





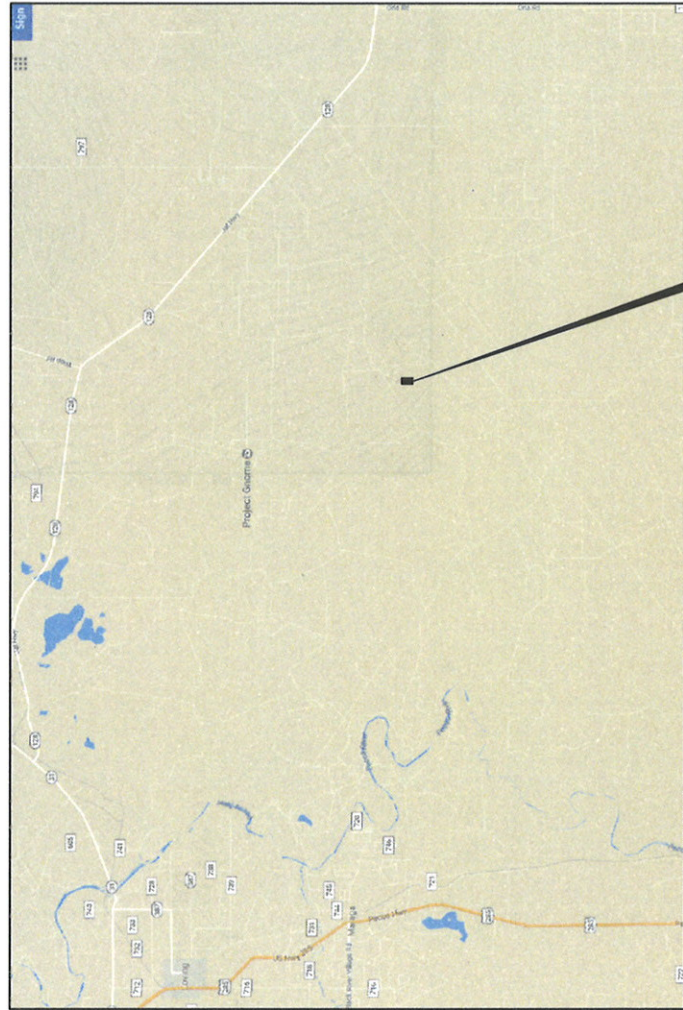
## Appendix G

### Engineering Design Drawings

**BOPCO, LP**  
**MIDLAND, TEXAS**

**PLU CENTRAL 1  
1,000,000 BBL  
RECYCLING CONTAINMENT  
(TWO DOUBLE LINED CONTAINMENTS)**

SEPTEMBER 2017



LOCATION PLAN  
APPROX SCALE: 1" = 1.5 mi

PROJECT LOCATION

COVER SHEET

EXISTING CONDITIONS PLAN

PROPOSED CONTAINMENT GRADING PLAN

PROPOSED PIPING PLAN

## PROPOSED CONTAINMENT SECTIONS

PROPOSED LINER PANEL LAYOUT

DOUBLE LINER AND LEAK DETECTION DETAILS

## STINGER SECTIONS

## STINGER AND FENCING DETAILS

PREPARED BY:

