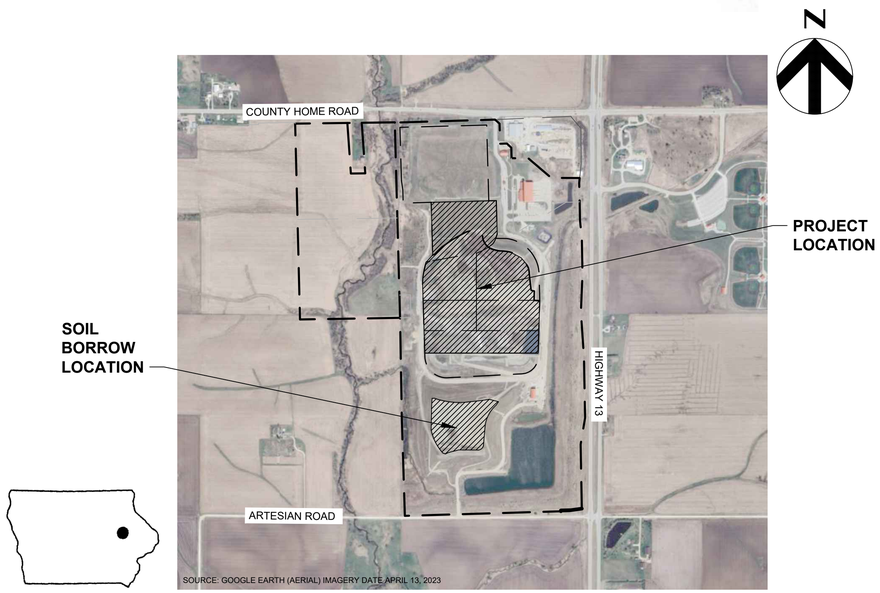


CRLCSWA SITE 2 SITE LOCATION MAP

SCALE 1" = 1000'

Contract Drawings For

CEDAR RAPIDS LINN COUNTY SOLID WASTE AGENCY SITE 2

2024 LANDFILL GAS SYSTEM IMPROVEMENTS

Marion, Iowa

Issued for Bid

HDR Project No.
10383401

November 2023

INDEX OF DRAWINGS

LICENSED PROFESSIONAL ENGINEER
KATHRYN KINLEY P26021
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

KATIE KINLEY, P.E. — 11.21.23 (DATE)

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023.

PAGES OR SHEETS COVERED BY THIS SEAL:

ALL CIVIL (C) SHEETS; ALL GENERAL (G) SHEETS

PROJECT DESCRIPTION:

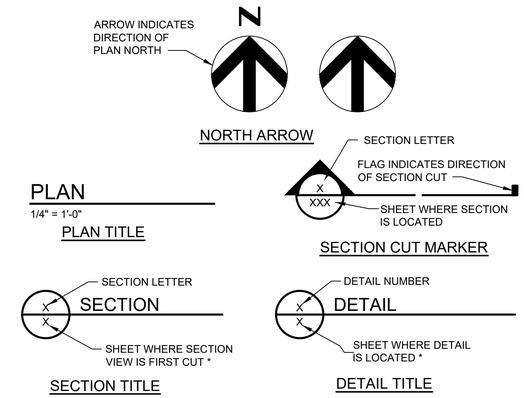
THE PROJECT CONSISTS OF THE FOLLOWING MAJOR ELEMENTS:

1. INSTALLATION OF VERTICAL LANDFILL GAS WELLS, LANDFILL GAS LATERAL AND HEADER PIPE, TIE-INS, AND APPURTENANCES.
2. REDRILLING OF VERTICAL LANDFILL GAS WELLS.
3. INSTALLATION OF CONDENSATE PUMP STATION #3.
4. IMPROVEMENTS TO LEACHATE RECIRCULATION INFRASTUCTURE.
5. TRENCH BACKFILL, GRADING, COMPACTING AND SEEDING OF EROSION AND DISTURBED AREAS.

GENERAL NOTES:

1. THIS IS A STANDARD SHEET SHOWING COMMON SYMBOLOGY. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.
3. SEE SPECIFICATIONS FOR BASIS OF BIDS.
4. TOPOGRAPHY AND SITE INFORMATION PROVIDED BY AEROVIEW DATED OCTOBER 16, 2023. BACKGROUND SURVEY WITHIN THE LIMITS OF CONSTRUCTION MAY BE UPDATED IN AREA OF PROPOSED WORK IMMEDIATELY PRIOR TO BORINGS, PIPE INSTALLATION, OR INSTALLATION OF STRUCTURES - SEE SPECIFICATIONS ON CONTRACTOR SURVEYING.
5. DO NOT OBSTRUCT LANDFILL SITE ACCESS ROADS PER TECHNICAL SPECIFICATIONS. COORDINATE ALL ROADWAY UTILIZATION, STAGING, ROADWAY CUTS, AND RECONSTRUCTION TO ENSURE CONTINUOUS SITE ACCESS AND ACCESS TO ACTIVE LANDFILL AREAS. SEE SPECIFICATIONS FOR REQUIREMENTS FOR COORDINATION, SEQUENCING, INCLUDING COORDINATION WITH ONGOING LANDFILL OPERATIONS.
6. CONFINE ALL WORK TO DESIGNATED LIMITS OF CONSTRUCTION.
7. ACCESS OFF OF HIGHWAY 13 TO THE AREA OF WORK WILL BE VIA COUNTY HOME ROAD AND HTE LANDFILL SITE ENTRANCE. LARGE EQUIPMENT SHALL ENTER THROUGH THE BACK GATE OFF OF ECHO HILL ROAD AND WILL BE COORDINATED WITH THE OWNER, AS NEEDED.
8. SEE TECHNICAL SPECIFICATIONS ON CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT UTILITIES NOT DEFINED OR LOCATED BY DIGGER'S HOTLINES OR UTILITY COMPANIES.
9. COORDINATES FOR PROPOSED BORINGS AND STRUCTURES MAY BE MODIFIED BASED ON FIELD CONDITIONS AT THE TIME OF INSTALLATION. PRIOR TO BORINGS OR EXCAVATION CONTRACTOR SHALL VERIFY WITH ENGINEER THAT PROPOSED WORK WILL NOT IMPACT EXISTING LANDFILL LINER, CAPPING SYSTEM, LEACHATE CONVEYANCES OR OTHER ENVIRONMENTAL PROTECTION FEATURES. SEE TECHNICAL SPECIFICATIONS.
10. EXACT LOCATION OF SOIL STOCKPILES MAY VARY. CONFIRM LOCATIONS PRIOR TO ADDING OR REMOVING SOILS IN THESE STOCKPILES.
11. EXACT LOCATIONS OF PIPE AND TRENCHES FOR LATERALS AND HEADERS MAY BE MODIFIED IN FIELD BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION AND TO ENSURE PROPER SLOPES AND ROUTING, AS APPROVED BY THE ENGINEER.
12. SEE SPECIFICATIONS ON MANAGING SURFACE WATER DURING CONSTRUCTION. CONTRACTOR TO PROVIDE STORM WATER DIVERSION BERMS AND CONTROLS AS REQUIRED TO PREVENT RUN-ON TO WORK AREAS.
13. PROTECT ALL WORK FROM EROSION AND SEDIMENT CAUSED BY THE EXISTING LANDFILL. SEDIMENT ACCUMULATION WITHIN THE WORK AREA SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE EROSION CONTROL MEASURES MEET MINIMUM FEDERAL, STATE, AND LOCAL REGULATIONS.
14. CONTRACTOR SHALL REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM CONTROL STRUCTURES (DRAINAGE CHANNELS, CULVERTS, SEDIMENT BASINS, TRAPS, ETC.) FOLLOWING COMPLETION OF THE WORK AND PLACE AT LOCATION APPROVED BY OWNER.
15. OBTAIN ALL REQUIRED BORROWED SOIL FROM THE APPROVED SOIL BORROW AREA, UNLESS OTHERWISE DIRECTED. DO NOT BORROW BELOW GRADES IDENTIFIED ON SURVEY GRADE STAKES WITHIN THE BORROW AREA.
16. IN ALL CASES, CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO ESTABLISHED VEGETATION AND FINAL COVER SYSTEM DUE TO CONTRACTOR VEHICLE TRAFFIC. CONTRACTOR SHALL REPAIR ALL VEGETATION AND SOIL DAMAGE (I.E. RUTTING) CAUSED BY CONSTRUCTION ACTIVITIES IN MANNER SUITABLE TO OWNER PRIOR TO COMPLETION OF PROJECT WORK.
17. PREVENTION OF STORM WATER INTRUSION IS VITAL INTO THE EXISTING WASTE MASS VIA OPEN TRENCHING OR EXCAVATIONS IS VITAL TO ONGOING LANDFILL OPERATIONS. EMPLOY MEANS NECESSARY TO COMPLETE PROTECT WORK AREAS FROM CONTRIBUTING TO EXCESS LEACHATE GENERATION.
18. WHERE DESIGNATED ACCESS ROADS TO CONSTRUCTIONS AREAS ARE NOT SHOWN ON DRAWINGS, COORDINATE PLANNED ACCESS ROUTES WITH OWNER AND ENGINEER AT THE PRE-CONSTRUCTION CONFERENCE.
19. BACKFILL AND FINAL BACKFILL SHALL BE MOISTURE CONDITIONED (AS REQUIRED), PLACED IN LOOSE LAYERS NO GREATER THAN 12 INCHES AND COMPACTED TO THE SATISFACTION OF THE OWNER. PLACE IN A MANNER WHICH DOES NOT DAMAGE OR DISPLACE WARNING TAPE OR ADJACENT INFRASTRUCTURE.
20. EMBEDMENT MATERIAL SHALL BE MOISTURE CONDITIONED (AS REQUIRED). EMBEDMENT MATERIAL SHALL BE PLACED TO THE DEPTH SHOWN ON THE DRAWINGS AND PLACED IN LOOSE LAYERS NO GREATER THAN 8 INCHES OR 3/4 OF THE PIPE DIAMETER (WHICHEVER IS SMALLER). COMPACT EMBEDMENT MATERIAL TO THE SATISFACTION OF THE OWNER.
21. COVER SOIL SHALL BE MOISTURE CONDITIONED (AS REQUIRED), PLACED IN LOOSE LAYERS NO GREATER THAN 12 INCHES AND COMPACTED TO THE SATISFACTION OF THE OWNER. PLACE IN MANNER WHICH DOES NOT DAMAGE ADJACENT INFRASTRUCTURE. COVER SOIL SHALL BE UNIFORMLY BACK BLADED TO THE FINISHED GROUND ELEVATIONS AND SHALL BE REASONABLY SMOOTH AND FREE OF IRREGULARITIES.

