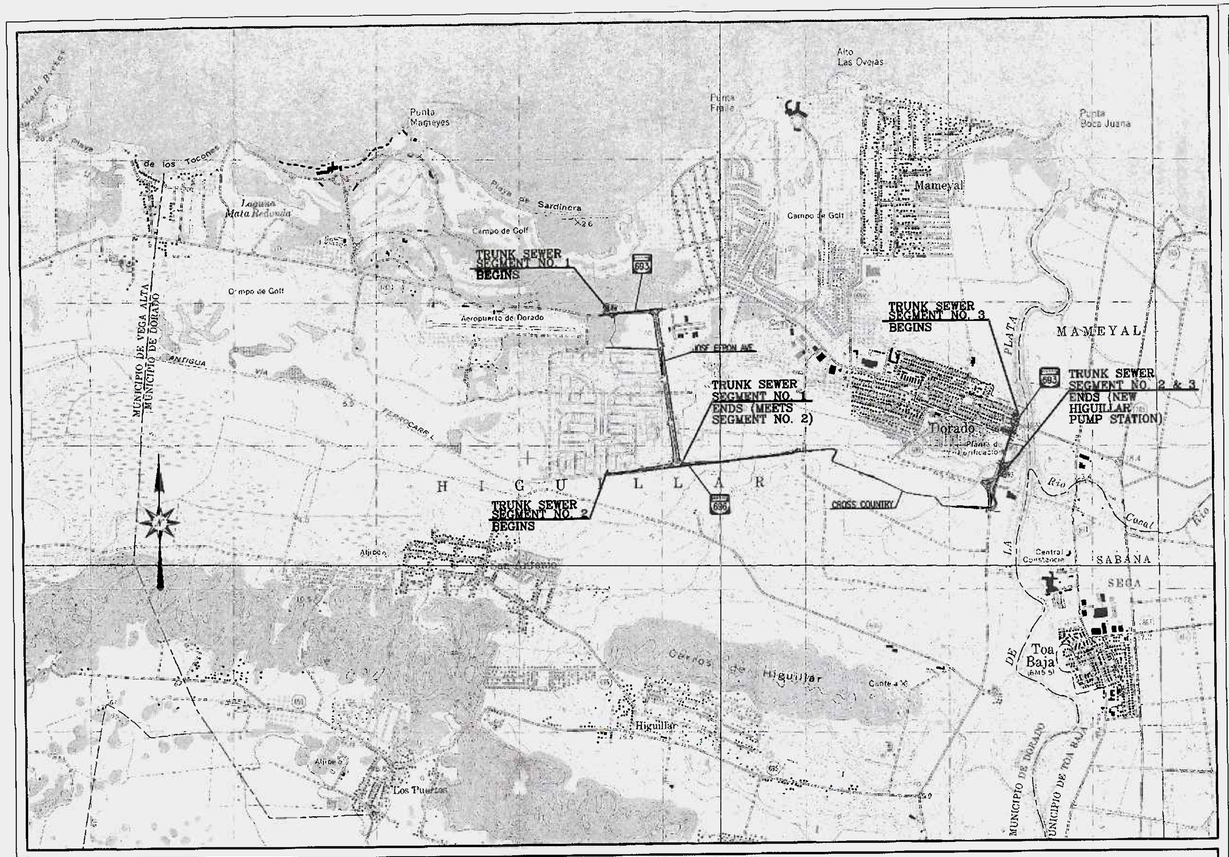

LOCATION PLAN
SCALE: 1:20,000

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SUBMITTED:

GABRIEL G. MORALES RODRIGUEZ, P.E., MECE
AUXILIARY DIRECTOR FOR ENGINEERING

5-MAR-2020
DATE

APPROVED:

JOSE J. RIVERA, P.E.
EXECUTIVE DIRECTOR FOR INFRASTRUCTURE

5-MAR-2020
DATE

NEW DORADO TRUNK SEWER

MUNICIPALITY OF DORADO, PUERTO RICO

CIP NUM.:2-26-5002
C-72-051-01
FEBRUARY 2020

ENGINEER'S CERTIFICATION:

I HEREBY CERTIFY THAT THESE PLANS MEET ALL THE CURRENT APPLICABLE REGULATIONS OF THE PUERTO RICO ENVIRONMENTAL QUALITY BOARD (EQB), THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA); WITH THE DESIGN GUIDELINES OF THE PUERTO RICO AQUEDUCT AND SEWER AUTHORITY (PRASA), THE PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA) AND ANY OTHER PUERTO RICAN AGENCIES CONCERNED WITH THE PROJECT; AND TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS ARE CORRECT.

ANTONIO A. FUENTES
PROFESSIONAL ENGINEER
LIC. No. 19446

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THE SURVEY SHOWN ON THESE DRAWINGS WAS PERFORMED BY ME, AND TO THE BEST OF MY KNOWLEDGE IT IS CORRECT.

CARLOS R. FOURNIER MORALES
CERTIFIED SURVEYOR
LIC. No. 21195

I N D E X O F D R A W I N G S

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10	PROPOSED 15"ø GRAVITY LINE PLAN & PROFILE	PP-04
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84	EASEMENT 2 TO BE CONSTITUTED FROM: SUIZA REALTY S. E. CRIM NO.: 037-000-009-23	SSE-02
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86	EASEMENT 3 TO BE CONSTITUTED FROM: SUIZA REALTY S. E. CRIM NO.: 037-000-009-01	SSE-04
87	EASEMENT 3 TO BE CONSTITUTED FROM: SUIZA REALTY S. E. CRIM NO.: 037-000-009-01	SSE-05
88	EASEMENT 3 TO BE CONSTITUTED FROM: SUIZA REALTY S. E. CRIM NO.: 037-000-009-01	SSE-06
89	EASEMENT 4 TO BE CONSTITUTED FROM: SUCN. JOSE HERNANDEZ RAMIREZ CRIM NO.: 037-000-009-03	SSE-07
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COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
INFRASTRUCTURE PROJECT & DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

TOTAL NUMBER OF SHEETS: 105

NO.	REMARKS	DATE	BY	APPV'D.

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C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: INDEX OF DRAWINGS			PLOT SCALE: H=1:500 V=N/A
			DRWG NO. G-02
DRAFTED BY: .	DRAFTER LICENSE NO.: .	DATE 02/20/2020	SHEET NO. 02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY: .		DATE .	
SUBMITTED BY: .		DATE .	REVISION NO. 0

O:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\02-G-02-INDEX-OF-DRAWINGS.dwg 7/16/2014 6:17:25 PM SWST

GENERAL NOTES, LEGEND & ABBREVIATIONS

GENERAL NOTES:

1– RESULTS AND RECOMMENDATIONS BY JACA & SIERRA SOIL CONSULTING ENGINEERS REPORTS DATED: MAY 26, 2014. SHALL BE STRICTLY FOLLOWED BY THE CONTRACTOR TO PREVENT ANY DAMAGE TO NEARBY STRUCTURES.

2– EXISTING POWER LINES ARE A SAFETY HAZARD FOR THE WORKERS. CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO AVOID INCIDENTS.

3– ALL DISTANCES IN METERS AND REFERRED TO P.R. LAMBERT COORDINATE SYSTEM NAD–83

4– ALL ELEVATIONS IN METERS AND REFERRED TO PRVD02.

5– ALL DIMENSIONS ARE IN THE METRIC SYSTEM, UNLESS OTHERWISE NOTED.

6– CONTRACTOR SHALL COMPLY WITH THE OSHA STANDARD REQUIREMENTS.

7– MAXIMUM FLOOD ELEVATIONS FOR A 100 YEARS STORM EVENT ARE VARIABLE. SEE FEMA FLOOD INSURANCE RATE MAPS PANELS NUMBERS 72000C0310J.

8– FOR STORM SEWER SYSTEM PIPES AND WATER DISTRIBUTION LINES NOT SHOWN ON DRAWING PLANS, THAT INTERFERE WITH PROPOSED LINES, THE CONTRACTOR SHALL SUBMIT THE LOCATIONS AND DIAMETER TO THE PROJECT SUPERVISOR TO MAKE THE NECESSARY ADJUSTMENTS IN THE SERVICES DURING CONSTRUCTION.

9– THE CONTRACTOR'S SAFETY PLAN SHALL INCLUDE THE WORKS THAT HAVE TO BE DONE ON CREEKS, RIVERS AND NEAR TO STRUCTURES TO REMAIN UNDISTURBED. ALL IN COMPLIANCE WITH THE OSHA 29 CFR 1926–6521 AND SUBPART "P" EXCAVATION.

10– THE USE OF STEEL BOX SHALL BE REQUIRED AT ALL AREAS WHERE OPEN EXCAVATIONS ARE TO BE PERFORMED IN ORDER TO PROTECT THE WORKING PERSONNEL.

11– ALIGNMENT MARKERS (SEE DRAWING MD–05) SHALL BE PLACED ALONG RURAL CROSS COUNTRIES AS FOLLOWS: ONE MARKER EVERY 200 mtrs. OF PIPE ALIGNMENT (SEE SHEETS PP–01 TO PP–02 AND PP–08 TO PP–12).

12– THE CONTRACTOR IS RESPONSIBLE OF PROVIDING ALL OSHA IDENTIFICATION SIGNS APPLICABLE TO THIS PROJECT, INCLUDING BUT NOT LIMITED TO EMERGENCY GENERATOR'S DIESEL TANK VOLUME, ELECTRICAL EQUIPMENT IDENTIFICATION, TRANSCLOSURE CAPACITY AND ELECTRICAL HAZARD.

13– CONCRETE THRUST BLOCKS SHALL BE PROVIDED IN ALL UNDERGROUND HORIZONTAL AND VERTICAL PIPE BENDS, CURVES, REDUCERS, TEES AND PLUGS.

14– SPECIAL ATTENTION SHALL BE PAID TO EXCAVATIONS UP TO INVERT ELEVATION WILL BE BELOW GROUNDWATER LEVEL, DEWATERING CAN BE ACCOMPLISHED BY MEANS OF WELL POINT SYSTEM WITH SUBMERSIBLE PUMPS STRATEGICALLY LOCATED AT PLACES WHERE EVIDENT GROUNDWATER FLOW IS DETECTED DURING EXCAVATION PROCESS.

GENERAL ROADS AND STREETS NOTES:

1– CONTRACTOR SHALL PAVE THE COMPLETE WIDTH OF ROAD SECTION OF STATE ROADS, MAINTAINING ITS ORIGINAL FINISHED ELEVATIONS AND REPAINT IT AS PER PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY SPECIFICATIONS. ALL SIDEWALKS, CURBS, GUARD RAILS, DRAINAGE, ETC. AFFECTED BY THE CONSTRUCTION SHALL BE REPAIR TO IT'S ORIGINAL CONDITION AS PER PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY SPECIFICATIONS.

2– ALL WORKS SHALL BE COORDINATED WITH THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK REGIONAL OFFICE.

3– COVERS FOR MANHOLES, VALVES OR ANY OTHER SUCH EQUIPMENT SHALL BE INSTALLED IN SUCH WAY THAT IT DOES NOT INTERFERE WITH FUTURE STATE ROADS SECTIONS.

4– CONTRACTOR SHALL PAVE THE STATE ROADS WHEN IMPACTED BY PIPE INSTALLATION WITH A MINIMUM THICKNESS OF 2" OR AS REQUIRED BY P.R.H.T.A.

5– MATERIAL FOR SUBBASE SHALL BE WELL GRADED GRANULAR SOIL OR SOIL–AGGREGATE MIXTURE CLASSIFIABLE AS AN A–1 OR A–2–4 MATERIAL.

6– THE HORIZONTAL AND VERTICAL LOCATION OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON DRAWINGS ARE APPROXIMATED. PRIOR TO ELIMINATE, RELOCATE OR CONNECT TO ANY OF SUCH UTILITIES AS INDICATED ON THESE DRAWINGS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT THESE UTILITIES FROM DAMAGE. WHEREVER ANY UNDERGROUND UTILITY THAT, IS TO REMAIN IN SERVICE IS DISTURBED, CONTRACTOR SHALL REPAIR IT IMMEDIATELY AT NO EXTRA COST TO THE PRASA.

7– THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO IMPLEMENT THE SAFETY PRECAUTIONS AT THE PROJECT SITE.

8– CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY, INTEGRITY AND STABILITY OF PEOPLE, BUILDINGS EMBANKMENTS, ROADWAYS, UTILITIES AND ANY OTHER STRUCTURE IN THE VICINITY OF EXCAVATION'S OR ANY OTHER CONSTRUCTION ACTIVITY. WHERE NECESSARY OR REQUESTED BY THE ENGINEER, INSTALL SHEET PILING, SHORING, FENCING OR ANY OTHER DEVICE TO ENSURE THE PROTECTION OF SUCH PEOPLE OR STRUCTURE.

9– IN AREAS WITH EXCAVATIONS WITH MORE THAN 20FT IN DEPTH, THE EXCAVATION SHALL BE PROTECTED BY A SYSTEM DESIGNED BY A PROFESSIONAL ENGINEER. THIS SYSTEM SHALL BE SUBMITTED FOR EVALUATION PRIOR TO STARTING ANY WORK IN THE PROJECT, ALL IN COMPLIANCE WITH THE OSHA 29 CFR 1926–6521 AND SUBPART "P" EXCAVATION.

10– ALL THE FILL MATERIAL SHALL BE COMPACTED IN SUCH A WAY THAT DOES NOT AFFECT THE EXISTING TOPOGRAPHY OF THE AREA AND ALL THE IMPACTED GREEN AREAS SHALL BE TOTALLY RESTORED.

11– ALL THE INFRASTRUCTURE WORKS TO BE DONE AT ANY STATE ROAD AREA SHALL BE IN AGREEMENT WITH THE TYPICAL SECTIONS GUIDE FOR STATE ROADS AND ALSO IN AGREEMENT WITH THE HIGHWAY AUTHORITY DESIGN MANUAL.

12– ALL THE EXCAVATIONS SHALL BE DONE IN SUCH A WAY THAT AVOID SETTLEMENT. ALL THE STATE ROAD AFFECTED SHALL BE PAVED AND MARKED.

13– IN NON–WORKING HOURS, IT WILL NOT BE ALLOWED THE PARKING OF ANY VEHICLE, CONSTRUCTION EQUIPMENT OR THE STORAGE OF CONSTRUCTION MATERIAL IN THE RIGHT OF WAY OF ANY STATE ROAD.

14– LEAD BASED IN YELLOW TRANSIT LINES TO BE IMPACTED SHALL REQUIRE SPECIAL TREATMENT.

15– THE CLOSURE PARTIALLY AND/OR TOTALLY OF ANY MUNICIPAL ROAD, IF REQUIRED, SHALL BE COORDINATED WITH THE MUNICIPAL POLICE OR MUNICIPAL OFFICE OF EMERGENCIES.

ABBREVIATIONS:

D.T.P.W.	DEPARTMENT OF TRAFFIC AND PUBLIC WORKS
E #####	EAST COORDINATES
Fc	CONCRETE STRENGTH
F.E.	FLOOR ELEVATION
G–	GENERAL DRAWINGS
GE–	GEOTECHNICAL EXPLORATION DRAWINGS
HW or HW.	HEADWALL
I.E.	INVERT ELEVATION (MANHOLES, CATCH BASING, ETC.)
L=	LENGTH =
MD–	MISCELLANEOUS DETAILS
MH or MH.	MANHOLE
SMH or SMH.	SANITARY MANHOLE
MOT	MAINTENANCE OF TRAFFIC DRAWINGS
MCC	MOTOR CONTROL CENTER
N #####	NORTH COORDINATES (NAD83)
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
PC	POINT OF CURVATURE (TANGENT TO CURVE)
PI	POINT OF INTERSECTION OF TANGENTS
PL	PLAN DRAWINGS
PR	PROFILE DRAWINGS
P.R.A.S.A.	PUERTO RICO AQUEDUCTS & SEWER AUTHORITY
P.R.E.P.A.	PUERTO RICO ELECTRIC POWER AUTHORITY
P.R.H.T.A.	PUERTO RICO HIGHWAY & TRANSPORTATION AUTHORITY
PRTC	PUERTO RICO TELEPHONE COMPANY
PSI	POUNDS PER SQUARE INCH
PS	PUMPING STATION
PT	POINT OF TANGENCY (TANGENT TO CURVE)
PVC	POLYVINYL CHLORIDE PIPE
Q	FLOW CAPACITY
R.O.W.	RIGHT OF WAY
S=	SLOPE =
STA.	ALIGNMENT STATIONING
T.E.	TOP ELEVATION (MANHOLES, CATCH BASING, ETC.)
WM	WATER METER
WV	WATER VALVE
Ø	DIAMETER SYMBOL
F.G.E.	FINISHED GROUND ELEVATION
E.G.	EXISTING GROUND
EXIST.	EXISTING
WWTP	WASTEWATER TREATMENT PLANT
GV	GATE VALVE
CE	CENTER ELEVATION
O.C.	ODOR CONTROL
WT	WATERTIGHT
S.S.	SANITARY SEWR PIPE
N.P.	NOT–POTABLE
W	WATER DISTRIBUTION PIPE
ATS	AUTOMATIC TRANSFER SWITCH
PB	PULL BOX
UPF	UNDERGROUND PRIMARY FEEDER
USF	UNDERGROUND SECONDARY FEEDER
P–#	NEW POLE NUMBER

GRAPHIC SYMBOLS LEGEND:

- AEE — ELECTRICAL LINE (AERIAL)
- ELECTRICAL POLE
- ELECTRIC & LIGHT POLE
- ELECTRIC & TELEPHONE POLE
- ELECTRIC & LIGHT CONC. POLE
- ELECTRIC POLE WITH WITH TRANSFORMER
- ELECTRICAL CONC. POLE
- LIGHT POLE
- CABLE TV. CONC. POLE
- TELEPHONE POLE
- ORNAMENTAL POLE
- REC. FACILITIES LIGHT POLE
- GUY WIRE POLE
- GUY WIRE
- ORNAMENTAL LIGHT POLE NOT IN USE
- DOUBLE LIGHT POLE
- CT — EXISTING UNDERGROUND CABLE TV. LINES
- AEE — EXISTING ELECTRICAL BOX
- EXISTING PUBLIC TELEPHONE
- PE — ELECTRIC PEDESTAL
- CLEAN OUT
- 4.79 — EXIST. SPOT ELEVATION
- 0.50 MT. CONTOUR INTERVAL
- 15 — 1.00 MT. CONTOUR INTERVAL
- EXISTING STRUCTURE
- EXISTING TREE
- CATV — CABLE TV. BOX
- TRAFFIC LIGHT BOX
- TRAFFIC LIGHT SENSOR
- SW — SWITCH UNIT
- FIRE HYDRANT
- WM — WATER METER
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- T — TELEPHONE MANHOLE
- E — ELECTRICAL MANHOLE
- CATCH BASIN
- PUBLIC SEATS
- K.M. 1.4 — KILOMETER POST
- NEW JERSEY TYPE BARRIER
- EXISTING ROADS RIGHT OF WAY
- GUARDRAIL
- CHAIN LINK FENCE
- BARBED WIRE FENCE
- ORNAMENTAL FENCE
- TRAFFIC SIGN
- CF–#### — HORIZONTAL AND VERTICAL CONTROL STATIONS ESTABLISHED BY CARLOS FOURNIER, PS (Lic. 21195)
- SMALL LINE WATER VALVE
- EXISTING PIPELINE DIAMETER AS INDICATED
- PROPOSED PIPE TO BE INSTALLED DIAMETER AS INDICATED
- EXISTING STORM SEWER PIPE AND HEADWALL
- PROPOSED SERVICE CONNECTION
- EXISTING PALM TREE
- X.X.X. — FINISHED GRADE

NOTE:
THESE SYMBOLS APPLY UNLESS OTHERWISE SPECIFIED IN DRAWING.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE: March 10, 2015

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19446 — PUERTO RICO

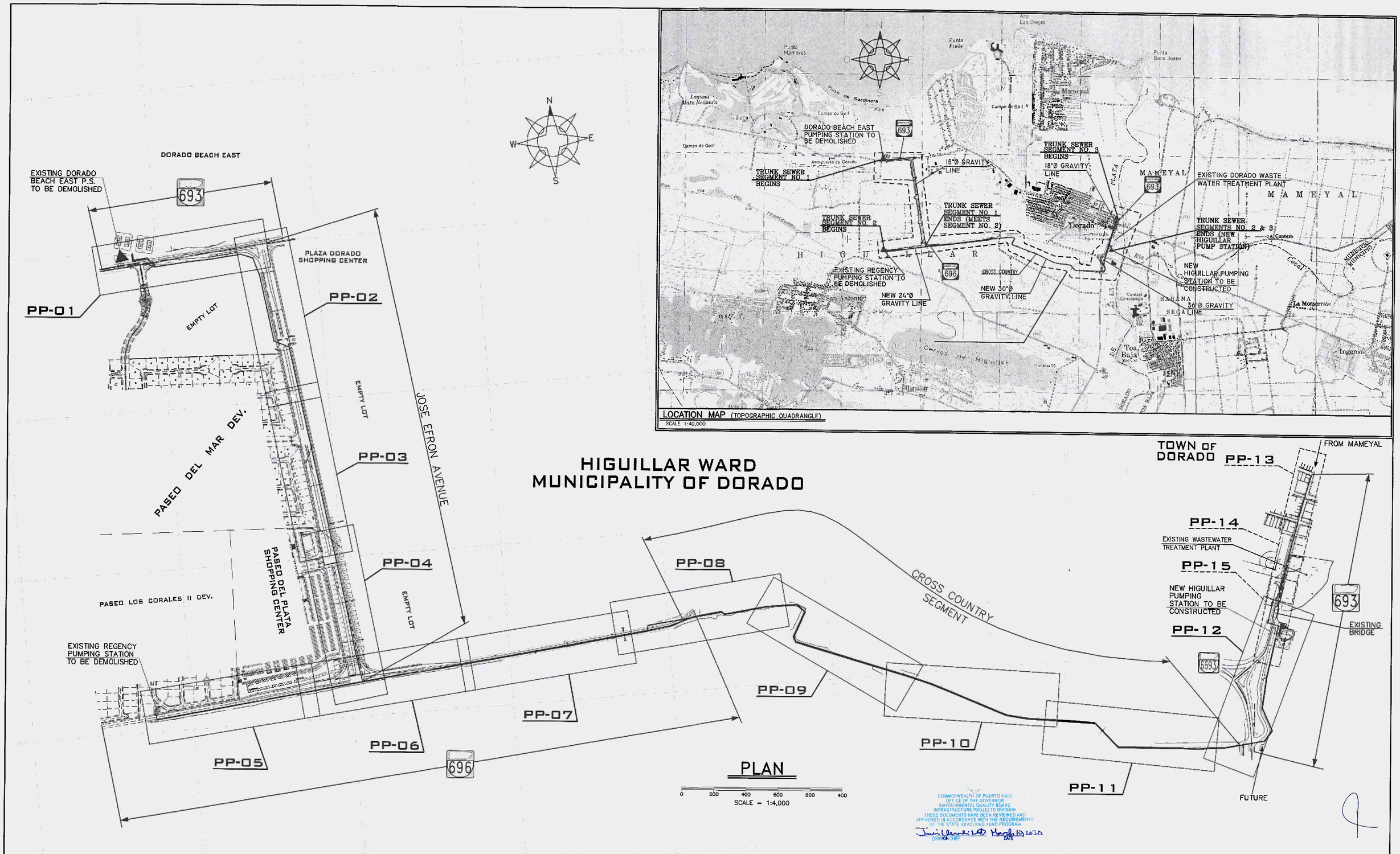
NEW DORADO TRUNK SEWER
CIP NUM.: 2–26–5002
C–72–051–01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GENERAL NOTES, LEGEND & ABBREVIATIONS			SCALES: H=1:500 V=N/A
DRAFTED BY: .	DRAFTER LICENCE NO.: .	DATE 02/20/220	DRWG NO. G–03
DESIGNED BY: A.A.F.T.		DATE 02/20/220	SHEET NO. 03
REVISED BY: .		DATE .	
SUBMITTED BY: .		DATE .	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\C3-G-03-GENERAL NOTES, LEGEND & ABBREVIATIONS.dwg 03/20/2015 7:42:19 AM SWST



NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
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email: jamyassoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19446 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: SANITARY SEWER SYSTEM GENERAL SITE PLAN			SCALES: H=1:4,000 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE 02/20/2020	DRWG NO. G-04
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 04
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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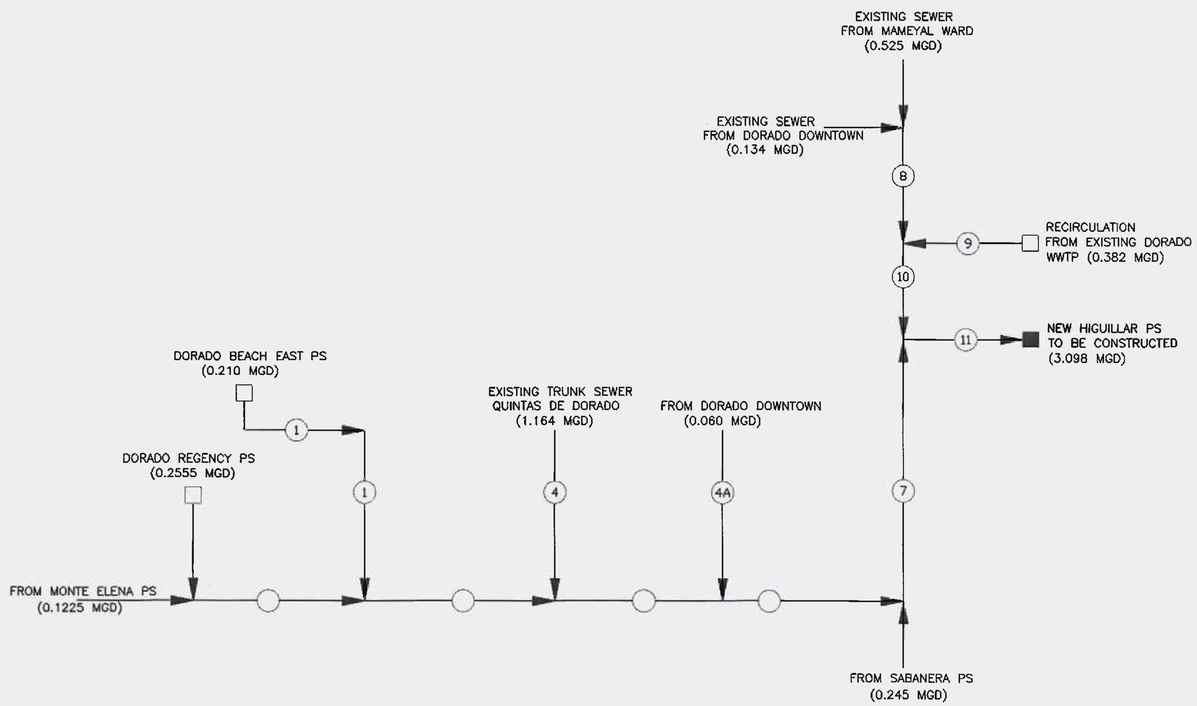
GENERAL LEGEND:

- ○ STREAM I.D.
- —— INTERCEPTOR UNDER THIS PROJECT
- —— LATERAL UNDER THIS PROJECT
- ←— FLOW DIRECTION
- ■ PUMPING STATION UNDER THIS PROJECT
- □ PUMPING STATION OR TREATMENT PLANT TO BE ELIMINATED
- (0.210 MGD) AVERAGE ESTIMATED FLOWS



FLOW DIAGRAM

STREAM	SEWER FROM	SEWER TO	FLOW REGIME	MATERIAL	COEFFICIENT	DIAMETER IN	SLOPE MIN.	ESTIMATED FLOWS AND VELOCITIES Q_{ACTUAL}(AVE) MGD	Q_{ACTUAL}(PEAK) MGD	V_{ACTUAL}(PEAK) ft/s	Q_{FUTURE} (PEAK) MGD	V_{FUTURE} (PEAK) ft/s	FULL CAPACITY FLOW MGD	FULL CAPACITY VELOCITY ft/s
1	EXIST MH	MH 1	GRAVITY	DI	0.012	16	0.002	0.210	0.879	2.456	1.098	2.603	2.40	3.035
	MH 1	MH 2	GRAVITY	PVC	0.011	15	0.0020			2.623		2.780	2.207	2.782
2	MH 22	MH 23	GRAVITY	RCP–PVC	0.011	24	0.0008	0.378	1.379	2.069	3.487	2.615	4.887	2.407
3	MH 29	MH 30	GRAVITY	RCP–PVC	0.011	30	0.0005	0.588	2.258	1.968	4.585	2.354	7.005	2.208
4	EXIST MH	MH 35	GRAVITY	RCP–PVC	0.011	24	0.0087	1.164	2.460	5.738	2.460	5.738	16.117	7.937
5	MH 35	MH 36	GRAVITY	RCP–PVC	0.011	30	0.0037	1.752	4.718	4.979	7.045	5.556	19.056	6.007
6	MH 52	MH 53	GRAVITY	RCP–PVC	0.011	30	0.0007	1.812	4.778	2.705	7.105	2.936	8.289	2.613
7	MH 60	MH 61	GRAVITY	RCP–PVC	0.011	36	0.0005	2.057	5.765	4.979	8.198	5.556	11.391	2.493
8	MH 64	MH 65	GRAVITY	PVC	0.011	18	0.0015	0.659	1.580	2.733	1.580	2.733	3.107	2.721
9	MH	MH	GRAVITY	PVC	0.011	12	0.003	0.382	0.382	2.458	0.764	2.955	1.490	3.347
10	MH 68	MH 69	GRAVITY	PVC	0.011	21	0.0015	1.041	1.962	2.881	1.962	2.881	4.687	3.015
11	MH 74	PS	GRAVITY	RCP–PVC	0.011	36	0.0030	3.098	7.727	5.2223	10.160	5.625	27.903	6.108

RCP–PVC – REINFORCED CONCRETE PIPE WITH PVC LINER

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — March 10, 2020 DATE

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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INGENIERO LICENCIADO ANTONIO A. FERNÓS LIC. #19446 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

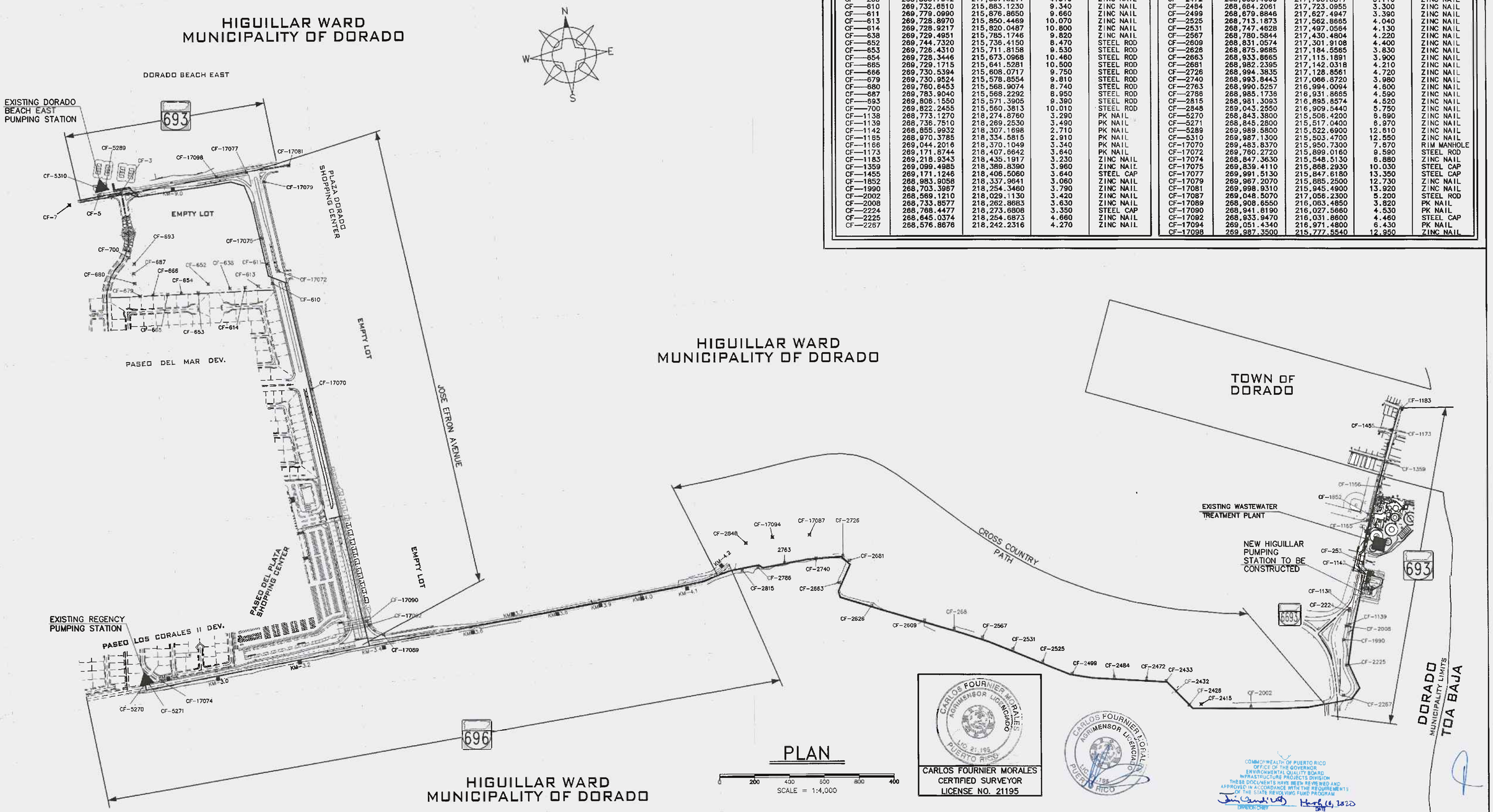
SHEET TITLE: FLOW DIAGRAM PLAN
PLOT SCALE: H=1:1,000 V=N/A
DRWG NO. C-05
DRAFTED BY: . DRAFTER LICENCE NO.: . DATE 02/20/2020
DESIGNED BY: A.A.F.T. DATE 02/20/2020
REVISED BY: . DATE .
SUBMITTED BY: . DATE .
SHEET NO. 05
REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER COMPLEMENTARY WORKS\05-G-05-GENERAL FLOW DIAGRAM PLAN.dwg 7/16/2014 1:20:18 PM EST

HORIZONTAL AND VERTICAL CONTROL STATIONS

STATIONS	COORDINATES (NAD83) NORTH (Y)	COORDINATES (NAD83) EAST (X)	ELEVATIONS (PRVD02)	DESCRIPCION
CF——3	269,973.1545	215,557.7014	12.310	GUN NAIL
CF——5	269,968.8201	215,505.0242	12.650	GUN NAIL
CF——7	269,953.8703	215,436.1925	13.250	GUN NAIL
CF——253	268,875.4381	218,314.9087	2.410	ZINC NAIL
CF——268	268,805.7942	217,367.5211	4.310	ZINC NAIL
CF——610	269,732.6510	215,883.1230	9.340	ZINC NAIL
CF——611	269,779.0990	215,876.8650	9.660	ZINC NAIL
CF——613	269,728.8970	215,850.4469	10.070	ZINC NAIL
CF——614	269,728.9217	215,820.0487	10.800	ZINC NAIL
CF——638	269,729.4951	215,785.1746	9.820	ZINC NAIL
CF——652	269,744.7320	215,736.4150	8.470	STEEL ROD
CF——653	269,726.4310	215,711.8158	9.530	STEEL ROD
CF——654	269,728.3446	215,673.0968	10.460	STEEL ROD
CF——665	269,729.1715	215,641.5281	10.500	STEEL ROD
CF——666	269,730.5394	215,608.0717	9.750	STEEL ROD
CF——679	269,730.9524	215,578.8554	9.810	STEEL ROD
CF——680	269,760.6453	215,568.9074	8.740	STEEL ROD
CF——687	269,783.9040	215,568.2292	8.950	STEEL ROD
CF——693	269,806.1550	215,571.3905	9.390	STEEL ROD
CF——700	269,822.2455	215,560.3813	10.010	STEEL ROD
CF—1138	268,773.1270	218,274.8760	3.290	PK NAIL
CF—1139	268,736.7510	218,269.2530	3.490	PK NAIL
CF—1142	268,855.9932	218,307.1698	2.710	PK NAIL
CF—1165	268,970.3785	218,334.5815	2.910	PK NAIL
CF—1166	269,044.2016	218,370.1049	3.340	PK NAIL
CF—1173	269,171.8744	218,407.6642	3.640	PK NAIL
CF—1183	269,218.9343	218,435.1917	3.230	ZINC NAIL
CF—1359	269,099.4985	218,389.8390	3.960	ZINC NAIL
CF—1455	269,171.1246	218,406.5060	3.640	STEEL CAP
CF—1852	268,983.9058	218,337.9641	3.060	ZINC NAIL
CF—1990	268,703.3967	218,254.3460	3.790	ZINC NAIL
CF—2002	268,569.1210	218,029.1130	3.420	ZINC NAIL
CF—2008	268,733.8577	218,262.8683	3.630	ZINC NAIL
CF—2224	268,768.4477	218,273.6808	3.350	STEEL CAP
CF—2225	268,645.0374	218,254.6873	4.660	ZINC NAIL
CF—2267	268,576.8676	218,242.2316	4.270	ZINC NAIL

STATIONS	COORDINATES (NAD83) NORTH (Y)	COORDINATES (NAD83) EAST (X)	ELEVATIONS (PRVD02)	DESCRIPCION
CF—2415	268,584.8509	217,915.3127	2.710	ZINC NAIL
CF—2426	268,585.4826	217,888.0415	3.060	ZINC NAIL
CF—2432	268,619.4054	217,861.3282	2.840	ZINC NAIL
CF—2433	268,644.5999	217,840.9229	3.280	ZINC NAIL
CF—2472	268,653.4060	217,795.0817	3.110	ZINC NAIL
CF—2484	268,664.2061	217,723.0955	3.300	ZINC NAIL
CF—2499	268,679.8846	217,627.4947	3.390	ZINC NAIL
CF—2525	268,713.1873	217,562.8665	4.040	ZINC NAIL
CF—2531	268,747.4628	217,497.0564	4.130	ZINC NAIL
CF—2567	268,780.5844	217,430.4804	4.220	ZINC NAIL
CF—2609	268,831.0574	217,301.9108	4.400	ZINC NAIL
CF—2626	268,875.9685	217,184.5565	3.830	ZINC NAIL
CF—2663	268,933.8665	217,115.1891	3.900	ZINC NAIL
CF—2681	268,982.2395	217,142.0318	4.210	ZINC NAIL
CF—2726	268,994.3835	217,128.8561	4.720	ZINC NAIL
CF—2740	268,993.8443	217,066.8720	3.980	ZINC NAIL
CF—2763	268,990.5257	216,994.0094	4.600	ZINC NAIL
CF—2786	288,985.1736	216,931.8665	4.590	ZINC NAIL
CF—2815	288,981.3093	216,895.8574	4.520	ZINC NAIL
CF—2848	289,043.2550	216,909.5440	5.750	ZINC NAIL
CF—5270	288,843.3800	215,506.4200	6.890	ZINC NAIL
CF—5271	288,845.2800	215,517.0400	6.970	ZINC NAIL
CF—5289	269,989.5800	215,522.6900	12.610	ZINC NAIL
CF—5310	269,987.1300	215,503.4700	12.550	ZINC NAIL
CF—17070	269,483.8370	215,950.7300	7.870	RIM MANHOLE
CF—17072	269,760.2720	215,899.0160	9.590	STEEL ROD
CF—17074	288,847.3630	215,548.5130	6.880	ZINC NAIL
CF—17075	269,839.4110	215,868.2930	10.030	STEEL CAP
CF—17077	269,991.5130	215,847.6180	13.350	STEEL CAP
CF—17079	269,967.2070	215,885.2500	12.730	ZINC NAIL
CF—17081	269,998.9310	215,945.4900	13.920	ZINC NAIL
CF—17087	269,048.5070	217,056.2300	5.200	STEEL ROD
CF—17089	268,908.6550	216,063.4850	3.820	PK NAIL
CF—17090	268,941.8190	216,027.5660	4.530	PK NAIL
CF—17092	268,933.9470	216,031.8600	4.460	STEEL CAP
CF—17094	269,051.4340	216,971.4800	6.430	PK NAIL
CF—17098	269,987.3500	215,777.5540	12.950	ZINC NAIL



PLAN

SCALE = 1:4,000

CARLOS FOURNIER MORALES
CERTIFIED SURVEYOR
LICENSE NO. 21195

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE

NO.	REMARKS	DATE	BY	APP'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: BASELINE AND SURVEY CONTROL STATIONS PLAN

DRAFTED BY:	DRAFTER LICENCE NO.:	DATE
DESIGNED BY: A.A.F.T.		DATE 02/20/2020
REVISED BY:		DATE 02/20/2020
SUBMITTED BY:		DATE 02/20/2020

SCALES: H=1:4,000 V=N/A
DRWG NO. G-06
SHEET NO. 06
REVISION NO. 0

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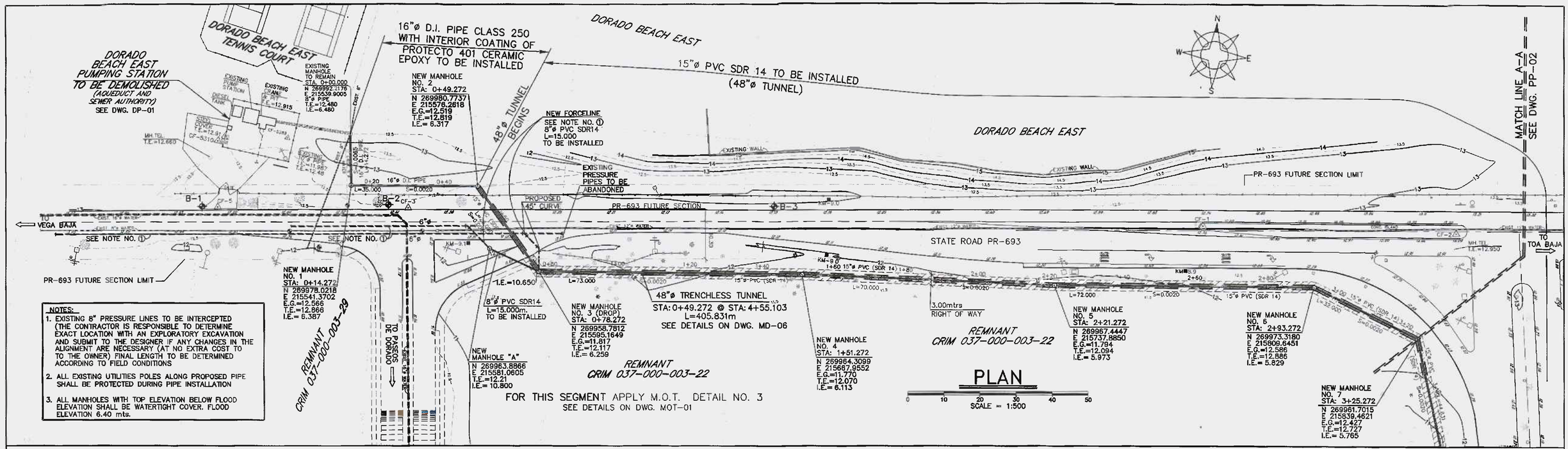
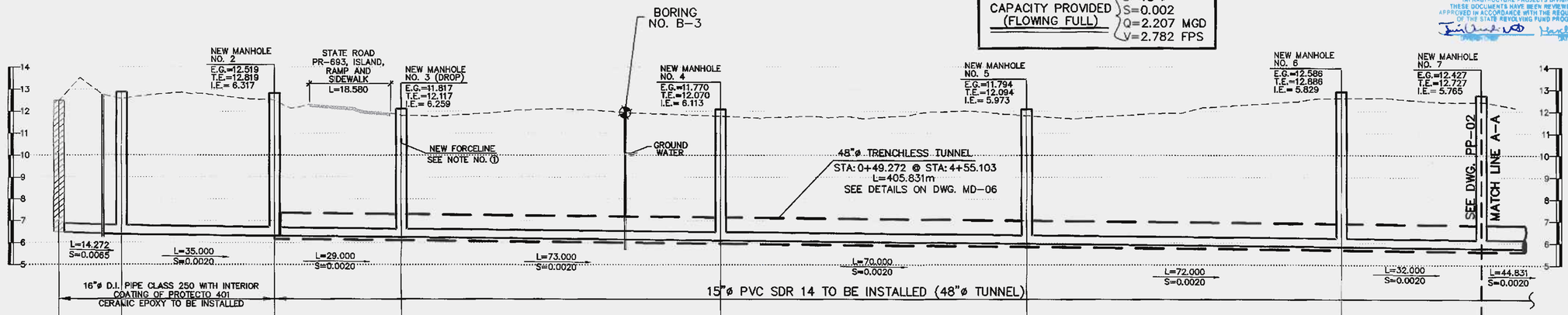


NOTES:
1. EXISTING 8" PRESSURE LINES TO BE INTERCEPTED (THE CONTRACTOR IS RESPONSIBLE TO DETERMINE EXACT LOCATION WITH AN EXPLORATORY EXCAVATION AND SUBMIT TO THE DESIGNER IF ANY CHANGES IN THE ALIGNMENT ARE NECESSARY (AT NO EXTRA COST TO TO THE OWNER) FINAL LENGTH TO BE DETERMINED ACCORDING TO FIELD CONDITIONS
2. ALL EXISTING UTILITIES POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
3. ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.

NOTE:
SPECIAL ATTENTION SHALL BE PAID TO EXCAVATIONS UP TO INVERT ELEVATION WILL BE BELOW GROUNDWATER LEVEL, DEWATERING CAN BE ACCOMPLISHED BY MEANS OF WELL POINT SYSTEM WITH SUBMERSIBLE PUMPS STRATEGICALLY LOCATED AT PLACES WHERE EVIDENT GROUNDWATER FLOW IS DETECTED DURING EXCAVATION PROCESS.

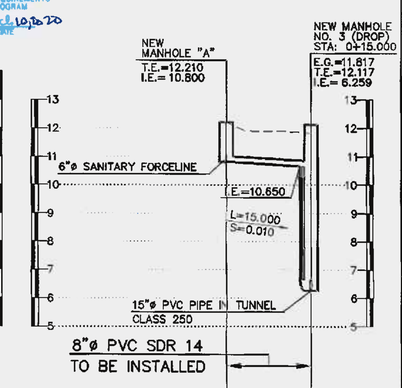
Q peak = 0.879 MGD
Q design (FUTURE)=1.098 MGD
CAPACITY PROVIDED (FLOWING FULL): D=15"ø, S=0.002, Q=2.207 MGD, V=2.782 FPS

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020



ELEVATIONS TOP	12.480	12.866	12.819	12.117	12.070	12.094	12.886	12.727
ELEVATIONS INVERT	6.480	6.387	6.317	6.259	6.113	5.973	5.829	5.765
DISTANCE PARTIAL	0.000	14.272	35.000	29.000	73.000	70.000	72.000	32.000
DISTANCE STATIONS	0+00.000	0+14.272	0+49.272	0+78.272	1+51.272	2+21.272	2+93.272	3+25.272

PROFILE 15"ø PVC GRAVITY LINE
SCALES: HORIZONTAL=1:500 VERTICAL=1:100



ELEVATIONS EXISTING		12.210	11.817
ELEVATIONS INVERT		10.800	10.650 6.259
DISTANCE PARTIAL		0.000	15.000
DISTANCE STATIONS		0+00.000	0+15.000

PROFILE 8"ø PVC GRAVITY LINE
SCALES: HORIZONTAL=1:500 VERTICAL=1:50

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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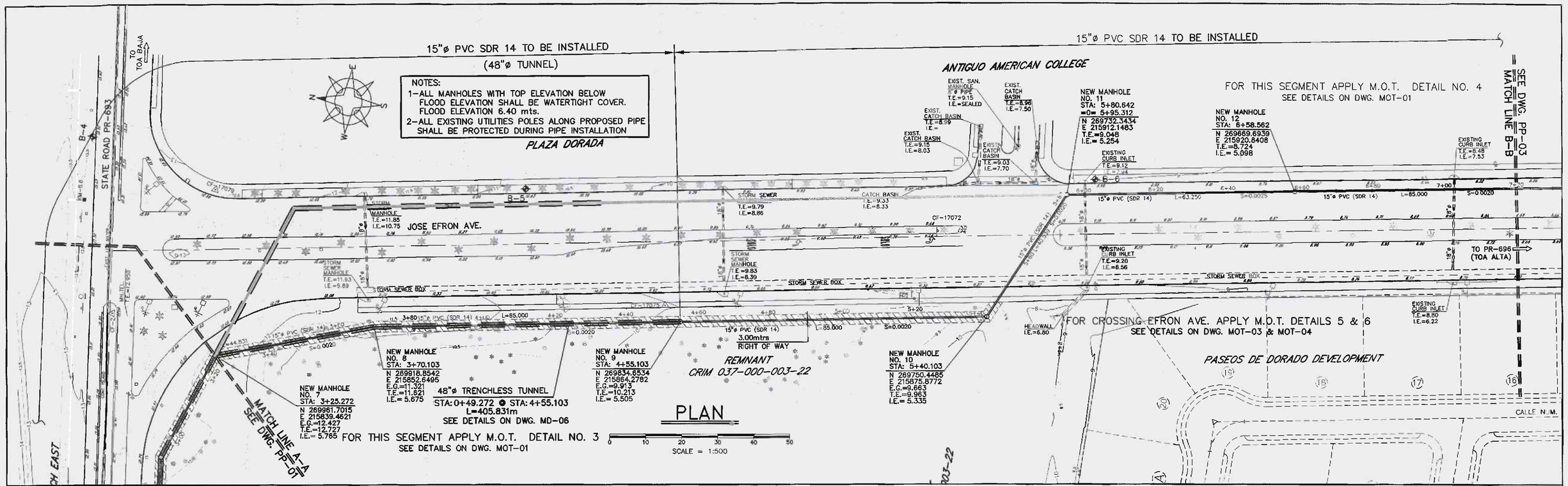
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

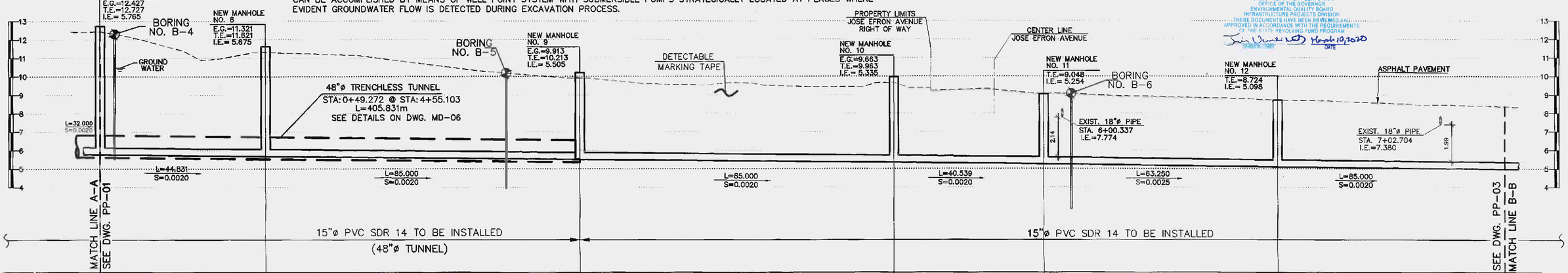
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 16"ø D.I., 12"ø & 15"ø PVC GRAVITY LINES PLAN & PROFILE
DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE
SCALES: H=1:500 V=1:100
DRWG NO. PP-01
SHEET NO. 07
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\07-PP-01_PLAN AND PROFILE 15in DIAM.GRAVITY LINE.dwg 05/20/2015 11:23:47 AM SWST



NOTE:
SPECIAL ATTENTION SHALL BE PAID TO EXCAVATIONS UP TO INVERT ELEVATION WILL BE BELOW GROUNDWATER LEVEL, DEWATERING CAN BE ACCOMPLISHED BY MEANS OF WELL POINT SYSTEM WITH SUBMERSIBLE PUMPS STRATEGICALLY LOCATED AT PLACES WHERE EVIDENT GROUNDWATER FLOW IS DETECTED DURING EXCAVATION PROCESS.



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DATE

		NEW MANHOLE NO. 7	NEW MANHOLE NO. 8	NEW MANHOLE NO. 9	NEW MANHOLE NO. 10	NEW MANHOLE NO. 11	NEW MANHOLE NO. 12	SEE DWG. PP-03 MATCH LINE B-B
ELEVATIONS	TOP	12.727	11.621	10.213	9.963	9.048	8.724	8.371
	INVERT	5.765	5.675	5.505	5.335	5.254	5.098	4.975
DISTANCE	PARTIAL	32.000	44.831	85.000	85.000	40.539	63.250	61.438
	STATIONS	3+25.272	3+70.103	4+55.103	5+40.103	5+80.642 =0= 5+95.312	6+58.562	7+20.000

PROFILE 15"ø PVC GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #18446 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 15"ø PVC GRAVITY LINE PLAN & PROFILE

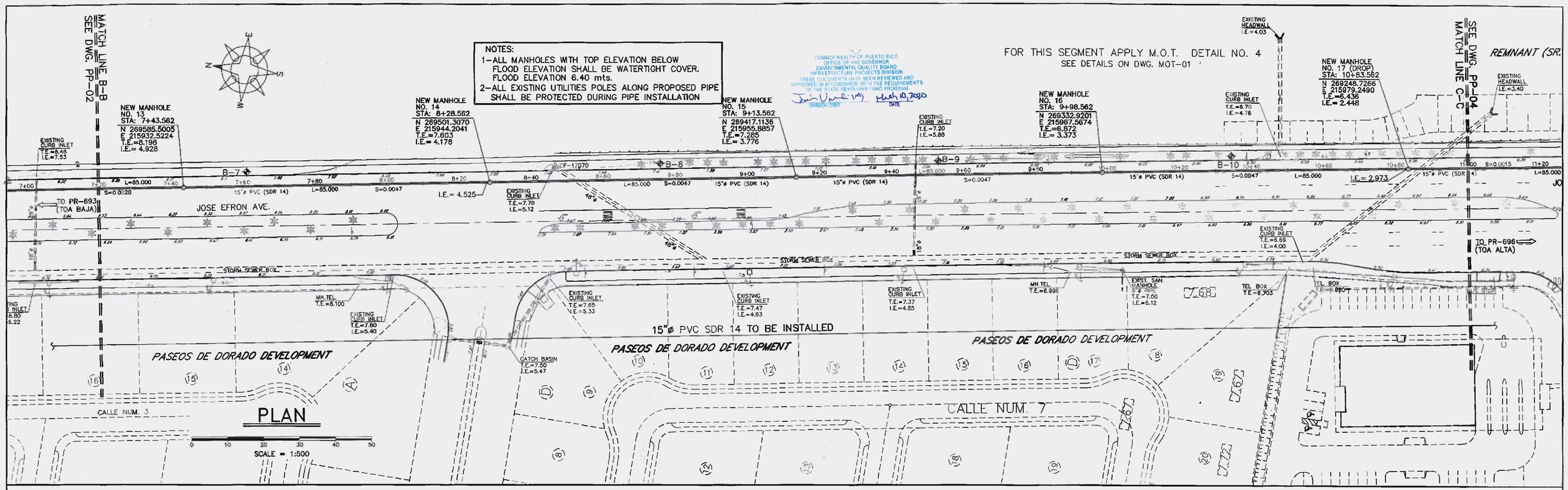
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SCALES: H=1:500 V=1:100
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	DRWG NO. PP-02
REVISED BY:		DATE	SHEET NO. 08
SUBMITTED BY:		DATE	REVISION NO. 0

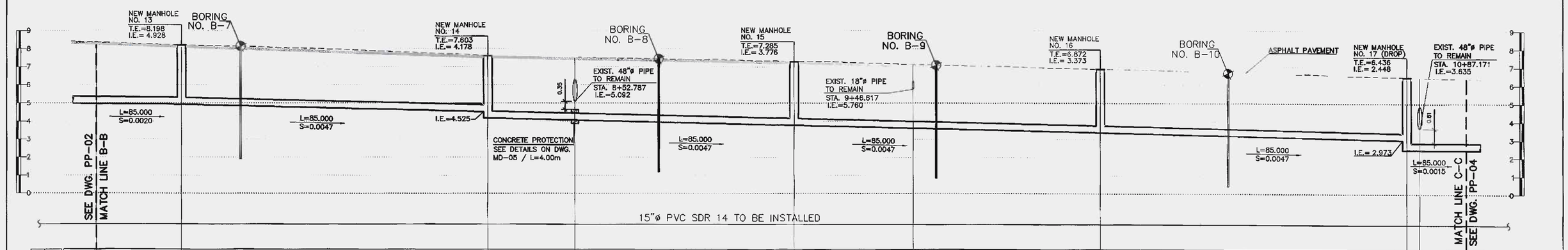
F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\08-PP-02_PLAN AND PROFILE 16in O.M.GRAVITY LINE.dwg 12/01/2014 9:31:29 AM SWST

NOTES:
1-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.
2-ALL EXISTING UTILITIES POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIRECTOR
DATE

FOR THIS SEGMENT APPLY M.O.T. DETAIL NO. 4
SEE DETAILS ON DWG. MOT-01





ELEVATIONS	TOP	8.371	8.198	7.603	7.512	7.285	7.217	6.872	6.436	6.421	6.348
	INVERT	4.975	4.928	4.525 4.178	4.064	3.776	3.621	3.373	3.318 2.448	2.443	2.423
DISTANCE	PARTIAL	61.438	23.562	85.000	24.225	60.775	33.055	51.945	85.000	3.609	12.829
	STATIONS	7+20.000	7+43.562	8+28.562	8+52.787	9+13.562	9+46.617	9+98.562	10+83.562	10+87.171	11+00.000

PROFILE 15"ø PVC GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL 787-751-8965 / 787-751-5537 FAX 787-751-1152
email: jcmyassoc@prtc.net

A. ANTONIO FUENTES INGENIERO LICENCIADO LIC. #19448 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

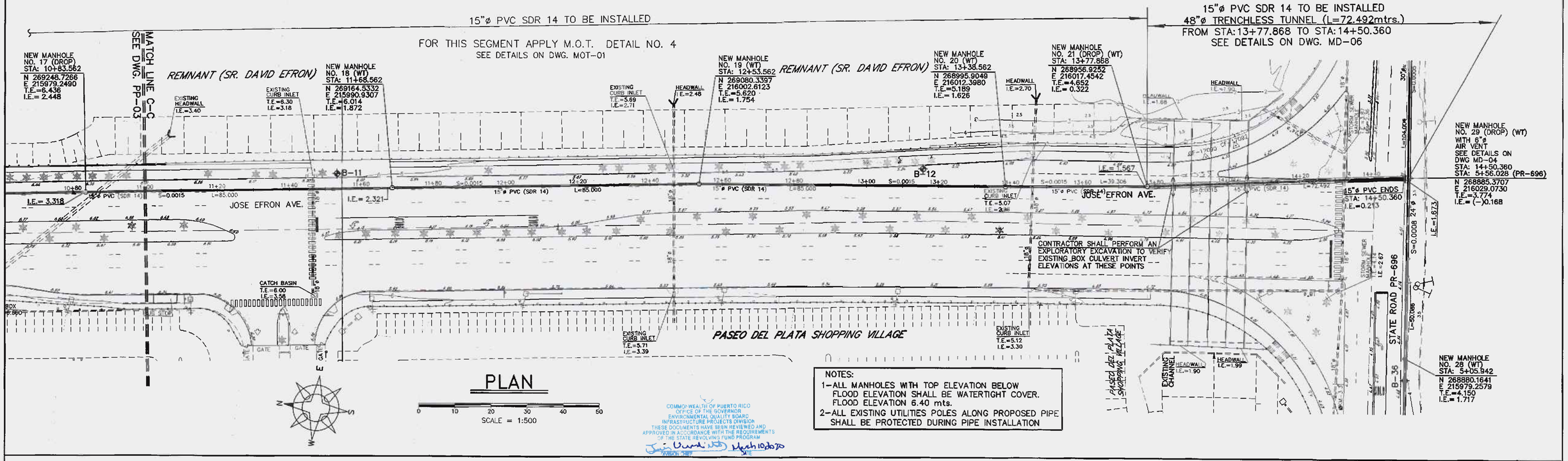
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

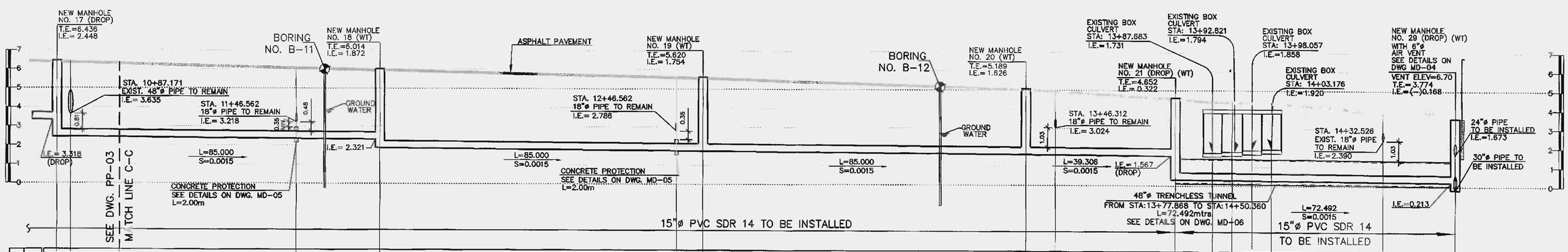
SHEET TITLE: PROPOSED 15"ø GRAVITY LINE PLAN & PROFILE

DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	

SCALES: H=1:500 V=1:100
DRWG NO. PP-03
SHEET NO. 09
REVISION NO. 0

O:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\09-PP-03-PLAN AND PROFILE 15in DIAM.GRAVITY LINE.dwg 7/16/2014 4:23:12 PM EST





ELEVATIONS TOP	6.436	6.421	6.348	6.107	6.014	5.610	5.620	5.189	4.986	4.652	4.484	4.466	4.422	4.400	3.853	3.774
ELEVATIONS INVERT	2.448	2.443	2.423	2.353	2.321 / 1.872	1.755	1.754	1.626	1.614	1.567 / 0.322	0.307	0.299	0.291	0.283	0.248	0.213 / (-)0.168
DISTANCE PARTIAL	85.000	3.609	12.829	46.562	22.000	78.000	7.000	85.000	7.750	31.556	9.815	5.138	5.236	5.119	29.350	17.834
DISTANCE STATIONS	10+83.562	10+87.171	11+00.000	11+46.562	11+68.562	12+46.562	12+53.562	13+38.562	13+46.312	13+77.868	13+87.683	13+92.821	13+98.057	14+03.176	14+32.526	14+50.360

PROFILE 15"ø PVC GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-6685 / 787-751-5537 FAX 787-751-1050
email: jomyassoc@prtc.net

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

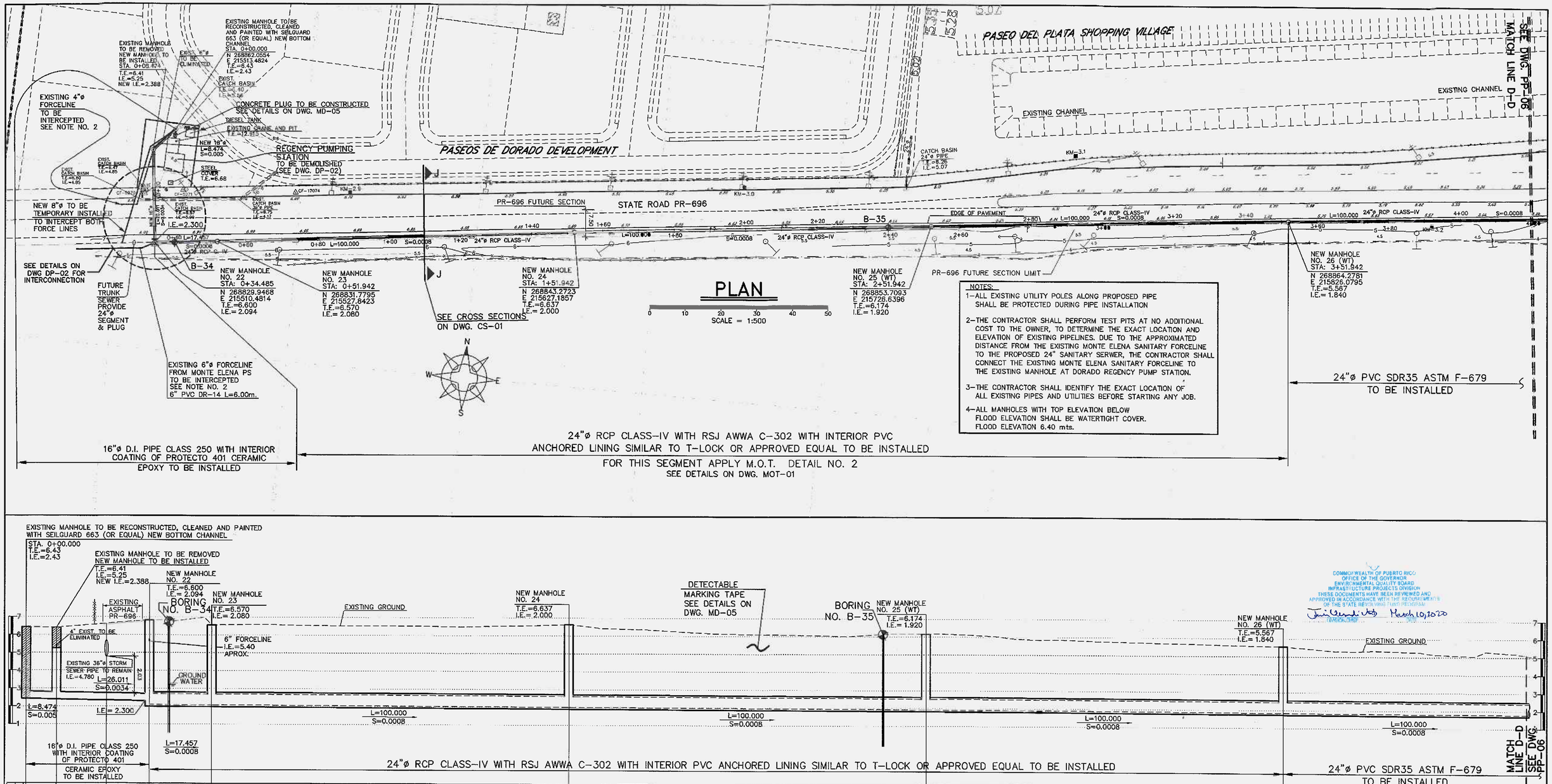
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 15"ø GRAVITY LINE PLAN & PROFILE

DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

SCALES: H=1:500 V=1:100
DRWG NO. PP-04
SHEET NO. 10
REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\10-PP-04-PLAN AND PROFILE 15in DIAM GRAVITY LINE.dwg 7/16/2014 4:24:32 PM



NOTES:

1- ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION

2- THE CONTRACTOR SHALL PERFORM TEST PITS AT NO ADDITIONAL COST TO THE OWNER, TO DETERMINE THE EXACT LOCATION AND ELEVATION OF EXISTING PIPELINES. DUE TO THE APPROXIMATED DISTANCE FROM THE EXISTING MONTE ELENA SANITARY FORCELINE TO THE PROPOSED 24" SANITARY SERWER, THE CONTRACTOR SHALL CONNECT THE EXISTING MONTE ELENA SANITARY FORCELINE TO THE EXISTING MANHOLE AT DORADO REGENCY PUMP STATION.

3- THE CONTRACTOR SHALL IDENTIFY THE EXACT LOCATION OF ALL EXISTING PIPES AND UTILITIES BEFORE STARTING ANY JOB.

4- ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
0+00.000	0.000	2.430	6.430
0+08.474	8.474	2.388	6.410
0+22.474	14.000	2.340	6.636
0+34.485	12.011	2.300 / 2.094	6.600
0+51.942	17.457	2.080	6.570
1+51.942	100.000	2.000	6.637
2+51.942	100.000	1.920	6.174
3+51.942	100.000	1.840	5.567
4+20.000	68.058	1.788	5.195

PROFILE 16"ø & 24"ø GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMA CIVIL ENGINEERING CONSULTANTS
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email: jcmyassoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19-145 PUERTO RICO

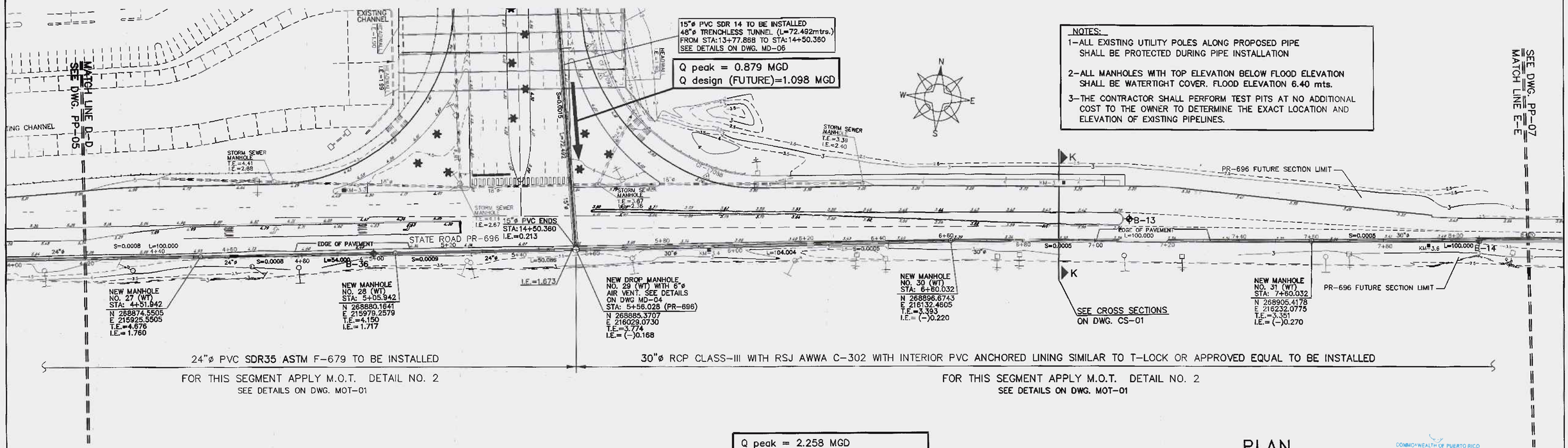
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

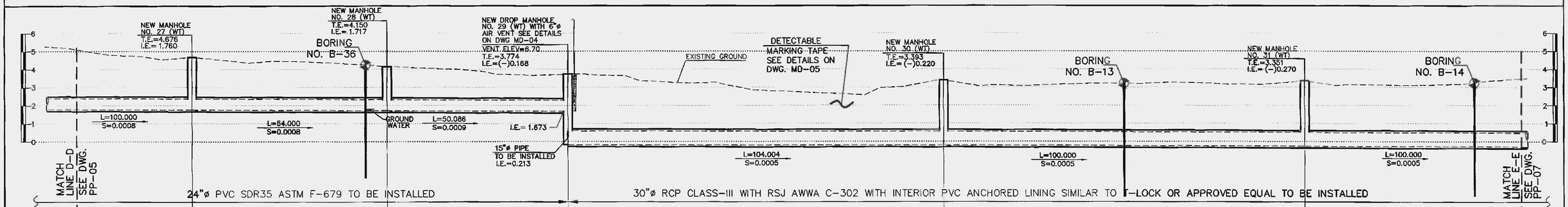
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 16"ø & 24"ø GRAVITY LINE PLAN & PROFILE			SCALES: H=1:500 V=1:100
DRAFTED BY:	DRAFTER LICENCE NO.	DATE	DRWG NO. PP-05
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 11
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\11-PP-05-PLAN AND PROFILE 16IN & 24in DIAM.GRAVITY LINE.dwg 11/25/2014 3:12:35 PM SWST





DISTANCE								
STATIONS	4+20.000	4+51.942	5+05.942	5+56.028	6+60.032	7+60.032	8+20.000
PARTIAL	68.058	31.942	54.000	50.086	104.004	100.000	59.968
ELEVATIONS TOP	5.195	4.676	4.150	3.774	3.393	3.351	3.420
ELEVATIONS INVERT	1.786	1.760	1.717	1.673 (-)0.188	(-)0.220	(-)0.270	(-)0.299

PROFILE 24"ø & 30"ø GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. JUEZ ALVES INGENIERO LICENCIADO LIC. #19809 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 24"ø & 30"ø GRAVITY LINE PLAN & PROFILE

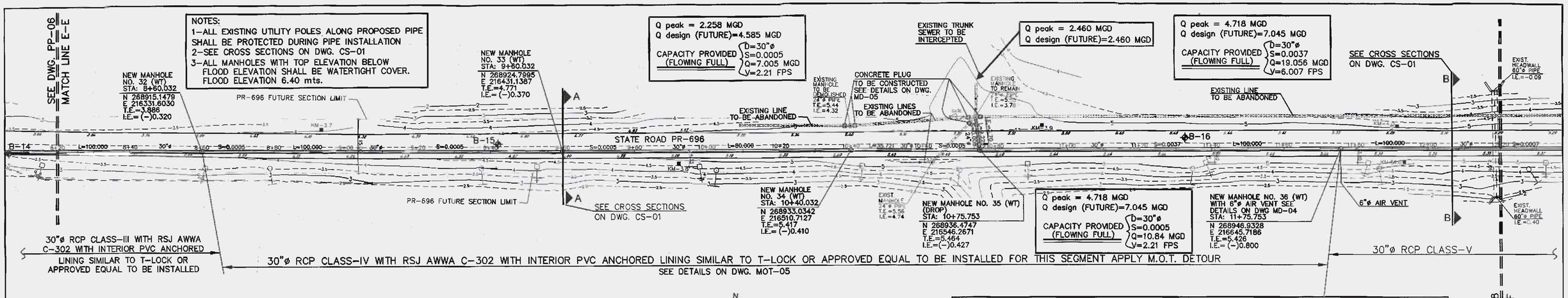
DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

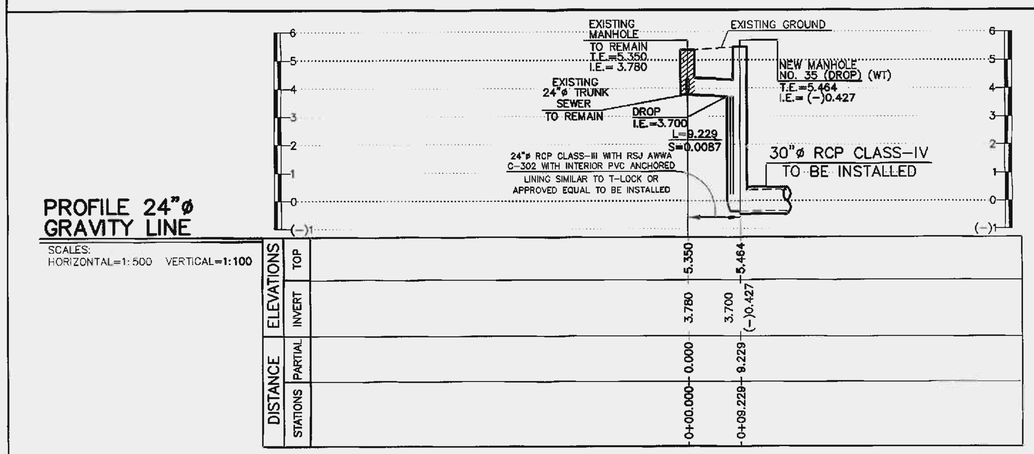
SCALES: H=1:500 V=1:100
DRWG. NO. PP-06
SHEET NO. 12
REVISION NO. 0

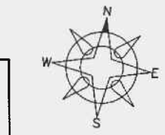
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF | March 10, 2020 DATE

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\12-PP-06-PLAN AND PROFILE 24in & 30in DIAM GRAVITY LINE.dwg 11/25/2014 4:02:45 PM SWST

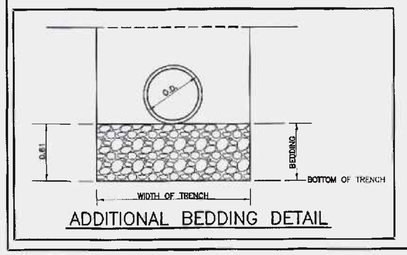
NOTES:
1–ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
2–SEE CROSS SECTIONS ON DWG. CS–01
3–ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.



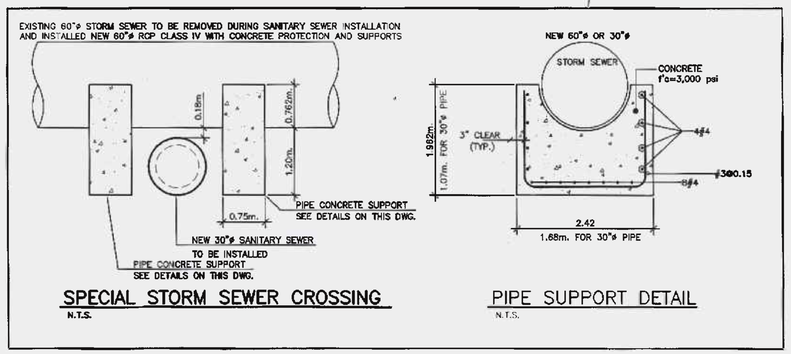




COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

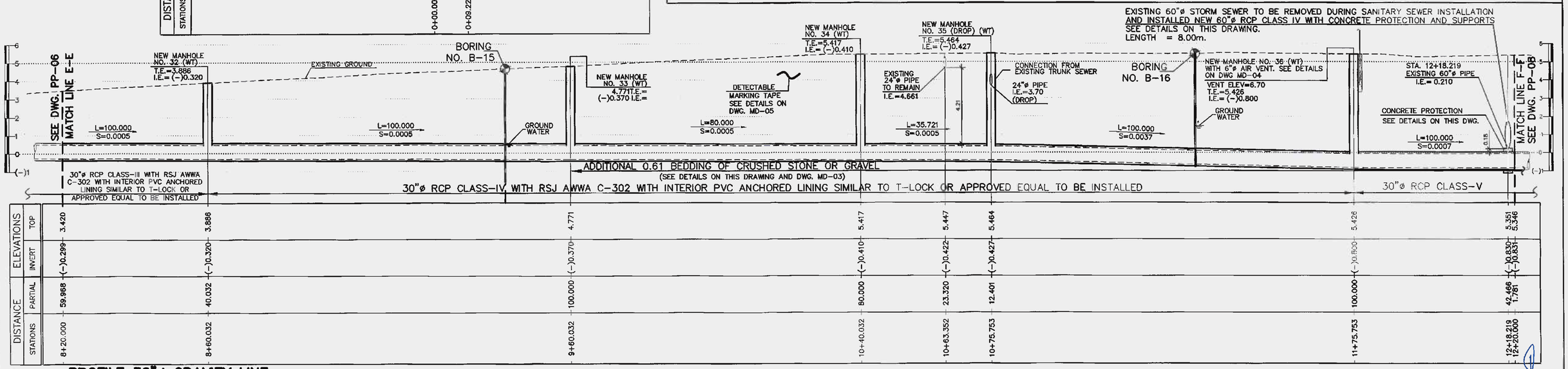


ADDITIONAL BEDDING DETAIL



SPECIAL STORM SEWER CROSSING
N.T.S.

PIPE SUPPORT DETAIL
N.T.S.



PROFILE 30"ø GRAVITY LINE
SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D

REVISIONS

jcmc CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL 787-751-8655 / 787-751-5537 FAX 787-751-1052
email jcmcpuerto@prtc.net

ANTONIO A. GRANTES INGENIERO LICENCIADO LIC. #19818 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 30"ø GRAVITY LINE PLAN & PROFILE			SCALES: H=1:500 V=1:100
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PP–07
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 13
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\13-PP-07-PLAN AND PROFILE 30in DIAM.GRAVITY LINE.dwg 11/25/2014 10:46:15 AM SWST

Q peak = 4.778 MGD
Q design (FUTURE)=7.105 MGD

CAPACITY PROVIDED (FLOWING FULL): D=30"ø, S=0.0007, Q=8.289 MGD, V=2.613 FPS

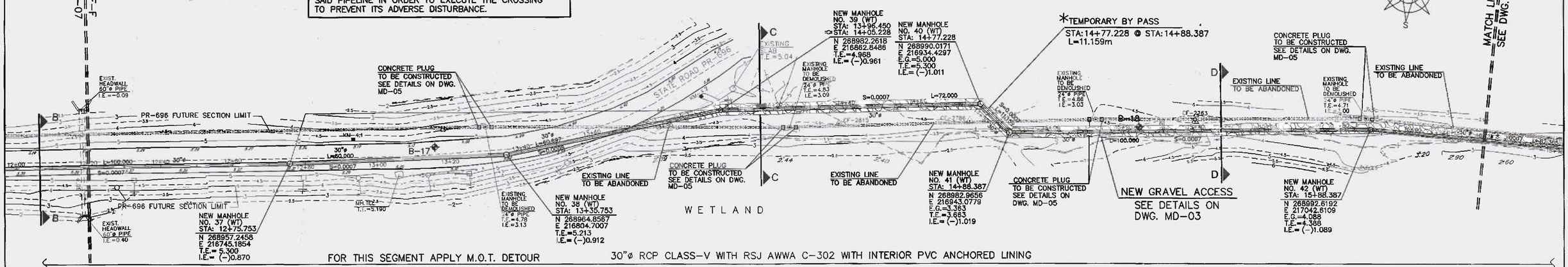
SPECIAL NOTE FOR CROSSING PROCEDURE:

WHERE THE PROPOSED PIPELINE CROSSES UNDER THE EXISTING SANITARY PIPELINE, THE CONTRACTOR SHALL INVESTIGATE THROUGH EXPLORATORY TRENCHES OR OTHER SUITABLE METHOD THE CONDITION OF THE EXISTING PIPELINE IN ORDER TO PROTECT IT FROM COLLAPSE OR DISTURBANCE THAT MAY CAUSE SEWAGE SPILLS OR ADVERSE EFFECTS IN SAID PIPELINE PROPER OPERATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY TEMPORARY SUPPORT OR IMPROVEMENT TO SAID PIPELINE IN ORDER TO EXECUTE THE CROSSING TO PREVENT ITS ADVERSE DISTURBANCE.

NOTE:
1-ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
2-SEE CROSS SECTIONS ON DWG. CS-01
3-FOR MANHOLES PARTIAL DEMOLITION DETAIL REFER TO DWG. MD-05.
4-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.

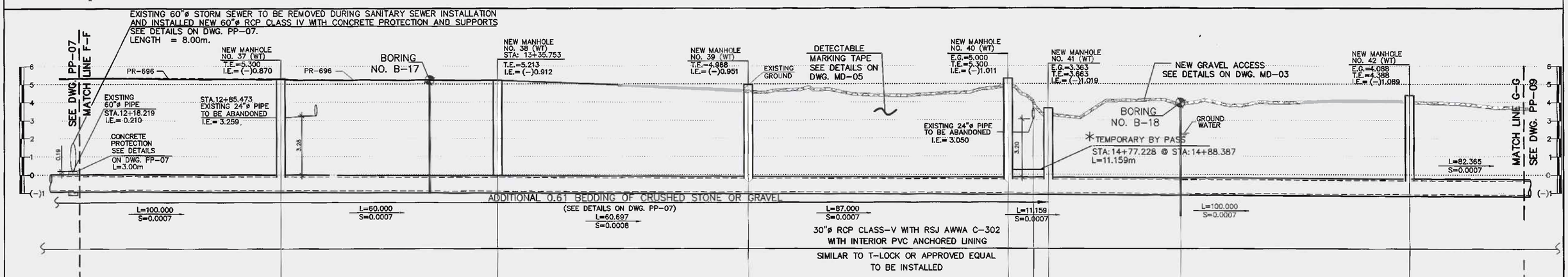
*TEMPORARY BY PASS TO BE CONSTRUCTED TO REMOVE EXISTING 24"ø LINE BEFORE THE INSTALLATION OF THE NEW LINE. RE-INSTALL THE EXISTING 24"ø LINE TO MAINTAIN THE LINE IN SERVICE BEFORE NEW PROJECT IS FINISHED

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIRECTOR - CEQB — DATE March 19, 2020



PLAN

SCALE = 1:500



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
12+20.000	1.781	(-)0.831	5.346
12+75.753	55.753	(-)0.870	5.300
13+35.753	60.000	(-)0.881	5.400
13+96.450 ⇒14+05.228	60.697	(-)0.961	—
14+77.228	72.000	(-)1.011	5.300
14+84.249	7.021	(-)1.016	4.150
14+88.387	4.138	(-)1.019	3.663
15+88.387	100.000	(-)1.089	4.388
16+20.000	31.613	(-)1.111	3.781

PROFILE 30"ø GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
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email: jomyassoc@prtc.net

ANTONIO R. FUENTES INGENIERO LICENCIADO LIC. #19146 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 30"ø GRAVITY LINE PLAN & PROFILE			SCALES: H=1:500 V=1:100
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PP-08
DESIGNED BY: A.A.F.T.		DATE 02/20/220	SHEET NO. 14
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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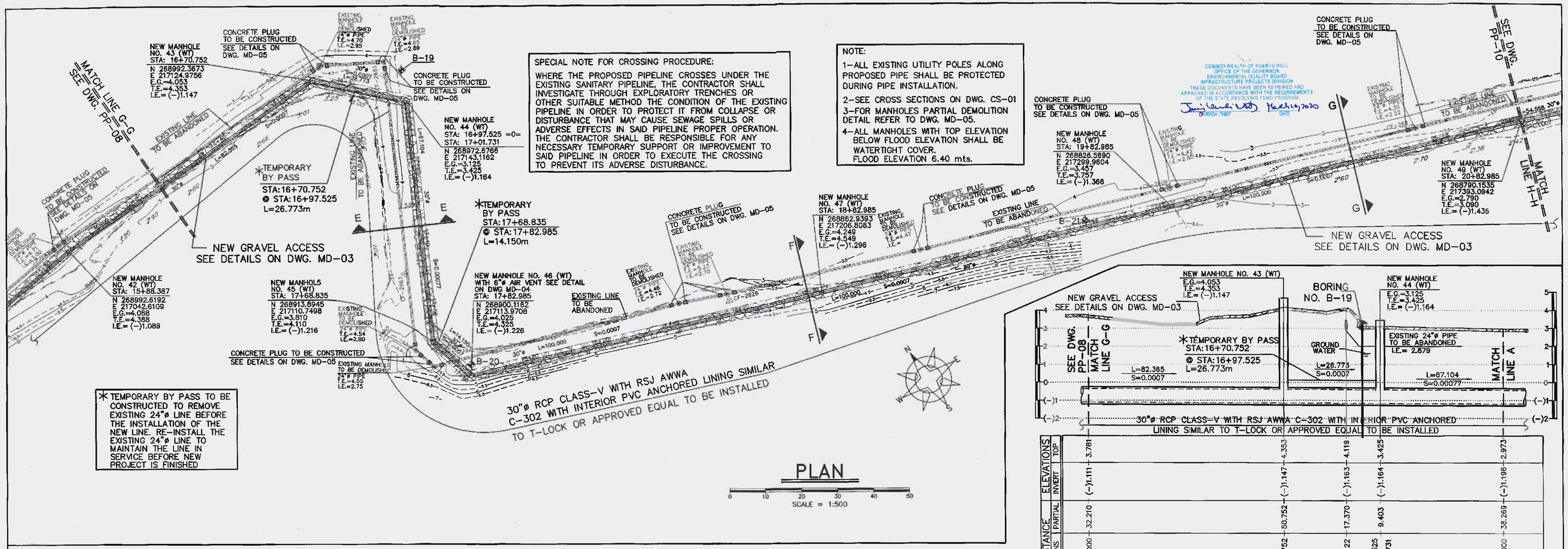

DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
16+20.000	32.210	(-)1.111	3.781
16+70.752	50.752	(-)1.147	4.353
16+88.122	17.370	(-)1.163	4.119
16+97.525 =0= 17+01.731	9.403	(-)1.164	3.425
17+40.000	38.269	(-)1.196	2.973

DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
17+40.000	38.269	(-)1.196	2.973
17+68.835	67.104	(-)1.216	4.110
17+76.965	8.130	(-)1.222	3.892
17+82.985	6.020	(-)1.226	4.325
18+82.985	100.000	(-)1.296	4.549
19+82.985	100.000	(-)1.366	3.757
20+82.985	100.000	(-)1.436	3.090

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
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INGENIERO LICENCIADO LIC. #19140 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

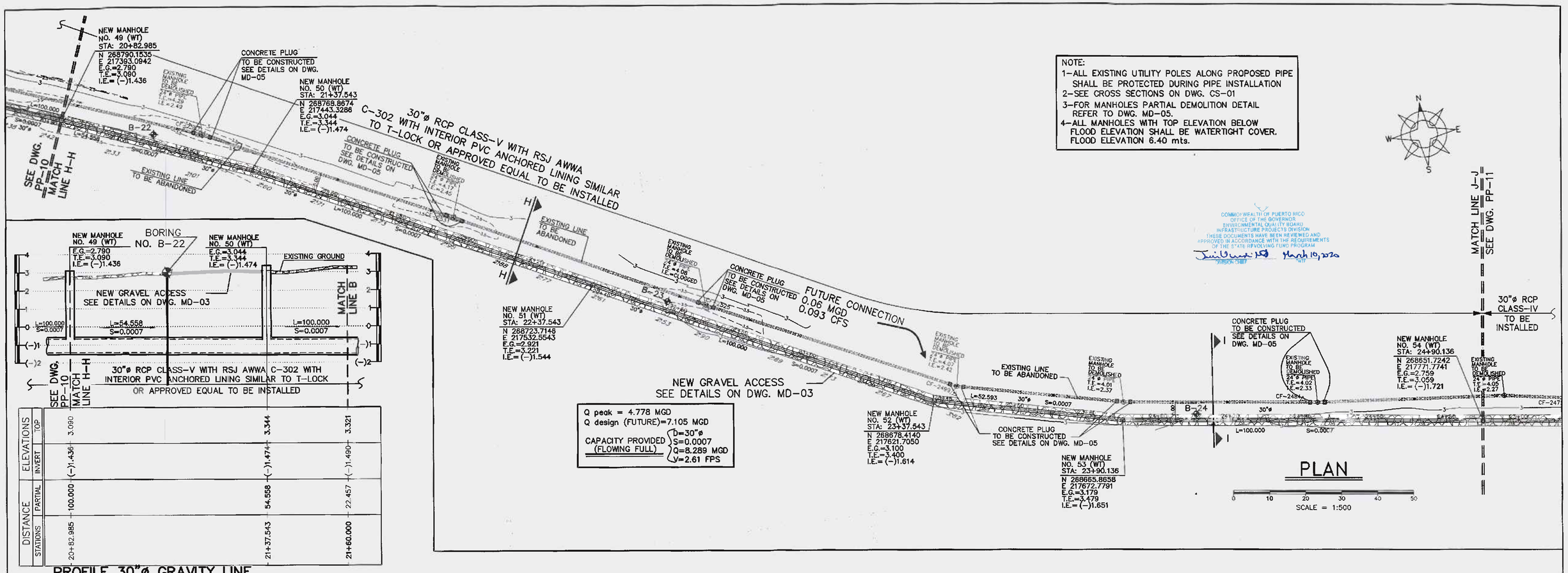
SHEET TITLE: PROPOSED 30"ø GRAVITY LINE PLAN & PROFILE

DRAFTED BY: | DRAFTER LICENCE NO.: | DATE:
DESIGNED BY: A.A.F.T. | DATE: 02/20/2020
REVISED BY: | DATE:
SUBMITTED BY: | DATE:

SCALES: H=1:500 V=1:100
DRWG NO. PP-09
SHEET NO. 15
REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\15-PP-09-PLAN AND PROFILE 30in DIAM.GRAVITY LINE.dwg 7/16/2014 4:30:46 PM EST

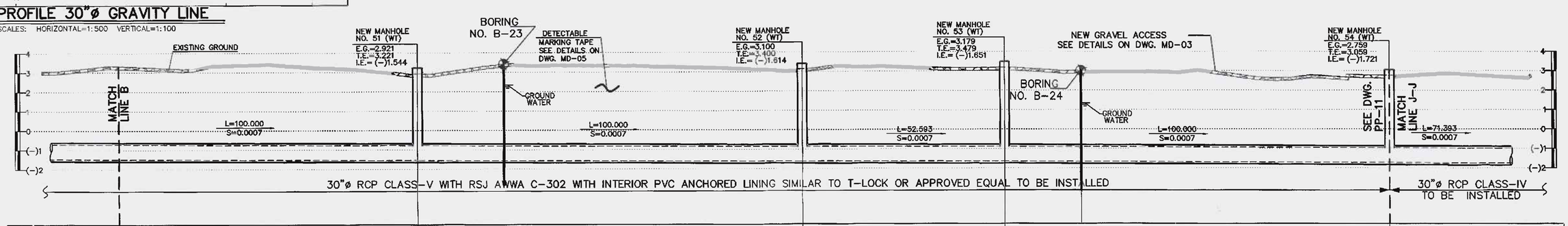
NOTE:
1-ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
2-SEE CROSS SECTIONS ON DWG. CS-01
3-FOR MANHOLES PARTIAL DEMOLITION DETAIL REFER TO DWG. MD-05.
4-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
20+82.985	100.000	(-)1.436	3.090
21+37.543	54.558	(-)1.474	3.344
21+60.000	22.457	(-)1.490	3.321

PROFILE 30"ø GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
21+60.000	22.457	(-)1.490	3.321
22+37.543	77.543	(-)1.544	3.221
23+37.543	100.000	(-)1.614	3.400
23+90.136	52.593	(-)1.651	3.479
24+90.136	100.000	(-)1.721	3.059

PROFILE 30"ø GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES ENGINEER LICENSED LIC. 015446 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

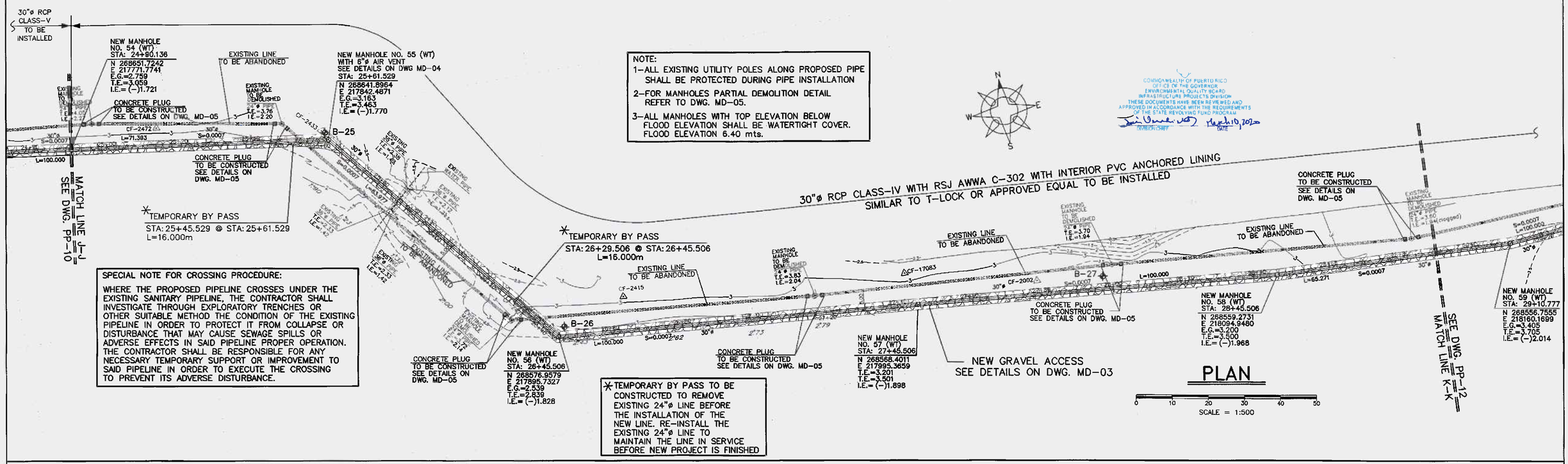
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE:	PROPOSED 30"ø GRAVITY LINE PLAN & PROFILE
DRAFTED BY:	
DRAFTER LICENCE NO.:	
DATE	
DESIGNED BY:	A.A.F.T.
DATE	02/20/2020
REVISED BY:	
DATE	
SUBMITTED BY:	
DATE	
SCALES:	H=1:500 V=1:100
DRWG NO.	PP-10
SHEET NO.	16
	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\16-PP-10-PLAN AND PROFILE 30in DIAM.GRAVITY LINE.dwg 7/16/2014 4:31:22 PM EST

NOTE:
1–ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
2–FOR MANHOLES PARTIAL DEMOLITION DETAIL REFER TO DWG. MD–05.
3–ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL BE WATERTIGHT COVER. FLOOD ELEVATION 6.40 mts.

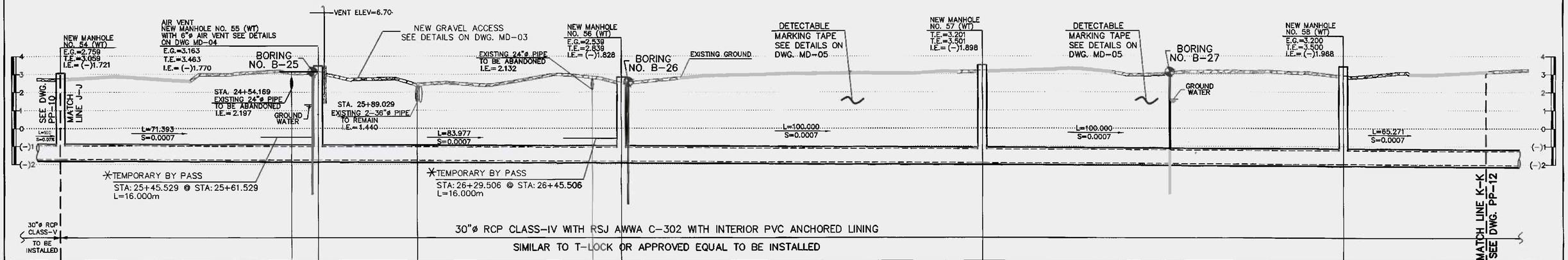
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE



SPECIAL NOTE FOR CROSSING PROCEDURE:

WHERE THE PROPOSED PIPELINE CROSSES UNDER THE EXISTING SANITARY PIPELINE, THE CONTRACTOR SHALL INVESTIGATE THROUGH EXPLORATORY TRENCHES OR OTHER SUITABLE METHOD THE CONDITION OF THE EXISTING PIPELINE IN ORDER TO PROTECT IT FROM COLLAPSE OR DISTURBANCE THAT MAY CAUSE SEWAGE SPILLS OR ADVERSE EFFECTS IN SAID PIPELINE PROPER OPERATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY TEMPORARY SUPPORT OR IMPROVEMENT TO SAID PIPELINE IN ORDER TO EXECUTE THE CROSSING TO PREVENT ITS ADVERSE DISTURBANCE.

TEMPORARY BY PASS TO BE CONSTRUCTED TO REMOVE EXISTING 24"ø LINE BEFORE THE INSTALLATION OF THE NEW LINE. RE-INSTALL THE EXISTING 24"ø LINE TO MAINTAIN THE LINE IN SERVICE BEFORE NEW PROJECT IS FINISHED



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
24+90.136	30.136	(–)1.721	3.059
24+54.169	64.033	(–)1.766	3.144
25+61.529	7.360	(–)1.770	3.463
25+89.029	27.500	(–)1.789	2.502
26+37.506	48.477	(–)1.823	2.892
26+45.506	8.000	(–)1.828	2.839
27+45.506	100.000	(–)1.898	3.501
28+45.506	100.000	(–)1.968	3.500
28+85.000	36.091	(–)1.996	3.176

PROFILE 30"ø GRAVITY LINE

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FONTÁNEZ INGENIERO LICENCIADO LIC. #19448 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

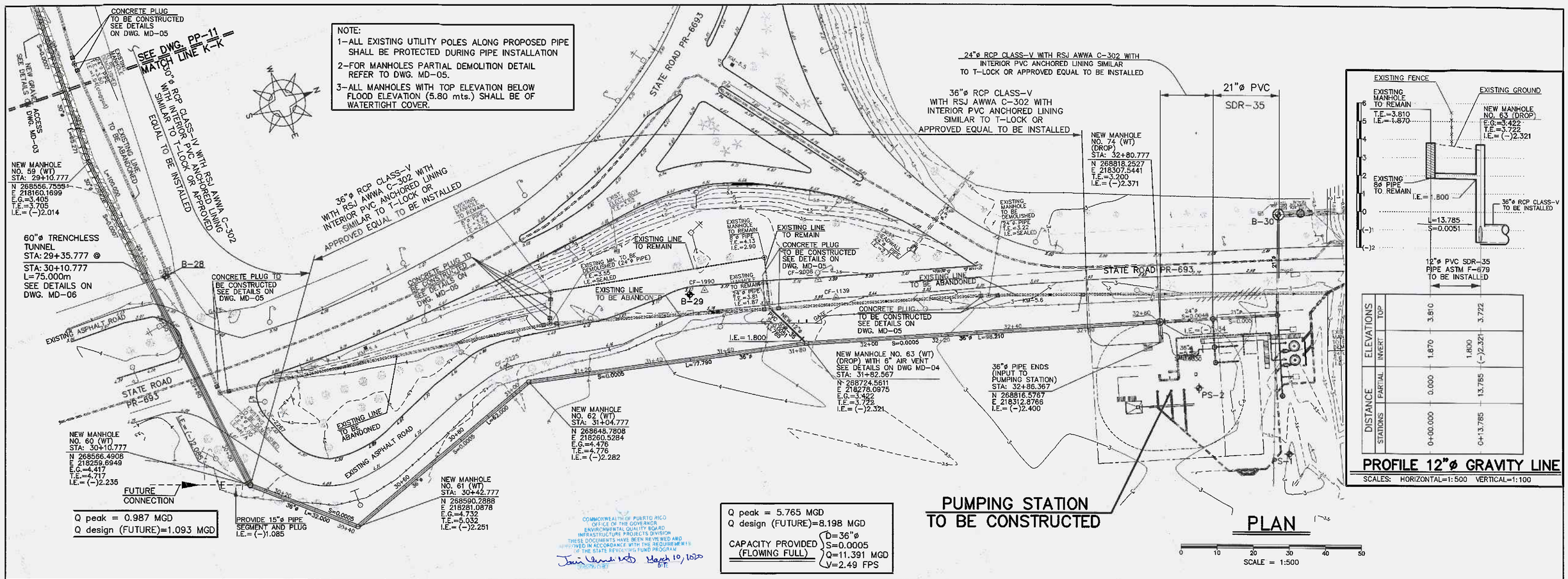
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 30"ø GRAVITY LINE PLAN & PROFILE			SCALES: H=1:500 V=1:100
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PP-11
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 17
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\17-PP-11-PLAN AND PROFILE 30in DIAM.GRAVITY LINE.dwg 7/16/2014 4:32:16 PM EST

NOTE:
1-ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
2-FOR MANHOLES PARTIAL DEMOLITION DETAIL REFER TO DWG. MD-05.
3-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION (5.80 mts.) SHALL BE OF WATERTIGHT COVER.



