INDEX OF DRAWINGS SHEET NO. SHEET NAME DESCRIPTION COVER SHEET G-1 GENERAL NOTES, LEGEND AND ABBREVIATIONS SITE PLAN AND LANDSCAPING PLAN (BY VOGEL ENGINEERING) PUMPING STATION LAYOUTS PUMPING STATION SECTION AND DETAILS B-1 CONTROL BUILDING LAYOUT AND DETAILS B-2 CONTROL BUILDING ELEVATIONS B-3 ROOF FRAMING AND FOUNDATION PLAN SOIL ODOR FILTER (SOF) DETAILS SOIL ODOR FILTER (SOF) PAVILION ELECTRICAL SYMBOLS AND ABBREVIATIONS E-2 SITE & CONTROL BUILDINGN PLANS PUMPING STATION LAYOUT & SECTION POWER RISER DIAGRAM AND PANELBOARD SCHEDULES C&W SCHEDULE AND CONTROL RISER SCHEMATIC DIAGRAM SHEET 1 SCHEMATIC DIAGRAM SHEET 2 E-8 SCHEMATIC DIAGRAM SHEET 3 SCHEMATIC DIAGRAM SHEET 4 ELECTRICAL DETAILS 101, 110, 201, & 207 ELECTRICAL DETAILS 203, 301, & 305 ELECTRICAL DETAILS 308, 402, 405, 501, 701, & 702 ELECTRICAL DETAILS 703, 801, 803, & 100 ELECTRICAL DETAILS 1003, 1101, 1102, 1106, 1112, & 1116 AND LOUVER SCHEDULE Instrumentation symbols & abbreviations & pump INSTRUMENTATION P&II DRIVEWAY / PAVING DETAILS AND SOIL BORING LO GRADING, SDILS MAP AND SDIL ERDSIDN, AND SEDIMENT CONTROL PLAN - DETAILS (BY VOGEL ENGINEERING) GRADING, SOILS MAP AND SOIL EROSION, AND SEDIMENT

ENGINEERING)

CONTROL PLAN - DETAILS (BY VOGEL ENGINEERING)

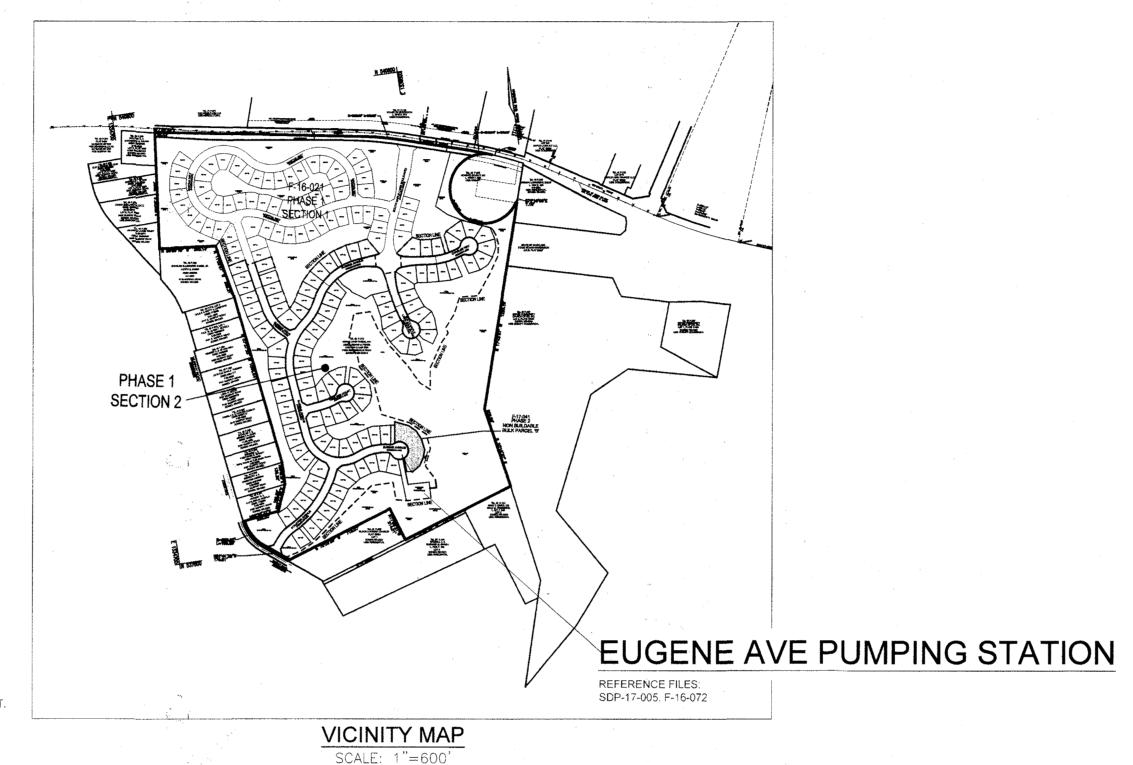
BUILDING PROFILES AND MISCELLANEOUS DETAILS

STORMWATER MANAGEMENT NOTES AND DETAILS (BY VOGEL

100% SUBMITTAL

# EUGENE AVENUE PUMPING STATION

HOWARD COUNTY, MD CONTRACT NO. 20-4955-D



#### **BENCHMARKS**

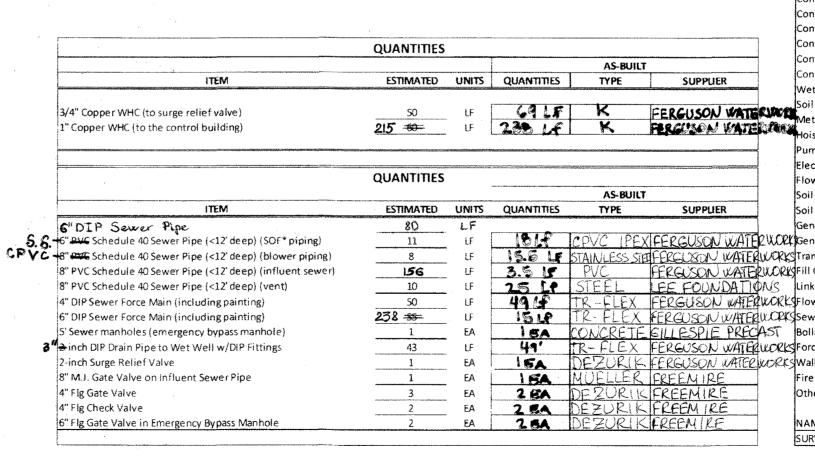
HOWARD COUNTY BENCHMARK 46AA N 540,396.42 E 1,335,505.31 ELEV.: 447.01 FT RT. 216, 33.2' WEST OF BG& E POLE#315163 HOWARD COUNTY BENCHMARK 41GE N 541,559.78 E 1,333,698.38 ELEV.: 465.05 FT. RT. 216, 82.4' WEST OF BG & E#557787

**OWNER** 

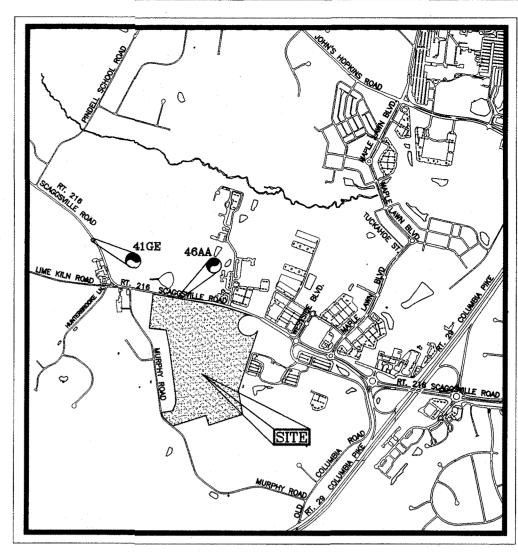
MAPLE LAWN FARMS, INC. P.O. BOX 562 EULTON. MD.20759-0562

**DEVELOPER** 

MAPLE LAWN PARTNERS, LLC TIMONIUM ONE 1966 GREENSPRING DRIVE, SUITE 508 TIMONIUM, MD 21093



TAX MAP 46, GRID 2



**LOCATION MAP** 

SCALE: 1"=2000' ADC MAP COORDINATES: 18 H 5

	PERMIT	INFO	RMATIC	N CH	HART	
SUBC	DIVISION NAME	ISION NAME SECTION/AREA LOTS/PARCEL # 113				
PLAT # OR L/F	BLOCK NO.	ZONE	TAX MAP	ELECT	. DIST.	CENSUS TR.
L. 683 F. 747	2	R-ED MXD-3	46	5	605102	
WATER CODE: SEWER CODE:						
ADDRESS CHART						
LOT NUMBER	STREE	T ADDRE	SS			
OPEN SPACE LOT 182						

QUANTITIES

Engineer's Office

Site Paving Fencing

Site Preparation & Grading

Landsc	aping	1 EA	TEA	EVERGREEN	BEECHFIELD	7
Excava	tion for Wet Well Structure	1. EA	IEA	A Company of the Comp	LEE FOUNDATION	đ
Wet W	ell Structure	1 EA	154	8'& CONCRET	EGILLESPIE PRECAS	
Backfill	Wet Well Structure	1 EA	IEA		LEE FOUNDATION	
Pour W	et Well Anti-Floatation Collar	1 EA	1 EA	CONCRETE	GULESPIE PRECE	
Excava	tion for Valve Vault Structure	1 EA	IEA		LEE FOUNDATIO	
Valve V	ault Structure	1 EA	IEA	CONCRETE	GILLESPIE PRECAS	
Backfill	Valve Vault Structure	1 EA	LEA	_	LEE FOUNDATION	
Excavat	tion for Control Building Foundation	1 EA	1 EA		LEE POUNDATION	J
Backfill	Control Building Foundation	1 EA	1 5A		LEE FOUNDATION	
Contro	Building Sonotubes for Carport Supports	1 EA	IEA	SONOTUBE	HOMEDEPOT	1
Contro	Building Concrete Floor and Carport Slab (incl floor sealant)	1 EA	AG I	CONCRETE	SCHUSTER CONCRE	ATE
	Building Masonry (including painting)	1 EA	IEA	CMU	YORKBLDG SUI	
1	Building Roofing	1 FA	IEA	ARCHITECTUR		7
Contro	Building Door	1 EA	2 EA		SPECIAL LITE	1
Contro	Building Carpentry	1 EA	IEA	INSUL/FRAMI		
	Building Trusses	1 EA	IEA	2×4	MITER	
Contro	Building Plumbing & Floor Drains	1 EA	EX	WATTS	WORTHEASTERN &	SUPPL
Contro	Building Heating and Ventilation System	1 EA	LEA		JOHN SARIGIAN	
Control	Building Furniture	1 15			73,010 (770	1
Control	Building Restroom Furniture & Accessories	1 LS	The state of the s			1
1 1	ell Blower	1 EA	LEA	GA	G.H. NITZEL	1
Soil Od	or Filter Blower	1 EA	1,674	CAMOT	LEE FOUNDATION	<b>1</b> /
ATE DUCKE ASSESS	abrications	1 EA	IEA		PHOENIX METALS	ď
Hoists		1 EA	ISA	EIRST MATE	THERN WINCHES	HCRA
Pumps	<del></del>	2 EA	2 EA	4 WILO	C & D SUPPLY	1
Electric	al and Telemetry	1 EA	IEA	1	CARLOW PRIMEY	4
Flow M	eter Vault	1 EA	IEA	CONCRETE	GILLESPIE PRECA	
Soil Od	or Filter Box	1 EA	IEA	FRAMED	LEE FOUNDATION	
Soil Od	or Filter Pavilion	1 EA	LEA	FRAMED	LEE FOUNDATIO	
Genera	tor	1 EA	IEA	FIDELITY	FIDELITY POWER	
ATFR WORK Genera	tor Pad	1 EA	IEA		SCHUSTER CONC	-
HERWORKS Transfo		1 EA	IEA		SCHUSTER CON	
TERWORKSFILL CON	crete	1 EA	NIA	- CONCELLE	- WOO	
TIONS Link-Se		1 EA	20 EA	LINKSEAL	FERGUSON WATERWA	deve
	eter, Indicator and Recorders	1 EA	IEA	PEROPOLAL	MICROTECH	3
TERU CPK Sewer	ARV	1 EA	IEA	DEZURIK	FERGUSON WATER	LOOK
FCAST Bollard			31 EA	GALV. STEE		
TERWORKS Force N	Main Fittings	1 LS	1 13	TYLER	FERGUSON WATER	
TER WORKSWAII HY		1 EA	IEA	WATTS	NORTHEASTERN SU	ADDI Y
	inguisher	1 EA	IEA	Assilla	LEE FOUNDATION	
	(4' Sewer manhole)	2. BA	157	<u> </u>	THE FUUNDATION	<b>Y</b> >
- Jouret	(4 some monthly)	<u> </u>				-
NAME (	DF UTILITY CONTRACTOR:					
SURVEY	& DRAFTING DIVISION AS-BUILT DATE:				······································	1

ENGINEER / ARCHITECT DESIGN CERTIFICATION

HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRIC

REGISTRATION NUMBER

**ENGINEER'S CERTIFICATION** I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.:17737, EXPIRATION DATE: 3/29/20 **AS-BUILT DRAWING** 

THIS RECORD DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED ONTO IT AS RESULT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE,

DATE: DECEMBER 2019

TITLE: PROJECT MANAGER

G-1

SCALE

AS SHOWN

BOX LEE FOUNDATION

EA EA EA

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING

DEVELOPMENT ENGINEERING

HOWARD COUNTY, MARYLAND

And the second control of the second first the second of t ENGINEERS • SURVEYORS • PLANNERS ANNAPOLIS ■ CENTREVILLE ■ ELKTON ■ SALISBURY

www.mccrone-inc.com

20 RIDGELY AVE ANNAPOLIS, MARYLAND 21401

NNERS BURY	THE STATE OF THE S	MICHAEL OF THE CONTROL OF THE CONTRO
Copyright © 2012	DATE	10/27/2017

William.	RMS/NSD			REVISIONS	
73	DRAWN BY:	REV.#	DATE	DESCRIPTION	
新走	APPROVED BY:	1	12/3/2019	AS-BUILT DRAWINGS	
/// []	RMS				
N. I.	DATE: OCTOBER 27, 2017				
IIII					
7		1	1 1		

**COVER SHEET** 

PARCEL 113

**EUGENE AVENUE** PUMPING STATION

HOWARD COUNTY, MD

CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

SHEET

#### GENERAL NOTES: BYPASS MANHOLE I. APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR MAPLE LAWN SOUTH SPS STAKEOUT DATA SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL -UTILITY TRANSFORMER ANITARY SEVER MAD BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE SANITARY SEWER FORCE MAIN STRUCTURE **EASTING** NORTHING POINT SANITARY SEWER MANHOLE 2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED BY POTOMAC AERIAL SANITARY SEWER TERMINAL MANHOLE SURVEYS, DATED FEBRUARY 26, 2014. OFFSITE TOPOGRAPHY FROM HOWARD SANITARY SEWER VALVE -GENERATOR ARV AND STORM DRAINS & CULVERTS 3. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE STORM DRAIN MANHOLE **FLOWMETER** NOTED ON THE PLANS. STORM DRAIN JUNCTION CHAMBER INLET, CURB TYPE 4. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM, OR **VAULT** TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. UNLESS OTHERWISE NOTED. INLET, GRATING TYPE THE OWNER HAS NOT CONTACTED UTILITY COMPANIES AND HAS NOT MADE BILET, CURB & GRATING TYPE ARRANGEMENTS FOR BRACING OF THE POLES WHICH ARE CALLED OUT ON DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRAVING OF VALVE WATER MAIN VALVE VALUET ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF WATER METER BOX ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE **VAULT** WATER VALVE, TEE, & CROSS CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES. -CONTROL BLDG. WATER REDUCER, Y-BRANCH, & BEND MATER BLOW-OFF & AIR RELEASE 5. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND WATER FIRE HYDRANT CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV WATER STAND PIPE SMH-1 STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB. ELEVATED WATER TANK LECTRIC (UNDERGROUND) 6. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY TELEPHONE (UNDERGROUND THE SYMBOL AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING CABLE (UNDERGROUND) **PUMPING** UTILITIES IN THE VICINITY OF THE PROPOSED WORK SHALL BE LOCATED BY THE GAS MAINS CONTRACTOR BY TEST PIT TO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AS METER STATION AT THIS OWN EXPENSE. GAS DRIP, STOP OR PLUG 7. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST WET WELL -SOF (Soil Odor Filter) FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS. ANTARY SEWER OR STORM DRAIN BGE (CONTRUCTION \$ERVICES)... ..410-637-8713 SANITARY SEWER OR STORM DRAIN MANHOLE BGE (EMERGENCY). ..410-685-0123 SANITARY SEWER TERMINAL MANHOLE PUMPING STATION MAJOR BUREAU OF UTILITIES ..410-313-4900 SANITARY SEWER HOUSE CONNECTION COLONIAL PIPELINE CO 410-795-1390 ..1-800-257-7777 MISS UTILITY... TORM DRAIN JUNCTION CHAMBER STRUCTURES STAKEOUT LAYOUT STATE HIGHWAY ADMINISTRATION.. ...410-531-5533 WATER HOUSE SERVICE & METER BOX ..1-800-743-0033 / 410-224-9210 VERIZON... HATER VALVE, TEE, & CROSS 8. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM MATER REDUCER, Y-BRANCH, & BEND EXTENT, TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT REFER TO SITE PLAN (BY VOGEL ENGINEERING) FOR OVERALL SITE PLAN DETAILS MATER BLOW-OFF, AIR RELEASE, & FIRE HYDRANI TO BE REMOVED OR DAMAGED BY THE CONTRACTOR, CONTRACTOR SHALL REMOVE FORM DRAIN INLET & CATCH BASIN TREES, STUMPS, AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH FORM DRAIN END SECTION REMOVAL SHALL BE INCLUDED IN THE PRICE BID FOR CONSTRUCTION OF THE SEWER. DIDE AND EITTINGS SCHEDLILE 9. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD 10. CONTRACTOR SHALL INSTALL A TREE PROTECTION FENCE ALONG THE LIMIT OF DISTURBANCE FOR THE ENTIRE EXCEPT FOR THE LOD IN PAVED AREAS AND WHERE THE LOD IS LINED WITH SILT FENCE OR SUPER SILT FENCE (STABILIZED CONSTRUCTION ENTRANCES EXCLUDED).

6-INCH FORCEMAIN

Maximum Static Head

Minimum Static Head

Hazen-Williams Roughness Coefficient (C)

Maximum Static Friction Losses

		PIPE	AND	FITTINGS SCHEDULE
	ITEM	TYPE	MATERIAL	DESCRIPTION
	200	FLG.	D.I.P.	2-inch 90° Elbow
	201	M.J.	D.I.P.	2-inch 90° Elbow
	202	M.J.	D.I.P.	2x2-inch Tee
	203	M.J.	D.I.P.	2-inch 45° Elbow
	204	THRD.	S.S.	2-inch Tapping Saddle
•	205		see spec	2-inch trap Guard for Floor Drain
	300	FLG.	D.I.P.	3x4-inch Increaser
	400	FLG.	D.I.P.	4-inch 90° Elbow
	401	M.J.	D.I.P.	4-inch Long Solid Sleeve
	402		D.I.P.	4-inch Mechanical Coupling
	403	FLG.	see spec	4-inch Swing Check Valve
	404	FLG.	see spec	4-inch Gate Valve
	405	FLG.	D.I.P.	4x4-inch Tee
	406	FLG.	D.I.P.	4x6-inch Increaser
	407	SCKT.	CPVC	4-inch Cap
	408	FLG.	Ho Co Std	4" Gate Valve w/Bevel Gearing & 2" Operating Nut (open right
				Accessible from Above (Appendix IX K.17 May 2003)
*				
	500		·	Link-Seal
	501			Pressure Gauge (niple with ball valve disconnect)
	502	~~	see spec	Flow Sensor
	600		D.I.P.	6-inch Mechanical Coupling
	601	FLG.	D.I.P.	6x2-inch Reducer
	602	M.J.	D.I.P.	6-inch Long Solid Sleeve
	603	FLG.	see spec	6-inch Gate Valve
	604	FLG.	see spec	6-inch Globe Surge Relief Valve
	605	FLG.	D.I.P.	6x6-inch Tee
	- 606	SCKT.	CPVC	6-inch 90° Elbow
s	607	SCKT.	CPVC	6x4-inch Reducing Cross
- ,	608	SCKT.	CPVC	6-inch Cap
	609	SCKT.	CPVC	6x6-inch Tee
	610	SCKT.	CPVC	6x4-inch Reducing Tee
	611	FLG.	D.I.P.	6x4-inch Tee

**ABBREVIATIONS** 

DUCTILE IRON PIPE

DIMENSION RATIO

HORIZONTAL BEND HORIZONTAL

LIMIT OF DISTURBANCE

HIGH DENSITY POLYETHYLENE

ELEVATION

FORCE MAIN FEET PER SECOND

LINEAR FOOT

NOT APPLICABLE

PROPOSED

SANITARY

V.B.

SILT FENCE

NOT IN CONTRACT

SUPER SILT FENCE

VERTICAL BEND

WATER TIGHT

POLYVINYL CHLORIDE RIGHT OF WAY

GRAVITY SANITARY SEWER

MINIMUM

NATURAL FEATU	RES	ROADS AND STRE	ETS
WOODS, UNDERGROWEH AND BRUSH	Calabad	PROFILE	
MARSH	in the	ESTABLISHED TOP GRADE CURB	Artematic
TREES- DECEDUOUS	3	(CRELES DESIGNATE VERTICAL CURVE	
EVERGREEN		POINTS, P.L'S OF CURB LINES AND P.L'S OF INTERSECTING STREETS	
STREMAS (NOTE DIRECTION OF FLOW)		AND ALLEYS.)	
DITCHES (NOTE DIRECTION OF FLOW)	- care reconstruction and an experience	CENTERLINE OF EXISTING ROAD	for makening -
GULLIES AND WET WEATHER WATER~		:	
COURSES		PROPERTY LINES (LABE), EACH SIDE)	N-
ROCK (DESCRISE BY NOTE AND INDICATE			****** 🐔
OUTCROP OR LOOSE ROCK)	(ROCK)	VERTICAL CURVES-	
		-POINT OF VERTICAL CURVATURE	P.V.
ROADS AND STRE	ETS	-POINT OF VERTICAL TANGENT	P.V.
PLAN	PERCHANTANTANA.	-POINT OF VERTICAL INTERSECTION	P.V.
EXISTING CURR	and the take the	-POINT ON CURVE	P.0
PROPOSED CUSH		-POINT OF VERTICAL REVERSE CURVE	P.V.
WALKS (NOTE WIDTH AND TYPE)		-POINT OF VERTICAL COMPOUND CURVE	P.V.
CONCRETE VALLEY GUTTER	3.0.7	SURVEYORS SYME	OLS
EDGE MACADAM OR CONCRETE ROAD	3, 1 4	SENCH WARK	(A) (B)
EDGE DIFT OF GRAVE ROAD		TRAVERSE STATION	****
EXISTING RIGHT-OF-WAY LINE (R/W)			ž
EXISTING PROPERTY LINE		STAKE (HUB) WITH TACK CENTER	;
		STAKE WITHOUT TACK	
CENTERLINE OF EXISTING R/W OR ROAD CENTERLINE OF PROPOSED R/W OR ROAD	1-03 2-00	IRON PROPERTY PIPE	
TRANSIT OR TRAVERSE LINE	1-96 7-00	NAIL OR SPIKE	*
	, apply and a second se	PROPERTY & SOUNDARY STONES	mark accord
(SHOW IN RED) (SHADE IN FOR HUB OR NAIL AND CAP)		CITY SOUNDARY	minutes
P.J. TRANSIT LINE OR CENTER LINE	3+38.11	DISTRICT BOUNDARY  AREA BOUNDARY	*****
P.I. FACE CURB UNE (NOTE CORNER)	+×.€.	Y Constitution of the Cons	
HORIZONTAL CURVES-		LAND ACQUISITION	NC
-POINT OF CURVATURE	P.C.	TEMPORARY CONSTRUCTION AREA	ķ
-POINT OF TANGENT	P:T.	SLOPE EASEMENT	£
-POINT OF INTERSECTION	P.i.	AREA TO BE RELEASED	*
-POINT OF REVERSE CURVATURE	P.R.C.	EXISTING UTILITY RAW	
-POINT OF COMPOUND CURVATURE	P.C.C.	PROPOSED DRAMAGE & UTILITY R/W	<u>.</u>
ARCHITECTURAL & STRUG SYMBOLS	CTURAL	STREAM RELOCATION AND BRIDGE- EASEMENT	<del>-</del>
CONCRETE	7 7 7 7	EXISTING ROADS & STREETS R/W	\$
METAL	7777A	PROPOSED ROADS & STREETS R/W	
WOCO			,
GRAVEL	ENEME	EXISTING R/W'S (AGENCIES CITHER THAN- HOWARD COUNTY)	£
SAND		VINCERTAL SECTIONS 1 /	
RIPRAP	NEWS TO	Brown per cool	
EARTH	<u> </u>	- Company of the Comp	t
Howard County, Mar	vinnd I		Detail
Department of Public	•	į	nemi
ESCHOLINGING OF LAND	THE CAME	Standard Symbols	G-1.0

<u>MISCELLANEOUS</u>

STONE, BRICK, CONCRETE WALLS

STREET LIGHT

\*\*\*\*\*\*\*\*

(M)

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17 Ar

A ....

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--c --- c-

- - G -

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-4-

011

-04

Standard Symbols

RAILROAD TRACKS

CELLAR ELEVATION

EXCAVATION OR CUT

POLES IDENTIFY - B.G.&E. NO. OR VERIZON NO.

POT HOLE, PIT, DEPRESSION, SINK HOLE

CONTOUR LINES (INTERMEDIATE)

 $-\chi$ — $\chi$ —

· \*

XX

3444.