GENERAL SYMBOLOGY:



CIVIL MAPPING SYMBOLOGY:

- SURVEY BENCHMARK
- SURVEY CONTROL POINT
- ACCESS POINT
- CLEANOUT/ACCESS RISER
- TREES / SHRUBBERY
- CONDENSATE PUMP STATION
- VALVE
- GROUNDWATER MONITORING WELL
- DELINEATION WELL
- BACKGROUND WELL
- GROUNDWATER UNDERDRAIN
- GAS EXTRACTION WELL (VERTICAL)
- REDRILLED VERTICAL GAS EXTRACTION WELL
- CONVERT TO REMOTE WELLHEAD
- TIE-IN TO EXISTING LATERAL
- GAS MONITORING PROBE
- PIEZOMETER
- LEACHATE MONITORING POINT
- LEACHATE WELL
- LEACHATE ACCESS STICK-UP

UTILITY/CIVIL LINE SYMBOLOGY:

- PIPELINE
- LARGE PIPELINE
- UTILITY BENEATH STRUCTURE
- CENTERLINE
- BOTTOM OF DITCH
- PROP — PROPERTY LINE
- EASEMENT
- LIMITS OF CONSTRUCTION
- WASTE — LIMITS OF WASTE
- PHASE LIMITS
- EXISTING CONTOUR (MINOR)
- 25 — EXISTING CONTOUR W/ELEVATION (MAJOR)
- EXISTING FENCE
- UGE — EXISTING UNDERGROUND POWER
- OHE — EXISTING OVERHEAD POWER LINE
- G — EXISTING LANDFILL GAS COLLECTION PIPING
- NEW CONTOUR (MINOR)
- 25 — NEW CONTOUR (MAJOR)
- SF — SILT FENCE
- FENCE - BARB WIRE
- FENCE - CHAIN LINK
- FENCE - FIELD
- FENCE - OTHER
- FENCE - WOOD
- G — LANDFILL GAS COLLECTION PIPING
- 12" G — LANDFILL GAS COLLECTION PIPING (12", EX.)
- G-HZ — LANDFILL GAS HORIZONTAL COLLECTOR PIPING
- SS — SANITARY SEWER
- SD — STORM SEWER
- W — DOMESTIC WATER
- NPW — DOMESTIC WATER NON-POTABLE
- TD — TOE DRAIN
- FM — LEACHATE FORCEMAIN
- LEA — LEACHATE PIPE
- A — COMPRESSED AIR LINE
- C — CONDENSATE LINE
- >> >> — DRAINAGE TERRACE
- GW — GROUNDWATER PIPE

MATERIALS IN PLAN/SECTION:

- ENGINEERED SOIL (SECTION)
- NATIVE SOIL (SECTION)
- WASTE (SECTION)
- DAILY / INTERMEDIATE COVER (SECTION)
- RECOMPACTED CLAY LINER (SECTION)
- EARTH (SECTION)
- RIP RAP / REVETMENT STONE (PLAN/SECTION)
- SEEDING AREA
- LETDOWN (PLAN)
- HAUL ROAD (PLAN)
- AGGREGATE (PLAN/SECTION)
- NATIVE PLANTING
- TREE REMOVAL
- CAPPED AREA (PLAN)
- RACM DISPOSAL AREA (PLAN)

EXISTING WELL SCHEDULE:

EXIST. VERTICAL COLLECTION WELLS				
WELL ID	NORTHING	EASTING	EXISTING ELEVATION[1]	ELEVATION WHEN DRILLED[2]
GW-1R	3502846	5448222	894.41	893.8
GW-2	3502915	5448334	890.39	893.0
GW-3	3502935	5448634	892.14	894.0
GW-4	3502895	5448835	886.94	888.0
GW-5	3502744	5448168	893.97	897.0
GW-6	3502723	5448465	905.00	908.0
GW-7	3502722	5448766	899.14	902.0
GW-8	3502479	5448092	874.87	876.0
GW-9	3502478	5448312	900.85	906.0
GW-10	3502476	5448610	909.13	910.0
GW-11	3502479	5448912	893.59	896.0
GW-12	3502252	5448208	877.10	874.0
GW-13	3502251	5448508	888.51	886.0
GW-14	3502257	5448809	900.39	895.0
GW-15	3502048	5448456	870.04	856.0
GW-16	3502006	5448648	907.87	887.0
GW-17	3502006	5448947	902.37	866.0
GW-18	3501773	5448484	874.47	868.0
GW-19	3501774	5448784	910.23	888.0
GW-21	3501527	5448445	862.03	857.0
GW-22	3501653	5448640	900.19	887.0
GW-23	3501318	5448525	880.33	858.0
GW-24	3501188	5448319	856.20	860.0
GW-25	3501209	5448576	876.62	860.0
GW-26	3501229	5448768	888.92	X
GW-27	3500984	5448826	888.70	858.2
GW-29	3501297	5449197	889.93	879.5
GW-31	3501304	5449533	875.50	870.9
GW-32	3501030	5449585	871.88	872.9
GW-33	3500798	5449399	853.07	856.7
GW-34	3501025	5449318	885.98	873.0
GW-35	3500778	5449131	852.76	854.2
GW-36	3500755	5448901	849.79	853.2
GW-37	3500678	5448646	839.74	834.6
GW-38	3500698	5448423	840.82	835.0
GW-39	3500985	5448456	853.24	840.5

EXIST. HORIZONTAL COLLECTION WELLS		
GAS WELL NO.	NORTHING	EASTING
GWH-1	3502911	5448129
GWH-2	3502915	5448334
GWH-3	3502935	5448634
GWH-4	3502895	5448835
GWH-5	3502744	5448168
GWH-7	3502722	5448766
GWH-10	3502476	5448610
GWH-12	3502252	5448208

NOTES:

1. EXISTING ELEVATIONS TAKEN FROM TOPOGRAPHY SURVEYED BY AEROVIEW DATED OCTOBER 16, 2023.
2. AS-BUILT ELEVATIONS FROM FOTH DESIGN DRAWINGS (2009, 2014) AND HDR AS-BUILT RECORD DRAWINGS (2020).

ISSUE	DATE	DESCRIPTION
A	11/09/2023	ISSUED FOR CLIENT REVIEW
B	11/22/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K. KINLEY
CIVIL	B. BUNKER
DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

Solid Waste Agency — Cedar Rapids • Linn County
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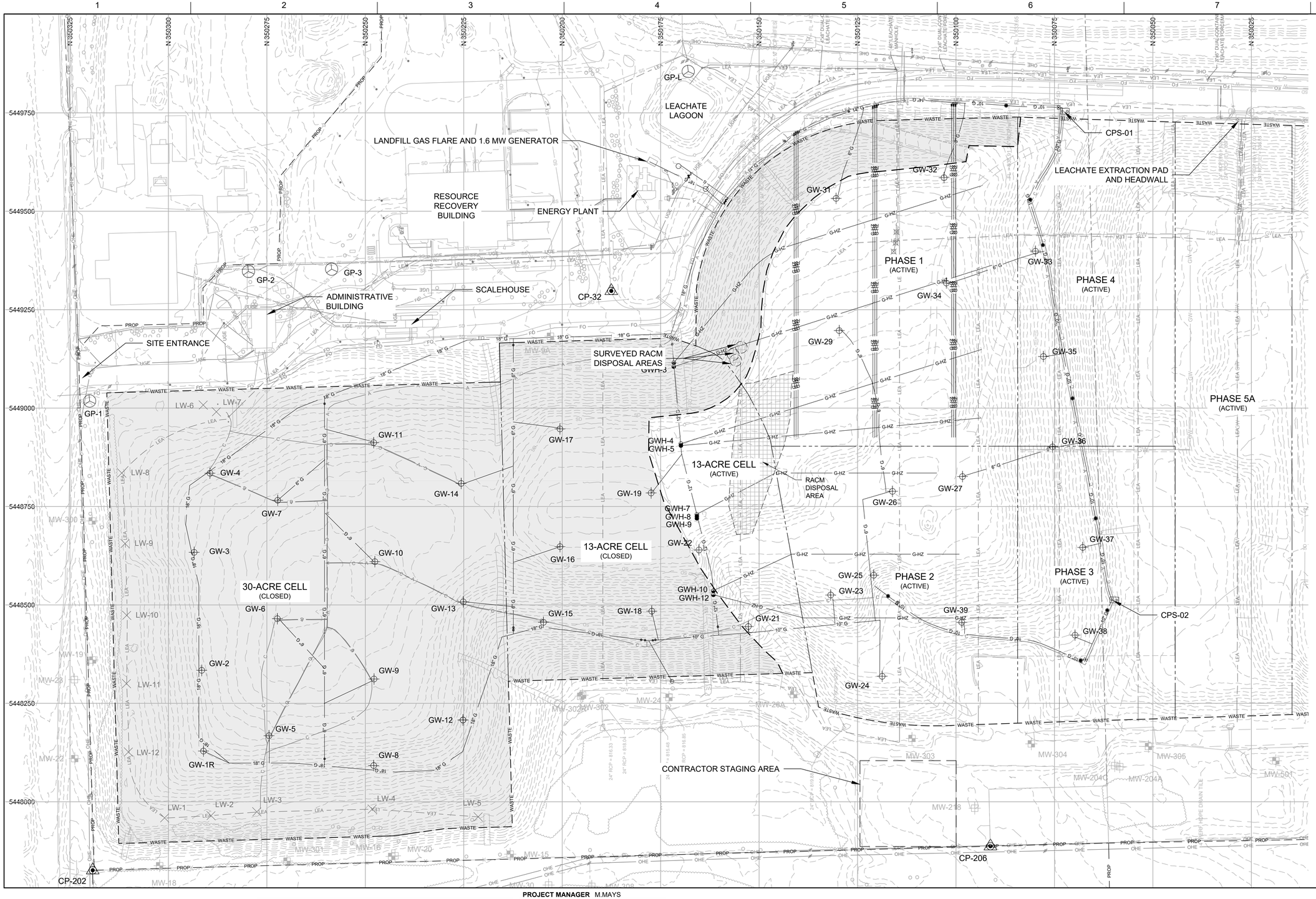
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

0 1" 2"

FILENAME 00G001.dwg
SCALE NO SCALE

SHEET 00G001



NOTES

1. EXISTING LANDFILL GAS AND LEACHATE SYSTEM COMPONENTS BASED ON THE DESIGN DRAWINGS FROM FOTH AND AS-BUILT DRAWINGS FROM HDR.
2. EXISTING SITE TOPOGRAPHY PROVIDED BY AEROVIEW SERVICES DATED OCTOBER 16, 2023.
3. ALL AREAS WITHIN THE LIMITS OF CONSTRUCTION AND STAGING SHOULD BE CONSIDERED ACTIVE LANDFILL AREA.
4. CONTRACTOR TO LABEL ALL NEW WELLS.
5. SIZE OF GAS SYSTEM COMPONENTS ARE DRAWN AT AN EXAGGERATED SCALE FOR READABILITY PURPOSES.
6. AIR AND CONDENSATE LINES ARE OFFSET 5-FEET FROM GAS HEADER FOR READABILITY PURPOSES.