CDM  
Smith

111490 Westheimer Road, Suite 700  
Houston, TX 77077  
Tel: (713) 423-7300  
TBPE Firm Registration No. F-3043

WAVE SOURCE: GOOGLE MAPS 2017

LOCATION PLAN  
APPROX SCALE: 1" = 1.5 mi

PROJECT LOCATION

DRAWING INDEX

COVER SHEET

EXISTING CONDITIONS PLAN

PROPOSED CONTAINMENT GRADING PLAN

PROPOSED PIPING PLAN

## PROPOSED CONTAINMENT SECTIONS

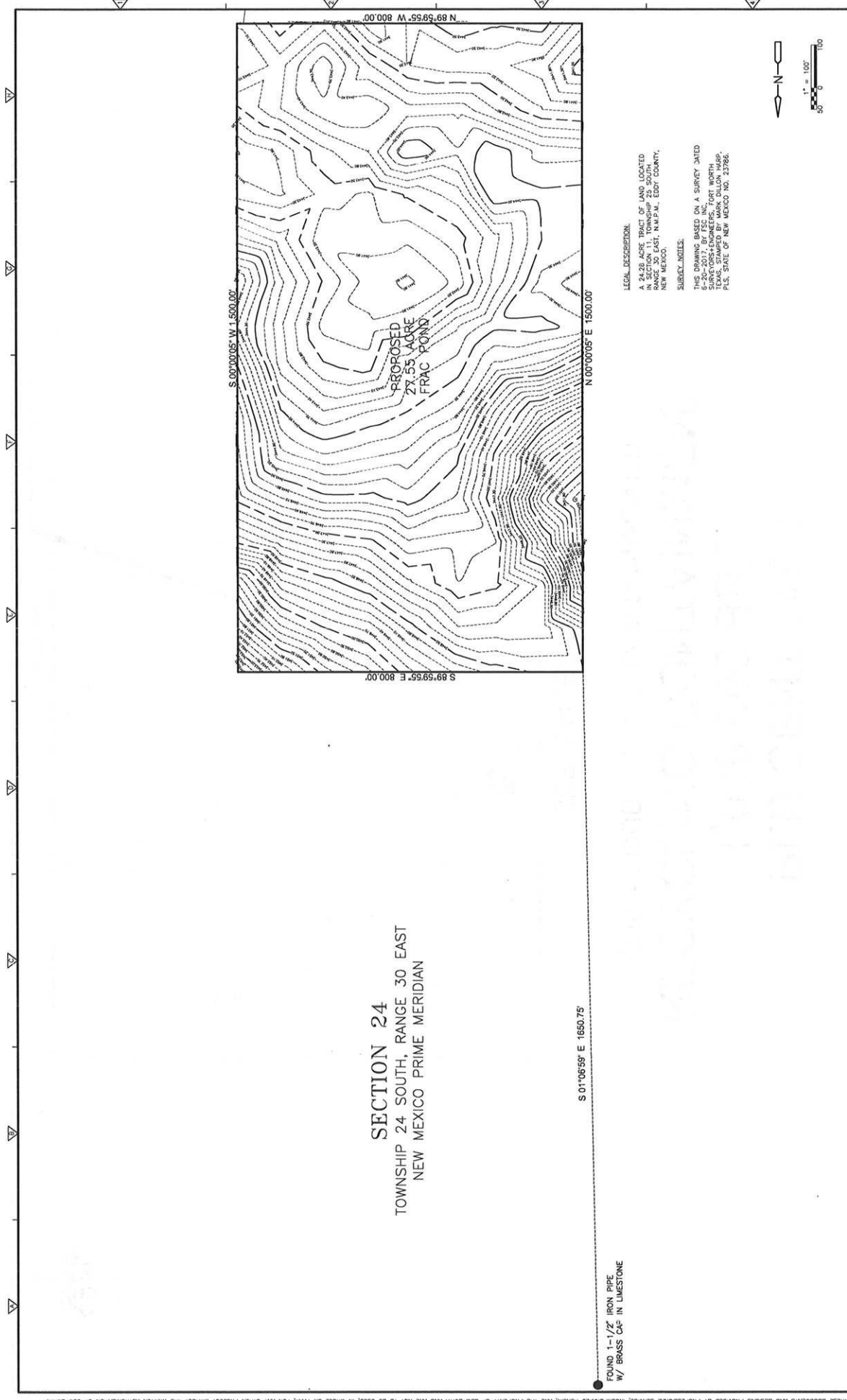
PROPOSED LINER PANEL LAYOUT

DOUBLE LINER AND LEAK DETECTION DETAILS

## STINGER SECTIONS

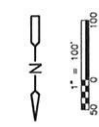
## STINGER AND FENCING DETAILS

[illegible]



LEGAL DESCRIPTION:  
A 24.28 ACRE TRACT OF LAND LOCATED  
IN SECTION 11, TOWNSHIP 25 SOUTH,  
RANGE 30 EAST, N.M.P.M., EDDY COUNTY,  
NEW MEXICO.

SURVEY NOTES:  
THIS DRAWING BASED ON A SURVEY DATED  
JANUARY 11, 2017, BY JAMES L. HARRIS,  
SURVEYOR, EDDY COUNTY, NEW MEXICO.  
TEAS. STAMPED BY MARK DILLON HARRIS,  
P.L.S. STATE OF NEW MEXICO NO. 23786.

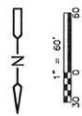
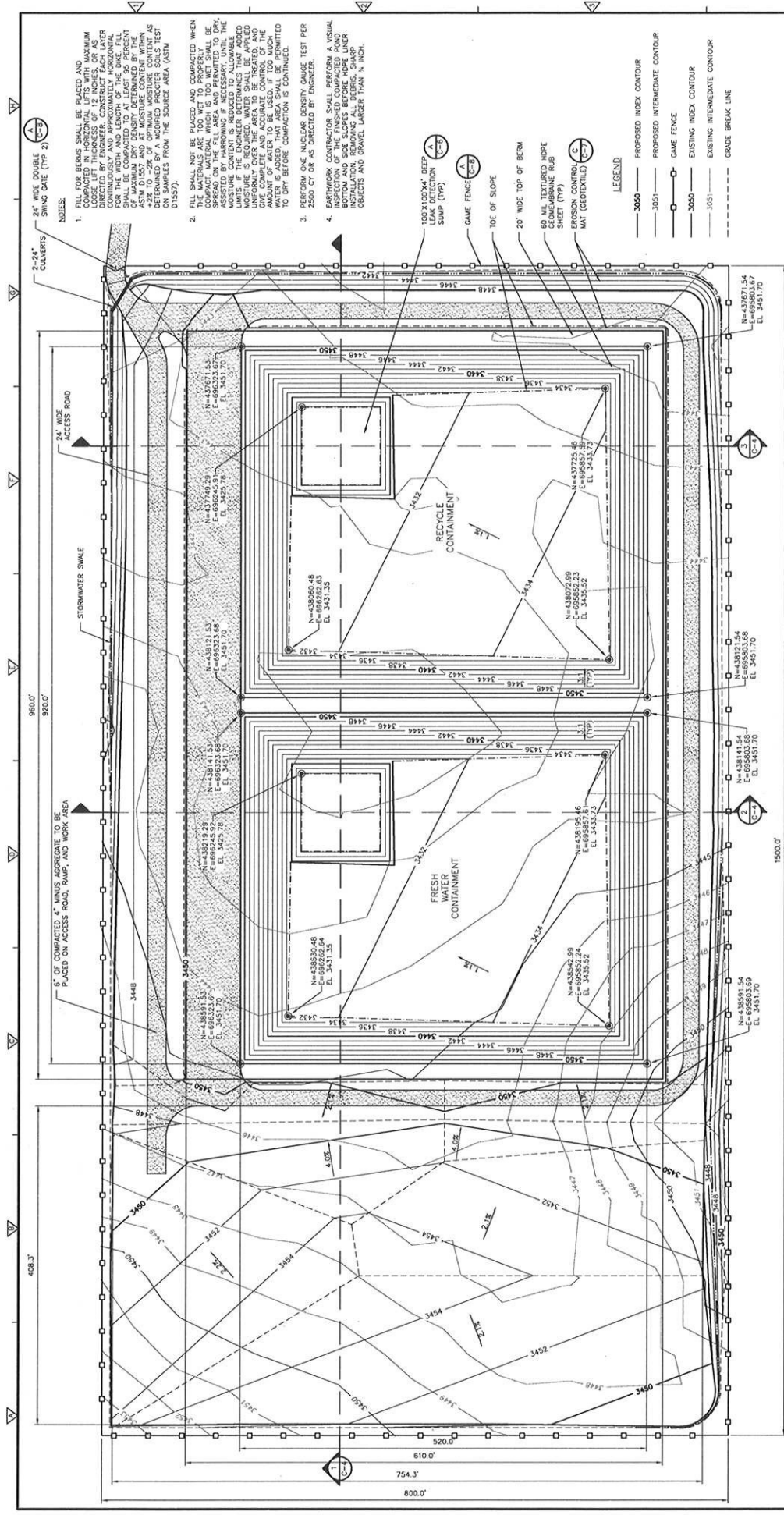