C. E. 178.4

G-1.01

**②** 

EXISTING WORK

PROPOSED WORK

Howard County, Maryland

epartment of Public Works

. •	110111111110	
.1	538008.62	1336183.80
2	538008.62	1336202.80
3	537990.62	1336202.80
4	537990.62	1336183.80
1	537995.28	1336178.13
1	538009.62	1336174.47
2	538009.62	1336181.80
3	538001.28	1336181.80
4	538001.28	1336174.47
1	538021.94	1336174.47
2	538021.94	1336181.80
3	538012.61	1336181.80
4	538012.61	1336174.47
1	538027.94	1336179.14
1	538023.99	1336196.46
2	538023.99	1336201.46
3	538014.99	1336201.46
4	538014.99	1336196.45
1	538024.37	1336183.63
2	538024.37	1336192.21
3	538016.70	1336192.21
4	538016.70	1336183.63
-1	537987.65	1336184.67
2	537987.65	1336195.67
3	537981.65	1336195.67
	527001 GE	1336184.67
4	33/961.03	1550104.07
	3 4 1 1 2 3 4 1 2 3 4 1 1 2 3 4 1 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 3 4 1 1 2 3 3 4 1 1 2 4 1 2 3 3 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1	2       538008.62         3       537990.62         4       537995.28         1       538009.62         2       538009.62         3       538001.28         4       538001.28         1       538021.94         2       538021.94         3       538012.61         4       538023.99         2       538023.99         3       538014.99         4       538024.37         2       538024.37         3       538016.70         4       537987.65         2       537987.65         3       537981.65

Single Family Units	120	homes served by SPS
Swimming Pool and Pool House	176	homes served
Density per Home	3.15	ppl/home
I/I (Residential Use)	120.00	homes served by SPS
ADF Factor for Homes	72	gpd/capita
ADF Factor for Pool and Pool House	10	gpd/capita
ADF Factor for I/I	40	gpd/capita

Design Flow		
ADF from Single Family Units	27,216	
PDF from Single Family Units	108,864	
ADF from Swimming Pool and Pool House	5,544	
PDF from Swimming Pool and Pool House	22,176	
Constant // Flow	15,120	
TOTAL ADF FLOW:	47,880	GPD
	-33	gpm
TOTAL PDF FLOW:	146,160	GPD
	102	gpm
MIN FLOW USE:	220	gpm
MAX FLOW USE:	530	gpm
RECOMMENDED FLOW:	330	gpm
Force Main		
Force Main Length	2,186	ft
Force Main Diameter	6	in
Force Main Material	DIP	•
Minimum velocity in FM	2.5	fps
	~ ^	• _

	RECOMMENDED FLOW:	330	gp
Force Main			
	Force Main Length	2,186	ft
	Force Main Diameter	6	in
	Force Main Material	DIP	-
	Minimum velocity in FM	2.5	fps
	Maximum velocity in FM	6.0	fps
	Flow Velocity at Min Flow	2.50	fps
	Flow Velocity at Max Flow	6.01	fps
Flow	Velocity at Recommended Flow	3.74	fps

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THIS RECORD DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED ONTO IT AS RESULT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE SIGNATURE: PREPARED BY: MCCRONE DATE: DECEMBER 2019 TITLE: PROJECT MANAGER

Flow, GPM	Minimum Static Head	Friction Losses	TDH
~	- 56.60		56.60.
25	56:60	0.21	56.81
50	56.60	0.75	57.35
75	56.60	1.59	58.19
100	56.60	2.71	59.31
125	56.60	4.10	60.70
150	56 60	5,74	62.34
175	56,60	7 64	64.24
200	56 60	9.78	66.38
225	56.60	12.16	68.76
250	56 60	14.78	71.37
275	56.60	. 17.62	74.22
300	56.60	20.70	77.30
325	\$6.60	24 01	80.61
350	56.60	27.53	84.13
375	- 5,6 60	31 28	87.88
400	56:60	35.25	91.85
425	56.60	39 43	96.03

E	NGINEER'	S CERTI	FICATION
SE DOCL	MENTS WERE PR	EPARED OR A	PPROVED BY ME. AN

PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.:17737, EXPIRATION DATE: 3/29/2016

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING

ENGINEERS • SURVEYORS • PLANNERS ANNAPOLIS . (

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,	DESIGNED B	Y: RMS/NSD	THE PRINCIPLE AND A SECOND SEC		REVISIONS			
11/4	DRAWN BY:	NSD	REV.#	DATE	DESCRIPTION		GENERAL NOTES, LEGENI	O AND ABBREVIATIONS
子	APPROVED E	BY:						
	DATE:			, \$4, <b>)</b>				
III		APRIL 30, 2017				<del></del>	-	
			With the second control of the second contro	:	,		TAX MAP 46 ,GRID 2	PARCEL 113

65.30

69.55

78.54

86.19

90.51

95.14

100.08

105.33

**EUGENE AVENUE** PUMPING STATION

CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

11. SEE EROSION AND SEDIMENT CONTROL PLANS FOR TREE PROTECTION FENCE

12. STOCKPILE SPOILS FROM TRENCHING OPERATIONS ON THE UPHILL SIDE OF THE TRENCH, EXCEPT FO NOT STORE OR WASTE ANY SPOILS WITHIN 100-YEAR FLOOD

13. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LINES, GRADES AND ELEVATIONS, AND CUT SHEETS SHALL BE PREPARED BASED ON THE LINES AND

14, REFER TO UTILITY PLAN SHEETS FOR SOIL BORING AND AUGER LOCATIONS, AND TO SPECIFICATIONS FOR SOIL BORING LOGS AND AUGER DATA, FOR CLARITY.

BORING DESIGNATIONS ARE NOT PROVIDED IN ASSOCIATION WITH MANHOLE

STRUCTURES. AS SUCH ALL BORING DESIGNATIONS CORRESPOND TO THE

15. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING STAGING AND STOCKPILE

16. FOR THIS PROJECT THE STATE OF MARYLAND DEPARTMENT OF THE

17. IF ROCK BLASTING IS USED IN THE ROVER, THE CONTRACTOR SHALL SUBMIT

18. LOCATIONS OF OVERHEAD UTILITY POLES ARE INDICATED ON THE DRAWINGS.

OVERHEAD UTILITIES EXIST FROM POLE TO POLE IN THE PROJECT AREA, BUT ARE

I. SANITARY SEWER SHALL BE AWWA M23 PVC (SDR 35), AWWA C-900 PVC (DR 18).

2. ALL C-900 SANITARY SEWER INSTALLED ON STEEP SLOPES GREATER THAN 20%

SHALL HAVE RESTRAINED JOINTS (CERTA-LOK PIPE), FOR STEEP SLOPES, WITHIN 10'

OF DOWNSTREAM MANHOLE AND AT THE HALFWAY POINT FROM THE DOWNSTREAM

MANHOLE TO THE UPSTREAM MANHOLE, A 2-FOOT THICK CLAY CUT OFF WALL SHALL BE INSTALLED ACROSS THE WIDTH OF THE TRENCH WITHIN THE STONE BEDDING.

3. MANHOLES SHALL BE 4'-0" UNLESS OTHERWISE NOTED ON THE PLANS. AN INTERMEDIATE LANDING IS TO BE PROVIDED AT MANHOLE JOINT CLOSEST TO MID-DEPTH FOR ALL MANHOLES GREATER THAN 18 FEET IN DEPTH AND AT 10 FOOT

INTERVAL'S FROM TEE TOP WHEN MANHOLE DEPTH EXCEEDS 25 FEET. THE

INTERMEDIATE LANDING SHALL BE PER HOWARD COUNTY STANDARD DETAIL G-5.16.

4. FOR OPEN CUT FOR FORCE MAINS 4-INCHES IN DIAMETER AND GREATER, FORCE MAINS SHALL BE DR 18 C-900 PVC WITH C-900 DR-18 PVC FITTINGS. FORCE MAINS 2-INCHES IN DIAMETER AND LESS SHALL BE DR11 (IPS) HDPE. FORCE MAINS TO BE

DIRECTIONALLY DRILLED SHALL BE DR-7 (IPS) HDPE. SEE POTABLE WATER NOTES

6. MANHOLES DESIGNATED 'WT" IN PLAN AND PROFILE SHALL HAVE WATERTIGHT

FRAME AND COVER, STANDARD \$DETAILS G5.52. WHERE WATERTIGHT MANHOLE

FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE

. HOUSE(S) WITH SYMPBOL "C.N.S." INDICATED THAT THE CELLAR CANNOT BE

8. ALL FITTINGS FOR PVC FORCE MAIN SHALL BE PVC MEETING THE REQUIREMENTS

5. MANHOLE SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.

PLAIN ALL EXCESS MATERIALS SHALL BE REMOVED BY CONTRACTOR.

MANHOLE DESIGNATION (I.E. BORING MH-1 IS AT MANHOLE MH-1).

ENVIRONMENT (MDE) PERMIT TRACKING NUMBER IS

BLASTING PLANS TO MDE FOR APPROVAL AND USE.

OR AWWA C150 DIP (CLASS 52) WHERE NOTED.

THIS DRAWING FOR NOTES RELATED TO PVC MAINS.

UNLESS OTHERWISE NOTED ON THE DRAWINGS.

OF AWWA C-907, PRESSURE RATED AT 235 PSI.

NOT INDICATED FOR CLARITY.

SANITARY SEWER NOTES:

GRADES SHOWN ON THE CONTRACT DRAWINGS

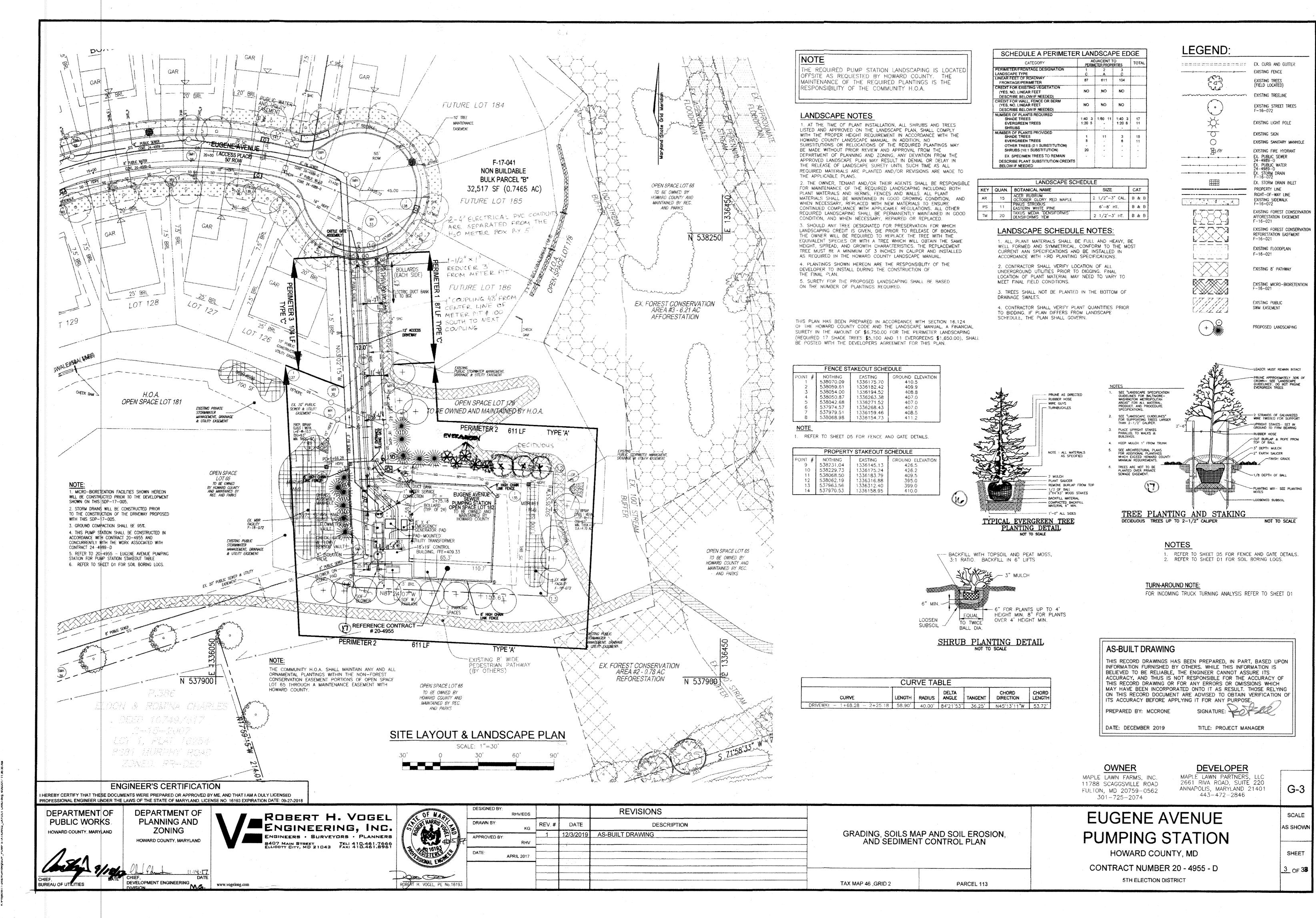
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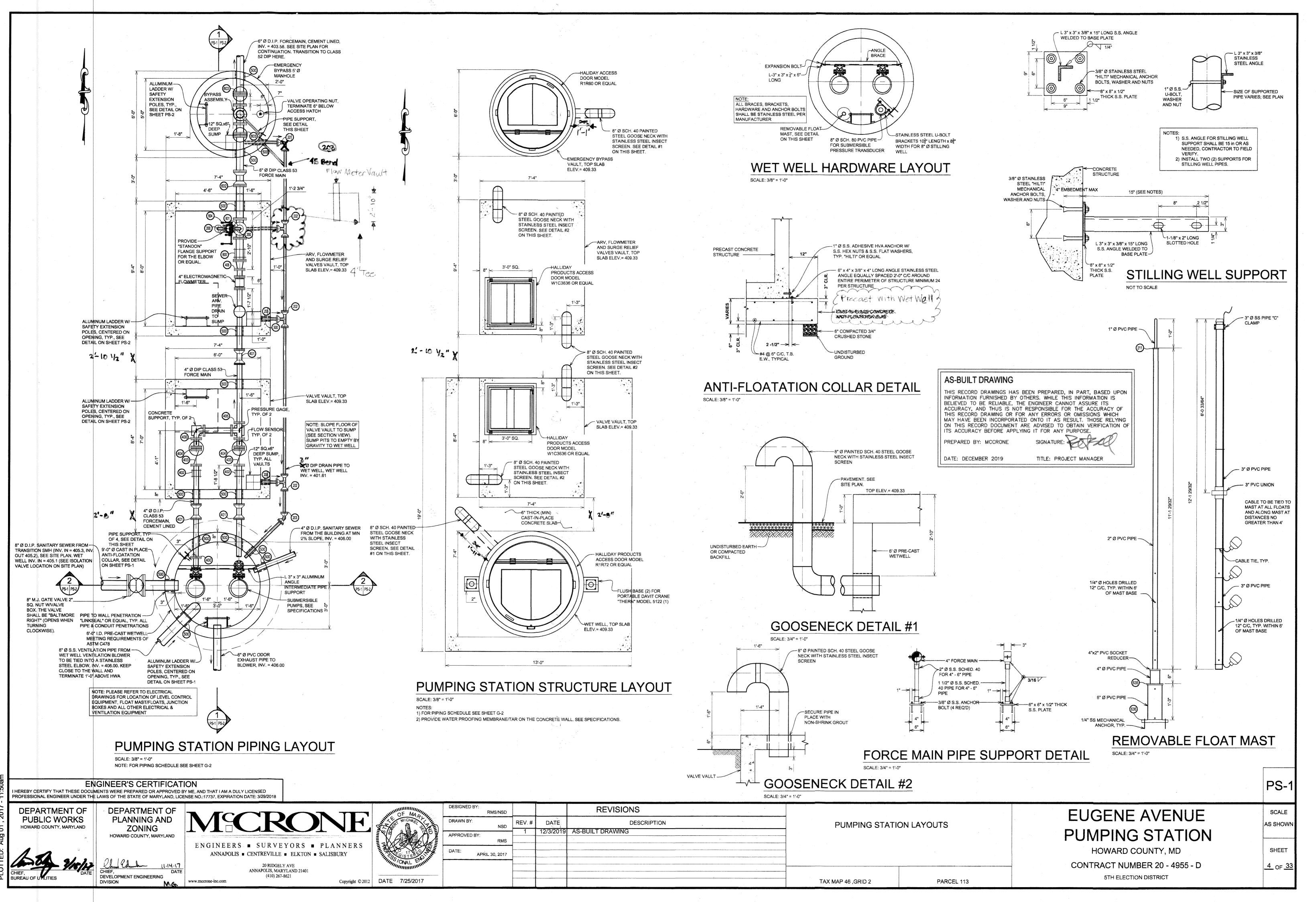
PARCEL 113