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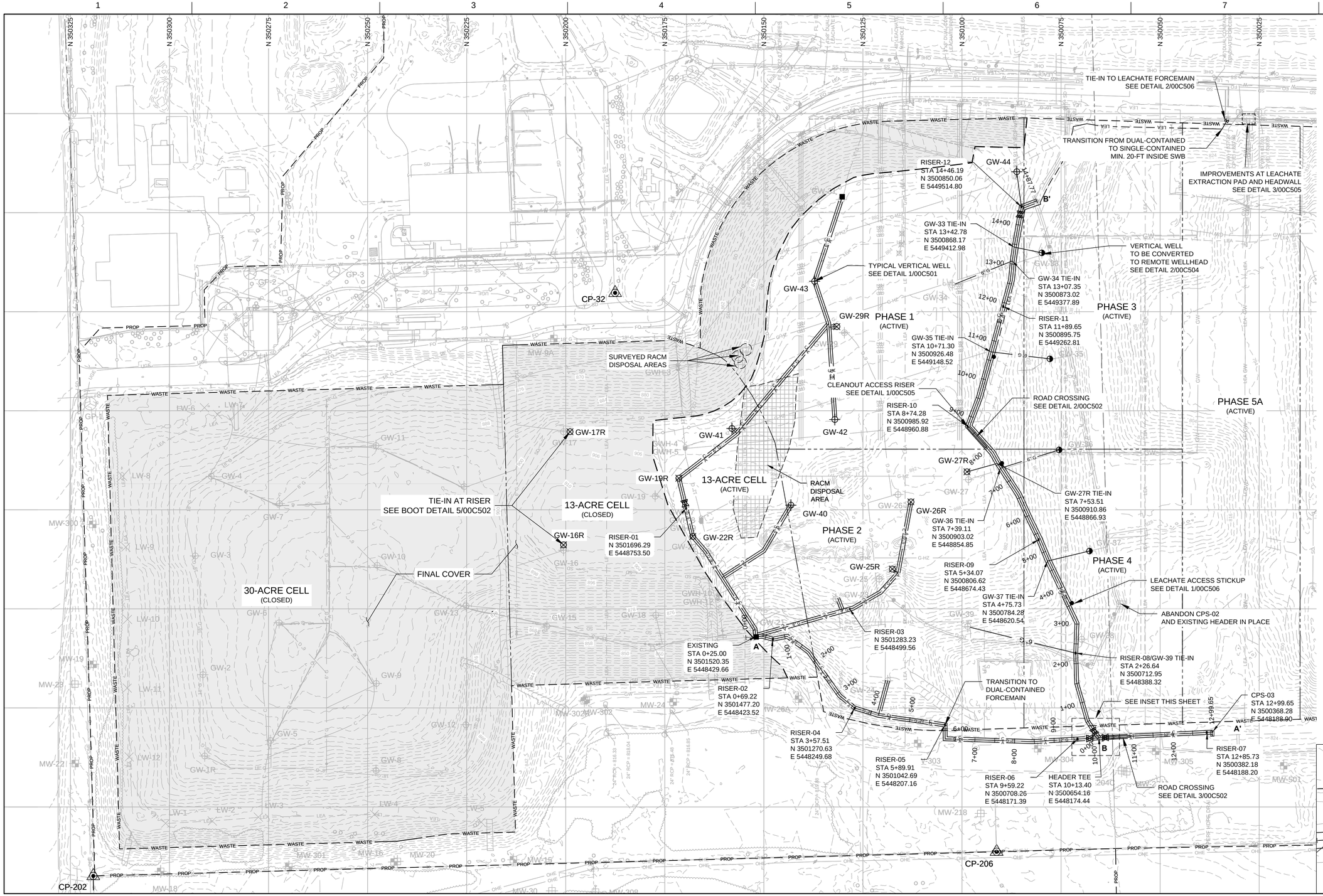
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

EXISTING GAS COLLECTION SYSTEM PLAN

0 1" 2"

FILENAME 00C101.dwg
SCALE 1" = 120'

SHEET
00C101



NOTES

1. SEE SPECIFICATIONS ON COORDINATION REQUIREMENTS FOR INTERRUPTION OF ACCESS ROAD AND ACCESS ROAD CROSSINGS.
2. CONTRACTOR TO LABEL ALL NEW WELLS.
3. MAINTAIN A MINIMUM OF 4-FEET SPACING BETWEEN PIPING CONNECTIONS THAT CONTAIN MORE THAN ONE CONNECTION IN PROXIMITY TO ALLOW FOR FUTURE ACCESS AND MAINTENANCE.
4. EXISTING WELLS GW-16, GW-17, GW-19, GW-22, GW-25, GW-26, GW-27 AND GW-29 TO BE ABANDONED BY BACKFILLING WELL CASING WITH A BENTONITE SLURRY MIXTURE AND CUTTING/CAPPING THE WELL CASING 2-FEET BELOW EXISTING GRADE, SEE DETAIL 5/00C501 FOR WELLS OUTSIDE CAPPED AREA, DETAIL 5/00C502 FOR WELLS IN CAPPED AREA.
5. REDRILL VERTICAL WELLS (DESIGNATED WITH AN "R") A MINIMUM OF 15-FEET FROM EXISTING WELLS. LATERAL TO NEW WELL MUST MAINTAIN MINIMUM SLOPE OF 5% AND A MINIMUM OF 3.5-FOOT DEPTH UNLESS ENGINEER APPROVES ALTERNATIVE.
6. LATERALS FOR GW-16R, GW-17R, GW-19R, GW-22R, GW-26R, AND GW-27R TO TIE INTO EXISTING PIPE STUB-UP. LATERALS FOR GW-16R AND GW-17R ARE TO BE INSTALLED AT BOTTOM OF EXISTING VEGETATIVE SOIL LAYER. DO NOT DISTURB EXISTING CLAY CAP BELOW THE VEGETATIVE SOIL LAYER IN AREAS OF FINAL COVER. MOUND ADDITIONAL VEGETATIVE SOIL ABOVE LATERAL PIPE TO PROVIDE 4 FEET OF COVER OVER PIPE.
7. CONDENSATE FORCEMAIN AND AIRLINE PIPING ARE OFFSET 5-FEET FROM GAS HEADER FOR READABILITY PURPOSES. PIPING TO BE INSTALLED IN ALL LOCATIONS SHOWN.
8. EXISTING GRADE FROM AERIAL SURVEY PROVIDED BY AEROVIEW SERVICES, DATED OCTOBER 16, 2023.
9. UTILITY INFORMATION BASED ON HISTORIC SURVEY AND AS-BUILTS. SUBJECT TO CHANGE BASED ON SITE NEEDS.

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DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

Solid Waste Agency
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CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

PROPOSED GAS COLLECTION SYSTEM PLAN

0 1" 2"

FILENAME 00C102.dwg
SCALE 1" = 120'

SHEET 00C102

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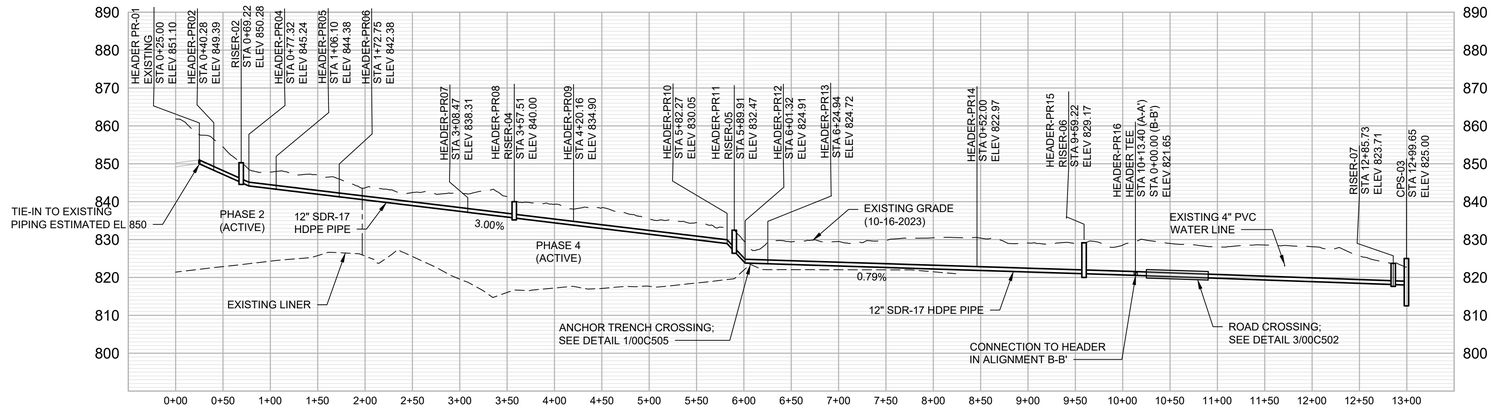
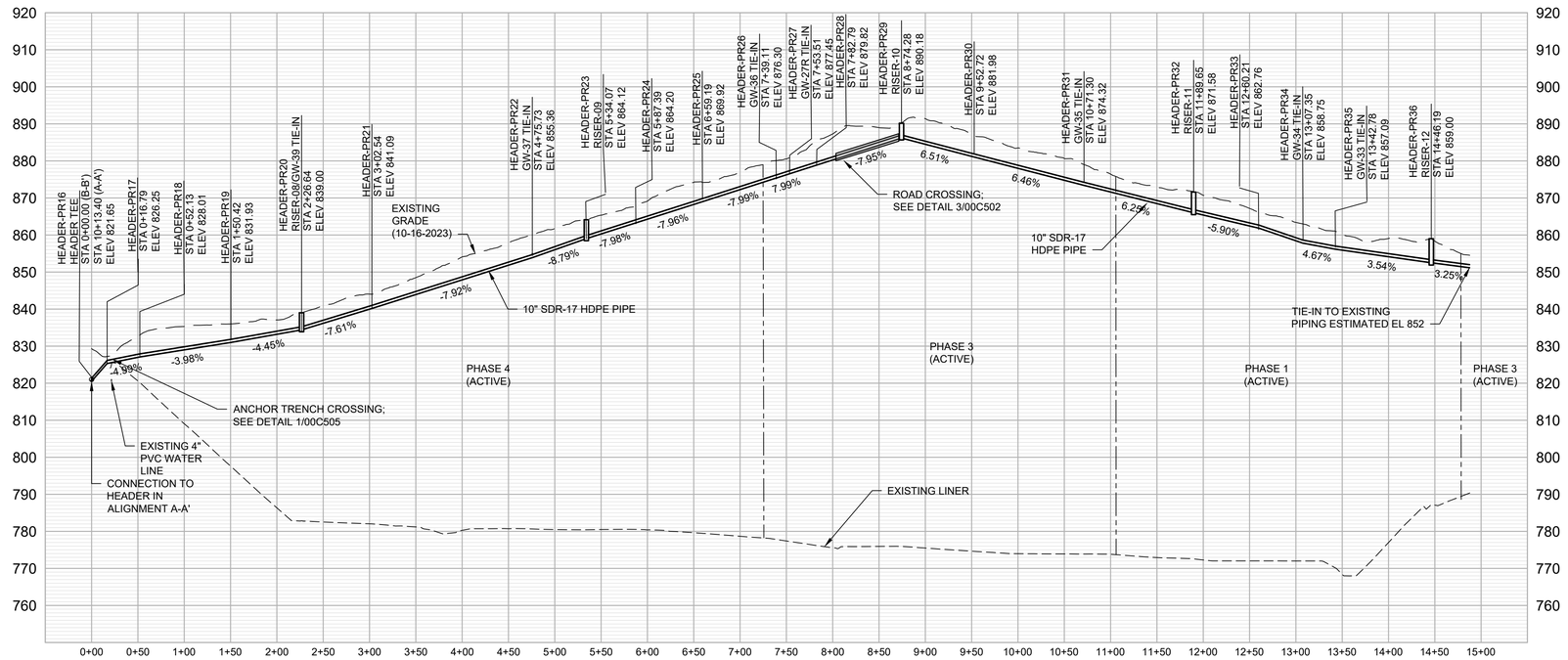