SECTION 24  
TOWNSHIP 24 SOUTH, RANGE 30 EAST  
NEW MEXICO PRIME MERIDIAN

S 01°06'59" E 1650.75'

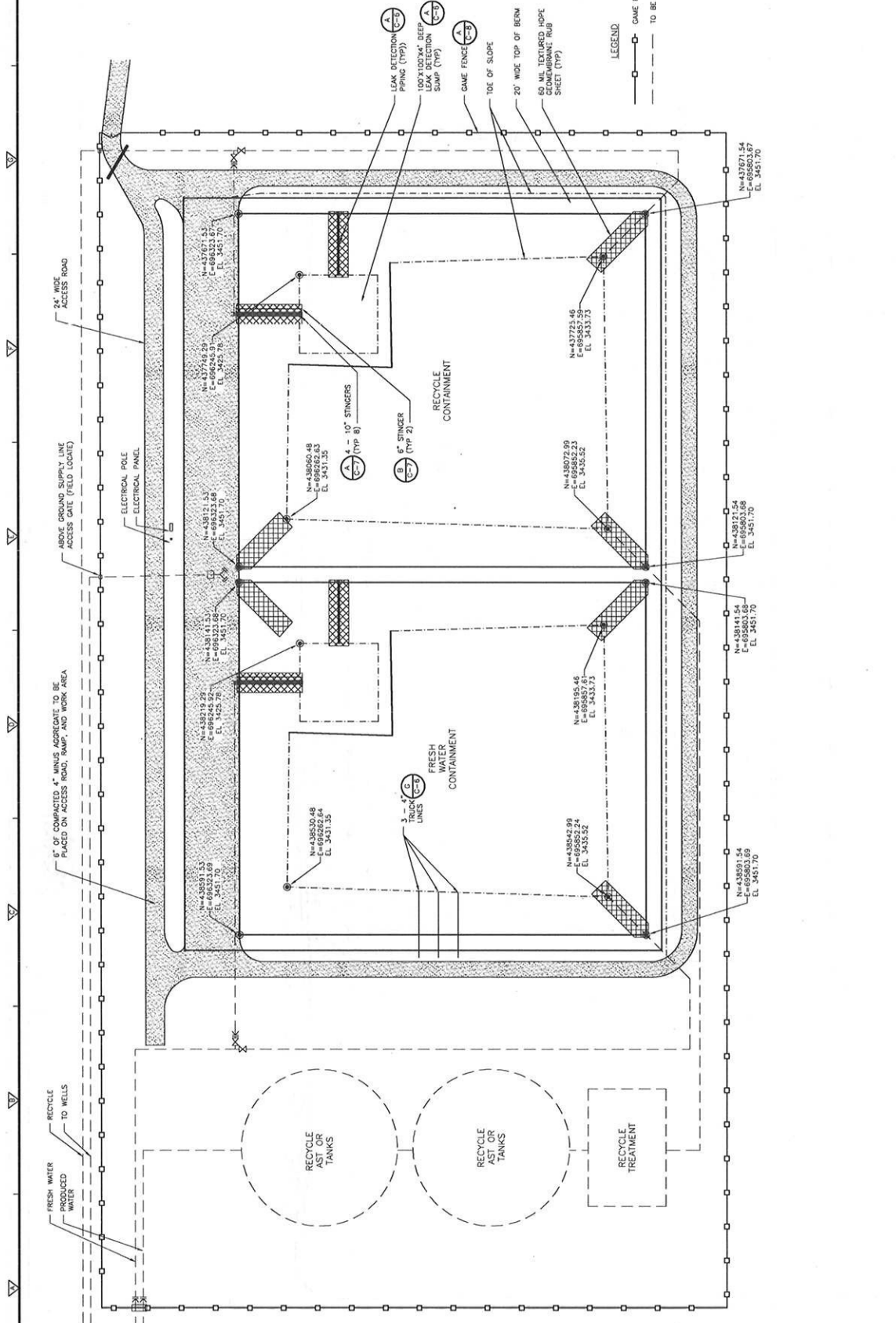
FOUND 1-1/2" IRON PIPE  
W/ BRASS CAP IN LIMESTONE

|                                                                                     |                      |                                                                                                                                                                                                                              |    |
|-------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| PROJECT NO. 5005-21-0003<br>FILE NAME: CDD157P.DWG<br>SHEET NO. C-1                 |                      | EXISTING CONDITION PLAN                                                                                                                                                                                                      |    |
| BOPCO, LP<br>MIDLAND, TEXAS<br>PLU CENTRAL 1<br>1,000,000 BBL RECYCLING CONTAINMENT |                      | <br><b>CDM Smith</b><br>11000 Westway Road, Suite 700<br>Midland, TX 79701<br>TEL 409-422-7200<br>FAX 409-422-7200<br>WWW.CDM-SMITH.COM |    |
| DESIGNED BY: J. VICKERY                                                             | DATE: SEPTEMBER 2017 | REMARKS                                                                                                                                                                                                                      |    |
| DRAWN BY: M. MINNICH                                                                |                      | DATE                                                                                                                                                                                                                         | NO |
| CHECKED BY: M. MINNICH                                                              |                      | DATE                                                                                                                                                                                                                         | NO |
| APPROVED BY: M. MINNICH                                                             |                      | DATE                                                                                                                                                                                                                         | NO |



