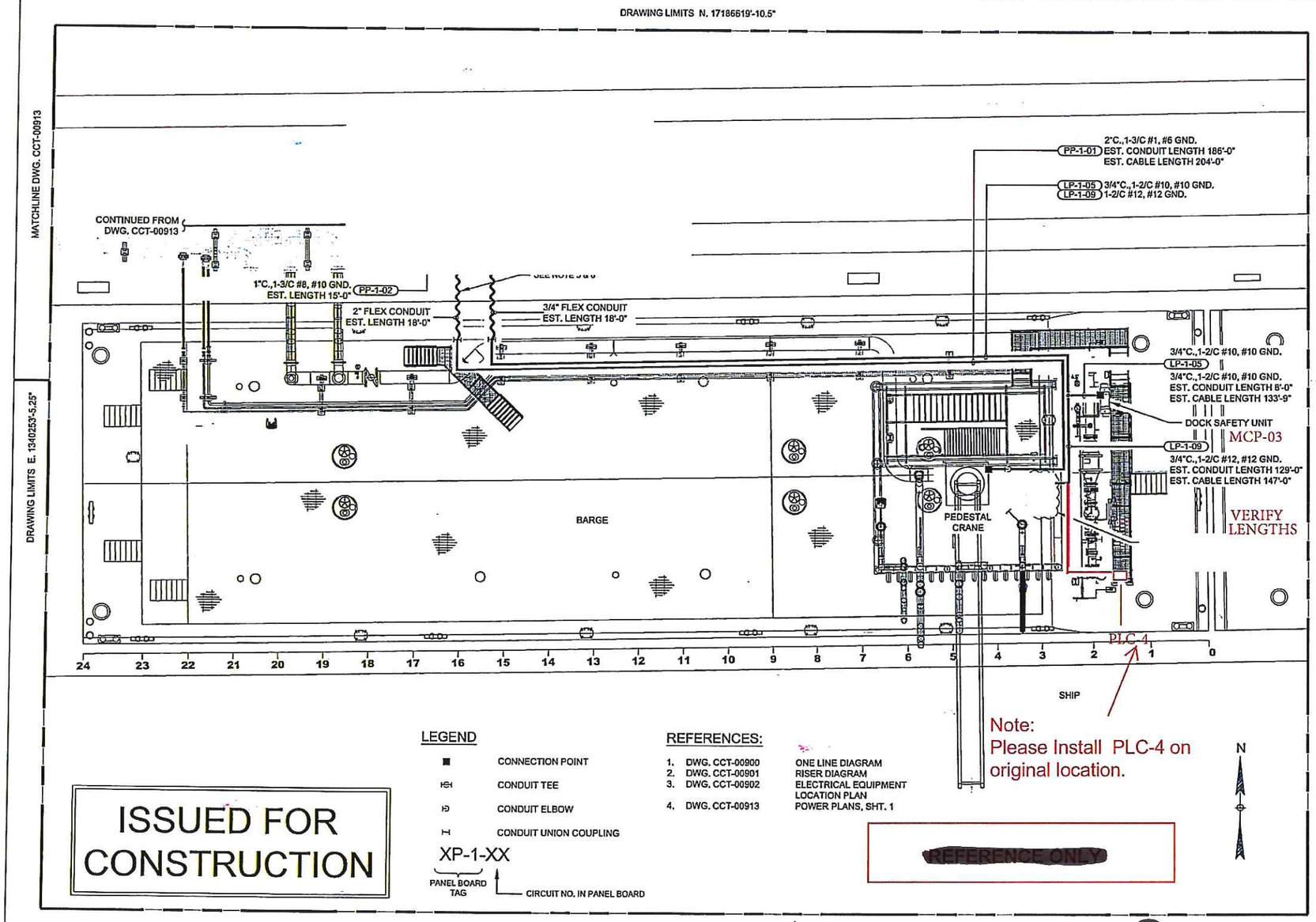
PORT CORPUS CHRISTI

PORT OF CORPUS CHRISTI AUTHORITY

BULK LIQUID HANDLING FACILITY AT BULK DOCK 3 ELECTRICAL & INSTRUMENTATION

SCALE: NTS	INSTR. J-BOX	DATE: 09/06/17
DWN. BY: RJC		DWG. NO. 17-033B-358

JOB NO. 17POC0139



NOTES:

1. THE CONTRACTOR SHALL VERIFY THAT ALL WORK, APPLICABLE ELECTRICAL INSTALLATION METHODS, PROCEDURES, FITTINGS AND EQUIPMENT (PANELS BOARDS, DISCONNECTS, XFMRs, CABLE, CONDUIT, AND CONDUCTOR TYPE AND SIZE, ETC.) SHALL BE IN COMPLIANCE WITH THE LATEST ADOPTED NEC, IEEE, UL, API, AND ASTM CODES AND STANDARDS AND ANY OTHER APPLICABLE LOCAL AND STATE CODES.
2. ALL MATERIALS SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES INC. (UL).
3. ALL POWER CABLES SHALL BE METAL-CLAD (MC) WITH COPPER CONDUCTORS.
4. ALL ABOVE GROUND CONDUIT SIZES AND FITTINGS PURCHASED BY THE CONTRACTOR SHALL BE PVC COATED RGS CONDUIT, PREFERABLY PLASTI-BOND OR ITS EQUIVALENT.
5. A TRANSITION AREA BETWEEN THE POWER PANELS AND BARGE WILL USE FLEXIBLE CONDUITS. THE CONTRACTOR SHALL PURCHASE THE PROPER FITTINGS IN ORDER TO MAKE THE TRANSITIONS BETWEEN PVC COATED RGS AND THE FLEX CONDUIT.
6. THE CONTRACTOR SHALL MAKE SURE THE FLEXIBLE CONDUITS ARE NOT BENT MORE THAN THE BEND RADIUS OF THE POWER CABLES.
7. CONDUITS ARE SHOWN DIAGRAMMATICALLY ONLY. EXACT ROUTING IS TO BE DETERMINED BY THE ELECTRICAL CONTRACTOR. THE SUPPORTS FOR METALLIC CONDUIT ARE TO BE PROVIDED BY THE CONTRACTOR AT INTERVALS NOT TO EXCEED NEC REQUIREMENTS. CONDUIT SHALL NOT BE SUPPORTED FROM PIPE HANGERS, CONDUITS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR THE INTERSECTION OF VERTICAL PLANES AND CEILINGS UNLESS SPECIFICALLY NOTED OTHERWISE. THE MINIMUM HEADROOM FOR ALL CONDUIT RUNS (INCLUDING SUPPORT MATERIALS) SHALL BE 6'-9" WHERE POSSIBLE OR UNLESS NOTED OTHERWISE.
8. ALL RIGID CONDUITS SHALL BE TERMINATED AT MOTORS AND DEVICES WITH LIQUID TIGHT FLEXIBLE CONDUIT, EXCEPT WHERE DEVICES ARE MOUNTED ON WALLS OR COLUMNS AND NOT SUBJECT TO MOVEMENT DUE TO VIBRATION OR EXPANSION, CONTRACTION.
9. ALL METAL CONDUIT SHALL BE TERMINATED WITH AN INSULATING BUSHING OR HUB PRIOR TO PULLING CABLE. A GROUNDING TYPE BUSHING SHALL BE USED FOR CONDUITS ENTERING EQUIPMENT. FOR NON-CONDUCTIVE ENCLOSURES, BOND ENCLOSURE BACKPLATE TO EACH CONDUIT GROUNDING HUB.
10. CONDUIT CONNECTIONS TO BOTTOM OR SIDES OF EQUIPMENT, BOXES, ETC. SHALL BE MADE WITH UL LISTED WATERPROOF LOCKNUTS OR HUBS. TOP ENTRY SHALL BE AVOIDED WHENEVER POSSIBLE. IF TOP ENTRY IS NEEDED, CONTRACTOR SHALL OBTAIN APPROVAL FROM OWNER PRIOR TO INSTALLATION.
11. WHERE THERE IS A CHANGE OF ELEVATION IN A CONDUIT RUN, THERE SHALL BE A "TEE" FITTING WITH DRAIN FITTING AT LOWEST POINT.
12. ALL CONDUIT FITTINGS SHALL BE HOT DIPPED GALVANIZED MALLEABLE IRON OR IRON ALLOY WITH THREADED HUBS. ALL NUTS, BOLTS AND SCREWS FOR CONDUIT FITTINGS SHALL BE TYPE 316SS.
13. CONDUIT SUPPORTS SHALL BE WELDED OR BOLTED. BEAM CLAMPS, RIGHT ANGLE CLAMPS, PARALLEL CLAMPS, ETC. SHALL NOT BE USED.
14. FOR ADDITIONAL NOTES SEE DWG. CCT-00913.

