REPORT

HISTORY OF CONSTRUCTION ADDENDUM NO. 1

Oak Grove Steam Electric Station - FGD Ponds
Robertson County, Texas

Submitted to:

Oak Grove Management Company LLC

Submitted by:

WSP GOLDER

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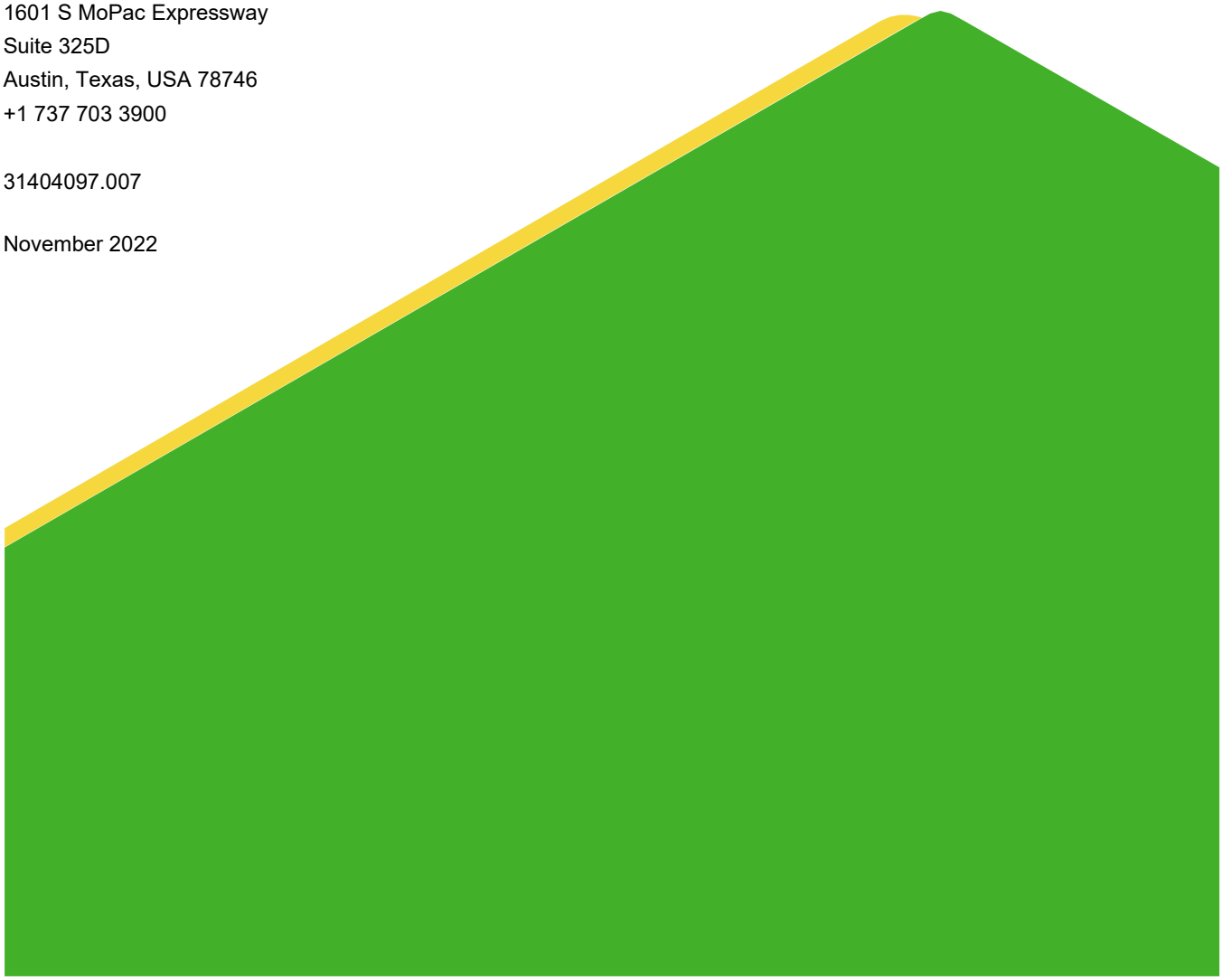
31404097.007

November 2022



PROFESSIONAL CERTIFICATION

This document and all attachments were prepared by WSP Golder under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I hereby certify that Addendum No.1 to the History of Construction Report for the FGD Ponds at the Oak Grove Steam Electric Station has been prepared in accordance with the requirements of 40 C.F.R. §257.73(c).

Patrick J. Behling, P.E.
Principal Engineer
WSP Golder
Texas Firm Registration No. 22771

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DOCUMENT REVISION RECORD

Issue No.	Date	Details of Revisions
Revision 0	October 2016	Original Document
Addendum 1	November 2022	Added FGD Pond watershed areas and retrofitted FGD-A liner system information

1.0 INTRODUCTION

On behalf of Oak Grove Management Company LLC (Luminant), WSP Golder (Golder) has prepared this Addendum No. 1 to the History of Construction Report (HCR) for FGD-A Pond, FGD-B Pond, and FGD-C Pond (collectively referred to as the "FGD Ponds") located at the Oak Grove Steam Electric Station (OGSES) in Robertson County, Texas (hereafter, the "Site"). The FGD Ponds are regulated as Existing CCR Impoundments under 40 C.F.R. § 257, Subpart D (the "CCR Rule").

The original HCR for the Site was prepared in October 2016 in accordance with 40 C.F.R. §257.73(c) and placed in the OGSES operating record in accordance with 40 C.F.R. §257.105(h)(10) (Golder, 2016a). This Addendum No. 1 updates the HCR to reflect the following:

- Documentation of the watershed areas for the FGD Ponds in accordance with 40 C.F.R. § 257.73(c)(1)(iv); and
- Retrofit of the FGD-A liner system to comply with the requirements of 40 C.F.R. § 257.71(a)(1)(ii) completed in accordance 40 C.F.R. § 257.102(k).

2.0 FGD POND WATERSHED AREAS

The FGD Ponds are located approximately 2,500 feet northwest of the OGSES power generation units (see Figure 1). The impoundments are constructed above grade and are surrounded by engineered earthen dikes that extend to approximately 25 feet above surrounding ground level. The approximate surface area of each FGD Pond is as follows:

- FGD-A covers an area of approximately 9.4 acres;
- FGD-B covers an area of approximately 11.3 acres; and
- FGD-C covers an area of approximately 17 acres.

Figure 2 shows a simplified process flow schematic for the FGD Ponds. The FGD Ponds act as surge basins for the following water streams associated with the OGSES plant water system:

- wastewater from the FGD wet scrubber system blowdown,
- low volume wastewater,
- bottom ash contact water,
- storm water runoff from approximately 41 acres of the power plant, and
- direct precipitation on the ponds.

Water is pumped into either FGD-A or FGD-C under controlled conditions and a gravity overflow is used to transfer water from FGD-A to FGD-B. Water is pumped out of FGD-A, FGD-B and/or FGD-C and recycled as makeup water for the plant FGD scrubber system and related purposes. The are no spillways or other uncontrolled gravity flow releases from the FGD Ponds.

40 C.F.R. § 257.73(c)(1)(iv) requires that the watershed for each CCR unit be documented in the HCR. As described above, the FGD Ponds are constructed above grade; consequently, the “watershed” for each pond consists of direct precipitation on the pond surface itself. The watershed area of each FGD Pond is therefore as follows:

Impoundment	Watershed Area
FGD-A	Approximately 9.4 acres
FGD-B	Approximately 11.3 acres
FGD-C	Approximately 17 acres

3.0 RETROFIT OF FGD-A LINER SYSTEM

FGD-A was originally constructed with a 3-foot thick compacted clay liner exhibiting a hydraulic conductivity of no more than 1 x10^{-7} cm/sec (Golder 2016b). FGD-A was formerly considered a lined CCR surface impoundment in accordance with 40 C.F.R. §257.71(a)(1)(i) of the CCR Rule; however, the impoundment was reclassified as an unlined impoundment based on the August 2018 DC Circuit Court Ruling. Luminant decided to retrofit the FGD-A liner system to satisfy the requirements of 40 C.F.R. §257.71(a)(1)(ii) and maintain compliance with the CCR Rule.

From September 2021 to July 2022, the liner system in FGD-A was retrofitted in accordance with 40 C.F.R. § 257.102(k). Liner Retrofit Plans for FGD-A were prepared in March 2020 and July 2021 in accordance with § 40 C.F.R. 257.102(k)(2) and placed in the OGSES operating record in accordance with 40 C.F.R. §257.105(h)(10) (Golder, 2020; Golder, 2021).

The FGD-A retrofit measures consisted of the following.

- Pumping of free water from FGD-A to FGD-B and FGD-C;
- Excavation of all CCR from FGD-A and placement in OGSES Ash Landfill 1;
- Excavation of approximately the upper 1 foot of the existing 3-foot thick clay liner and placement in OGSES Ash Landfill 1;
- Construction of a composite liner system meeting the requirements of 40 C.F.R. § 257.71(a)(1)(ii); and
- Incorporation of design improvements to facilitate sediment control and access for future CCR removal associated with operations.

The retrofitted liner system in FGD-A consists of the following (from bottom to top):

- Minimum 2-foot thick layer of compacted clay exhibiting a hydraulic conductivity of no more than 1 x10^{-7} cm/sec (previous clay liner remaining after pond excavation);
- A geosynthetic clay liner (GCL) placed in areas of the pond where a minimum of 2-feet of compacted clay was not remaining after pond excavation was completed;
- A 60-mil HDPE geomembrane liner;
- A 1.5-foot thick layer of protective soil; and
- A concrete revetment mat placed over the upper portion of the pond side slopes.

Engineering drawings for the FGD-A Liner Retrofit and as-built survey drawings are reproduced in Appendix A and Appendix B of this Addendum.

The retrofitted liner system in FGD-A is an alternative composite liner meeting the requirements of 40 C.F.R. § 257.71(a)(1)(ii).

4.0 REFERENCES

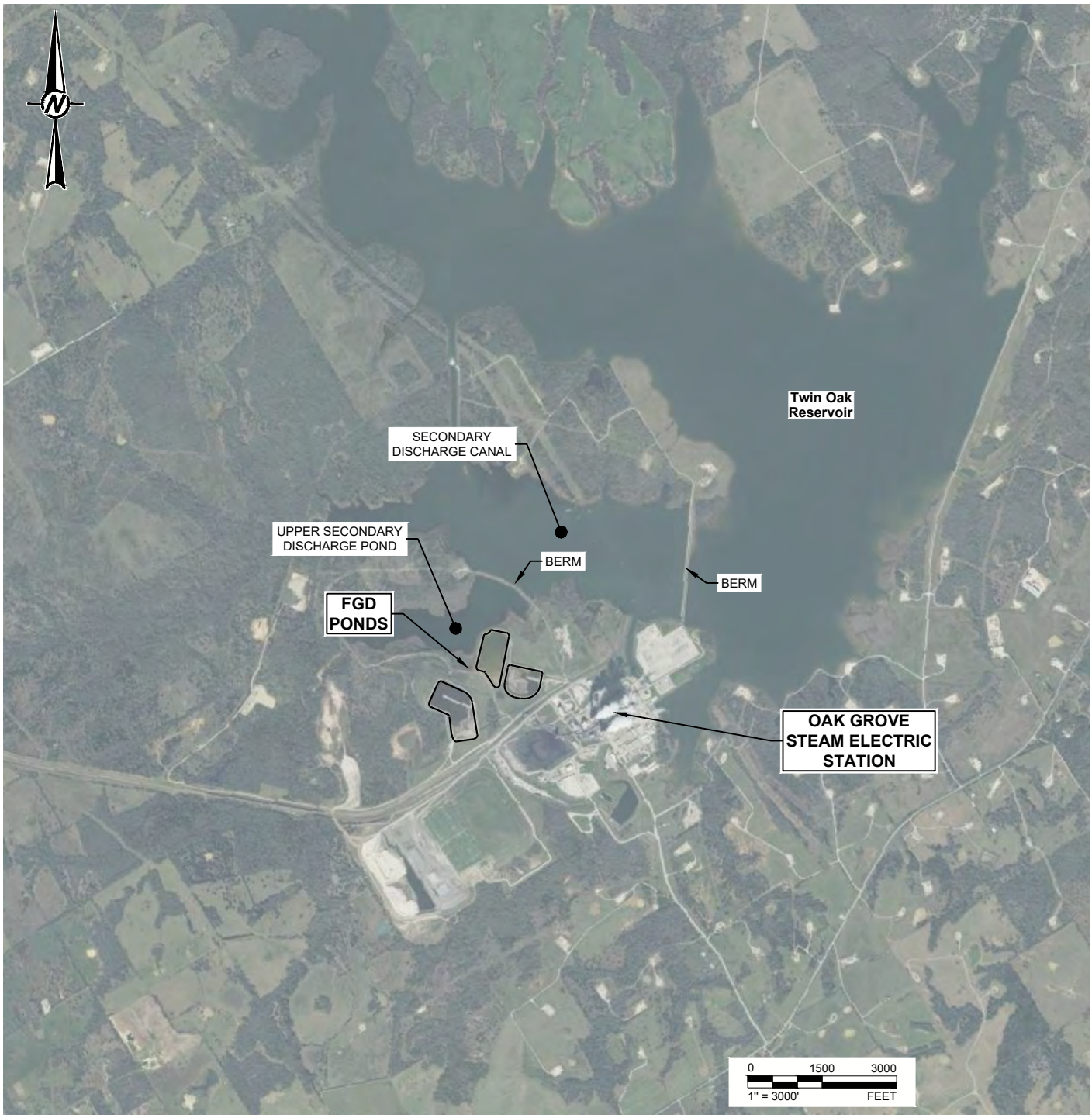
Golder, 2016a. History of Construction – CCR Surface Impoundments, Oak Grove Steam Electric Station. October.

Golder, 2016b. Certification of Lined Construction – CCR Surface Impoundments, Oak Grove Steam Electric Station. October.

Golder, 2020. Retrofit Plan for FGD-A, Oak Grove Steam Electric Station. March.

Golder, 2021. Retrofit Plan for FGD-A, Revision 1, Oak Grove Steam Electric Station. July.

FIGURES



CLIENT
OAK GROVE MANAGEMENT COMPANY LLC

PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD PONDS
ADDENDUM NO.1 - HISTORY OF CONSTRUCTION

TITLE
SITE LOCATION MAP

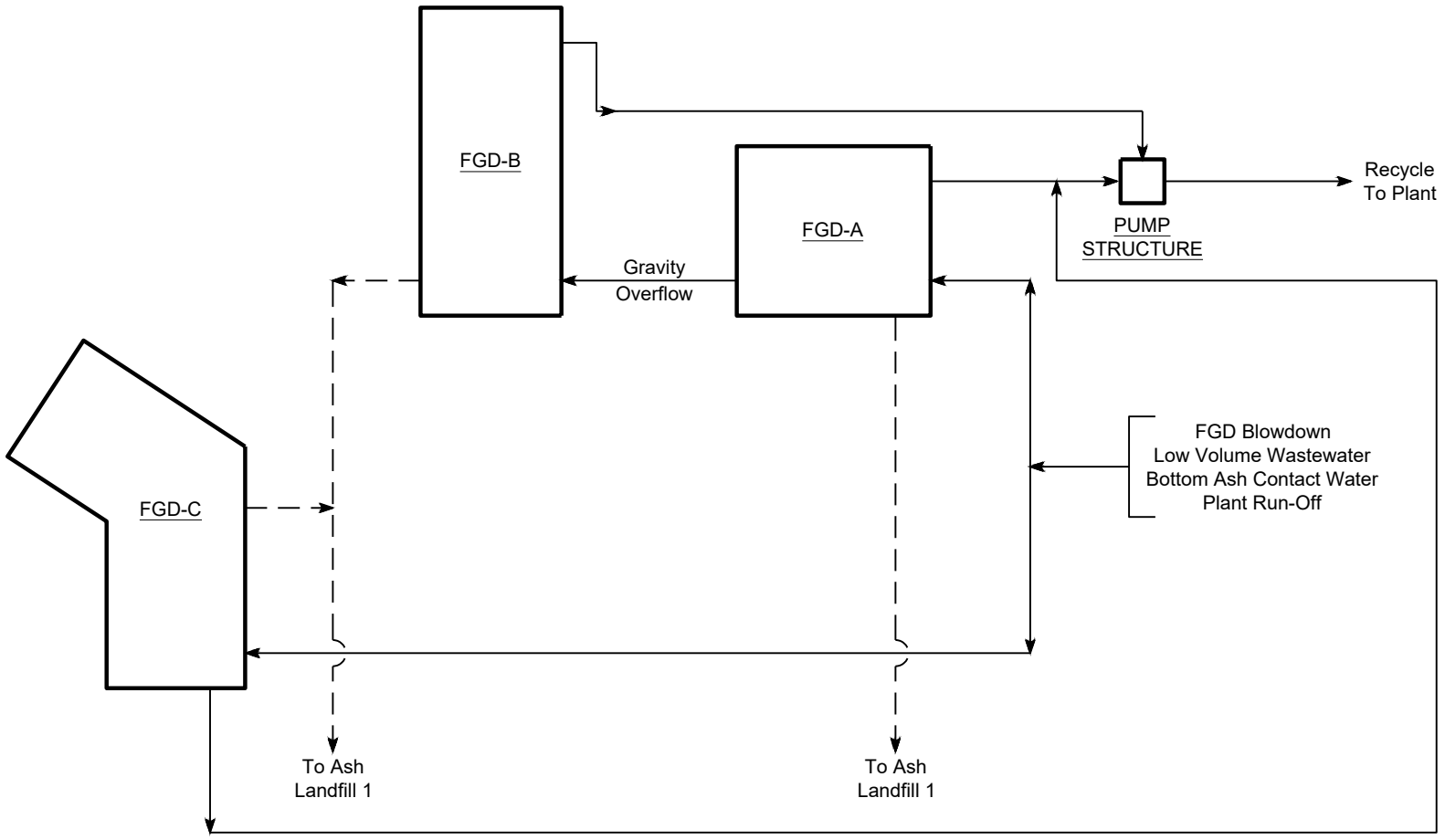
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-11-01
DESIGNED	AJD
PREPARED	AJD
REVIEWED	PJB
APPROVED	PJB

PROJECT NO. 31404097.007 | REV. 0 | FIGURE 1

REFERENCE(S)
BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 12/9/18.

Last Edited By: usad701305 Date: 2022-11-01 Time:2:06:45 PM | Printed By: USAD701305 Date: 2022-11-01 Time:2:11:18 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Round Rock_2021\21465177 - Luminant OGSES\PRODUCTION\B2 - 2022 IDCSP\ | File Name: 3-Simplified Flow Diagram.dwg



LEGEND

WATER

SOLIDS

CLIENT
OAK GROVE MANAGEMENT COMPANY LLC

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-11-01
DESIGNED	AJD
PREPARED	AJD
REVIEWED	PJB
APPROVED	PJB

PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD PONDS
ADDENDUM NO. 1 - HISTORY OF CONSTRUCTION

TITLE
SIMPLIFIED CCR SURFACE IMPOUNDMENT FLOW DIAGRAM

PROJECT NO.	REV.	FIGURE
31404097.007	0	2

APPENDIX A

FGD-A Liner Retrofit Engineering Drawings

OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

GENERAL LOCATION MAP

DRAWING LIST			
LUMINANT DRAWING NO.	SHEET NO.	SHEET TITLE	REVISION
	1	TITLE SHEET	0
	2	GENERAL NOTES	0
	3	SITE OVERVIEW	0
	4	EXISTING PIPING CONDITIONS	0
	5	AS-CONSTRUCTED CLAY PLAN	0
	6	TOP OF EXCAVATED CLAY GRADING PLAN	0
	7	TOP OF RECOMPACTED CLAY GRADING PLAN	0
	8	TOP OF PROTECTIVE COVER GRADING PLAN	0
	9	PROFILES	0
	10	GRADING DETAILS	0
	11	FGD-A POND TO PUMPS INTAKE	0
	12	FGD-A POND TO FGD-B POND CROSSOVER PIPELINE PLAN AND PROFILE	0
	13	FGD-A POND TO FGD-B POND CROSSOVER PIPELINE DETAILS	0
	14	FGD-A POND INLET DETAILS	0
	15	FGD-B POND TO PUMPS SUCTION PIPELINE PLAN AND PROFILE	0
	16	FGD-B POND TO PUMPS SUCTION PIPELINE INTAKE	0
	17	PUMP STRUCTURE PROPOSED PIPING	0
	18	PIPING DETAILS - I OF II	0
	19	PIPING DETAILS - II OF II	0
	20	AS-CONSTRUCTED CLAY POINT TABLE	0
	21	TOP OF EXCAVATED CLAY POINT TABLE	0
	22	TOP OF RECOMPACTED CLAY POINT TABLE	0

PREPARED FOR:

Luminant

PREPARED BY:

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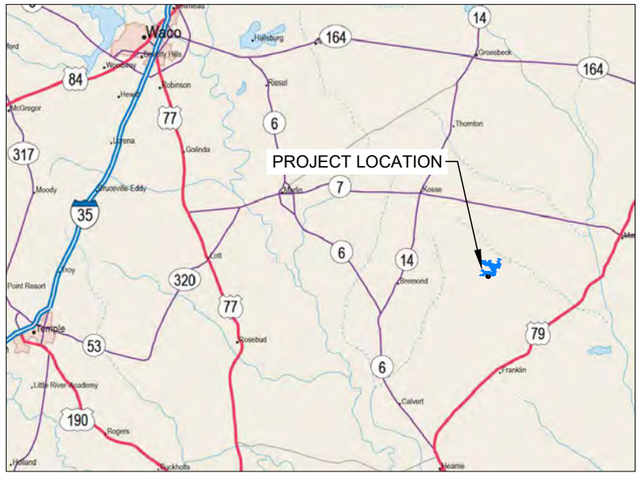
HOUSTON, TEXAS USA 77032



SITE LOCATION MAP

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
TITLE SHEET

PROJECT NO.	LUMINANT DRAWING NO.	REV.	DRAWING
19129621		0	1 of 22 — 1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1in

GENERAL NOTES

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK. LUMINANT PROCEDURES SHALL BE USED FOR ALL EXCAVATIONS, HOT WORK, AND LOCK-OUT/TAG-OUT.
2. FOR THIS WORK, LUMINANT IS THE OWNER AND GOLDER ASSOCIATES INC. IS THE ENGINEER. THE COMPANY BIDDING THE WORK IS THE CONTRACTOR.
3. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES. ALL EXISTING UNDERGROUND UTILITIES SHOULD BE FIELD VERIFIED AND LOCATED BY POTHOLING PER LUMINANT REQUIREMENTS.
4. WORKERS SHALL BE AWARE OF ACTIVE EQUIPMENT IN THE VICINITY OF THE WORK AREA AND SHALL TAKE PRECAUTIONS NOT TO DISTURB OPERATING EQUIPMENT.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS PRIOR TO STARTING WORK, AND SHALL NOTIFY THE OWNER'S REPRESENTATIVE IF CONFLICTS EXIST ON THE DRAWINGS.
6. LOCATIONS AND DIMENSIONS OF EXISTING UTILITIES AND STRUCTURES ARE BASED ON DRAWINGS AND PARTIAL GROUND SURVEY PROVIDED BY LUMINANT AND SHOULD BE FIELD-VERIFIED.
7. CONTRACTOR SHALL PERFORM HOUSEKEEPING DUTIES ON A DAILY BASIS TO KEEP WORK AREAS CLEAN. HOUSEKEEPING SHALL BE PERFORMED AT THE COMPLETION OF THE WORK TO THE SATISFACTION OF THE OWNER.
8. CONTRACTOR SHALL STAGE EQUIPMENT AND MATERIALS ONLY IN AREAS APPROVED BY THE OWNER.
9. CONTRACTOR IS RESPONSIBLE FOR SURVEY CONTROL.
10. SPECIAL TOOLS AND OTHER REQUIRED INSTALLATION EQUIPMENT SUCH AS SLINGS, LEVER TOOLS, RATCHET JACKS, PULLING CABLES, ETC., FOR MAKEUP OF JOINTS SHALL BE FURNISHED BY THE CONTRACTOR.
11. TEST PLUGS, HYDROTEST PUMPS, GAUGES, RELIEF VALVES, AND ALL TESTING EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.
12. PIPING CROSSING UNDER ROADWAYS IS DESIGNED FOR AASHTO HS-20 LOADINGS. ALL PIPES SHALL HAVE A MINIMUM COVER DEPTH OF 2'-0" AS MEASURED FROM THE TOP OF THE PIPE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
13. WHERE VERTICAL OR HORIZONTAL ALIGNMENT REQUIRES DEFLECTION FROM STRAIGHT LINE OR GRADE, SUCH DEFLECTION SHALL NOT EXCEED MAXIMUM DEFLECTION RECOMMEND BY THE PIPE MANUFACTURER. IF ALIGNMENT REQUIRES DEFLECTION EXCEEDING RECOMMENDED LIMITS, FURNISH SPECIAL BENDS TO PROVIDE ANGULAR DEFLECTIONS WITHIN THE ALLOWABLE LIMITS.
14. PIPE SHALL BE CUT NEATLY AND WITHOUT DAMAGE TO THE PIPE. UNLESS OTHERWISE RECOMMENDED BY THE PIPE MANUFACTURER, CUT PIPE WITH MECHANICAL CUTTER ONLY. CUT PLASTIC PIPE SQUARE, USING HAND SAW, AND REMOVE ALL BURRS.
15. APPROPRIATE PROVISIONS SHALL BE MADE TO PREVENT PIPE FLOTATION AND PREVENT FOREIGN MATERIAL FROM ENTERING PIPE OPENINGS. TEMPORARY BLINDS SHALL BE PLACED ON ALL PIPE ENDS AND STUB-UPS DURING INSTALLATION. BLINDS ARE NOT TO BE REMOVED UNTIL PERMANENT CONNECTIONS ARE MADE.
16. VALVE BODIES USED ON THE PROPOSED DRAIN LINES FROM FGD-A POND AND FGD-B POND SHALL BE SET ON A CONCRETE SUPPORT FOOTING AS APPROVED BY THE OWNER'S REPRESENTATIVE.
17. NEW WAFER KNIFE GATE VALVE WITHIN THE PUMP STRUCTURE WILL BE SUPPORTED BY EXISTING ADJACENT PIPING SUPPORTS.
18. IF DISTURBED DURING CONSTRUCTION, THE EXISTING GATE VALVE ON THE FGD-A TO FGD-B CROSSOVER PIPELINE SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL APPROVED BY THE OWNER'S REPRESENTATIVE AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE VALVE BODY. THE MATERIAL DIRECTLY ABOVE THE PIPE IN THE EMBEDMENT ZONE SHALL BE ONLY LIGHTLY COMPACTED TO AVOID DISTORTING THE PIPE.
19. CONFIGURATIONS AND DIMENSIONS SHOWN ARE BASED ON TYPICAL DIMENSIONS FOR FITTINGS AND VALVES. ACTUAL DIMENSIONS MAY VARY BY MANUFACTURER AND WILL REQUIRE FIELD ADJUSTMENTS.