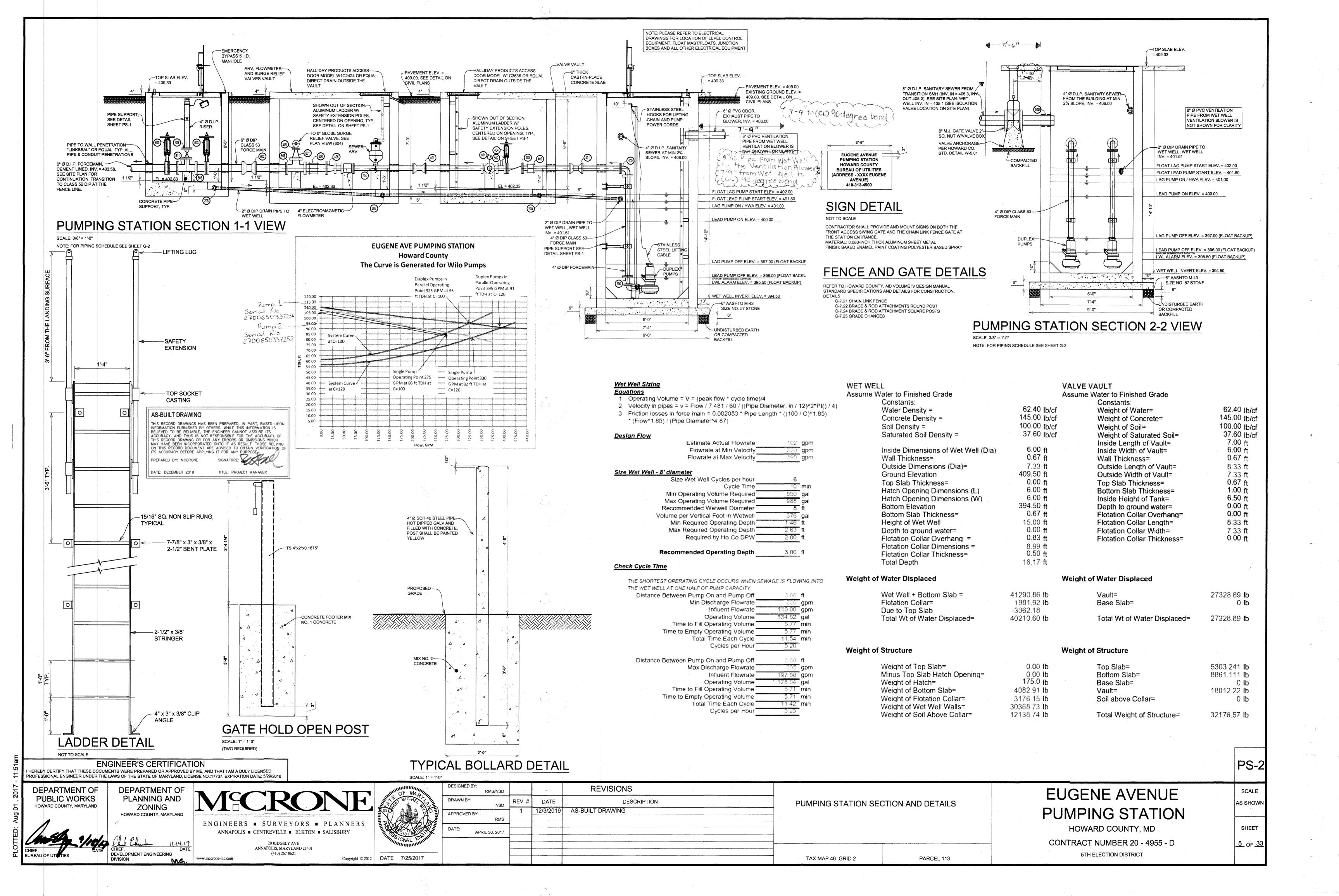
HOWARD COUNTY, MD

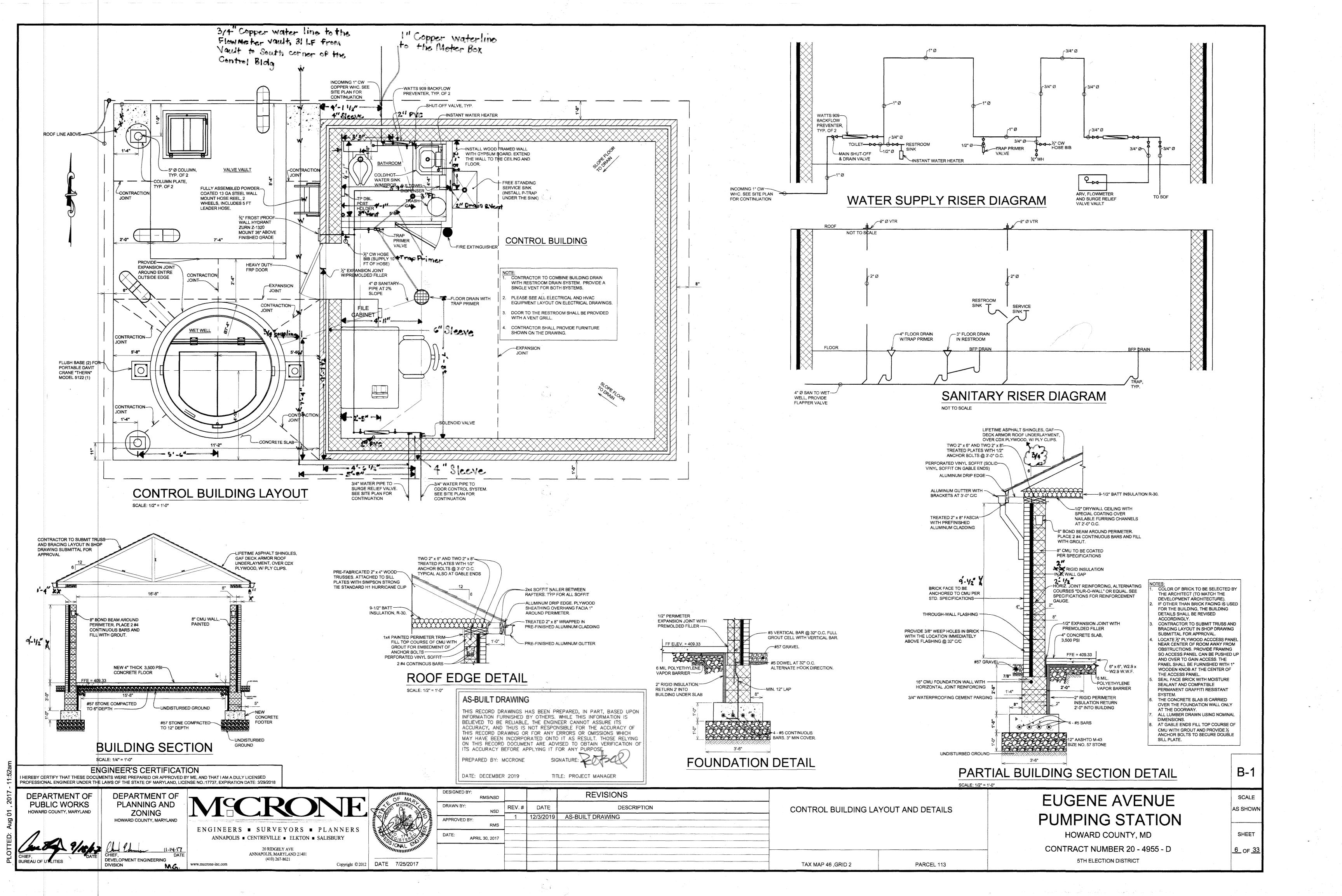
SCALE AS SHOWN SHEET

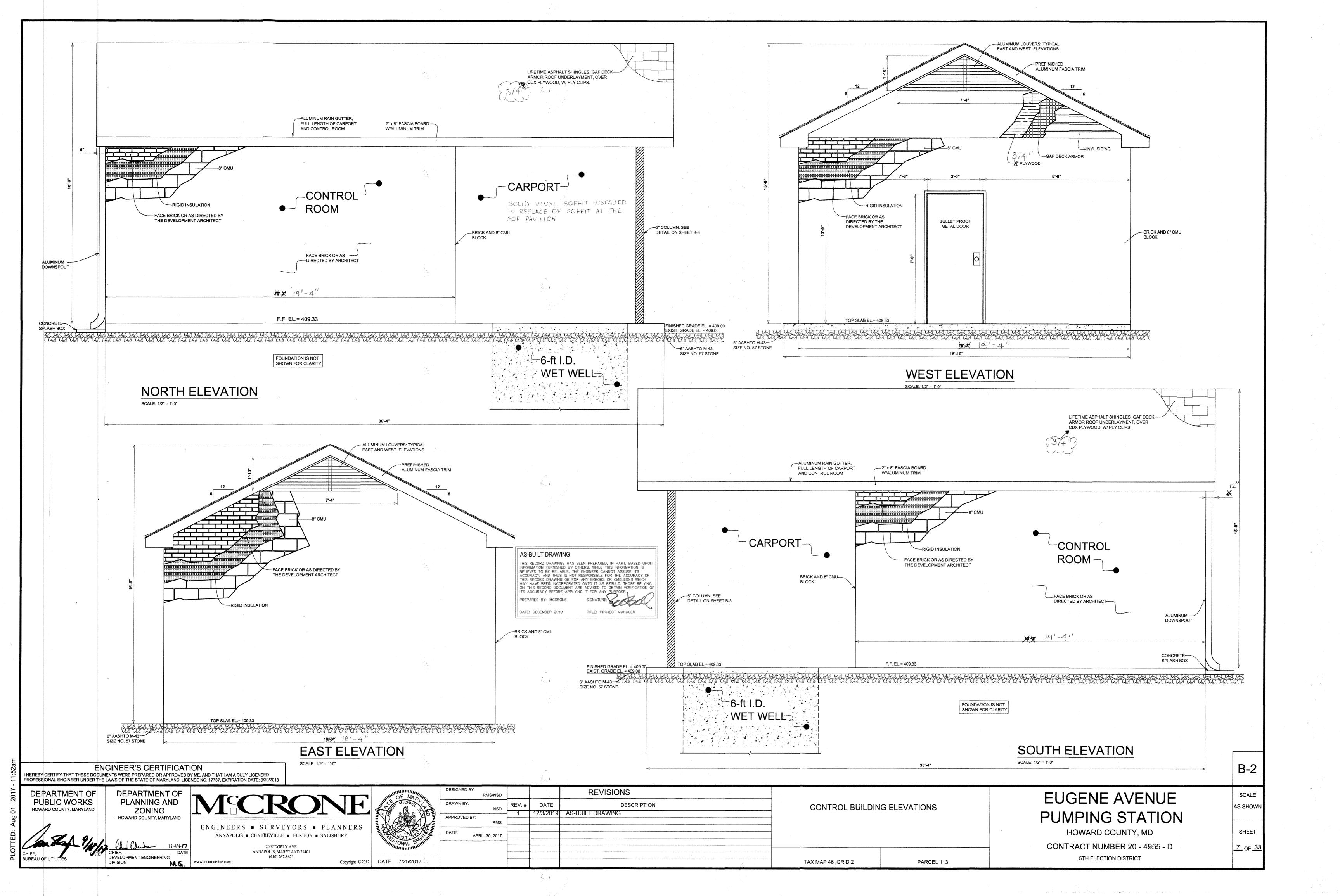
G-2

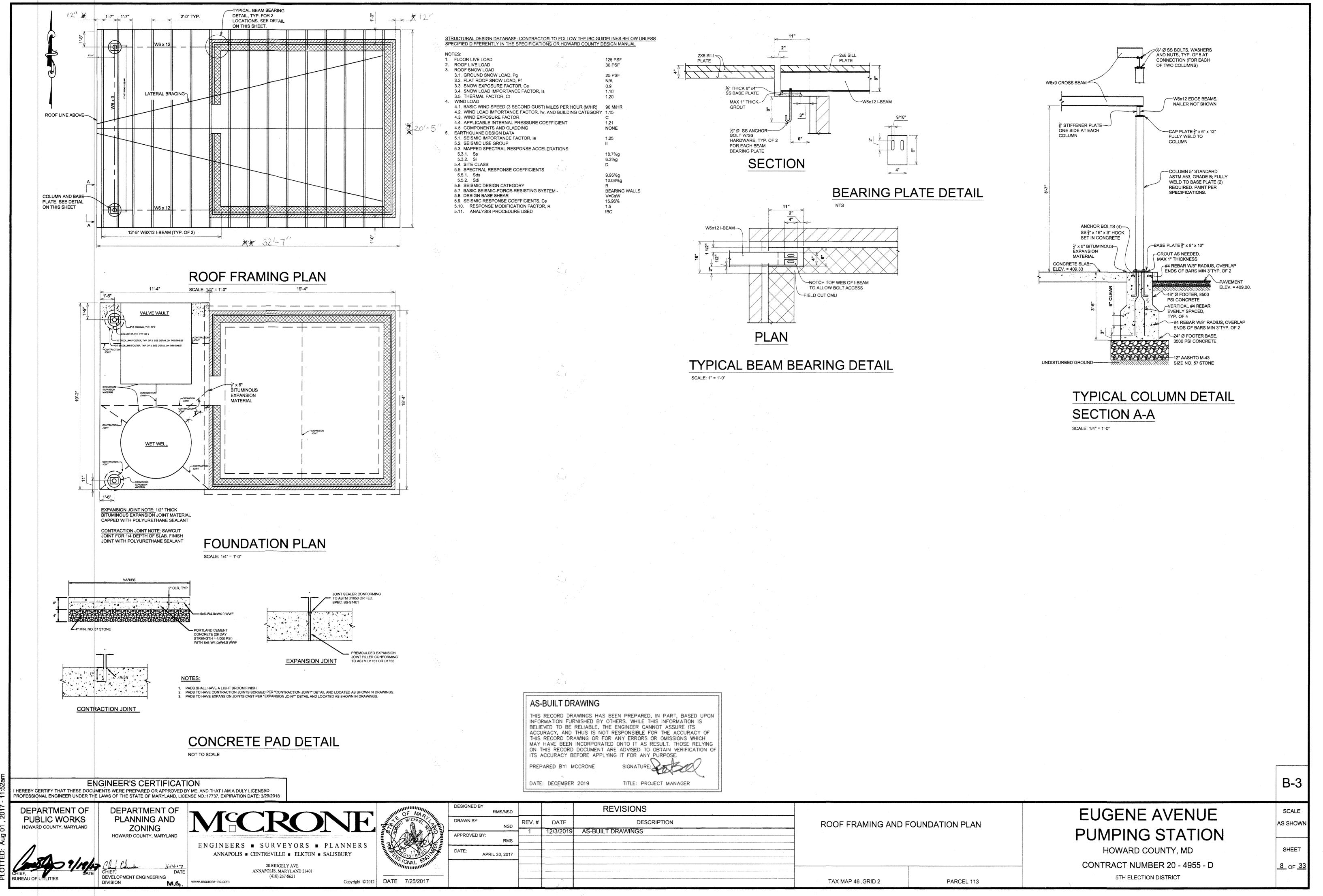


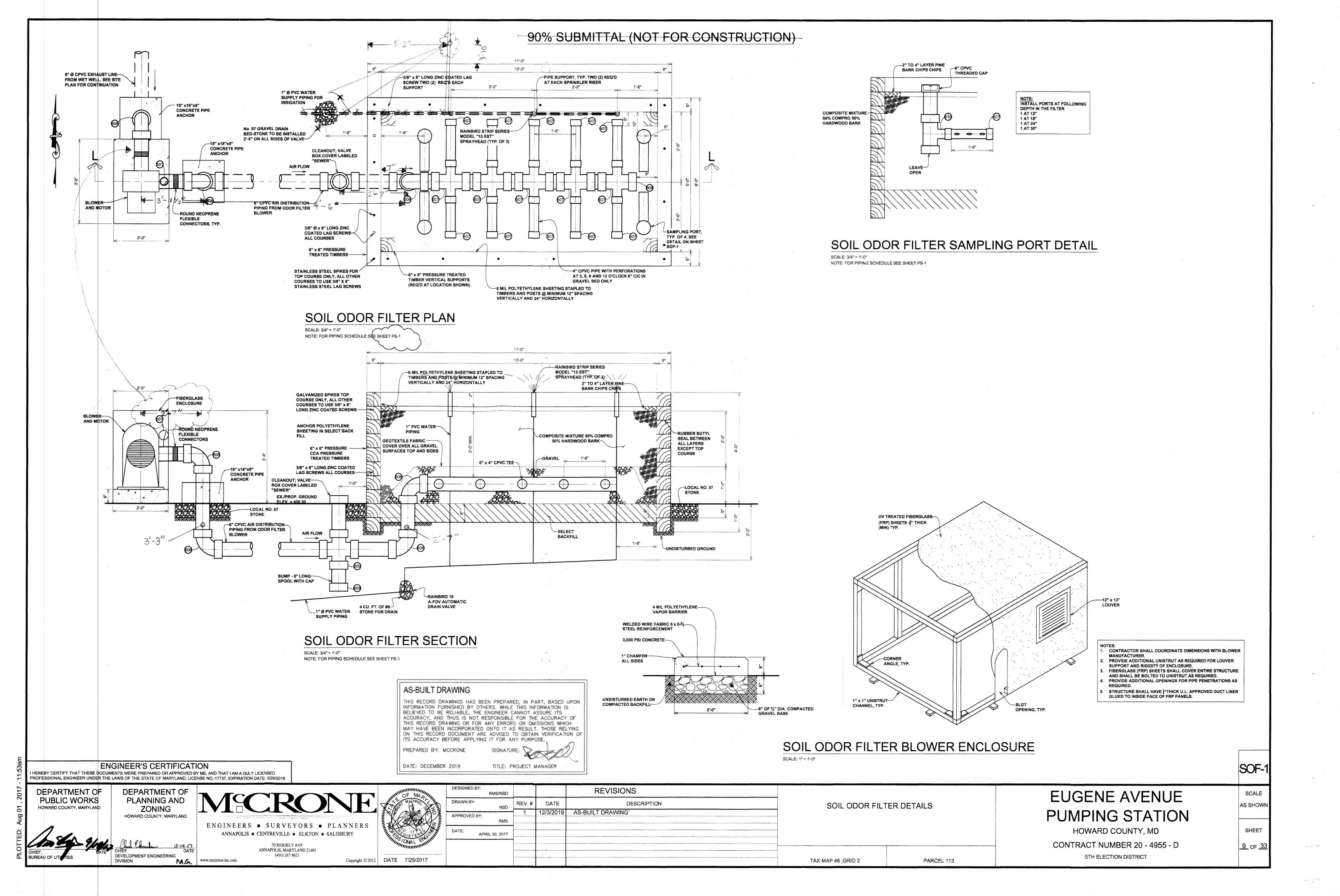


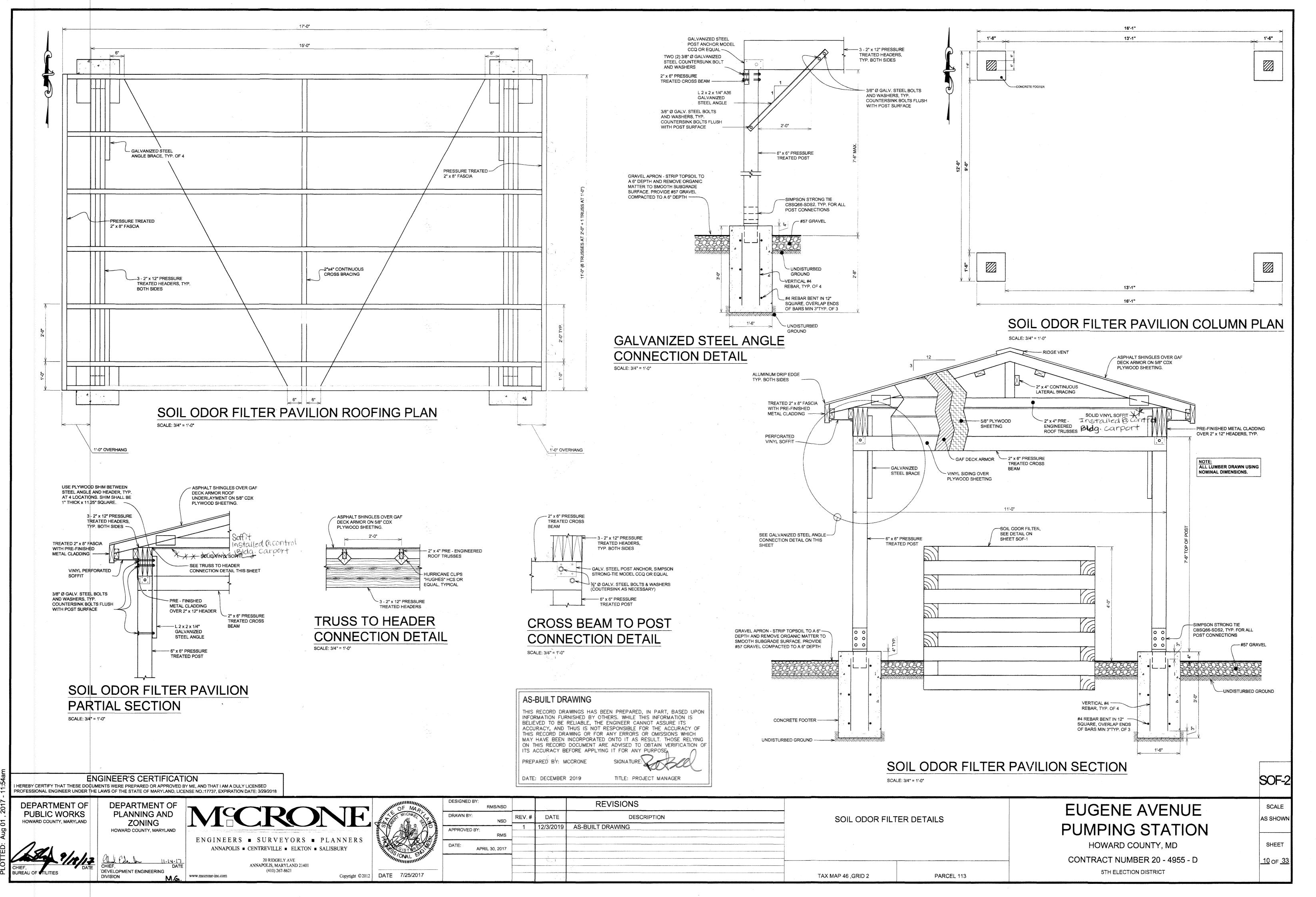




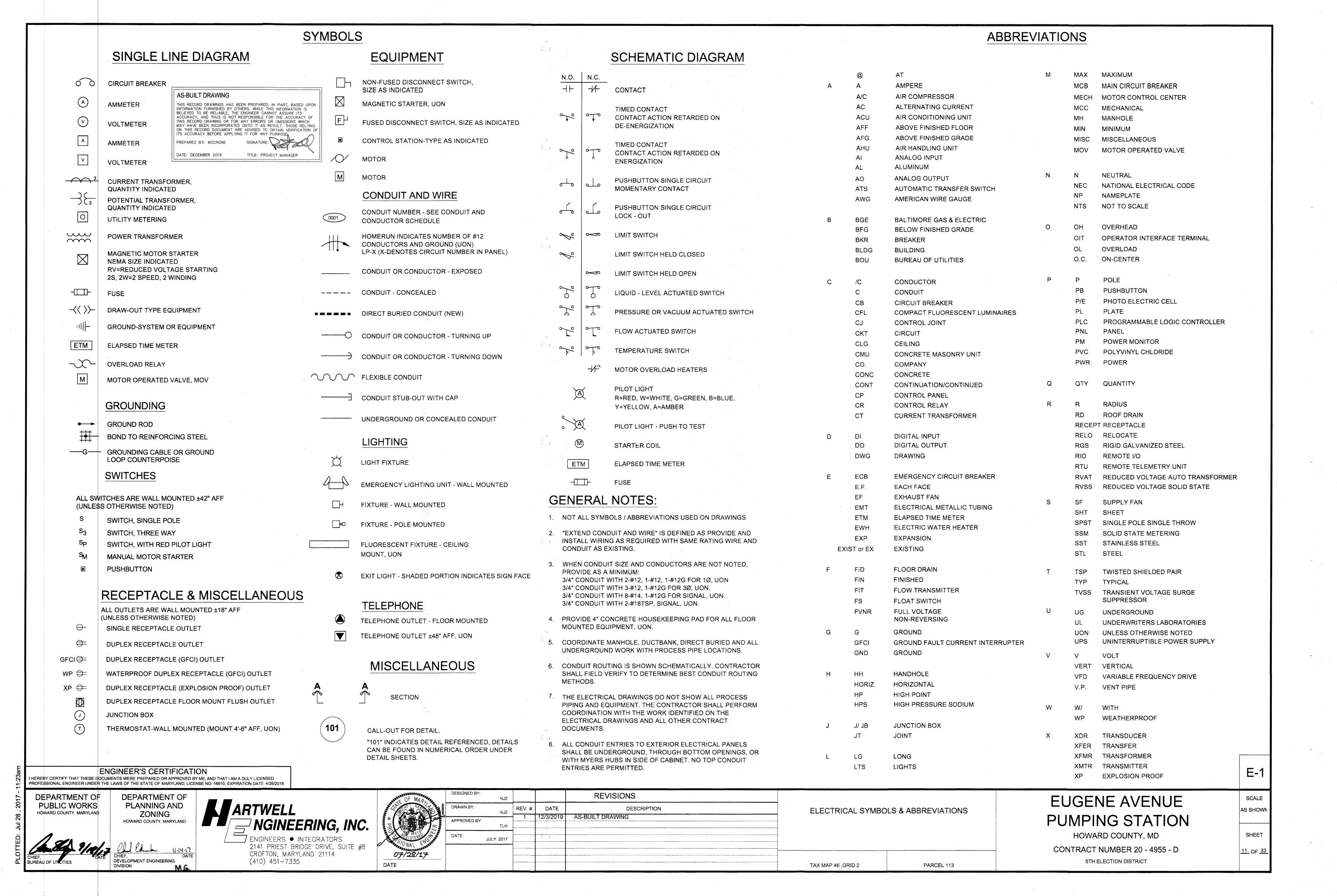


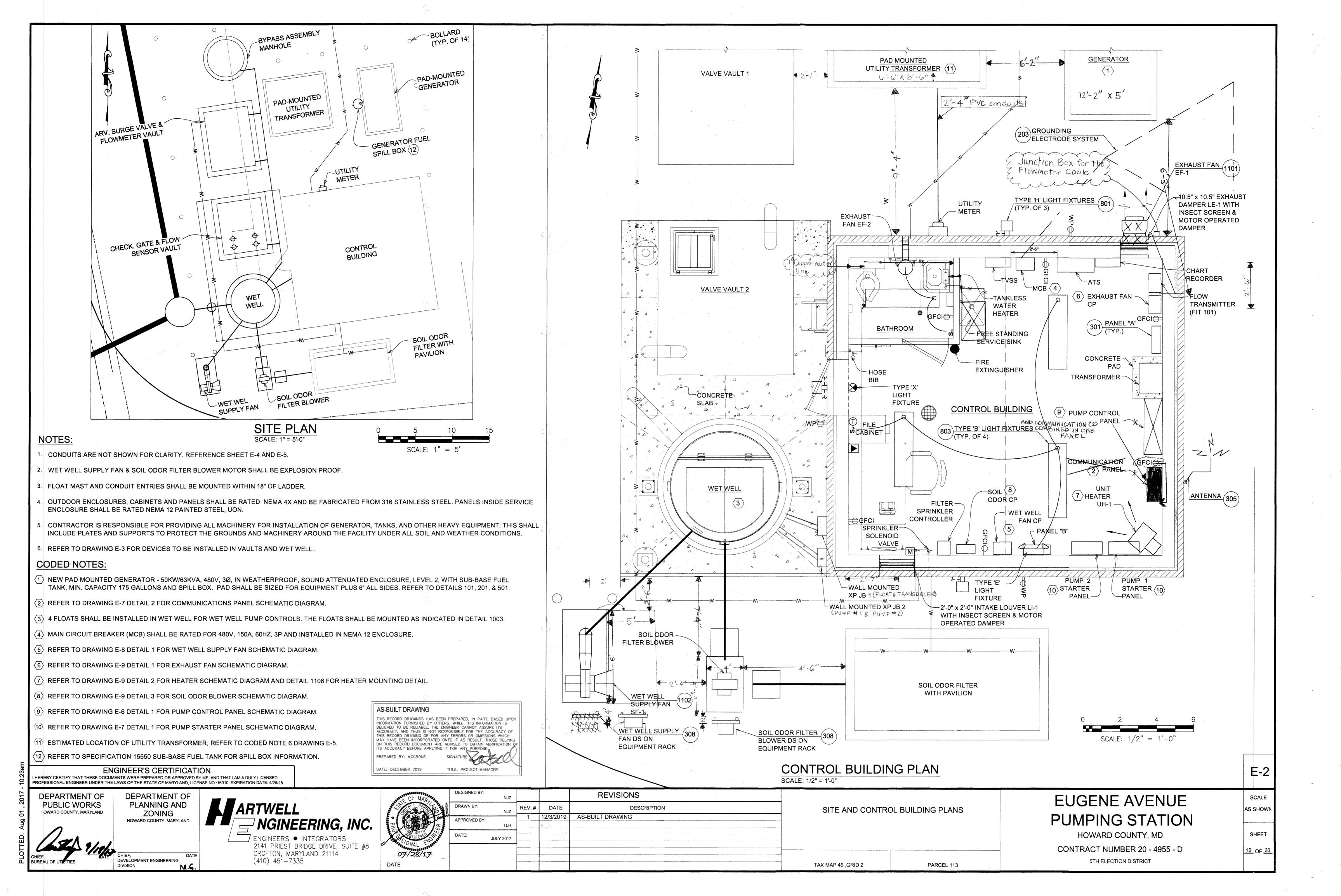


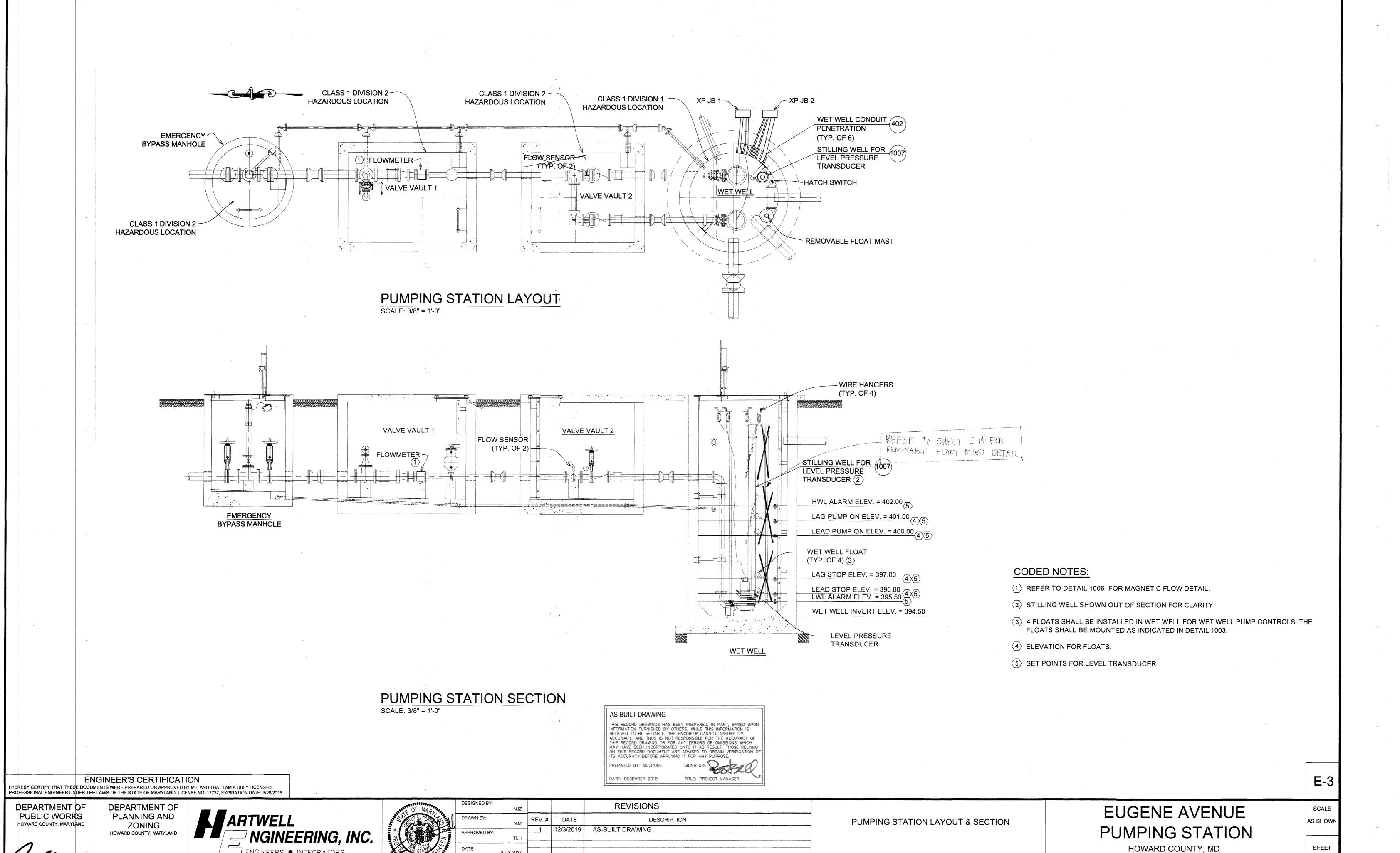




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TAX MAP 46 ,GRID 2

PARCEL 113

CONTRACT NUMBER 20 - 4955 - D

5TH ELECTION DISTRICT

13 OF 33

7 ENGINEERS • INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8

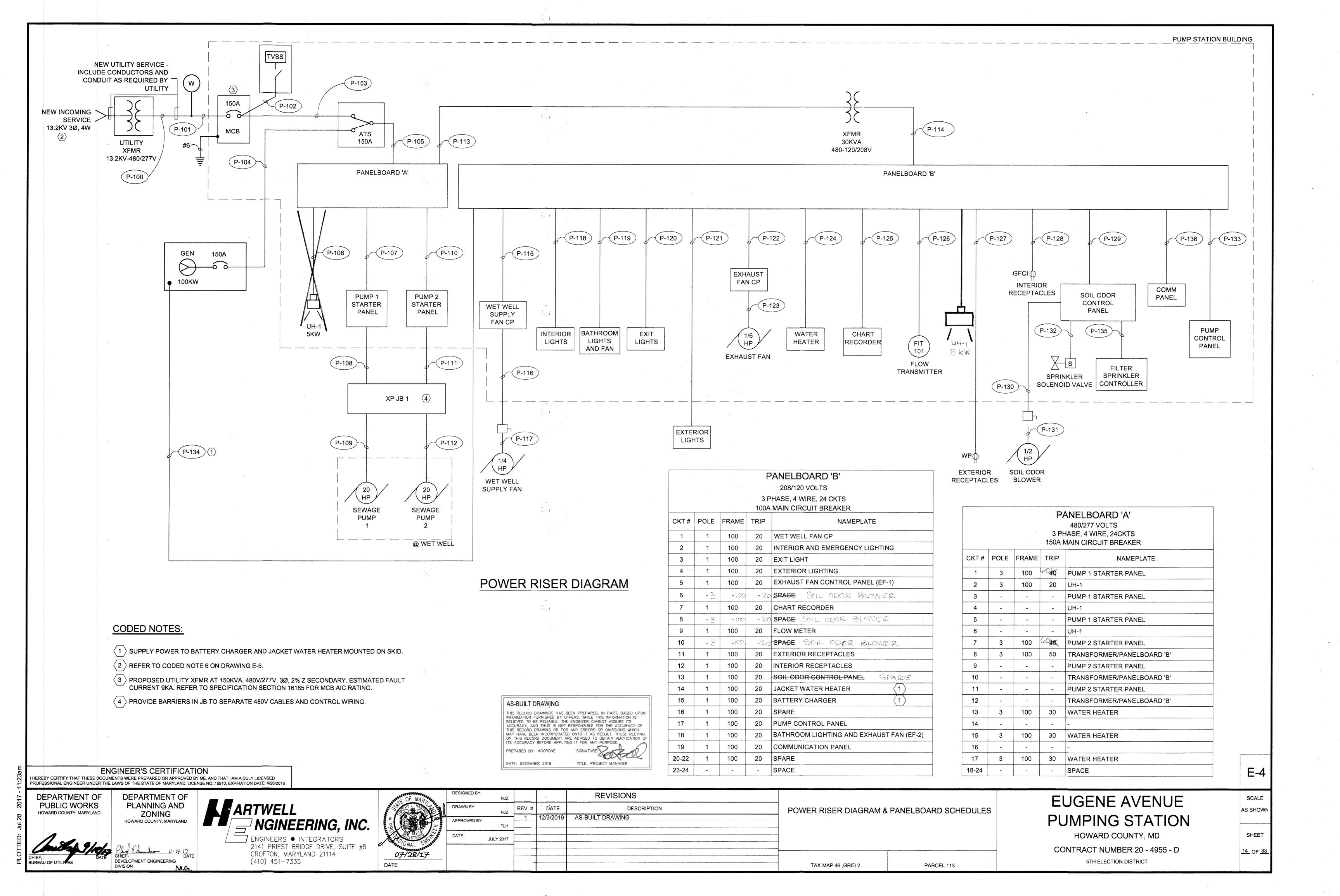
CROFTON, MARYLAND 21114

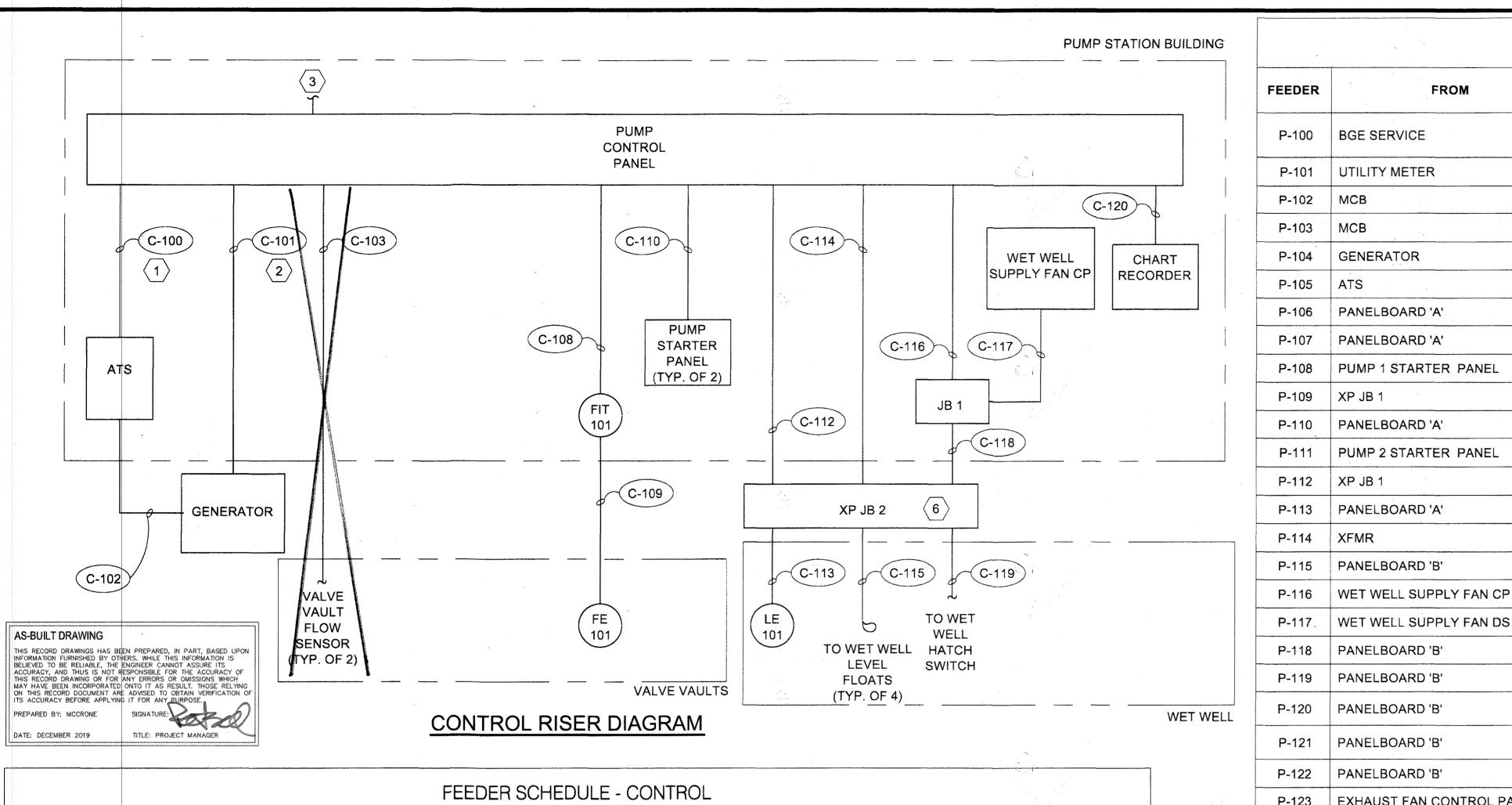
(410) 451-7335

JULY 2017

07/28/17

DATE





		FEEDER SC			
FEEDER	FROM	ТО	CONDUIT SIZE	WIRE	REMARKS
C-100	ATS	PUMP CONTROL PANEL	3/4"	(2)-#14+#12GND	
C-101	ATS	GENERATOR	3/4"	(4)-#14+#12GND	
C-102	GENERATOR	PUMP CONTROL PANEL	3/4"	(2)-#14+#12GND	
<del>C-103</del>	VALVE VAULT FLOW SENSOR 1	PUMP CONTROL PANEL	3/4*	(2)-#14+#12GND	(4)
-C-101	VALVE VAULT FLOW SENSOR 2	PUMP CONTROL PANEL	3/4*	<del>(2) #14+#12GND</del>	4
C-105	NOT USED	-	_	-	4
C-106	VALVE VAULT 2 HATCH SWITCH	PUMP CONTROL PANEL	3/4"	(2)-#14+#12GND	4
C-107	NOT USED	-	-	-	
C-108	FLOW TRANSMITTER (FIT 101)	PUMP CONTROL PANEL	3/4"	(1)-#18TSP	
C-109	MAGNETIC FLOW METER (FE 101)	FLOW TRANSMITTER (FIT 101)	1"	MFR CABLE	4
C-110	PUMP 1 STARTER PANEL	PUMP CONTROL PANEL	1"	(12)-#14+#12GND	No. 1
C-111	PUMP 2 STARTER PANEL	PUMP CONTROL PANEL	1"	(12)-#14+#12GND	
C-112	XP JB 2	PUMP CONTROL PANEL	3/4"	(1)-#18TSP	
C-113	LEVEL TRANSDUCER (LE 101)	XP JB 2	1"	MFR CABLE	
C-114	XP JB 2	PUMP CONTROL PANEL	1"	(8)-#14+#12GND	
C-115	HIGH/LOW LEVEL FLOATS	XP JB 2	3"	MFR CABLES	4
C-116	JB 1	PUMP CONTROL PANEL	3/4"	(2)-#14+#12GND	
C-117	JB 1	WET WELL SUPPLY FAN CP	3/4"	(2)-#14+#12GND	Salar Barrella de la companya de la
C-118	XP JB 2	JB 1	3/4"	(4)-#14+#12GND	
C-119	WET WELL HATCH SWITCH	XP JB 2	3/4"	(2)-#14+#12GND	4
C-120	PUMP CONTROL PANEL	CHART RECORDER	1"	(2)-#18TSP	

ENGINEER'S CERTIFICATION HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.:16910, EXPIRATION DATE: 4/26/18 CODED NOTES:

P-134

 $\langle 1 \rangle$  PROVIDE ALARM SIGNALS FROM ATS TO PUMP CONTROL PANEL FOR LOSS OF STATION POWER.

 $\langle$  2 angle PROVIDE RUN STATUS SIGNAL FROM GENERATOR TO RTU.

 $\langle$   $_3$  angle LMR400 ANTENNA CABLE TO BE ROUTED FROM PUMP CONTROL PANEL TO ANTENNA.

FROM

BGE SERVICE

UTILITY METER

**GENERATOR** 

PANELBOARD 'A

PANELBOARD 'A'

PANELBOARD 'A

PANELBOARD 'A'

PANELBOARD 'B

PANELBOARD 'B'

PANELBOARD 'B'

PANELBOARD 'B'

PANELBOARD 'B'

PANELBOARD 'B'

P-130 | SOIL ODOR CONTROL PANEL

P-132 | SOIL ODOR CONTROL PANEL

P-135 SOIL ODOR CONTROL PANEL

P-131 | SOIL ODOR BLOWER DS

PANELBOARD 'B'

P-124 | PANELBOARD 'B

P-126 PANELBOARD 'B'

P-127 PANELBOARD 'B'

P-128 PANELBOARD 'B'

P-129 PANELBOARD 'B'

P-133 PANELBOARD 'B'

P-136 PANELBOARD B

PUMP 2 STARTER PANEL

WET WELL SUPPLY FAN DS

EXHAUST FAN CONTROL PANEL

 $\langle$  4 angle REFER TO DETAIL 402 FOR CONDUIT PENETRATION.

 $\langle$  5 angle PROVIDE AND INSTALL UTILITY CONDUCTORS, COORDINATE THE SIZE AND QUANTITY WITH THE UTILITY COMPANY AND COUNTY INSPECTOR. CONDUCTORS SHALL NOT BE SMALLER SIZE THAN LOAD CONDUCTORS FROM MAIN DISCONNECT (CIRCUIT BREAKER). PROVIDE AND INSTALL (2)-4" CONDUITS (IN CONCRETE ENCASEMENT IF UG) FROM UTILITY TRANSFORMER TO METER/CT CABINET AND (2)-2" CONDUITS FROM METER/CT CABINET TO MCB. COORDINATE PRIMARY FEEDERS TO THE UTILITY TRANSFORMER FOR WORK REQUIRED. DISTANCE BETWEEN UTILITY TRANSFORMER AND METER/CT CABINET IS 260 FEET MAXIMUM.

PROVIDE BARRIERS IN JB TO SEPARATE CONTROL WIRING, ANALOG WIRING.