LEGEND

- ■ CONNECTION POINT
- CONDUIT TEE
- CONDUIT ELBOW
- CONDUIT UNION COUPLING
- XP-1-XX
  - PANEL BOARD TAG
  - CIRCUIT NO. IN PANEL BOARD

REFERENCES:

1.	DWG. CCT-00900	ONE LINE DIAGRAM
2.	DWG. CCT-00901	RISER DIAGRAM
3.	DWG. CCT-00902	ELECTRICAL EQUIPMENT LOCATION PLAN
4.	DWG. CCT-00913	POWER PLANS, SHT. 1

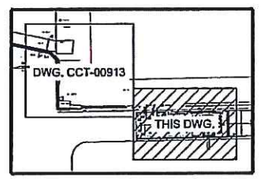
ISSUED FOR CONSTRUCTION

REFERENCE ONLY

DRAWING LIMITS N. 17186482'-7.31"

17-033B-359

KEY PLAN



REV. MARK	REVISION	BY	CHK'D	APP	DATE
0	IFC ISSUED FOR CONSTRUCTION	ZM	OF	OF	11/5/13

DRAWING ISSUE RECORD

ISSUE NO.	REV	MATERIAL OR JOB SPEC	BID	FAB	CONST	REF
5						
4						
3						
2						
1						

DATE ISSUED FOR

DRAWING ISSUE RECORD

ISSUE NO.	REV	MATERIAL OR JOB SPEC	BID	FAB	CONST	REF
10						
9						
8						
7						
6						

DATE ISSUED FOR

DESIGNED	Z. MALIK	04OCT13
DRAWN	Z. MALIK	29OCT13
CHECKED	O. FOLOWOSELE	04NOV13
APPROVED	O. FOLOWOSELE	05NOV13
PROJ ENGR	FERMIN VASQUEZ	
MFG REP		

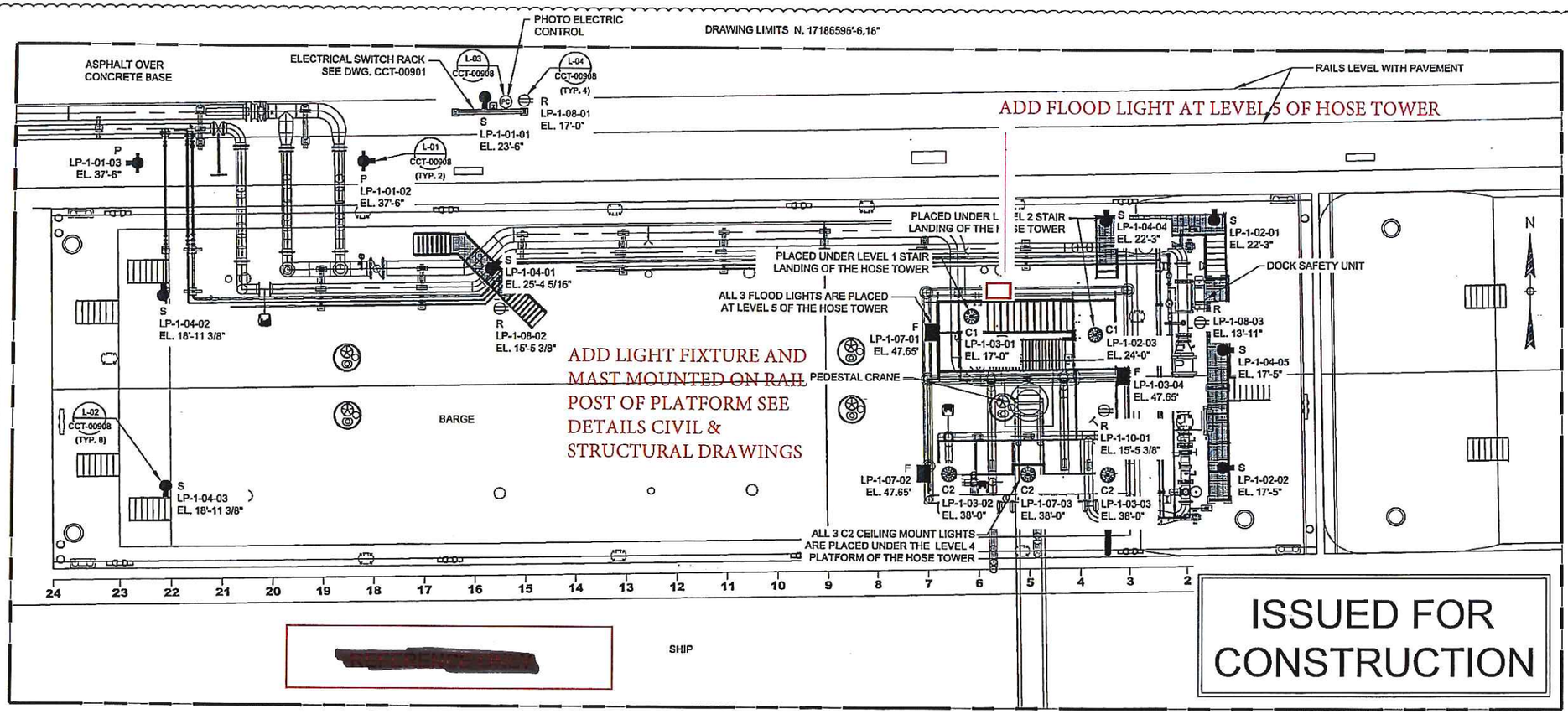
PACKED | PLANT NUMBER

CH2MHILL® TBPE FIRM NO. 3699 | PROJECT NO. 467094 | SHEET 2 of 2

MMP CARGO DOCK 10 PROJECT

POWER PLANS

CHARGE NUMBER	SCALE	DWG. NO.	REV
467094	NTS	CCT-00914	0



ISSUED FOR CONSTRUCTION

NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE (NEC).
2. COORDINATE LUMINAIRE AND RECEPTACLE LOCATIONS WITH MECHANICAL & PROCESS EQUIPMENT, PIPING, AND STRUCTURAL LAYOUTS TO AVOID INTERFERENCE. ADJUST CONDUIT ROUTING AS NEEDED.
3. ALL CONDUIT FOR LIGHTING SHALL BE A MIN. 3/4" UNLESS NOTED OTHERWISE. PROVIDE JUNCTION BOXES AS NEEDED FOR HOMERUNS. USE 3 #12 AWG FOR ALL LIGHTING WIRES.
4. ILLUMINATION LEVELS ARE BASED ON API 540 AND IESNA LIGHTING HANDBOOK.
5. FOR AVERAGE ILLUMINATION LEVELS SEE THE STATISTICS TABLE IN THIS DRAWING.
6. ALL FIXTURE ELEVATIONS ON THE BARGE ARE BASED ON THE WORKING ELEVATION OF THE BARGE OF 11'-11 3/8". ALL FIXTURE ELEVATIONS ON LAND ARE BASE ON THE GRADE ELEVATION OF 13'-6". THE CONTRACTOR IS TO VERIFY THE BASE ELEVATIONS.
7. MOUNT TYPE F FLOODLIGHTS ON EDGE OF LEVEL 5 @ 47.65' AIMED FORWARD AND FIELD TILT VERTICALLY 60 DEGREES ABOVE NADIR (OR 30 DEGREES BELOW HORIZONTAL).
8. ALL TYPE P POLE MOUNT FIXTURES ARE MOUNTED ON LAND 24' ABOVE AREA OF ILLUMINATION (25' POLE LESS 1' FIXTURE DROP).
9. ALL TYPE S STANCHION MOUNT FIXTURES ARE 7' ABOVE AREA OF ILLUMINATION (6' STANCHION LESS 1' FIXTURE DROP).
10. SURFACE MOUNT ALL TYPE C1 CEILING FIXTURES DIRECTLY UNDER DECK ABOVE. THE ONLY TYPE C1 FIXTURES SHOWN IN THIS VIEW ARE UNDER THE LEVEL 1 AND LEVEL 2 STAIR LANDINGS.
11. SURFACE MOUNT ALL TYPE C2 CEILING FIXTURES DIRECTLY UNDER LEVEL 4 DECK TO LIGHT BARGE DECK AREA OVER SHIP LOADING AREA.
12. TYPE F LIGHT LOSS FACTOR = 0.9 LDD x 0.80 LLD WHICH IS AFTER 50,0000 HOURS AT 25 DEGREES C = 0.72.
13. TYPE P LIGHT LOSS FACTOR = 0.90 LDD x 0.98 LLD WHICH IS AFTER 50,0000 HOURS AT 25 DEGREES C = 0.88.
14. TYPE C1, C2 & S LIGHT LOSS FACTORS = 0.9 LDD x 1.0 LLD WHICH IS AFTER 50,000 HOURS at 25 DEGREES C = 0.90.
15. NO REFLECTANCES ARE CONSIDERED IN THIS DRAWING.
16. CONTRACTOR TO DETERMINE PROPER INSTALLATION OF CEILING MOUNT AND FLOOD LIGHT FIXTURES,
17. ALL LIGHTING FIXTURES ARE TO BE OPERATED BY PHOTOCELLS WITH MANUAL OVERRIDE. THE TYPE, PURCHASE, AND PLACEMENT TO BE DETERMINED BY CONTRACTOR.

LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	Lumens	LLF	Watts
	F	3	Hydrel 8200HL 108LED WHT53K MVOLT WFL YM LPI GR	Hazardous LED Floodlight; Wide Floodlight Beam, Yoke Mount, 40 deg C ambient, 700mA driver; 120-277V	108 LEDs; 5300K CCT	12945	0.72	264
	P	2	Holophane HPLED98355KASU SGL540C with 24084066T4-GR-IVDA-4015TP40R-RFD60037	Hazardous Petrolux LED; Prismatic glass refractor, Narrow symmetric distribution, 1.5" threaded tenon mount, 40 deg C ambient, 350mA driver; 120-277V. Pole: 25' Round Tapered Aluminum Pole with PETLSTA bracket (included), 125 mph AASHTO 2001, Gray powder coat; Includes 3/4" coupling hub (18" above base @ 180 degrees from hand-hole), vibration dampener and anchor bolts.	98 LEDs; 5000K CCT	Absolute	0.88	114
	S	8	Holophane HPLED70355KASU SGL5H40C with 8' Stanchion	Hazardous Petrolux LED; Prismatic glass refractor, Wide symmetric distribution, 1.5" stanchion mount, 40 deg C ambient, 350mA driver; 120-277V	70 LEDs; 5000K CCT	Absolute	0.90	83

LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	Lumens	LLF	Watts
	C1	2	Holophane HPLED70355KASU NGL5H40C	Hazardous Petrolux LED; Prismatic glass refractor, Wide symmetric distribution, Ceiling mount mount, 40 deg C ambient, 350mA driver; 120-277V	70 LEDs; 5000K CCT	Absolute	0.90	83
	C2	3	Holophane HPLED98355KASU NGL540C	Hazardous Petrolux LED; Prismatic glass refractor, Narrow symmetric distribution, Ceiling mount, 40 deg C ambient, 350mA driver; 120-277V	98 LEDs; 5000K CCT	Absolute	0.88	114

STATISTICS

Description	Avg	Max	Min	Max/Min	Avg/Min	CV
Main Barge Deck	7.6 fc	30.1 fc	0.0 fc	N/A	N/A	0.7
Land Area around Pole Mounts	6.2 fc	8.6 fc	1.0 fc	8.6:1	6.2:1	0.3
Spacer Barge Deck up to Drawing Limits	3.6 fc	7.3 fc	1.6 fc	4.6:1	2.3:1	0.4
Platform at Dock Saftey Unit	23.4 fc	37.7 fc	15.9 fc	2.4:1	1.5:1	0.2
Platform Bridge from DSU to Hose Tower	22.7 fc	31.7 fc	16.0 fc	2.0:1	1.4:1	0.2
Pipeline Bridge on The Main Barge	17.0 fc	23.1 fc	10.9 fc	2.1:1	1.6:1	0.2

REFERENCES:

1. DWG. CCT-00907 LIGHTING PLAN, SHT. 2
2. DWG. CCT-00908 LIGHTING DETAILS
3. DWG. CCT-00901 RISER DIAGRAM

LEGEND:

F FLOOD LIGHT
P POLE MOUNT
S STANCHION MOUNT
C CEILING MOUNT
R RECEPTACLE

20A DUAL GANG RECEPTACLE CLASS I, DIVISION. 2, GROUP D

XP-1-XX-XX
PANEL BOARD TAG
FIXTURE SEQUENTIAL NO.
CIRCUIT NO. IN PANEL BOARD

REV. MARK	REVISION	BY	CHK'D	APP'D	DATE
1	FC - ISSUED FOR CONSTRUCTION CIRCUIT NO. FOR FIXTURES CHANGED, ADDITION OF TAG DESCRIPTION	ZM	OF	OF	11/25/13
0	FC ISSUED FOR CONSTRUCTION	ZM	OF	OF	10/25/13

DRAWING ISSUE RECORD

ISSUE NO.	REV	MATERIAL OR JOB SPEC	BID	FAB	CONST	REF	DATE ISSUED FOR
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DRAWING ISSUE RECORD

ISSUE NO.	REV	MATERIAL OR JOB SPEC	BID	FAB	CONST	REF	DATE ISSUED FOR
10							
9							
8							
7							
6							

DESIGNED	Z. MALIK	07OCT13	
DRAWN	Z. MALIK	11OCT13	
CHECKED	O. FOLOWOSELE	16OCT13	
APPROVED	O. FOLOWOSELE	18OCT13	
PROJ. ENGR	FERMIN VASQUEZ		
MTC. REP			

INDEXED | PLANT NUMBER

CH2MHILL® TBPE FIRM NO. 3699

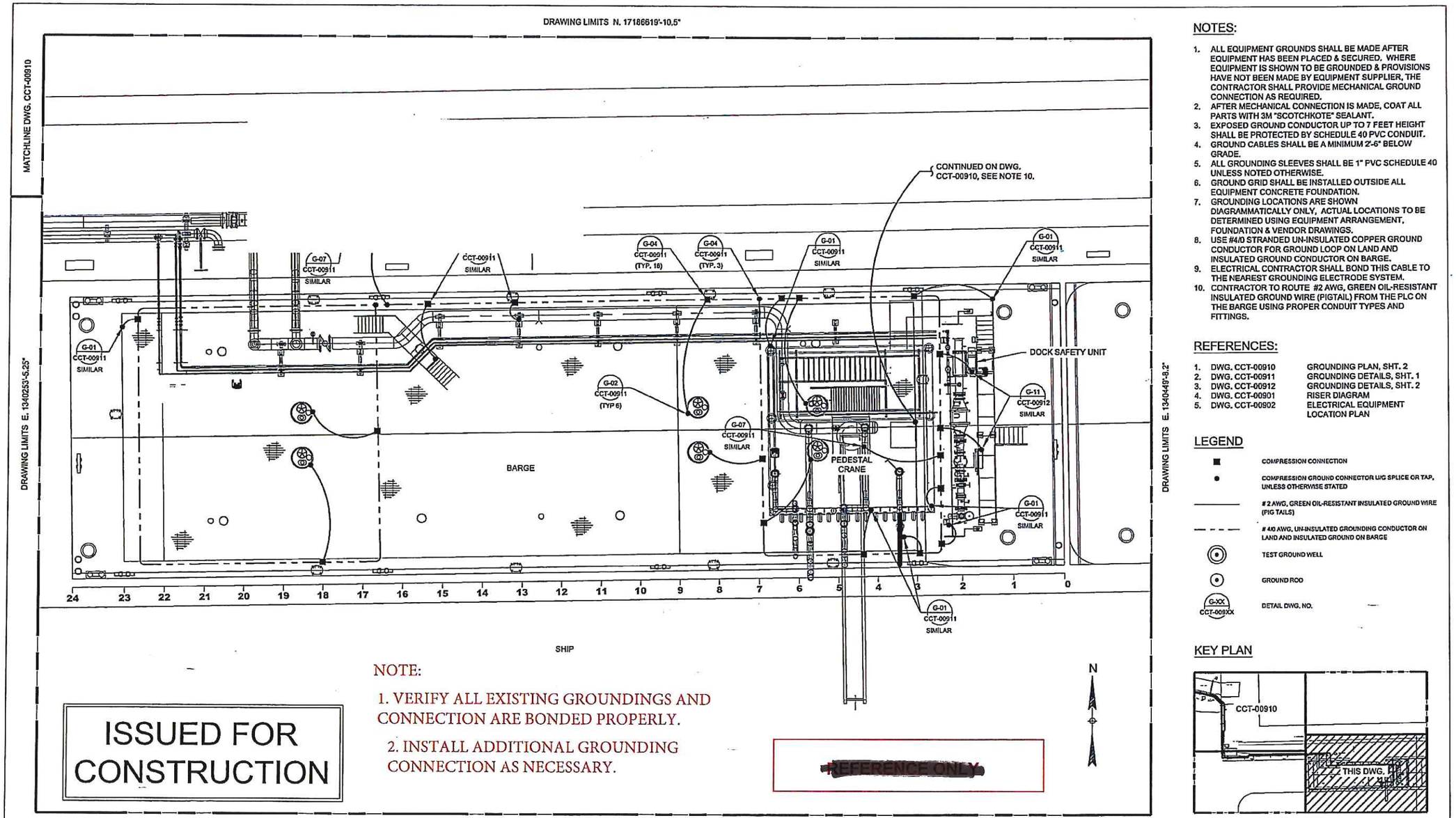
PROJECT NO. 467094
SHEET 1 of 2

MMP CARGO DOCK 10 PROJECT

LIGHTING PLAN

CHARGE NUMBER	SCALE	DWG. NO.	REV
467094	NTS	CCT-00906	1

17-033B-360



NOTES:

1. ALL EQUIPMENT GROUNDS SHALL BE MADE AFTER EQUIPMENT HAS BEEN PLACED & SECURED. WHERE EQUIPMENT IS SHOWN TO BE GROUNDED & PROVISIONS HAVE NOT BEEN MADE BY EQUIPMENT SUPPLIER, THE CONTRACTOR SHALL PROVIDE MECHANICAL GROUND CONNECTION AS REQUIRED.
2. AFTER MECHANICAL CONNECTION IS MADE, COAT ALL PARTS WITH 3M "SCOTCHKOTE" SEALANT.
3. EXPOSED GROUND CONDUCTOR UP TO 7 FEET HEIGHT SHALL BE PROTECTED BY SCHEDULE 40 PVC CONDUIT.
4. GROUND CABLES SHALL BE A MINIMUM 2'-6" BELOW GRADE.
5. ALL GROUNDING SLEEVES SHALL BE 1" PVC SCHEDULE 40 UNLESS NOTED OTHERWISE.
6. GROUND GRID SHALL BE INSTALLED OUTSIDE ALL EQUIPMENT CONCRETE FOUNDATION.
7. GROUNDING LOCATIONS ARE SHOWN DIAGRAMMATICALLY ONLY, ACTUAL LOCATIONS TO BE DETERMINED USING EQUIPMENT ARRANGEMENT, FOUNDATION & VENDOR DRAWINGS.
8. USE #4/0 STRANDED UN-INSULATED COPPER GROUND CONDUCTOR FOR GROUND LOOP ON LAND AND INSULATED GROUND CONDUCTOR ON BARGE.
9. ELECTRICAL CONTRACTOR SHALL BOND THIS CABLE TO THE NEAREST GROUNDING ELECTRODE SYSTEM.
10. CONTRACTOR TO ROUTE #2 AWG, GREEN OIL-RESISTANT INSULATED GROUND WIRE (PIGTAIL) FROM THE PLC ON THE BARGE USING PROPER CONDUIT TYPES AND FITTINGS.

REFERENCES:

1.	DWG. CCT-00910	GROUNDING PLAN, SHT. 2
2.	DWG. CCT-00911	GROUNDING DETAILS, SHT. 1
3.	DWG. CCT-00912	GROUNDING DETAILS, SHT. 2
4.	DWG. CCT-00901	RISER DIAGRAM
5.	DWG. CCT-00902	ELECTRICAL EQUIPMENT LOCATION PLAN

LEGEND

- COMPRESSION CONNECTION
- COMPRESSION GROUND CONNECTOR U/G SPLICE OR TAP, UNLESS OTHERWISE STATED
- #2 AWG, GREEN OIL-RESISTANT INSULATED GROUND WIRE (PIG TAILS)
- # 4/0 AWG, UN-INSULATED GROUNDING CONDUCTOR ON LAND AND INSULATED GROUND ON BARGE
- TEST GROUND WELL
- GROUND ROD
- G-XX CCT-0091XX — DETAIL DWG. NO.