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jana CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FIGUEROA INCENIERO LICENCIADO LIC. #19448 PUERTO RICO

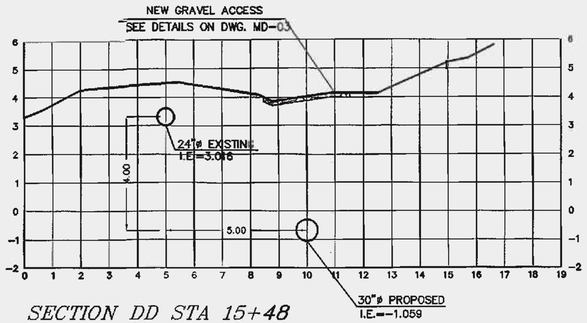
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

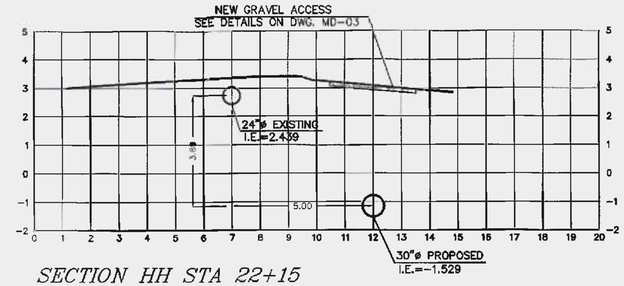
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 30"ø & 36"ø GRAVITY LINES PLAN & PROFILE			SCALES: H=1:500 V=1:100
DRAFTED BY:	DRAFTER LICENCE NO.	DATE	DRWG NO. PP-12
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 18
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

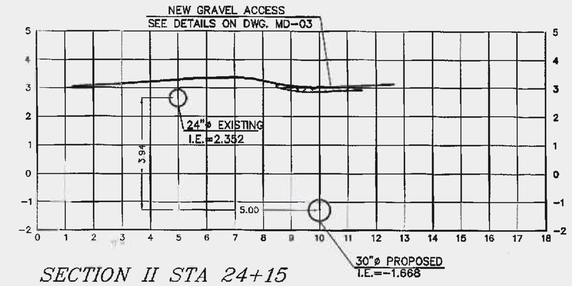
Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\18-PP-12-PLAN AND PROFILE 30in & 36in DIAM.GRAVITY LINE.dwg 7/16/2014 4:36:06 PM EST



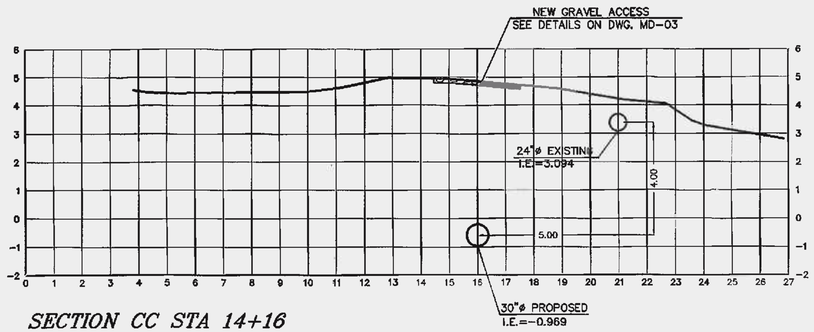
SECTION DD STA 15+48



SECTION HH STA 22+15

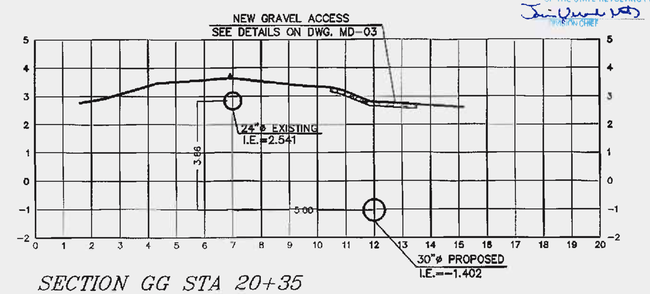


SECTION II STA 24+15

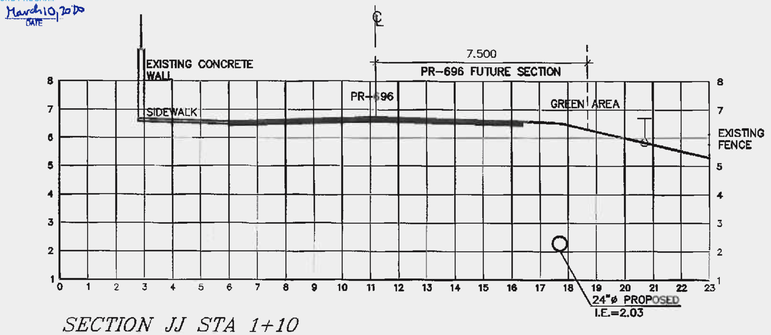


SECTION CC STA 14+16

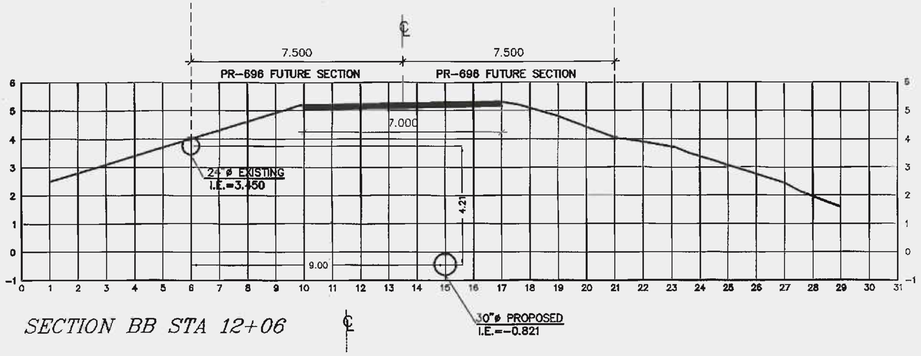
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF DATE



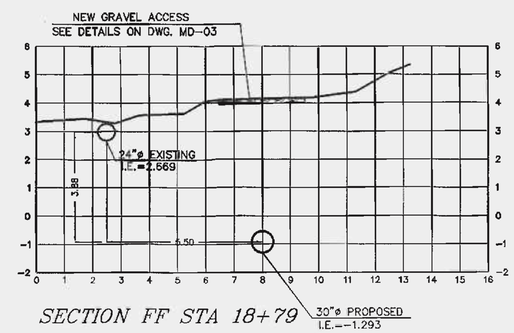
SECTION GG STA 20+35



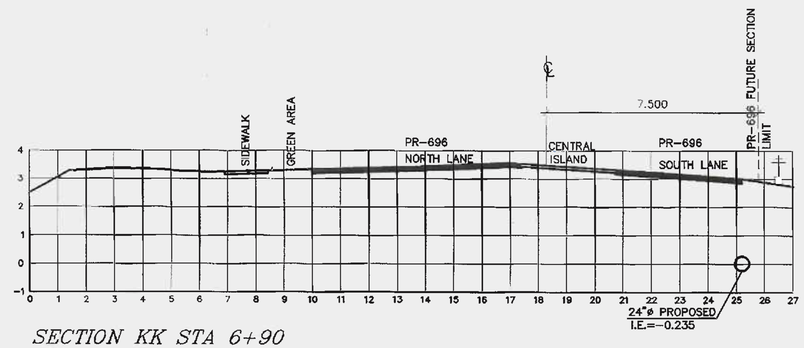
SECTION JJ STA 1+10



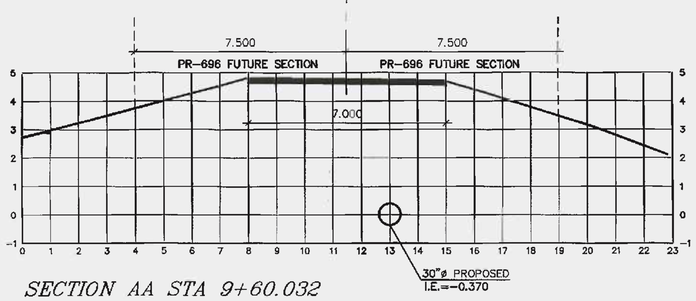
SECTION BB STA 12+06



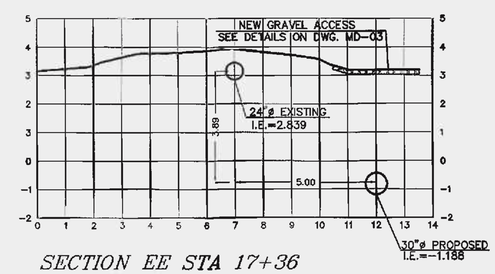
SECTION FF STA 18+79



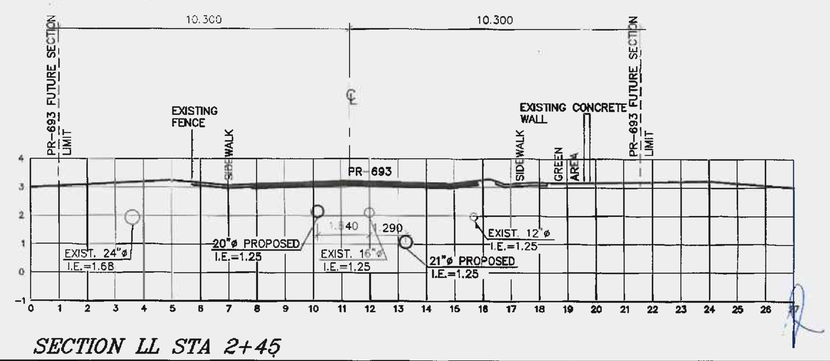
SECTION KK STA 6+90



SECTION AA STA 9+60.032



SECTION EE STA 17+36



SECTION LL STA 2+45

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: CROSS SECTIONS PR-696			SCALES: H=1:100 V=1:100
			DRWG NO. CS-01
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SHEET NO. 19
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\19-CS-01-CROSS-SECTIONS A-AA-1.dwg 7/16/2014 4:36:36 PM EST

NOTES:

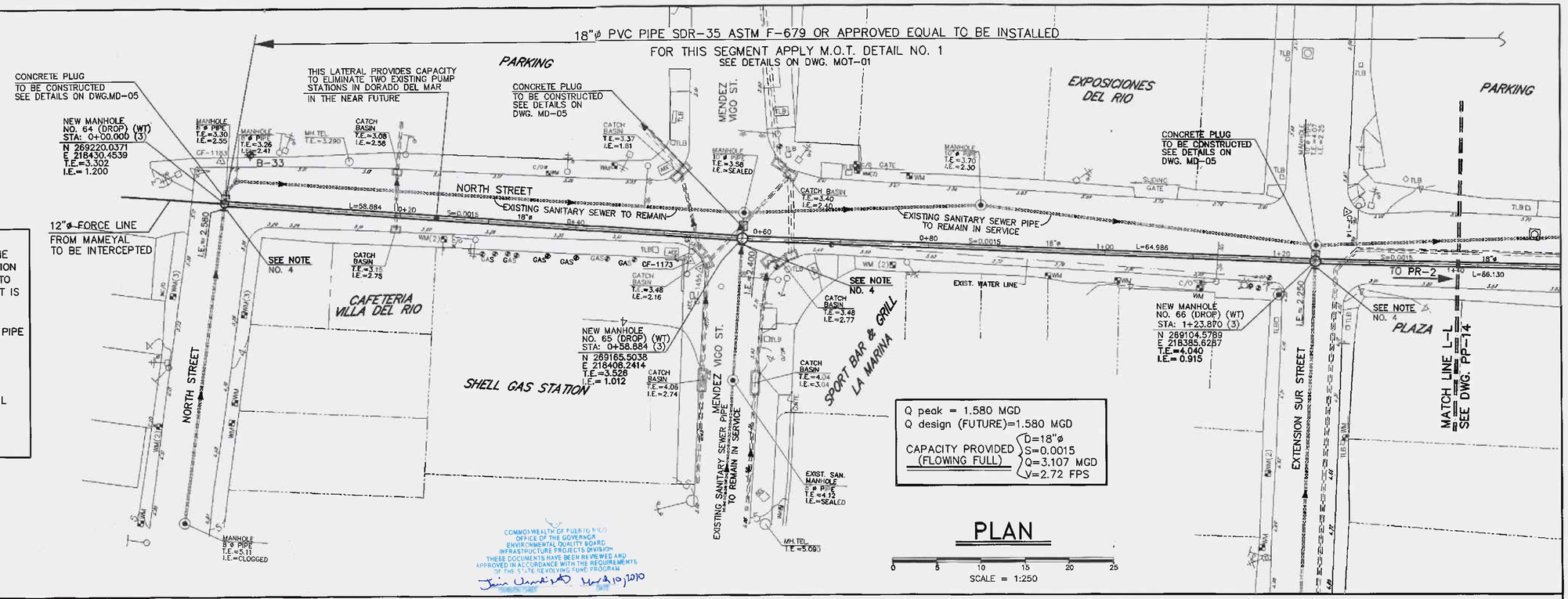
1-THE CONTRACTOR IS RESPONSIBLE TO DETERMINE EXACT LOCATION WITH AN EXPLORATORY EXCAVATION AT NO EXTRA COST TO THE OWNER AND SUBMIT TO THE DESIGNER IF ANY CHANGES IN THE ALIGNMENT IS NECESSARY.

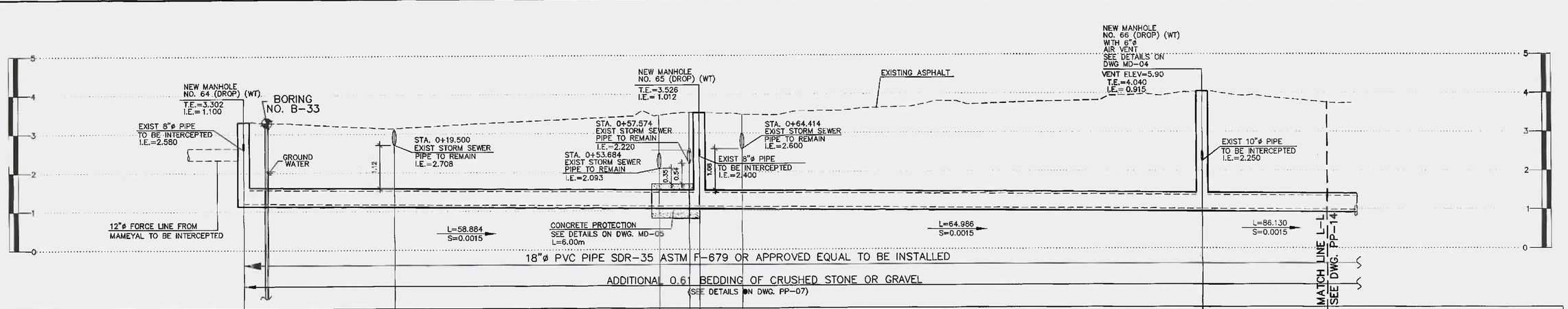
2-ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION

3-FOR MANHOLES PARTIAL DEMOLITION DETAIL REFER TO DWG. MD-05.

4-EXISTING LINES TO BE MAINTAINED IN USE UNTIL NEW LINES ARE IN USE.

5-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION (5.20 mts.) SHALL BE OF WATERTIGHT COVER.





ELEVATIONS TOP	3.302	3.131	3.464	3.527	3.526	3.484	4.040	3.756
ELEVATIONS INVERT	1.100	1.071	1.020	1.014	1.012	1.004	0.915	0.891
DISTANCE PARTIAL	0.000	19.500	34.184	3.890	1.310	5.530	59.456	16.130
DISTANCE STATIONS	0+00.000	0+19.500	0+53.684	0+57.574	0+58.884	0+64.414	1+23.870	1+40.000

PROFILE 18"ø GRAVITY LINE

SCALES: HORIZONTAL=1:250 VERTICAL=1:50

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FELIBERTI
INGENIERO LICENCIADO
LIC. #18446
PUERTO RICO

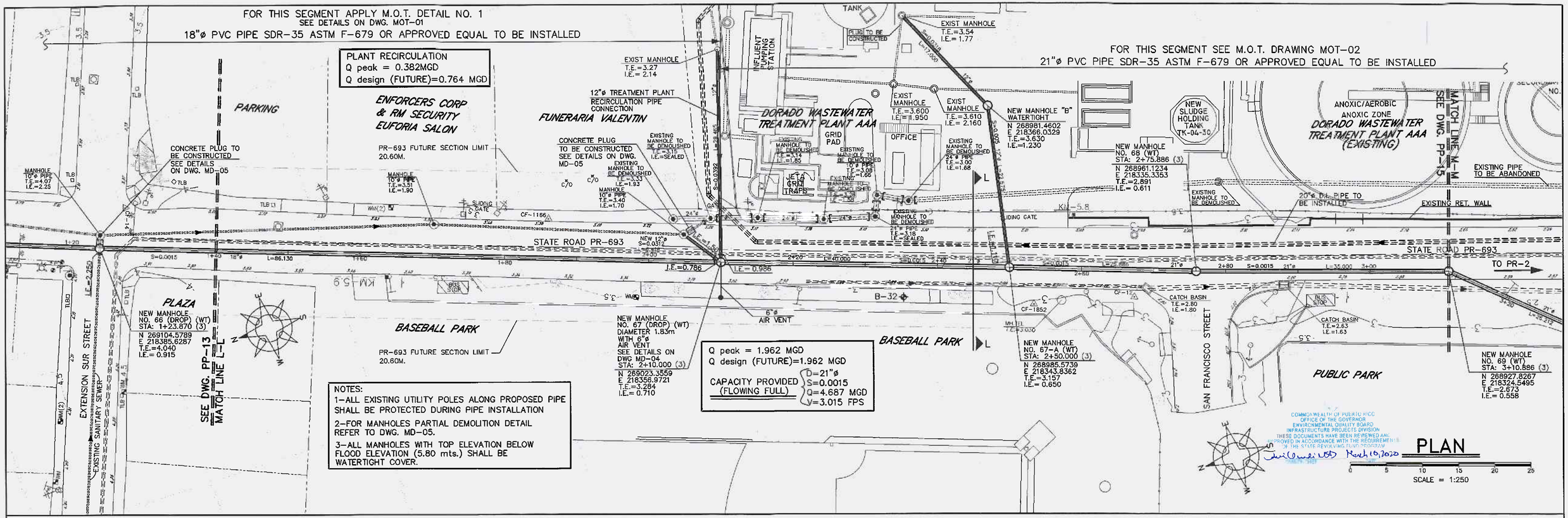
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

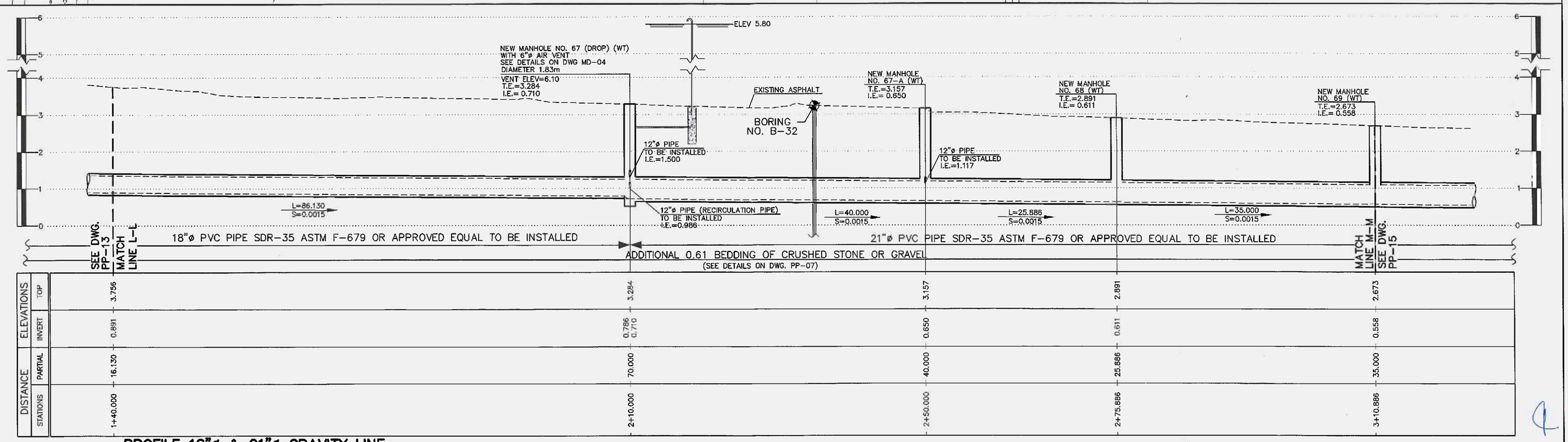
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 18"ø GRAVITY LINE PLAN & PROFILE			SCALES: H=1:250 V=1:50
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PP-13
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 20
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\20-PP-13-PLAN AND PROFILE 18in DIAM.GRAVITY LINE.dwg 12/01/2014 11:06:15 AM SWST





DISTANCE		ELEVATIONS	
STATIONS	PARTIAL	INVERT	TOP
1+40.000	16.130	0.891	3.756
2+10.000	70.000	0.786 / 0.710	3.284
2+50.000	40.000	0.650	3.157
2+75.886	25.886	0.611	2.891
3+10.886	35.000	0.558	2.673

PROFILE 18"ø & 21"ø GRAVITY LINE

SCALES: HORIZONTAL=1:250 VERTICAL=1:50

NO.	REMARKS	DATE	BY	APPV'D.
	REVISIONS			

CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19468 PUERTO RICO

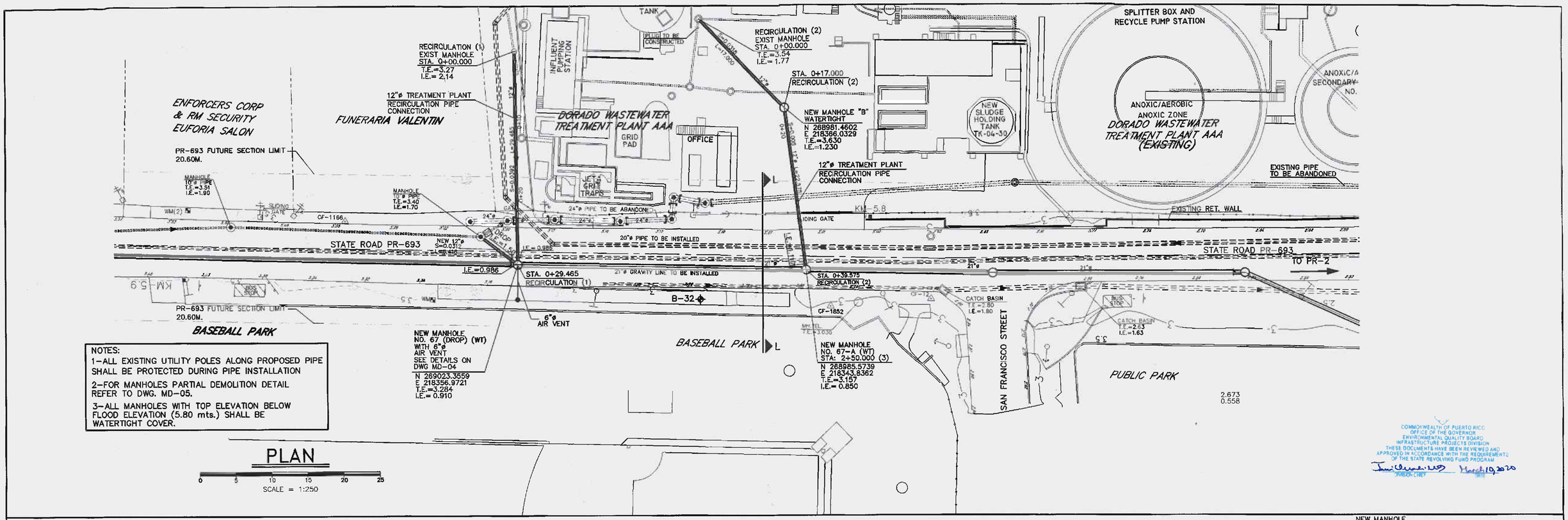
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED 18"ø & 21"ø GRAVITY LINE PLAN & PROFILE			SCALES: H=1:250 V=1:50
			DRWG NO. PP-14
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SHEET NO. 21
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\21-PP-14-PLAN AND PROFILE 18in & 21in DIAM.GRAVITY LINE.dwg 11/26/2014 9:47:29 AM SWST

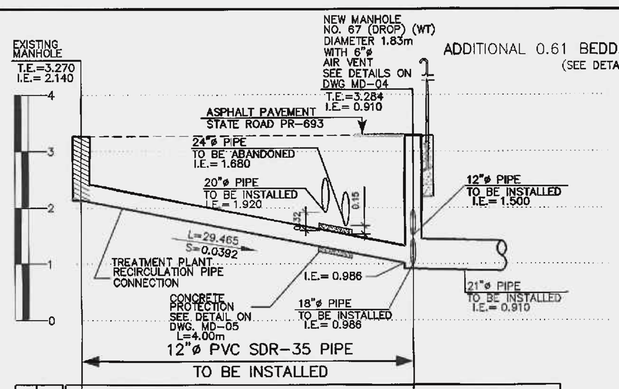


NOTES:
1-ALL EXISTING UTILITY POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION
2-FOR MANHOLES PARTIAL DEMOLITION DETAIL REFER TO DWG. MD-05.
3-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION (5.80 mts.) SHALL BE WATERTIGHT COVER.

PLAN

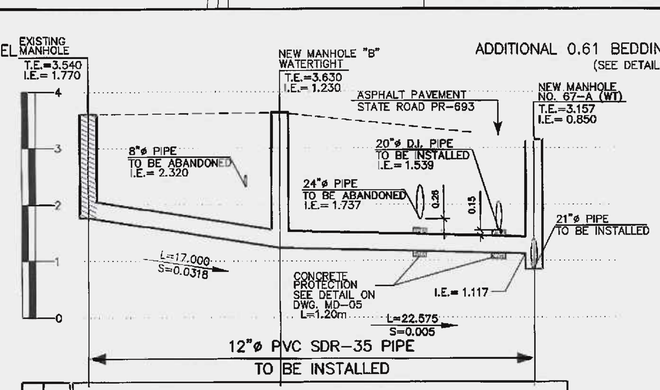
0 5 10 15 20 25
SCALE = 1:250

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 19, 2020
DIVISION CHIEF



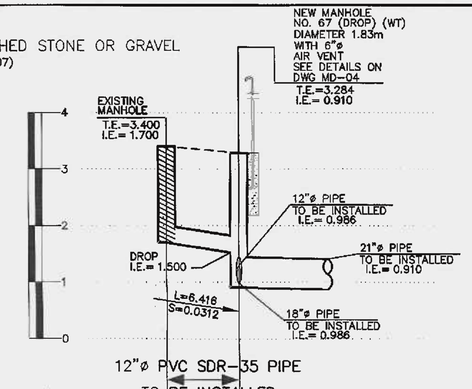
DISTANCE		ELEVATIONS	
STATIONS	PARTIAL	INVERT	TOP
0+00.000	0.000	2.140	3.270
0+29.465	29.465	0.986 0.910	3.284

RECIRCULATION (1)
PROFILE 12"ø GRAVITY LINE
SCALES: HORIZONTAL=1:250 VERTICAL=1:50



DISTANCE		ELEVATIONS	
STATIONS	PARTIAL	INVERT	TOP
0+00.000	0.000	1.770	3.540
0+17.000	17.000	1.230	3.630
0+39.575	22.575	1.117 0.850	3.157

RECIRCULATION (2)
PROFILE 12"ø GRAVITY LINE
SCALES: HORIZONTAL=1:250 VERTICAL=1:50



DISTANCE		ELEVATIONS	
STATIONS	PARTIAL	INVERT	TOP
0+00.000	0.000	1.700	3.400
0+06.416	6.416	1.500 0.910	3.284

PROFILE 12"ø GRAVITY LINE
SCALES: HORIZONTAL=1:250 VERTICAL=1:50

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES
INGENIERO LICENCIADO
LIC. #18446
PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

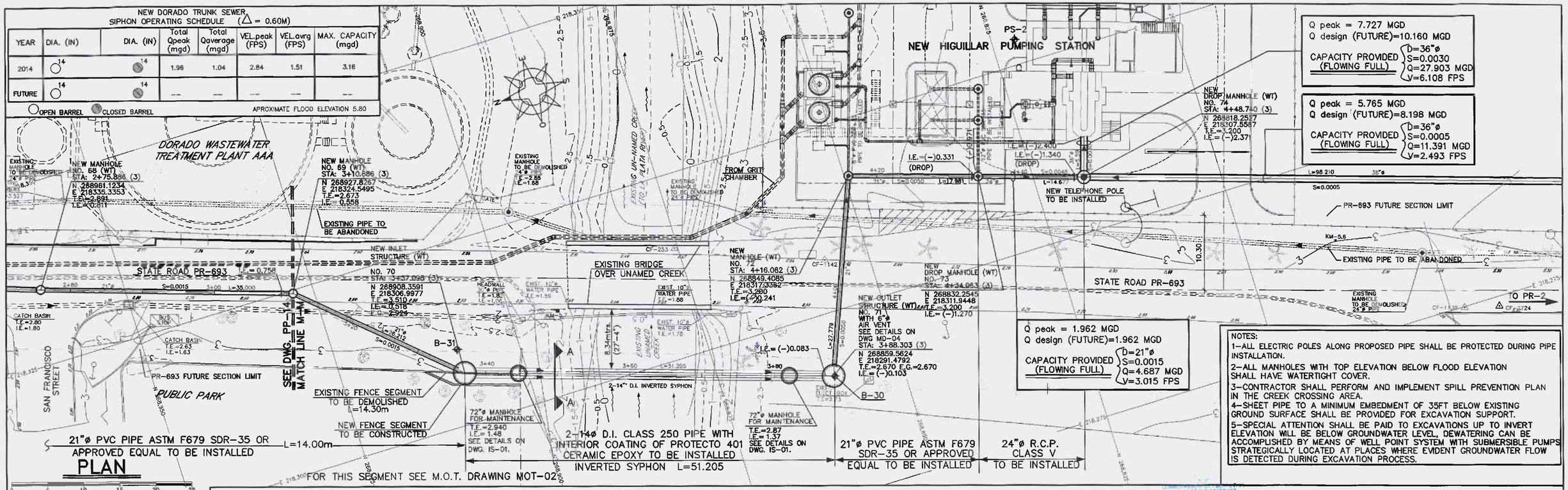
SHEET TITLE: PROPOSED 12"ø RECIRCULATION PIPE PLAN & PROFILE			SCALES: H=1:250 V=1:50
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PP-14A
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 21A
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\21A-PP-14A-PLAN AND PROFILE RECIRCULATION_PIPE.dwg 7/16/2014 5:30:09 PM SWST

NEW DORADO TRUNK SEWER
SIPHON OPERATING SCHEDULE (△ = 0.60M)

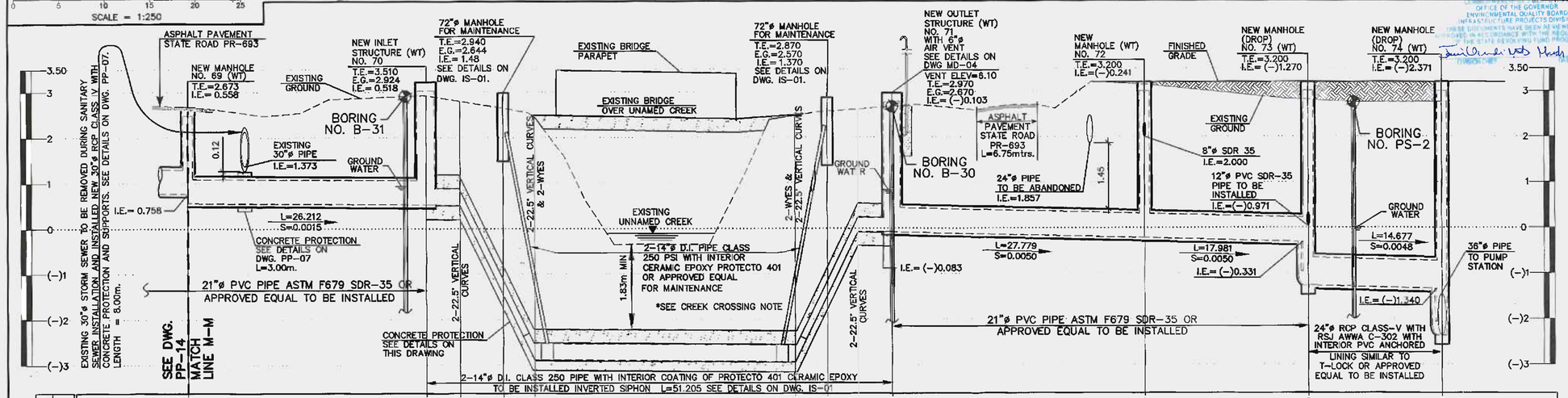
YEAR	DIA. (IN)	DIA. (IN)	Total Qpeak (mgd)	Total Qaverage (mgd)	VEL.peak (FPS)	VEL.avrg (FPS)	MAX. CAPACITY (mgd)
2014	○ 14	◐ 14	1.96	1.04	2.84	1.51	3.18
FUTURE	○ 14	◐ 14	--	--	--	--	--

○ OPEN BARREL ◐ CLOSED BARREL APROXIMATE FLOOD ELEVATION 5.80



NOTES:
1-ALL ELECTRIC POLES ALONG PROPOSED PIPE SHALL BE PROTECTED DURING PIPE INSTALLATION.
2-ALL MANHOLES WITH TOP ELEVATION BELOW FLOOD ELEVATION SHALL HAVE WATERTIGHT COVER.
3-CONTRACTOR SHALL PERFORM AND IMPLEMENT SPILL PREVENTION PLAN IN THE CREEK CROSSING AREA.
4-SHEET PIPE TO A MINIMUM EMBEDMENT OF 35FT BELOW EXISTING GROUND SURFACE SHALL BE PROVIDED FOR EXCAVATION SUPPORT.
5-SPECIAL ATTENTION SHALL BE PAID TO EXCAVATIONS UP TO INVERT ELEVATION WILL BE BELOW GROUNDWATER LEVEL, DEWATERING CAN BE ACCOMPLISHED BY MEANS OF WELL POINT SYSTEM WITH SUBMERSIBLE PUMPS STRATEGICALLY LOCATED AT PLACES WHERE EVIDENT GROUNDWATER FLOW IS DETECTED DURING EXCAVATION PROCESS.

PLAN

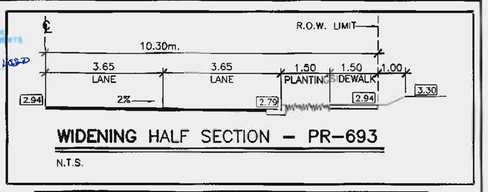


DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS TOP	ELEVATIONS INVERT
3+10.886	35.000	2.673	0.758 / 0.558
3+37.098	26.212	3.510	0.518
3+40.827	3.729	2.800	0.512
3+45.557	4.730	2.940	1.480
3+49.027	3.470	2.438	(-)2.88
3+77.637	28.610	2.515	(-)2.926
3+81.177	3.540	2.870	1.370
3+84.535	3.358	2.616	(-)0.064
3+88.303	3.768	2.970	(-)0.083 / (-)0.103
4+16.082	27.779	3.200	(-)0.241
4+34.063	17.981	3.200	(-)0.331 / (-)1.270
4+48.740	14.677	3.200	(-)1.340 / (-)2.371

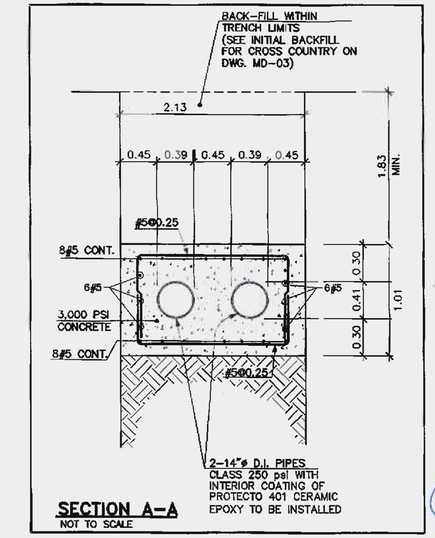
PROFILE 21"ø, 24"ø GRAVITY LINES & 2-14"ø D.I. INVERTED SIPHON

SCALES: HORIZONTAL=1:250 VERTICAL=1:50

ADDITIONAL 0.61 BEDDING OF CRUSHED STONE OR GRAVEL (SEE DETAILS ON DWG. PP-07)



WIDENING HALF SECTION - PR-693
N.T.S.



SECTION A-A
NOT TO SCALE

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

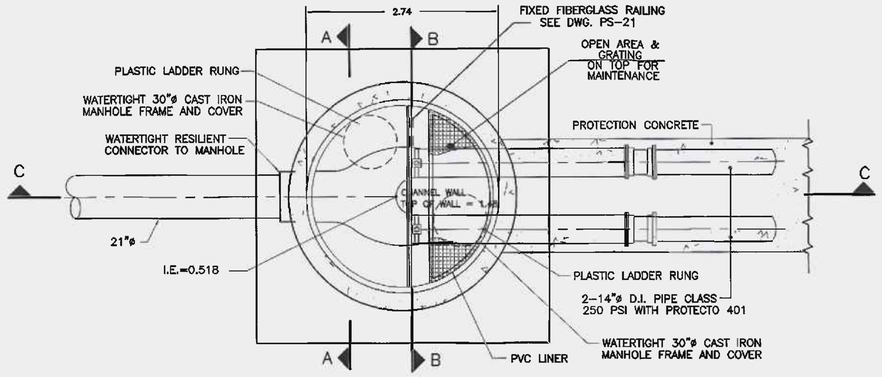
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

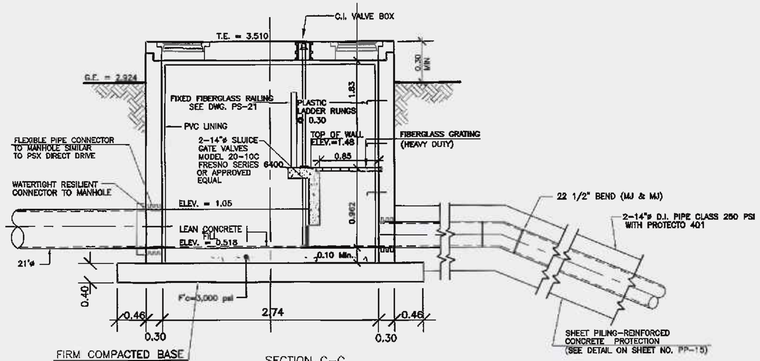
OFFICE OF THE GOVERNOR ENVIRONMENTAL QUALITY BOARD INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM

SHEET TITLE: PROPOSED 18"ø, 21"ø, 24"ø GRAVITY LINES & 2-14"ø D.I. INVERTED SIPHON PLAN & PROFILE			SCALES: H=1:250 V=1:50
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PP-15
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 22
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

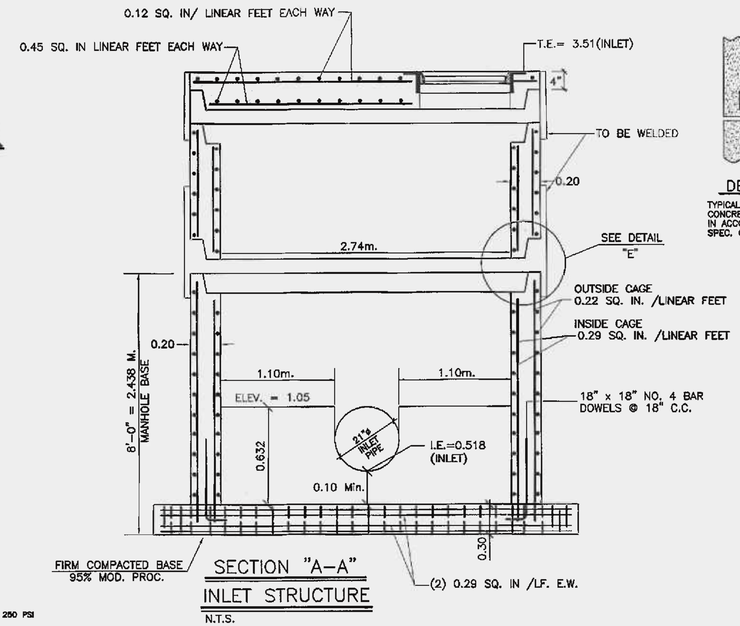
Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\22-PP-15-PLAN AND PROFILE 21in GRAVITY LINE & 2-14in DI INVERTED SIPHON.dwg 7/16/2014 4:40:48 PM EST



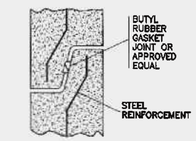
NEW INLET STRUCTURE BOTTOM DETAIL



SECTION C-C
M.H. 70 INLET STRUCTURE

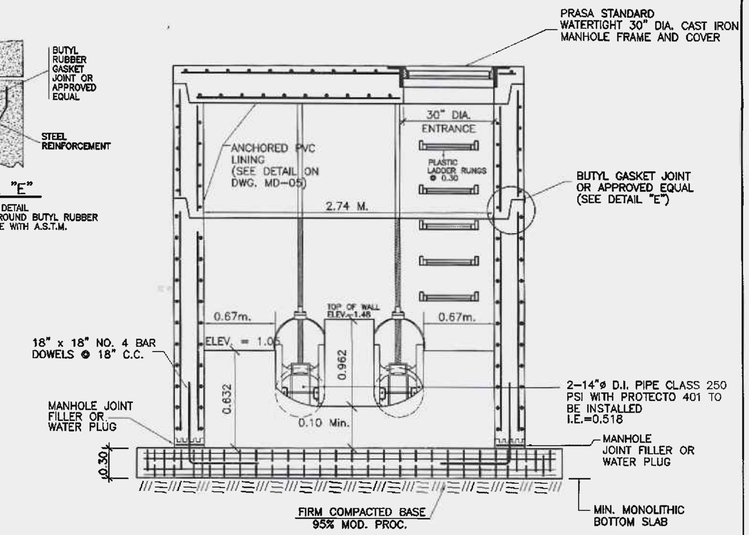


SECTION "A-A"
INLET STRUCTURE
N.T.S.



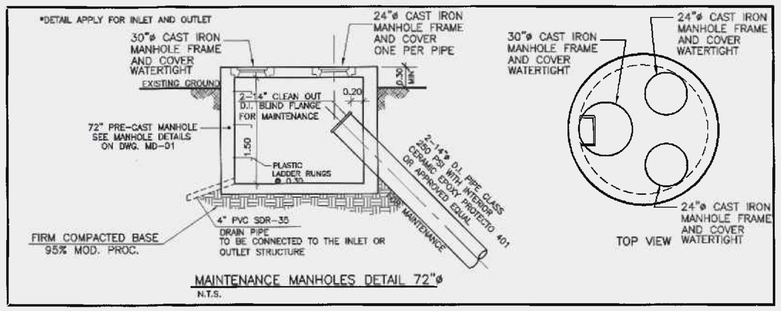
DETAIL "E"

TYPICAL JOINT DETAIL CONCRETE & ROUND BUTYL RUBBER IN ACCORDANCE WITH A.S.T.M. SPEC. C-361

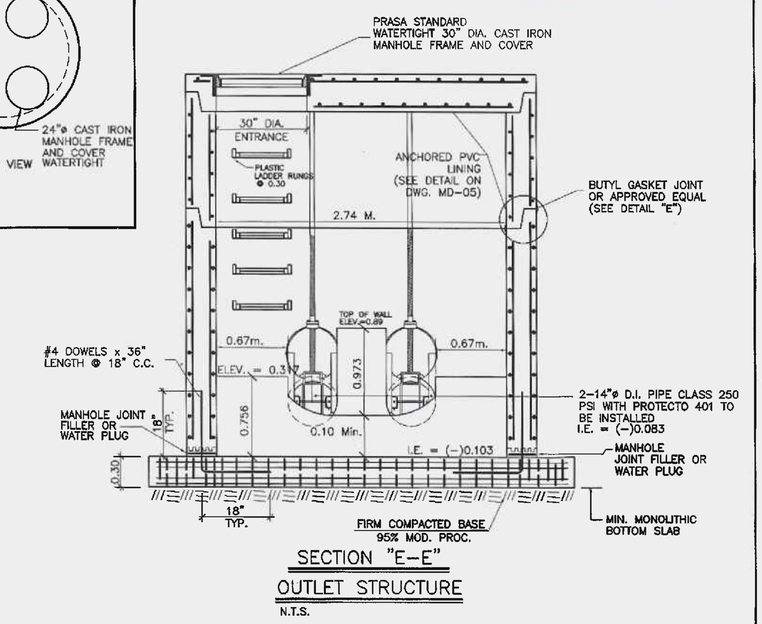


SECTION "B-B"
INLET STRUCTURE
N.T.S.

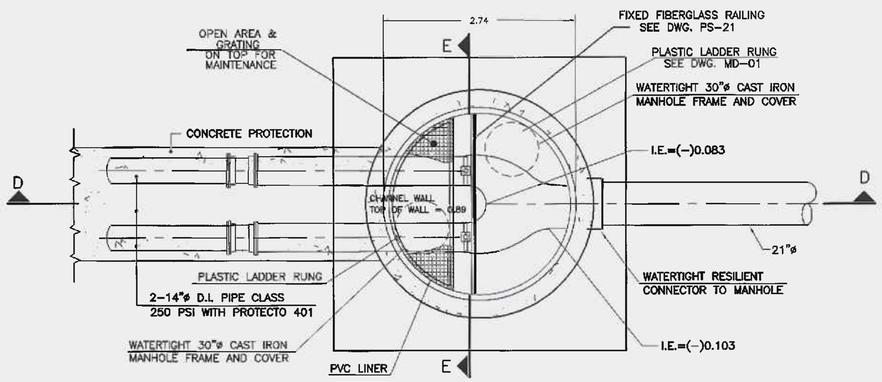
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 12, 2020
DATE



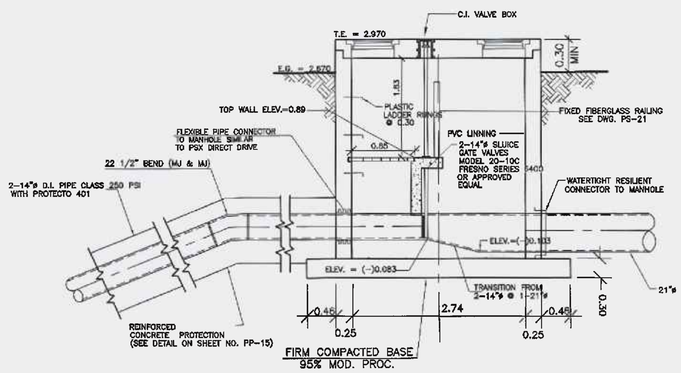
MAINTENANCE MANHOLES DETAIL 72"ø
N.T.S.



SECTION "E-E"
OUTLET STRUCTURE
N.T.S.



OUTLET STRUCTURE BOTTOM DETAIL
(M.H. 71)



SECTION D-D
OUTLET STRUCTURE

STRUCTURAL DETAILS OF INLET & OUTLET STRUCTURES

N.T.S.

NOTE:
FOR PLASTIC LADDER RUNGS DETAILS SEE DWG. MD-01

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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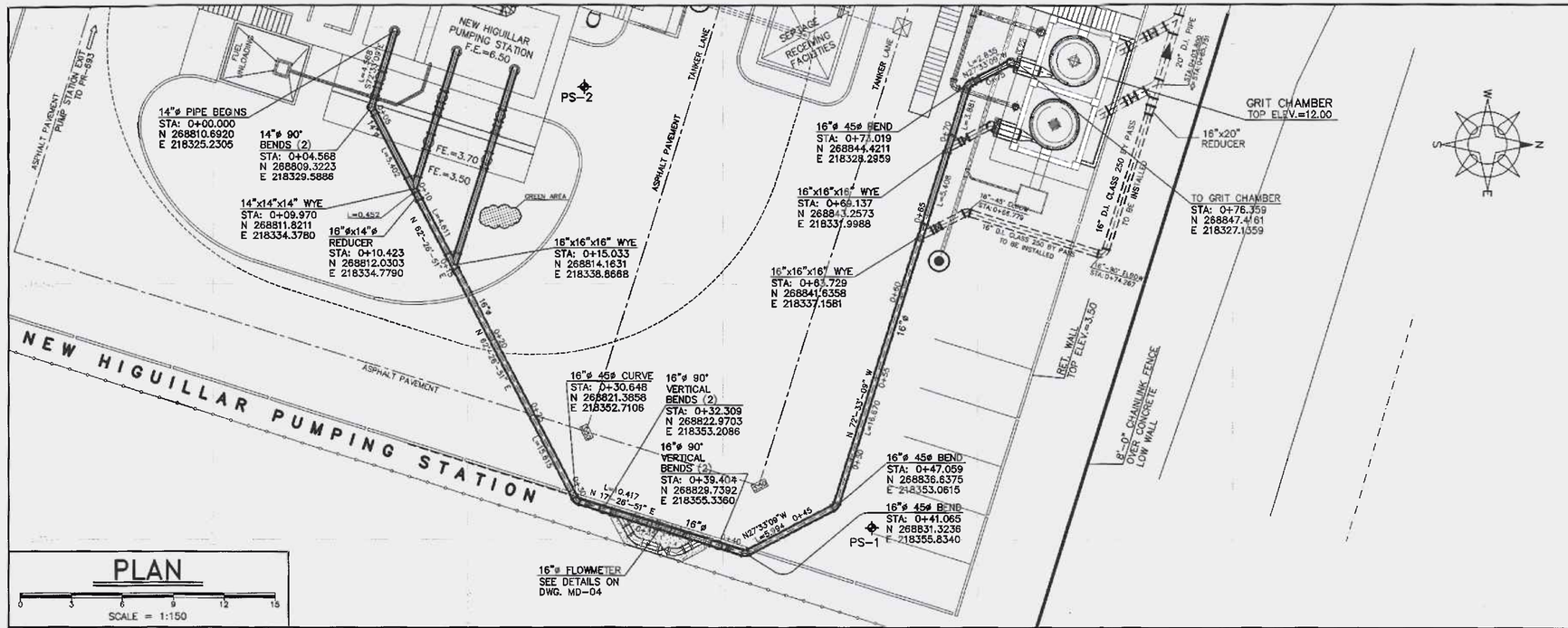
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

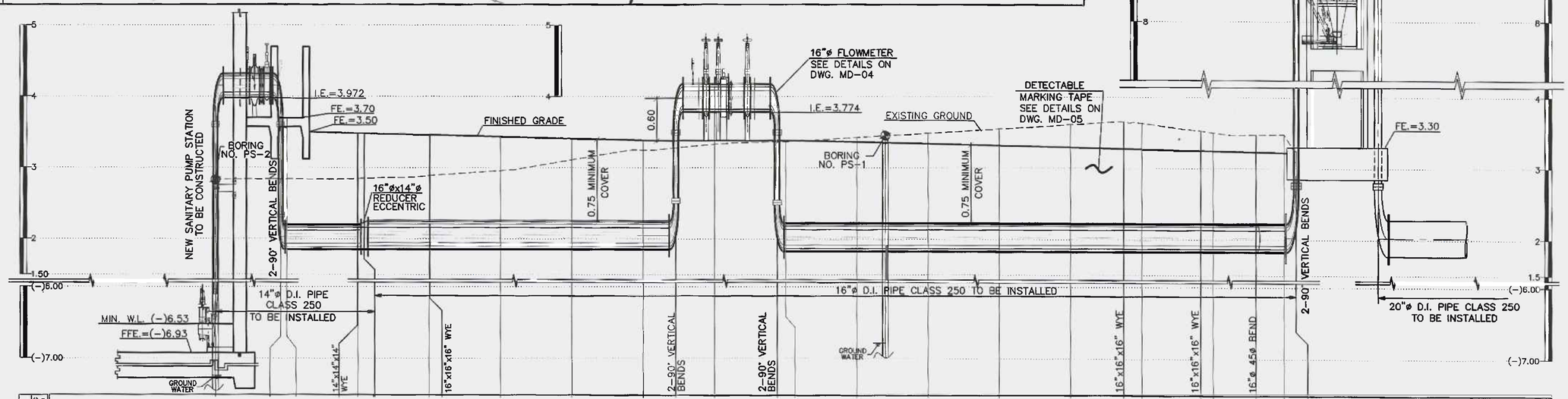
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PROPOSED INVERTED SYPHON DETAILS			PLOT SCALE: N.T.S.
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. IS-01
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 23
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



PLAN

SCALE = 1:150



NOTE:
FORCE LINE MINIMUM COVER SHALL BE 0.75m

DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS PROPOSED GRADE	ELEVATIONS EXISTING GROUND
0+00.000	0.000	(-)6.93 / 3.972	3.700	2.835
0+04.568	4.568	3.972 / 1.846	3.700	2.835
0+05.000	0.432	1.846	3.482	2.843
0+09.970	4.970	1.846	3.483	2.843
0+10.000	0.030	1.846	3.480	2.847
0+10.441	0.441	1.846	3.480	2.847
0+15.000	4.559	1.846	3.457	2.885
0+15.033	0.033	1.846	3.457	2.885
0+20.000	4.967	1.846	3.431	2.953
0+25.000	5.000	1.846	3.406	3.104
0+30.000	5.000	1.846	3.380	3.245
0+32.309	2.309	1.846 / 3.774	3.377	3.275
0+35.000	2.691	3.774	3.377	3.325
0+39.404	4.404	3.774 / 1.820	3.377	3.362
0+40.000	0.596	1.820	3.377	3.365
0+45.000	5.000	1.820	3.359	3.422
0+50.000	5.000	1.820	3.336	3.486
0+55.000	5.000	1.820	3.313	3.549
0+60.000	5.000	1.820	3.290	3.613
0+63.729	3.729	1.820	3.273	3.652
0+65.000	1.271	1.820	3.268	3.634
0+69.137	4.137	1.820	3.249	3.524
0+70.000	2.458	1.820	3.245	3.501
0+73.019	3.019	1.820	3.231	3.471
0+75.000	1.981	1.820	3.222	3.473
0+76.359	1.359	10.500 / 2.148	3.300	3.244

PROFILE 14"ø & 16"ø D.I PIPE CLASS 250

SCALES: HORIZONTAL=1:150 VERTICAL=1:30

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

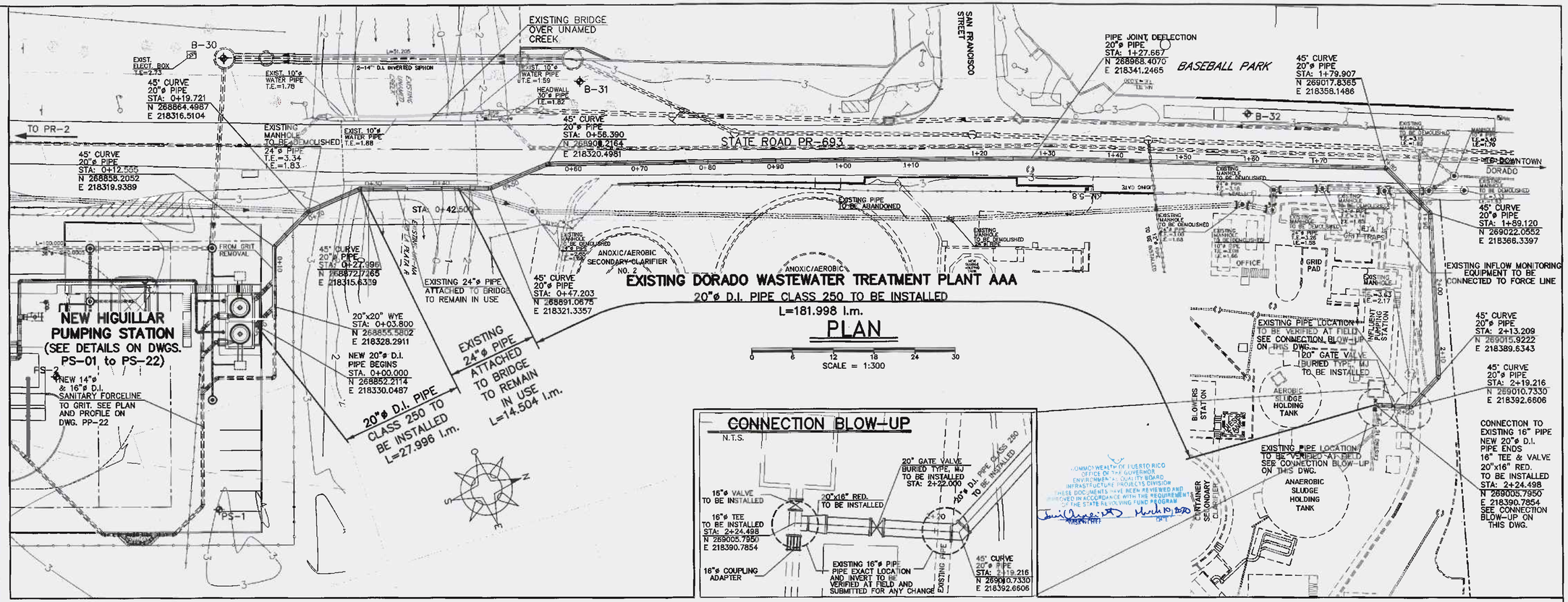
SHEET TITLE: PLAN AND PROFILE 14"ø AND 16"ø PIPE PUMP STATION OUTLET (FORCE MAIN)

SCALES: H=1:150 V=1:30
DRWG NO. PP-16
SHEET NO. 24

DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\24-PP-16-PLAN AND PROFILE 16in PIPE PUMP STATION OUTLET.dwg 7/16/2014 4:42:54 PM ES



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS E.G.
(-) 0+01.037	0.000	10.470	3.500
0+00.000	1.037	10.470	3.500
0+10.000	10.000	1.707	3.500
0+12.555	2.555	1.707	3.500
0+19.721	7.166	1.707	3.340
0+27.996	8.275	1.746	2.300
0+30.000	2.004	1.758	2.175
0+40.000	10.000	1.804	2.284
0+42.500	2.500	1.816	2.360
0+47.203	4.703	1.838	2.360
0+50.000	2.797	1.282	2.467
0+54.335	4.335	0.420	2.529
0+56.390	2.055	0.445	2.546
0+60.000	3.610	0.489	2.562
0+70.000	10.000	0.611	2.602
0+80.068	10.000	0.754	2.650
0+90.000	10.000	0.947	2.713
1+00.000	10.000	1.141	2.790
1+10.000	10.000	1.334	2.857
1+20.000	10.000	1.528	2.928
1+30.000	10.000	1.604	3.022
1+40.000	10.000	1.679	3.113
1+50.000	10.000	1.754	3.154
1+60.000	10.000	1.800	3.198
1+70.000	10.000	1.845	3.237
1+76.340	6.340	1.874	3.257
1+80.000	3.660	0.300	3.263
1+90.000	10.000	0.300	3.353
1+93.660	3.660	1.500	3.390
2+00.000	6.340	1.500	3.433
2+10.000	10.000	1.500	3.494
2+20.000	10.000	1.500	3.680
2+24.498	4.498	1.500	3.791
2+30.000	5.502	1.500	3.791 5.500

PROFILE 20"ø PRESSURE LINE

SCALES: HORIZONTAL=1:300 VERTICAL=1:60

ADDITIONAL 0.61 BEDDING OF CRUSHED STONE OR GRAVEL (SEE DETAILS ON DWG. PP-07)

NOTE: FOR HYDRAULIC PROFILE, REFER TO DWG. PS-04.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

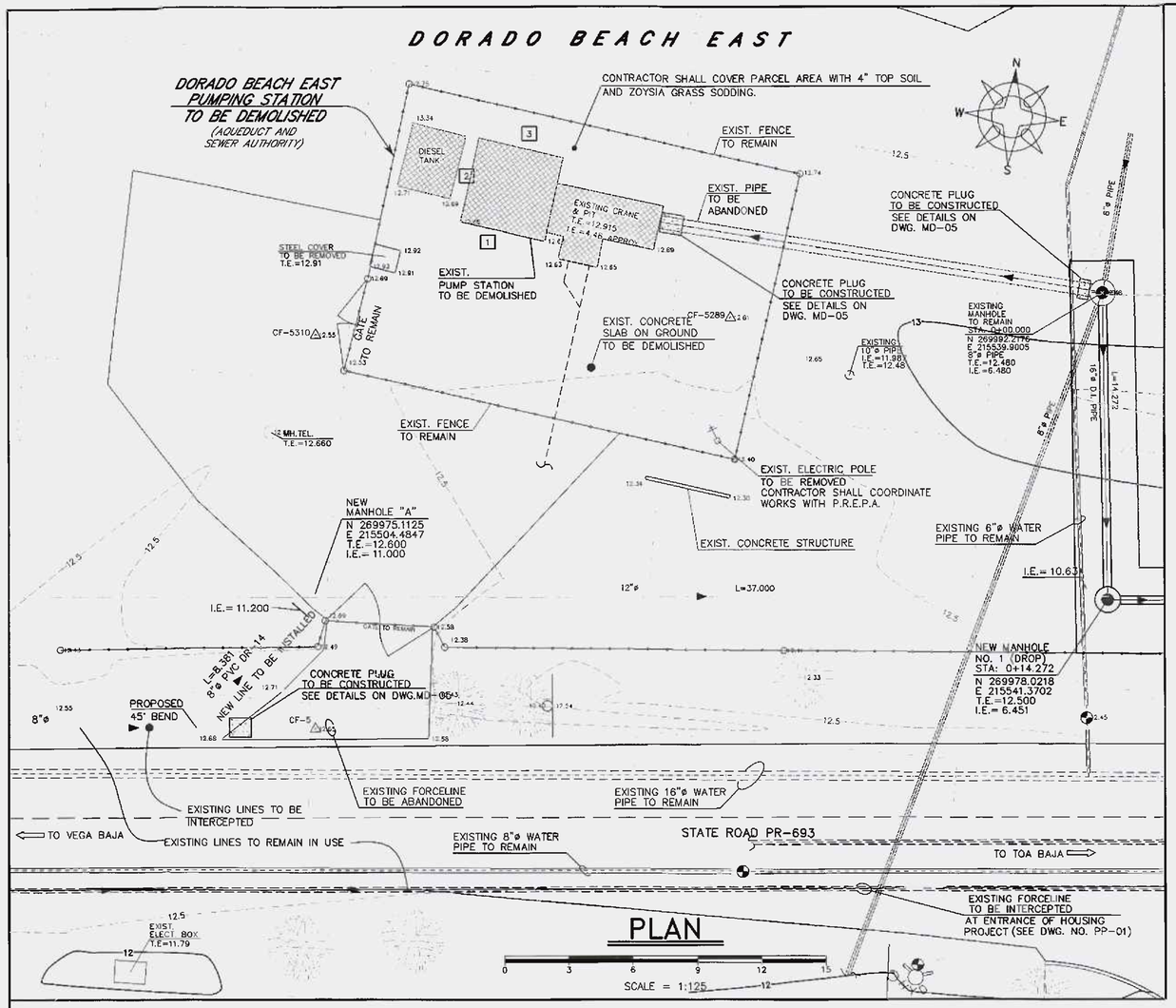
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: 20"ø SANITARY FORCE LINE TO DORADO (HIGUILLAR WARD) WASTEWATER TREATMENT PLANT

DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

SCALES: H=1:300 V=1:60
DRWG NO. PP-17
SHEET NO. 25
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\25-PP-17-20in DIAM PIPE TO WASTEWATER TREATMENT PLANT- PLAN AND PROFILE.dwg 12/01/2014 2:14:11 PM SWST



DEMOLITION NOTES:

1-THE CONSTRUCTION SITE SHALL BE MAINTAINED NEAT AND CLEAN FREE FROM ACCUMULATION OF TRASH AND DEBRIS, REMOVE ALL TRASH, DEBRIS, RUBBISH ETC. FROM SITE AND DISPOSE OF IT IN A LEGAL MANNER ON A DAILY BASIS.

2-DEMOLITION AND REMOVAL OF RUBBISH SHALL BE CONDUCTED IN A MANNER THAT ELIMINATES HAZARDS TO PERSON AND PROPERTY, AND SHALL PREVENT THE RELEASE OF DUST INTO THE AIR, REFERENCE SPECIFICATION SECTION 02D005 VOLUME B.

3-GENERAL CONTRACTOR SHALL COORDINATE WITH SUB CONTRACTORS OR RESPONSIBLE PARTIES FOR DEMOLITION WORK UNDER FLOOR SLABS FOR RUNS RELATED TO PLUMBING, MECHANICAL OR ELECTRICAL SYSTEMS, REFER RESPECTIVELY TO DRAWINGS OF EACH DISCIPLINE FOR LOCATION OF SAID RUNS, REQUIRED FOR PROPER DEMOLITION OF THESE SYSTEMS.

4-CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES INFLICTED TO ADJACENT PROPERTY OR OTHER AREAS DURING THE DEMOLITION PROCESS. DAMAGE ITEMS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

5-GENERAL CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS. DEMOLITION RESPONSIBILITIES ARE NOT NECESSARILY LIMITED TO THOSE PORTRAYED IN DEMOLITION PLAN.

6-DEMOLITION WORK INCLUDES REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH AND TRASH RESULTING FROM DEMOLITION WORK, AND SHALL BE EXECUTED IN CONFORMANCE WITH ALL LOCAL, STATE AND FEDERAL ORDINANCES AND REGULATIONS AS SET FORTH BY ALL GOVERMENT AUTHORITIES.

7-CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER IF ANY WORK INDICATED IN THE CONTRACT DOCUMENTS CANNOT BE PERFORMED DUE TO EXISTING FIELD CONDITIONS.

8-CONTRACTOR SHALL VERIFY LOCATION AND CURRENT USE OF ALL UTILITIES WITHIN THE PREMISES. ALL SURFACE OR ABOVE GROUND UTILITIES NOT IN USE OR LABELED TO REMAIN IN CONSTRUCTION DOCUMENTS SHALL BE REMOVED AND DISPOSED OF, ALL UNDERGROUND UTILITIES SHALL BE CAPPED OR SEALED, BURIED, AND DOCUMENTED FOR FUTURE REFERENCE.

9- THE DISPOSAL OF THE DEMOLITION AND REMOVAL MATERIAL SHALL BE AS INDICATED IN SECTION 02D005 VOLUME B.

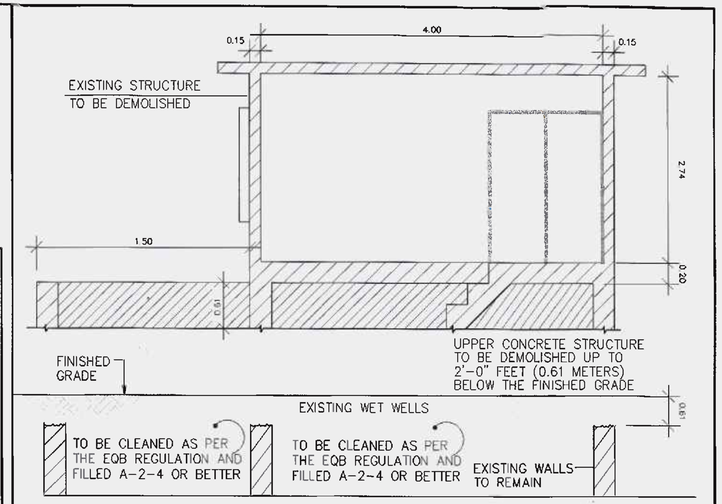
10-REMOVE ALL PLUMBING FIXTURES INCLUDING EXPOSED PIPING THAT WILL NOT BE REUSED FOR THE INSTALLATION OF NEW PLUMBING FIXTURE AS INDICATED IN MECHANICAL DRAWINGS. TAP SERVICES AS REQUIRED.

11-REMOVE ALL ABANDONED ELECTRICAL EQUIPMENT, CONDUITS, FIRE PROTECTION EQUIPMENT, PIPING AND A/C EQUIPMENT.

12-THE DEMOLITION SCOPE INTENT IS TO PREPARE THE EXISTING BUILDING FOR THE EXECUTION OF THE CONSTRUCTION SCOPE.

13-ALL DEMOLITION WORK SHALL BE COORDINATED WITH NEW CONSTRUCTION DRAWING, REPAIR AND FINISH TO MATCH EXISTING CONSTRUCTION EXISTING DIMENSIONS SHALL BE VERIFY IN FIELD.

14 CONTRACTOR SHALL COVER PARCEL AREA WITH 4" TOP SOIL AND ZOYSIA GRASS SODDING.



PUMPING STATION STRUCTURE TO BE DEMOLISHED

SCALE: N.T.S.

OTHER IMPORTANT DEMOLITION NOTES:

15-EVERYTHING TO BE DEMOLISHED MUST BE REMOVED FROM THE PROPERTY. ACCORDING TO SECTION 02D005.

16-THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL POSSIBLE DEMOLITION WORK PRIOR TO BIDDING THE PROJECT.

17-ITEMS TO BE ELIMINATED (PIPES, ETC.) MUST BE REMOVED FROM THE PROPERTY. ACCORDING TO SECTION 02D005.

18-ALL EXISTING PIPES & ELECTRICAL COMPONENTS TO BE ELIMINATED MUST BE REMOVED ONLY AFTER THE PIPES & ELECTRICAL COMPONENTS THAT REPLACES THEM ARE FULLY INSTALLED AND IN USE. THE CONTRACTOR MUST SUBMIT TO THE ENGINEER A CONSTRUCTION SEQUENCE SCHEDULE. THE SCHEDULE MUST BE APPROVED BEFORE THE CONTRACTOR CAN BEGIN ANY DEMOLITION WORK.

19-THE PUMP STATIONS AND MANHOLES SHOULD BE DEMOLISHED 2 FEET BELOW EXISTING GROUND. THE UNDERGROUND PITS SHOULD BE FILLED WITH SELECTED MATERIAL (A-2-4 OR BETTER). PUMP STATIONS SHALL BE DEMOLISHED ONCE THE NEW SANITARY TRUNK SEWER IS IN SERVICE AND THE EXISTING SANITARY SYSTEM IS CONNECTED TO THE NEW SANITARY TRUNK SEWER.

20-EXISTING EQUIPMENT TO BE REMOVED MUST BE TAKEN (BY THE CONTRACTOR) TO PRASA'S REGIONAL OFFICE (ARECIBO). THE CONTRACTOR MUST VERIFY WITH OWNER'S REPRESENTATIVE WHICH PARTS ARE TO BE STORED AND WHICH ARE TO BE DISPOSED OF.

21-TO PREVENT ANY WASTEWATER OVERFLOW OR SPILLS, THE CONTRACTOR SHALL CONSIDER TEMPORARY SUBMERSIBLE PUMPS AND PIPES IN THE MANHOLES FOR THE CONNECTION OF THE EXISTING SANITARY SEWER TO THE NEW SYSTEM.

22-THE CONTRACTOR SHALL SUBMIT DETAILS OF THE TEMPORARY SYSTEM, IF NECESSARY TO DIVERT THE FLOW OF THE EXISTING SANITARY SEWER. THIS METHOD SHOULD BE APPROVED BY THE ENGINEER AND OWNER'S REPRESENTATIVE.

23-FINAL GRADE SHALL MATCH EXISTING GRADE AND NATURAL DRAIN SHALL BE DIVERTED OUTSIDE THE PUMP STATION PARCEL.

24-THE APPROXIMATE FILL MATERIAL VOLUME INSIDE THE PUMP STATION IS 120 CUBIC METERS. ANY FILL MATERIAL IN EXCESS OF THIS VOLUME, WILL BE PAY THROUGH AN ALLOWANCE.

DEMOLITION LEGEND:

- INDICATED WALLS TO BE DEMOLISHED OR REMOVED.
- 1 DEMOLISH CONCRETE STRUCTURE
- 2 REMOVE EXISTING WINDOW OR LOUVERS.
- 3 REMOVE EXISTING DOOR OR FRAME.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19146 — PUERTO RICO

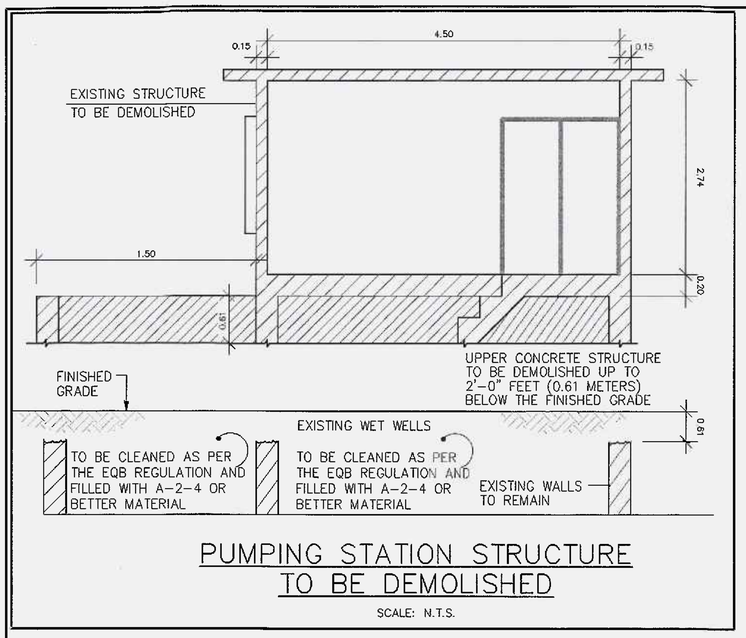
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

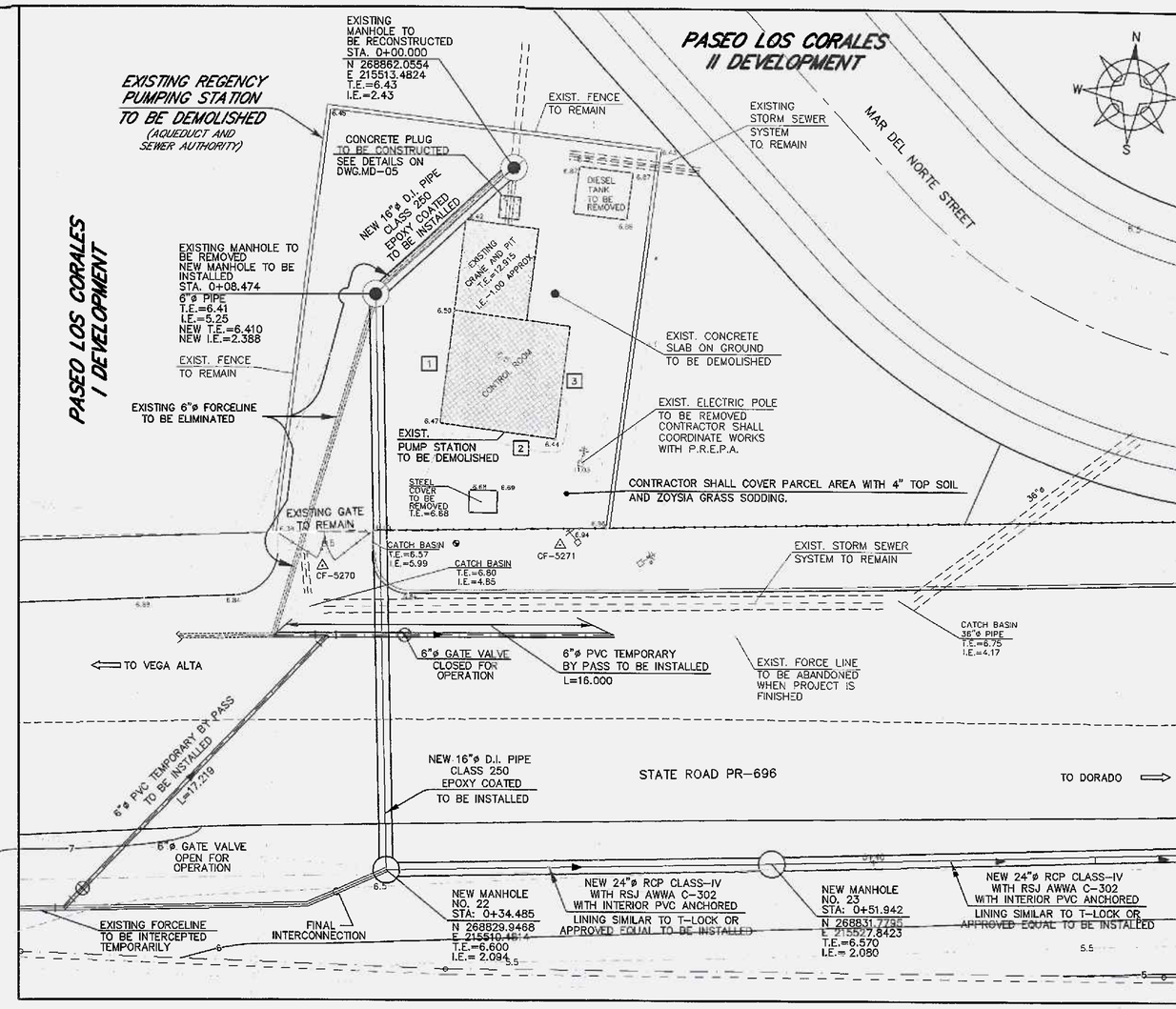
SHEET TITLE: DEMOLITION PLAN OF DORADO BEACH EAST PUMPING STATION			SCALES: H=1:125 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. DP-01
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 26
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\26-DP-01-DEMOLITION PLAN OF DORADO BEACH EAST PUMPING STATION.dwg 09/10/2014 8:54:14 AM SWST



PUMPING STATION STRUCTURE
TO BE DEMOLISHED

SCALE: N.T.S.



PLAN

0 3 6 9 12

SCALE = 1:125

DEMOLITION NOTES:

1-THE CONSTRUCTION SITE SHALL BE MAINTAINED NEAT AND CLEAN FREE FROM ACCUMULATION OF TRASH AND DEBRIS, REMOVE ALL TRASH, DEBRIS, RUBBISH ETC. FROM SITE AND DISPOSE OF IT IN A LEGAL MANNER ON A DAILY BASIS.

2-DEMOLITION AND REMOVAL OF RUBBISH SHALL BE CONDUCTED IN A MANNER THAT ELIMINATES HAZARDS TO PERSON AND PROPERTY, AND SHALL PREVENT THE RELEASE OF DUST INTO THE AIR, REFERENCE SPECIFICATION SECTION 02D005.

3-GENERAL CONTRACTOR SHALL COORDINATE WITH SUB CONTRACTORS OR RESPONSIBLE PARTIES FOR DEMOLITION WORK UNDER FLOOR SLABS FOR RUNS RELATED TO PLUMBING, MECHANICAL OR ELECTRICAL SYSTEMS, REFER RESPECTIVELY TO DRAWINGS OF EACH DISCIPLINE FOR LOCATION OF SAID RUNS, REQUIRED FOR PROPER DEMOLITION OF THESE SYSTEMS.

4-CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES INFLICTED TO ADJACENT PROPERTY OR OTHER AREAS DURING THE DEMOLITION PROCESS. DAMAGE ITEMS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

5-GENERAL CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS. DEMOLITION RESPONSIBILITIES ARE NOT NECESSARILY LIMITED TO THOSE PORTRAYED IN DEMOLITION PLAN.

6-DEMOLITION WORK INCLUDES REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH AND TRASH RESULTING FROM DEMOLITION WORK, AND SHALL BE EXECUTED IN CONFORMANCE WITH ALL LOCAL, STATE AND FEDERAL ORDINANCES AND REGULATIONS AS SET FORTH BY ALL GOVERMENT AUTHORITIES.

7-CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER IF ANY WORK INDICATED IN THE CONTRACT DOCUMENTS CANNOT BE PERFORMED DUE TO EXISTING FIELD CONDITIONS.

8-CONTRACTOR SHALL VERIFY LOCATION AND CURRENT USE OF ALL UTILITIES WITHIN THE PREMISES. ALL SURFACE OR ABOVE GROUND UTILITIES NOT IN USE OR LABELED TO REMAIN IN CONSTRUCTION DOCUMENTS SHALL BE REMOVED AND DISPOSED OF, ALL UNDERGROUND UTILITIES SHALL BE CAPPED OR SEALED, BURIED, AND DOCUMENTED FOR FUTURE REFERENCE.

9- THE DISPOSAL OF THE DEMOLITION AND REMOVAL MATERIAL SHALL BE AS INDICATED IN SECTION 02D005.

10-REMOVE ALL PLUMBING FIXTURES INCLUDING EXPOSED PIPING THAT WILL NOT BE REUSED FOR THE INSTALLATION OF NEW PLUMBING FIXTURE AS INDICATED IN MECHANICAL DRAWINGS. TAP SERVICES AS REQUIRED.

11-REMOVE ALL ABANDONED ELECTRICAL EQUIPMENT, CONDUITS, FIRE PROTECTION EQUIPMENT, PIPING AND A/C EQUIPMENT.

12-THE DEMOLITION SCOPE INTENT IS TO PREPARE THE EXISTING BUILDING FOR THE EXECUTION OF THE CONSTRUCTION SCOPE.

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20-EXISTING EQUIPMENT TO BE REMOVED MUST BE TAKEN (BY THE CONTRACTOR) TO PRASA'S REGIONAL OPERATION OFFICE (ARECIBO). THE CONTRACTOR MUST VERIFY WITH OWNER'S REPRESENTATIVE WHICH PARTS ARE TO BE STORED AND WHICH ARE TO BE DISPOSED OF.

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23-FINAL GRADE SHALL MATCH EXISTING GRADE AND NATURAL DRAIN SHALL BE DIVERTED OUTSIDE THE PUMP STATION PARCEL.

24-THE APPROXIMATE FILL MATERIAL VOLUME INSIDE THE PUMP STATION IS 170 CUBIC METERS. ANY FILL MATERIAL IN EXCESS OF THIS VOLUME, WILL BE PAY THROUGH AN ALLOWANCE.

DEMOLITION LEGEND:

INDICATED WALLS TO BE DEMOLISHED OR REMOVED.

1 DEMOLISH CONCRETE STRUCTURE

2 REMOVE EXISTING WINDOW OR LOUVERS.

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COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF DATE

NO.	REMARKS	DATE	BY	APP'D.

REVISIONS

jcmc CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES
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LIC. 6103
PUERTO RICO

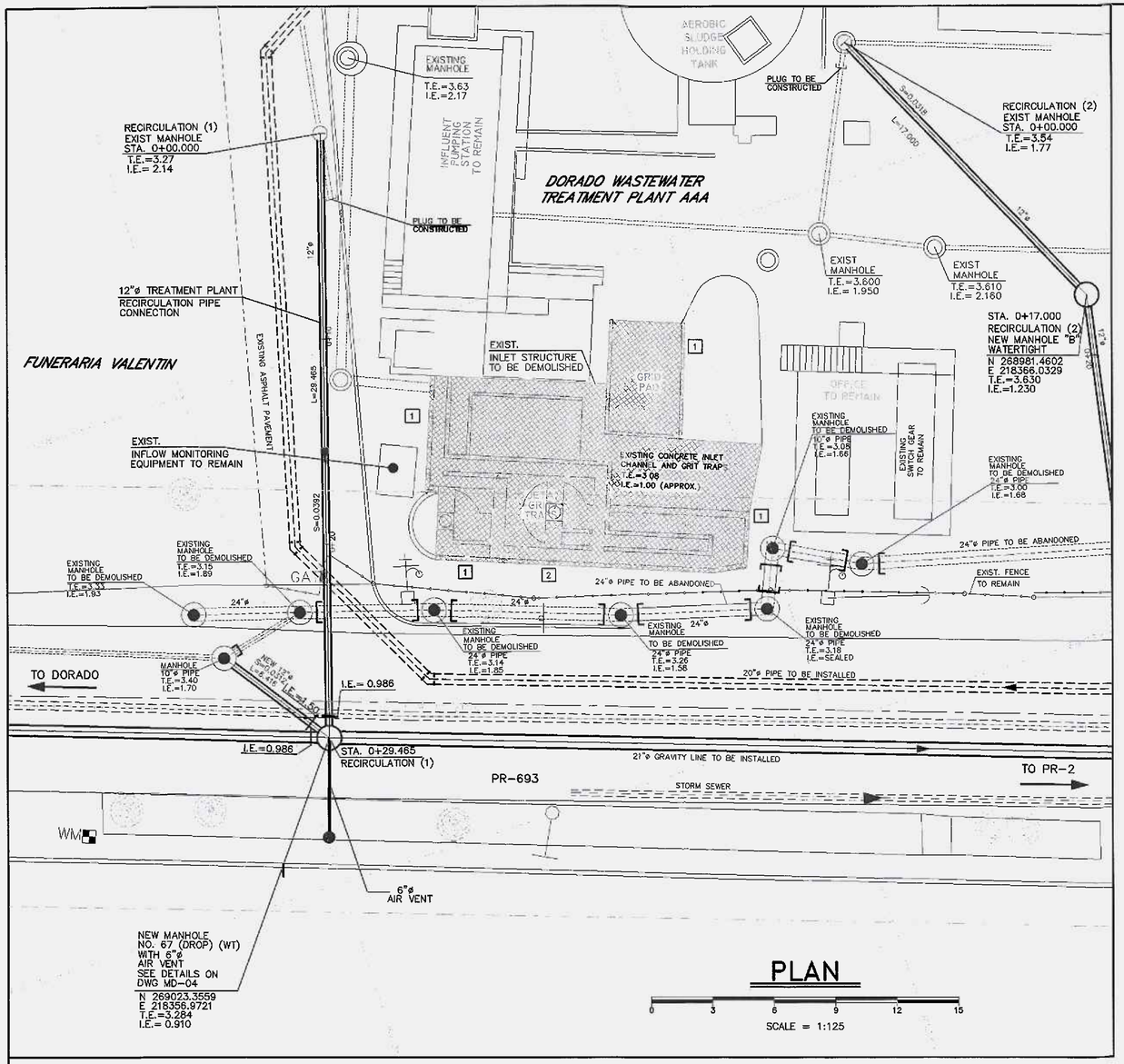
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: DEMOLITION PLAN OF REGENCY PUMPING STATION			SCALES: H=1:125 V=
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. DP-02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 27
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\27-DP-02-DEMOLITION PLAN OF REGENCY PUMPING STATION.dwg 09/10/2014 8:54:05 AM SWST



PLAN

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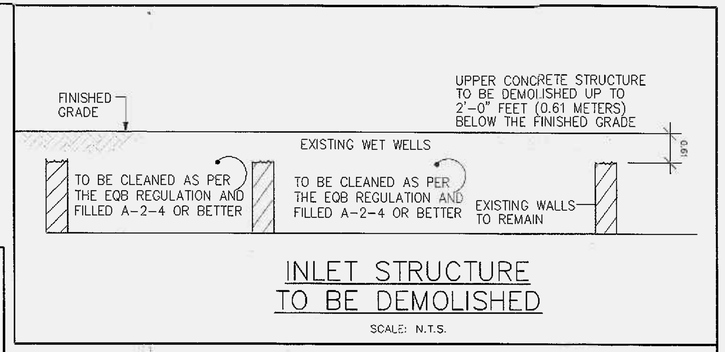
SCALE = 1:125



INLET STRUCTURE TO BE DEMOLISHED

SCALE: N.T.S.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DATE

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DEMOLITION LEGEND:

INDICATED WALLS TO BE DEMOLISHED OR REMOVED.

1 DEMOLISH CONCRETE STRUCTURE

2 REMOVE EXISTING GRIT REMOVAL EQUIPMENT.

PLUG TO BE CONSTRUCTED
SEE DETAILS ON
DWG. MD-05

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. 6195 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

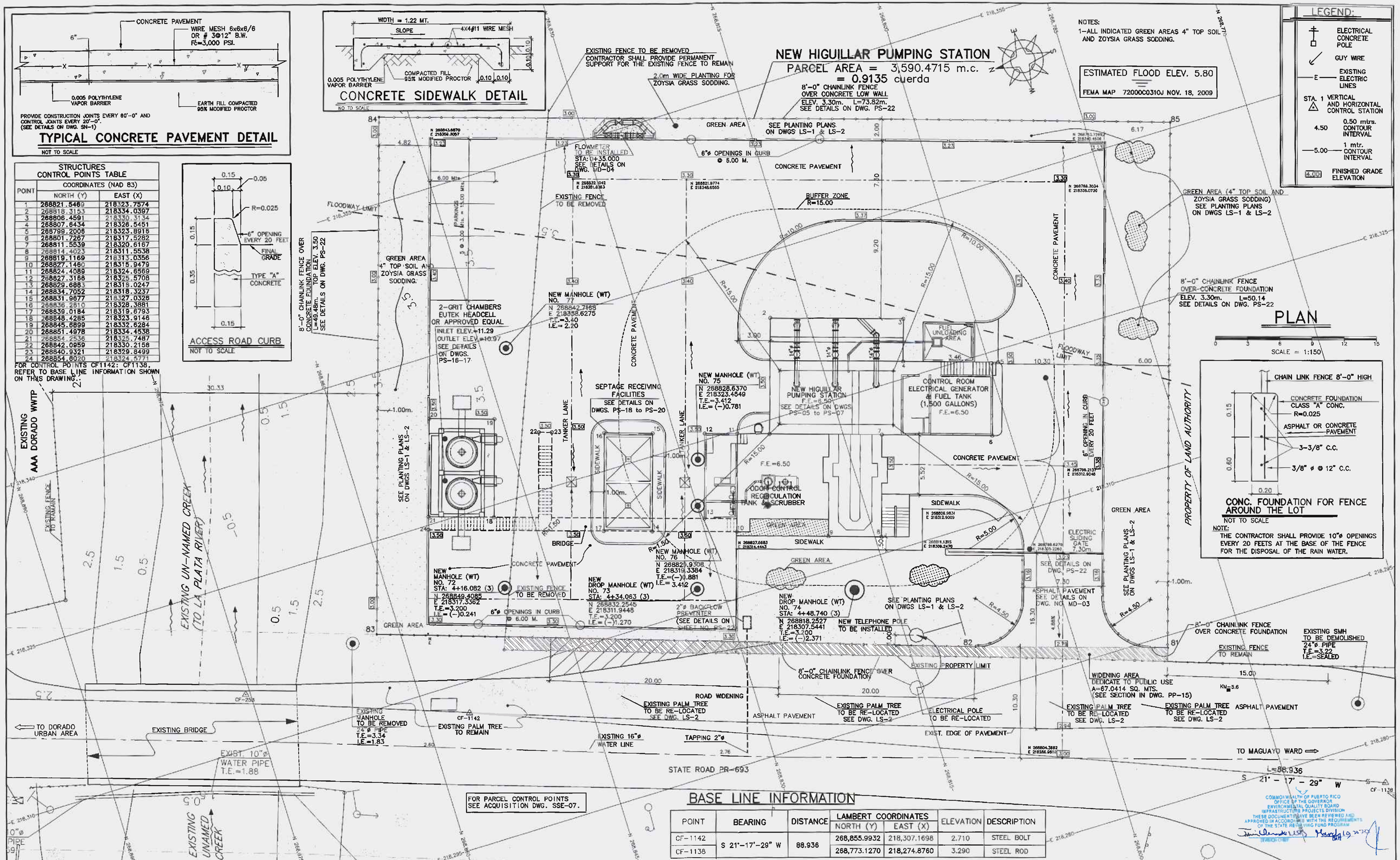
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

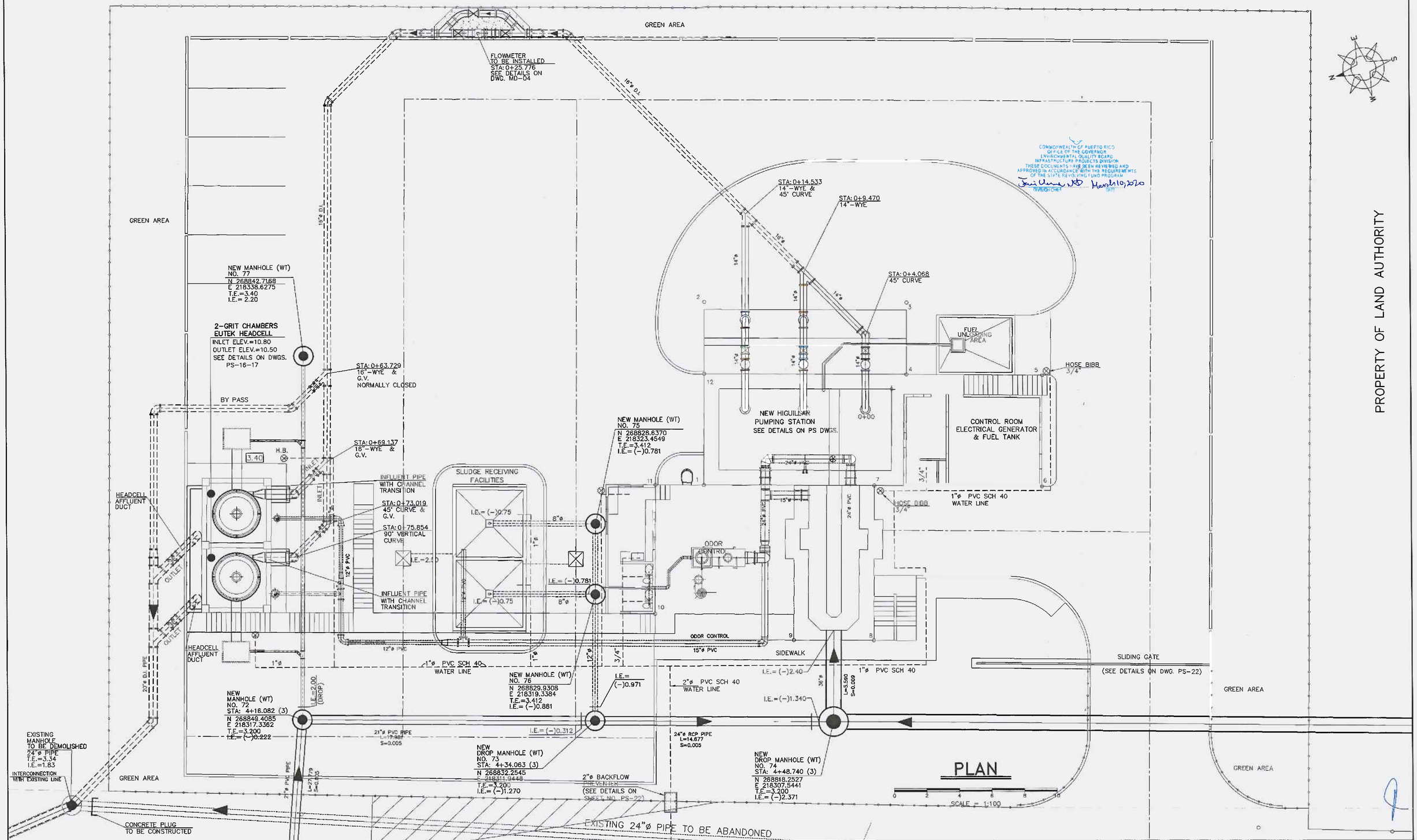
SHEET TITLE: DEMOLITION PLAN OF DORADO WWTP INLET CHANNEL

DRAFTED BY: A.A.F.T. | DRAFTER LICENSE NO.: | DATE 02/20/2020
DESIGNED BY: | DATE
REVISED BY: | DATE
SUBMITTED BY: | DATE

SCALES: H=1:125 V=N/A
DRWG NO. DP-03
SHEET NO. 27A
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\27A-DP-03-DEMOLITION PLAN OF DORADO WWTP INLET CHANNEL-2.dwg 09/09/2014 10:52:55 AM SWST


NEW HIGUILLAR PUMPING STATION
PARCEL AREA = 3,590.4715 m.c.
= 0.9135 cuerda
ESTIMATED FLOOD ELEV. 5.80
FEMA MAP 72000C0310J NOV. 18, 2009
NOTES:
1-ALL INDICATED GREEN AREAS 4" TOP SOIL AND ZOYSIA GRASS SODDING.
LEGEND:
ELECTRICAL CONCRETE POLE
GUY WIRE
EXISTING ELECTRIC LINES
STA. 1 VERTICAL AND HORIZONTAL CONTROL STATION
4.50 0.50 mtrs. CONTOUR INTERVAL
5.00 1 mtr. CONTOUR INTERVAL
4.00 FINISHED GRADE ELEVATION
PLAN
SCALE = 1:150
CONCRETE PAVEMENT
WIRE MESH 6x6x8/6 OR # 3@12" B.W. f'c=3,000 PSI.
0.005 POLYTHYLENE VAPOR BARRIER
EARTH FILL COMPACTED 95% MODIFIED PROCTOR
PROVIDE CONSTRUCTION JOINTS EVERY 60'-0" AND CONTROL JOINTS EVERY 20'-0". (SEE DETAILS ON DWG. SN-1)
TYPICAL CONCRETE PAVEMENT DETAIL
NOT TO SCALE
WIDTH = 1.22 MT.
SLOPE
4X4#11 WIRE MESH
COMPACTED FILL 95% MODIFIED PROCTOR
CONCRETE SIDEWALK DETAIL
NO TO SCALE
STRUCTURES CONTROL POINTS TABLE
POINT | COORDINATES (NAD 83) NORTH (Y) | EAST (X)
1 268821.5469 218323.7574
2 268818.3153 218334.0397
3 268806.4591 218330.3134
4 268807.6434 218328.5451
5 268799.2006 218323.8918
6 268801.7267 218317.5282
7 268811.5539 218320.6167
8 268814.4023 218311.5538
9 268819.1169 218313.0356
10 268827.1460 218315.9479
11 268824.4089 218324.6569
12 268827.3188 218325.5708
13 268829.6883 218318.0247
14 268834.7052 218318.3237
15 268831.9677 218327.0328
16 268836.2810 218328.3881
17 268839.0184 218319.6793
18 268848.4285 218323.9146
19 268845.6899 218332.6284
20 268851.4978 218334.4538
21 268854.2536 218325.7487
22 268842.0959 218330.2158
23 268840.9321 218329.8499
24 268854.8020 218324.5771
FOR CONTROL POINTS CF1142: CF1138, REFER TO BASE LINE INFORMATION SHOWN ON THIS DRAWING.
ACCESS ROAD CURB
NOT TO SCALE
8'-0" CHAINLINK FENCE OVER CONCRETE FOUNDATION. TOP ELEV. 3.50 L=49.48m. SEE DETAILS ON DWG. PS-22
EXISTING FENCE TO BE REMOVED
CONTRACTOR SHALL PROVIDE PERMANENT SUPPORT FOR THE EXISTING FENCE TO REMAIN
2.0m WIDE PLANTING FOR ZOYSIA GRASS SODDING.
8'-0" CHAINLINK FENCE OVER CONCRETE LOW WALL ELEV. 3.30m. L=73.82m. SEE DETAILS ON DWG. PS-22
GREEN AREA
SEE PLANTING PLANS ON DWGS LS-1 & LS-2
FLOWMETER TO BE INSTALLED STA: 0+35.000 SEE DETAILS ON DWG. MD-04
6"ø OPENINGS IN CURB @ 6.00 M.
CONCRETE PAVEMENT
BUFFER ZONE R=15.00
GREEN AREA (4" TOP SOIL AND ZOYSIA GRASS SODDING) SEE PLANTING PLANS ON DWGS LS-1 & LS-2
8'-0" CHAINLINK FENCE OVER CONCRETE FOUNDATION ELEV. 3.30m. L=50.14 SEE DETAILS ON DWG. PS-22
FLOODWAY LIMIT
GREEN AREA 4" TOP SOIL AND ZOYSIA GRASS SODDING.
2-GRIT CHAMBERS EUTEK HEADCELL OR APPROVED EQUAL INLET ELEV.=11.29 OUTLET ELEV.=10.97 SEE DETAILS ON DWGS. PS-16-17
NEW MANHOLE (WT) NO. 77 N 268842.7168 E 218338.6275 T.E.=3.40 I.E.=2.20
SEPTAGE RECEIVING FACILITIES SEE DETAILS ON DWGS. PS-18 to PS-20
NEW MANHOLE (WT) NO. 75 N 268828.6370 E 218323.4549 T.E.=3.412 I.E.=(-)0.781
NEW HIGUILLAR PUMPING STATION F.E.=6.50 SEE DETAILS ON DWGS. PS-05 to PS-07
CONTROL ROOM ELECTRICAL GENERATOR & FUEL TANK (1,500 GALLONS) F.E.=6.50
FUEL UNLOADING AREA
ODOR CONTROL RECIRCULATION TANK & SCRUBBER
SIDEWALK
BRIDGE
NEW MANHOLE (WT) NO. 76 N 268829.9308 E 218319.3384 T.E.=(-)0.881 I.E.=3.412
NEW MANHOLE (WT) NO. 72 STA: 4+16.082 (3) N 268849.4085 E 218317.3362 T.E.=3.200 I.E.=(-)0.241
NEW DROP MANHOLE (WT) NO. 73 STA: 4+34.063 (3) N 268832.2545 E 218311.9448 T.E.=3.200 I.E.=(-)1.270
2"ø BACKFLOW PREVENTER (SEE DETAILS ON SHEET NO. PS-22)
NEW DROP MANHOLE (WT) NO. 74 STA: 4+48.740 (3) N 268818.2527 E 218307.5441 T.E.=3.200 I.E.=(-)2.371
NEW TELEPHONE POLE TO BE INSTALLED
ASPHALT PAVEMENT SEE DETAILS ON DWG. NO. MD-03
ELECTRIC SLIDING GATE 7.30m.
SEE DETAILS ON DWG. PS-22
CHAIN LINK FENCE 8'-0" HIGH
CONCRETE FOUNDATION CLASS "A" CONC. R=0.025
ASPHALT OR CONCRETE PAVEMENT
3-3/8" C.C.
3/8" ø @ 12" C.C.
CONC. FOUNDATION FOR FENCE AROUND THE LOT
NOT TO SCALE
NOTE: THE CONTRACTOR SHALL PROVIDE 10"ø OPENINGS EVERY 20 FEETS AT THE BASE OF THE FENCE FOR THE DISPOSAL OF THE RAIN WATER.
PROPERTY OF LAND AUTHORITY
EXISTING UN-NAMED CREEK (TO LA PLATA RIVER)
EXISTING AAA DORADO WWTP
EXISTING FENCE TO REMAIN
EXISTING PROPERTY LIMIT
8'-0" CHAINLINK FENCE OVER CONCRETE FOUNDATION
EXISTING SMH TO BE DEMOLISHED 24"ø PIPE T.E.=3.22 I.E.=SEALED
WIDENING AREA DEDICATE TO PUBLIC USE A=67.0414 SQ. MTS. (SEE SECTION IN DWG. PP-15)
ROAD WIDENING
EXISTING PALM TREE TO BE RE-LOCATED SEE DWG. LS-2
ELECTRICAL POLE TO BE RE-LOCATED
EXISTING MANHOLE TO BE REMOVED 24"ø PIPE T.E.=3.34 I.E.=1.83
EXISTING PALM TREE TO REMAIN
EXISTING 16"ø WATER LINE
TAPPING 2"ø
EXIST. EDGE OF PAVEMENT
TO DORADO URBAN AREA
EXISTING BRIDGE
EXIST. 10"ø WATER PIPE T.E.=1.88
STATE ROAD PR-693
TO MAGUAYO WARD
L=88.936
S 21° - 17' - 29" W
EXISTING UNNAMED CREEK
FOR PARCEL CONTROL POINTS SEE ACQUISITION DWG. SSE-07.
BASE LINE INFORMATION
POINT | BEARING | DISTANCE | LAMBERT COORDINATES NORTH (Y) | EAST (X) | ELEVATION | DESCRIPTION
CF-1142 | S 21°-17'-29" W | 88.936 | 268,855.9932 | 218,307.1698 | 2.710 | STEEL BOLT
CF-1138 | | | 268,773.1270 | 218,274.8760 | 3.290 | STEEL ROD
COMMONWEALTH OF PUERTO RICO OFFICE OF THE GOVERNOR ENVIRONMENTAL QUALITY BOARD INFRASTRUCTURE PROJECTS DIVISION THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
NO. | REMARKS | DATE | BY | APPV'D.
REVISIONS
CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-5310 TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052 email: jcarrosco@prtc.net
ANTONIO A. FUENTES LICENCIADO LIC. #19440 PUERTO RICO
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY
SHEET TITLE: NEW HIGUILLAR PUMP STATION SITE PLAN & GRADING
SCALES: H=1:150 V=N/A
DRWG. NO. PS-01
DRAFTED BY:
DRAFTER LICENCE NO.:
DATE
SHEET NO. 28
DESIGNED BY: A.A.F.T.
DATE 02/20/2020
REVISED BY:
DATE
SUBMITTED BY:
DATE
REVISION NO. 0
F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\28-PS-01-NEW HIGUILLAR PUMP STATION SITE PLAN.dwg 09/11/2014 9:25:33 AM SWST



NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #17 DE DIEGO AVE. SAN JUAN PR 00927-6310
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ANTONIO A. FIGUEROA JIMENEZ INGENIERO LICENCIADO LIC. #19446 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION PIPING PLAN			SCALES: H=1:100 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PS-02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 29
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\29-PS-2-NEW HIGUILLAR PUMP STATION PIPING PLAN.dwg 5/29/2014 11:28:50 AM EST

CURRENT DISCHARGE

MAX. LEVEL	11.29
MIN. WATER	(−)6.53
STATIC HEAD	17.82m.

① 14" DIA. & FITTINGS
Q = 4.35 MGD = 3023 GPM (TWO UNITS)
= 2.354 MGD = 1635 GPM (ONE UNIT)

L	23.069m
LE	129.11m
Q	2.354 MGD=1635 GPM
D	14"
C	100
V	3.41 fps
S	4.810 m/Km
hf	0.62m

② NEW 16" D.I. PIPE

L	77.653m
LE	270.199m
Q	4.35 MGD=3023 GPM
D	16"
C	100
V	4.82 fps
S	7.820 m/Km
hf	2.11m

	17.82	m.
14"ø AND FITTINGS =	0.62	m.
16" PIPE =	2.11	m.
TDH =	20.55	m.
SAY	69.00	ft.

FUTURE DISCHARGE

MAX. LEVEL	11.29
MIN. WATER	(−)6.53
STATIC HEAD	17.82m.

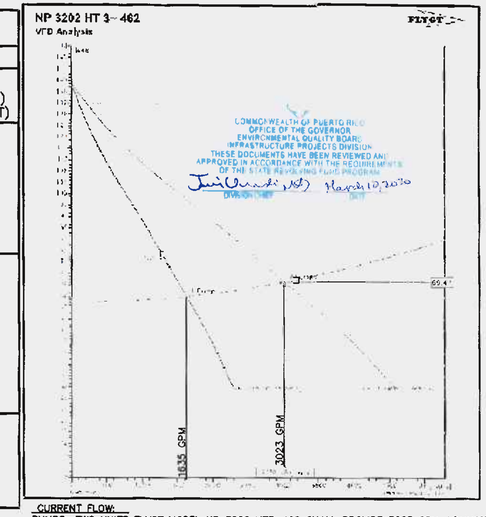
③ 14" DIA. & FITTINGS
Q = 10 MGD = 6944 GPM (TWO UNITS)
= 5.40 MGD = 3750 GPM (ONE UNIT)

L	23.069m
LE	129.11m
Q	5.40 MGD= 3750 GPM
D	14"
C	100
V	7.82 fps
S	22.34 m/Km
hf	2.88m

④ NEW 16" D.I. PIPE

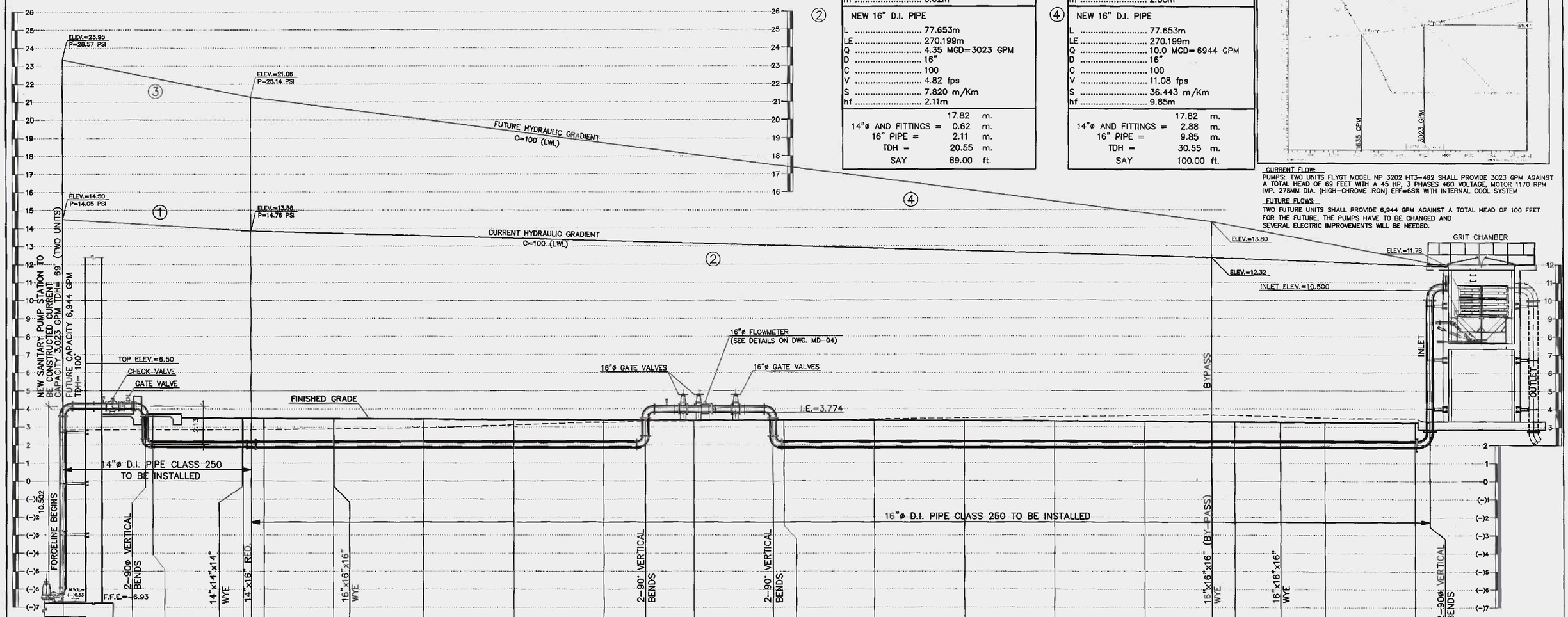
L	77.653m
LE	270.199m
Q	10.0 MGD= 6944 GPM
D	16"
C	100
V	11.08 fps
S	36.443 m/Km
hf	9.85m

	17.82	m.
14"ø AND FITTINGS =	2.88	m.
16" PIPE =	9.85	m.
TDH =	30.55	m.
SAY	100.00	ft.



CURRENT FLOW:
PUMPS: TWO UNITS FLYGT MODEL NP 3202 HT3-462 SHALL PROVIDE 3023 GPM AGAINST A TOTAL HEAD OF 69 FEET WITH A 45 HP, 3 PHASES 460 VOLTAGE, MOTOR 1170 RPM IMP. 278MM DIA. (HIGH-CHROME IRON) EFF=68% WITH INTERNAL COOL SYSTEM

FUTURE FLOWS:
TWO FUTURE UNITS SHALL PROVIDE 6,944 GPM AGAINST A TOTAL HEAD OF 100 FEET FOR THE FUTURE, THE PUMPS HAVE TO BE CHANGED AND SEVERAL ELECTRIC IMPROVEMENTS WILL BE NEEDED.



