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Payson Long
New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation
Bureau of Program Management
625 Broadway, 12th Floor
Albany, NY 12233-7012

Subject:
August 2018 Monthly Report
Fort Edward Landfill
NYSDEC Site No. 558001
Contract No. D007618-39

Date:
October 4, 2018

Contact:
Andy Vitolins

Phone:
518.250.7300

Email:
andy.vitolins@arcadis.com

Our ref:
00266434.0000

Dear Mr. Long:

Arcadis CE, Inc. (Arcadis) has prepared this letter report to summarize the leachate collection and treatment system operation, maintenance, and monitoring (OM&M) activities completed during the August 2018 reporting period at the above-referenced site.

Leachate Collection and Treatment System Operation and Maintenance

The leachate treatment system shut down on eight occasions in August 2018 due to Clarifier Catch Tank high alarms reported by the program logic controller (PLC). The Clarifier Catch Tank alarms were triggered because the PLC was improperly interpreting the signal from the level sensor in the Clarifier Catch Tank, resulting in multiple high tank alarms activated by the high-level float switch. The issue was resolved each time by resetting the PLC. Several Decant tank alarms were also triggered by a high level in the tank. The cause of the alarms was due to a tripped ground fault circuit interrupt (GFCI) for the Decant tank pump. The issue was resolved by resetting the GFCI outlet.

A total of 825,320 gallons of leachate were collected and treated through the system during August 2018. The corresponding average leachate recovery rate for the month was approximately 18.5 gallons per minute (gpm).

The following O&M activities were completed during the August 2018 operating period:

- Precision Industrial Maintenance (PIM) performed pipe inspection and jetting and vacuum truck services from August 27 to August 29, 2018. During jetting of the 6-inch eastern French drain for collection well EW-4, riprap that was previously identified in cleanout CO FD-2 was apparently dislodged and traveled along the eastern collection line. The jetting hose and high-pressure head became lodged between the inside of the French drain piping and riprap, and was unable to be removed. A camera inspection of the piping determined that there was a break and offset in the 6-inch pipe where the riprap was lodged. A photolog and schematic documenting the eastern collection line pipe and site map showing the location of CO FD-2 are attached. Multiple attempts were made to dislodge the hose and high-pressure jetting head, but they could not be removed from the French drain pipe. Ultimately, the hose was cut and the jetting hose, high pressure head and riprap remain in the pipe. Since the size of the pipe (6-inch) is relatively large, it can still easily convey the average flow from the pipe (approximately 10 gallons per minute (GPM)). Arcadis will assess options for removal of the jetting equipment and rip-rap and present them to the Department at a later date. PIM also removed approximately three-feet of iron sludge from leachate collection well EW-4, and two-feet of sludge from the Cell 2 and 3 level control chambers using a vacuum truck. Sludge and water removed from the eastern collection line, EW-4 and the level control chambers was discharged in the Cell 1 drying bed.
- Extraction well EW-5 cleanout flange CO-2 was repaired due to damage during the August 2018 mowing event.
- The pump in leachate collection well EW-4 was removed, cleaned, and replaced due to declining flow rates from iron fouling.
- Iron and solids sludge processing was performed throughout the month. In total, four 55-gallon drums of sludge were generated during August 2018.

System Sampling

The monthly samples were collected on August 27, 2018 from the following treatment system locations:

- Influent (i.e. combined flow from extraction wells EW-1, EW-2, EW-3, and EW-4);
- Clarifier Catch Tank discharge;
- Cell 3 Bypass (i.e. treatment Cell 3 discharge into the Cell 2/3 bypass pipe); and
- Polishing Pond Effluent.

No samples were collected from extraction wells EW-1, EW-2, EW-3, leachate collection well EW-4, or Cell 1 Chamber (treatment Cell 1 discharge into the effluent collection chamber). Samples from these locations are collected on a quarterly basis and will be sampled again in September 2018.

The monthly samples were submitted to Con-Test Analytical for analysis of volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), metals, total dissolved solids (TDS), and total suspended solids (TSS).

The analytical results are discussed in the sections below and have been summarized in Table 1. The laboratory analytical data will be submitted to NYSDEC's EIMS Administrator in the required EQuIS EDD format.

Analytical Results

VOCs

As shown in Table 1, VOCs were detected in the Influent, Clarifier Catch Tank, Cell 3 Bypass, and Polishing Pond Effluent samples but did not exceed the corresponding NYSDEC Class GA Standards, except for acetone in the sample from Cell 3 Bypass (410 micrograms per liter (µg/L)).

PCBs

PCB Aroclor 1016 and Aroclor 1254 were detected in the Influent and Clarifier Catch Tank samples at concentrations greater than the respective NYSDEC GA Standards. PCBs were not detected in the Cell 3 Bypass and Polishing Pond Effluent samples during the August 2018 sampling event (Table 1).

Metals

Iron and manganese were detected at one or more of the treatment system samples at concentrations greater than the corresponding NYSDEC Standards of 0.3 milligrams per liter (mg/L) and 0.6 mg/L, respectively. Iron concentration ranged from a maximum 120 mg/L (Influent) to 2.5 mg/L (Clarifier Catch Tank). Manganese concentrations ranged from a maximum of 1.4 mg/L (Clarifier Catch Tank and Polishing Pond Effluent) to 1.6 mg/L (Influent and Cell 3 Bypass).

TDS and TSS

The concentrations of TDS and TSS continue to fluctuate between sampling events. During the August sampling event, TDS concentrations ranged between 340 mg/L and 510 mg/L; TSS concentrations ranged from 8.3 mg/L and 190 mg/L. These data are consistent with the results from previous sampling events. Since September 2016, TDS and TSS have ranged from 210 to 4,900 mg/L and non-detect (ND) to 200 mg/L, respectively.

Next Reporting Period Planned Activities

The following activities are anticipated for September 2018:

- Upgrades to the treatment system equipment and PLC;
- Continuation of iron and solids treatment and processing; and
- Routine monthly system sampling.

If you have any questions, please do not hesitate to contact me or Jeremy Wyckoff.

Sincerely,

Arcadis CE, Inc.

Andy Vitolins, P.G.