#### NOTES:

FEEDER SCHEDULE - POWER

TO

UTILITY METER

PANELBOARD 'A'

PUMP 1 STARTER PANEL

PUMP 2 STARTER PANEL

WET WELL SUPPLY FAN CP

WET WELL SUPPLY FAN DS

WET WELL SUPPLY FAN SF-1

BATHROOM LIGHTS AND FAN

EXHAUST FAN CONTROL PANEL

TANKLESS WATER HEATER

FLOW TRANSMITTER (FIT 101)

EXTERIOR RECEPTACLES

INTERIOR RECEPTACLES

SOIL ODOR BLOWER DS

PUMP CONTROL PANEL

**GENERATOR** 

**COMM PANEL** 

SOIL ODOR BLOWER

SOIL ODOR CONTROL PANEL

SPRINKLER SOLENOID VALVE

FILTER SPRINKLER CONTROLLER

**HEATER 5KW** 

XP JB 1

PUMP 1

XP JB 1

PUMP 2

XFMR

PANELBOARD 'B'

INTERIOR LIGHTS

**EXTERIOR LIGHTS** 

EXHAUST FAN EF-1

CHART RECORDER

EXIT LIGHTS

TVSS

ATS

CONDUIT

SIZE

1-1/2"

1-1/2"

(4)-#1/0

(4)-#10+#10GND

(4)-#1/0+#6GND

(4)-#1/0+#6GND

(4)-#1/0+#6GND

(3)-#12+#12GND

(3)-#4+#8GND

MFR CABLES

(3)-#4+#8GND

MFR CABLES

(3)-#6+#10GND

(4)-#1+#8GND

(2)-#12+#12GND

(2)-#12+#12GND

(2)-#12+#12GND

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(3)-#4+#8GND+(4)-#14+#12GND

WIRE

REMARKS

 $\langle 4 \rangle$ 

 $\langle 4 \rangle$ 

NEW SERVICE - INSTALL CONDUIT AND CONDUCTORS AS REQUIRED BY UTILITY 5

- REFER TO DRAWING E-6 FOR PUMP CONTROL SCHEMATIC.
- CONTRACTOR TO COORDINATE WITH BGE FOR ALL UTILITY DUCTBANK. ALL UNDERGROUND CONDUIT RUN UNDERNEATH ROADS OR DRIVEWAYS SHALL BE IN DUCTBANK. REFER TO DETAIL 701 FOR DUCTBANK REQUIREMENTS. ALL OTHER UNDERGROUND CONDUIT SHALL BE DIRECT BURIED UON. REFER TO DETAIL 702 FOR DIRECT BURIED CONDUIT REQUIREMENTS.
- CONDUITS SHALL NOT BE USED AS MEANS OF SUPPORT FOR EQUIPMENT. CONDUITS SHALL NOT BE TIGHTENED AS TO PUT STRESS OR MOVEMENT ON THE CONNECTED EQUIPMENT. CONTRACTOR SHALL INSTALL UNIONS OR OTHER MEANS OF CONNECTION TO ELIMINATE BENT OR MISALIGNED CONDUIT SYSTEMS, OR DEFORMED EQUIPMENT ENCLOSURES. ALL ENCLOSURES SHALL BE MOUNTED VERTICALLY TO ADJOINING WALLS OR EQUIPMENT RACKS. ALL EQUIPMENT RACKS SHALL BE MOUNTED PERPENDICULAR TO GRADE.

4. REFER TO DRAWING E-4 FOR POWER RISER DIAGRAM.

E-5

SCALE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

**DEPARTMENT OF** PLANNING AND ZONING HOWARD COUNTY, MARYLAND

**DEVELOPMENT ENGINEERING** DIVISION

NGINEERING, INC. **ENGINEERS** • INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8

CROFTON, MARYLAND 21114

(410) 451-7335

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07/28/17	

OF MARIA	DESIGNED BY:	NJZ		S. J. C	REVISIONS	
	DRAWN BY:	NJZ	REV.#	DATE	DESCRIPTION	
*	APPROVED BY:		1	12/3/2019	AS-BUILT DRAWING	:
B. W. B.	APPROVED B1.	TLH				
169 SOLONAL ENGLISH	DATE:	JULY 2017				
						,
07/28/17						
DATE						

C&W SCHEDULE AND CONTROL RISER

PARCEL 113

**EUGENE AVENUE** PUMPING STATION

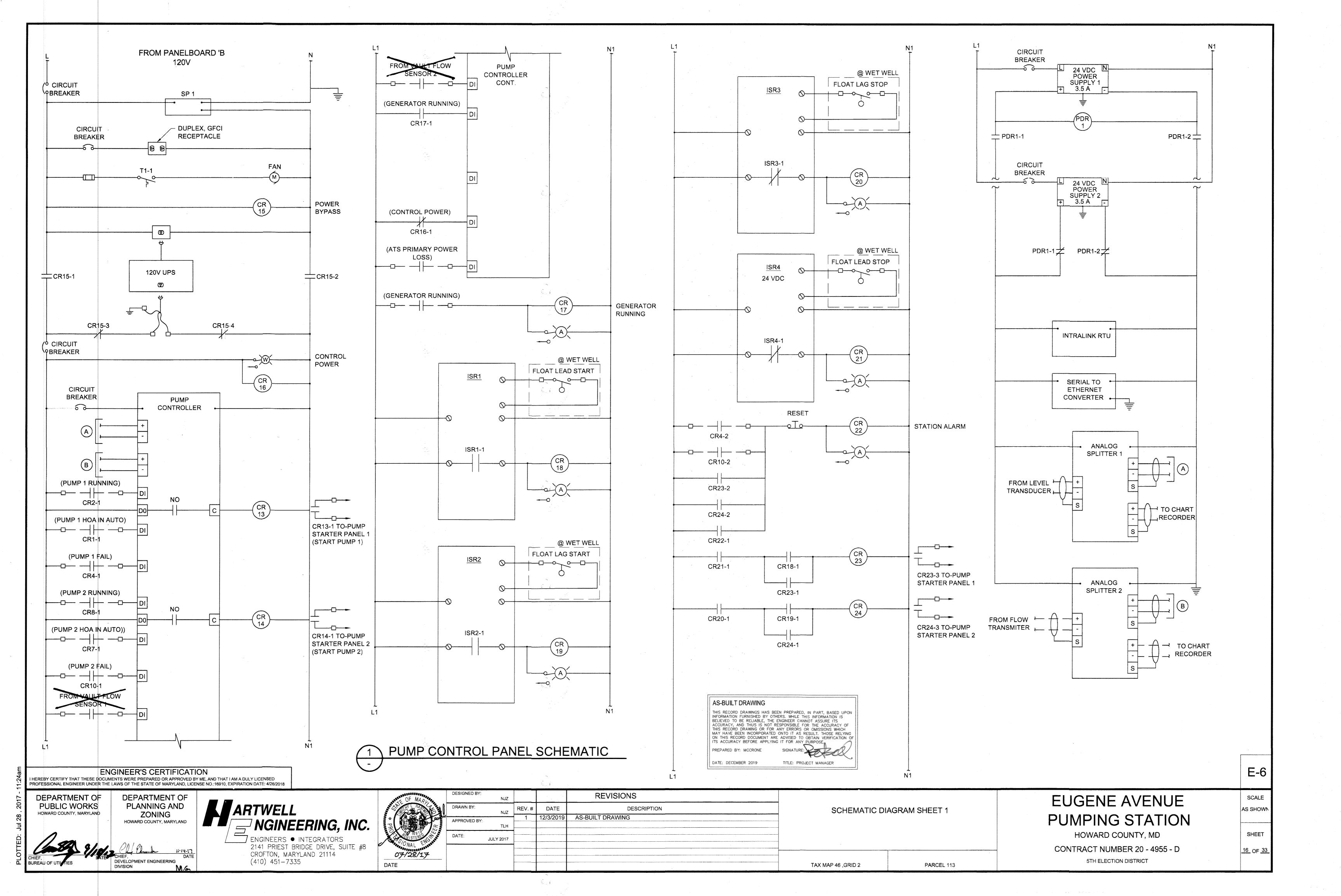
HOWARD COUNTY, MD

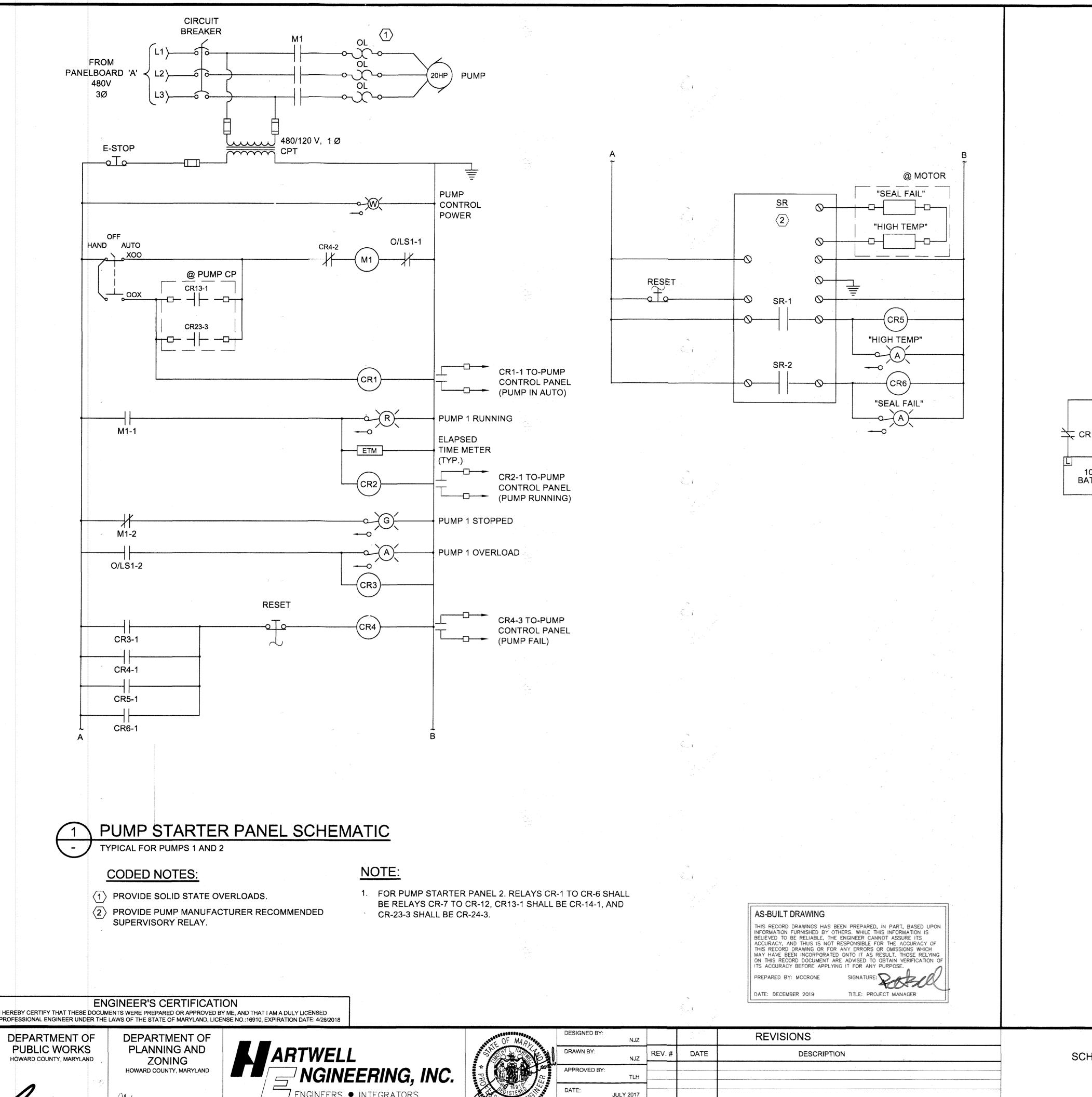
CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

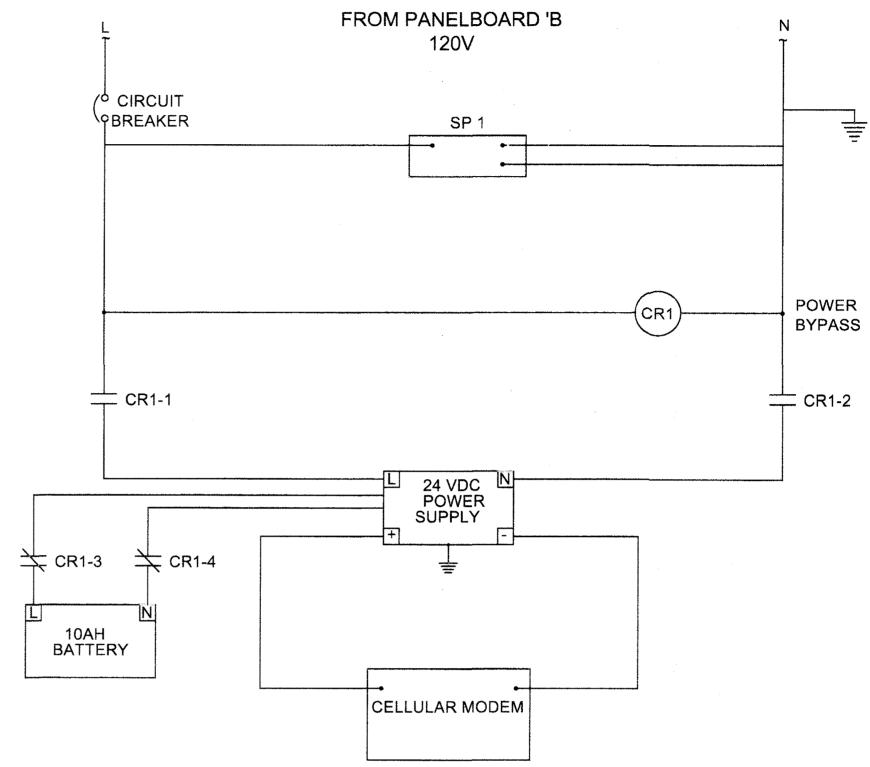
AS SHOWN

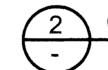
TAX MAP 46 ,GRID 2

SHEET <u>15</u> OF <u>33</u>









**COMMUNICATIONS PANEL** 

#### NOTE:

PARCEL 113

1. WHEL-TECH IS RESPONSIBLE FOR PROVIDING COMMUNICATION BETWEEN THE EUGENE AVENUE PUMP STATION TO THE BOU MASTER RTU.

E-7

SCALE

AS SHOWN

SHEET

DEPARTMENT OF PUBLIC WORK\$ HOWARD COUNTY, MARYLAND

7 ENGINEERS ● INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8

CROFTON, MARYLAND 21114

(410) 451-7335

OF MARLE	DESIGNED BY:	
OF MARIA	DRAWN BY:	
The same of the sa	APPROVED BY:	
OSIONAL ENGINE	DATE:	JU
07/28/17		
DATE		

and the state of t	DESIGNED BY:	NJZ			REVISIONS	
E OF MARI	DRAWN BY:	NJZ	REV.#	DATE	DESCRIPTION	
SONAL ENGLISH	APPROVED BY:	TLH		,		
	DATE;	JULY 2017				
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SCHEMATIC DIAGRAM SHEET 2