KEY PLAN

REV. MARK	REVISION	BY	CHK'D	APP	DATE
0	FC ISSUED FOR CONSTRUCTION	MR	ZM	OF	17OCT13

DRAWING ISSUE RECORD

ISSUE NO.	REV	MATERIAL OR JOB SPEC	DATE ISSUED FOR: BID	FAB	CONST	RFT
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DRAWING ISSUE RECORD

ISSUE NO.	REV	MATERIAL OR JOB SPEC	DATE ISSUED FOR: BID	FAB	CONST	RFT
10						
9						
8						
7						
6						

DESIGNED	H. RUIZ	14OCT13	
DRAWN	P.MILLER	15OCT13	
CHECKED	Z. MALIK	16OCT13	
APPROVED	O.FOLOWOSELE	18OCT13	
PROJ ENGR	FERMIN VASQUEZ		
MFG. REP			

CODED | PLANT NUMBER

CH2MHILL® TBPE FIRM NO. 3699 | PROJECT NO. 467094 | SHEET 1 OF 2

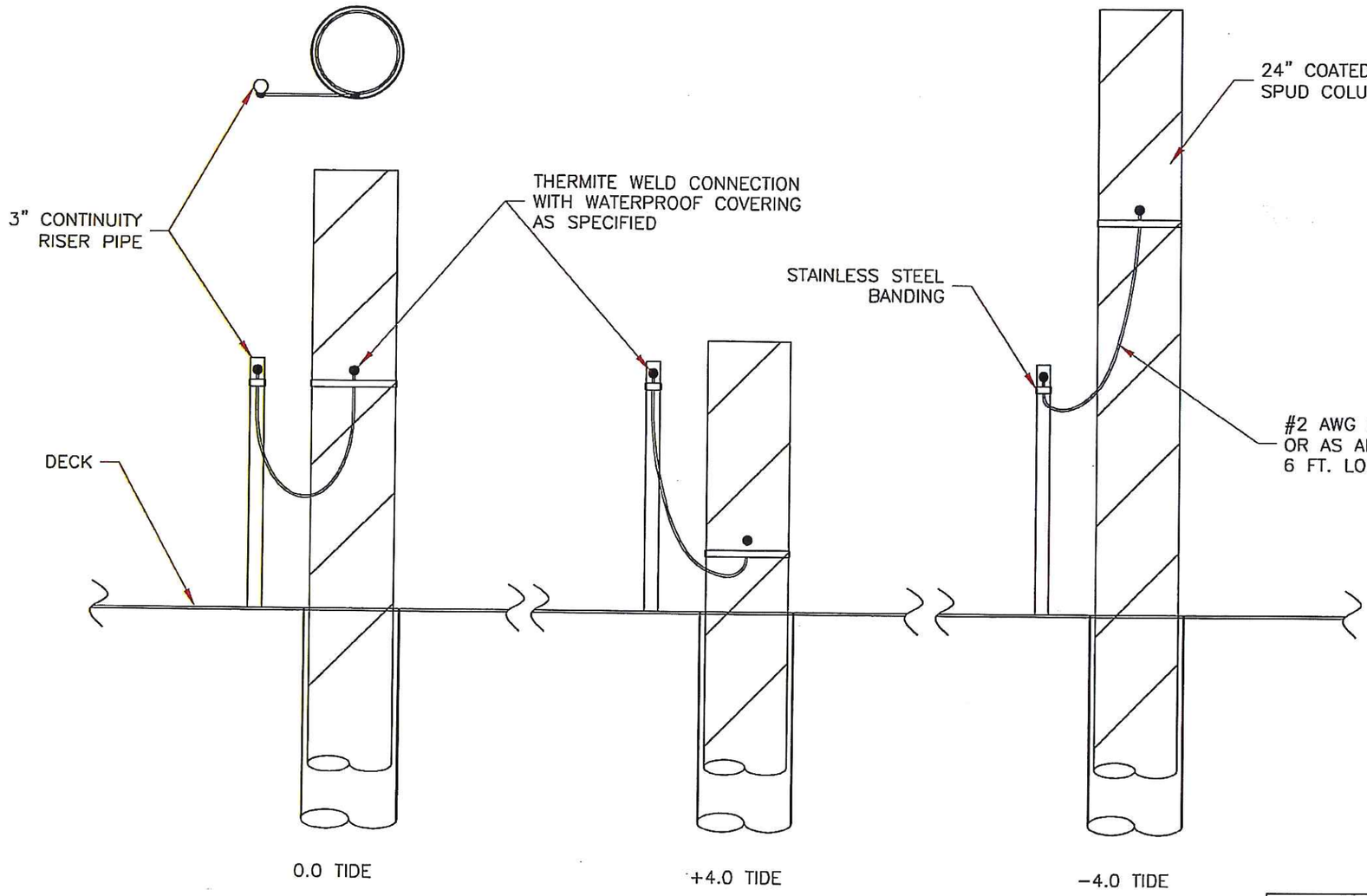
MMP CARGO DOCK 10 PROJECT

GROUNDING PLAN
FOR FLOATING BARGE AREA

CHANGE NUMBER	SCALE	DWG. NO.	REV
467094	NTS	CCT-00909	0

17-033B-361

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	ISSUED FOR REVIEW	08/30/13	
1	ISSUED FOR REVIEW	09/12/13	
2	ISSUED FOR CONSTRUCTION	11/12/13	



NOTE:
1. ALL SPUDS SHALL BE RECONNECTED AS SHOWN.

9723 Green Marine Barge Dock Basis of Design
Green Marine ph# 504-833-7386

REFERENCE ONLY

17-033B-362

FARWEST CORROSION CONTROL COMPANY
1480 W. Artesia Blvd. Gardena, California

DRAWN BY J.C.B.	SPUD ELECTRICAL CONTINUITY BONDING DETAIL	
ENGINEER J.C.B.		
JOB NO. 9723		
SIZE B	GREEN MARINE & INDUSTRIAL METAIRIE, LA	DWG NO. 9723-5
FILE 9723-5.2	SCALE AS NOTED / DATE 11/12/13 / REV 2	SHEET 5 of 7

PORT CORPUS CHRISTI

Project No. 17-033B

September 15, 2017

TO ALL POTENTIAL BIDDERS

Subject: Addendum No. 6 for the Bulk Liquid Handling Facility at Bulk Dock 3

Ladies/Gentlemen:

This addendum is considered part of the Contract Documents and is issued to change, amplify, add to, delete from, or otherwise explain the Contract Documents. Where provisions of this addendum differ from those of the original Contract Documents, this addendum will take precedence and govern.

Bidders are hereby notified that they must incorporate this addendum into their bids, and it will be construed that the contractor's bid reflects with full knowledge all items, changes, and modifications to the Contract Documents herein specified. Bidders will acknowledge receipt of this addendum in the space provided on the Bid form.

BID

REMOVE in its entirety and **REPLACE** with the attached *Revised* Bid.

SPECIAL CONDITIONS

REMOVE *2nd Revision* Special Conditions in its entirety and **REPLACE** with the attached *3rd Revision* Special Conditions

Sincerely,

Carlos Martinez, P.E.
Project Manager

CM/clh

Enclosure

Cc: Sean Strawbridge
Kresten Cook
David L. Krams
David Michaelsen
Sarah Garza
Brett Flint
Sonya Lopez-Sosa

_____
(Company Name)

Revised **BID FOR**
BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
PORT OF CORPUS CHRISTI AUTHORITY

Port Commissioners
Port of Corpus Christi Authority
P. O. Box 1541
Corpus Christi, Texas 78403

Dear Commissioners:

The undersigned bidder, in compliance with your Notice to Bidders for **BULK LIQUID HANDLING FACILITY AT BULK DOCK 3**, having examined the specifications with related Contract Documents and the site of the proposed work and being familiar with all of the conditions surrounding construction of the proposed project, including the availability of materials and supplies, will construct the project, in accordance with the Contract Documents, within the time set forth herein, and at the prices stated below. The bidder hereby proposes to furnish all labor, materials, tools, equipment, supplies, superintendence, insurance, incidentals, and services necessary or required to complete the work as shown on the drawings and described in the specifications for the prices noted below (includes profit and overhead).

A. BASE BID: The base bid item includes all work not specifically identified as an additive, deductive, or alternate bid item. Additive, deductive, or alternate bid items are those items that may be added to or deleted from the contract if so desired by the PCCA.

Scope of work generally includes the construction and commissioning of a bulk liquids handling facility transfer of petroleum products from vessels to railcars. Site work improvements include fabrication of piping, racks, pile foundations, cast in place concrete, electrical improvements, area lighting, and mooring bollards. Equipment installation includes mechanical systems, instrumentation, control building, and vapor combustion unit. Work also includes the relocation of 105-foot long pipe bridge. This is a Lump Sum bid item.

Total Base Bid $_____
(Numbers)

_____ Dollars
(Words)

B. The following procedure will be utilized in resolving arithmetical and other discrepancies found in the Bid:

1. Obviously misplaced decimal points will be corrected;

2. Obvious errors in addition, subtraction, or multiplication will be corrected;
3. Readily apparent errors in interpretation of various bid items will be corrected.
4. Words will govern over numerals.

C. For the purposes of bid evaluation, bidder understands that this is a Lump Sum bid. Bidder agrees that use of the extended values on the Bid Breakdown Sheet for evaluation of this Bid does not cause the contract to be a unit price contract. In the event of any conflict between the Bid and Bid Breakdown Sheet, the Bid will govern.

