GCCS CONCEPTUAL DESIGN

San Cristobal Landfill

PREPARED BY:

SCS ENGINEERS
3900 KILROY AIRPORT WAY
SUITE 100
LONG BEACH, CA 90806
+1 562-426-954

SCS JOB NO. 06218001.00
AUGUST 2018

REFERENCE MAP
NO SCALE

INDEX OF DRAWINGS

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REV.	DATE	DESCRIPTION	CK. BY
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SHEET TITLE: COVER SHEET
PROJECT TITLE: SAN CRISTOBAL LANDFILL

CLIENT: BATTELLE MEMORIAL INSTITUTE
505 KING AVENUE
COLUMBUS, OHIO 43201

SCS ENGINEERS
2520 WHITEHALL PARK DRIVE, SUITE 450
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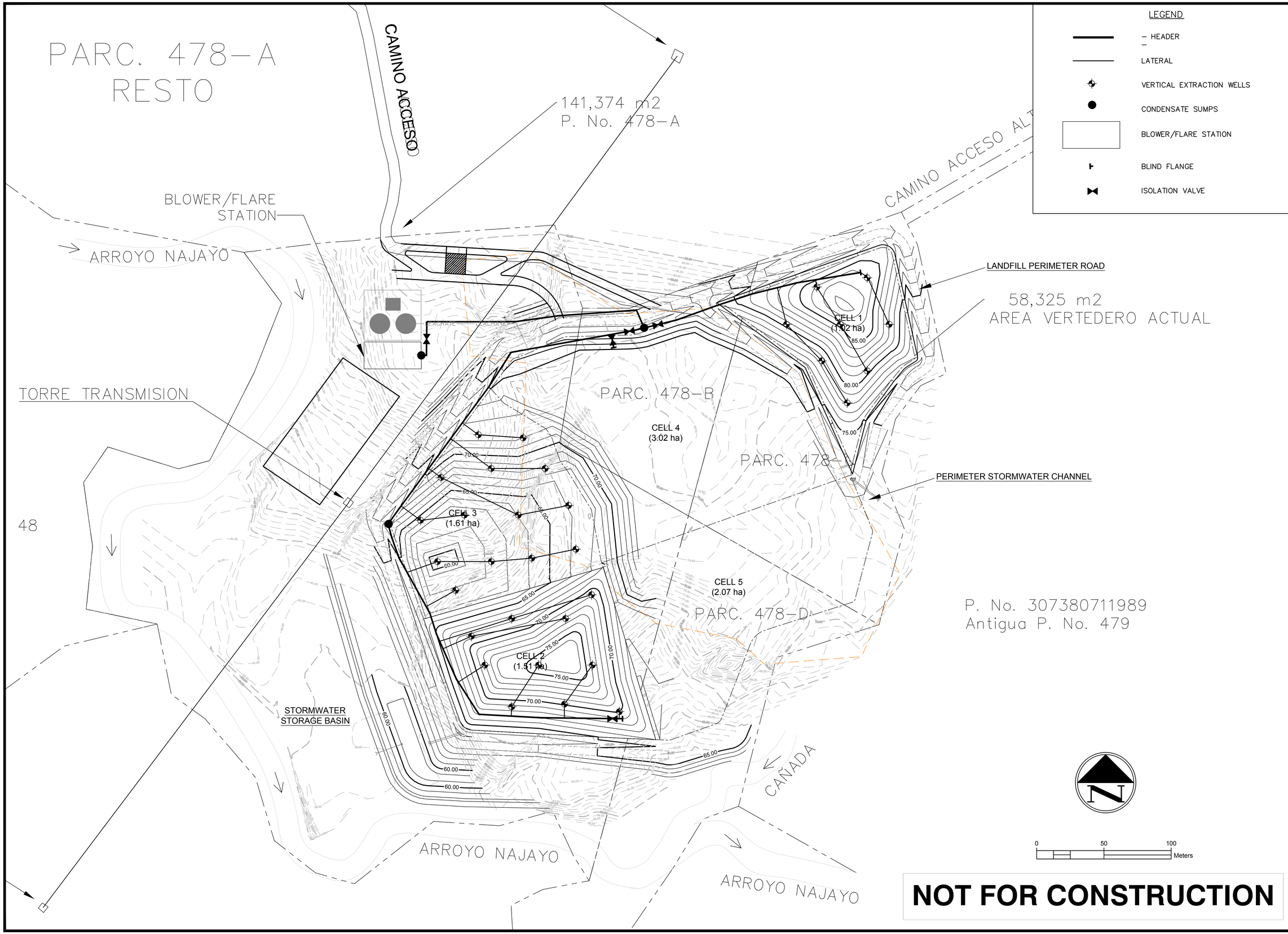
PROJ. NO. 06218001.00 | DWN. BY: | D/A RVW BY:
DSN. BY: | CHK. BY: | APP. BY:

CADD FILE: COVER GCCS
DATE: AUG 2018
SCALE: AS NOTED
DRAWING NO. 0 of 6

C:\Users\1903jd\Desktop\Work at Home\06218001.00 – DR Landfill Battelle\CADD\Drawings\Cover Sheet GCCS.dwg Aug 22, 2018 – 11:44am Layout Name: COVER SHEET By: 1903jd