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS FINISHED GRADE	ELEVATIONS EXISTING GROUND
0+00.000	0.000	(−)6.93 / 3.972	3.700	2.835
0+04.568	4.568	3.972 / 1.848	3.700	2.835
0+05.000	0.432	1.846	3.482	2.843
0+09.970	4.970	1.846	3.483	2.843
0+10.000	0.030	1.846	3.480	2.847
0+10.441	0.441	1.830	3.480	2.847
0+15.000	4.559	1.820	3.457	2.885
0+15.033	0.033	1.820	3.457	2.885
0+20.000	4.967	1.820	3.431	2.953
0+25.000	5.000	1.820	3.406	3.104
0+30.000	5.000	1.820	3.380	3.245
0+32.309	2.309	1.820 / 3.774	3.377	3.275
0+35.000	2.691	3.774	3.377	3.325
0+39.404	4.404	3.774 / 1.820	3.377	3.362
0+40.000	0.596	1.820	3.377	3.365
0+45.000	5.000	1.820	3.359	3.422
0+50.000	5.000	1.820	3.336	3.486
0+55.000	5.000	1.820	3.313	3.549
0+60.000	5.000	1.820	3.290	3.613
0+63.729	3.729	1.820	3.273	3.652
0+65.000	1.271	1.820	3.268	3.634
0+67.542	2.542	1.820	3.256	3.566
0+70.000	2.458	1.820	3.245	3.501
0+75.000	5.000	1.820	3.222	3.473
0+75.834	0.834	10.500 / 2.148	3.300	3.244

HYDRAULIC PROFILE

SCALES: HORIZONTAL=1:100 VERTICAL=1:100

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMC CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #18448 PUERTO RICO

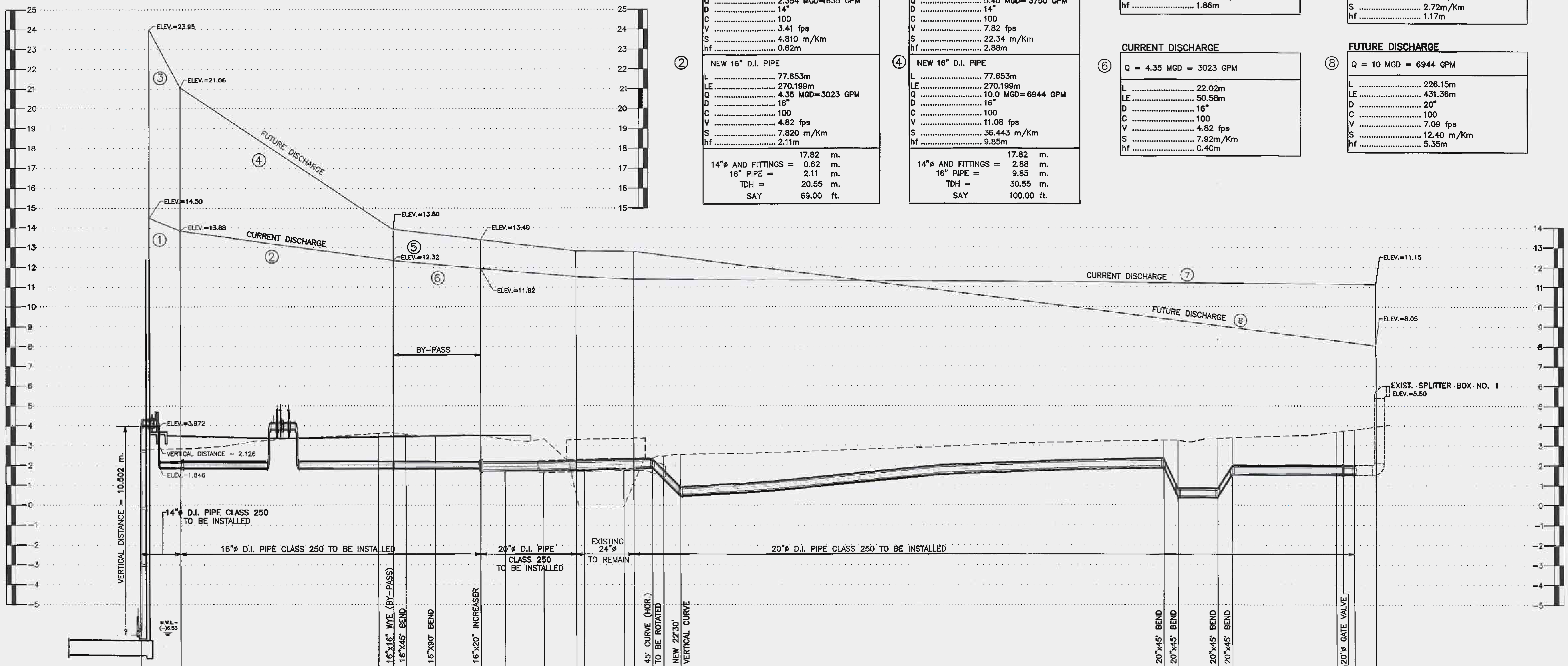
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION HYDRAULIC PROFILE			SCALES: H=1:100 V=1:100
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-03
DESIGNED BY: A.A.F.T.		DATE 02/20/220	SHEET NO. 30
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\30-PS-03-HYDRAULIC-PROFILE.dwg 7/17/2014 3:30:42 PM SWST



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
[signature] DIVISION CHIEF March 10, 2020 DATE

CURRENT DISCHARGE

MAX. LEVEL	11.29
MIN. WATER	(-)6.53
STATIC HEAD	17.82m.

(1) 14" DIA. & FITTINGS
Q = 4.35 MGD = 3023 GPM (TWO UNITS)
= 2.354 MGD = 1635 GPM (ONE UNIT)

L	23.069m
LE	129.11m
Q	2.354 MGD=1635 GPM
D	14"
C	100
V	3.41 fps
S	4.810 m/Km
hf	0.62m

(2) NEW 16" D.I. PIPE

L	77.653m
LE	270.199m
Q	4.35 MGD=3023 GPM
D	16"
C	100
V	4.82 fps
S	7.820 m/Km
hf	2.11m

	17.82	m.
14"ø AND FITTINGS =	0.62	m.
16" PIPE =	2.11	m.
TDH =	20.55	m.
SAY	69.00	ft.

FUTURE DISCHARGE

MAX. LEVEL	11.29
MIN. WATER	(-)6.53
STATIC HEAD	17.82m.

(3) 14" DIA. & FITTINGS
Q = 10 MGD = 6944 GPM (TWO UNITS)
= 5.40 MGD = 3750 GPM (ONE UNIT)

L	23.069m
LE	129.11m
Q	5.40 MGD= 3750 GPM
D	14"
C	100
V	7.82 fps
S	22.34 m/Km
hf	2.88m

(4) NEW 16" D.I. PIPE

L	77.653m
LE	270.199m
Q	10.0 MGD=6944 GPM
D	16"
C	100
V	11.08 fps
S	36.443 m/Km
hf	9.85m

	17.82	m.
14"ø AND FITTINGS =	2.88	m.
16" PIPE =	9.85	m.
TDH =	30.55	m.
SAY	100.00	ft.

BY-PASS

FUTURE DISCHARGE

(5) Q = 10 MGD = 6944 GPM

L	22.02m
LE	50.58m
D	16"
C	100
V	11.08 fps
S	36.80 m/Km
hf	1.86m

CURRENT DISCHARGE

(6) Q = 4.35 MGD = 3023 GPM

L	22.02m
LE	50.58m
D	16"
C	100
V	4.82 fps
S	7.92m/Km
hf	0.40m

20"ø LINE TO TREATMENT PLANT

CURRENT DISCHARGE

(7) Q = 4.35 MGD = 3023 GPM

L	226.15m
LE	431.36m
D	20"
C	100
V	3.08 fps
S	2.72m/Km
hf	1.17m

FUTURE DISCHARGE

(8) Q = 10 MGD = 6944 GPM

L	226.15m
LE	431.36m
D	20"
C	100
V	7.09 fps
S	12.40 m/Km
hf	5.35m

STATIONS / ELEVATIONS

STATIONS TOTAL	STATIONS PARCIAL	ELEVATIONS INVERT	ELEVATIONS TOP ELEVATION
0+00.000	0.000	(-)6.93 / 3.972	3.700
0+09.970	9.970	1.846	3.480
0+20.000	10.000	1.820	3.431
0+30.000	10.000	1.820	3.380
0+40.000	10.000	1.820	3.377
0+50.000	10.000	1.820	3.336
0+60.000	10.000	1.820	3.273
0+63.729	3.729	1.820	3.290
0+66.779	3.050	1.820	3.245
0+74.267	7.488	1.820	3.300
0+85.751 / ≈0+03.800	11.484	1.820	
0+10.000	10.000	1.707	3.500
0+19.721	9.721	1.707	3.340
0+27.996	8.275	1.746	2.300
0+30.000	2.004	1.756	2.175
0+40.000	10.000	1.804	2.284
0+42.500	2.500	1.816	2.360
0+47.203	4.703	1.838	2.360
0+50.000	2.797	1.282	2.467
0+54.335	4.335	0.420	2.529
0+60.000	5.665	0.489	2.562
0+70.000	10.000	0.611	2.602
0+80.000	10.000	0.754	2.650
0+90.000	10.000	0.947	2.713
1+00.000	10.000	1.141	2.790
1+10.000	10.000	1.334	2.857
1+20.000	10.000	1.528	2.928
1+30.000	10.000	1.604	3.022
1+40.000	10.000	1.679	3.113
1+50.000	10.000	1.700	3.154
1+60.000	10.000	1.800	3.198
1+70.000	10.000	1.845	3.237
1+76.340	6.340	1.874	3.237
1+80.000	10.000	0.300	3.263
1+90.000	10.000	0.300	3.353
2+00.000	10.000	1.500	3.433
2+10.000	10.000	1.500	3.494
2+20.000	10.000	1.500	3.681
2+21.800	1.800	1.500	3.725
2+24.498	2.698	1.500	3.791
2+30.000	5.502	1.500	3.791 / 5.500

HYDRAULIC PROFILE
BYPASS

SCALES: HORIZONTAL=1:500 VERTICAL=1:100

FOR LAYOUT OF LINES REFER TO SHEETS NO 24 AND 25

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
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email: jamyassoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #18446 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

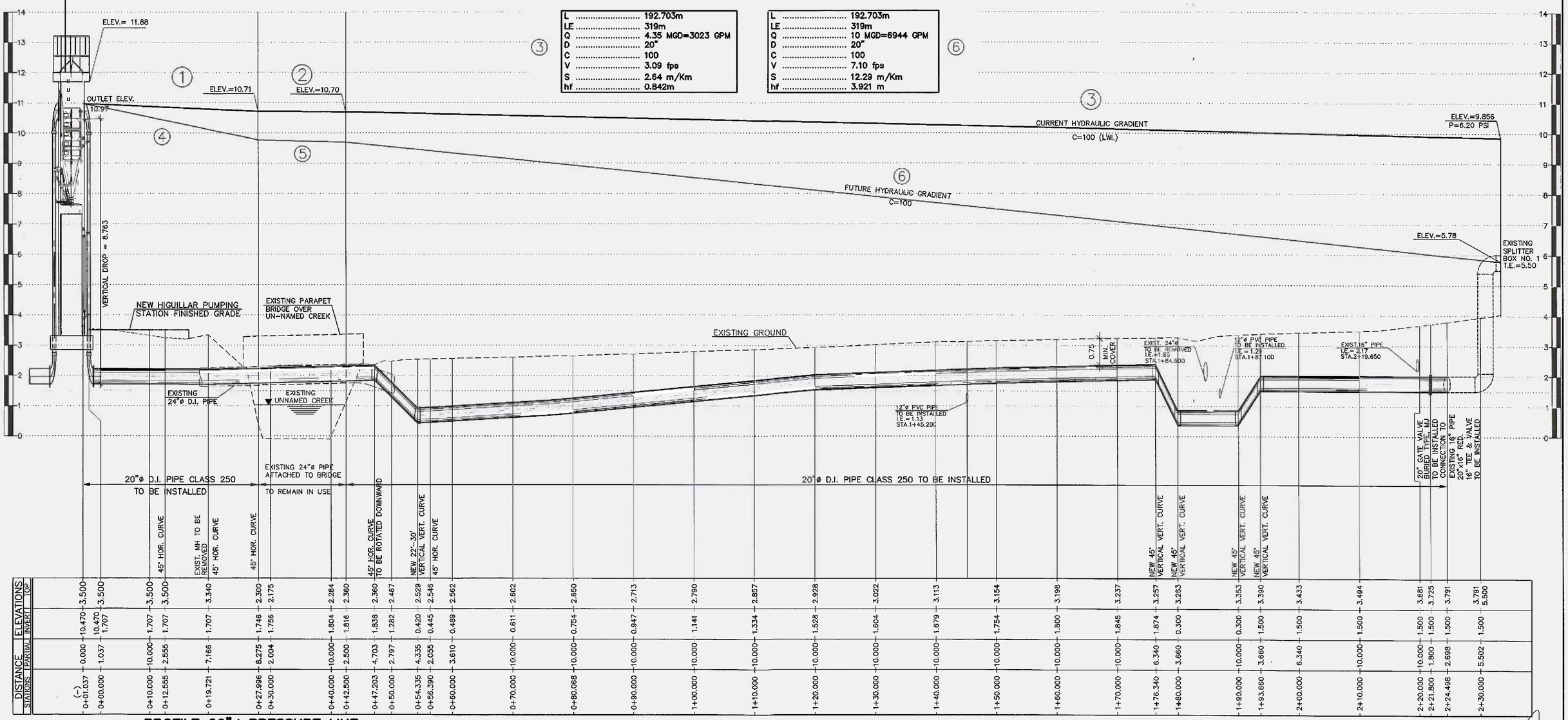
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION HYDRAULIC PROFILE (BYPASS)
DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE
SCALES: H=1:500 V=1:100
DRWG NO. PS-04A
SHEET NO. 31A
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\31A-PS-04A-SANITARY-FORCE-LINE-HYDRAULIC-PROFILE-BYPASS.dwg 7/17/2014 3:33:29 PM SWST

CURRENT DISCHARGE		FUTURE DISCHARGE	
MAX. LEVEL	10.97	MAX. LEVEL	10.97
SPLITTER BOX	5.50	SPLITTER BOX	5.50
①		④	
L	37.793m	L	37.793m
LE	97m	LE	97m
Q	4.35 MGD=3023 GPM	Q	10 MGD=6944 GPM
D	20"	D	20"
C	100	C	100
V	3.09 fps	V	7.10 fps
S	2.64 m/Km	S	12.29 m/Km
hf	0.256m	hf	1.192 m
②		⑤	
L	14.504m	L	14.504m
LE	15.00m	LE	15.00m
Q	4.35 MGD=3023 GPM	Q	10 MGD=6944 GPM
D	24"	D	24"
C	100	C	100
V	2.14 fps	V	4.93 fps
S	1.09 m/Km	S	5.06 m/Km
hf	0.016m	hf	0.076 m
③		⑥	
L	192.703m	L	192.703m
LE	319m	LE	319m
Q	4.35 MGD=3023 GPM	Q	10 MGD=6944 GPM
D	20"	D	20"
C	100	C	100
V	3.09 fps	V	7.10 fps
S	2.64 m/Km	S	12.29 m/Km
hf	0.842m	hf	3.921 m

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 19, 2020
DIVISION CHIEF



DISTANCE STATIONS	DISTANCE PARTIAL	ELEVATIONS INVERT	ELEVATIONS TOP
(-) 0+01.037	0.000	10.470	3.500
0+00.000	1.037	10.470 / 1.707	3.500
0+10.000	10.000	1.707	3.500
0+12.555	2.555	1.707	3.500
0+19.721	7.166	1.707	3.340
0+27.996	8.275	1.746	2.300
0+30.000	2.004	1.756	2.175
0+40.000	10.000	1.804	2.284
0+42.500	2.500	1.816	2.360
0+47.203	4.703	1.838	2.360
0+50.000	2.797	1.282	2.487
0+54.335	4.335	0.420	2.529
0+56.390	2.055	0.445	2.546
0+60.000	3.610	0.489	2.562
0+70.000	10.000	0.611	2.602
0+80.068	10.000	0.754	2.650
0+90.000	10.000	0.947	2.713
1+00.000	10.000	1.141	2.790
1+10.000	10.000	1.334	2.857
1+20.000	10.000	1.528	2.928
1+30.000	10.000	1.604	3.022
1+40.000	10.000	1.679	3.113
1+50.000	10.000	1.754	3.154
1+60.000	10.000	1.800	3.198
1+70.000	10.000	1.845	3.237
1+76.340	6.340	1.874	3.257
1+80.000	3.660	0.300	3.283
1+90.000	10.000	0.300	3.353
1+93.660	3.660	1.500	3.390
2+00.000	6.340	1.500	3.433
2+10.000	10.000	1.500	3.494
2+20.000	10.000	1.500	3.681
2+21.800	1.800	1.500	3.725
2+24.498	2.698	1.500	3.791
2+30.000	5.502	1.500	3.791 / 5.500

PROFILE 20"ø PRESSURE LINE

SCALES: HORIZONTAL=1:300 VERTICAL=1:60

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JANG CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FIGUEROA JIMENEZ
REG. LIC. 19945
LICENSED
LIC. #19945
PUERTO RICO

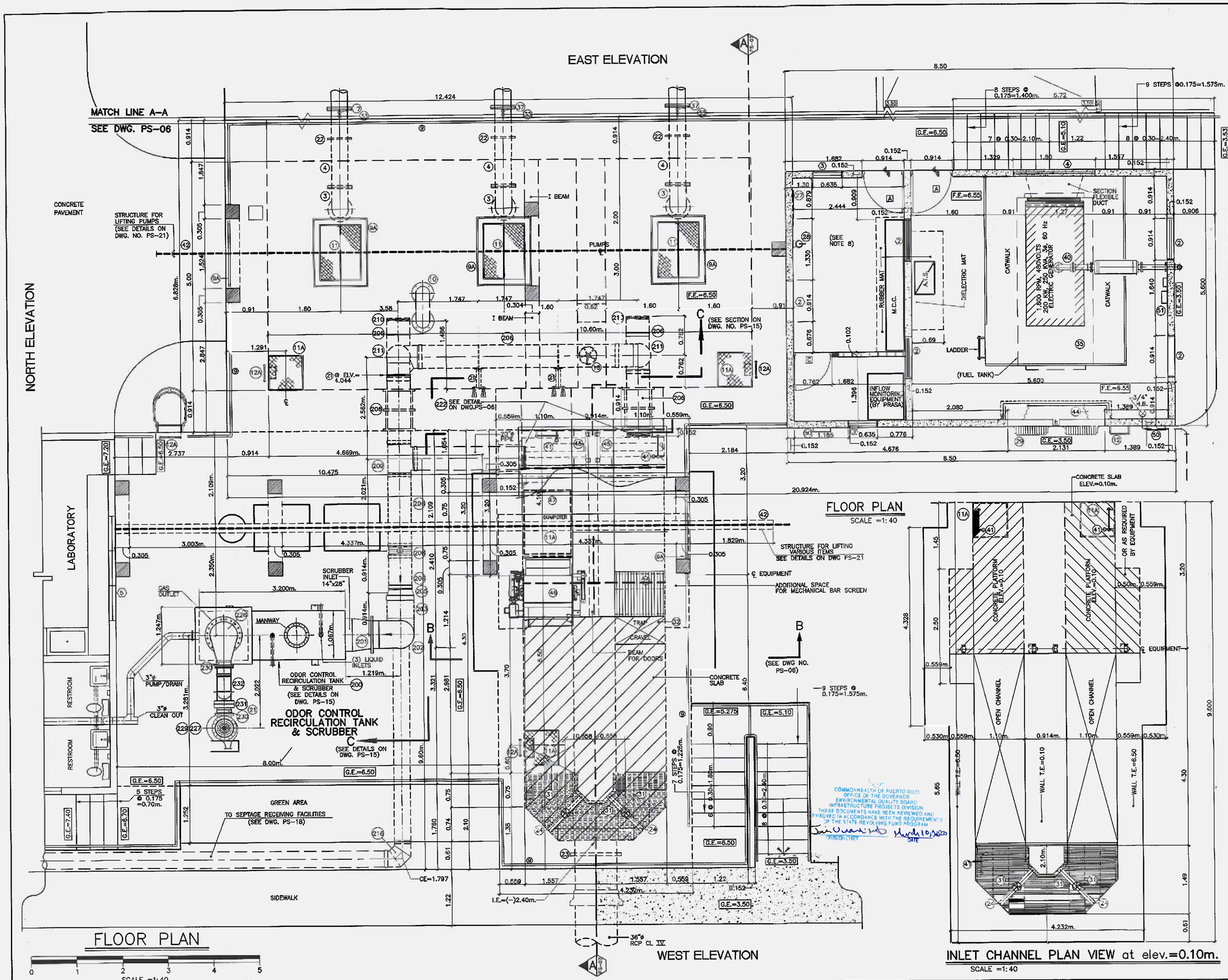
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: 20"ø SANITARY FORCE LINE HYDRAULIC PROFILE			SCALES: H=1:300 V=1:60
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PS-04
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 31
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\31-PS-04-20IN FORCELINE HYDRAULIC-PROFILE.dwg 7/17/2014 3:32:23 PM SWST



LEGEND:

1. SUBMERSIBLE PUMPS: UNIT EQUAL OR APPROVED EQUAL TO FLYGT MODEL NO. NP3202 HT3-462 TO PROVIDE 1,630 U.S. GPM AGAINST 69.4 FEET TWO UNITS IN PARALLEL WITH A MOTOR RATED 45 HP, 1170 RPM, 278 MM. HIGH CHROMIUM STEEL IMPELLER DIAMETER, EFF 68%. PUMPS WITH INTERNAL COOL SYSTEM.
2A. 14"ø D.I. NIPPLE, MJ.
3. 14" ø D.I. 90° LONG RADIUS ELBOW, FL. ENDS.
4. 14" ø D.I. NIPPLE FL. ENDS.
5. 14" SWING CHECK VALVE FL. ENDS. (NON-SLAMMING)
6. 14" PLUG VALVE FL. ENDS ECCENTRIC HAND WHEEL.
7. 14" FLANGED COUPLING ADAPTER.
8. 14"ø D.I. NIPPLE MJ. OR FE.
9. FIXED FIBERGLASS RAILING (SHALL COMPLY WITH STANDARD (29 CFR 1910.23)
9A. REMOVABLE FIBERGLASS RAILING (SEE DETAILS ON DWG. NO. PS-21)
10. 12" RETURN BEND FOR VENTILATION (WITH S.S. OR BRONZE WIRE MESH) (PS-08)
11. ACCESS FRAME 1.219x0.914m. (ALUMINUM, FACTORY PAINTED WITH TWO COATS OF NEUTRAL COLOR.)
11A. ACCESS FRAME 0.762x0.762m. (ALUMINUM, FACTORY PAINTED WITH TWO COATS OF NEUTRAL COLOR.)
12. PLASTIC LADDER RUNGS (SEE DETAILS ON DWG. NO. PS-19)
12A. GRAB BAR (SEE DETAIL ON DWG. NO. PS-06)
12B. FIBERGLASS LADDER (SEE DETAILS ON DWG. NO. PS-13)
13. 16" S.S. 316 SLUICE GATE BENCH STAND RISING STEM 3000 SERIES BY WATERMAN INDUSTRIES, INC. SHALL PROVIDE INTERMEDIATE STEM GUIDES SUPPORTS EVERY 6'-0".
15. LIQUID LEVEL SENSOR
16. POWER CABLES HOLDER ASSEMBLY
17. S.S LIFTING CHAIN (316)
18. POWER CABLES.
19. STAINLESS STEEL 316 GUIDE BAR AS PER PUMP MANUFACTURER SPECIFICATIONS FROM THE LOWER TO THE UPPER GUIDE MOUNTED ON THE ACCESS FRAME.
20. S.S. 316 SAFETY CHAIN HOOK ASSEMBLY
21. INTERMEDIATE GUIDE BAR BRACKET FOR BRACING OUTLET PIPE (SEE DETAILS ON DWG. NO.PS-22)
22. 14" WALL PIPE WITH INTERMEDIATE COLLAR, FLANGED ENDS
23. 36" WALL PIPE WITH INTERMEDIATE COLLAR, PLAIN AND BELL ENDS.
24. SLIDE GATE (SEE DETAILS ON. DGW. PS-08) WITH S.S. LIFTING CHAIN SIMILAR TO SERIES 25 MODEL 253 S.S. 316 BY FONTAINE
25. STAINLESS STEEL 316 GRATING (HEAVY DUTY) (DWG. NO. PS-08)
26. STAINLESS STEEL 316 SHACKLE EVERY 4'-0"
27. BULLETIN BOARD 36"x24" MIN.
28. FIRE EXTINGUISHER (10 LBS.)
29. DOCK BUMPER (SEE DETAILS ON DWG. NO. PS-21)
30. 14"x8" D.I. REDUCER, FL. ENDS
31. CUSTOM MADE ORDER FIBERGLASS GRATING PANEL 1-1/2" BARS BY DURAGRID OR EQUAL SECURED BY S.S. HARDWARE.
32. GRAVEL TRAP (SEE DETAILS ON DWG. (PS-08)
33. PRESSURE GAUGE, 0-50 PSI. (SEE DETAILS ON DWG. PS-07)
34. THRUST BLOCK (SEE DETAILS ON DWG. MD-02)
36. 1,500 GALS. FUEL STORAGE TANK, HORIZONTAL WITH SECONDARY CONTAINMENT (STEEL DIKE)
38. 1" ø SHUT OFF VALVE (BRONZE THREADED)
57. COMBINATION AIR RELEASE VALVE, SEWAGE TYPE WITH FLUSHING KIT. (SECTION 221319.)
58. 16"x14" D.I. REDUCER, FL. ENDS
59. 16"x16"x14" D.I. WYE, FL. ENDS. 59A 14"x14"x14" D.I. WYE, FL. ENDS.
40. RESIDENTIAL TYPE MUFFLER (SEE DETAILS ON SHEET NO. PS-13)
41. FALL ARREST SYSTEM TO LOWER PERSONNEL. INCLUDE HARNESS. (SEE DETAILS ON DWG. PS-13)
42. 3 TON (WEATHER PROOF) WIRE ROPE ELECTRICAL HOIST AND ELECTRICAL HORIZONTAL MOVEMENT TROLLEY EQUAL OR APPROVED EQUAL BY BUDGIT. (CHAINS SS 316) SHALL HAVE ACCESSORY FOR ELECTRIC CABLE.
44. 1-INx4-IN FIBERGLASS GRATING SIMILAR TO SEA SAVE GATOR GRATE RM-1410
45. 0.84m. x 1.80m. S.S HEAVY DUTY DOORS BY HALLIDAY OR APPROVED EQUAL (10 EA).
46. MULTI RAKE MECHANICAL BAR SCREENS CAPABLE TO PIVOT SIMILAR TO MODEL MRS 845x85/6 BY WASTE TECH/KUSTER WATER. INCLUDING THE FOLLOWING COMPONENTS:
    - MAIN CONTROL PANEL – CONTROL PANEL NEMA 4X 316 STAINLESS STEEL PANEL WITH CONTROL TRANSFORMER, SMART RELAY, TECO VFD, RELAYS, TIMERS, OPERATORS AND ALL OTHER CONTROL DEVICES FOR PROPER OPERATION
    - LOCAL CONTROL STATION – NEMA 7 WITH H-O-A SWITCH, F-O-R SWITCH AND MUSHROOM HEAD E-STOP E-STOP PUSH BUTTON
    - SIEMENS HYDRORANGER ULTRASONIC LEVEL CONTROL SYSTEM INCLUDING ULTRASONIC LEVEL TRANSDUCER AND MOUNTING HARDWARE
47. BOTTOM OPENING DUMPSTER CONTAINER SIMILAR TO BUTTI MODEL COMPACT 1000. DIMENSIONS 3'x4.5'x3.5'. CAPACITY 1000L-1,700kg. PROVIDE TWO (2) DUMPSTERS. GALVANIZED STEEL WITH EPOXY PAINT
48. ELECTRICAL PANEL
49. EXHAUST FAN
50. WALL MOUNTED DIE CAST ALUM. HOUSING, WITH GRIT GUARD. PHOTO CONTROL HIGH PRESSURE SODIUM LUMINARIES 70 WATTS 120V SIMILAR TO WALL PACKETTE BY DAY BRITE OWM-70 HS-12PE. BOLTS SHALL BE "POSI-GRIP" OR SAFETY TYPE.
51. LEVEL METER INSTALLED AT WALL AT 5'-0" ABOVE FINISHED FLOOR

FOR LEGEND NUMBERS FROM 200 TO 234 SEE DWG. PS-15

NOTES:

1-100-YR, 24-HR FLOOD ELEVATION: 5.80 m.

2-INSTALLATION OF PUMPS AS PER MANUFACTURER SPECIFICATION.

3-ALL PUMPS SHALL BE PROVIDED WITH MIX SLUDGE VALVE MODEL 4901 BY FLYGT OR APPROVED EQUAL.

4-ALL STAINLESS STEEL PARTS TO BE USED IN THE STATION SHALL BE A-316.

5- PROVIDE REMOVABLE FIBERGLASS RAILING AROUND ACCESS FRAME OPENING AS SHOWN ON PLANS TO ELIMINATE ACCIDENTS. (O.S.H.A.)(29 CFR 1910.23)

6- WHEN MECHANICAL HANDLING EQUIPMENT IS IN USE SUFFICIENT SAFE CLEARANCES SHALL BE ALLOWED IN AISLES, AT LOAD DOCKS, THROUGH DOOR WAYS AND WHICHEVER IS NEEDED, O.S.H.A. (29 CFR 1910.22)

7- VALVES ASSEMBLIES INDICATED IN SECTION 150310.

8- FOR DOOR AND WINDOWS SCHEDULE SEE DWG. PS-13.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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TEL. 787-751-8885 / 787-751-5537 FAX 787-751-1052
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NEW DORADO TRUNK SEWER

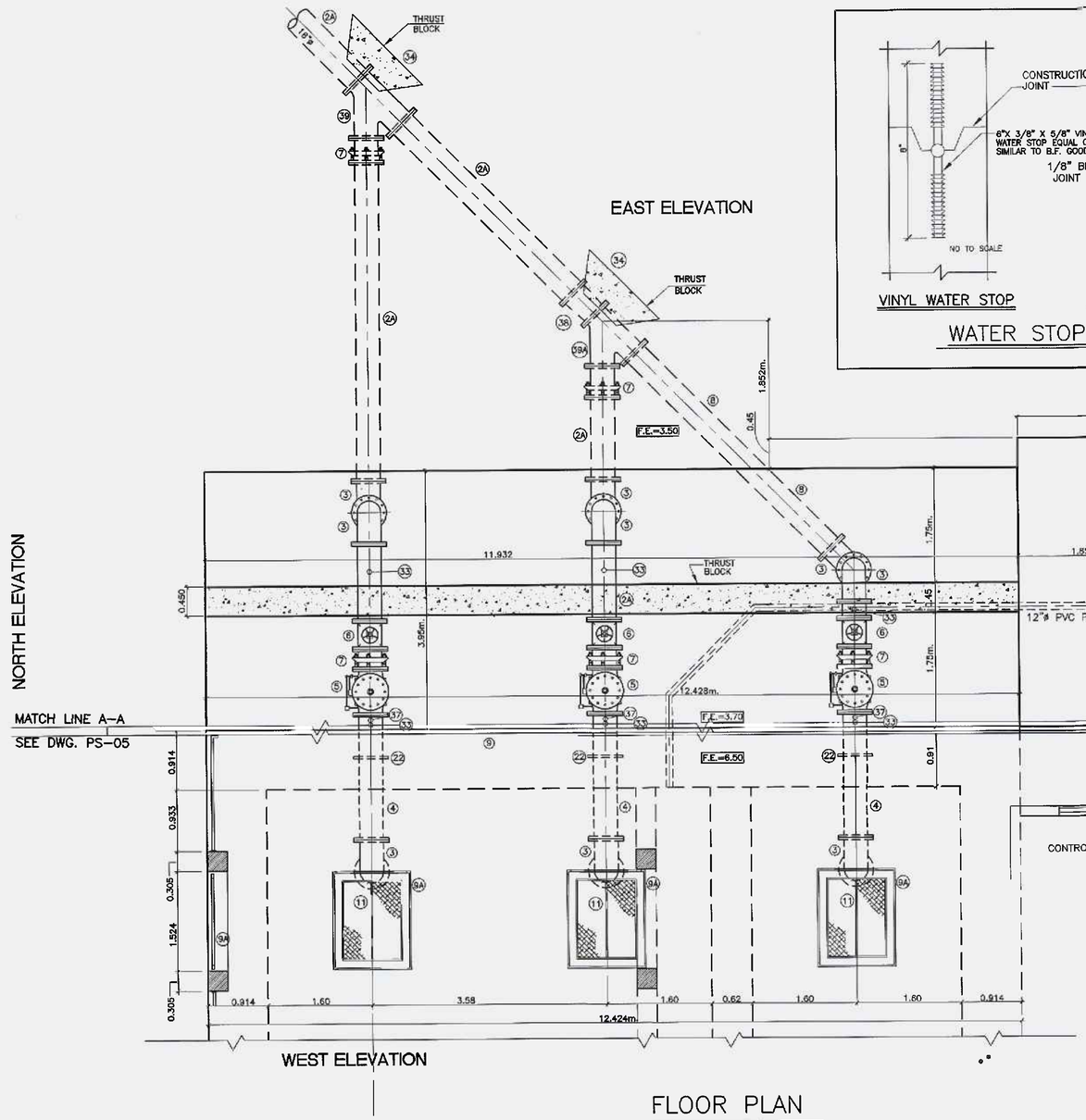
CIP NUM.: 2-26-5002
C-72-051-01

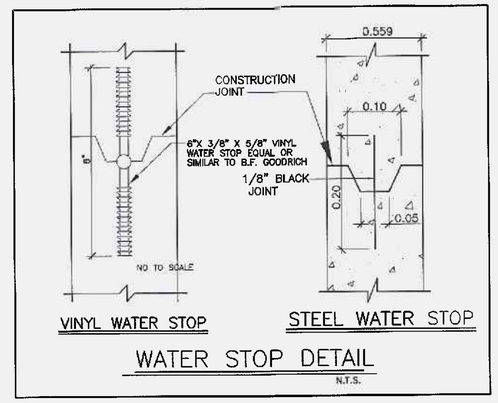
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

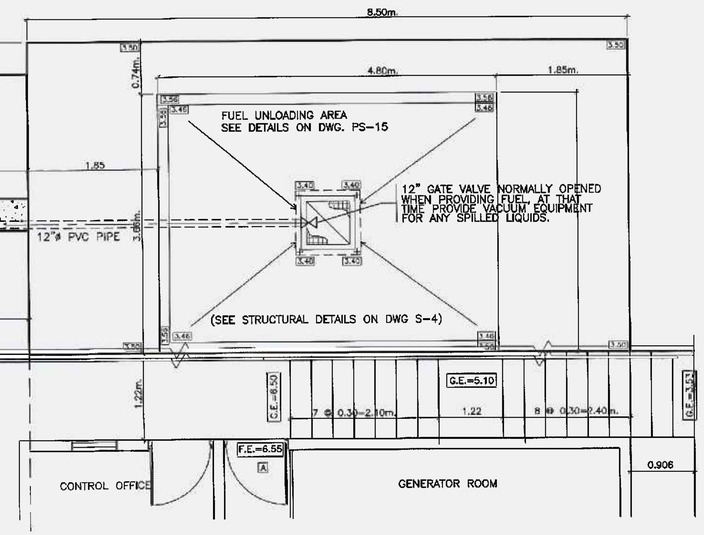
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

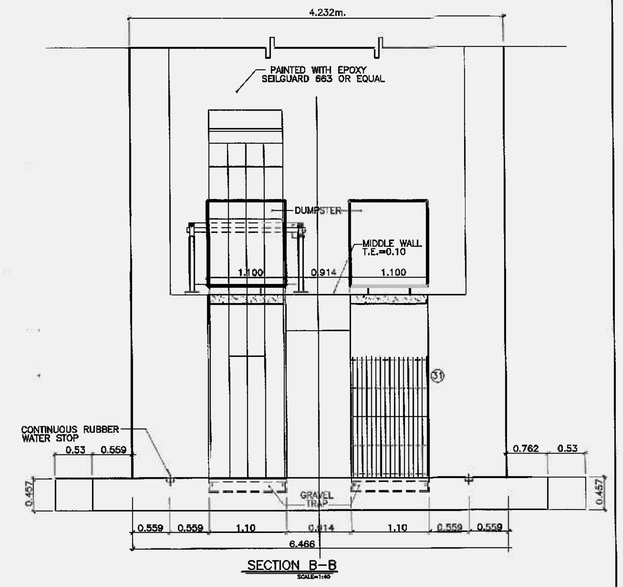
SHEET TITLE: NEW HIGUILLAR PUMP STATION FLOOR PLAN			SCALES: H=1:40 V=1:N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-05
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 32
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\32-33-PS-05-06-NEW HIGUILLAR PUMP STATION FLOOR PLAN.dwg 7/21/2014 10:55:58 AM









FLOOR PLAN

SCALE =1:40

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

NOTE:

1. PLEASE REFER TO DWG. PS-05 FOR LEGEND NUMBERS.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMC CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUEYO ACEVEDO INGENIERO LICENCIADO LIC. #19440 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
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COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION FLOOR PLAN

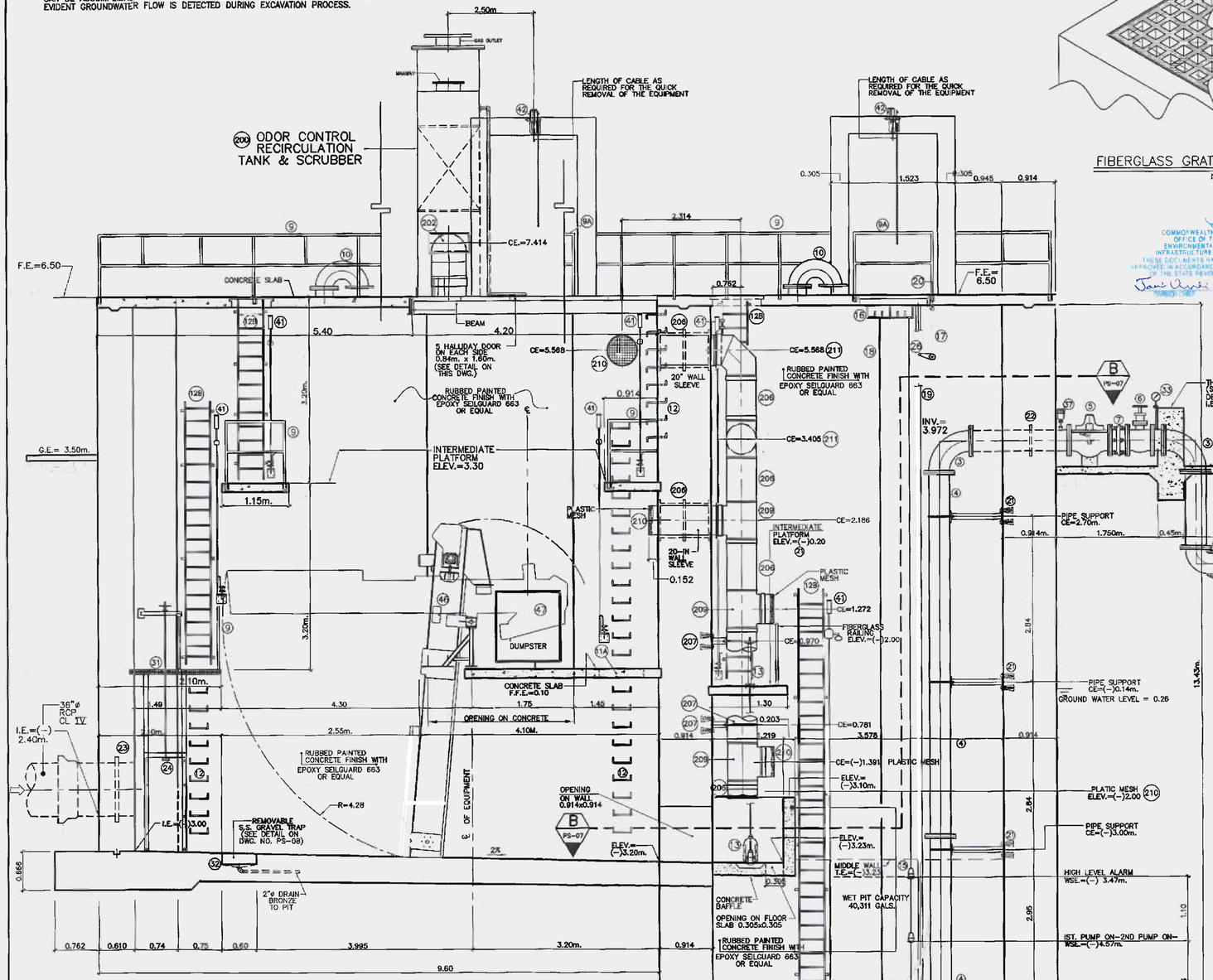
DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

SCALES: H=1:40 V=1:N/A
DRWG NO. PS-06
SHEET NO. 33
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\32-33-PS-05-06-NEW HIGUILLAR PUMP STATION FLOOR PLAN.dwg 7/21/2014 10:55:58

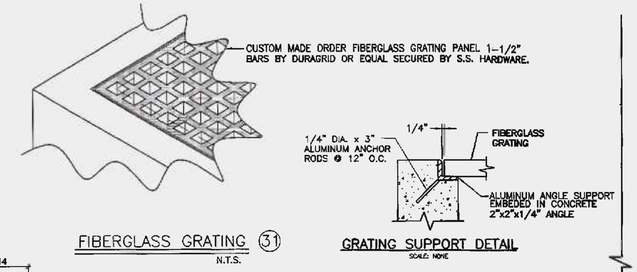
IMPORTANT NOTE:

SPECIAL ATTENTION SHALL BE PAID TO EXCAVATIONS UP TO INVERT ELEVATION WILL BE BELOW GROUNDWATER LEVEL, DEWATERING CAN BE ACCOMPLISHED BY MEANS OF WELL POINT SYSTEM WITH SUBMERSIBLE PUMPS STRATEGICALLY LOCATED AT PLACES WHERE EVIDENT GROUNDWATER FLOW IS DETECTED DURING EXCAVATION PROCESS.



SECTION A–A

(PS-05) SCALE=1:40



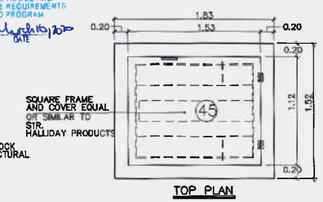
FIBERGLASS GRATING (31)

N.T.S.

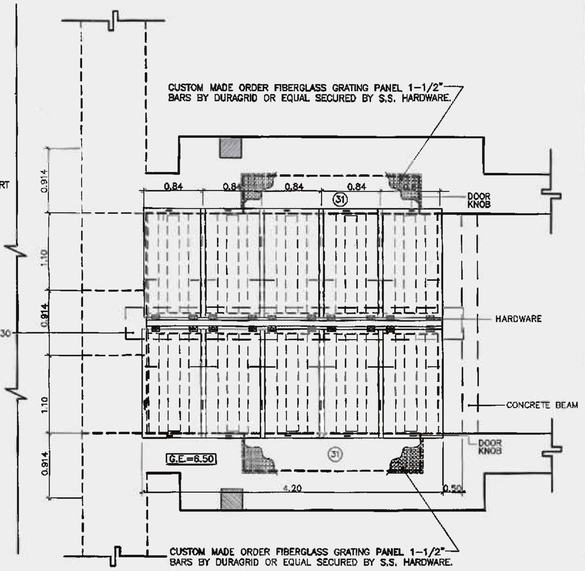
GRATING SUPPORT DETAIL

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM

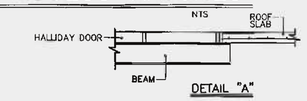
DATE



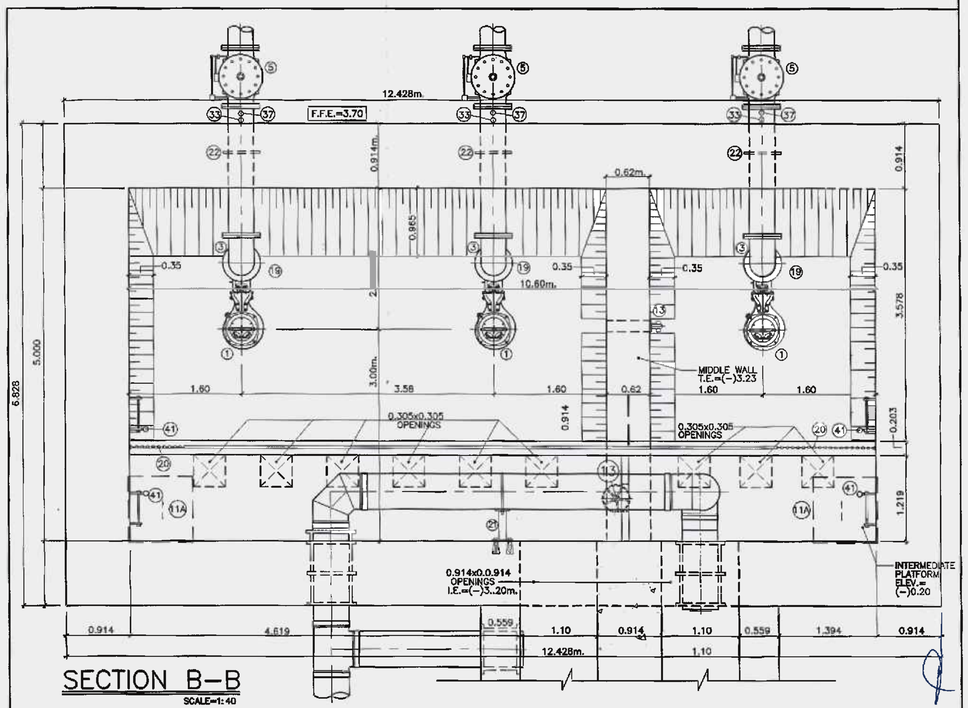
TOP PLAN



INLET CHANNEL ACCESS HATCHES

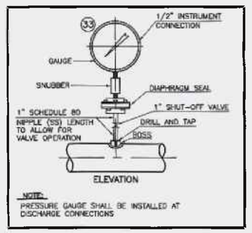


DETAIL "A"



SECTION B–B

SCALE=1:40



PRESSURE GAUGE CONNECTION

IMPORTANT NOTES:

1. ALL EXCAVATION OVER 20 FEET DEPTH SHALL BE IN COMPLIANCE WITH OSHA STANDARD 29 CFR 1926.652 (b)(4)
2. ALL RAILINGS SHALL COMPLY WITH OSHA STANDARD 29 CFR 1910.23 (e)(1)
3. LADDERS SHALL COMPLY WITH OSHA STANDARD 29 CFR 1910.27 (d)(5)

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES ENGINEERO LICENCIADO LIC. #19... PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
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COMMONWEALTH OF PUERTO RICO

AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION SECTIONS			SCALES: H=1:40 V=1:N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-07
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 34
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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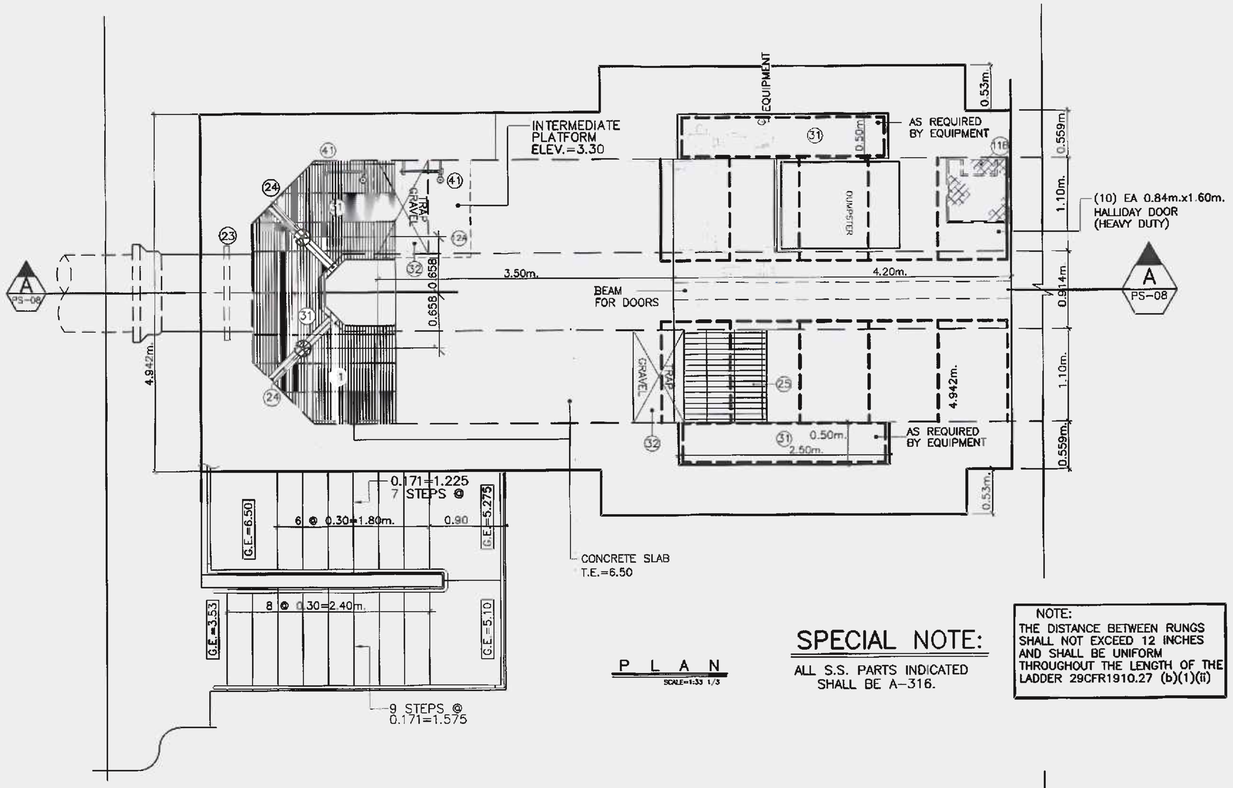
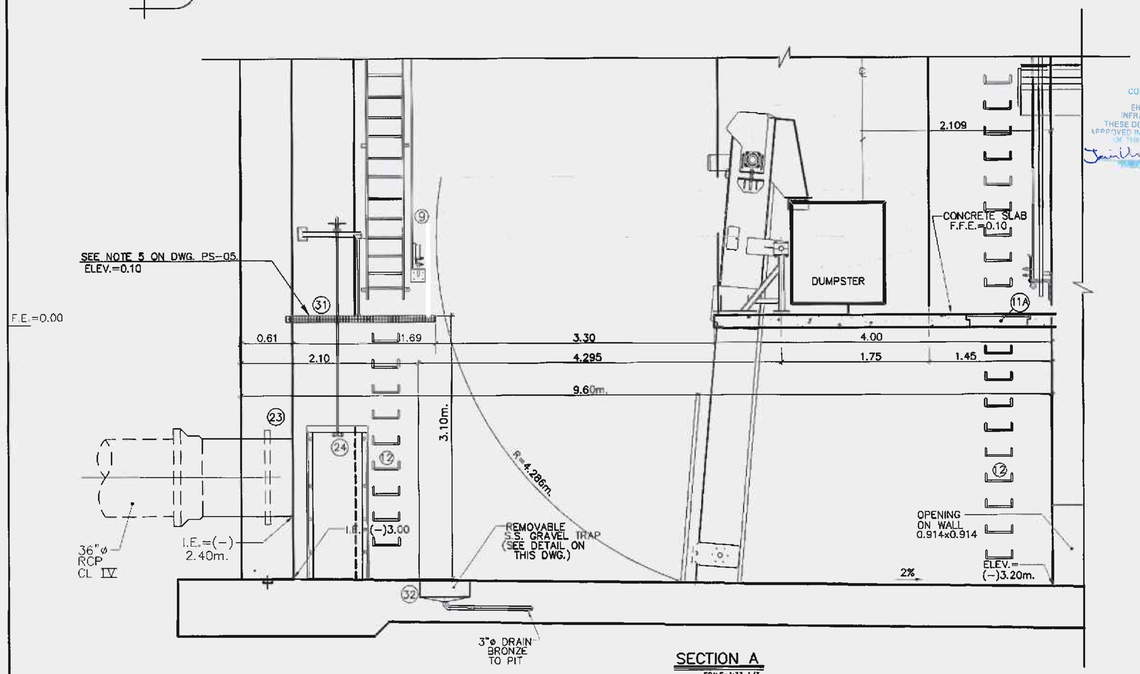


P L A N
SCALE=1:33 1/3

SPECIAL NOTE:

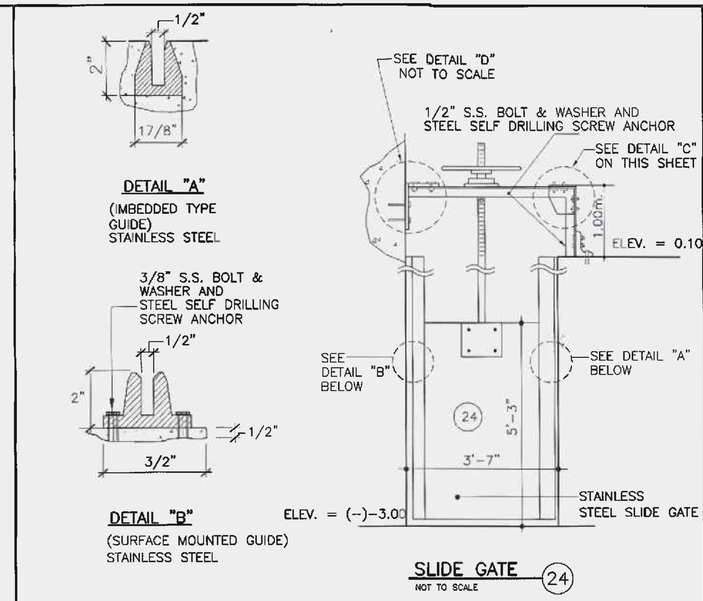
ALL S.S. PARTS INDICATED SHALL BE A-316.

NOTE:
THE DISTANCE BETWEEN RUNGS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER 29CFR1910.27 (b)(1)(ii)

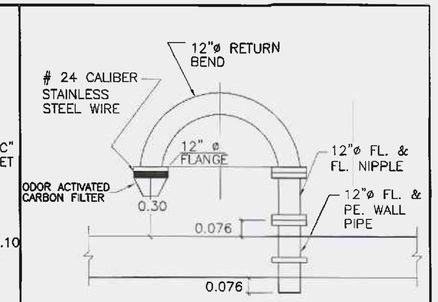


SECTION A
SCALE=1:33 1/3

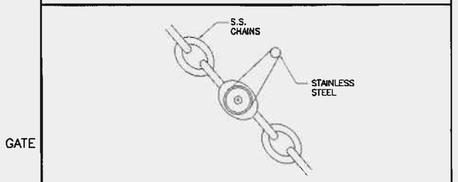
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020



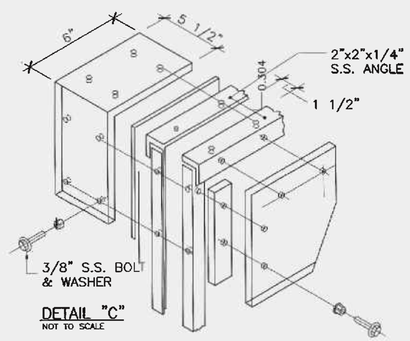
SLIDE GATE (24)
NOT TO SCALE



(10) VENTILATOR DETAIL
NOT TO SCALE



S.S. SHACKLES DETAIL (26)
NOT TO SCALE



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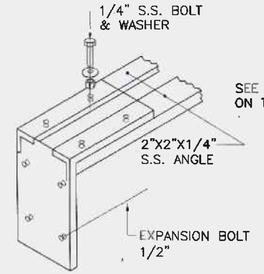

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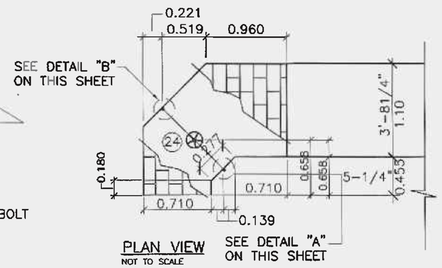
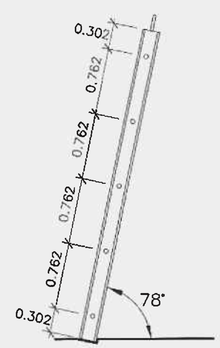
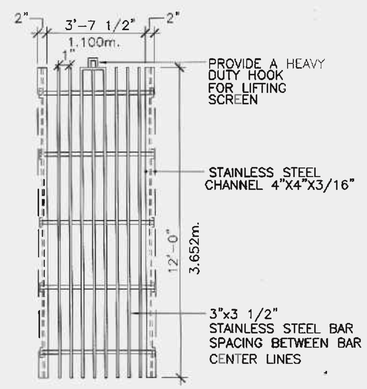
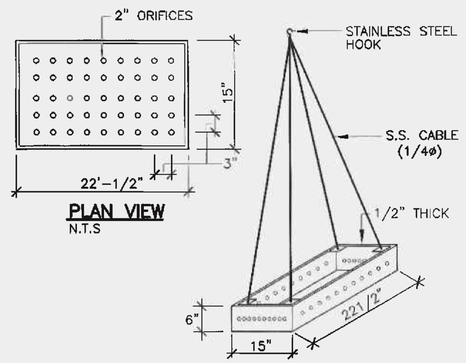


PLAN VIEW
NOT TO SCALE





BAR SCREEN (25)
NOT TO SCALE



PLAN VIEW
N.T.S

(32) HEAVY DUTY S.S. ISOMETRIC VIEW
GRAVEL TRAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcmc CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FIGUEROA JIMENEZ
INGENIERO LICENCIADO
LIC. #19946
PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

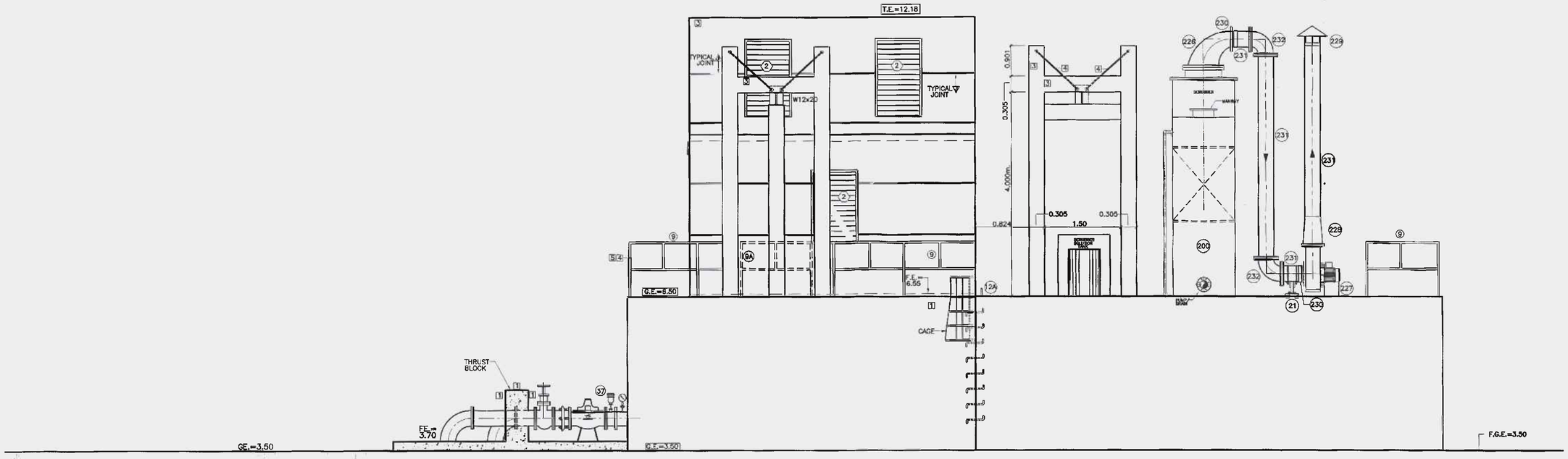
SHEET TITLE: NEW HIGUILLAR PUMP STATION INLET CHANNEL DETAILS			SCALES: H=1:33.3 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-08
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 35
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\35-PS-08-NEW HIGUILLAR PUMPING STATION INLET CHANNEL.DWG 7/22/2014 8:32:59 AM SWST

NOTES:

1- FOR PAINT COLOR AND FINISHES SCHEDULES REFER TO DWG. PS-10.

2- FOR WINDOW AND DOOR SCHEDULE REFER TO DWG. PS-10.



PUMP STATION NORTH ELEVATION

SCALE 1:40

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM

March 10, 2020

DIVISION CHIEF DATE

NO.	REMARKS	DATE	BY	APPV'D.

REVISION NO. 0 REVISIONS

JAMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-6885 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #1914 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002

C-72-051-01

COMMONWEALTH OF PUERTO RICO

AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION NORTH ELEVATION			SCALES: H=1:40 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PS-09
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 36
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\36-37-PS-09-10-PUMPING STATION ELEVATIONS NORTH-SOUTH.dwg 7/21/2014 3:03:25 PM SWST

WINDOW SCHEDULE

MKD	WINDOW SIZE WIDTH	WINDOW SIZE HEIGHT	UNITS	REMARKS
②	0.914	1.524	7	ADJUSTABLE ALUMINUM LOUVERS HEAVY DUTY VANDAL PROOF
③	0.635	1.524	2	AUTOMATIC ALUMINUM LOUVERS
④	SEE NOTE 1	SEE NOTE 1	1	STATIONARY ALUMINUM LOUVER HEAVY DUTY VANDAL PROOF
⑤	0.762	1.219	11	ADJUSTABLE LOUVER & SHUTTER WINDOW WITH HARDWARE

NOTES:
(1) AUTOMATIC OPENING ALUMINUM LOUVER (EXACT DIMENSION AS RECOMMENDED BY THE SUPPLIER OF THE GENERATOR (1" STEEL GRATING).
(2) SEE SECTION 089000 – ALUMINUM LOUVERS, SUBSECTION 2.02 AND 2.03.

DOOR SCHEDULE

MKD	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	THICK	UNITS	REMARKS	HARDWARE SET
A	0.914	2.750	1 3/4"	2	GALV. STEEL METAL DOOR WITH HEAVY DUTY PADLOCK & HARDWARE(VANDAL-PROOF)	2
B	2.131	3.962	–	1	GALV. STEEL ROLL UP DOOR HEAVY DUTY PADLOCK & HARDWARE(VANDAL-PROOF)	1
C	0.762	2.750	1 1/2"	1	GALV. STEEL METAL DOOR WITH TRANSOM	1
D	0.762	2.134	1 1/2"	2	GALV. STEEL METAL DOOR WITH TRANSOM	2
E	0.914	2.134	1 1/2"	2	GALV. STEEL METAL DOOR WITH TRANSOM	1

HARDWARE SCHEDULE

NOTE: SEE SECTION 087100–DOOR HARDWARE

ITEM	SUBSECTION	DOOR A	DOOR B	DOOR C
HINGGS	2.02	X		X
LOCK SET	2.03	X		X
CONSTRUCTION KEYS	2.04	X	X	
CLOSER	2.05	X		
STOPS AND HOLDERS	2.06	X		X
BOLTS	2.07	X	X	X
KICK PLATE	2.08	X		X
THRESHOLD	2.09	X		
SILENCERS	2.10	X		X
PADLOCKS	2.11	X	X	

PAINT COLOR SCHEDULE

EXTERIORS:
1 SW 7067/CITY SCAPE
2 SW 7066/GRAY MATTERS (ENAMEL/METAL)
3 SW 7065/ARGOS
4 SW 7065/ARGOS (ENAMEL/METAL)
5 SW 6880/EMERGENTIC ORANGE (ENAMEL/METAL)

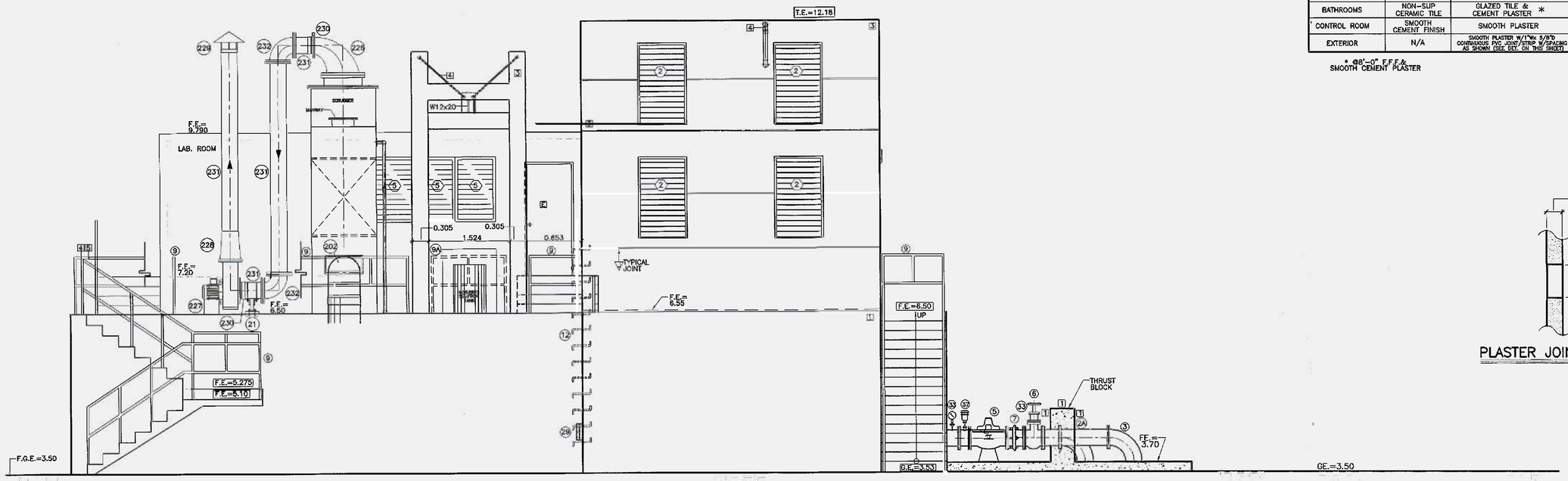
INTERIORS:
(A) WALLS & CEILING
1 SW 7063/NEBULOUS WHITE
(B) FRAMES & METAL DOORS
2 SW 7066/GRAY MATTERS (ENAMEL/METAL)
(C) HANDRAIL & METAL STRUCTURE
4 SW 7065/ARGOS (ENAMEL/METAL)

IMPORTANT NOTES:
PAINT TO BE SHERWIN WILLIAMS &/OR EQUAL.
REFER TO PAINT SPECIFICATION FOR QUALITY & FINISH.

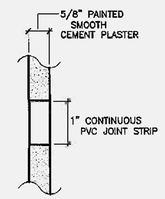
SCHEDULE OF FINISHES

ROOM	FLOOR	WALLS	CEILING
LABORATORY	SMOOTH FINISH	SMOOTH PLASTER	SMOOTH PLASTER
CONTROL ROOM	SMOOTH FINISH	SMOOTH PLASTER	SMOOTH PLASTER
BATHROOMS	NON-SLIP CERAMIC TILE	GLAZED TILE & CEMENT PLASTER *	SMOOTH PLASTER
CONTROL ROOM	SMOOTH CEMENT FINISH	SMOOTH PLASTER	SMOOTH PLASTER
EXTERIOR	N/A	SMOOTH PLASTER W/1"Wx 5/8"D CONTINUOUS PVC JOINT/STRIP W/SPACING AS SHOWN (SEE DET. ON THIS SHEET)	SMOOTH PLASTER

* @8'-0" F.F.F.& SMOOTH CEMENT PLASTER



PUMP STATION SOUTH ELEVATION
SCALE 1:40



PLASTER JOINT DETAILS
N.T.S.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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DIVISION CHIEF — DATE March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcmq CIVIL ENGINEERING CONSULTANTS
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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

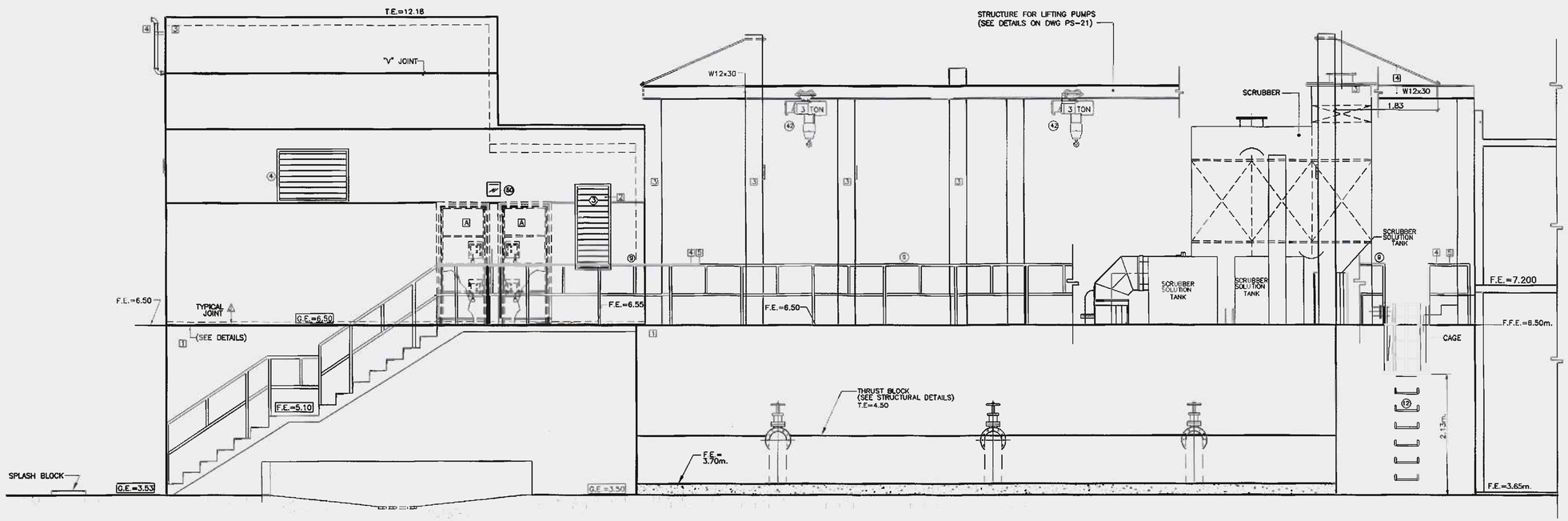
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION SOUTH ELEVATION

DRAFTED BY:	DRAFTER LICENSE NO.:	DATE
DESIGNED BY: A.A.F.T.		DATE 02/20/2020
REVISED BY:		DATE
SUBMITTED BY:		DATE

SCALES: H=1:40 V=N/A
DRWG NO. PS-10
SHEET NO. 37

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\36-37-PS-09-10-PUMPING STATION ELEVATIONS NORTH-SOUTH.dwg 7/21/2014 3:03:25 PM



PUMP STATION EAST ELEVATION

SCALE 1:40

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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DIVISION CHIEF — DATE: March 10, 2020

NOTES:

1–FOR PAINT COLOR AND FINISHES SCHEDULES REFER TO DWG. PS–10

2–FOR WINDOWS ADN DOORS SCHEDULES REFER TO DWG. PS–10

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

F.E.=0.00

jama CIVIL ENGINEERING CONSULTANTS
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NEW DORADO TRUNK SEWER
CIP NUM.: 2–26–5002
C–72–051–01

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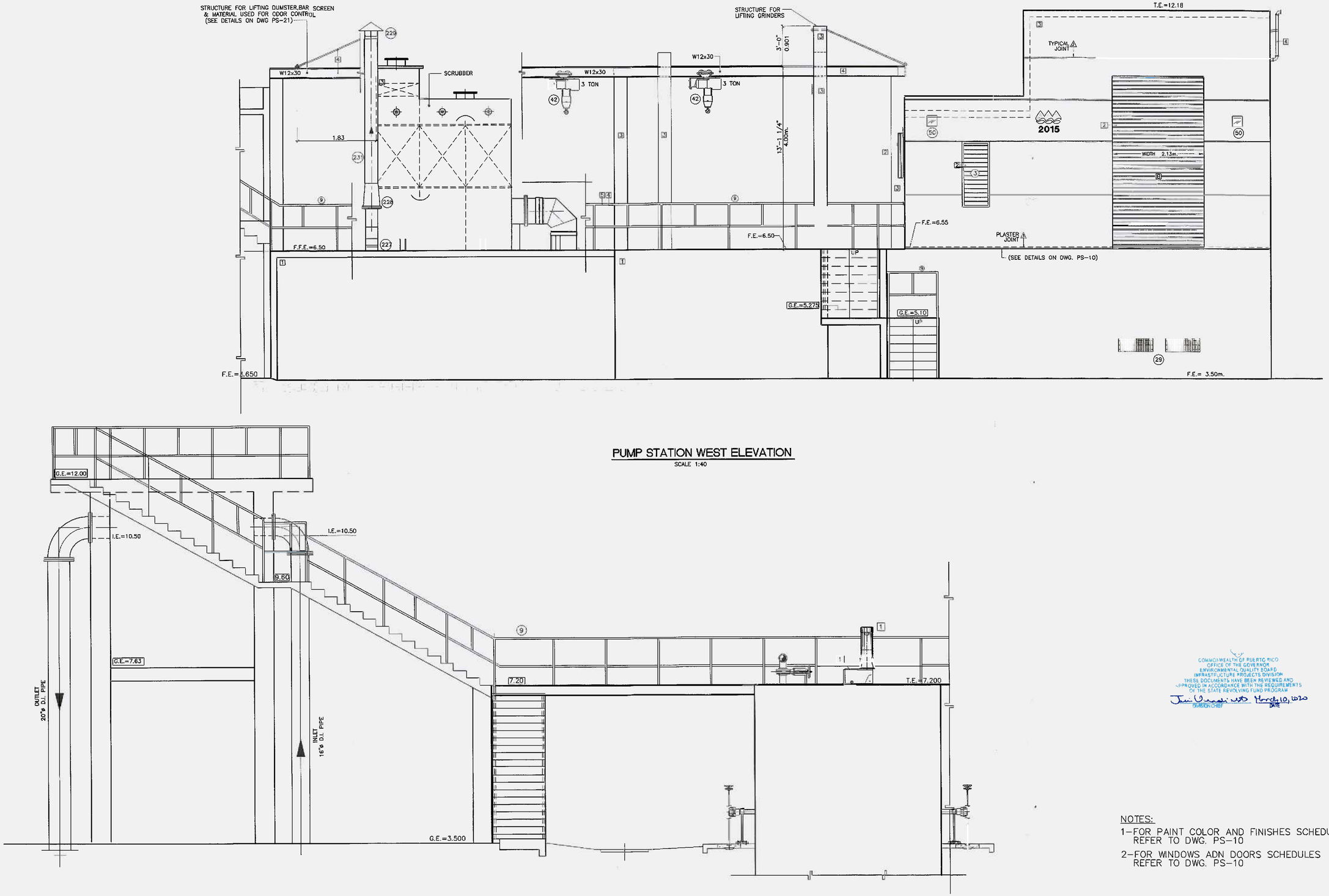
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION EAST ELEVATION			SCALES: H=1:40 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS–11
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 38
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\38-39-PS-11-12-PUMPING STATION ELEVATIONS EAST-WEST.dwg 7/18/2014 3:21:47 PM SWST



PUMP STATION WEST ELEVATION

SCALE 1:40

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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NO.	REMARKS	DATE	BY	APPV'D.

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F.E.=0.00

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION WEST ELEVATION			SCALES: H=1:40 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-12
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 39
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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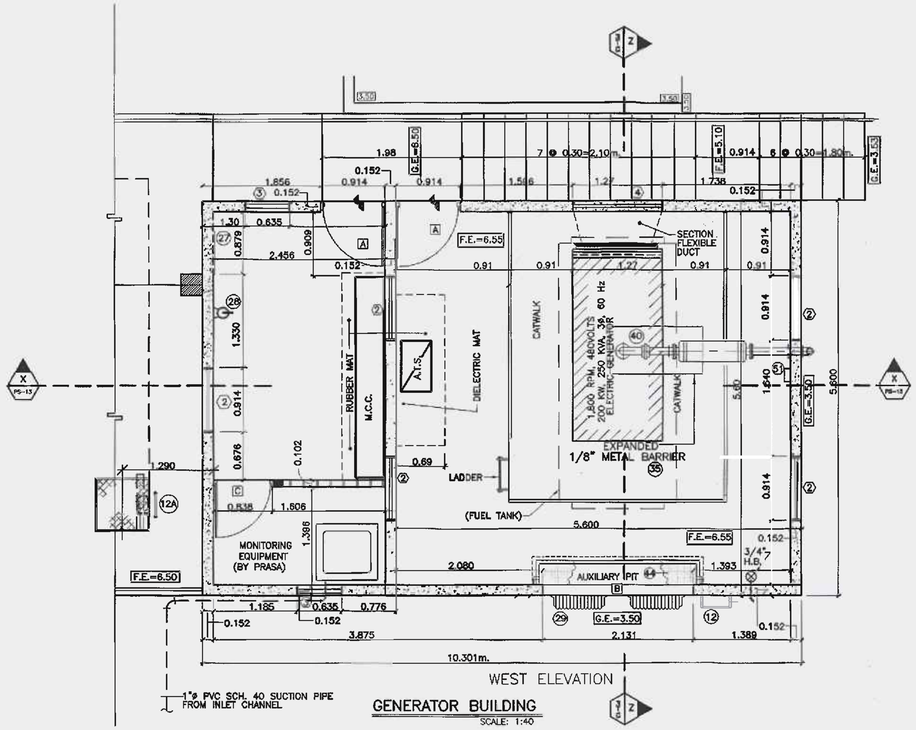
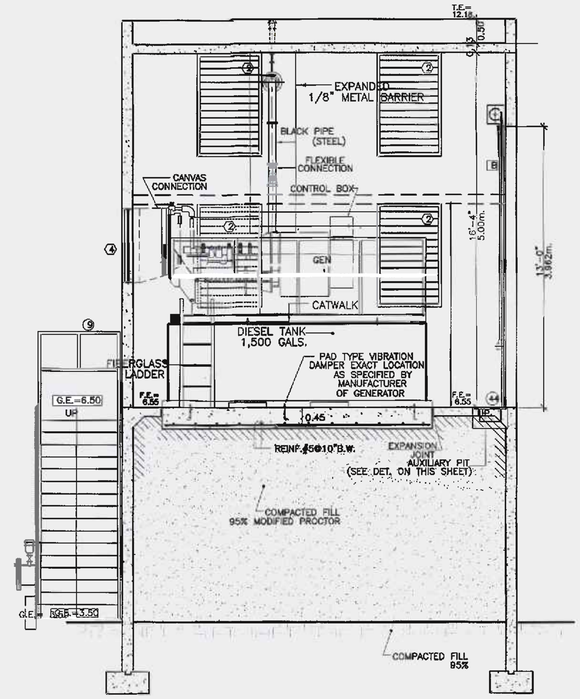


WEST ELEVATION

GENERATOR BUILDING

SCALE: 1:40



SECTION Z–Z

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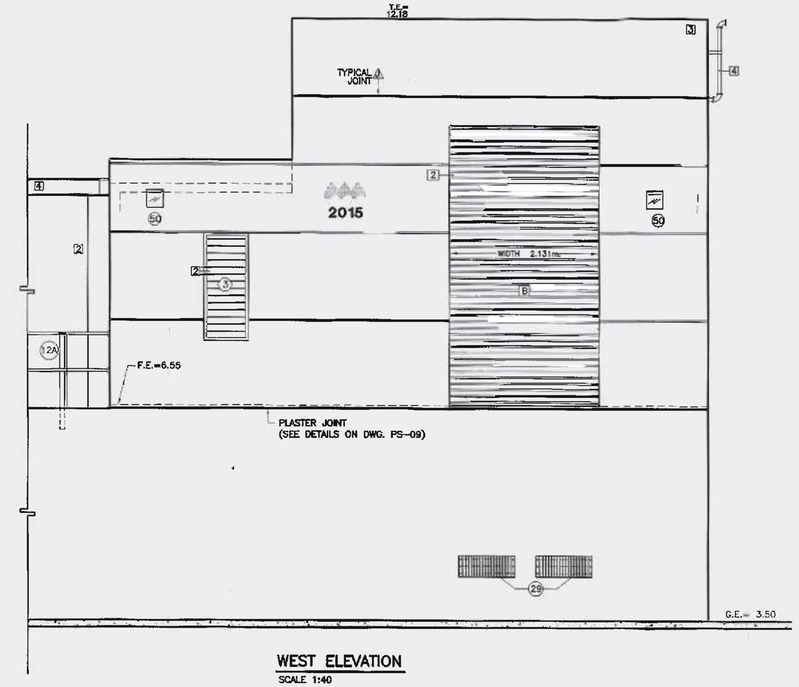
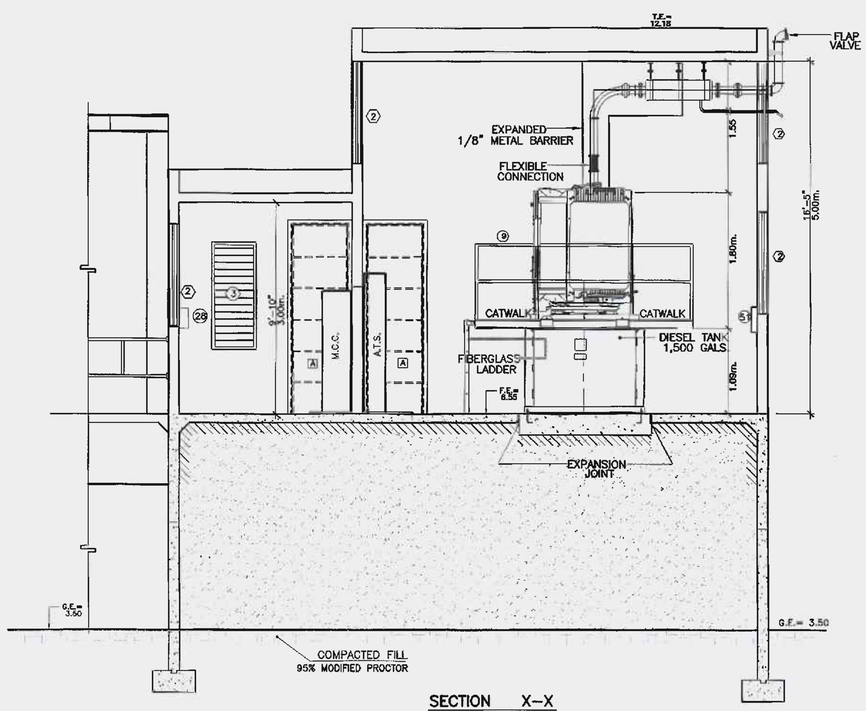


WEST ELEVATION

SCALE 1:40



SECTION X–X

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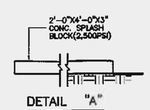
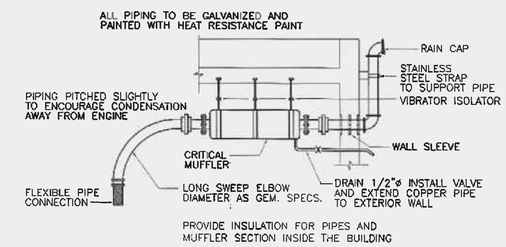


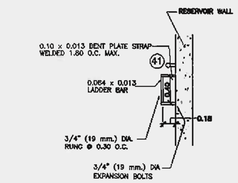
DETAIL "A"

IMPORTANT NOTE:
GENERATOR NOISE MUST NOT EXCEED 65 DB DURING NIGHTTIME



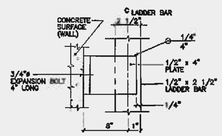
(40) MUFFLER INSTALLATION DETAILS

NOT TO SCALE



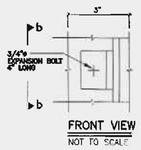
(12) SECTIONAL PLAN

NOT TO SCALE



SIDE VIEW

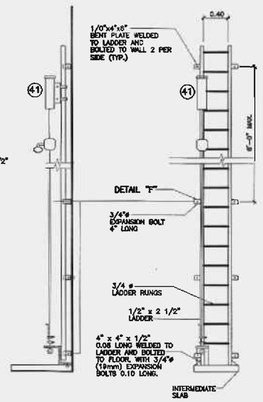
NOT TO SCALE



FRONT VIEW

NOT TO SCALE

DETAIL "F"

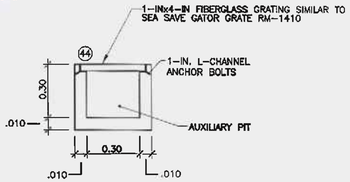


LADDER FRONT VIEW (28)

NOT TO SCALE

FIBERGLASS LADDER DETAIL

NOT TO SCALE



AUXILIARY PIT DETAILS

N.T.S.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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Legend:

(40) RESIDENTIAL TYPE MUFFLER – PROVIDE INSULATION FOR PIPES AND MUFFLER SECTION INSIDE THE BUILDING

(44) 1-INx4-IN FIBERGLASS GRATING SIMILAR TO SEA SAVE GATOR GRATE RM-1410

(50) WALL MOUNTED DIE CAST ALUM. HOUSING, WITH GRIT GUARD. PHOTO CONTROL HIGH PRESSURE SODIUM LUMINAIRE 70 WATTS 120V SIMILAR TO WALL PACKETTE BY DAY BRITE OWW-70 HS-12PE. BOLTS SHALL BE "POSI-GRIP" OR SAFETY TYPE.

(51) LEVEL METER INSTALLED AT WALL AT 5'-0" ABOVE FINISHED FLOOR

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. 6184 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

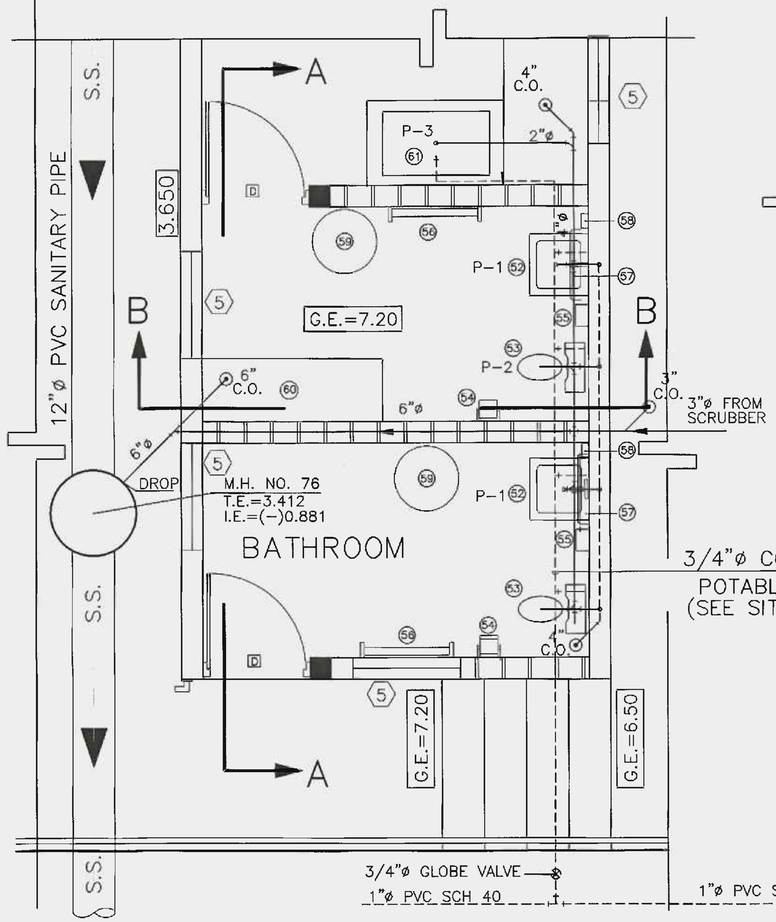
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION CONTROL ROOM DETAILS

DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/22/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

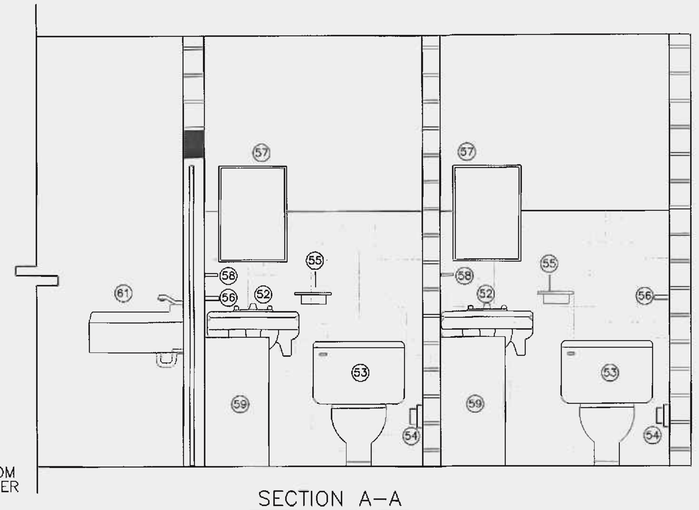
SCALES: H=1:40 V=N/A
DRWG NO. PS-13
SHEET NO. 40
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\40-PS-13-DORADO PUMP STA-CONTROL ROOM DETAILS.dwg 7/30/2014 3:16:18 PM SWST



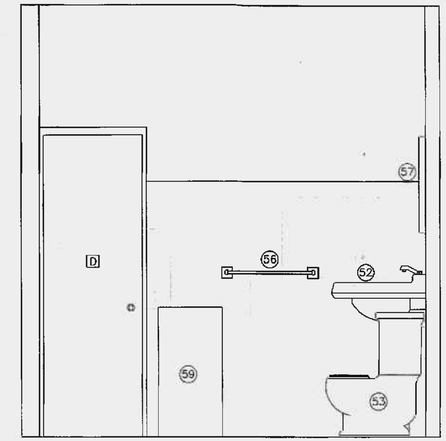
SANITARY & WATER PIPING PLAN

SCALE=1:20



SECTION A-A

SCALE=1:20



SECTION B-B

SCALE=1:20

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
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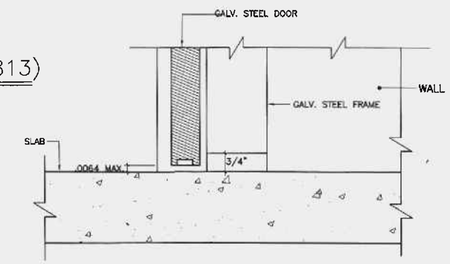
DIVISION CHIEF — March 10, 2020 — DATE

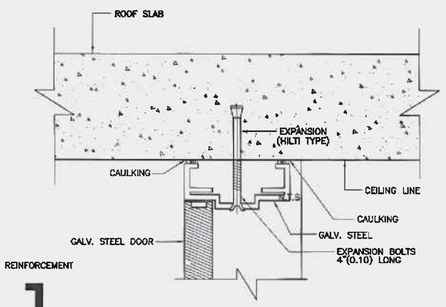
BATHROOM FIXTURE & ACCESSORIES (SEE SPECIFICATION 102813)

- 52 LAVATORY
- 53 TOILET
- 54 TOILET TISSUE
- 55 SOAP HOLDER
- 56 BATH TOWEL RACK
- 57 GLASS MIRROR
- 58 SOAP DISPENSER
- 59 WASTEBASKET (BLACK 20 GALS. HEAVY-DUTY PLASTIC WITH HANDLES)
- 60 18"Dx48"Wx88"H OPEN UNIT SIX-SHELF
- 61 WALL-MOUNTED SINK-PVC

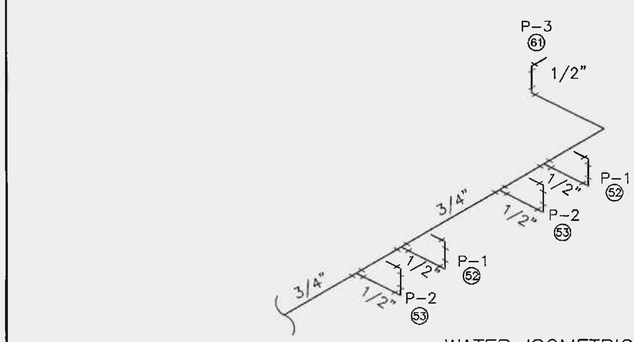


SILL DETAILS

N.T.S.

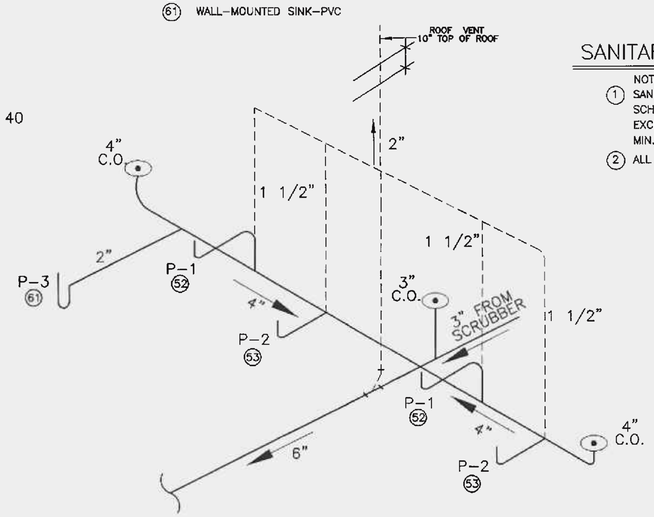


HEAD DETAILS



WATER ISOMETRIC

N.T.S.



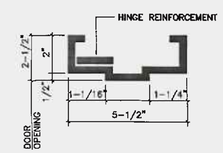
SANITARY PIPING ISOMETRIC

N.T.S.

SANITARY PIPING ISOMETRIC

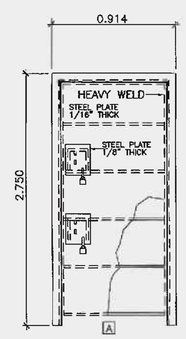
NOTES

1. SANITARY PIPE TO BE PLASTIC PVC SCHEDULE 40 TYPE I GRADE II EXCEPT OTHERWISE INDICATED MIN. SLOPE 1/8"/FT.
2. ALL COPPER PIPES SHALL BE TYPE "K"



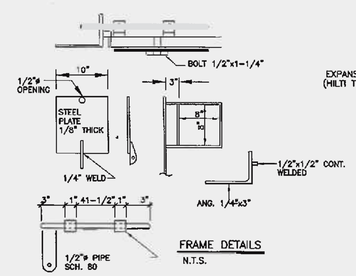
DOOR FRAME DETAILS

N.T.S.



DOOR & FRAME DETAIL

N.T.S.

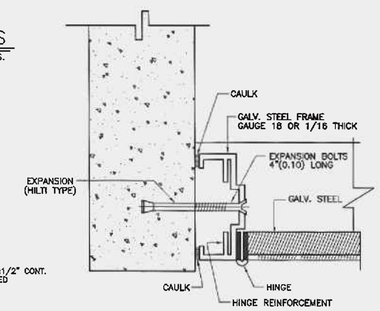


FRAME DETAILS

N.T.S.

GUIDE BAR BRACKET DETAIL

N.T.S.



JAMB DETAILS

N.T.S.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #17 DE DIEGO AVE. SAN JUAN PR 00927-5310
TEL. 787-751-5925 / 787-751-5537 FAX 787-751-1052
email: jcmyossoc@prtc.net

ANTONIO A. FIGUEROA LICENSED PROFESSIONAL ENGINEER LIC. #19846 PUERTO RICO

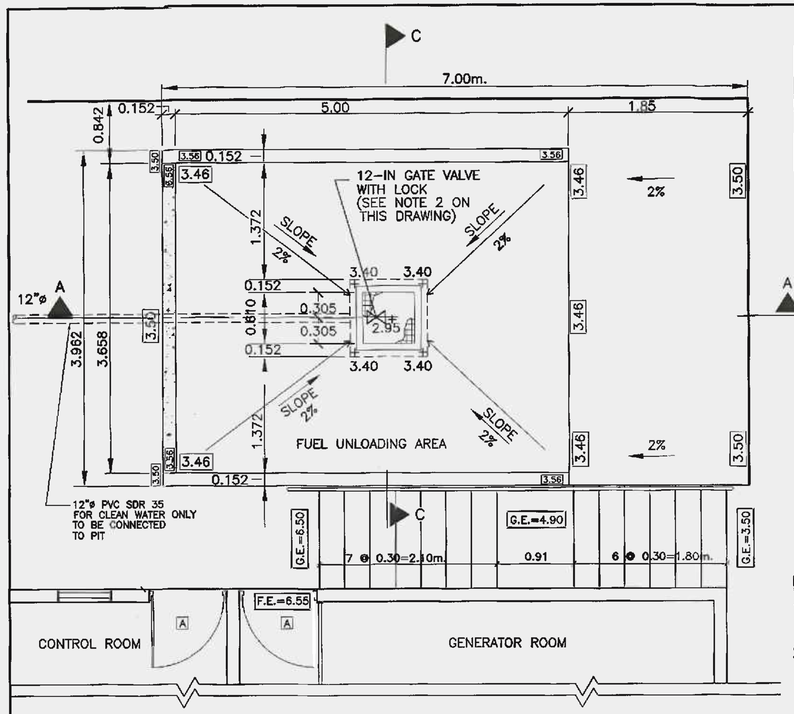
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Aqueduct and Sewer Authority

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION BATHROOM DETAILS			SCALES: H=1:20 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-14
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 41
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\41-PS-14-PUMPS STATIONS- BATH DETAILS.dwg 7/17/2014 3:45:08 PM SWST

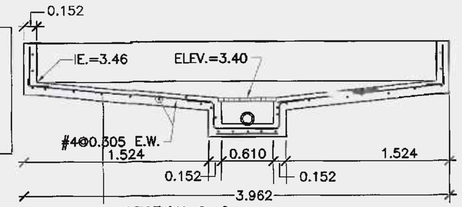


FUEL CONTAINMENT
SCALE 1:33-1/3

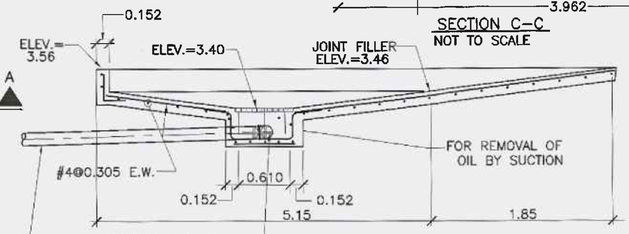
PUMPING STATION:

1- TANK CAPACITY: 1500 GALS

2- TANK DIMENSIONS MAY VARY AS PER MANUFACTURER SPECS.



SECTION C-C
NOT TO SCALE



SECTION A-A
NOT TO SCALE

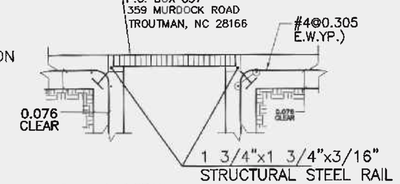
NOTES:

1-THE ELEVATIONS SHOWN ON PLAN APPLIES FOR HIGUILLAR PUMP STATION

2-THE 12-IN GATE VALVE WITH LOCK SHALL BE CLOSED BEFORE THE FUEL DISPATCH. IF ANY FUEL SPILL OCCURS, THE CATCH BASIN MUST BE CLEANED BEFORE OPEN THE VALVE AGAIN. OTHERWISE THE VALVE SHALL REMAIN OPEN.

23x24x1/2 GRATE EQUAL OR SIMILAR TO 1600 GRATE SERIES

PART 1604, FOR TF-14 CATCH BASIN BY ADT INC.
P.O. BOX 837
359 MURDOCK ROAD
TROUTMAN, NC 28166



GRATING DETAIL
N.T.S.

EQUAL OR SIMILAR TO PART 1492, FOR TF-14 CATCH BASIN BY ADT INC.
P.O. BOX 837
359 MURDOCK ROAD
TROUTMAN, NC 28166

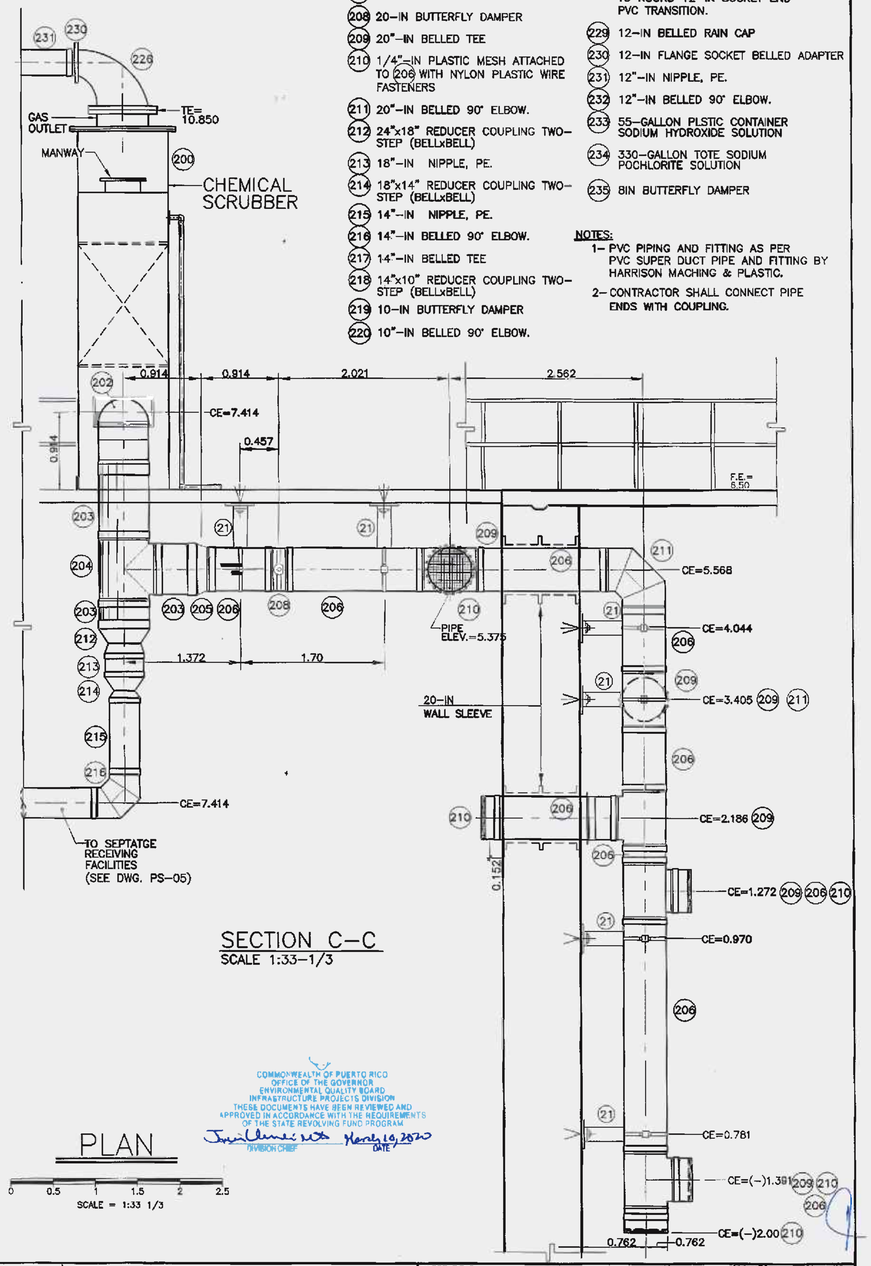
LEGEND:

200 CHEMICAL SCRUBBER (SEE DETAILS ON DWG. PS-15)
201 RECTANGULAR FLANGE END 14"x28" TO ROUND PE 24" DIA. PVC TRANSITION.
202 24"-IN BELLED 90° ELBOW.
203 24"-IN NIPPLE, PE.
204 24"-IN BELLED TEE
205 24"x20" REDUCER COUPLINGG TWO-STEP (BELLxBELL)
206 20"-IN NIPPLE, PE.
207 2-IN WIDE PIPE STRAP
208 20-IN BUTTERFLY DAMPER
209 20"-IN BELLED TEE
210 1/4"-IN PLASTIC MESH ATTACHED TO 206 WITH NYLON PLASTIC WIRE FASTENERS
211 20"-IN BELLED 90° ELBOW.
212 24"x18" REDUCER COUPLING TWO-STEP (BELLxBELL)
213 18"-IN NIPPLE, PE.
214 18"x14" REDUCER COUPLING TWO-STEP (BELLxBELL)
215 14"-IN NIPPLE, PE.
216 14"-IN BELLED 90° ELBOW.
217 14"-IN BELLED TEE
218 14"x10" REDUCER COUPLING TWO-STEP (BELLxBELL)
219 10-IN BUTTERFLY DAMPER
220 10"-IN BELLED 90° ELBOW.
221 10"-IN BELLED TEE
222 10"x8" REDUCER COUPLING TWO-STEP (BELLxBELL)
223 8"-IN NIPPLE, PE.
224 8"-IN BELLED 90° ELBOW.
225 10"-IN NIPPLE, PE.
226 24x12-IN D.I FLANGE 90ø-DEG REDUCING BEND SHORT RADIUS.
227 3.700 CFM BLOWER
228 RECTANGULER END 15-1/8"x12-3/16" TO ROUND 12-IN SOCKET END PVC TRANSITION.
229 12-IN BELLED RAIN CAP
230 12-IN FLANGE SOCKET BELLED ADAPTER
231 12"-IN NIPPLE, PE.
232 12"-IN BELLED 90° ELBOW.
233 55-GALLON PLSTIC CONTAINER SODIUM HYDROXIDE SOLUTION
234 330-GALLON TOTE SODIUM POCHLORITE SOLUTION
235 8IN BUTTERFLY DAMPER

NOTES:

1- PVC PIPING AND FITTING AS PER PVC SUPER DUCT PIPE AND FITTING BY HARRISON MACHING & PLASTIC.

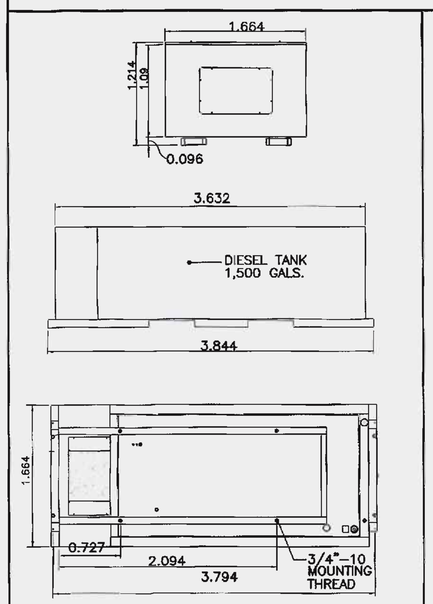
2- CONTRACTOR SHALL CONNECT PIPE ENDS WITH COUPLING.



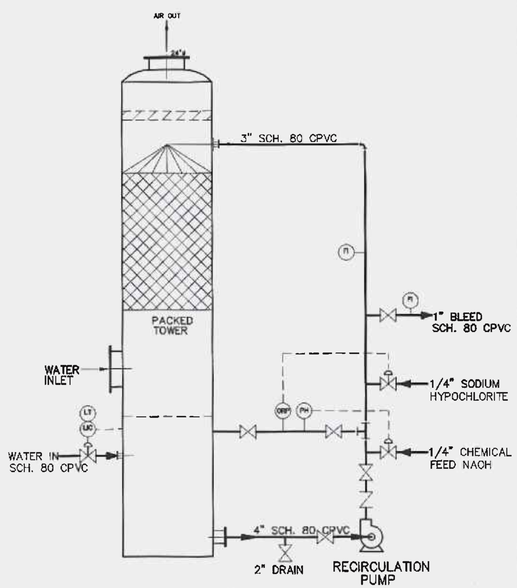
SECTION C-C
SCALE 1:33-1/3

PLAN
SCALE = 1:33 1/3

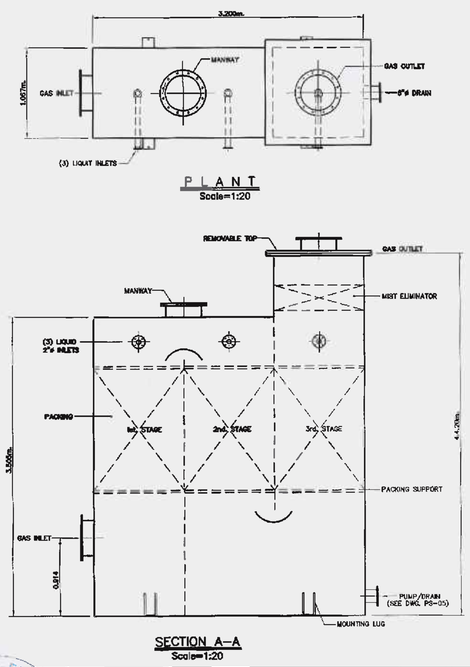
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM.
DIVISION CHIEF — DATE: March 19, 2020



FUEL TANK
SCALE 1:33-1/3



TYPICAL SCRUBBER
PIPING & INSTRUMENT DIAGRAM
N.T.S.