Associate Vice President

Copies:
Jeremy Wyckoff, Arcadis
File

Enclosures:
Table 1 – August 2018 Treatment System Analytical Data
EW-4 Eastern French Drain Photolog and Schematic

Table 1. August 2018 Treatment System Analytical Data, Fort Edward Landfill
Fort Edward, New York. NYSDEC Site No. 558001

Chemical Name	NYSDEC Class GA GW Standard	NYSDEC Class GA GW Effluent Limitation	INFLUENT 8/27/2018	CLARIFIER CATCH 8/27/2018	CELL 3 8/27/2018	EFFLUENT 8/27/2018
Volatile Organic Compounds (ug/L)						
ACETONE	50	50	50 U	50 U	**410**	23 J
BENZENE	1	1	0.54 J	0.23 J	1.0 U	1.0 U
BROMOCHLOROMETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
BROMODICHLOROMETHANE	50	50	0.5 U	1.2	0.5 U	0.5 U
BROMOFORM	50	50	1.0 U	1.0 U	1.0 U	1.0 U
BROMOMETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U
2-BUTANONE (MEK)	50	50	5.6 J	20 U	6.7 J	3.6 J
CARBON DISULFIDE	60	60	4.0 U	4.0 U	4.0 U	4.0 U
CARBON TETRACHLORIDE	5	5	5.0 U	5.0 U	5.0 U	5.0 U
CHLOROBENZENE	5	5	0.26 J	1.0 U	1.0 U	1.0 U
CHLORODIBROMOMETHANE	50	--	0.5 U	0.67	0.5 U	0.5 U
CHLOROETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U
CYCLOHEXANE	--	--	5.0 U	5.0 U	5.0 U	5.0 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	0.04	5.0 U	5.0 U	5.0 U	5.0 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0006	0.0006	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	3	3	1.0 U	1.0 U	1.0 U	1.0 U
1,3-DICHLOROBENZENE	3	3	1.0 U	1.0 U	1.0 U	1.0 U
1,4-DICHLOROBENZENE	3	3	1.0 U	1.0 U	1.0 U	1.0 U
DICHLORODIFLUOROMETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U
1,1-DICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
CIS-1,2-DICHLOROETHYLENE	5	5	0.17 J	0.15 J	1.0 U	1.0 U
TRANS-1,2-DICHLOROETHYLENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DICHLOROETHANE	0.6	0.6	1.0 U	1.0 U	1.0 U	1.0 U
1,1-DICHLOROETHYLENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DICHLOROPROPANE	1	1	1.0 U	1.0 U	1.0 U	1.0 U
CIS-1,3-DICHLOROPROPENE	0.4	0.4	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.4	0.4	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DIOXANE	--	--	50 U	50 U	50 U	50 U
ETHYLBENZENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
2-HEXANONE	50	50	10 U	10 U	10 U	10 U
ISOPROPYLBENZENE (CUMENE)	5	5	2.0 U	0.45 J	2.0 U	2.0 U
METHYL ACETATE	--	--	1.0 U	1.0 U	1.0 U	1.0 U
METHYL TERT-BUTYL ETHER (MTBE)	10	10	1.0 U	1.0 U	1.0 U	1.0 U
METHYL CYCLOHEXANE	--	--	1.0 U	1.0 U	1.0 U	1.0 U
METHYLENE CHLORIDE	5	5	5.0 U	5.0 U	5.0 U	5.0 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	--	--	10 U	10 U	10 U	10 U
STYRENE	5	930	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1,2-TETRACHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
TETRACHLOROETHYLENE (PCE)	5	5	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-TRICHLOROBENZENE	5	5	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-TRICHLOROBENZENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-TRICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-TRICHLOROETHANE	1	1	1.0 U	1.0 U	1.0 U	1.0 U
TRICHLOROETHYLENE (TCE)	5	5	1.0 U	1.00 U	1.0 U	1.0 U
TRICHLOROFLUOROMETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U
VINYL CHLORIDE	2	2	2.0 U	2.0 U	2.0 U	2.0 U
M,P-XYLENES	5	5	2.0 U	2.0 U	2.0 U	2.0 U
O-XYLENE (1,2-DIMETHYLBENZENE)	5	5	1.0 U	1.0 U	1.0 U	1.0 U
XYLENES, TOTAL	5	5	3.0 U	3.0 U	3.0 U	3.0 U

Notes:

Constitutents detected above the NYSDEC Class GA GW Standard are in **bold**.

Constitutents detected above the NYSDEC Class GA GW Effluent Limitation are highlighted in yellow.

NYSDEC Class GA GW Standard - New York State Department of Environmental Conservation Groundwater Standard and Guidance Value.

NYSDEC Class GA GW Effluent Limitation - New York State Department of Environmental Conservation Effluent Limitation.

U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

J - The concentration is an approximate value.

ug/L - micrograms per liter

mg/L - milligrams per liter

Table 1. August 2018 Treatment System Analytical Data, Fort Edward Landfill Fort Edward, New York. NYSDEC Site No. 558001

Chemical Name	NYSDEC Class GA GW Standard	NYSDEC Class GA GW Effluent Limitation	INFLUENT 8/27/2018	CLARIFIER CATCH 8/27/2018	CELL 3 8/27/2018	EFFLUENT 8/27/2018
Polychlorinated Biphenyls (ug/L)						
PCB-1016 (AROCLOR 1016)	*	*	**1.9**	**0.68**	0.2 U	0.2 U
PCB-1221 (AROCLOR 1221)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1232 (AROCLOR 1232)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1242 (AROCLOR 1242)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1248 (AROCLOR 1248)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1254 (AROCLOR 1254)	*	*	0.2 U	**0.8**	0.2 U	0.2 U
PCB-1260 (AROCLOR 1260)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1262 (AROCLOR 1262)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1268 (AROCLOR 1268)	*	*	0.2 U	0.2 U	0.2 U	0.2 U
Metals (mg/L)						
ALUMINUM	--	2	0.098	1.8	0.4	0.42
ANTIMONY	0.003	0.006	0.005 U	0.005 U	0.005 U	0.005 U
ARSENIC	0.025	0.05	**0.038**	0.002 U	0.016	0.002 U
BARIUM	1	2	0.14	0.050 U	0.099	0.063
BERYLLIUM	0.003	0.003	0.002 U	0.002 U	0.002 U	0.002 U
CADMIUM	0.005	0.01	0.0025 U	0.0025 U	0.0025 U	0.0025 U
CALCIUM	--	--	84	79	130	78
CHROMIUM, TOTAL	0.05	0.1	0.005 U	0.005 U	0.005 U	0.005 U
COBALT	--	--	0.005 U	0.005 U	0.005 U	0.005 U
COPPER	0.2	1	0.025 U	0.048	0.025 U	0.025 U
IRON	0.3	0.6	**120**	**2.5**	**21**	**4.6**
LEAD	0.025	0.05	0.005 U	0.005 U	0.005 U	0.005 U
MAGNESIUM	35	35	21	19	23	21
MANGANESE	0.3	0.6	**1.6**	**1.4**	**1.6**	**1.4**
MERCURY	0.0007	0.0014	0.0001 U	0.0001 U	0.0001 U	0.0001 U
NICKEL	0.1	0.2	0.025 U	0.016	0.025 U	0.025 U
POTASSIUM	--	--	2.5	2.5	2.3	2.0 U
SELENIUM	0.01	0.02	0.025 U	0.025 U	0.025 U	0.025 U
SILVER	0.05	0.1	0.0025 U	0.0025 U	0.0025 U	0.0025 U
SODIUM	20	--	**54**	**61**	**55**	**33**
THALLIUM	0.0005	0.0005	0.001 U	0.001 U	0.001 U	0.001 U
VANADIUM	--	--	0.011	0.01 U	0.013	0.01 U
ZINC	2	5	0.020 U	0.21	0.05 U	0.05 U
Conventional Chemistry (mg/L)						
TOTAL DISSOLVED SOLIDS	--	--	410	380	510	340
TOTAL SUSPENDED SOLIDS	--	--	190	8.3	19	27