TAX MAP 46 ,GRID 2

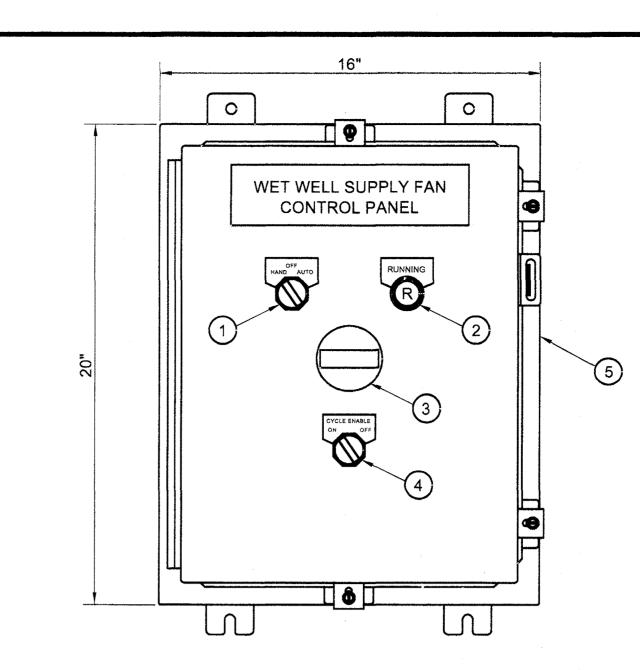
**EUGENE AVENUE** PUMPING STATION

HOWARD COUNTY, MD

CONTRACT NUMBER 20 - 4955 - D

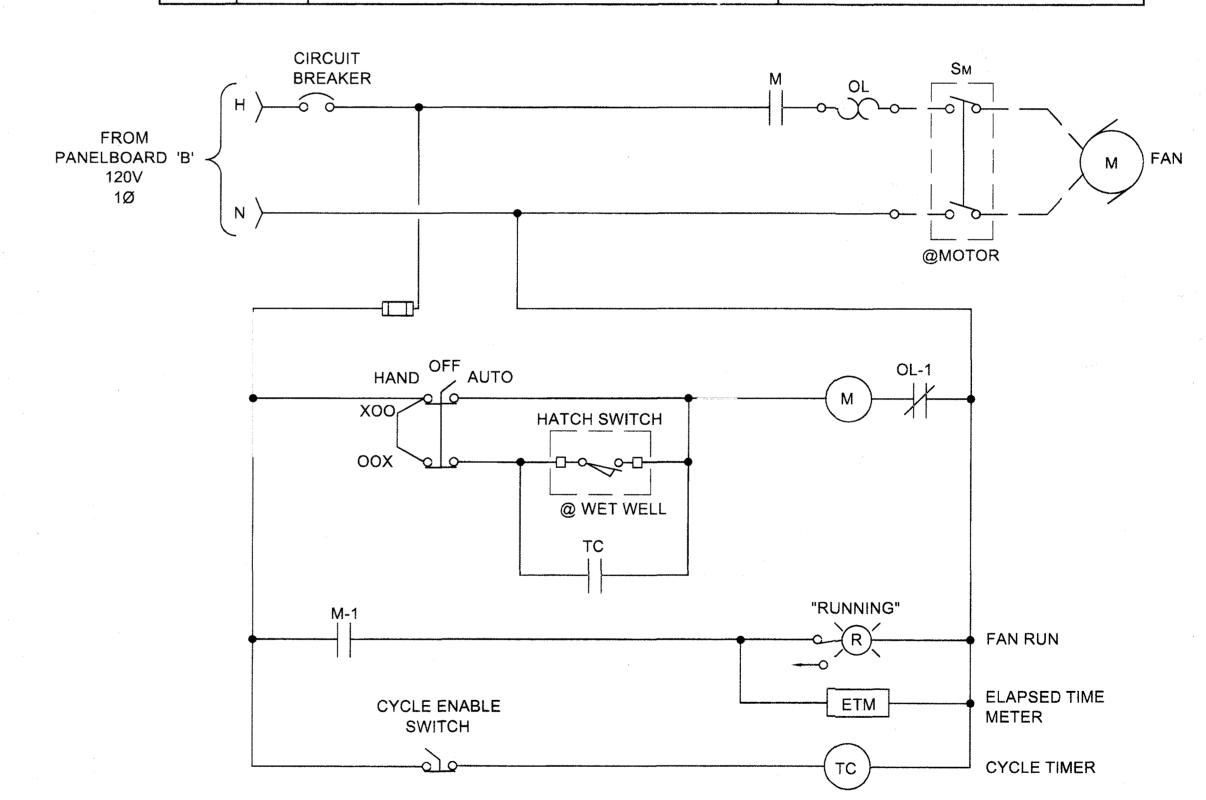
5TH ELECTION DISTRICT

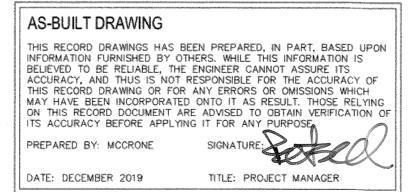
17 OF 33



#### PANEL LAYOUT SCALE: NTS

BILL OF MATERIAL							
ITEM	QTY	DESCRIPTION	NAMEPLATE				
1	1	3 POSITION SWITCH	'HAND/OFF/AUTO'				
2	1	PILOT LIGHT, PUSH-TO-TEST - RED	'RUNNING'				
3	1	ETM	-				
4	1	2 POSITION SWITCH	'ON - 'CYCLE ENABLE - OFF'				
5	1	NEMA 12 ENCLOSURE, UON	'WET WELL SUPPLY FAN CONTROL PANEL'				





WET WELL SUPPLY FAN SCHEMATIC

PARCEL 113

(ALL CONTROLS LOCATED IN WET WELL FAN CONTROL PANEL)

E-8

SCALE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.:16910, EXPIRATION DATE: 4/26/18 DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

**ENGINEER'S CERTIFICATION** 

NGINEERING, INC. 7 ENGINEERS • INTEGRATORS
2141 PRIEST BRIDGE DRIVE, SUITE #8

(410) 451-7335

CROFTON, MARYLAND 21114

OF MARLE	DESIGNED BY:	NJZ			REVISIONS	·	
	DRAWN BY:	NJZ	REV.#	DATE	DESCRIPTION		
* PA	APPROVED BY:	TLH					
169 VG SO ISTERE	DATE:	APRIL 2017					
07/28/17							

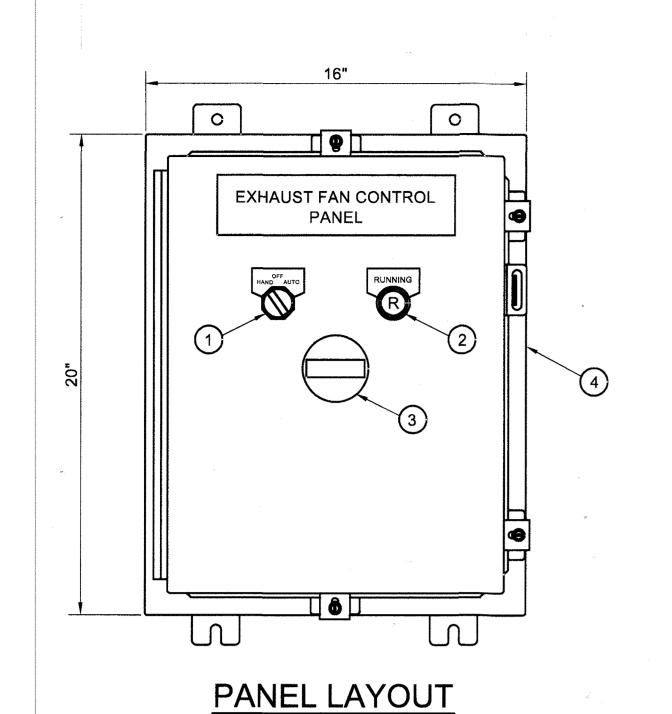
SCHEMATIC DIAGRAM SHEET 3

TAX MAP 46 ,GRID 2

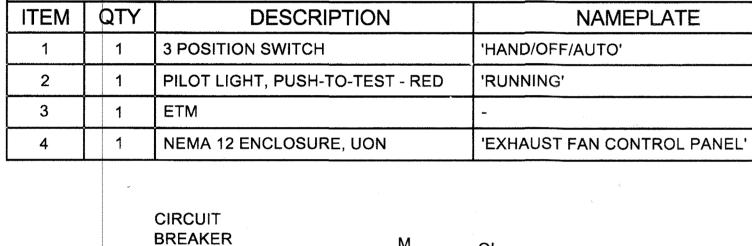
**EUGENE AVENUE** PUMPING STATION

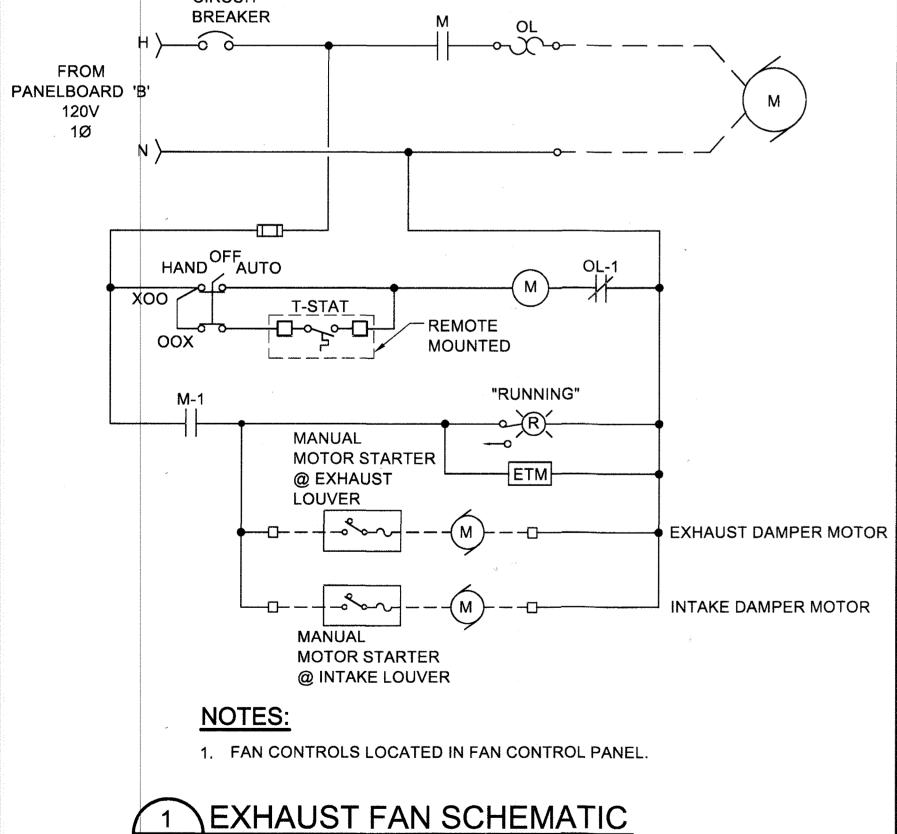
HOWARD COUNTY, MD CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

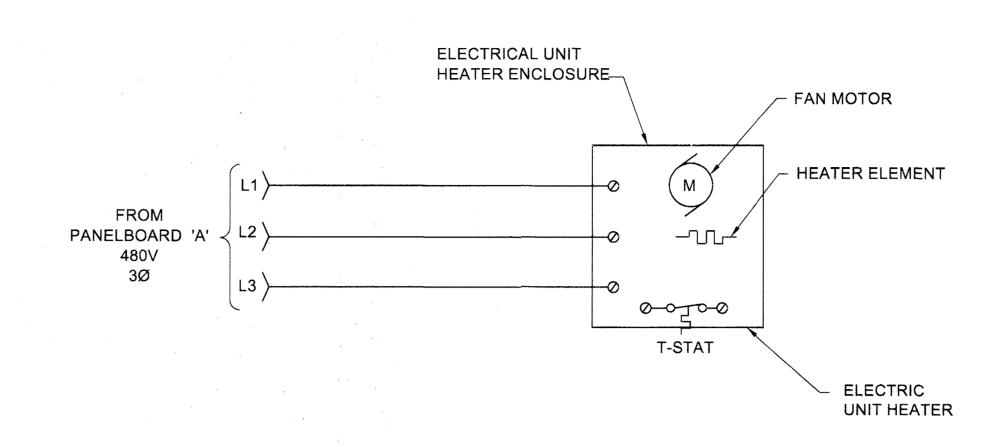
AS SHOWN SHEET 18 OF 33



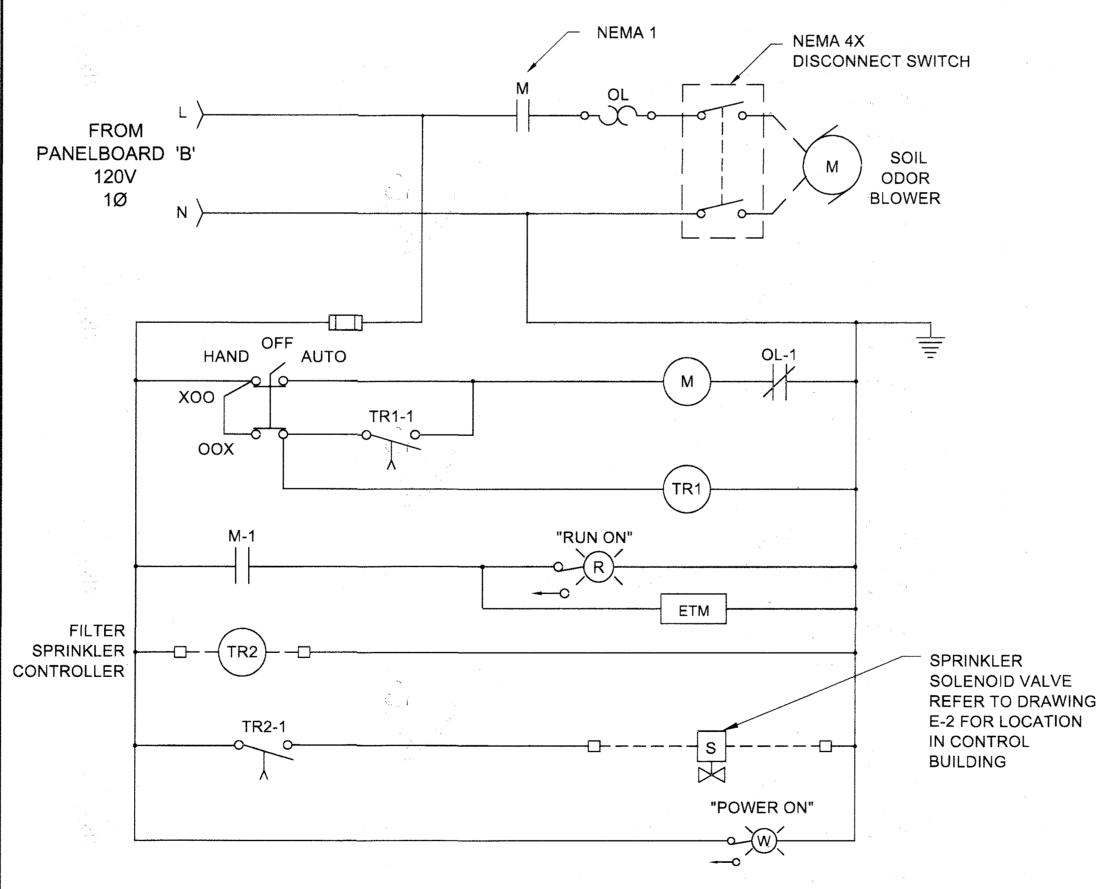
#### SCALE: NTS **BILL OF MATERIAL DESCRIPTION** NAMEPLATE 3 POSITION SWITCH 'HAND/OFF/AUTO' PILOT LIGHT, PUSH-TO-TEST - RED 'RUNNING'

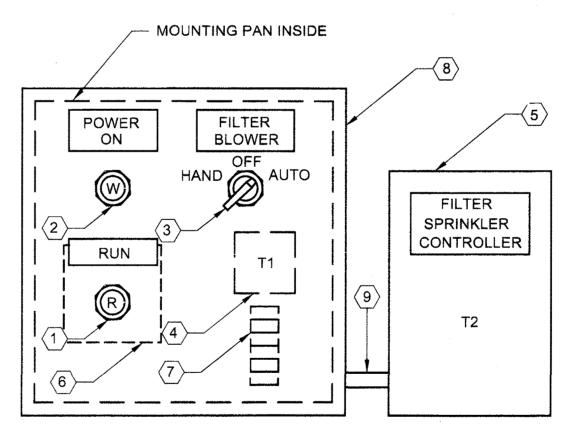






2 ELECTRIC UNIT HEATER WITH INTEGRAL THERMOSTAT SCHEMATIC





#### NOTES:

TAX MAP 46 ,GRID 2

- 1. FILTER SPRINKLER CONTROL SHALL BE INSTALLED IN NEMA 12 ENCLOSURE AS PRACTICAL FOR APPLICATION.
- 2. ALL DEVICES TO BE HEAVY DUTY, 30.5mm, OILTIGHT, NEMA

PARCEL 113

#### **CODED NOTES:**

- (1) PILOT LIGHT, RED, LEGEND PLATE TO READ "RUN".
- 2 PILOT LIGHT, WHITE, LEGEND PLATE TO READ "POWER
- (3) THREE-POSITION SELECTOR SWITCH, WITH LEGEND PLATE TO READ "HAND-OFF-AUTO"
- (4) TIMING RELAY, REPEAT CYCLE TYPE, 2-DPDT 1/3 CONTACTS, 120V, 2 TO 60 MINUTE INDEPENDENTLY ADJUSTABLE ON AND OFF TIME RANGES, DUAL KNOBS.
- 5 SPRINKLER CONTROLLER, 120V, 5A CONTACTS, ON-OFF AND MANUAL-AUTOMATIC SWITCHES, 24-HOUR TIME DIAL. 14 DAY SKIPPER FEATURE.
- 6 MOTOR STARTER.
- (7) TERMINAL BLOCKS.
- (8) NEMA 12 ENCLOSURE MIN. 12"Hx12"Wx6"D. MOUNT TOP AT 6'-0" ABOVE FLOOR UNLESS INDICATED OTHERWISE.
- (9) 3/4"c/(2)-#12+#12GND

ODOR FILTER BLOWER SCHEMATIC

E-9

SCALE

AS SHOWN

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING

**ENGINEER'S CERTIFICATION** HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.:16910, EXPIRATION DATE: 4/26/18

DEVELOPMENT ENGINEERING

ARTWELL NGINEERING, INC. 7 ENGINEERS ● INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8

CROFTON, MARYLAND 21114 (410) 451-7335

AS-BUILT DRAWING

PREPARED BY: MCCRONE

DATE: DECEMBER 2019

THIS RECORD DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF

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TITLE: PROJECT MANAGER

ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPO

STATE OF MARK	DESIGNED BY: NJZ			REVISIONS	
	DRAWN BY: NJZ	REV.#	DATE	DESCRIPTION	
* B	APPROVED BY:				
169 V GEOSTERE	DATE: APRIL 2017				
07/28/17					
DATE					

SCHEMATIC DIAGRAM SHEET 4

PUMPING STATION HOWARD COUNTY, MD

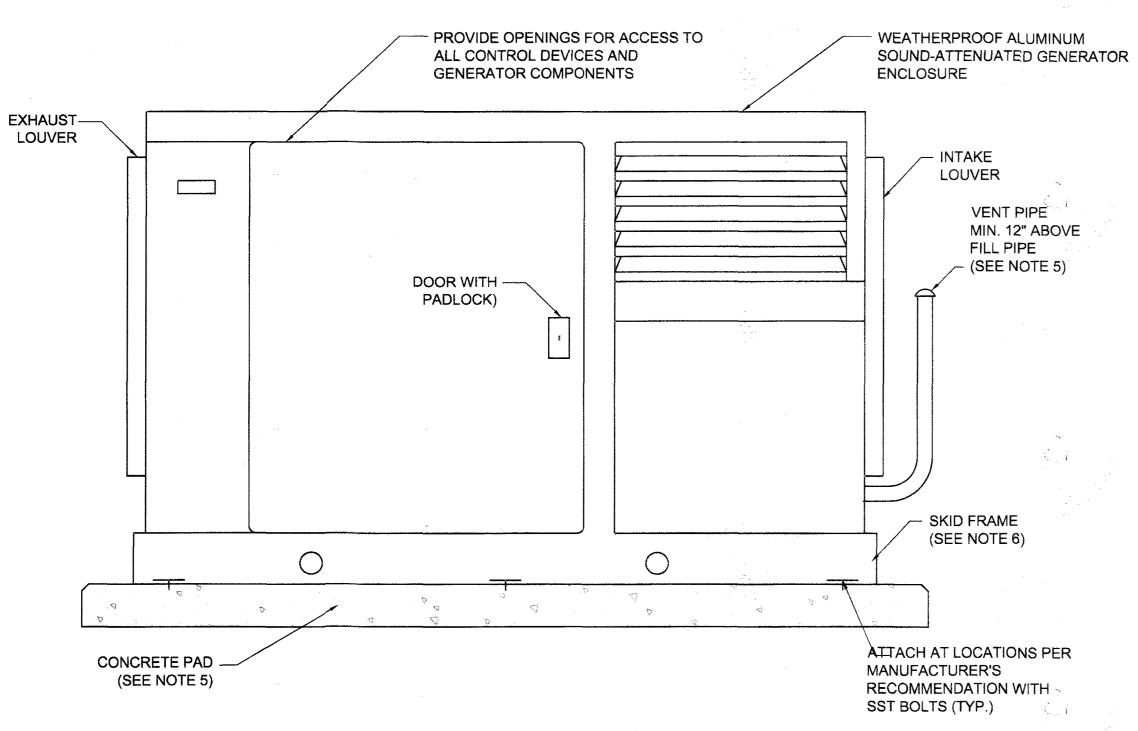
**EUGENE AVENUE** 

CONTRACT NUMBER 20 - 4955 - D

SHEET

19 OF <u>33</u>

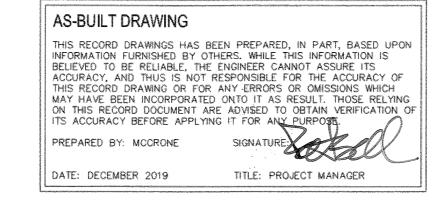
5TH ELECTION DISTRICT

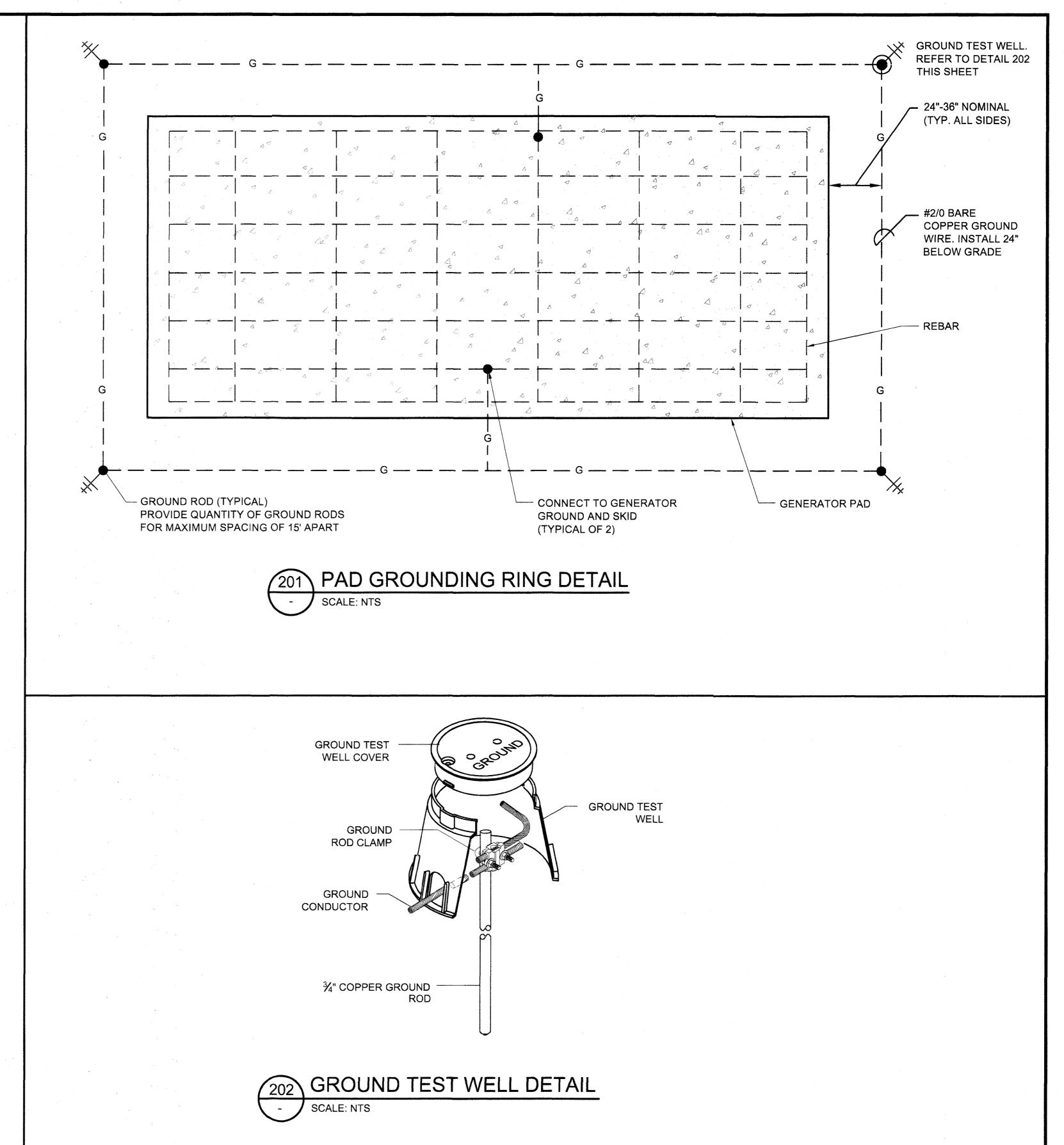


#### NOTES:

- 1. GENERATOR AND ENCLOSURE SHALL BE PROVIDED BY THE SAME MANUFACTURER.
- 2. COORDINATE CONCRETE PAD DIMENSIONS WITH GENERATOR SET AND ENCLOSURE PROVIDED.
- 3. INSTALL NEW BATTERY CHARGER AND BATTERIES IN GENERATOR ENCLOSURE. ENCLOSURE SHALL BE SIZED TO ACCOMMODATE ALL EQUIPMENT. BATTERY CHARGER SHALL BE LOCATED AWAY FROM ALL OPENINGS AND BE PROVIDED IN WEATHERPROOF ENCLOSURE. PROVIDE (1)-WP SINGLE OUTLET FOR
- 4. PROVIDE AND INSTALL (2) 4" SCH 80 PVC CONDUITS THROUGH SLAB FOR GENERATOR FEEDER & SIGNAL CABLES. FINAL LOCATION OF CONDUIT TO BE DETERMINED BY THE CONTRACTOR AT TIME OF CONSTRUCTION.
- REFER TO DETAIL 501 FOR CONCRETE PAD DETAIL.
- 6. GENERATOR SHALL INCLUDE SUB-BASE FUEL TANK, NOT SHOWN ON DETAIL FOR CLARITY. PROVIDE 7 GALLON SPILL BOX MOUNTED TO ENCLOSURE, PROVIDED BY MANUFACTURER.
- 7. EXHAUST AND INTAKE LOUVERS TO HAVE BIRD SCREENS.
- 8. PROVIDE MINIMUM OF 3' AROUND ENCLOSURE FOR AIRFLOW REQUIREMENTS.