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REV.	DATE	DESCRIPTION	CK. BY

SHEET TITLE
PHASE I
GCCS CONCEPTUAL DESIGN

PROJECT TITLE
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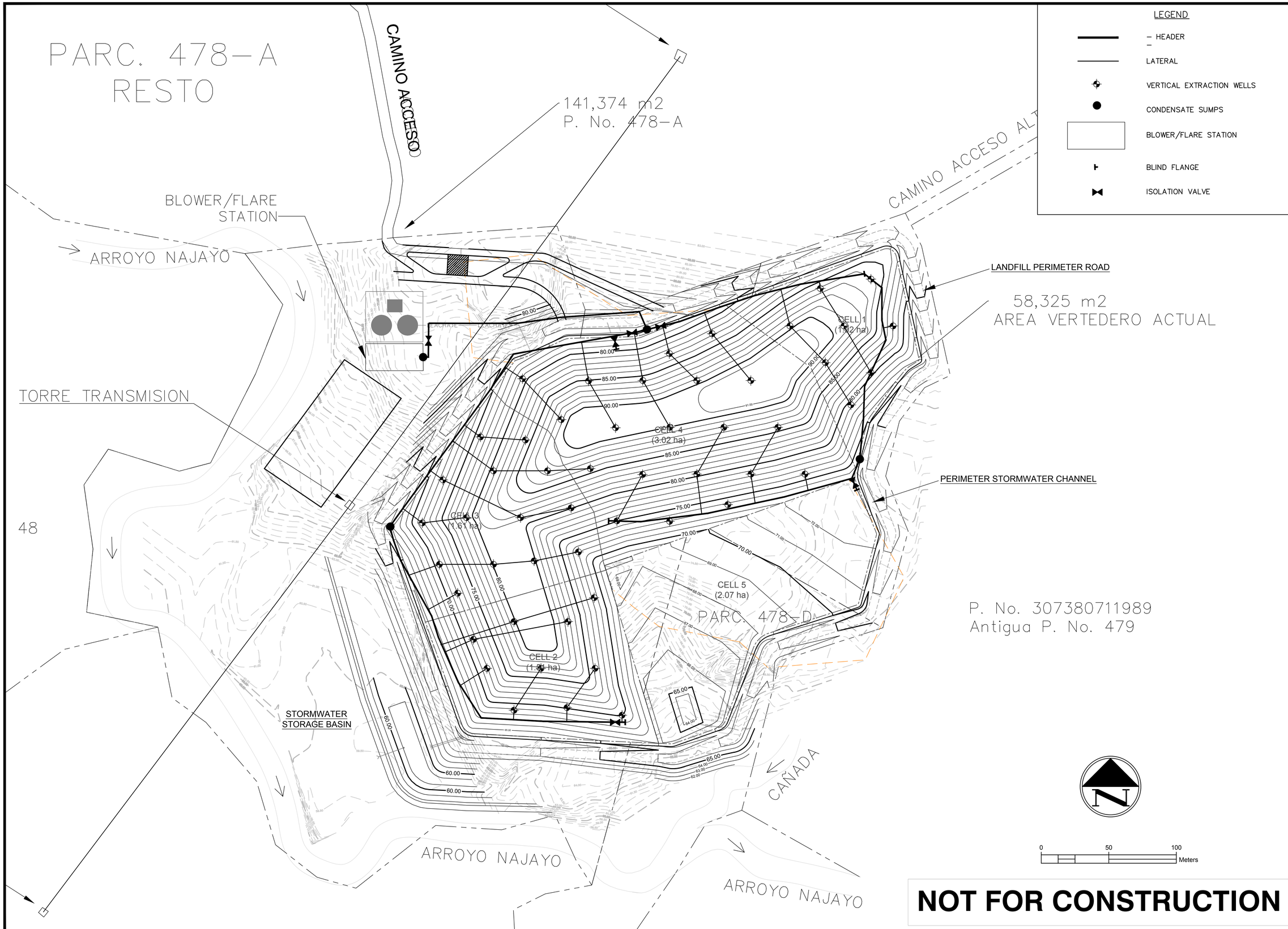

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REV.	DATE	DESCRIPTION	CK. BY