Notes:

Constitutents detected above the NYSDEC Class GA GW Standard are in **bold**.

Constitutents detected above the NYSDEC Class GA GW Effluent Limitation are highlighted in yellow.

* The NYSDEC Class GA GW Standard and Effluent Limitation for PCBs is 0.09 ug/L.

NYSDEC Class GA GW Standard - New York State Department of Environmental Conservation Groundwater Standard and Guidance Value.

NYSDEC Class GA GW Effluent Limitation - New York State Department of Environmental Conservation Effluent Limitation.

U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

J - The concentration is an approximate value.

mg/L - milligrams per liter

ug/L - micrograms per liter

Project Photographs

Fort Edward Landfill

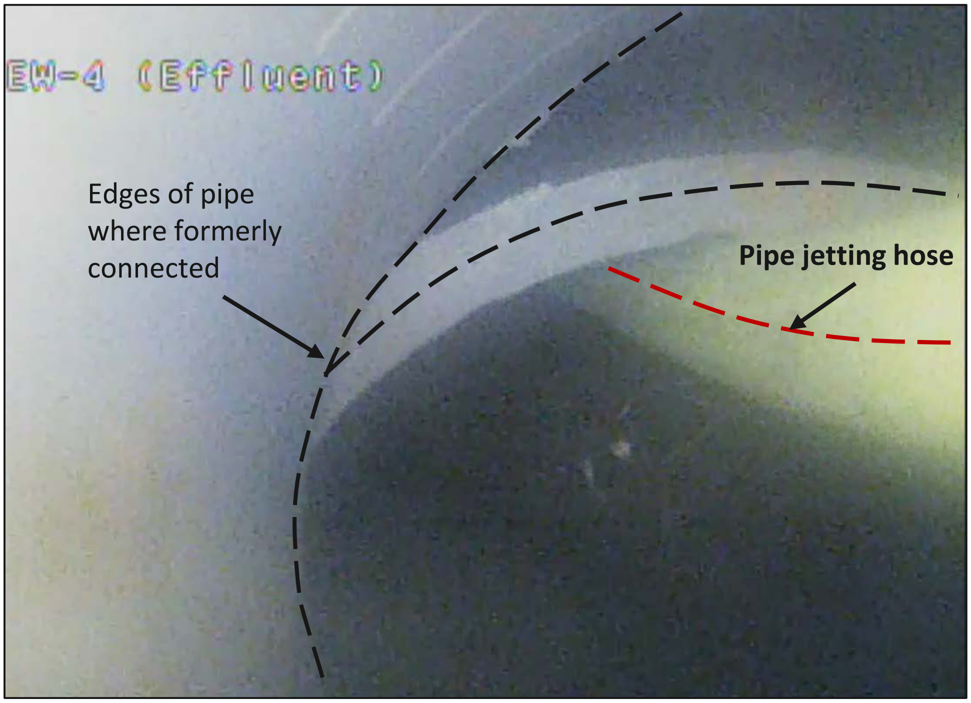


Photo: 1

Date:
8/28/2018

Description:
View of break in 6-inch Eastern French Drain pipe.