LANDFILL GAS HEADER - ALIGNMENT A-A'

HORIZ: 1" = 80'
VERT: 1" = 20'

NOTES

1. CONTRACTOR TO MAINTAIN A MINIMUM 5% SLOPE FOR LANDFILL GAS HEADER PIPING LOCATED WITHIN THE SOLID WASTE BOUNDARY.
2. LANDFILL GAS HEADER PIPING TO BE COVERED WITH A MINIMUM OF 3.5-FEET OF CLEAN SOIL BACKFILL.



LANDFILL GAS HEADER - ALIGNMENT B-B'

HORIZ: 1" = 80'
VERT: 1" = 20'

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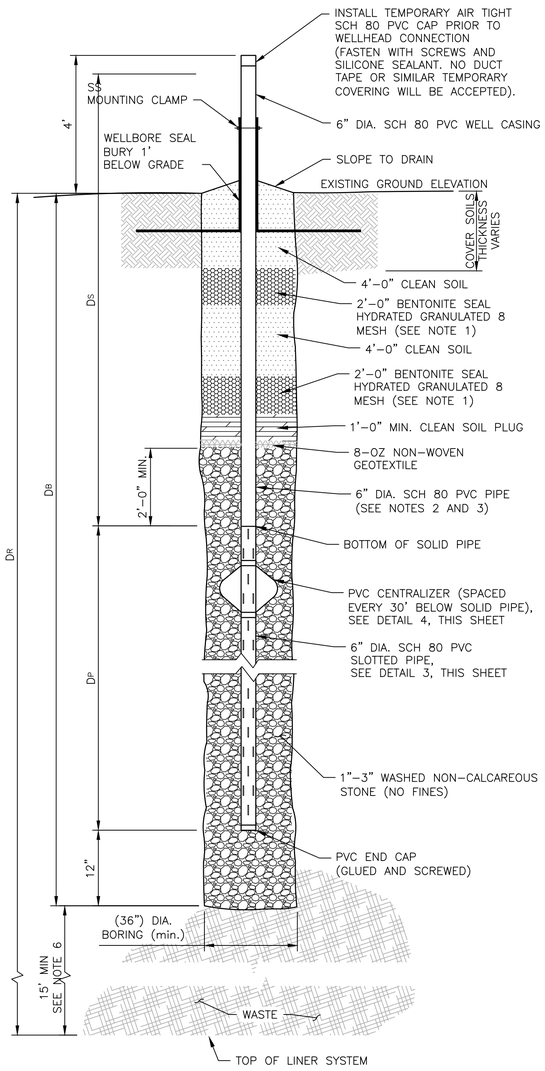
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

PROPOSED GAS COLLECTION HEADER PROFILE

0 1" 2"

FILENAME 00C103.dwg
SCALE AS SHOWN

SHEET 00C103

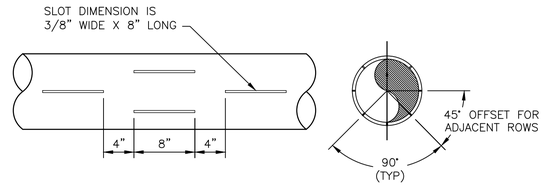


1 00C501 **LANDFILL GAS EXTRACTION WELL**
NOT TO SCALE

LFG Extraction Well Number	DESIGN		DESIGN	DESIGN	DESIGN	DESIGN	DESIGN	PRE-CONST	PRE-CONST	PRE-CONST	PRE-CONST	PRE-CONST	PRE-CONST
	Grid Coordinates		Existing Elevation (EL) (See Note 1)	Top of Drainage Layer Elevation (EL) (See Note 2)	Well Depth (FT) (D_B) (See Note 3)	Solid Wall Pipe Length (FT) (D_S) (See Note 12)	Perforated Length (FT) (D_P) = D_B - D_S - 2	Grid Coordinates (Surveyed)		Surveyed Elevation (FT)	Well Depth (FT) (D_B)	Solid Wall Pipe Length (FT) (D_S)	Perforated Length (FT) (D_P) = D_B - D_S - 1
	Northing	Easting						Northing	Easting				
GW-16R	3502005.55	5448661.35	909.21	823.90	70.31	16.00	52.31						
GW-17R	3501989.14	5448947.02	902.67	824.74	62.93	16.00	44.93						
GW-19R	3501714.50	5448829.70	907.13	826.65	65.48	16.00	47.48						
GW-22R	3501679.39	5448682.74	906.93	824.98	66.95	16.00	48.95						
GW-25R	3501175.69	5448600.45	881.88	780.19	86.69	16.00	68.69						
GW-26R	3501128.76	5448769.86	891.97	778.13	98.84	16.00	80.84						
GW-27R	3500987.28	5448845.88	891.99	778.12	98.87	16.00	80.87						
GW-29R	3501317.74	5449212.31	885.33	774.66	95.67	16.00	77.67						
GW-40	3501431.73	5448761.71	896.72	829.50	52.22	16.00	34.22						
GW-41	3501580.60	5448955.26	894.03	823.50	55.53	16.00	37.53						
GW-42	3501320.85	5448977.73	892.77	798.94	78.83	16.00	60.83						
GW-43	3501371.84	5449326.72	885.17	775.69	94.48	16.00	76.48						
GW-44	3500861.68	5449603.10	867.58	809.63	42.95	16.00	24.95						

2 00C501 **PROPOSED WELL SCHEDULE**
NOT TO SCALE

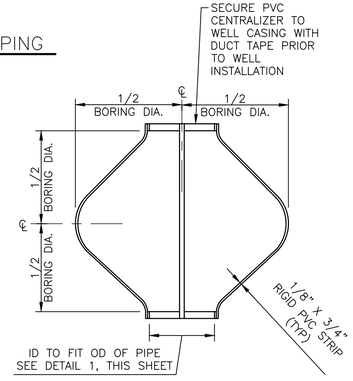
NOTES:
1. EXISTING SURFACE ELEVATIONS BASED ON SURVEY BY AEROVIEW SERVICES DATED OCTOBER 16, 2023.
2. TOP OF DRAINAGE LAYER ELEVATIONS DETERMINED FROM AS-BUILT SURVEYS.
3. ESTIMATED DEPTH OF WASTE BASED ON A MINIMUM OF 15-FEET OF CLEARANCE TO TOP OF LINER SYSTEM.
4. WELLS TO BE LABELED WITH WELL IDENTIFICATION NUMBERS SHOWN IN TABLE. LABELS TO BE OUTDOOR ADHESIVE, INCLUDE MIN. 4" LETTERS.
5. COORDINATES AND GROUND SURFACE ELEVATIONS SHALL BE SURVEYED BY CONTRACTOR PRIOR TO COMMENCEMENT OF DRILLING ACTIVITIES AND REPORTED TO ENGINEER.
6. ENGINEER WILL ADJUST WELL SCHEDULE AS NECESSARY, BASED ON PRE-BORING SURVEY.
7. PROPOSED LOCATION OF WELLS AND HORIZONTAL COLLECTORS LINES MAY BE MODIFIED BASED ON FIELD CONDITIONS AND WITH ENGINEER'S APPROVAL.
8. SOLID WALL PIPE LENGTH (D_S) SHOWN DOES NOT INCLUDE REQUIRED 4-FT. ABOVE GRADE STICKUP.



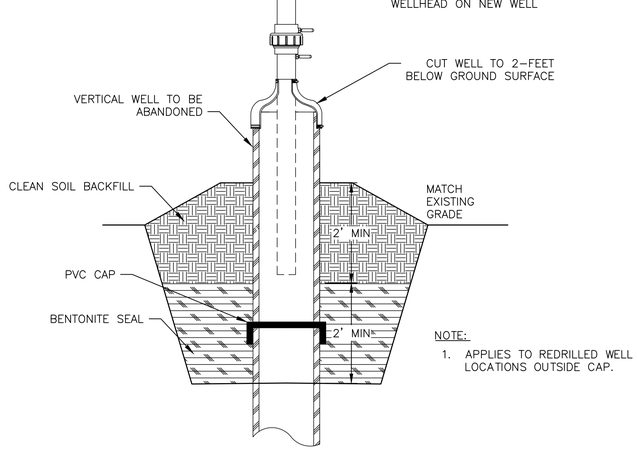
NOTE:
1. ALTERNATE SLOT/PERF SCHEDULE MAY BE USED WITH ENGINEER'S APPROVAL.