#### NOTES:

- 1. PROVIDE GROUND ROD DRIVEN 6-INCHES BELOW GRADE AND CONNECT TO GROUND TEST WELL WITH #2/0 AWG BARE COPPER WIRE.
- 2. GROUND TEST WELLS LOCATED IN TRAFFIC AREAS SHALL BE RATED FOR H-20 LOADING.

E-10

SCALE

AS SHOWN

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

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DEPARTMENT OF

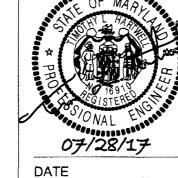
PLANNING AND

ZONING

HOWARD COUNTY, MARYLAND

(410) 451-7335

ENGINEERS ● INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8 CROFTON, MARYLAND 21114



F MAD	DESIGNED BY:	NJZ			REVISIONS
E	DRAWN BY:	NJZ	REV.#	DATE	DESCRIPTION
	APPROVED BY:	TLH			
76918 STERED CITY	DATE:	APRIL 2017			
VAL ENGINEER VAL 28/17					

ELECTRICAL DETAILS 101, 201, & 202

TAX MAP 46, GRID 2

**EUGENE AVENUE** PUMPING STATION

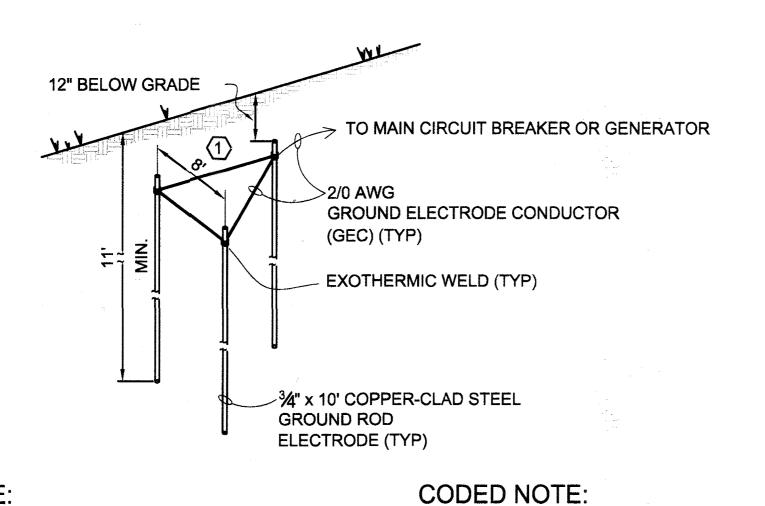
CONTRACT NUMBER 20 - 4955 - D

HOWARD COUNTY, MD

SHEET 20 OF 33

PARCEL 113

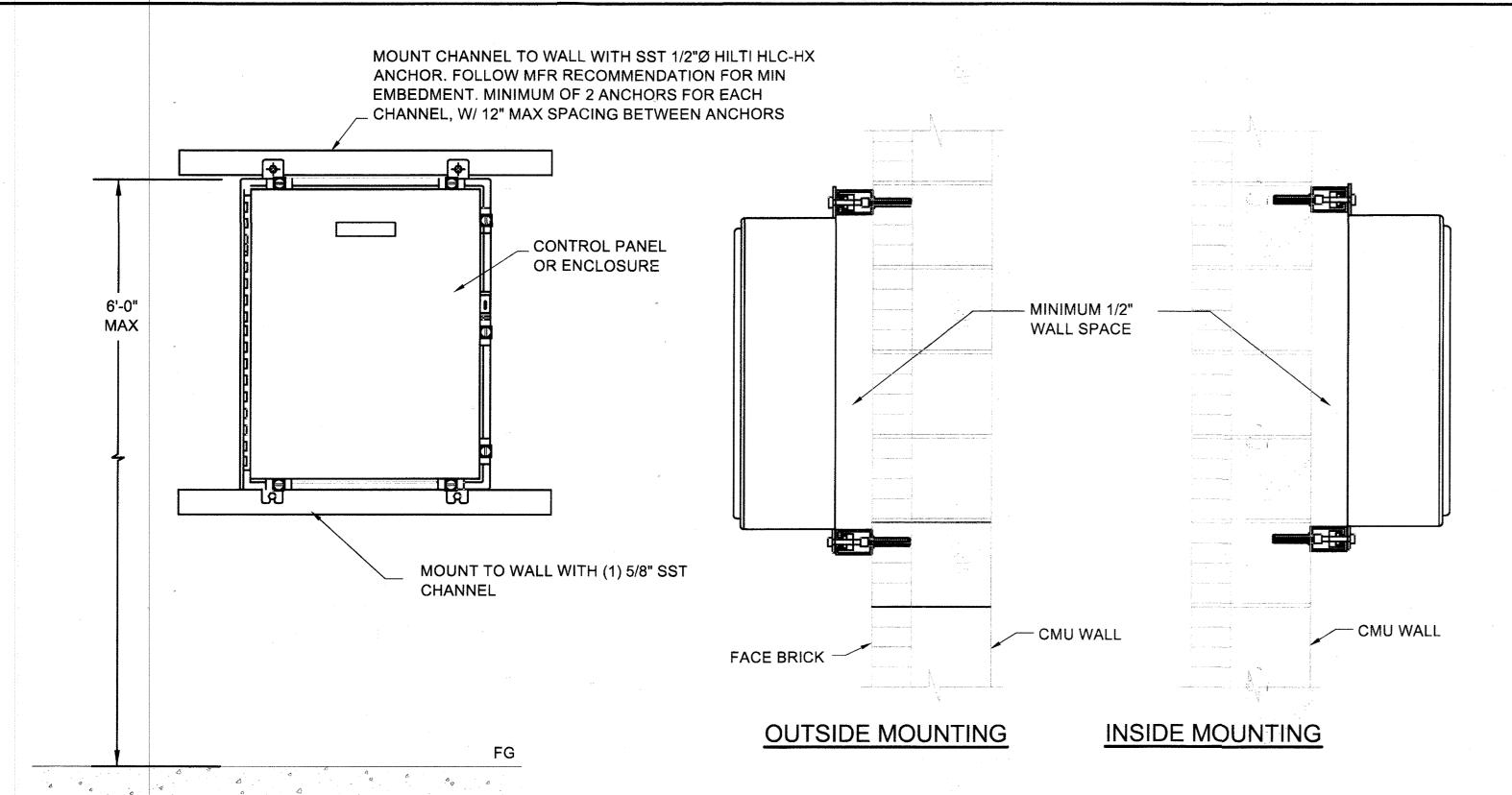
5TH ELECTION DISTRICT



#### NOTE:

- 1. GROUND SERVICE PER NEC ARTICLE 250, AND POWER UTILITY REQUIREMENTS.
- (1) INSTALL ROD ELECTRODES AT LEAST 8' APART FROM EACH OTHER.
- 2. PROVIDE GROUNDING ELECTRODE SYSTEM FOR ALL INCOMING UTILITY SERVICE.
- 3. PROVIDE GROUNDING ELECTRODE SYSTEM FOR ALL NEW GENERATORS.

#### GROUNDING ELECTRODE SYSTEM SCALE: NTS





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DEPARTMENT OF PUBLIC WORKS

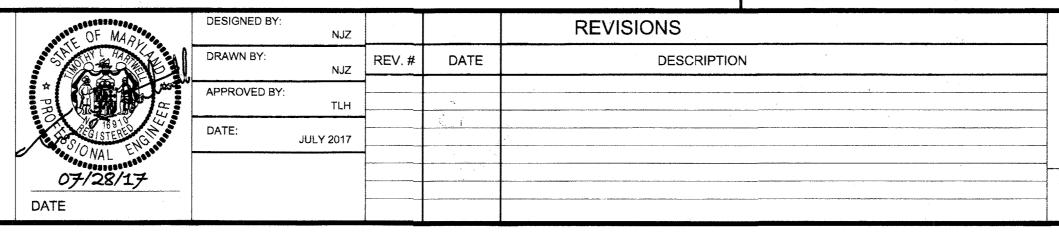
DEVELOPMENT ENGINEERING DIVISION

DEPARTMENT OF PLANNING AND

7 ENGINEERS ● INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8

CROFTON, MARYLAND 21114

(410) 451-7335



MOUNTING HARDWARE YAGI ANTENNA W/ TYPE "N" -GROUND TO MAST FEMALE CONNECTOR TYPE "N" MALE CONNECTOR SEALED WITH HEAT SHRINK SST MOUNTING GALVANIZED PIPE 1/2" HELIAX ANTENNA CABLE TO THD ROD 3/8" THICK SS PLATE\*, TYP 1/2" SST ANCHOR BUILDING WALL PROVIDE SS LOCKING WASHERS AND SS NUTS #4 GROUND WIRE AT EACH LOCATION (TYP) \*BEND PLATE TO MATCH RADIUS OF PIPE AS SHOWN GROUND TEST WELL REFER TO DETAIL 202 CONNECTION 10' GROUND ROD

MAST TO EXTEND 6" ABOVE

#### NOTES:

- 1. CONTRACTOR SHALL PROVIDE AND INSTALL ALL RADIO COMMUNICATIONS EQUIPMENT.
- 2. CONTRACTOR TO PROVIDE STUDY FOR ANTENNA CELLULAR SIGNALS.

#### **CODED NOTES:**

(1) ANTENNA TYPE LAIRD TECHNOLOGIES Y1503 150-174 MHZ 7.1dB 3 ELEMENT YAGI ANTENNA | TESSCO #83286 OR EQUAL.



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E-11

SCALE

AS SHOWN

**EUGENE AVENUE** PUMPING STATION

HOWARD COUNTY, MD

CONTRACT NUMBER 20 - 4955 - D **5TH ELECTION DISTRICT** 

SHEET 21 OF 33

HOWARD COUNTY, MARYLAND

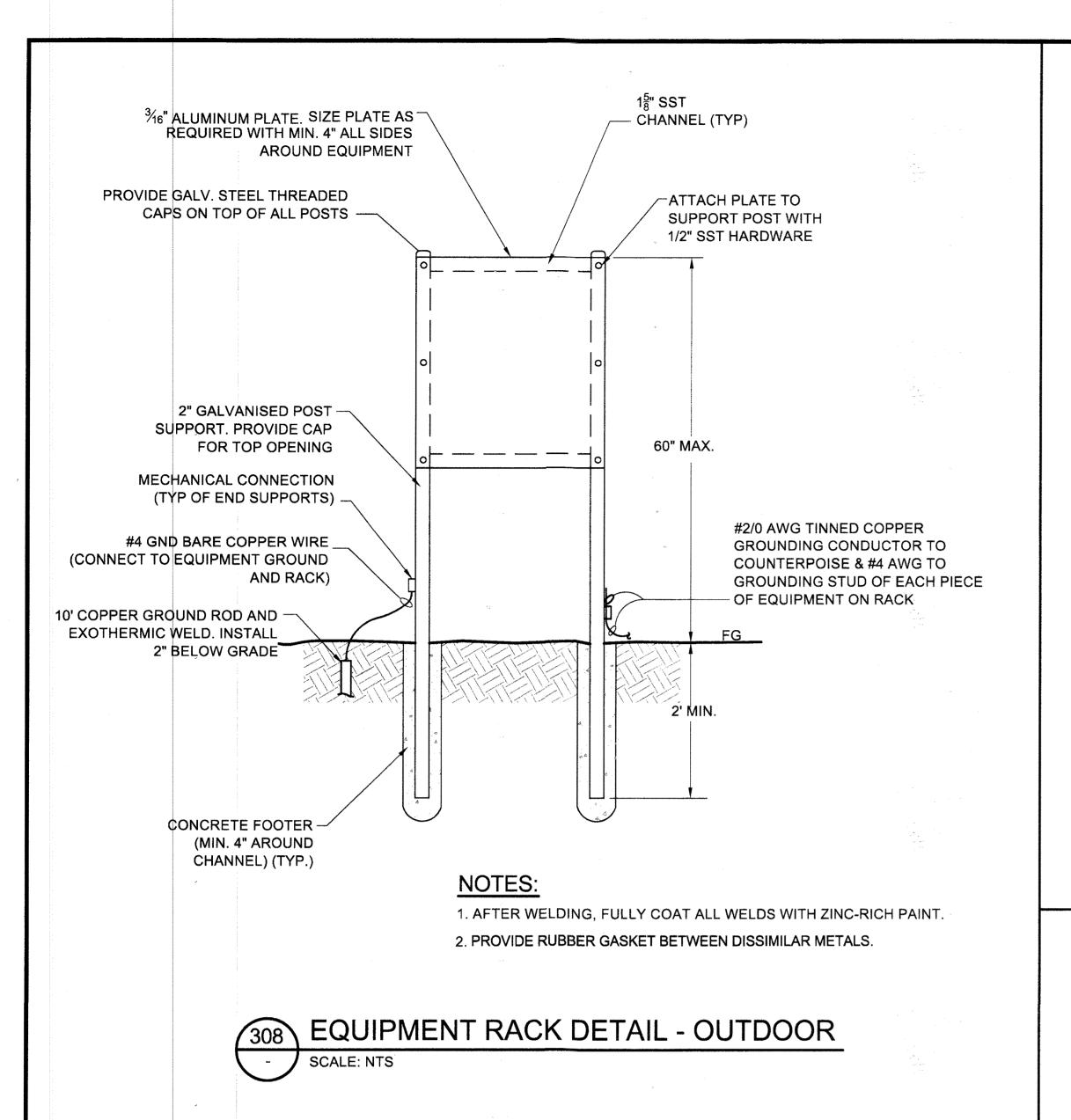
ZONING HOWARD COUNTY, MARYLAND

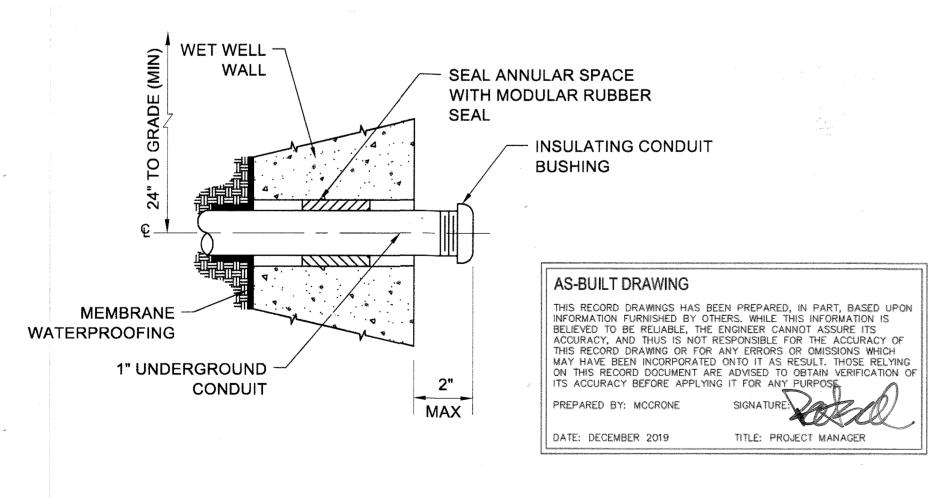
NGINEERING, INC.

TAX MAP 46 ,GRID 2

PARCEL 113

ELECTRICAL DETAILS 203, 301, & 305





WET WELL CONDUIT PENETRATION

ROUGHEN JOINT AFTER -CORE DRILLED /-PIPE SLEEVE- SIZE AS RECOMMENDED BY LINKSEAL LINK SEAL HYDROSTATIC -CORE DRILL EXISTING CONCRETE. PIPE WALL CLOSURE **GROUT SPACE BETWEEN PIPE** (BOTH ENDS) SLEEVE AND CORED HOLE ON BOTH SIDES OF SEEPAGE RING **DIMENSION "A" SEE** TABLE BELOW --CONDUIT ADD DIAGONAL REINFORCEEMENT JOINT SEALANT ALL AROUND (SEE INSET) JOINT SEALANT ALL AROUND SEEPAGE RING OPNG. (TYP. EA. SIDE) (STRUCTURE SIDE) (SOIL SIDE) SEE PLANS FOR EXIST. WALL THICKNESS SLEEVE DIM. "A" SLEEVE DIM. "A" JOINT SEALANT SIZE (INCHES) SIZE (INCHES) 2 6  $23\frac{1}{2}$ 25  $3\frac{1}{2}$   $8\frac{1}{2}$ 20  $27\frac{1}{2}$ 32  $38\frac{3}{4}$ 11 30

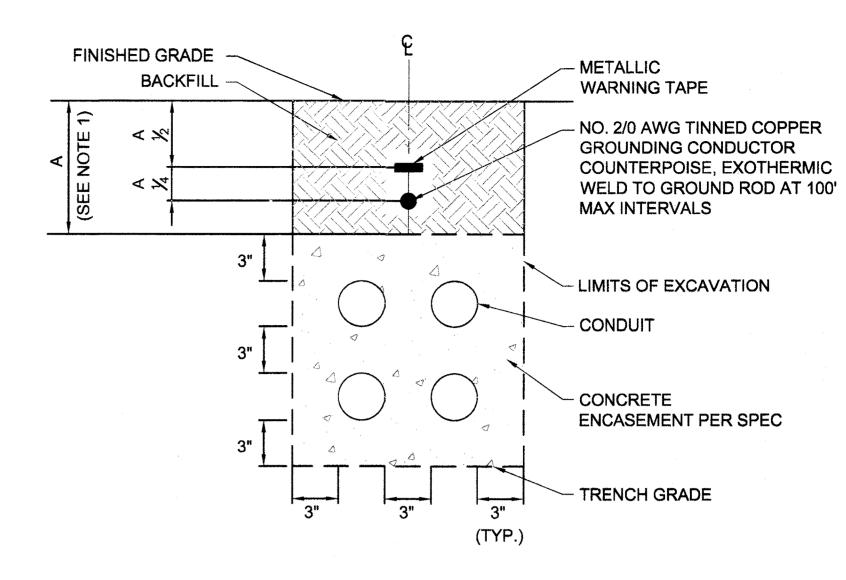
#### NOTES:

1. USE POLYMER MODIFIED TWO COMPONENT MORTAR ONLY

BOND BREAKER

2. TYPICAL FOR FLOOR PENETRATION.

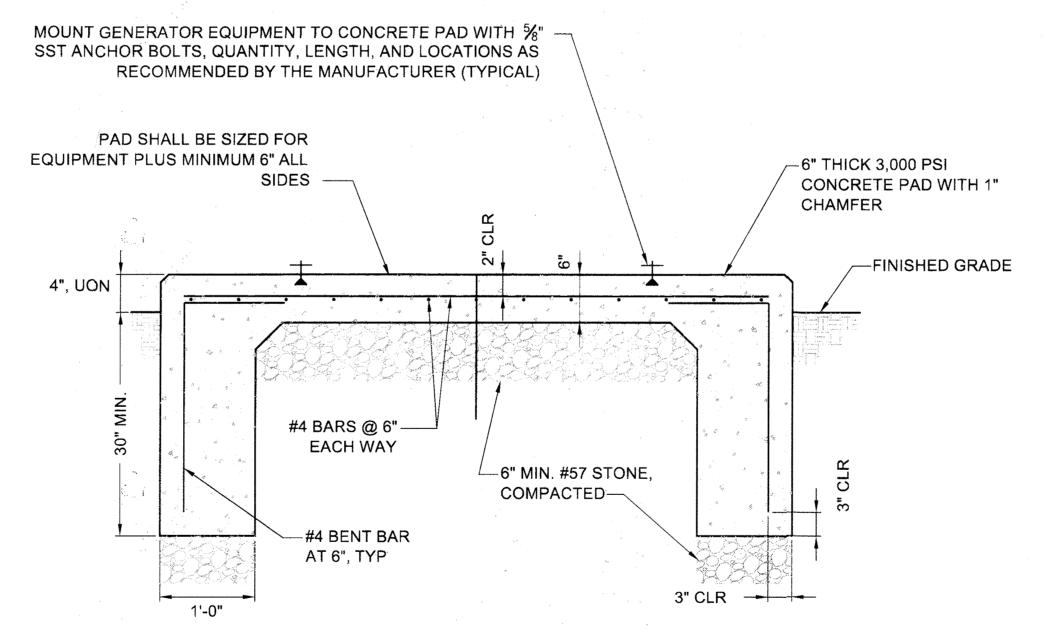




#### NOTES:

- 1. INSTALL DUCT BANK CONDUIT 30" MIN. DEPTH BELOW FINISHED GRADE, UON. SLOPE CONDUITS AWAY FROM BUILDING.
- 2. FOUR CONDUITS SHOWN FOR CLARITY, PROVIDE QUANTITY AS REQUIRED.





13<del>2</del>

16

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12 19

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48

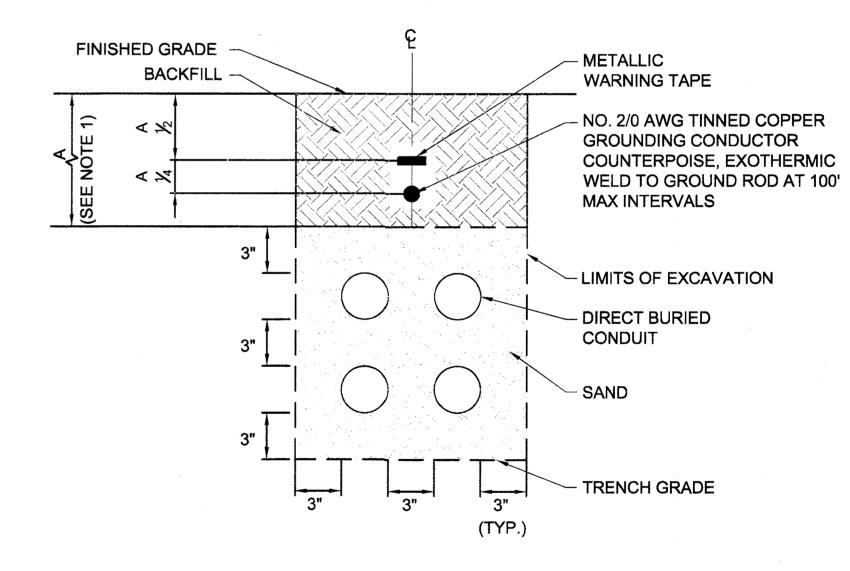
46

53

#### NOTES:

1. ALL CONCRETE EQUIPMENT PADS SHALL BE CONSTRUCTED SO THAT EQUIPMENT IS LEVEL.

**GENERATOR CONCRETE PAD** 



#### NOTES:

- 1. INSTALL DUCT BANK CONDUIT 30" MIN. DEPTH BELOW FINISHED GRADE, UON. SLOPE CONDUITS AWAY FROM BUILDING.
- 2. FOUR CONDUITS SHOWN FOR CLARITY. PROVIDE QUANTITY AS REQUIRED.



E-12

SCALE

AS SHOWN

SHEET

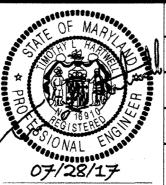
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

**ENGINEER'S CERTIFICATION** 

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ARTWELL NGINEERING, INC. 2141 PRIEST BRIDGE DRIVE, SUITE #8



DATE

ARL	DESIGNED BY:	NJZ			REVISIONS	
	DRAWN BY:	NJZ	REV.#	DATE	DESCRIPTION	
	APPROVED BY:	TLH		1		2
ENGINEER TO	DATE:	JULY 2017				

ELECTRICAL DETAILS 308, 402, 405, 501, 701, & 702

## **EUGENE AVENUE** PUMPING STATION

HOWARD COUNTY, MD

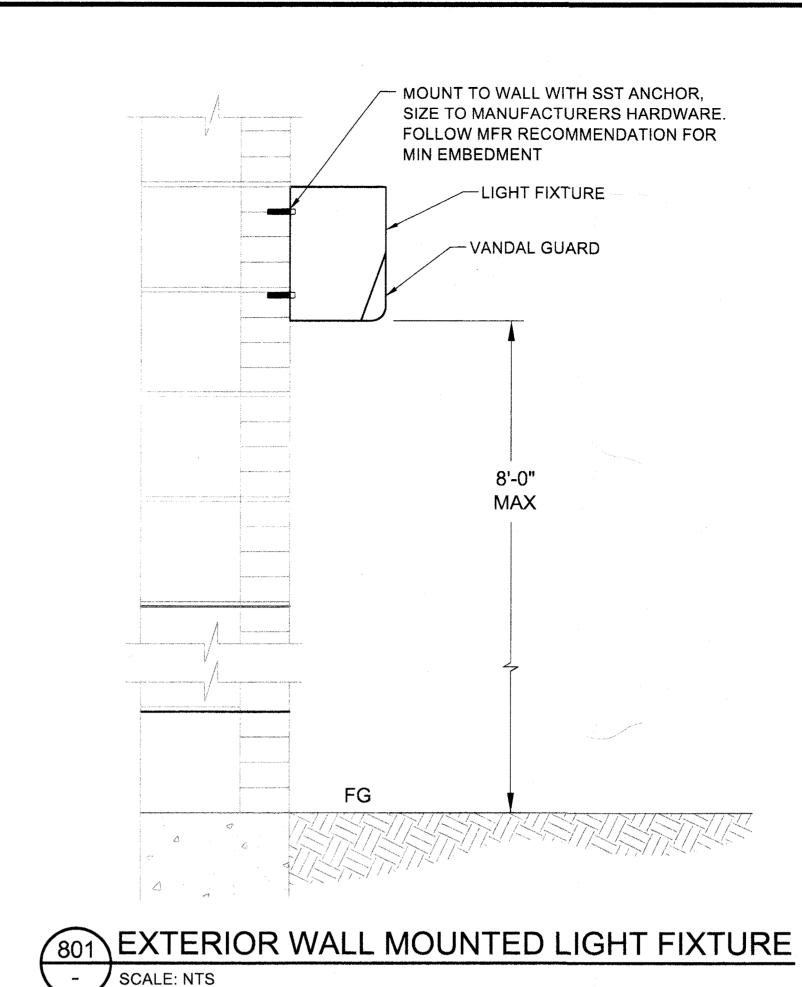
CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

22 OF 33

CROFTON, MARYLAND 21114 (410) 451-7335

TAX MAP 46 ,GRID 2

PARCEL 113



MOUNT W/ SST TOGGLE BOLTS/ANCHORS PER ELECTRICAL **TRUSS** MANUFACTURERS RECOMMENDATIONS CONDUIT - CEILING OUTLET BOX 3/8"Ø STAINLESS STEEL PENDANT, 3/8" RIGID -GRADE 316, LENGTH CONDUIT AS REQUIRED INSTALL 8'-0" AFF,

### NOTES:

1. PROVIDE END CAP AT EACH END OF FIXTURE.

803 TYPE "B" FIXTURE WOOD TRUSS CEILING - MOUNTING DETAIL SCALE: N.T.S.

E-13

SCALE

AS SHOWN

ENGINEER'S CERTIFICATION

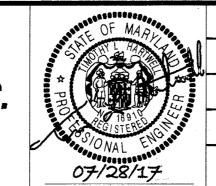
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DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

NGINEERING, INC.