PLANT
Scale=1:20

SECTION A-A
Scale=1:20

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-5310
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ANTONIO A. FUENTES — LICENSED ENGINEER — LIC. #19... — PUERTO RICO

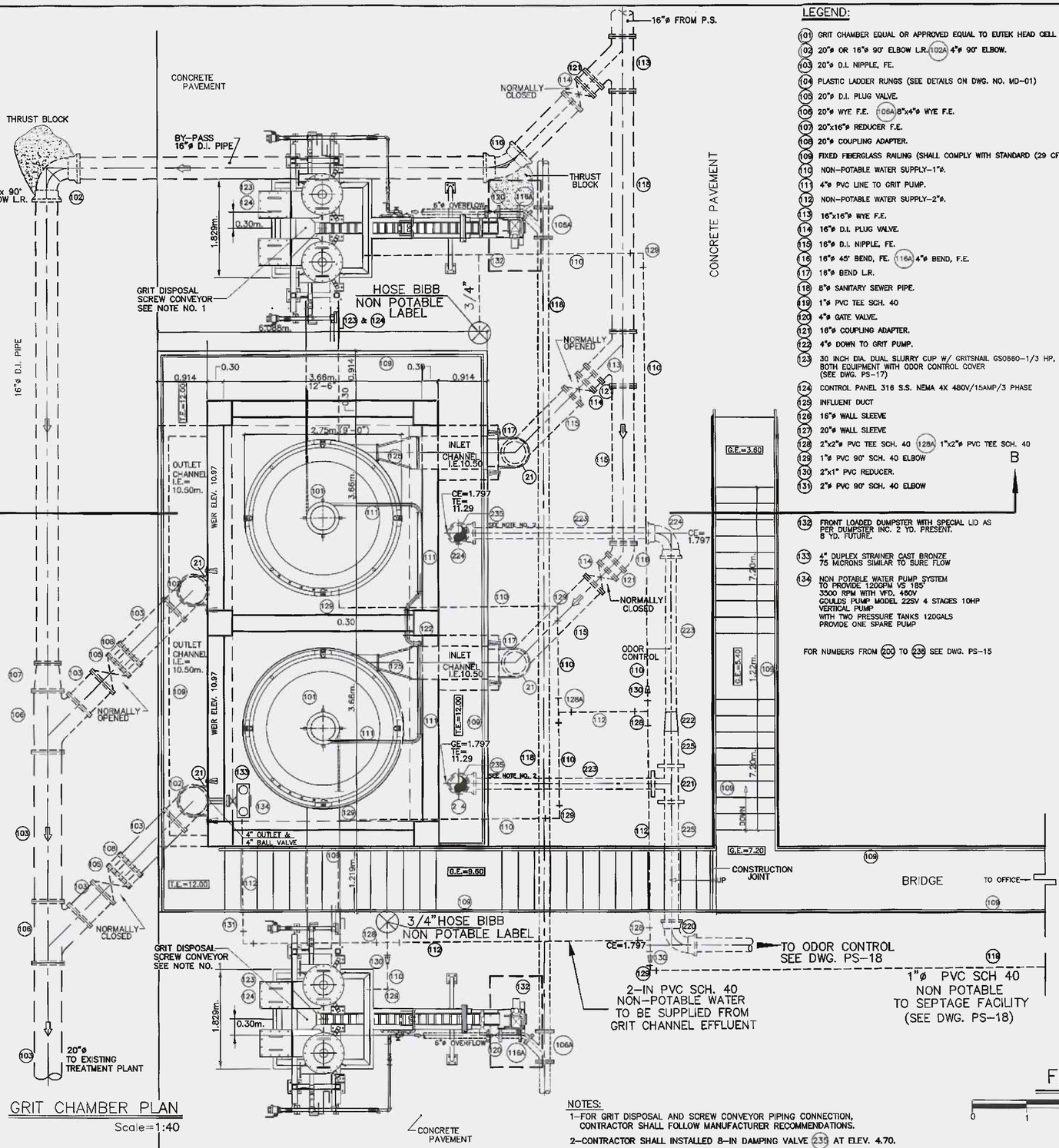
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION MISSELANEOUS DETAIL			SCALES: H=1:33-1/3 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PS-15
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 42
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\42-PS-15-NEW DORADO PUMP STATIONS- FUEL MANAGEMENT FACILITIES.dwg 7/21/2014 10:



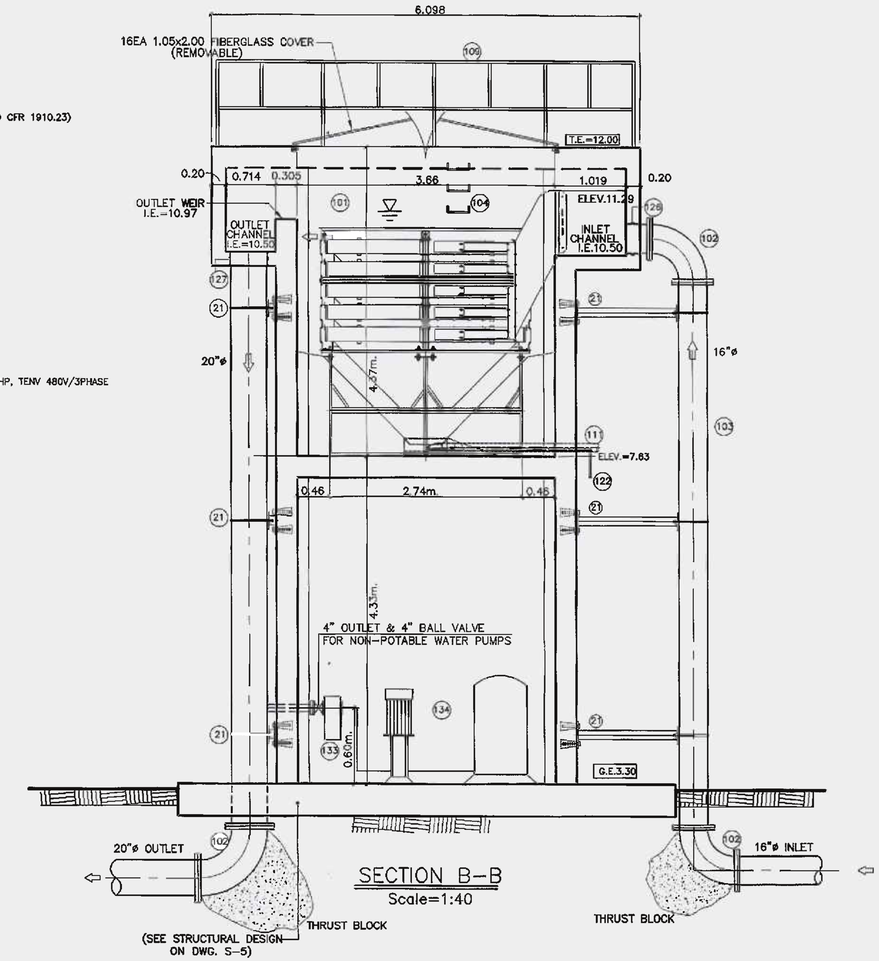
GRIT CHAMBER PLAN

Scale=1:40

LEGEND:

(101) GRIT CHAMBER EQUAL OR APPROVED EQUAL TO EUTEK HEAD CELL – 9' DIAMETER, 5 TRAYS 106 MICRON
(102) 20"ø OR 16"ø 90° ELBOW L.R. (102A) 4"ø 90° ELBOW.
(103) 20"ø D.I. NIPPLE, FE.
(104) PLASTIC LADDER RUNGS (SEE DETAILS ON DWG. NO. MD-01)
(105) 20"ø D.I. PLUG VALVE.
(106) 20"ø WYE F.E. (106A) 8"x4"ø WYE F.E.
(107) 20"x16"ø REDUCER F.E.
(108) 20"ø COUPLING ADAPTER.
(109) FIXED FIBERGLASS RAILING (SHALL COMPLY WITH STANDARD (29 CFR 1910.23)
(110) NON-POTABLE WATER SUPPLY-1"ø.
(111) 4"ø PVC LINE TO GRIT PUMP.
(112) NON-POTABLE WATER SUPPLY-2"ø.
(113) 16"x16"ø WYE F.E.
(114) 16"ø D.I. PLUG VALVE.
(115) 16"ø D.I. NIPPLE, FE.
(116) 16"ø 45° BEND, FE. (116A) 4"ø BEND, F.E.
(117) 16"ø BEND L.R.
(118) 8"ø SANITARY SEWER PIPE.
(119) 1"ø PVC TEE SCH. 40
(120) 4"ø GATE VALVE.
(121) 16"ø COUPLING ADAPTER.
(122) 4"ø DOWN TO GRIT PUMP.
(123) 30 INCH DIA. DUAL SLURRY CUP W/ GRITSNAIL GS0660-1/3 HP, TENV 480V/3PHASE BOTH EQUIPMENT WITH ODOR CONTROL COVER (SEE DWG. PS-17)
(124) CONTROL PANEL 316 S.S. NEMA 4X 480V/15AMP/3 PHASE
(125) INFLUENT DUCT
(126) 16"ø WALL SLEEVE
(127) 20"ø WALL SLEEVE
(128) 2"x2"ø PVC TEE SCH. 40 (128A) 1"x2"ø PVC TEE SCH. 40
(129) 1"ø PVC 90° SCH. 40 ELBOW
(130) 2"x1" PVC REDUCER.
(131) 2"ø PVC 90° SCH. 40 ELBOW
(132) FRONT LOADED DUMPSTER WITH SPECIAL LID AS PER DUMPSTER INC. 2 YD. PRESENT. 8 YD. FUTURE.
(133) 4" DUPLEX STRAINER CAST BRONZE 75 MICRONS SIMILAR TO SURE FLOW
(134) NON POTABLE WATER PUMP SYSTEM TO PROVIDE 120GPM VS 185' 3500 RPM WITH VFD, 460V GOULDS PUMP MODEL 22SV 4 STAGES 10HP VERTICAL PUMP WITH TWO PRESSURE TANKS 120GALS PROVIDE ONE SPARE PUMP

FOR NUMBERS FROM (200) TO (236) SEE DWG. PS-15



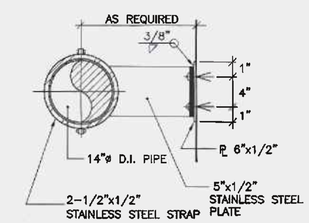
SECTION B–B

Scale=1:40

FLOOR PLAN

0 1 2 3 4 5

SCALE =1:40



INTERMEDIATE PIPE SUPPORT DETAIL (21)

N.T.S.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM.
DIVISION CHIEF — DATE: March 16, 2020

NOTES:

1–FOR GRIT DISPOSAL AND SCREW CONVEYOR PIPING CONNECTION, CONTRACTOR SHALL FOLLOW MANUFACTURER RECOMMENDATIONS.

2–CONTRACTOR SHALL INSTALLED 8–IN DAMPING VALVE (236) AT ELEV. 4.70.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMA CIVIL ENGINEERING CONSULTANTS
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email: jcmyassoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. 8194 PUERTO RICO

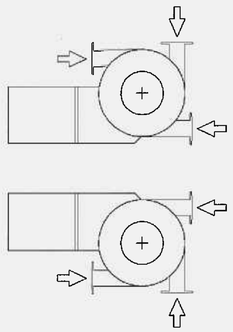
NEW DORADO TRUNK SEWER

CIP NUM.: 2–26–5002
C–72–051–01

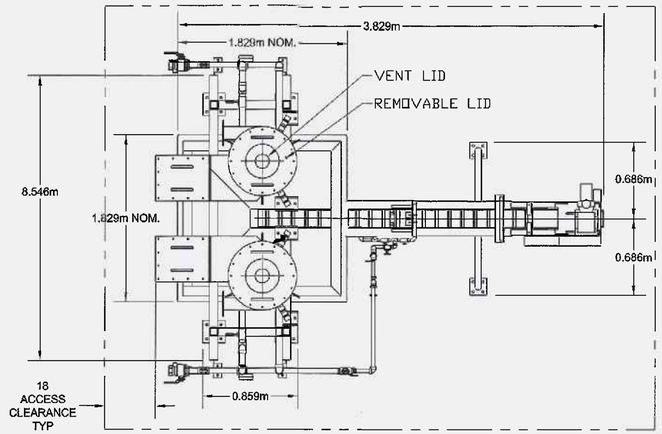
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

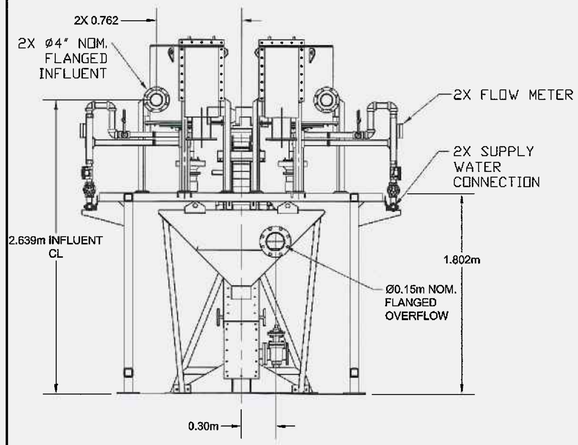
SHEET TITLE: GRIT CHAMBER PLAN AND SECTION			SCALES: H=1:40 V=1:N/A
			DRWG NO. PS–16
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SHEET NO. 43
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



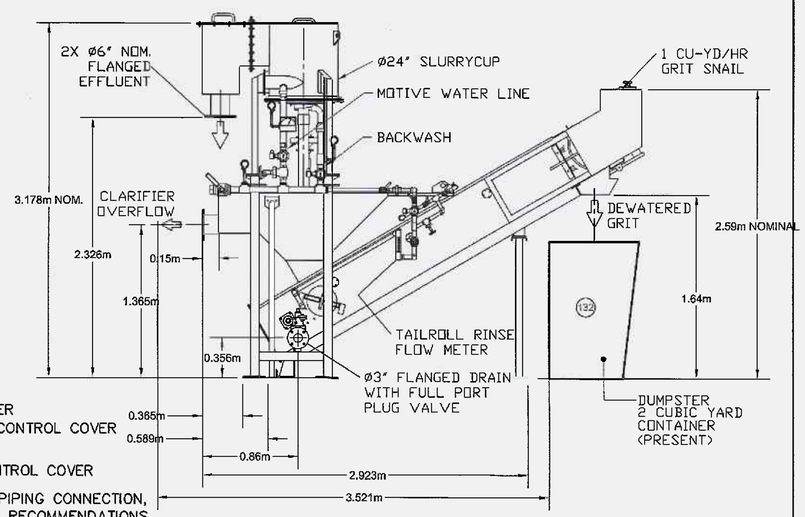
ALTERNATE FLOW CONFIGURATIONS



PLAN VIEW



FRONT VIEW



SIDE VIEW

GRIT WASHING/DEWATERING COMPONENT
EQUAL OR APPROVED EQUAL TO:
DUAL EUTEK SLURRYCUP
24 INCH WITH ODOR CONTROL COVER
w/ EUTEK GRIT SNAIL WITH ODOR CONTROL COVER
1 CU YD/HR
60 INCH CLARIFIER WITH ODOR CONTROL COVER

FOR GRIT DISPOSAL AND SCREW CONVEYOR PIPING CONNECTION, CONTRACTOR SHALL FOLLOW MANUFACTURER RECOMMENDATIONS.

NOTES:

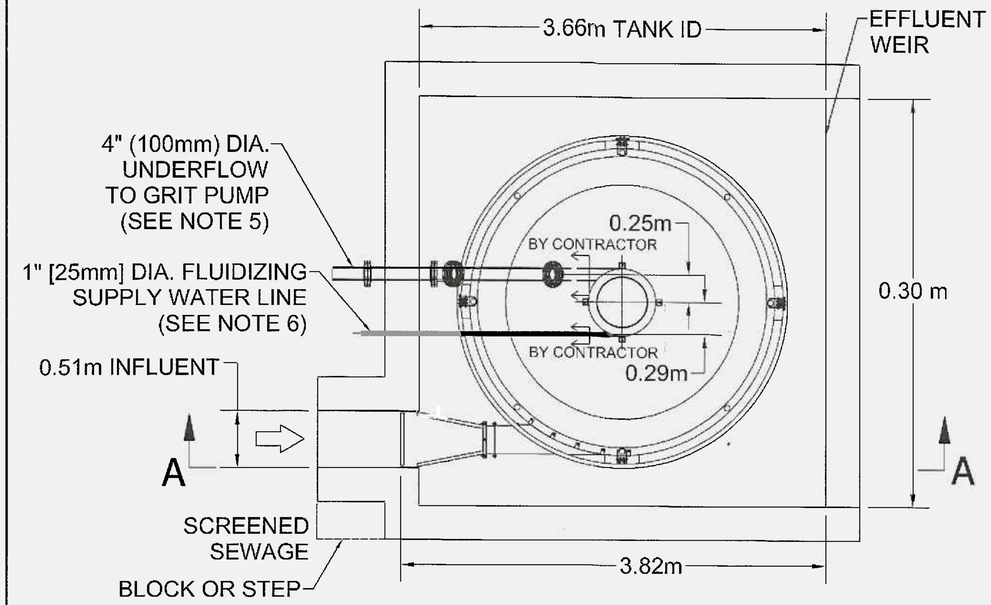
1. SLURRYCUPS ARE AVAILABLE IN CLOCKWISE AND COUNTER-CLOCKWISE ORIENTATION.

2. PLUMBING WILL BE LAYED OUT AND INSTALLED ON EQUIPMENT DURING FABRICATION TO INSURE PROPER FIT AND CORRECTNESS.

3 CONTRACTOR WILL BE REQUIRED TO MAKE A SINGLE WATER CONNECTION FOR EACH SLURRYCUP/GRITSNAIL GROUPING.

4. EQUIPMENT WEIGHTS:
EACH SLURRYCUP: DRY: 650 LBS.; WET: 750 LBS.
GRIT SNAIL: DRY: 1,800 LBS.; WET: 6,500 LBS.
SUPPORT STRUCTURE: 600 LBS.

5. PROVIDE ADEQUATE CLEARANCE AROUND EQUIPMENT FOR OPERATIONS AND MAINTENANCE.



PLAN VIEW

NOTES:

1 ALLOW GRIT PUMP TO FULLY DRAIN HEADCELL TANK.

2. PLANT FLOW BYPASS RECOMMENDED TO ALLOW THE HEADCELL TO BE TAKEN OUT OF SERVICE IF MAINTENANCE IS REQUIRED.

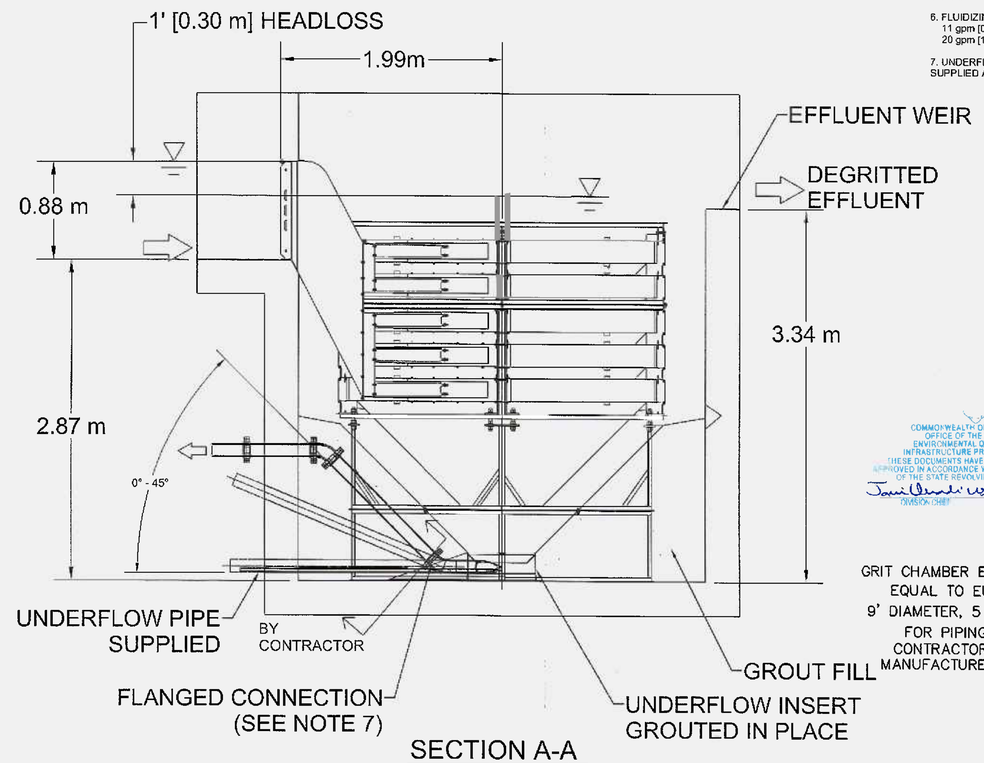
3. CLOCKWISE & COUNTERCLOCKWISE UNITS ARE AVAILABLE.

4. ALTERNATE EFFLUENT CONFIGURATIONS ARE AVAILABLE.

5. THE GRIT PUMP SUCTION LINE SHOULD BE DESIGNED FOR A 4-7 ft/s [1.2-2.2 m/s] LINE VELOCITY.

6. FLUIDIZING WATER REQUIREMENTS
11 gpm [0.7 l/s] FOR 4', 6', AND 9' HEADCELL
20 gpm [1.3 l/s] FOR 12' HEADCELL

7. UNDERFLOW PIPE CONNCETION CAN BE SUPPLIED AT 0°, 22.5°, OR 45° ANGLE.



SECTION A-A

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF

GRIT CHAMBER EQUAL OR APPROVED EQUAL TO EUTEK HEAD CELL
9' DIAMETER, 5 TRAYS 106 MICRON
FOR PIPING CONNECTIONS CONTRACTOR SHALL FOLLOW MANUFACTURER RECOMMENDATIONS.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-5310
TEL. 787-751-6985 / 787-751-5537 FAX 787-751-1052
email: jcmyassoc@prtc.net

ANTONIO A. FUENTES
INGENIERO LICENCIADO
LIC. #19446
PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

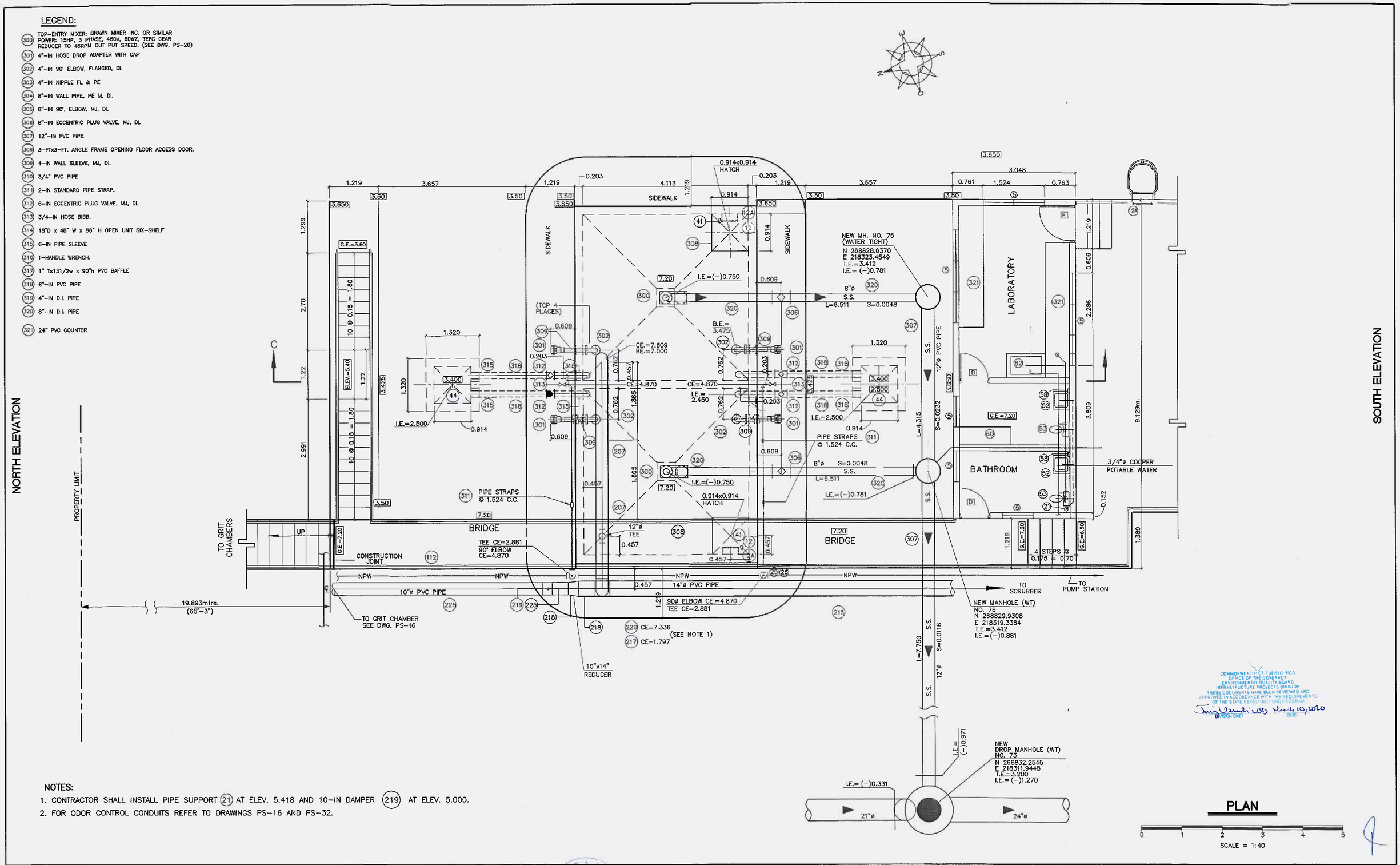
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GRIT CHAMBER DETAIL & GRIT WASHING/DEWATERING COMPONENT			PLOT SCALE: NOT TO SCALE
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PS-17
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 44
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

LEGEND:

- (300) TOP-ENTRY MIXER: BRAWN MIXER INC. OR SIMILAR POWER: 15HP, 3 PHASE, 460V, 60WZ, TEFC GEAR REDUCER TO 45RPM OUT PUT SPEED. (SEE DWG. PS-20)
- (301) 4"-IN HOSE DROP ADAPTER WITH CAP
- (302) 4"-IN 90° ELBOW, FLANGED, DI.
- (303) 4"-IN NIPPLE FL & PE
- (304) 8"-IN WALL PIPE, PE M, DI.
- (305) 8"-IN 90°, ELBOW, MJ, DI.
- (306) 8"-IN ECCENTRIC PLUG VALVE, MJ, DI.
- (307) 12"-IN PVC PIPE
- (308) 3-FTx3-FT. ANGLE FRAME OPENING FLOOR ACCESS DOOR.
- (309) 4-IN WALL SLEEVE, MJ, DI.
- (310) 3/4" PVC PIPE
- (311) 2-IN STANDARD PIPE STRAP.
- (312) 6-IN ECCENTRIC PLUG VALVE, MJ, DI.
- (313) 3/4-IN HOSE BIBB.
- (314) 18"D x 48" W x 88" H OPEN UNIT SIX-SHELF
- (315) 6-IN PIPE SLEEVE
- (316) T-HANDLE WRENCH.
- (317) 1" Tx131/2w x 90"h PVC BAFFLE
- (318) 6"-IN PVC PIPE
- (319) 4"-IN D.I. PIPE
- (320) 8"-IN D.I. PIPE
- (321) 24" PVC COUNTER



NOTES:

1. CONTRACTOR SHALL INSTALL PIPE SUPPORT (21) AT ELEV. 5.418 AND 10-IN DAMPER (219) AT ELEV. 5.000.
2. FOR ODOR CONTROL CONDUITS REFER TO DRAWINGS PS-16 AND PS-32.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.
1				

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #17 DE DIEGO AVE. SAN JUAN PR 00927-6310
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ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19449 — PUERTO RICO

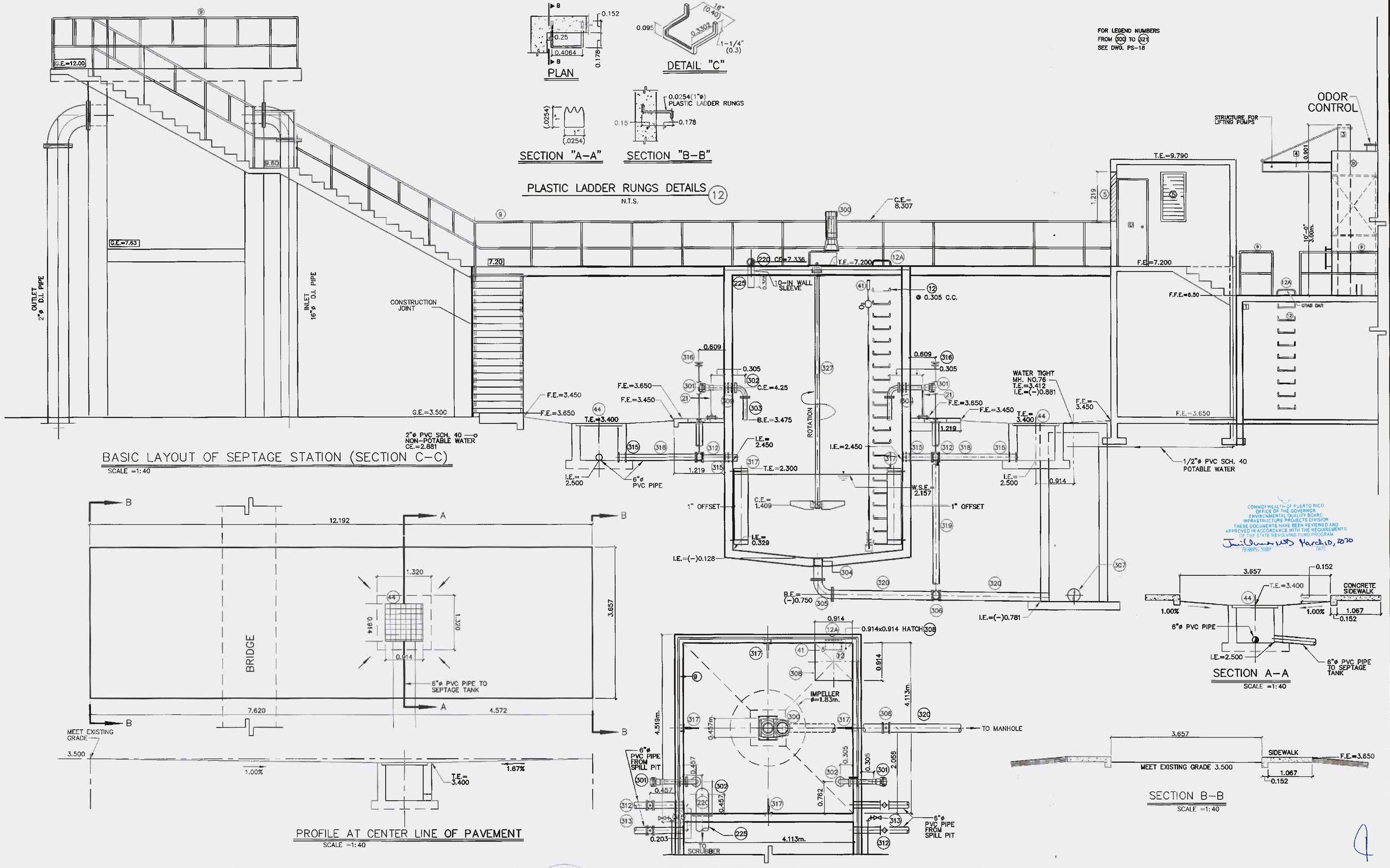
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR SEPTAGE FACILITY FLOOR PLAN			SCALES: H=1:40
			DRWG NO. PS-18
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SHEET NO. 45
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\45-PS-18-SEPTAGE FLOOR PLAN FACILITIES.dwg 7/22/2014 4:05:47 PM SWST



NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8885 / 787-751-5537 FAX 787-751-1052
email: jamyolsoc@prtc.net

ANTONIO A. PUENTES LICENCIADO PUERTO RICO

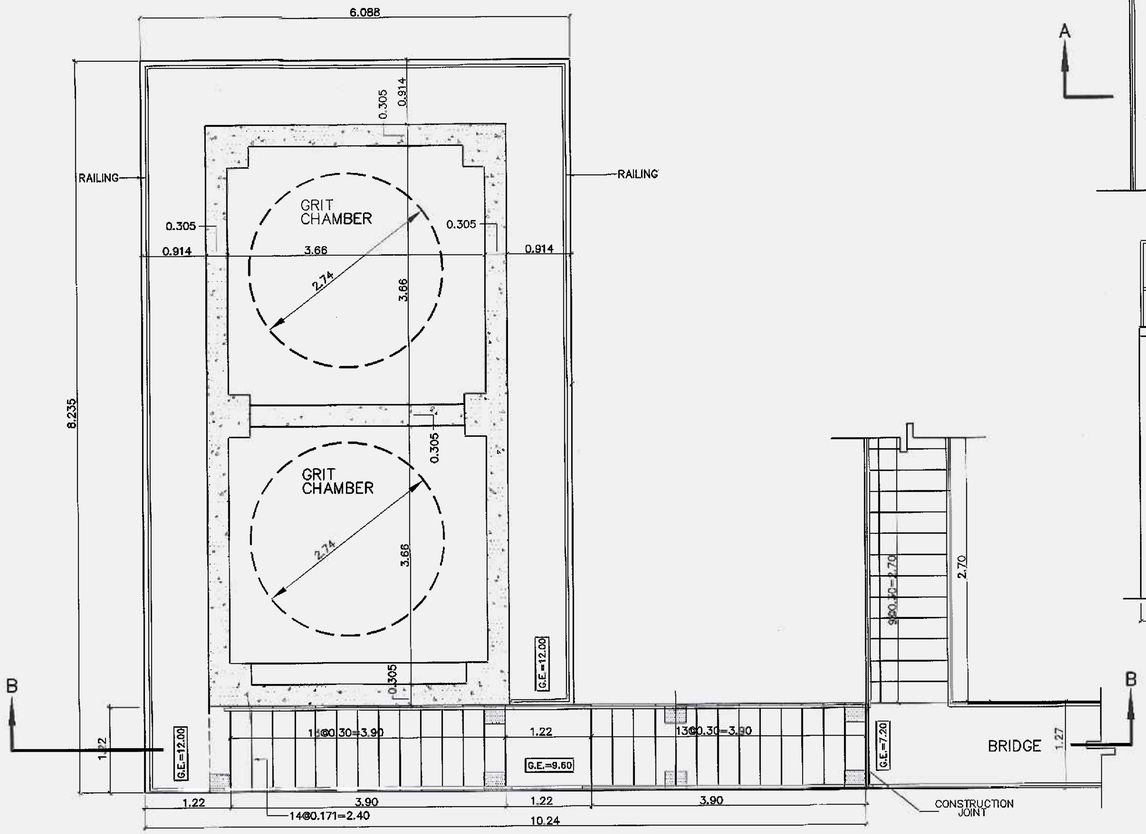
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

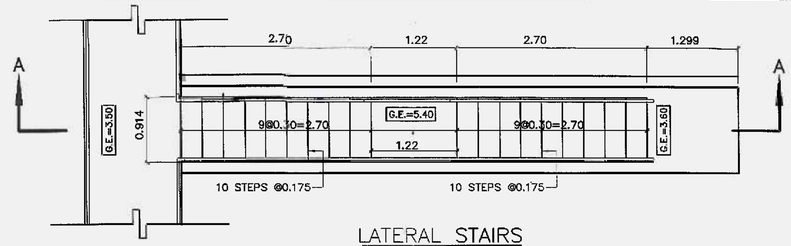
SHEET TITLE: NEW HIGUILLAR SEPTAGE SECTION PLAN FACILITY
SCALES: H=1:40 V=1:N/A
DRWG NO. PS-19
DRAFTED BY: | DRAFTER LICENCE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE
SHEET NO. 46
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\46-PS-19-SEPTAGE-SECTION-PLAN-FACILITIES.dwg 7/30/2014 3:24:55 PM SWST



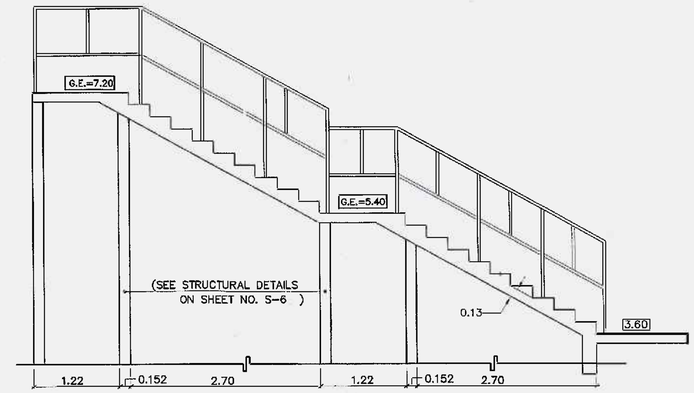
ROOF FRAMING PLAN

Scale=1:40



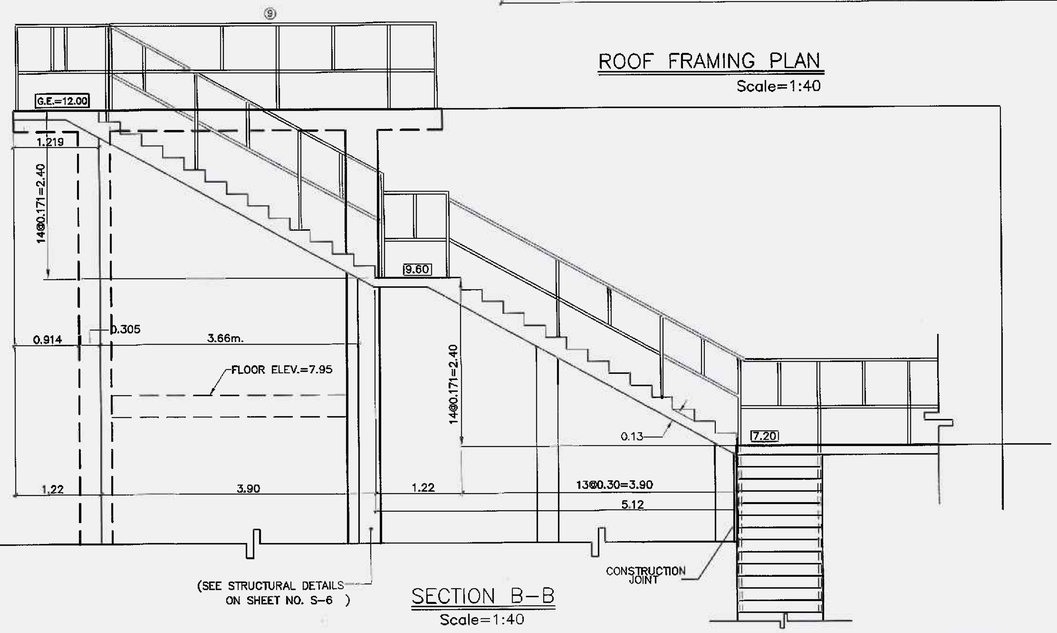
LATERAL STAIRS

NO TO SCALE



SECTION A-A

Scale=1:40



SECTION B-B

Scale=1:40

NOTES:

1- MOTOR DATA: (MODEL NO. 78T015-45)
15 HP, 230/460 V, 3PH, 60HZ,
1750 RPM, TEFC ENCLOSURE, 213TC.

2- GEAR DRIVE DATA:
TRIPLE REDUCTION HELICAL GEARING,
47 RPM OUTPUT, 36.92 TOTAL RATIO,
DRIVE SERVICE FACTO, >1.50.

3- IMPELLER DATA:
TYPE: A35M 4 BLADE AXIL FLOW TURBINE.

4- MATERIAL OF WETTED PARTS: 316 SS.

5- MOUNTING DESIGN LOAD DATA:
VERTICAL DOWNWARD LOAD 10,350 LBS.
BENDING MOMENT: 235,000 IN. LBS.
TORSIONAL MOMENT: 85,950 IN. LBS.

6- FLANGE DATA:
6"-150# ANSI DRILLING, ø 11.0 90.D.
(8) #7/8" MOUNTING HOLES ON #9.50 B.C.

7- ASSEMBLED WEIGHT OF MIXER 2,100 LBS.

8- 11.5" MINIMUM HARDWARE CLEARANCE.

9- ALL DIMENCIONS ARE IN INCHES.

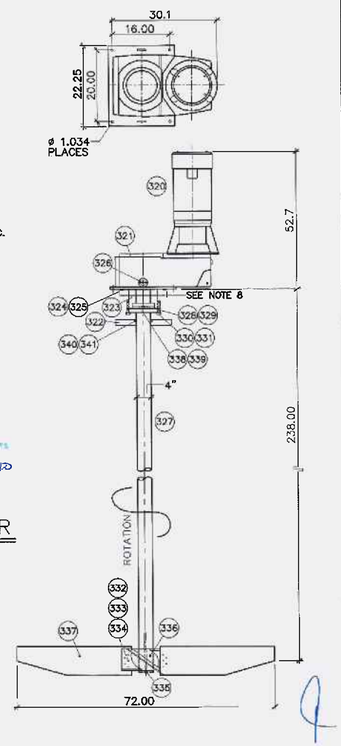
10- MIXER DETAILS PROVIDED BY DRAWN MIXER INC.

LEGEND:

ITEM NO.	QTY.	PART NAME
320	1	MOTOR
321	1	GEARDRIVE
322	1	MOUNT PLATE
323	1	RIGID COUPLING
324	7	LOCK WASHER
325	7	REX HEAD CAP SCREW
326	2	EYE BOLT
327	1	MIXER SHAFT
328	1	THRUST WASHER
329	1	HEX HEAD CAP SCREW
330	6	HEX HEAD CAP SCREW
331	8	LOCK WASHER
332	20	HEX HEAD CAP SCREW
333	20	LOCK WASHER
334	20	HEX NUT
335	1	HOOK KEY
336	1	IMPELLER HUB
337	4	IMPELLER BLADE, W/STAB FIN
338	1	SET SCREW
339	1	FLANGE
340	1	LIP SEAL
341	1	RETAINING RING

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
PROJECT CHIEF — DATE: March 10, 2020

SEPTAGE TANK MIXER



NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jamg CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #17 DE DIEGO AVE. SAN JUAN PR 00927-6318
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ANTONIO A. FUENTES GONZALEZ — INGENIERO LICENCIADO — LIC. 6194 — PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002

C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO

AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GRIT CHAMBERS STAIRS PLAN DETAILS & MIXER			SCALES: H=1:40 V=1:N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. PS-20
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 47
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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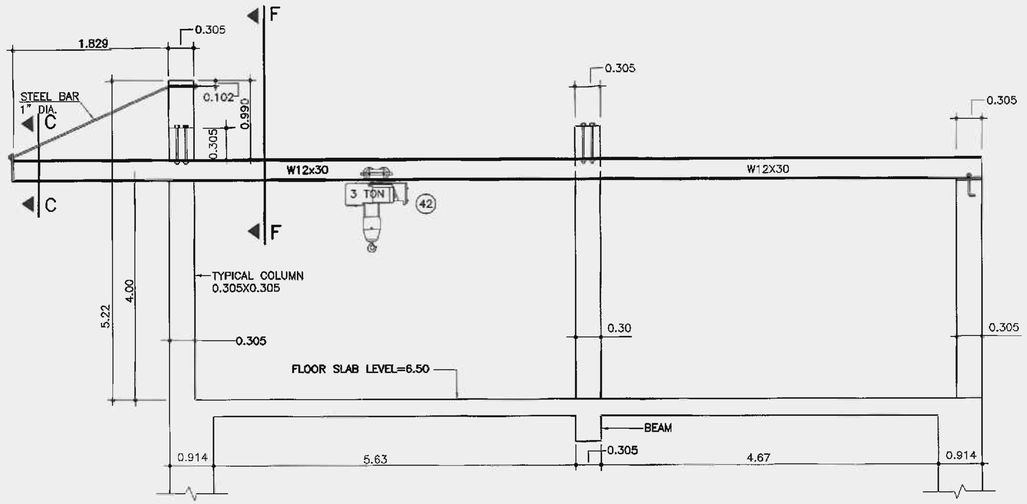
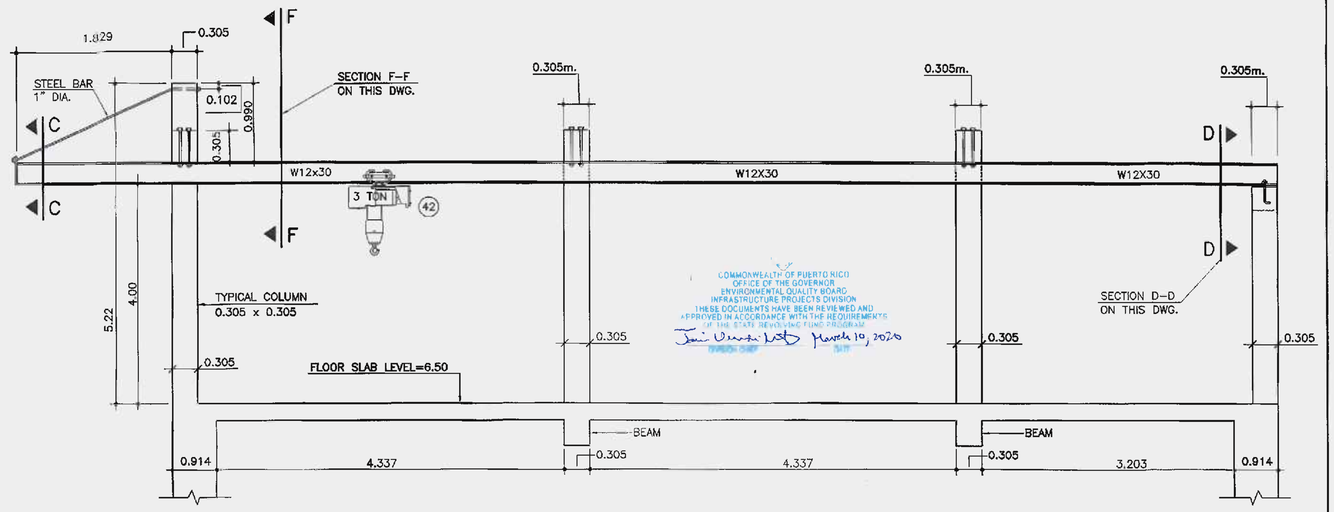


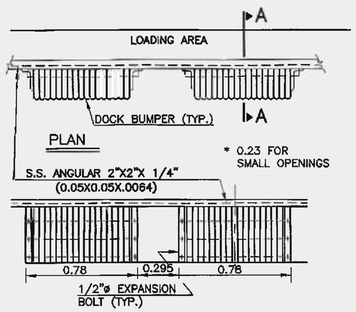
DETAILS OF STRUCTURE FOR PUMPS TROLLEY

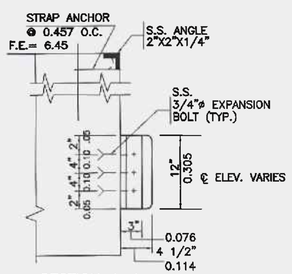
SCALE = 1:33



DETAILS OF STRUCTURE FOR DUMSTER REMOVAL, MECHANICAL BAR SCREEN AND MATERIAL USED FOR ODOR CONTROL

SCALE = 1:33

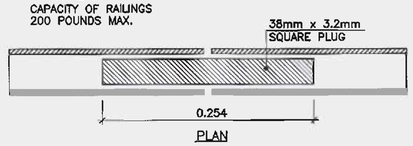




DOCK BUMPER

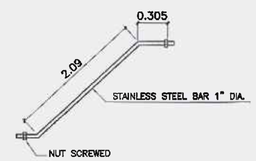
NOT TO SCALE

EQUAL OR SIMILAR TO MODEL B 4 12-24 AS AS MANUFACTURED BY DURABLE MAT COMPANY.



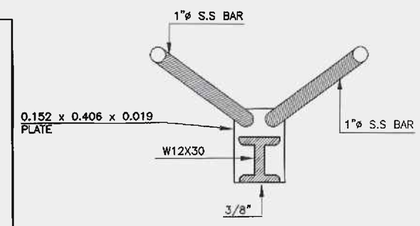
DETAIL OF FIELD SPLICE FOR RAILINGS

SCALE 1:40



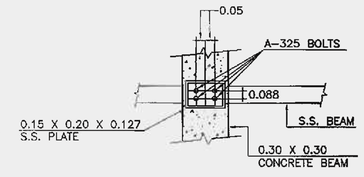
DETAIL OF STAINLESS STEEL BAR (TENSOR)

NOT TO SCALE



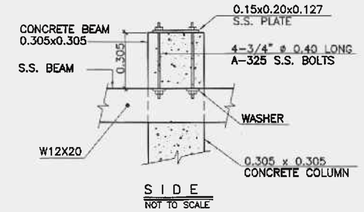
SECTION C-C

AS SHOWN



PLAN

NOT TO SCALE

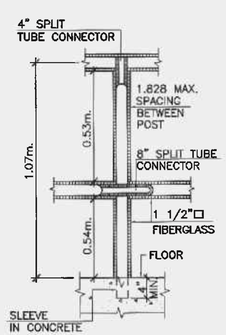


SIDE

NOT TO SCALE

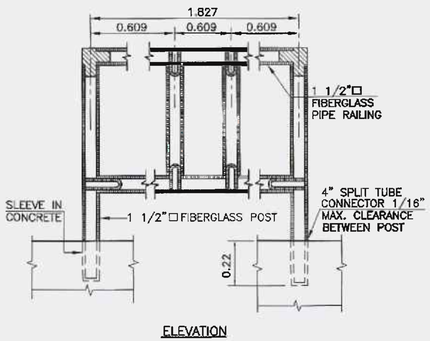
DETAIL "A"

AS SHOWN



FIXED TYPE PIPE RAILING

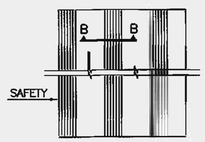
N.T.S.



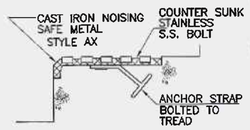
REMOVABLE TYPE PIPE RAILING (9A)

N.T.S.

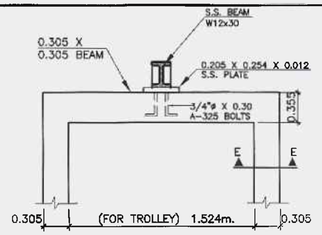
SHALL COMPLY WITH OSHA STANDARD 29 CFR 1910.23 (e)(1)



SAFETY TREAD

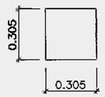


SECTION B-B



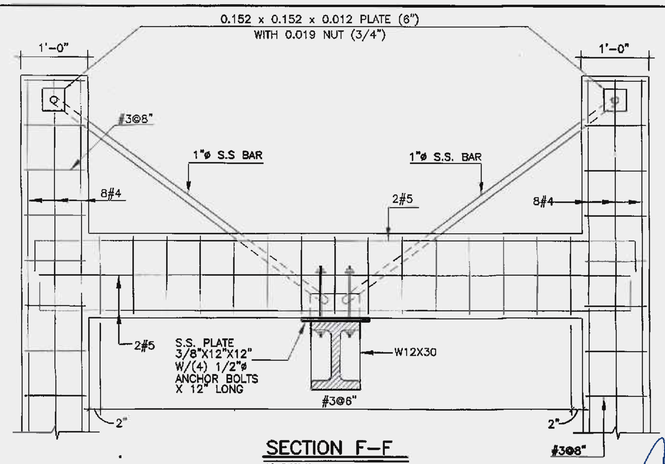
SECTION D-D

NOT TO SCALE



SECTION E-E

NOT TO SCALE



SECTION F-F

AS SHOWN

FOR MORE DETAILS SEE STRUCTURAL DRAWINGS

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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email: jamgassoc@prtc.net

ANTONIO A. FUENTES LICENSED ENGINEER LIC. #19446 PUERTO RICO

NEW DORADO TRUNK SEWER

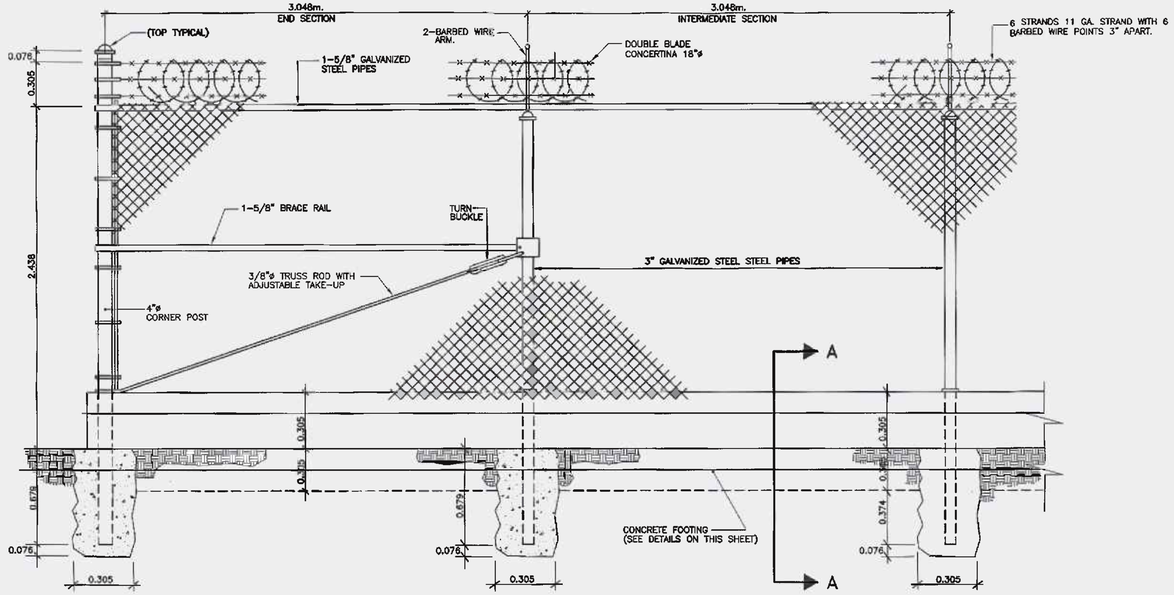
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION MISCELLANEOUS DETAILS			SCALES: H=1:33⅓ V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-21
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 48
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\48-PS-21-NEW HIGUILLAR PUMPING STATION AND DETAILS 2.dwg 7/21/2014 10:18:37 AM S



NOTES:

1-ALUMINUM TIE WIRE AND STEEL STRAPS SHALL BE USED TO FIX CYCLONE FENCE TO POST AND PIPES
TIE SHALL BE @ 0.609 MTS O.C. ON PIPES AND 0.349 MTS C.C. ON POST LINES.

2-ENTRANCE SHALL BE ELECTRIC SLIDE GATE

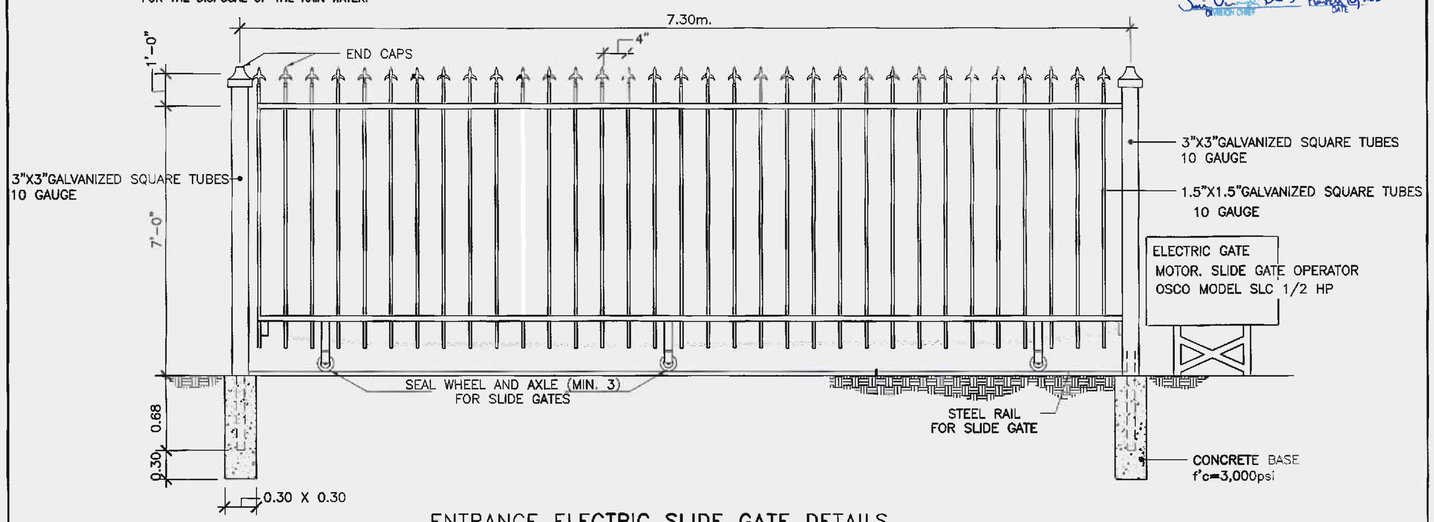
3- ALL MECHANIC GATES SHALL HAVE OBSTRUCTION DETECTORS TO STOP CLOSING FOR SAFETY.

4-THE CONTRACTOR SHALL PROVIDE 10"ø OPENINGS EVERY 20 FEETS AT THE BASE OF THE FENCE FOR THE DISPOSAL OF THE RAIN WATER.

CORNER & INTERMEDIATE FENCE DETAILS

N.T.S.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 19, 2020



ENTRANCE ELECTRIC SLIDE GATE DETAILS

N.T.S.

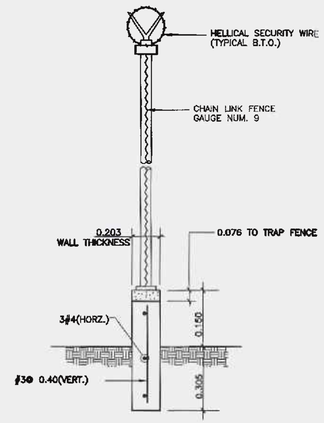
8'-0" HIGH CHAIN LINK FENCE & GATES DETAILS

N.T.S.

NOTES:

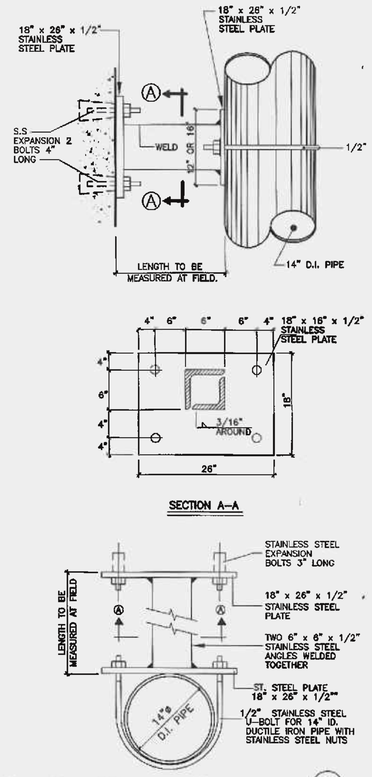
INSTRUCTION FOR PAINTING OF GALVANIZED STEEL

1- SHOP PAINTED WITH RED OXIDE PRIMER OVER GALVANIZED COATING
2- AFTER ERECTION RETOUCH SCRATCHES WITH GALVANIZED PAINT.
3- FINISH AFTER ERECTION WITH OIL PAINT.
4- ALL STRUCTURAL STEEL Fy=60,000 PSI.
5- ALL RIVETS AND THREADED FASTENERS Fy=36,000 PSI.
6- SEE PRASA TECHNICAL SPECIFICATION 099100.



SECTION A-A
CONCRETE WALL FOR FENCE AROUND THE LOT

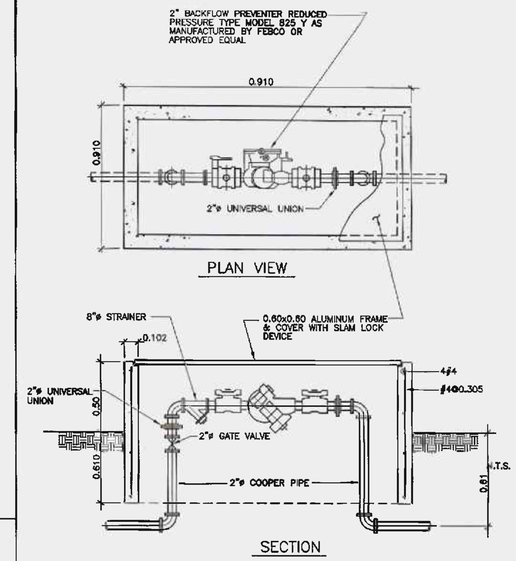
N.T.S.



DETAILS OF INTERMEDIATE BRACKET (21) PS-05
FOR GUIDE BAR OR PUMP DISCHARGE PIPE

NOT TO SCALE

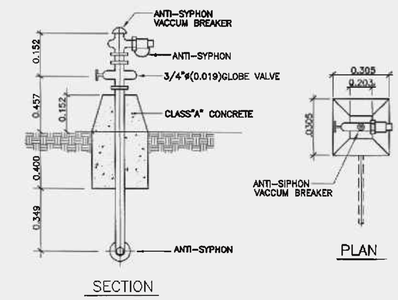
(CONSULT MANUFACTURER FOR QUANTITY OF GUIDE BAR BRACKET)



2"ø BACKFLOW PREVENTER VALVE DETAIL

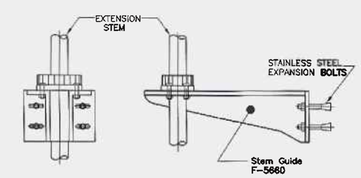
(DOUBLE CHECK VALVE SEE SPECIFICATION 15100)

N.T.S.



HOSE BIBB DETAILS

N.T.S.



STEM GUIDE (CLOW)

N.T.S.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19469 — PUERTO RICO

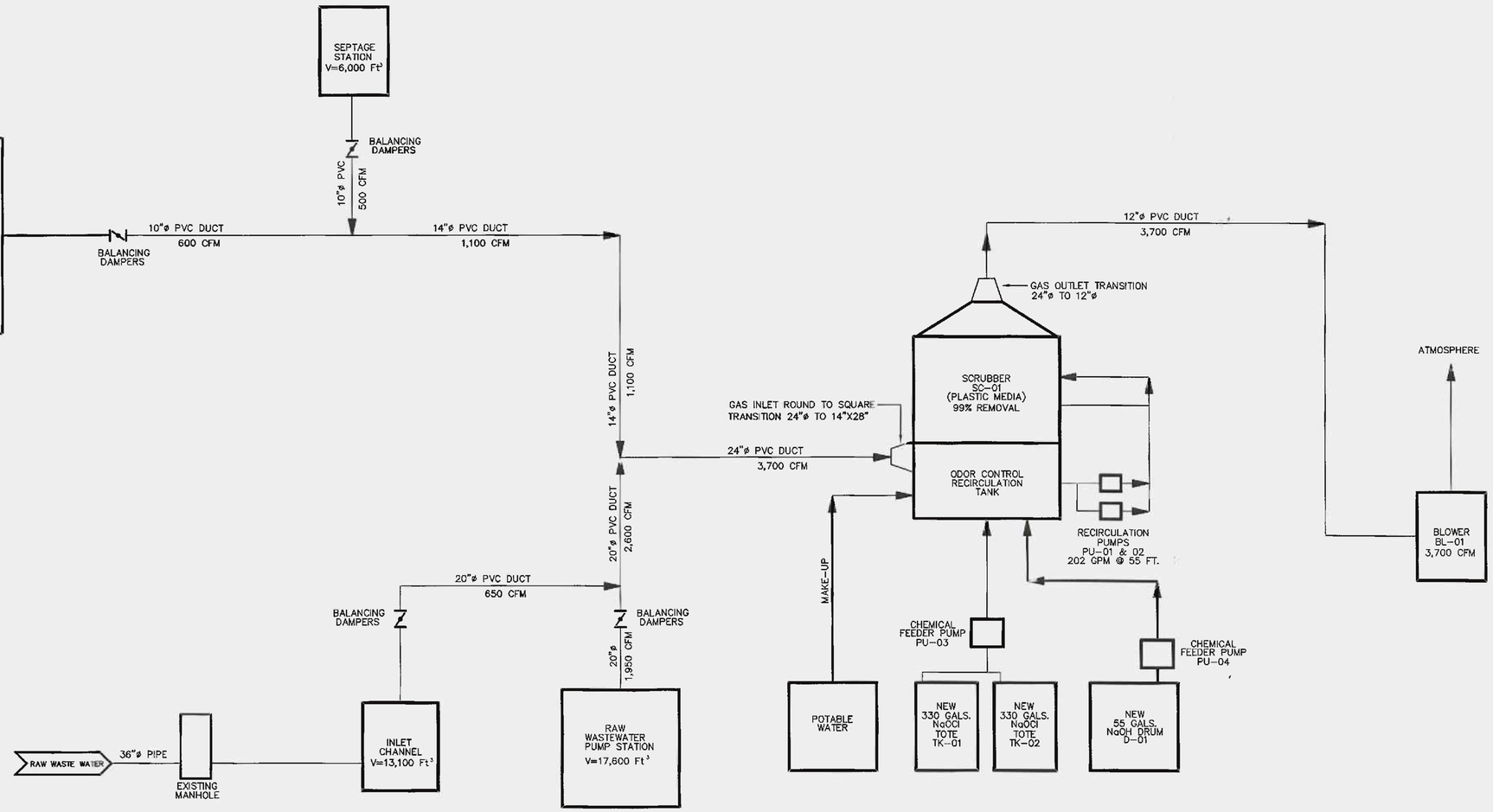
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION MISCELLANEOUS DETAILS			PLOT SCALE: NTS V=N/A
			DRWG NO. PS-22
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SHEET NO. 49
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\49-PS-22-PUMP STATION CHAINLINK FENCE DETAILS.dwg 7/17/2014 3:56:45 PM SWST



ODOR CONTROL FLOW DIAGRAM

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF DATE

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
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email: jamyanaoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19... PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: ODOR CONTROL FLOW DIAGRAM			PLOT SCALES: H=1:1,000
DRAFTED BY: ENERMECH	DRAFTER LICENCE NO.: --	DATE	DRWG NO. PS-23
DESIGNED BY: L.T.Q.		DATE 02/20/2020	SHEET NO. 50
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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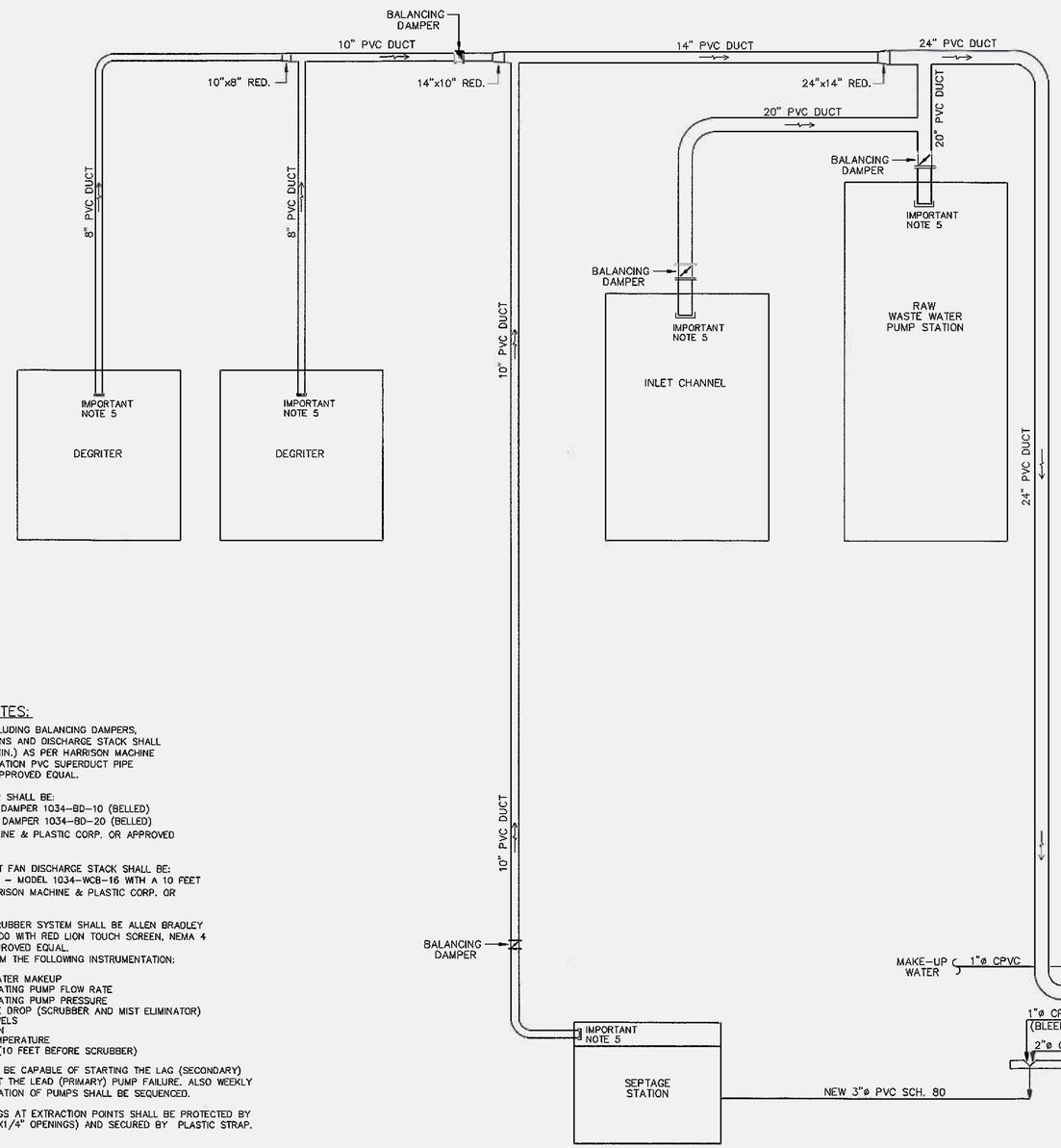
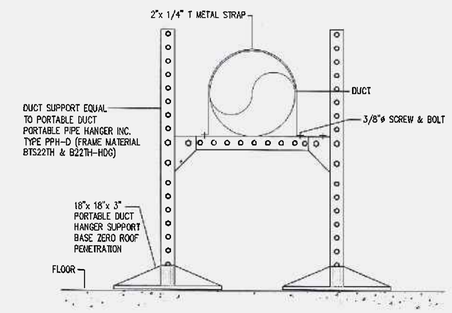


LEGEND:

- SHUT-OFF VALVE (BALL VALVE FULL PORT PVC)
- SPRING CHECK VALVE (PVC)
- MOTOR
- AUTOMATIC VALVE (SIGNAL BY CONTROLLER)

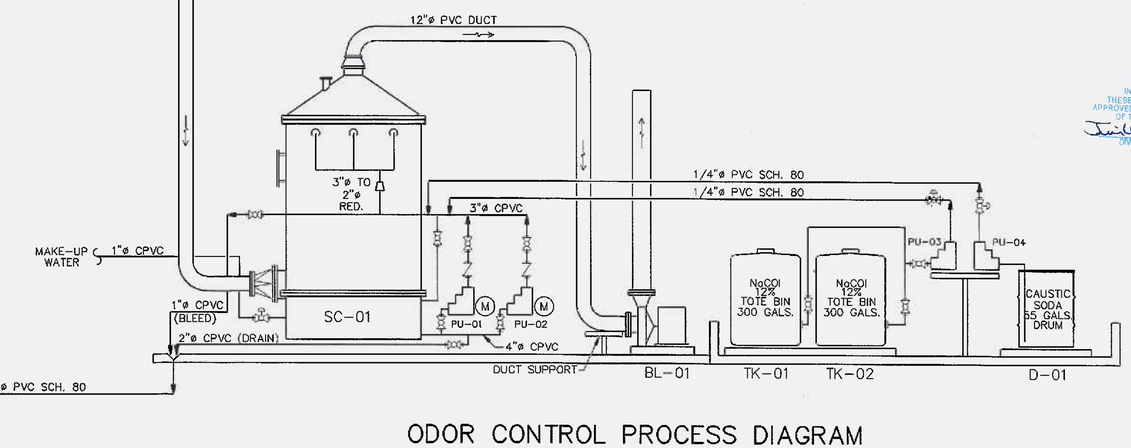


ROIND DUCT SUPPORT DETAIL
NOT TO SCALE

IMPORTANT NOTES:

1. ALL DUCTWORK INCLUDING BALANCING DAMPERS, FITTINGS, TRANSITIONS AND DISCHARGE STACK SHALL BE PVC (SCH. 40 MIN.) AS PER HARRISON MACHINE & PLASTIC CORPORATION PVC SUPERDUCT PIPE AND FITTINGS OR APPROVED EQUAL.
2. BALANCING DAMPER SHALL BE:
   10"ø – BUTTERFLY DAMPER 1034-BD-10 (BELLED)
   20"ø – BUTTERFLY DAMPER 1034-BD-20 (BELLED)
   BY HARRISON MACHINE & PLASTIC CORP. OR APPROVED EQUAL.
3. SCRUBBER EXHAUST FAN DISCHARGE STACK SHALL BE: RAINCAP "STYLE B" – MODEL 1034-WCB-16 WITH A 10 FEET EXTENSION BY HARRISON MACHINE & PLASTIC CORP. OR APPROVED EQUAL.
4. CONTROLS FOR SCRUBBER SYSTEM SHALL BE ALLEN BRADLEY PLC MICROLOGIX 1400 WITH RED LION TOUCH SCREEN, NEMA 4 ENCLOSURE OR APPROVED EQUAL.
   MONITOR AND ALARM THE FOLLOWING INSTRUMENTATION:
   - FRESH WATER MAKEUP
   - RECIRCULATING PUMP FLOW RATE
   - RECIRCULATING PUMP PRESSURE
   - PRESSURE DROP (SCRUBBER AND MIST ELIMINATOR)
   - SUMP LEVELS
   - BLOWDOWN
   - SUMP TEMPERATURE
   - AIRFLOW (10 FEET BEFORE SCRUBBER)

   CONTROLLER SHALL BE CAPABLE OF STARTING THE LAG (SECONDARY) PUMP IN THE EVENT THE LEAD (PRIMARY) PUMP FAILURE. ALSO WEEKLY AUTOMATIC ALTERNATION OF PUMPS SHALL BE SEQUENCED.
5. ALL PIPING OPENINGS AT EXTRACTION POINTS SHALL BE PROTECTED BY A PVC MESH (1/4"X1/4" OPENINGS) AND SECURED BY PLASTIC STRAP.



ODOR CONTROL PROCESS DIAGRAM

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE

SC-01	BL-01	PU-01 & 2	PU-03	PU-04	TK-01 & 02	D-01
PACKED TOWER	SC-01 SCRUBBER BLOWER	RECIRCULATING PUMPS	NaOCl METERING PUMP	NaOH METERING PUMP	NaOCl TOTE	NaOH DRUM
LOW PROFILE SCRUBBER SYSTEM MODEL 42SQT-3/4H BY BRANCH ENV. CORP. OR OTHER CHEM. SCRUBBER (NaOH/NaOCl BASED) CAPACITY – 3,700 CFM STATIC PRESSURE: 4" W.G. MATERIAL: FIBERGLASS AND POLYPROPYLENE (PS15-69) CONNECTIONS: FLANGED COMMENTS: MESH MIST ELIMINATOR	CAPACITY: 3,700 CFM STATIC PRESSURE: 7" W.G. MOTOR: 7.5 H.P. VOLTAGE: 230/460V-3 PHASE 60 CYCLE FAN RPM: 3,549 MOTOR RPM: 1,750 MODEL: BCS-150 SINGLE WIDTH, TYPE B, SPARK REST. CONST., FAN ARRG. 9, CORROSION RESIT. BY A.F.C.	CAPACITY: 205 GPM TDH: 55 FT. HEAD MAGNETIC DRIVE PUMP, DRY RUN OPERATION, CORROSION RESISTANT INTERNALS. CONNECTIONS: 2.5 IN. SUCTION, 2 IN. DISCHARGE MOTOR: 10 HP, NEMA, TEFC, 3,600 RPM, 215TC FRAME WITH BASE, 4.95 IN. DIA. IMPELLER VOLTAGE: 460 V – 3 PHASE – 60 CYCLE MODEL: MDM-2526-EKK-10, MANUFACTURED BY IWAKI AMERICA OR APPROVED EQUAL	CAPACITY: 20 GPH @ 100 PSIG MANUAL CONTROL BY ON-LINE ADJUSTABLE STROKE RATE AND STROKE LENGTH, SOLENOID PROTECTION BY THERMAL OVERLOAD WITH AUTO-RESET, WATER RESISTANT FOR OUTDOOR APPLICATION, GUIDED BALL CHECK VALVE SYSTEM & EASY PRIMING. POWER INPUT: 115 VAC / 60 Hz / 1Ph AVERAGE CURRENT DRAW: 1.0 AMPS MODEL: LEH8 PULSATRON SERIES E, BY PULSAFEEDER OR APPROVED EQUAL	CAPACITY: 5 GPH @ 100 PSIG MANUAL CONTROL BY ON-LINE ADJUSTABLE STROKE RATE AND STROKE LENGTH, SOLENOID PROTECTION BY THERMAL OVERLOAD WITH AUTO-RESET, WATER RESISTANT FOR OUTDOOR APPLICATION, GUIDED BALL CHECK VALVE SYSTEM & EASY PRIMING. POWER INPUT: 115 VAC / 60 Hz / 1Ph AVERAGE CURRENT DRAW: 1.0 AMPS MODEL: LEH6 PULSATRON SERIES E, BY PULSAFEEDER OR APPROVED EQUAL	CAPACITY: 330 GALS. MATERIAL: FRP UV TREAT PRESSURE: ATMOSPHERIC	CAPACITY: 55 GALS. MATERIAL: PLASTIC PRESSURE: ATMOSPHERIC

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-5905 / 787-751-5937 FAX 787-751-1052
email: jamycsaoc@prtc.net

ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19455 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: ODOR CONTROL PROCESS DIAGRAM			PLOT SCALE: H=1:1,000
DRAFTED BY: ENERMECH	DRAFTER LICENSE NO.:	DATE	DRWG NO. PS-24
DESIGNED BY: L. T.		DATE 02/20/2020	SHEET NO. 51
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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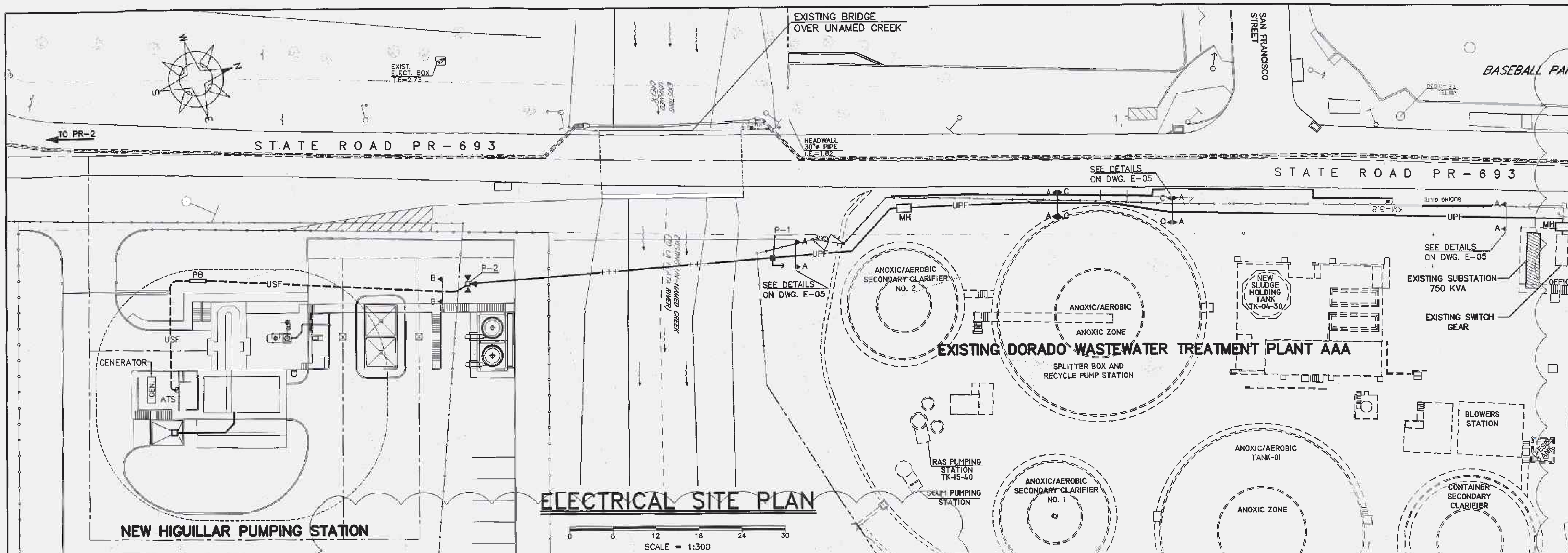

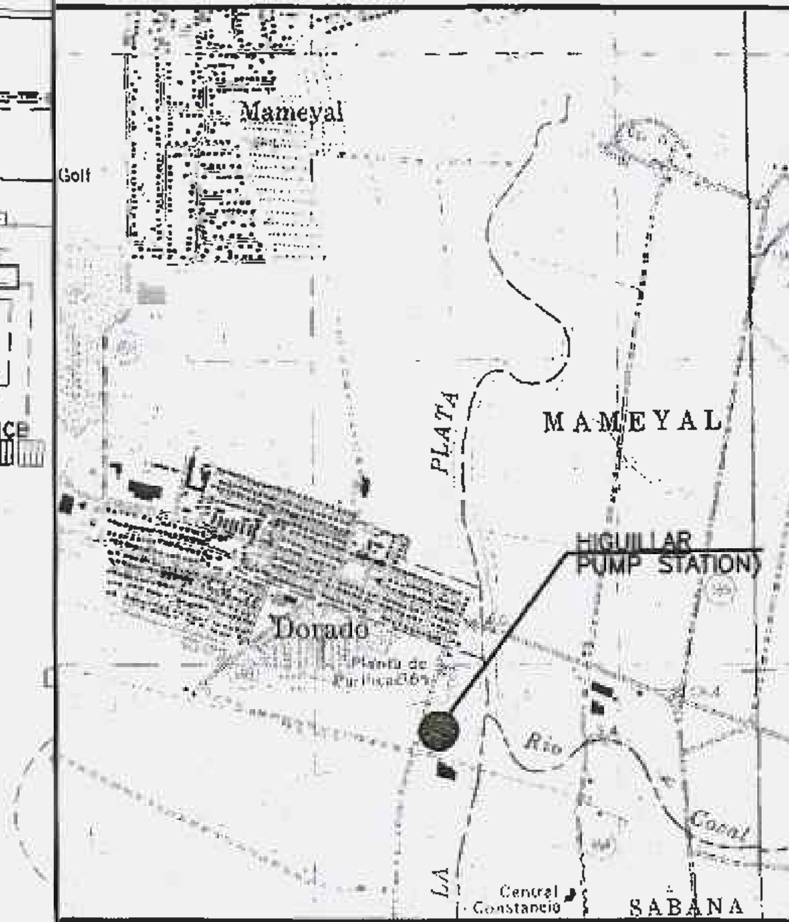

LOCATION PLAN (topographic quadrangle)
SCALE = 1:20,000

LAMBERT COORDINATE (NAD 83)
NORTE (Y) = 268,998.63
ESTE (X) = 218,355.05

LEGEND:

Symbol	Description
(guy wire symbol)	GUY WIRE
ATS	AUTOMATIC TRANSFER SWITCH SEE SPECIFICATIONS FOR DETAILS.
MH	PRIMARY PULL BOX, PREPA STD. URD-30B, 30C
PB	SECONDARY PULL BOX, PREPA STD. URD-30, 30A
GEN.	GENERATOR SET, SEE SPECIFICATIONS.
—UPF—	UNDERGROUND PRIMARY FEEDER CONSISTING OF 3#4/0, TREXIP, 15KV, COPPER WIRE AND 1#4/0 TW 600V COPPER WIRE IN 4" PVC SCH. 40 CONDUIT. SEE SECTION A-A FOR MORE DETAILS.
--USF--	UNDERGROUND SECONDARY FEEDER CONSISTING OF (2) SET OF 4#4/0, 1#2 RHH WIRES IN 3" PVC SCH. 40 CONDUIT. PROVIDE CONCRETE PROTECTION SEE SECTION B-B FOR MORE DETAILS.
—+++—	OVERHEAD PRIMARY LINE, 3/0 ACAR, 4W, 15KV.
P-2	NEW POLE MOUNTED SUBSTATION CONSISTING OF THREE TRANSFORMER 100/KVA EACH 8.32 KV PRIMARY TO 277/480 VOLTS SECONDARY CONNECTED Δ-Y SEE PREPA STD T-3, CP-C5, E1-2-3, F1-3 TRANSFORMERS SHALL BE STAINLESS STEEL TANK NON-PCB, HIGH EFFICIENCY ENERGY SAVINGS AS PER PREPA STD'S. POLE SHALL BE 50 FT CONCRETE H8. 277/480 VOLTS SECONDARY CONNECTED
P-1	NEW CONCRETE POLE 50-H8, PREPA STANDARD URD-3-1 (INVERTED RAISER) WITH FUSE CUT-OUTS 100E, AND SELF SUPPORT BASE M16-3, M16-4, E1-2-3, F1-3.

NOTAS ESPECIALES:

1. EL DUEÑO DEL PROYECTO APORTARÁ A LA AEE: LA CANTIDAD DE $6,600.00 PARA MEJORAS AL SISTEMA ELÉCTRICO EXISTENTE.
LAS OBRAS REQUERIDAS EN LA EVALUACIÓN PARA ESTE PROYECTO DEL 17 DE ENERO DE 2020. ESTA APORTACIÓN SE REALIZA SEGÚN LA CARGA PROPUESTA DE ACUERDO CON EL REGLAMENTO PARA DETERMINAR Y COBRAR LAS APORTACIONES DE PERSONAS O INSTITUCIONES EN PROYECTOS DE DESARROLLO VIGENTE.
2. LA AEE NO CONECTARÁ EL PROYECTO A SU SISTEMA ELÉCTRICO HASTA TANTO EL DUEÑO CONSTITUYA LAS SERVIDUMBRES REQUERIDAS DE ACUERDO CON EL REGLAMENTO DE SERVIDUMBRES PARA LA AUTORIDAD DE ENERGÍA ELÉCTRICA. ESTA NOTA APLICA A TODA SERVIDUMBRE REQUERIDA, YA SEA DENTRO COMO FUERA DE LOS LÍMITES DEL PROYECTO.
3. LA INSTALACIÓN DE SISTEMAS DE MEDICIÓN TIENE QUE COORDINARSE CON LA OFICINA DE MEDICIÓN DE LA REGIÓN CORRESPONDIENTE. EL DISEÑADOR O EL CONTRATISTA ELÉCTRICO TIENEN QUE ASEGURARSE DE CONSULTAR CON ESTA OFICINA SOBRE LOS EQUIPOS Y MATERIALES A UTILIZARSE ADEMÁS DE LA UBICACIÓN DEL EQUIPO.
4. LA INSTALACIÓN DE SUBESTACIONES, TRANSFORMADORES U OTRO EQUIPO ELÉCTRICO SOBRE SISTEMAS DE ALCANTARILLADO, LÍNEAS DE AGUA U OTRAS UTILIDADES ESTÁ PROHIBIDA.
5. TODO TRABAJO ELÉCTRICO DEBE CUMPLIR CON LOS ESTÁNDARES DE OSHA INCLUIDOS EN LA SECCION 29 CFR 1910 SUB PARTE S & 29 CFR 1926 SUB PARTE K.
6. EL PROYECTO SE CONTINUARÁ SIRVIENDO DEL PUNTO DE CONEXIÓN ACTUAL Y LAS FACILIDADES EXISTENTES ("SWITCH GEAR" EXISTENTE).
LAS COORDENADAS NAD 83 (EN METROS) CORRESPONDIENTES AL PUNTO DE CONEXIÓN PARA EL PROYECTO SON: X: 218361.456, Y: 268998.206. COORDINAR PUNTO EXACTO CON EL INGENIERO DE DISTRITO DE VEGA BAJA, Y DETALLES Y COSTOS DE CONEXIÓN CON LA OFICINA DE ESTUDIOS Y ESTIMADOS DE BAYAMÓN.
7. PARA SERVIR EL PROYECTO, EL DUEÑO REALIZARÁ LOS SIGUIENTES TRABAJOS:
A. SERÁ RESPONSABLE DE EXTENDER EL ALIMENTADOR REQUERIDO DESDE EL "SWITCH GEAR" EXISTENTE HASTA UN POSTE PRIVADO DONDE SE CONSTRUIRÁ LA SUBESTACIÓN DEL PROYECTO, O EN SU LUGAR DONDE SE CONSTRUIRÁ EL TRANSFORMADOR TIPO PLATAFORMA, SEGÚN SEA EL CASO Y, DE CONSEGUIR LOS PERMISOS Y SERVIDUMBRES CORRESPONDIENTES A TALES EFECTOS.
8. SE REQUERIRÁ INSTALAR DESCONECTIVOS CON PROTECCIÓN DE FUSIBLES A LA ENTRADA DEL PROYECTO.
9. TODO TRANSFORMADOR DE DISTRIBUCIÓN A SER CONECTADO AL SISTEMA DE LA AEE DEBERÁ SER DISEÑADO Y CONSTRUIDO CON CARACTERÍSTICAS DE PÉRDIDAS MEJORADAS, Y LOS NIVELES DE EFICIENCIA MÍNIMOS QUE ESTABLECE EL DEPARTAMENTO DE ENERGÍA DE ESTADOS UNIDOS (DOE, POR SUS SIGLAS EN INGLÉS), Y DESCRITOS EN EL COMUNICADO 15-03, "REVISIÓN DE PARÁMETROS PARA TRANSFORMADORES SEGÚN REGLAMENTACIÓN DEL DEPARTAMENTO DE ENERGÍA FEDERAL (DOE)", DEL 30 DE SEPTIEMBRE DE 2015. (Δ1)
10. LAS APORTACIONES Y PAGOS POR CONCEPTOS DE TRABAJOS A REALIZARSE POR LA AEE, ESPECIFICADOS EN ESTE INFORME, DEBERAN REALIZASE CON DOS MESES DE ANTICIPACIÓN AL COMIENZO DEL PROYECTO EL PAGO PODRA SER EN EFECTIVO, O GIRO O CHEQUE CERTIFICADO EN LA OFICINA MAS CERCANA Y SE ACREDITARÁ A LA CUENTA CIG-419.06.
11. LA AEE SELECCIONARÁ EL TIPO DE METRO CONTADOR A SER INSTALADO EN ESTE PROYECTO DE ACUERDO CON EL SERVICIO SOLICITADO Y A SU DISPONIBILIDAD EN LOS ALMACENES. EL CONTRATISTA DEBERÁ COORDINAR CON LA OFICINA DE MEDICIÓN DE LA REGIÓN DE BAYAMÓN, PARA QUE SE LE PROVEAN LAS ESPECIFICACIONES DE LA BASE DEL METRO CONTADOR ANTES DE INICIAR LOS TRABAJOS DE CONSTRUCCIÓN. INCLUIR NOTA A TALES EFECTOS EN LOS PLANOS DE DISEÑO.
12. A MENOS DE UNA MILLA DE DISTANCIA DE LA COSTA TANTO LOS EQUIPOS COMO LOS MATERIALES DEBERÁN SER EN ACERO INOXIDABLE, Y EL CONDUCTOR A UTILIZAR SERÁ ACAR (ALUMINUM CONDUCTOR ALLOY REINFORCED), AAAC (ALL ALUMINUM ALLOY CONDUCTOR) O SU EQUIVALENTE EN COBRE.
13. ESTE PROYECTO ESTÁ AFECTADO POR LÍNEAS ELÉCTRICAS. CUALQUIER TRABAJO DE REUBICACIÓN DE LÍNEAS ELÉCTRICAS ENERGIZADAS SERÁ REALIZADO POR LA AEE. CON CARGOS AL DUEÑO Y DEBERÁ COORDINARSE CON EL INGENIERO DE DISTRITO DE VEGA BAJA. ADEMÁS, SE PROHÍBE LA REALIZACIÓN DE CUALQUIER TIPO DE TRABAJO EN LAS FRANJAS DE SERVIDUMBRE DE PASO ELÉCTRICAS SIN LA AUTORIZACIÓN ESCRITA DE LA AEE. LA AEE NO APROBARÁ LA CONEXIÓN DE PROYECTOS CON CONDICIONES DE INVASIÓN DE SERVIDUMBRES O QUE NO CUMPLAN CON LOS DESPEJOS DE SEGURIDAD REQUERIDOS.
14. EL DUEÑO DEL PROYECTO DEBERÁ COORDINAR CON EL INGENIERO DE DISTRITO DE VEGA BAJA EL VOLTAJE PRIMARIO A SER UTILIZADO, PREVIO A LA COMPRA DE LOS TRANSFORMADORES.
15. SERÁ RESPONSABILIDAD DEL DUEÑO DEL PROYECTO OBTENER Y GESTIONAR TODOS LOS ENDOSOS DE LAS AGENCIAS REGULADORAS TALES COMO:
A. JUNTA DE CALIDAD AMBIENTAL, (DECLARACIÓN DE IMPACTO AMBIENTAL – DIA),
B. DEPARTAMENTO DE RECURSOS NATURALES, INSTITUTO DE CULTURA PUERTORRIQUEÑA, (DIVISIÓN DE PERMISOS ARQUEOLÓGICOS),
C. CUERPO DE INGENIEROS DE ESTADOS UNIDOS,
D. DEPARTAMENTO DE TRANSPORTACIÓN Y OBRAS PÚBLICAS ESTATAL O MUNICIPAL,
E. JUNTA DE PLANIFICACIÓN,
F. OFICINA DE GERENCIA Y PERMISOS (OGPE),
G. OTRAS AGENCIAS GUBERNAMENTALES, FEDERALES Y PRIVADAS REQUERIDOS PARA EL DESARROLLO DEL PROYECTO.
16. EL ENDOSO DE LOS PLANOS POR PARTE DE LA AEE ESTARÁ CONDICIONADO A QUE SEA SOMETIDO ANTE LA JUNTA DE CALIDAD AMBIENTAL EL DOCUMENTO DE EVALUACIÓN AMBIENTAL REQUERIDO CON RELACIÓN A LAS LÍNEAS ELÉCTRICAS Y SUBESTACIONES A VOLTAJES DE SUB-TRANSMISIÓN Y TRANSMISIÓN Y QUE EL MISMO ESTÉ APROBADO PREVIO AL INICIO DE LA CONSTRUCCIÓN DE LAS FACILIDADES.
17. ES RESPONSABILIDAD DEL DISEÑADOR Y EL DESARROLLADOR CUMPLIR CON LOS SIGUIENTES REGLAMENTOS Y COMUNICADOS TÉCNICOS DE LA AEE:
A. REGLAMENTO CONJUNTO: "REGLAMENTO CONJUNTO PARA LA EVALUACIÓN Y EXPEDICIÓN DE PERMISOS RELACIONADOS AL DESARROLLO Y USO DE TERRENOS" DEL 24 DE MARZO DE 2015.
B. 07-02 "PRUEBAS A CABLES SOTERRADOS NUEVOS Y SUS ACCESORIOS EN PROYECTOS PRIVADOS" DEL 29 DE JUNIO DE 2007
C. 08-09 "DOCUMENTOS REQUERIDOS POR LA AEE PARA EL DESARROLLO DE PROYECTOS DE CONSTRUCCIÓN ELÉCTRICA" DEL 8 DE DICIEMBRE DE 2008
D. 09-03 "SELLO Y NOTAS GENERALES PARA PLANOS A PRESENTARSE PARA ENDOSO DE LA AEE" DEL 4 DE MAYO DE 2009
E. 12-01 "POLÍTICA PÚBLICA PARA LA CONSTRUCCIÓN DE SISTEMAS ELÉCTRICOS" DEL 8 DE JUNIO DE 2012
F. 13-02 "CRITERIOS DE DISEÑO PARA SISTEMAS ELÉCTRICOS AÉREOS DE TRANSMISIÓN Y DISTRIBUCIÓN" DEL 22 DE AGOSTO DE 2013
G. 13-03 "BASES DE HORMIGÓN PARA POSTES DE LÍNEAS ELÉCTRICAS" DEL 22 DE AGOSTO DE 2013
H. 15-01 "DOCUMENTOS REQUERIDOS PARA LA EVALUACIÓN Y ENDOSO DE PROYECTOS DE CONSTRUCCIÓN ELÉCTRICA" DEL 18 DE JUNIO DE 2015
I. 15-02 "POSTES PARA SISTEMAS DE DISTRIBUCIÓN ELÉCTRICA PRIMARIA" DEL 2 DE SEPTIEMBRE DE 2015
J. 15-04 "INSTALACIONES BAJO LÍNEAS DE DISTRIBUCIÓN ELÉCTRICA" DEL 13 DE OCTUBRE DE 2015 (REVISADO POR COMUNICADO 16-02)
K. 18-01 "REVISIÓN DEL PROCESO PARA LA EVALUACIÓN Y ENDOSO DE PROYECTOS DE CONSTRUCCIÓN ELÉCTRICA" DEL 29 DE JUNIO DE 2018
18. LOS SISTEMAS DE ALUMBRADO A CONSTRUIRSE DEBERÁN CUMPLIR CON LOS SIGUIENTES COMUNICADOS DE LA AEE:
A. 07-01, "SISTEMAS DE ALUMBRADO", DEL 26 DE MARZO DE 2007.
B. 16-03, "PROYECTOS DE CONSTRUCCIÓN CON SISTEMAS DE ALUMBRADO PÚBLICO", DEL 2 DE DICIEMBRE DE 2016.
C. 16-04, "INSTALACIÓN DE LUMINARIAS TIPO DIODO EMISOR DE LUZ (LIGHT EMITTING DIODE – LED)", DEL 2 DE DICIEMBRE DE 2016.
19. MOSTRAR LAS LÍNEAS ELÉCTRICAS DE TRANSMISIÓN Y DISTRIBUCIÓN A TRÁNSITO Y RESPETAR LAS SERVIDUMBRES DE PASO DE AQUELLAS QUE PASEN POR EL PROYECTO. EN CASO DE LA CONSTRUCCIÓN DE NUEVAS LÍNEAS ELÉCTRICAS QUE REQUIERAN SERVIDUMBRE DEBERÁ INCLUIR EN EL PLANO DE DISEÑO LA UBICACIÓN EXACTA, SU ANCHO Y UNA LEYENDA QUE DESCRIBA LA MISMA EN CONJUNTO CON LA TABLA DE MENSURA CERTIFICADA POR UN AGRIMENSOR O INGENIERO LICENCIADO INSCRITO EN EL REGISTRO PERMANENTE DE AGRIMENSURA (RPA), AUTORIZADO A EJERCER LA PROFESIÓN DE LA AGRIMENSURA EN PUERTO RICO (SECC. IV, ART. C – 1J DEL REGLAMENTO DE SERVIDUMBRES). EN ADICIÓN, DEBERÁ INDICAR CLARAMENTE LOS LÍMITES DEL PROYECTO, LOS COLINDANTES Y PROPIETARIOS AFECTADOS.
20. EL DUEÑO DEL PROYECTO ES RESPONSABLE DE CUMPLIR CON LOS REQUISITOS ESTABLECIDOS EN EL REGLAMENTO DE SERVIDUMBRES PARA LA AUTORIDAD DE ENERGÍA ELÉCTRICA. TODA NUEVA SERVIDUMBRE PARA CONSTITUIRSE YA SEA PARA LÍNEAS Y EQUIPOS ELÉCTRICOS DEBE CUMPLIR CON LOS REQUISITOS ESTABLECIDOS EN EL APÉNDICE B DEL REGLAMENTO. DE IGUAL FORMA, CON LOS REQUISITOS RELACIONADOS A LAS SERVIDUMBRES ASOCIADAS A INSTALACIONES ELÉCTRICAS EXISTENTES EN EL ÁREA DEL PROYECTO.
21. SERÁ RESPONSABILIDAD DEL DISEÑADOR DEL PROYECTO INDICAR LA LOCALIZACIÓN EXACTA DEL PROYECTO, ILUSTRAR LAS LÍNEAS ELÉCTRICAS EXISTENTES Y COORDINAR LA REUBICACIÓN DE LÍNEAS ELÉCTRICAS.
22. ESTA EVALUACIÓN DEL PUNTO DE CONEXIÓN NO CONSTITUYE UNA REVISIÓN DEL PLANO DE DISEÑO. EL DISEÑADOR ES RESPONSABLE DE CUMPLIR CON LOS CÓDIGOS, REGLAMENTOS, MANUALES, ESTÁNDARES Y NORMAS APLICABLES VIGENTES PARA LOS SISTEMAS ELÉCTRICOS EN PUERTO RICO. ADEMÁS, DEBERÁ CUMPLIR CON LOS REGLAMENTOS DE ORDENACIÓN DE LA INFRAESTRUCTURA EN EL ESPACIO PÚBLICO (REGLAMENTO DE PLANIFICACIÓN NUMERO 22), SEGÚN EXIGE LA OFICINA DE GERENCIA DE PERMISOS (OGPE). LOS SISTEMAS DE DISTRIBUCIÓN Y TRANSMISIÓN DA DESARROLLARSE EN ESTAS ZONAS DEBERÁN SEGUIR LAS GUIAS ESTABLECIDAS POR ESTE REGLAMENTO.
23. EL DUEÑO DEL PROYECTO O SU REPRESENTANTE DEBERÁ NOTIFICARLE A LA SECCIÓN DE INSPECCIONES DE LA REGIÓN DE BAYAMÓN EL COMIENZO DE LA OBRA POSTERIOR AL ENDOSO DE LOS PLANOS Y PREVIO A LOS TRABAJOS ELÉCTRICOS DEL PROYECTO PARA LA REQUERIDA INSPECCIÓN, APROBACIÓN Y COORDINACIÓN NECESARIA.
24. "ESTE PROYECTO REQUIERE CONTRATO DE CUENTAS AL POR MAYOR, EL CUAL ES REQUISITO QUE SE FIRME PREVIO A LA ENERGIZACIÓN DEL PROYECTO. EL TIPO DE MEDICIÓN, LOS EQUIPOS A UTILIZARSE Y LA UBICACIÓN DEL EQUIPO DE MEDICIÓN FUE COORDINADA CON EL SUPERVISOR DE LA OFICINA DE IRREGULARIDADES EN EL CONSUMO DE ENERGÍA ELÉCTRICA – MEDICIÓN DE LA REGIÓN DE ARECIBO."

NOTAS GENERALES:

1. ESTOS PLANOS COINCIDEN CON LOS PLANOS DE INSCRIPCIÓN RADICADOS EN LA OFICINA DE GERENCIA DE PERMISOS (OGPe).
2. EL DUEÑO DEL PROYECTO ES RESPONSABLE DE GESTIONAR Y OBTENER, ANTES DE LA FECHA DE COMIENZO DE LA OBRA, TODOS LOS ENDOSOS, PERMISOS Y SERVIDUMBRES REQUERIDAS POR ENTIDADES GUBERNAMENTALES, ESTATALES, MUNICIPALES, FEDERALES Y PRIVADAS CONCERNIENTES AL DESARROLLO DEL TIPO DE PROYECTO PROPUESTO.
3. EL DUEÑO DE ESTA OBRA TIENE QUE CONTRATAR LOS SERVICIOS DE UN INGENIERO LICENCIADO Y COLEGIADO QUE INSPECCIONE LA CONSTRUCCIÓN DE LAS OBRAS ELÉCTRICAS DE ACUERDO CON LA LEY NÚM. 7 DEL 19 DE JULIO DE 1985, SEGÚN ENMENDADA, Y CON EL REGLAMENTO DE CERTIFICACIÓN DE PLANOS DE PROYECTOS DE CONSTRUCCIÓN ELÉCTRICA DE LA AEE VIGENTE. EL DUEÑO TENDRÁ QUE NOTIFICAR A LA AEE LA DESIGNACIÓN DE ESTE INSPECTOR PRIVADO ANTES DEL COMIENZO DEL PROYECTO.
4. LA EJECUCIÓN DE LAS OBRAS ELÉCTRICAS, SEGÚN DISEÑADAS EN ESTOS PLANOS, DEBERÁ OBSERVAR LA MEJOR PRÁCTICA DE LA INDUSTRIA ELÉCTRICA Y CONSTRUCCIÓN DE ACUERDO CON LAS NORMAS Y REGLAMENTACIÓN ADOPTADAS POR LA AEE Y AGENCIAS CONCERNIENTES, AL IGUAL QUE CON LOS CÓDIGOS, NEC Y NESC, Y DEMÁS ESTÁNDARES DE IEEE, NFPA, NEMA Y ANSI ADOPTADOS.
5. EL CONTRATISTA NO ESTÁ AUTORIZADO A HACER VARIACIONES A ESTE DISEÑO. ES RESPONSABILIDAD DEL CONTRATISTA CONSULTAR CON EL DISEÑADOR O INSPECTOR DESIGNADO PARA ESTA OBRA CUALQUIER DUDA QUE SURJA DE LA INTERPRETACIÓN DE LOS PLANOS, DE LA EJECUCIÓN DE LAS OBRAS PROPUESTAS, ESPECIFICACIONES TÉCNICAS O DISCREPANCIAS ENTRE LAS CONDICIONES EXISTENTES EN EL CAMPO Y AQUELLAS UTILIZADAS PARA PROPÓSITOS DE DISEÑO.
6. EL DUEÑO O CONTRATISTA ELÉCTRICO NOTIFICARÁ A LA AEE EL COMIENZO DE ESTAS OBRAS, MEDIANTE LA ENTREGA DEL DOCUMENTO NOTIFICACIÓN DE COMIENZO DE PROYECTO EN EL DEPARTAMENTO DE INGENIERÍA DE DISTRIBUCIÓN DE LA REGIÓN CORRESPONDIENTE, CON POR LO MENOS QUINCE DÍAS DE ANTICIPACIÓN A LA FECHA PROPUESTA.
7. EL INSPECTOR PRIVADO Y EL CONTRATISTA ELÉCTRICO SON RESPONSABLES DE ASISTIR A UNA REUNIÓN DE PRE-CONSTRUCCIÓN A COORDINARSE CON EL DEPARTAMENTO DE INGENIERÍA DE DISTRIBUCIÓN DE LA REGIÓN CORRESPONDIENTE.
8. TODO TRABAJO A REALIZARSE EN LÍNEAS ENERGIZADAS, INCLUYENDO LA CONEXIÓN DE ESTA OBRA, TIENE QUE SER REALIZADO POR LA AEE. EL PROPONENTE TIENE QUE ASUMIR TODOS LOS COSTOS DE EQUIPO, MATERIALES Y LABOR. EL PROPONENTE TIENE QUE SOLICITAR A LA AEE UN ESTIMADO PARA ESTOS TRABAJOS, EL CUAL TENDRÁ UNA VIGENCIA DE TRES MESES DESDE SU EXPEDICIÓN.
9. SE PROHÍBE LA REALIZACIÓN DE CUALQUIER TIPO DE TRABAJO EN LAS FRANJAS DE SERVIDUMBRE ELÉCTRICA SIN LA AUTORIZACIÓN POR ESCRITO DE LA AEE.
10. LA AEE NO APROBARA LA CONEXIÓN DE PROYECTOS CON CONDICIONES DE INVASIÓN DE SERVIDUMBRE.