D. For work not covered in Section A or by separately agreed prices, compensation will be calculated on a time and materials basis for extra work. (Refer to paragraph 6.03 of the General Conditions.)

1. The bidder will attach a Schedule of Equipment Rental Rates for extra work.

   NOTE: The equipment rental rates will include cost of fuel, oil, grease, maintenance, overhead, profit, depreciation charges, taxes, insurance, and all other charges, except for operators. No increase or change in the rates will be made for overtime hours or for any other reason.

2. The bidder will attach a Schedule of Labor Charge Rates for extra work.

   NOTE: The labor rate schedule will include labor classifications and charge rates. Profit, overhead, taxes, and insurance will be included in the charge rates. For calculation of overtime compensation, the PCCA workweek begins Monday a.m.

3. Materials used for extra work will be charged at cost plus 15%. The 15% markup will include all indirect costs, such as bond and insurance costs, profit, overhead, *etc*.

E. Enclosed with the Bid is a bid bond or cashier's check in the amount of $_____, which amount is not less than five (5) percent of the maximum amount of the contract (base bid plus all possible combinations of additive, deductive, and alternate bid items). Cashier's checks must be drawn on a bank that is a member of the Federal Reserve System (no personal or company checks will be accepted). It is agreed that this bond or check will be forfeited to the Owner if this Bid is accepted within sixty (60) calendar days from the date Bids are received and the undersigned bidder fails to enter into a written contract and execute Performance and Payment Bonds and Certificates of Insurance under the terms and conditions stated in the Contract Documents within fourteen (14) calendar days of the date of the written Notice of Award of Contract. Otherwise, the bond or check will be promptly returned to the bidder.

F. The bid price is subject to acceptance by the PCCA for a period of sixty (60) calendar days from the scheduled closing date for receiving bids.

G. If awarded the contract, the undersigned bidder hereby agrees to commence work under this contract within ten (10) calendar days of the date of the written Notice to Proceed, to achieve Substantial Completion on or before December 31, 2017, and March 1, 2018 in accordance Paragraph 1.03 "TIME OF COMPLETION" of the Special Conditions. The bidder specifically acknowledges and agrees to provisions in the General and Special Conditions and the Agreement, under which damages may be assessed for failure to complete the work within the required completion time.

H. The bidder must complete the attached Bid Breakdown Sheet to expedite proper evaluation of the bids. This sheet is a part of the Contract Documents. Failure to complete and submit this sheet with the Bid (unless otherwise indicated in the Special Conditions) may cause the Bid to be rejected. PCCA reserves the right to require the bidder to revise any errors and resubmit the Bid Breakdown Sheet.

I. Bidders are required to complete a Conflict of Interest Questionnaire (Form CIQ) and submit it with the bid (see paragraph entitled "Conflict of Interest" in the General Conditions) if Bidder has:

1. Any employment or other business relationship with any employee of the PCCA.
2. Any employment or other business relationship with any relative of an employee of the PCCA.
3. Given any gifts or services of more than $100 in aggregate value to any employee or relative of an employee of the PCCA within the preceding 12-month period.

J. The successful bidder will be required to comply with the provisions of Section 2252.908 of the Texas Government Code and Chapter 46 of the Texas Ethics Commission Rules by preparing and submitting Texas Form 1295, "Certificate of Interested Parties" and submitting the signed and notarized form to PCCA at the time the contract is executed. PCCA will provide the unique identifier and description of services for Box 3 on Texas Form 1295.

Instructions for preparing Form 1295 are available at: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

K. Bidders are required to furnish written information concerning any citation, notice of violation, or penalty regarding a safety or environmental violation by Bidder made by any agency or department of this state or the federal government within the past five years. This

information must include a general description of the conduct that resulted in the citation or notice of violation or penalty and the document(s) sent from the agency or department to Bidder that set forth the citation, violation, or penalty.

L. Bidders must bid on all items and subitems except as otherwise specified in the Bid.

M. Any qualification or exception to the requirements of these Contract Documents may cause the Bid to be rejected.

N. The bidder understands that the PCCA reserves the right to reject any or all Bids and to waive any minor informalities or irregularities in the bidding.

Bidder acknowledges receipt of the following addenda: *(List Addendum Number(s))*

_____ _____

_____ _____

Revised **BID FOR**
BULK LIQUID HANDLING FACILITY
AT BULK DOCK 3
PORT OF CORPUS CHRISTI AUTHORITY

Respectfully submitted,

BIDDER:_____ *(Seal if bid is by a corporation)*
(Company Name)

BY:_____

NAME:_____

TITLE:_____

ADDRESS:_____ *(For all official correspondence)*

_____

COUNTY:_____

TELEPHONE NUMBER:_____

FAX NUMBER:_____

CONTACT PERSON:_____

E-MAIL ADDRESS:_____

DATE:_____

Accepted Contract Price: $_____

PORT OF CORPUS CHRISTI AUTHORITY
OF NUECES COUNTY, TEXAS:

_____
John P. LaRue
Executive Director

DATE:_____

3rd Revision SPECIAL CONDITIONS

1.1 GENERAL. The provisions of this section of the Contract Documents will govern in the event of any conflict between the Special Conditions and the General Conditions.

1.2 PROJECT DESCRIPTION / SCOPE OF WORK. The Contract Documents intend to provide and secure **BULK LIQUID HANDLING FACILITY AT BULK DOCK 3.**

Scope of work generally includes the construction and commissioning of a bulk liquids handling facility transfer of petroleum products from vessels to railcars. Site work improvements include fabrication of piping, racks, pile foundations, cast in place concrete, electrical improvements, area lighting, and mooring bollards. Equipment installation includes mechanical systems, instrumentation, control building, and Vapor Combustion Unit (VCU). Work also includes the relocation of 105-foot long pipe bridge.

1.3 TIME OF COMPLETION. It is anticipated this contract will be awarded at the PCCA Commission Meeting of Tuesday, September 19, 2017. It is further anticipated that the Notice to Proceed will be issued upon execution of the Agreement by Monday, October 9, 2017. Contractor shall conform to the following deadlines.

TASK		**DEADLINE**
1	Commissioning process for unloading petroleum products from ocean going barges and inland barges to diesel/gasoline tie-in lines for Howard Project as labeled on drawing sheet 17-033B-03.	Commission to begin by December 31, 2017
2	Capability, including commissioning of unloading petroleum products from ocean going barges and inland barges and transfer to rail car loading facility.	Substantially Complete by December 31, 2017
3	Capability of unloading petroleum products from ocean going barges and inland barges to diesel/gasoline tie-in lines for Howard Project as labeled on drawing sheet 17-033B-03.	Substantially Complete by March 1, 2018
4	Capability of loading petroleum products to vessels from diesel/gasoline tie-in lines for Howard Project as labeled on drawing sheet 17-033B-03.	Substantially Complete by March 1, 2018
5	All other work, including two monopole mooring structures.	Substantially Complete by March 1, 2018

After January 1, 2018, the dock may be operational and Contractor must continue to coordinate work activities with with dock operator and dock operations.

1.4 VAPOR COMBUSTION UNITS. Vapor Combustion Unit (VCU) #1 – If the fabrication, delivery and installation of the new VCU #1 extends beyond the required substantial completion time, Contractor shall provide a temporary VCU #1 until such new VCU #1 is furnished and installed. Contractor will be responsible for delivery, installation, commissioning, and temporary fueling of temporary VCU #1 until the new (permanent) VCU

#1 is delivered for installation by the Contractor. If a temporary VCU #1 is required, completion of temporary VCU #1 shall be provided prior to achieving Substantial Completion. A Notice of Substantial Completion and Final Acceptance will be issued for the Work to exclude the VCU #1. A separate Notice of Substantial Completion and Final Acceptance will be issued for the Work related to the new (permanent) VCU #1.

Owner Supplied Vapor Combustion Unit (VCU) #2 – Repairs to the Owner supplied VCU #2 are detailed in the construction drawings. Completion of VCU #2 repairs and installation are required prior to Substantial Completion.

The natural gas main line extension is being installed by others. Should this natural gas line not be available for a service connection, Contractor shall supply temporary fuel sources for testing and commissioning of all applicable dock equipment, systems, and VCUs. Contractor will then be responsible for connection of the VCUs to the utility supplied natural gas when the natural gas utility becomes available.

1.5 LIQUIDATED DAMAGES. Liquidated damages in the amount of $2,000 per day will be assessed against the Contractor for each day beyond the required Substantial Completion time for any task identified in Special Condition paragraph 1.3 TIME OF COMPLETION that the tasks remains substantially incomplete. Liquidated damages will at no time exceed $2,000.00 per day...

1.6 SCHEDULING CONSTRAINTS. The Contractor shall not interrupt operations of the PCCA, its Users, or service providers for the Users or the vessels moored at the Bulk Terminal Docks 1 and 2. Access to all the areas of the Bulk Terminal has priority over construction activities and the Contractor will coordinate construction work with the surrounding bulk material handling activities. The Contractor will stage material and equipment to not conflict with ship and barge traffic, adjacent rail facilities and/or gantry crane operations. Contractor may be required to move materials and equipment as directed or as necessary during construction.

Furthermore, the Contractor is required to protect any work-in-progress from dock activity. The Contractor shall work during daylight hours and around the vessel loading schedule. Work that can be accomplished without disruption to cargo transfer activities may be allowed during loading activities. The Contractor shall coordinate the work schedule with the vessel loading schedule weekly at progress meetings with PCCA. Details and procedures for communicating this information will be established at the Pre-Construction conference.

See Special Conditions, 1.12 MATERIALS TO BE FURNISHED BY OWNER.