ENGINEERS • INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8 CROFTON, MARYLAND 21114 (410) 451-7335



REV.# JULY 2017

REVISIONS DATE DESCRIPTION

AS-BUILT DRAWING

DATE: DECEMBER 2019

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PREPARED BY: MCCRONE SIGNATURE

TITLE: PROJECT MANAGER

ELECTRICAL DETAILS 801 & 803

TAX MAP 46 ,GRID 2

PARCEL 113

**EUGENE AVENUE** PUMPING STATION

**FIXTURE** 

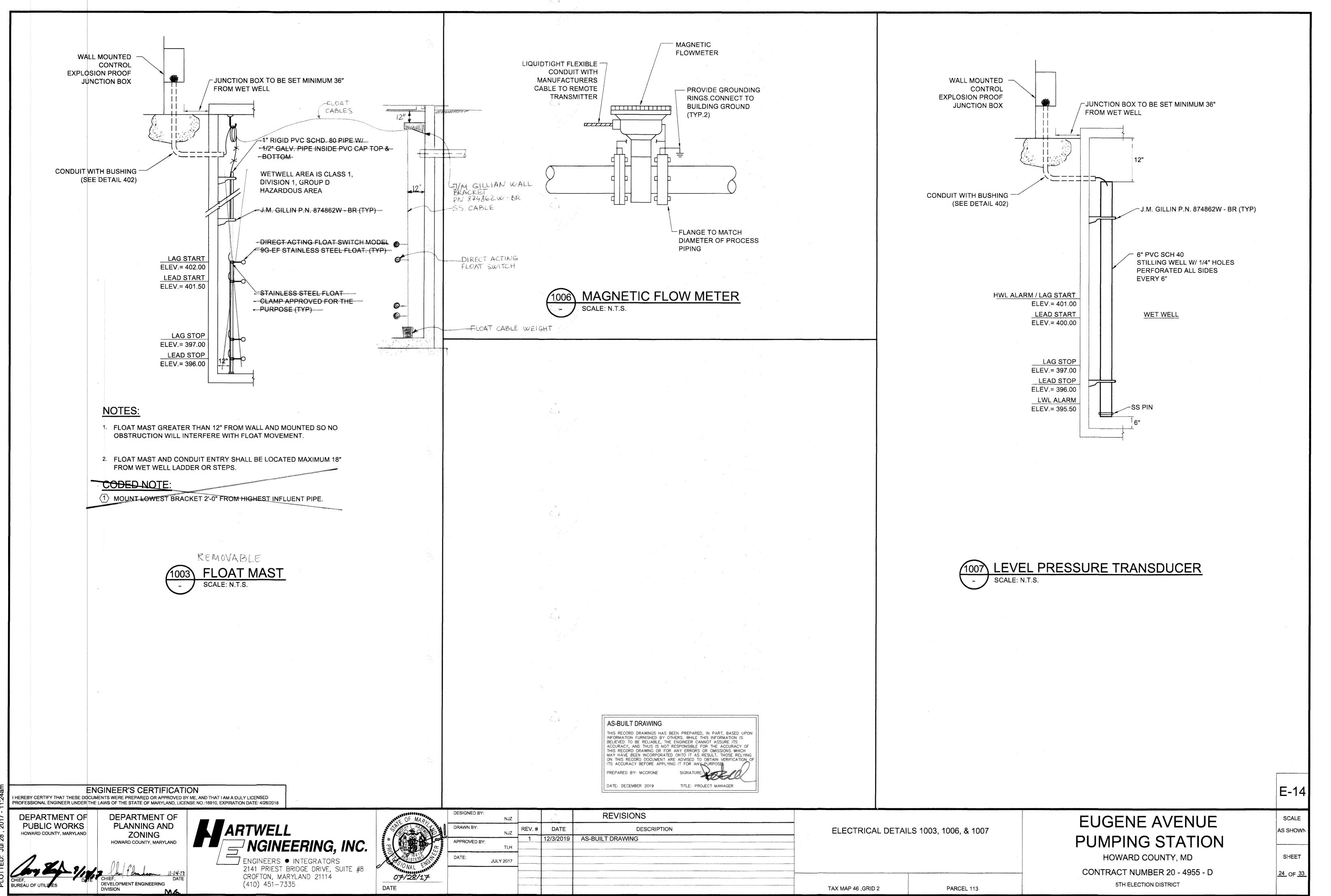
HOWARD COUNTY, MD

CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

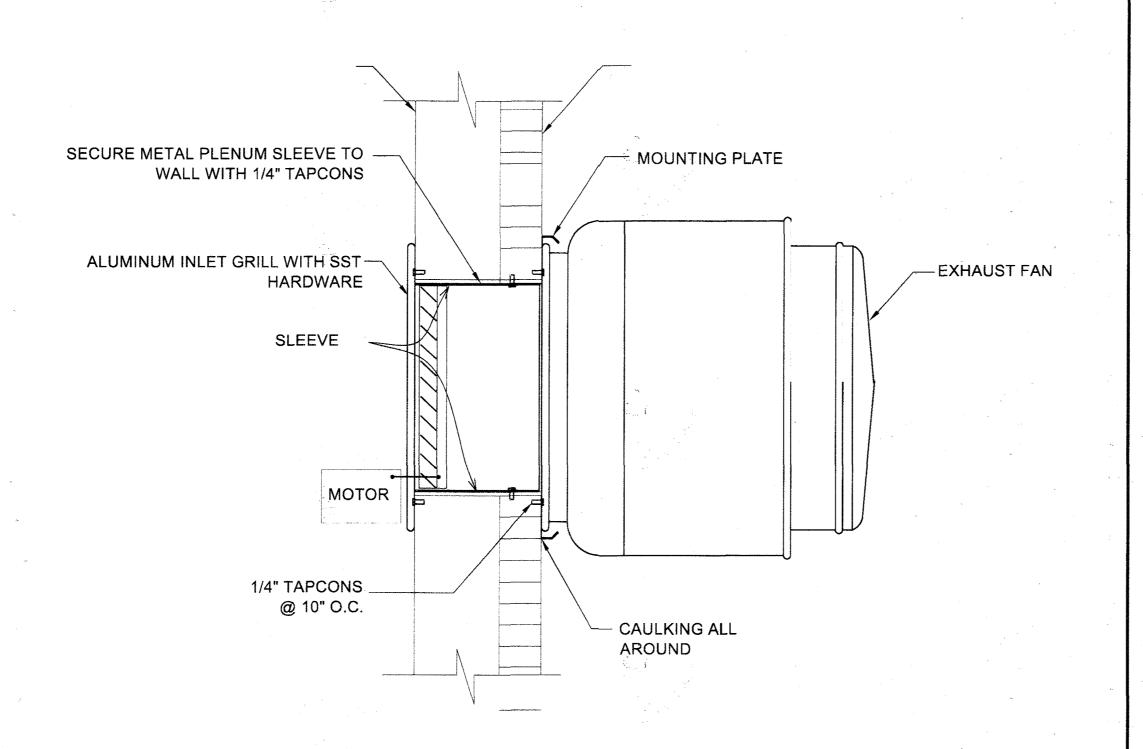
SHEET

23 OF 33

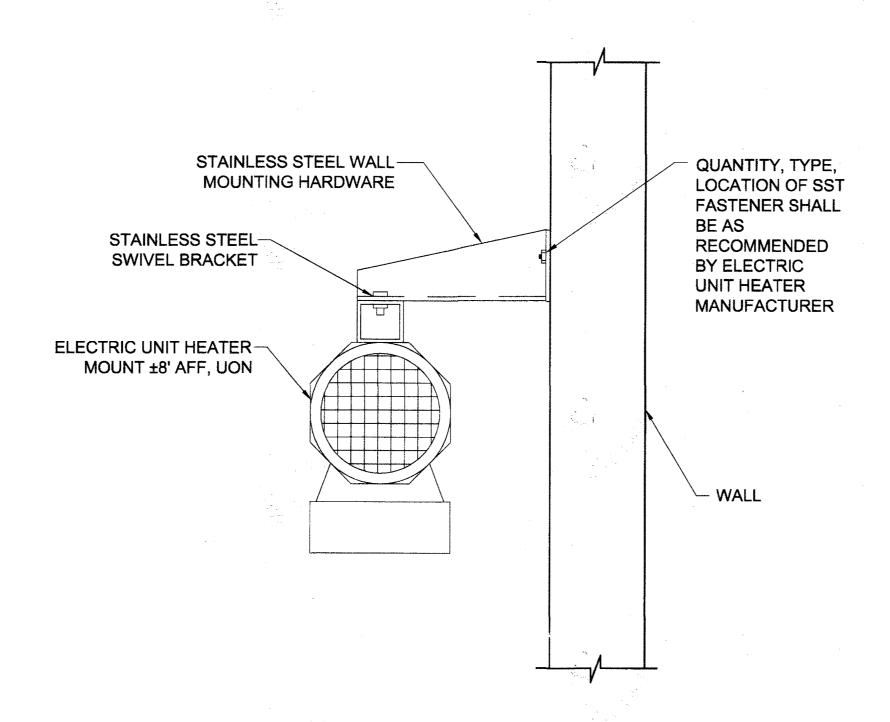
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1106 ELECTRIC UNIT HEATER (UH-1)

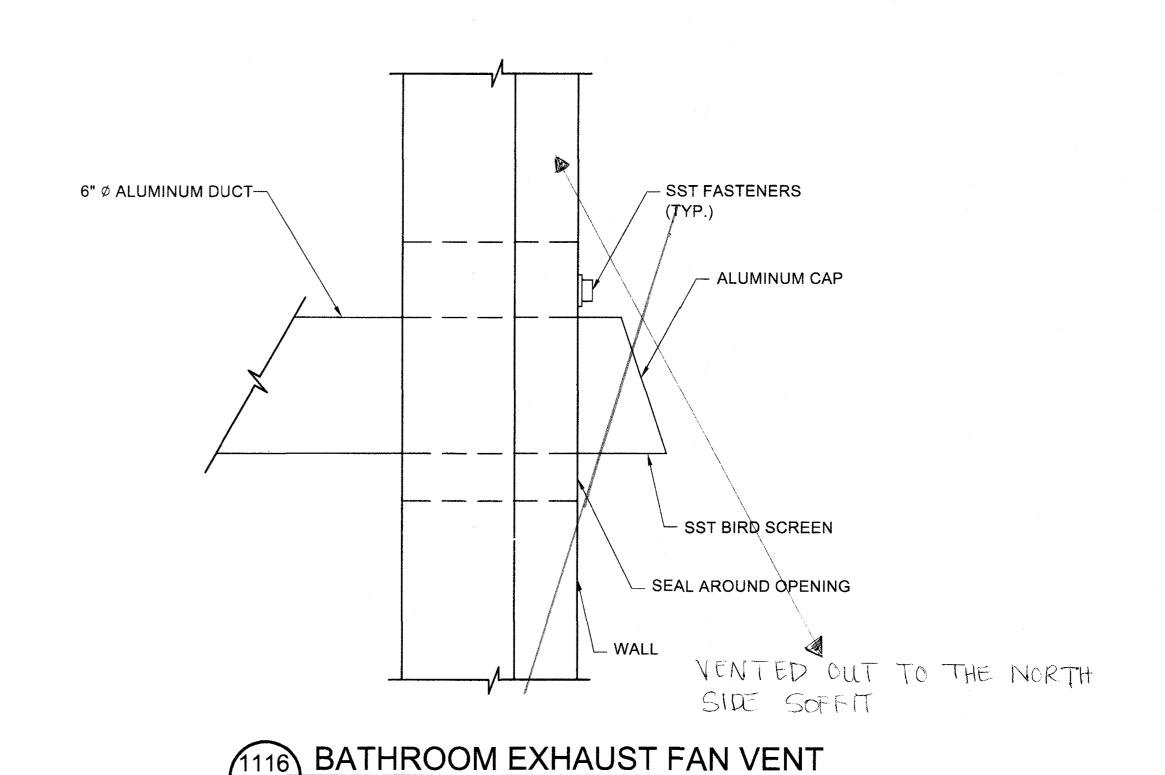
MOUNTING DETAIL

SCALE:NTS

FRP SUPPLY FAN IN WEATHERPROOF ENCLOSURE Ç 10" VENTILATION FAN DISCHARGE FAN INTAKE HOOD AND SCREEN FLEX. COUPLING WITH SST CLAMP BANDS FIBERGLASS \_ #4 @12" E.W. REINFORCED POLYESTER TO SST ANCHOR PER MANUFACTURER'S SCHEDULE 80 PVC INSTRUCTIONS FILL ANNULAR OPENING \_3/4" CHAMFER ALL AROUND WITH NON-SHRINK GROUT \_ #4 @ 12" O.C. MIN. OF 4 6" MAX. CAST-IN-PLACE PVC -SLEEVE - CONSTRUCTION JOINT WETWELL LEAVE ROUGH & CLEAN #4 @ 8" O.C. E.W. \_ 10" SCHEDULE 6" THICK 80 PVC AGGREGATE BEDDING NOTES:

- 1. REFER TO SITE PLANS FOR SUPPLY FAN CONCRETE HEIGHT.
- 2. SUPPLY FAN DUCT SHALL EXTEND TO 12" ABOVE HIGH WATER LEVEL.
- 3. SUPPLY FAN MOTOR SHALL BE RATED FOR INSTALLATION IN A CLASS 1, DIVISION 1 HAZARDOUS AREA FOR WET WELL, FANS SHALL BE FRP TYPE WITH NON SPARKING COMPONENTS.
- 4. PROVIDE 12" OFFSET ON CONCRETE BASE FOR PLINTH OVER 2'-0" TALL.





E-15

SCALE

DEPARTMENT OF **PUBLIC WORKS** HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

ENGINEER'S CERTIFICATION

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CROFTON, MARYLAND 21114

(410) 451-7335

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* PR	APPROVED BY:		1	12/3/2019	AS-BUILT DRAWING	
169 VO SO STERE	DATE:	JULY 2017				
07/28/17 DATE						

ELECTRICAL DETAILS 1101, 1102, 1106, & 1116

TAX MAP 46 ,GRID 2

SCALE:NTS

PARCEL 113

**EUGENE AVENUE** PUMPING STATION

HOWARD COUNTY, MD CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

AS SHOWN SHEET

25 OF 33

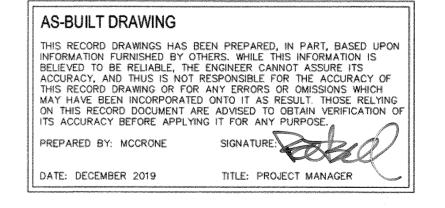
LIGHTING FIXTURE SCHEDULE									
FIXTURE TYPE	DESCRIPTION	VOLTAGE	LAMPS	MANUFACTURER	NOTES				
В	4'x1' FLUORESCENT, INDUSTRIAL ENCLOSED AND GASKETED	120V	2-32W, T8	LITHONIA FEM4-2-32-BMPCL- MVOLT-GEB10ISH	CEILING MOUNT, 8' AFG, UON.				
E	EMERGENCY LIGHT UNIT - SELF DIAGNOSTIC, COMPLETE WITH SOLID STATE BATTERY AND CHARGER	120V	2-1.5W LED	LITHONIA ELM2 LED	WALL MOUNTED, MIN. 8' AFF				
Н	EXTERIOR WALL MOUNT, VANDAL RESISTANT FIXTURE	120V	1-72W, LED	LITHONIA LIGHTING TWH OR EQUAL	WALL MOUNT, 8' AFG, UON				
X	EXIT LIGHT - COMPLETE WITH SOLID STATE BATTERY CHARGER, DRY LOCATION	120V	LED	LITHONIA LE-1-R-ELN EXIT SIGNS OR EQUAL	MOUNT AT CEILING 12" ABOVE DOOR				

	El	ECTRIC UN	SCHE	DULE				
	HEATER DAT	A			FAN MO	OTOR DATA		TSTAT CONTROL
TAGNAME	LOCATION	KW RATING	VOLTS	PHASE	VOLTS	PHASE	CFM	
UH-1	CONTROL BUILDING	5 KW	480	3 .	120	1	N/A	INTEGRAL

	LOUVER AND DAMPER SCHEDULE											
TAGNAME	LOCATION	LOUVER SIZE	DAMPER SIZE	FREE AREA	MATERIAL	LOUVER TYPE	DAMPER TYPE	FINISH	STYLE	DEPTH	GAUGE	REMARKS
LI-1	GENERATOR DISCHARGE	24"W X 24"H	24"W X 24"H	8.74	AL	ACOUSTICAL	MOTOR	KYNAR 500	HORIZ BLADES	10"	14 MIN.	SST INSECT SCREEN
EF-1	EXHAUST FAN (WALL)	N/A	10.5"W X 10.5"H	N/A	AL	N/A	MOTOR	KYNAR 500	HORIZ BLADES	10"	14 MIN.	SST INSECT SCREEN

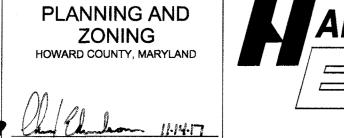
	FAN SCHEDULE								
TAGNAME	LOCATION	FAN TYPE/MOUNT ARRANGEMENT	CFM	HP	SP ("WC)	VOLTS	PH	FREQ.	CONTROL
EF-1	CONTROL BUILDING	WALL	408	1/6	.5	120	1	60	REFER TO DETAIL 1/DWG E-8
SF-1	WET WELL	SLAB	300	1/4	.5	120	1	60	REFER TO DETAIL 1/DWG E-7
EF-2	BATHROOM	CLG	55	1/15	.25	120	1	60	SWITCH

WATER HEATER DATA								
UNIT	DESCRIPTION	LOCATION	KW RATING	VOLTS	PHASE			
EWH-1	TANKLESS WATER HEATER	ADMIN. BLDG BATHROOM	18 KW	480	3			



**ENGINEER'S CERTIFICATION** 

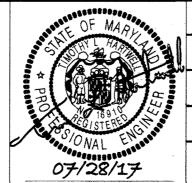
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7 ENGINEERS • INTEGRATORS 2141 PRIEST BRIDGE DRIVE, SUITE #8

CROFTON, MARYLAND 21114

(410) 451-7335



DATE

THE OF MARIE	DESIGNED BY:	NJZ			REVISIONS	
STATE A	DRAWN BY:	NJZ	REV.#	DATE	DESCRIPTION	
a B	APPROVED BY:	TLH				
GO STERE COLL	DATE:	JULY 2017				
07/00/47						+

LIGHTING AND HVAC SCHEDULES

PARCEL 113

TAX MAP 46 ,GRID 2

**EUGENE AVENUE PUMPING STATION** 

HOWARD COUNTY, MD CONTRACT NUMBER 20 - 4955 - D 5TH ELECTION DISTRICT

SCALE AS SHOWN SHEET

E-16

26 OF <u>33</u>

PUBLIC WORKS

HOWARD COUNTY, MARYLAND

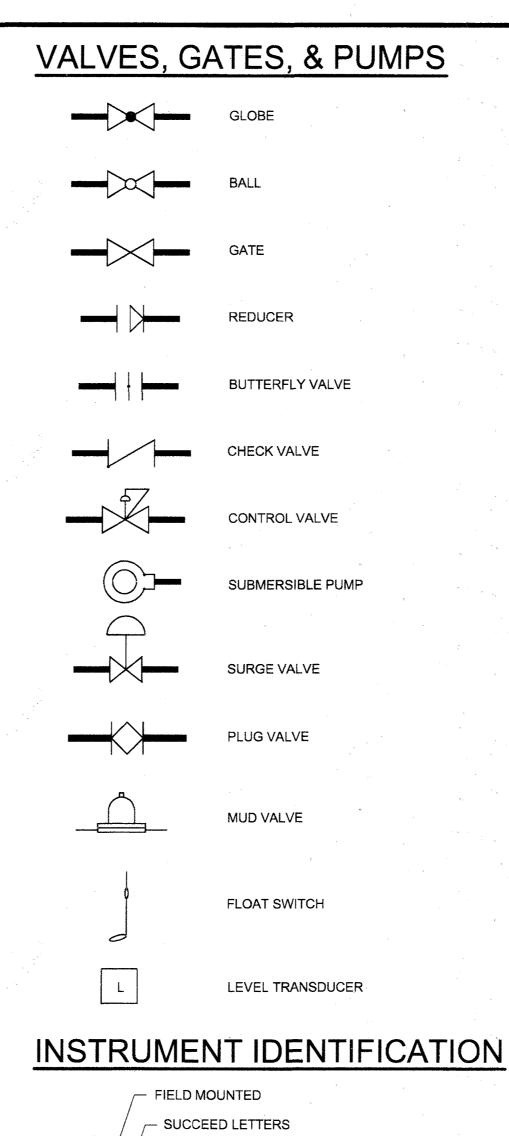
### INSTRUMENT SOCIETY OF AMERICA TABLE

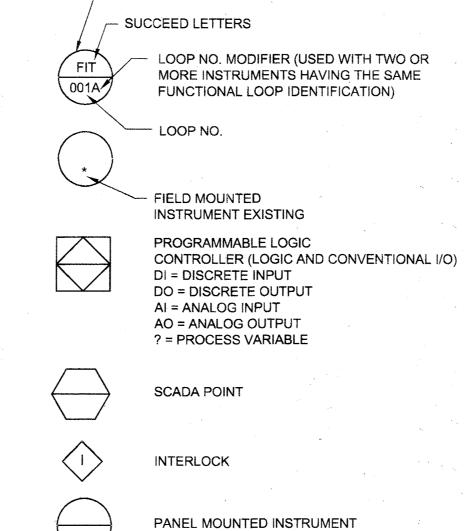
	FIRST LETTER		SUCCEEDING LETTERS						
LETTER	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER				
Α	ANALYSIS (*)		ALARM	AIR BLOWER					
В	BURNER, COMBUSTION			STOP, CLOSE					
С				CONTROL					
D	:	DIFFERENTIAL		START, OPEN					
E	VOLTAGE	4	SENSOR (PRIMARY ELEMENT)						
F	FLOW RATE	RATIO (FRACTION)		·					
G			GLASS , VIEWING DEVICE	GATE					
Н	HAND				HIGH, OPEN				
1	CURRENT		INDICATE						
J	POWER	SCAN							
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION					
L	LEVEL		LIGHT		LOW, CLOSED				
M	MOTOR, MOTION	MOMENTARY CHANGE			MIDDLE INTERMEDIATE				
N			INPUT, STATUS						
0			ORIFICE, RESTRICTION						
Р	PRESSURE (OR VACUUM) PUMP		POINT (TEST CONNECTION)						
Q	QUANTITY, EVENT(*)	INTEGRATE, TOTALIZE							
R	RADIATION		RECORD						
S	SPEED, FREQUENCY	SAFETY		SWITCH					
Т	TEMPERATURE			TRANSMIT					
U	MULTI VARIABLE		MULTI FUNCTION	MULTI FUNCTION	MULTI FUNCTION				
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER LOUVER					
W	WEIGHT, FORCE		WELL	1					
Х	UNCLASSIFIED(*)	X AXIS	UNCLASSIFIED(*)	UNCLASSIFIED(*)	UNCLASSIFIED(*)				
Υ	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE CONVERT					
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT					