SHEET TITLE: PHASE II GCCS CONCEPTUAL DESIGN

PROJECT TITLE: SAN CRISTOBAL LANDFILL

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CADD FILE: SHEET 2 GCCS

DATE: AUG 2018

SCALE: AS NOTED

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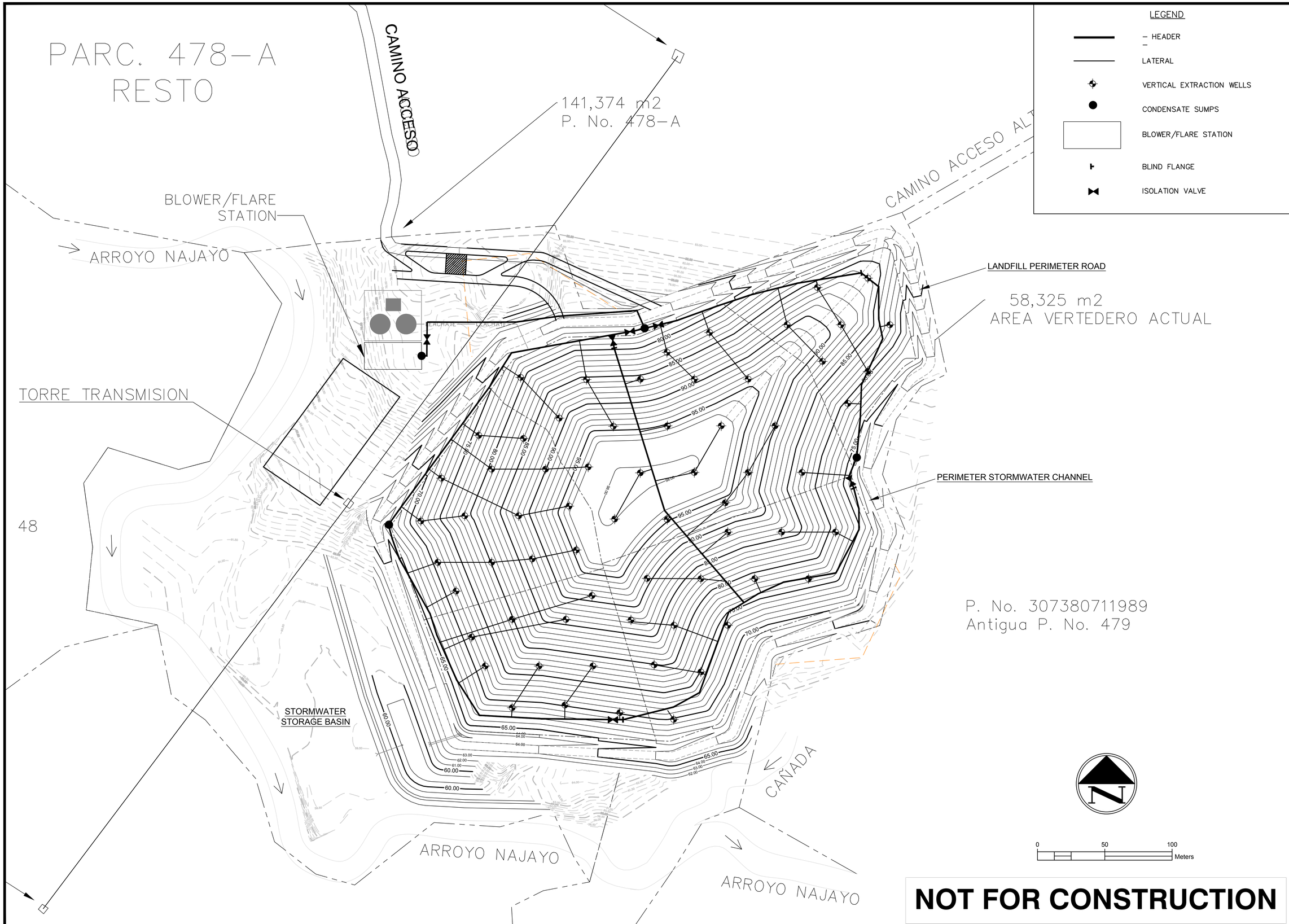

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SHEET TITLE
PHASE III
GCCS CONCEPTUAL DESIGN

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DSN. BY: JLD | CHK. BY:

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DATE: AUG 2018

SCALE: AS NOTED

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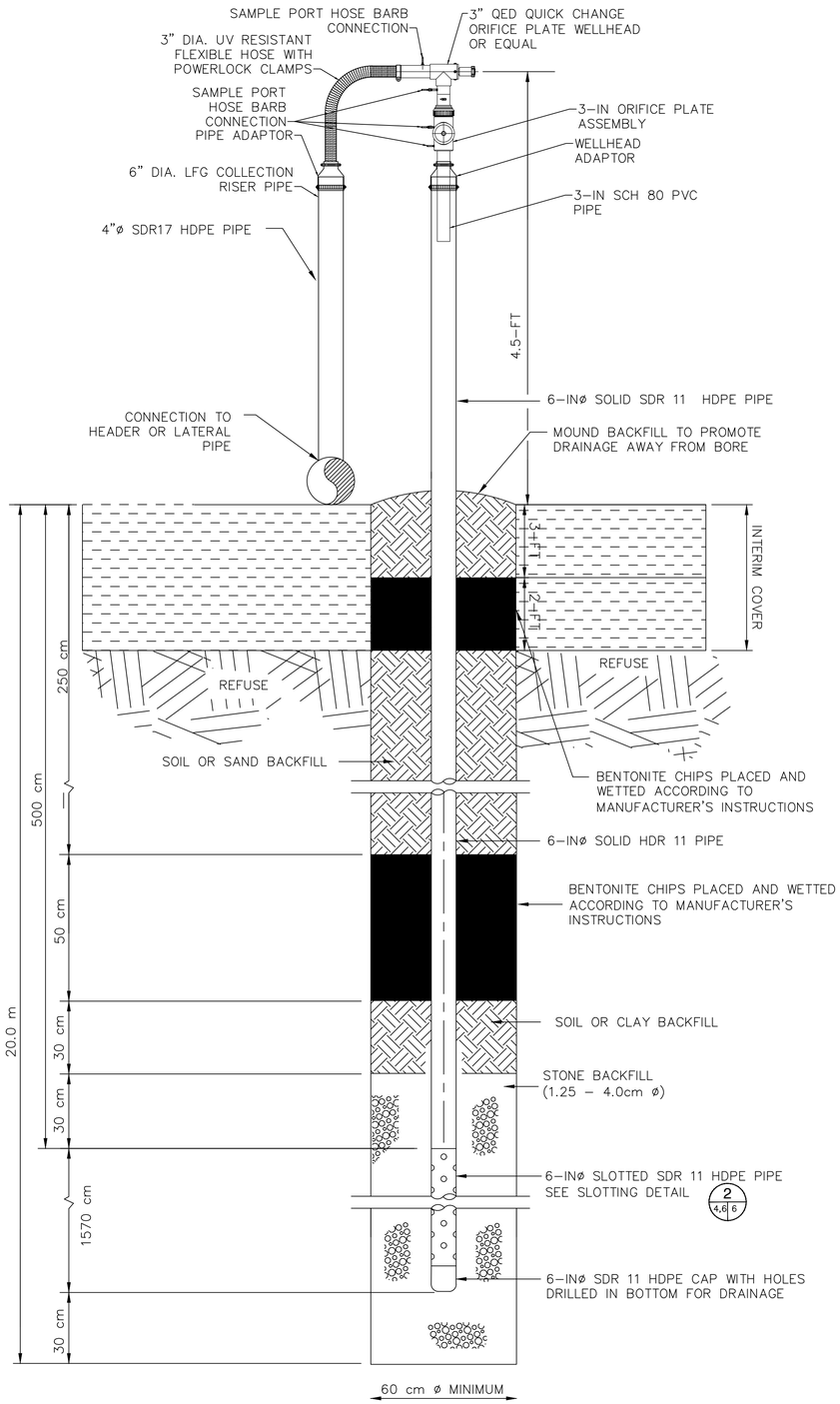
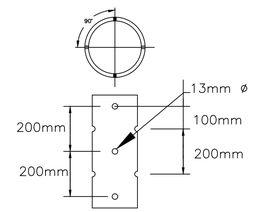
3 of **17**

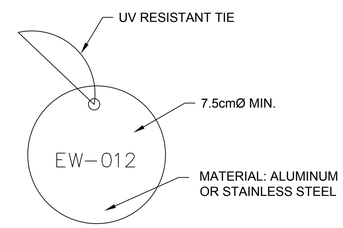


EXTRACTION WELL DETAIL 1 (5 | 6)
NO SCALE



NOTE: STAGGER PERFORATIONS BY 45° FOR ADJACENT ROWS

PERFORATED PIPE DETAIL 2 (6 | 6)
NOT TO SCALE



EMBOSS LETTERS ACCORDINGLY:
EW-012 = LFG WELL

IDENTIFICATION TAG DETAIL 3 (6 | 6)
NOT TO SCALE

GENERAL EXTRACTION WELL NOTES:

1. CONTRACTOR SHALL USE LANDTEC ACCUFLO ASSEMBLY MANUFACTURED BY LANDTEC, COMMERCE, CALIFORNIA, USA 800-821-0496 OR EQUIVALENT.
2. 6"ø X 2"ø FERNCO REDUCER FITTING SHALL BE PART NO. 1056-62 BY FERNCO (WWW.FERNCO.COM (810) 653-9626). CONTRACTOR SHALL PROVIDE RELATED STAINLESS STEEL CLAMPS.
3. USE MOLDED TEE AND REDUCER FOR CONNECTION TO 6"ø AND SMALLER HEADER OR LATERAL USE 4"ø BRANCH SADDLE CONNECTION FOR 8"ø AND LARGER HEADER CONNECTION.
4. DURING CONSTRUCTION, CONTRACTOR SHALL TEMPORARILY CAP THE RISER PIPE OF VERTICAL EXTRACTION WELL TO PREVENT DIRECT VENTING OF LFG THROUGH RISER PIPE. TEMPORARY CAP SHALL BE REMOVED DURING INSTALLATION OF WELLHEADS.
5. FLEXIBLE PVC PIPE SHALL BE MANUFACTURED BY KANAFLEX CORPORATION (310-637-1616) SERIES 101-PS AND FASTENERS SHALL BE KANAFLEX SERIES 101-PS POWER LOCK CLAMPS.
6. CONTRACTOR SHALL SUPPLY OWNER WITH ONE SPARE WELLHEAD ASSEMBLY AND 25 FEET (8M) OF SPARE 2-INCH DIAMETER FLEXIBLE PVC PIPE.
7. "BENTONITE CHIPS" REFER TO A WELL SEAL COMPRISED OF HYDRATED SODIUM BENTONITE PELLETS OR CHIPS. BENTONITE MATERIAL SHALL CONSIST OF CLAY GREATER THAN 85% SODIUM MONTMORILLONITE WITHOUT ADDITIVES.
8. THE CONFIGURATION SHOWN DEPICTS THE CONNECTION TO THE HEADER WHEN THE HEADER PIPE IS IN VICINITY OF THE WELL (I.E. LESS THAN 2M). FOR A CONNECTION TO THE HEADER GREATER THAN 2M, MAKE UP THE DISTANCE TO THE HEADER PIPING USING A 4" DIAMETER HDPE PIPE LAID ABOVE GRADE.