UNDERGROUND PIPE INSTALLATION

1. CONTRACTOR SHALL SUBMIT A TRENCHING SAFETY PLAN FOR REVIEW AND APPROVAL BY THE OWNER BEFORE ANY TRENCHING ACTIVITIES CAN BEGIN. THE PLAN SHALL INDICATE THE SYSTEMS, METHODS, AND TECHNIQUES TO BE USED TO ENSURE THAT ALL TRENCH SIDEWALLS WILL BE STABLE AND/OR GUARDED FOR THE PROTECTION OF PERSONNEL AND FACILITIES IN THE VICINITY OF THE WORK.
2. AS REQUIRED, CONTRACTOR SHALL PREPARE AND IMPLEMENT AN OWNER APPROVED PLAN TO CONTROL GROUNDWATER IN ALL DEVELOPED EXCAVATIONS (INCLUDING GROUNDWATER AND SURFACE WATER).
3. UNDERGROUND PIPE SHALL BE LOWERED INTO TRENCH BY MEANS OF DERRICK, ROPES, BELT SLINGS, OR OTHER EQUIPMENT RECOMMENDED BY THE PIPE SUPPLIER. TAKE SPECIAL CARE IN HANDLING PREFABRICATED SECTIONS OF HDPE PIPE - THE FUSED FITTINGS MAY NOT BE CAPABLE OF CARRYING THE WEIGHT OF ADJACENT PIPING. DO NOT DUMP OR DROP ANY MATERIALS INTO THE TRENCH.
4. FOR UNDERGROUND AND ON-GRADE HDPE PIPE, REST THE FULL LENGTH OF EACH SECTION OF THE PIPE SOLIDLY ON THE PIPE BED. DO NOT LAY PIPE IN WATER, OR WHEN FOUNDATION CONDITIONS ARE UNSUITABLE FOR THE WORK.
5. UNDERGROUND PIPING SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL APPROVED BY THE OWNER'S REPRESENTATIVE AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE MATERIAL DIRECTLY ABOVE THE PIPE IN THE EMBEDMENT ZONE SHALL BE ONLY LIGHTLY COMPACTED TO AVOID DISTORTING THE PIPE.
6. EMBANKMENT FILL (MORE THAN 12 INCHES ABOVE THE PIPE) SHALL CONSIST OF SOILS EXCAVATED AS PART OF THE WORK AS APPROVED BY THE OWNER'S REPRESENTATIVE. IF EXCAVATED SOILS ARE DEEMED UNSUITABLE, EMBANKMENT FILL SHALL CONSIST OF IMPORTED EARTHEN MATERIALS APPROVED BY THE OWNER'S REPRESENTATIVE. EMBANKMENT FILL SHALL BE PLACED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING TEN (10) INCHES IN THICKNESS AND MOISTURE CONDITIONED TO 1 PERCENT BELOW TO 3 PERCENT ABOVE STANDARD PROCTOR (ASTM D698) OPTIMUM MOISTURE CONTENT. EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
7. FOR ALL UNDERGROUND PIPING, MARKING TAPE ENABLING DETECTION BY METAL DETECTOR (AS INDICATED IN THE SPECIFICATIONS) SHALL BE LOCATED ABOVE THE PIPE AT A DEPTH OF 1 TO 2 FEET BELOW THE FINISHED GRADE.

HDPE PIPE INSTALLATION

1. FUSION MACHINE FOR BUTT FUSION OF HDPE PIPING SHALL BE FURNISHED BY THE CONTRACTOR.
2. ABOVE GRADE HDPE TO BE INSTALLED WITH AN EARTHEN BERM ANCHORAGE APPROXIMATELY EVERY 400 FEET WITH THE HDPE SNAKED BETWEEN ANCHORAGE POINTS APPROXIMATELY 20 FEET OFF A STRAIGHT LINE ALIGNMENT WITH 20 FEET HORIZONTAL CLEARANCE TO ALLOW THE HDPE PIPES TO EXPAND OR CONTRACT.
3. SECTIONS OF POLYETHYLENE PIPE SHOULD BE JOINED INTO CONTINUOUS LENGTHS ON THE JOBSITE ABOVE GROUND. THE JOINING METHOD SHALL BE THE BUTT FUSION METHOD AND SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS BY CRAFT WORKERS CERTIFIED FOR THE FUSION MACHINE AND PIPING MATERIALS BEING UTILIZED. THE BUTT FUSION JOINING WILL PRODUCE A JOINT WITH WELD STRENGTH EQUAL TO OR GREATER THAN THE TENSILE STRENGTH OF THE PIPE ITSELF. ALL FIELD WELDS SHALL BE MADE WITH FUSION EQUIPMENT EQUIPPED WITH A DATA LOGGER. TEMPERATURE, FUSION PRESSURE AND A GRAPHIC REPRESENTATION OF THE FUSION CYCLE SHALL BE PART OF THE QUALITY CONTROL RECORDS.
4. MECHANICAL JOINING OF HDPE PIPE TO OTHER MATERIALS SHALL BE ACCOMPLISHED USING AN HDPE FLANGE ADAPTER WITH A DUCTILE IRON BACK-UP RING.
5. SOCKET FUSION, HOT GAS FUSION, THREADING, SOLVENTS, AND EPOXIES WILL NOT BE USED TO JOIN HDPE PIPE.
6. PRESSURE PIPING SYSTEMS CONSTRUCTED FROM HDPE MATERIAL SHALL BE LEAKAGE TESTED USING THE METHODOLOGY OUTLINED IN ASTM F2164, AND PER THE MANUFACTURER'S RECOMMENDATIONS AND THE PROJECT SPECIFICATIONS.

STEEL PIPE INSTALLATION

1. COATING/PAINTING SHALL BE APPLIED AND TOUCHED UP AS DIRECTED BY THE OWNER.
2. ALL NEW PIPING WITHIN THE EXISTING PUMP STRUCTURE NEAR FGD-A POND SHALL BE SUPPORTED WITH MEMBERS CONSISTENT WITH THE EXISTING PIPE SUPPORTS IN THE STRUCTURE.
3. ALL WELDING SHALL BE COMPLETED BY QUALIFIED WELDERS.
4. ALL VALVES AND STEEL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS

SPECIFICATIONS

1. ALL MATERIALS AND INSTALLATION TO BE IN ACCORDANCE WITH THE SPECIFICATIONS OR OWNER APPROVED ALTERNATIVE SPECIFICATIONS.
2. CLAY LINER, GEOSYNTHETIC CLAY LINER (GCL), GEOMEMBRANE LINER, AND PROTECTIVE COVER SHALL BE PLACED IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN.

MATERIALS

1. CONTRACTOR IS RESPONSIBLE FOR PROCURING ADDITIONAL NEEDED QUANTITIES TO MAKE UP FOR SHORTAGES DUE TO LOSS, FIELD REVISIONS, WASTE, ETC.
2. CONTRACTOR TO FURNISH PLASTIC MARKING TAPE FOR NON-METALLIC UNDERGROUND PIPING IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS.
3. ALL NEW SOLID WALL HDPE PIPING AND FITTINGS SHALL BE COMPOSED OF PE4710 RESIN CONSTRUCTED TO ASTM F714, OR ALTERNATE AS APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ALL HDPE PIPING, FITTINGS, AND FLANGES SHALL HAVE IRON PIPE SIZING (IPS).
5. ALL NEW PERFORATED HDPE PIPING SHALL BE ADS N-12 PIPE.
6. ALL NEW STEEL PIPING AND FITTINGS SHALL BE ERW A53 STD SCHEDULE CARBON STEEL CONFORMING TO ASME 31.1 POWER PIPING.
7. ALL FLANGES SHALL CONFORM TO ASME B16.5 CLASS 150.
8. ALL PIPE, FITTINGS, FLANGES, AND VALVES FOR FGD-A TO PUMPS SUCTION LINE, FGD-B TO PUMPS SUCTION LINE, AND FGD-A TO FGD-B CROSSOVER LINE TO BE RATED FOR A 100 PSI DESIGN PRESSURE.
9. ALL THREADED FITTINGS SHALL HAVE NATIONAL PIPE THREAD (NPT) THREADS.
10. CONCRETE SHALL CONFORM TO ACI 318 AND ACI 301 AS APPLICABLE. THE CONCRETE MIX DESIGN APPROVED BY THE OWNER'S REPRESENTATIVE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. CONCRETE UTILIZED WITHIN THE FGD-A POND AND FGD-B POND SHALL BE SULFATE RESISTANT CONCRETE.
11. PIPE BEDDING AND EMBEDMENT SHALL CONSIST OF ON-SITE OR IMPORTED EARTHEN MATERIAL CLASSIFYING UNDER ASTM D2487 AS WELL-GRADED SAND (SW OR SW-SM) OR WELL-GRADED GRAVEL (GW OR GW-GM) OR AS OTHERWISE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE. PIPE BEDDING SHALL CONTAIN NO PARTICLES LARGER THAN ½ INCH, AND FREE FROM ROOTS, DEBRIS, OR ANY OTHER SUBSTANCE THAT WOULD HARM THE PIPE OR MIGHT IMPAIR THE PERFORMANCE OF THE MATERIALS AS BEDDING OR EMBEDMENT FOR THE PIPE. FINAL MATERIAL SELECTION SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
12. CRUSHED STONE FOR ROADWAY SURFACING SHALL BE APPROVED BY OWNER'S REPRESENTATIVE.
13. WASHED GRAVEL FOR DRAIN LINE EMBEDMENT IN THE FGD-A POND AND FGD-B POND SHALL BE APPROVED BY OWNER'S REPRESENTATIVE.

REFERENCES

1. SITE LOCATION: J. HENSLEY SURVEY, ABSTRACT NO. 395174, ROBERTSON COUNTY, TEXAS.
2. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020, AND FEBRUARY 17, 2020.
3. COORDINATES ARE BASED ON OAK GROVE STEAM ELECTRIC STATION PLANT GRID SYSTEM.
4. ELEVATIONS ARE BASED ON MEAN SEA LEVEL DATUM.
5. EXISTING PLANT DRAINS PIPELINE LOCATIONS ARE TAKEN FROM A GROUND SURVEY PERFORMED BY SAM, INC. ON OCTOBER 23, 2014. EXACT LOCATIONS OF EXISTING PIPES TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
6. EXISTING PUMP STRUCTURE DETAILS FROM DRAWING A2YF00-0-CD-1-YD.00.PL-08 REVISION 3 DATED AUGUST 28, 2008.
7. EXISTING PIPING DETAILS IN VICINITY OF THE PUMP STRUCTURE FROM PIPING ISOMETRIC DRAWINGS:
   a. A2YF0-IS-5-WR.0015-01 DATED JANUARY 11, 2008
   b. A2YF0-IS-5-WR.0020-01 DATED DECEMBER 16, 2008
   c. A2YF0-IS-5-WR.0020-02 DATED DECEMBER 16, 2008
   d. A2YF0-IS-5-WR.0030-01 DATED DECEMBER 16, 2008
   e. A2YF0-IS-5-WR.0030-02 DATED DECEMBER 16, 2008
   f. A2YF0-IS-5-WR.0040-01 DATED DECEMBER 16, 2008
   g. A2YF0-IS-5-WR.0050-01 DATED DECEMBER 16, 2008
   h. A2YF0-IS-5-WR.0050-02 DATED DECEMBER 16, 2008
   i. A2YF0-IS-5-WR.0050-03 DATED DECEMBER 16, 2008
   j. A2YF0-IS-5-WR.0060-01 DATED DECEMBER 16, 2008
   k. A2YF0-IS-5-WR.0060-02 DATED FEBRUARY 14, 2008
   l. A2YF0-IS-5-WR.0060-03 DATED FEBRUARY 29, 2008
   m. A2YF0-IS-5-WR.0065-01 DATED APRIL 9, 2008

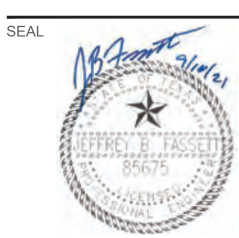
EXISTING PIPELINE SCHEDULE

LINE CALLOUT	SOURCE	LINE ID	EXISTING LINE
PLANT DRAIN LINE #1	400 SUMP WEST AREA 2 BASIN PUMP #63	0-PD-0400-PE01-14"-N	14 in HDPE DR-11
PLANT DRAIN LINE #2	100 SUMP BOILER AREA SUMP #8	0-PD-0100-PE01-24"-N	24 in HDPE DR-11
PLANT DRAIN LINE #3	200 SUMP TURBINE AREA HOLDING BASIN PUMPS #62	0-PD-0200-PE01-14"-N	14 in HDPE DR-11
PLANT DRAIN LINE #4	FLY ASH BASIN	0 DGN-001-6"-71-N	6 in HDPE DR-17
PLANT DRAIN LINE #5	300 SUMP FR WEST BASIN PUMPS	0-PD-0300-PE01-14"-N	14 in HDPE DR-11
PLANT DRAIN LINE #6	REAGENT PREPARATION AREA SUMP PUMP	0-PD-0501-PE01-4"-N	4 in HDPE DR-11
PLANT DRAIN LINE #7	DEWATERING AREA SUMP	0-PD-0502-PE01-4"-N	4 in HDPE DR-11
PLANT DRAIN LINE #8	FGD BLOWDOWN	0-PD-0360-PE01-3"-N	3 in HDPE DR-11
PLANT DRAIN LINE #9	COMMON DEWATERING (RECLAIM) AREA SUMP	4"-OFC-HDPE-150	4 in HDPE DR-9
PLANT DRAIN LINE #10	LIGNITE SETTLING POND	14"-	14 in HDPE DR-11
PLANT DRAIN LINE #11	HEAVY EQUIPMENT MAINTENANCE LINE	4"-	4 in HDPE DR-17
PLANT DRAIN LINE #12	LANDFILL LINE	14"-	14 in HDPE DR-17

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL



GOLDER ASSOCIATES INC.
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CLIENT
LUMINANT POWER

CONSULTANT
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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
GENERAL NOTES

PROJECT NO.	LUMINANT DRAWING NO.	REV.	2 of 22	DRAWING
19129621		0		2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

LEGEND

- LIMIT OF REGISTERED LANDFILL
- SOIL STOCKPILE AREA

ISSUED FOR CONSTRUCTION

0 300 600
1" = 600' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

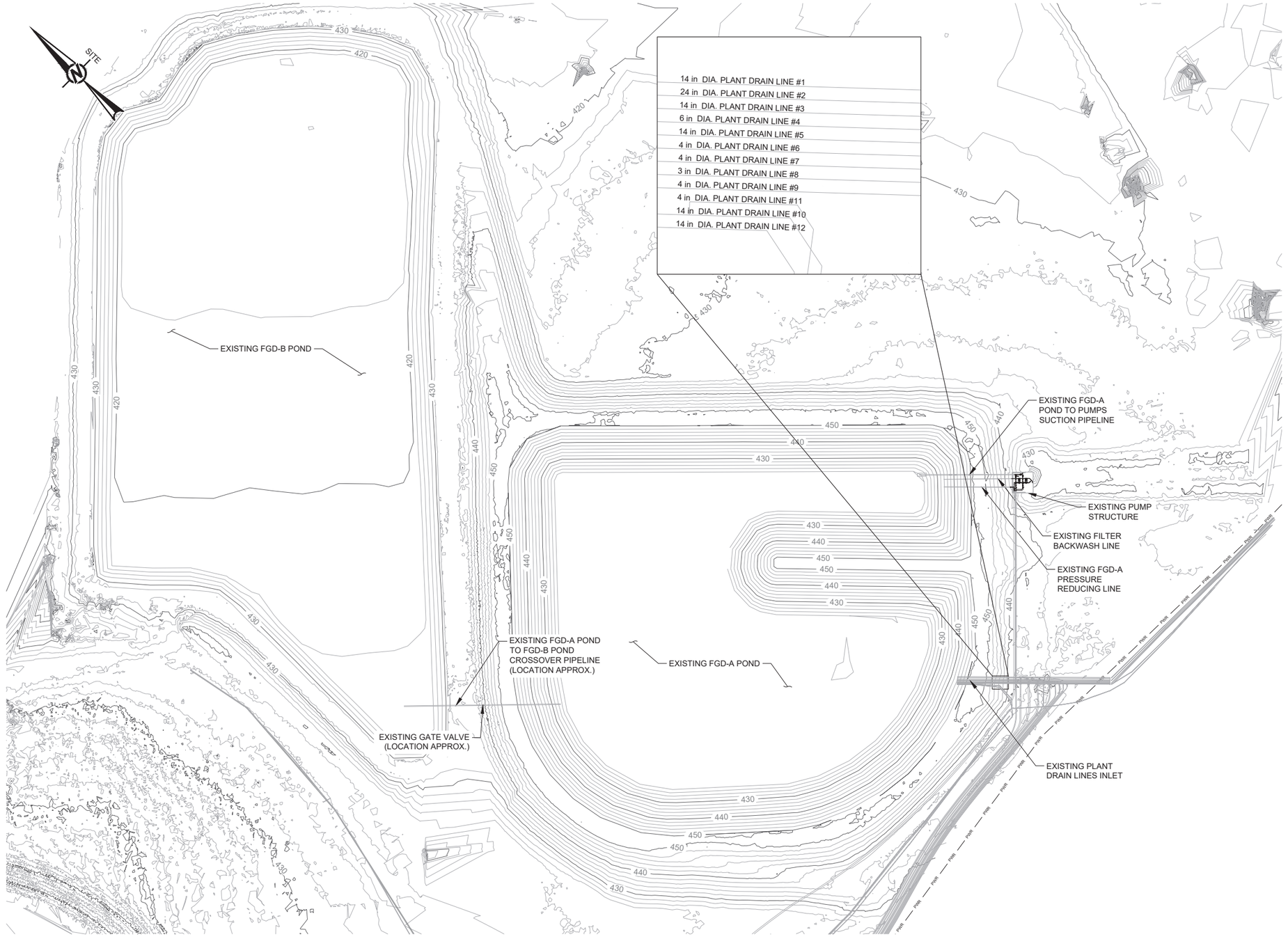
TITLE
SITE OVERVIEW

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	3 of 22	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

1 in

0



LEGEND

- EXISTING GRADES (REFERENCE 1 AND 2)
- EXISTING OVERHEAD POWER LINES
- EXISTING STEEL PIPING
- EXISTING HDPE PIPING

NOTE(S)

1. PLANT DRAINS PIPELINE ARRANGEMENT AND LABELING BASED ON DRAWING AYF00-0-PY-5-MS.00,00-01 DATED NOVEMBER 7, 2012.
2. EXISTING PLANT DRAINS PIPELINE LOCATIONS ARE TAKEN FROM A GROUND SURVEY PERFORMED BY SAM, INC. ON OCTOBER 23, 2014. EXACT LOCATIONS OF EXISTING PIPES TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 80 160
1" = 80' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

JEFFREY B. FASSETT 85675 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 9/16/21

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
EXISTING PIPING CONDITIONS

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	4 of 22	4

LEGEND

- AS-CONSTRUCTED TOP OF CLAY 10-FT MAJOR CONTOUR
- AS-CONSTRUCTED TOP OF CLAY 2-FT MINOR CONTOUR
- EXISTING GROUND 25-FT MAJOR CONTOUR
- EXISTING GROUND 5-FT MINOR CONTOUR

POINT GROUPS

- 1000 CERTIFIED TOP OF CLAY

NOTES

1. CERTIFIED TOP OF CLAY CONTROL POINTS CORRESPOND TO SUBGRADE CERTIFICATION POINTS SURVEYED BY SAM, INC. DURING THE CONSTRUCTION OF THE CLAY LINER IN 2008.