Location:
EW-4 Eastern French Drain pipe

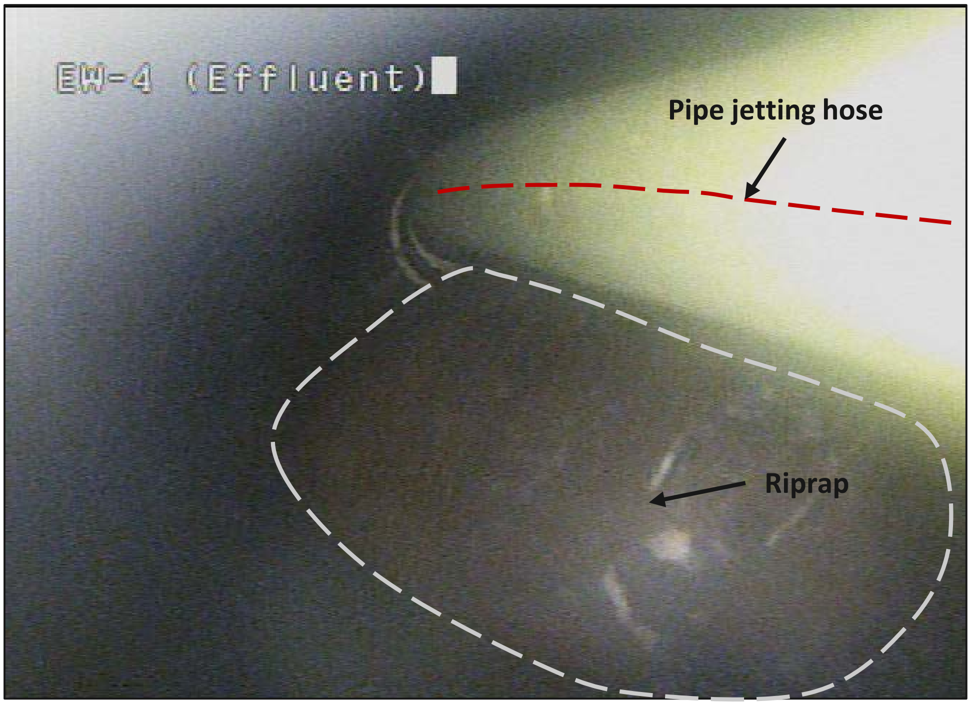
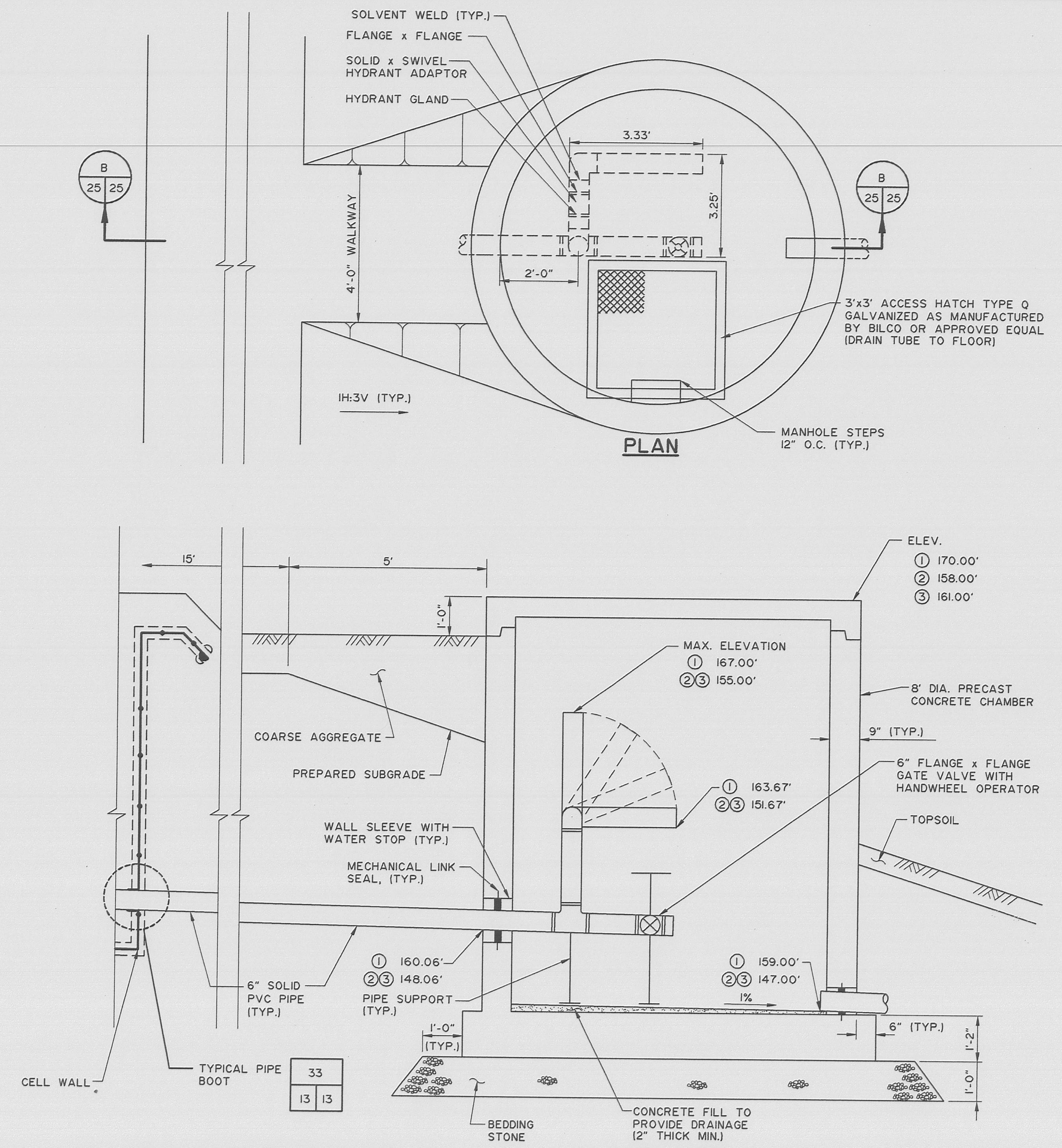


Photo: 2

Date:
8/28/2018

Description:
View of riprap and jetting hose lodged within 6-inch Eastern French Drain pipe.