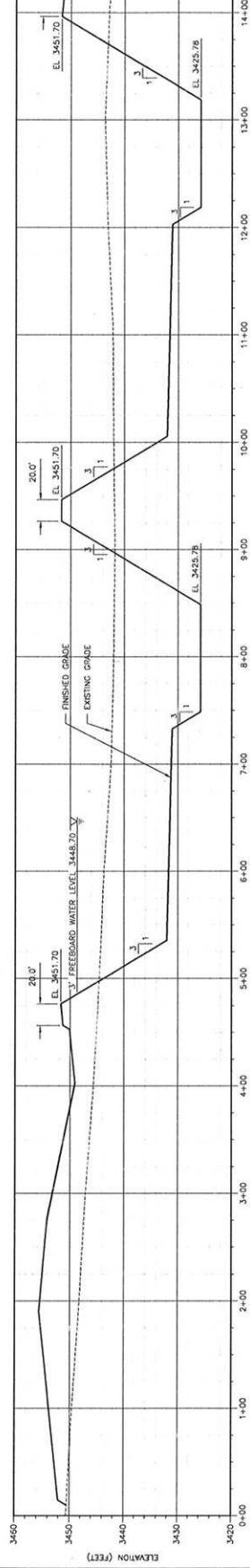
- LEGEND
- 3050 PROPOSED INDEX CONTOUR
  - 3051 PROPOSED INTERMEDIATE CONTOUR
  - 3052 GAME FENCE
  - 3053 EXISTING INDEX CONTOUR
  - 3054 EXISTING INTERMEDIATE CONTOUR
  - 3055 GRADE BREAK LINE

|                                                                                     |                      |    |             |
|-------------------------------------------------------------------------------------|----------------------|----|-------------|
| PROJECT NO. 5000-2-1808<br>FILE NAME. C00257PL.DWG<br>SHEET NO. C-2                 |                      |    |             |
| PROPOSED CONTAINMENT GRADING PLAN                                                   |                      |    |             |
| BOPOCO LP<br>MIDLAND, TEXAS<br>PLU CENTRAL 1<br>1,000,000 BBL RECYCLING CONTAINMENT |                      |    |             |
|                                                                                     |                      |    |             |
| DESIGNED BY: J. VANCE                                                               | DATE: SEPTEMBER 2017 |    |             |
| DRAWN BY: M. WANNING                                                                |                      |    |             |
| CHECKED BY: J. VANCE                                                                |                      |    |             |
| APPROVED BY: J. VANCE                                                               |                      |    |             |
| REVISIONS                                                                           |                      |    |             |
| NO.                                                                                 | DATE                 | BY | DESCRIPTION |
| 1                                                                                   |                      |    |             |
| 2                                                                                   |                      |    |             |
| 3                                                                                   |                      |    |             |
| 4                                                                                   |                      |    |             |
| 5                                                                                   |                      |    |             |
| 6                                                                                   |                      |    |             |
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| 9                                                                                   |                      |    |             |
| 10                                                                                  |                      |    |             |

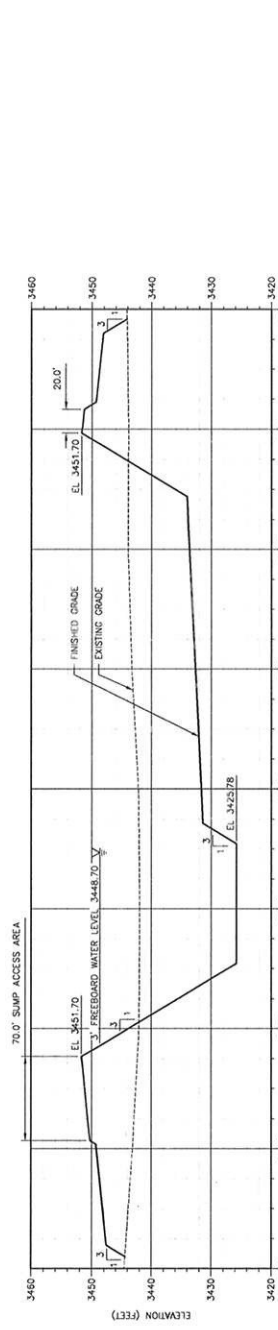


|                                                                                                                                     |      |                                                                                                                           |      |                                                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------|--|
| PROJECT NO. 2224-CTR-001-PLU-C1<br>FILE NAME: C00351PL.DWG<br>SHEET NO. C-3                                                         |      | BOPCO, LP<br>MIDLAND, TEXAS<br>PLU CENTRAL 1<br>1,000,000 BBL RECYCLING CONTAINMENT                                       |      | PROPOSED PIPING PLAN<br>PRELIMINARY DRAWINGS - NOT FOR CONSTRUCTION |  |
| DESIGNED BY: J. JOSEPH<br>DRAWN BY: M. WANNICHT<br>SHEET CHECK BY: M. WANNICHT<br>APPROVED BY: M. WANNICHT<br>DATE: SEPTEMBER, 2017 |      | CDM Smith<br>11000 West Loop Road, Suite 700<br>Houston, Texas 77040<br>281.419.4200<br>100% Civil Engineering, Inc. 5303 |      | REMARKS                                                             |  |
| REV.                                                                                                                                | DATE | BY                                                                                                                        | CHKD |                                                                     |  |