EXTRACTION WELL SCHEDULE NOTES:

1. WELL DEPTHS ARE TO BE 20 METERS IN MOST CASES. WELL DEPTHS ON LOWER ELEVATIONS MUST BE ADJUSTED ONLY BY ENGINEER BASED ON ACTUAL GRADES ENCOUNTERED. CONTRACTOR SHALL VERIFY SURVEY LOCATION AND EXISTING GROUND ELEVATION PRIOR TO DRILLING. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND ENGINEER IF ELEVATIONS DIFFER FROM THOSE INDICATED PRIOR TO DRILLING.

2. THE CONTRACTOR MUST PROVIDE THE ENGINEER WITH THE ACTUAL EXISTING GROUND ELEVATIONS (BASED ON SURVEY DATA) PRIOR TO BEGINNING DRILLING.

3. CONTRACTOR MUST USE DRY DRILLING EQUIPMENT. WET ROTARY DRILLING EQUIPMENT MAY NOT BE USED.

5. WELLS ARE TO BE DRILLED TO DEPTH AND DIAMETER SHOWN ON PLANS. BORING DEPTHS SHOWN ARE ESTIMATED AND MAY BE ADJUSTED IN FIELD ONLY BY ENGINEER. UNDER NO CIRCUMSTANCES ARE DRILLING DEPTHS FROM WELL SCHEDULE TO BE EXCEEDED UNLESS APPROVED BY ENGINEER.

6. IF WATER IS ENCOUNTERED IN A BORING THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED:
   A. CONTRACTOR MAY BE DIRECTED TO DRILL BEYOND POINT AT WHICH WATER WAS ENCOUNTERED. IF WET CONDITIONS REMAINS, BORING MAY BE TERMINATED AND LENGTH OF SLOTTED PIPE ADJUSTED BY ENGINEER.
   B. IF WATER IS ENCOUNTERED AT SHALLOW DEPTH, ENGINEER MAY DECREASE WELL DEPTH AND LENGTH OF SLOTTED PIPE OR RELOCATE WELL.

7. WHEN BORING IS ABANDONED AS DIRECTED BY ENGINEER, CONTRACTOR SHALL BACKFILL BOREHOLE WITH CUTTINGS REMOVED DURING DRILLING. IF CUTTINGS ARE NOT SUITABLE AS BACKFILL, CONTRACTOR SHALL USE SOIL BACKFILL MATERIAL. A 2-FOOT (600mm) THICK BENTONITE PLUG WILL BE PLACED IN BOREHOLE WITH DEPTH IS 4 FEET (1200mm) BELOW EXISTING GRADE. REMAINING 2-FEET (600mm) OF BOREHOLE SHALL BE FILLED WITH SOIL MATERIAL AND COMPACTED TO MATCH EXISTING GRADE.

NOT FOR CONSTRUCTION

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SHEET TITLE: DETAILS GCCS CONCEPTUAL DESIGN

PROJECT TITLE: SAN CRISTOBAL LANDFILL

CLIENT: BATTELLE MEMORIAL INSTITUTE
505 KING AVENUE
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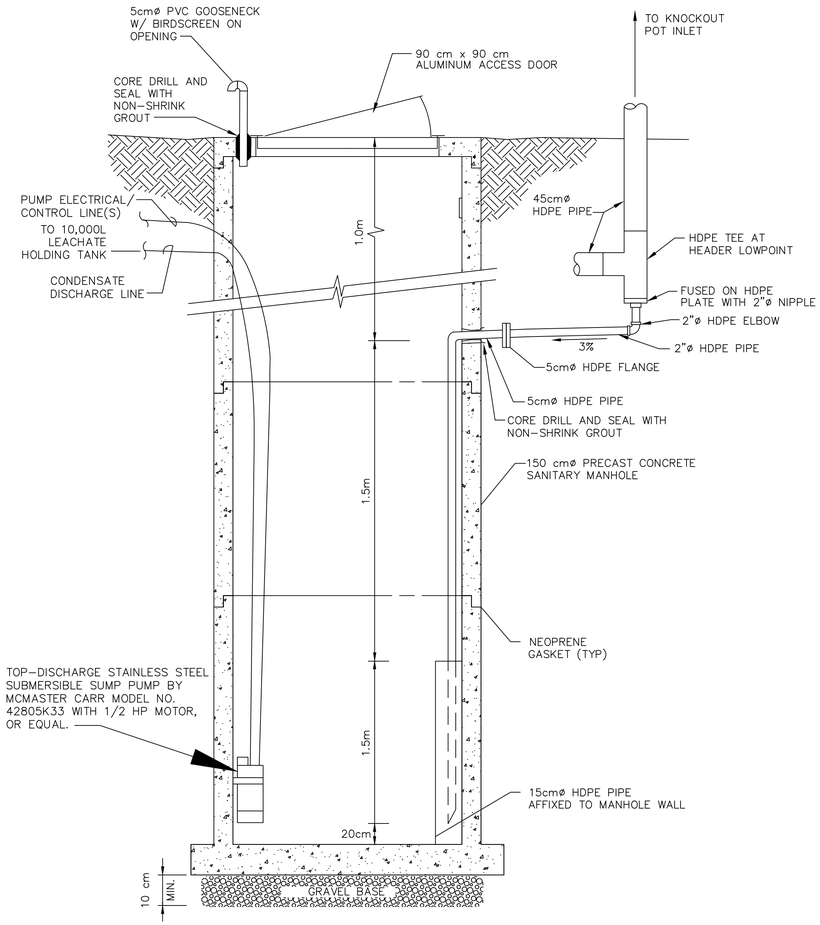
SCALE: NOT TO SCALE

DRAWING NO. 4 of 6



NOTES:

1. IN LIEU OF INSTALLING SUBMERSIBLE PUMP, A STANDPIPE MAY BE INSTALLED SO THAT MANHOLE CAN BE SERVICED BY A VACUUM TRUCK.