Location:
EW-4 Eastern French Drain pipe

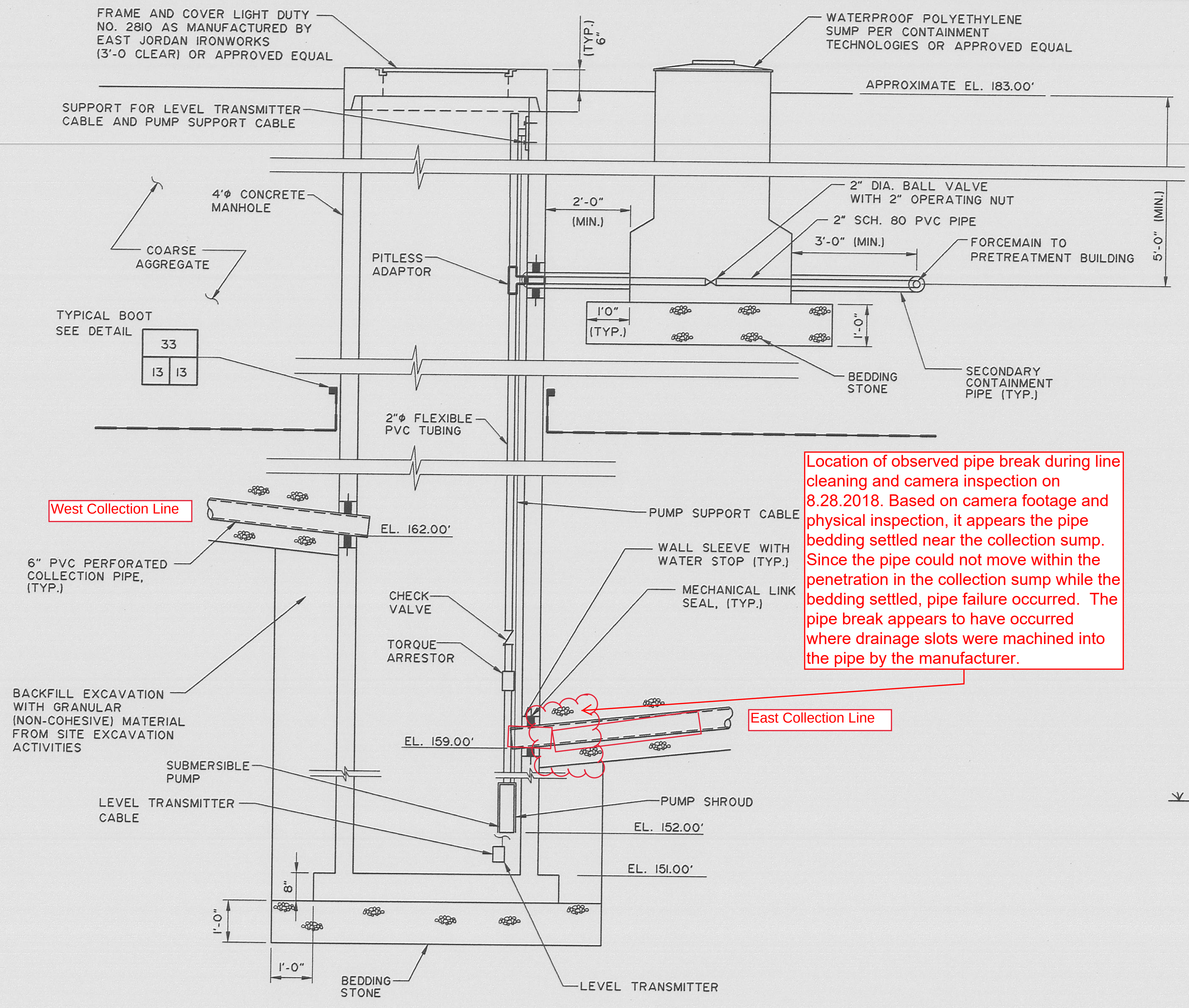


NOTE: CIRCLED NUMBERS DENOTE CELLS TO WHICH ELEVATIONS APPLY. WALKWAY AND SURROUNDING GRADES ARE SHOWN FOR CELLS 1 AND 2.

TYPICAL LEVEL CONTROL SUMP

SCALE: 1/2" = 1'-0"

12
26 25



Location of observed pipe break during line cleaning and camera inspection on 8.28.2018. Based on camera footage and physical inspection, it appears the pipe bedding settled near the collection sump. Since the pipe could not move within the penetration in the collection sump while the bedding settled, pipe failure occurred. The pipe break appears to have occurred where drainage slots were machined into the pipe by the manufacturer.

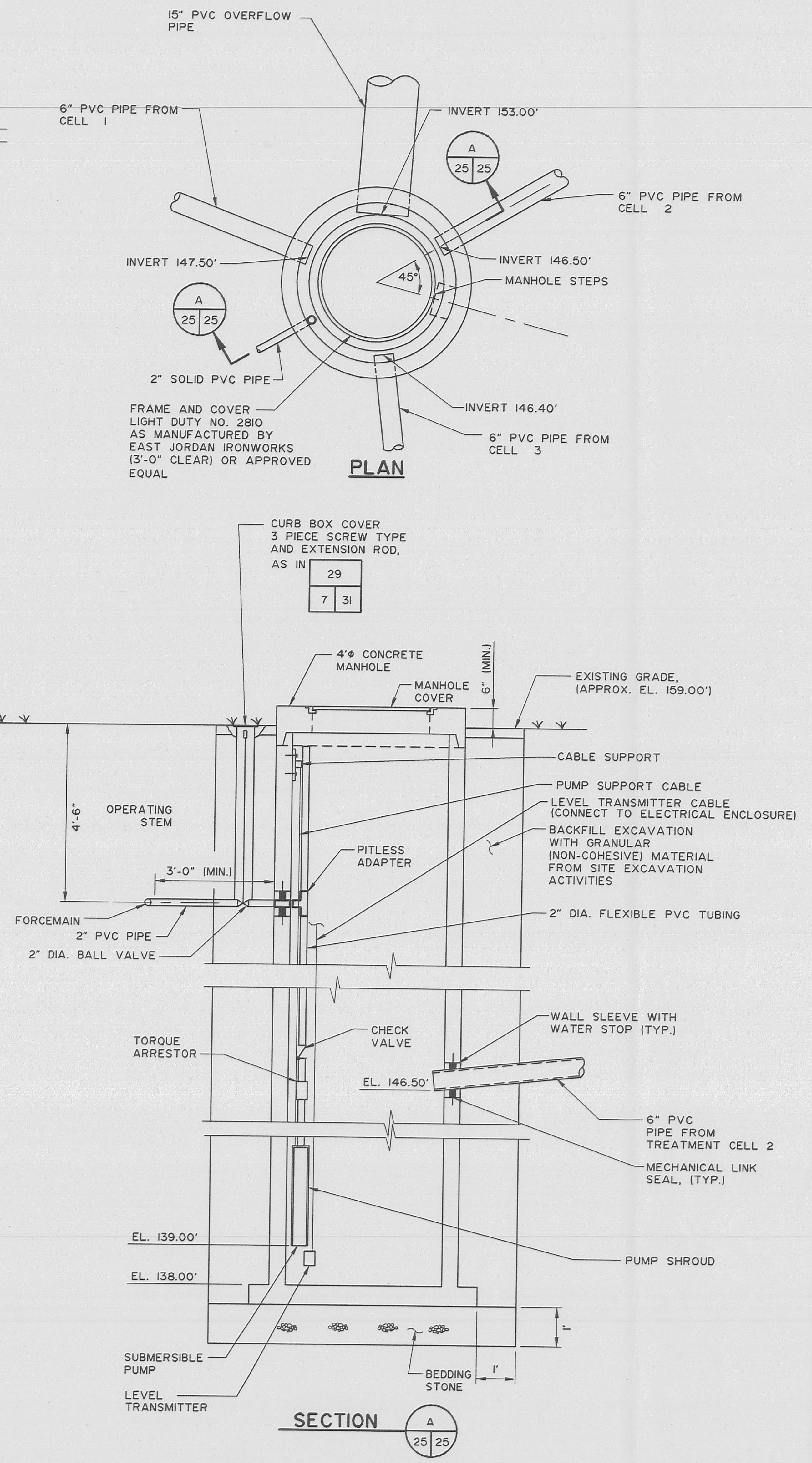
SUBSURFACE COLLECTION TRENCH SUMP

SCALE: 1/2" = 1'-0"

27
11 25

NOTES:

1. ELECTRICAL DETAILS SHOWN ON DRAWING NO. E-5.
2. PUMP TO OPERATE BETWEEN EL. 157.00 AND 159.00.
3. SUMP IS CLASSIFIED AS CLASS I, DIVISION I HAZARDOUS LOCATIONS.
4. GENERAL CONTRACTOR SHALL FURNISH LEVEL TRANSMITTER AND INSTRUMENTATION WIRING AND CONDUIT.
5. FURNISH AND INSTALL MANHOLE STEPS 12" O.C. (TYP.) TO BOTTOM OF SUMP.
6. FURNISH AND INSTALL PIPE FITTINGS AS REQUIRED.
7. PUMP SUPPORT CABLE SHALL BE NON-CORROSIVE.