REFERENCES

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 50 100
1" = 100' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

JEFFREY B. FRANTZ 95675 LICENSED PROFESSIONAL ENGINEER

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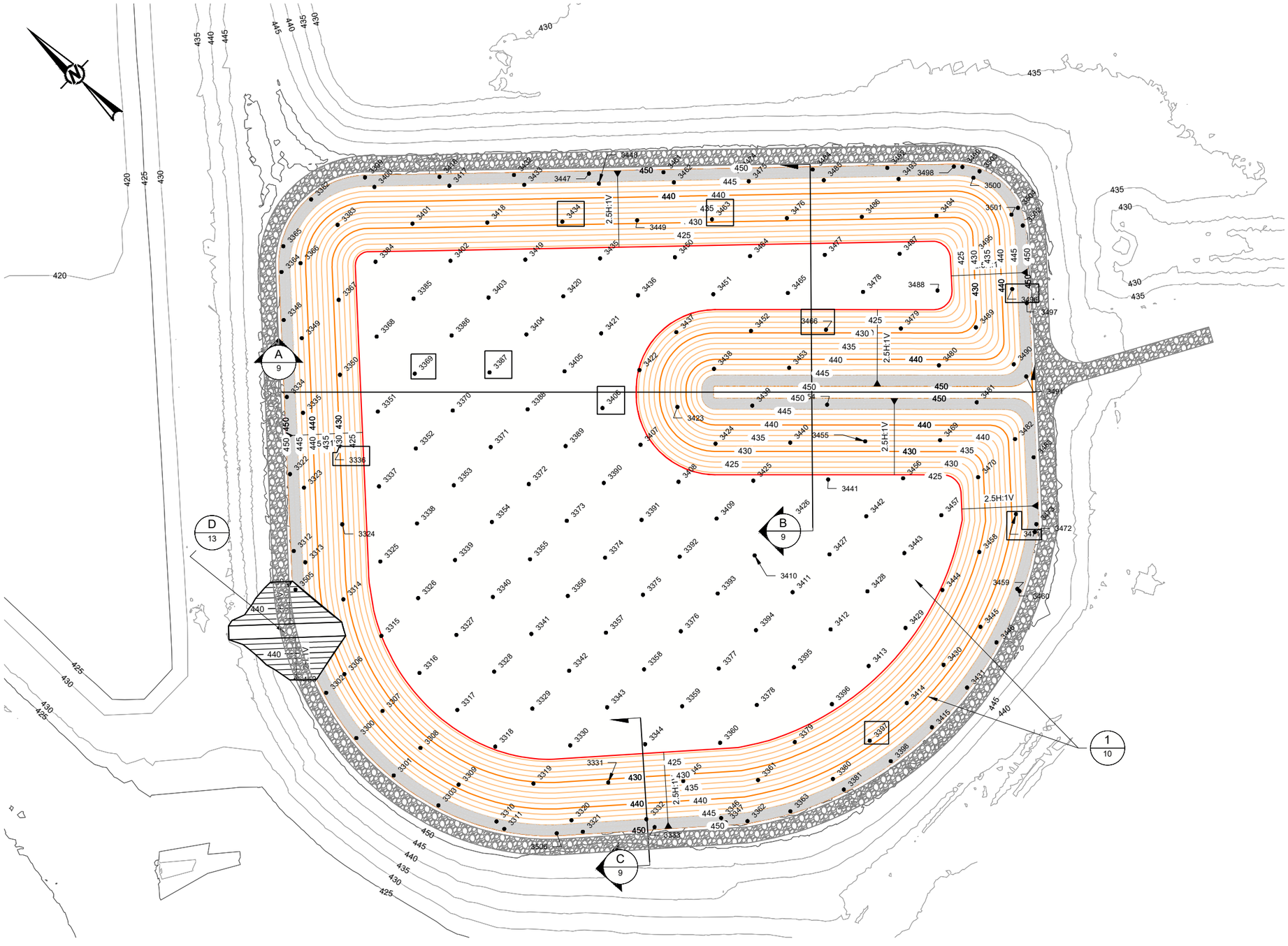
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
AS-CONSTRUCTED CLAY PLAN

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	5 of 22	5



LEGEND

- PROPOSED TOP OF EXCAVATED CLAY BREAKLINE
- PROPOSED TOP OF EXCAVATED CLAY 10-FT MAJOR CONTOUR
- PROPOSED TOP OF EXCAVATED CLAY 2-FT MINOR CONTOUR
- EXISTING GROUND 25-FT MAJOR CONTOUR
- EXISTING GROUND 5-FT MINOR CONTOUR
- SEE NOTE 3

POINT GROUPS

- 3000 — TOP OF EXCAVATED CLAY
- 3387 — SEE NOTE 4

NOTES

1. CONTROL POINTS ARE SET TO GENERALLY PROVIDE A MINIMUM 2.2-FT THICK CLAY FOLLOWING EXCAVATION. A 0.2-FT BUFFER IS INCLUDED TO ACCOUNT FOR POTENTIAL CLAY LAYER THICKNESS REDUCTION DURING RECOMPACTION.
2. THE FLOOR SHALL BE EXCAVATED TO A UNIFORM ELEVATION OF 421.20 FT
3. THE UPPER PORTION OF THE EXISTING CLAY LINER HAS BEEN ERODED. SEE DRAWING 10.
4. ATTENTION IS DRAWN TO POINTS SHOWN INSIDE A BORDER. BASED ON AS-BUILT INFORMATION, THESE POINTS MAY HAVE LESS THAN A 0.2-FT OF BUFFER.
5. EXCAVATIONS THROUGH FGD-A POND EMBANKMENT SHALL BE COMPLETED AT MAXIMUM SLOPES OF 2H:1V IN ACCORDANCE WITH CROSS SECTION A ON DRAWING 19, OR AN ALTERNATE EXCAVATION CONFIGURATION THAT MEETS APPLICABLE OSHA AND LUMINANT REQUIREMENTS.
6. PIPE INSTALLATION THROUGH THE FGD-A POND EMBANKMENT SHALL BE COMPLETED DURING THE LINER RETROFIT WORK. EMBANKMENT FILL (MORE THAN 12-INCHES ABOVE THE PIPE) SHALL CONSIST OF SOILS EXCAVATED AS PART OF THE WORK AS APPROVED BY THE OWNER'S REPRESENTATIVE. IF EXCAVATED SOILS ARE DEEMED UNSUITABLE, EMBANKMENT FILL SHALL CONSIST OF IMPORTED EARTHEN MATERIALS APPROVED BY THE OWNER'S REPRESENTATIVE. EMBANKMENT FILL SHALL BE PLACED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING 10-INCHES IN THICKNESS AND MOISTURE CONDITIONED TO 1 PERCENT BELOW TO 3 PERCENT ABOVE STANDARD PROCTOR (ASTM D698) OPTIMUM MOISTURE CONTENT. EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
7. CLAY LINER (OR GENERAL FILL OVERLAID BY EQUIVALENT OWNER-APPROVED GCL), GEOMEMBRANE LINER, AND PROTECTIVE COVER SHALL BE PLACED ON THE INSIDE FACE OF THE EMBANKMENT DURING THE LINER RETROFIT WORK IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN.

REFERENCES

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 50 100
1" = 100' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

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TEXAS REGISTRATION F-2578

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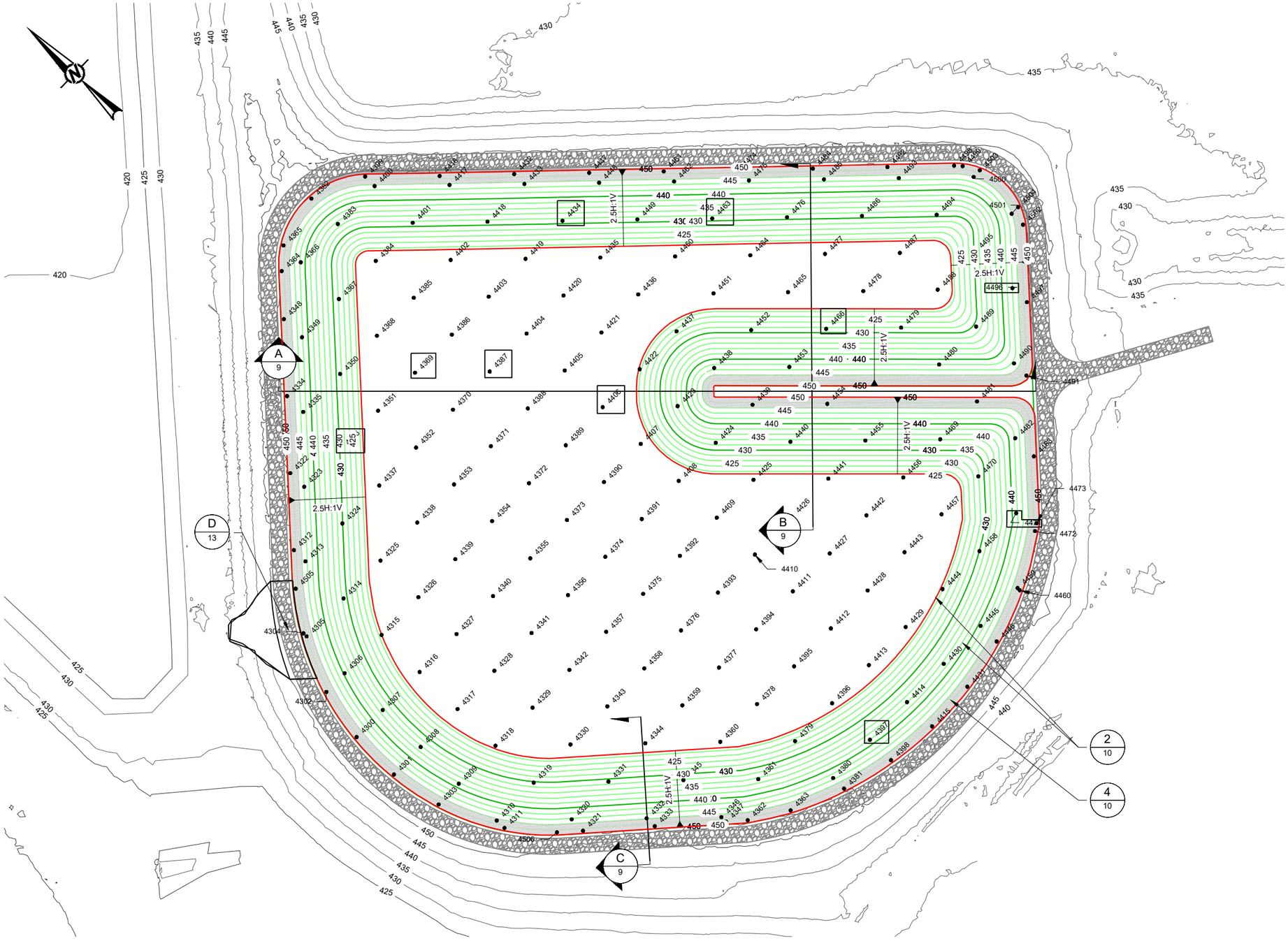
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
TOP OF EXCAVATED CLAY GRADING PLAN

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	6 of 22	6



LEGEND

- PROPOSED TOP OF RECOMPACTED CLAY BREAKLINE
- PROPOSED TOP OF RECOMPACTED CLAY 10-FT MAJOR CONTOUR
- PROPOSED TOP OF RECOMPACTED CLAY 2-FT MINOR CONTOUR
- EXISTING GROUND 25-FT MAJOR CONTOUR
- EXISTING GROUND 5-FT MINOR CONTOUR
- SEE NOTE 3

POINT GROUPS

- 4000 — TOP OF RECOMPACTED CLAY
- 4466 — SEE NOTE 4

NOTES

1. CONTROL POINTS ARE SET TO PROVIDE A MINIMUM 2.0-FT THICK CLAY LAYER.
2. THE FLOOR ELEVATION IS SET AT A UNIFORM ELEVATION OF 421.0 FT.
3. THE UPPER PORTION OF THE EXISTING CLAY LINER HAS BEEN ERODED. SEE DRAWING 10.
4. ATTENTION IS DRAWN TO POINTS SHOWN INSIDE A BORDER. BASED ON AS-BUILT INFORMATION, THESE POINTS MAY HAVE LESS THAN A 0.2-FT OF BUFFER.
5. PIPE INSTALLATION THROUGH THE FGD-A POND EMBANKMENT SHALL BE COMPLETED DURING THE LINER RETROFIT WORK.
6. CLAY LINER (OR GENERAL FILL OVERLAID BY EQUIVALEMTN OWNER-APPROVED GCL), GEOMEMBRANE LINER, AND PROTECTIVE COVER SHALL BE PLACED ON THE INSIDE FACE OF THE RECOMPACTED EMBANKMENT EXCAVATED FOR PIPE INSTALLATION.

REFERENCES

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 50 100
1" = 100' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

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GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
TOP OF RECOMPACTED CLAY GRADING PLAN

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	7 of 22	7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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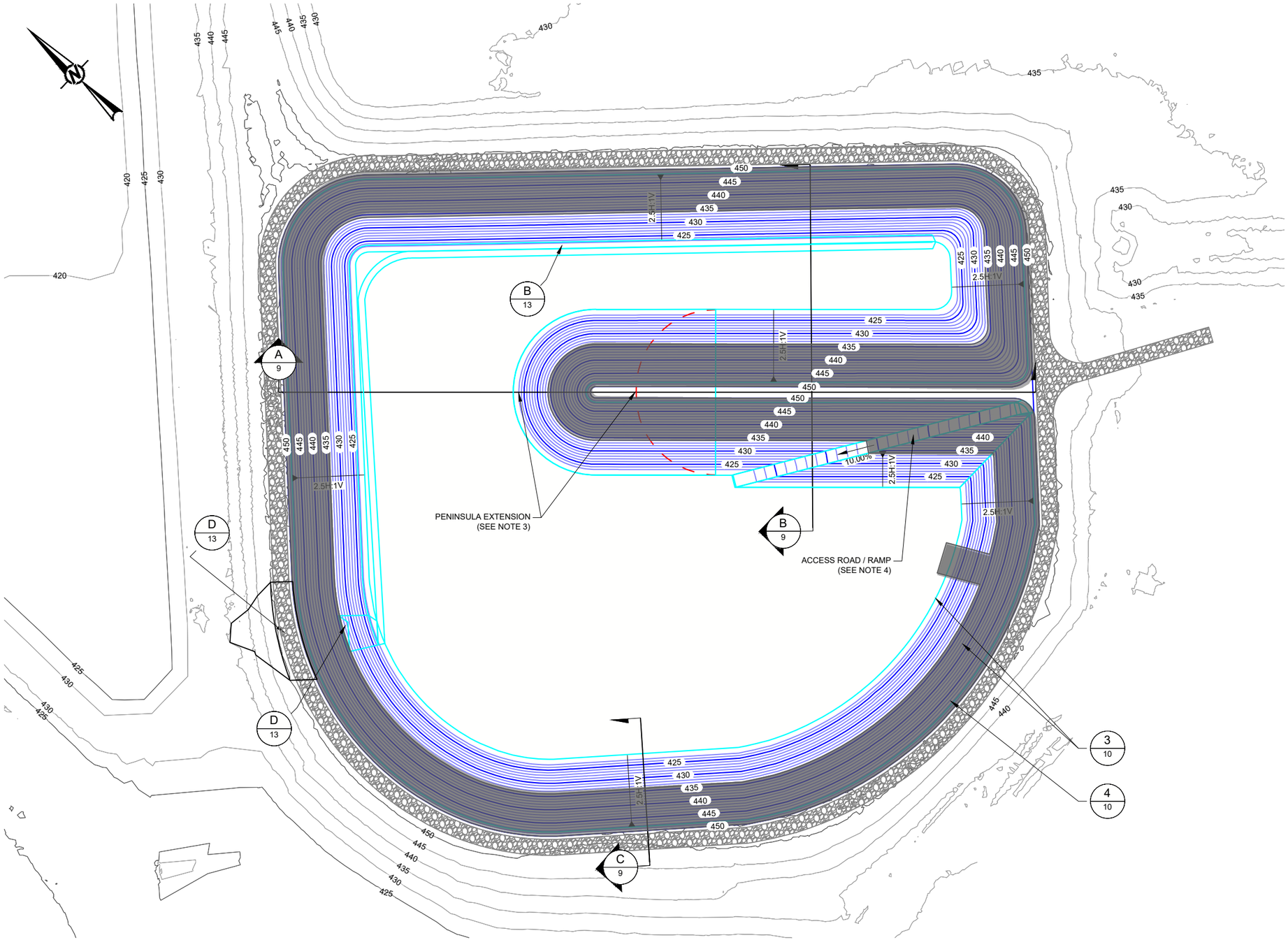

LEGEND

- PROPOSED TOP OF PROTECTIVE COVER BREAKLINE
- PROPOSED TOP OF PROTECTIVE COVER 5-FT MAJOR CONTOUR
- PROPOSED TOP OF PROTECTIVE COVER 1-FT MINOR CONTOUR
- EXISTING GROUND 25-FT MAJOR CONTOUR
- EXISTING GROUND 5-FT MINOR CONTOUR
- GROUT MATTRESS
- AGGREGATE SURFACE ROAD (SEE NOTE 8)

NOTES

1. THE FLOOR ELEVATION IS SET AT A UNIFORM ELEVATION OF 422.5 FT.
2. PROTECTIVE COVER TO BE PLACED 1.5-FT THICK OVER GEOMEMBRANE LINER ON THE FLOOR AS SHOWN ON DRAWING 10. PROTECTIVE COVER MATERIAL TO BE APPROVED BY OWNER'S REPRESENTATIVE.
3. PENINSULA SHALL BE EXTENDED APPROXIMATELY 120-FT. EXTENSION SHALL BE CONSTRUCTED USING CCR AS APPROVED BY OWNER'S REPRESENTATIVE.
4. ACCESS ROAD/RAMP SHALL BE 12-FT WIDE AND PROGRESS FROM THE CREST TO THE FLOOR AT A 10% MAXIMUM SLOPE. ACCESS ROAD / RAMP SHALL BE CONSTRUCTED USING CCR AS APPROVED BY OWNER'S REPRESENTATIVE. COMPACTED FILL OR CCR SHALL BE COVERED WITH PROTECTIVE COVER.
5. SEE LINER QUALITY CONTROL PLAN FOR REQUIREMENTS OF CCR PLACEMENT IN THE PENINSULA EXTENSION, ACCESS RAMP, AND AS PROTECTIVE COVER.
6. GROUT MATTRESS SHALL CONSIST OF HYDROTEX US600 WITH $\frac{1}{4}$ IN. DIA. CABLE IN LONGITUDINAL DIRECTION AT 3 FT. CENTERS.
7. THE GROUT MATTRESS SHALL EXTEND FROM ELEV. 434.0 THROUGH THE ANCHOR TRENCH.
8. THE AGGREGATE IN THE SURFACE ROAD SHALL CONFORM TO TXDOT ITEM 247, TYPE A, GRADE 1-2.

REFERENCES

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 50 100
1" = 100' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
TOP OF PROTECTIVE COVER GRADING PLAN

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	8 of 22	8

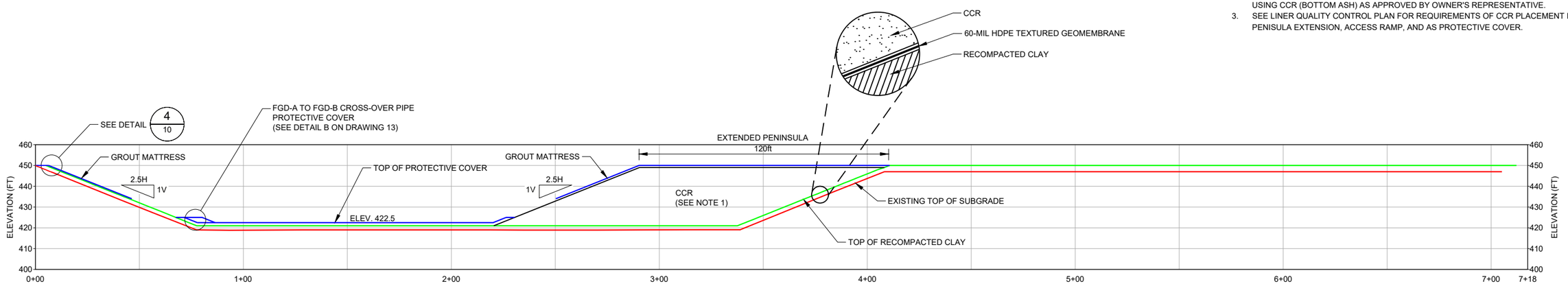
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

LEGEND

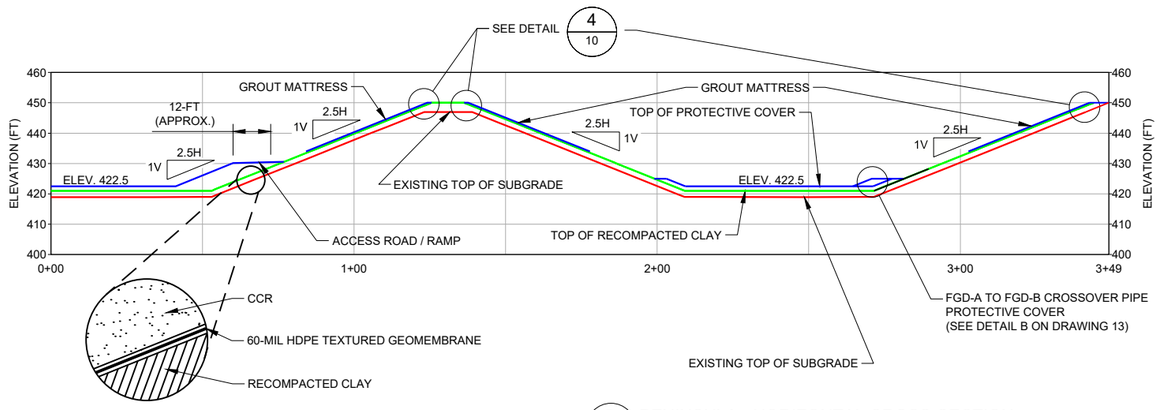
- PROPOSED TOP OF PROTECTIVE COVER
- PROPOSED TOP OF RECOMPACTED CLAY
- EXISTING TOP OF SUBGRADE
- 4/10 SEE LINER DETAIL IV

NOTES

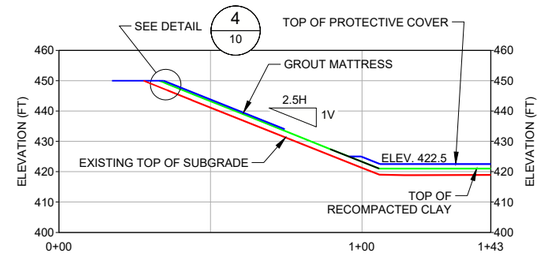
1. PENINSULA SHALL EXTEND BY APPROXIMATELY 120 FT. EXTENSION SHALL BE CONSTRUCTED USING CCR (BOTTOM ASH) AS APPROVED BY OWNER'S REPRESENTATIVE.
2. ACCESS ROAD / RAMP SHALL BE 12 FT WIDE AND PROGRESS FROM THE CREST TO THE FLOOR AT A 10% MAXIMUM SLOPE. ACCESS ROAD / RAMP SHALL BE CONSTRUCTED USING CCR (BOTTOM ASH) AS APPROVED BY OWNER'S REPRESENTATIVE.
3. SEE LINER QUALITY CONTROL PLAN FOR REQUIREMENTS OF CCR PLACEMENT IN THE PENISULA EXTENSION, ACCESS RAMP, AND AS PROTECTIVE COVER.



SCALE 1" = 50' A 9 PENINSULA - VERTICAL CROSS-SECTION



SCALE 1" = 50' B 9 PENINSULA - HORIZONTAL CROSS-SECTION



SCALE 1" = 50' C 9 WEST AREA CROSS-SECTION

ISSUED FOR CONSTRUCTION

0 25 50
1" = 50' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

JEFFREY B. FARRELL 85675 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 9/16/21

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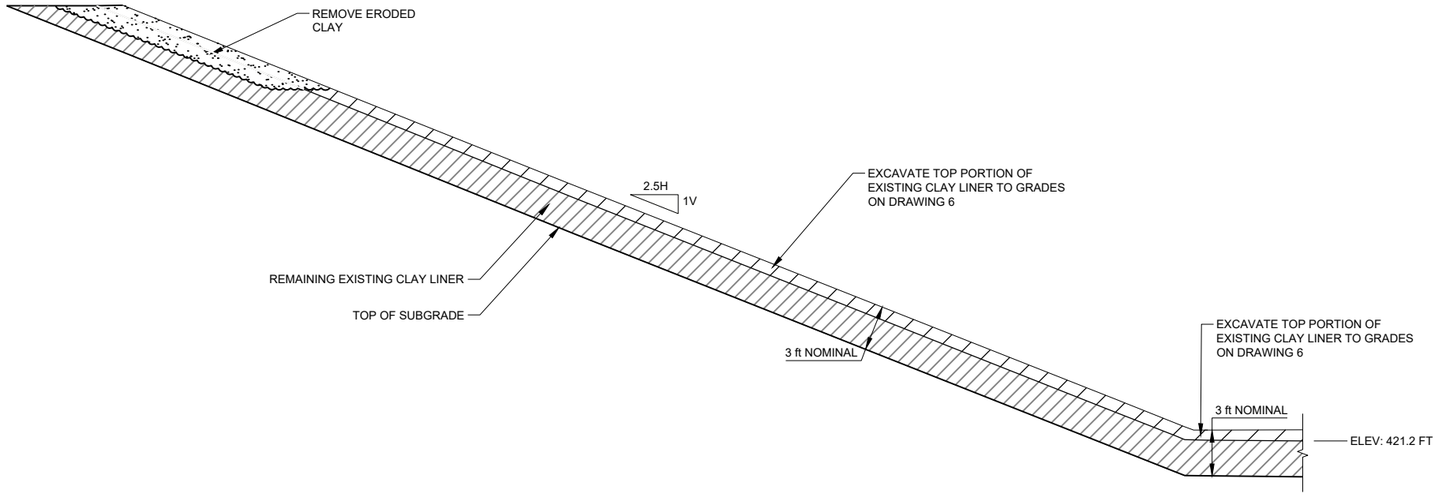
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

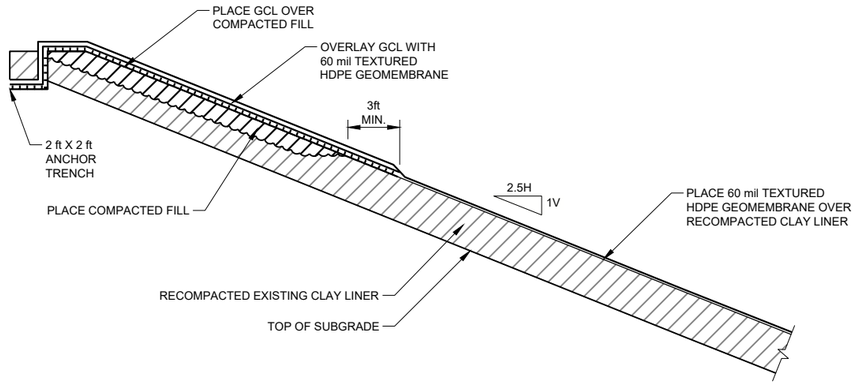
TITLE
PROFILES

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	9 of 22	9

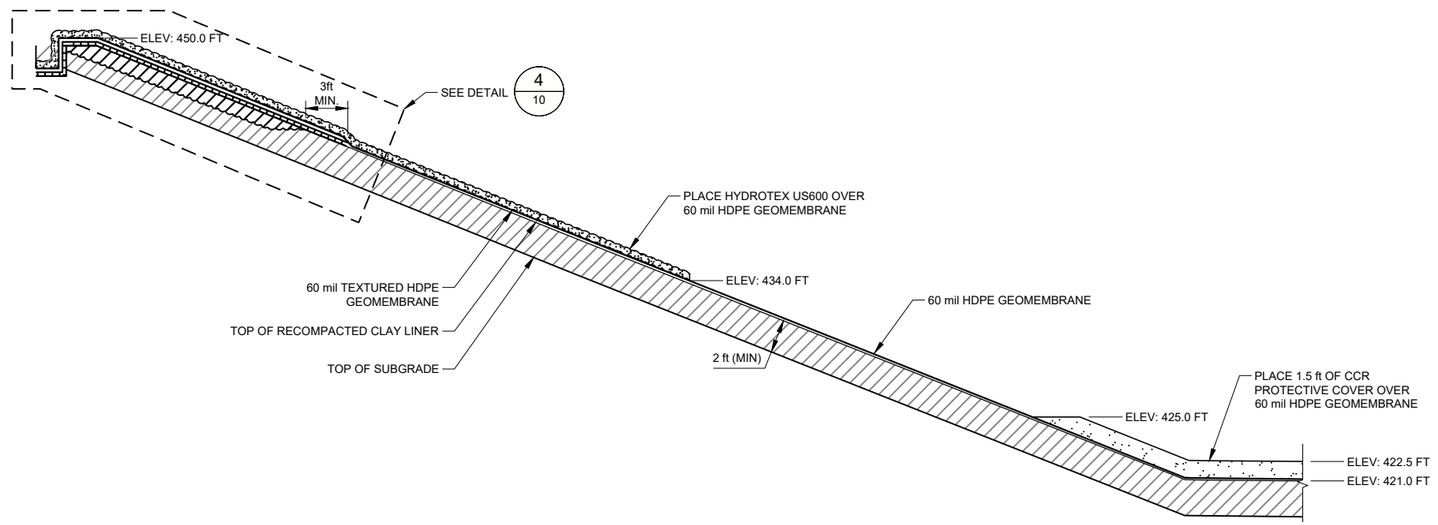
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