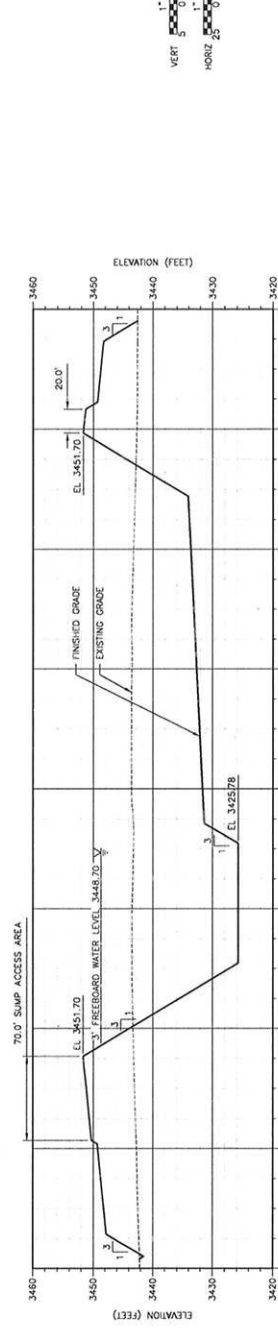
3460  
3450  
3440  
3430  
3420



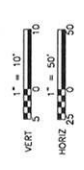
SECTION 1  
HORIZ 1"=50'  
VERT 1"=10'



SECTION 2  
HORIZ 1"=50'  
VERT 1"=10'



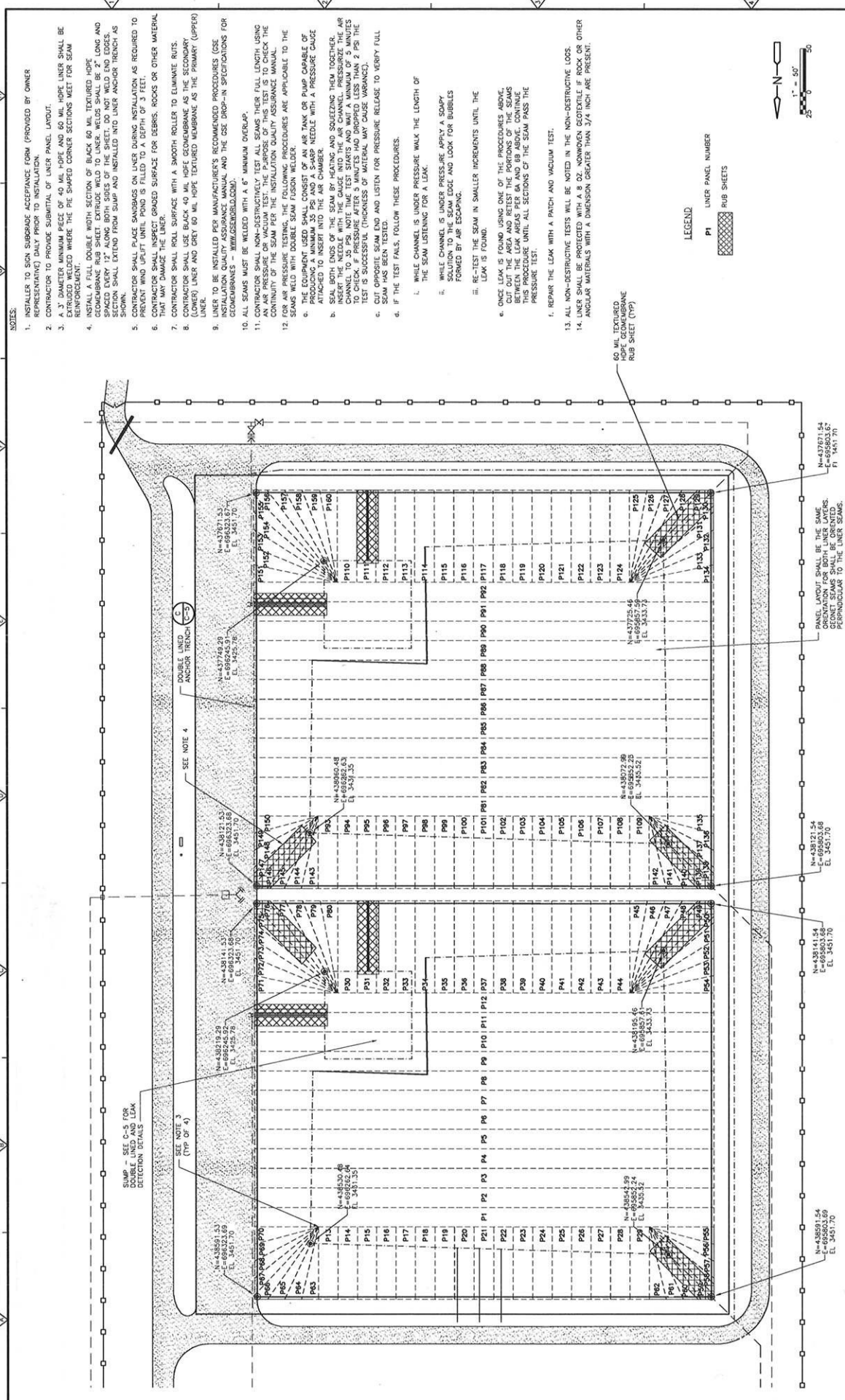
SECTION 3  
HORIZ 1"=50'  
VERT 1"=10'