NOTES:

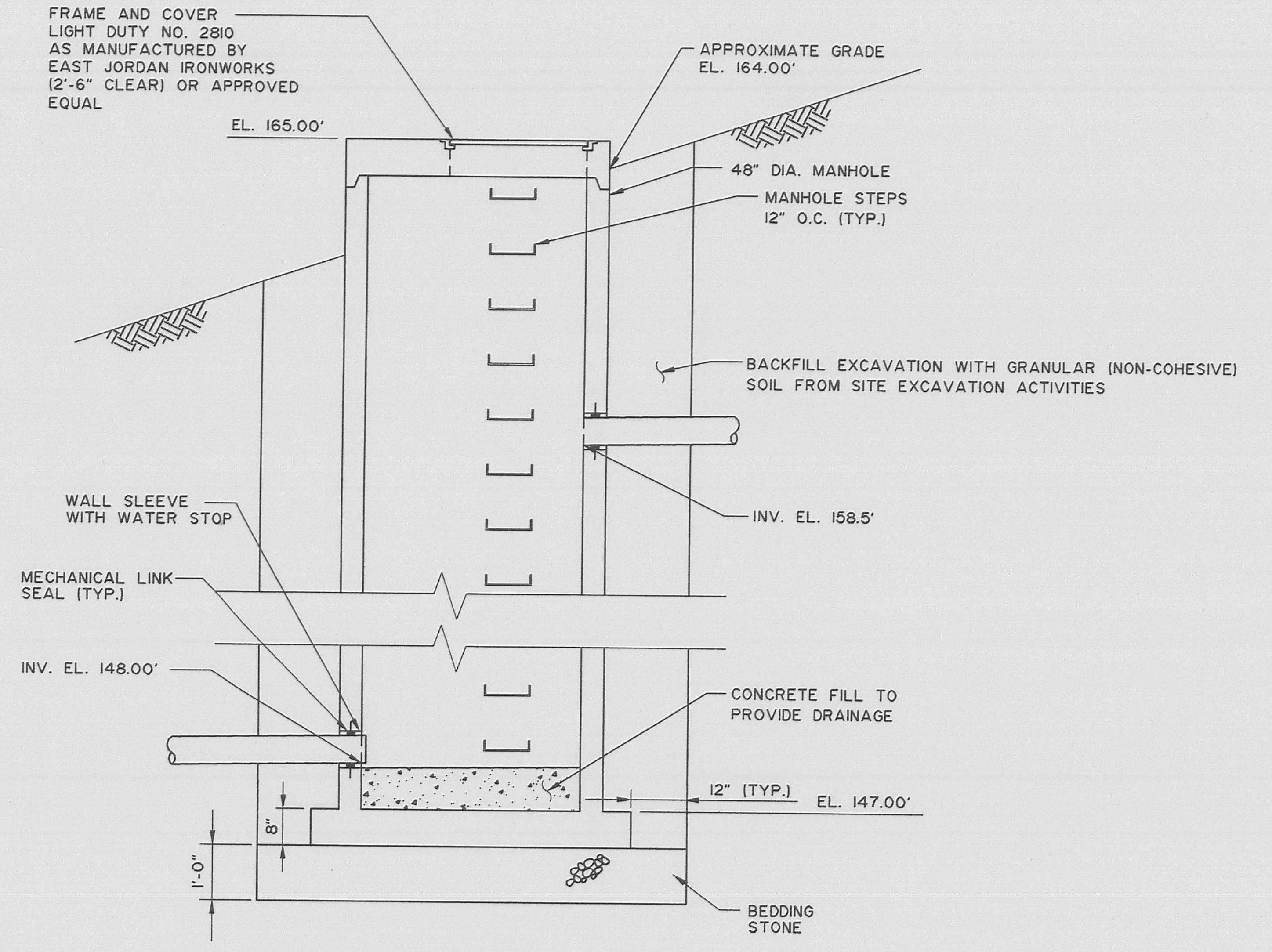
1. ELECTRICAL DETAILS SHOWN ON DRAWING NO. E-5.
2. PUMP TO OPERATE BETWEEN EL. 144.50 AND 146.50.
3. SUMP IS CLASSIFIED AS CLASS I, DIVISION I HAZARDOUS LOCATION.
4. GENERAL CONTRACTOR SHALL FURNISH LEVEL TRANSMITTER AND INSTRUMENTATION WIRING AND CONDUIT.
5. FURNISH AND INSTALL MANHOLE STEPS 12" O.C. (TYP.) TO BOTTOM OF SUMP.
6. FURNISH AND INSTALL PIPE FITTINGS AS REQUIRED.
7. PUMP SUPPORT CABLE SHALL BE NON-CORROSIVE.

EFFLUENT COLLECTION SUMP

SCALE: 1/2" = 1'-0"