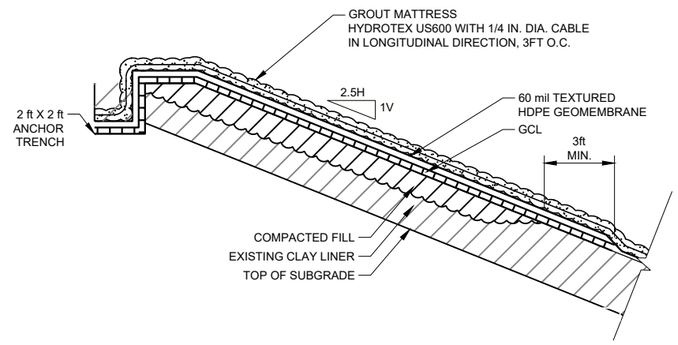
SCALE NTS 1/10 LINER DETAIL I



SCALE NTS 2/10 LINER DETAIL II



SCALE NTS 3/10 LINER DETAIL III



SCALE NTS 4/10 LINER DETAIL IV

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

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TEXAS REGISTRATION F-2578

CLIENT
LUMINANT POWER

CONSULTANT
GOLDER
MEMBER OF WSP

HOUSTON NORTH OFFICE
14950 HEATHROW FOREST PKWY, STE 280
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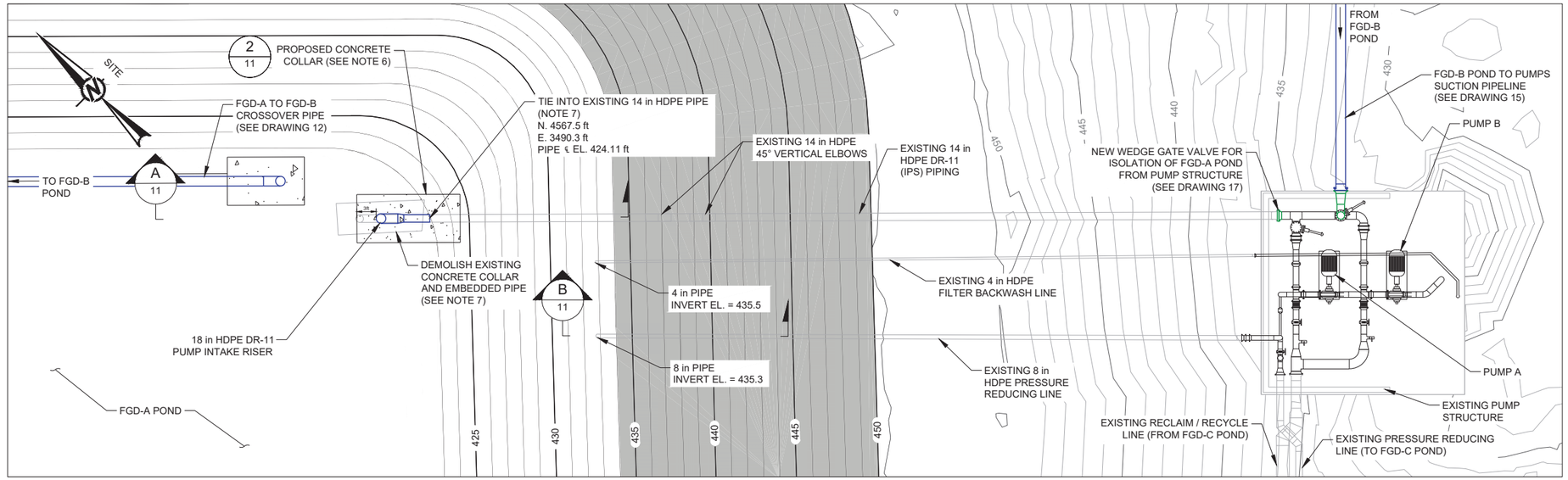
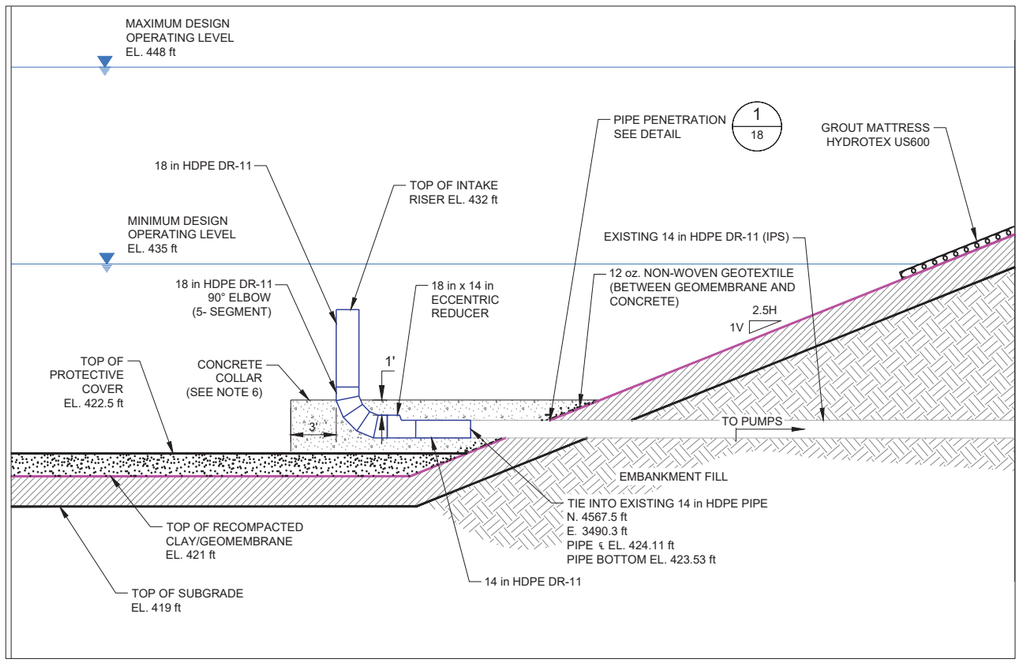
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
GRADING DETAILS

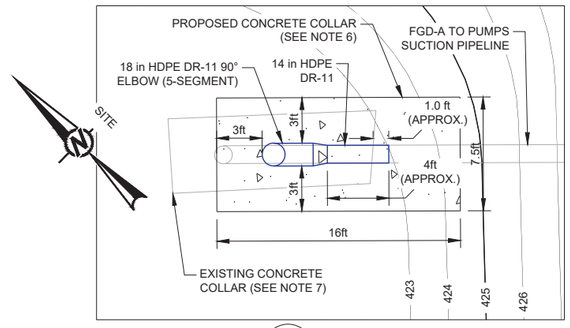
PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	10 of 22	10



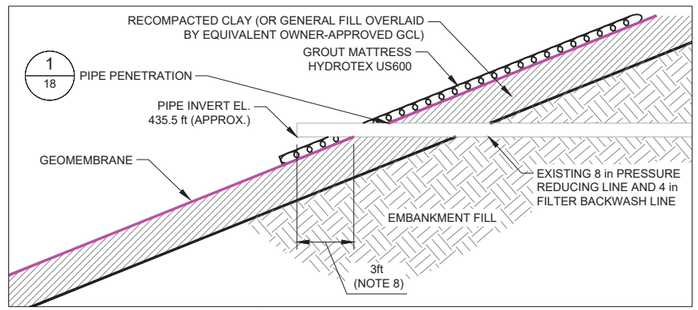
SCALE 1" = 10' 1/11 FGD-A POND TO PUMP SUCTION PIPELINE PLAN



SCALE N.T.S. A/11 FGD-A POND TO PUMP SUCTION PIPELINE PROFILE VIEW



SCALE 1" = 5" 2/11 CONCRETE COLLAR



SCALE N.T.S. B/11 EXISTING 8 in PIPE PENETRATION

LEGEND

- 430 — EXISTING GRADES (REFERENCE 1)
- 430 — PROPOSED TOP OF PROTECTIVE COVER GRADES
- EXISTING STEEL PIPING
- EXISTING HDPE PIPING
- PROPOSED STEEL PIPING
- PROPOSED HDPE PIPING
- GROUT MATTRESS (HYDROTEX US600)

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) DR-11 (IRON PIPE SIZING) SOLID WALL UNLESS OTHERWISE INDICATED.
4. UNDERGROUND PIPING SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE PIPE PENETRATION THROUGH THE PROTECTIVE COVER, THE COMPACTED CLAY LINER, AND THE FIRST FIVE (5) FEET OF EMBANKMENT FILL SHALL NOT HAVE GRANULAR BEDDING OR BACKFILL.
5. NO PIPING OR CONCRETE SHOULD BE IN DIRECT CONTACT WITH THE GEOMEMBRANE. A 12-OZ NON-WOVEN GEOTEXTILE SHALL BE PLACED BETWEEN THE CONCRETE AND THE GEOMEMBRANE. A 60 mil HDPE GEOMEMBRANE RUB-SHEET SHALL BE TACK WELDED TO THE LINER IN AREAS WHERE PIPING IS RESTING ON THE LINER.
6. A SULFATE RESISTANT CONCRETE MIX DESIGN APPROVED BY THE OWNER'S REPRESENTATIVE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. CONCRETE COLLAR TO EXTEND APPROXIMATELY THREE (3) FEET AROUND THE RISER PIPE AND TO HAVE A MINIMUM OF 12 INCHES OF COVER ABOVE AND BELOW THE PIPE.
7. EXISTING 14 in HDPE PIPELINE SHALL BE CUT SQUARE APPROXIMATELY ONE (1) FOOT DOWNSTREAM OF THE EXISTING CONCRETE COLLAR. CONCRETE COLLAR AND EMBEDDED PIPING TO BE DEMOLISHED AND REMOVED. PROPOSED HDPE PIPING TO BE FUSION WELDED TO EXISTING PIPE
8. PIPE LENGTH FOR THE EXISTING 8 in HDPE PRESSURE REDUCING LINE AND THE 4 in HDPE FILTER BACKWASH LINE TO BE FIELD FIT AS REQUIRED TO ACHIEVE THE SPECIFIED PIPE PENETRATION INTO THE FGD-A POND.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 10 20
1" = 10' FEET

0 5 10
1" = 5' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

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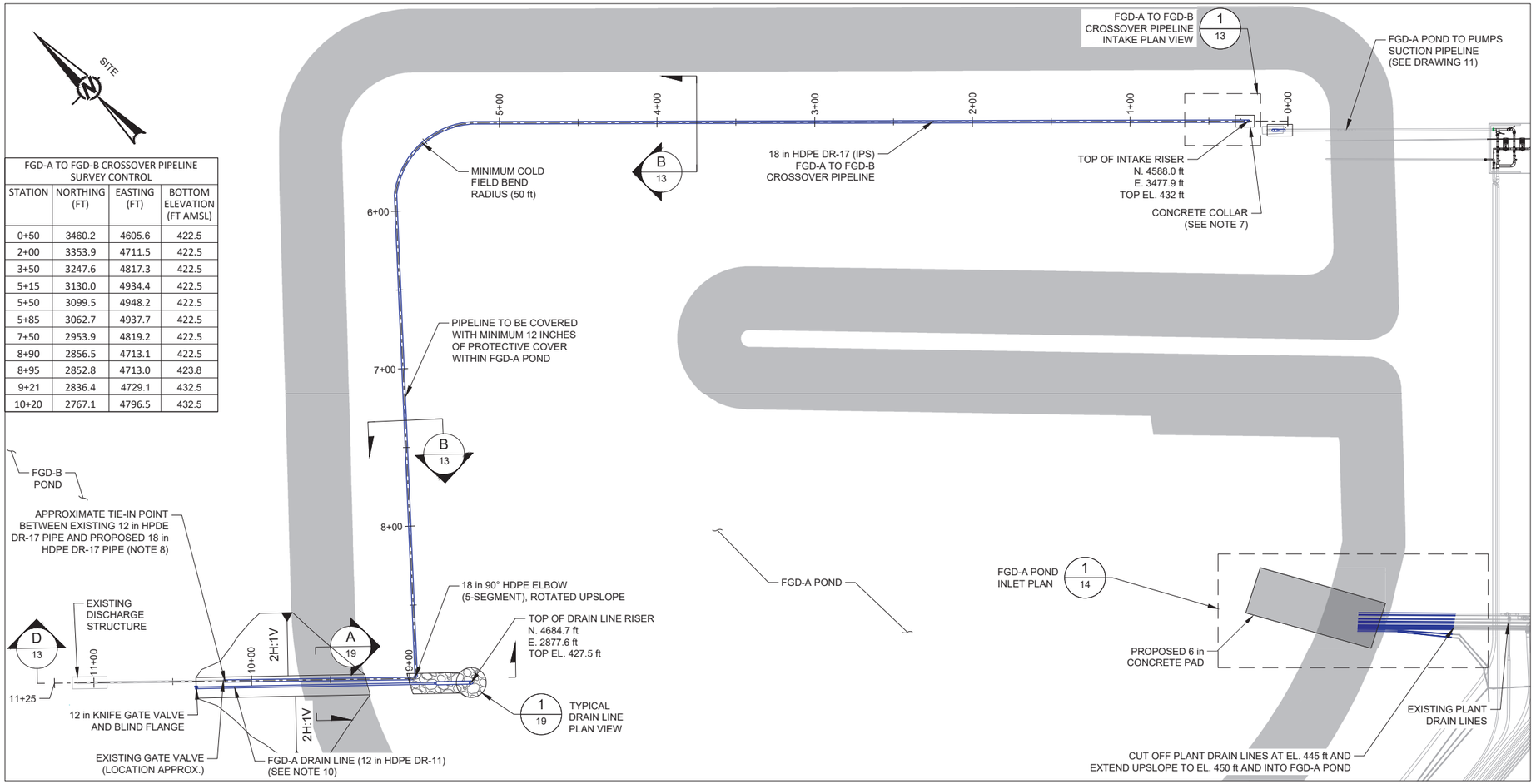
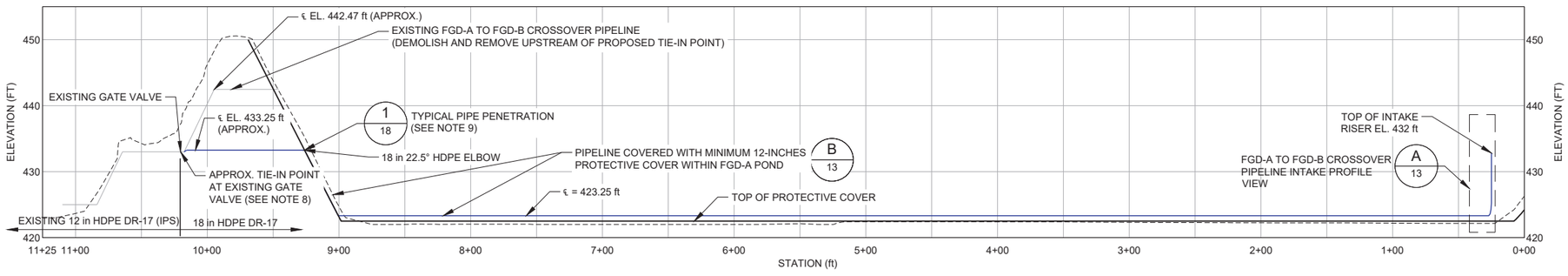
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
FGD-A POND TO PUMPS INTAKE

PROJECT NO.	LUMINANT DRAWING NO.	REV.	11 of 22	DRAWING
19129621		0		11



FGD-A TO FGD-B CROSSOVER PIPELINE SURVEY CONTROL			
STATION	NORTHING (FT)	EASTING (FT)	BOTTOM ELEVATION (FT AMSL)
0+50	3460.2	4605.6	422.5
2+00	3353.9	4711.5	422.5
3+50	3247.6	4817.3	422.5
5+15	3130.0	4934.4	422.5
5+50	3099.5	4948.2	422.5
5+85	3062.7	4937.7	422.5
7+50	2953.9	4819.2	422.5
8+90	2856.5	4713.1	422.5
8+95	2852.8	4713.0	423.8
9+21	2836.4	4729.1	432.5
10+20	2767.1	4796.5	432.5



0 50 100
1" = 50' FEET

SCALE 1" = 50'
5x VERTICAL EXAGGERATION

A 12 FGD-A TO FGD-B PIPELINE

LEGEND

- 430 EXISTING GRADES (REFERENCE 1)
- 430 PROPOSED TOP OF PROTECTIVE COVER GRADES
- EXISTING STEEL PIPING
- EXISTING HDPE PIPING
- PROPOSED STEEL PIPING
- PROPOSED HDPE PIPING
- GROUT MATTRESS (HYDROTEX US600)

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) DR-11 (IRON PIPE SIZING) SOLID WALL UNLESS OTHERWISE INDICATED.
4. EXCAVATION THROUGH THE FGD-A POND EMBANKMENT SHALL BE COMPLETED AT MAXIMUM SLOPES OF 2H:1V IN ACCORDANCE WITH CROSS SECTION A ON DRAWING 19, OR AN ALTERNATE EXCAVATION CONFIGURATION THAT MEETS APPLICABLE OSHA AND LUMINANT REQUIREMENTS.
5. UNDERGROUND PIPING (THROUGH THE FGD-A POND EMBANKMENT) SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE PIPE PENETRATION THROUGH THE PROTECTIVE COVER, THE COMPACTED CLAY LINER, AND THE FIRST FIVE (5) FEET OF EMBANKMENT FILL SHALL NOT HAVE GRANULAR BEDDING OR BACKFILL.
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7. A SULFATE RESISTANT CONCRETE MIX DESIGN APPROVED BY THE OWNER'S REPRESENTATIVE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. CONCRETE COLLAR TO EXTEND APPROXIMATELY THREE (3) FEET AROUND THE RISER PIPE AND TO HAVE A MINIMUM OF 12 INCHES OF COVER ABOVE THE PIPE.
8. CONTRACTOR TO FIELD IDENTIFY TIE-IN LOCATION AND INDICATE ANY PROPOSED CHANGES TO TIE-IN FOR OWNER'S APPROVAL.
9. PIPE INSTALLATION THROUGH THE FGD-A POND EMBANKMENT SHALL BE COMPLETED DURING THE LINER RETROFIT WORK. CLAY LINER (OR GENERAL FILL OVERLAID BY EQUIVALENT OWNER-APPROVED GCL), GEOMEMBRANE LINER, AND PROTECTIVE COVER SHALL BE PLACED ON THE INSIDE FACE OF THE EMBANKMENT DURING THE LINER RETROFIT WORK IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN. PIPING WITHIN FGD-A POND SHALL BE COMPLETED AFTER PROTECTIVE COVER PLACEMENT.
10. THE PROPOSED FGD-A POND DRAIN LINE TO FOLLOW THE SAME PROFILE AS THE PROPOSED FGD-A POND TO FGD-B POND CROSSOVER PIPELINE THROUGH THE EMBANKMENT WHICH SEPARATES THE TWO PONDS. THE FGD-A POND DRAIN LINE SHALL BE DAYLIGHTED NEAR THE EXISTING KNIFE GATE VALVE ON THE FGD-A POND TO FGD-B POND CROSSOVER PIPELINE AND TERMINATED WITH A KNIFE GATE VALVE AND BLIND FLANGE.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. AS-CONSTRUCTED SURVEY OF FGD-B POND PERFORMED BY SAM, INC. ON DECEMBER 7, 2011.
3. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 40 80
1" = 40' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

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TEXAS REGISTRATION F-2578

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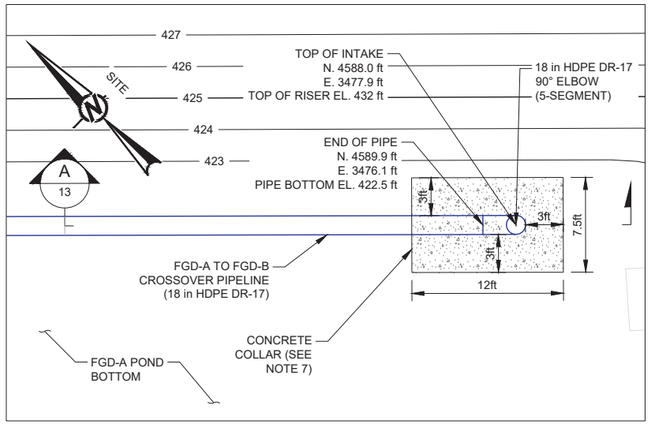
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
FGD-A POND TO FGD-B POND CROSSOVER PIPELINE PLAN AND PROFILE

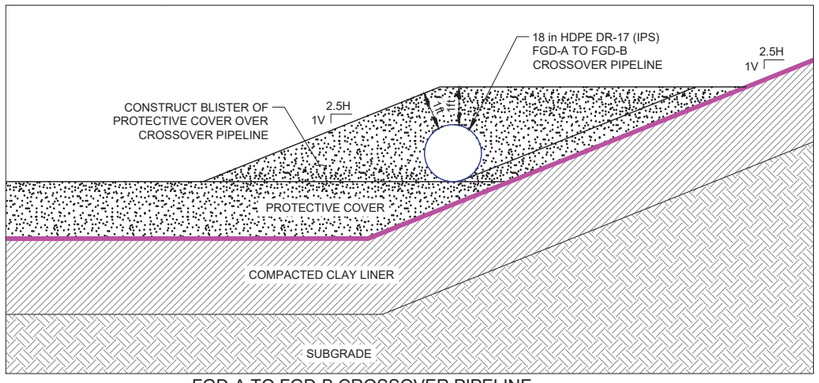
PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	12 of 22	12