1.7 ACCESS. To access Bulk Dock 3 from the Joe Fulton Corridor, Contractor must use the PCCA Bulk Terminal Gate. For accessing Oil Dock 1 and adjacent areas from the Joe Fulton Corridor, Contractor must use the PCCA Avenue F Gate. Contractor is advised that there are active railroad tracks that traverses the entrance/access roads and that train delays are possible. These areas are "Restricted" or "TWIC Secure" areas as defined by Technical Section 01 14 13, and provisions of this specification apply. Contractor

employees are also required to have Contractor Safety Council of the Coastal Bend for Basic Plus of Marsec Security training at this project site.

1.8 PERMITS. Contractor shall comply with applicable terms and conditions mandated in the permits/licenses and the permits/licenses are part of the contract. A City of Corpus Christi building permit is not required for this Project, however, applicable codes and regulations do apply.

Changes in applicable laws and regulations or modification to permits and licenses that occur after Contract Award will be incorporated into the Contract by a written change order that will address any applicable cost or schedule impacts.

1.9 GEOTECHNICAL ENGINEERING STUDY. A geotechnical report prepared by Professional Service Industries, Inc. (PSI) titled "Subsurface Exploration and Foundation Evaluation for Proposed PCCA Bulk Dock 3," dated July 9, 1996 is available on request.

1.10 ENVIRONMENTAL POLICY. The following Environmental Policy supersedes the policy listed in the General Conditions. The new Environmental Policy states:

The Port of Corpus Christi Authority ("***Port***") Commission formally adopts a set of guidelines designed to further demonstrate Environmental Leadership in the South Texas Coastal Bend region.

In its commitment to be "***An Environmental Leader,"*** the Port of Corpus Christi Authority in collaboration with stakeholders will strive to exceed what is required as a minimum by applicable rules and regulations to mitigate environmental impacts, prevent pollution, and employ continuous improvement policies and environmental stewardship initiatives that promote the following five (5) key precepts:

- **Air Quality** in attainment of national air quality standards and in support of the Corpus Christi region's efforts to stay in attainment through voluntary actions;
- **Water Quality** that maintains or improves the health of the coastal bend ecosystems;
- **Soils & Sediments** protective of human health and the environment;
- **Wildlife Habitat** development, improvements, and replacement when modification to existing habitat is necessary; and
- **Environmental Sustainability** in the development of port facilities and in ongoing port operations.

The Port's Environmental Policy is the formalization of many existing environmental programs that address soil, sediment, wildlife, air and water quality impacts. Together, these programs have already realized tremendous positive impacts in the surrounding communities and estuaries. The Port also intends to use legislative channels, where appropriate, to help meet its environmental agenda.

The Environmental Policy is one of the strategic imperatives that will be considered and integrated into decisions related to the development of infrastructure or the operations of Port

facilities, supporting the Port of Corpus Christi's vision *To Be the Energy Port of the Americas* and its mission of *Leveraging Commerce to Drive Prosperity* for the Port, its stakeholders, and the Community, Region, State, and Nation.

1.11 MATERIALS TO BE FURNISHED AND INSTALLED BY CONTRACTOR. All equipment specified on the drawings and included as part of the bill of materials for valves, fittings, instrumentation, etc. shall be purchased and installed by the contractor unless otherwise specified on this Special Conditions, Engineer's Plans and Specifications and bid documents.

1.12 MATERIALS TO BE FURNISHED BY OWNER. The following items are furnished by the Owner for use on this project. Bidders shall contact Mr. Carlos Martinez at 361.885.6692 or via email at carlos@pocca.com to arrange to inspect these systems during bidding. Bidders shall provide a minimum of 48 hours' notice for inspection requests.

a. Vapor Combustion Unit #2 – Vapor Combustion Unit (VCU) #2 is available for inspection at Oil Dock 1 during project bidding. Oil Dock 1 is an active terminal and inspections shall be coordinated to not interfere with ongoing dock operations.

   Contractor shall inspect VCU #2 to determine repairs required to provide for a fully functioning VCU #2 system. By submitting a bid, Contractor acknowledges that the Owner furnished VCU #2 is suitable for repair, installation and use with the Project.

b. Steel Bridge for Convey System – The steel bridge system is currently erected and located to the west of Oil Dock 1 and south of the PCCA Maintenance facility and is available for inspection during project bidding. Contractor shall take ownership of the bridge system upon Award of Contract. Steel bridge superstructure shall be unassembled as required, transported to, and re-assembled/erected at the project site in accordance with the Construction Documents. The PCCA shall retain ownership of the existing capped/flanged steel pipe segments located in the top section of the bridge and the Contractor shall deliver these pipe segments to a PCCA identified area within the PCCA Inner Harbor.

c. Floating Barge System with Hose Tower, Hydraulic Crane and Dock Safety Unit Skid - The floating barge system is located at Bulk Dock 3 and is available for inspection during project bidding. Bidders shall contact Mr. Carlos Martinez (see paragraph above). Providing for safe and effective barge mooring during construction shall be the Contractor's responsibility. Contractor to inspect current barge mooring system and make adjustments as necessary to provide for safe and effective mooring during construction activities. By submitting a bid, Contractor acknowledges that the floating barge system can be moored safely during Contractor's activities.

d. Climate Controlled Building – The Climate Controlled Building is currently located at Oil Dock 1. The building is available for inspection during project bidding. By submitting a bid, Contractor acknowledges that the Owner furnished building is suitable for transport and installation for this Project.

e. Metering Skids – Metering skids are not currently located onsite and are scheduled to arrive on or before December 1, 2017. Contractor shall inspect, receive, and take ownership of up to nine metering skids upon arrival of equipment on site. Contractor shall coordinate with the third party metering skid provider (contact information for third party provider to be provided after Award of Contract). Metering skids are wheel mounted units that can be transported/maneuvered upon delivery with a light pickup truck (approximately 20,000 pound towing capacity). It will be contractor's responsibilities to modify the metering skid's control circuit to interphase its operation in conjunction with the overall system.

f. As soon as the PCCA has determined the project is Substantially Complete, Contractor will provide, at a minimum, 14 day notice to PCCA for coordination of a vessel loaded with crude oil or petroleum products ready to be discharged at Bulk Dock 3 for systems acceptance testing, provided that such vessel will not be required to remain at Bulk Dock 3 for such purposes for more than 72 hours.

1.13 INSURANCE. USL&H, Maritime, Builder's Risk, Contractor's Pollution Liability, Railroad Protection and Umbrella Liability Coverage is required for this project.

In addition to the required insurance coverage's pursuant to the GENERAL CONDITIONS, Contractor shall provide and maintain the following insurance coverages (the "Policies") as follows:

a. To the extent that Contractor owns and/or will operate vessels in order to perform the work within the specifications for this Project, a Protection and Indemnity insurance policy is required, with a minimum limit of $10,000,000 any one accident or occurrence, naming the Port of Corpus Christi Authority, its PCCA Commissioners, officers, officials employees and agents as additional insured's.

b. See Section 3.36 of the General Conditions for all other requirements.

1.14 BONDS. Performance and Payment Bonds are required when the successful bidder executes the contract, each for 100% of the total contract price.

1.15 QUALIFICATION OF CONTRACTORS. Contractor, subcontractors, vendors and material suppliers must be able to demonstrate a level of experience satisfactory to the PCCA in performing work similar to this project.

a. The Contractor shall employ for this Project, as its field administration staff, superintendents, and foremen who are careful and competent and acceptable to the PCCA. The Project Superintendent must have at least five years of recent experience

in the oversight of projects that include similar work and are equal to or greater in size and complexity to this Project. This experience must include scheduling of manpower and materials, safety, coordination of Subcontractors, experience with the submittal process and contract closeout procedures. The Project Superintendent is to be present at the Site at all times that Work is being performed, Foremen must have at least five years of recent experience in similar work and be subordinate to the Project Superintendent. Foremen cannot act as a superintendent without prior written approval from the PCCA.

b. Contractors shall submit documentation concerning these requirements for PCCA review within 14 calendar days of Notice of Award of Contract is issued. Written approval is also necessary prior to a change in field administration staff during the term of this Contract. The Contractor's field administration staff, and any subsequent substitutions or replacement thereto, much be approved by the PCCA in writing prior to such Project Superintendent of Foreman assuming responsibilities on the Project.

c. Contractors and Subcontractors shall have a documented safety record that meets industry standards as applicable for their respective work categories.

1.16 PRE-CONSTRUCTION CONFERENCE. A pre-construction conference will be scheduled prior to commencement of construction.

1.17 RAILROAD WORKPLACE SAFETY. Attached for reference is Exhibit A - the Roadway Worker Protection (RWP), Roadway Maintenance Machines (RMM) and On-Track Safety Rules for the GWRR – Rail Link Region effective Monday, May 2, 2016. The Rail Link is the Corpus Christi Terminal Railroad (CCTR). The Port's Manager of Rail Operations is John Slubar and he will be the point of contact for setting up communications with the CCTR. Mr. Slubar can be reached at 361-885-6185.

1.18 USE OF PCCA FACILITIES AND UTILITIES. During execution of the Project, the Contractor will be allowed to use PCCA facilities and utilities as follows:

Facility/Utility	Allowed	Not Allowed
Restrooms / Lunchrooms		X
Offices		X
Telephones		X
Vending Machines		X
Water		X
Electricity		X
Sewage		X

Contractor is responsible for any required hookup or installation costs associated with use of the above. Contractor will not be allowed to overload any circuits with construction equipment or tool loads. PCCA needs and utilization of these facilities will have priority over those of Contractor. Contractor will be responsible for any damage to PCCA facilities or utilities caused by Contractor's use.