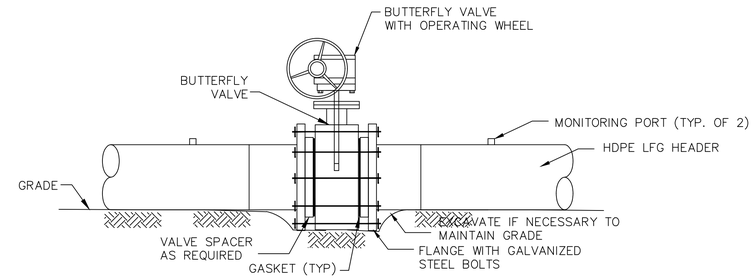
2. PAINT EXTERIOR AND INTERIOR SURFACES OF MANHOLE WITH A WATER PROOF COATING.

3. CONTRACTOR TO FIELD-VERIFY HEADER DEPTH AT LOW POINT PRIOR TO ODERING SUMP. SUMP INLET AND OVERALL DEPTH COULD VARY DEPENDING ON ACTUAL HEADER DEPTH.

4L LFG PIPING SHOWN ROTATED FOR CLARITY. SEE SITE PLAN FOR ORIENTATION.

5. SUMP PUMP TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. PUMP LEVEL TO BE SET SO THAT LIQUID LEVEL IN SUMP SHALL, AT A MINIMUM, NO EXCEED THE TOP OF THE OVERFLOW.

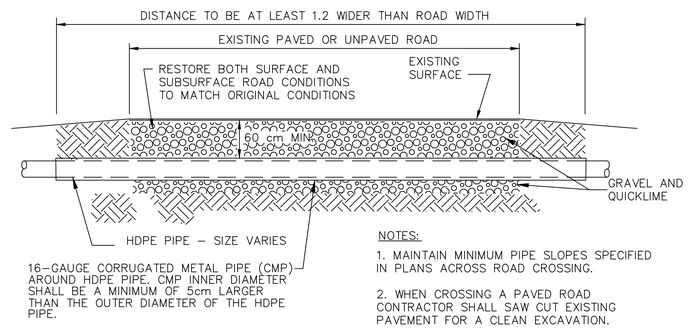
CONDENSATE SUMP (1 / 3 7)
N.T.S.



ISOLATION VALVE NOTES:

1. ISOLATION VAVLES SHALL BE BUTTERFLY BUBBLE TIGHT, WAFER DESIGN, WITH A PVC BODY, NITRILE SEAT AND COMPATIBLE WITH FLAT FACE FLANGE.
2. PVC FLANGE GASKETS SHALL BE FULL-FACE NEOPRENE.
3. WRAP AND TAPE VALVE, FLANGE AND BOLTS IN POLYETHYLENE SHEETING PRIOR TO BACKFILLING.
4. PROVIDE 15cmø SDR17 PVC PIPE CASING AROUND SAMPLE PIPE FOR PROTECTION.
5. MONITORING PORTS AT BUTTERFLY VALVES SHALL BE QUICK CONNECTS RYAN HERCO PART NO. 0812-002. FOR INFORMATION, CONTACT RYAN HERCO AT (800)-848-1141.

ISOLATION VALVE DETAIL (2 / 3 7)
NO SCALE

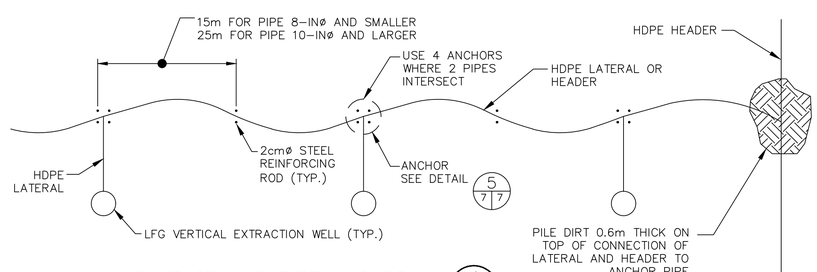


NOTES:

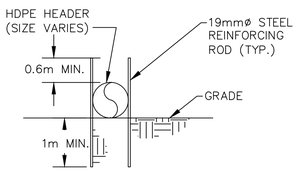
1. MAINTAIN MINIMUM PIPE SLOPES SPECIFIED IN PLANS ACROSS ROAD CROSSING.

2. WHEN CROSSING A PAVED ROAD CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT FOR A CLEAN EXCAVATION.

ROAD CROSSING DETAIL (3 / 3 7)
N.T.S.