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

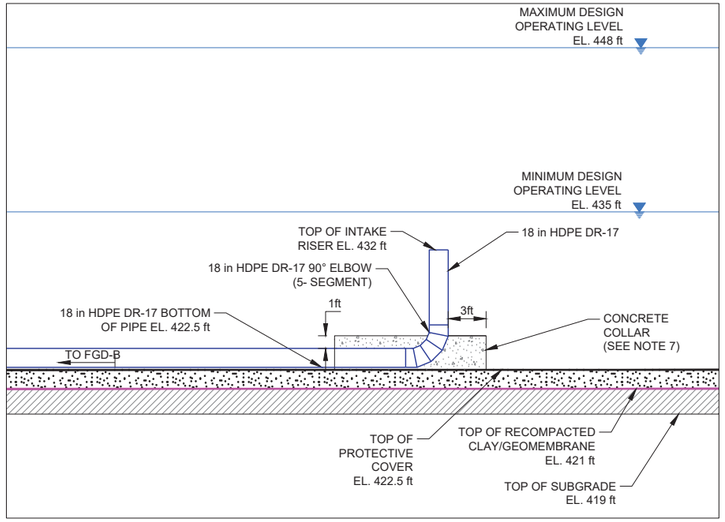
0 1 in



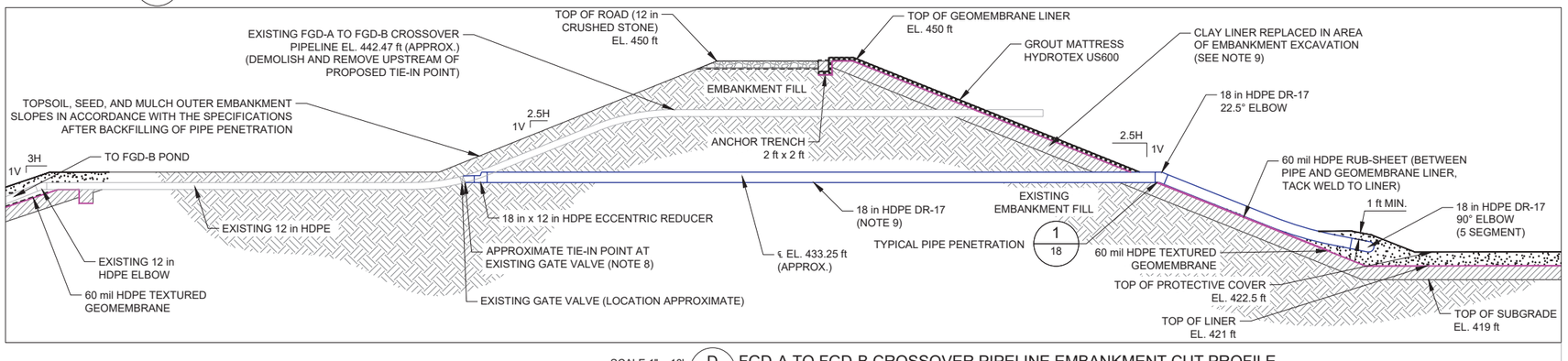
SCALE 1" = 6' 1/13 FGD-A TO FGD-B CROSSOVER PIPELINE INTAKE PLAN VIEW



SCALE N.T.S. B/13 FGD-A TO FGD-B CROSSOVER PIPELINE PROTECTIVE COVER BLISTER



SCALE 1" = 6' A/13 FGD-A TO FGD-B CROSSOVER PIPELINE INTAKE PROFILE VIEW



SCALE 1" = 10' D/13 FGD-A TO FGD-B CROSSOVER PIPELINE EMBANKMENT CUT PROFILE

LEGEND

430 PROPOSED TOP OF PROTECTIVE COVER GRADES

EXISTING HDPE PIPING

PROPOSED HDPE PIPING

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) DR-11 (IRON PIPE SIZING) SOLID WALL UNLESS OTHERWISE INDICATED.
4. EXCAVATIONS THROUGH FGD-A POND EMBANKMENT SHALL BE COMPLETED AT MAXIMUM SLOPES OF 2H:1V IN ACCORDANCE WITH CROSS SECTION A ON DRAWING 19, OR AN ALTERNATE EXCAVATION CONFIGURATION THAT MEETS APPLICABLE OSHA AND LUMINANT REQUIREMENTS.
5. UNDERGROUND PIPING (THROUGH THE FGD-A POND EMBANKMENT) SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE PIPE PENETRATION THROUGH THE PROTECTIVE COVER, THE COMPACTED CLAY LINER, AND THE FIRST FIVE (5) FEET OF EMBANKMENT FILL SHALL NOT HAVE GRANULAR BEDDING OR BACKFILL.
6. NO PIPING OR CONCRETE SHOULD BE IN DIRECT CONTACT WITH THE GEOMEMBRANE. A 12-OZ NON-WOVEN GEOTEXTILE SHALL BE PLACED BETWEEN THE CONCRETE AND THE GEOMEMBRANE. A 60 mil HDPE GEOMEMBRANE RUB-SHEET SHALL BE TACK WELDED TO THE LINER IN AREAS WHERE PIPING IS RESTING ON THE LINER.
7. A SULFATE RESISTANT CONCRETE MIX DESIGN APPROVED BY THE OWNER'S REPRESENTATIVE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. CONCRETE COLLAR TO EXTEND APPROXIMATELY THREE (3) FEET AROUND THE RISER PIPE AND TO HAVE A MINIMUM OF 12 INCHES OF COVER ABOVE THE PIPE.
8. CONTRACTOR TO FIELD IDENTIFY TIE-IN LOCATION AND INDICATE ANY PROPOSED CHANGES TO TIE-IN FOR OWNER'S APPROVAL.
9. PIPE INSTALLATION THROUGH THE FGD-A POND EMBANKMENT SHALL BE COMPLETED DURING THE LINER RETROFIT WORK. EMBANKMENT FILL (MORE THAN 12 INCHES ABOVE THE PIPE) SHALL CONSIST OF SOILS EXCAVATED AS PART OF THE WORK AS APPROVED BY THE OWNER'S REPRESENTATIVE. IF EXCAVATED SOILS ARE DEEMED UNSUITABLE, EMBANKMENT FILL SHALL CONSIST OF IMPORTED EARTHEN MATERIALS APPROVED BY THE OWNER'S REPRESENTATIVE. EMBANKMENT FILL SHALL BE PLACED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING TEN (10) INCHES IN THICKNESS AND MOISTURE CONDITIONED TO 1 PERCENT BELOW TO 3 PERCENT ABOVE STANDARD PROCTOR (ASTM D698) OPTIMUM MOISTURE CONTENT. EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. CLAY LINER (OR GENERAL FILL OVERLAID BY EQUIVALENT OWNER-APPROVED GCL), GEOMEMBRANE LINER, AND PROTECTIVE COVER SHALL BE PLACED ON THE INSIDE FACE OF THE EMBANKMENT DURING THE LINER RETROFIT WORK IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 6 12
1" = 6' FEET

0 10 20
1" = 10' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

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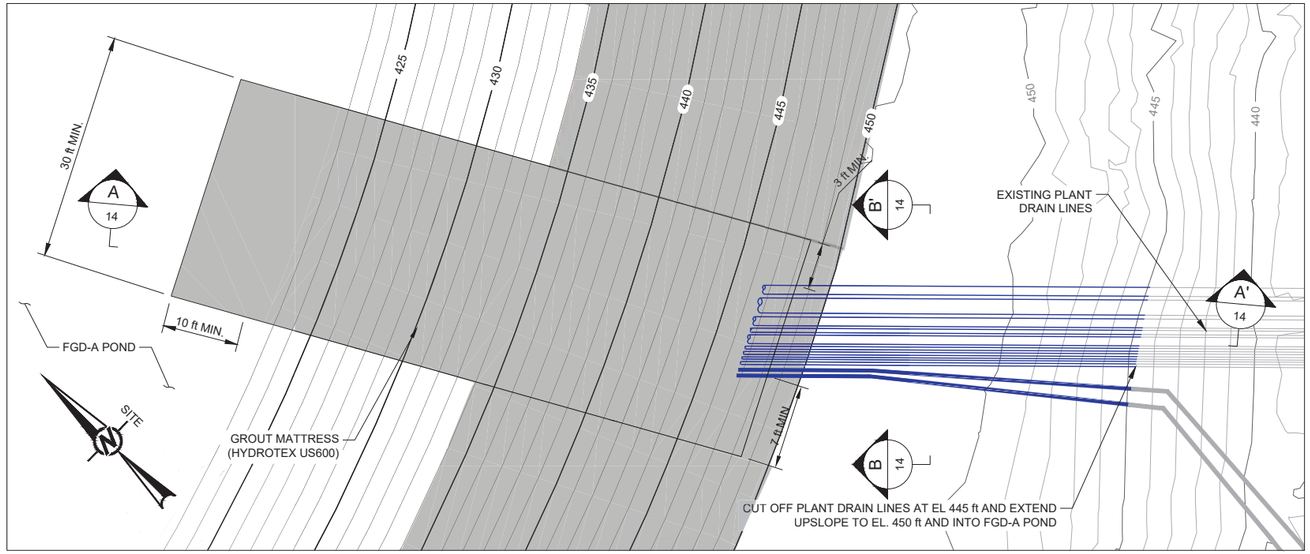
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
FGD-A POND TO FGD-B POND CROSSOVER PIPELINE DETAILS

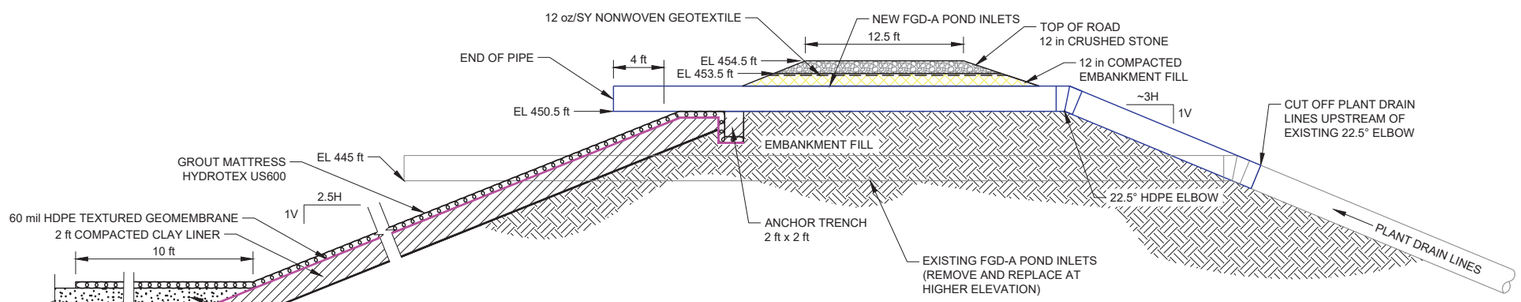
PROJECT NO.	LUMINANT DRAWING NO.	REV.	13 of 22	DRAWING
19129621		0		13

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

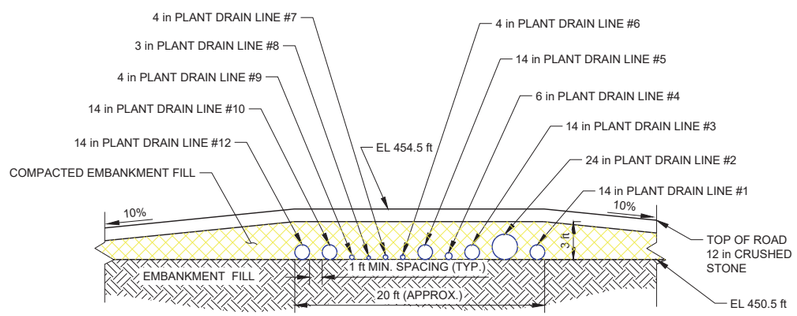
0 1in



SCALE 1" = 10' 1/14 FGD-A POND INLET PLAN



SCALE N.T.S. A/14 FGD-A POND INLET PROFILE VIEW



SCALE N.T.S. B/14 FGD-A POND INLET CROSS SECTION

LEGEND

- 430 — EXISTING GRADES (REFERENCE 1)
- 430 — PROPOSED TOP OF PROTECTIVE COVER GRADES
- EXISTING HDPE PIPING
- PROPOSED HDPE PIPING
- GROUT MATTRESS (HYDROTEX US600)

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) AND SHALL MATCH THE EXISTING INLET LINES (SEE TABLE ON DRAWING 2).
4. EXCAVATIONS SHALL BE COMPLETED AT MAXIMUM SLOPES OF 2H:1V IN ACCORDANCE WITH CROSS SECTION A ON DRAWING 19, OR AN ALTERNATE EXCAVATION CONFIGURATION THAT MEETS APPLICABLE OSHA AND LUMINANT STANDARDS.
5. UNDERGROUND PIPING (THROUGH THE FGD-A POND EMBANKMENT) SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE PIPE PENETRATION THROUGH THE GROUT MATTRESS, THE COMPACTED CLAY LINER, AND THE FIRST FIVE (5) FEET OF EMBANKMENT FILL SHALL NOT HAVE GRANULAR BEDDING OR BACKFILL.

REFERENCE(S)

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0 10 20
1" = 10' FEET

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FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
FGD-A POND INLET DETAILS

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	14 of 22	14

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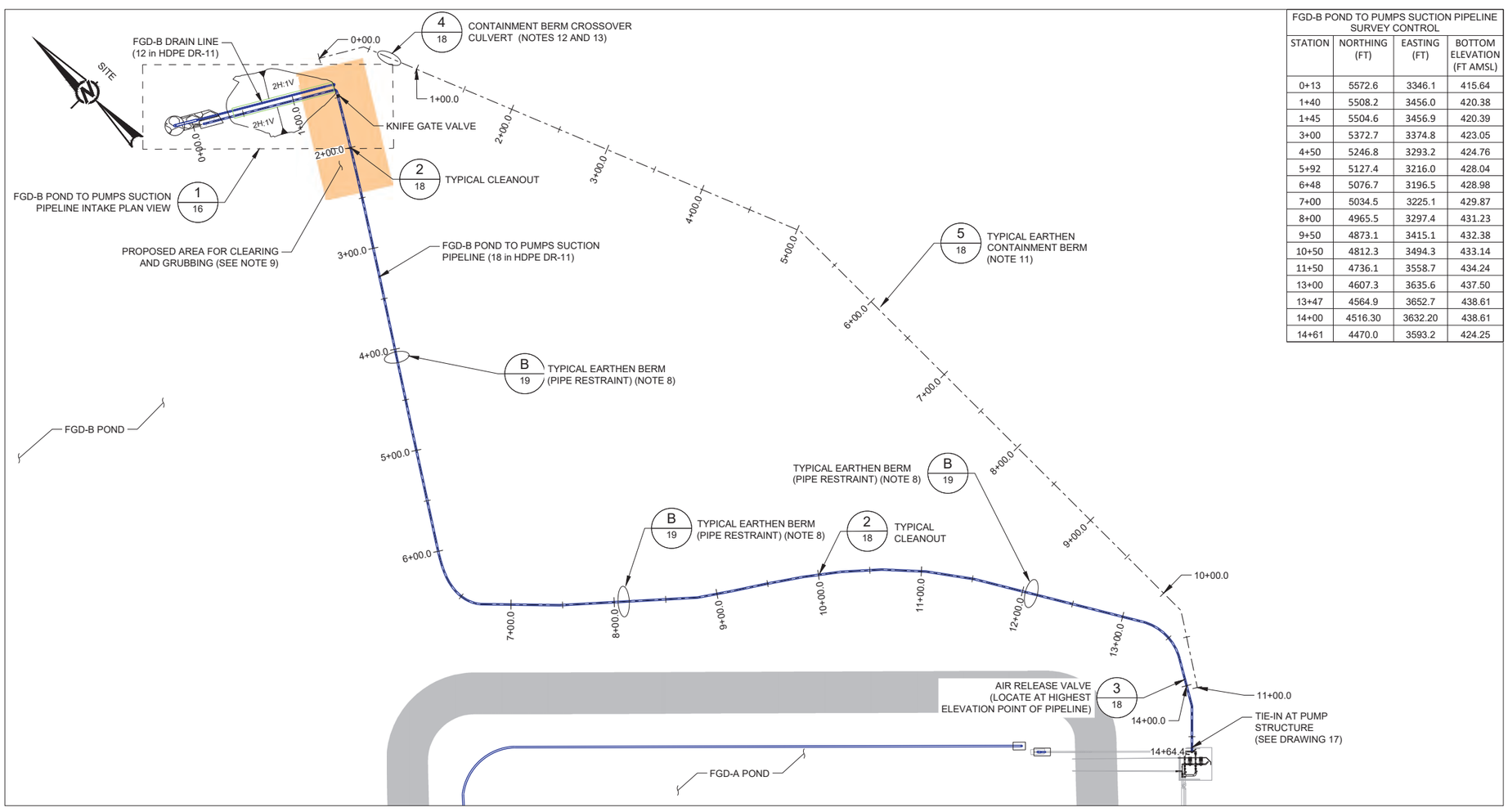


FGD-B POND TO PUMPS SUCTION PIPELINE SURVEY CONTROL			
STATION	NORTHING (FT)	EASTING (FT)	BOTTOM ELEVATION (FT AMSL)
0+13	5572.6	3346.1	415.64
1+40	5508.2	3456.0	420.38
1+45	5504.6	3456.9	420.39
3+00	5372.7	3374.8	423.05
4+50	5246.8	3293.2	424.76
5+92	5127.4	3216.0	428.04
6+48	5076.7	3196.5	428.98
7+00	5034.5	3225.1	429.87
8+00	4965.5	3297.4	431.23
9+50	4873.1	3415.1	432.38
10+50	4812.3	3494.3	433.14
11+50	4736.1	3558.7	434.24
13+00	4607.3	3635.6	437.50
13+47	4564.9	3652.7	438.61
14+00	4516.30	3632.20	438.61
14+61	4470.0	3593.2	424.25

LEGEND

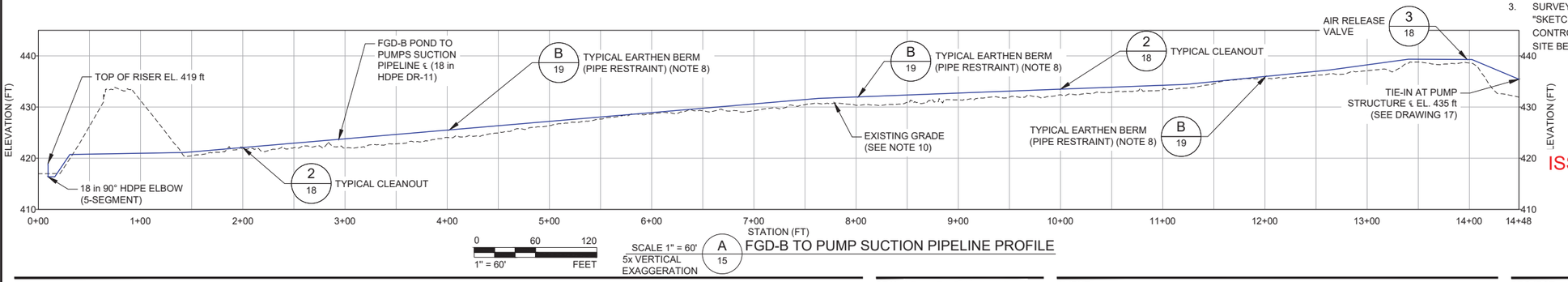
- 430 — EXISTING GRADES (REFERENCE 1 AND 2)
- 430 — PROPOSED TOP OF PROTECTIVE COVER GRADES
- EXISTING STEEL PIPING
- EXISTING HDPE PIPING
- PROPOSED HDPE PIPING

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) DR-11 (IRON PIPE SIZING) SOLID WALL UNLESS OTHERWISE INDICATED.
4. EXCAVATIONS THROUGH FGD-B POND EMBANKMENT SHALL BE COMPLETED AT MAXIMUM SLOPES OF 2H:1V IN ACCORDANCE WITH CROSS SECTION A ON DRAWING 19, OR AN ALTERNATE EXCAVATION CONFIGURATION THAT MEETS APPLICABLE OSHA AND LUMINANT REQUIREMENTS. THE EXISTING GEOMEMBRANE LINER SHALL BE CLEANLY CUT AND GENTLY PEELED AWAY FROM THE PROPOSED EXCAVATION. FOLLOWING COMPLETION OF THE PIPELINE, EMBANKMENT FILL, AND CLAY LINER (OR EMBANKMENT FILL OVERLAID BY EQUIVALENT OWNER-APPROVED GCL) CONSTRUCTION, THE GEOMEMBRANE SHALL BE LAID BACK AND WELDED USING GEOMEMBRANE CAPSTRIPS AS APPROPRIATE.
5. UNDERGROUND PIPING (THROUGH THE FGD-B POND EMBANKMENT) SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE PIPE PENETRATION THROUGH THE PROTECTIVE COVER, THE COMPACTED CLAY LINER, AND THE FIRST FIVE (5) FEET OF EMBANKMENT FILL SHALL NOT HAVE GRANULAR BEDDING OR BACKFILL.
6. NO PIPING OR CONCRETE SHOULD BE IN DIRECT CONTACT WITH THE GEOMEMBRANE. A 12-OZ NON-WOVEN GEOTEXTILE SHALL BE PLACED BETWEEN THE CONCRETE AND THE GEOMEMBRANE. A 60 mil HDPE GEOMEMBRANE RUB-SHEET SHALL BE TACK WELDED TO THE LINER IN AREAS WHERE PIPING IS RESTING ON THE LINER.
7. A SULFATE RESISTANT CONCRETE MIX DESIGN APPROVED BY THE OWNER'S REPRESENTATIVE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. CONCRETE COLLAR TO EXTEND APPROXIMATELY THREE (3) FEET AROUND THE RISER PIPE AND TO HAVE A MINIMUM OF 12 INCHES OF COVER ABOVE THE PIPE.
8. EARTHEN BERM ANCHORAGES WILL BE PROVIDED AT APPROXIMATELY 400-FOOT INTERVALS ALONG THE FGD-B TO PUMPS SUCTION PIPELINE. PIPING BETWEEN THE EARTHEN BERMS SHALL BE SNAKED APPROXIMATELY 20 FEET OFF OF A STRAIGHT LINE ALIGNMENT WITH 20 FEET HORIZONTAL CLEARANCE TO ALLOW THE HDPE PIPES TO EXPAND OR CONTRACT.
9. CLEARING AND GRUBBING PLAN TO BE APPROVED BY OWNER.
10. LOCAL GRADING TO BE DONE ALONG THE ALIGNMENT TO MINIMIZE LOCALIZED HIGH AND LOW SPOTS.
11. EARTHEN CONTAINMENT BERM TO BE 4-FEET (MIN.) ABOVE EXISTING GRADES BETWEEN ALIGNMENT STATIONS 0+00 AND 2+50, AND TRANSITION TO BE 2-FEET (MIN.) ABOVE EXISTING GRADES BETWEEN ALIGNMENT STATIONS 2+50 AND 11+00.
12. CULVERT PIPING SHALL BE ADS N-12 ST IB HDPE PIPE OR EQUIVALENT APPROVED BY THE OWNER'S REPRESENTATIVE.
13. CULVERT THROUGH CONTAINMENT BERM SHALL BE SITUATED AT THE LOWEST ELEVATION ON THE UPSTREAM SIDE OF THE CONTAINMENT BERM AND SHALL BE ORIENTED TO ALLOW FOR DRAINAGE DURING PRECIPITATION EVENTS.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. AS-CONSTRUCTED SURVEY OF FGD-B POND PERFORMED BY SAM, INC. ON DECEMBER 7, 2011.
3. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.