1.19 TESTING SCHEDULE. The following construction materials testing program will be performed in accordance with the Technical Specifications and General Conditions. Testing initially paid by PCCA that fails and requires follow-up testing will be paid by the Contractor:

DESCRIPTION	RATE	EST QTY
SOIL:		
STANDARD PROCTOR - TRENCH BACKFILL	PER MATERIAL SOURCE	1
STANDARD PROCTOR - SUBGRADE	PER PROJECT SITE	1
DENSITIES - TRENCH BACKFILL	PER 200 LF TRENCH/LIFT	5
DENSITIES - SUBGRADE	PER 10000 SF/LIFT	5
FLEXIBLE BASE:		
SIEVE ANALYSIS	PER 3000 CY	1
ATTERBURG LIMITS	PER 3000 CY	1
DENSITIES OF COMPACTED BASE	PER 10000 SF/LIFT	3
CONCRETE:		
(UNCONFINED COMPRESSION, 7, 14, & 28 DAY)		
CONCRETE CAP	PER 50 CY OR PER DAY	3
CONCRETE FOUNDATION	PER 50 CY OR PER DAY	4
CONCRETE SLAB	PER 50 CY OR PER DAY	3
PIPING:		
STEEL PIPE WELDS	10% OF FIELD WELDS PER DAY (RADIOGRAPH)	30

Contractor shall coordinate and cooperate with PCCA's construction material testing contractor to schedule and conduct construction material tests as appropriate. Contractor to provide at least 24 hours advance notice to schedule construction materials tests. The PCCA may conduct additional testing at the PCCA's discretion.

1.20 LIST OF DRAWINGS. Accompanying these specifications and included herein by reference are the drawings listed as follows:

SHEET #	DRAWING #	DESCRIPTION
01	17-033B-01	TITLE SHEET
02	17-033B-02	GENERAL NOTES
03	17-033B-03	OVERALL PLAN
04	17-033B-04	PARTIAL FOUNDATION LOCATION PLAN-1
05	17-033B-05	PARTIAL FOUNDATION LOCATION PLAN-2
06	17-033B-06	FOUNDATION DETAILS
07	17-033B-07	VCU#1 FOUNDATION PLANS & SECTIONS
08	17-033B-08	VCU#2 FOUNDATION PLAN & SECTION
09	17-033B-09	FOUNDATION DETAILS
10	17-033B-10	FOUNDATION DETAILS
11	17-033B-11	TRANSFORMER FOUNDATION
12	17-033B-12	MCC/VCU #1 CONTROL ROOM FOUNDATION

SHEET #	DRAWING #	DESCRIPTION
13	17-033B-13	VCU #1 CONTROL ROOM FOUNDATION
14	17-033B-14	SLOP TANK FOUNDATION & DETAILS
15	17-033B-15	MISCELLANEOUS PIPE SUPPORTS
16	17-033B-16	ANCHOR BOLTS DETAILS
17	17-033B-17	PILING DETAILS
18	17-033B-18	MISCELLANEOUS PIPE SUPPORTS ON SPACER BARGE
19	17-033B-19	DEMOLITION ELEVATIONS AT OIL DOCK 1
20	17-033B-20	PIPE SUPPORT LOCATION PLAN
21	17-033B-21	PIPERACK PLAN ON DOCK
22	17-033B-22	ELEVATIONS AT PIPERACK ON DOCK
23	17-033B-23	PIPERACK AT RAILROAD
24	17-033B-24	STEEL BASE DETAIL AT BENT 4
25	17-033B-25	STEEL BASE DETAIL AT BENT - 3
26	17-033B-26	STEEL BASE DETAIL AT BENTS 1 & 2
27	17-033B-27	MISCELLANEOUS PIPE SUPPORTS
28	17-033B-28	STEEL FRAMING BETWEEN BRIDGES
29	17-033B-29	BRIDGE FRAMING MODIFICATION PLANS
30	17-033B-30	BRIDGE MODIFICATION ELEVATIONS - 1
31	17-033B-31	BRIDGE MODIFICATION ELEVATIONS - 2
32	17-033B-32	BRIDGE MODIFICATION DETAILS - 1
33	17-033B-33	BRIDGE MODIFICATION DETAILS - 2
34	17-033B-34	OCEAN GOING BARGE MOORING LAYOUT
35	17-033B-35	SHIP MOORING LAYOUT (Dated 9/6/17)
36	17-033B-36	INLAND BARGE MOORING LAYOUT
37	17-033B-37	OCEAN & INLAND BARGES
38	17-033B-38	ELEVATION AT RAILROAD
39	17-033B-39	CONCRETE AT WASHOUT AREA
40	17-033B-40	NOT CURRENTLY USED
41	17-033B-41	DRAINAGE PLAN
42	17-033B-42	STORM WATER POLLUTION PREVENTION PLAN
43	17-033B-43	STORM WATER POLLUTION PREVENTION DETAILS
44	17-033B-44	ASPHALT REPAIR DETAILS
45	17-033B-45	CATCH BASIN MODIFICATION DETAILS
46	17-033B-46	CATCH BASIN PLANS, SECTIONS & DETAILS
47	17-033B-47	MOORING STRUCTURE LAYOUT
48	17-033B-48	MOORING MONOPILE NMS1 & NMS2 DETAILS
48A	17-033B-48A	MOORING MONPILE NMS2 DETAILS
49	17-033B-49	EXISTING BREASTING STRUCTURE MODIFICATION DETAILS
101	17-033B-101	TITLE SHEET
102	17-033B-102	PIPING SPECIFICATION SHEET
103	17-033B-103	PIPING & INSTRUMENTATION DIAGRAM
104	17-033B-104	PIPING & INSTRUMENTATION DIAGRAM
105	17-033B-105	PIPING & INSTRUMENTATION DIAGRAM
106	17-033B-106	PIPING & INSTRUMENTATION DIAGRAM
107	17-033B-107	PIPING & INSTRUMENTATION DIAGRAM
108	17-033B-108	PIPING KEY PLAN
109	17-033B-109	PIPING & SUPPORTS LOCATION PLAN
110	17-033B-110	PIPING & SUPPORTS LOCATION PLAN

SHEET #	DRAWING #	DESCRIPTION
111	17-033B-111	PIPING & SUPPORTS LOCATION PLAN
112	17-033B-112	PIPING & SUPPORTS LOCATION PLAN
113	17-033B-113	PIPING & SUPPORTS LOCATION PLAN
114	17-033B-114	PIPING & SUPPORTS LOCATION PLAN
115	17-033B-115	PIPING & SUPPORTS LOCATION PLAN
116	17-033B-116	PIPING & SUPPORTS LOCATION PLAN
117	17-033B-117	PIPING & SUPPORTS LOCATION PLAN
118	17-033B-118	OVERALL SECTIONAL VIEW DRAWING - 1
119	17-033B-119	OVERALL SECTIONAL VIEW DRAWING - 2
120	17-033B-120	OVERALL SECTIONAL VIEW DRAWING - 3
121	17-033B-121	OVERALL SECTIONAL VIEW DRAWING - 4
122	17-033B-122	OVERALL SECTIONAL VIEW DRAWING - 5
123	17-033B-123	OVERALL SECTIONAL VIEW DRAWING - 6
124	17-033B-124	STANDARD DRAWING NON ADJUSTABLE SUPPORT
125	17-033B-125	STANDARD DRAWING - PIPE SHOE SUPPORT FOR INSULATED PIPE
126	17-033B-126	STANDARD DRAWING - PIPE HANGER SUPPORT
127	17-033B-127	STANDARD DRAWING - PIPE GUIDE (NO WELD AREA)
128	17-033B-128	STANDARD DRAWING - PIPE GUIDE (WELD AREA)
129	17-033B-129	DEMO AT FLOATING BARGE
130	17-033B-130	LINE LIST - 1
131	17-033B-131	LINE LIST - 2
132	17-033B-132	LINE LIST - 3
133	17-033B-133	BILL OF MATERIAL - 1
134	17-033B-134	BILL OF MATERIAL – 2
135	(120 Sheets)	ISOMETRICS
301	17-033B-301	TITLE SHEET
302	17-033B-302	ELECTRICAL ONE LINE DIAGRAM
303	17-033B-303	ELECTRICAL EQUIPMENT LOCATION PLAN
304	17-033B-304	ELECTRICAL CONDUIT / CABLE SCHEDULE
305	17-033B-305	OVERALL ELECTRICAL CONDUIT LAYOUT
306	17-033B-306	FLOATING BARGE ELECTRICAL CONDUIT LAYOUT
307	17-033B-307	CONDUIT LOCATION PLAN
308	17-033B-308	CONDUIT LOCATION PLAN
309	17-033B-309	CONDUIT LOCATION PLAN
310	17-033B-310	CONDUIT LOCATION PLAN
311	17-033B-311	CONDUIT DETAILS
312	17-033B-312	ELECTRICAL LOAD CALCULATION
313	17-033B-313	ELECTRICAL LOAD LIST
314	17-033B-314	POWER BUILDING LAYOUT
315	17-033B-315	RISER DIAGRAM BARGE POWER PANEL
316	17-033B-316	POWER DISTRIBUTION BOARD DB-01 SCHEDULE
317	17-033B-317	BARGE POWER PANEL SCHEDULE PP-01
318	17-033B-318	VCU #2 & ECR-3 BUILDING PANELS LP-1/32 SCHEDULE
319	17-033B-319	LIGHTING PLAN
320	17-033B-320	LIGHTING DETAILS
321	17-033B-321	GROUNDING LAYOUT - 1
322	17-033B-322	GROUNDING LAYOUT - 2
323	17-033B-323	GROUNDING LAYOUT - 3