REVISIONS  
NO. DATE DRAWN CHKD  
1 08/24/2017 J. VICKERY M. WANNING  
2 09/05/2017 J. VICKERY M. WANNING  
3 09/05/2017 J. VICKERY M. WANNING

REMARKS  
1.000,000 BBL RECYCLING CONTAINMENT  
PLU CENTRAL 1  
MIDLAND, TEXAS  
BOPCO LP

PROJECT NO. 5000-21809  
FILE NAME: CDSMPL.DWG  
SHEET NO. C-4  
PRELIMINARY DRAWINGS - NOT FOR CONSTRUCTION

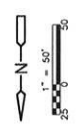


**NOTES:**

1. INSTALLER TO SIGN SUBGRADE ACCEPTANCE FORM (PROVIDED BY OWNER REPRESENTATIVE) DAILY PRIOR TO INSTALLATION.
2. CONTRACTOR TO PROVIDE SUBMITTAL OF LINER PANEL LAYOUT.
3. A 3" DIAMETER MINIMUM PIECE OF 40 MIL HOPE AND 60 MIL HOPE LINER SHALL BE SUBMITTED TO THE OWNER FOR TESTING WHERE THE PE SHARP CORNER SECTIONS MEET FOR SEAM REINFORCEMENT.
4. INSTALL A FULL DOUBLE WITH SECTION OF BLACK 60 MIL TEXTURED HOPE GEOMEMBRANE RUB SHEET EXTRUDED WELD TO LINER. WELD SHALL BE 2" LONG AND SPACED EVERY 12' ALONG BOTH SIDES OF THE SHEET. DO NOT WELD END EDGES. WELDS SHALL EXTEND FROM SUMP AND INSTALLED INTO LINER ANCHOR TRENCH AS SHOWN.
5. CONTRACTOR SHALL PLACE SANDBAGS ON LINER DURING INSTALLATION AS REQUIRED TO PREVENT WIND UPLIFT UNTIL POND IS FILLED TO A DEPTH OF 3 FEET.
6. CONTRACTOR SHALL INSPECT GRADED SURFACE FOR DEBRIS, ROCKS OR OTHER MATERIAL THAT MAY DAMAGE THE LINER.
7. CONTRACTOR SHALL ROLL SURFACE WITH A SMOOTH ROLLER TO ELIMINATE RUTS.
8. CONTRACTOR SHALL ROLL SURFACE WITH A SMOOTH ROLLER TO ELIMINATE RUTS. (LOWER) LINER AND DRY 60 MIL HOPE TEXTURED MOBRANE AS THE PRIMARY (UPPER) LINER.
9. LINER TO BE INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES (SEE INSTALLATION QUALITY ASSURANCE MANUAL AND THE USE DROP-IN SPECIFICATIONS FOR GEOMEMBRANES - [www.geosynth.com](http://www.geosynth.com)).
10. ALL SEAMS MUST BE WELDED WITH A 6" MINIMUM OVERLAP.
11. CONTRACTOR SHALL NON-DESTRUCTIVELY TEST ALL SEAMS UNDER FULL LOADS. USING THE FOLLOWING PROCEDURE: a. CONTRACTOR SHALL WALK THE SEAM TO CHECK THE CONTINUITY OF THE SEAM PER THE INSTALLATION QUALITY ASSURANCE MANUAL. b. FOR AIR PRESSURE TESTING, THE FOLLOWING PROCEDURES ARE APPLICABLE TO THE SEAMS WELDED WITH DOUBLE SEAM FUSION WELDER. c. THE EQUIPMENT USED SHALL CONSIST OF AN AIR TANK OR PUMP CAPABLE OF PRESSURIZING THE SEAM TO 2 PSIG. d. THE EQUIPMENT SHALL BE ATTACHED TO THE SEAM WITH A PRESSURE GAUGE. e. SEAL BOTH ENDS OF THE SEAM BY HEATING AND SQUEEZING THEM TOGETHER. f. INSERT THE NEEDLE INTO THE AIR CHAMBER. g. PRESSURIZE THE SEAM TO 2 PSIG. h. CHECK FOR LEAKS. i. IF THE TEST FAILS, FOLLOW THESE PROCEDURES: i. WHILE CHANNEL IS UNDER PRESSURE WALK THE LENGTH OF THE SEAM LISTENING FOR A LEAK. ii. WHILE CHANNEL IS UNDER PRESSURE APPLY A SOAPY SOLUTION TO THE SEAM EDGE AND LOOK FOR BUBBLES FORMED BY AIR ESCAPING. iii. RE-TEST THE SEAM IN SMALLER INCREMENTS UNTIL THE LEAK IS FOUND. iv. ONCE LEAK IS FOUND USING ONE OF THE PROCEDURES ABOVE, CUT OUT THE AREA AND RE-TEST THE PORTIONS OF THE SEAMS BETWEEN THE LEAK AREAS PER 8A AND 8B ABOVE. CONTINUE THIS PROCEDURE UNTIL ALL SECTIONS OF THE SEAM PASS THE PRESSURE TEST. v. REPAIR THE LEAK WITH A PATCH AND VACUUM TEST.
13. ALL NON-DESTRUCTIVE TESTS WILL BE NOTED IN THE NON-DESTRUCTIVE LOGS.
14. LINER SHALL BE PROTECTED WITH A 8 OZ. NONWOVEN GEOTEXTILE IF ROCK OR OTHER ANGULAR MATERIALS WITH A DIMENSION GREATER THAN 3/4 INCH ARE PRESENT.