0 60 120
1" = 60' FEET

SCALE 1" = 60'
5x VERTICAL EXAGGERATION

A 15 FGD-B TO PUMP SUCTION PIPELINE PROFILE

ISSUED FOR BIDDING PURPOSES ONLY

0 60 120
1" = 60' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-01-06	ISSUED FOR BIDDING PURPOSES	BJP	KWG	AMS	TJS

SEAL

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

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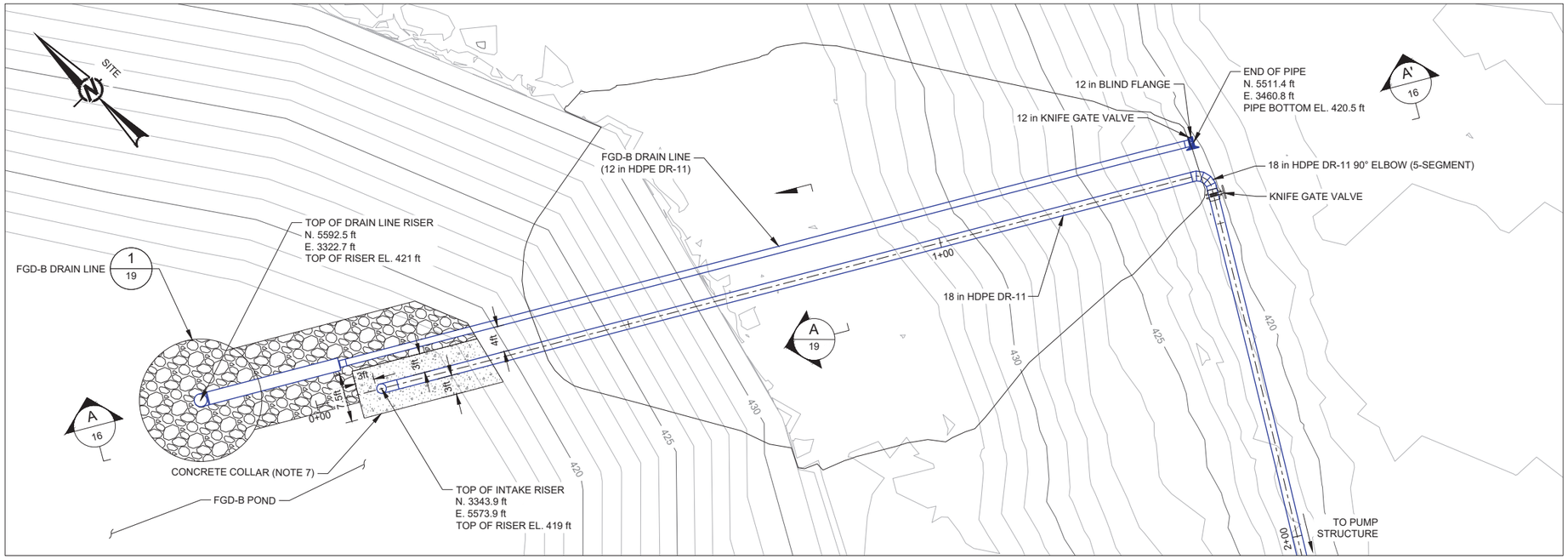
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
FGD-B POND TO PUMPS SUCTION PIPELINE PLAN AND PROFILE

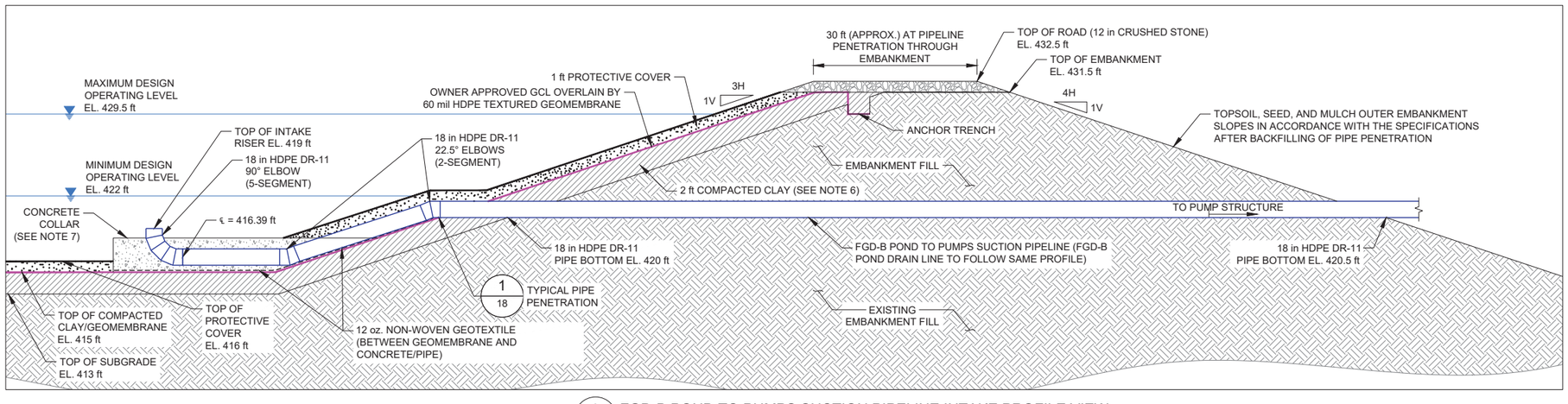
PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	15 of 22	15

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in



SCALE 1" = 10' 1/16 FGD-B POND TO PUMPS SUCTION PIPELINE INTAKE PLAN VIEW



SCALE 1" = 6' A/16 FGD-B POND TO PUMPS SUCTION PIPELINE INTAKE PROFILE VIEW

LEGEND

430 EXISTING GRADES (REFERENCE 1 AND 2)

PROPOSED HDPE PIPING

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) DR-11 (IRON PIPE SIZING) SOLID WALL UNLESS OTHERWISE INDICATED.
4. EXCAVATIONS THROUGH FGD-B POND EMBANKMENT SHALL BE COMPLETED AT MAXIMUM SLOPES OF 2H:1V IN ACCORDANCE WITH CROSS SECTION A ON DRAWING 19, OR AN ALTERNATE EXCAVATION CONFIGURATION THAT MEETS APPLICABLE OSHA AND LUMINANT REQUIREMENTS. THE EXISTING GEOMEMBRANE LINER SHALL BE CLEANLY CUT AND GENTLY PEELED AWAY FROM THE PROPOSED EXCAVATION. FOLLOWING COMPLETION OF THE PIPELINE, EMBANKMENT FILL, AND CLAY LINER (OR EMBANKMENT FILL OVERLAID BY EQUIVALENT OWNER-APPROVED GCL) CONSTRUCTION, THE GEOMEMBRANE SHALL BE LAID BACK AND WELDED USING GEOMEMBRANE CAPSTRIPS AS APPROPRIATE.
5. UNDERGROUND PIPING (THROUGH THE FGD-B EMBANKMENT) SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE PIPE PENETRATION THROUGH THE PROTECTIVE COVER, THE COMPACTED CLAY LINER, AND THE FIRST FIVE (5) FEET OF EMBANKMENT FILL SHALL NOT HAVE GRANULAR BEDDING OR BACKFILL.
6. NO PIPING OR CONCRETE SHOULD BE IN DIRECT CONTACT WITH THE GEOMEMBRANE. A 12-OZ NON-WOVEN GEOTEXTILE SHALL BE PLACED BETWEEN THE CONCRETE AND THE GEOMEMBRANE.
7. A SULFATE RESISTANT CONCRETE MIX DESIGN APPROVED BY THE OWNER'S REPRESENTATIVE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI. CONCRETE COLLAR TO EXTEND APPROXIMATELY THREE (3) FEET AROUND THE RISER PIPE AND TO HAVE A MINIMUM OF 12 INCHES OF COVER ABOVE THE PIPE.
8. EMBANKMENT FILL (MORE THAN 12 INCHES ABOVE THE PIPE) SHALL CONSIST OF SOILS EXCAVATED AS PART OF THE WORK AS APPROVED BY THE OWNER'S REPRESENTATIVE. IF EXCAVATED SOILS ARE DEEMED UNSUITABLE, EMBANKMENT FILL SHALL CONSIST OF IMPORTED EARTHEN MATERIALS APPROVED BY THE OWNER'S REPRESENTATIVE. EMBANKMENT FILL SHALL BE PLACED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING TEN (10) INCHES IN THICKNESS AND MOISTURE CONDITIONED TO 1 PERCENT BELOW TO 3 PERCENT ABOVE STANDARD PROCTOR (ASTM D698) OPTIMUM MOISTURE CONTENT. EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. CLAY LINER (OR GENERAL FILL OVERLAID BY EQUIVALENT OWNER-APPROVED GCL), GEOMEMBRANE LINER, AND PROTECTIVE COVER SHALL BE PLACED ON THE INSIDE FACE OF THE EMBANKMENT IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN AFTER CONSTRUCTING THE PIPELINES THROUGH THE EMBANKMENT.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY IS TAKEN FROM AERIAL SURVEYS PERFORMED BY LUMINANT MINING ON JANUARY 8, 2020 AND FEBRUARY 17, 2020.
2. AS-CONSTRUCTED SURVEY OF FGD-B POND PERFORMED BY SAM, INC. ON DECEMBER 7, 2011.
3. SURVEY CONTROL TAKEN FROM A DRAWING PREPARED BY SAM, INC. ENTITLED "SKETCH TO ACCOMPANY FIELD NOTE NO. 4851" SAM, INC. JOB NO. 26172-09. SITE CONTROL IS NAD83 TEXAS STATE PLANE CENTRAL ZONE. ELEVATIONS ARE BASED ON SITE BENCHMARKS AND ARE IN FEET-MEAN SEA LEVEL.

ISSUED FOR CONSTRUCTION

0 10 20
1" = 10' FEET

0 6 12
1" = 6' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

JEFFREY B. FASSETT 85675 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS 9/16/21

GOLDER ASSOCIATES INC.
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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
FGD-B POND TO PUMPS SUCTION PIPELINE INTAKE

PROJECT NO.	LUMINANT DRAWING NO.	REV.	DRAWING
19129621		0	16 of 22 16

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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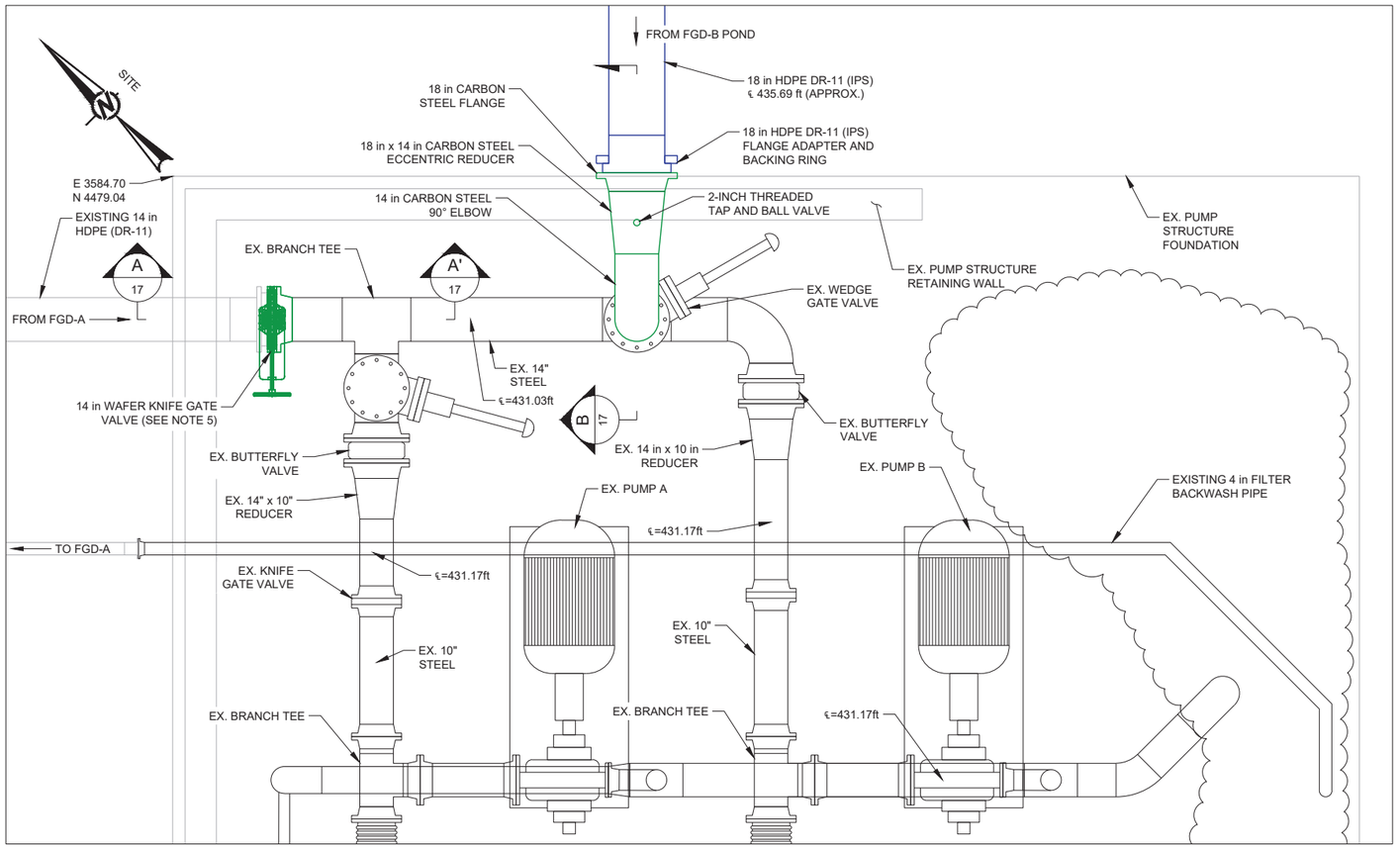
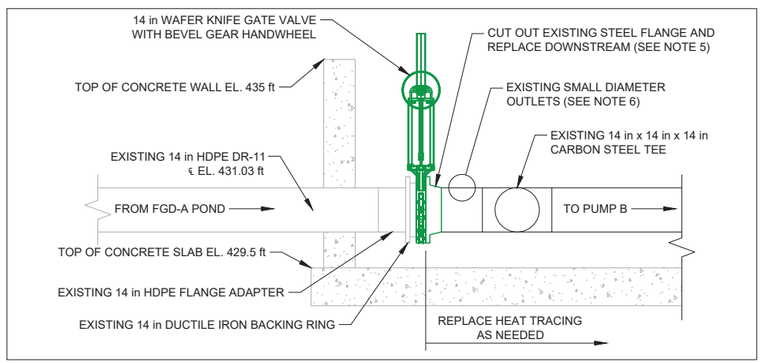


PUMP STRUCTURE PIPING PLAN VIEW
SCALE N.T.S.



SCALE SCALE A 17 SECTION A-A'

ISSUED FOR CONSTRUCTION

LEGEND

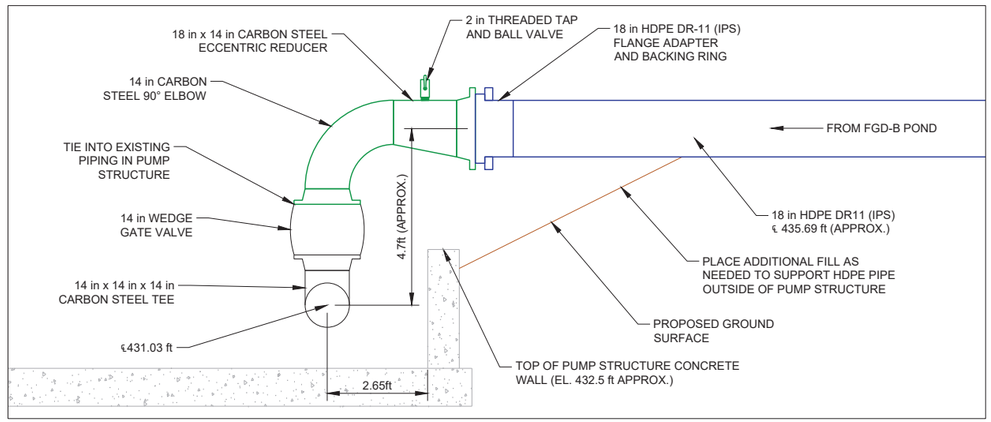
- EXISTING STEEL PIPING
- EXISTING HDPE PIPING
- PROPOSED STEEL PIPING
- PROPOSED HDPE PIPING

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND, ABOVE-GRADE, AND OVERHEAD UTILITIES.
3. ALL NEW PIPING WITHIN THE EXISTING PUMP STRUCTURE SHALL BE STD SCHEDULE ERW A53 CARBON STEEL.
4. TIE-IN CONFIGURATIONS AND DIMENSIONS SHOWN ARE BASED ON TYPICAL DIMENSIONS FOR FITTINGS AND VALVES. ACTUAL DIMENSIONS MAY VARY BY MANUFACTURER AND WILL REQUIRE FIELD ADJUSTMENTS.
5. CONTRACTOR SHALL CUT OUT EXISTING 14 in CARBON STEEL FLANGE AND APPROXIMATELY THREE (3) INCHES OF CARBON STEEL PIPE (LENGTH TO BE VERIFIED BY CONTRACTOR BASED ON ACTUAL 14 in WAFER KNIFE GATE VALVE PROCURED). A NEW 14 in CARBON STEEL FLANGE SHALL BE WELDED TO THE EXISTING PIPE TO ACCOMMODATE THE PROPOSED VALVE.
6. THE TWO (2) EXISTING SMALL DIAMETER (APPROXIMATELY 1-1/4 in) HEAT-TRACED OUTLETS EQUIPPED WITH BALL VALVES SHALL BE RELOCATED DOWNSTREAM APPROXIMATELY SIX (6) INCHES TO ALLOW THE EXISTING CARBON STEEL FLANGE TO BE MOVED DOWNSTREAM FOR THE PROPOSED 14 in WAFER KNIFE GATE VALVE. LOCATION OF THE RELOCATED OUTLETS TO BE APPROVED BY OWNER. OUTLETS SHALL BE HEAT-TRACED.

REFERENCE(S)

1. EXISTING PUMP STRUCTURE DETAILS FROM DRAWING A2YF00-0-CD-1-YD.00.PL-08 REVISION 3 DATED AUGUST 28, 1998.
2. EXISTING PIPING DETAILS FROM PIPING ISOMETRIC DRAWINGS:
   - 2.1. A2YF0-IS-5-WR.0015-01 DATED JANUARY 11, 2008
   - 2.2. A2YF0-IS-5-WR.0020-01 DATED DECEMBER 16, 2008
   - 2.3. A2YF0-IS-5-WR.0020-02 DATED DECEMBER 16, 2008
   - 2.4. A2YF0-IS-5-WR.0030-01 DATED DECEMBER 16, 2008
   - 2.5. A2YF0-IS-5-WR.0030-02 DATED DECEMBER 16, 2008
   - 2.6. A2YF0-IS-5-WR.0040-01 DATED DECEMBER 16, 2008
   - 2.7. A2YF0-IS-5-WR.0050-01 DATED DECEMBER 16, 2008
   - 2.8. A2YF0-IS-5-WR.0050-02 DATED DECEMBER 16, 2008
   - 2.9. A2YF0-IS-5-WR.0050-03 DATED DECEMBER 16, 2008
   - 2.10. A2YF0-IS-5-WR.0060-01 DATED DECEMBER 16, 2008
   - 2.11. A2YF0-IS-5-WR.0060-02 DATED FEBRUARY 14, 2008
   - 2.12. A2YF0-IS-5-WR.0060-03 DATED FEBRUARY 29, 2008
   - 2.13. A2YF0-IS-5-WR.0065-01 DATED APRIL 9, 2008



SCALE N.T.S. B 17 SECTION B-B'

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

JEFFREY E. FASSETT 86675 LICENSED PROFESSIONAL ENGINEER 9/16/21

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
PUMP STRUCTURE PROPOSED PIPING

PROJECT NO.	LUMINANT DRAWING NO.	REV.	17 of 22	DRAWING
19129621		0		17

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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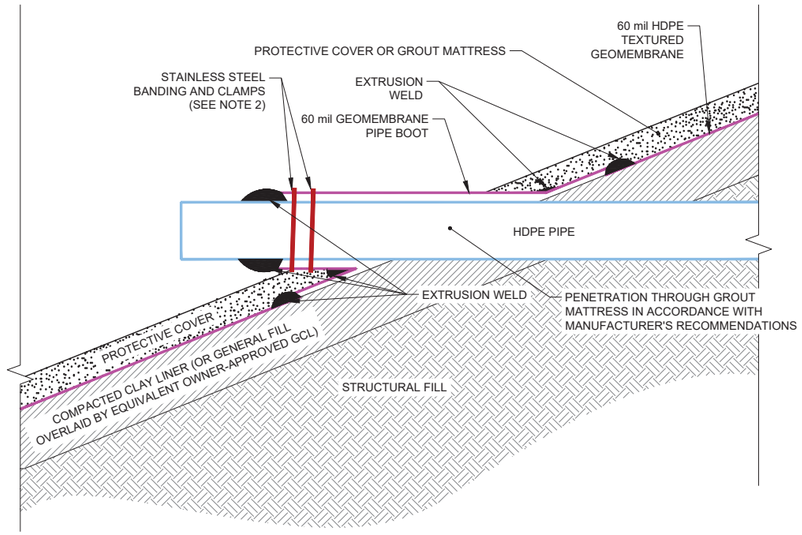
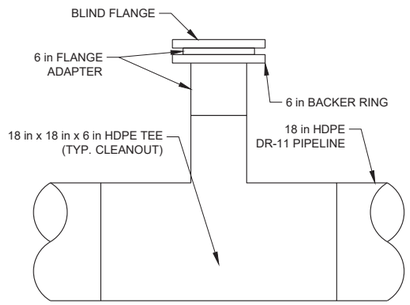


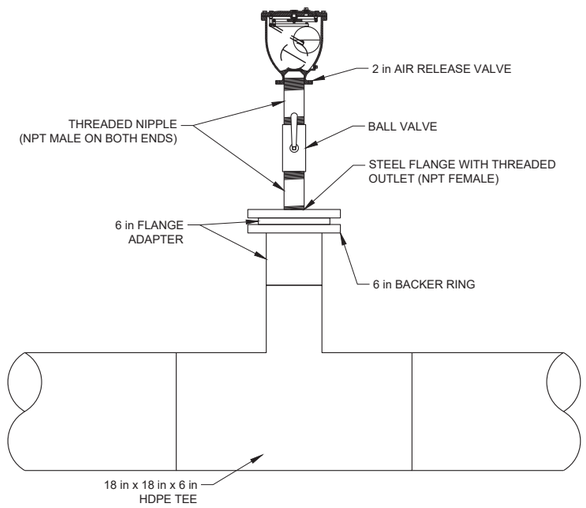
SCALE N.T.S. 1/18 TYPICAL PIPE PENETRATION



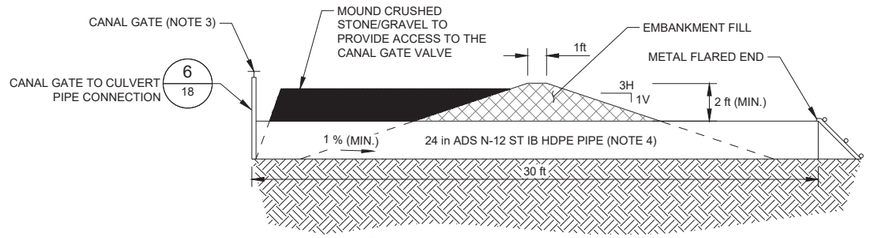
SCALE N.T.S. 2/18 TYPICAL CLEANOUT

NOTE(S)

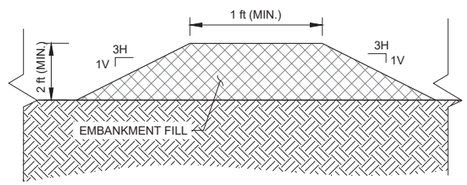
1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. CONTINUOUS ONE-HALF-INCH STAINLESS STEEL CLAMPS WITH A GASKET BETWEEN THE HDPE PIPE AND HDPE LINER BELOW THE STEEL CLAMPS, AND A CONTINUOUS STRIP OF NEOPRENE RUBBER CUSHION BETWEEN THE STAINLESS STEEL CLAMPS AND THE HDPE LINER.
3. THE CULVERT CANAL GATE VALVE SHALL BE A WATERMAN C-10 CANAL GATE WITH HDPE ADAPTER, TUBE SEAL, AND BACK FRAME ATTACHMENTS OR AN EQUIVALENT APPROVED BY THE OWNER'S REPRESENTATIVE. CANAL GATE VALVES AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
4. CULVERT PIPING SHALL BE ADS N-12 ST IB HDPE PIPE OR EQUIVALENT APPROVED BY THE OWNER'S REPRESENTATIVE.
5. CULVERT FITTINGS (METAL FLARED END SECTIONS, ETC.) SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. CULVERT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. CONTRACTOR SHALL USE CARE WHEN COMPACTING EMBANKMENT FILL AROUND THE CULVERT AND SHALL USE HAND AND/OR REMOTE COMPACTION EQUIPMENT UNTIL THE PIPE HAS APPROXIMATELY 2-FEET OF COVER.