3 00C501 **TYPICAL VERTICAL EXTRACTION WELL SLOTTED PIPING**
NOT TO SCALE

NOTES:
1. HYDRATE BENTONITE CONTINUOUSLY WITH WATER PER SPECIFICATION SECTION 31 23 00.
2. ALL PVC PIPE SHALL BE SCHEDULE 80 UNLESS OTHERWISE NOTED.
3. PIPE JOINTS SHALL BE ONE OF THE FOLLOWING AS DETERMINED BY ENGINEER:
   3.1 BELL AND SPIGOT WITH SOLVENT WELD CEMENT WITH SIX S.S. SELF-TAPPING SCREWS SPACED EQUAL DISTANCE AROUND PIPE CIRCUMFERENCE AT EACH LOCATION. SCREWS SHALL BE SUFFICIENT LENGTH FOR JOINT STRENGTH.
   3.2 COUPLINGS ARE NOT ALLOWED.
4. D_R = DEPTH TO TOP OF LINER
   D_B = DEPTH OF BOREHOLE
   D_S = LENGTH OF SOLID PIPE BELOW GRADE
   D_P = LENGTH OF SLOTTED PIPE
   SEE WELL SCHEDULE, THIS SHEET, FOR PRELIMINARY ESTIMATES OF D_R, D_B AND D_P.
5. MINIMUM 15 FEET SEPARATION SHALL BE MAINTAINED BETWEEN BOTTOM OF BORING AND TOP OF LINER SYSTEM.
6. WELL DRILLING WILL NOT COMMENCE UNTIL EXISTING GROUND SURFACE ELEVATIONS ARE IDENTIFIED AND DEPTH OF BORING IS VERIFIED BY ENGINEER AT EACH BORING LOCATION.
7. WELL SCHEDULE WILL BE MANAGED BY OWNER OR ENGINEER.



4 00C501 **PVC CENTRALIZER**
NOT TO SCALE



NOTE:
1. APPLIES TO REDRILLED WELL LOCATIONS OUTSIDE CAP.

5 00C501 **GAS WELL ABANDONMENT DETAIL – OUTSIDE CAP**
NOT TO SCALE

ISSUE	DATE	DESCRIPTION
A	11/09/2023	ISSUED FOR CLIENT REVIEW
B	11/22/2023	ISSUED FOR BID

PROJECT MANAGER	M.MAYS
CIVIL	K. KINLEY
CIVIL	B. BUNKER
DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

SolidWaste Agency
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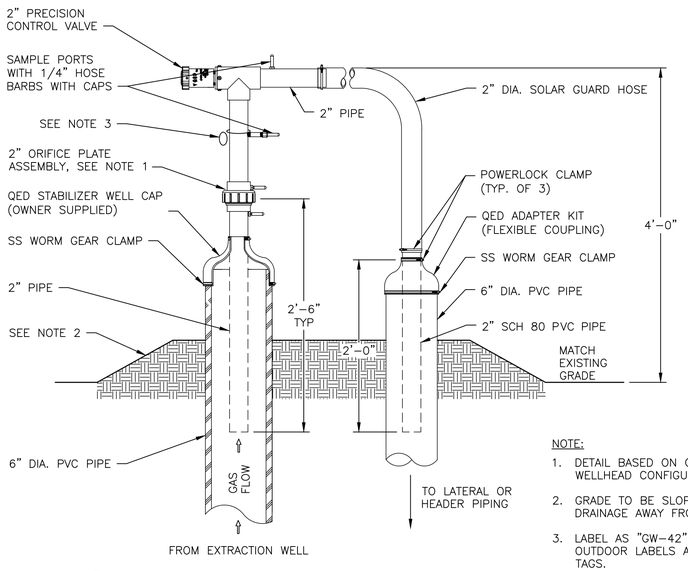
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

VERTICAL WELL DETAILS

0 1" 2"

FILENAME 00C501.dwg
SCALE AS NOTED

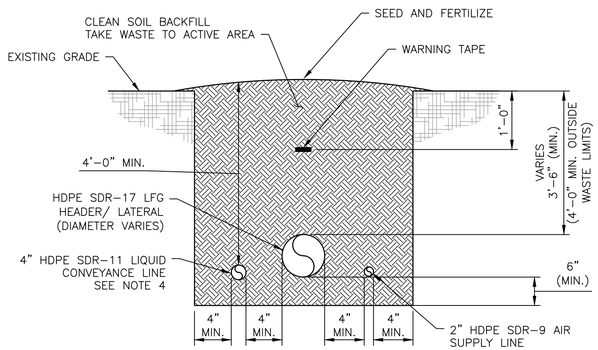
SHEET 00C501



NOTE:

1. DETAIL BASED ON QED VERTICAL WELLHEAD CONFIGURATION.
2. GRADE TO BE SLOPED FOR DRAINAGE AWAY FROM WELLHEAD.
3. LABEL AS "GW-42" (EX.) IN 4" OUTDOOR LABELS AND METAL TAGS.

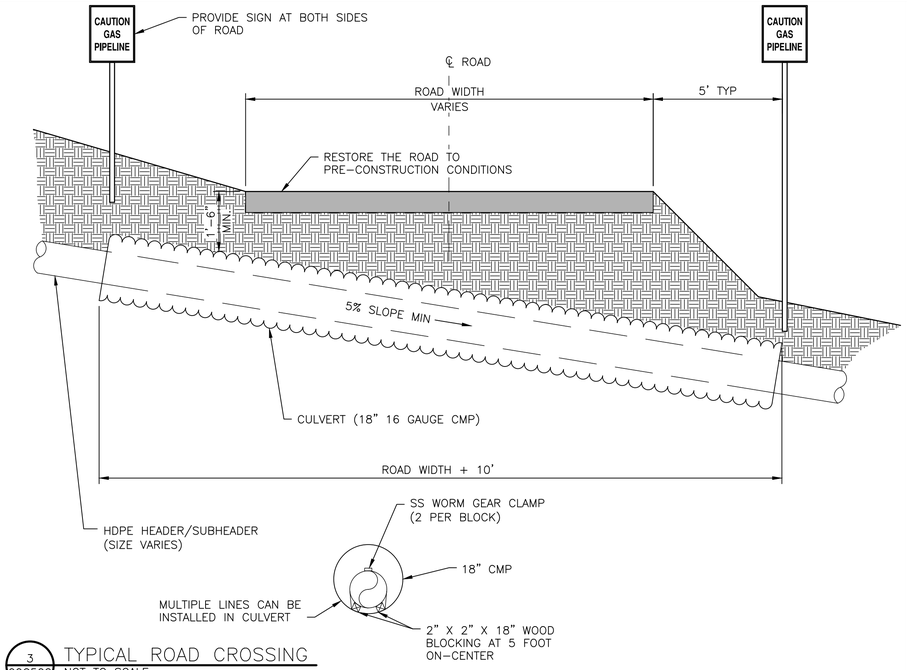
1 00C502 TYPICAL 2" WELLHEAD FOR VERTICAL WELL
NOT TO SCALE



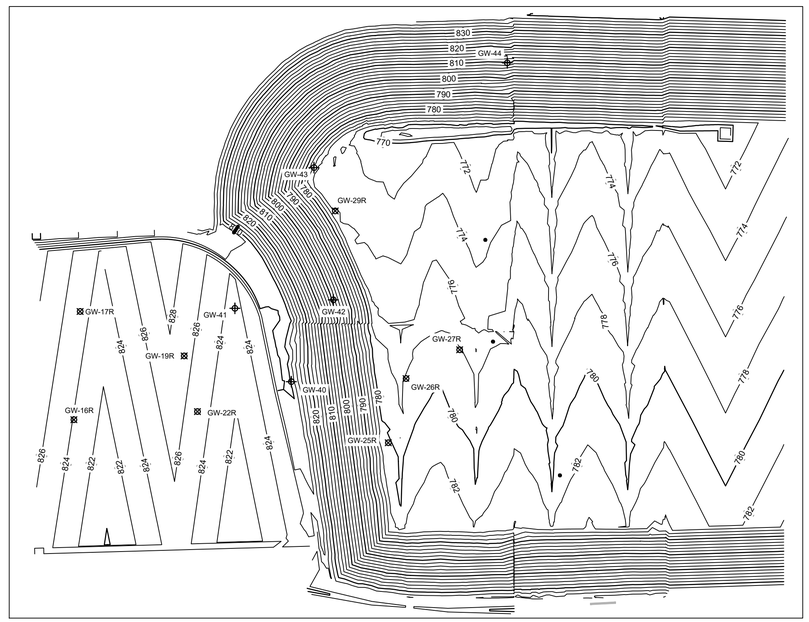
NOTES:

1. WARNING TAPE MIN. 3" WIDE AND IMPRINTED WITH "GAS LINE BURIED BELOW".
2. ALL HEADER AND LATERAL INSTALLED AT MIN. 3% SLOPE, UNLESS OTHERWISE SHOWN IN THE DRAWINGS OR APPROVED BY ENGINEER.
3. THE NUMBER OF TYPES OF PIPES INSTALLED IN THE TRENCH VARIES. SEE SITE PLAN.
4. LIQUID CONVEYANCE PIPE OUTSIDE OF WASTE TO BE 4" X 8" DUAL CONTAINED PIPE.

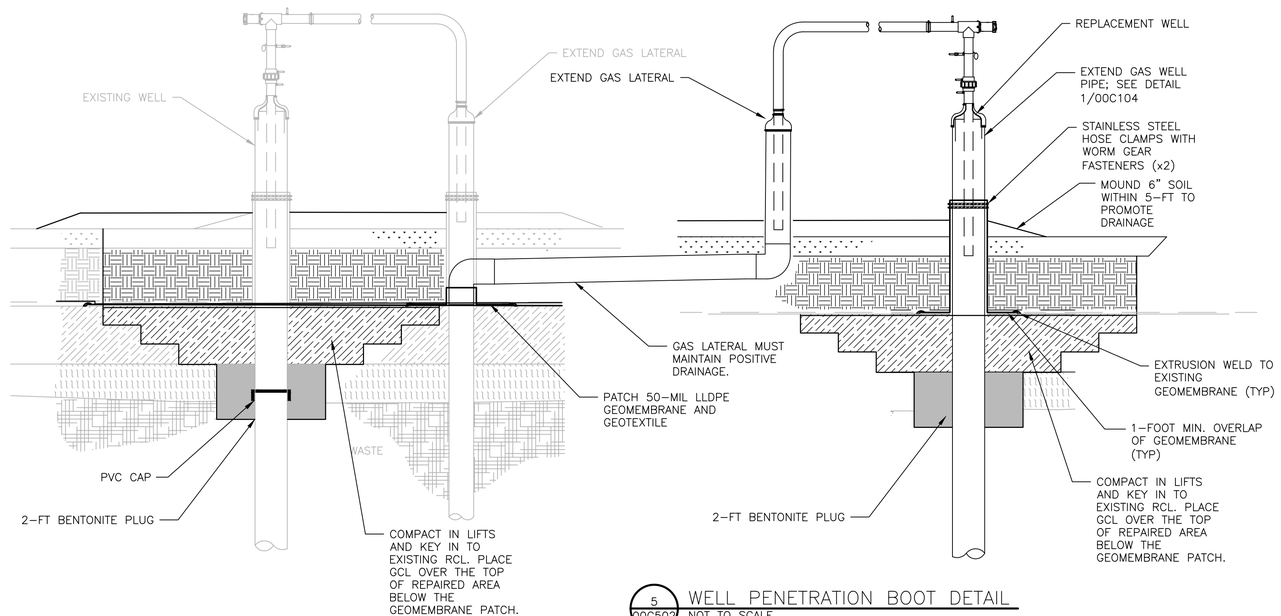
2 00C502 COMMON PIPE TRENCH
NOT TO SCALE