13
26 25

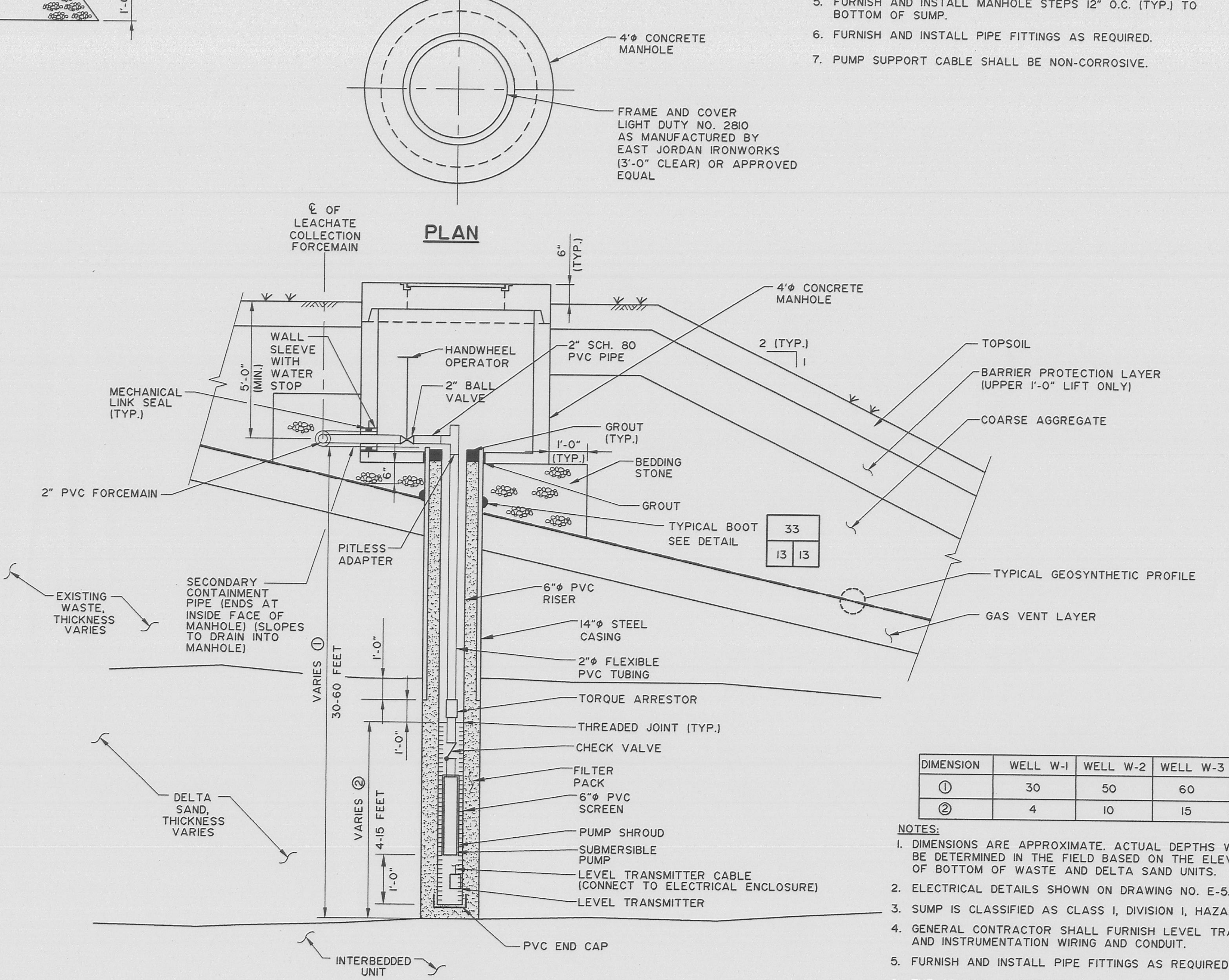
RECORD DRAWING



DROP MANHOLE

SCALE: 1/2" = 1'-0"

44
26 25



TYPICAL EXTRACTION WELL

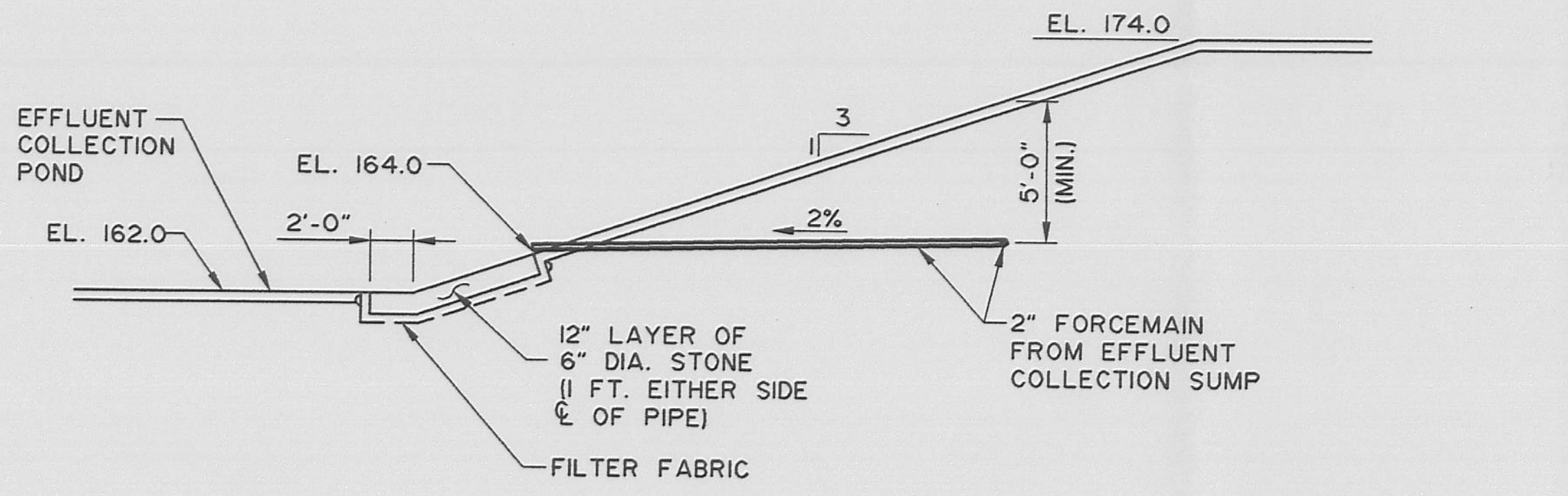
NOT TO SCALE

9
8 25

DIMENSION	WELL W-1	WELL W-2	WELL W-3
①	30	50	60
②	4	10	15

NOTES:

1. DIMENSIONS ARE APPROXIMATE. ACTUAL DEPTHS WILL BE DETERMINED IN THE FIELD BASED ON THE ELEVATION OF BOTTOM OF WASTE AND DELTA SAND UNITS.
2. ELECTRICAL DETAILS SHOWN ON DRAWING NO. E-5.
3. SUMP IS CLASSIFIED AS CLASS I, DIVISION I, HAZARDOUS LOCATION.
4. GENERAL CONTRACTOR SHALL FURNISH LEVEL TRANSMITTER AND INSTRUMENTATION WIRING AND CONDUIT.
5. FURNISH AND INSTALL PIPE FITTINGS AS REQUIRED.
6. THE GENERAL CONTRACTOR SHALL PROVIDE AND INSTALL A NON-COROSIVE PUMP SUPPORT CABLE FROM THE SUBMERSIBLE PUMP TO THE TOP OF THE STEEL CASING.



DISCHARGE TO EFFLUENT COLLECTION POND

SCALE: 1/8" = 1'-0"

54
26 25

NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION
0	3/31/97	ISSUED FOR BID (INCLUDING ADDENDA)			

REVISIONS

DESIGNED BY: C.P./M.O.
DRAWN BY: E.L.B.
CHECKED BY: R.W.
PROJ. MGR. C.E.D.