MATERIALES:

1. TODOS LOS EQUIPOS A UTILIZARSE EN LA CONSTRUCCIÓN TIENEN QUE CUMPLIR CON LOS ESTÁNDARES DE IEEE, ANSI, NEMA Y ASTM.
2. EL CONTRATISTA ES RESPONSABLE DE VERIFICAR CON LA AEE QUE TODO MATERIAL O EQUIPO A UTILIZARSE ESTE APROBADO POR LA AEE PREVIO A SU INSTALACIÓN. LA AEE SE RESERVA EL DERECHO DE ACEPTAR CUALQUIER EQUIPO QUE SE LE VAYA A TRANSFERIR.
3. TODO EQUIPO Y MATERIAL (INCLUYENDO TRANSFORMADORES Y GABINETES DE SUBESTACIONES) A SER INSTALADOS A UNA MILLA O MENOS DE DISTANCIA DE CUERPOS DE AGUA SALADA TIENE QUE SER CONSTRUIDO EN ACERO INOXIDABLE, CON EXCEPCIÓN DE LAS BASES DE MEDIDORES.
4. EN LOS SISTEMAS SOTERRADOS, TIENEN QUE UTILIZARSE CABLES PRIMARIOS CON TERMINACIONES DE 15 KV PARA VOLTAJES DE DISTRIBUCIÓN Y DE 46 KV PARA LÍNEAS DE 38 KV.
5. EN LOS SISTEMAS AÉREOS, TIENEN QUE UTILIZARSE AISLADORES DE POLÍMERO DE 15 KV PARA VOLTAJES DE DISTRIBUCIÓN Y DE 46 KV PARA LÍNEAS DE 38 KV.
6. EL CONTRATISTA SERÁ RESPONSABLE DE ROTULAR TODO TRANSFORMADOR A SER TRANSFERIDO A LA AEE CON UN NÚMERO DE PROPIEDAD PROVISTO POR EL DEPARTAMENTO DE INGENIERÍA DE DISTRIBUCIÓN CORRESPONDIENTE.

SISTEMAS:

1. EL DUEÑO DEL PROYECTO ES RESPONSABLE DE REALIZAR LAS PRUEBAS DE LOS CABLES PRIMARIOS Y SECUNDARIOS CON SUS TERMINACIONES. LOS RESULTADOS DE ESTAS PRUEBAS TIENEN QUE ESTAR DE ACUERDO CON LOS PARÁMETROS ESTABLECIDOS POR LA AEE PARA LAS MISMAS.ESTAS PRUEBAS TIENEN QUE REALIZARSE EN COORDINACIÓN CON UN REPRESENTANTE DE LA OFICINA DE INSPECCIONES DEL DEPARTAMENTO DE INGENIERÍA DE DISTRIBUCIÓN CORRESPONDIENTE.
2. DURANTE LA INSTALACIÓN DEL CABLE, ÉSTE DEBE ESTAR PROTEGIDO DE LA HUMEDAD Y ABRASIONES. EL CONTRATISTA ES RESPONSABLE DE INSTALAR EL CABLE MEDIANTE LAS PRÁCTICAS RECOMENDADAS DE HALADO PARA NO EXCEDER LA TENSIÓN ESPECIFICADA PARA EL CABLE.
3. LAS TAPAS DE REGISTROS (MANHOLES) A SER INSTALADOS EN EL ÁREA DE SIEMBRA TIENEN QUE ESTAR PROTEGIDAS MEDIANTE UNA LOSA DE HORMIGÓN REFORZADO, SEGÚN ESPECIFICADO EN EL PATRÓN URD-52.
4. EN AQUELLOS CASOS DONDE EL PROYECTO ESTE LOCALIZADO A MENOS DE UNA MILLA DE CUERPOS DE AGUA SALADA, LOS CONDUCTOS ASCENDENTES TIENEN QUE SER DE PVC SCHEDULE 80 O DE FIBERGLASS, SEGÚN APROBADO POR LA AEE.
5. LAS BANCADAS DEL SISTEMA SOTERRADO SERÁN INSPECCIONADAS POR LA AEE ANTES DE SER CUBIERTAS Y COMPACTADAS.
6. TODA BANCADA EXPUESTA A TRÁFICO VEHICULAR TENDRÁ QUE SER PROTEGIDA CON HORMIGÓN. AQUELLAS QUE SE ENCUENTREN CERCA DE INSTALACIONES DE OTRAS UTILIDADES TENDRÁN UN DESPEJO MÍNIMO DE 13 PULGADAS DE ÉSTAS.
7. LA CANTIDAD DE FUSIBLES DE REEMPLAZO QUE PROVEERÁ EL CONTRATISTA SERÁ LA MISMA CANTIDAD DE LOS INSTALADOS EN CADA SUBESTACIÓN.
8. LOS CONECTORES QUE SE UTILIZARÁN PARA LA CONEXIÓN A TIERRA DE ANTENAS Y SUBESTACIONES SERÁN DE SOLDADURA EXOTÉRMICA (THERMO-WELD) O DE COMPRESIÓN.
9. EL CONTRATISTA PROVEERÁ CABLE DE HALÁDO (FISHWIRE) EN CADA CONDUCTO DE RESGUARDO.
10. TODO SISTEMA DE DISTRIBUCIÓN TENDRÁ UNA RESISTENCIA MÁXIMA A TIERRA DE 10 OHMIOS. SE INSTALARÁ UNA VARILLA PARA CONECTAR A TIERRA EL NEUTRAL EN CADA CUATRO POSTES O CADA 1,000 PIES Y EN TODOS LOS TRANSFORMADORES.
11. CADA BASE DE HORMIGÓN PARA POSTE TIENE QUE INCLUIR DOS CONDUCTOS DE RESGUARDO PARA USO FUTURO, SEGÚN REQUERIDO POR LA AEE.
12. LAS BASES PARA POSTES TIENEN QUE SER INSPECCIONADAS POR LA AEE EN SU ETAPA DE CONSTRUCCIÓN

DESIGNER'S CERTIFICATION

1. I CERTIFY THAT I AM LICENSED ENGINEER OR ARCHITECT, MEMBER OF THE COLLEGE OF MY PROFESSION AND AUTHORIZED BY THIS PROJECT'S OWNER TO PRESENT THESE CONSTRUCTION PLANS TO PREPA.
2. IN COMPLIANCE WITH LAW NO. 7 JULY 19, 1985, AS AMENDED, KNOWN AS CONSTRUCTION PLAN'S CERTIFICATION LAW, I CERTIFY THAT THE ELECTRIC PLANS OF THIS PROJECT WERE DESIGNED FOLLOWING ALL CODES, STANDARDS, NORMS AND REGULATIONS APPROVED BY PREPA, PUERTO RICO PLANING BOARD AND PERMITS AND REGULATION ADMINISTRATION.

DESIGNER SIGNATURE

PUERTO RICO ELECTRICAL POWER AUTHORITY ENDORSEMENT

PROJECT NAME: DORADO HIGUILLAR PUMP STATION
PROJECT NUMBER: 14-7-195 LOAD(KVA): 1,050 (750 EXIST.)

ENDORSED BY:	REVISION		DATE
	1	△	
	2	△	
	3	△	
	4	△	

1. PREPA ENDORSES THE ELECTRIC DESIGN SHOWN IN THESE CONSTRUCTION PLANS BASED ON THE CERTIFICATION PRESENTED BY THE DESIGNER IN COMPLIANCE WITH LAW NO. 7 OF JULY 19, 1985, AS AMENDED.
2. PREPA DOES NOT ASSUME RESPONSIBILITY OVER THE CERTIFIED DESIGN. PREPA'S ENDORSEMENT DOES NOT RELIEVE THE DESIGNER FROM THE PROFESSIONAL RESPONSIBILITY ASSUMED WITH THE CERTIFICATION OF THESE PROJECT'S PLANS. THIS ENDORSEMENT RELIEVES NEITHER THE BUILDER NOR PRIVATE INSPECTOR FROM COMPLIANCE WITH STANDING DISPOSITIONS FROM: NATIONAL ELECTRIC CODE; NATIONAL ELECTRIC SAFE CODE; CONSTRUCTION STANDARDS, NORMS AND REGULATIONS FROM PREPA AND OTHER GOVERNMENT AGENCIES AS WELL AS FEDERAL AND STATE LAWS RULING BY THE TIME CONSTRUCTION BEGINS.
3. THIS ENDORSEMENT IS VALID FOR ONE YEAR. IF ELECTRICAL WORKS HAVE BEGUN DURING THIS YEAR, WITH PRIOR NOTIFICATION TO PREPA, THE ENDORSEMENT WILL STILL BE VALID UNTIL WORK'S COMPLETION. IN CASE THERE IS NO CERTIFIED ELECTRICAL WORK DURING A TWELVE MONTH PERIOD, THIS ENDORSEMENT WILL LOSE ITS VALIDITY.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

REVISIONS

NO.	REMARKS	DATE	BY	APPV'D.
1	PREPA 2020 COMMENTS	2/6/2020		

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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19446 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION ELECTRICAL SITE PLAN 1,050 KVA (750 EXIST.)		SCALES: H=1:300 / DRWG NO. E-01
DRAFTED BY:	DRAFTER LICENCE NO.: / DATE	SHEET NO. 52
DESIGNED BY: S.S.	DATE 02-06-2020	
REVISED BY:	DATE	
SUBMITTED BY:	DATE	REVISION NO. 0

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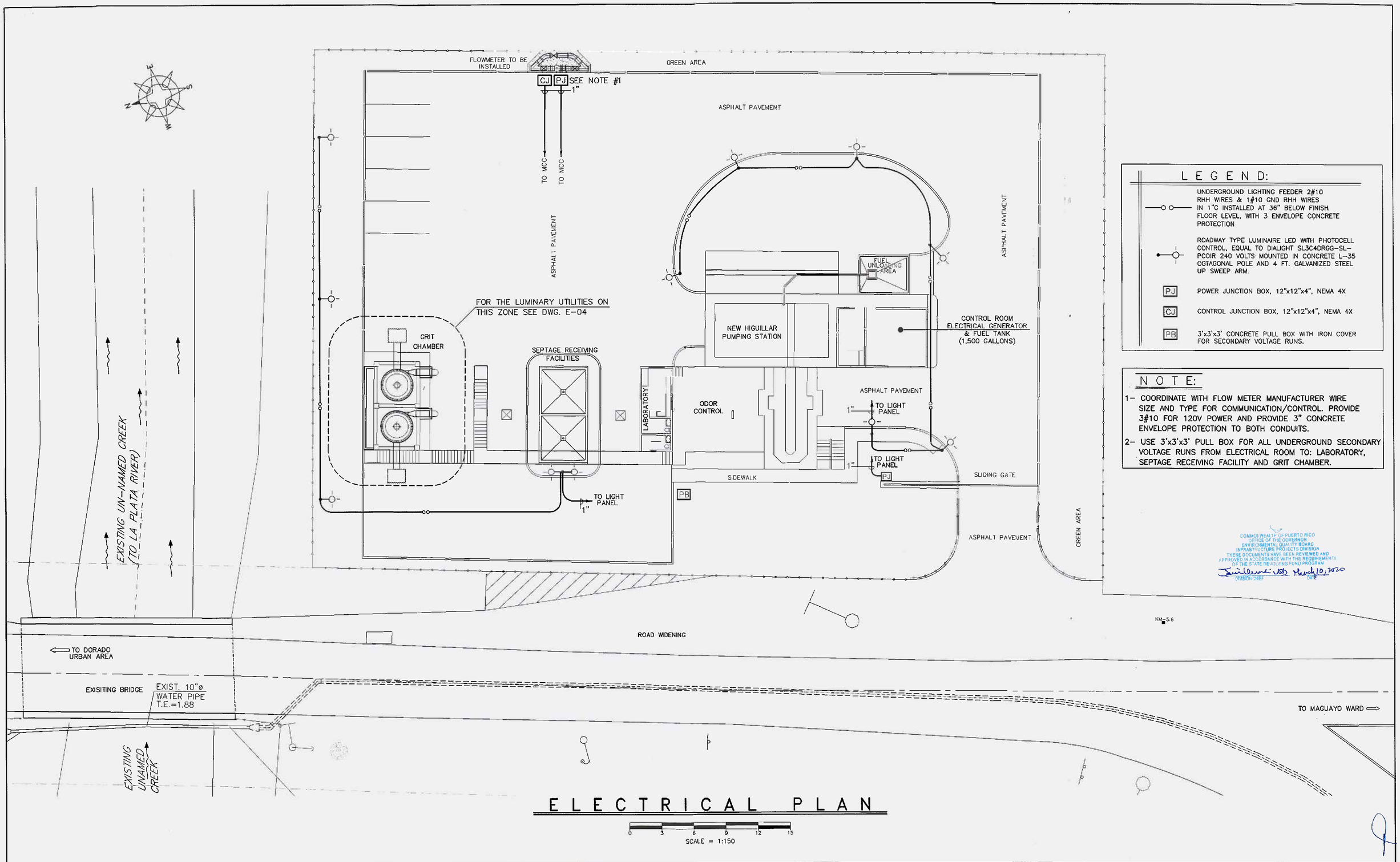

ELECTRICAL PLAN

LEGEND:

—o—o—	UNDERGROUND LIGHTING FEEDER 2#10 RHH WIRES & 1#10 GND RHH WIRES IN 1"C INSTALLED AT 36" BELOW FINISH FLOOR LEVEL, WITH 3 ENVELOPE CONCRETE PROTECTION
•—o—	ROADWAY TYPE LUMINAIRE LED WITH PHOTOCELL CONTROL, EQUAL TO DIALIGHT SL3C4DRGG-SL-PCOIR 240 VOLTS MOUNTED IN CONCRETE L-35 OGTAGONAL POLE AND 4 FT. GALVANIZED STEEL UP SWEEP ARM.
PJ	POWER JUNCTION BOX, 12"x12"x4", NEMA 4X
CJ	CONTROL JUNCTION BOX, 12"x12"x4", NEMA 4X
PB	3'x3'x3' CONCRETE PULL BOX WITH IRON COVER FOR SECONDARY VOLTAGE RUNS.

NOTE:

1- COORDINATE WITH FLOW METER MANUFACTURER WIRE SIZE AND TYPE FOR COMMUNICATION/CONTROL. PROVIDE 3#10 FOR 120V POWER AND PROVIDE 3" CONCRETE ENVELOPE PROTECTION TO BOTH CONDUITS.

2- USE 3'x3'x3' PULL BOX FOR ALL UNDERGROUND SECONDARY VOLTAGE RUNS FROM ELECTRICAL ROOM TO: LABORATORY, SEPTAGE RECEIVING FACILITY AND GRIT CHAMBER.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION LIGHTING SITE PLAN			SCALES: H=1:150 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. E-02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 53
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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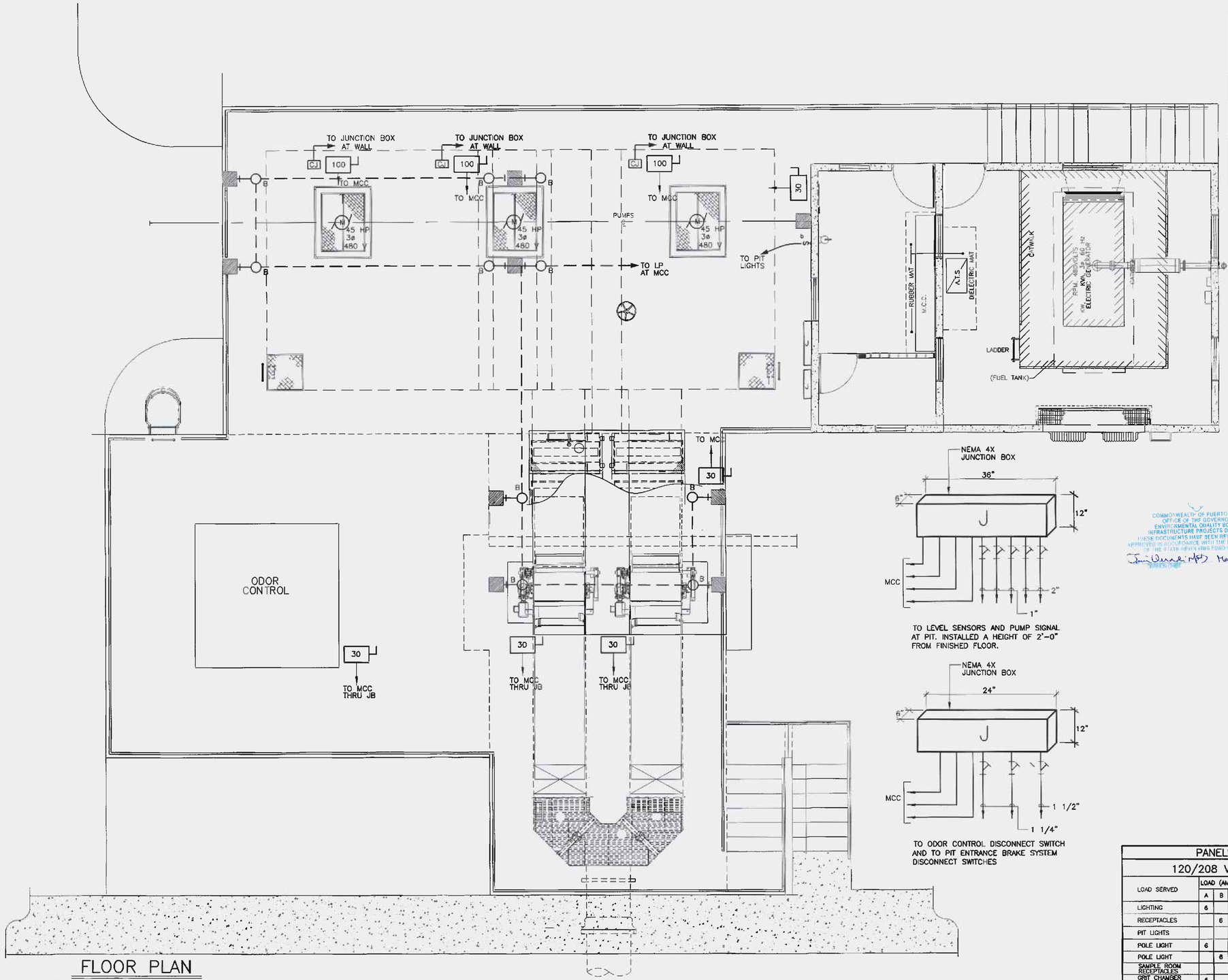

FLOOR PLAN

0 1 2 3 4 5

SCALE =1:40

ABBREVIATIONS	
V	VOLTS
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
MLO	MAIN LUGS ONLY
NTS	NOT TO SCALE
PNLBD	PANEL BOARD
UON	UNLESS OTHERWISE NOTED
WP	INDICATES WATERPROOF
Ø	PHASES EQUIPMENT
W	WIRES
A	AMPERES
MCB	MAIN CIRCUIT BREAKER

ELECTRICAL SYMBOLS	
	FLUORESCENT LIGHTING FIXTURE. CAPITAL LETTER INDICATES FIXTURE TYPE. LOWERCASE LETTER SUBSCRIPT WHEN USED INDICATES FIXTURES CONTROLLED.
	FLUORESCENT EMERGENCY AND/OR NIGHT LIGHTING FIXTURE.
B b	CEILING OUTLET SAME NOTATION AS ABOVE, BUT INCANDESCENT OR HIGH INTENSITY DISCHARGE FIXTURE.
C b	WALL BRACKET OUTLET. 7'-0" HIGH OR AS INDICATED. SAME NOTATION AS ABOVE.
J	JUNCTION BOX 4"x4"x2" OR AS INDICATED.
a	SINGLE POLE SWITCH, 20A 120/277 V., 4'-8" HIGH IN EXPLOSION PROOF OUTLET BOX AND COVER. LOWER CASE LETTER INDICATES FIXTURES CONTROLLED.
	DUPLEX CONVENIENCE RECEPTACLE 20 AMPS, 125 V.A.C. GROUNDING TYPE. MOUNT 1'-6" AFF.
	DUPLEX CONVENIENCE RECEPTACLE 20 AMPS, 125 V.A.C. GROUNDING TYPE. ABOVE COUNTER HEIGHT.
	CLOCK OUTLET , 15A, 125 V.A.C. MOUNT 7'-6" HIGH. WITH ELECTRIC CLOCK TORK TA 185 2G
WP	DUPLEX CONVENIENCE RECEPTACLE WEATHERPROOF.
GFI	GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE, 20 AMPS, 125 V, EQUAL TO PASS & SEYMOUR 2091FI.
20,30	SPECIAL PURPOSE RECEPTACLE FOR POWER 20A OR 30A AS INDICATED. 250V 3 POLE, 3 WIRES MOUNT 2'-0" AFF. UON.
M	TELEPHONE OUTLET MOUNT 1'-6" AFF.
E	EQUIPMENT CONNECTION AS NOTED.
M 1/2	MOTOR CONNECTION HP INDICATED.
3P 60 40	DISCONNECT SWITCH 600V IN NEMA 4X ENCLOSURE ON 3P=3 POLES, 60=SWITCH RATING, 40=FUSE RATING (NF INDICATES NON-FUSIBLE). NEMA 4X OUTDOORS.
	ELECTRICAL PANEL BOARD (208 Y/120 VOLT), MOUNT 5'-6" FROM CENTER OF PANEL TO AFF.
MCP	MOTOR CONTROL PANEL (SEE CONTROL PANEL DIAGRAM FOR DETAILS.
ATS	AUTOMATIC TRANSFER SWITCH
	TELEPHONE CONDUIT MINIMUM SIZE 3/4"C.
	BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT. NO TICK MARKS INDICATED 2#12 CONDUCTORS IN 3/4" CONDUIT. TICK MARKS, WHEN SHOWN, INDICATE NUMBER OF #12 CONDUCTOR IF OTHER THAN TWO; (V) INDICATES GROUND.
	INDICATES A CONDUIT RUN CONCEALED IN FLOOR SLAB
A-1,3,5	HOMERUN TO PANEL. LETTER INDICATES PANEL DESIGNATION AND NUMBERS CIRCUIT NUMBERS.
EX 1/6	HOMERUN TO INDICATED LOCATION.
	CONDUIT AT FLOOR SLAB.
	CONDUIT AT WALL OR ROOF.

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March 10, 2020

LUMINAIRE FIXTURE SCHEDULE				
DESIGNATION	FIXTURE		MANUFACTURER	
	TYPE	MOUNTING	MFGR	MODEL
	LED	SURFACE	DIALIGHT	LSM3C43EP-LSXW4
B	LED	WALL BRACKET	DIALIGHT	STW5C2G-HZXW7
C	LED	POLE	DIALIGHT	HZD9C2G HZXSTAN200T HZXW7

NOTES:

1- ALL UNDERGROUND CONDUITS RUNS SHALL BE PVC SCH.40.
2- ALL ABOVE GROUND CONDUITS RUNS SHALL BE RGS PVC COATED.
3- WALL LIGHT FIXTURES AT 7'-0" ABOVE FINISHED FLOOR LEVEL.
4- THE CONTRACTOR SHALL COORDINATE EQUIPMENT INSTALLATION HEIGHTS WITH OWNER REPRESENTATIVE AT FIELD.
5- ALL ELECTRICAL EQUIPMENT (PANELS, DISCONNECT SWITCH, ETC.) SHALL BE INSTALLED AT A HEIGHT OF 5'-6" CENTER.
6- INSTALL ETS SEAL WITH CHICO COMPOUND TO ALL CONDUITS COMING OUT OF PIT PRIOR TO ENTER A DISCONNECTED SWITCH, A JUNCTION BOX OR LIGHT OUTLET BOX.

PANELBOARD LP SCHEDULE

120/208 VOLTS, 3ø, 4W, 125 AMPS MAIN BREAKER, 125A

LOAD SERVED	LOAD (AMPS.) A	B	C	CKT.BKR. KAIC	TRIP	WIRE SIZE	CKT. NO.		CKT. NO.	WIRE SIZE	CKT.BKR. KAIC	TRIP	LOAD (AMPS.) A	B	C	LOAD SERVED
LIGHTING	6				20	12	1		2	12		20	6			LIGHTING
RECEPTACLES		6			20	12	3		4	12		20		6		LIGHTING
PIT LIGHTS			4		20	12	5		6	10		20			6	POLE LIGHT
POLE LIGHT	6				20	10	7		8				6			POLE LIGHT
POLE LIGHT		6			20	10	9		10	10		20		6		SAMPLE ROOM LIGHTS
SAMPLE ROOM RECEPTACLES			6		20	10	11		12	10		20			6	SAMPLE ROOM RECEPTACLES
GRIT CHAMBER LIGHTS	6				20	10	13		14	10		20	6			GRIT CHAMBER RECEPTACLES

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES LICENSED LICENSE NO. 11,413 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMPING STATION PIT LIGHTING AND POWER PLAN

SCALES: H=1:40 V=1:N/A

DRWG NO. E-03

SHEET NO. 54

DRAFTED BY: | DRAFTER LICENSE NO.: | DATE

DESIGNED BY: A.A.F.T. | DATE 02/20/2020

REVISED BY: | DATE

SUBMITTED BY: | DATE

REVISION NO. 0

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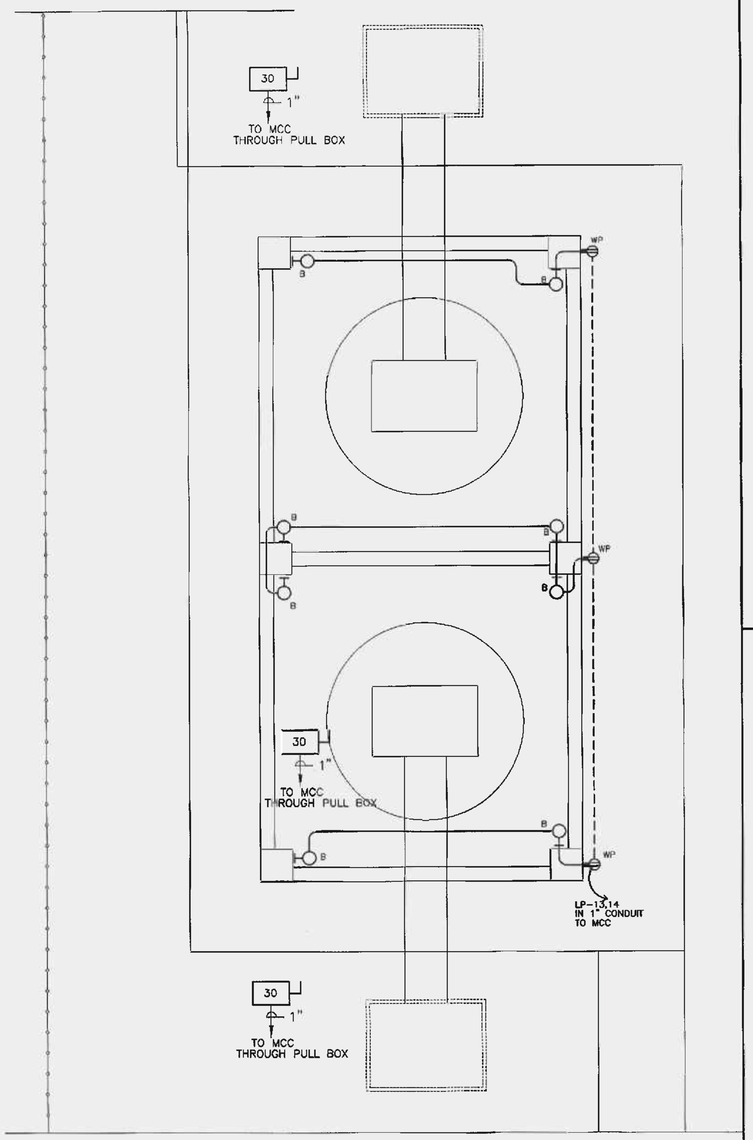
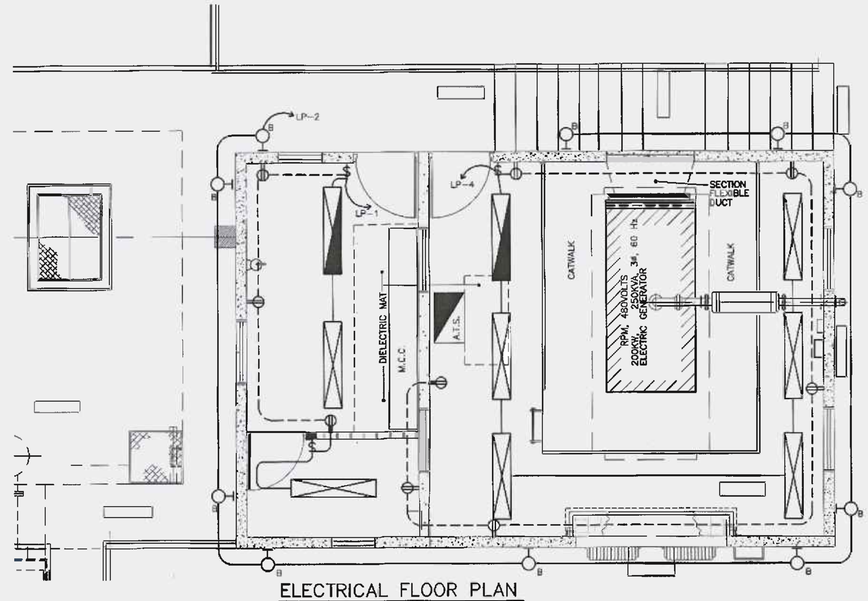


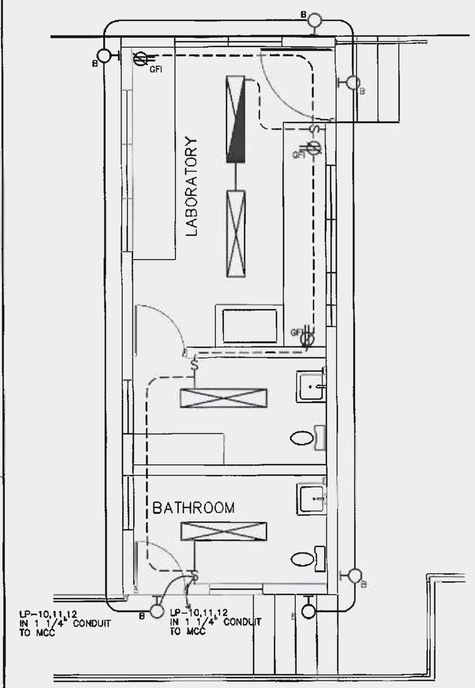
GRIT CHAMBER ELECTRICAL FLOOR PLAN

SCALE =1:40



ELECTRICAL FLOOR PLAN

SCALE =1:40



SEPTAGE ELECTRICAL FLOOR PLAN

SCALE =1:40

NOTES:

1- ALL UNDERGROUND CONDUITS RUNS SHALL BE PVC SCH.40.
2- ALL ABOVE GROUND CONDUITS RUNS SHALL BE RGS PVC COATED.
3- WALL LIGHT FIXTURES AT 7'-0" ABOVE FINISHED FLOOR LEVEL.
4- THE CONTRACTOR SHALL COORDINATE EQUIPMENT INSTALLATION HEIGHTS WITH OWNER REPRESENTATIVE AT FIELD.
ALL ELECTRICAL EQUIPMENT (PANELS, DISCONNECT SWITCH, ETC.) SHALL BE INSTALLED AT A HEIGHT OF 5'-5" CENTER.
5- INSTALL LIGHTING FROM GRIT CHAMBER AND LABORATORY ROOM AT 36" B.F.F. PROVIDE 3" CONCRETE ENVELOPE PROTECTION TO CONDUITS.
6- PROVIDE (2ea) 12"x12"x4" NEMA 4X JUNCTION BOX TO GRIT CHAMBER LIGHTING ELECTRICAL RUN AND LABORATORY LIGHTING ELECTRICAL RUN. COORDINATE WITH OWNER REPRESENTATIVE LOCATION OF JUNCTION BOXES (4 TOTAL).

ELECTRICAL SYMBOLS

	FLUORESCENT LIGHTING FIXTURE. CAPITAL LETTER INDICATES FIXTURE TYPE. LOWERCASE LETTER SUBSCRIPT WHEN USED INDICATES FIXTURES CONTROLLED (SEE SCHEDULE)
	LED EMERGENCY LIGHTING FIXTURE.
B b	CEILING OUTLET SAME NOTATION AS ABOVE, BUT INCANDESCENT OR HIGH INTENSITY DISCHARGE FIXTURE.
C b	WALL BRACKET OUTLET. 7'-0" HIGH OR AS INDICATED. SAME NOTATION AS ABOVE.
J	JUNCTION BOX 4"X4"X2" OR AS INDICATED.
a	SINGLE POLE SWITCH, 20A, 120/277 V. 4'-6" HIGH IN EXPLOSION PROOF OUTLET BOX AND COVER. LOWER CASE LETTER INDICATES FIXTURES CONTROLLED.
	DUPLEX CONVENIENCE RECEPTACLE 20 AMPS, 125 V.A.C. GROUNDING TYPE. MOUNT 1'-6" AFF.
	DUPLEX CONVENIENCE RECEPTACLE 20 AMPS, 125 V.A.C. GROUNDING TYPE. ABOVE COUNTER HEIGHT.
	CLOCK OUTLET , 15A, 125 V.A.C. MOUNT 7'-6" HIGH. WITH ELECTRIC CLOCK TORK TA 188 2G
WP	DUPLEX CONVENIENCE RECEPTACLE WEATHERPROOF.
GFI	GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE, 20 AMPS, 125 V, EQUAL TO PASS & SEYMOUR 2091FI.
20,30	SPECIAL PURPOSE RECEPTACLE FOR POWER 20A OR 30A AS INDICATED, 250V 3 POLE, 3 WIRES MOUNT 2'-0" AFF. UON.
	TELEPHONE OUTLET MOUNT 1'-6" AFF.
E	EQUIPMENT CONNECTION AS NOTED.
M /2	MOTOR CONNECTION HP INDICATED.
3P 60 40	DISCONNECT SWITCH 600V IN NEMA 4X ENCLOSURE ON 3P=3 POLES, 60=SWITCH RATING, 40=FUSE RATING (NF INDICATES NON-FUSIBLE). NEMA 4X OUTDOORS.
	ELECTRICAL PANEL BOARD (208 Y/120 VOLT). MOUNT 5'-6" FROM CENTER OF PANEL TO AFF.
MCP	MOTOR CONTROL PANEL (SEE CONTROL PANEL DIAGRAM FOR DETAILS.
ATS	AUTOMATIC TRANSFER SWITCH
	TELEPHONE CONDUIT MINIMUM SIZE 3/4"C.
	BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT. NO TICK MARKS INDICATED 2#12 CONDUCTORS IN 3/4" CONDUIT. TICK MARKS, WHEN SHOWN, INDICATE NUMBER OF #12 CONDUCTOR IF OTHER THAN TWO: (V) INDICATES GROUND.
	INDICATES A CONDUIT RUN CONCEALED IN FLOOR SLAB
A-1,3,5	HOMERUN TO PANEL. LETTER INDICATES PANEL DESIGNATION AND NUMBERS CIRCUIT NUMBERS.
EX 1/6	HOMERUN TO INDICATED LOCATION.
	CONDUIT AT FLOOR SLAB.
	CONDUIT AT WALL OR ROOF.

ABBREVIATIONS

V	VOLTS
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
MLO	MAIN LUGS ONLY
NTS	NOT TO SCALE
PNLBD	PANEL BOARD
UON	UNLESS OTHERWISE NOTED
WP	INDICATES WATERPROOF
Ø	PHASES EQUIPMENT
W	WIRES
A	AMPERES
MCB	MAIN CIRCUIT BREAKER

LUMINAIRE FIXTURE SCHEDULE

DESIGNATION	FIXTURE		MANUFACTURER	
	TYPE	MOUNTING	MFGR	MODEL
	LED	SURFACE	DIALIGHT	LSM3C43EP-LSXW4
B	LED	WALL BRACKET	DIALIGHT	STW5C2G-HZXW7
C	LED	POLE	DIALIGHT	HZD9CZG HZXSTAN200T HZXW7

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March 10, 2020

PANELBOARD LP SCHEDULE

120/208 VOLTS, 3Ø, 4W, 125 AMPS MAIN BREAKER, 125A

LOAD SERVED	LOAD (AMPS.) A	B	C	CKT.BKR. KAIC	TRIP	WIRE SIZE	CKT. NO.			CKT. NO.	WIRE SIZE	CKT.BKR. KAIC	TRIP	LOAD (AMPS.) A	B	C	LOAD SERVED
LIGHTING	6			10	20	12	1			2	12	10	20	6			LIGHTING
RECEPTACLES		6		10	20	12	3			4	12	10	20		6		LIGHTING
PIT LIGHTS			4	10	20	12	5			6	10	10	20			6	POLE LIGHT
POLE LIGHT	6			10	20	10	7			8				6			POLE LIGHT
POLE LIGHT		6		10	20	10	9			10	10	10	20		6		SAMPLE ROOM LIGHTS
SAMPLE ROOM RECEPTACLES			6	10	20	10	11			12	10	10	20			6	SAMPLE ROOM RECEPTACLES
GRIT CHAMBER LIGHTS	6			10	20	10	13			14	10	10	20	6			GRIT CHAMBER RECEPTACLES
GATE MOTOR		6			20	10	15			–	–	10	20	–	–	–	SPARE

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19116 PUERTO RICO

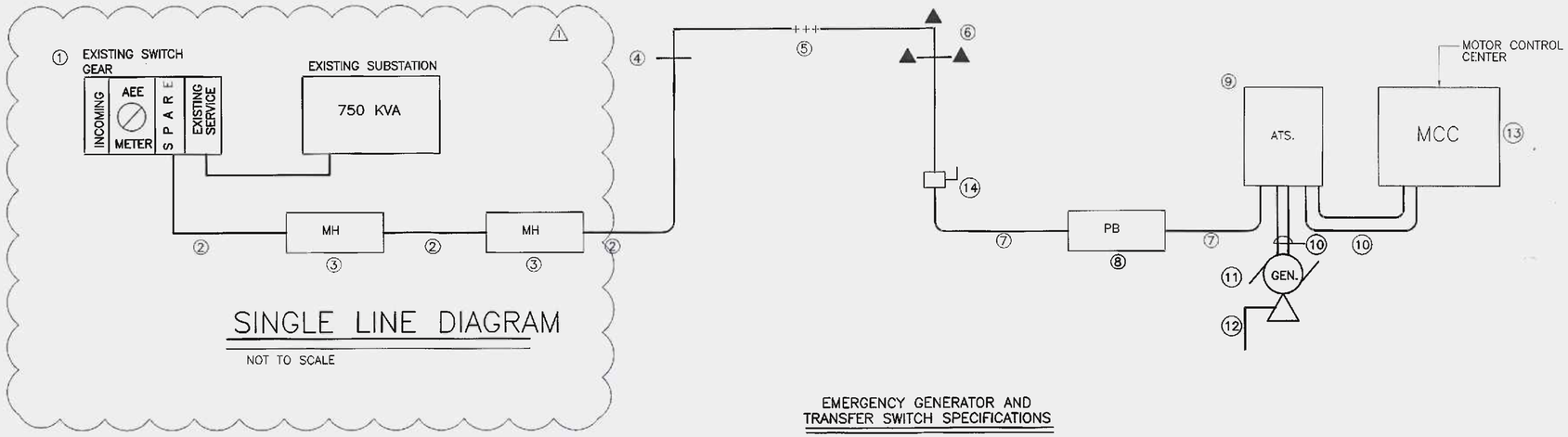
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMPING STATION ELECTRICAL FLOOR PLAN			SCALES: H=1:40 V=1:N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. E-04
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 55
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\55-E-04-NEW HIGUILLAR PUMPING STATION ELECTRICAL FLOOR PLAN.dwg 7/16/2014 5:24:38

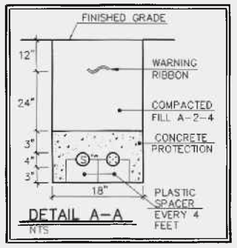


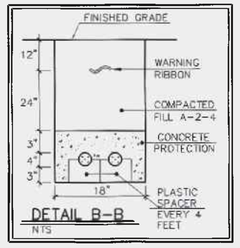
SINGLE LINE DIAGRAM

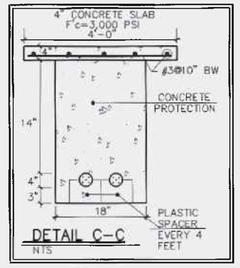
NOT TO SCALE

SINGLE LINE DIAGRAM DESCRIPTION:

1. EXISTING 8.32 KV SWITCH GEAR TO REMAIN. SPARE CUBICLE IS THE POINT OF CONNECTION. CONTRACTOR SHALL PROVIDE AND INSTALL MOUNTING KIT AND ACCESSORIES FOR FUSES OPERATION. PROVIDE 200A FUSES WITH APPROPRIATE SILENCER AND ALL REQUIRED ACCESSORIES FOR A FULLY FUNCTIONAL SYSTEM. PROVIDE (3) SPARE FUSES.
2. NEW UNDERGROUND PRIMARY FEEDER CONSISTING OF 3#4/0, TREXIP, 15KV, COPPER WIRE AND 1#4/0 TW 600V COPPER WIRE IN 4" PVC SCH. 40 CONDUIT. SEE SECTION A–A AND C–C FOR MORE DETAILS.
3. PRIMARY PULL BOX, PREPA STD.URD–30B, 30C
4. NEW CONCRETE POLE 50–H8, PREPA STANDARD URD–3–1 (INVERTED RISER) WITH FUSE CUT–OUTS 100E, AND SELF SUPPORT BASE M16–3, M16–4. E 1–2–3, F1–3.
5. OVERHEAD PRIMARY LINE, 3/0 ACAR, 4W, 15KV.
6. NEW POLE MOUNTED SUBSTATION CONSISTING OF THREE TRANSFORMER 100/KVA EACH 8.32 KV PRIMARY TO 277/480 VOLTS SECONDARY CONNECTED Δ–Y_G SEE PREPA STD T–3, CP–C5, E1–2–3, F1–3 TRANSFORMERS SHALL BE STAINLESS STEEL TANK NON–PCB, HIGH EFFICIENCY ENERGY SAVINGS AS PER PREPA STD'S. POLE SHALL BE 50 FT CONCRETE H8.
7. UNDERGROUND SECONDARY FEEDER CONSISTING OF (2) SET OF 4#4/0, 1#2 RHH WIRES IN 3" PVC SCH. 40 CONDUIT. PROVIDE CONCRETE PROTECTION SEE SECTION B–B FOR MORE DETAILS.
8. SECONDARY PULL BOX, PREPA STD.URD–30, 30A
9. NEW AUTOMATIC TRANSFER SWITCH. SEE SPECIFICATIONS FOR DETAILS.
10. NEW SECONDARY FEEDER EQUAL TO FEEDER 7 AND GENERATOR ACCESORIES CONDUITS. PROVIDE (2) 3/4" CONDUITS WITH 6#12 THWN WIRES.
11. NEW 200 KW GENERATOR SET. SEE SPECIFICATIONS FOR DETAILS.
12. 1#4/0 TW WIRE CONNECTED TO 3/4"x8' GROUND ROD.
13. NEW MCC. SEE SPECIFICATIONS FOR DETAILS.
14. FUSIBLE MAIN DISCONNECT SWITCH SERVICE RATED, 400A, 480V, NEMA 4X WITH 400A FUSES







EMERGENCY GENERATOR AND TRANSFER SWITCH SPECIFICATIONS

1– THE EMERGENCY GENERATOR WILL BE FURNISHED COMPLETE WITH A FULL DOUBLE WALL, (DIESEL) TANK, AUTOMATIC TRANSFER SWITCH, BATTERY, AUTOMATIC BATTERY CHARGER, AND ALL REQUIRED ACCESSORIES FOR NORMAL OPERATION.

2– THE EMERGENCY GENERATOR SHALL BE RATED AS FOLLOWS: 200KW 250KVA AT 0.8 p.f., 3 PHASE–4 WIRES, 277/480 VOLTS, 60HZ 1800 R.P.M. THE UNIT SHALL BE SKID MOUNTED FOR INDOOR OPERATION EQUAL OR SIMILAR TO ONAN.

3– THE UNIT IS TO INCLUDE THE FOLLOWING EQUIPMENT AND ACCESSORIES:

A– WATER COOLED RADIATOR.

B– ONE (1) ABOVE GROUND FUEL (DIESEL) RESORVOIR TANK 1,500 GALLONS CAPACITY WITH ALL FUEL SUPPLY, RETURN AND VENTILATION LINES AND EQUIPMENT.

C– ONE 24 VOLTS, NICKEL CADMIUM BATTERY WITH RACK & CABLES AND BATTERY CHARGER.

D– EXHAUST CRITICAL TYPE MUFFLER WITH STEEL CONNECTIONS AND FITTINGS, INCLUDING FLEXIBLE SECTION AND RAIN CAP FOR EXHAUST.

E– VIBRATION ISOLATORS.

F– RELAYS AND CONTACTORS AS REQUIRED FOR REMOTE CONTROL FROM TRANSFER.

G– DAY TANK, 10 GALLONS.

H– INSTRUMENTS CONTROL PANEL INCLUDING THE FOLLOWING:

a) VOLTMETER AND SELECTOR SWITCH
b) AMMETER AND SELECTOR SWITCH
C) WATTMETER AND SELECTOR SWITCH
d) FREQUENCY METER AND SELECTOR SWITCH
e) RUNNING TIME METER
f) MAIN LINE CIRCUIT BREAKER
g) VOLTAGE REGULATOR AND 2 POSITION SWITCH (OFF AND AUTOMATIC)
h) WATER TEMPERATURE GAUGE
i) OIL PRESSURE GAUGE
j) AUTOMATIC SHUTDOWN DEVICE WITH INDICATOR LIGHTS FOR
(1) OVER CRANKING PROTECTION
(2) HIGH WATER TEMPERATURE
(3) LOW OIL PRESSURE
(4) DIESEL LEVEL (LOW LEVEL)
(5) LOW WATER LEVEL
k) START/STOP SWITCH
l) REMOTE START–STOP TERMINALS
m) THACHOMETER

I– AUTOMATIC TRANSFER SWITCH RATED 400 AMPS., 480 VOLTS A.C., 3 PHASE, 4 WIRES 3 POLES, 60 HZ. TRANSFER SWITCH TO BE FURNISHED BY PLANT MANUFACTURER IN A NEMA 4X ENCLOSURE WITH PILOT LIGHT ON DOOR AND THE FOLLOWING ACCESSORIES:

a) SELECTOR SWITCH WITH OFF–AUTOMATIC CHECK POSITIONS
b) POWER SENTRY AUTOMATIC ELECTRONIC CONTROL FOR TIME DELAY FUNCTIONS, STATUS INDICATORS AND VOLTAGE SENSORS.
c) CLOCK EXERCISER TO START THE GENERATOR SET AUTOMATICALLY. IT SHALL OPERATED EVERY WEEK AND RUN THE GENERATOR SET FOR HALF (1/2) HOUR AND THEN, STOP THE GENERATOR SET AUTOMATICALLY.
d) ALL OTHER ACCESSORIES REQUIRED FOR NORMAL OPERATION.
e) TRANSFER SWITH SHALL BE MECHANICALLY HELD, ELECTRICALLY OPERATED AT BOTH SIDES.

F– PROVIDE OPTION FOR EXERCISE WITH LOAD OR NO LOAD.

G– PROVIDE MANUAL OPERATION OPTION.

4– PROVIDE A LOW LEVEL ALARM IN THE EMERGENCY GENERATORS DIESEL FULL TANK. THE ALARM SHALL PROVIDE A VISUAL DISPLAY IN BOTH THE ALARM PANEL (AP) AND IN THE AUTOMATIC TRANSFER SWITCH FRONT COVER DOOR

COMMONWEALTH OF PUERTO RICO
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February 10, 2020

DESIGNER'S CERTIFICATION

1. I CERTIFY THAT I AM LICENSED ENGINEER OR ARCHITECT, MEMBER OF THE COLLEGE OF MY PROFESSION AND AUTHORIZED BY THIS PROJECT'S OWNER TO PRESENT THESE CONSTRUCTION PLANS TO PREPA.

2. IN COMPLIANCE WITH LAW NO. 7 JULY 19, 1985, AS AMENDED, KNOWN AS CONSTRUCTION PLAN'S CERTIFICATION LAW, I CERTIFY THAT THE ELECTRIC PLANS OF THIS PROJECT WERE DESIGNED FOLLOWING ALL CODES, STANDARDS, NORMS AND REGULATIONS APPROVED BY PREPA, PUERTO RICO PLANING BOARD AND PERMITS AND REGULATION ADMINISTRATION.

DESIGNER SIGNATURE

PUERTO RICO ELECTRICAL POWER AUTHORITY
ENDORSEMENT

PROJECT NAME: DORADO HIGUILLAR PUMP STATION
PROJECT NUMBER: 14-7-195 LOAD(KVA): 1,050 (750 EXIST.)

ENDORSED BY:	REVISION		DATE
	1	1	
	2	1	
	3	1	
	4	1	

1. PREPA ENDORSES THE ELECTRIC DESIGN SHOWN IN THESE CONSTRUCTION PLANS BASED ON THE CERTIFICATION PRESENTED BY THE DESIGNER IN COMPLIANCE WITH LAW NO. 7 OF JULY 19, 1985, AS AMENDED.

2. PREPA DOES NOT ASSUME RESPONSIBILITY OVER THE CERTIFIED DESIGN. PREPA'S ENDORSEMENT DOES NOT RELIEVE THE DESIGNER FROM THE PROFESSIONAL RESPONSIBILITY ASSUMED WITH THE CERTIFICATION OF THESE PROJECT'S PLANS. THIS ENDORSEMENT RELIEVES NEITHER THE BUILDER NOR PRIVATE INSPECTOR FROM COMPLIANCE WITH STANDARD DISPOSITIONS FROM: NATIONAL ELECTRIC CODE, NATIONAL ELECTRIC SAFE CODE, CONSTRUCTION STANDARDS, NORMS AND REGULATIONS FROM PREPA AND OTHER GOVERNMENT AGENCIES AS WELL AS FEDERAL AND STATE LAWS RULING BY THE TIME CONSTRUCTION BEGINS.

3. THIS ENDORSEMENT IS VALID FOR ONE YEAR. IF ELECTRICAL WORKS HAVE BEGUN DURING THIS YEAR, WITH PRIOR NOTIFICATION TO PREPA, THE ENDORSEMENT WILL STILL BE VALID UNTIL WORK'S COMPLETION. IN CASE THERE IS NO CERTIFIED ELECTRICAL WORK DURING A TWELVE MONTH PERIOD, THIS ENDORSEMENT WILL LOSE ITS VALIDITY.

NO.	REMARKS	DATE	BY	APPV'D.
1	PREPA 2020 COMMENTS	2/6/2020		

REVISIONS

jcnc CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES
INGENIERO LICENCIADO
LIC. #19-18
ESTADO LIBRE ASOCIADO DE PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2–26–5002
C–72–051–01

Autoridad de Acueductos y Alcantarillados
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COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMPING STATION ELECTRICAL SUBSTATION NOTES AND SINGLE LINE DIAGRAM

DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	
DESIGNED BY: S.S.		DATE 02–06–2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	

PLOT SCALE: H=1:100 V=N/A
DRWG NO. E–05
SHEET NO. 56
REVISION NO. 0

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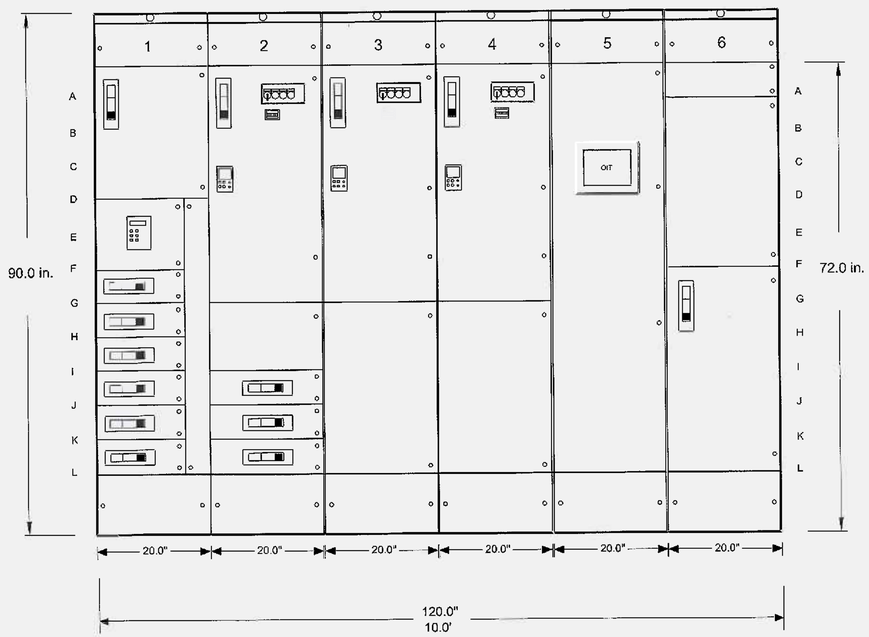
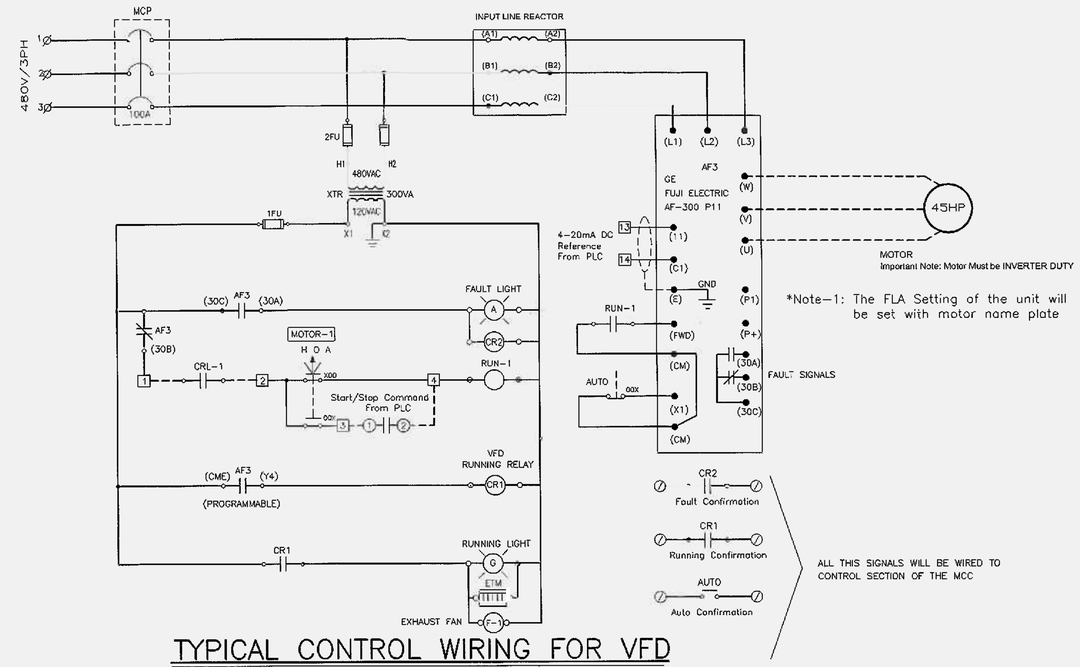
MOTOR CONTROL CENTER FRONT VIEW LAYOUT & UNITS INFORMATION



UNIT	DESCRIPTION
1D	MAIN CIRCUIT BREAKER 600A/600VAC/3POLES
1F	LINE METERING SYSTEM SIMILAR TO POWERLOGIC PM 820
1G	CIRCUIT BREAKER 50A/3P/600VAC
1H	CIRCUIT BREAKER 30A/3P/600VAC
1I	CIRCUIT BREAKER 30A/3P/600VAC
1J	CIRCUIT BREAKER 50A/3P/600VAC
1K	CIRCUIT BREAKER 50A/3P/600VAC
1L	CIRCUIT BREAKER 50A/3P/600VAC
2G	VFD UNIT WITH BYPASS FOR 45HP/480V SEWER PUMP
2J	CIRCUIT BREAKER 30A/3P/600VAC
2K	CIRCUIT BREAKER 30A/3P/600VAC
2L	CIRCUIT BREAKER 30A/3P/600VAC
3G	VFD UNIT WITH BYPASS FOR 45HP/480V SEWER PUMP
4G	VFD UNIT WITH BYPASS FOR 45HP/480V SEWER PUMP
5L	SPACE 72 IN. WITH BACKPLATE FOR CONTROL SECTION
6A	SPACE UNIT OF 6 IN.
6F	LIGHTING PANEL 18 CKT'S, 100A MAIN LUGS - 1PH
6L	DRY TYPE XTR 480-120/240VAC 15KVA/1PH WITH MAIN BREAKER



TYPICAL CONTROL WIRING FOR VFD

NOT TO SCALE

GENERAL MCC NOTES

Class 1 Type B Wiring

PRODUCT DESCRIPTION AND RATINGS

POWER SYSTEM DATA:

480V 3PH 3W 60Hz
SHORT CIRCUIT RATING: 65kA
POWER ENTERS: Main Breaker Top Section 1
CONTROL POWER: 120Vac

BUS SYSTEM DATA:

MAIN HORIZONTAL BUS: 600 Amp Copper/Tin Plated / 1.5"
BUS BRACING: 65kA
VERTICAL BUS: 300 Amp Tin Plated Copper
HORIZONTAL GROUND BUS: .25" X 1.0" (6.35mm X 25.4mm)
Tim Plated Copper Units Securely Grounded To Structure

ENCLOSURE DATA:

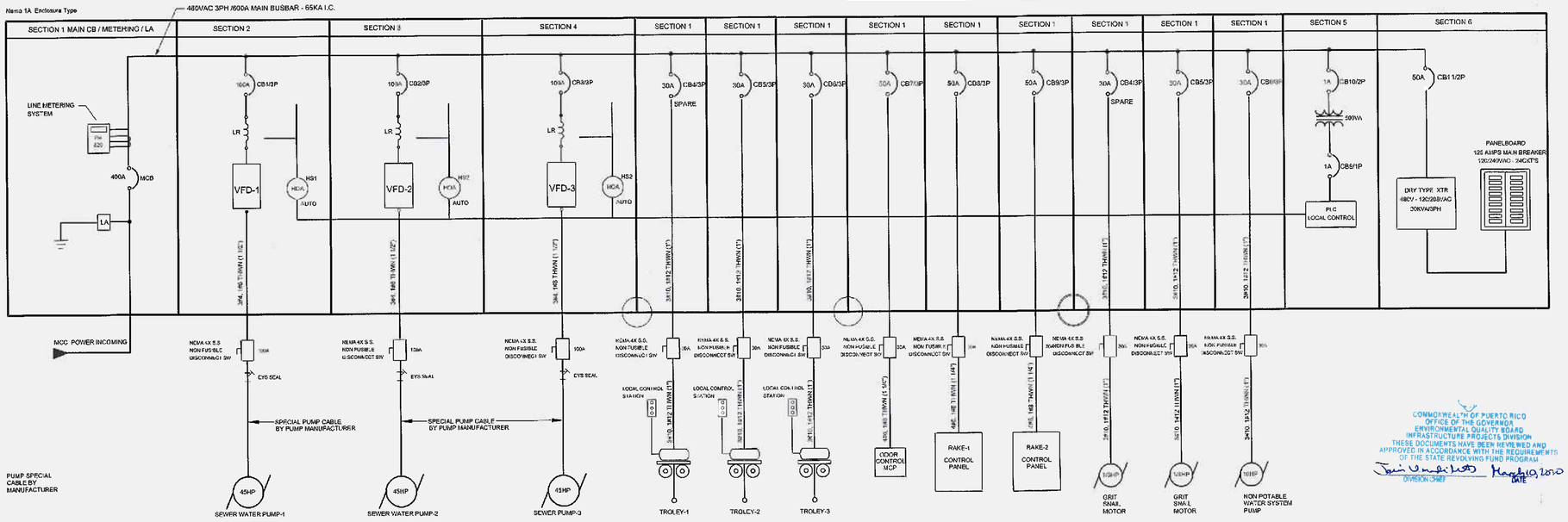
ENCLOSURE TYPE: 20" DEEP Type 1A
EXTERIOR COLOR: Electrodeposition Finish ANSI 49 Medium Light Grey
INTERIOR COLOR: Electrodeposition Finish ANSI 49 Medium Light Grey

SEWER PUMPS CONTROL SYSTEM STRATEGY & SEQUENCE OPERATION:

THE CONTROL SYSTEM WILL CONSIST IN ONE OIT (OPERATOR INTERFACE TERMINAL) CONNECTED TO A PLC UNIT (PROGRAMMABLE LOGIC CONTROLLER). THE TARGET WILL BE THE CONTROL FOR THREE PUMPS LOCATED IN TWO SEWER PITS THAT CAN BE ISOLATED OR INTERCONNECTED. PROVIDING PLC PROGRAMMING AND SCREENS DEVELOPMENT IN THE OIT THE OPERATOR WILL BE CAPABLE TO CONTROL THE PUMPING STATION.

THERE WILL BE A SELECTOR SWITCH IN THE CONTROL SECTION TO SELECT THE PIT OPERATION (PIT-1 / BOTH PITS / PIT-2). IF PIT-1 IS SELECTED, THE PLC WILL USE AS PRIMARY ELEMENT THE SUBMERSIBLE LEVEL XTR OF THE PIT-1, THIS SIGNAL WILL PROVIDE A LEVEL FEEDBACK FROM PIT-1 TO PLC. IN THIS OPTION, IF LEVEL XTR FAIL THE PLC WILL SWITCH TO FLOAT SWITCHES IN THE PIT-1 AS A BACKUP. IF PIT-2 IS SELECTED, THE PLC WILL USE AS PRIMARY ELEMENT THE SUBMERSIBLE LEVEL XTR OF THE PIT-2, THIS SIGNAL WILL PROVIDE A LEVEL FEEDBACK FROM PIT-2 TO PLC. IN THIS OPTION, IF LEVEL XTR FAIL THE PLC WILL SWITCH TO FLOAT SWITCHES IN THE PIT-2 AS A BACKUP. IF BOTH PITS OPTION IS SELECTED, THE PLC WILL USE AS PRIMARY ELEMENT THE SUBMERSIBLE LEVEL XTR OF THE PIT-1 AND THE LEVEL XTR OF PIT-2 AS A BACK UP ELEMENT. IF BOTH LEVEL XTR FAIL, THE PLC WILL USE AS A SECOND BACKUP THE FLOAT SWITCHES OF THE PIT-1. THERE SHOULD BE ONE SCREEN WITH LEVEL SETPOINTS BY PIT. THE PIT-1 SCREEN IT SHOULD SHOW FOUR LEVEL SETPOINTS (STOP ALL PUMPS / START LEAD PUMP / START LAG PUMP / HIGH LEVEL ALAM) AND THE PIT LEVEL. THE PIT-2 SCREEN IT SHOULD SHOW THREE LEVEL SETPOINTS (STOP ALL PUMPS / START LEAD PUMP / HIGH LEVEL ALARM). THE BOTH PITS OPTION SCREEN IT SHOULD SHOW FIVE LEVEL SETPOINTS (STOP ALL PUMPS / START LEAD PUMP / START LAG PUMP / START LAG - LAG PUMP & STOP LEAD & LAG PUMPS / HIGH LEVEL ALARM). EVERY TIME THE LEVEL GO DOWN TO STOP ALL PUMPS SETPOINT IN ANY PIT OPTIONS, THERE SHOULD BE A PUMP ALTERNATION, IF ONE PUMP FAIL THE SYSTEM WILL ALTERNATE TO THE NEXT PUMP AVAILABLE. IN EACH PIT WILL BE A LOW LEVEL FLOAT SWITCH TO PROTECT THE PUMPS, THROUGH HARDWIRING CONNECTION IN PUMP CONTROL. THE INTEGRATOR SHOULD BE RESPONSIBLE TO DEVELOP SOME SCREENS IN THE OIT TO SHOW THE OPERATOR AT LEAST THE FOLLOWING CONDITION: PUMPS STATUS, PITS LEVEL (IN REAL TIME FROM LEVEL TRASNMITER), OPERATION MODE (AUTO / MANUAL) OF EACH PUMP, ALARMS (HIGH LEVEL, PUMP FAULT, ETC..)

MCC ONE LINE DIAGRAM



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THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

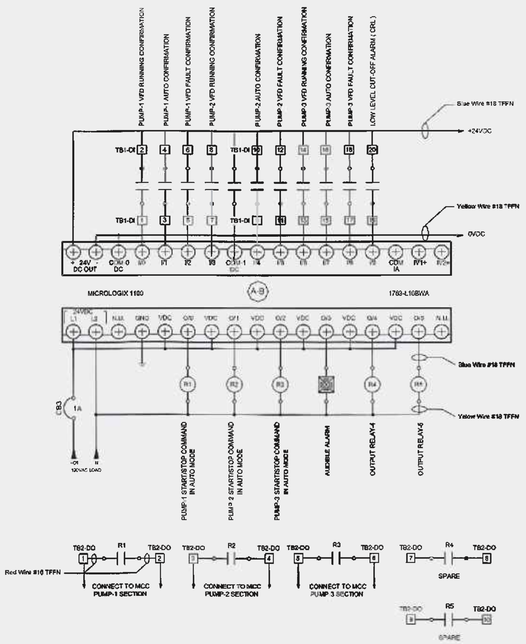
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

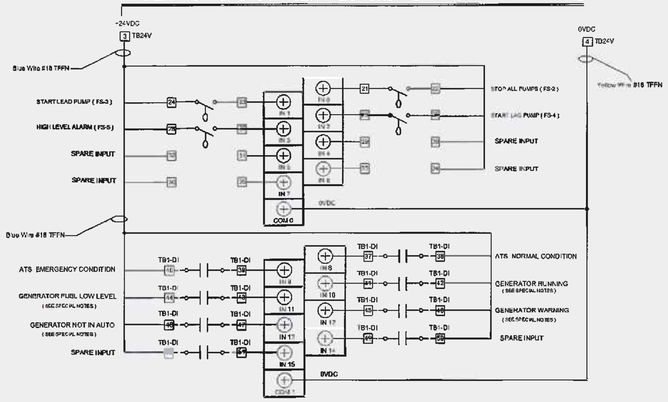
SHEET TITLE:	NEW HIGUILLAR PUMPING STATION ELECTRICAL SUBSTATION MCC DETAILS LAY OUT & ONE LINE DIAGRAM
DRAFTED BY:	DRAFTER LICENSE NO.: DATE
DESIGNED BY:	S.S. DATE 02/20/2020
REVISED BY:	DATE
SUBMITTED BY:	DATE
PLOT SCALE:	H=1:100 V=N/A
DRWG NO.	E-06
SHEET NO.	57
REVISION NO.	0

E:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\57-E-06-NEW HIGUILLAR PUMPING STATION ELECTRICAL MCC DETAILS ONE LINE DIAGRAM.dwg 7/22/2014 8:36:41 AM SWST

SEWER PUMPING STA. PLC UNIT I/O WIRING



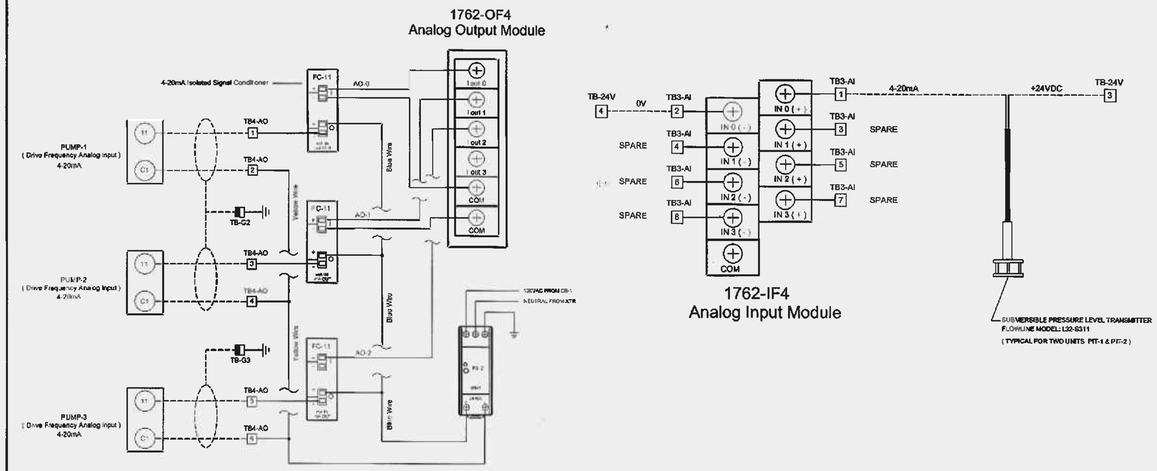
SEWER PUMPING STATION PLC UNIT EXPANSION DI WIRING



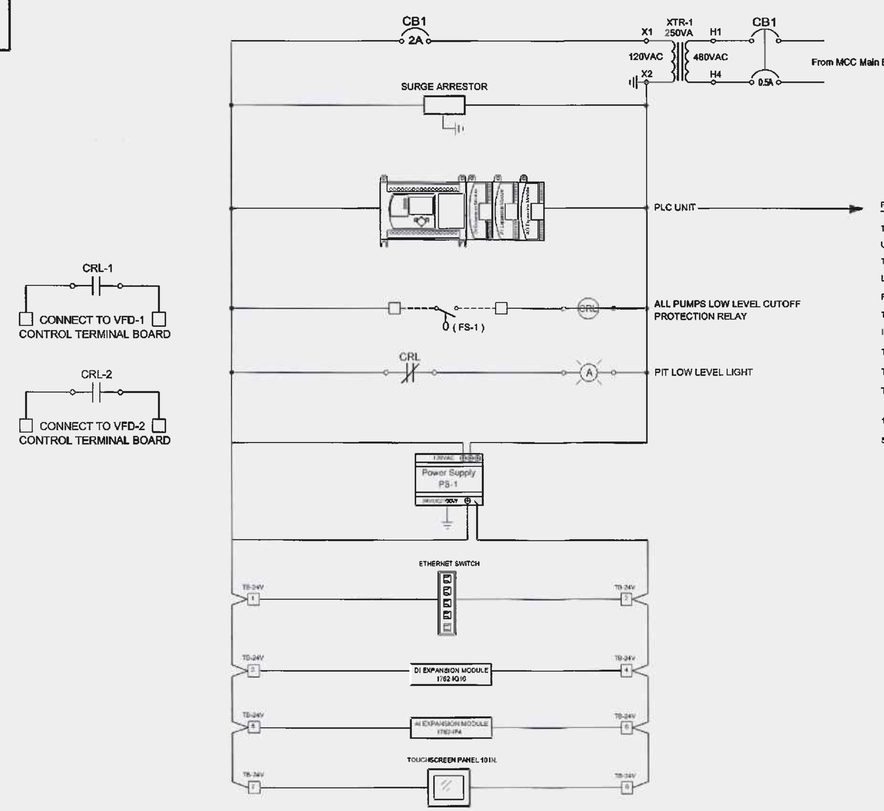
GENERATOR SPECIAL NOTES:

1. RUNNING , WARNING AND NOT IN AUTO & STATUS ARE SIGNAL S FROM CONTROL BOARD SECTION "CUSTOMER OUTPUTS" AND SHOULD BE CONFIGURE IN THE FIELD BY AN AUTHORIZED PERSSONEL FROM CUMMINGS (WEST INDIES OF P.R.)
2. FUEL LOW LEVEL STATUS IS A SIGNAL FROM ANNUNCIATOR CARD USING CUSTOM RELAY 4 (TB3-7) AND SHOULD BE VERIFIED IF THE SIGNAL WAS CONFIGURED FROM FACTORY . IF NOT, THE CONTROL INTEGRATOR IS RESPONSIBLE TO COORDINATE THE CONFIGURATION BY AN AUTHORIZED PERSSONEL FROM CUMMINGS (WEST INDIES OF P.R.)

SEWER PUMPING STATION PLC UNIT EXPANSION AI/AO WIRING



MCC CONTROL SECTION WIRING AND PUMPS PROTECTIONS



PLC CONTROL SEQUENCE:

THE SEWER PUMPING STATION WILL BE CONTROLLED BY PIT LEVEL SIGNAL FROM THE LEVEL SENSOR.
USING THE OIT THE OPERATOR COULD SET THE LEVEL SETPOINT AT WICH THE PUMPS VFD's UNITS WILL WORK
TO MAINTAIN. ALSO THE OPERATOR COULD SET FROM THE OIT SEVERAL SETPOINTS SUCH AS LAG PUMP START SETPOINT LEVEL,
LOW LEVEL CUT-OFF ALARM AND HIGH LEVEL ALARM SETPOINTS.
PROVIDE PUMPS ALTERNATION EVERY 24 HOURS, AND PUMP FAILURE ALTERNATION TO THE NEXT AVAILASLE PUMP.
THE PLC PROGRAM SHOULD HAVE A BACKUP LEVEL SIGNALS USING 4 FLOAT SWITCHES IF THE LEVEL TRANSMITTER FAIL.
IN THIS CASE THE PLC WILL START THE PUMPS AT PREDEFINED LEVELS WITH FLOAT SWITCHES AND RUN THE PUMPS AT FULL SPEED.
THE PUMPS WILL BE PROTECTED ALL THE TIME FROM RUN IN DRY PIT BY USE A LOW LEVEL FLOAT SWITCH (FS-1)
THE PIT LEVEL SHOULD BE DISPLAYED IN THE OIT. THE INTEGRATOR SHOULD DEVELOP A MAIN SCREEN TO INTEGRATE
THE COMPLETE PROCESS OF THE PUMPING STATION WITH THE FOLLOWING VARIABLES;

1 PUMPS STATUS / 2. PUMPS VFD'S FREQUENCY / 3. PUMPS SWITCH STATUS / 4. ALARMS (PUMPS & LEVELS)
5. GENERATOR STATUS / 6. TRANSFER SWITCH STATUS / 7 FLOAT SWITCHES STATUS

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
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ANTONIO A. FUENTES INGENIERO LICENSE NO. LIC. #18246 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

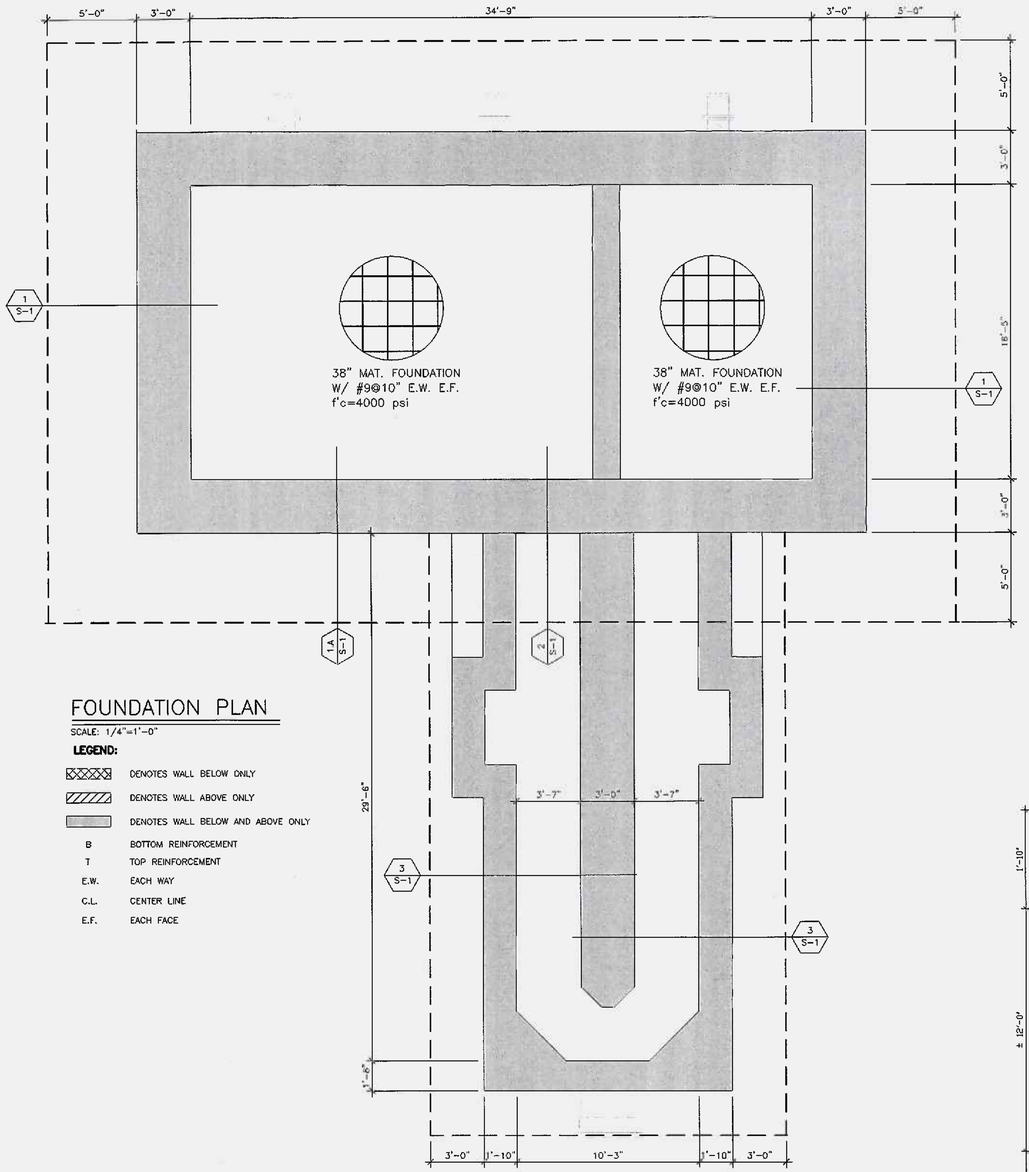
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMPING STATION ELECTRICAL SUBSTATION MCC DETAILS LAY OUT & ONE LINE DIAGRAM

DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	

PLOT SCALE: H=1:100 V=N/A
DRWG NO. E-07
SHEET NO. 58
REVISION NO. 0

O:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLIMENTARY WORKS\58-E-07-MCC.dwg 7/16/2014 4:01:45 PM EST

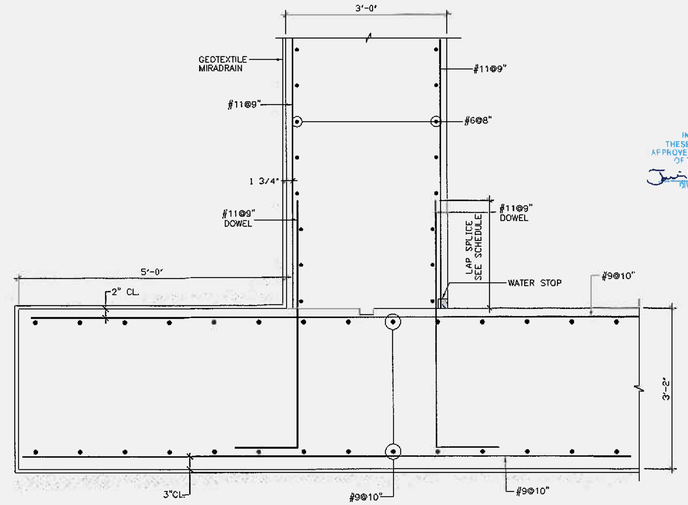


FOUNDATION PLAN

SCALE: 1/4"=1'-0"

LEGEND:

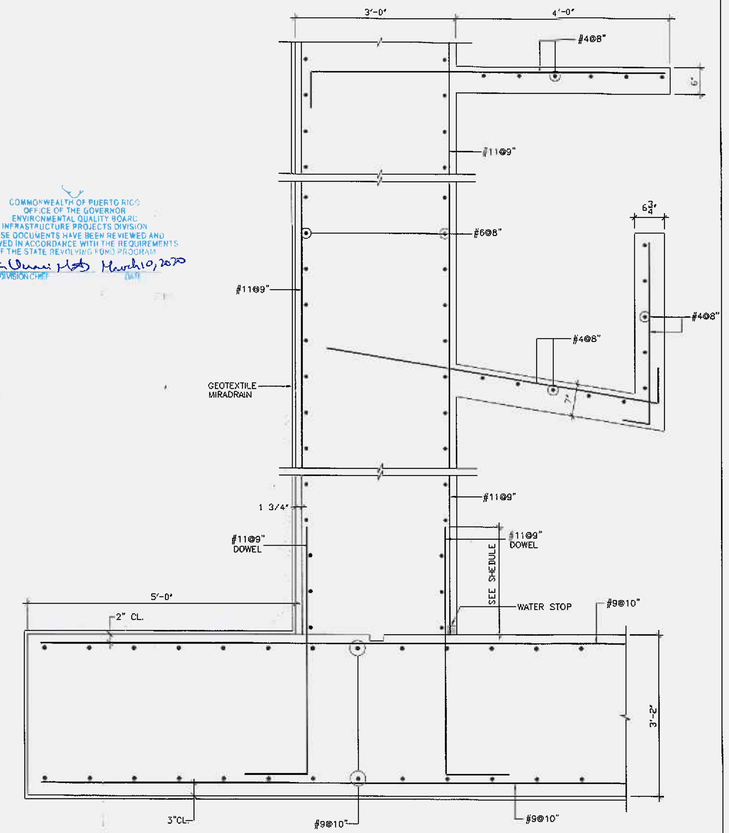
- DENOTES WALL BELOW ONLY
- DENOTES WALL ABOVE ONLY
- DENOTES WALL BELOW AND ABOVE ONLY
- B — BOTTOM REINFORCEMENT
- T — TOP REINFORCEMENT
- E.W. — EACH WAY
- C.L. — CENTER LINE
- E.F. — EACH FACE



SECTION MK'D. 1/S-1

SCALE 3/4"=1'-0"

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE: March 10, 2020



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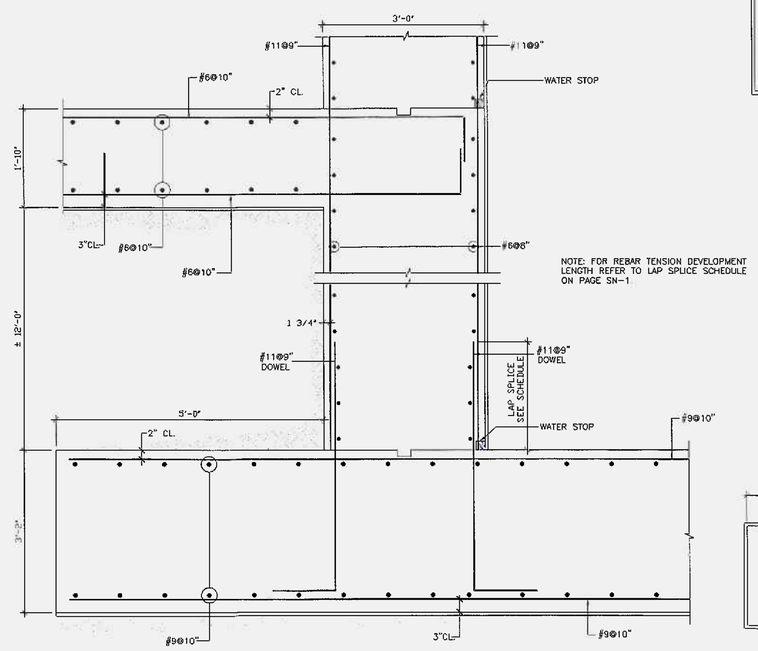

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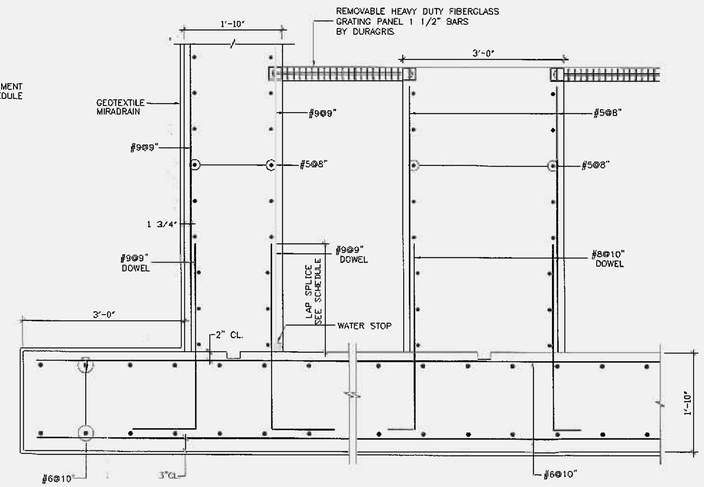

SECTION MK'D. 3/S-1

SCALE 3/4"=1'-0"

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NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19146 — PUERTO RICO

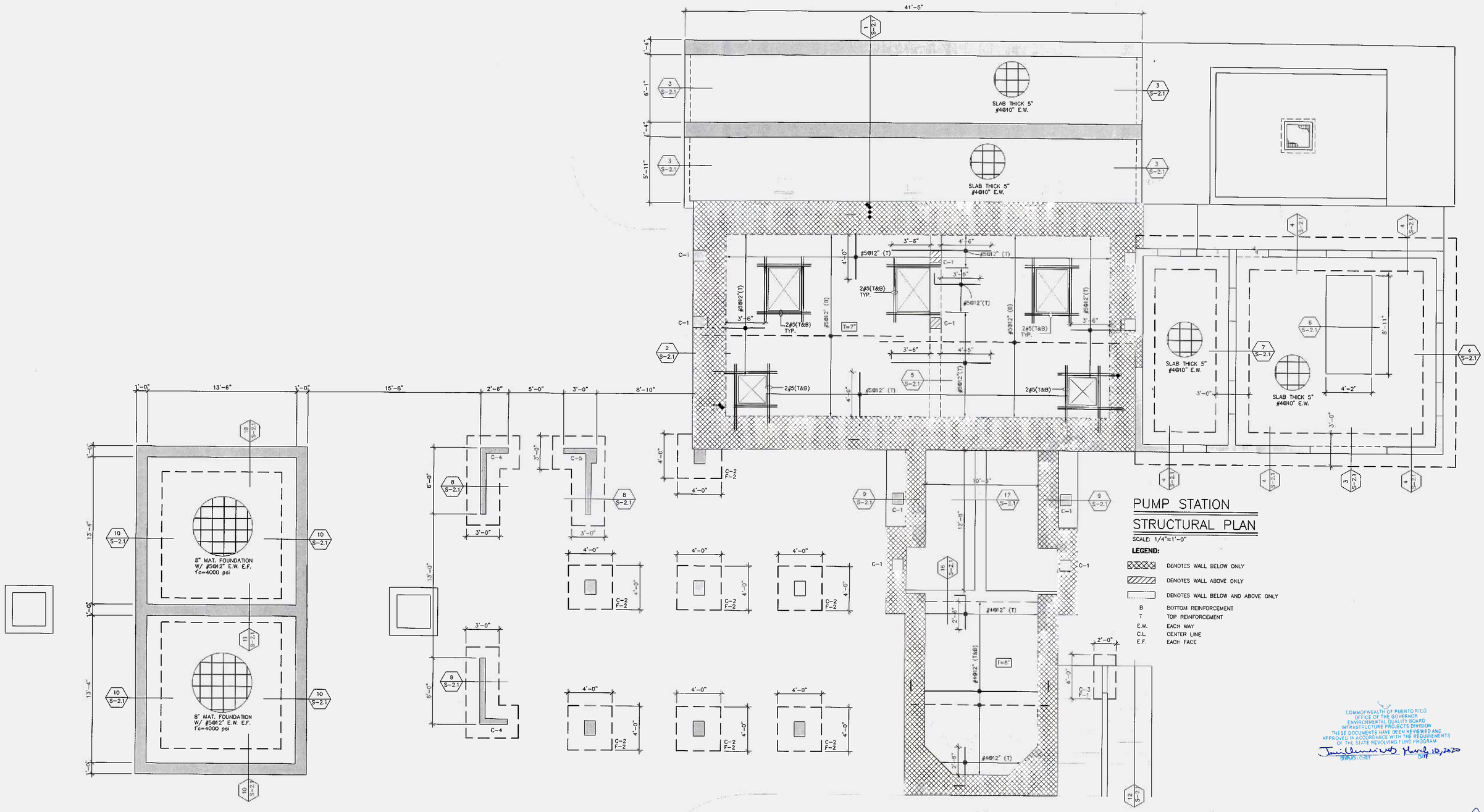
NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION FOUNDATION PLAN			SCALES: AS SHOWN
			DRWG NO. S-1
DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	SHEET NO. 59
DESIGNED BY: C.Q.		DATE	
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



PUMP STATION STRUCTURAL PLAN

SCALE: 1/4"=1'-0"

LEGEND:

- DENOTES WALL BELOW ONLY
- DENOTES WALL ABOVE ONLY
- DENOTES WALL BELOW AND ABOVE ONLY
- B BOTTOM REINFORCEMENT
- T TOP REINFORCEMENT
- E.W. EACH WAY
- C.L. CENTER LINE
- E.F. EACH FACE

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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DIVISION CHIEF DATE 10,2020

C.J. QUIÑONES ENGINEERING, PSC
CIVIL ENGINEER & STRUCTURAL CONSULTANTS
SAN JUAN, PR

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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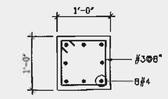
ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19448 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION PUMP STATION FLOOR STRUCTURAL PLAN			SCALES: AS SHOWN
			DRWG NO. S-2
DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	SHEET NO. 60
DESIGNED BY: C.Q.		DATE	
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



COLUMN MK'D.C-1
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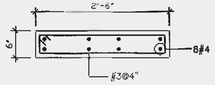

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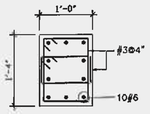

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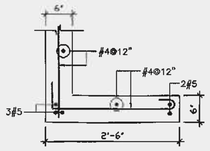

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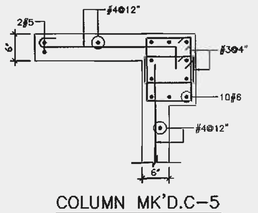
SCALE 3/4"=1'-0"



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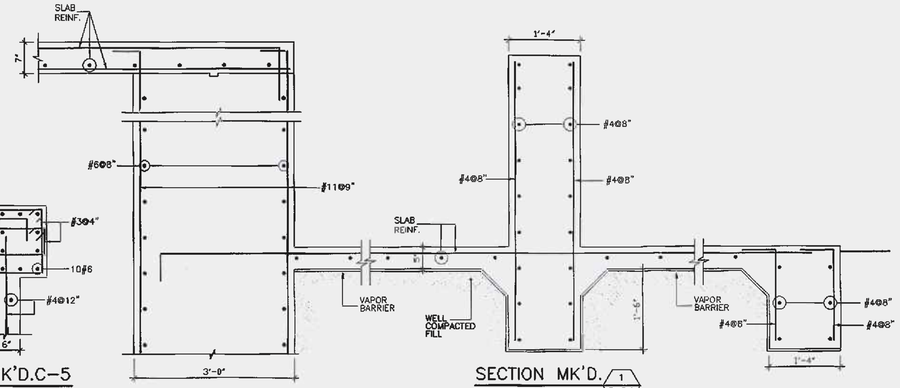
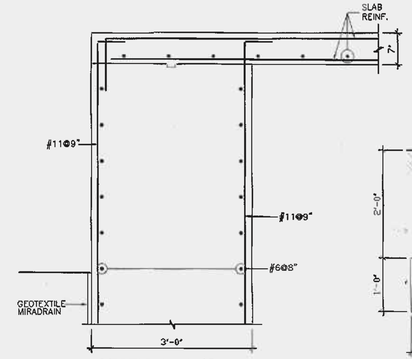


SECTION MK'D. 1 S-2.1
SCALE 3/4"=1'-0"



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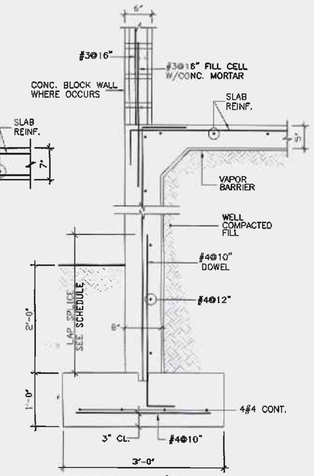

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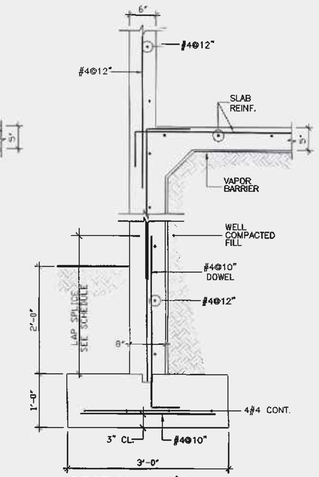

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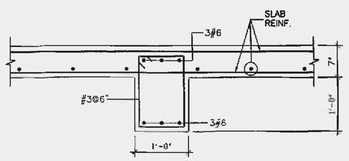

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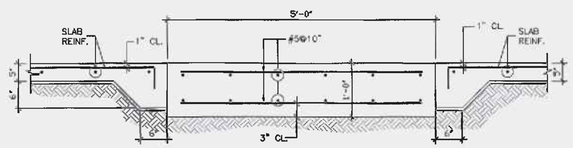

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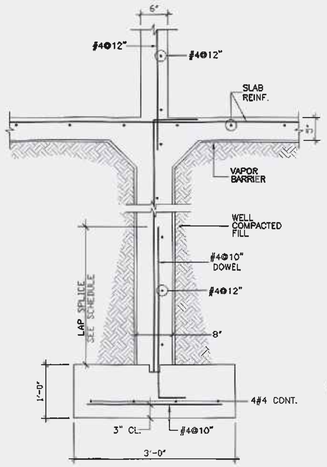

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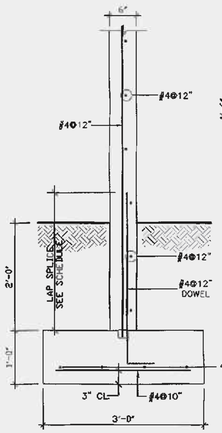

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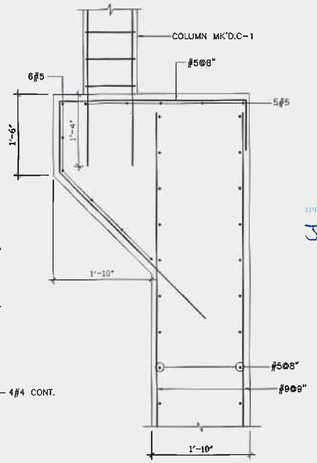

SECTION MK'D. 9 S-2.1
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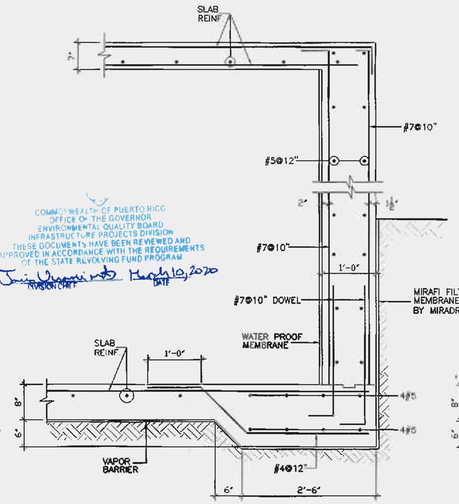
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIRECTOR DATE



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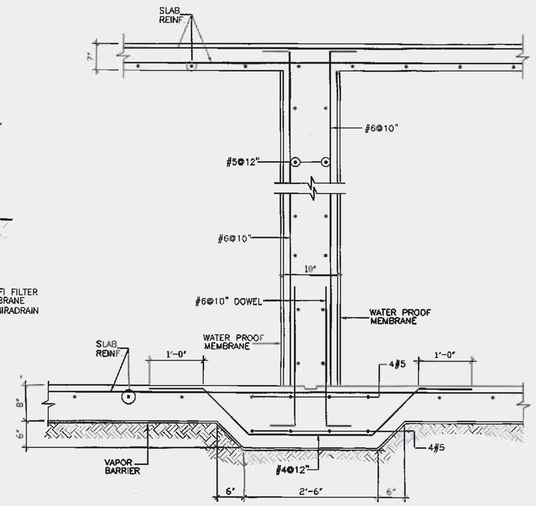
SCALE 3/4"=1'-0"



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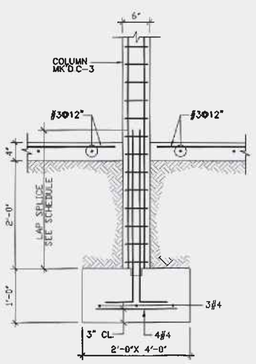

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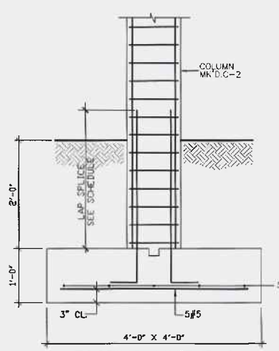

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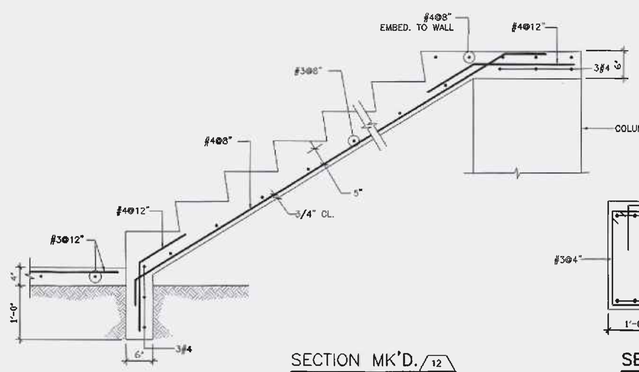

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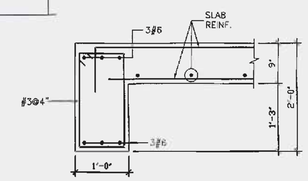

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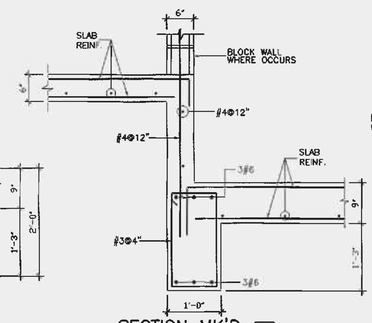

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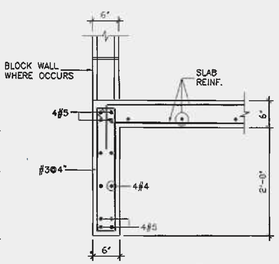

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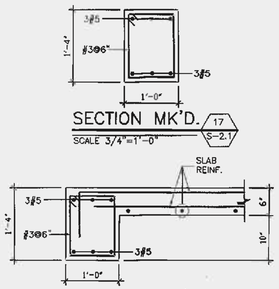

SECTION MK'D. 17 S-2.1
SCALE 3/4"=1'-0"

SECTION MK'D. 16 S-2.1
SCALE 3/4"=1'-0"

C.J. QUIÑONES ENGINEERING, PSC
CIVIL ENGINEERS & STRUCTURAL CONSULTANTS
SAN JUAN, PR
TEL./FAX (787) 306-4610

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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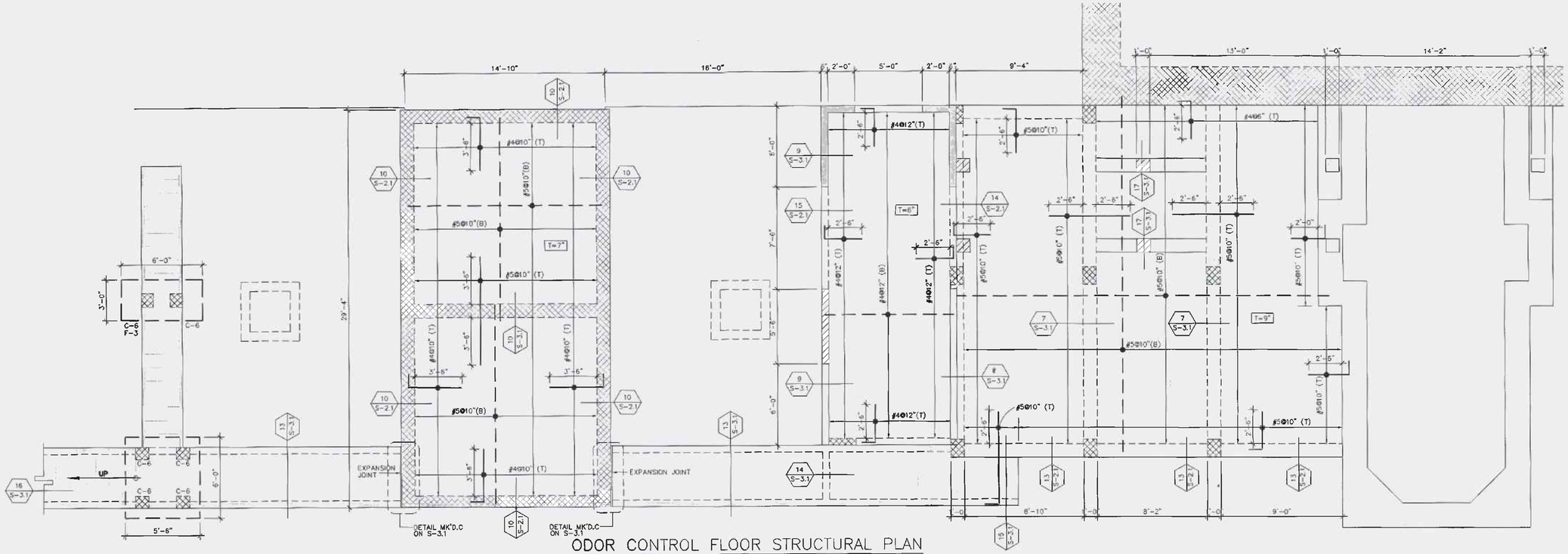
INGENIERO LICENCIADO
LIC. #13445
PUERTO RICO

NEW DORADO
TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND
SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION SECTIONS			SCALES: AS SHOWN
DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	DRWG NO. S-2.1
DESIGNED BY: C.Q.		DATE	SHEET NO. 61
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



ODOR CONTROL FLOOR STRUCTURAL PLAN

SCALE: 1/4"=1'-0"

LEGEND:

	DENOTES WALL BELOW ONLY	B	BOTTOM REINFORCEMENT
	DENOTES WALL ABOVE ONLY	T	TOP REINFORCEMENT
	DENOTES WALL BELOW AND ABOVE ONLY	E.W.	EACH WAY

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
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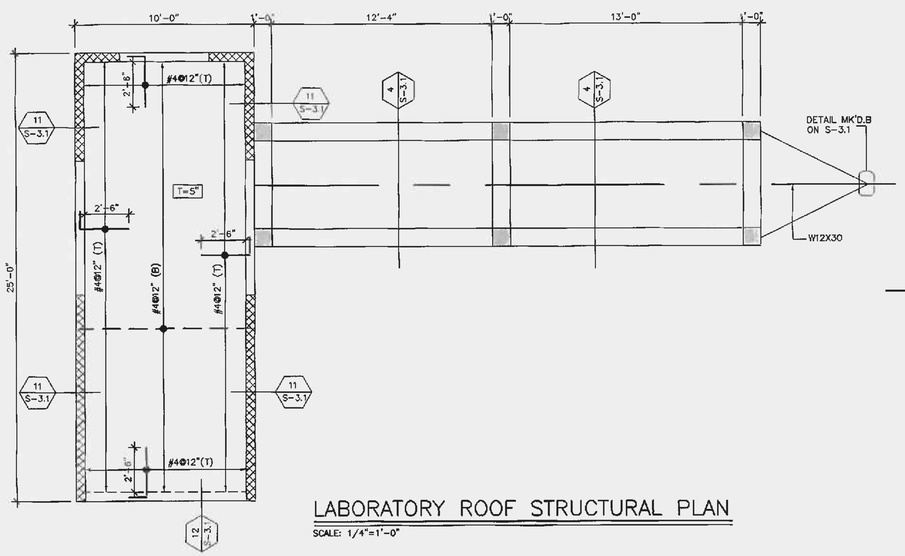
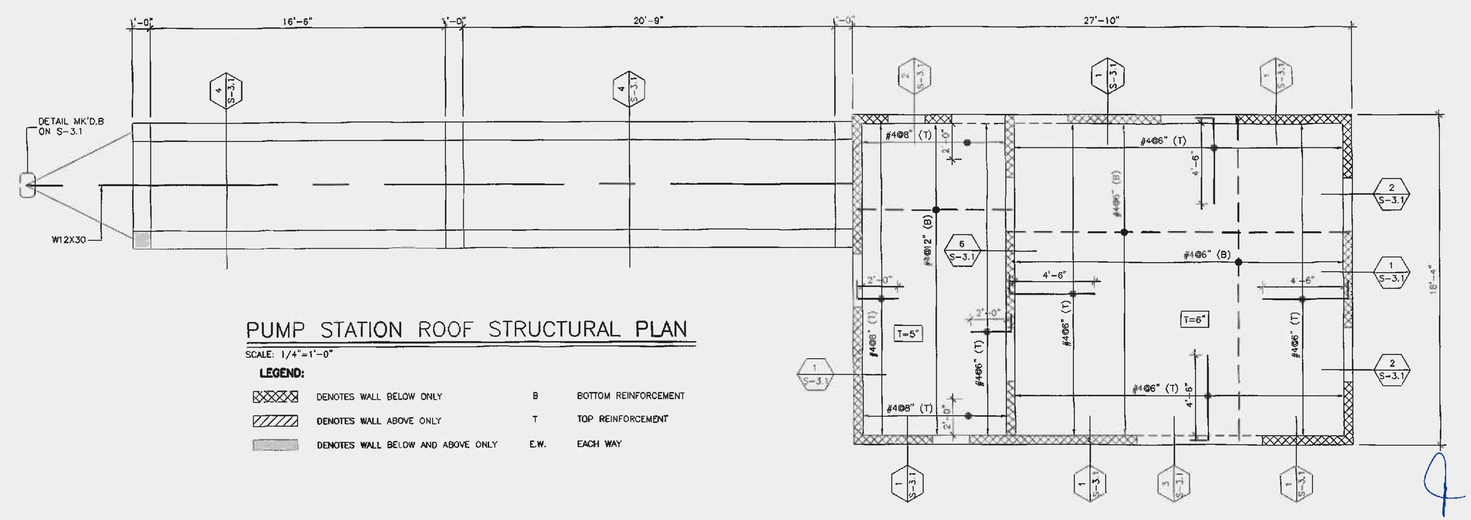
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020



LABORATORY ROOF STRUCTURAL PLAN

SCALE: 1/4"=1'-0"



PUMP STATION ROOF STRUCTURAL PLAN

SCALE: 1/4"=1'-0"

LEGEND:

	DENOTES WALL BELOW ONLY	B	BOTTOM REINFORCEMENT
	DENOTES WALL ABOVE ONLY	T	TOP REINFORCEMENT
	DENOTES WALL BELOW AND ABOVE ONLY	E.W.	EACH WAY

C.J. GUIRONES ENGINEERING, PSC
CIVIL ENGINEER & STRUCTURAL CONSULTANTS
SAN JUAN, PR.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

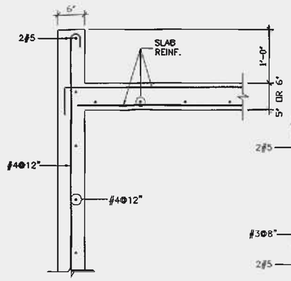
ANTONIO A. KUINTES — INGENIERO LICENCIADO — LIC. #10446 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

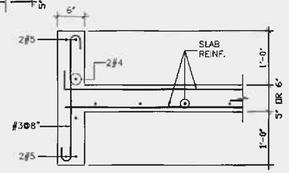
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION PUMP STATION ROOF STRUCTURAL PLAN			SCALES: AS SHOWN
DRAFTED BY: R.B.	DRAFTER LICENCE NO. 505	DATE 7/15/2014	DRWG NO. S-3
DESIGNED BY: C.Q.		DATE	SHEET NO. 62
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



SECTION MK'D. 1 S-3.1
SCALE 3/4"=1'-0"



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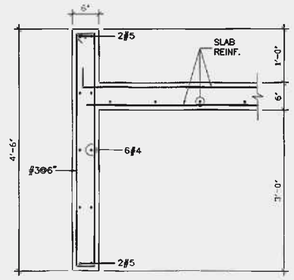

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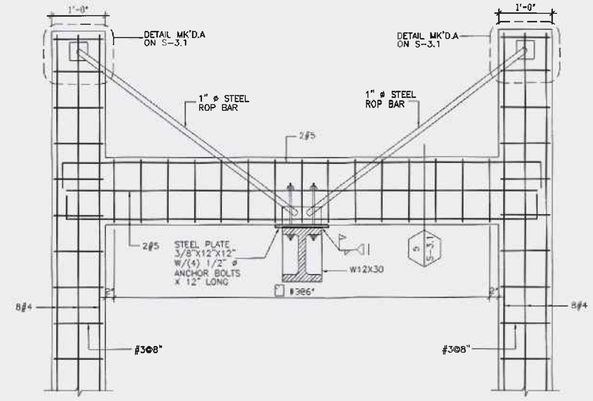

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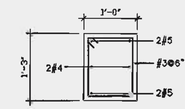
SCALE 3/4"=1'-0"



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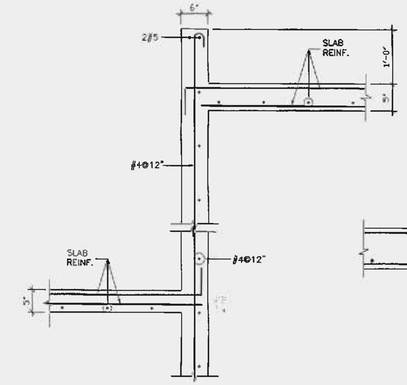

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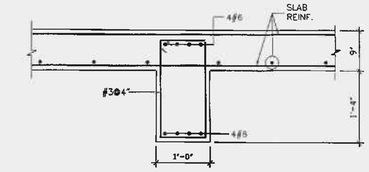
SCALE 3/4"=1'-0"



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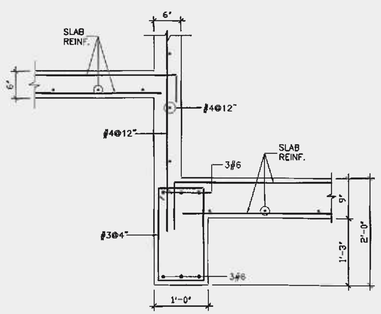

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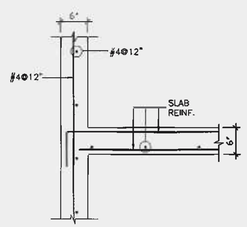

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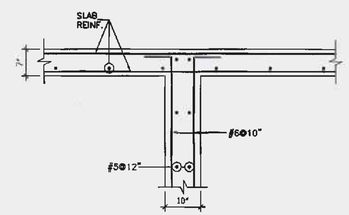

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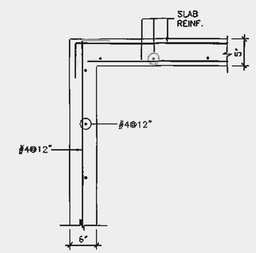
SCALE 3/4"=1'-0"



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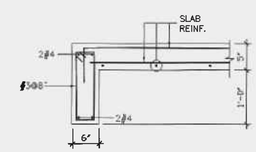
SCALE 3/4"=1'-0"



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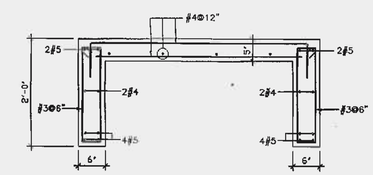
SCALE 3/4"=1'-0"



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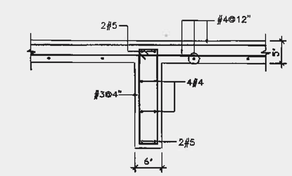
SCALE 3/4"=1'-0"



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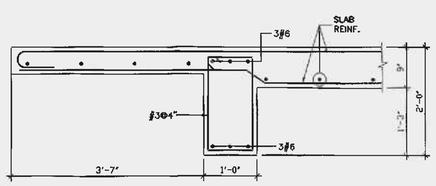
SCALE 3/4"=1'-0"



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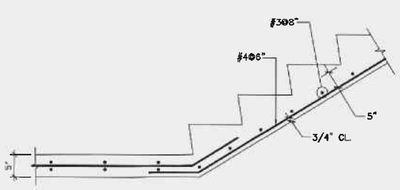
SCALE 3/4"=1'-0"



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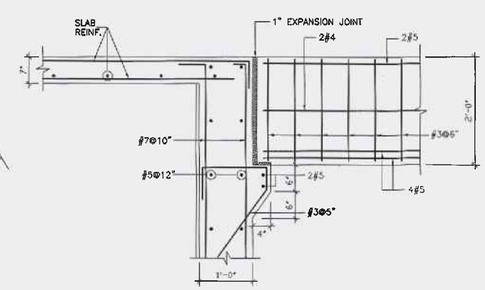
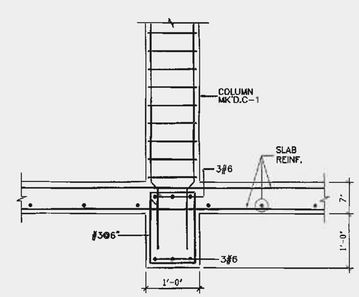
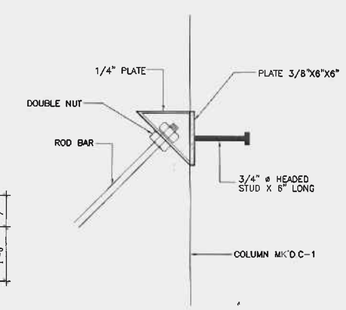
SCALE 3/4"=1'-0"



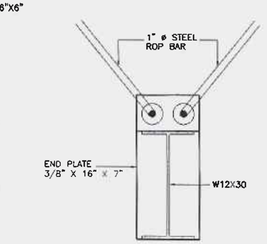
DETAIL MK'D.C
SCALE 3/4"=1'-0"



SECTION MK'D. 17 S-3.1
SCALE 3/4"=1'-0"



DETAIL MK'D.A
SCALE 1 1/2"=1'-0"



DETAIL MK'D.B
SCALE 1 1/2"=1'-0"

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF

C.A. QUIÑONES ENGINEERING, INC
CIVIL ENGINEER & STRUCTURAL CONSULTANTS
SAN JUAN, PR
TEL./FAX (787) 605-1450

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8685 / 787-751-5537 FAX 787-751-1052
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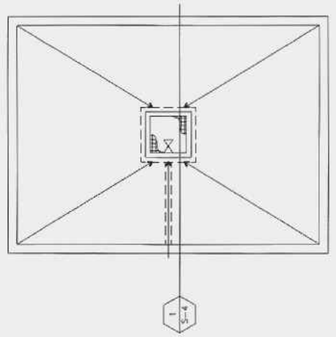
ANTONIO A. MUNTES
INGENIERO LICENCIADO
LIC. #19146
PUERTO RICO

NEW DORADO
TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND
SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION SECTIONS			SCALES: AS SHOWN
DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	DRWG NO. S-3.1
DESIGNED BY: C.Q.		DATE	SHEET NO. 63
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

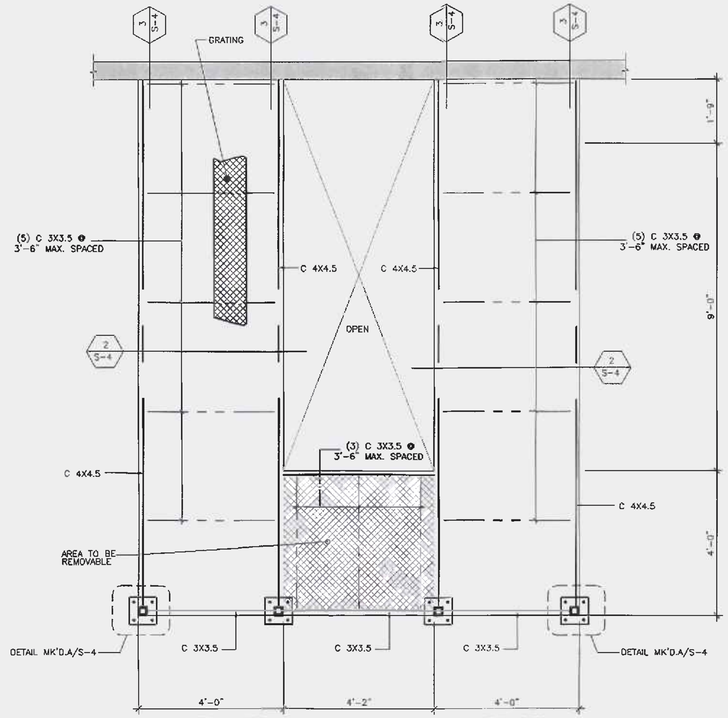


FUEL UNLOADING FOUNDATION PLAN

SCALE: 1/4"=1'-0"

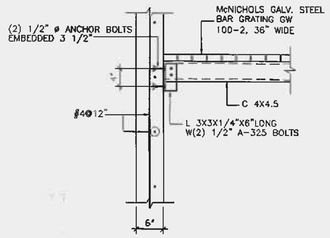
LEGEND:

	DENOTES WALL BELOW ONLY	B	BOTTOM REINFORCEMENT
	DENOTES WALL ABOVE ONLY	T	TOP REINFORCEMENT
	DENOTES WALL BELOW AND ABOVE ONLY	E.W.	EACH WAY



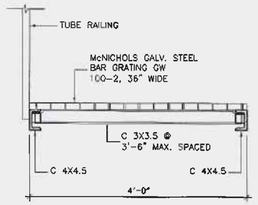
CATWALK STRUCTURAL PLAN AT GENERATOR ROOM

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



SECTION MK'D. 3/S-4

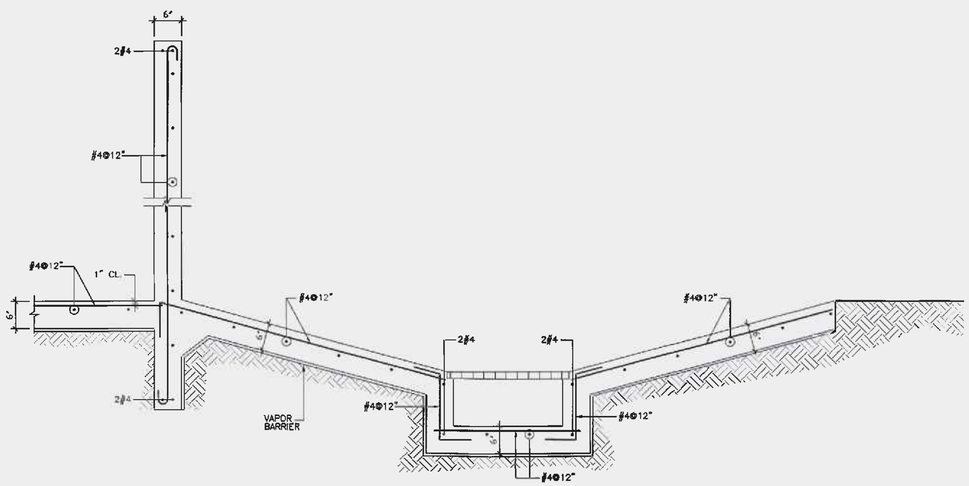
SCALE 3/4"=1'-0"



SECTION MK'D. 2/S-4

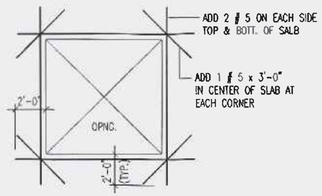
SCALE 3/4"=1'-0"

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF

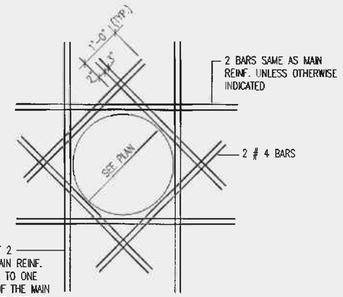


SECTION MK'D. 1/S-4

SCALE 3/4"=1'-0"



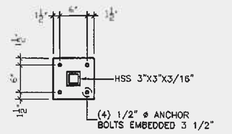
FOR OPENING LESS THAN 1'-0" SQUARE OMIT ADDED REINF. & BEND SLAB STEEL AROUND.