SHEET #	DRAWING #	DESCRIPTION
324	17-033B-324	GROUNDING LAYOUT - 4
325	17-033B-325	GROUNDING LAYOUT - 5
326	17-033B-326	GROUNDING DETAILS - 1
327	17-033B-327	GROUNDING DETAILS - 2
328	17-033B-328	GROUNDING DIAGRAM
329	17-033B-329	INSTRUMENTATION LOCATION PLAN
330	17-033B-330	INSTRUMENT CONDUIT & CABLE TRAY PLAN
331	17-033B-331	INSTRUMENT BLOCK DIAGRAM
332	17-033B-332	BARGE INSTRUMENTATION BLOCK DIAGRAM
333	17-033B-333	INSTRUMENT CONDUIT / CABLE SCHEDULE - 1
334	17-033B-334	INSTRUMENT CANDUIT / CABLE SCHEDULE - 2
335	17-033B-335	INSTRUMENT INDEX
336	17-033B-336	INSTRUMENT INDEX
337	17-033B-337	INSTRUMENT I/O INDEX
338	17-033B-338	INSTRUMENT JUNCTION BOX AND PANEL WIRING SCHEDULE
339	17-033B-339	INSTRUMENT JUNCTION BOX AND PANEL WIRING SCHEDULE
340	17-033B-340	FLOW LOOP DIAGRAM
341	17-033B-341	FLOW LOOP DIAGRAM
342	17-033B-342	FLOW LOOP DIAGRAM
343	17-033B-343	FLOW LOOP DIAGRAM
344	17-033B-344	FLOW LOOP DIAGRAM
345	17-033B-345	FLOW LOOP DIAGRAM
346	17-033B-346	FLOW LOOP DIAGRAM
347	17-033B-347	FLOW LOOP DIAGRAM
348	17-033B-348	FLOW LOOP DIAGRAM
349	17-033B-349	FLOW LOOP DIAGRAM
350	17-033B-350	FLOW LOOP DIAGRAM
351	17-033B-351	FLOW LOOP DIAGRAM
352	17-033B-352	FLOW LOOP DIAGRAM
353	17-033B-353	LEVEL LOOP DIAGRAM
354	17-033B-354	LEVEL LOOP DIAGRAM
355	17-033B-355	INSTRUMENT & ELECTRICAL B.O.M
356	17-033B-356	CABEL TRAY DETAILS
357	17-033B-357	MISCELLANEOUS DETAILS & VCU #2 BUILDING LAYOUT
358	17-033B-358	INSTRUMENT JUNCTION BOX
359	17-033B-359	EXISTING FLOATING BARGE ELECTROICAL MODS – 1
360	17-033B-360	EXISTING FLOATING BARGE ELECTROICAL MODS – 2
361	17-033B-361	EXISTING FLOATING BARGE ELECTROICAL MODS – 3
362	17-033B-362	EXISTING FLOATING BARGE ELECTROICAL MODS – 4

REFERENCE DRAWINGS: *(Found in APPENDIX A-Control Narrative and Reference Drawings)*

JOHN ZINK DRAWINGS VCU# 2:

D-VC-9118202-151: PIPING & INSTRUMENT DIAGRAM VAPOR BLOWER SKID

D-VC-9118202-152: PIPING & INSTRUMENT DIAGRAM 15,000 BPH VAPOR BLOWER SKID

D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT

D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT ELEV.
D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT ELEV.
D-VC-9118202-202: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT 3D VIEW
D-VC-9118202-205: GENERAL ARRANGEMENT - BLOWER SKID
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID
D-VC-9118202-204: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT

D-VC-9118202-204: GENERAL ARRANGEMENT VAPOR COMBUSTOR UNIT 2D ELEV.
D-VC-9118202-205: GENERAL ARRANGEMENT BLOWER SKID VAPOR COMBUSTOR UNIT
D-VC-9118202-205: GENERAL ARRANGEMENT BLOWER SKID 3D VIEW
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 1 OF 4
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 2 OF 4
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 3 OF 4
D-VC-9118202-403: PANEL BCP-103 LAYOUT BLOWER/FLARE SKID 4 OF 4
D-VC-9118202-404: ELECTRICAL ONE-LINE DIAGRAM MVSU 1 OF 5
D-VC-9118202-404: ELECTRICAL ONE-LINE DIAGRAM MVSU 2 OF 5
D-VC-9118202-404: ELECTRICAL ONE-LINE DIAGRAM MVSU 3 OF 5
D-VC-9118202-405: PLC COMMUNICATION NETWORK LAYOUT
D-VC-9118202-406: VFD PANEL LAYOUT OFF SKID MOUNTING VCU 1 OF 2
D-VC-9118202-406: VFD PANEL LAYOUT OFF SKID MOUNTING VCU 2 OF 2
D-VC-9118202-431: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-432: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-433: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-434: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID PANEL
D-VC-9118202-435: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID BCP-103
D-VC-9118202-436: SCHEMATIC WIRING DIAGRAM BLOWER/ FLARE SKID BCP 103
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 1 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 2 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 3 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 4 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 5 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 6 OF 7
D-VC-9118202-437: ANALOG LOOP DIAGRAMS BLOWER/ FLARE SKID 7 OF 7

JOHN ZINK DRAWINGS DSU # 3

VC-9136369-400: DRAWING INDEX
VC-9136369-401: ELECTRICAL ONE-LINE POWER WIRING DIAGRAM
VC-9136369-401: PLC COMMUNICATION NETWORK LAYOUT
VC-9136369-411: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-412: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-413: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-414: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-415: MCP-103 SHIP DOCK SAFETY & INJECTION SKID S.W.D.
VC-9136369-416: MCP-103 SHIP DOCK SAFETY & INJECTION SKID LOOP DIAG.

SERVOMEX (OXYGEN ANALYZER –JZ UNIT)
631045025-1 PROCESS, CUSTOMER CONNECTIONS AND BOM
631045025-2 ANALYZER & SAMPLE SYSTEM FLOW DRAWING
631045025-3 ANALYZER & SAMPLE SYSTEM VAC WIRING DIAGRAM
631045025-4 ANALYZER & SAMPLE SYSTEM ALARM & SIGNAL WIRING DIAGRAM
631045025-5 ANALYZER & SAMPLE SYSTEM DIMENSIONAL DRAWINGS

CH2M HILL DRAWINGS
CCT-00909 GROUNDING PLAN FOR FLOATING BARGE AREA
CCT-00909 LIGHTING PLAN
CCT-00914 POWER PLANS

FARWEST CORROSION CONTROL COMPANY
9723-5 SPUD ELECTRICAL BONDING DETAIL

CHAMPION TECHNOLOGY SERVICES DRAWINGS

SH 001	974-004+A01-WN-001	TITLE SHEET AND DRAWINGS INDEX
SH 002	974-004+A01-WN-002	TITLE SHEET AND DRAWINGS INDEX
SH 101	974-004+A01-WL-101	PLC ENCLOSURE LAYOUT
SH 102	974-004+A01-WL-102	PLC BACKPANEL LAYOUT
SH 301	974-004+A01-WE-301	PLC PANEL RACK 0
SH 401	974-004+A01-WE-401	PLC PANEL RACK 0
SH 411	974-004+A01-WE-411	RACK 0, MODULE 1
SH 412	974-004+A01-WE-412	RACK 0, MODULE 2, 3
SH 413	974-004+A01-WE-413	RACK 0, MODULE 4, 5
SH 414	974-004+A01-WE-414	RACK 0, MODULE 6

FLINT HILLS RESOURCES TRANSLOADER PHASE
PR-PID-0002_06 REV 2: TRANSLOADER TRAILER P&ID (TYP 8 PLACES)
PD-PID-0002_03 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PID-0002_02 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PIP-0002_04 REV 2: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PD-PIP-0002_01 REV 1: TRANSLOADER TRAIL PLAN & ELEVATION VIEWS
PR-PFD-0001_01 REV 4: PROCESS FLOW DIAGRAM
PR-PID-0002_06 REV 3: TRANSLOADER TRAILER P&ID (TYP 8 PLACES)

1.21 CONTRACTOR'S DAILY REPORTS. Daily reports will be prepared by the Contractor and submitted to PCCA Project Engineer at the conclusion of each week.

1.22 EXPLORATORY EXCAVATION. Underground utilities and structures shown on the project plans are shown as accurately as possible; however PCCA does not guarantee that all utilities are shown, or shown in the exact location. It shall be the responsibility of the Contractor at its sole expense to determine the exact location of underground utilities and structures that may interfere with construction by exploratory excavation prior to commencing work. The Contractor shall proceed with caution in the excavation so that the exact location of underground utilities and structures, both marked and unmarked, may be determined. In the event that an underground utility or structure is encountered, it shall be the Contractor's responsibility at its sole expense to determine the utility and its owner, and notify the Engineer for a determination of direction for continuing work. The Contractor will be held responsible for the repair of any utility or structure damaged by the Contractor's actions or inactions during excavation. Prior to the end of each work day, exploratory excavations made shall be backfilled with the native excavated material and compacted to prevent subsequent settlement. Excavations made within paved areas shall be permanently resorted to its original condition. Excavated materials shall not be placed in storm drainage conveyances, temporarily or permanently.

1.23 CONCRETE WASHING. Washing out of concrete trucks serving the construction project is only allowed in areas approved by PCCA Project Manager. The Contractor will ensure that the discharge of the washout water will not cause groundwater contamination. Discharges from the washout of form release oils, curing compounds, and other materials are not permitted. All wastes must be properly disposed of offsite by Contractor.

1.24 AIR MONITORING NETWORK. PCCA maintains a system to monitor dust originating from the Bulk Terminal site. Contractor shall ensure at all times that construction activities are conducted in such a way as to not produce dust. If dust becomes an issue, contractor must immediately remedy the situation by the use of water sprays or whatever means necessary to prevent causing dust.

1.25 PREVAILING WAGE RATE. The following pages are lists of wage rates that have been determined to be the prevailing minimum rates in this area. Contractor will not pay less than these rates.

END OF SECTION