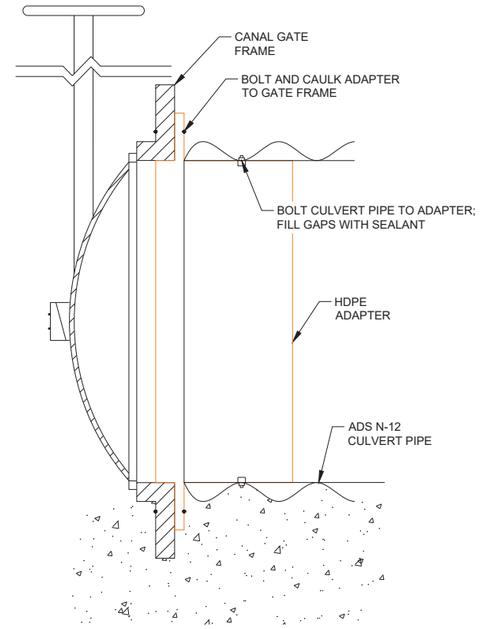
SCALE N.T.S. 3/18 TYPICAL AIR VALVE DETAIL



SCALE N.T.S. 4/18 CONTAINMENT BERM CROSSOVER CULVERT



SCALE N.T.S. 5/18 TYPICAL EARTHEN CONTAINMENT BERM



SCALE N.T.S. 6/18 CANAL GATE TO CULVERT PIPE CONNECTION

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
PIPING DETAILS - I OF II

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	18 of 22	18

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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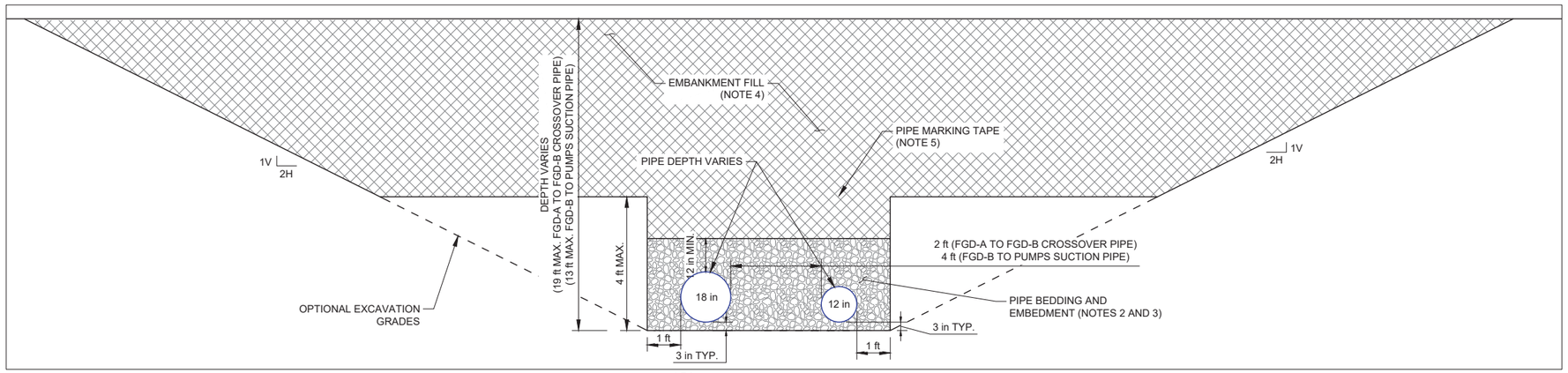
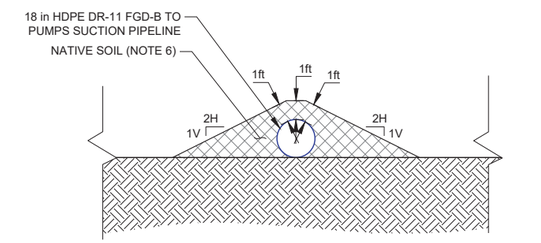
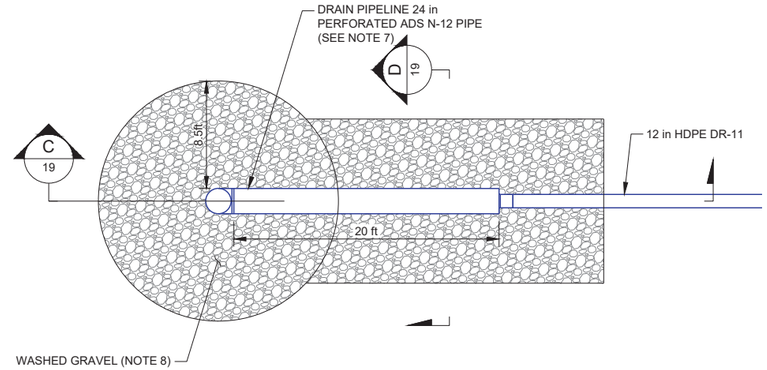


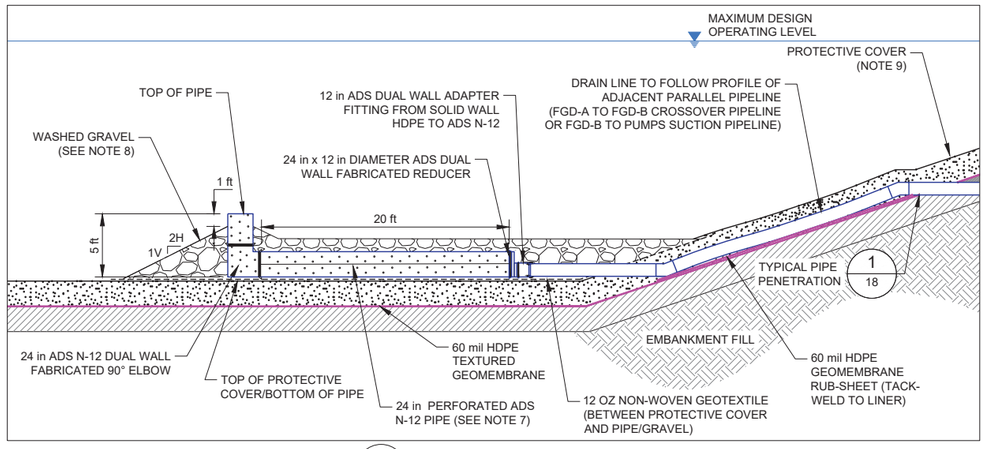
SCALE N.T.S. A 19 TYPICAL PIPE BACKFILL SECTION



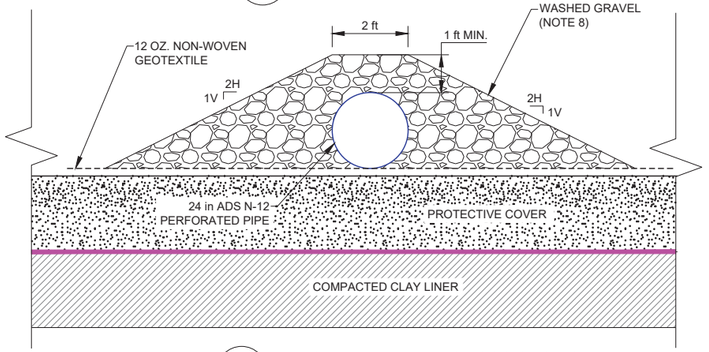
SCALE N.T.S. B 19 TYPICAL EARTHEN BERM (PIPE RESTRAINT)



SCALE N.T.S. 1 19 TYPICAL DRAIN LINE PLAN VIEW



SCALE N.T.S. C 19 TYPICAL DRAIN LINE PROFILE



SCALE N.T.S. D 19 TYPICAL DRAIN LINE CROSS SECTION

NOTE(S)

1. ALL LUMINANT AND APPLICABLE OSHA HEALTH AND SAFETY REQUIREMENTS SHALL BE FOLLOWED DURING EXECUTION OF THE WORK.
2. PIPE BEDDING AND EMBEDMENT SHALL CONSIST OF ON-SITE OR IMPORTED EARTHEN MATERIAL CLASSIFYING UNDER ASTM D2487 AS WELL-GRADED SAND (SW OR SW-SM) OR WELL-GRADED GRAVEL (GW OR GW-GM) OR AS OTHERWISE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE. PIPE BEDDING SHALL CONTAIN NO PARTICLES LARGER THAN 0.5-INCH, AND FREE FROM ROOTS, DEBRIS, OR ANY OTHER SUBSTANCE THAT WOULD HARM THE PIPE OR MIGHT IMPAIR THE PERFORMANCE OF THE MATERIAL AS BEDDING FOR THE PIPE. FINAL MATERIAL SELECTION SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
3. UNDERGROUND PIPING SHALL BE BEDDED ON THREE (3) INCHES OF GRANULAR PIPE BEDDING MATERIAL AND EMBEDDED IN THE SAME MATERIAL TO TWELVE (12) INCHES ABOVE THE TOP OF THE PIPING. THE MATERIAL DIRECTLY ABOVE THE PIPE IN THE EMBEDMENT ZONE SHALL BE ONLY LIGHTLY COMPACTED TO AVOID DISTORTING THE PIPE.
4. EMBANKMENT FILL (MORE THAN 12 INCHES ABOVE THE PIPE) SHALL CONSIST OF SOILS EXCAVATED AS PART OF THE WORK AS APPROVED BY THE OWNER'S REPRESENTATIVE. IF EXCAVATED SOILS ARE DEEMED UNSUITABLE, EMBANKMENT FILL SHALL CONSIST OF IMPORTED EARTHEN MATERIALS APPROVED BY THE OWNER'S REPRESENTATIVE. EMBANKMENT FILL SHALL BE PLACED IN HORIZONTAL LOOSE LIFTS NOT EXCEEDING TEN (10) INCHES IN THICKNESS AND MOISTURE CONDITIONED TO 1 PERCENT BELOW TO 3 PERCENT ABOVE STANDARD PROCTOR (ASTM D698) OPTIMUM MOISTURE CONTENT. EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
5. FOR ALL UNDERGROUND PIPING, MARKING TAPE ENABLING DETECTION BY METAL DETECTOR (AS INDICATED IN THE SPECIFICATIONS) SHALL BE LOCATED ABOVE THE PIPE AT A DEPTH OF 1 TO 2 FEET BELOW THE FINISHED GRADE.
6. MATERIAL FOR EARTHEN BERM USED TO ANCHOR HDPE PIPE TO BE SPECIFIED BY OWNER. EARTHEN BERM TO EXTEND 6 FEET ALONG LENGTH OF PIPE.
7. DRAIN LINE PIPING WITHIN BOTH PONDS TO BE PERFORATED 24 inch ADS N-12 ST IB (SOIL TIGHT) PIPE AND FITTINGS. ADS PIPE TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
8. PERFORATED DRAIN LINE PIPING WITHIN THE POND TO BE SURROUNDED WITH WASHED GRAVEL (GRAVEL TO BE APPROVED BY OWNER) AS SHOWN ON THE DRAWINGS (I.E. MINIMUM 12 INCHES AROUND THE DRAIN PIPE).
9. EXTEND PROTECTIVE COVER TO EMBANKMENT CREST IN FGD-B POND, PROTECTIVE COVER ENDS AT ELEV. 425.5 FT IN FGD-A POND.

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	BJP	KWG	AMS	TJS

SEAL

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

CLIENT
LUMINANT POWER

CONSULTANT

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PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
PIPING DETAILS - II OF II

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	19 of 22	19

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1300	4650.17	2764.40	450.0
1301	4599.87	2763.50	450.1
1302	4699.77	2775.42	450.1
1303	4550.07	2772.72	450.0
1304	4754.20	2800.00	450.1
1305	4750.14	2800.03	449.2
1306	4700.13	2800.05	440.6
1307	4650.11	2799.95	435.9
1308	4600.03	2800.07	435.6
1309	4550.20	2799.98	439.7
1310	4499.82	2799.80	447.9
1311	4490.14	2800.07	450.0
1312	4815.57	2850.04	450.0
1313	4799.98	2849.73	445.7
1314	4749.98	2849.97	432.6
1315	4699.95	2850.07	422.2
1316	4649.91	2850.00	422.0
1317	4600.10	2850.01	422.1
1318	4549.91	2850.01	422.1
1319	4499.96	2849.96	431.5
1320	4449.95	2849.86	445.6
1321	4434.75	2849.91	450.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1322	4868.56	2900.00	450.1
1323	4850.00	2899.87	445.0
1324	4800.20	2900.11	431.3
1325	4749.94	2899.92	422.1
1326	4700.03	2899.99	422.1
1327	4649.97	2900.08	422.1
1328	4600.07	2900.00	422.0
1329	4550.21	2900.09	422.0
1330	4499.98	2900.08	422.1
1331	4449.90	2899.80	432.1
1332	4399.76	2900.26	447.0
1333	4389.22	2899.91	450.0
1334	4921.29	2949.98	450.0
1335	4900.11	2949.92	444.3
1336	4849.87	2949.86	430.4
1337	4799.99	2949.93	422.2
1338	4750.26	2949.96	422.1
1339	4699.99	2950.07	422.1
1340	4650.13	2950.09	422.1
1341	4600.03	2950.03	422.2
1342	4549.85	2949.92	422.1
1343	4499.95	2950.14	422.1

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1344	4450.05	2950.23	422.1
1345	4400.14	2949.99	433.4
1346	4349.82	2950.28	448.3
1347	4344.00	2950.08	450.1
1348	4974.17	3000.13	450.0
1349	4949.93	3000.02	443.5
1350	4900.18	2999.97	429.7
1351	4849.97	3000.13	422.1
1352	4800.05	2999.96	422.0
1353	4750.05	2999.91	422.1
1354	4700.05	2999.90	422.1
1355	4649.97	2999.99	422.0
1356	4599.94	3000.00	422.0
1357	4550.02	3000.14	422.0
1358	4500.13	2999.94	422.0
1359	4450.12	2999.99	422.1
1360	4400.07	2999.94	422.1
1361	4350.06	2999.95	435.6
1362	4330.05	2965.21	450.1
1363	4307.59	2999.88	450.0
1364	5007.18	3031.31	450.1
1365	5022.71	3050.00	450.1

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1366	5000.08	3049.94	442.8
1367	4949.98	3050.16	428.9
1368	4900.10	3050.17	422.1
1369	4850.14	3050.27	422.0
1370	4800.14	3049.86	422.0
1371	4749.91	3049.98	422.1
1372	4700.07	3050.19	422.0
1373	4650.04	3050.09	422.0
1374	4599.85	3050.16	422.1
1375	4549.78	3050.08	422.0
1376	4500.01	3050.00	422.0
1377	4450.08	3049.92	422.1
1378	4399.82	3049.99	422.1
1379	4350.12	3050.06	426.0
1380	4299.95	3050.19	444.6
1381	4285.70	3049.94	449.9
1382	5035.04	3099.88	450.0
1383	5000.20	3099.84	436.1
1384	4949.95	3099.98	422.1
1385	4899.91	3100.10	422.1
1386	4849.94	3099.95	422.0
1387	4800.11	3099.95	422.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1388	4750.00	3099.93	422.0
1389	4699.99	3100.11	422.1
1390	4650.01	3099.95	422.1
1391	4599.80	3100.10	422.1
1392	4549.94	3099.90	422.0
1393	4500.08	3100.00	422.1
1394	4450.21	3099.91	422.1
1395	4399.86	3099.92	422.1
1396	4349.88	3099.92	422.1
1397	4300.15	3099.88	439.2
1398	4272.67	3099.86	450.0
1399	5012.69	3150.19	450.1
1400	5000.03	3149.86	446.5
1401	4949.91	3150.08	432.3
1402	4900.08	3150.00	422.1
1403	4849.97	3150.04	422.1
1404	4799.96	3149.87	422.1
1405	4749.94	3149.97	422.1
1406	4699.89	3149.98	422.1
1407	4650.25	3150.18	422.2
1408	4600.10	3150.23	422.2
1409	4549.82	3149.90	422.1

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1410	4499.87	3149.94	422.1
1411	4450.03	3149.98	422.0
1412	4400.13	3150.16	422.0
1413	4349.65	3149.80	422.1
1414	4299.98	3150.21	436.8
1415	4266.85	3149.88	450.0
1416	4962.89	3199.97	450.1
1417	4949.95	3199.98	446.5
1418	4899.96	3200.03	432.2
1419	4850.02	3199.95	422.2
1420	4799.94	3200.01	422.0
1421	4750.12	3200.09	422.1
1422	4699.93	3200.02	422.3
1423	4650.12	3200.18	436.9
1424	4599.99	3200.00	433.7
1425	4549.96	3200.14	422.1
1426	4499.99	3200.02	422.1
1427	4449.99	3199.87	422.0
1428	4400.15	3199.88	422.0
1429	4350.05	3200.03	422.1
1430	4299.90	3200.20	437.8
1431	4269.07	3199.96	450.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1432	4913.14	3250.10	450.1
1433	4899.98	3249.85	446.3
1434	4850.06	3249.87	432.2
1435	4799.90	3249.95	422.1
1436	4750.09	3249.94	422.1
1437	4699.99	3250.13	425.9
1438	4649.99	3250.25	444.6
1439	4600.18	3250.06	448.1
1440	4550.06	3249.90	434.2
1441	4499.72	3250.10	422.0
1442	4449.97	3249.99	422.1
1443	4400.03	3250.01	422.1
1444	4349.99	3249.98	422.8
1445	4300.15	3249.95	441.9
1446	4278.95	3250.10	450.0
1447	4863.36	3299.92	450.0
1448	4849.93	3299.88	446.2
1449	4800.06	3300.17	432.1
1450	4749.89	3299.96	422.1
1451	4700.00	3300.08	422.0
1452	4650.18	3299.94	430.2
1453	4599.88	3299.95	444.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1454	4549.94	3300.05	448.6
1455	4499.96	3299.93	434.7
1456	4449.92	3300.11	422.0
1457	4400.26	3299.83	422.0
1458	4350.02	3300.08	431.0
1459	4299.91	3300.04	448.9
1460	4296.92	3299.90	450.0
1461	4813.80	3350.04	450.1
1462	4800.05	3350.08	446.1
1463	4749.84	3350.06	432.1
1464	4699.95	3350.17	422.0
1465	4649.96	3350.21	422.1
1466	4600.17	3350.01	429.6
1467	4550.05	3350.05	443.6
1468	4500.12	3350.13	449.0
1469	4449.97	3349.88	435.1
1470	4400.03	3349.86	428.7
1471	4350.07	3350.02	442.6
1472	4325.28	3349.95	449.9
1473	4329.35	3356.34	450.0
1474	4764.24	3399.84	450.1
1475	4750.01	3400.01	446.1

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1476	4700.00	3399.71	431.8
1477	4650.04	3400.03	422.1
1478	4600.09	3400.10	422.2
1479	4550.14	3400.09	429.2
1480	4499.87	3400.10	443.2
1481	4450.09	3399.92	449.4
1482	4400.02	3399.94	443.3
1483	4375.39	3399.89	450.1
1484	4714.51	3449.91	450.0
1485	4700.06	3449.89	446.0
1486	4650.07	3450.02	431.8
1487	4600.03	3449.95	422.1
1488	4550.05	3450.13	422.0
1489	4499.96	3450.10	431.7
1490	4450.18	3450.08	445.6
1491	4433.76	3450.07	450.0
1492	4664.92	3499.94	450.2
1493	4649.88	3499.98	445.9
1494	4600.16	3499.92	431.7
1495	4550.19	3500.09	431.3
1496	4499.89	3500.02	445.0
1497	4481.43	3499.95	450.1

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
1498	4620.47	3544.63	450.1
1499	4614.43	3550.05	450.0
1500	4599.92	3550.00	446.9
1501	4550.16	3550.21	446.8
1502	4534.98	3550.17	450.0
1503	4600.17	3558.36	450.0
1504	4549.98	3558.82	450.0
1505	4788.76	2825.11	450.1
1506	4451.48	2831.62	450.0

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

CLIENT
LUMINANT POWER

CONSULTANT
GOLDER
MEMBER OF WSP

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www.golder.com

PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
AS-CONSTRUCTED CLAY POINT TABLE

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	20 of 22	20

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

1 in

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CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3300	4649.98	2764.49	449.2
3301	4599.99	2763.63	449.2
3302	4700.09	2775.23	449.2
3303	4550.03	2772.71	449.2
~~3304~~	~~4754.21~~	~~2799.96~~	~~449.2~~
~~3305~~	~~4749.97~~	~~2800.01~~	~~448.3~~
3306	4700.06	2799.95	439.8
3307	4650.00	2800.03	435.1
3308	4600.03	2799.91	434.7
3309	4549.99	2800.05	438.7
3310	4500.06	2799.98	447.1
3311	4489.87	2800.05	449.2
3312	4815.30	2850.13	449.1
3313	4800.09	2850.04	444.9
3314	4749.95	2849.98	431.7
3315	4700.13	2850.15	421.3
3316	4649.95	2850.08	421.2
3317	4599.96	2849.86	421.2
3318	4550.08	2849.91	421.2
3319	4499.94	2850.00	430.6
3320	4450.05	2850.10	444.6
3321	4434.82	2849.80	449.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3344	4450.11	2950.03	421.2
3345	4400.08	2950.08	432.5
3346	4349.99	2949.97	447.4
3347	4343.90	2950.01	449.2
3348	4974.04	3000.18	449.1
3349	4949.87	2999.80	442.6
3350	4899.93	2999.98	428.8
3351	4850.01	2999.98	421.2
3352	4800.00	2999.95	421.2
3353	4749.99	2999.95	421.2
3354	4700.12	3000.05	421.2
3355	4649.75	2999.91	421.2
3356	4600.02	2999.78	421.2
3357	4549.97	2999.95	421.2
3358	4500.08	3000.16	421.2
3359	4449.98	3000.13	421.2
3360	4400.19	3000.28	421.2
3361	4350.01	3000.00	434.7
3362	4330.13	2965.15	449.2
3363	4307.50	3000.08	449.2
3364	5007.10	3031.27	449.2
3365	5022.88	3049.99	449.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3388	4749.95	3099.96	421.2
3389	4700.03	3099.98	421.2
3390	4649.91	3100.08	421.2
3391	4599.96	3099.81	421.2
3392	4549.96	3099.93	421.2
3393	4500.04	3100.03	421.2
3394	4449.97	3100.23	421.2
3395	4399.85	3100.03	421.2
3396	4349.86	3100.03	421.2
3397	4300.11	3100.06	438.3
3398	4272.46	3100.10	449.1
3399	5012.69	3150.30	449.2
3400	4999.99	3150.05	445.6
3401	4950.11	3150.20	431.5
3402	4899.87	3149.96	421.2
3403	4849.90	3150.03	421.2
3404	4800.03	3149.92	421.2
3405	4749.90	3149.97	421.2
3406	4700.06	3150.04	421.2
3407	4650.12	3150.17	421.2
3408	4600.02	3150.01	421.2
3409	4550.02	3150.04	421.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3432	4913.31	3249.92	449.2
3433	4899.87	3249.96	445.4
3434	4849.79	3249.97	431.2
3435	4800.06	3249.94	421.2
3436	4750.07	3249.82	421.2
3437	4699.85	3249.95	425.1
3438	4650.22	3249.88	443.6
3439	4600.03	3250.12	447.3
3440	4549.99	3249.93	433.3
3441	4500.06	3249.89	421.2
3442	4450.07	3249.98	421.2
3443	4400.05	3250.03	421.2
3444	4349.96	3250.03	422.0
3445	4300.02	3250.08	441.0
3446	4278.82	3250.03	449.2
3447	4863.33	3300.08	449.2
3448	4850.07	3299.94	445.4
3449	4800.01	3300.12	431.2
3450	4750.09	3299.88	421.2
3451	4699.74	3300.06	421.2
3452	4650.10	3299.89	429.3
3453	4599.94	3299.98	443.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3478	4599.76	3400.02	421.2
3479	4550.03	3400.07	428.3
3480	4500.04	3400.07	442.2
3481	4450.06	3399.93	448.6
3482	4399.93	3400.08	442.5
3483	4375.40	3400.07	449.2
3484	4714.37	3449.93	449.1
3485	4699.82	3449.99	445.0
3486	4649.98	3450.12	430.9
3487	4600.03	3449.92	421.2
3488	4550.17	3449.88	421.2
3489	4499.88	3450.11	430.9
3490	4450.02	3450.04	444.7
3491	4433.56	3449.95	449.2
3492	4664.93	3500.04	449.2
3493	4649.94	3500.02	445.0
3494	4600.07	3499.95	430.8
3495	4549.97	3499.88	430.4
3496	4500.56	3500.01	444.0
3497	4481.43	3500.05	449.2
3498	4620.63	3544.75	449.3
3499	4614.54	3550.07	449.3

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3322	4868.44	2899.84	449.3
3323	4850.02	2899.83	444.2
3324	4800.01	2900.05	430.4
3325	4749.78	2899.94	421.2
3326	4700.02	2899.99	421.2
3327	4649.94	2900.13	421.2
3328	4600.15	2900.02	421.2
3329	4550.01	2900.15	421.2
3330	4500.03	2900.01	421.2
3331	4449.97	2899.91	431.2
3332	4399.89	2900.01	446.0
3333	4389.16	2900.02	449.2
3334	4921.29	2950.05	449.2
3335	4899.93	2949.95	443.4
3336	4850.03	2949.92	429.6
3337	4800.05	2950.07	421.2
3338	4749.90	2949.86	421.2
3339	4700.03	2950.05	421.2
3340	4650.14	2949.85	421.2
3341	4599.76	2950.10	421.2
3342	4549.90	2949.96	421.2
3343	4500.06	2950.10	421.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3366	5000.02	3049.82	442.0
3367	4950.03	3050.04	428.0
3368	4900.06	3050.04	421.2
3369	4849.94	3049.97	421.2
3370	4799.94	3049.96	421.2
3371	4750.14	3050.06	421.2
3372	4700.05	3050.02	421.2
3373	4650.14	3050.11	421.2
3374	4599.86	3050.26	421.2
3375	4549.83	3050.00	421.2
3376	4500.11	3050.10	421.2
3377	4449.94	3049.83	421.2
3378	4400.20	3050.12	421.2
3379	4350.00	3049.94	425.1
3380	4299.92	3049.95	443.7
3381	4285.57	3049.92	449.2
3382	5034.77	3100.02	449.1
3383	5000.01	3100.13	435.3
3384	4950.02	3100.05	421.2
3385	4900.10	3100.09	421.2
3386	4849.98	3100.03	421.2
3387	4800.10	3099.98	421.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3410	4499.97	3150.05	421.2
3411	4450.05	3150.08	421.2
3412	4399.88	3149.97	421.2
3413	4349.99	3150.03	421.2
3414	4299.79	3149.95	436.1
3415	4266.81	3150.03	449.3
3416	4962.61	3199.66	449.0
3417	4949.98	3200.11	445.6
3418	4900.10	3200.07	431.4
3419	4849.92	3199.93	421.2
3420	4800.05	3200.02	421.2
3421	4749.98	3199.84	421.2
3422	4700.00	3200.07	421.5
3423	4649.93	3199.94	436.1
3424	4600.00	3200.15	432.9
3425	4550.07	3199.89	421.2
3426	4500.11	3199.99	421.2
3427	4449.95	3200.02	421.2
3428	4399.93	3199.87	421.2
3429	4350.02	3200.01	421.2
3430	4299.96	3200.05	436.9
3431	4269.09	3200.06	449.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3454	4549.94	3299.92	447.7
3455	4500.11	3300.07	433.8
3456	4450.05	3299.92	421.2
3457	4399.89	3300.08	421.2
3458	4350.00	3300.06	430.2
3459	4299.89	3300.04	448.1
3460	4296.96	3299.97	449.1
3461	4813.76	3350.05	449.2
3462	4800.05	3350.06	445.3
3463	4749.84	3349.96	431.0
3464	4699.89	3350.05	421.2
3465	4650.01	3349.83	421.2
3466	4600.05	3350.02	428.8
3469	4450.05	3350.07	434.3
3470	4399.90	3349.95	427.9
3471	4350.05	3349.92	441.6
3472	4325.46	3350.10	449.1
3473	4329.49	3356.46	449.1
3474	4764.16	3400.09	449.2
3475	4749.97	3399.91	445.1
3476	4699.92	3399.99	430.9
3477	4650.10	3400.08	421.2

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
3500	4599.96	3549.94	446.1
3501	4549.99	3549.99	446.0
3502	4535.15	3550.06	449.2
3503	4600.09	3558.45	449.2
3504	4550.00	3558.84	449.2
3505	4788.77	2825.15	449.2
3506	4451.50	2831.59	449.2

NOTE:

1. CONTROL POINTS 3304 AND 3305 ARE WITHIN THE EXTENT OF FGD-A POND EMBANKMENT WHICH WILL BE REMOVED TO ACCOMODATE PIPE INSTALLATION.