ABOVE GROUND PIPE ANCHORING (4 / 3 7)



ANCHOR DETAIL (5 / 7 7)
NO SCALE

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SHEET TITLE: **DETAILS GCCS CONCEPTUAL DESIGN**

PROJECT TITLE: **SAN CRISTOBAL LANDFILL**

CLIENT: **BATTELLE MEMORIAL INSTITUTE**
505 KING AVENUE
COLUMBUS, OHIO 43201

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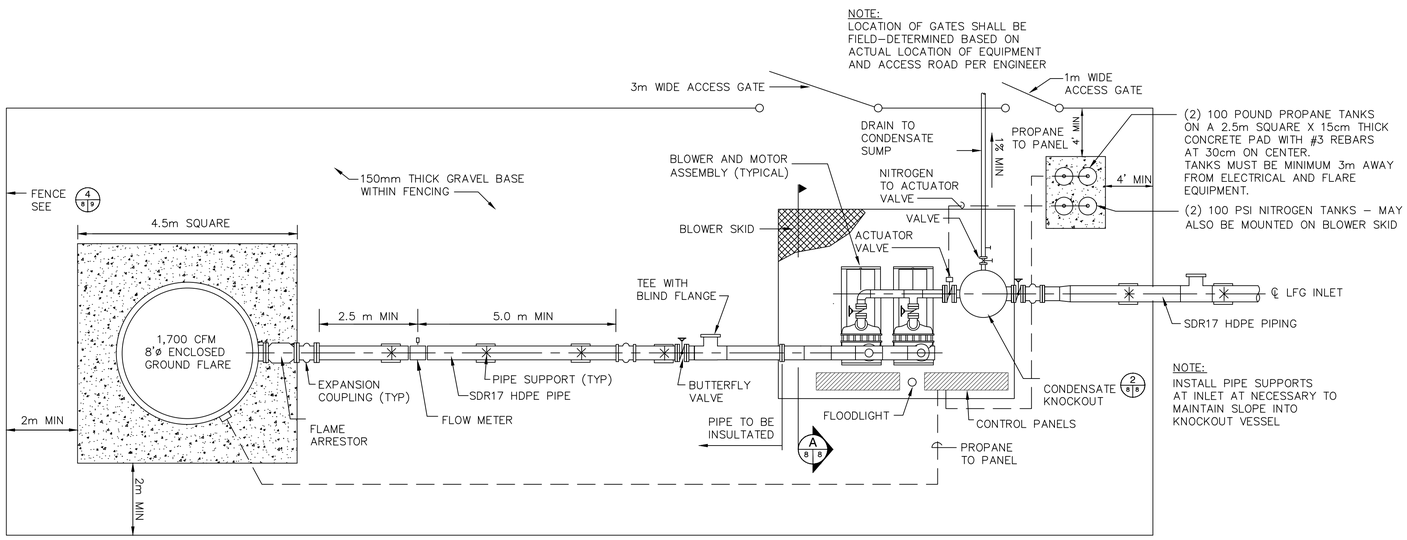


NOTE:
INSTALL PIPE SUPPORTS AT INLET AT NECESSARY TO MAINTAIN SLOPE INTO KNOCKOUT VESSEL

BLOWER/FLARE STATION LAYOUT 1/3|8
NOT TO SCALE

GENERAL NOTES:

1. BLOWER/FLARE PLAN IS SHOWN FOR INFORMATION PURPOSES ONLY. IT IS A SCHEMATIC LAYOUT. ACTUAL CONFIGURATION OF 1,700 SCFM FLARE AND BLOWER SKID SHALL PROVIDED BY FLARE AND BLOWER MANUFACTURERS.

2. CONTRACTOR SHALL INSTALL PIPE SUPPORTS AS AT A MINIMUM OF 8-FOOT INTERVALS FOR STRAIGHT PIPE SECTIONS AND AS NEEDED TO ADEQUATELY SUPPORT PIPING, VALVES, FITTINGS, ETC. SEE DETAIL.

3. CONTRACTOR SHALL INSTALL PIPE EXPANSION JOINTS AS SHOWN AND AS NECESSARY TO ALLOW FOR THERMAL EXPANSION OF PIPING AND MECHANICAL EQUIPMENT OPERATION.

4. DRAINS FOR EACH BLOWER AND AND THE FLAME ARRESTER SHALL BE FITTED WITH SCH80 PVC SHUTOFF VALVES. THESE DRAINS SHALL BE MANUALLY DRAINED DURING SYSTEM OPERATION AS NECESSARY.

5. PROPANE TANKS SHALL BE MINIMUM OF 3m FROM FLARE AND ELECTRICAL EQUIPMENT.

6. 150mm GRAVEL BASE SHALL EXTEND APPROXIMATELY 1m BEYOND LIMITS OF FENCE. GRAVEL SHALL BE BETWEEN 1.25 cmø AND 3.75 cmø DIAMETER.