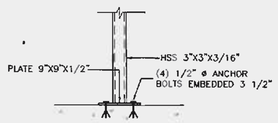


PROVIDE AMIN. OF 2 BARS SAME AS MAIN REINF. OR REINF.. EQUAL TO ONE HALF THE AREA OF THE MAIN REINF. CUT BY THE OPENING.

TYPICAL DETAIL OF ADDED REINF. AT CONC. SLAB OPNG.

NOT TO SCALE





DETAIL MK'D.A

SCALE 3/4"=1'-0"

C.J. QUIÑONES ENGINEERING, PSC
CIVIL ENGINEERS & STRUCTURAL CONSULTANTS
SAN JUAN, PR
TEL./FAX (787) 658-4433

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-5310
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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19448 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

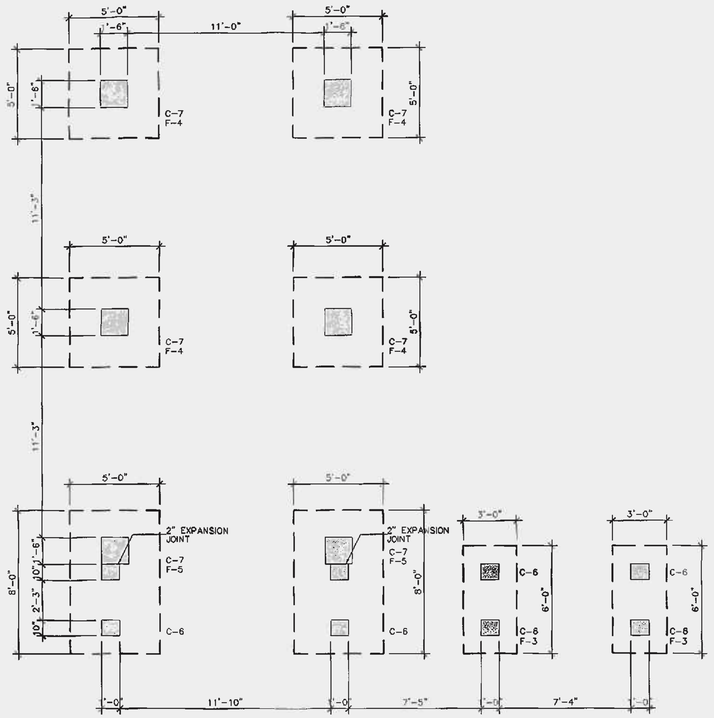
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION FUEL UNLOADING FOUNDATION PLAN AND SECTIONS

DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	
DESIGNED BY: C.Q.		DATE	
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	

SCALES: AS SHOWN
DRWG NO. S-4
SHEET NO. 64
REVISION NO. 0

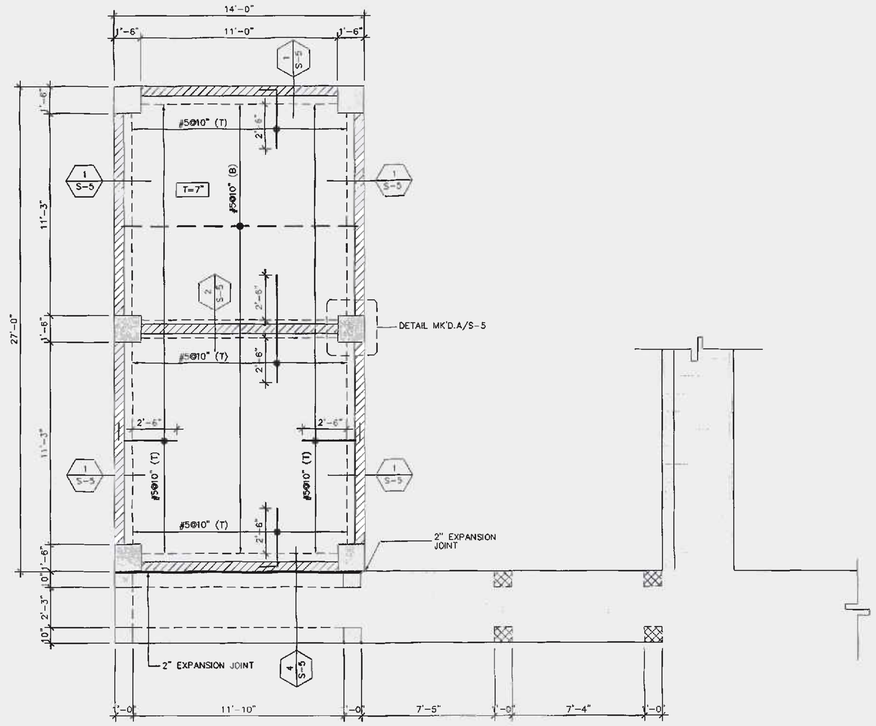


GRIT CHAMBER FOUNDATION PLAN

SCALE: 1/4"=1'-0"

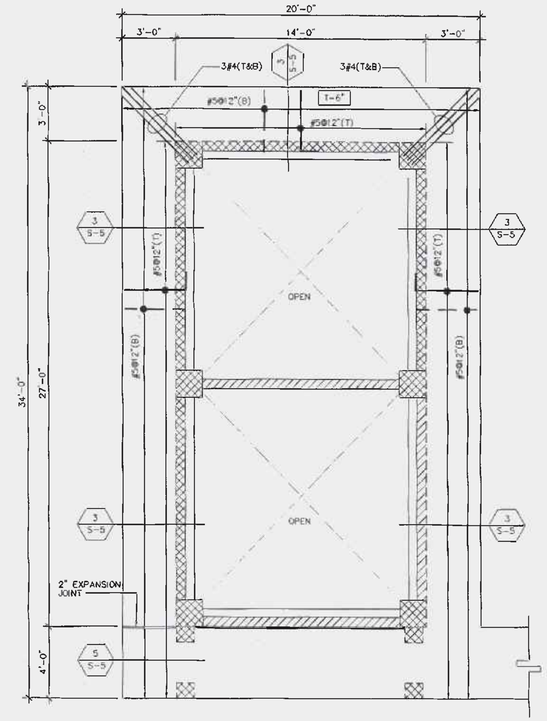
LEGEND:

- DENOTES WALL BELOW ONLY
- DENOTES WALL ABOVE ONLY
- DENOTES WALL BELOW AND ABOVE ONLY
- B — BOTTOM REINFORCEMENT
- T — TOP REINFORCEMENT
- E.W. — EACH WAY



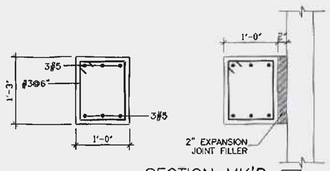
GRIT CHAMBER SECOND STRUCTURAL PLAN

SCALE: 1/4"=1'-0"



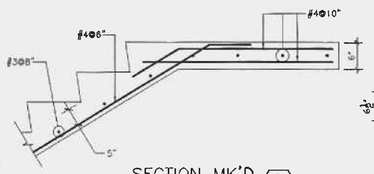
ROOF STRUCTURAL PLAN

SCALE: 1/4"=1'-0"



SECTION MK'D.

SCALE 3/4"=1'-0"



SECTION MK'D.

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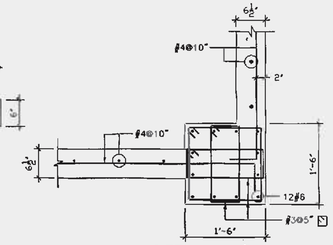
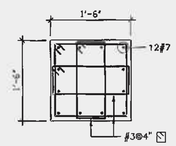


DETAIL MK'D.A

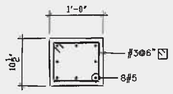
SCALE 3/4"=1'-0"

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE



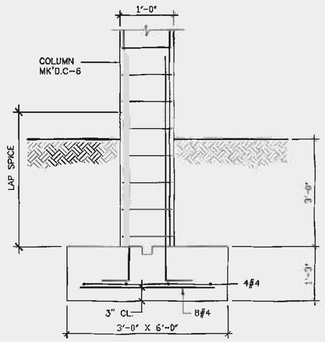
COLUMN MK'D.C-7

SCALE: 3/4"=1'-0"



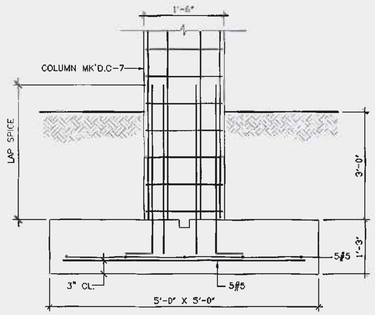
COLUMN MK'D.C-6

SCALE: 3/4"=1'-0"



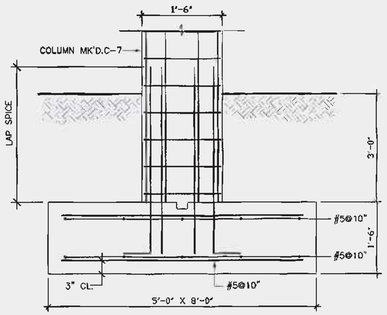
FOOTING MK'D.F-3

SCALE 3/4"=1'-0"



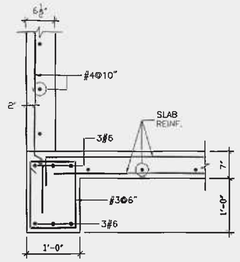
FOOTING MK'D.F-4

SCALE 3/4"=1'-0"



FOOTING MK'D.F-5

SCALE 3/4"=1'-0"



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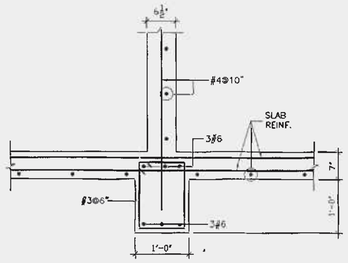

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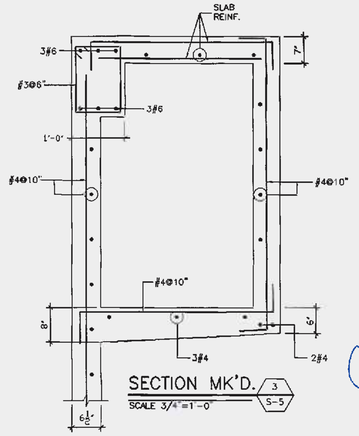

SECTION MK'D.

SCALE 3/4"=1'-0"

C.J. QUIÑONES ENGINEERING, PSC
CIVIL ENGINEERS & STRUCTURAL CONSULTANTS
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NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

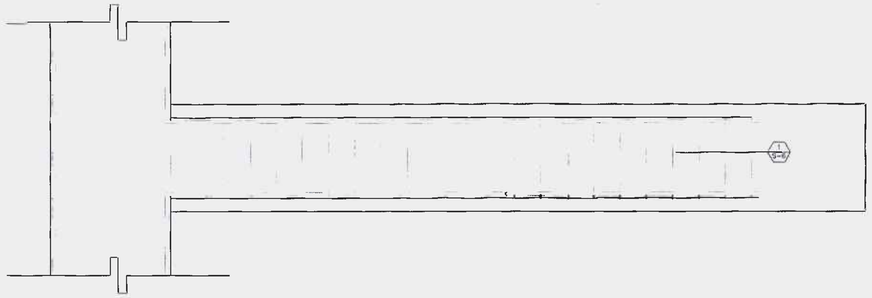
Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

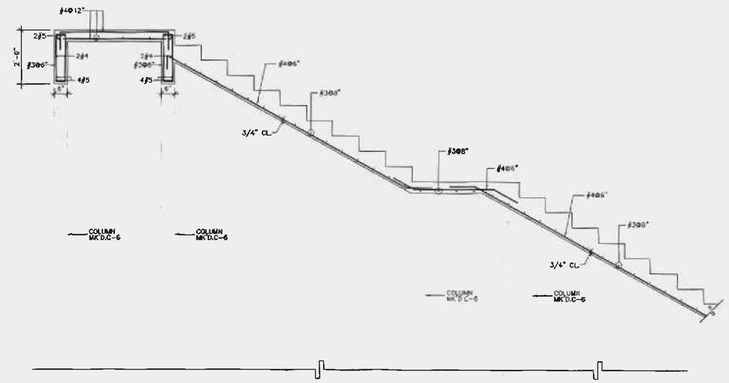
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP STATION GRIT CHAMBER FOUNDATION, SECOND, ROOF STRUCTURAL PLAN AND SECTIONS

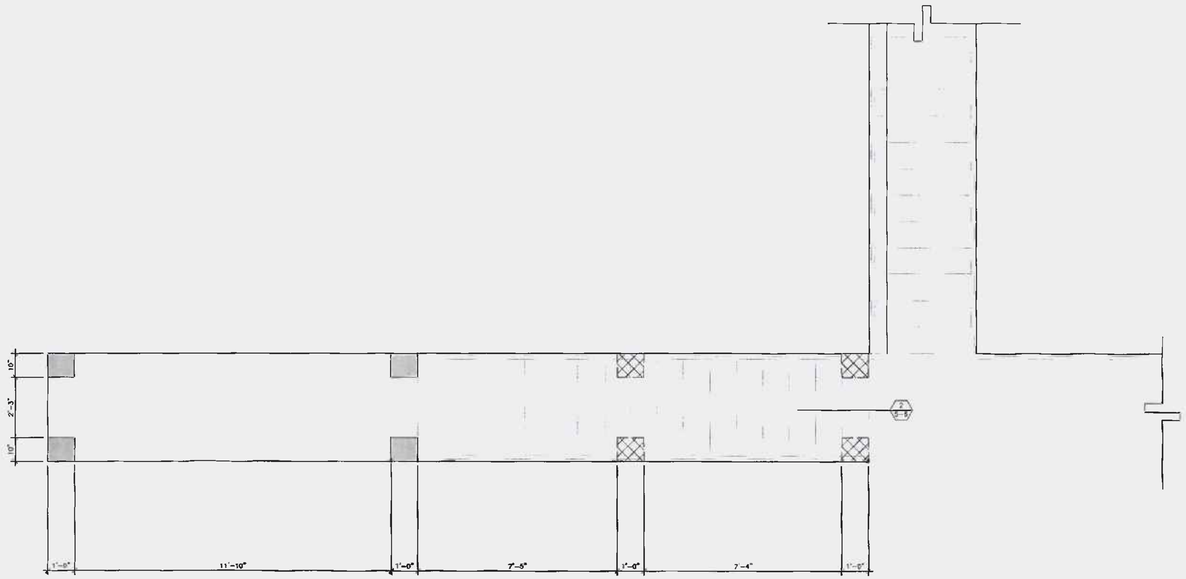
DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	
DESIGNED BY: C.Q.		DATE	
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	

SCALES: AS SHOWN
DRWG NO. S-5
SHEET NO. 65
REVISION NO. 0

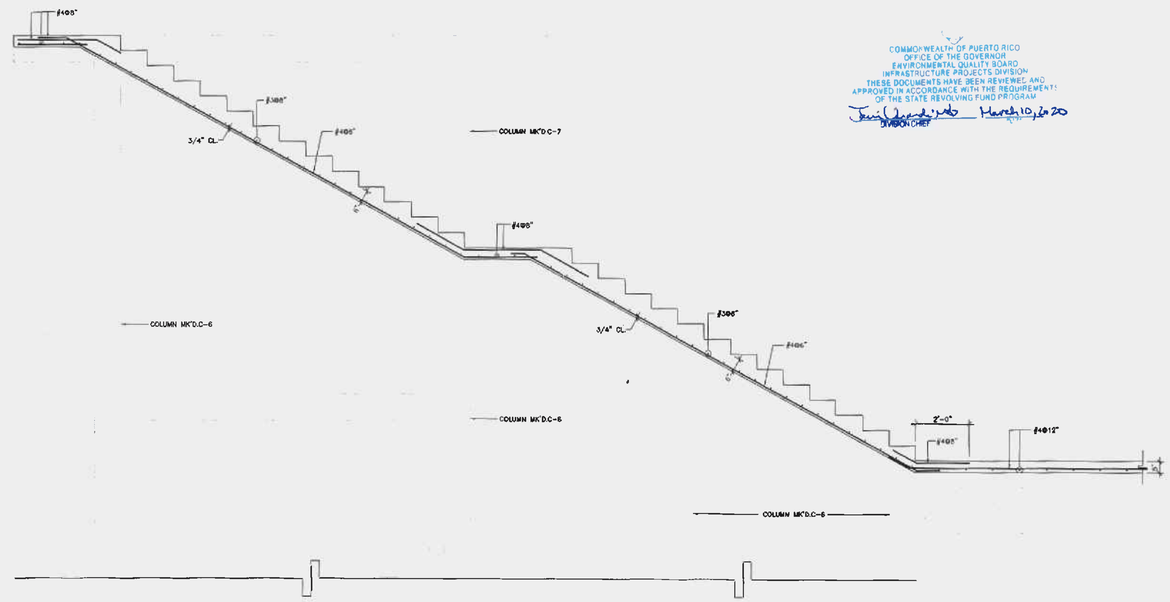




STAIR STRUCTURAL SECTION MK'D. 1 S-6
SCALE: 1/2" = 1'-0"



STAIR STRUCTURAL PLAN
SCALE: 1/2" = 1'-0"



STAIR STRUCTURAL SECTION MK'D. 2 S-6
SCALE: 1/2" = 1'-0"

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF March 10, 2020

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NO.	REMARKS	DATE	BY	APPV'D.

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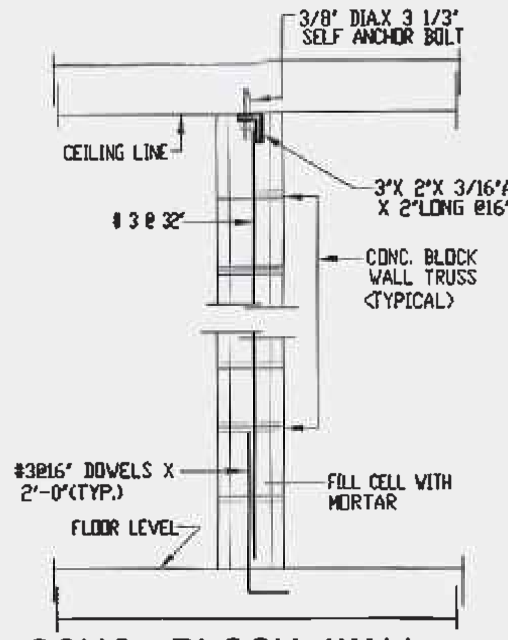
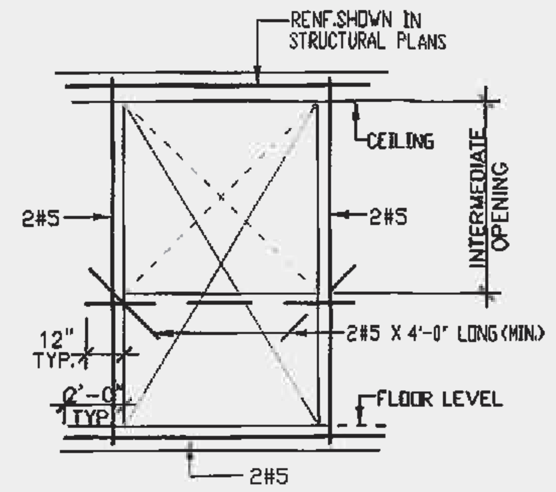
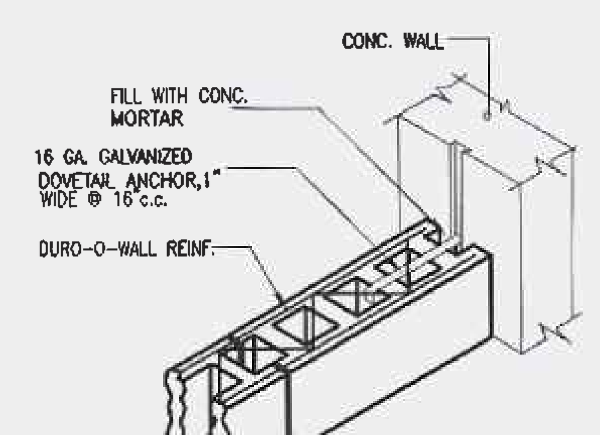
SHEET TITLE: NEW HIGUILLAR PUMP STATION STAIR STRUCTURAL PLAN AND SECTIONS			SCALES: AS SHOWN
DRAFTED BY: R.B.	DRAFTER LICENCE NO.: 505	DATE 7/15/2014	DRWG NO. S-6
DESIGNED BY: C.Q.		DATE	SHEET NO. 66
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



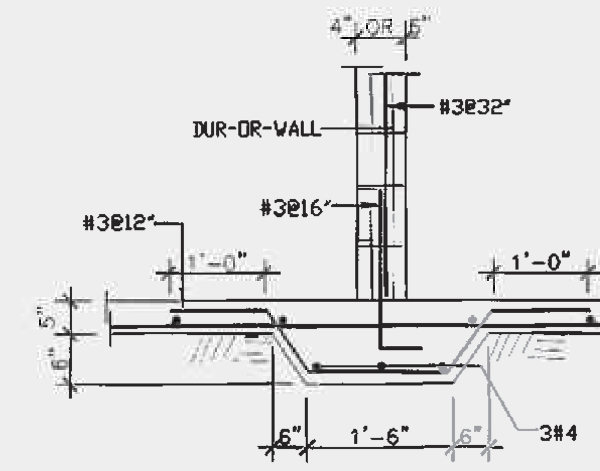
CONC. BLOCK WALL REINFORCEMENT DETAIL
NOT TO SCALE



CONC. WALL OPENING REINFORCEMENT
NOT TO SCALE



BLOCK WALL TO CONC. WALL ANCHORAGE
NOT TO SCALE



TYPICAL WALL BLOCK WALL FOOTING DETAIL
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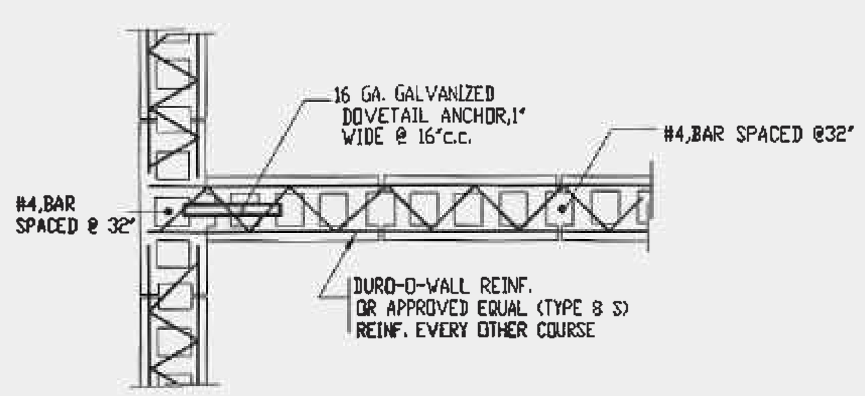

WALL OR SLAB SPLICE DETAIL REINFORCEMENT DETAIL
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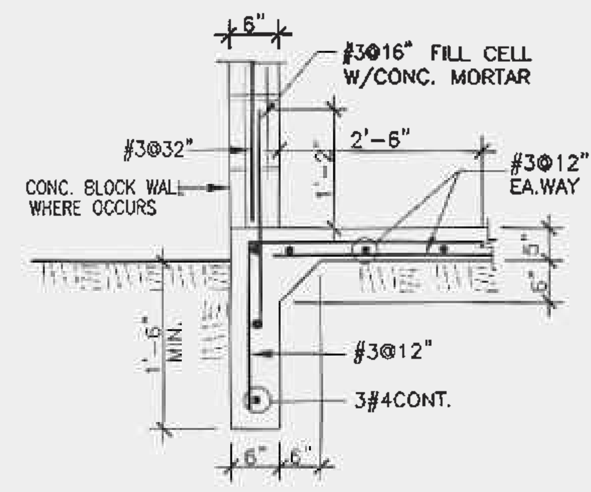
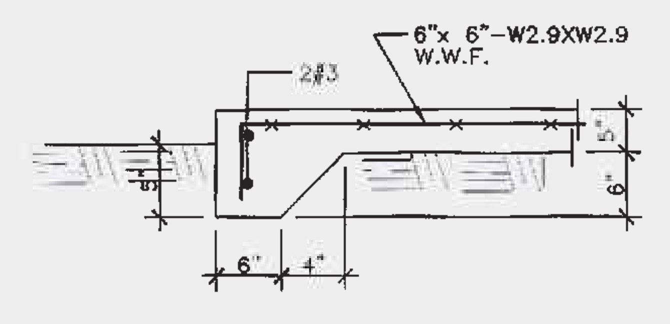


SECTION MK'D 1 SN-1
NOT TO SCALE



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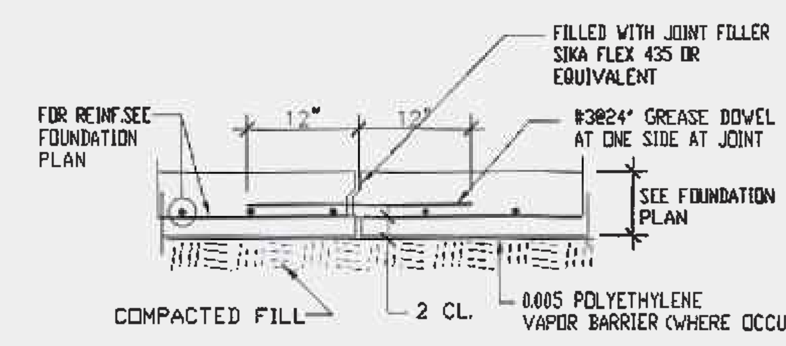
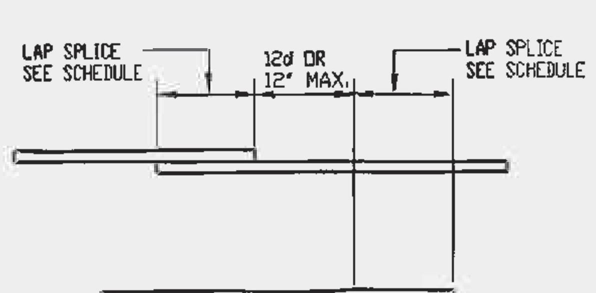


TYPICAL CONSTRUCTION JOINT AT SLAB ON GROUND
NOT TO SCALE



WALL OR SLAB SPLICE DETAIL
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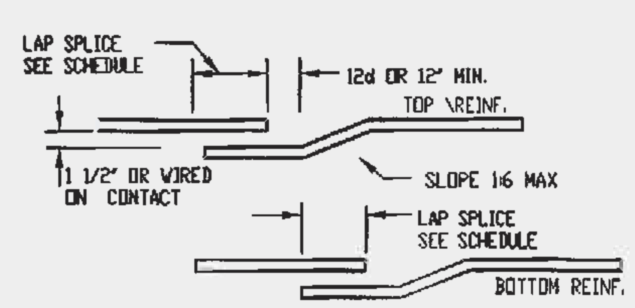
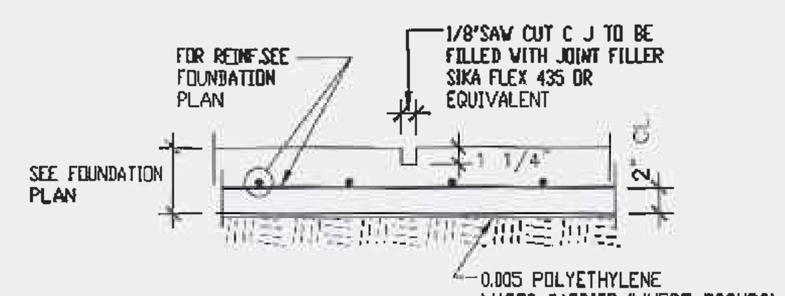
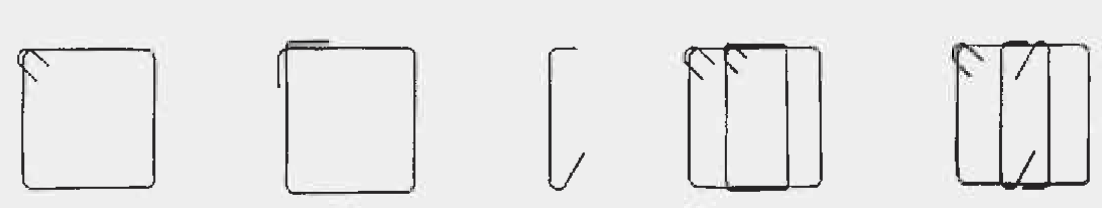


BEAM SPLICE DETAIL
NOT TO SCALE

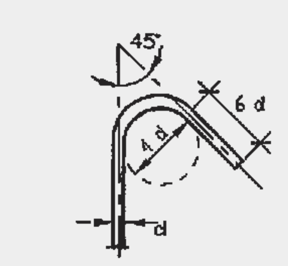


TYPICAL CONTROL JOINT
NOT TO SCALE

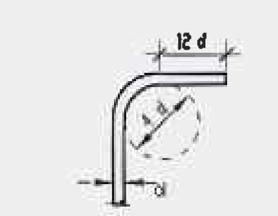
LAP SPLICE SCHEDULE						
TENSION DEVELOPMENT LENGTH (In)						
BAR SIZE	f'c= 3,000 P.S.I.		f'c= 4,000 P.S.I.		f'c= 5,000 P.S.I.	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
# 3	29	22	23	18	22	17
# 4	38	29	33	25	29	22
# 5	47	36	40	31	35	27
# 6	56	43	49	38	44	34
# 7	81	62	69	53	62	48
# 8	94	72	79	61	72	55
# 9	105	81	90	69	79	61
# 10	118	91	101	78	90	69
# 11	131	101	112	86	100	77



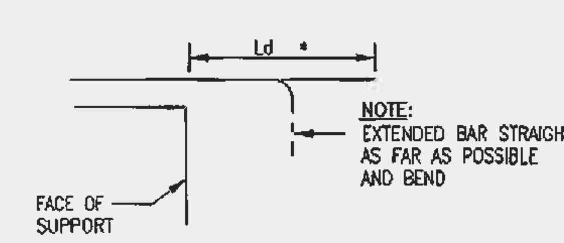
TRANVERSE REINFORCEMENT DETAIL,S



TYPE B & C BEAM HOOKS, COL. CONFINEMENT TIES AND BEAM-COLUMN JOINT TIES.



TYPE B & C BEAM HOOKS AND REGULAR COLUMN TIES



*SEE NOTE 6

NOTES:

1) TYPE B HOOKS SHALL BE USED WHEN THE DESIGNATION LETTER IS OMITED IN BEAM DETAILS.
2) EXCEPT WHERE OTHERWISE INDICATED THE FIRST HOOK AT EACH END SHALL BE PLACED AT 2' FROM THE FACE OF SUPPORT.

STRUCTURAL NOTES:

THE FOLLOWING NOTES SHALL APPLY TO ALL STRUCTURAL PLANS UNLESS OTHERWISE SHOWN THEREIN. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEERS OF ANY DISCREPANCY AND/OR OMISSION WITH RESPECT TO THE ARCH, ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS.

A - CONCRETE NOTES:

1 - THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE REQUIRED AT 28 DAYS, AS SHOWN BY A.S.T.M. STANDARD CYLINDER TESTS, SHALL BE
a) WALLS------------------------- 4000 Psi
b) STRUCTURAL SLAB-------------- 4000 Psi
c) BEAMS------------------------ 4000 Psi
D) FOOTING & SLAB ON GROUND ------------- 4000 Psi

2 - MAXIMUM ALLOWED WATER TO CEMENT RATIO SHALL BE:
a) WALL & BEAMS & SLAB ON GROUND 0.56
b) STRUT FLOOR & ROOF SLAB 0.56
c) WALL WITH Fc 5000 Psi USE 0.45

3 - ALL CONCRETE WALLS AND SLABS SHALL BE CASTED MONOLITHICALLY.

4 - CONCRETE PROTECTION FOR STEEL BARS:
a) CONCRETE DEPOSITED AGAINST SOIL ---------------------- 3"
b) STRUCTURAL SLABS ---------------------------------3/4"
c) BEAMS AND COLUMNS ___________________ 1 1/2"
d) WALLS, UNLESS OTHERWISE NOTED _____________ 3/4"

5 - ROOF SLAB THICKNESS SHALL BE AS SHOW IN THE STRUCTURAL ROOF PLAN, IT SHALL BE INCREASED TO CONFORM TO THE ROOFS DRAINAGE.

B - REINFORCING STEEL NOTES:

1 - ALL REINFORCING STEEL BARS SHALL CONSIST OF NEW BILLET DEFORMED STEEL BARS CONFORMED TO A.S.T.M. A - 615 -, GRADE 60
2 - BARS MARKED (T) SHALL BE PLACED AT THE TOP OF THE SLABS; BARS MARKED (B) SHALL BE PLACED AT THE BOTTOM OF THE SLABS.
3 - PROVIDE 2 #5 BARS AT THE CORNERS AND OPENINGS OF EVERY CONCRETE WALLS, EXCEPT AS OTHERWISE NOTED.
4 - THE MINIMUM REINFORCEMENT FOR 6" CONCRETE WALLS SHALL CONSIST OF #3 AT 12" VERTICALLY AND #4 AT 12" HORIZONTALLY.
5 - ALL REINFORCING WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH A.S.T.M. A - 185 SPECIFICATION.
6 - TEMPERATURE REINFORCEMENT SHALL BE PROVIDED IN ALL ONE - WAY SLABS NORMAL TO THE PRICIPAL REINFORCEMENT IN ACCORDANCE WITH A.C.I. 318 - 99 BUILDING CODE:.
7 - MASONRY WALLS REINFORCEMENT SHALL BE EQUAL OR SIMILAR TO DUR-O-WALL TRUSS DESIGN SAID REINF. SHALL BE INSTALLED IN THE FIRST AND SECOND BED JOINTS, (8" APART); IMMEDIATELY ABOVE LINTELS AND SILLS; AT OPENINGS; AND AT 16" VERTICAL INTERVALS ELSEWHERE.
8 - BEAM REINF. SHALL BE PLACED IN THE SPECIFIED POSITIONS AND WITH A MAXIMUM VARIATION IN DISTANCE 'D' OF ± 1/4 ".
9 - COLUMNS AND WALLS DOWELS SHALL CONSIST OF THE SAME SIZE AND NUMBER AS THEIR VERTICAL REINFORCEMENT.
10 - ALL WELDING PERFORMED ON STEEL BARS SHALL CONFORM TO "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL METAL INSERTS AND CONNECTIONS IN REINF. CONC. CONSTRUCTION", (AWS D 12.1).

C - FOUNDATION SYSTEM (SEE DESIGN CRITERIA)

1 - THE FOUNDATION SYSTEM HAS BEEN DESIGNED FOLLOWING THE SOIL REPORT BY JACA & SIERRA INC. THE CONTRACTOR SHALL VERIFY THE SOIL BEARING CAPACITY USED FOR THE DESIGN OF THE FOUNDATION SYSTEM, PRIOR TO ANY PLACEMENT OF CONCRETE.
2 - THE SOIL INVESTIGATION REPORT IS PART OF THESE NOTES AND ITS RECOMMENDATIONS MUST BE CAREFULLY OBSERVED.
3 - FILL UNDER THE GROUND FLOOR SHALL BE COMMPACTED AS TO ATTAIN 90% OF ITS MODIFIED DENSITY A.S.T.M. 1557 - 70T).

D - STRUCTURAL STEEL NOTES:

1 - ALL STRUCTURAL STEEL SECTIONS SHALL BE ACCORDING TO A.S.T.M. 1-36 STANDARD FOR STRUCTURAL STEEL THE SPECIFIED YIELD POINT SHALL BE 36,000.0 P.S.I.
2 - ALL WELDING SHALL CONFORM TO THE SPECIFICATIONS OFTHE AMERICAN WELDING SOCIETY. ELECTRODES SHALL CONSIST OF THE E 70 xx TYPE, EXCEPT AS OTHERWISE NOTED.
3 - ALL TESTING AND INSPECTION OF WELDIN G SHALL BE DONE IN ACCORDANCE WITH SECTIONS 601 THROUGH 607 OF THE A.W.S. DL 0 -89 CODE FOR WELDING IN BUILDING CONSTRUCTION.
4 - ALL STEEL BOLTS SHALL CONFORM TO A.S.T.M. A-325 FRICTION BOLTS, UNLESS OTHERWISE NOTED.
5 - THE FOLLOWIMNG ADDITIONAL SPECIFICATIONS GOVERN THE DESIGN, FABRICATION AND ERECTION OF THESE STRUCTURES
a) AMERICAN INSTITUTE OF STEEL CONSTRUCTION ______________________(LATEST EDITION)
b) STANDARD SPECIFICATION FOR OPEN WEB STEEL JOISTS _______________ (LATEST EDITION)
c) STANDARD SPECIFICATIONS FOR LONG SPAN STEEL JOISTS _______________ (LATEST EDITION)
d) STANDARD SPECIFICATIONS FOR DEEP LONG SPAN STEEL JOISTS ___________(LATEST EDITION)
6 - SHOP DRAWINGS FOR ALL THE STRUCTURAL STEEL SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR HIS APPROVAL, PRIOR TO ANY CONSTRUCTION.

E - DESIGN DATA

1 - CODES:
a) A.C.I. CODE - 318 - 08
b) MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED COCRETE STRUCTURES, A.C.I. 316 - LATEST EDITION.
c) PUERTO RICO BUILDING CODE - LATEST EDITION.
d) A.I.S.C. MANUAL, LATEST EDITION.
e) INTERNATIONAL BUILDING CODE 2009

F - GENERAL NOTES:

1 - OPENINGS ON THE STRUCTUAL SLABS THAT ARE NOT SHOWN ON THE STRUCTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER FOR PERTINENT CONSIDERATIONS.
2 - ALL REINFORCING BARS AND STIRRUPS SHALL BE ACCURATELY PLACEDAND SECURELY WIRED TO PREVENT DISLOCATIONS FROM PROPER POSITION, WHENEVER METAL CHAIRS ARE USED,THEIR LEGS SHALL BE PLASTIC TIPPED.
3 - HORIZONTAL MOVEMENT OF ANY EQUIPMENT OVER THE STRUCTURA L FLOORS ON ROOFAND ITS TEMPORARYAND/OR DEFINITE LOCATIONS MUST BE PREVIOUS LY APPROVED BY THE ENGINEER TOAVOID OVERLOADING OR IMPAIRMENT OF THE STRUCTURE. THE SAME PRECAUTIONS SHALL BE TAKEN FOR THE PILING OF CONSTRUCTION MATERIALS.
4 - CONSTRUCTION JOINTS AT SLABS ON GROUND, AS SHOWN ON THIS SHEET, SHALL BE PROVIDED AT THE COLUMNS CENTER LINES, AND POURING OF CONCRETE IN RESULTING PANELS SHALL BE DONE FOLLOWING CHECKER BOARD PATTERD.
5 - OTHER CONSTRUCTION JOINTS SHALL BE CONSTRUCTED AS FOLLOWS: ROUGHEN SURFACE WITH A WIRE BRUSH AND STREAM OF WATER BEFORE CONCRETE SETS TO EXPOSE 3/8" OF THE COARSE AGGREGATE MOISTEN ROGH SURFACE BEFORE CASTING THE NEW CONCRETE VIBRATE THOROUGHLY AT JOINT.
6 - NO SPLICES IN REINFORCEMENT SHALL BE MADE EXCEPT AS SHOWN IN PLANS. TEMPERATURE REINF., AND BARS MARKED "CONTINUOUS" SHALL BE SPLICED WHERE NECESSARY, A MINIMUM OF 36 BARS DIAMETERS BUT NOT LESS THAN 1'-6" W.W.F. SHALL BE LAPPED AT LEAST 6"(IN)
7 - ANY LINE DRAWN FROM ANY BOTTOM EDGE OF A FOOTING, HAVING A SLOPE OF 1 VERTICALLY AND 2 HORIZONTALLY, SHALL LIE ENTIRELY ON UNDISTURBED SOIL OF AN ALLOWABLE BEARING PRESSURE AS SPECIFIED IN NOTE #C-1.
8 - LAP LENGTHS NOT SPECIFIED ON THE DRAWINGS SHALL CONSIST OF 24 BARS DIAMETERS FOR A - 615 - 40 STEEL OR 36 BARS DIAMETERS FOR A - 615 60.
9 - IN TWO-WAY SLABS, THE SHORTER BARS SHALL BE PLACED 3/4" CLEAR FROM THE TOP OR BOTTOM SURFACES, THE LONGER BARS SHALL BE PLACED IN CONTACT WITH THEM.
10 - THE TOP OF EVERY FOUNDATION WALL LOCATED BELOW A WINDOW OR DOOR OPENING SHALBE ADDITIONALLY REINFORCED WITH 2 #5 BAR, 4'-0" LONGER THAN THE WIDTH OF SAID OPENING.
11 - CONDUITS AND PIPE EMBEDDED IN CONCRETE SHALL FOLLOW THE REQUIREMENTS OF SECTION 6.3 OF THE A.C.I. BUILDING CODE.
12 - THE GENERAL CONTRACTOR SHALL PROVIDE THE NECESARY LATERAL SHORING IN ORDER TO ASSURE THE STABILITY OF THE STRUCTURE, OR PORTIONS THEREOF, DURING THE CONSTRUCTION PROCESS.
13 - THE GENERAL CONTRACTOR SHALL TAKE INTO ACCOUNT THE DEFORMATIONS OF THE FORMS AND/OR SHORING SYSTEM. IN ORDER TO INTRODUCE THE NECESSARY CAMBER TO OFF-SET THEM.
14 - ALL OPENINGS AT SLABS ON GROUND SHALL BE REINFORCED WITH AN ADDITIONAL LAYER OF 6 X 6 - W 2.9 X W 2.9 W.W.F.; SAID LAYER SHALL EXTEND FOR 25" BEYOND THE OPENING'S EDGES.
15 - THE CONTRACTOR SHALL BE EXTREMELLY CAREFUL WITH THE POURING OF CONC. AT OVERHANG; HE SHALL ASSURE THAT THE POSITION OF THE "TOP" REINF. BARS IS NOT LOWERED BY HIS WORKMEN DURING SAID OPERATION.
16 - THE GENERAL CONTRACTOR MUST SUBMITT A SCHEDULE OF CONCRETE POURING., SHOWING THE PROPOSED CONST. JOINTS. HE SHALL COMPLY WITH A.C.I. 318-99 SECTION 6.4.
17 - THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. THE ENGINEER / ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES WHICH MAY EXIST.

G - DESIGN CRITERIA:

1 - ROOF LIVE LOAD ____________40 P.S.F.
2- FLOOR LIVE LOAD- - - - - - - - - - - - - 40 P.S.F. (BASIC FLOOR AREA)
3 - EARTH QUAKE LOAD ------ AS PER IBC - 09 BUILDING CODE
4 - WIND LOAD ---------------- AS PER P.R. BUILDING CODE 2011
5- SOIL BEARING CAPACITY- -------------------3000 P.S.F.

COMMONWEALTH OF PUERTO RICO
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DIVISION CHIEF — March 10, 2020

ING. CARLOS J. QUIÑONES MAYM
CIVIL ENGINEERS & STRUCTURAL CONSULTANTS
SAN JUAN, PR
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NO.	REMARKS	DATE	BY	APPV'D.
REVISIONS				

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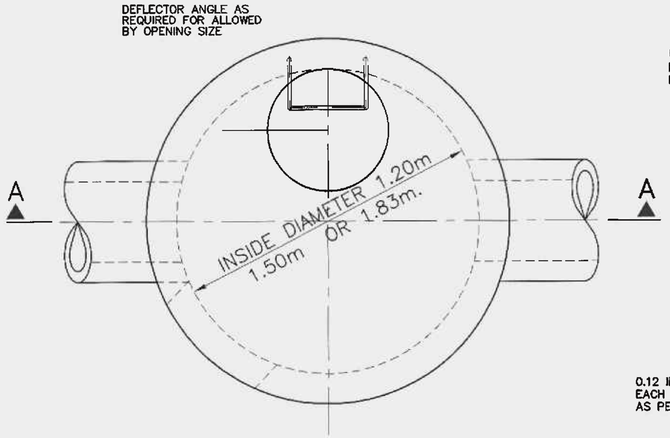
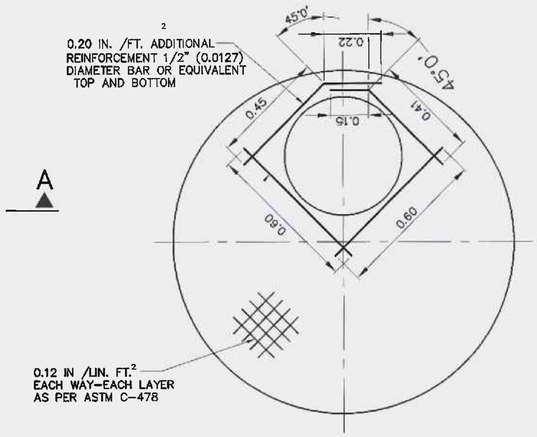
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GENERAL DETAILS AND NOTES			SCALES:
			DRWG NO. SN-1
DRAFTED BY: R.B.	DRAFTER LICENCE NO.:	DATE 7/15/2014	SHEET NO. 67
DESIGNED BY: C.Q.		DATE	
REVISED BY: C.Q.		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



PLAN

SCALE 1:15



PRECAST FLAT SLAB TOP

SCALE 1:15

NOTES:

1-SECTIONS SHALL BE 4,000 PSI UNLESS OTHERWISE IS INDICATED.

2-ALL SECTIONS ARE MADE IN ACCORDANCE WITH ASTM C-478 IN ANY HEIGHT REQUIRED AND P.R.A.S.A. REQUIREMENTS.

3-LIFTING HOLES PROVIDED IN ALL UNITS TO FACILITATE INSTALLATION.

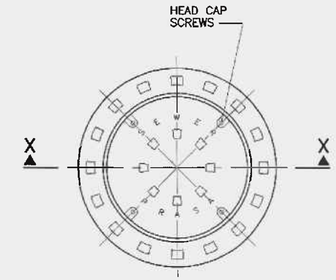
4-MANHOLE BASE TO BE INSTALLED ON A FIRM STABILIZED FOUNDATION.

5-FOR PROTECTIVE LININGS SEE CONTRACT SPECIFICATION.

6-ON ASPHALT ROAD THE MANHOLE TOP SLAB SHALL BE 0.02 LOWER THAN THE ROADWAY SURFACE, THIS AREA WILL BE COVERED BY THE ASPHALT PAVEMENT. CAUTION SHALL BE TAKEN TO KEEP THE C.I. FRAME AND COVER AT THE SURFACE LEVEL.

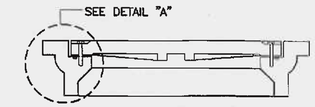
7-THE BOTTOM CHANNEL OF THE MANHOLE MUST HAVE THE SAME GRADIENT OF THE SEWER PIPE.

9-WHEN MANHOLE HEIGHT IS MORE THAN 20 FEET, A PLATFORM OF 4" THIKNESS MUST BE INSTALLED EVERY 10 FEET.



TOP VIEW

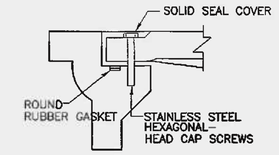
NOT TO SCALE



SECTION "X-X"

NOT TO SCALE

FRAME & COVER (WATERTIGHT MANHOLES)

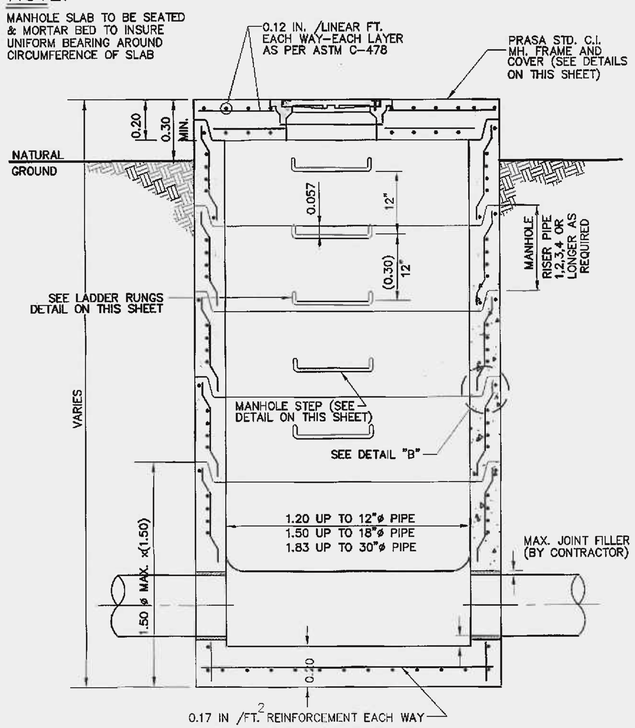


DETAIL "A"

NOT TO SCALE

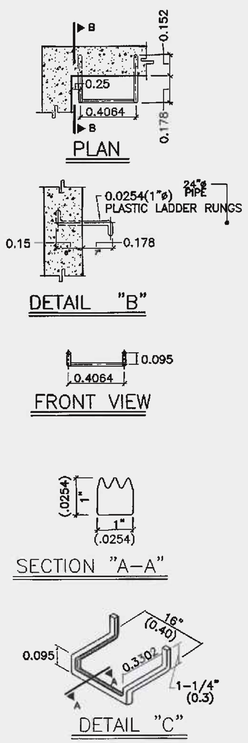
NOTE:

MANHOLE SLAB TO BE SEATED & MORTAR BED TO INSURE UNIFORM BEARING AROUND CIRCUMFERENCE OF SLAB



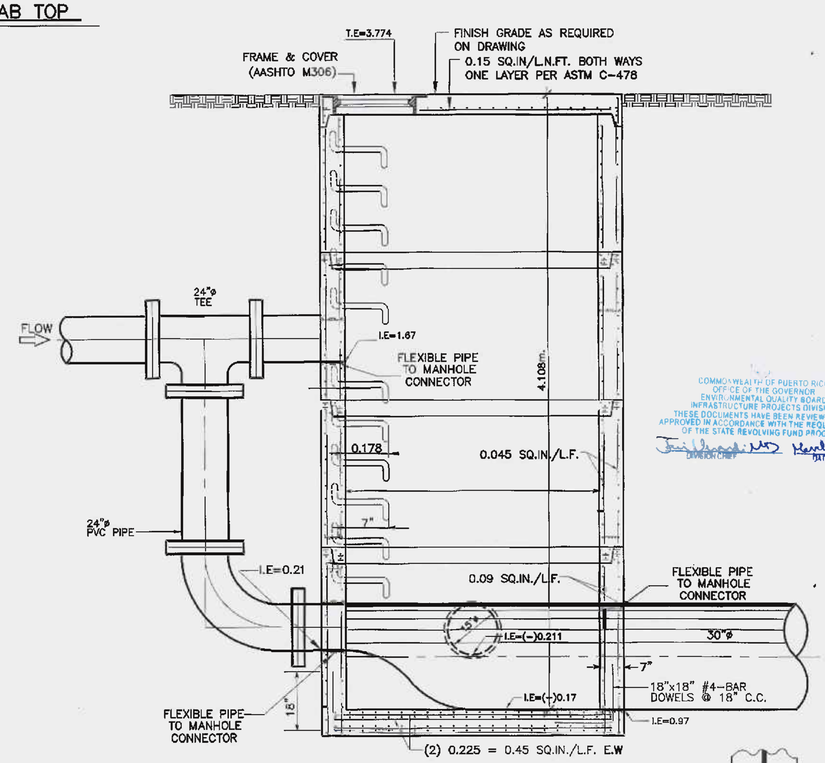
SECTION A-A

SCALE 1:20



PLASTIC LADDER RUNGS DETAILS

(NOT TO SCALE)

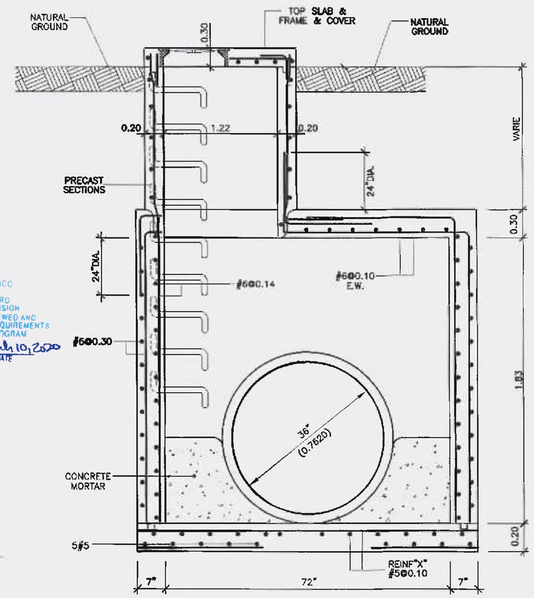


MANHOLE NO. 29

N.T.S.

DETAILS OF PRE-CAST MANHOLES 15, 16, 18, 21, 24 & 30"ø SEWER PIPE

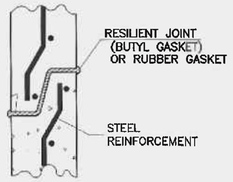
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE



TYPICAL MANHOLE (PRECAST)

36"ø SEWER PIPE

N.O.T.



DETAIL "B"

NOT TO SCALE

TYPICAL JOINT DETAIL

CONCRETE AND ROUND RUBBER IN ACCORDANCE WITH A.S.T.M. SPEC. C-361 OR BUTYL JOINT

DESIGN CONDITIONS:

1-IN ACCORDANCE WITH ASTM C-478.

2-fc'= 4,500 psi.

3-STEEL REINF. AS PER ASTM C-478.

4-INTERMEDIATE SLAB TOP IS OPTIONAL.

5-FOR TRANSITION AND TOP SLAB 72"ø AND ABOVE, USE fc'=5000 psi.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcmc CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8885 / 787-751-5537 FAX 787-751-1052
email: jcmcassoc@prtc.net

ANTONIO A. FUENTES — LICENSED — LIC. #19948 — PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: DETAILS OF PRE-CAST MANHOLE FOR 15, 16, 18, 21, 24, 30ø AND 36"ø PIPES			PLOT SCALE: PLOT=1:500 V=N/A
DRAFTED BY:	RAFTER LICENSE NO.:	DATE	DRWG NO. MD-01
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 68
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\68-MD-01-DETAILS OF PRE-CAST MANHOLE FOR 18in, 24in AND 30in PIPES.dwg

HORIZONTAL THRUST BLOCKS

THRUST BLOCK FOR HORIZONTAL BENDS

150 psi DESIGN PRESSURE

11–1/4°

PIPE ø	A (ft)	B (ft)	C (ft)
16	2.0	2.5	1.5
20	15	22	10

22–1/2°

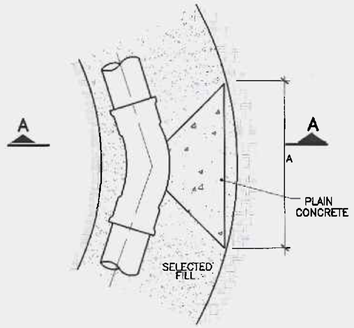
PIPE ø	A (ft)	B (ft)	C (ft)
16	2.0	3.5	1.5
20	15	30	10

45° & WYES

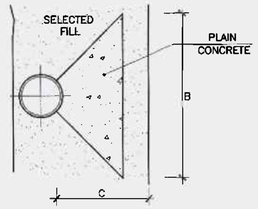
PIPE ø	A (ft)	B (ft)	C (ft)
16	3.0	4.0	1.5
20	21	42	10

90° , TEES & PLUGS

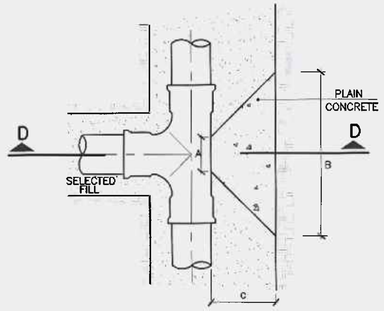
PIPE ø	A (in)	B (in)	C (in)
16	23	46	12
20	29	57	15



P L A N
NOT TO SCALE



SECTION "A–A"
NOT TO SCALE



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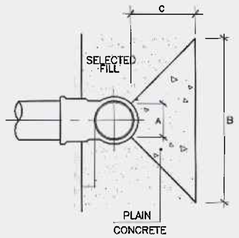

SECTION "D–D"
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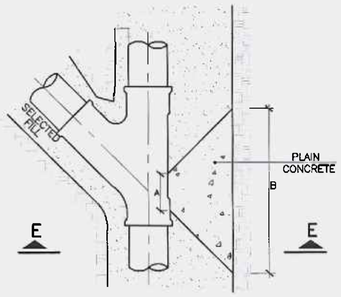

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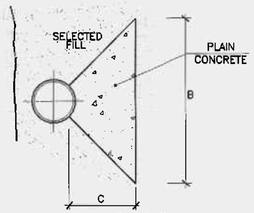
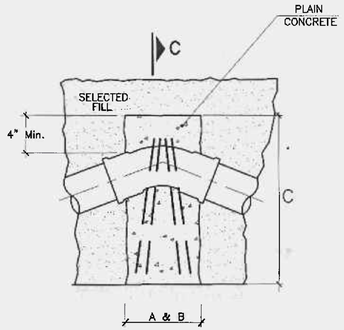


SECTION "E–E"
NOT TO SCALE

(34) THRUST BLOCK FOR HORIZONTAL AND VERTICAL BENDS

THRUST BLOCK FOR VERTICAL BENDS (GRAVITY BLOCKS)



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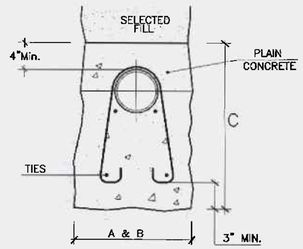


SECTION "C–C"
NOT TO SCALE

THRUST BLOCK FOR VERTICAL BENDS (GRAVITY BLOCKS)

11–1/4°

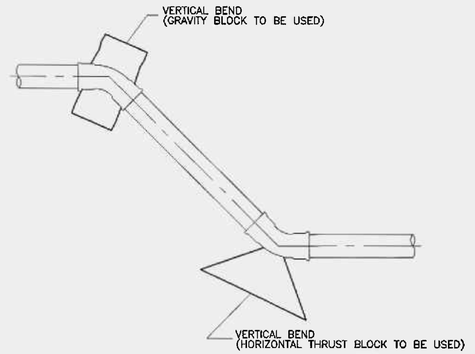
PIPE ø	A, B & C (in)	REBAR	TIES
16	36	4 # 3	4 # 3
20	42	4 # 3	4 # 3

22–1/2°

PIPE ø	A, B & C (in)	REBAR	TIES
16	45	4 # 3	4 # 3
20	53	4 # 3	4 # 3

45°

PIPE ø	A, B & C (FT)	REBAR	TIES
16	4.75	5 # 4	4 # 3
20	5.50	5 # 4	4 # 4



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

NOTES:

1– ALL STANDARD CONNECTING FITTINGS SHALL BE CAST IRON OR DUCTILE IRON WITH MECHANICAL JOINT.

2– THESE DETAILS APPLY TO ALL BENDS, TEES AND WYES UNLESS OTHERWISE SPECIFIED.

3– ALL PIPES (EXCEPT GRAVITY SANITARY SEWER) SHALL HAVE THRUST BLOCKS AT ALL BENDS, TEES, WYES, PLUGS AND REDUCERS.

NO.	REMARKS	DATE	BY	APPV'D

REVISIONS

jamc CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6780
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ANTONIO A. FIGUEROA LICENSED ENGINEER LIC. #19406 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2–26–5002
C–72–051–01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: THRUST BLOCKS DETAILS			PLOT SCALE: PLOT=1:500 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MD–02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 69
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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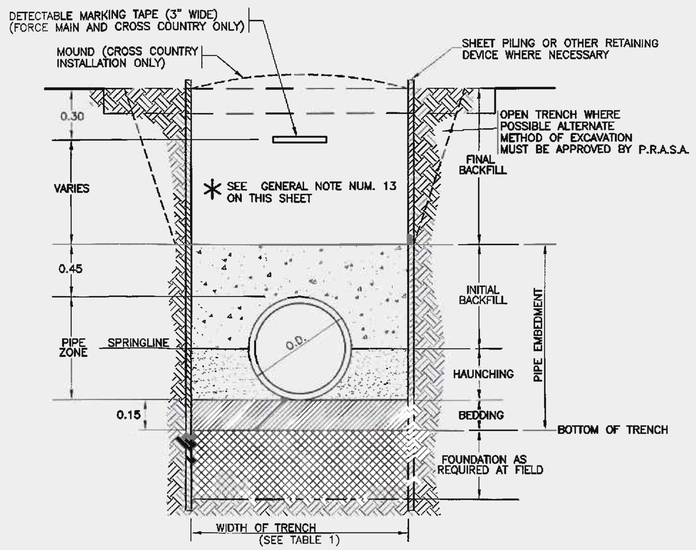


TRENCH DETAILS FOR P.V.C.

NOT TO SCALE

TABLE 1 WIDTH OF TRENCH	
DIAMETER (INCHES)	*WIDTH OF TRENCH AT TOP OF PIPE (INCHES)
4"–27"	O.D. + 24"

NOTE:

* WHENEVER MOVABLE SHEET PILING OR OTHER TRENCH PROTECTION IS USED BELOW THE TOP OF THE PIPE,THE CLEAR DISTANCE BETWEEN THE OUTSIDE FACE OF THE PIPE AND THE MOVABLE TRENCH SUPPORT SHALL BE NOT LESS THAN 2–1/2" X OUTSIDE PIPE DIAMETER.

NOTE:

FOUNDATION AND BEDDING:

1) MATERIALS AS CLASSIFIED BY AS PER ASTM C–33 GRADATION NO. 67 (CRUSHED STONE OR CRUSHED GRAVEL) SHALL BE USED.
2) FILL MATERIAL SHALL BE PLACED IN 0.15 mt. LAYERS.
3) COMPACT TO 70% OF MAX. RELATIVE DENSITY AS PER ASTM D–2049 FOR GRANULAR SOILS. TESTS SHALL BE PERFORMED AT 50 MTS. INTERVALS.

HAUNCHING

1) SAME MATERIALS AS FOR FOUNDATION AND BEDDING.
2) FILL MATERIAL SHALL BE PLACED IN 0.15 mt. LAYERS.
3) COMPACT TO 80% OF MAX. RELATIVE DENSITY AS PER ASTM D–2049 FOR GRANULAR SOILS, OR NO COMPACTING EFFORT FOR CRUSHED GRAVEL OR CRUSHED STONE GRADATION NO. 67.

INITIAL BACKFILL CROSS COUNTRY:

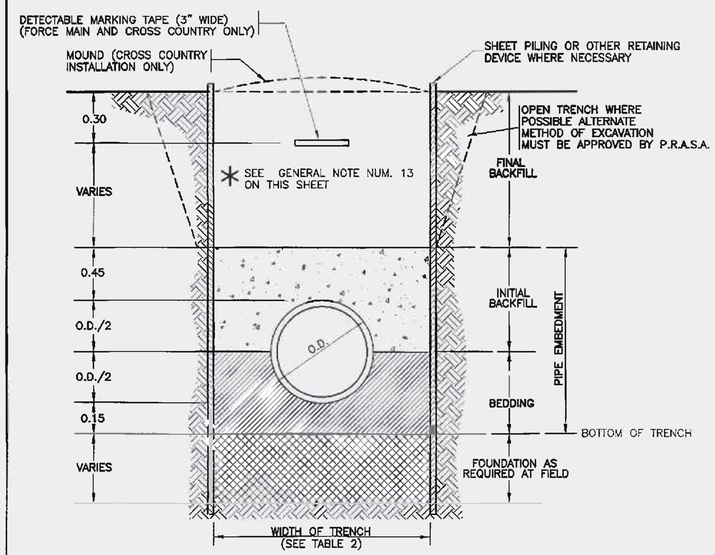
1) PREVIOUS EXCAVATED MATERIAL FREE FROM BOULDERS AND STONES LARGER THAN 2"
2) FILL MATERIAL SHALL BE PLACED IN 0.30 mt. LAYERS.
3) COMPACTING EFFORT NOT REQUIRED OTHER THAN OBTAINED BY SPREADING AND LEVELING BACKFILL MATERIAL. TAMPING EQUIPMENT NOT ALLOWED FOR WORKING BACKFILL MATERIAL IN THIS SECTOR OF TRENCH.

FINAL BACKFILL–CROSS COUNTRY:

1) PREVIOUS EXCAVATED MATERIAL.
2) FILL MATERIAL SHALL BE LOOSELY PLACED IN 0.90 mt. LAYERS.
3) COMPACTING AS OBTAINED BY TAMPING WITH THE PLACEMENT EQUIPMENT.
4) MOUND THE SURFACE AND FILL AND MAINTAIN ALL SUNKEN TRENCHES UNTIL FINAL ACCEPTANCE OF THE PROJECT.

INITIAL AND FINAL BACKFILL–UNDER ROADS, STREETS, WALKS, APRONS AND OTHERS IMPROVED SURFACES:

1) ANY MATERIAL AS CLASSIFIED BY USCS AS PER ASTM D–2487 SOIL CLASSES 1–2–3–4 . WHERE CRUSHED GRAVEL OR CRUSHED STONE IS USED IT SHALL BE AS PER ASTM C–33 GRADATION NO. 67.
2) FILL MATERIAL SHALL BE PLACED IN 0.30 mt. LAYERS.
3) COMPACT TO 95% OF MODIFIED PROCTOR TEST AS PER ASTM D–1557 FOR COHESIVE SOILS OR 70% OF MAX. RELATIVE DENSITY AS PER ASTM D–2049 FOR GRANULAR SOILS. ROLLING EQUIPMENT NOT ALLOWED FOR WORKING BACKFILL MATERIAL IN THE INITIAL BACKFILL SECTOR.



TRENCH DETAILS FOR CONCRETE AND D.I. PIPES

NOT TO SCALE

TABLE 2 WIDTH OF TRENCH	
DIAMETER (INCHES)	*WIDTH OF TRENCH AT TOP OF PIPE (INCHES)
18" – 84"	O.D. + 24"

NOTE:

* WHENEVER MOVABLE SHEET PILING OR OTHER TRENCH PROTECTION IS USED BELOW THE TOP OF THE PIPE,THE CLEAR DISTANCE BETWEEN THE OUTSIDE FACE OF THE PIPE AND THE MOVABLE TRENCH SUPPORT SHALL BE NOT LESS THAN 2–1/2" X OUTSIDE PIPE DIAMETER.

NOTE:

FOUNDATION AND BEDDING:

1) MATERIALS AS CLASSIFIED BY USCS AS PER ASTM D–2487 SOILS CLASSES 1–2–3 WHERE CRUSHED GRAVEL OR CRUSHED STONE IS USED IT SHALL AS PER ASTM C–33 GRADATION NO. 67
2) FILL MATERIAL SHALL BE PLACED IN 0.15 mt. LAYERS.
3) COMPACT TO 95% OF MODIFIED PROCTOR TEST AS PER ASTM D–1557 FOR COHESIVE SOILS OR 70% OF MAX. RELATIVE DENSITY AS PER ASTM D–2049 FOR GRANULAR SOILS. TESTS SHALL BE PERFORMED AT 50 MTS. INTERVALS. COMPACTING EFFORT NOT REQUIRED WHEN USING CRUSHED STONE OR CRUSHED GRAVEL GRADATION NO. 67.

INITIAL BACKFILL CROSS COUNTRY:

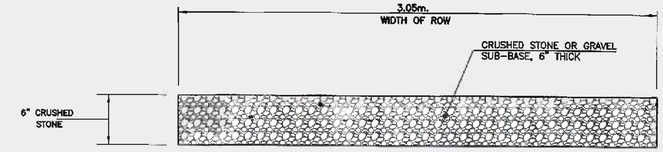
1) PREVIOUS EXCAVATED MATERIAL FREE FROM BOULDERS AND STONES LARGER THAN 2"
2) FILL MATERIAL SHALL BE PLACED IN 0.30 mt. LAYERS.
3) COMPACTING EFFORT NOT REQUIRED OTHER THAN OBTAINED BY SPREADING AND LEVELING BACKFILL MATERIAL. ROLLING EQUIPMENT NOT ALLOWED FOR WORKING BACKFILL MATERIAL IN THIS SECTOR OF TRENCH.

FINAL BACKFILL–CROSS COUNTRY:

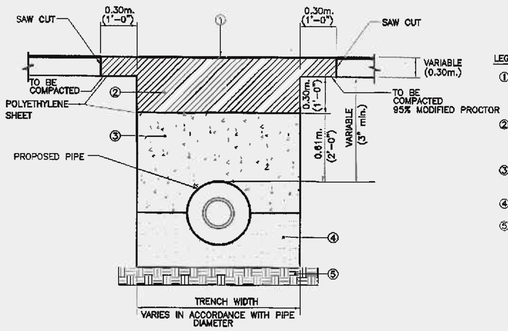
1) PREVIOUS EXCAVATED MATERIAL.
2) FILL MATERIAL SHALL BE LOOSELY PLACED IN 0.90 mt. LAYERS.
3) COMPACTING AS OBTAINED BY ROLLING WITH THE PLACEMENT EQUIPMENT.
4) MOUND THE SURFACE AND FILL AND MAINTAIN ALL SUNKEN TRENCHES UNTIL FINAL ACCEPTANCE OF THE PROJECT.

INITIAL AND FINAL BACKFILL–UNDER ROADS, STREETS, WALKS, APRONS AND OTHERS IMPROVED SURFACES:

1) ANY MATERIAL AS CLASSIFIED BY USCS AS PER ASTM D–2487 SOIL CLASSES 1–2–3–4 . WHERE CRUSHED GRAVEL OR CRUSHED STONE IS USED IT SHALL BE AS PER ASTM C–33 GRADATION NO. 67.
2) FILL MATERIAL SHALL BE PLACED IN 0.30 mt. LAYERS.
3) COMPACT TO 95% OF MODIFIED PROCTOR TEST AS PER ASTM D–1557 FOR COHESIVE SOILS OR 70% OF MAX. RELATIVE DENSITY AS PER ASTM D–2049 FOR GRANULAR SOILS. ROLLING EQUIPMENT NOT ALLOWED FOR WORKING BACKFILL MATERIAL IN THE INITIAL BACKFILL SECTOR.



CRUSHED STONE FOR ROW IN CROSS COUNTRY INSTALLATION



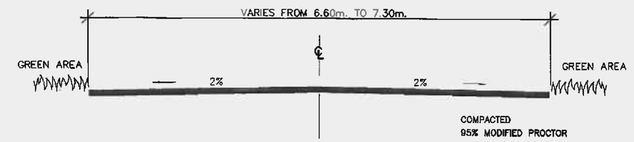
LEGEND:

1. 0.075m. HOT PLAN MIX BITUMINOUS CONCRETE PAVEMENT S(75)(12) AS PER SPEC. 401 OF THE PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY (PRHTA) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.
2. FLOWABLE FILL BASE AS PER SPECIFICATION 905 (PRHTA) WITH THE EXCEPTION THAT COMPRESSIVE STRENGTH AT 28 DAY SHALL NOT BE GREATER THAN 100 PSI AND NO LESS THAN 50 PSI AS DETERMINED IN ACCORDANCE WITH ASTM D 4832.
3. FILLING WILL BE WITH 3/4" COMMERCIAL GRAVEL. THE GRAVEL MUST BE PLACED AND TAMPERED IN LAYERS NO EXCEEDING 0.45 (1'–6") IN LOOSE THICKNESS. NO BACKFILLING WILL BE ALLOWED.
4. WELL COMPACTED 1/2" DIAMETER DOWN OF CLEAN CRUSHED STONE BEDDING MATERIAL.
5. EXISTING SOIL.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF

ASPHALT PAVEMENT REPLACEMENT FOR STATE ROADS

N.T.S.



ASPHALT PAVEMENT SECTION REPLACEMENT FOR PR–696

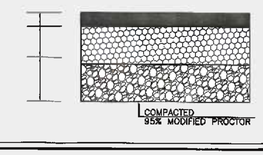
N.T.S.

PAVEMENT SECTION FOR PR–696

2" WEARING COURSE S(75)(12)

6" BLACK BASE B(75)(1)

6" BASE COURSE CRUSH STONE 1 1/2" DOWN GRADING CLASS "B"



GENERAL NOTES

(1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY, INTEGRITY AND STABILITY OF PEOPLE, BUILDINGS, EMBANKMENTS, EXISTING PIPE LINES, OR ANY OTHER STRUCTURES, IN THE VICINITY OF EXCAVATIONS OR ANY OTHER CONSTRUCTION OPERATIONS. TO ENSURE THE PROTECTION OF SUCH PEOPLE OR STRUCTURES, SHEET PILING, FENCING, OR ANY OTHER DEVICE, SHALL BE INSTALLED.

(2) OPEN TRENCH SLOPE TO BE DETERMINED BY CONTRACTOR.

(3) TRENCH PROTECTION TO BE DETERMINED BY CONTRACTOR TO ENSURE PROTECTION OF ADJACENT STRUCTURES, TRENCH WALLS AND WORKING CREWS INSIDE AND OUT OF TRENCH.

(4) GROUND OR PAVED SURFACES TO BE REPLACED OR RESTORED IN ACCORDANCE TO THE SPECIFICATIONS.

(5) DETECTABLE MARKING TAPE SEE THE SPECIFICATIONS FOR INSCRIPTIONS.

(6) PAVEMENT SECTIONS SHOWN ON TRENCHES DO NOT APPLY TO CROSS COUNTRY INSTALLATION, UNLESS OTHERWISE SPECIFIED.

(7) CONTRACTOR SHALL PAVE THE COMPLETE LANE OF AN IMPACTED STATE ROAD. SEE SPECIFICATION FOR D.T.P.W. ENDORSEMENT AND REQUIREMENTS.

(8) THE ENTIRE ROAD LENGTH MUST BE MARKED AS THE SAME EXISTING PAVEMENT MARKING.

(9) IF MORE THAN ONE LANE IS AFFECTED THE TOTAL WIDTH OF ROAD WILL BE PAVED (SEE D.T.W.P. ENDORSEMENT).

(10) ALL WORKS SHALL BE COORDINATED WITH THE D.T.W.P. REGIONAL OFFICE.

(11) CONTRACTOR SHALL PAVE THE COMPLETE MUNICIPAL ROAD WHEN IMPACTED BY PIPE INSTALLATION.

(12) MATERIAL FOR SUBBASE SHALL BE WELL GRADED GRANULAR SOIL OR SOIL–AGGREGATE MIXTURE CLASSIFIABLE AS AN A–1 OR A–2–4 MATERIAL.

*(13) EXCAVATION MUST COMPLY WITH OSHA REQUIREMENTS. EXCAVATIONS WITH MORE THAN 20 FEET IN DEPTH SHALL BE PROTECTED BY A SYSTEM DESIGNED BY A PROFFESIONAL ENGINEER. THE SYSTEM SHALL BE SUBMITTED FOR EVALUATION PRIOR TO START ANY WORK IN THE PROJECT (29CFR1926.652).

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jamg CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FIGUEROA INGENIERO LICENCIADO LIC. 12448 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2–26–5002
C–72–051–01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

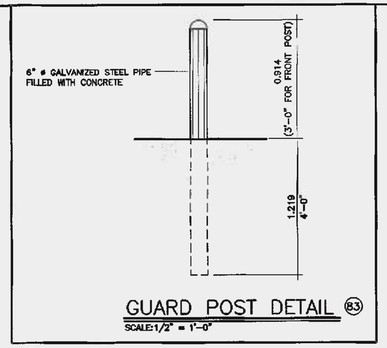
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GENERAL TRENCH DETAILS AND NOTES			PLOT SCALE: H =1:1,000 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MD–03
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 70
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\70-MD-03-TRENCH DETAILS.dwg 7/18/2014 1:56:12 PM SWST

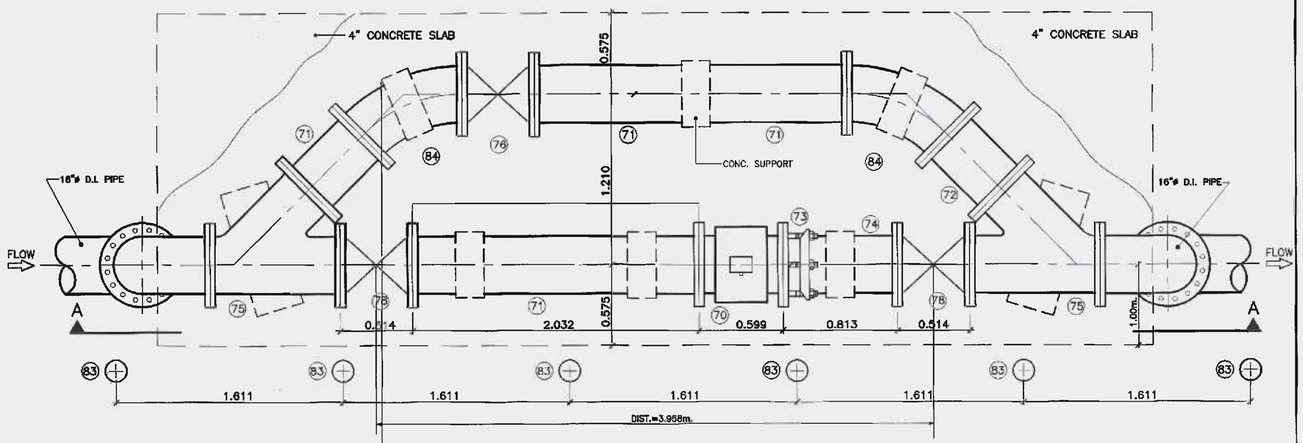
LEGEND

- (70) 16"ø ELECTRO MAGNETIC FLOWMETER SIMILAR TO TO ULTRA MAG MODEL UM 06 150 psi.
- (71) 16"ø D.I. PIPE, FE.
- (72) 16"ø D.I. NIPPLE, MJ & FE.
- (73) 16"ø COUPLING SIMILAR TO CLOW CORPORATION NO. F-2533
- (74) 16"ø FLANGED & PLAIN END NIPPLE AS PER CLOW CORPORATION
- (75) 16"øx16"ø WYE FE.
- (76) 16"ø G.V., FE. (TO REMAIN CLOSED)
- (77) 16"ø D.I. NIPPLE, FE.
- (78) 16"ø G.V., FE. (TO REMAIN OPEN)
- (79) 16"ø D.I. NIPPLE, FE.
- (80) 16"øx90° ELBOW, FE.
- (81) 16"øx90° ELBOW, MJ.
- (82) COMBINATION AIR RELEASE VALVE SECTION 221319.36
- (83) 6" ø GALVANIZED STEEL PIPE FILLED WITH CONCRETE
- (84) 16"øx45° CURVE FE.

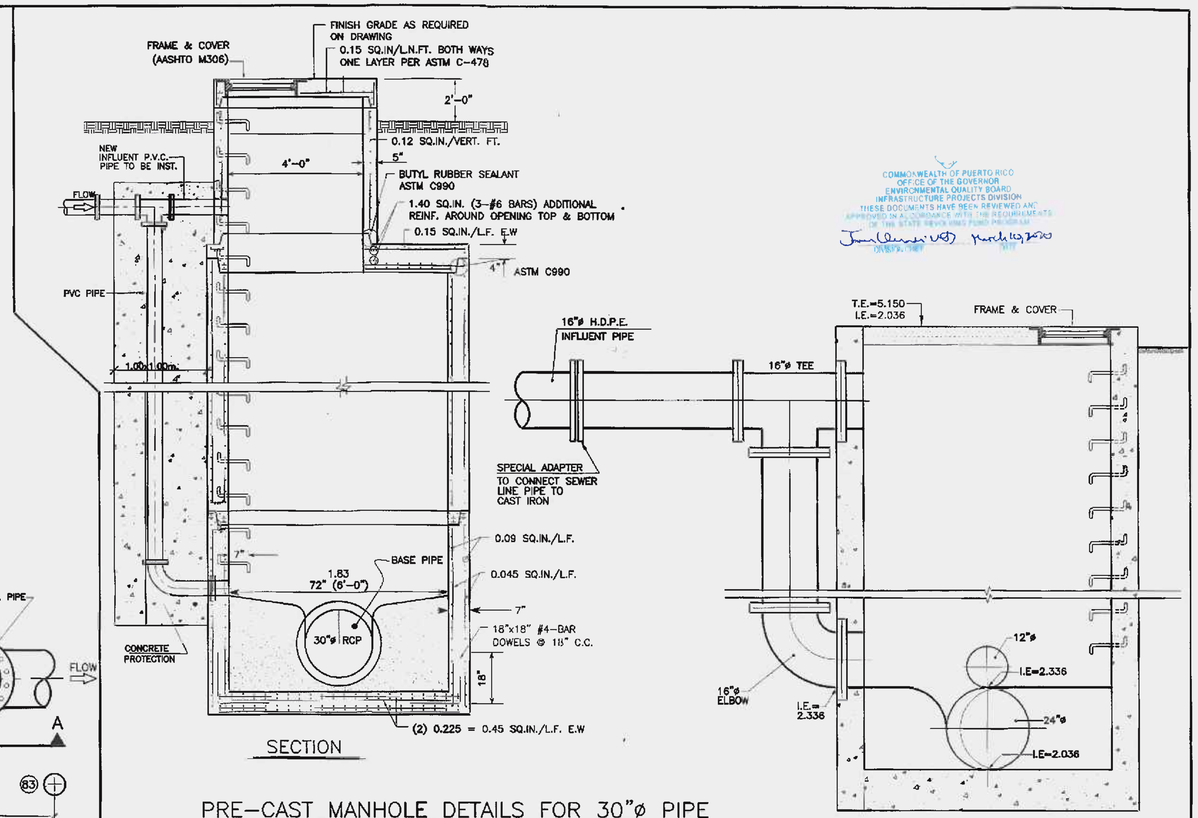


GUARD POST DETAIL (83)
SCALE:1/2" = 1'-0"

TOP PLAN
N.T.S.



PLAN
sc:=140



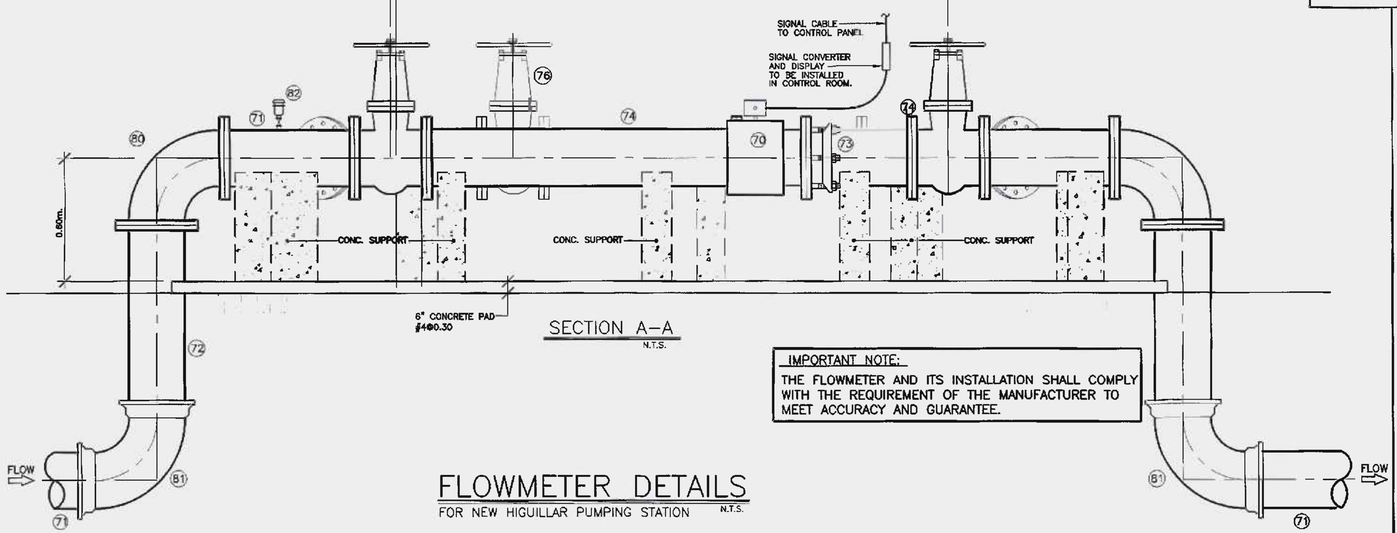
PRE-CAST MANHOLE DETAILS FOR 30"ø PIPE
N.T.S. TYPICAL DROP MANHOLE

NOTE:
ALL DROPS TO BE INSTALLED OVER BASE PIPE.

DETAILS DROP MANHOLE
N.T.S.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 13, 2020

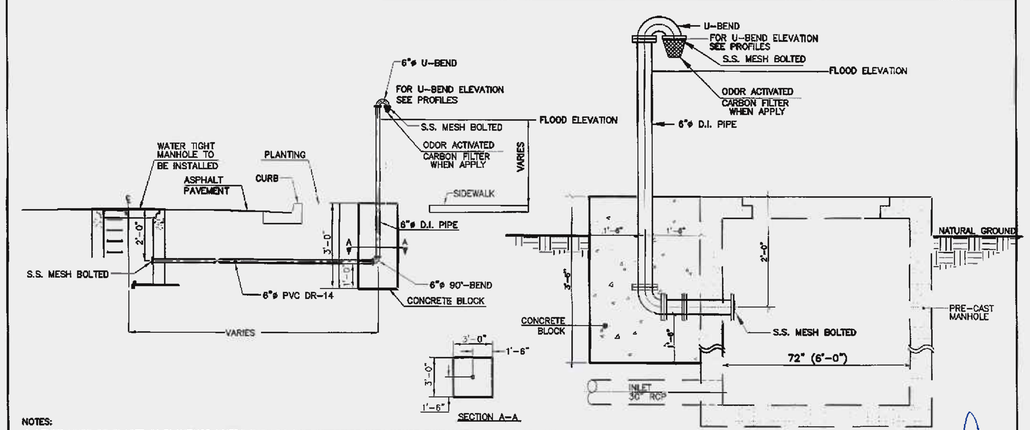
GUARD POST



SECTION A-A
N.T.S.

IMPORTANT NOTE:
THE FLOWMETER AND ITS INSTALLATION SHALL COMPLY WITH THE REQUIREMENT OF THE MANUFACTURER TO MEET ACCURACY AND GUARANTEE.

FLOWMETER DETAILS
FOR NEW HIGUILLAR PUMPING STATION
N.T.S.



NOTES:
1-VENTS MUST BE PLACED IN PLANTINGS WHERE THEY DO NOT INTERFERE WITH HOUSE ENTRANCES, TRAFFIC OR ANY OTHER EXISTING STRUCTURE. EXACT LOCATION SHALL BE DETERMINED BY PROJECT INSPECTOR IN FIELD.
2-VENTS SHALL BE PAINTED IN YELLOW. THE COLORS SHALL CONFORM TO THE DTOP STANDARDS USED.
3-PROTECTO 401 CERAMIC EPOXY INSIDE COATING IS REQUIRED FOR ALL D.I.
4-DETECTABLE MARKING TAPE SHALL BE PLACED OVER PVC DR-14 LINE.
5-ODOR ACTIVATED CARBON FILTER OF EASY MAINTENANCE SHALL BE INSTALLED AT VENT. NOT APPLY FOR CROSS COUNTRY INSTALLATION.

AIR VENT DETAILS FOR GREEN AREAS
N.T.S.

VENT DETAILS FOR MANHOLES
NOT TO SCALE

NOTE:
ODOR ACTIVATED CARBON FILTER OF EASY MAINTENANCE SHALL BE INSTALLED AT VENT. NOT APPLY FOR CROSS COUNTRY INSTALLATION.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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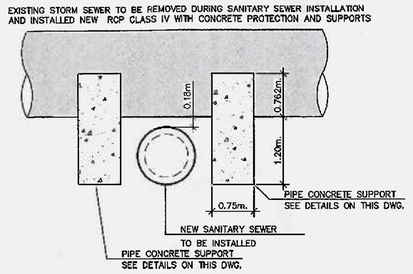
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

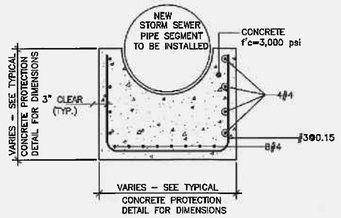
SHEET TITLE: FLOWMETER BOX DETAILS, DROP MANHOLE FOR 30"ø PIPE AND MANHOLE AIR VENT DETAILS			PLOT SCALE: H=1:1,000 V=N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MD-04
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 71
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\71-MD-04-FLOWMETER DETAILS AND MISCELLANEOUS DETAILS.dwg 7/16/2014 4:31:54 PM SWST



SPECIAL STORM SEWER CROSSING

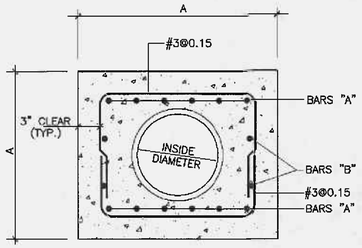
N.T.S.



PIPE SUPPORT DETAIL

N.T.S.

*** SPECIAL STORM SEWER CROSSING DETAIL FOR DISTANCE *** BETWEEN PIPES LESS THAN 0.35m.



PIPE	A (mts)	BARS "A"	BARS "B"
8"	0.85	4#4	2#4
10"	0.90	4#4	2#4
12"	0.95	4#4	2#4
14"	1.00	5#4	2#4
16"	1.05	5#4	2#4
18"	1.10	6#4	2#4
21"	1.15	6#4	2#4
24"	1.25	7#4	3#4
27"	1.30	7#4	3#4
30"	1.40	8#4	3#4
36"	1.60	10#4	4#4

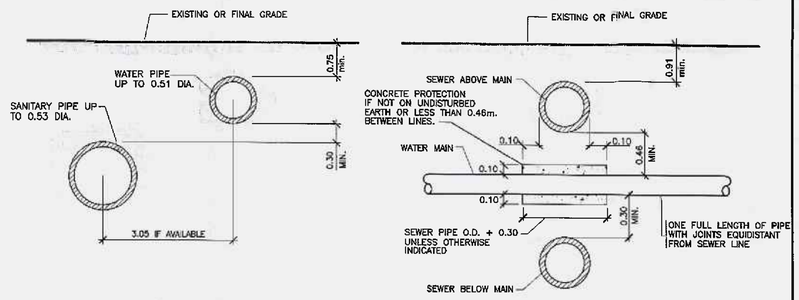
TYPICAL CONCRETE PROTECTION

(NOT TO SCALE)

NOTES:

1–CONCRETE PROTECTION APPLIES FOR PIPE CROSSING DISTANCE LESS THAN 0.60 METERS MEASURE FROM THE TOP OF LOWER PIPE AND THE INVERT OF THE ABOVE PIPE.

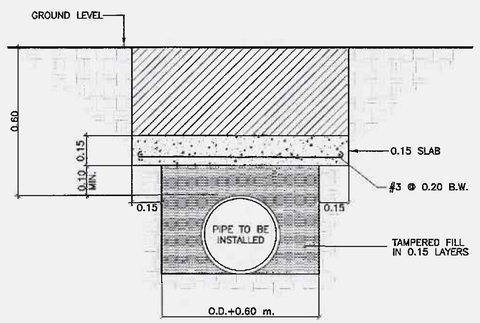
2–THE DISTANCE BETWEEN CONCRETE PROTECTION AND PIPE SHALL NOT BE LESS THAN 0.35 METERS.



PARALLEL INSTALLATION — CROSSING INSTALLATION

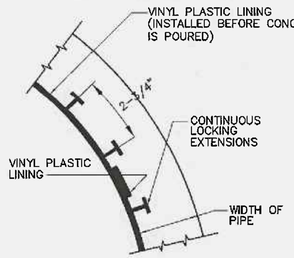
SEPARATION OF WATER & SEWER PIPES

N.T.S.



CONCRETE PROTECTION DETAIL FOR PIPES WITH COVERS LESS THAN 0.60 m.

NOT TO SCALE

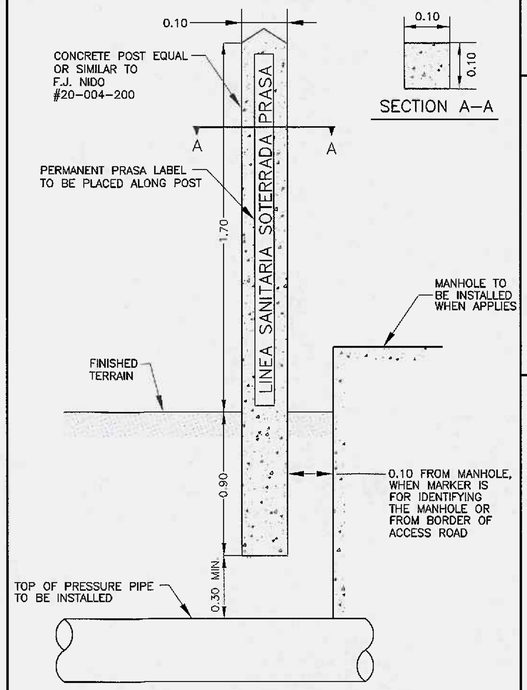


ATTACHMENT OF LINING TO PIPE

(BEFORE CONCRETE IS POURED AT THE FACTORY)

NOT TO SCALE

* APPLY FOR ALL MANHOLES.

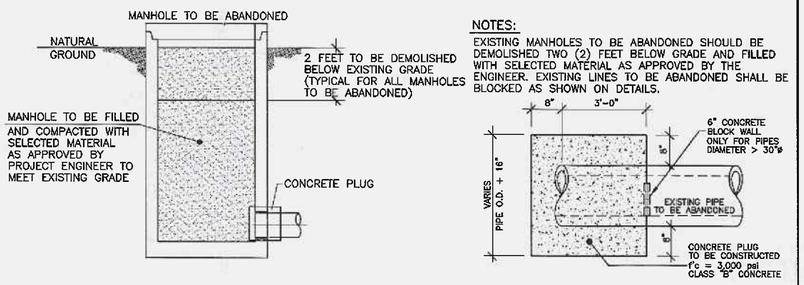


SECTION A–A

CROSS COUNTRY MARKERS

N.T.S. (EVERY 200 METERS)

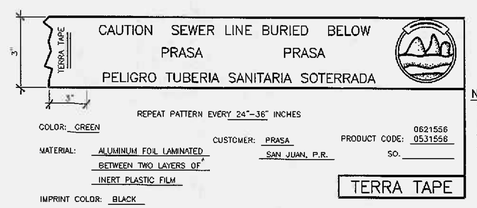
(BETWEEN STATION 14+00 AND STATION 28+00.)