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

9/16/21

85675

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

CLIENT
LUMINANT POWER

CONSULTANT

GOLDER
MEMBER OF WSP

HOUSTON NORTH OFFICE
14950 HEATHROW FOREST PKWY, STE 280
HOUSTON, TEXAS 77032
USA
[+1] (281) 821-6868
www.golder.com

PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

TITLE
TOP OF EXCAVATED CLAY POINT TABLE

PROJECT NO.	LUMINANT DRAWING NO.	REV.	21 of 22	DRAWING
19129621		0		21

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4300	4649.98	2764.49	449.0
4301	4599.99	2763.63	449.0
4302	4700.09	2775.23	449.0
4303	4550.03	2772.71	449.0
4304	4754.21	2799.96	449.0
4305	4749.97	2800.01	448.1
4306	4700.06	2799.95	439.6
4307	4650.00	2800.03	434.9
4308	4600.03	2799.91	434.5
4309	4549.99	2800.05	438.5
4310	4500.06	2799.98	446.9
4311	4489.87	2800.05	449.0
4312	4815.30	2850.13	449.0
4313	4800.09	2850.04	444.8
4314	4749.95	2849.98	431.5
4315	4700.13	2850.15	421.1
4316	4649.95	2850.08	421.0
4317	4599.96	2849.86	421.0
4318	4550.08	2849.91	421.0
4319	4499.94	2850.00	430.4
4320	4450.05	2850.10	444.4
4321	4434.82	2849.80	449.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4344	4450.11	2950.03	421.0
4345	4400.08	2950.08	432.3
4346	4349.99	2949.97	447.2
4347	4343.90	2950.01	449.0
4348	4974.04	3000.18	448.9
4349	4949.87	2999.80	442.4
4350	4899.93	2999.98	428.6
4351	4850.01	2999.98	421.0
4352	4800.00	2999.95	421.0
4353	4749.99	2999.95	421.0
4354	4700.12	3000.05	421.0
4355	4649.75	2999.91	421.0
4356	4600.02	2999.78	421.0
4357	4549.97	2999.95	421.0
4358	4500.08	3000.16	421.0
4359	4449.98	3000.13	421.0
4360	4400.19	3000.28	421.0
4361	4350.01	3000.00	434.5
4362	4330.13	2965.15	449.0
4363	4307.50	3000.08	449.0
4364	5007.10	3031.27	449.0
4365	5022.88	3049.99	449.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4388	4749.95	3099.96	421.0
4389	4700.03	3099.98	421.0
4390	4649.91	3100.08	421.0
4391	4599.96	3099.81	421.0
4392	4549.96	3099.93	421.0
4393	4500.04	3100.03	421.0
4394	4449.97	3100.23	421.0
4395	4399.85	3100.03	421.0
4396	4349.86	3100.03	421.0
4397	4300.11	3100.06	438.1
4398	4272.46	3100.10	448.9
4399	5012.69	3150.30	449.0
4400	4999.99	3150.05	445.4
4401	4950.11	3150.20	431.3
4402	4899.87	3149.96	421.0
4403	4849.90	3150.03	421.0
4404	4800.03	3149.92	421.0
4405	4749.90	3149.97	421.0
4406	4700.06	3150.04	421.0
4407	4650.12	3150.17	421.0
4408	4600.02	3150.01	421.0
4409	4550.02	3150.04	421.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4432	4913.31	3249.92	449.0
4433	4899.87	3249.96	445.2
4434	4849.79	3249.97	431.0
4435	4800.06	3249.94	421.0
4436	4750.07	3249.82	421.0
4437	4699.85	3249.95	424.9
4438	4650.22	3249.88	443.4
4439	4600.03	3250.12	447.1
4440	4549.99	3249.93	433.1
4441	4500.06	3249.89	421.0
4442	4450.07	3249.98	421.0
4443	4400.05	3250.03	421.0
4444	4349.96	3250.03	421.8
4445	4300.02	3250.08	440.8
4446	4278.82	3250.03	449.0
4447	4863.33	3300.08	449.0
4448	4850.07	3299.94	445.2
4449	4800.01	3300.12	431.0
4450	4750.09	3299.88	421.0
4451	4699.74	3300.06	421.0
4452	4650.10	3299.89	429.1
4453	4599.94	3299.98	443.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4478	4599.76	3400.02	421.0
4479	4550.03	3400.07	428.1
4480	4500.04	3400.07	442.0
4481	4450.06	3399.93	448.4
4482	4399.93	3400.08	442.3
4483	4375.40	3400.07	449.0
4484	4714.37	3449.93	449.0
4485	4699.82	3449.99	444.8
4486	4649.98	3450.12	430.7
4487	4600.03	3449.92	421.0
4488	4550.17	3449.88	421.0
4489	4499.88	3450.11	430.7
4490	4450.02	3450.04	444.5
4491	4433.56	3449.95	449.0
4492	4664.93	3500.04	449.0
4493	4649.94	3500.02	444.8
4494	4600.07	3499.95	430.6
4495	4549.97	3499.88	430.2
4496	4500.56	3500.01	443.9
4497	4481.43	3500.05	449.0
4498	4620.63	3544.75	449.1
4499	4614.54	3550.07	449.1

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4322	4868.44	2899.84	449.1
4323	4850.02	2899.83	444.0
4324	4800.01	2900.05	430.2
4325	4749.78	2899.94	421.0
4326	4700.02	2899.99	421.0
4327	4649.94	2900.13	421.0
4328	4600.15	2900.02	421.0
4329	4550.01	2900.15	421.0
4330	4500.03	2900.01	421.0
4331	4449.97	2899.91	431.0
4332	4399.89	2900.01	445.8
4333	4389.16	2900.02	449.0
4334	4921.29	2950.05	449.0
4335	4899.93	2949.95	443.2
4336	4850.03	2949.92	429.5
4337	4800.05	2950.07	421.0
4338	4749.90	2949.86	421.0
4339	4700.03	2950.05	421.0
4340	4650.14	2949.85	421.0
4341	4599.76	2950.10	421.0
4342	4549.90	2949.96	421.0
4343	4500.06	2950.10	421.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4366	5000.02	3049.82	441.8
4367	4950.03	3050.04	427.8
4368	4900.06	3050.04	421.0
4369	4849.94	3049.97	421.0
4370	4799.94	3049.96	421.0
4371	4750.14	3050.06	421.0
4372	4700.05	3050.02	421.0
4373	4650.14	3050.11	421.0
4374	4599.86	3050.26	421.0
4375	4549.83	3050.00	421.0
4376	4500.11	3050.10	421.0
4377	4449.94	3049.83	421.0
4378	4400.20	3050.12	421.0
4379	4350.00	3049.94	424.9
4380	4299.92	3049.95	443.5
4381	4285.57	3049.92	449.0
4382	5034.77	3100.02	448.9
4383	5000.01	3100.13	435.1
4384	4950.02	3100.05	421.0
4385	4900.10	3100.09	421.0
4386	4849.98	3100.03	421.0
4387	4800.10	3099.98	421.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4410	4499.97	3150.05	421.0
4411	4450.05	3150.08	421.0
4412	4399.88	3149.97	421.0
4413	4349.99	3150.03	421.0
4414	4299.79	3149.95	435.9
4415	4266.81	3150.03	449.1
4416	4962.61	3199.66	448.9
4417	4949.98	3200.11	445.5
4418	4900.10	3200.07	431.2
4419	4849.92	3199.93	421.0
4420	4800.05	3200.02	421.0
4421	4749.98	3199.84	421.0
4422	4700.00	3200.07	421.3
4423	4649.93	3199.94	435.9
4424	4600.00	3200.15	432.7
4425	4550.07	3199.89	421.0
4426	4500.11	3199.99	421.0
4427	4449.95	3200.02	421.0
4428	4399.93	3199.87	421.0
4429	4350.02	3200.01	421.0
4430	4299.96	3200.05	436.7
4431	4269.09	3200.06	449.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4454	4549.94	3299.92	447.5
4455	4500.11	3300.07	433.6
4456	4450.05	3299.92	421.0
4457	4399.89	3300.08	421.0
4458	4350.00	3300.06	430.0
4459	4299.89	3300.04	447.9
4460	4296.96	3299.97	448.9
4461	4813.76	3350.05	449.0
4462	4800.05	3350.06	445.1
4463	4749.84	3349.96	430.8
4464	4699.89	3350.05	421.0
4465	4650.01	3349.83	421.0
4466	4600.05	3350.02	428.6
4469	4450.05	3350.07	434.1
4470	4399.90	3349.95	427.7
4471	4350.05	3349.92	441.4
4472	4325.46	3350.10	448.9
4473	4329.49	3356.46	448.9
4474	4764.16	3400.09	449.0
4475	4749.97	3399.91	444.9
4476	4699.92	3399.99	430.7
4477	4650.10	3400.08	421.0

CONTROL POINT TABLE

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
4500	4599.96	3549.94	445.9
4501	4549.99	3549.99	445.8
4502	4535.15	3550.06	449.0
4503	4600.09	3558.45	449.0
4504	4550.00	3558.84	449.0
4505	4788.77	2825.15	449.0
4506	4451.50	2831.59	449.0

ISSUED FOR CONSTRUCTION

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2021-09-16	ISSUED FOR CONSTRUCTION	JBF	RS	JBF	JBF

SEAL

GOLDER ASSOCIATES INC.
TEXAS REGISTRATION F-2578

CLIENT
LUMINANT POWER

CONSULTANT
GOLDER MEMBER OF WSP

HOUSTON NORTH OFFICE
14950 HEATHROW FOREST PKWY, STE 280
HOUSTON, TEXAS 77032
USA
[+1] (281) 821-6868
www.golder.com

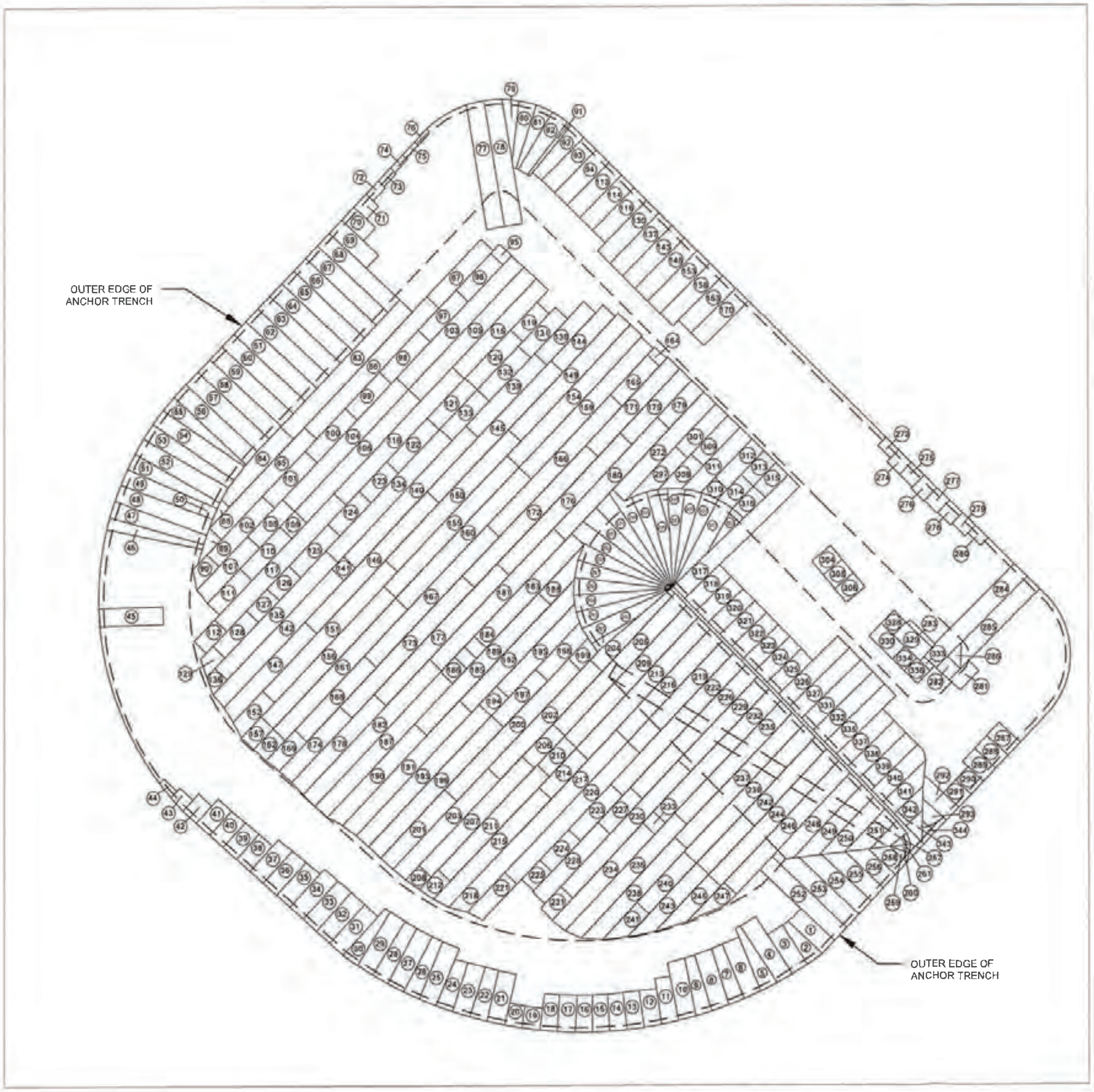
PROJECT
OAK GROVE STEAM ELECTRIC STATION
FGD-A POND RETROFIT
ROBERTSON COUNTY, TEXAS

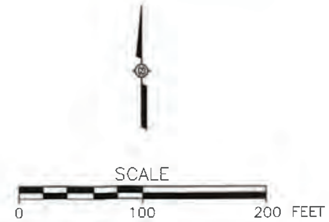
TITLE
TOP OF RECOMPACTED CLAY POINT TABLE

PROJECT NO.	LUMINANT DRAWING NO.	REV.		DRAWING
19129621		0	22 of 22	22

APPENDIX B

FGD-A Liner Retrofit – As-Built Surveys





LEGEND

▭	GCL PANEL
(296)	GCL PANEL NUMBER
— — —	BREAKLINES

STATE OF TEXAS
SAMUEL A. FRANCO
137046
LICENSED
PROFESSIONAL ENGINEER

07-14-22

Samuel Franco

NOTE:

1. GCL PANEL PLACEMENT AS BUILT WAS PREPARED USING FIELD GEOSYNTHETIC INSTALLATION LOGS. GCL PANELS DO NOT REPRESENT SURVEYED LOCATIONS.

REV | DATE | DESCRIPTION | BY

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: GCL PANEL PLACEMENT AS BUILT

PROJECT TITLE: FGD-A POND RETROFIT

CLIENT: OAK GROVE STEAM ELECTRIC STATION
LUMINANT
ROBERTSON COUNTY, TEXAS

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
12651 BRIAR FOREST, SUITE 205, HOUSTON, TX 77077
PH (281) 293-8494 FAX NO. (281) 293-7876

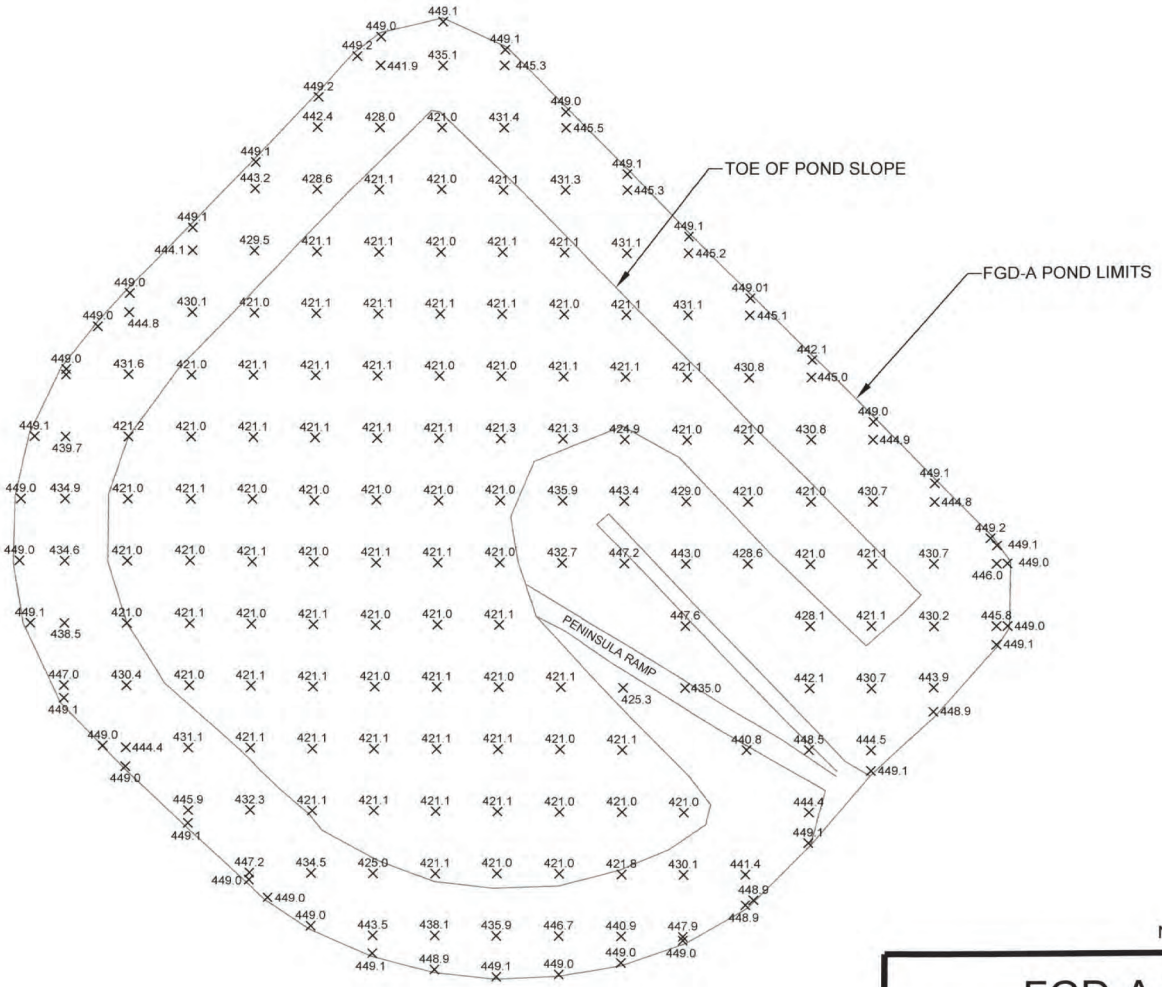
PROJ. NO.: 16221045.00
DWN. BY: SF
CHK. BY: JRM
APP. BY: JRM

CADD FILE: GCL PANEL PLACEMENT AS BUILT

DATE: 07/2021

SCALE: AS SHOWN

FIGURE NO. 1



N

W E

S

0 100 200

GRAPHIC SCALE: 1" = 100'

LEGEND

449.1 TOP OF SUBGRADE ELEVATION

4/5/22

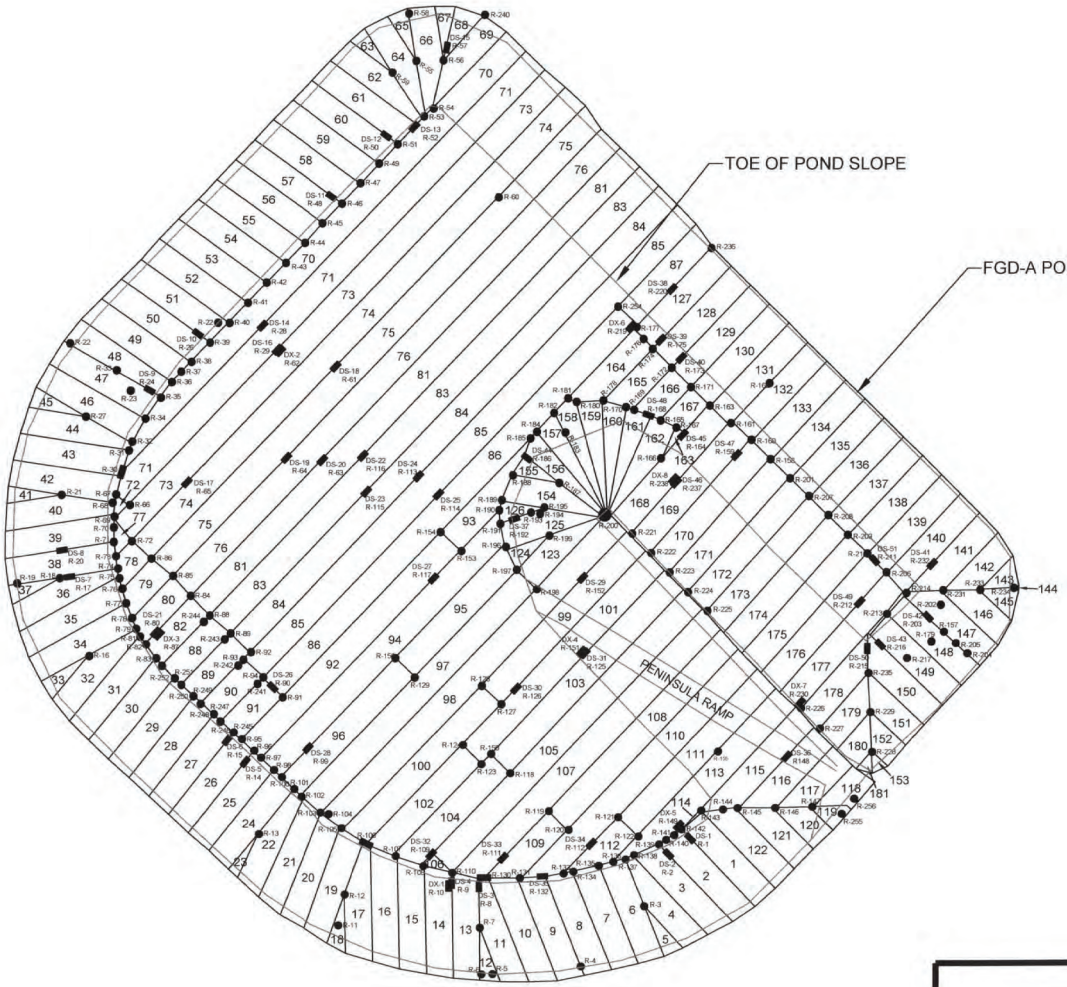
STATE OF TEXAS
REGISTERED
JEREMY R DAVIS
6259
PROFESSIONAL
LAND SURVEYOR

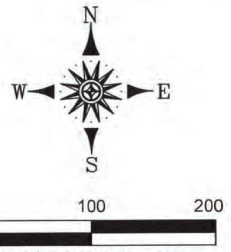
Jeremy R Davis

NOTE: SURVEY CONTROL BASED ON OAK GROVE PLANT CONTROL

FGD-A POND
TOP OF SUBGRADE
AS-BUILT SURVEY

Ray W. Davis Consulting Engineers, Inc.
Civil Engineering/Land Surveying
208 CR 449 903.693.1711 (Ray)
Carthage, TX 75633 903.693.1269 (Jeremy)
Firm Reg. # - 10018000 (TBPLS)
Firm Reg. # - 8732 (TBPE)





LEGEND

129	PANEL NUMBER
DS-50	DESTRUCTIVE LOCATION
R-10	REPAIR LOCATION

NOTE: SURVEY CONTROL BASED ON OAK GROVE PLANT CONTROL

FGD-A POND GEOMEMBRANE LINER AS-BUILT SURVEY

Ray W. Davis Consulting Engineers, Inc.
Civil Engineering/Land Surveying
101 Bryanhurst St. 903.693.1269
Henderson, TX 75654
Firm Reg. # - 10018000 (TBPLS)
Firm Reg. # - 8732 (TBPE)