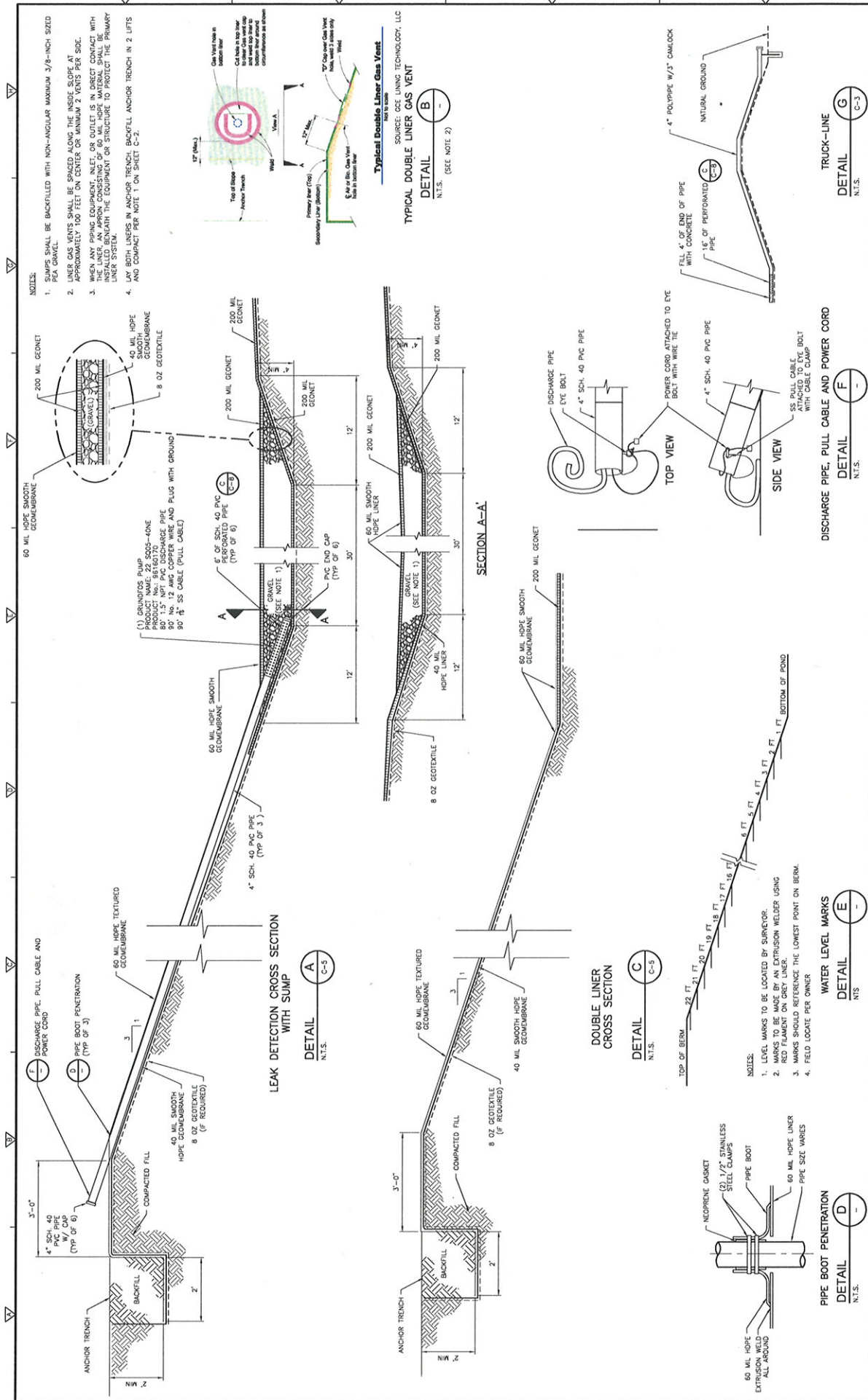
**LEGEND**

- P1 LINER PANEL NUMBER
- RUB SHEETS



|                                                                                                                                               |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--|
| PROJECT NO. 5000-218692<br>FILE NAME: C005517.DWG<br>SHEET NO. C-5                                                                            |  |
| <b>PROPOSED LINER PANEL LAYOUT</b>                                                                                                            |  |
| BOPCO, LP<br>MIDLAND, TEXAS<br>PLU CENTRAL 1<br>1,000,000 BBL RECYCLING CONTAINMENT                                                           |  |
| DESIGNED BY: J. MOORE<br>DRAWN BY: M. WANNICHO<br>CHECKED BY: M. WANNICHO<br>PROJECT NO. 5000-218692<br>SHEET NO. C-5<br>DATE: SEPTEMBER 2012 |  |
| REMARKS:                                                                                                                                      |  |





**DOUBLE LINE AND LEAK DETECTION DETAILS**

1,000,000 BBL RECYCLING CONTAINMENT

BORCO LP  
MIDLAND, TEXAS  
PLU CENTRAL 1

PROJECT NO. 5000-218609  
FILE NAME: COORST01.DWG  
SHEET NO. C-6

DESIGNED BY: J. VICKERT  
DRAWN BY: V. WANNING  
CHECKED BY: C. SMITH  
APPROVED BY: C. SMITH  
DATE: SEPTEMBER 2017

**CDM Smith**  
14000 Washington Road, Suite 700  
Dallas, TX 75244  
Tel: 972.422.2000  
Fax: 972.422.2000

REVISIONS

| NO. | DATE | BY | CHKD | REMARKS |
|-----|------|----|------|---------|
|     |      |    |      |         |

REMARKS





# Appendix H

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## Specifications

**SECTION 02100**  
**SITE PREPARATION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Requirements of this Section shall consist of CONTRACTOR providing all required clearing, grubbing, and stripping related labor, materials, equipment, tools, and services for the WORK.