URS URS Consultants, Inc.
CONSULTING ENGINEERS
BUFFALO NEW YORK
JOB No. 35394

REMEDIAL ACTION
FORT EDWARD LANDFILL
NYSDEC SITE 5-58-001
TOWN OF FORT EDWARD
WASHINGTON COUNTY NEW YORK

PREPARED FOR:
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
DIVISION OF
ENVIRONMENTAL REMEDIATION

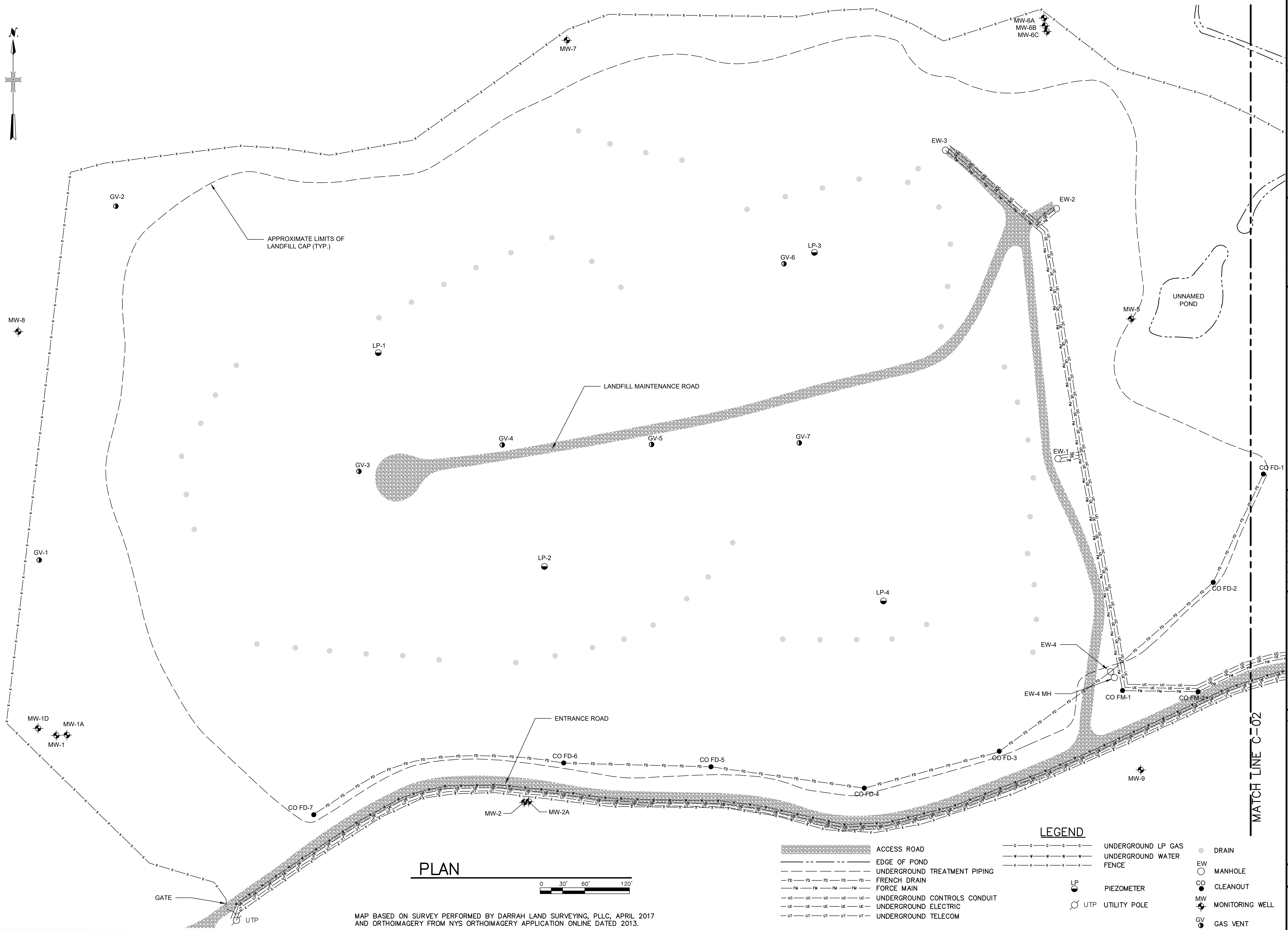
LEACHATE/GROUNDWATER COLLECTION
AND TREATMENT DETAILS
SHEET 2 OF 2

Scale: AS SHOWN
Date: MARCH 97
DWG. NO. 25

\35394\CAD\RECORD\ EC-3156R.DWG 1=24 8/26/99-2 SLS

Only copies from the original of this drawing that are marked with the original seal and signature of the

This drawing was computer generated. Any changes and/or revisions should be made on the CADD drawing file



MAP BASED ON SURVEY PERFORMED BY DARRAH LAND SURVEYING, PLLC, APRIL 2017
AND ORTHOIMAGERY FROM NYS ORTHOIMAGERY APPLICATION ONLINE DATED 2013.

LEGEND

▨	ACCESS ROAD
——— - - ———	EDGE OF POND
— — — —	UNDERGROUND TREATMENT PIPING
— FD — FD —	FRENCH DRAIN
— FM — FM —	FORCE MAIN
— UC — UC —	UNDERGROUND CONTROLS CONDUIT
— UE — UE —	UNDERGROUND ELECTRIC
— UT — UT —	UNDERGROUND TELECOM
— G — G —	UNDERGROUND LP GAS
— W — W —	UNDERGROUND WATER
— X — X —	FENCE
LP ◒	PIEZOMETER
UTP	UTILITY POLE
●	DRAIN
EW ○	MANHOLE
CO ●	CLEANOUT
MW ⊕	MONITORING WELL
GV ◑	GAS VENT

User: HAUSMANN Spec: AUS-NCSMOD File: G:\ACAD\PROJ\00266434.0000\RSO\C-01.DWG Scale: 1:1 SavedDate: 1/29/2018 Time: 08:19 Plot Date: Hausmann, Steve; 1/31/2018; 15:01 ; Layout: C-01

ARCADIS

LEGAL ENTITY:
ARCADIS CE, INC.

CONSULTANTS

DRAFT

SEALS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

FORT EDWARD LANDFILL
LEAVY HOLLOW ROAD
FORT EDWARD, NEW YORK

NYSDEC SITE 558001

REMEDIAL SYSTEM
OPTIMIZATION

NO.	DATE	ISSUED FOR	BY

DATE: JANUARY 2018
PROJECT NO.: 00266434.0000
FILE NAME: C-01
DESIGNED BY: J. MULLINS
DRAWN BY: S. HAUSMANN
CHECKED BY: .

SHEET TITLE

SITE PLAN I

SCALE: 1" = 60'

C-01
SHEET 3 OF 9