7. CONRACTOR SHALL PROVIDE A STANDARD OUTDOOR FLOODLIGHT WITH THE CONTROL PANEL AND SKID PACKAGE.

8. BLOWERS SHALL BE MOUNTED ONTO SKID WITH NEOPRENE PADS.

9. BLOWERS AND ASSOCIATED EQUIPMENT SHALL BE SUPPLIED AS A COMPLETE SKID PACKAGE, UNLESS OTHERWISE APPROVED BY ENGINEER.

10. THE CONTRACTOR SHALL INSTALL ALL CONDUITS AND CONDUCTORS NECESSARY FOR THE BLOWER MOTORS AND CONTROLS.

11. WHERE INDICATED, PIPING SHALL BE INSULTAED WITH 37.5 mm THICK ALUMINUM-CLAD INSULTAION.

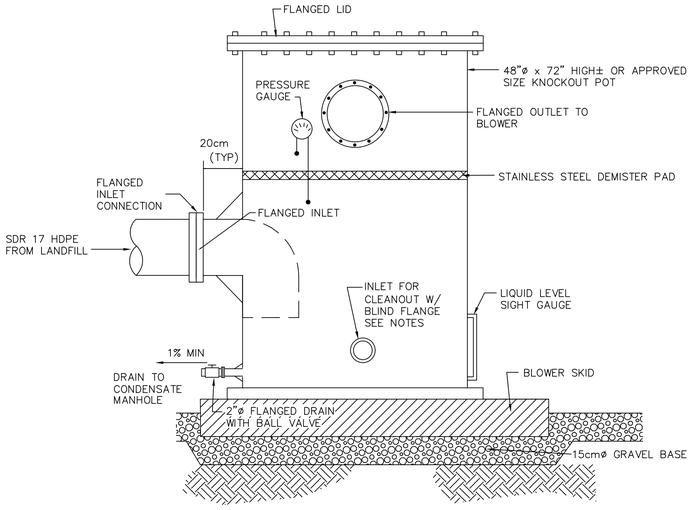
12. THE LANDFILL OWNER SHALL BE RESPONSIBLE FOR PROVIDING ELECTRICAL SERVICE FOR THE FLARE STATION TO WITHIN APPROXIMATELY 10m OF THE FENCELINE.

13. ALL BIOGAS PIPING SHALL BE HDPE UNLESS OTHERWISE SPECIFIED AND AS APPROVED BY ENGINEER.

14. ORIENTATION OF 4"ø CLEANOUT AT BOTTOM OF CONDENSATE KNOCKOUT SHALL BE SUITABLY ORIENTED TO ALLOW ACCESS.

15. CONDENSATE KNOCKOUT SHALL BE SECURED TO BLOWER SKID EITHER BY BOLTING DOWN OR AS APPROVED BY ENGINEER.

16. CONDENSATE KNOCKOUT SHALL BE FABRICATED TO WITHSTAND A MINIMUM OF 100 INCHES W.C. VACUUM.



CONDENSATE KNOCKOUT DETAIL 2/8|8
NO SCALE

KNOCKOUT POT NOTES:

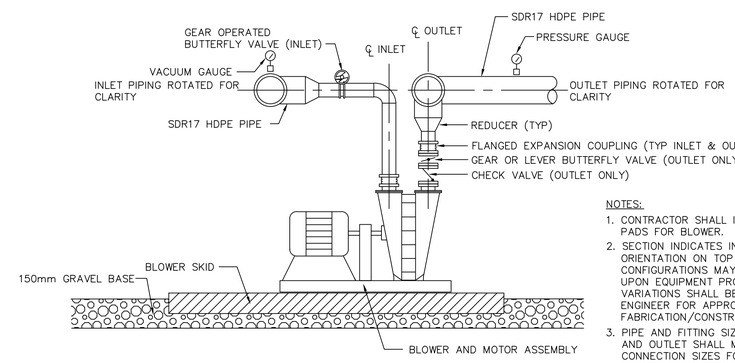
1. K.O. POT TO BE FABRICATED TO WITHSTAND A MINIMUM OF 100 IN.-W.C. VACUUM..

2. KNOCKOUT SHALL BE LEAK-TESTED BY FABRICATOR PRIOR TO SHIPPING.

3. K.O. POT TO BE SECURED TO SKID EITHER BY BOLTING DOWN, OR OTHER METHOD APPROVED BY ENGINEER.

4. KNOCKOUT POT CONSTRUCTION MAY EITHER BE HDPE OR STEEL, AND SHALL INCLUDE CORROSION PROTECTIVE COATING ON INTERIOR AND EXTERIOR RUST-PROOFING, AS APPROPRIATE.

5. ORIENTATION OF 4"ø CLEANOUT SHALL BE OPPOSITE SIDE OF KNOCKOUT VESSEL FROM OUTLET TO BLOWERS TO PERMIT EASY ACCESS FOR CLEANOUT.



TYPICAL BLOWER SECTION A/8|8
NO SCALE

NOTES:
1. CONTRACTOR SHALL INSTALL NEOPRENE PADS FOR BLOWER.
2. SECTION INDICATES INLET AND OUTLET ORIENTATION ON TOP OF BLOWER. ACTUAL CONFIGURATIONS MAY VARY DEPENDING UPON EQUIPMENT PROVIDED. ANY VARIATIONS SHALL BE PROVIDED TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION/CONSTRUCTION.
3. PIPE AND FITTING SIZES AT BLOWER INLET AND OUTLET SHALL MATCH BLOWER CONNECTION SIZES FOR EQUIPMENT PROVIDED. CONTRACTOR SHALL INSTALL HDPE REDUCERS AS NECESSARY TO MATCH TO INLET AND OUTLET PIPING.

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