**1.2 DEFINITIONS**

- A. Clearing: Clearing shall consist of removal of all vegetation and the satisfactory disposal of brush, rubbish, and any other vegetation.
- B. Grubbing: Grubbing shall consist of the removal and disposal of roots, root mats, stumps, logs, peat, and other objectionable matter which could adversely affect the quality of the subgrade or borrow materials.
- C. Topsoil: Topsoil is the upper soil horizon which is characterized by a significant organic content.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 AREAS TO BE CLEARED AND GRUBBED**

- A. Perform clearing and grubbing only in areas identified by the ENGINEER OR OWNER. Clear and grub all areas where WORK is to take place.
- B. Clear and grub all borrow areas to the extent necessary to provide fill materials free of all objectionable matter described above.
- C. Vegetation located outside the construction limits shall not be damaged.

**3.2 DISPOSAL OF CLEARED AND GRUBBED MATERIALS**

- A. All brush, vegetation, rubbish, organic soils, and other debris from clearing and grubbing operations, including all debris remaining from previous clearing operations, shall be stockpiled separately at a location designated by the OWNER.

### **3.3 EXCAVATING, STOCKPILING, AND WASTING TOPSOIL**

- A. If present, excavate topsoil from areas designated for project grading or construction, as encountered. In addition, excavate topsoil from areas designated for use as waste locations for earth subsoil material.
- B. Remove lumped soil, vegetative material, boulders, and rocks from the excavated topsoil to be stockpiled.
- C. Stockpile, if available, sufficient topsoil material on-site for use as vegetative cover for future reclamation purposes. Protect stockpile from erosion and grade to prevent ponding of water. Organic soils shall be segregated from soil materials that may be suitable for other uses described in these SPECIFICATIONS and shown on the DRAWINGS.
- D. Dispose of excess topsoil and waste topsoil not intended for reuse in a location selected by the OWNER. Disposal and handling of this material shall be performed following the requirements of the appropriate government agencies.

END OF SECTION 02100

**SECTION 02200**  
**EXCAVATION, BACKFILL AND COMPACTION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. The section describes the following:
  - 1. All excavation required to reach planned grades and contours, install project components, and to construct temporary run-on and run-off conveyance systems.
  - 2. Placement of various fill materials:
    - a. Compacted embankment fill
    - b. Drainage Aggregate (Drain Rock)
  - 3. Material placement and compaction
  - 4. Site grading
  - 5. Foundation preparation
  - 6. Construction of fills and backfills
  - 7. Compaction requirements
  - 8. Site grading
- B. The WORK shall be done in accordance with the SPECIFICATIONS and as shown on the DRAWINGS.
- C. The WORK includes furnishing all labor, tools, materials, equipment, and supervision necessary to construct the project as described in the contract documents.

**1.2 TOLERANCES**

- A. All excavations shall be constructed within the tolerance as shown in these SPECIFICATIONS except where dimensions or grades are shown or specified as minimum or maximum in the DRAWINGS. All grading shall be performed to maintain slopes and drainages as shown in the DRAWINGS.
- B. Excavate to within a horizontal and vertical tolerance of  $\pm 0.1$  -foot on all slopes flatter than 10% and within a vertical tolerance of  $\pm 0.2$  -foot on all slopes 10% or steeper unless otherwise approved by the ENGINEER or OWNER.
- C. Place Drain Rock Aggregate within a vertical tolerance of  $\pm 0.1$  -ft, regardless of the steepness of the slope.

**1.3 SUBSURFACE CONDITIONS**

- A. Subsurface investigations have been performed at the site by the ENGINEER. The results of the subsurface investigations can be provided to the CONTRACTOR at the CONTRACTOR'S request during the bidding interval.

- B. The CONTRACTOR shall identify and locate utility lines, flow lines, wells, survey monuments, and other nearby structures prior to performing work. Utilities, flow lines, wells, survey monuments and other nearby structures shall be protected from damage during the WORK. Any damage to utility lines, flow lines, wells, survey monuments, and other nearby structures during the WORK shall be repaired by the CONTRACTOR at no additional cost to the OWNER. Costs associated with these repairs shall include the actual repair costs and all engineering costs required by the ENGINEER to coordinate and obtain regulatory approval of repairs, if required.

#### **1.4 SUBMITTALS**

- A. Imported materials that may include Drain Rock Aggregate, Engineered Fill or others shall have material properties such as grain size distribution submitted to the OWNER or ENGINEER for material approval prior to delivery to the site.

#### **1.5 REFERENCES**

- A. American Society for Testing and Materials (ASTM):

Where reference is made to one of the standards listed below, the revision in effect at the time of the bid shall apply.

1. ASTM D422 – Standard Test Method for Particle Size Analysis of Soils.
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
3. ASTM D854 – Standard for Test Method for Specific Gravity of Soil Solids by Water Pycnometer.
4. ASTM D1140 – Standard Test Method for Amount of Material in Soils Finer than the Number 200 (75 micrometer) Sieve.
5. ASTM D1556 – Standard Test Method for Density and Limit Weight of Soil in Place by the Sand Cone Method.
6. ASTM D2216 – Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
7. ASTM D2434 – Test Method for Permeability of Granular Soils
8. ASTM D2487 – Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
9. ASTM D2488 – Standard Practice for Description and Identification of Soils (Visual Manual Procedure).
10. ASTM D2922 – Standard Test Method for Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).
11. ASTM D2937 – Standard Test Method for Density of Soil in Place by Drive-Cylinder Method.