3 00C502 TYPICAL ROAD CROSSING
NOT TO SCALE



4 00C502 TOP OF DRAINAGE LAYER WITH NEW GAS WELLS
1" = 200'



5 00C502 WELL PENETRATION BOOT DETAIL
NOT TO SCALE

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A	11/09/2023	ISSUED FOR CLIENT REVIEW
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PROJECT MANAGER	M.MAYS
CIVIL	K. KINLEY
CIVIL	B. BUNKER
DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

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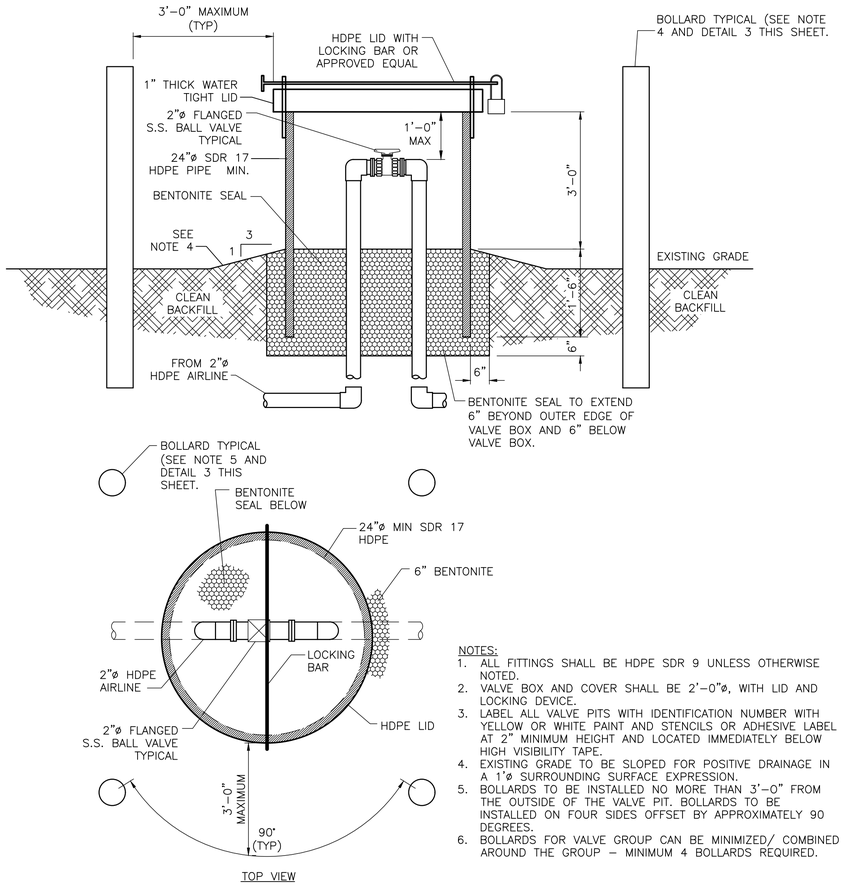
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

TRENCH AND COLLECTION SYSTEM DETAILS

0 1" 2"

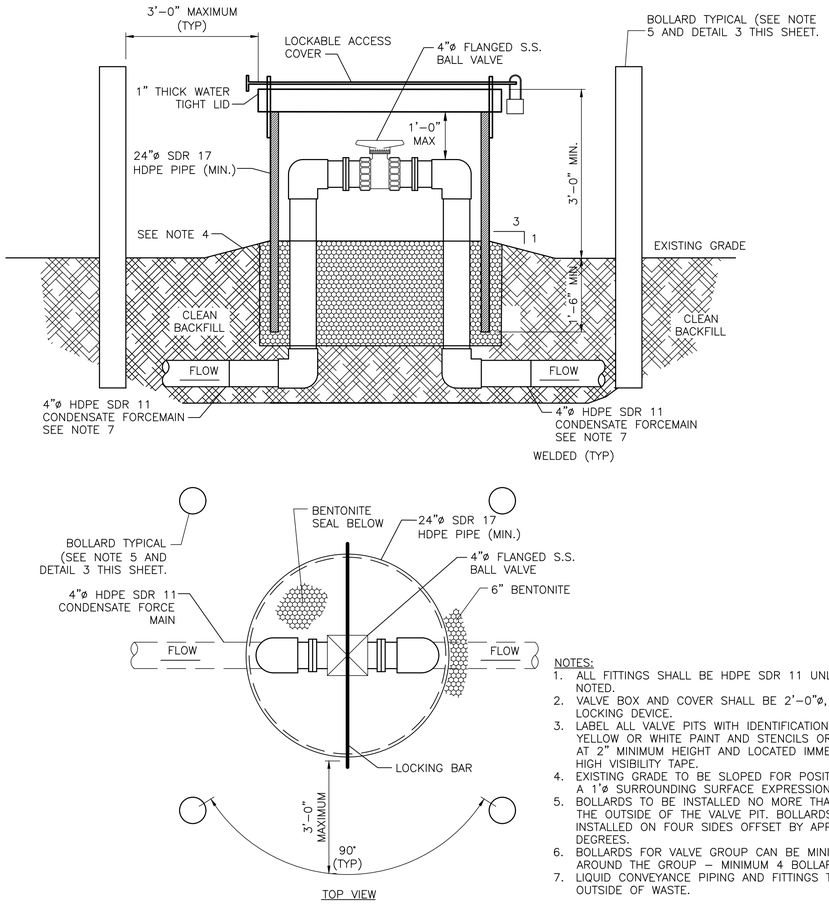
FILENAME 00C502.dwg
SCALE AS NOTED

SHEET 00C502



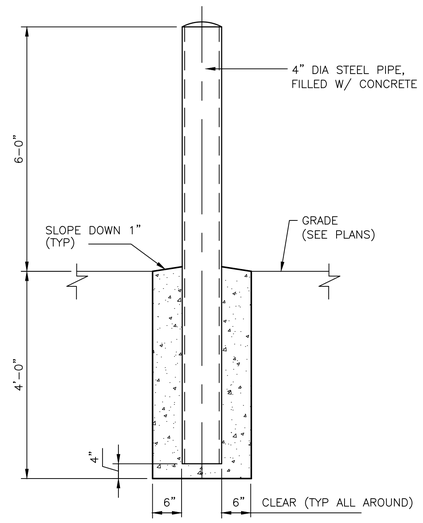
NOTES:
1. ALL FITTINGS SHALL BE HDPE SDR 9 UNLESS OTHERWISE NOTED.
2. VALVE BOX AND COVER SHALL BE 2'–0"ø, WITH LID AND LOCKING DEVICE.
3. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
4. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
5. BOLLARDS TO BE INSTALLED NO MORE THAN 3'–0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.
6. BOLLARDS FOR VALVE GROUP CAN BE MINIMIZED/ COMBINED AROUND THE GROUP – MINIMUM 4 BOLLARDS REQUIRED.

1 00C503 AIRLINE VALVE PIT (PART OF "VALVE GROUP)
NOT TO SCALE



NOTES:
1. ALL FITTINGS SHALL BE HDPE SDR 11 UNLESS OTHERWISE NOTED.
2. VALVE BOX AND COVER SHALL BE 2'–0"ø, WITH LID AND LOCKING DEVICE.
3. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
4. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
5. BOLLARDS TO BE INSTALLED NO MORE THAN 3'–0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.
6. BOLLARDS FOR VALVE GROUP CAN BE MINIMIZED/ COMBINED AROUND THE GROUP – MINIMUM 4 BOLLARDS REQUIRED.
7. LIQUID CONVEYANCE PIPING AND FITTINGS TO BE 4" X 8" OUTSIDE OF WASTE.

2 00C503 FORCE MAIN VALVE PIT (PART OF "VALVE GROUP")
NOT TO SCALE



3 00C503 TYPICAL BOLLARD
NOT TO SCALE

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A	11/09/2023	ISSUED FOR CLIENT REVIEW
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PROJECT MANAGER	M.MAYS
CIVIL	K. KINLEY
CIVIL	B. BUNKER
DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

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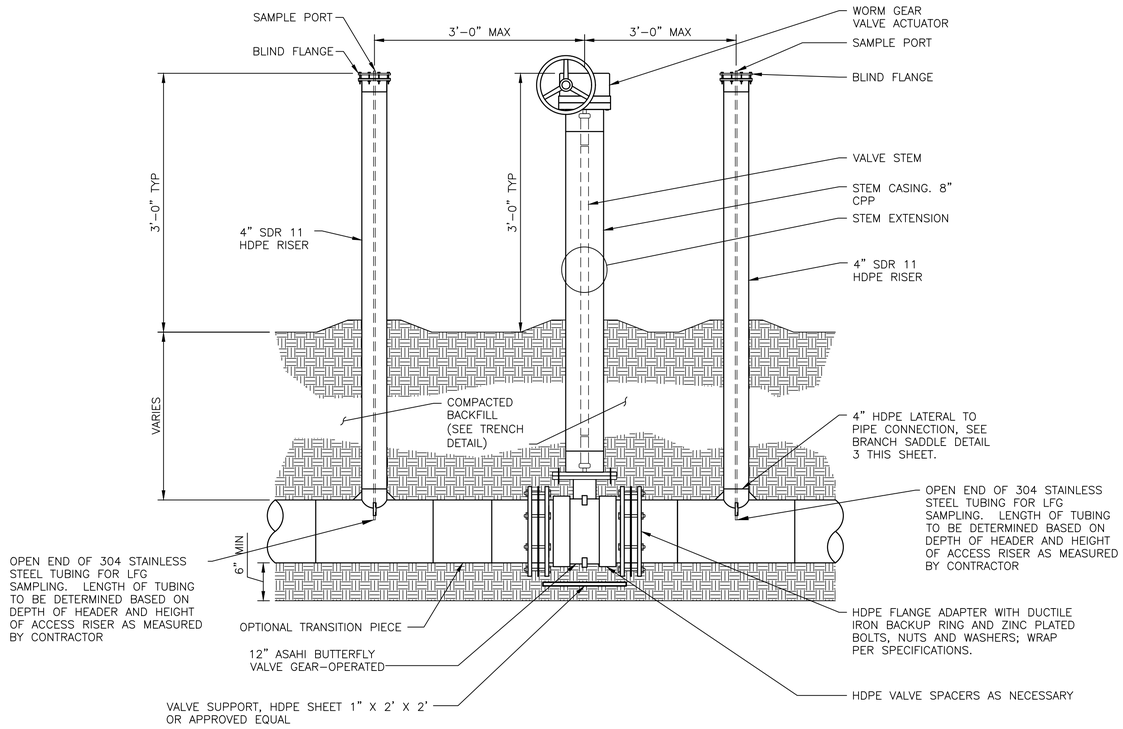
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