NOTES:

EXISTING MANHOLES TO BE ABANDONED SHOULD BE DEMOLISHED TWO (2) FEET BELOW GRADE AND FILLED WITH SELECTED MATERIAL AS APPROVED BY THE ENGINEER. EXISTING LINES TO BE ABANDONED SHALL BE BLOCKED AS SHOWN ON DETAILS.

EXISTING MANHOLES AND LINES TO BE ABANDONED

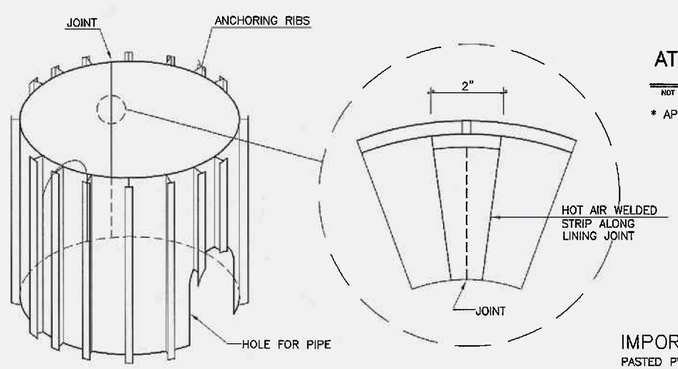


NOTE:

THE CONTRACTOR SHALL INSTALL THE MARKING TAPE AT A DEPTH OF NOT MORE THAN 12 INCHES, OVER THE CENTER LINE THROUGH THE PIPE LENGTH.

3" DETECTABLE MARKING TAPE DETAIL

NOT TO SCALE



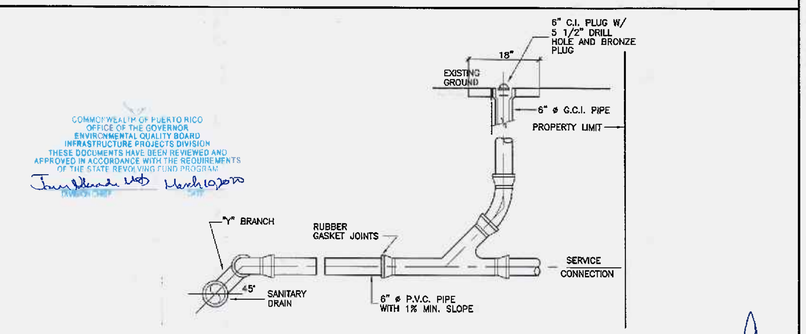
PLAN

P.V.C. ANCHORED LINING DETAILS

(USE WHITE COLOR P.V.C. LINING)
SIMILAR TO T–LOCK OR APPROVED EQUAL

IMPORTANT NOTE:

PASTED PVC. LINING WON'T BE APPROVED, IT SHALL BE ANCHORED WITH PVC. RIBS DURING CASTING OF CONCRETE.



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

SANITARY SERVICE CONNECTION

NOT TO SCALE (WHERE IT OCCURS)

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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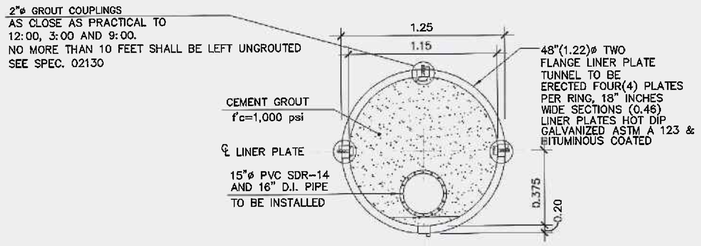
NEW DORADO TRUNK SEWER
CIP NUM.: 2–26–5002
C–72–051–01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MISCELLANEOUS DETAILS: (AIR RELEASE VALVE, CROSS COUNTRY MARKER, CONCRETE PROTECTION FOR PIPES AND RIVER CROSSING)			PLOT SCALE: PLOT=1:500 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. MD–05
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 72
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

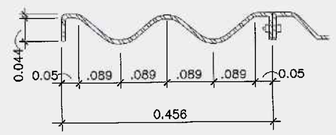
Q:\14–DWGS\14–0002–DORADO TRUNK SEWER–COMPLEMENTARY WORKS\72–MD–05–MIS. DET–RIVER CROSSING).dwg 7/16/2014 4:35:06 PM SWST



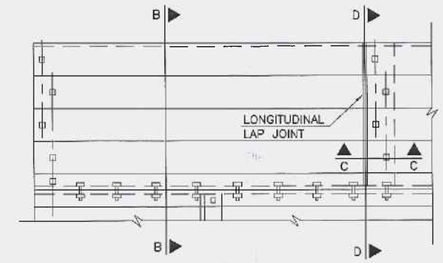
DETAIL OF TUNNEL FROM STA. 0+49.272 TO STA. 4+55.103
DETAIL OF TUNNEL FROM STA. 13+77.868 TO STA. 14+50.499
(SEE DWGS. PP-01 AND PP-04)

SPECIFICATIONS FOR FOUR FLANGE
LINER PLATES FOR TUNNEL CROSSING

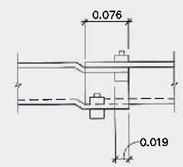
1- ULTIMATE LONGITUDINAL SEAM STRENGTH IN COMPRESSION=20,000 LBS./FT.
2- RADIUS OF GYRATION (Y)=0.600
3- SECTION MODULUS OF THE JOINT=0.0323 IN 3/IN=0.581 IN 3/SECTION
4- GAGE No. 10
5- ASTM A-307,(.016)ø BY (.286) LONG, LONGITUDINAL BOLTS
6- CIRCUMFERENCIAL BOLT SPACING=(.159) C.@ C.
7- THICKNESS IN INCHES .0747=(.0019m)
8- TUNNEL PLATES TO BE APPROVED BY PROJECT SUPERVISOR.
9- FOR PVC PIPES PROVIDE THE NECESSARY PIPE SUPPORT WHEN CEMENT GROUT IS BEING PLACED TO AVOID PIPE FLOATING.



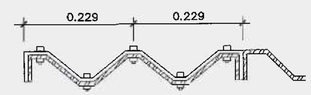
SECTION B-B



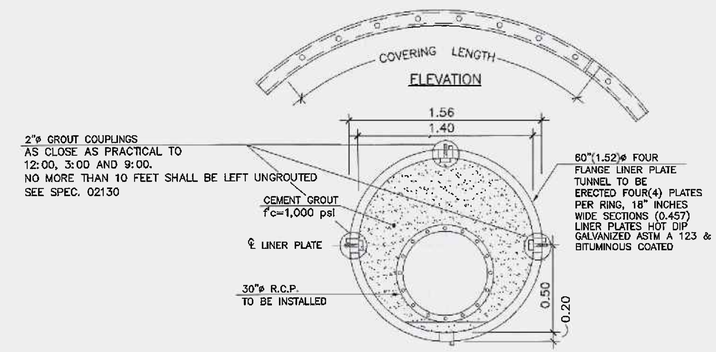
PLAN



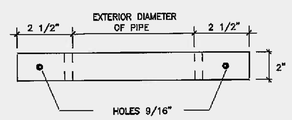
SECTION C-C

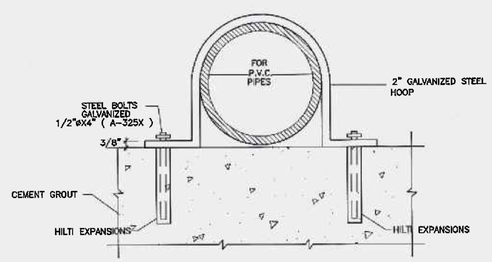


SECTION D-D



DETAIL OF TUNNEL FROM STA. 29+35.777 TO 30+10.777
(SEE PROFILES ON DRAWING PP-12)





GALVANIZED STEEL HOOP
NOT TO SCALE

TRENCHLESS TUNNEL DETAILS
NOT TO SCALE

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19448 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: TRENCHLESS LINER PLATES TUNNEL DETAILS			PLOT SCALE: H=1:50
			DRWG NO. MD-06
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	SHEET NO. 73
DESIGNED BY: A.A.F.T.		DATE 7/16/2014	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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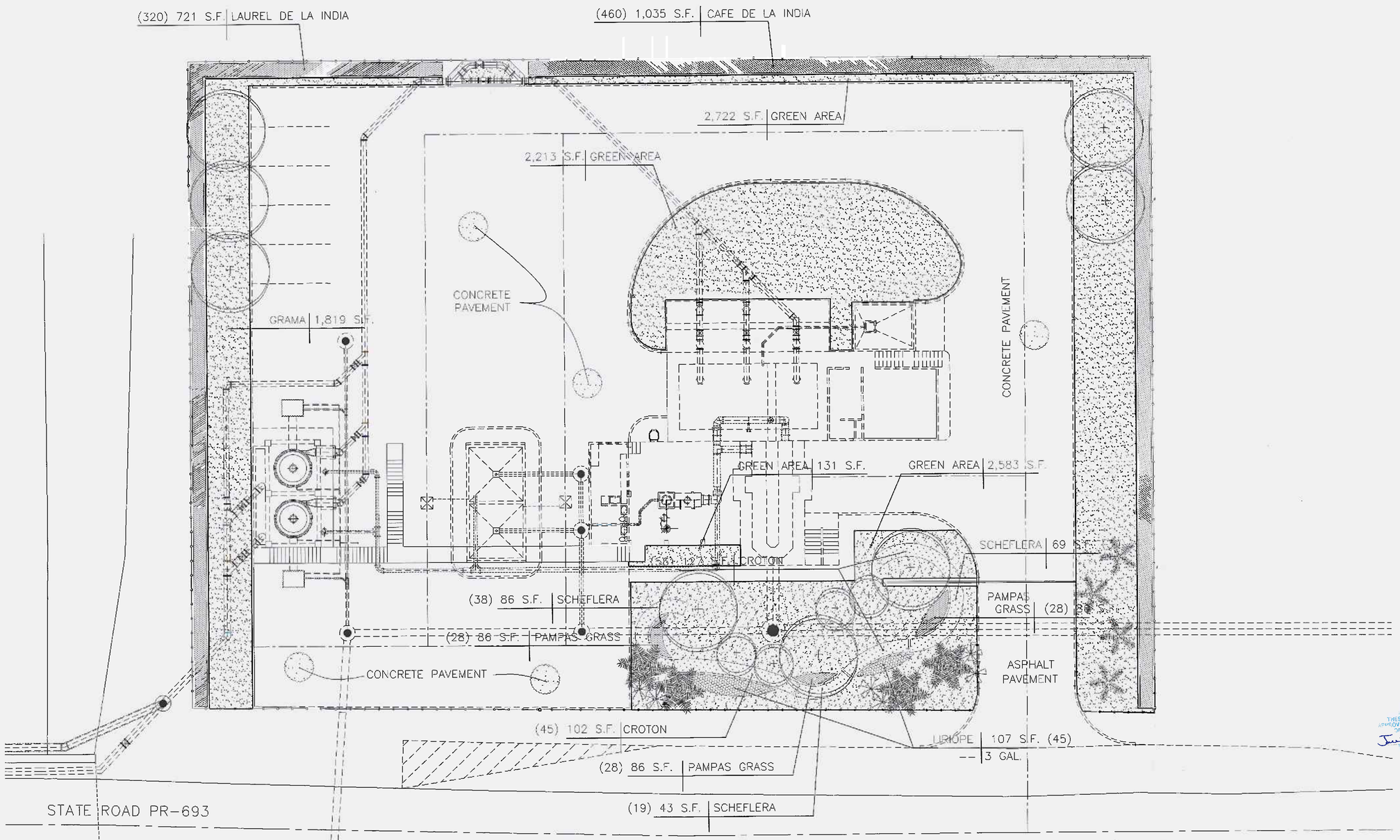

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

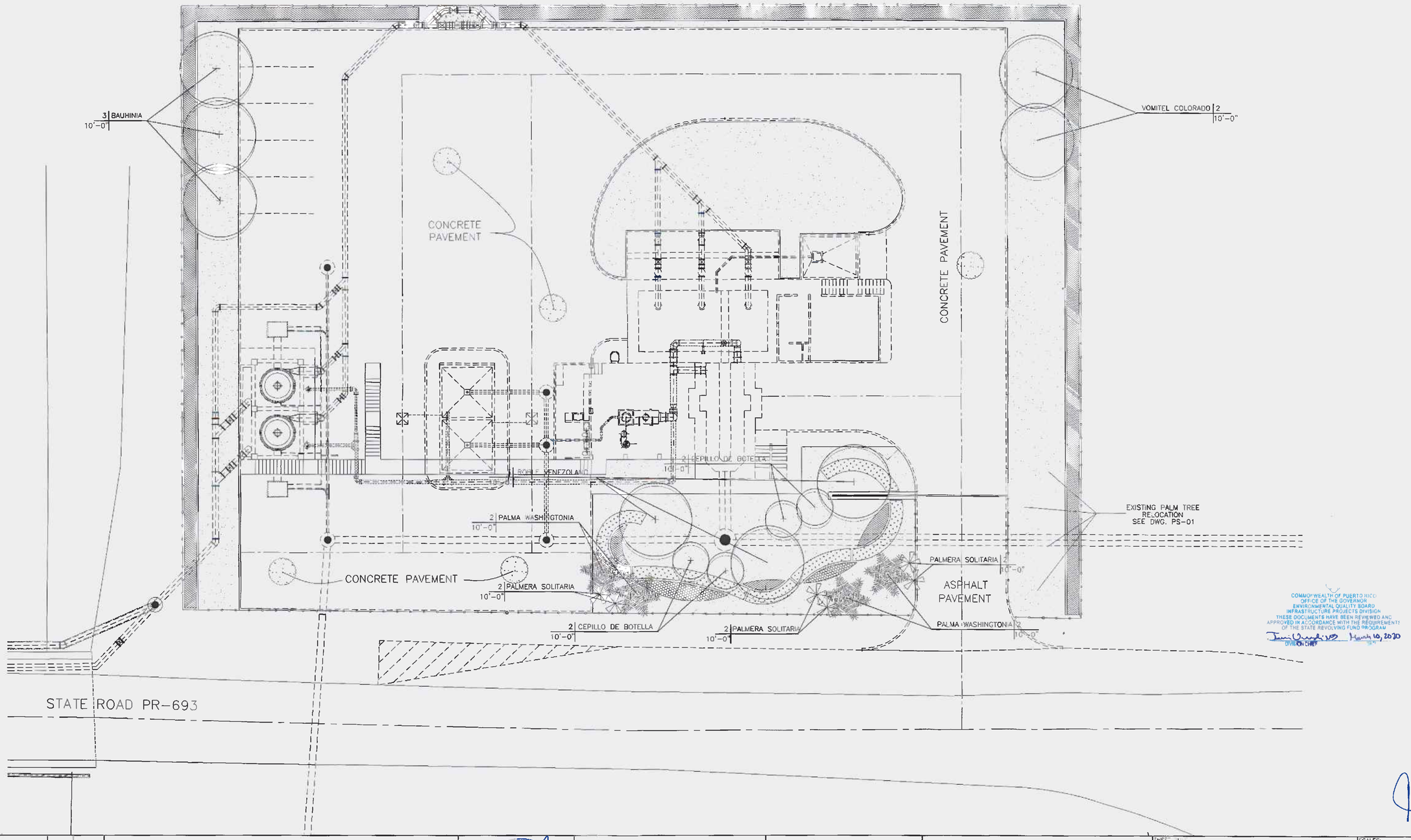
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP TREE PLANTING PLAN

DRAFTED BY: JORGE GORDILLO 505	DRAFTER LICENCE NO	DATE 7/16/2014
DESIGNED BY: J.A.M. & A.A.F.T.		DATE 7/16/2014
REVISED BY: JOSE A. MELENDEZ		DATE 7/16/2014
SUBMITTED BY: JOSE A. MELENDEZ		DATE 7/16/2014

SCALES: H=1:150 V=N/A
DWG. NO. LS-1
SHEET NO. 74
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\27-PS-01-NEW HIGUILLAR PUMP STATION SITE PLAN.dwg 5/14/2014 1:26:42 PM SWST



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19[illegible] PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

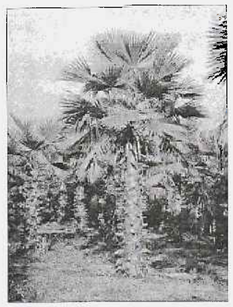
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP SHRUBS PLANTING PLAN

DRAFTED BY: JORGE GORDILLO 505	DRAFTER LICENSE NO.	DATE 7/16/2014
DESIGNED BY: J.A.M. & A.A.F.T.		DATE 7/16/2014
REVISED BY: JOSE A. MELENDEZ		DATE 7/16/2014
SUBMITTED BY: JOSE A. MELENDEZ		DATE 7/16/2014

SCALES: H=1:150 V=N/A
DRWG NO: LS-2
SHEET NO.: 75
REVISION NO. 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\27-PS-01-NEW HIGUILLAR PUMP STATION SITE PLAN.dwg 5/14/2014 1:26:42 PM SWST



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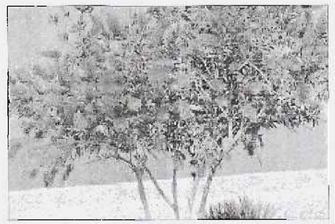
PALMERA SOLITARIA



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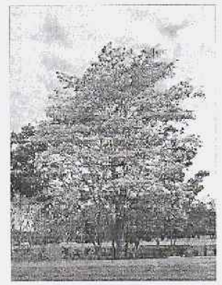
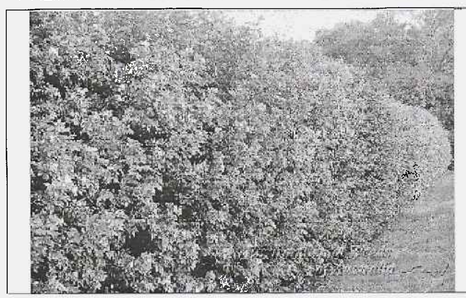


ROBLE VENEZOLANO

VOMITEL COLORADO



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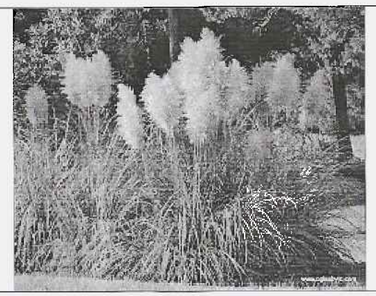
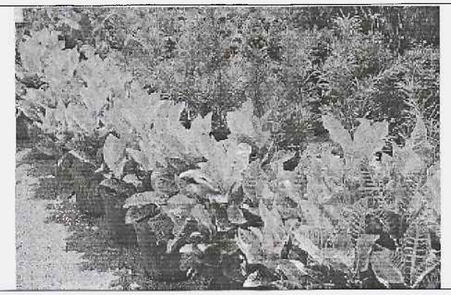
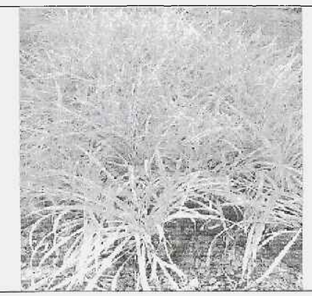


PAMPAS GRASS



CROTON



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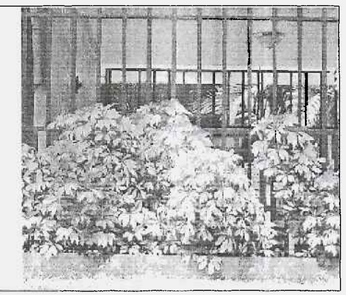
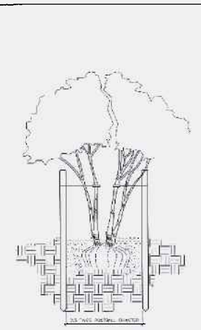


SCHEFLERA

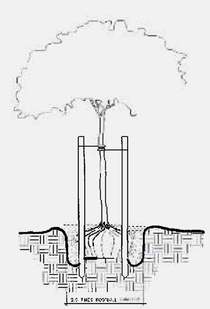
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF

PLANT SCHEDULE

QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
	TREES				
(4)	--	CEPILLO DE BOTELLA	2"-10'-0"min	B.B	REFER TO DWG
(3)	--	ROBLE VENEZOLANO	2"-10'-0"min	B.B	REFER TO DWG
(3)	--	VOMITEL COLORADO	2"-10'-0"min	B.B	REFER TO DWG
	PALMS				
(4)	--	WASHINGTONIA	8'-0"min	B.B	REFER TO DWG
(6)	--	PALMERA SOLITARIA	8'-0"min	B.B	REFER TO DWG
	SHRUBS				
(780)	LAUREL DE LA INDIA	-	3 gals	CONTAINER	2'-0" O.C.
(30)	SCHEFFLERA	-	3 gals	CONTAINER	2'-0" O.C.
(107)	LIRIOPE	-	1 gals	CONTAINER	1'-6" O.C.
(28)	PAMPA GRASS	-	3 gals	CONTAINER	2'-0" O.C.
(56)	CROTON	-	3 gals	CONTAINER	2'-0" O.C.
	GROUND COVERS				
9,468 SQ. FT.	ZOIZA MANILA	-	-	PEDAZO	-



X MULTI-TRUNK TREE PLANTING DETAIL
NOT TO SCALE



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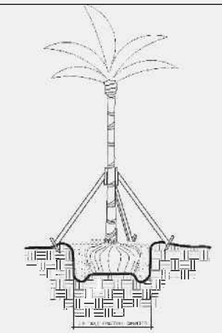

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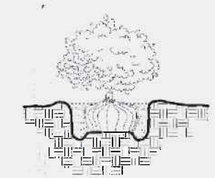

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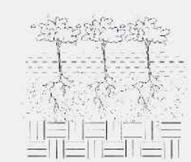
NOT TO SCALE



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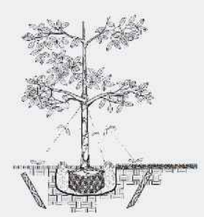
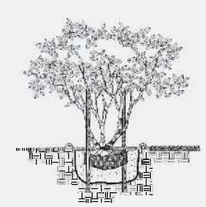
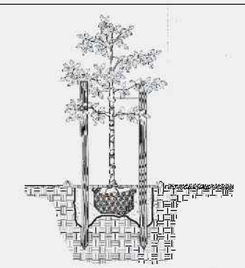
NOT TO SCALE



X LARGE TREE
NOT TO SCALE SECTION



X MULTI-TRUNK TREE
NOT TO SCALE SECTION



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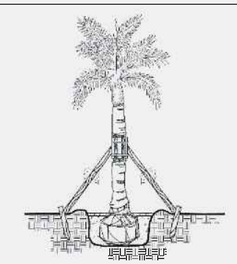

X PALM DETAIL
NOT TO SCALE SECTION

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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CIP NUM.: 2-26-5002
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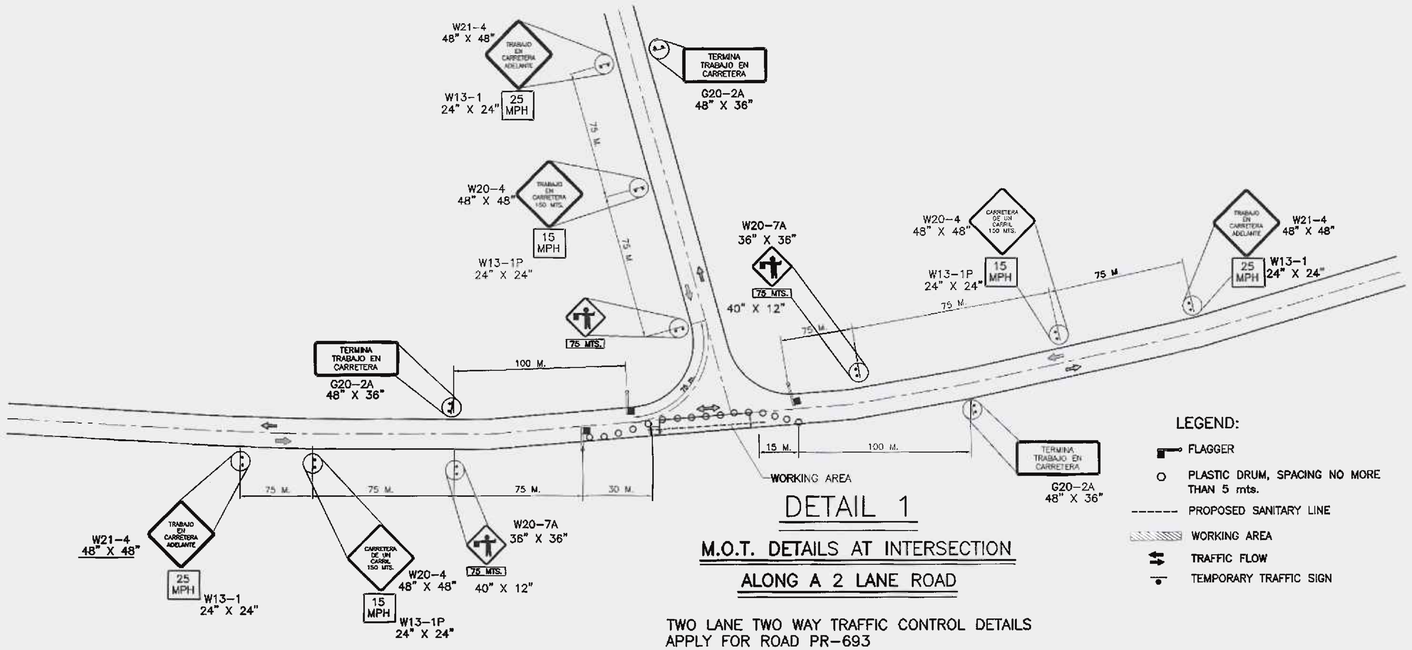
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: NEW HIGUILLAR PUMP PLAN SCHEDULE AND PLANT DETAIL

DRAWN BY: JORGE CORDILLO	DRAFTER LICENCE NO: 505	DATE 7/16/2014	
DESIGNED BY: J.A.M. & A.A.F.T.		DATE 7/16/2014	
REVISED BY: JOSE A. MELENDEZ		DATE 7/16/2014	
SUBMITTED BY: JOSE A. MELENDEZ		DATE 7/16/2014	

SCALES: NOT TO SCALE
DRWG NO. LS-3
SHEET NO. 76
REVISION NO 0

F:\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\27-PS-01-NEW HIGUILLAR PUMP STATION SITE PLAN.dwg 5/14/2014 1:26:42 PM SWST

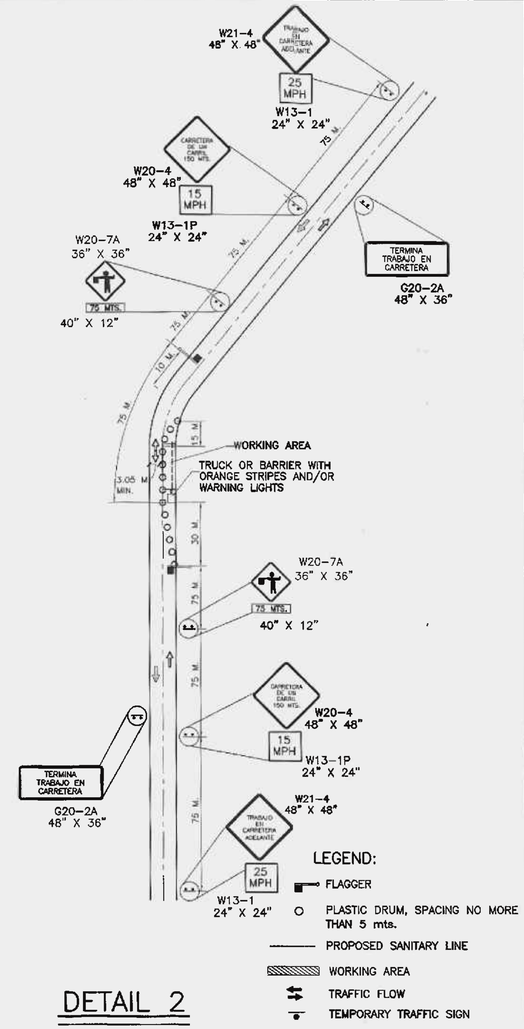


DETAIL 1

M.O.T. DETAILS AT INTERSECTION

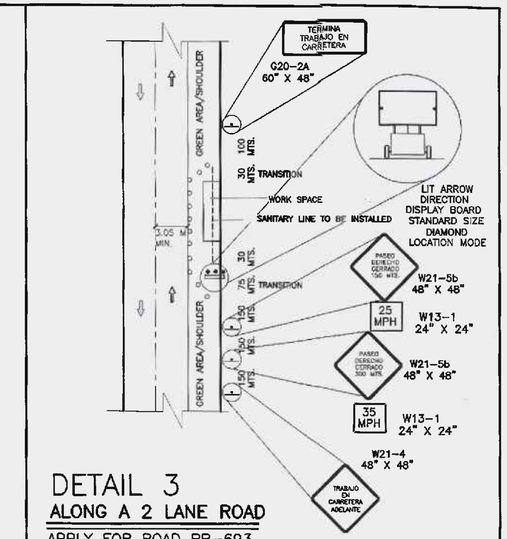
ALONG A 2 LANE ROAD

TWO LANE TWO WAY TRAFFIC CONTROL DETAILS
APPLY FOR ROAD PR-693



DETAIL 2

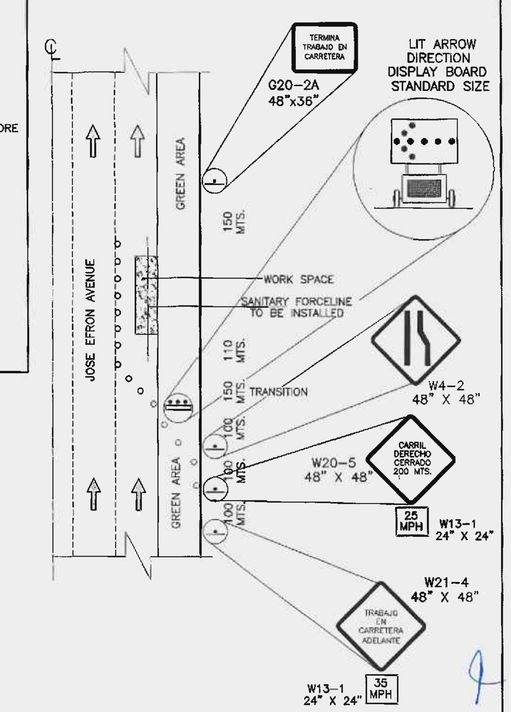
TYPICAL TRAFFIC CONTROL FOR PIPE INSTALLATION ALONG A 2 LANE ROAD. APPLY FOR ROAD PR-693 AND ROAD PR-696.



DETAIL 3

ALONG A 2 LANE ROAD

APPLY FOR ROAD PR-693
AND ROAD PR-696.
FOR SHOULDER & GREEN AREA
PIPELINE INSTALATION.



DETAIL 4

TWO LANE TWO-WAY TRAFFIC CONTROL
APPLY FOR JOSE EFRON AVENUE

FOR RIGHT LANE & GREEN AREA
PIPELINE INSTALATION.

GENERAL NOTES:

1. NO WORK OTHER THAN MOBILIZATION, TRAFFIC CONTROL AND PROJECT FIELD OFFICE, SHALL BE PERFORMED UNTIL THE PROGRESS SCHEDULE IS APPROVED BY THE ENGINEER
2. ALL TEMPORARY CONTROL DEVICES SHALL COMPLY WITH THE SUPPLEMENTAL SPECIFICATION NUMBER 638 – "MAINTENANCE AND PROTECTION OF TRAFFIC" OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005 EDITION.
3. EQUIPMENT, MATERIALS AND OTHER DEVICES USED FOR CONSTRUCTION SHALL BE REMOVED FROM THE ROADWAY AFTER WORK HOURS AND SHALL BE STAGED AT A MINIMUM OF 10 METERS FROM THE TRAVEL WAY.
4. THE DRUM SPACING SHALL BE 5 METERS.
5. ANY ALTERATION TO THE SCHEDULE THAT MAY IMPROVE TRAFFIC OPERATIONS WITH THE CONSTRUCTION AREA, IN ACCORDANCE WITH THE CURRENT MUTCD AND WITH NO ADDITIONAL COST TO THE AUTHORITY, SHALL BE SUBMITTED TO THE ENGINEER AT LEAST TWENTY ONE (21) CALENDARS DAYS IN ADVANCE TO THE PROPOSED DATE OF IMPLEMENTATION FOR REVIEW. IF THE PROPOSED ALTERATION IS APPROVED IT SHALL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR CAN PERFORM, WITH THE APPROVAL OF THE ENGINEER, SEVERAL SIMULTANEOUS ACTIVITIES WITH A STAGE, AND AS PERMITTED BY THE CONTRACT PROPOSAL QUANTITIES ON THE TRAFFIC CONTROL ITEMS.
7. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER THE INSTALLATION OF TEMPORARY CONTROL DEVICES FOR EACH PHASE AT LEAST FOURTEEN (14) CALENDAR DAYS IN ADVANCE FOR THE RELEASE OF PUBLIC NOTICE. THE CONTRACTOR SHALL NOT COMMENCE ANY OF THE CONSTRUCTION PHASES WITHOUT A PUBLIC NOTICE IS ISSUED OR WITHOUT DIRECT CONSENT FROM THE ENGINEER.
8. THE CONSTRUCTIONS SIGNS INSTALLATION SHOULD BE IN ACCORDANCE TO THE TEMPORARY TRAFFIC SIGNS MOUNTING DETAILS.
9. THE USE, LOCATION AND MESSAGES OF THE PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) SHALL BE ONLY AS DIRECTED BY THE PROJECT ENGINEER.
10. THE CONTRACTOR SHALL FURNISH TEMPORARY CONTROL DEVICES THAT MEET NCHRP 350 CRITERIA FOR THE APPLICABLE CRASH WORTHINESS STANDARD.
11. ALL EXISTING SIGNS AND TRAFFIC CONTROL SIGNS DETERMINED BY THE ENGINEER TO BE UNNECESSARY OR CONTRADICTORY TO THE APPLICABLE CONSTRUCTION SIGNS AND OPERATION, SHALL BE IMMEDIATELY COVERED IN ITS ENTIRETY WITH NON ABRASIVE MATERIAL AND SHALL BE INSPECTED DURING DAY AND NIGHT TIME TO ENSURE THAT THE SIGN IS NOT READABLE. THIS WORK IS A SUBSIDIARY OBLIGATION TO THE CONTRACT UNDER EXISTING PAY ITEMS.
12. DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL TAKE ALL THE NECESSARY PRECAUTIONS AND MEASURES TO AVOID FALLING DEBRIS, TOOLS, EQUIPMENT OR ANY OTHER MATERIALS INTERFERENCE OR IMPACT TO THE MOTORING PUBLIC IN THE ROADWAY. ALL THE MATERIALS, LABOR EQUIPMENT, AND WORK NECESSARY FOR IMPLEMENTING THIS REQUIREMENT IS SUBSIDIARY OBLIGATION OF THE CONTRACT UNDER EXISTING PAY ITEMS.
13. THE CONTRACTOR SHALL MAINTAIN ACCESS AT ALL TIMES TO ADJACENT PROPERTIES DURING CONSTRUCTION. THIS WORK WILL REQUIRE COORDINATION WITH BUSINESSES AND PRIVATE OWNERS. ALL THE MATERIALS, LABOR, EQUIPMENT, AND WORK NECESSARY FOR IMPLEMENTING THIS REQUIREMENT IS SUBSIDIARY OBLIGATION OF THE CONTRACT UNDER EXISTING PAY ITEMS.
14. TEMPORARY CONCRETE BARRIER SHOULD HAVE AN OFF-SET END SECTION (WITH APPROPRIATE FLARE RATE), AS APPROVED BY THE ENGINEER.
15. NO EXCAVATION AND / OR PAVEMENT DROP OFF SHALL REMAIN OPEN WITHIN THE TRAVELED WAY WHEN THE CONTRACTOR OR ITS PERSONNEL IS NOT WORKING AND PHYSICALLY PRESENT AT THE WORK SITE.
16. IN CASE THAT THE WORKS AFFECTED THE EXISTING LUMINARIES THE CONTRACTOR SHALL PROVIDE ADEQUATE ILLUMINATION IN THE AFFECTED AREA. THE GLARE OF THE TEMPORARY ILLUMINATION SHOULD NOT AFFECT THE DRIVER'S VISIBILITY.
17. TEMPORARY CONCRETE BARRIER SHALL BE USED TO PROTECT VEHICULAR TRAFFIC FROM EXCAVATION OR PAVEMENT DROP-OFF AREAS EQUAL OF GREATER THAN 0.30 METERS DEEP THAT WILL REMAIN OPEN FOR MORE THAN ONE DAY, AS APPROVED BY THE ENGINEER.
18. BEFORE IMPLEMENTING ANY RAMP CLOSURE THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER THE PROGRAMMING OF THE TRAFFIC SIGNAL SYSTEMS THROUGHOUT THE DETOUR ROUTES.
19. IT IS OF THE UPMOST IMPORTANCE THAT ALL EXISTING STORM DRAINAGE SYSTEMS BE KEPT FUNCTIONING AT ALL TIMES AND PROVIDE MEANS TO PREVENT CLOGGING OF THESE SYSTEMS DURING CONSTRUCTION. THIS APPLIES ON ALL PHASES OF CONSTRUCTION,
20. IN ALL CONSTRUCTION OPERATIONS UNDER THIS CONTRACT, ALL PRECAUTIONS SHALL BE EXERCISED IN OTHER THAT THE MOVEMENT OF EQUIPMENT AND CONSTRUCTION WORK SHALL BE PERFORMED IN SUCH A WAY AS TO AVOID UNNECESSARY INCONVENIENCES TO TRAFFIC.
21. REPAIR OF DAMAGE TO EXISTING PAVEMENTS CAUSED BY CONSTRUCTION OPERATION OR EQUIPMENT SHALL BE CONTRACTOR'S RESPONSIBILITY AND UNDERTAKEN AT THE CONTRACTOR'S EXPENSE.
22. FOR ALL TRAFFIC CONTROL DEVICES AND TRAFFIC CONTROL OPERATIONS, REFER TO THE PUERTO RICO AND TRANSPORTATION AUTHORITY STANDARD DRAWINGS (JUNE 2012) AND MUTCD 2009 EDITION.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
MANAGER
DATE

NOTE:

1. DIRECTIONS FOR THE USE OF DEVICES BY FLAGGERS AND OTHER DETAILS, SEE DWG. MOT-06

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcmc CIVIL ENGINEERING CONSULTANTS
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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MAINTENANCE OF TRAFFIC			SCALES: N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MOT-01
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 77
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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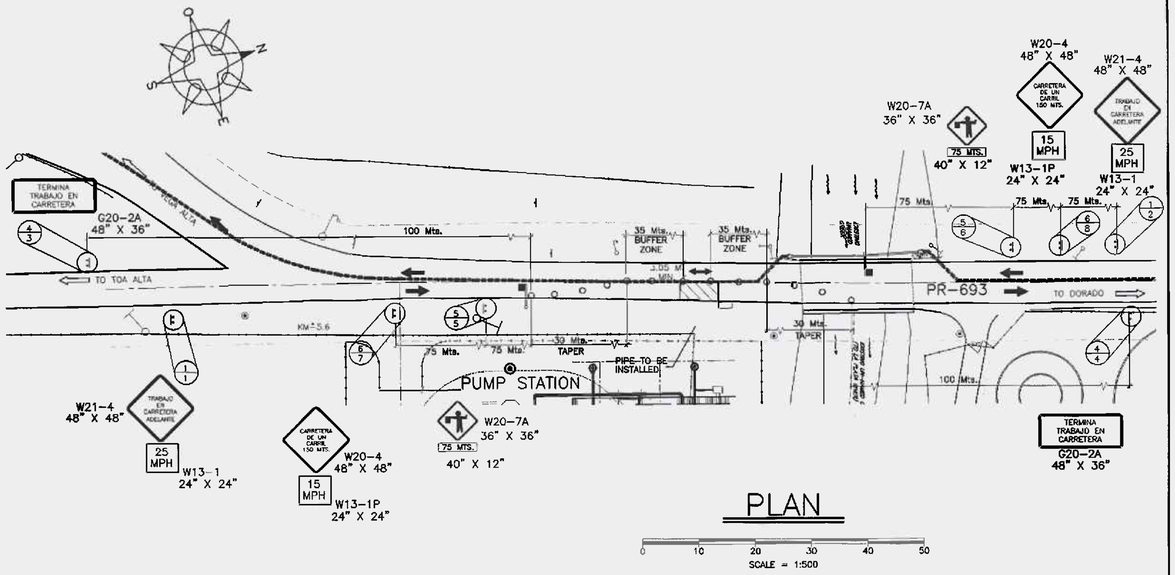
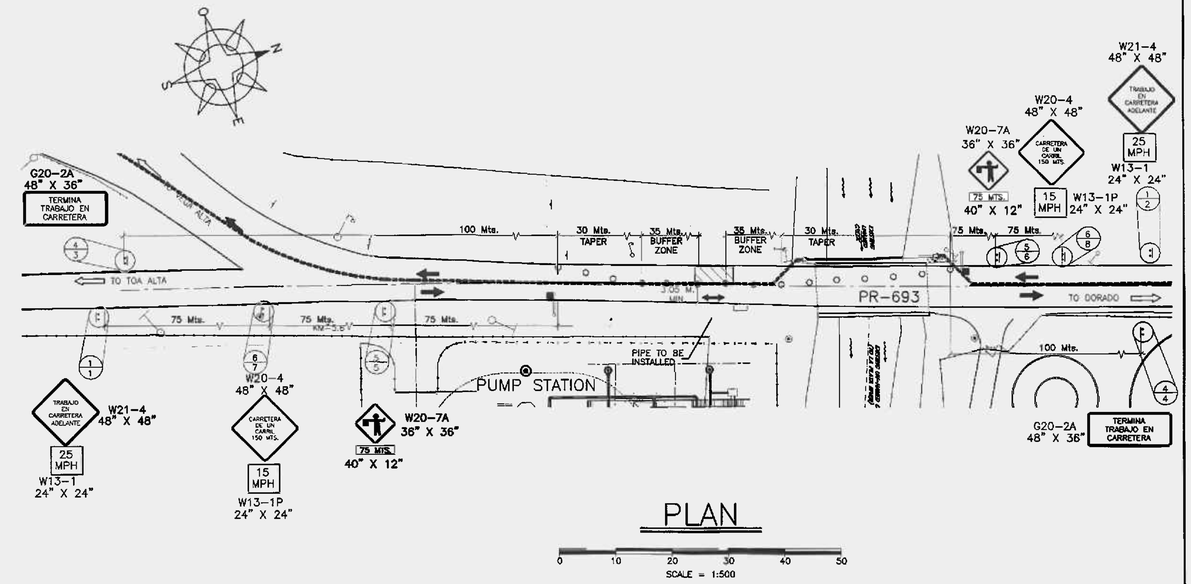


PLAN

SCALE = 1:500

TWO LANE ONE WAY TRAFFIC OPERATION CONTROL DETAILS
APPLY FOR CROSSING ROAD PR-693



PLAN

SCALE = 1:500

TWO LANE ONE WAY TRAFFIC OPERATION CONTROL DETAILS
APPLY FOR CROSSING ROAD PR-693

LEGEND:

- FLAGGER
- PLASTIC DRUM SPACING NO MORE THAN 5 mts.
- X/Y TEMPORARY SIGN IDENTIFICATION X = CODE NUMBER Y = LOCATION NUMBER
- WORKING AREA
- TRAFFIC FLOW
- TEMPORARY TRAFFIC SIGN

PHASE 1
M.O.T. DETAILS CROSSING ROAD PR-693

CONSTRUCTION PROCEDURE:

1) SIGN INSTALLATION
2) DEVICE INSTALLATION AND LUMINARY
3) BEGAN EXCAVATION FOR PIPE INSTALLATION.
4) BACKFILLED EXCAVATION AND RE-PAVEMENT
5) REMOVE OR COVER THE SIGNS AND REMOVE DEVICE

NOTE:

1. REFER TO GENERAL NOTES, SEE DWG. MOT-01.
2. DIRECTIONS FOR THE USE OF DEVICES BY FLAGGERS AND OTHER DETAILS, SEE DWG. MOT-06

APPLY FOR CROSSING ROAD PR-693
SIGN DATA FOR TEMPORARY TRAFFIC CONTROL

CODE NUMBER	LOCATION NUMBER	SIGN CODE	LEGEND	SIZE OF SIGN PANELS	OVERHEAD STRUCTURE TYPE	REFERENCE MANUAL	TOTAL ITEM
1	1,2	W20-1 W13-1	TRABAJO EN CARRETERA ADELANTE 25 MPH	48" X 48" 24" X 24"	N/A	DTOP & MUTCD MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP & MUTCD	2
4	3,4	G20-2A	TERMINA TRABAJO EN CARETERA	48" X 36"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP & MUTCD	2
5	5,6	W20-7A	75 MTS.	48" X 48"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP & MUTCD	2
6	7,8	W20-4 W13-1	CARRETERA DE UN CARRIL 150 MTS. 15 MPH	48" X 48" 24" X 24"	N/A	DTOP & MUTCD MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP & MUTCD	2
7	9	W20-4 W13-1	TRABAJO EN CARRETERA 150 MTS 15 MPH	48" X 48" 24" X 24"	N/A	DTOP & MUTCD MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP & MUTCD	1

LEGEND:

- FLAGGER
- PLASTIC DRUM SPACING NO MORE THAN 5 mts.
- X/Y TEMPORARY SIGN IDENTIFICATION X = CODE NUMBER Y = LOCATION NUMBER
- WORKING AREA
- TRAFFIC FLOW
- TEMPORARY TRAFFIC SIGN

PHASE 2
M.O.T. DETAILS CROSSING ROAD PR-693

CONSTRUCTION PROCEDURE:

1) SIGN INSTALLATION
2) DEVICE INSTALLATION AND LUMINARY
3) BEGAN EXCAVATION FOR PIPE INSTALLATION.
4) BACKFILLED EXCAVATION AND RE-PAVEMENT
5) REMOVE OR COVER THE SIGNS AND REMOVE DEVICE

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE 10/2020

NOTE:

1. REFER TO GENERAL NOTES, SEE DWG. MOT-01.
2. DIRECTIONS FOR THE USE OF DEVICES BY FLAGGERS AND OTHER DETAILS, SEE DWG. MOT-06

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FIGUEROA JAGUAR — LICENSED PROFESSIONAL ENGINEER — LIC. #19149 — PUERTO RICO

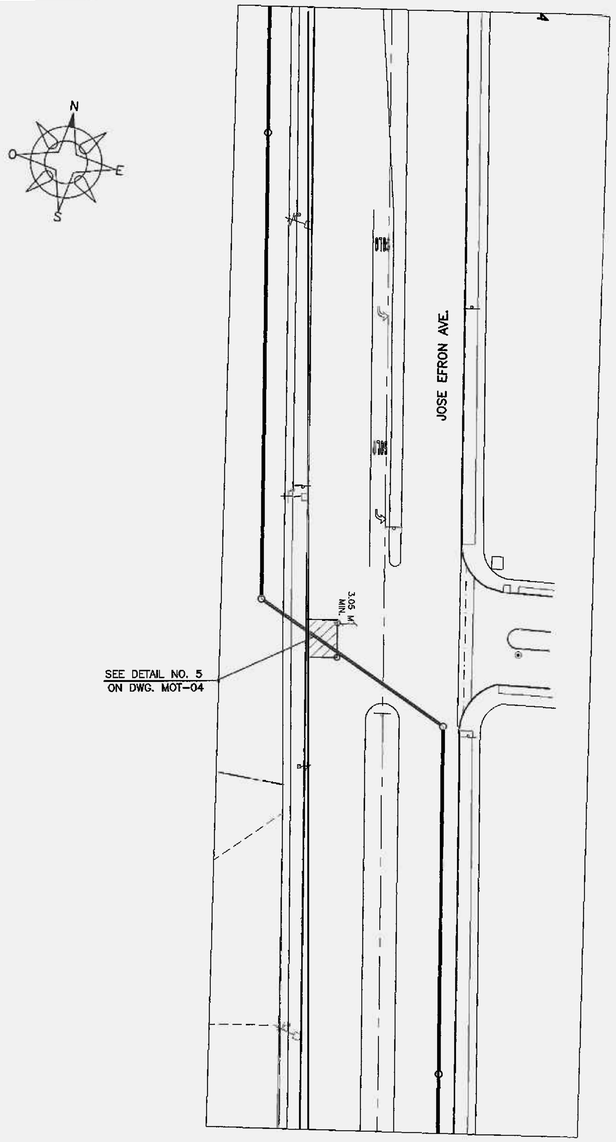
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MAINTENANCE OF TRAFFIC			SCALES: 1:500
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MOT-02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 78
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

O:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\MOT PLANS\78-MOT-02-MAINTENANCE OF TRAFFIC-PR-693.dwg 7/16/2014 4:48:39 PM SWST



PLAN

0 10 20 30 40 50
SCALE = 1:500

TWO LANE TWO WAY TRAFFIC OPERATION CONTROL DETAILS APPLY FOR CROSSING JOSE EFRON AVE.

LEGEND:

- FLAGGER
- PLASTIC DRUM SPACING NO MORE THAN 5 mts.
- X / Y — TEMPORARY SIGN IDENTIFICATION X = CODE NUMBER Y = LOCATION NUMBER
- WORKING AREA
- TRAFFIC FLOW
- TEMPORARY TRAFFIC SIGN

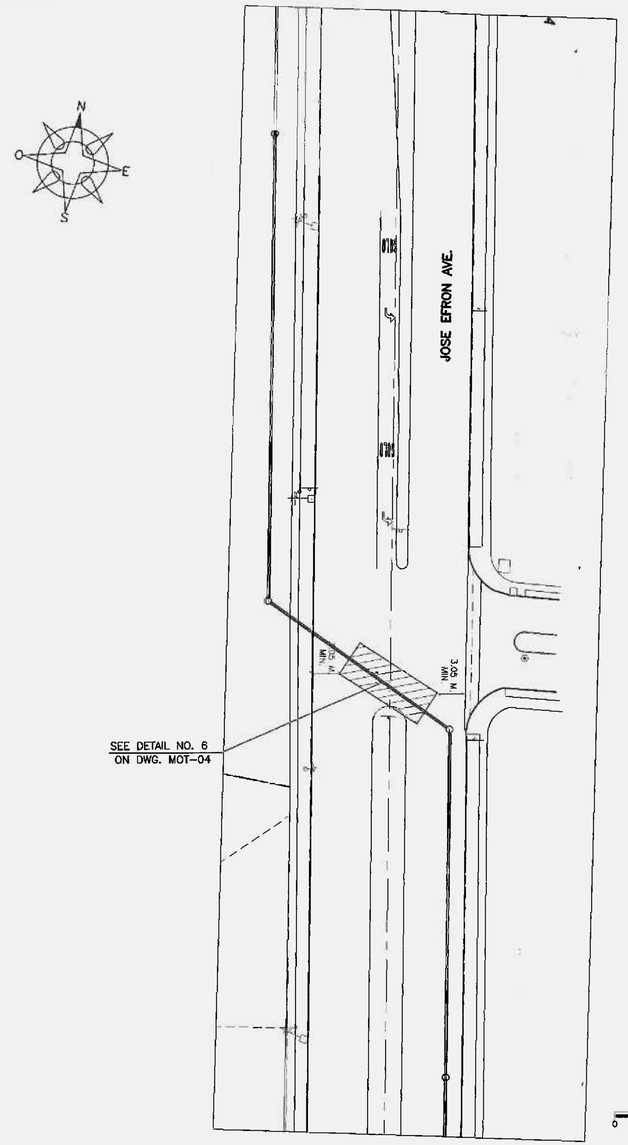
1. REFER TO GENERAL NOTES, SEE DWG. MOT-01.
2. DIRECTIONS FOR THE USE OF DEVICES BY FLAGGERS AND OTHER DETAILS, SEE DWG. MOT-06
3. FOR TEMPORARY TRAFFIC CONTROL SIGN DATA, SEE DWG. MOT-04.

PHASE 1, STAGE 1

M.O.T. DETAILS CROSSING JOSE EFRON AVE.

CONSTRUCTION PROCEDURE:

1) SIGN INSTALLATION
2) DEVICE INSTALLATION AND LUMINARY
3) BEGAN EXCAVATION FOR PIPE INSTALLATION.
4) BACKFILLED EXCAVATION AND RE-PAVEMENT
5) REMOVE OR COVER THE SIGNS AND REMOVE DEVICE



PLAN

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SCALE = 1:500

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

TWO LANE TWO WAY TRAFFIC OPERATION CONTROL DETAILS APPLY FOR CROSSING JOSE EFRON AVE.

LEGEND:

- FLAGGER
- PLASTIC DRUM SPACING NO MORE THAN 5 mts.
- X / Y — TEMPORARY SIGN IDENTIFICATION X = CODE NUMBER Y = LOCATION NUMBER
- WORKING AREA
- TRAFFIC FLOW
- TEMPORARY TRAFFIC SIGN

1. REFER TO GENERAL NOTES, SEE DWG. MOT-01.
2. DIRECTIONS FOR THE USE OF DEVICES BY FLAGGERS AND OTHER DETAILS, SEE DWG. MOT-06
3. FOR TEMPORARY TRAFFIC CONTROL SIGN DATA, SEE DWG. MOT-04.

PHASE 1, STAGE 2

M.O.T. DETAILS CROSSING JOSE EFRON AVE.

CONSTRUCTION PROCEDURE:

1) SIGN INSTALLATION
2) DEVICE INSTALLATION AND LUMINARY
3) BEGAN EXCAVATION FOR PIPE INSTALLATION.
4) BACKFILLED EXCAVATION AND RE-PAVEMENT

4

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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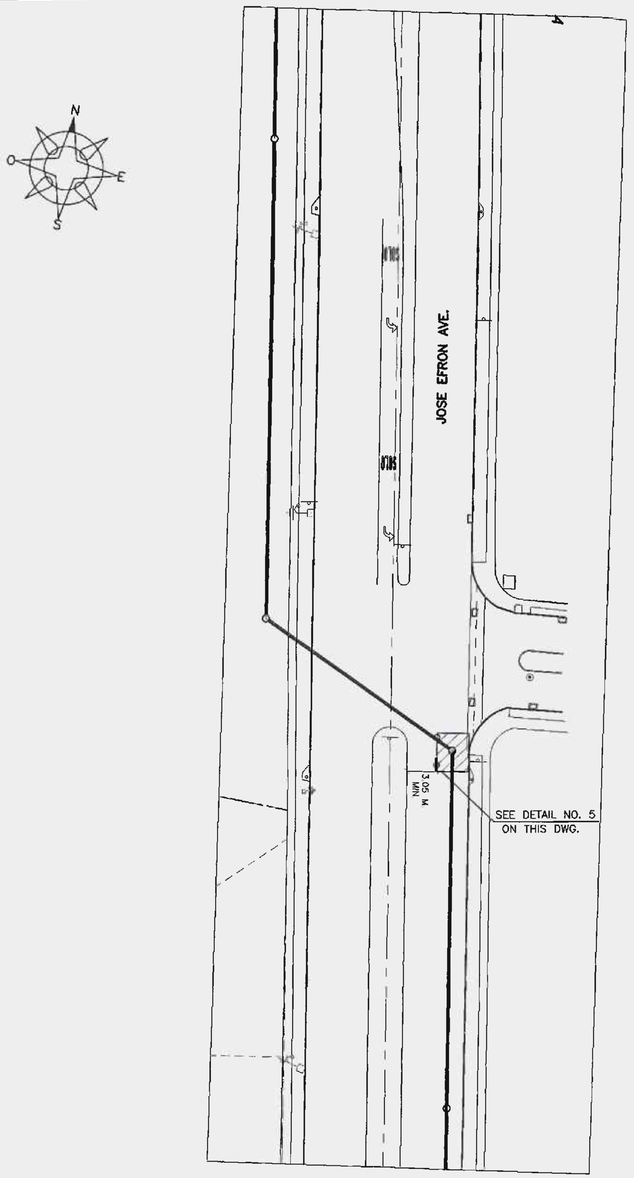
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MAINTENANCE OF TRAFFIC			SCALES: 1:500
			DRWG NO. MOT-03
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	SHEET NO. 79
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\MOT PLANS\79-MOT-03-MAINTENANCE OF TRAFFIC-JOSE EFRON AVE.dwg 7/16/2014 4:50:16 PM SWST



PLAN

0 10 20 30 40 50
SCALE = 1:500

TWO LANE TWO WAY TRAFFIC OPERATION CONTROL DETAILS
APPLY FOR CROSSING JOSE EFRON AVE.

LEGEND:

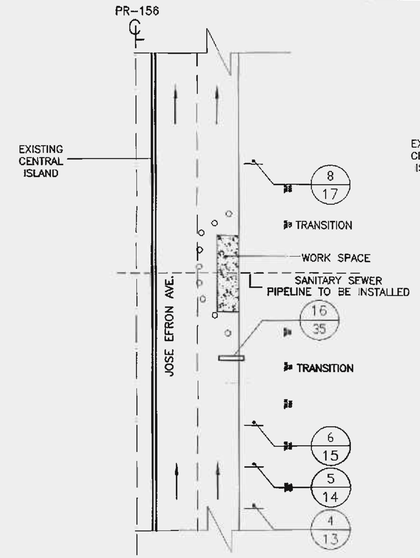
- FLAGGER
- PLASTIC DRUM SPACING NO MORE THAN 5 mts.
- X/Y TEMPORARY SIGN IDENTIFICATION X = CODE NUMBER Y = LOCATION NUMBER
- WORKING AREA
- TRAFFIC FLOW
- TEMPORARY TRAFFIC SIGN

1. REFER TO GENERAL NOTES, SEE DWG. MOT-01.
2. DIRECTIONS FOR THE USE OF DEVICES BY FLAGGERS AND OTHER DETAILS, SEE DWG. MOT-06

PHASE 1, STAGE 3
M.O.T. DETAILS CROSSING JOSE EFRON AVE.

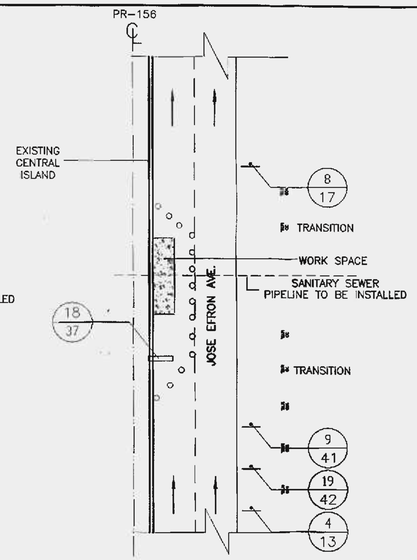
CONSTRUCTION PROCEDURE:

1) SIGN INSTALLATION
2) DEVICE INSTALLATION AND LUMINARY
3) BEGAN EXCAVATION FOR PIPE INSTALLATION.
4) BACKFILLED EXCAVATION AND RE-PAVEMENT
5) REMOVE OR COVER THE SIGNS AND REMOVE DEVICE



DETAIL 5

FOR EXCAVATION FOR SANITARY PIPELINE ACROSS JOSE EFRON AVE.



DETAIL 6

FOR EXCAVATION FOR SANITARY PIPELINE ACROSS JOSE EFRON AVE.

APPLY FOR CROSSING JOSE EFRON AVE.
SIGN DATA FOR TEMPORARY TRAFFIC CONTROL

CODE NUMBER	LOCATION NUMBER	SIGN CODE	LEGEND	SIZE OF SIGN PANELS	OVERHEAD STRUCTURE TYPE	REFERENCE MANUAL	TOTAL ITEM
4	13	W21-4	TRABAJO EN CARRETERA MEDIANTE	48" X 48"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
5	14	W20-5 W13-1	CAMBIO DERECHO CERRADO 300 MTS. 25 MPH	48" X 48" 24" X 24"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
6	15	W4-2		48" X 48"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
8	17	G20-2	TERMINA CONSTRUCCION	60" X 48"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
9	41	W4-2(L)		48" X 48"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
16	35	LIT ARROW DIRECTION DISPLAY BOARD		STANDARD	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
18	37	LIT ARROW DIRECTION DISPLAY BOARD		STANDARD	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1
19	42	W20-5 W13-1	CAMBIO DERECHO CERRADO 300 MTS. 35 MPH	48" X 48" 24" X 24"	N/A	MANUAL DE SEÑALES DE TRANSITO PARA LAS VIAS PUBLICAS DE PUERTO RICO DTOP	1

SPECIAL NOTES FOR WORKS IN CROSSINGS JOSE EFRON AVE.

1- MINIMUM DISTANCE BETWEEN SIGNS SHALL BE 50 METERS.
2- MINIMUM AVAILABLE ROADWAY WIDTH SHALL BE 3.65mt. (3.35 mt. IN EXTREME CASES).
3- ALL SIGNS SHALL BE 48"x48", EXCEPT W13-1 24"x24".
4- FOR MORE MOT DETAILS SEE DWG. MOT-03.
5- ALL SIGNS SHALL MEET SIZE, MATERIAL, MOUNTING FRAME, REFLECTION AND ALL OTHER REQUIREMENTS INCLUDED IN THE MANUALS THAT DTOP AND ACT WORK BY.
6- IF THE FLAG MEN CAN'T SEE EACH OTHER THEY SHALL USE RADIO-TELEPHONES. FLAGGERS MAY BE MAINTAINED ON AREAS WHERE TRAFFIC COULD ENCOUNTER PROBLEMS WITH TRUCKS AND HEAVY MACHINERY. TRAFFIC SIGN W20-7A SHALL BE INSTALLED 50m MINIMUM BEFORE ANY FLAGGERS.
7- THE CONTRACTOR MUST PROVIDE ACCESS TO BUS STOPS, SIDEWALKS, RESIDENTIAL DRIVEWAYS AND NEIGHBORHOOD ROADS AT ALL TIMES.
8- THE CONTRACTOR SHALL PAVE THE AFFECTED LANES INMEDIATLEY, AS THE SAME CONDITION OR BETTER THAN BEFORE CONSTRUCTION.
9- THE ENTIRE ROAD LENGTH MUST BE MARKED AS THE SAME EXISTING PAVEMENT MARKING, UNLESS OTHERWISE SPECIFIED.
10-NONE OF THE EXCAVATIONS WILL REMAIN OPEN BEFORE OR AFTER THE CONSTRUCTION SCHEDULE. ALL EXCAVATION SHALL BE BACKFILLED THE SAME DAY.
11- FOR SIGN DATA SHEET SEE THIS DRAWING.
12-EQUIPMENT, MATERIALS AND OTHER DEVICES USED FOR THE CONSTRUCTION SHALL BE REMOVED FROM THE TRAFFIC LANES AFTER WORKING HOURS EVERY DAY.
13-THE ROADWAY MUST BE KEPT FREE OF DEBRIS AND MATERIALS ORIGINATED FROM THE CONSTRUCTION WORK AT ALL TIMES.
14-FLAGGERS MAY BE MAINTAINED ON AREAS WHERE TRAFFIC COULD ENCOUNTER PROBLEMS WITH TRUCKS AND HEAVY MACHINERY. TRAFFIC SIGN W20-7A SHALL BE INSTALLED 50m. MINIMUM BEFORE ANY FLAGGERS.
15-THE CONTRACTOR SHALL PROVIDE ADEQUATE ILLUMINATION IN THE WORKING AREA.
16-STREET WILL NOT BE CLOSED IN ANYTIME.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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SIGNATURE — DATE

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

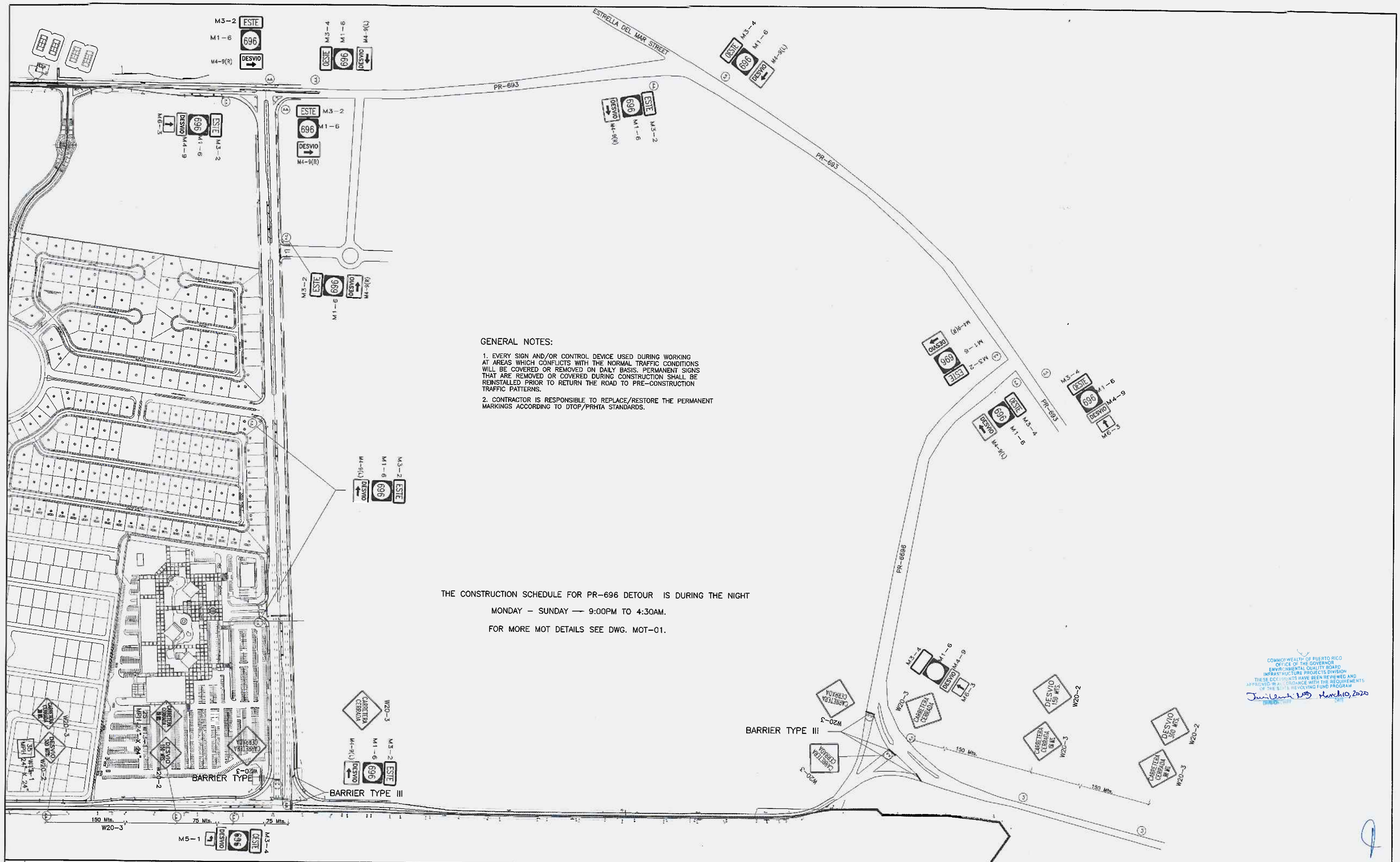
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MAINTENANCE OF TRAFFIC FOR CROSSING OF PR-693 (1)

DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	

SCALES: 1:500
DRWG NO. MOT-04
SHEET NO. 80
REVISION NO. 0

Q:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\MOT PLANS\80-MOT-04-MAINTENANCE OF TRAFFIC-JOSE EFRON AVE.dwg 7/16/2014 4:52:37 PM SWST



GENERAL NOTES:

1. EVERY SIGN AND/OR CONTROL DEVICE USED DURING WORKING AT AREAS WHICH CONFLICTS WITH THE NORMAL TRAFFIC CONDITIONS WILL BE COVERED OR REMOVED ON DAILY BASIS. PERMANENT SIGNS THAT ARE REMOVED OR COVERED DURING CONSTRUCTION SHALL BE REINSTALLED PRIOR TO RETURN THE ROAD TO PRE-CONSTRUCTION TRAFFIC PATTERNS.

2. CONTRACTOR IS RESPONSIBLE TO REPLACE/RESTORE THE PERMANENT MARKINGS ACCORDING TO DTOP/PRHTA STANDARDS.

THE CONSTRUCTION SCHEDULE FOR PR-696 DETOUR IS DURING THE NIGHT

MONDAY – SUNDAY — 9:00PM TO 4:30AM.

FOR MORE MOT DETAILS SEE DWG. MOT-01.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MAINTENANCE OF TRAFFIC			SCALES: 1:2,500
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MOT-05
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 81
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

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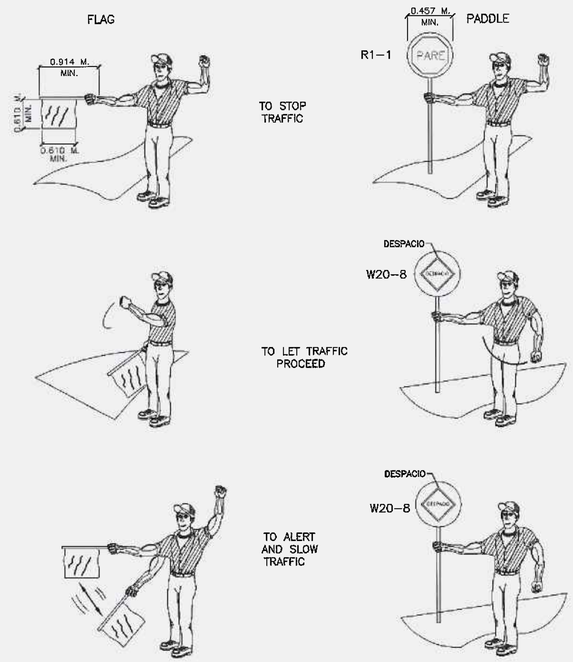
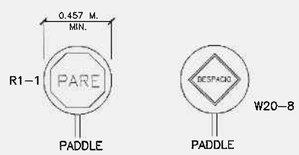
EMERGENCY SITUATIONS ONLY
RED FLAGS

PREFERRED METHOD
PARE/DESPACIO PADDLE



USE OF HAND-SIGNALING DEVICES BY FLAGGERS

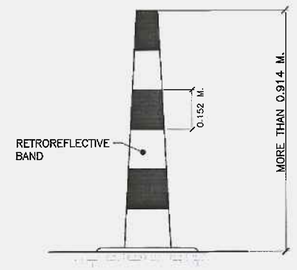


METHODS OF SIGNALING WITH PADDLE

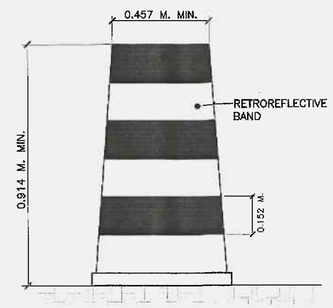
A. TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE "PARE" PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT STOPPED ROAD USSERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE "DESPACIO" PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.

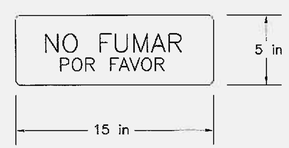
C. TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE "DESPACIO" PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY.



CONE
NOT TO SCALE

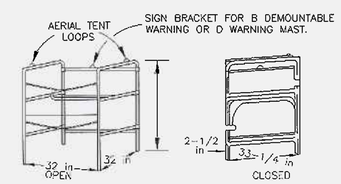


REFLECTORIZED PLASTIC DRUM
NOT TO SCALE



NO SMOKING SIGN

FOR USE AS A WARNING TO PREVENT ACCIDENTS IN OR NEAR MANHOLES CONSISTS OF ALUMINUM PLATE WITH SPRING HOOKS FOR ATTACHING TO MANHOLE GUARDS



FOR USE IN GUARDING OPEN MANHOLES AND OTHER SMALL OBSTRUCTIONS MAY BE USED AS A BARRICADE OR DEVICE. MADE OF 3/4 in STEEL PIPE.

MANHOLES GUARD

NOTES TO CONSTRUCTION INSPECTOR & CONTRACTOR:

1- IT IS THE CONSTRACTOR RESPONSIBILITY TO ENSURE THE ENFORCEMENT & COMPLIANCE OF ALL SAFETY RULES INCLUDED IN THE BELL SYSTEM PRACTICE NUMBER 620 – 135 – 010 , "GUARDING WORK AREAS" AS WELL AS ALL STATE AND / OR LOCAL RULES APPLICABLE.

2- COPY OF THIS PRACTICE IS AVAILABLE UPON REQUEST FROM THE D.T.O.P. CONSTRUCTION DEPT.

3- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL STATE OR LOCAL SAFETY REQUIREMENTS. IN NO EVENT THE OMMISION OF ANY SUCH REQUIREMENT IN THESE NOTES WILL WAIVE THE CONTRACTOR TO COMPLY WITH THEM.

4- IN NO EVENT SHALL THE CONSTRUCTION INTERFERE WITH THE FREE TRANSIT OF VEHICULES AND / OR PEDESTRIAN.

5- IN NO EVENT THE MATERIAL PRODUCT OF ANY EXCAVATION SHALL INTERFERE WITH THE FREE TRANSIT OF VEHICLES AND / OR PEDESTRIANS.

6- THE CONTRACTOR SHALL AT ALL TIMES TAKE ALL REASONABLE PRECAUTIONS FOR THE SAFETY OF EMPLOYEES ON THE WORK AND OF THE PUBLIC AND SHALL COMPLY WITH ALL APLICABLE PROVISIONS OF FEDERAL, COMMONWEALTH AND MUNICIPAL SAFETY LAWS AND BUILDING AND CONSTRUCTION CODES WHEN APPLICABLE. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PUERTO RICO OCCUPATIONAL SAFETY AND HEALTH ACT (LAW NUMBER 16 APPROVED ON AUGUST 5, 1975) THE CONTRACTOR SHALL PROVIDE AND UTILIZE EQUIPMENT FOR PERSONAL PROTECTION, MATERIALS, TOOLS, EQUIPMENT AND APPROVED WORK PROCEDURES WHICH GUARANTEE THE PERFORMANCE OF THE DISPOSITION OF THE GENERAL INDUSTRY OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND THE SAFETY AND HEALTH STANDARDS APPLICABLE TO THE CONSTRUCTION INDUSTRY (10 OSHA 1926).

GENERAL CONDITIONS FOR SECURITY DURING CONSTRUCTION AS REQUIRED

TABLE A
SPACING FOR INITIAL
WARNING SIGNS AND CONES

POSTED TRAFFIC SPEED (M.P.H.)	INITIAL SIGN DISTANCE (FEET)	CONE SPACING (FEET)
15 OR UNDER	* 90	10
20	* 120	20
25	* 150	25
30	* 180	30
35	* 210	35
40	* 240	40
45 OR ABOVE	NOTE 1	NOTE 2
EXPRESSWAY OR FREEWAY	3100	NOTE 2
ONE LANE TRAFFIC	SEE POSTED SPEED	NOTE 2

NOTES:

1- INITIAL WARNING SIGN TO BE PLACED AT A POINT 10 TIMES POSTED SPEED.
2- SAME AS POSTED SPEED.

* INITIAL WARNING SIGN TO BE PLACED AT A POINT 6 TIMES POSTED SPEED.

COMMONWEALTH OF PUERTO RICO
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DATE

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. ARIAS INGENIERO LICENSIADO LIC. #18135 PUERTO RICO

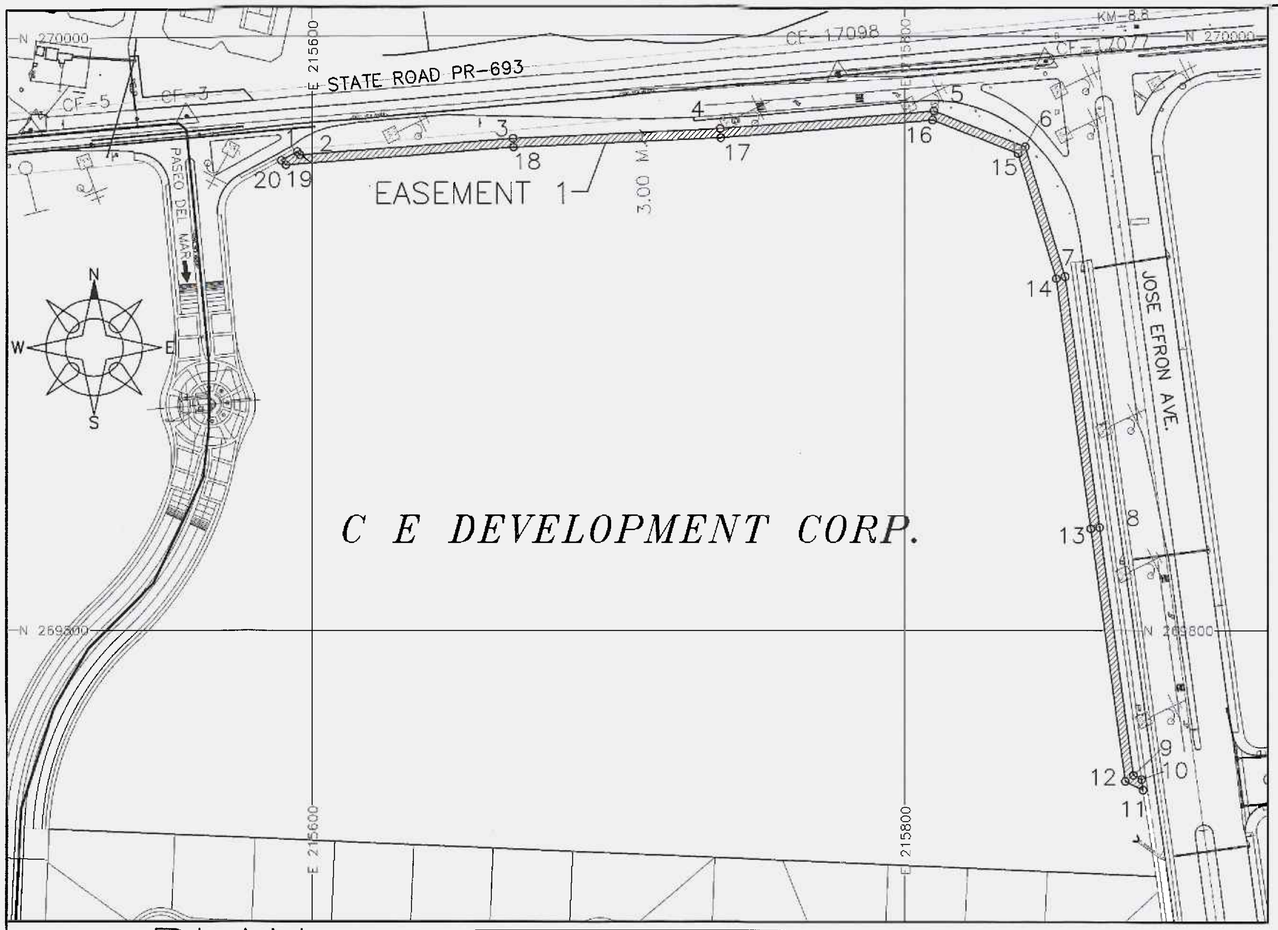
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: MAINTENANCE OF TRAFFIC DETAILS			SCALES: N/A
DRAFTED BY:	DRAFTER LICENCE NO.:	DATE	DRWG NO. MOT-06
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 82
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

O:\14-DWGS\14-0002-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\17-PP-11-PLAN AND PROFILE 30in DIAM GRAVITY LINE.dwg 5/15/2014 2:04:42 PM SWST



PLAN

0 20 40 60 80 100

SCALE = 1:2,000

LEGEND:

- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

INFORMACION REGISTRO PROPIEDAD

FINCA	
TOMO	OF
FOLIO	

SURVEY CONTROL STATIONS

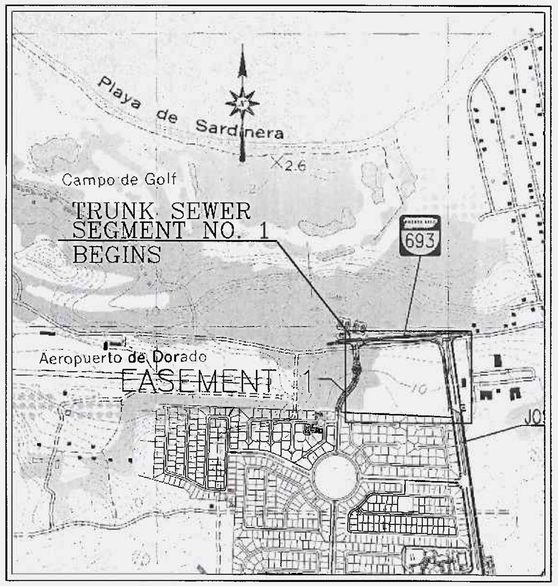
CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-3	269,973.1545	215,557.7014	12.310	GUN NAIL
CF-5	269,968.8201	215,505.0242	12.650	GUN NAIL
CF-17077	269,991.5130	215,847.6180	13.350	STEEL CAP
CF-17098	269,987.3500	215,777.5540	12.950	ZINC NAIL

EASEMENT 1 TO BE CONSTITUTED FROM: C E DEVELOPMENT CORP.

POINT	BEARING	DISTANCE	COORDINATE NORTH	COORDINATE EAST	DESCRIPTION
1			269961.3609	215594.9255	TO BE ESTABLISHED
	S 40 40 49 E	1.3537			
2			269960.3343	215595.8079	TO BE ESTABLISHED
	N 85 39 23 E	72.2644			
3			269965.8073	215667.8648	TO BE ESTABLISHED
	N 87 26 00 E	69.9956			
4			269968.9420	215737.7902	TO BE ESTABLISHED
	N 85 19 16 E	72.3182			
5			269974.8412	215809.8674	TO BE ESTABLISHED
	S 68 42 52 E	33.0710			
6			269962.8359	215840.6824	TO BE ESTABLISHED
	S 17 06 26 E	45.6773			
7			269919.1795	215854.1188	TO BE ESTABLISHED
	S 07 51 47 E	85.1215			
8			269834.8583	215865.7641	TO BE ESTABLISHED
	S 07 50 35 E	84.2088			
9			269751.4372	215877.2552	TO BE ESTABLISHED
	S 63 28 23 E	3.0274			
10			269750.0851	215879.9639	TO BE ESTABLISHED
	S 07 46 14 E	3.6314			
11			269746.4870	215880.4549	TO BE ESTABLISHED
	N 63 28 23 W	6.6565			
12			269749.4599	215874.4992	TO BE ESTABLISHED
	N 07 50 35 W	85.7910			
13			269834.4484	215862.7923	TO BE ESTABLISHED
	N 07 51 48 W	84.8785			
14			269918.5288	215851.1802	TO BE ESTABLISHED
	N 17 06 26 W	43.9843			
15			269960.5671	215838.2418	TO BE ESTABLISHED
	N 68 42 52 W	30.9289			
16			269971.7948	215809.4228	TO BE ESTABLISHED
	S 85 19 16 W	71.6819			
17			269965.9475	215737.9798	TO BE ESTABLISHED
	S 87 25 59 W	70.0044			
18			269962.8124	215668.0456	TO BE ESTABLISHED
	S 85 39 23 W	77.1506			
19			269956.9693	215591.1166	TO BE ESTABLISHED
	N 46 55 45 W	2.1615			
20			269958.4454	215589.5376	TO BE ESTABLISHED
	N 61 34 53 E	6.1261			
1			269961.3609	215594.9255	TO BE ESTABLISHED

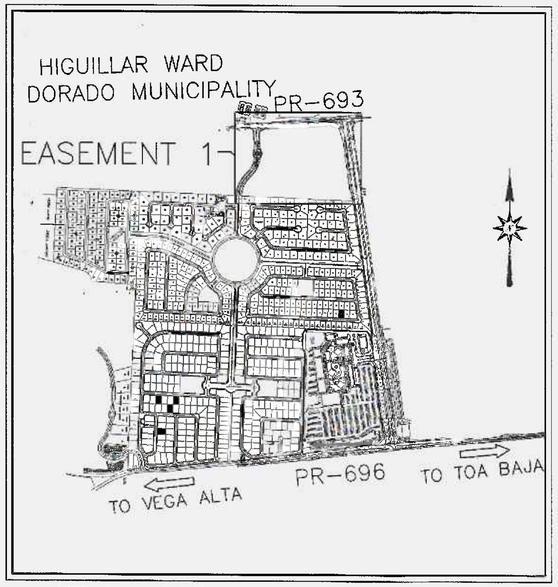
AREA = 1,415.3065 SQ. METERS = 0.3601 CUERDAS

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF



LOCATION PLAN

SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JCMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jcmyasoc@prtc.net

ANTONIO A. FUENTES LIC. 16646 PUERTO RICO

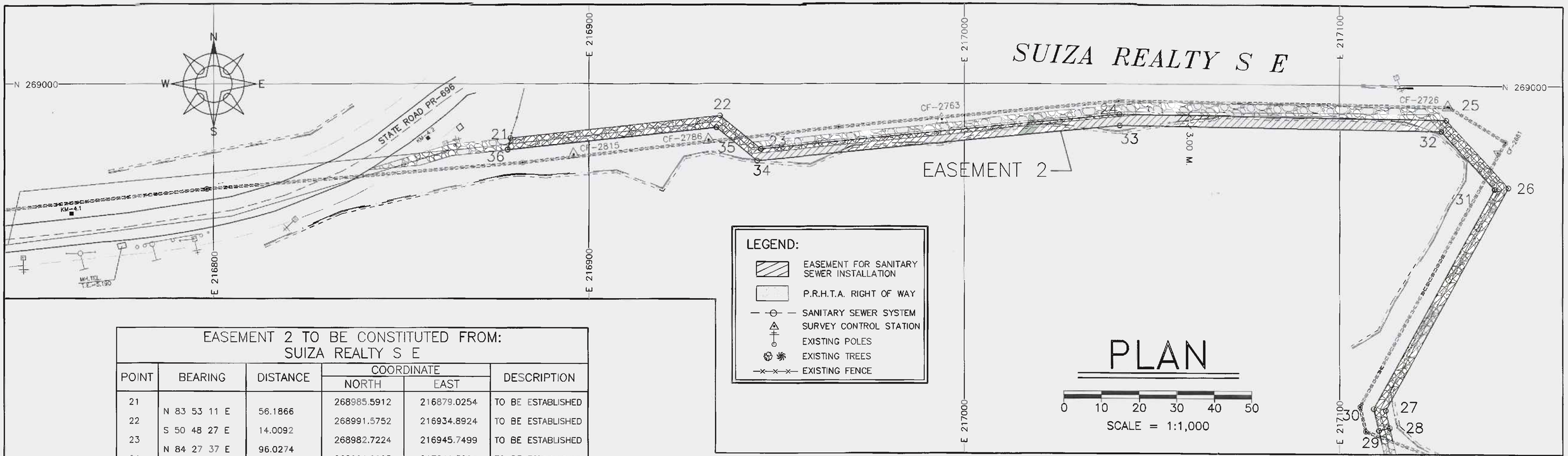
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 1 TO BE CONSTITUTED FROM: C E DEVELOPMENT CORP CRIM NO.: 037-000-003-22			SCALES: H=1:2,000
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. SSE-01
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 83
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

4



EASEMENT 2 TO BE CONSTITUTED FROM:
SUIZA REALTY S E

POINT	BEARING	DISTANCE	COORDINATE NORTH	COORDINATE EAST	DESCRIPTION
21			268985.5912	216879.0254	TO BE ESTABLISHED
	N 83 53 11 E	56.1866			
22			268991.5752	216934.8924	TO BE ESTABLISHED
	S 50 48 27 E	14.0092			
23			268982.7224	216945.7499	TO BE ESTABLISHED
	N 84 27 37 E	96.0274			
24			268991.9925	217041.3288	TO BE ESTABLISHED
	S 89 13 45 E	87.1192			
25			268990.8206	217128.4401	TO BE ESTABLISHED
	S 42 39 12 E	24.3680			
26			268972.8988	217144.9509	TO BE ESTABLISHED
	S 28 50 17 W	67.6077			
27			268913.6753	217112.3414	TO BE ESTABLISHED
	S 13 09 31 E	4.7657			
28			268909.0347	217113.4263	TO BE ESTABLISHED
	S 76 50 31 W	3.0000			
29			268908.3518	217110.5051	TO BE ESTABLISHED
	N 13 09 29 W	5.9173			
30			268914.1137	217109.1581	TO BE ESTABLISHED
	N 28 50 17 E	66.5998			
31			268972.4543	217141.2815	TO BE ESTABLISHED
	N 42 39 14 W	20.9173			
32			268987.8382	217127.1086	TO BE ESTABLISHED
	N 89 13 45 W	85.6626			
33			268988.9905	217041.4538	TO BE ESTABLISHED
	S 84 27 37 W	97.0965			
34			268979.6172	216944.8108	TO BE ESTABLISHED
	N 50 48 25 W	13.9916			
35			268988.4590	216933.9670	TO BE ESTABLISHED
	S 83 53 10 W	56.0256			
36			268982.4920	216878.2601	TO BE ESTABLISHED
	N 13 52 15 E	3.1923			
21			268985.5912	216879.0254	TO BE ESTABLISHED

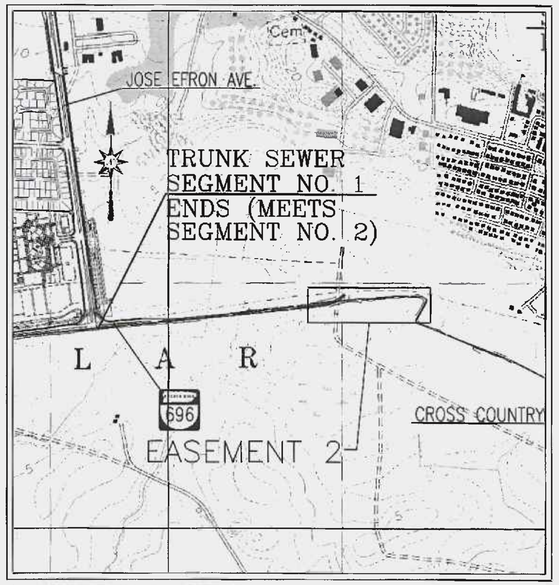
AREA = 1,044.4456 SQ. METERS = 0.2657 CUERDAS

SURVEY CONTROL STATIONS

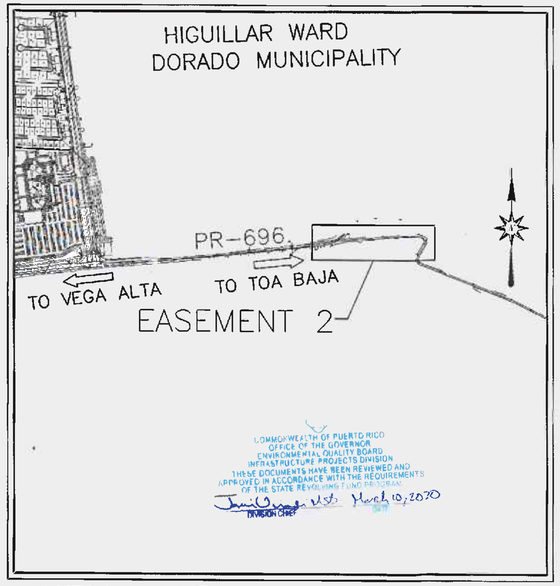
CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-2726	268,994.3835	217,128.8561	4.720	ZINC NAIL
CF-2763	268,990.5257	216,994.0094	4.600	ZINC NAIL
CF-2786	268,985.1736	216,931.8665	4.590	ZINC NAIL
CF-2815	268,981.3093	216,895.8574	4.520	ZINC NAIL

INFORMACION REGISTRO PROPIEDAD

FINCA	
TOMO	OF
FOLIO	



LOCATION PLAN
SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8865 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

ANTONIO A. FUENTES
INGENIERO LICENCIADO
LIC. 8104
PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

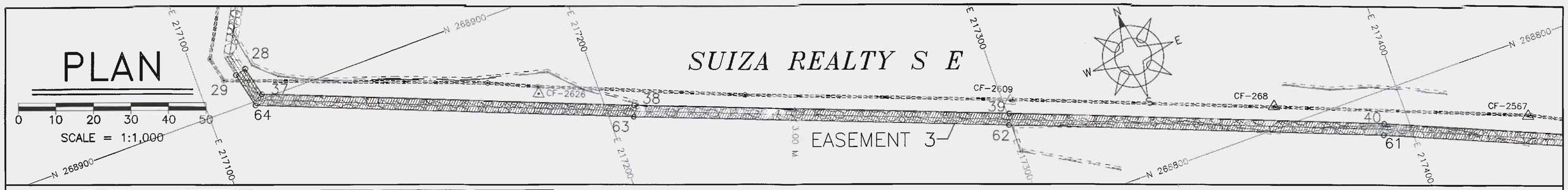
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 2 TO BE CONSTITUTED FROM: SUIZA REALTY S E CRIM NO.: 037-000-009-23			SCALES: H=1:1,000
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. SSE-02
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 84
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

PLAN

0 10 20 30 40 50

SCALE = 1:1,000



EASEMENT 3 TO BE CONSTITUTED FROM: SUIZA REALTY S. E.					
POINT	BEARING	DISTANCE	COORDINATE NORTH	COORDINATE EAST	DESCRIPTION
29			268908.3518	217110.5051	TO BE ESTABLISHED
	N 76 50 31 E	3.0000			
28			268909.0347	217113.4263	TO BE ESTABLISHED
	S 13 09 29 E	8.0271			
37			268901.2183	217115.2536	TO BE ESTABLISHED
	S 68 10 35 E	99.2170			
38			268864.3342	217207.3599	TO BE ESTABLISHED
	S 68 40 20 E	99.9940			
39			268827.9663	217300.5059	TO BE ESTABLISHED
	S 68 38 40 E	100.0219			
40			268791.5428	217393.6601	TO BE ESTABLISHED
	S 67 02 10 E	54.6299			
41			268770.2288	217443.9606	TO BE ESTABLISHED
	S 63 09 30 E	100.0520			
65			268725.0525	217533.2327	TO BE ESTABLISHED
	S 63 03 48 E	99.8286			
42			268679.8294	217622.2306	TO BE ESTABLISHED
	S 76 11 48 E	52.3459			
43			268667.3403	217673.0648	TO BE ESTABLISHED
	S 81 52 13 E	99.9228			
44			268653.2095	217771.9834	TO BE ESTABLISHED
	S 82 05 15 E	71.9767			
45			268643.3013	217843.2749	TO BE ESTABLISHED
	S 39 20 59 E	83.9310			
46			268578.3983	217896.4915	TO BE ESTABLISHED
	S 85 05 29 E	99.3716			
47			268569.8953	217995.4986	TO BE ESTABLISHED
	S 84 45 46 E	99.9646			
48			268560.7705	218095.0459	TO BE ESTABLISHED
	S 87 47 22 E	65.1282			
49			268558.2583	218160.1256	TO BE ESTABLISHED
	N 84 24 48 E	37.2345			
50			268561.8832	218197.1832	TO BE ESTABLISHED
	S 02 29 35 W	3.0301			
51			268558.8560	218197.0514	TO BE ESTABLISHED
	S 84 24 48 W	37.0130			
52			268555.2527	218160.2142	TO BE ESTABLISHED
	N 87 47 22 W	65.4119			
53			268557.7758	218094.8510	TO BE ESTABLISHED
	N 84 45 46 W	100.0353			
54			268566.9070	217995.2333	TO BE ESTABLISHED
	N 85 05 29 W	100.6285			
55			268575.5176	217894.9739	TO BE ESTABLISHED
	N 39 20 59 W	84.0226			
56			268640.4915	217841.6993	TO BE ESTABLISHED
	N 82 05 15 W	70.8086			
57			268650.2389	217771.5648	TO BE ESTABLISHED
	N 81 52 13 W	100.0771			
58			268664.3914	217672.4934	TO BE ESTABLISHED
	N 76 11 48 W	52.8400			
59			268676.9985	217621.1794	TO BE ESTABLISHED
	N 63 03 48 W	100.1714			
66			268722.3768	217531.8759	TO BE ESTABLISHED
	N 63 09 30 W	99.9480			
60			268767.5061	217442.6966	TO BE ESTABLISHED
	N 67 02 09 W	54.4862			
61			268788.7641	217392.5284	TO BE ESTABLISHED
	N 68 38 40 W	99.9786			
62			268825.1718	217299.4145	TO BE ESTABLISHED
	N 68 40 20 W	100.0067			
63			268861.5443	217206.2567	TO BE ESTABLISHED
	N 68 10 35 W	100.7923			
64			268899.0141	217112.6880	TO BE ESTABLISHED
	N 13 09 28 W	9.5895			
29			268908.3518	217110.5051	TO BE ESTABLISHED
AREA = 3,521.2047 SQ. METERS = 0.8959 CUERDAS					

INFORMACION REGISTRO PROPIEDAD

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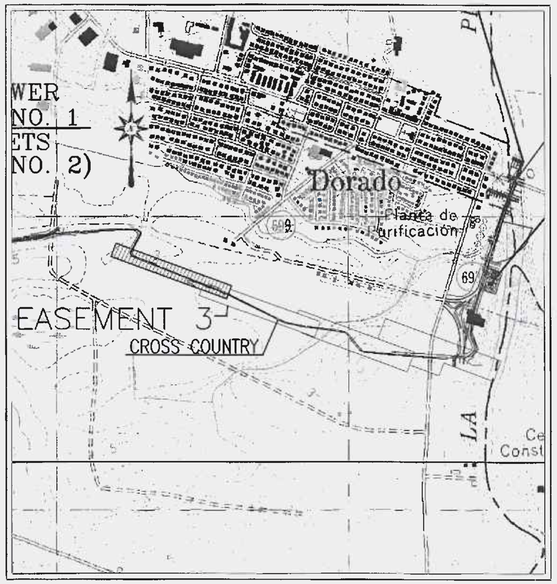
SURVEY CONTROL STATIONS

CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-268	268,805.7942	217,367.5211	4.310	ZINC NAIL
CF-2567	268,780.5844	217,430.4804	4.220	ZINC NAIL
CF-2609	268,831.0574	217,301.9108	4.400	ZINC NAIL
CF-2626	268,875.9685	217,184.5565	4.520	ZINC NAIL

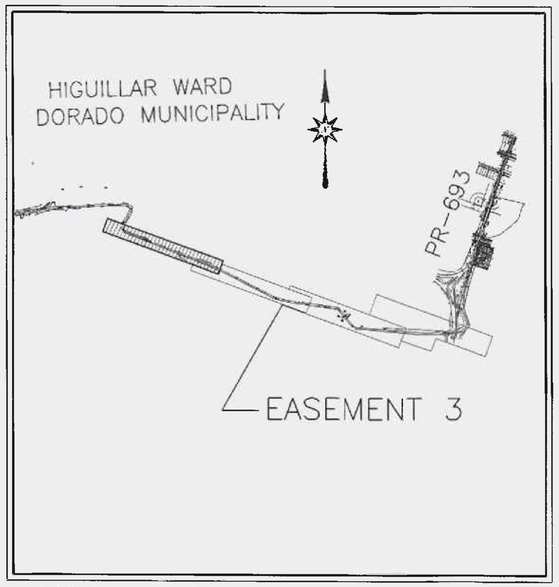
LEGEND:

- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020
DIVISION CHIEF



LOCATION PLAN SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcmc CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jcmyncsoc@prtc.net

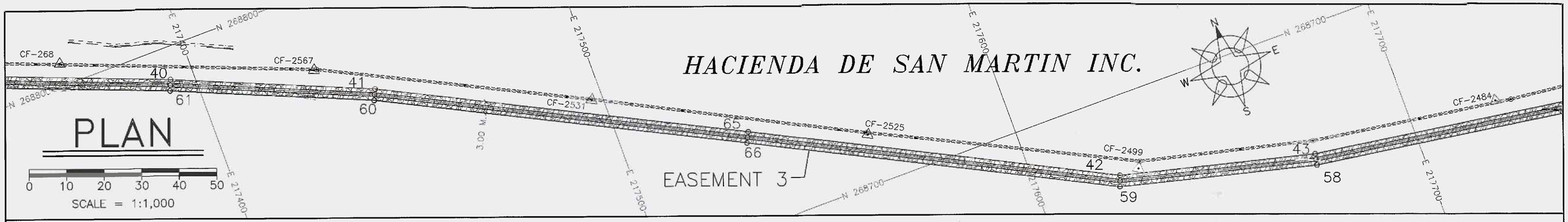
ANTONIO A. FERNANDEZ LICENSED PROFESSIONAL ENGINEER LIC. # 9446 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 3 TO BE CONSTITUTED FROM: SUIZA REALTY S E CRIM NO.:037-000-009-01			SCALES: H=1:1,000
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. SSE-03
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 85
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



LEGEND:

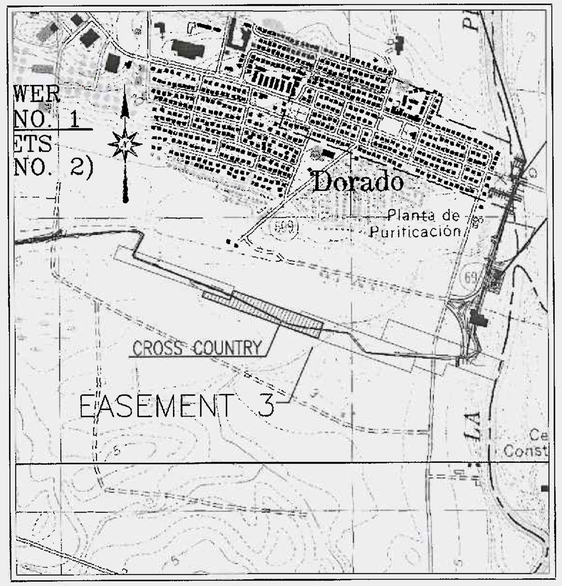
- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

SURVEY CONTROL STATIONS

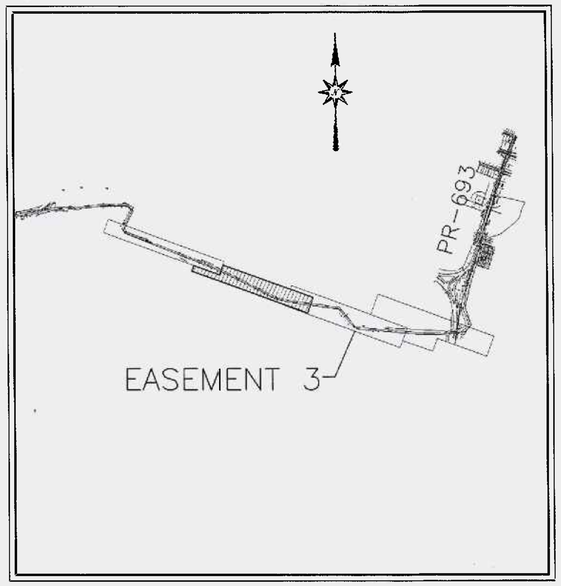
CONTROL NUM.	LAMBERT COORDINATES		ELEVATION	DESCRIPTION
	NORTH	EAST		
CF-2484	268,664.2061	217,723.0955	3.300	ZINC NAIL
CF-2499	268,679.8846	217,627.4947	3.390	ZINC NAIL
CF-2525	268,713.1873	217,562.8665	4.040	ZINC NAIL
CF-2531	268,747.4628	217,497.0564	4.130	ZINC NAIL
CF-268	268,805.7942	217,367.5211	4.310	ZINC NAIL
CF-2567	268,780.5844	217,430.4804	4.220	ZINC NAIL

NOTE:
SEE EASEMENT TABLE
ON DWG. SSE-03, SHEET NO. 85

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF DATE March 10, 2020



LOCATION PLAN SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jumyassoc@prtc.net

ANTONIO A. FUENTES LICENSED LICENSE NO. 19 PUERTO RICO

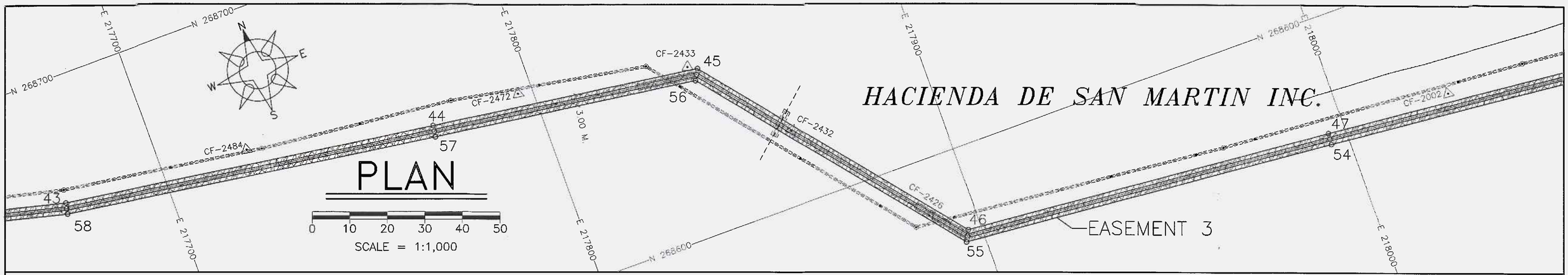
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 3 TO BE CONSTITUTED FROM: HACIENDA DE SAN MARTIN INC. CRIM NO.: 037-000-009-01

DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

SCALES: H=1:1,000
DRWG NO. SSE-04
SHEET NO. 86
REVISION NO. 0



LEGEND:

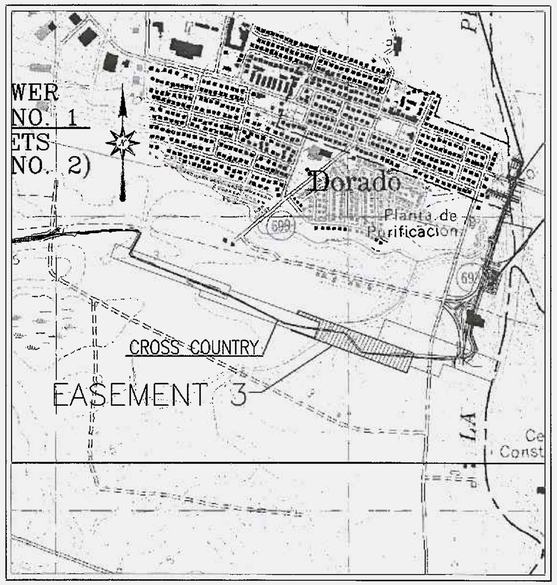
- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

SURVEY CONTROL STATIONS

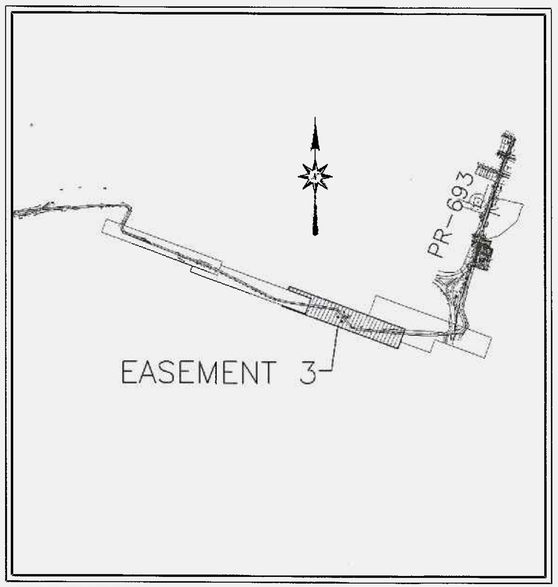
CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-2002	268,569.1210	218,029.1130	3.420	ZINC NAIL
CF-2426	268,585.4826	217,888.0415	3.060	ZINC NAIL
CF-2432	268,619.4054	217,861.3282	2.840	ZINC NAIL
CF-2433	268,644.5999	217,840.9229	3.280	ZINC NAIL
CF-2472	268,653.4060	217,796.0817	3.110	ZINC NAIL
CF-2484	268,664.2061	217,723.0955	3.300	ZINC NAIL