VALVE GROUP DETAILS

0 1" 2"

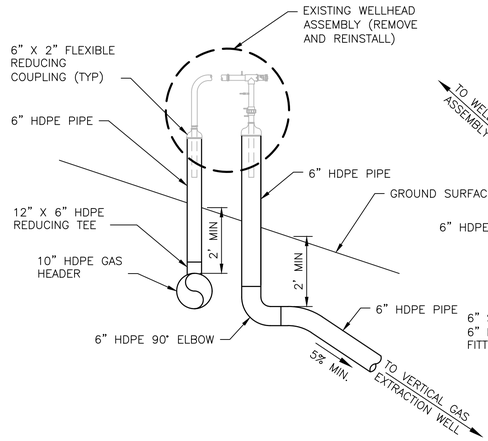
FILENAME 00C503.dwg
SCALE AS NOTED

SHEET 00C503

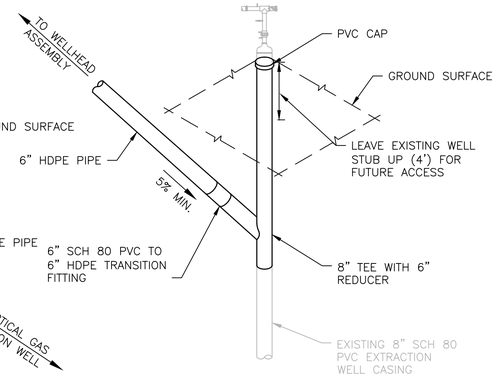


NOTES:
1. BOLLARDS REQUIRED TO PROTECT A VALVE GROUP – SEE DETAIL 3/00C503.
2. BOLLARDS FOR VALVE GROUP CAN BE MINIMIZED/ COMBINED AROUND THE GROUP. MINIMUM 4 BOLLARDS REQUIRED.

1 / 00C504 HEADER LINE ISOLATION VALVE PIT (PART OF "VALVE GROUP")
NOT TO SCALE

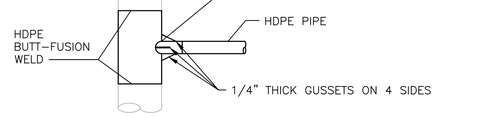


WELLHEAD ASSEMBLY



VERTICAL EXTRACTION WELL

2 / 00C504 CONVERT TO REMOTE WELLHEAD
NOT TO SCALE



NOTES:
1. HDPE BRANCH SADDLE FITTINGS SHALL BE USED TO TIE-IN 2" DIA. AND LARGER PIPES TO 10" DIA. AND LARGER HEADER.
2. BRANCH SADDLE SHALL BE SHOP-FABRICATED. INSTALL TO MAINTAIN EXISTING SLOPE.
3. HDPE SUPPORT GUSSETS (LOCATED AT 0, 90, 180, & 270 DEGREES) ARE REQUIRED FOR BRANCH SADDLE FITTINGS.

3 / 00C504 PIPE CONNECTION WITH BRANCH SADDLE
NOT TO SCALE

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A	11/09/2023	ISSUED FOR CLIENT REVIEW
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PROJECT MANAGER	M.MAYS
CIVIL	K. KINLEY
CIVIL	B. BUNKER
DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

Solid Waste Agency
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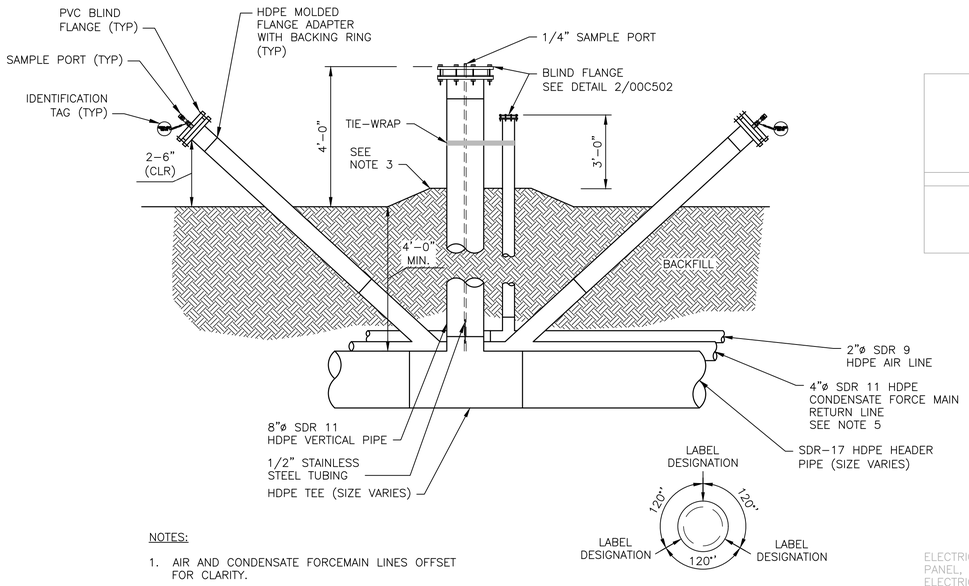
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

VALVE GROUP AND WELLHEAD DETAILS

0 1" 2"

FILENAME 00C504.dwg
SCALE AS NOTED

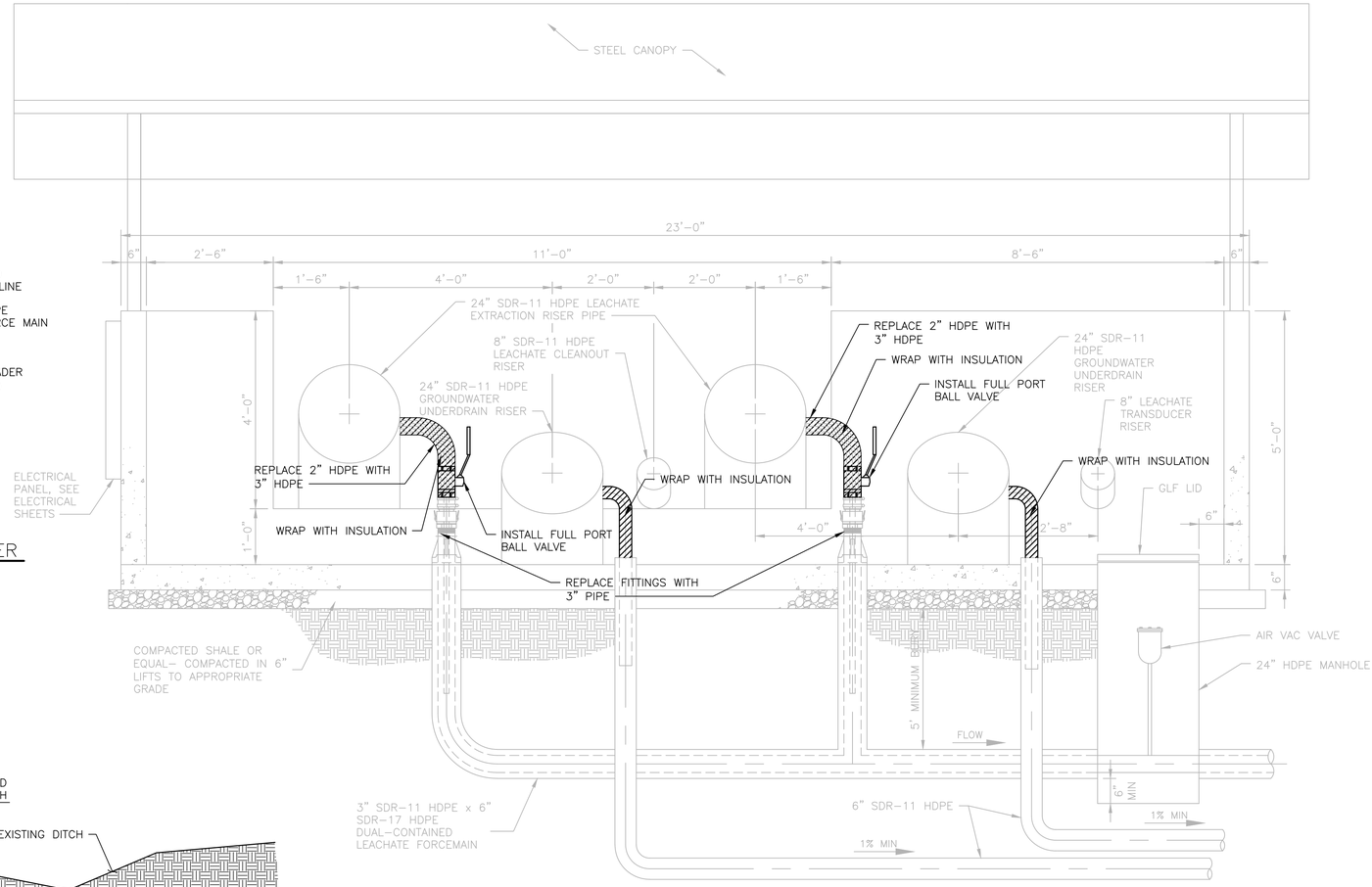
SHEET 00C504



NOTES:

1. AIR AND CONDENSATE FORCEMAIN LINES OFFSET FOR CLARITY.
2. LABEL ALL HEADER ACCESS POINTS AS 'AP#', AIRLINE ACCESS POINTS AS 'AIR AP#' AND CONDENSATE FORCEMAIN ACCESS POINTS AS 'FM AP#' WITH IDENTIFICATION NUMBER PER SPECIFICATIONS.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE.
4. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY 90 DEGREES.
5. LIQUID CONVEYANCE PIPE OUTSIDE OF WASTE TO BE 4" X 8" DUAL CONTAINED PIPE.