NOTE:
SEE EASEMENT TABLE
ON DWG. SSE-03, SHEET NO. 85

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — March 10, 2020 — DATE



LOCATION PLAN SCALE 1:20,000 HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

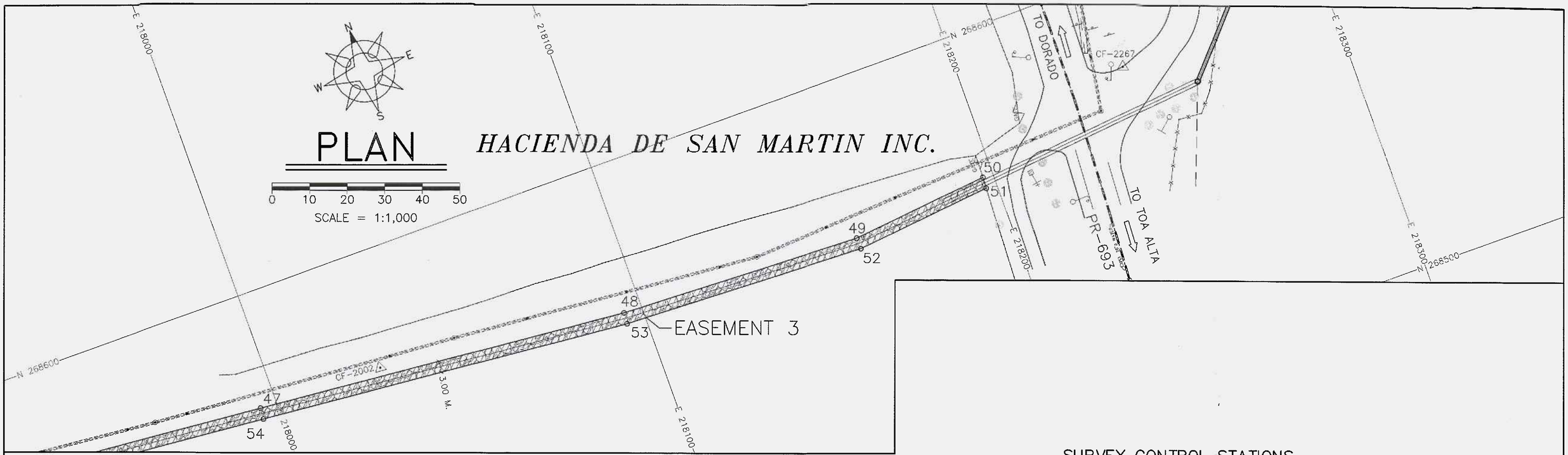
ANTONIO A. FUENTES — LIC. #19140 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 3 TO BE CONSTITUTED FROM: HACIENDA DE SAN MARTIN INC. CRIM NO.: 037-000-009-01
SCALES: H=1:1,000
DRWG NO. SSE-05
DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE
SHEET NO. 87
REVISION NO. 0



SURVEY CONTROL STATIONS

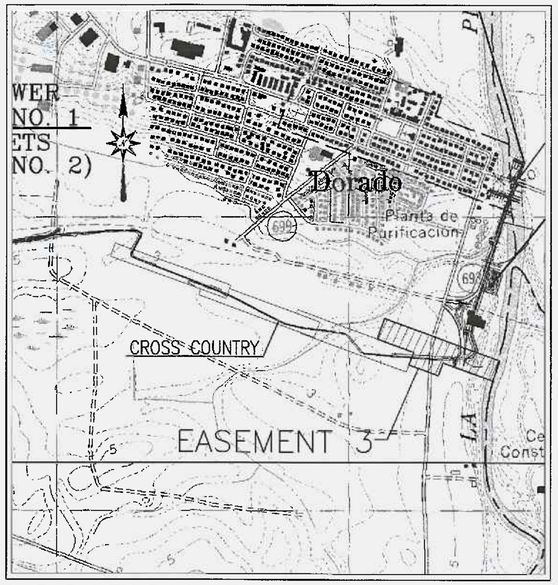
CONTROL NUM.	LAMBERT COORDINATES		ELEVATION	DESCRIPTION
	NORTH	EAST		
CF-2002	268,569.1210	218,029.1130	3.420	ZINC NAIL
CF-2267	268,576.8676	218,242.2316	4.270	ZINC NAIL

LEGEND:

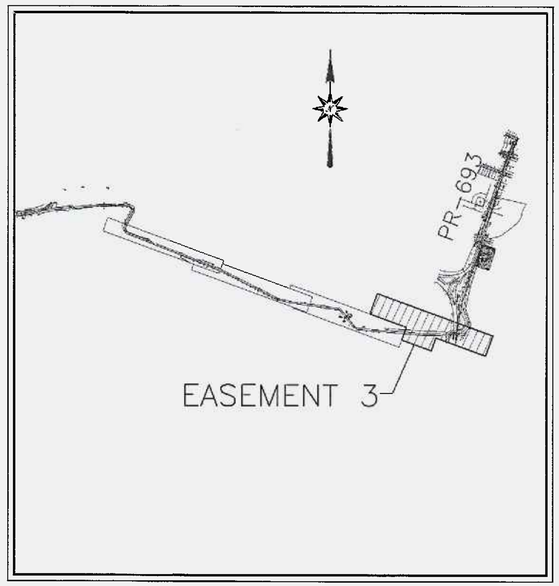
- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

NOTE:
SEE EASEMENT TABLE
ON DWG. SSE-03, SHEET NO. 85



LOCATION PLAN SCALE 1:20,000 HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

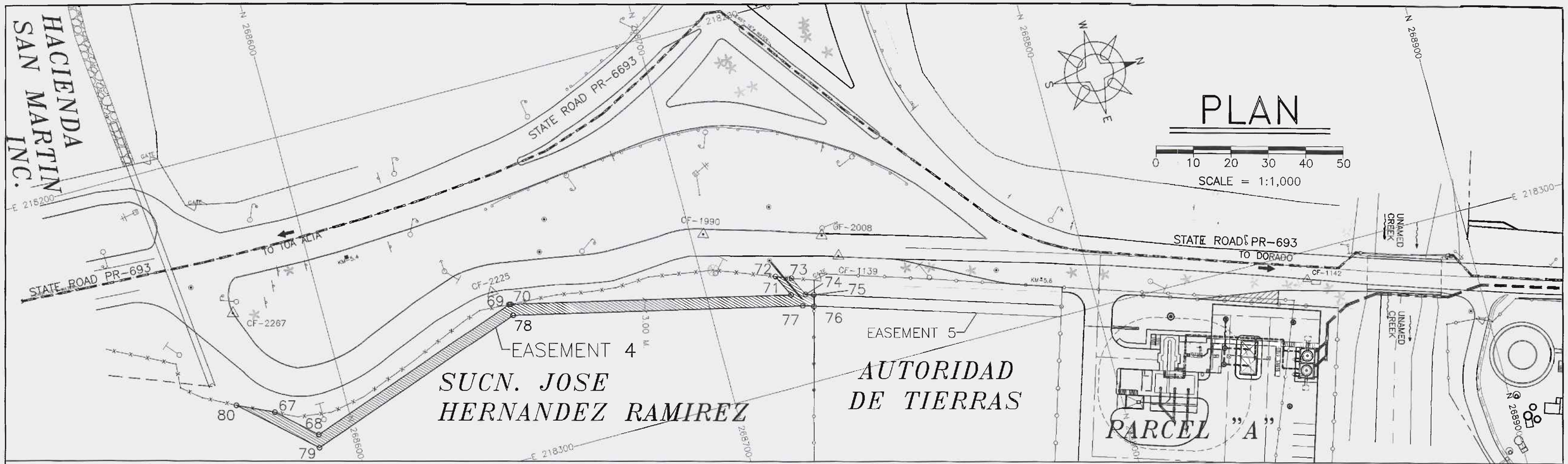
ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19446 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 3 TO BE CONSTITUTED FROM: HACIENDA DE SAN MARTIN INC. CRIM NO.: 037-000-009-01

DRAFTED BY:	DRAFTER LICENSE NO.	DATE	SCALES: H=1:1,000
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	DRWG NO. SSE-06
REVISED BY:		DATE	SHEET NO. 88
SUBMITTED BY:		DATE	REVISION NO. 0



EASEMENT 4 TO BE CONSTITUTED FROM:
SUCN. JOSE HERNANDEZ RAMIREZ

POINT	BEARING	DISTANCE	COORDINATE NORTH	COORDINATE EAST	DESCRIPTION
67			268580.8627	218270.5974	TO BE ESTABLISHED
	N 41 57 12 E	13.1340			
68			268590.6303	218279.3778	TO BE ESTABLISHED
	N 19 21 58 W	61.4142			
69			268648.5696	218259.0127	TO BE ESTABLISHED
	N 03 30 14 E	0.4287			
70			268648.9975	218259.0389	TO BE ESTABLISHED
	N 13 03 11 E	74.8172			
71			268721.8815	218275.9365	TO BE ESTABLISHED
	S 64 43 06 W	6.4221			
72			268719.1388	218270.1295	TO BE ESTABLISHED
	N 20 41 04 E	4.3160			
73			268723.1766	218271.6540	TO BE ESTABLISHED
	N 64 43 06 E	5.7611			
74			268725.6370	218276.8633	TO BE ESTABLISHED
	N 17 26 54 E	2.2221			
75			268727.7569	218277.5296	TO BE ESTABLISHED
	S 75 01 24 E	3.0028			
76			268726.9809	218280.4304	TO BE ESTABLISHED
	S 17 26 55 W	2.9505			
77			268724.1662	218279.5457	TO BE ESTABLISHED
	S 13 03 11 W	77.2966			
78			268648.8668	218262.0881	TO BE ESTABLISHED
	S 19 21 58 E	62.4532			
79			268589.9473	218282.7978	TO BE ESTABLISHED
	S 41 57 13 W	24.9005			
80			268571.4291	218266.1511	TO BE ESTABLISHED
	N 25 14 09 E	10.4289			
67			268580.8627	218270.5974	TO BE ESTABLISHED

AREA = 503.4230 SQ. METERS = 0.1281 CUERDAS

LEGEND:

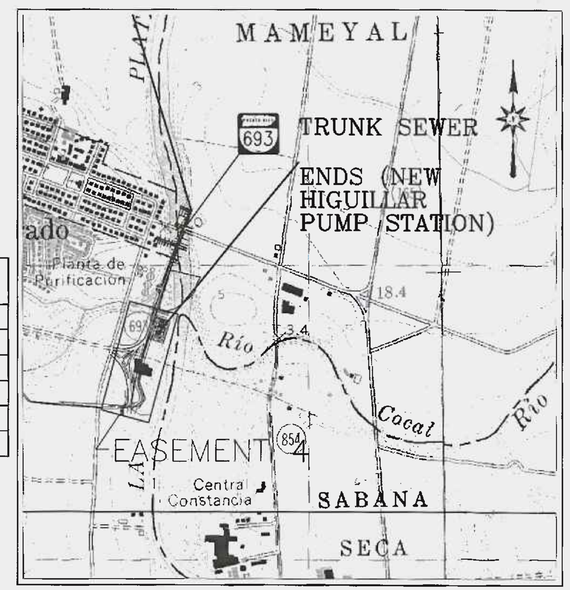
- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

SURVEY CONTROL STATIONS

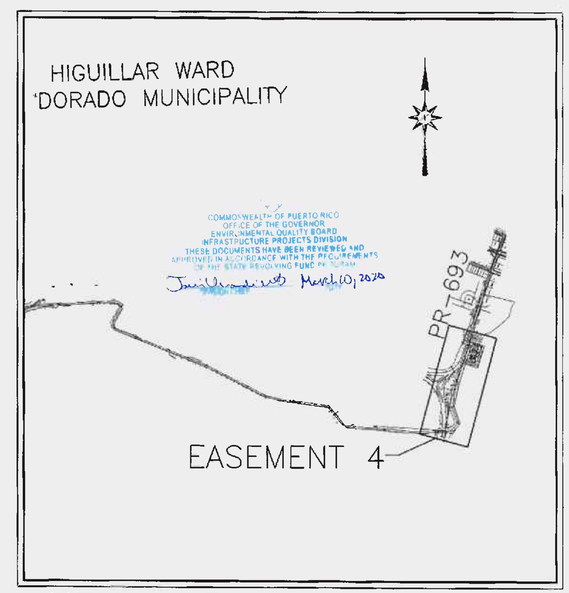
CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-1139	268,736.7510	218,269.2530	3.490	PK NAIL
CF-1142	268,855.9932	218,307.1698	2.710	PK NAIL
CF-1990	268,703.3967	218,254.3460	3.790	ZINC NAIL
CF-2008	268,733.8577	218,262.8683	3.630	ZINC NAIL
CF-2225	268,645.0374	218,254.6873	4.660	ZINC NAIL
CF-2267	268,576.8676	218,242.2316	4.270	ZINC NAIL

INFORMACION REGISTRO PROPIEDAD

FINCA	2,253
TOMO	57 OF DORADO
FOLIO	254



LOCATION PLAN
SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APP'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #17 DE DIEGO AVE. SAN JUAN PR 00927-6310
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email: jcmyassoc@prtc.net

ANTONIO A. FAS RIOS INGENIERO LICENCIADO LIC. #19146 PUERTO RICO

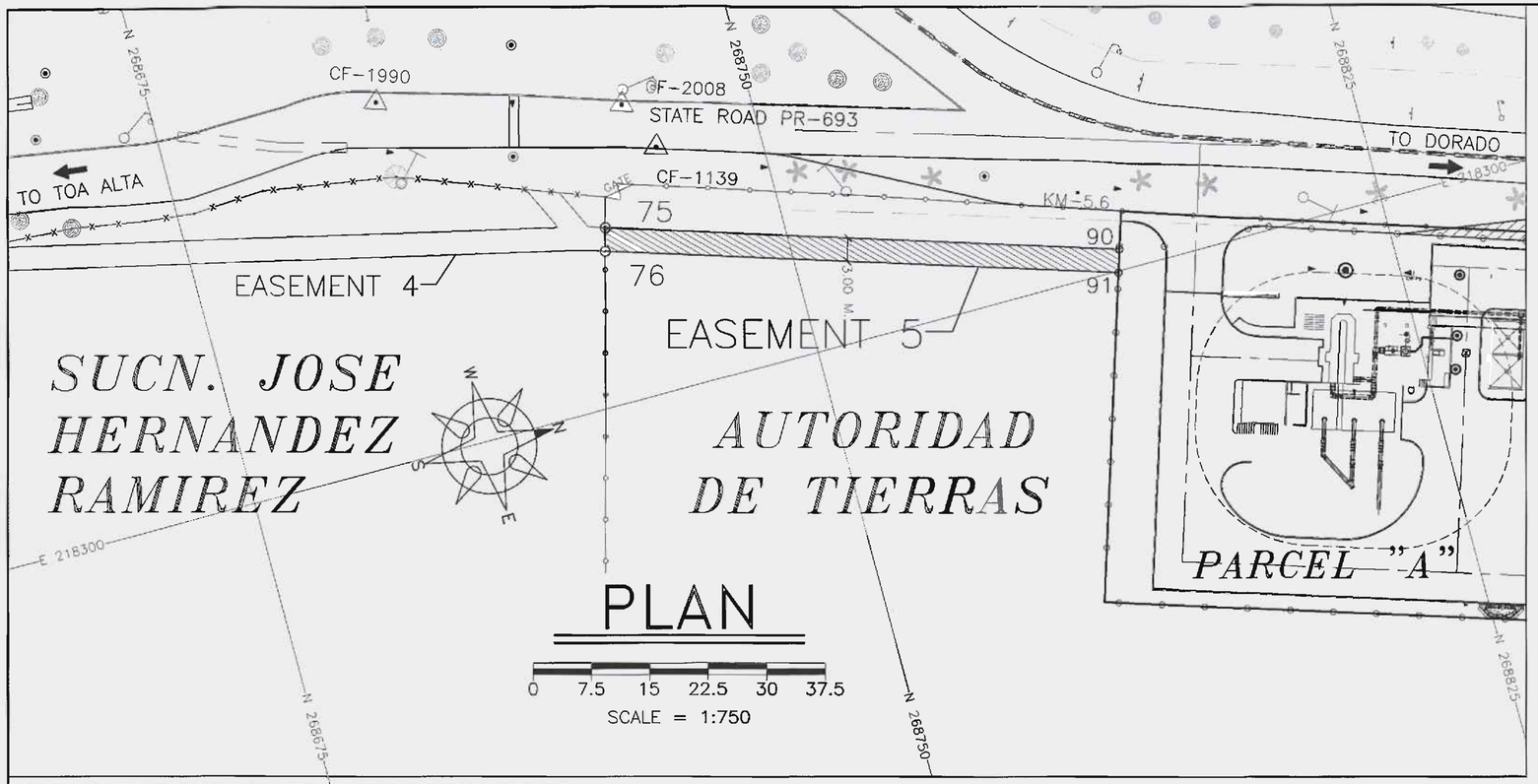
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 4 TO BE CONSTITUTED FROM: SUCN JOSE HERNANDEZ RAMIREZ
CRIM NO.: 037-000-009-03

DRAFTED BY: A.A.F.T.	DRAFTER LICENSE NO.:	DATE 02/20/2020	SCALES: H=1:1,000
DESIGNED BY:		DATE	DRWG NO. SSE-07
REVISED BY:		DATE	SHEET NO. 89
SUBMITTED BY:		DATE	REVISION NO. 0



LEGEND:

- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

EASEMENT 5 TO BE CONSTITUTED FROM:
AUTORIDAD DE TIERRAS

POINT	BEARING	DISTANCE	COORDINATE NORTH	COORDINATE EAST	DESCRIPTION
75			268727.7569	218277.5296	TO BE ESTABLISHED
	N 17 26 51 E	66.1138			
90			268790.8289	218297.3527	TO BE ESTABLISHED
	S 72 33 07 E	3.0000			
91			268789.9294	218300.2146	TO BE ESTABLISHED
	S 17 26 51 W	65.9843			
76			268726.9809	218280.4304	TO BE ESTABLISHED
	N 75 01 24 W	3.0028			
75			268727.7569	218277.5296	TO BE ESTABLISHED

AREA = 198.1451 SQ. METERS = 0.0504 CUERDAS

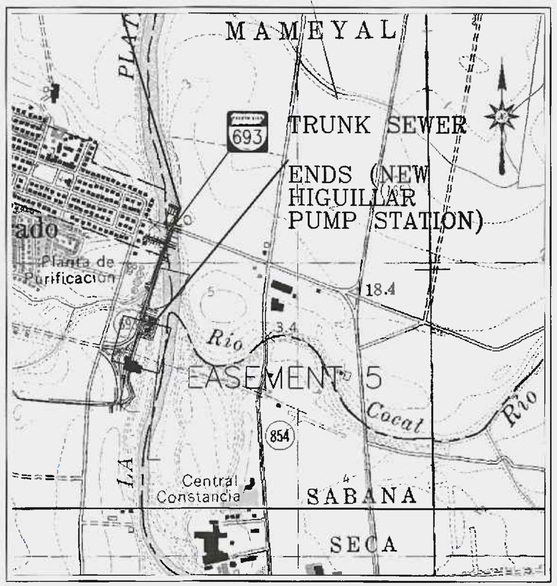
SURVEY CONTROL STATIONS

CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-1139	268,736.7510	218,269.2530	3.490	PK NAIL
CF-1990	268,703.3967	218,254.3460	3.790	ZINC NAIL
CF-2008	268,733.8577	218,262.8683	3.630	ZINC NAIL

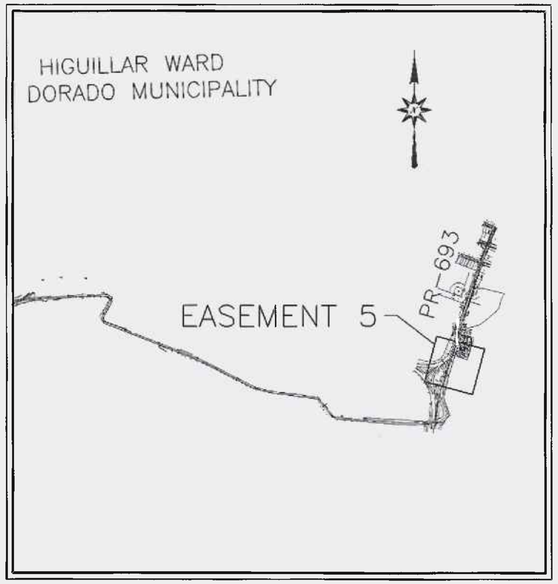
COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND
APPROVED IN ACCORDANCE WITH THE REQUIREMENTS
OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020

INFORMACION REGISTRO PROPIEDAD

FINCA	671
TOMO	16
FOLIO	231



LOCATION PLAN SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
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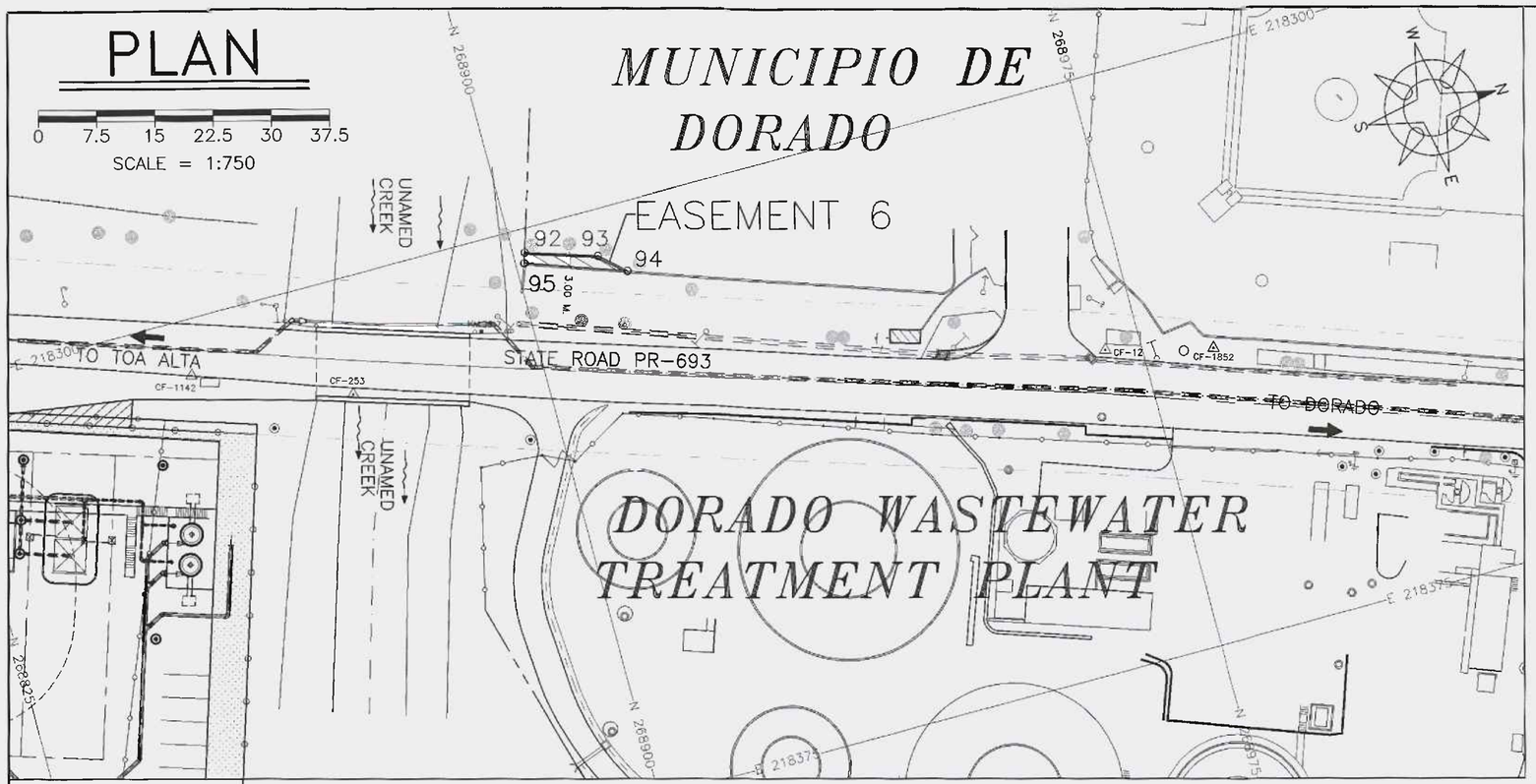
email: jcmyassoc@prtc.net

ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19... PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

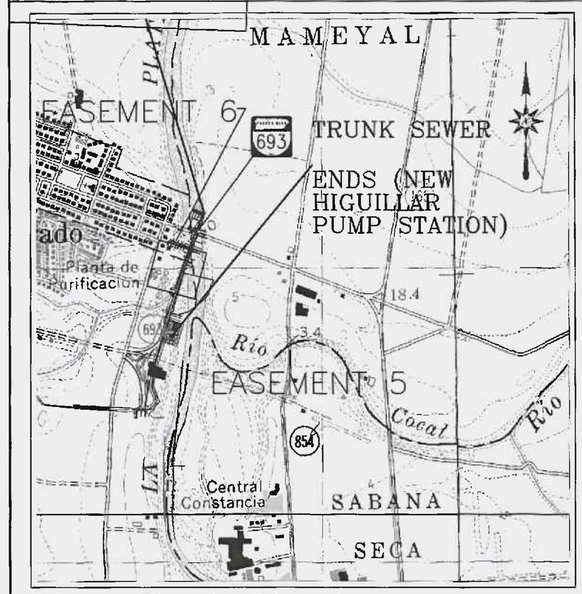
SHEET TITLE: EASEMENT 5 TO BE CONSTITUTED FROM: AUTORIDAD DE TIERRAS CRIM NO.: 037-000-004-01-999			SCALES: H=1:750
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. SSE-08
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 90
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



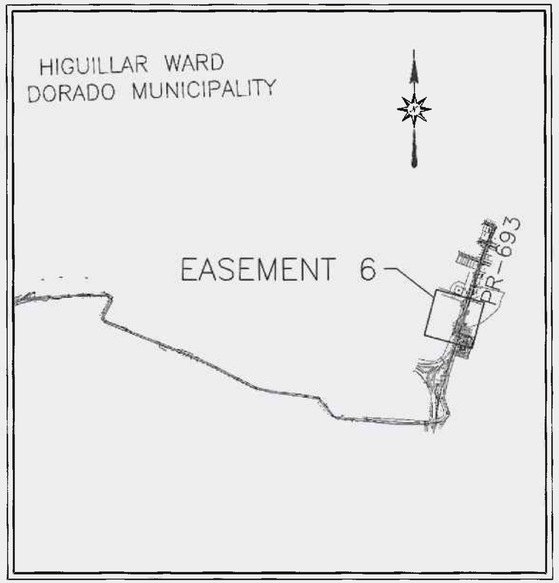
EASEMENT 6 TO BE CONSTITUTED FROM: MUNICIPIOD E DORADO					
POINT	BEARING	DISTANCE	COORDINATE		DESCRIPTION
			NORTH	EAST	
92			268901.5081	218303.0317	TO BE ESTABLISHED
	N 17 38 30 E	9.4340			
93			268910.4984	218305.8908	TO BE ESTABLISHED
	N 42 02 13 E	4.2735			
94			268913.6724	218308.7524	TO BE ESTABLISHED
	S 19 20 11 W	13.3172			
95			268901.1064	218304.3429	TO BE ESTABLISHED
	N 72 58 01 W	1.3714			
92			268901.5081	218303.0317	TO BE ESTABLISHED
AREA = 17.4498 SQ. METERS = 0.00444 CUERDAS					

SURVEY CONTROL STATIONS

CONTROL NUM.	LAMBERT COORDINATES		ELEVATION	DESCRIPTION
	NORTH	EAST		
CF-253	268,875.4381	218,314.9087	2.410	ZINC NAIL
CF-1142	268,855.9932	218,307.1698	2.710	PK NAIL
CF-1852	268,983.9058	218,337.9641	3.060	ZINC NAIL



LOCATION PLAN SCALE 1:20,000 HORIZONTAL DATUM: NAD 83



KEY MAP

LEGEND:

- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

INFORMACION REGISTRO PROPIEDAD

FINCA	671
TOMO	16
FOLIO	231

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF March 10, 2020 DATE

NO.	REMARKS	DATE	BY	APPV'D.
REVISIONS				

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyaisoc@prtc.net

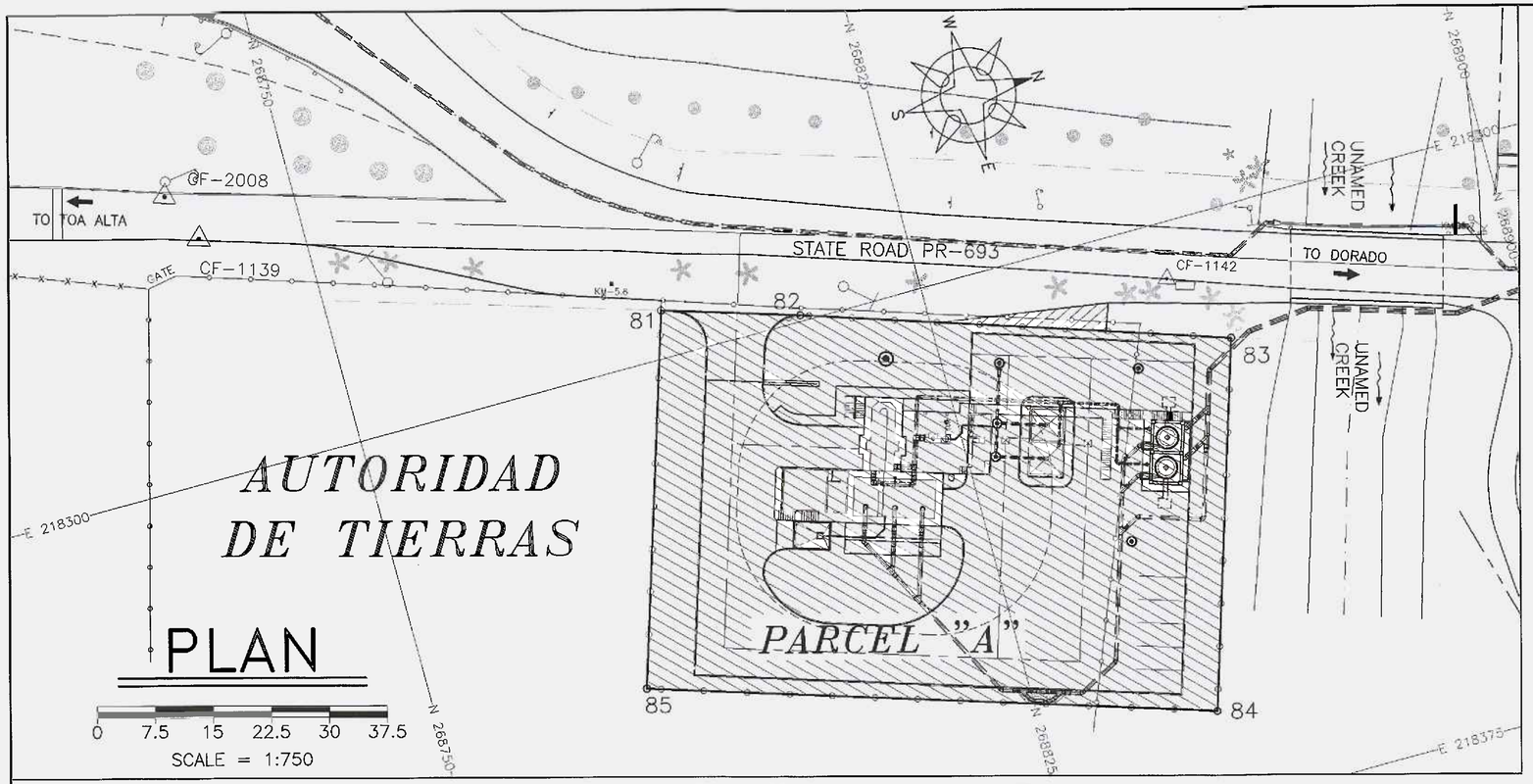
ANTONIO A. FUENTES LICENSED PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 6 TO BE CONSTITUTED FROM: MUNICIPIO DE DORADO CRIM NO.: 037-000-004-01-999			SCALES: H=1:750
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. SSE-09
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 91
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



PLAN

LEGEND:

- PARCEL TO BE ACQUIRED FOR SEWER PUMP STATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

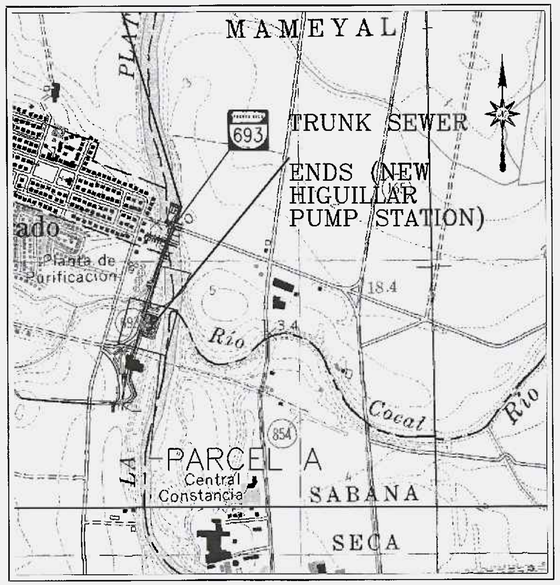
SURVEY CONTROL STATIONS

CONTROL NUM.	LAMBERT COORDINATES NORTH	LAMBERT COORDINATES EAST	ELEVATION	DESCRIPTION
CF-1139	268,736.7510	218,269.2530	3.490	PK NAIL
CF-1142	268,855.9932	218,307.1698	2.710	PK NAIL
CF-2008	268,733.8577	218,262.8683	3.630	ZINC NAIL

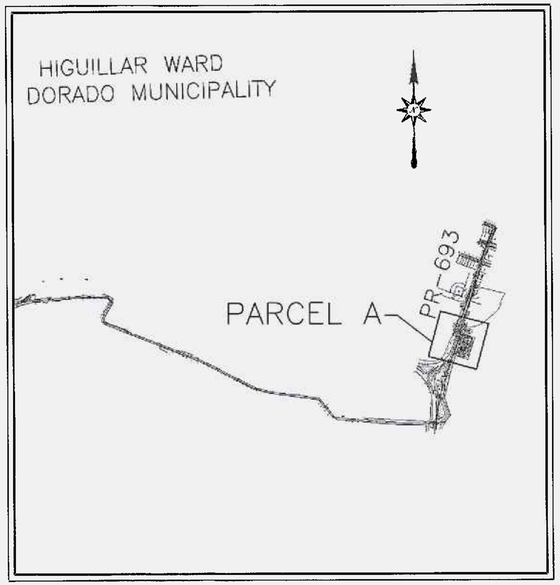
INFORMACION REGISTRO PROPIEDAD

FINCA	671
TOMO	16
FOLIO	231

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE March 10, 2020



LOCATION PLAN SCALE 1:20,000 HORIZONTAL DATUM: NAD 83



KEY MAP

PARCEL "A" TO BE ACQUIRED FROM:
AUTORIDAD DE TIERRAS

LINE	BEARING	DISTANCE	POINT	COORDINATES NORTH (Y)	COORDINATES EAST (X)	DESCRIPTION
81-82	N 17°9'44" E	17.92	81	268791.9202	218293.9015	TO BE ESTABLISHED
82-83	N 18°14'50" E	55.85	82	268809.0437	218299.1898	TO BE ESTABLISHED
83-84	S 72°36'34" E	48.18	83	268862.0841	218316.6771	TO BE ESTABLISHED
84-85	S 17°26'51" W	73.82	84	268847.6828	218362.6580	TO BE ESTABLISHED
85-81	N 72°32'42" W	48.87	85	268777.2602	218340.5246	TO BE ESTABLISHED
81-81	N 90°00'00" E	0.00	81	268791.9202	218293.9015	TO BE ESTABLISHED

AREA = 3590.4715 SQ.MTS. 0.9135 CUERDAS

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jama CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

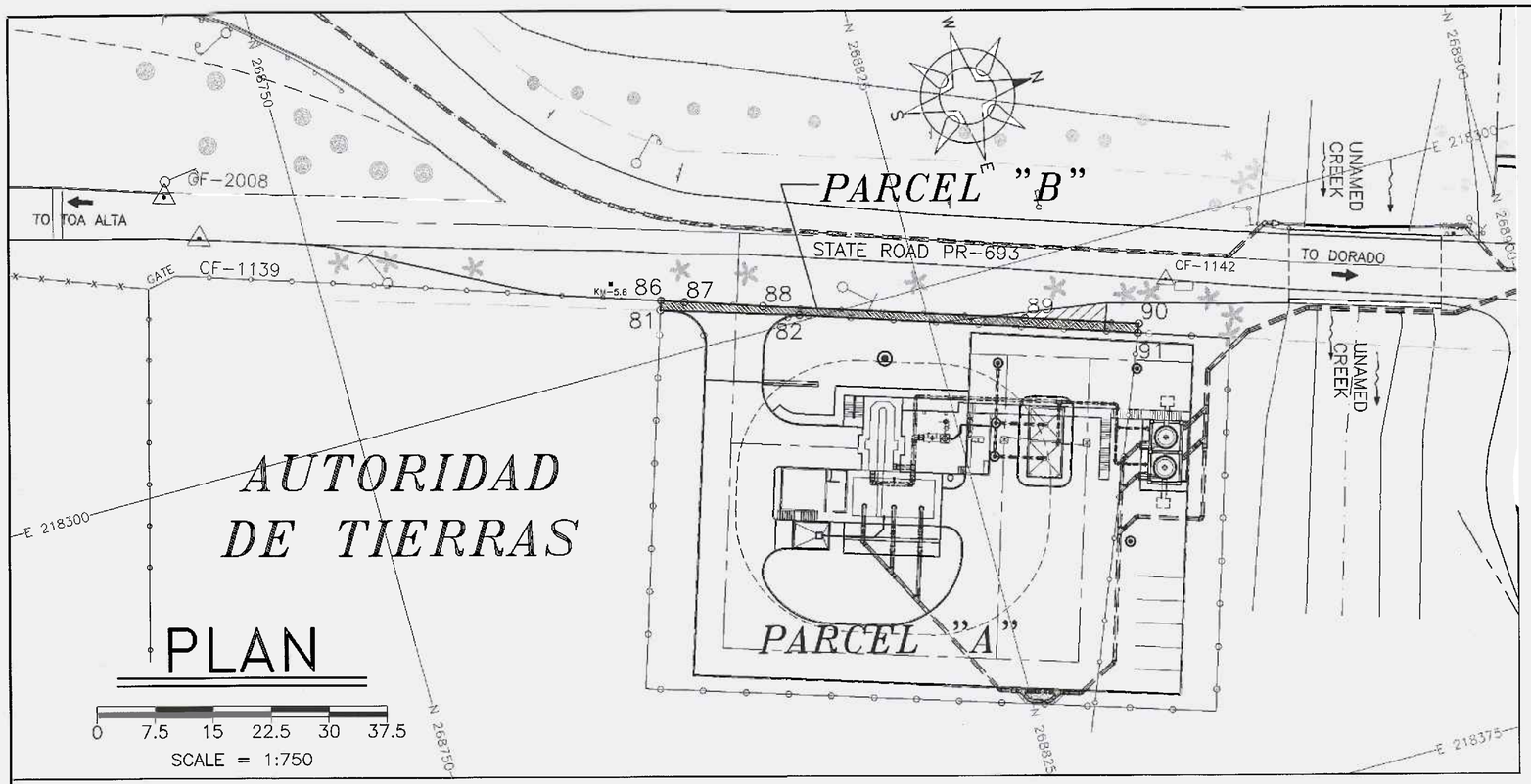
ANTONIO A. FUENTES — LIC. 410 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PARCEL "A" TO BE ACQUIRED FROM: AUTORIDAD DE TIERRAS
CRIM NO.: 037-000-004-01-999
DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

SCALES: H=1:750
DRWG NO. SSE-10
SHEET NO. 92
REVISION NO. 0



PLAN

LEGEND:

- PARCEL TO BE ACQUIRED FOR SEWER PUMP STATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

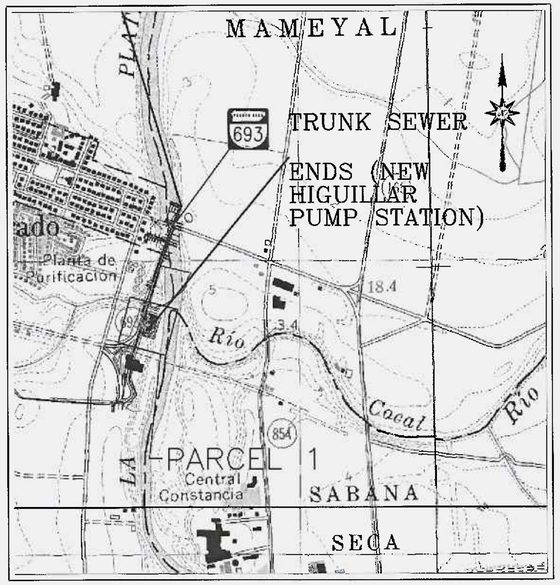
SURVEY CONTROL STATIONS

CONTROL NUM.	LAMBERT COORDINATES		ELEVATION	DESCRIPTION
	NORTH	EAST		
CF-1139	268,736.7510	218,269.2530	3.490	PK NAIL
CF-1142	268,855.9932	218,307.1698	2.710	PK NAIL
CF-2008	268,733.8577	218,262.8683	3.630	ZINC NAIL

INFORMACION REGISTRO PROPIEDAD

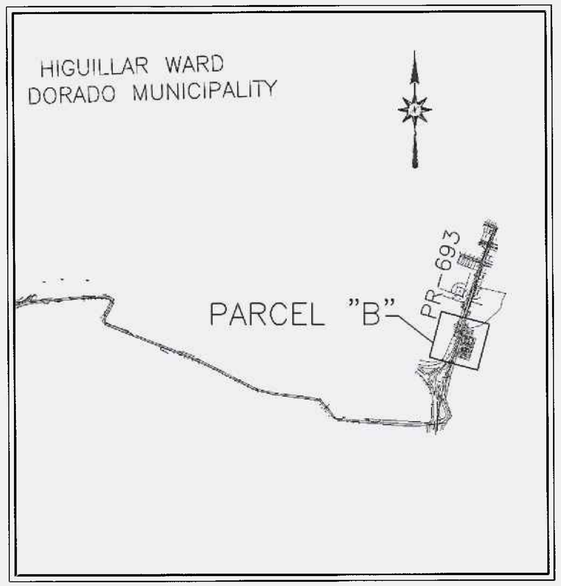
FINCA	671
TOMO	16
FOLIO	231

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — March 10, 2020 DATE



LOCATION PLAN

SCALE 1:20,000
HORIZONTAL DATUM: NAD 83



KEY MAP

PARCEL "B" TO BE ACQUIRED FROM:
AUTORIDAD DE TIERRAS AND DEDICATE TO PUBLIC USE

LINE	BEARING	DISTANCE	POINT	COORDINATES		DESCRIPTION
				NORTH (Y)	EAST (X)	
86-87	N 18°40'42" E	3.06	86	268792.3268	218292.6986	TO BE ESTABLISHED
87-88	N 18°15'36" E	10.09	87	268795.2223	218293.6775	TO BE ESTABLISHED
88-89	N 17°50'49" E	33.98	88	268804.8015	218296.8381	TO BE ESTABLISHED
89-90	N 18°0'24" E	14.75	89	268837.1470	218307.2524	TO BE ESTABLISHED
90-91	S 68°8'40" E	1.21	90	268851.1720	218311.8112	TO BE ESTABLISHED
91-82	S 18°14'50" W	43.89	91	268850.7227	218312.9313	TO BE ESTABLISHED
82-81	S 17°9'44" W	17.92	82	268809.0437	218299.1898	TO BE ESTABLISHED
81-86	N 71°19'18" W	1.27	81	268791.9202	218293.9015	TO BE ESTABLISHED

AREA = 67.0414 SQ.MTS. 0.0171 CUERDAS

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6370
TEL 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

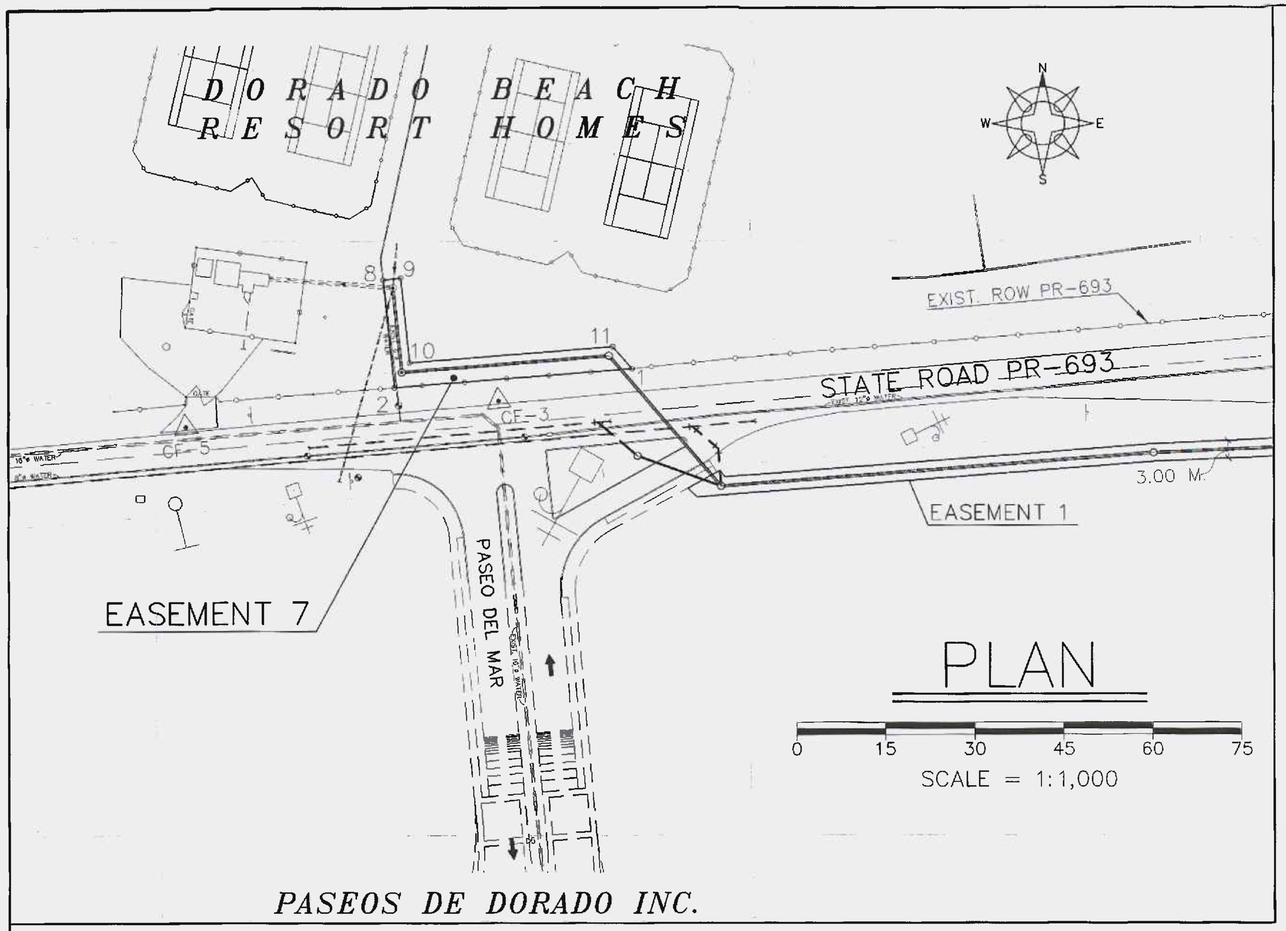
ANTONIO A. FUENTES LICENSED PROFESSIONAL ENGINEER LIC. #19416 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: PARCEL "B" TO BE ACQUIRED FROM: AUTORIDAD DE TIERRAS CRIM NO.: 037-000-004-01-999			SCALES: H=1:750
			DRWG NO. SSE-11
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE 09/11/2014	SHEET NO. 92A
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0



EASEMENT 7 TO BE CONSTITUTED FROM: DORADO BEACH RESORT HOMES					
POINT	BEARING	DISTANCE	COORDINATE NORTH	COORDINATE EAST	DESCRIPTION
1			269978.5713	215580.1328	TO BE ESTABLISHED
	S 85 29 25 W	40.1251			
2			269975.4163	215540.1319	TO BE ESTABLISHED
	N 05 54 38 W	18.1382			
8			269993.5546	215538.2541	TO BE ESTABLISHED
	N 84 05 22 E	3.0000			
9			269993.8635	215541.2382	TO BE ESTABLISHED
	S 05 54 38 E	14.3074			
10			269979.6322	215542.7115	TO BE ESTABLISHED
	N 85 29 25 E	34.2977			
11			269982.3290	215576.9030	TO BE ESTABLISHED
	S 40 40 47 E	4.9550			
1			269978.5713	215580.1328	TO BE ESTABLISHED
AREA = 197.6595 SQ. METERS = 0.0503 CUERDA					

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 19 2020

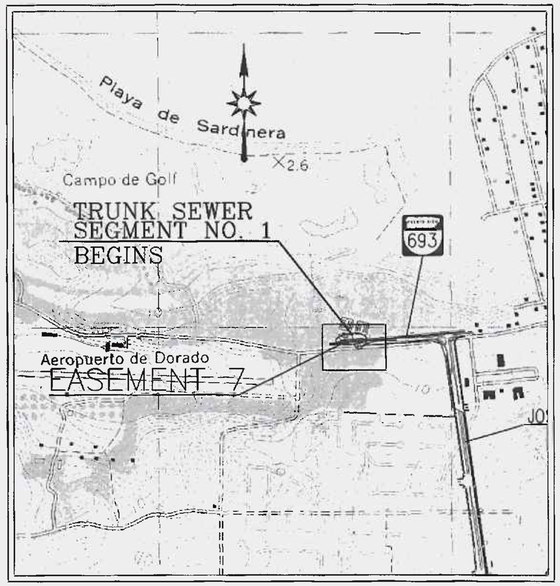
LEGEND:

- EASEMENT FOR SANITARY SEWER INSTALLATION
- P.R.H.T.A. RIGHT OF WAY
- SANITARY SEWER SYSTEM
- SURVEY CONTROL STATION
- EXISTING POLES
- EXISTING TREES
- EXISTING FENCE

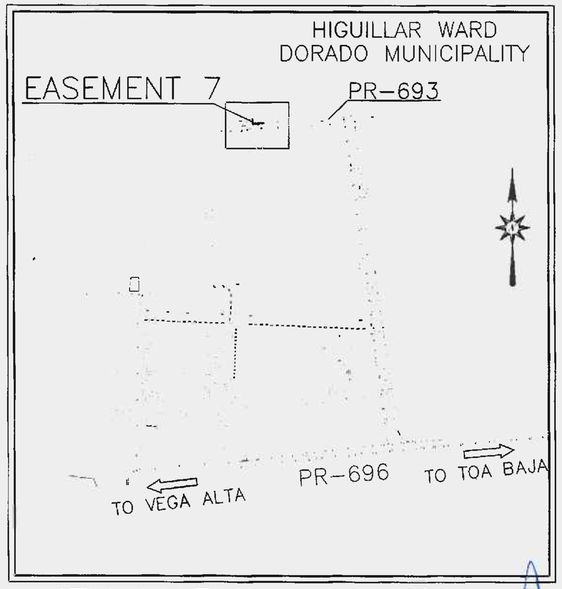
INFORMACION REGISTRO PROPIEDAD	
FINCA	1,000
TOMO	26
FOLIO	188

SURVEY CONTROL STATIONS

CONTROL NUM.	LAMBERT COORDINATES NORTH(Y)	LAMBERT COORDINATES EAST (X)	ELEVATION	DESCRIPTION
CF-3	269,973.1545	215,557.7014	12.310	GUN NAIL
CF-5	269,968.8201	215,505.0242	12.650	GUN NAIL



LOCATION PLAN SCALE 1:20,000 HORIZONTAL DATUM: NAD 83



KEY MAP

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JAMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-5810
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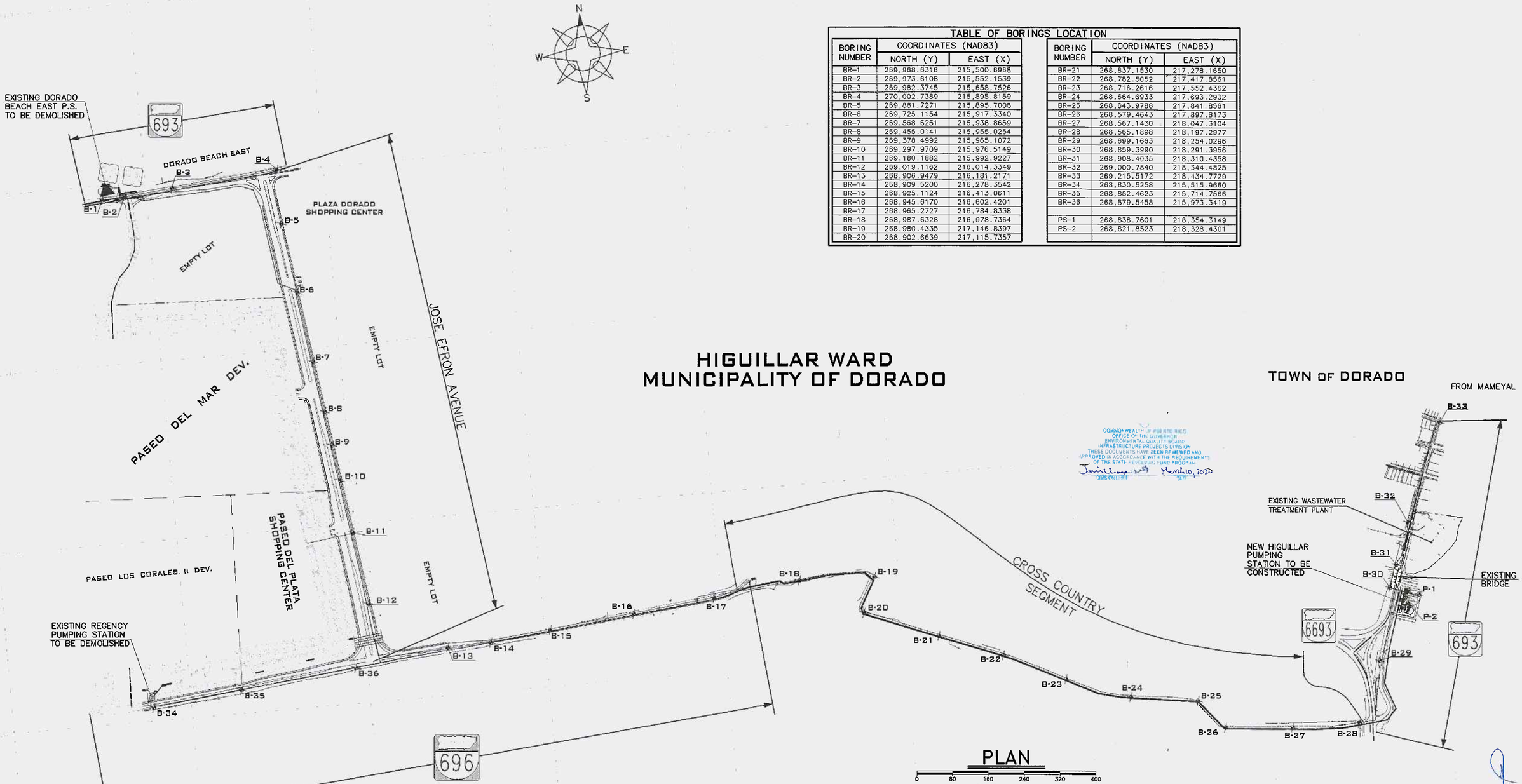
NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: EASEMENT 7 TO BE CONSTITUTED FROM: DORADO BEACH RESORT HOMES CRIM NO.: 037-004-239-35			SCALES: H=1:1,000
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. SSE-12
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 92B
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

HIGUILLAR WARD
MUNICIPALITY OF DORADO

TOWN OF DORADO



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

JACA & SIERRA testing laboratories, inc.

TABLE OF BORINGS LOCATION

BORING NUMBER	COORDINATES (NAD83) NORTH (Y)	COORDINATES (NAD83) EAST (X)
BR-1	269,968.6316	215,500.6968
BR-2	269,973.6108	215,552.1539
BR-3	269,982.3745	215,658.7526
BR-4	270,002.7389	215,895.8159
BR-5	269,881.7271	215,895.7008
BR-6	269,725.1154	215,917.3340
BR-7	269,568.6251	215,938.8659
BR-8	269,455.0141	215,955.0254
BR-9	269,378.4992	215,965.1072
BR-10	269,297.9709	215,976.5149
BR-11	269,180.1882	215,992.9227
BR-12	269,019.1162	216,014.3349
BR-13	268,906.9479	216,181.2171
BR-14	268,909.5200	216,278.3542
BR-15	268,925.1124	216,413.0611
BR-16	268,945.6170	216,602.4201
BR-17	268,965.2727	216,784.8338
BR-18	268,987.6328	216,978.7364
BR-19	268,980.4335	217,146.8397
BR-20	268,902.6639	217,115.7357

BORING NUMBER	COORDINATES (NAD83) NORTH (Y)	COORDINATES (NAD83) EAST (X)
BR-21	268,837.1530	217,278.1650
BR-22	268,782.5052	217,417.8561
BR-23	268,716.2616	217,552.4362
BR-24	268,664.6933	217,693.2932
BR-25	268,643.9788	217,841.8561
BR-26	268,579.4643	217,897.8173
BR-27	268,567.1430	218,047.3104
BR-28	268,565.1898	218,197.2977
BR-29	268,699.1663	218,254.0296
BR-30	268,859.3990	218,291.3956
BR-31	268,908.4035	218,310.4358
BR-32	269,000.7840	218,344.4825
BR-33	269,215.5172	218,434.7729
BR-34	268,830.5258	215,515.9660
BR-35	268,852.4623	215,714.7566
BR-36	268,879.5458	215,973.3419
PS-1	268,838.7601	218,354.3149
PS-2	268,821.8523	218,328.4301

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jcma CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. SIERRA INGENIERO LIC. #19140 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: **GEOTECHNICAL EXPLORATION: BORING LOGS LOCATION PLAN**

DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	

SCALES: H=1:4,000 V=N/A
DRWG NO. GE-01
SHEET NO. 93
REVISION NO. 0

Q:\14-DWGS\34-000E-DORADO TRUNK SEWER-COMPLEMENTARY WORKS\93-GE-01-BORING LOGS LOCATION PLAN (GEOTECHNICAL EXPLORATION).dwg 7/16/2014 5250

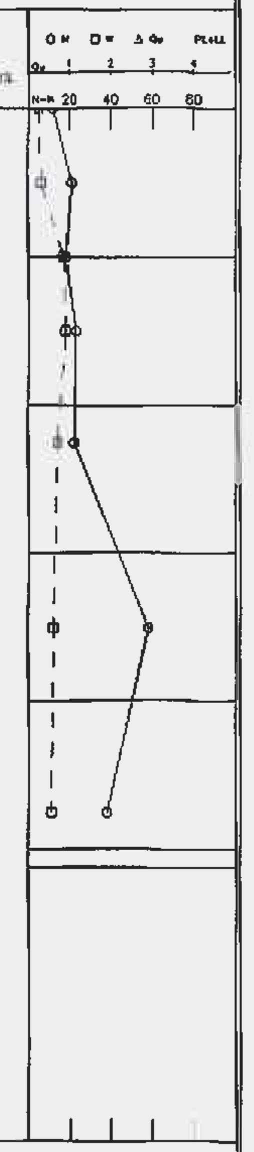
SUBSURFACE EXPLORATION LOG

BORING NO.: 1 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-6-14 COMPLETED 3-6-14
GROUNDWATER (ft.) Initial: 7.5' Final: 6' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00 to -0.30	0 – 1	Topsoil
-0.30 to -2.74	1 – 9	CLAYEY SAND, fine grained, gray; USCS: SC-SM; AASHTO: A-2-4(0); PL: 15; LL: 22; PI: 7; Do... with silt, brown; Do... silty clay, brown
-2.74	9 – 20.5	SILTY SAND fine grained, medium to dense, moist, light gray

Blows	SPT N	W	Qu
4-6-6	12	5	
10-14-7	21	6	
5-8-10	18	17	
9-11-12	23	18	
6-9-13	22	14	
23-32-26	58	12	
11-18-20	38	11	



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth / Final G.W. Depth

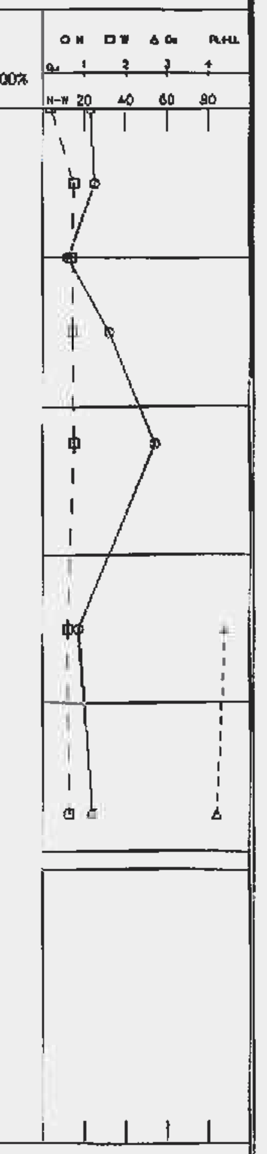
SUBSURFACE EXPLORATION LOG

BORING NO.: 2 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-6-14 COMPLETED 3-6-14
GROUNDWATER (ft.) Initial: 5' Final: 5' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0 – 4.5	SAND, fine grained, light gray; USCS: SP-SM; AASHTO: A-3; PL: NP; LL: NP; PI: NP
-1.37	4.5 – 14	SILTY SAND fine grained, medium to dense, moist, light gray; USCS: SM; AASHTO: A-2-4(0); PL: NP; LL: NP; PI: NP
-4.27	14 – 20.5	SILTY CLAY with sand, very stiff, light brown

Blows	SPT N	W	Qu
12-12-11	23	4	
14-13-12	25	15	
5-[illegible]-7	12	14	
[illegible]-14-18	32	15	
28-30-24	54	15	
5-6-11	17	12	4.4
7-11-13	24	13	4.2



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
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Initial G.W. Depth / Final G.W. Depth

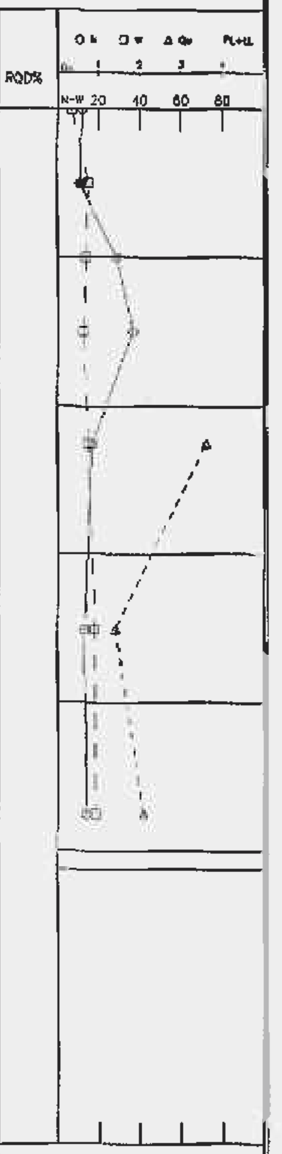
SUBSURFACE EXPLORATION LOG

BORING NO.: 3 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-6-14 COMPLETED 3-6-14
GROUNDWATER (ft.) Initial: 7 Final: 6' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0 – 4	FILL: silty sand fine grained, gray and dark brown
-1.22	4 – 9	SILTY SAND fine grained, medium to dense, moist, pale yellow
-2.74	9 – 20.5	SILTY CLAY with sand, stiff to very stiff, light brown

Blows	SPT N	W	Qu
5-[illegible]-7	12	7	
10-6-5	11	15	
[illegible]	29	14	
14-20-17	37	13	
4-7-10	17	15	3.6
5-[illegible]	13	18	1.4
5-6-8	14	19	2.1



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth / Final G.W. Depth

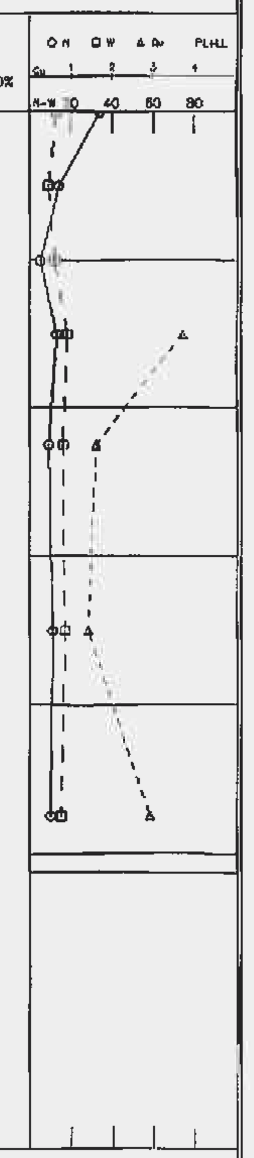
SUBSURFACE EXPLORATION LOG

BORING NO.: 4 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-10-14 COMPLETED 3-10-14
GROUNDWATER (ft.) Initial: 8' Final: 6' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0 – 6	FILL: sandy clay with roots pieces, brown
-1.83	6 – 20.5	SILTY CLAY with sand, very stiff, light gray and pale yellow

Blows	SPT N	W	Qu
6-18-16	34	13	
6-7-7	14	9	
3-2-3	5	12	
6-7-6	13	18	3.7
4-4-5	9	16	1.6
[illegible]	11	17	1.4
3-4-6	10	15	2.9



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth / Final G.W. Depth

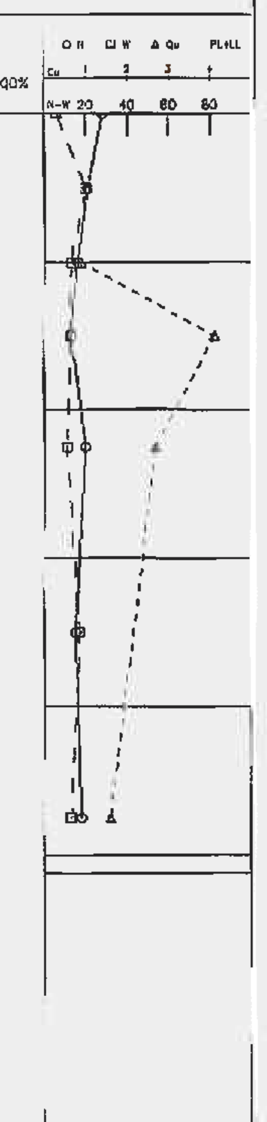
SUBSURFACE EXPLORATION LOG

BORING NO.: 5 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-3-14 COMPLETED 3-3-14
GROUNDWATER (ft.) Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0 – 0.5	Asphalt
	0.5 – 4	FILL: silty sand fine grained, gray and dark brown
-1.22	4 – 20.5	SILTY CLAY with sand, stiff to very stiff, brown and yellow

Blows	SPT N	W	Qu
23-17-11	28	6	
9-12-9	21	20	
6-8-8	16	13	0.9
[illegible]	13	13	4.1
8-9-11	20	11	2.7
4-6-9	15	17	
5-8-10	18	13	1.6



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth / Final G.W. Depth

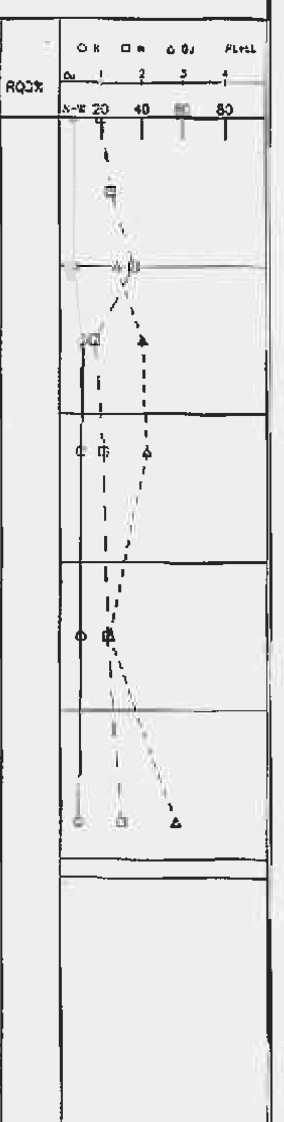
SUBSURFACE EXPLORATION LOG

BORING NO.: 6 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-3-14 COMPLETED 3-3-14
GROUNDWATER (ft.) Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0 – 2	FILL: silty sand fine grained, gray and dark brown
-0.61	2 – 4	SILTY CLAY, very soft, dark brown
-1.22	4 – 20.5	SILTY CLAY trace sand, medium to stiff, light gray and yellowish brown

Blows	SPT N	W	Qu
3-4-3	7	20	
WH-WH-WH	WH	25	
2-[illegible]	7	36	1.4
5-[illegible]	11	17	2.0
4-4-6	10	21	2.1
[illegible]	10	23	1.2
3-4-5	9	30	2.8



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth / Final G.W. Depth

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — March 10, 2020 — DATE

JACA & SIERRA testing laboratories, inc.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. F... INGENIERO LICENCIADO LIC. #19148 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 1 @ 6

DRAFTED BY:	DRAFTER LICENSE NO.:	DATE
DESIGNED BY: A.A.F.T.		DATE 02/20/2020
REVISED BY:		DATE
SUBMITTED BY:		DATE

SCALES: H=1:4,000 V=N/A
DRWG NO. GE-02
SHEET NO. 94
REVISION NO. 0

SUBSURFACE EXPLORATION LOG

BORING NO.: 7 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-3-14 COMPLETED 3-3-14
GROUNDWATER (ft.) Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00	FILL: sandy clay with roots pieces, brown		5	21			
		SILTY CLAY trace to some sand, medium to very stiff, light gray and brown USCS: CH AASHTO: A-7-6(31) PL: 27 LL: 67 PI: 40		5	30	1.0		
	4			6	29	1.1		
				12	24	3.8		
	8			16	24	3.3		
	12							
	16			18	23	3.5		
	20			12	25	2.4		
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"Wx" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 8 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-4-14 COMPLETED 3-4-14
GROUNDWATER (ft.) Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5 | ENGINEER Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00	FILL: sandy clay with gravel, brown, reddish brown and yellowish brown		11	15			
				13	16			
	4			14	16			
		SILTY CLAY trace to some sand, medium to very stiff, brown and reddish brown		6	31	1.8		
	8			13	17	3.8		
	12							
	16			13	26	3.2		
	20			18	20	1.8		
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"Wx" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 9 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-4-14 COMPLETED 3-4-14
GROUNDWATER (ft.) Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00	FILL: silty clay with gravel, brown, reddish brown and yellow		14	15			
				22	11			
	4	SILTY CLAY trace sand, stiff, reddish brown		15	9			
				9	18			
	8			10	27	3.2		
	12							
	16			13	24	3.5		
	20			13	25	2.3		
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"Wx" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 10 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-5-14 COMPLETED 3-5-14
GROUNDWATER (ft.) Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00	FILL: silty clay with gravel, brown, reddish brown and yellow		9	15			
			50/3"	50/3"	3			
	4	USCS: GC AASHTO: A-2-4(0) PL: 17 LL: 26 PI: 9		26	16			
				24	21			
	8			14	20			
	12							
		SILTY CLAY trace sand, very stiff, reddish brown		23	21	4.3		
	16							
	20			25	27	4.1		
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"Wx" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 11 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-5-14 COMPLETED 3-5-14
GROUNDWATER (ft.) Initial: 10' Final: 7' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00	FILL: silty clay with gravel, brown, reddish brown and yellow		29	12			
				24	11			
	4			17	15			
				9	17			
	8			15	22			
	12							
		SILTY CLAY trace sand, medium to very stiff, reddish brown		8	30	1.5		
	16							
	20			16	28	2.5		
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"Wx" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 12 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED 3-5-14 COMPLETED 3-5-14
GROUNDWATER (ft.) Initial: 10' Final: 8' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE 20.5' | ENGINEER Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00	FILL: gravelly sand, yellow		20	11			
				52	10			
	4			32	12			
		FILL: silty clay with gravel, brown, reddish brown and yellow		17	28			
	8			11	22			
	12							
		SILTY CLAY trace sand, very stiff, reddish brown		14	22	2.9		
	16							
	20			19	20			
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"Wx" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
March 10, 2020

JACA & SIERRA testing laboratories, inc.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JSMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-5318
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email: jsmyassoc@prtc.net

ANTONIO MARTINEZ LICENSED LIC. #18146 PUERTO RICO

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 7 @ 12			SCALES: H=1:4,000 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. GE-03
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 95
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

SUBSURFACE EXPLORATION LOG

BORING NO.: 13

PROJECT	Dorado Trunk Sewer
JOB	7437
SHEET	1 OF 1
LOCATION	Dorado, PR
DRILLER/DRILL RIG	Eddie Sevilla / CME-55
DESCRIPTION BY	Lourdes Rodriguez
DATE HOLE	STARTED 3-27-14 COMPLETED 3-27-14
GROUNDWATER (ft.)	Initial: Not Found Final:
ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE	20.5'
ENGINEER	Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: silty clay with gravel, reddish brown and yellow	53 27 27	54	6			
			14 5 5	10	18			
			22 19 9	28	9			
-1.83	6	SILTY CLAY, very soft, dark brown	2 2 2	4	49			
-2.74	9	SILTY CLAY trace sand, stiff to very stiff, reddish brown and light gray	3 5 4	9	33	2.2		
			7 10 12	22	29	3.6		
			4 5 6	13	26	1.9		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: 14

PROJECT	Dorado Trunk Sewer
JOB	7437
SHEET	1 OF 1
LOCATION	Dorado, PR
DRILLER/DRILL RIG	Eddie Sevilla / CME-55
DESCRIPTION BY	Lourdes Rodriguez
DATE HOLE	STARTED 3-27-14 COMPLETED 3-27-14
GROUNDWATER (ft.)	Initial: Not Found Final:
ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE	20.5'
ENGINEER	Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: silty clay with gravel, brown, reddish brown and yellow USCS: GC AASHTO. A-2-6(0) PL: 18 LL: 29 PI: 11	53 39 19	58	11			
			14 12 14	26	17			
			10 40/5"	40/5"	13			
			20 20 18	38	15			
			5 4 6	10	19			
-3.66	12	SILTY CLAY with sand, very stiff, light brown	4 5 8	13	26	3.4		
			5 5 9	14	27	3.3		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: 15

PROJECT	Dorado Trunk Sewer
JOB	7437
SHEET	1 OF 1
LOCATION	Dorado, PR
DRILLER/DRILL RIG	Eddie Sevilla / CME-55
DESCRIPTION BY	Lourdes Rodriguez
DATE HOLE	STARTED 3-27-14 COMPLETED 3-27-14
GROUNDWATER (ft.)	Initial: 19' Final: 13.5'
ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE	20.5'
ENGINEER	Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: silty clay with gravel, brown, reddish brown and yellow	38 34 22	56	11			
			28 [illegible]	41	13			
			5 40/5"	40/5"	25			
			[illegible] 8 7	15	20			
			[illegible]	23	21			
-3.96	13	SILTY CLAY trace sand, very stiff, reddish brown	[illegible]	12	40	1.0		
			3 4 6	10	32	1.8		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "T" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: 16

PROJECT	Dorado Trunk Sewer
JOB	7437
SHEET	1 OF 1
LOCATION	Dorado, PR
DRILLER/DRILL RIG	Eddie Sevilla / CME-55
DESCRIPTION BY	Lourdes Rodriguez
DATE HOLE	STARTED 3-27-14 COMPLETED 3-27-14
GROUNDWATER (ft.)	Initial 15' Final 13'
ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE	20.5'
ENGINEER	Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: silty clay with gravel, brown, reddish brown and yellow	32 33 30	63	9			
			13 17 21	38	14			
			6 9 35	44	7			
			18 16 15	31	15			
			20 6 11	17	31			
-3.66	12	SILTY CLAY, soft to medium, dark brown	3 5 3	8	20			
			2 2 2	4	31	0.8		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: 17

PROJECT	Dorado Trunk Sewer
JOB	7437
SHEET	1 OF 1
LOCATION	Dorado, PR
DRILLER/DRILL RIG	Eddie Sevilla / CME-45
DESCRIPTION BY	Lourdes Rodriguez
DATE HOLE	STARTED 1-27-14 COMPLETED 1-27-14
GROUNDWATER (ft.)	Initial: Not Found Final:
ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE	20.5'
ENGINEER	Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: sandy clay, reddish brown	[illegible]	4	16			
			3 4 5	9	13			
			3 3 5	8	14			
-1.83	6	SILTY SAND fine grained, medium, moist, light gray	11 [illegible]	18	23			
-2.74	9	SILTY CLAY trace sand, medium, reddish brown	3 2 4	6	32	2.5		
			3 4 4	8	39	1.6		
-5.79	19	WEATHERED LIMESTONE sampled as gravelly sand, yellowish brown	29 14 9	23	5	1.6		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: 18

PROJECT	Dorado Trunk Sewer
JOB	7437
SHEET	1 OF 1
LOCATION	Dorado, PR
DRILLER/DRILL RIG	Eddie Sevilla / CME-45
DESCRIPTION BY	Lourdes Rodriguez
DATE HOLE	STARTED 1-27-14 COMPLETED 1-27-14
GROUNDWATER (ft.)	Initial: 10' Final: 5'
ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE	20.5'
ENGINEER	Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	BLOWS	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: silty clay with sand trace gravel, reddish brown and dark brown	[illegible]	6	15			
			[illegible]	10	13			
			6 7 10	17	16			
			5 4 4	8	32			
-2.74	9	SILTY CLAY trace sand, stiff, reddish brown and light gray	4 4 5	9	25	2.5		
			4 6 8	14	32	1.6		
			3 4 5	9	47	1.6		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF DATE March 10, 2020

JACA & SIERRA testing laboratories, inc.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jaca CIVIL ENGINEERING CONSULTANTS
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ANTONIO A. FUENTES INGENIERO LICENCIADO LIC. #19448 PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

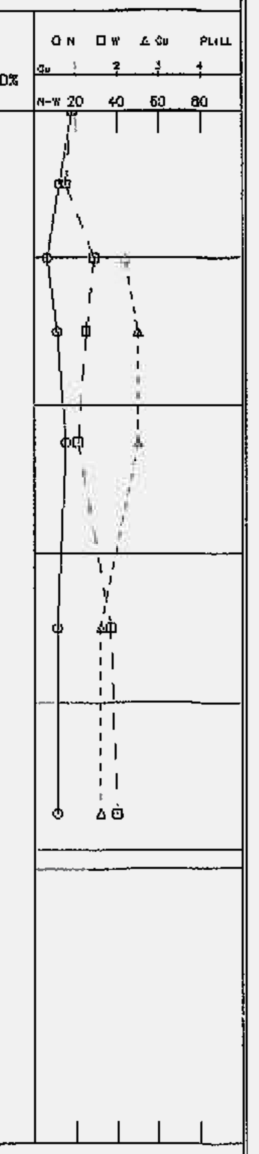
COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 13 @ 18			SCALES: H=1:4,000 V=N/A DRWG NO. GE-04
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	SHEET NO. 96
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

SUBSURFACE EXPLORATION LOG — BORING NO.: 19

PROJECT: Dorado Trunk Sewer	JOB: 7437	SHEET 1 OF 1	
LOCATION: Dorado, PR	DRILLER/DRILL RIG: Eddie Sevilla / CME-45		
DESCRIPTION BY: Lourdes Rodriguez	DATE HOLE STARTED: 1-27-14	COMPLETED: 1-27-14	
GROUNDWATER (ft.) Initial: 10'	Final: 5'	ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE: 20.5'	ENGINEER: Lourdes Rodriguez		

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: sandy clay with sand some gravel, brown	7-11-7	18	18			
			8-6-6	12	15			
-0.91	3	SILTY CLAY trace sand, medium to very stiff, reddish brown and light gray	[illegible]	6	29	2.2		
			[illegible]	11	25	2.5		
			6-7-8	15	21	2.5		
			[illegible]	11	37	1.6		
			[illegible]	11	40	1.6		

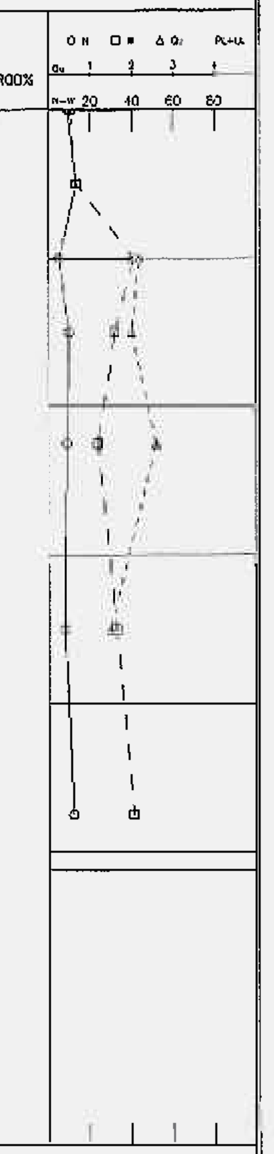


"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth; Final G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG — BORING NO.: 20

PROJECT: Dorado Trunk Sewer	JOB: 7437	SHEET 1 OF 1	
LOCATION: Dorado, PR	DRILLER/DRILL RIG: Steven Perez / CME-45		
DESCRIPTION BY: Lourdes Rodriguez	DATE HOLE STARTED: 1-20-14	COMPLETED: 1-20-14	
GROUNDWATER (ft.) Initial: 15'	Final:	ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE: 20.5'	ENGINEER: Lourdes Rodriguez		

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	SANDY CLAY, stiff, brown	[illegible]	9	10			
			[illegible]	13	13			
-1.22	4	SILTY CLAY trace sand, medium to stiff, reddish brown and yellowish brown	[illegible]	5	41	2.2		
			[illegible]	10	32	2.0		
			[illegible]	9	24	2.6		
			[illegible]	8	33	1.5		
			[illegible]	12	41			

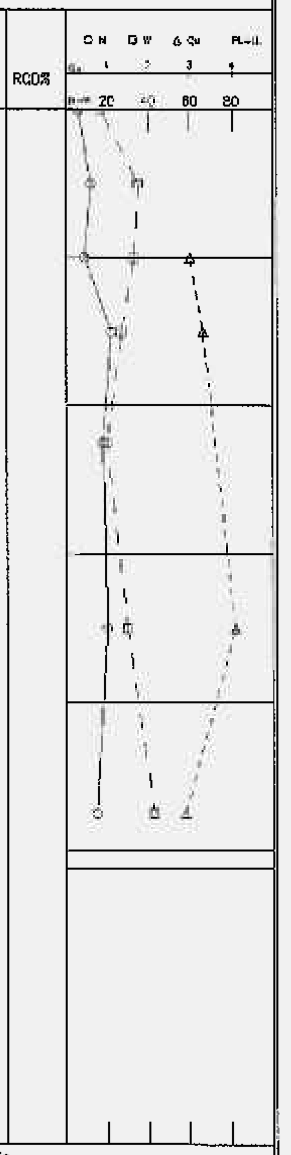


"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth; Final G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG — BORING NO.: 21

PROJECT: Dorado Trunk Sewer	JOB: 7437	SHEET OF	
LOCATION: Dorado, PR	DRILLER/DRILL RIG: Steven Perez / CME-45		
DESCRIPTION BY: Lourdes Rodriguez	DATE HOLE STARTED: 1-20-14	COMPLETED: 1-20-14	
GROUNDWATER (ft.) Initial: Not Found	Final:	ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE: 20.5'	ENGINEER: Lourdes Rodriguez		

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	SANDY CLAY, medium, dark brown; USCS: MH; AASHTO: A-7-5(30); PL: 33; LL: 67; PI: 34	[illegible]	6	17			
-0.61			5-6-6	12	35			
	4	SILTY CLAY trace sand, stiff to very stiff, reddish brown	[illegible]	9	33	3.0		
			[illegible]-10-12	22	27	3.3		
			6-8-10	18	20			
			7-8-12	20	30	4.1		
			[illegible]	15	43	2.9		

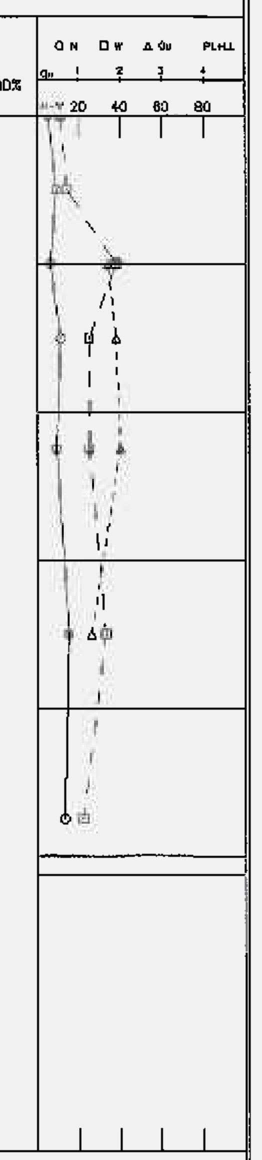


"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth; Final G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG — BORING NO.: 22

PROJECT: Dorado Trunk Sewer	JOB: 7437	SHEET 1 OF 1	
LOCATION: Dorado, PR	DRILLER/DRILL RIG: Steven Perez / CME-45		
DESCRIPTION BY: Lourdes Rodriguez	DATE HOLE STARTED: 1-17-14	COMPLETED: 1-17-14	
GROUNDWATER (ft.) Initial: Not Found	Final:	ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE: 20.5'	ENGINEER: Lourdes Rodriguez		

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	SILTY CLAY trace sand, medium to stiff, reddish brown and brown	[illegible]	5	11			
			3-4-5	9	14			
			4-2-4	6	38	1.7		
			[illegible]	11	25	1.9		
			[illegible]-4-5	9	25	2.0		
-4.27	14	WEATHERED LIMESTONE sampled as gravelly sand with silty clay intrusions, yellowand reddish brown	[illegible]	15	33	1.3		
			8-4-9	13	22			

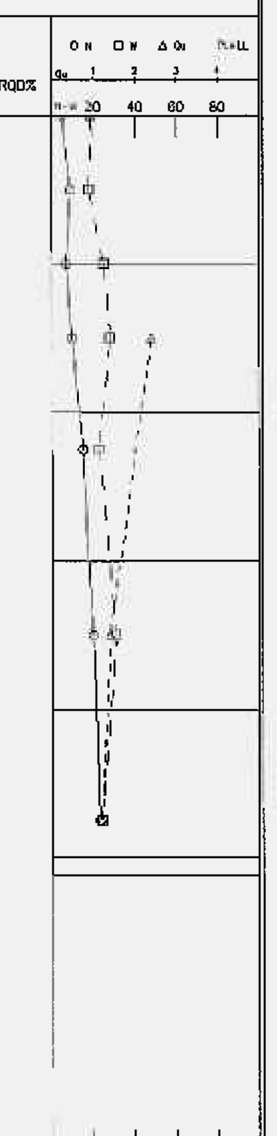


"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth; Final G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG — BORING NO.: 23

PROJECT: Dorado Trunk Sewer	JOB: 7437	SHEET OF	
LOCATION: Dorado, PR	DRILLER/DRILL RIG: Eddie Sevillo / CME-45		
DESCRIPTION BY: Lourdes Rodriguez	DATE HOLE STARTED: 1-17-14	COMPLETED: 1-17-14	
GROUNDWATER (ft.) Initial: 9	Final: 3'	ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE: 20.5	ENGINEER: Lourdes Rodriguez		

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: sandy clay, reddish brown; USCS: SC; AASHTO: A-2-4; PL: 15; LL: 23; PI: 8	[illegible]	5	19			
			[illegible]	9	18			
-1.22	4	SILTY CLAY trace sand, medium to stiff, gray and brown; USCS: CH; AASHTO: A-7-6(19); PL: 25; LL: 51; PI: 26	[illegible]	7	25			
			5-5-5	10	28	2.4		
-2.74	9	Sandy Clay, very stiff, reddish brown	7-6-9	15	23			
-4.27	14	WEATHERED LIMESTONE sampled as gravelly sand with silty clay, uellow and reddish brown	[illegible]-10-10	20	31	1.4		
			[illegible]-15	23	24	1.2		

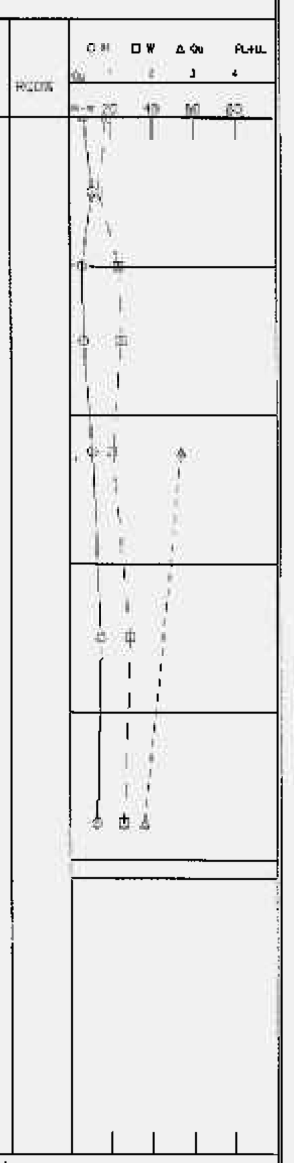


"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth; Final G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG — BORING NO.: 24

PROJECT: Dorado Trunk Sewer	JOB: 7437	SHEET OF	
LOCATION: Dorado, PR	DRILLER/DRILL RIG: Eddie Sevilla / CME-45		
DESCRIPTION BY: Lourdes Rodriguez	DATE HOLE STARTED: 1-17-14	COMPLETED: 1-17-14	
GROUNDWATER (ft.) Initial: 14'	Final: 5'	ELEVATION TOP OF HOLE (mts):	
TOTAL DEPTH OF HOLE: 20.5'	ENGINEER: Lourdes Rodriguez		

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00 / -0.15	0	Topsoil	[illegible]	7	18			
	0.5	Sandy Clay, medium, reddish brown						
-0.61	2	SILTY CLAY, medium to stiff, yellowish brown, gray and brown	[illegible]	11	14			
			[illegible]	6	24			
			[illegible]	7	25			
			[illegible]	11	21	2.2		
			[illegible]	15	29			
			[illegible]	13	25	1.8		



"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth; Final G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE: March 10, 2020

JACA & SIERRA testing laboratories, inc.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

JAMA CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8985 / 787-751-5537 FAX 787-751-1052
email: jamyassoc@prtc.net

ANTONIO A. FUENTES — INGENIERO LICENCIADO — LIC. #19446 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 19 @ 24			SCALES: H=1:4,000 V=N/A
DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	DRWG NO. GE-05
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	SHEET NO. 97
REVISED BY:		DATE	
SUBMITTED BY:		DATE	REVISION NO. 0

SUBSURFACE EXPLORATION LOG

BORING NO.: 25 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 1-17-14 | COMPLETED: 1-17-14
GROUNDWATER (ft.): Initial: 20' Final: 5.5' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts.)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	Topsoil	2 2 2	4	21			
-0.30		Sandy Clay, medium, brown and reddish brown	3 4 6	10	16			
-1.22	4	SILTY CLAY, medium to stiff, grey, brown and reddish brown	3 4 4	8	26			
			5 6 6	10	29			
	8		2 3 4	4	22	2.8		
	12		50/5"	13	25			
	16		5 7 10	15	28			
	20							
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 26 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 1-16-14 | COMPLETED: 1-16-14
GROUNDWATER (ft.): Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 15' | ENGINEER: Lourdes Rodriguez

Elev. (mts.)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	Topsoil	4 3 3	6	23			
-0.30		SANDY CLAY trace sand, medium, brown and gray USCS: CH AASHTO: A-7-6(24) PL: 26 LL: 52 PI: 26	3 3 4	7	21			
-1.22	4	SILTY CLAY, medium, gray and brown	3 3 2	5	23			
			4 4 4	8	25			
	8		3 3 4	7	24			
-3.37		WEATHERED LIMESTONE sampled as gravelly sand, yellow	50/3"	50/5"	8			
	12							
	16							
	20							
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 27 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 1-16-14 | COMPLETED: 1-16-14
GROUNDWATER (ft.): Initial: 15' Final: 4.5' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5 | ENGINEER: Lourdes Rodriguez

Elev. (mts.)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	Topsoil	2 2 2	4	13	22		
-0.30		Silty Clay trace sand, stiff, brown	2 3 3	6	11	24		
	4		3 4 3	7	7	21		
			3 4 4	7	7	24		
	8		3 5 13	20	20	25		
-6.71		WEATHERED LIMESTONE sampled as gravelly sand, yellow						
	12		3 5 7	12	12	18		
	16							
	20		8 11 10	21	21	24		
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

SUBSURFACE EXPLORATION LOG

BORING NO.: 28 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 1-16-14 | COMPLETED: 1-16-14
GROUNDWATER (ft.): Initial: 4' Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts.)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: sandy clay with sand, gravel and wood of pieces, dark brown	3 3 2	5	24			
			2 2 2	4	28			
-1.22	4	SILTY SAND fine grained, medium, moist, light gray USCS: SM AASHTO: A-2-4	1 2 1	3	20			
-1.81		SILTY CLAY, soft, brown	1 2 1	3	25			
	8							
-3.24		SILTY CLAY trace sand some weathered limestone fragments, medium, brownish yellow and yellow	2 2 2	4	26			
	12		6 6 6	12	25			
	16							
	20		7 7 13	20	22			
	24							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
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SUBSURFACE EXPLORATION LOG

BORING NO.: 29 | JOB 7437 | SHEET 1 OF 2

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 1-28-14 | COMPLETED: 1-28-14
GROUNDWATER (ft.): Initial: 4 Final: 6.5' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 30.5 | ENGINEER: Lourdes Rodriguez

Elev. (mts.)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	0	FILL: sandy clay trace gravel, brown	11 6	10	24			
-0.61		SILTY CLAY trace sand, soft to medium, brown	4 4	7	20			
	4		1 1 1	2	28			
			2 2 2	4	28			
	8		2 2 2	4	25			
	12		3 3 2	5	27			
	16							
	20		1 1 2	3	26			
	24	Do... with sand	1 1 2	3	28			

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

BORING LOG (CONT. SHEET)

BORING NUMBER: 29 | PROJECT: Dorado Trunk Sewer | JOB 7437 | SHEET 2 OF 2

Elev. (mts)	Depth (feet)	Description	Blows	SPT N	W	Qu	RC	RQD%
0.00	28							
-8.61		SILTY CLAY some sand, stiff, yellowish brown	3 4 5	11	29			
	32							
	36							
	40							
	44							
	48							
	52							
	56							

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. Final G.W. Depth
"RC" – Core recovery in percent for each successive run. "RQD" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
[illegible] May 10, 2010
PROJECT CHIEF

JACA & SIERRA
testing laboratories, inc.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

jana
CIVIL ENGINEERING CONSULTANTS
SAN FRANCISCO #117 DE DIEGO AVE. SAN JUAN PR 00927-6310
TEL. 787-751-8925 / 787-751-5537 FAX 787-751-1052
email: janaconsultants@prtc.net

ANTONIO A. ARIAS INGENIERO LICENCIADO LIC. #10416

NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 25 @ 29

SCALES: H=1:4,000 V=N/A
DRWG NO. GE-06
SHEET NO. 98

DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE

REVISION NO. 0

SUBSURFACE EXPLORATION LOG — BORING NO.: 30

PROJECT: Dorado Trunk Sewer | JOB: 7437 | SHEET 1 OF 1
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Carlos I. Diaz / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 3-7-14 COMPLETED: 3-7-14
GROUNDWATER (ft.): Initial: 7' Final: 6.5' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 25.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0	SANDY SILT, brown USCS: ML AASHTO: A-4(3) PL: 25 LL: 33 PI: 8
-1.83	6	CLAYEY SILT with sand, very soft, brown and gray USCS: ML AASHTO: A-4(9) PL: 29 LL: 38 PI: 9
-5.79	19	CLAYEY SILT with sand, stiff, reddish yellow USCS: ML AASHTO: A-6(9) PL: 25 LL: 38 PI: 13

Blows	SPT N	W	Qu	RC	RQD%
5-6-9	15	29			
11-11-10	21	22			
3-1-2	3	24			
1-WH-1	1	27			
1-1-WH	WH	21			
WH-WH-1	1	24			
5-4-9	13	27			
3-4-7	11	25			

SUBSURFACE EXPLORATION LOG — BORING NO.: 31

PROJECT: Dorado Trunk Sewer | JOB: 7437 | SHEET 1 OF 1
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 3-7-14 COMPLETED: 3-7-14
GROUNDWATER (ft.): Initial: 6.5' Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0	FILL: clayey silt with roots fragments, brown
-1.22	4	CLAYEY SILT with sand, soft to medium, brown
		Do... some sand
-5.79	19	SILTY CLAY with sand, very stiff, yellowish brow

Blows	SPT N	W	Qu	RC	RQD%
5-8-6	14	27			
4-4-5	9	26			
1-1-1	2	18			
2-1-3	4	28			
[illegible]	4	28			
2-2-3	5	29			
6-8-9	17	21			

SUBSURFACE EXPLORATION LOG — BORING NO.: 32

PROJECT: Dorado Trunk Sewer | JOB: 7437 | SHEET OF
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 3-10-14 COMPLETED: 3-10-14
GROUNDWATER (ft.): Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0	FILL: sandy clay with gravel, dark brown
-1.22	4	SILTY CLAY with sand, very stof, brown
-2.74	9	SILTY CLAY some sand, medium to very stiff, brownish yellow and gray

Blows	SPT N	W	Qu	RC	RQD%
54-[illegible]	34	28			
3-6-7	13	22			
1-WH-1	WH	25			
WH-WH-WH	WH	24			
1-3-4	7	26			
[illegible]	8	26			
4-6-9	15	25			

SUBSURFACE EXPLORATION LOG — BORING NO.: 33

PROJECT: Dorado Trunk Sewer | JOB: 7437 | SHEET 1 OF 1
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Eddie Sevilla / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 1-28-14 COMPLETED: 1-28-14
GROUNDWATER (ft.): Initial: 4.5' Final: 4' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0	FILL: gravelly sand, gray
-1.22	4	SILTY SAND, very loose, gray
-2.74	9	SILTY CLAY with sand, light brown

Blows	SPT N	W	Qu	RC	RQD%
21-[illegible]	14	24			
4-4-11	15	26			
WH-WH-WH	WH	14			
WH-WH-WH	WH	17			
WH-WH-WH	WH	25			
2-2-3	5	27			
2-2-4	6	24			

SUBSURFACE EXPLORATION LOG — BORING NO.: 34

PROJECT: Dorado Trunk Sewer | JOB: 7437 | SHEET 1 OF 1
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Carlos I. Diaz / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 5-21-14 COMPLETED: 5-21-14
GROUNDWATER (ft.): Initial: 10' Final: 9' | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0	FILL: sandy clay with gravel, reddish brown and yellow
-1.22	4	SILTY CLAY some sand, medium to stiff, reddish brown
-4.27	14	WEATHERED LIMESTONE sampled as gravelly sand, brownish yellow

Blows	SPT N	W	Qu	RC	RQD%
4-9-10	19	25			
11-9-9	18	23			
5-3-2	5	25			
3-4-4	8	21			
4-4-4	8	27			
4-6-28	34	23			
17-8-10	18	22			

SUBSURFACE EXPLORATION LOG — BORING NO.: 35

PROJECT: Dorado Trunk Sewer | JOB: 7437 | SHEET 1 OF 1
LOCATION: Dorado, PR | DRILLER/DRILL RIG: Carlos I. Diaz / CME-55
DESCRIPTION BY: Lourdes Rodriguez | DATE HOLE STARTED: 5-21-14 COMPLETED: 5-21-14
GROUNDWATER (ft.): Initial: Not Found Final: | ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5' | ENGINEER: Lourdes Rodriguez

Elev. (mts)	Depth (feet)	Description
0.00	0	FILL: sandy clay with gravel, reddish brown and yellow
-1.22	4	SILTY CLAY some sand, medium to stiff, reddish brown and yellowish brown

Blows	SPT N	W	Qu	RC	RQD%
[illegible]	18	27			
[illegible]	8	24			
[illegible]	6	28			
4-3-5	8	22			
4-4-5	9	22			
[illegible]	14	25			
10-9-4	13	25			

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight. — Initial G.W. Depth
"Qu" – Unconfined Compressive Strength in tons per square foot. — Final G.W. Depth
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"WH" – Sample was recovered by advancing the sampler with the weight of the hammer.
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COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE REVOLVING FUND PROGRAM
DIVISION CHIEF — DATE: March 10, 2020

JACA & SIERRA testing laboratories, inc.

NO.	REMARKS	DATE	BY	APPV'D.

REVISIONS

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ANTONIO A. FUENTES — LIC. #19446 — PUERTO RICO

NEW DORADO TRUNK SEWER
CIP NUM.: 2-26-5002
C-72-051-01

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 30 @ 35
SCALES: H=1:4,000 V=N/A
DRWG NO. GE-07
DRAFTED BY: | DRAFTER LICENSE NO.: | DATE
DESIGNED BY: A.A.F.T. | DATE 02/20/2020
REVISED BY: | DATE
SUBMITTED BY: | DATE
SHEET NO. 99
REVISION NO. 0

SUBSURFACE EXPLORATION LOG

BORING NO.: 36 | JOB 7437 | SHEET 1 OF 1

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR
DRILLER/DRILL RIG: Carlos I. Diaz / CME-55
DESCRIPTION BY: Lourdes Rodriguez
DATE HOLE STARTED: 5-21-14 COMPLETED: 5-21-14
GROUNDWATER (ft.) Initial: 10' Final: 8'
ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 20.5'
ENGINEER: Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	LEGEND	TYPE	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00									
	0	FILL: sandy clay with gravel, reddish brown and yellow			3 3 4	17	24			
					3 4 5	9	22			
	4	SILTY CLAY some sand, medium to stiff, reddish brown and yellowish brown			3 4 6	10	27			
					3 4 6	14	26			
	8				3 5 5	10	24			
	12				4 6 9	13	22			
	16				5 10 10	16	24			
	20									
	24									

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"Wh" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: PS-1 | JOB 7437 | SHEET 1 OF 2

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR
DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Rommel Cintron
DATE HOLE STARTED: 4-8-14 COMPLETED: 4-8-14
GROUNDWATER (ft.) Initial: 11' Final: 9.5'
ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 50.5'
ENGINEER: Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	LEGEND	TYPE	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00									
	0	FILL: clayey silt trace fine sand and roots, dark yellowish brown			3 3 6	9	30			
					5 8 13	26	22			
	4	CLAYEY SILT trace fine sand, stiff to very stiff, dark yellowish brown			4 5 8	9	22			
					8 8 8	16	21			
	8	SILTY CLAY, medium, brown, gray			2 3 3	5	34	1.0		
	12	Do... some sand trace gravel, soft, olive greenish gray			1 1 2	3	30	1.2		
	16									
	20	CLAYEY SAND with gravel and cobbles, medium dense, brownish yellow, greenish gray			4 8 8	13	27			
	24				4 5 5	9	20			

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"Wh" – Sample was recovered by advancing the sampler with the weight of the hammer.
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Initial G.W. Depth
Final G.W. Depth

BORING LOG (CONT. SHEET)

BORING NUMBER: PS-1 | JOB 7437 | SHEET 2 OF 2

PROJECT: Dorado Trunk Sewer

Elev. (mts)	DEPTH (feet)	DESCRIPTION	LEGEND	TYPE	BLOWS	SPT N	W	Qu	RC	RQD%
	28	CLAYEY SILT some sand and gravel, stiff to medium, yellow, white			29	10	35	1.6		
	32					5	32	1.1		
	36					7	32	1.3		
	40	Do... stiff to very stiff				12	38	1.4		
	44									
	48				11	18	36	1.6		
	52									
	56									

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
"Qu" – Unconfined Compressive Strength in tons per square foot.
"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"Wh" – Sample was recovered by advancing the sampler with the weight of the hammer.
"P" – A "P" in the Unconfined Compressive Strength test indicates the use of the pocket Penetrometer.
Initial G.W. Depth
Final G.W. Depth

SUBSURFACE EXPLORATION LOG

BORING NO.: PS-2 | JOB 7437 | SHEET 1 OF 2

PROJECT: Dorado Trunk Sewer
LOCATION: Dorado, PR
DRILLER/DRILL RIG: Eddie Sevilla / CME-45
DESCRIPTION BY: Rommel Cintron
DATE HOLE STARTED: 4-8-14 COMPLETED: 4-8-14
GROUNDWATER (ft.) Initial: 16' Final: 9'
ELEVATION TOP OF HOLE (mts):
TOTAL DEPTH OF HOLE: 40.5'
ENGINEER: Lourdes Rodriguez

Elev. (mts)	DEPTH (feet)	DESCRIPTION	LEGEND	TYPE	BLOWS	SPT N	W	Qu	RC	RQD%
	0.00									
	0	FILL: clayey silt trace fine sand and roots, dark yellowish brown			3 3 4	7	26			
		USCS: MH AASHTO: A-7-5(23) PL: 30 LL: 50 PI: 20			3 4 7	14	24			
	4	SILTY CLAY trace sand, soft, brown, gray			2 1 3	4	34			
		Do... medium, olive, greenish gray			3 3 4	7	31	1.7		
	8				3 3 4	7	38	1.4		
	12									
		Do... some sand, medium, yellowish brown, light gray USCS: SC AASHTO: A-7-6(6) PL: 24 LL: 44 PI: 20				5	22	1.7		
	16									
	20	CLAYEY SAND with gravel and cobbles, medium dense, brownish yellow, greenish gray			2 3 7	12	19	1.2		
	24	SANDY CLAY, stiff, yellowish brown, light gray			3 5 6	11	25	1.5		

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
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"Rc" – Core recovery in percent for each successive run. "Rqd" – Rock quality designation.
"Wh" – Sample was recovered by advancing the sampler with the weight of the hammer.
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Initial G.W. Depth
Final G.W. Depth

BORING LOG (CONT. SHEET)

BORING NUMBER: PS-2 | JOB 7437 | SHEET 2 OF 2

PROJECT: Dorado Trunk Sewer

Elev. (mts)	DEPTH (feet)	DESCRIPTION	LEGEND	TYPE	BLOWS	SPT N	W	Qu	RC	RQD%
	28				3 4 6	10	17	1.0		
	32	Do... trace gravel			3 6 8	14	21	2.5		
	36									
	40				3 5 7	11	24	1.5		
	44									
	48									
	52									
	56									

"N" – Number of blows required to drive the sampling spoon a distance of 12 in. with a 140 lbs hammer falling 30 in.
"W" – Natural Moisture Content in percentage of dry weight.
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COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD
INFRASTRUCTURE PROJECTS DIVISION
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March 10, 2020

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REVISIONS

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NEW DORADO TRUNK SEWER

CIP NUM.: 2-26-5002
C-72-051-01

Autoridad de Acueductos y Alcantarillados
ESTADO LIBRE ASOCIADO DE PUERTO RICO

COMMONWEALTH OF PUERTO RICO
AQUEDUCT AND SEWER AUTHORITY

SHEET TITLE: GEOTECHNICAL EXPLORATION: BORING LOGS: 36, PS-1 & PS-2

DRAFTED BY:	DRAFTER LICENSE NO.:	DATE	
DESIGNED BY: A.A.F.T.		DATE 02/20/2020	
REVISED BY:		DATE	
SUBMITTED BY:		DATE	

SCALES: H=1:4,000 V=N/A
DRWG NO. GE-08
SHEET NO. 100
REVISION NO. 0

PS-1 & PS-2