1 / 00C505 — FORCEMAIN CLEANOUT ACCESS RISER
NOT TO SCALE

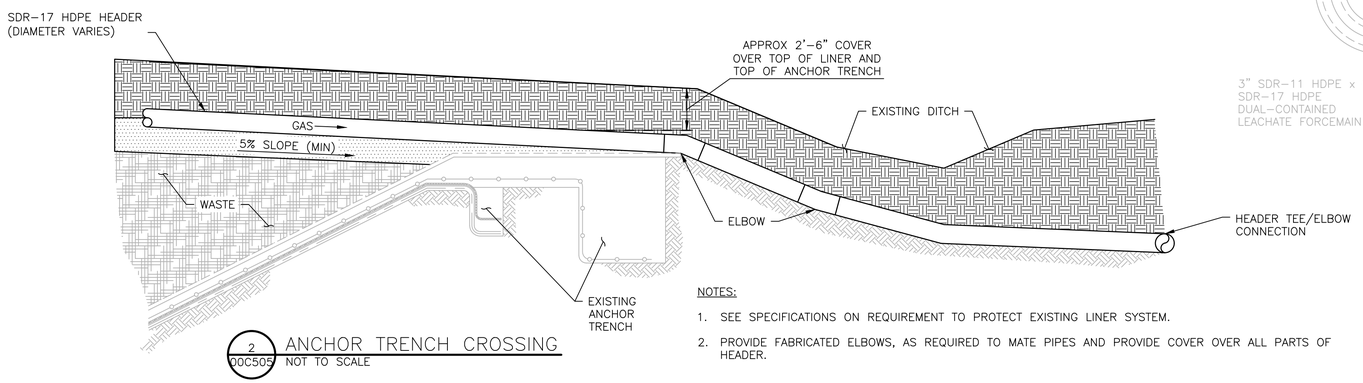


NOTES:

1. WRAP PIPES WITH OUTDOOR PIPE INSULATION TAPE K-FLEX ELASTOMETRIC INSULATION TAPE OR APPROVED SIMILAR, 2 LAYERS.
2. REPLACE 2" HDPE WITH 3" SDR-11 HDPE ALL THE WAY TO THE PUMP. INSTALL REDUCER TO 1.5" AT PUMP.

PROFILE

3 / 00C505 — LEACHATE EXTRACTION PAD AND HEADWALL
NOT TO SCALE



NOTES:

1. SEE SPECIFICATIONS ON REQUIREMENT TO PROTECT EXISTING LINER SYSTEM.
2. PROVIDE FABRICATED ELBOWS, AS REQUIRED TO MATE PIPES AND PROVIDE COVER OVER ALL PARTS OF HEADER.

2 / 00C505 — ANCHOR TRENCH CROSSING
NOT TO SCALE

ISSUE	DATE	DESCRIPTION
A	11/09/2023	ISSUED FOR CLIENT REVIEW
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PROJECT MANAGER	M.MAYS
CIVIL	K. KINLEY
CIVIL	B. BUNKER
DRAWN BY	B. BUNKER
PROJECT NUMBER	10383401

HDR

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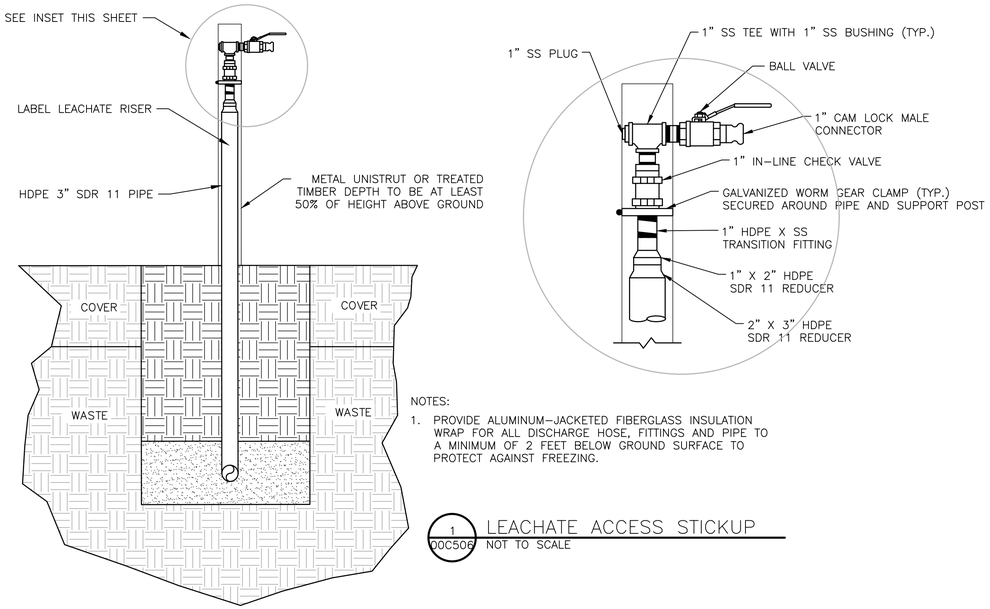
CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

LANDFILL GAS PIPELINE AND LEACHATE EXTRACTION PAD DETAILS

0 1" 2"

FILENAME 00C505.dwg
SCALE AS NOTED

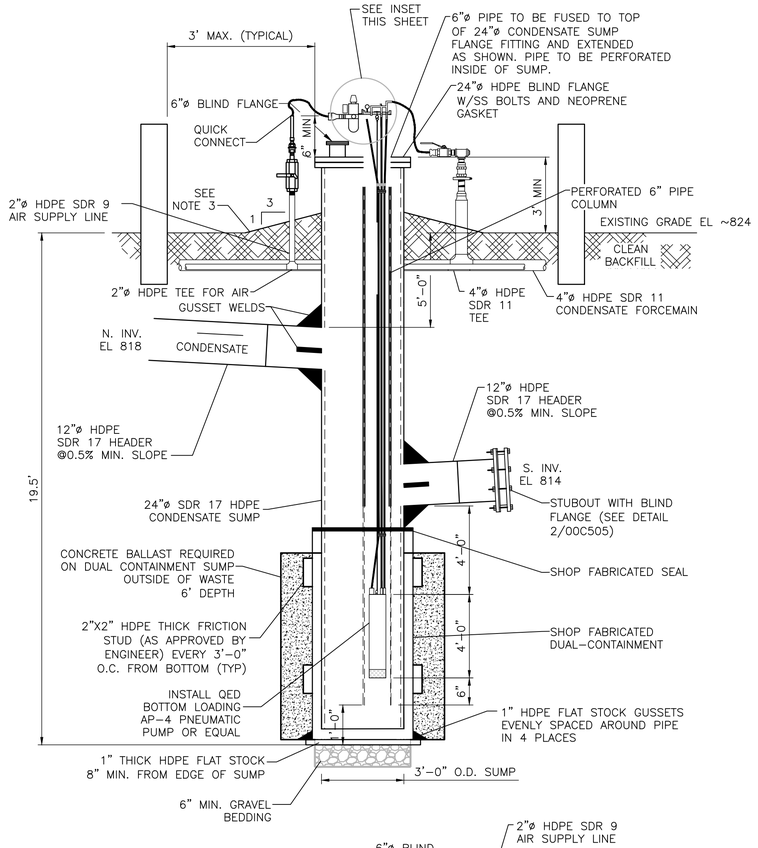
SHEET 00C505

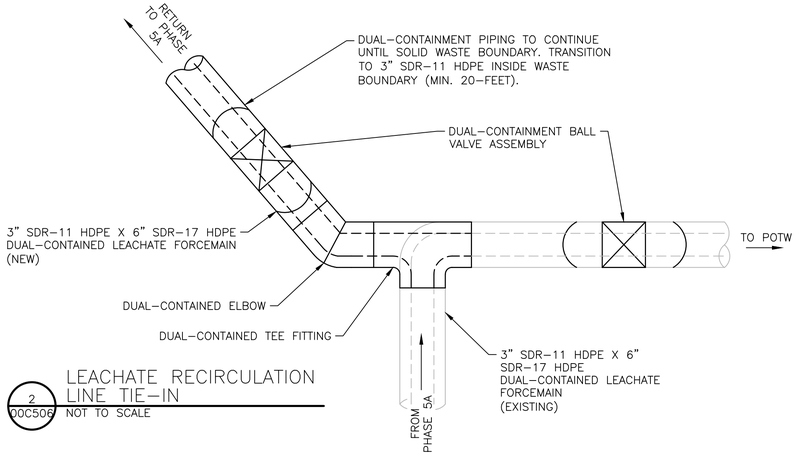


NOTES:

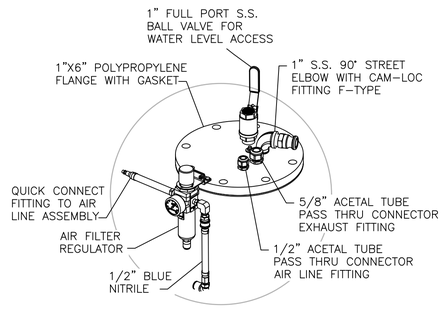
1. PROVIDE ALUMINUM-JACKETED FIBERGLASS INSULATION WRAP FOR ALL DISCHARGE HOSE, FITTINGS AND PIPE TO A MINIMUM OF 2 FEET BELOW GROUND SURFACE TO PROTECT AGAINST FREEZING.

1 / 00C506 LEACHATE ACCESS STICKUP
NOT TO SCALE

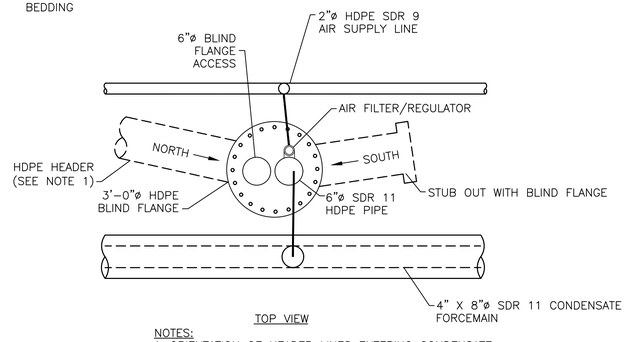




2 / 00C506 LEACHATE RECIRCULATION LINE TIE-IN
NOT TO SCALE



3 / 00C506 CONDENSATE PUMP STATION (CPS-03)
NOT TO SCALE



TOP VIEW

NOTES:

1. ORIENTATION OF HEADER LINES ENTERING CONDENSATE SUMP VARIES. SEE PLAN SHEET AND ADJUST FOR FIELD CONDITIONS.
2. LABEL CONDENSATE SUMP WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.

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PROJECT NUMBER	10383401

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CRLCSWA SITE 2 SANITARY LANDFILL
2024 LANDFILL GAS SYSTEM IMPROVEMENTS

LEACHATE RECIRCULATION AND CONDENSATE PUMP STATION DETAILS

0 1" 2"

FILENAME 00C506.dwg
SCALE AS NOTED

SHEET 00C506