(\*) WHEN USED EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL

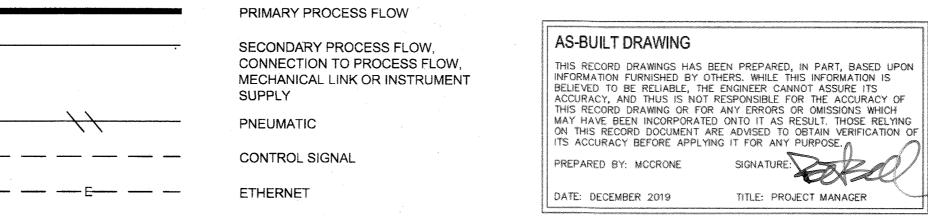
#### **INSTRUMENT ABBREVIATIONS**

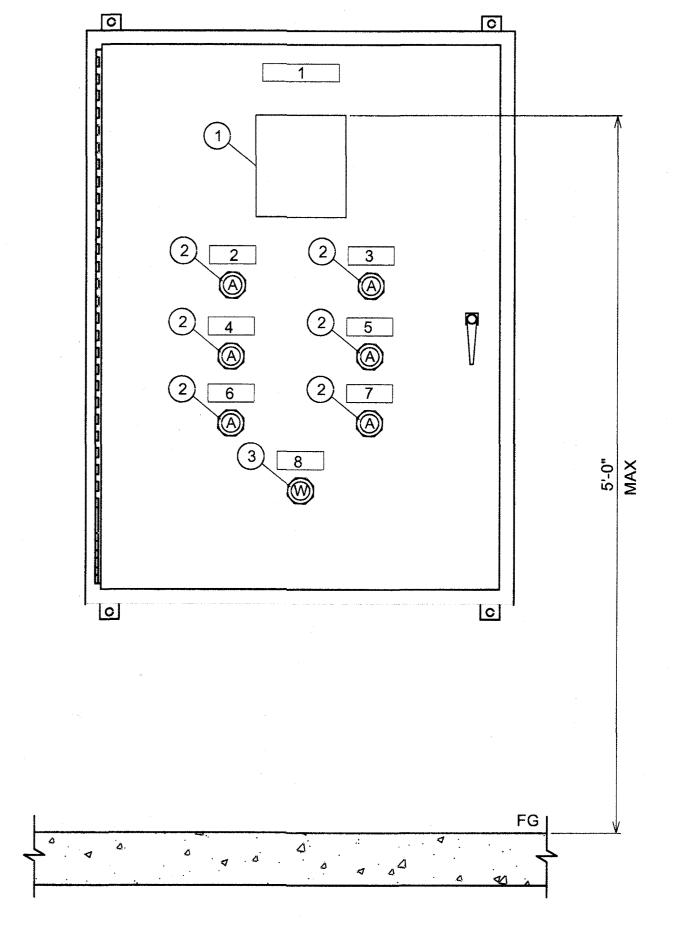
A /O	AID COMPDECCO		
A/C	AIR COMPRESSOR	IL	INDICATOR LIGHT
Al	ANALOG INPUT	0-C-A	OPEN-CLOSE-AUTO
AM	AUTO/MANUAL	PB	PUSH BUTTON
AO	ANALOG OUTPUT	PCP	PUMP CONTROL PANEL
AOC	AUTO-OPEN-CLOSE	PE	POLYETHYLENE
AVG	AVERAGE	рH	HYDROGEN ION CONCENTRATION
B/W	BACKWASH	P&ID	PROCESS & INSTRUMENTATION DIAGRAM
CL	COMPUTER/LOCAL *	PID	PROPORTIONAL INTEGRAL DERIVATIVE
CL2	CHLORINE	PLC	PROGRAMMABLE LOGIC CONTROLLER
CPU	CENTRAL PROCESSING UNIT	P/L	PILOT LIGHT (R-RED,G-GREEN,
CU	COPPER		A-AMBER,W-WHITE)
DB	DEAD BAND	PV	PROCESS VARIABLE
DI	DISCRETE INPUT	ROFC	RATE OF FLOW CONTROLLER
DO	DISCRETE OUTPUT	SC	SPEED CONTROL
DPM	DIGITAL PANEL METER	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
ETM	ELAPSED TIME METER	SCR	SILICONE CONTROLLED RECTIFIER
FOS	FAST-OFF-SLOW	SP	SET POINT
HOA	HAND-OFF-AUTO	SS	START-STOP OR SELECTOR SWITCH
HOAR	HAND-OFF-AUTO-REMOTE	TD	TIME DELAY
1/0	INPUT/OUTPUT	TOD	TIME OF DAY
ISR	INTRINSICALLY SAFE RELAY	TOT	TOTALIZATION
LOS	LOCKOUT-STOP	TPC	TIME PROPORTIONAL CONTROL
LR	LOCAL-REMOTE	TSP	TWISTED SHIELD PAIR
М	MAINTAINED	TURB	TURBIDITY
MAX	MAXIMUM	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
MCC	MOTOR CONTROL CENTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
MIN	MINIMUM	VFD	VARIABLE FREQUENCY DRIVE
MIS	MAN IN STATION	- · <del>-</del>	
11110	1117 11 T T T T T T T T T T T T T T T T		





### **INSTRUMENT LINE SYMBOLS**







NAMEPLATE	DESCRIPTION						
1	PUMP CONTROL PANEL						
2	GENERATOR RUNNING						
3	STATION ALARM						
4	LEAD FLOAT START						
5	LAG FLOAT START						
6	LEAD FLOAT STOP						
7	LAG FLOAT STOP						
8	CONTROL POWER						

LEGEND	DESCRIPTION
1	PUMP CONTROLLER OPERATOR INTERFACE
2	AMBER PILOT LIGHT
3	WHITE PILOT LIGHT

PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.:16910, EXPIRATION DATE: 4/26/2018 DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

**DEPARTMENT OF** 

PLANNING AND ZONING HOWARD COUNTY, MARYLAND

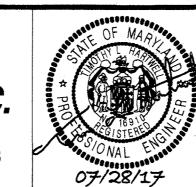
DEVELOPMENT ENGINEERING

ENGINEER'S CERTIFICATION HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED

> ARTWELL ENGINEERS • INTEGRATORS
> 2141 PRIEST BRIDGE DRIVE, SUITE #8

> > (410) 451-7335

CROFTON, MARYLAND 21114



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INSTRUMENTATION SYMBOLS & ABBREVIATIONS & PUMP CONTROL PANEL

**EUGENE AVENUE PUMPING STATION** 

CONTRACT NUMBER 20 - 4955 - D **5TH ELECTION DISTRICT** 

SHEET

SCALE

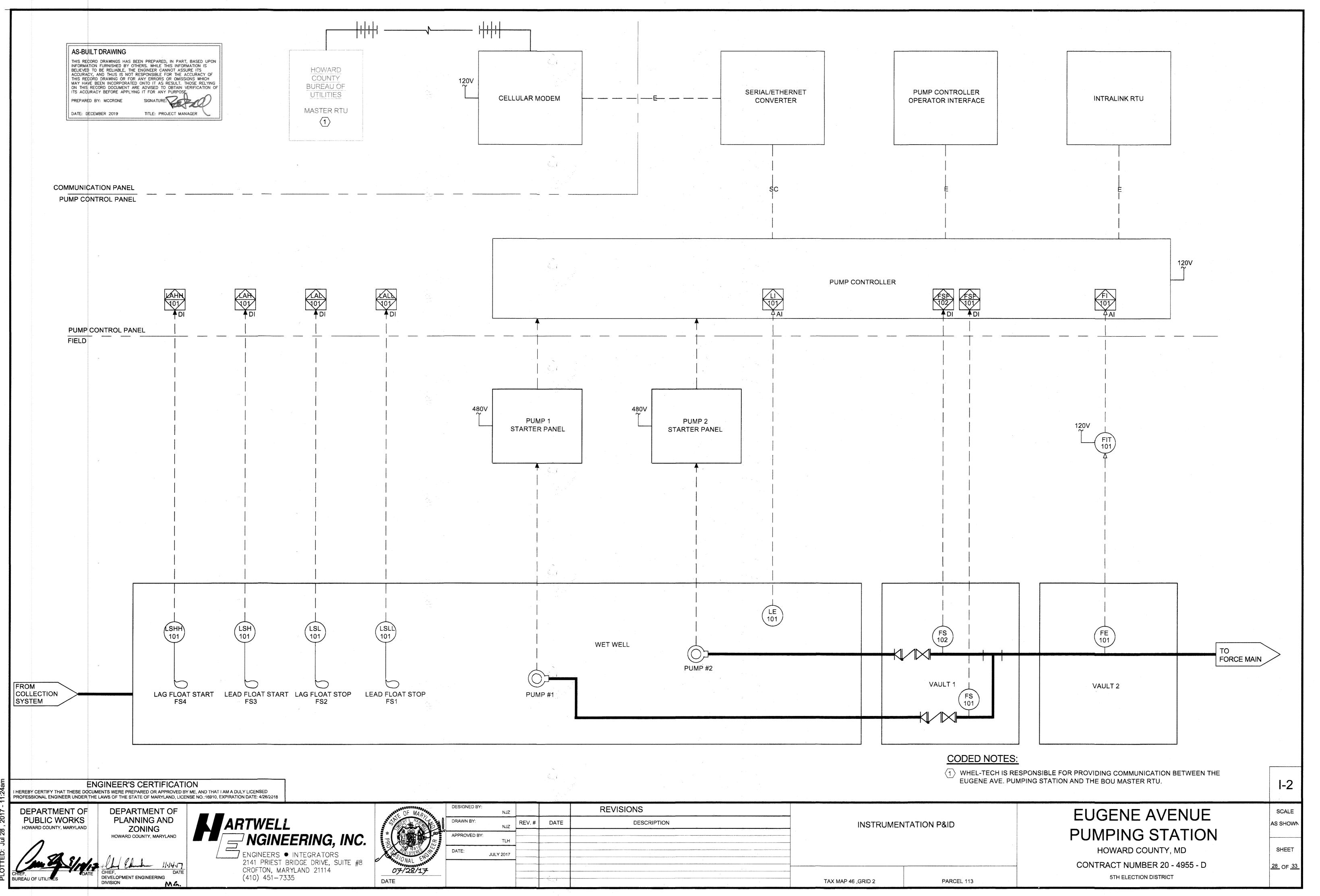
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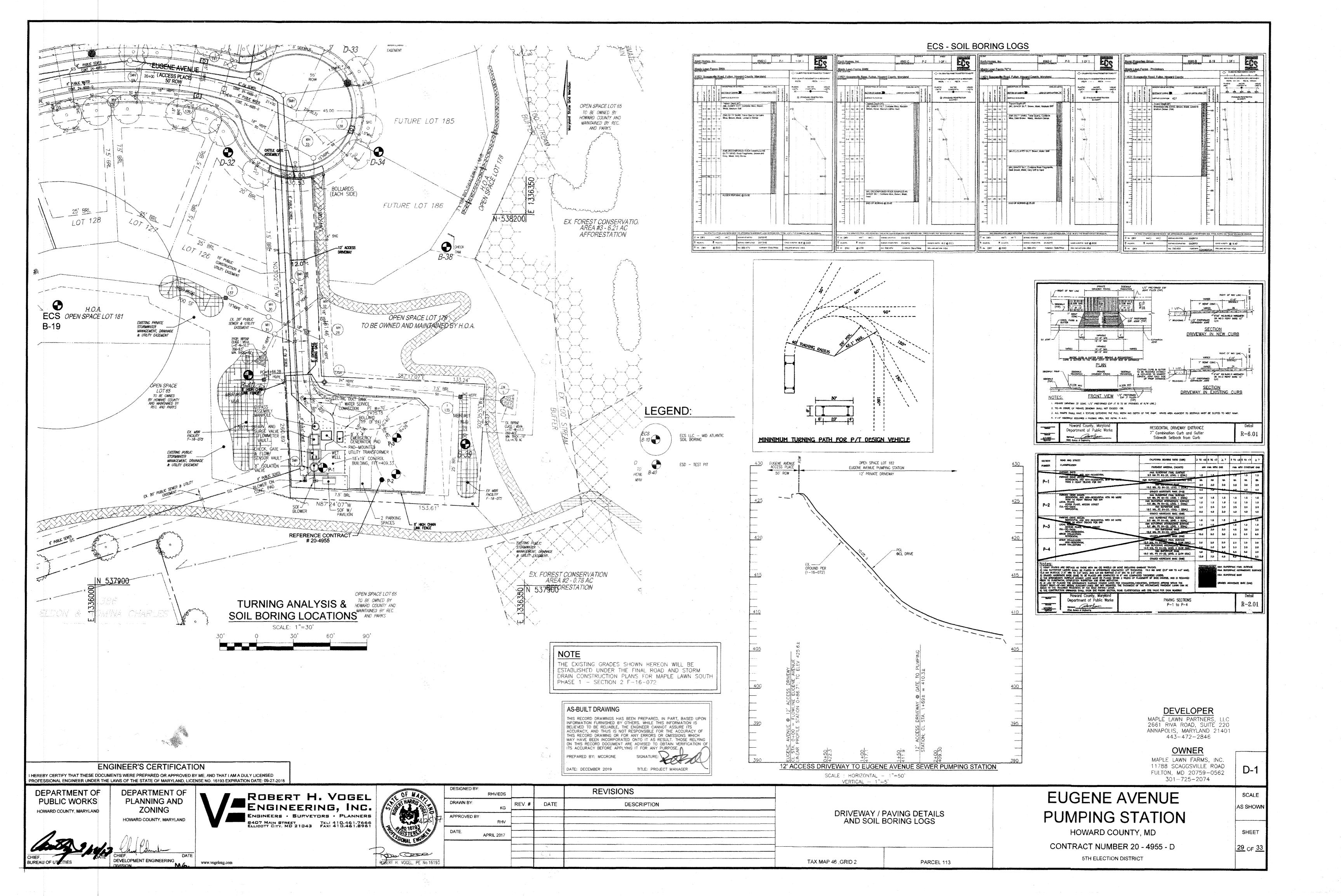
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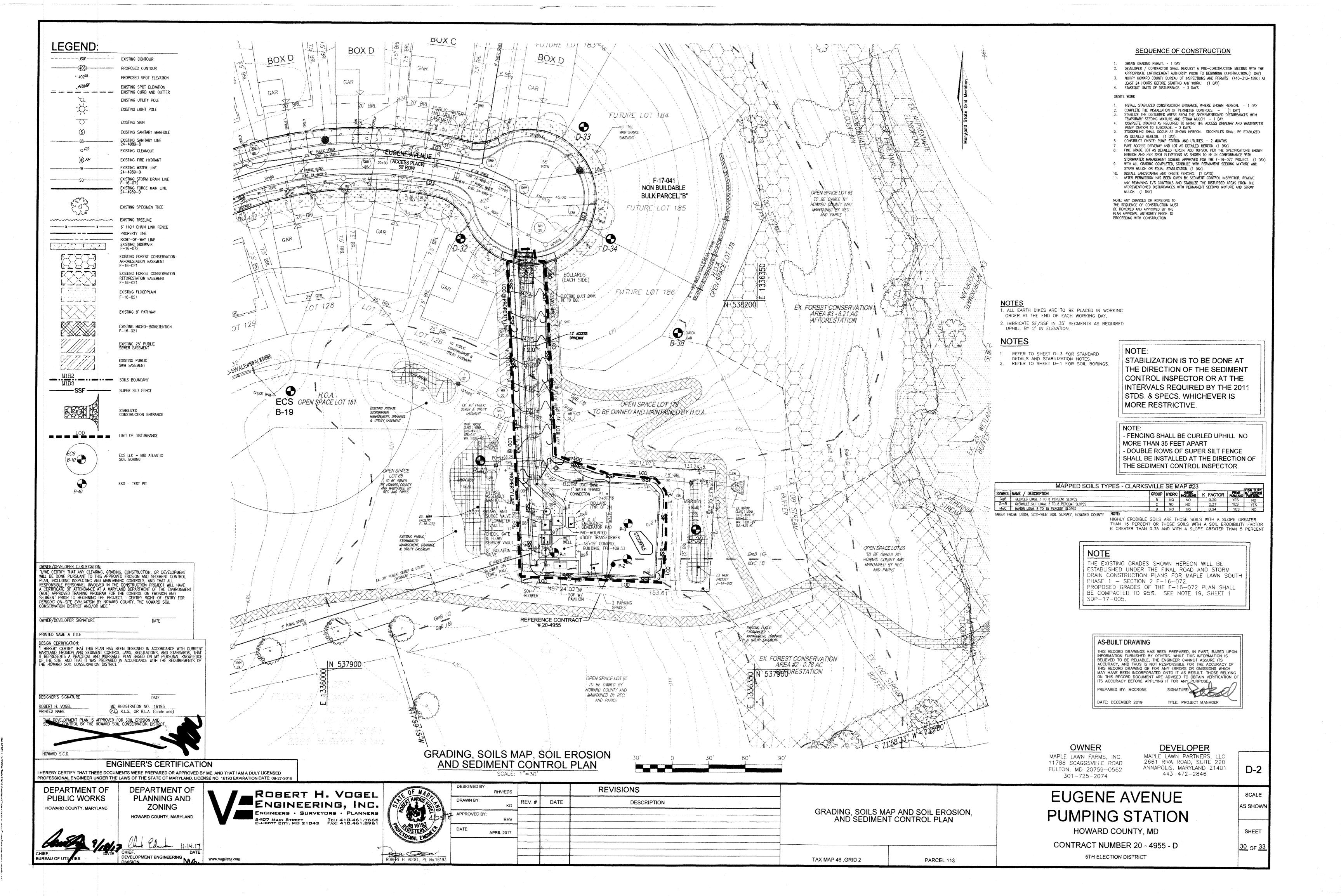
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HOWARD COUNTY, MD



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# PRIOR TO THE START OF EARTH DISTURBANCE DISTURBANCE OR GRADING, AVOID CONFLICTS WITH THIS PLAN. CONTROL, AND REVISIONS THERETO. AREAS UNDER ACTIVE GRADING OBTAINED FROM THE CID. TOTAL AREA OF SITE AREA DISTURBED: AREA TO BE ROOFED OR PAVED: area to be vegetatively stabilized: TOTAL FILL (1) REFER TO ITEM 11 BELOW INSPECTION DATE NAME AND TITLE OF INSPECTOR AMOUNT OF LAST RECORDED PRECIPITATION) AND/OR CURRENT ACTIVITIES EVIDENCE OF SEDIMENT DISCHARGES IDENTIFICATION OF PLAN DEFICIENCIES STABILIZATION REQUIREMENTS MONITORING/SAMPLING HSCD-APPROVED FIELD CHANGES. 2' IN FLEVATION TIME PERIODS (INCLUSIVE): USE I AND IP MARCH 1 - JUNE 15 USE III AND IIIP OCTOBER 1 - APRIL 30 USE IV MARCH 1 - MAY 31 ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE. OWNER/DEVELOPER CERTIFICATION: CONSERVATION DISTRICT AND/OR MOE OWNER/DEVELOPER SIGNATURE PRINTED NAME & TITLE DESIGN CERTIFICATION: DESIGNER'S SIGNATURE HOWARD S.C.D. **ENGINEER'S CERTIFICATION** I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED. PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION (DATE: 09-27-2018 DEPARTMENT OF DEPARTMENT OF **PUBLIC WORKS** PLANNING AND ZONING

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES: UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL CONDITIONS WHERE PRACTICE APPLIES OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE, OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO A. SEED MIXTURES I. GENERAL USI ALL VECETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. 8-4-5). TEMPORARY SEEDING (SEC. 8-4-4) AND MUI CHING (SEC. R-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6). ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN \_ ACRES ....ACRES 0.19 ACRES OFFSITE WASTE/BORROW AREA LOCATION: F-16-072 ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED. IF DEFINED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY: CULTIVARS MAY BE BLENDED. and the Next day after each rain event, a written report by the contractor. IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE: SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT) WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE). TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION, MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE HSCD. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO 14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED 16. A COPY OF THIS PLAN. THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE "I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL AN. INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL ESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND EDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR ERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL "I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT." (P.E.), R.L.S., OR R.L.A. (circle one)

#### B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

**PURPOSE** TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S). APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES,

AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING . FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEFDING SUMMARY.

2. TURFGRASS MIXTURES A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE ENTER SELECTED MIXTURE(S) APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED

I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND FASTERN SHORE, RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CHITIVARS SEFDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT. II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FÜLL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/ CERTIFIED KENTUCKY BLUEGRASS SEPDING RATE: 2 POLINDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT. III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PROJE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO PERCENT, SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE:

CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 11/2 TO 3 POUNDS PER 1000 SQUARE FEFT. SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC

C, IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

- WESTEM MD: MARCH 15 TO JUNE 1, AUGUST ITO OCTOBER 1 (HARDINESS ZONES: SB, 6A) CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 68) - SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A. 78)

. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1% INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY. E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) HINTE THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

. GENERAL SPECIFICATIONS A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR. B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS X INCH, AT THE TIME OF CUTTING, MEASUREMENT FOR THICKNESS MUST EXCLUDE GROWTH AND THATCH. BROKEN PADS AND TOM OR UNEVEN ENDS WILL NOT BE C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION. D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD. B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS. C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES, ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SON SURFACE BELOW THE SOD ARE THOROUGHLY WET, COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT

SOD MAINTENANCE A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT. C. DO NOT MOW LINTH THE SOD IS FIRMLY ROOTED NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A grass height of at least 3 inches unless otherwise specified.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b SEED MIXTURE (FROM TABLE B.3): 9						FERTILIZER RATE (10-20-20)		
NC:	SPECIES	RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P <sub>2</sub> 0 <sub>5</sub>	K <sub>2</sub> 0	LIME RATE
1	COOL SEASON TALL FESCUE & KENTUCKY BLUEGRASS OR EQUAL	T.F. 60 LB / AC K.B. 40 LB / AC		1/4-1/2 IN.	(1 LB PER	(2 LB PER	(2 LB PER	2 TONS/AC (90 LB PER 1000 SF )
			d.					A. Called Street, Control of the Con

R-4-2 STANDARDS AND SPECIFICATIONS FAR

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION FOLIPMENT. SHICH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION, SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS, C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS PERMANENT STABILIZATION A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE

MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE: I. SOIL PH BETWEEN 6.0 AND 7.0. II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM). III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD À MODERATE AMOUNT OF MOISTURE. AN EXCÉPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.

IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT. V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION. B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS. C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO

D. APPLY SOIL AMENOMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONE'S AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN HE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED. PREPARATION, TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCEM HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION. 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THI STANDARDS AS SET FORTH IN THESE SPECIFICATIONS, TYPICALLY THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-

3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE: A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH. B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FLIRNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH. ). THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING A TOPSON MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 11/2 INCHES IN DIAMETER. B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SLICH AS REPRINIDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON MY, THISTLE, OR OTHERS TOPSOIL SUBSTITUTES OR AMENDMENTS. AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL

AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL. TOPSOIL APPLICATION A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES, SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS. . TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS) I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE, SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT, MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER. 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT HIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE), LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A \$100 MESH

LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE

5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS

SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS

All the second states and the second second

SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.

TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS SEEDING AND MULCHING

DEFINITION

A. SEFDING

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION. CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE CRITERIA

A ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY, ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT, REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED, SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE. B. MUICH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND

C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A

PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER AND FRESH INOCULANTS AS DIRECTED ON THE PACKAGE, USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFFCTIVE D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS. 1. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIPED ON TEMPORARY SEFDING TABLE 8.1. PERMANENT SEEDING TABLE 8.3. OR SITE-SPECIFIC SEEDING SHAMARIES I. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

AT LEAST 1/4 INCH OF SOIL COVERING, SEFENED MUST BE FIRM AFTER PLANTING I. APPLY SEED IN TWO DIRECTIONS, PERPFINDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION. C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SELDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN-P205 (PHOSPHOROUS). 200 POUNDS PER ACRE: K20 (POTASSIUM). 200 POUNDS PER ACRE. II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED

BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT

I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE

B. MULCHING I. MULCH MATERIALS (IN ORDER OF PREFERENCE) A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED. B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY. II. WCFM. INCLUDING DYE. MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEFDING

IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION

III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER ACITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS. IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5. ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

A APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES, APPLY MULCH TO ACHIEVE A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE. . WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS. BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD: A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOLIR II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW, APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER. HI. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK) DCA-70 PETROSET. TERRA TAX II, TERRA TACK AR OR OTHER APPROVED FOUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS, USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED

B-4-4 STANDARDS AND SPECIFICATIONS

TEMPORARY STABILIZATION

IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER

RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET

DEFINITION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

- 2 APPLICATION

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS,

CONDITIONS WHERE PRACTICE APPLIES EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS.

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE 8.1. FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES. SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN 2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY

FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION 8-4-3.4.1.8 AND MAINTAIN UNTIL THE NEXT SEEDING SEASON. TEMPORARY SEEDING SUMMARY

3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED

· ·	HARDINESS ZO SEED MIXTURE	FERTILIZER RATE	LIME RATE			
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	(10-20-20)	Lime 1971
1	COOL SEASON ANNUAL RYEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 AUG 1 TO OCT 15	1/2 IN.	436 LB/AC (10 LB PER 1000 SF )	2 TONS/AC (90 LB PER 1000 SF )
2	WARM SEASON FOXTAIL MILLET OR EQUAL	30 LB / AC	MAY 16 TO JUL 31	1/2 IN.	April 10 miles and	-

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE

CONDITIONS WHERE PRACTICE APPLIES

The state of the s

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSIGN AND SEDIMENT CONTROL PLAN. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT

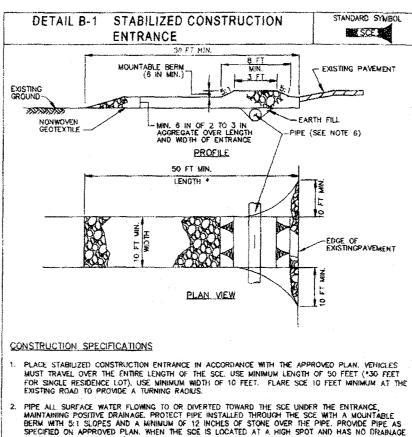
CONTROL PRACTICE. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING

CONCENTRATED FLOW IN A NON-EROSIVE MANNER. WHERE RUNOFF CONCENTRATES ALONG THE TOP OF THE STOCKPILE FILL. AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY

STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD 8-4-4 TEMPORARY STABILIZATION 8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPIL CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE

MAINTENANCE

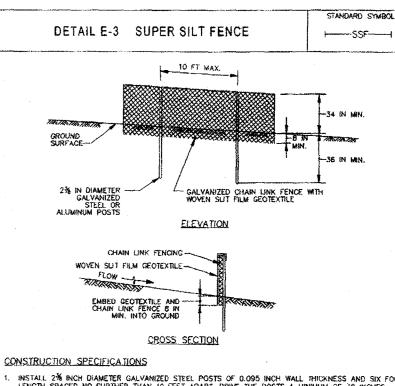
THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2 ). THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.



2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOLINTABLE BERM WITH 5:1 SLOPES AND A MAINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.

. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOU REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SECRED. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WAYER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011



. INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND. 2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.

3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBIED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. . WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.

EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

5. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. 7. REMOVE ACCUMILATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SECIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE
TURAL RESOURCES CONSERVATION SERVICE 2011
WATER MANAGEMENT ADMINISTRATION

SIGNATURE: TITLE: PROJECT MANAGER

TAX MAP 46, GRID 2

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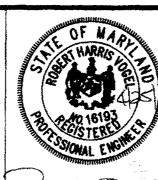
HOWARD COUNTY, MARYLAND

HOWARD COUNTY, MARYLAND

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OF MARINE	DESIGNED BY: RHV/EDS	And the state of t		REVISIONS
PROJECT IN THE PROJEC	DRAWN BY: KG	REV.#	DATE	DESCRIPTION
	APPROVED BY:		`	
	DATE: APRIL 2017			
MANAGER ENGINEER				
ROBERT H. VOGEL, PF No.16193			·	

GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN - NOTES & DETAILS

PARCEL 113

HOWARD COUNTY, MD CONTRACT NUMBER 20 - 4955 - D

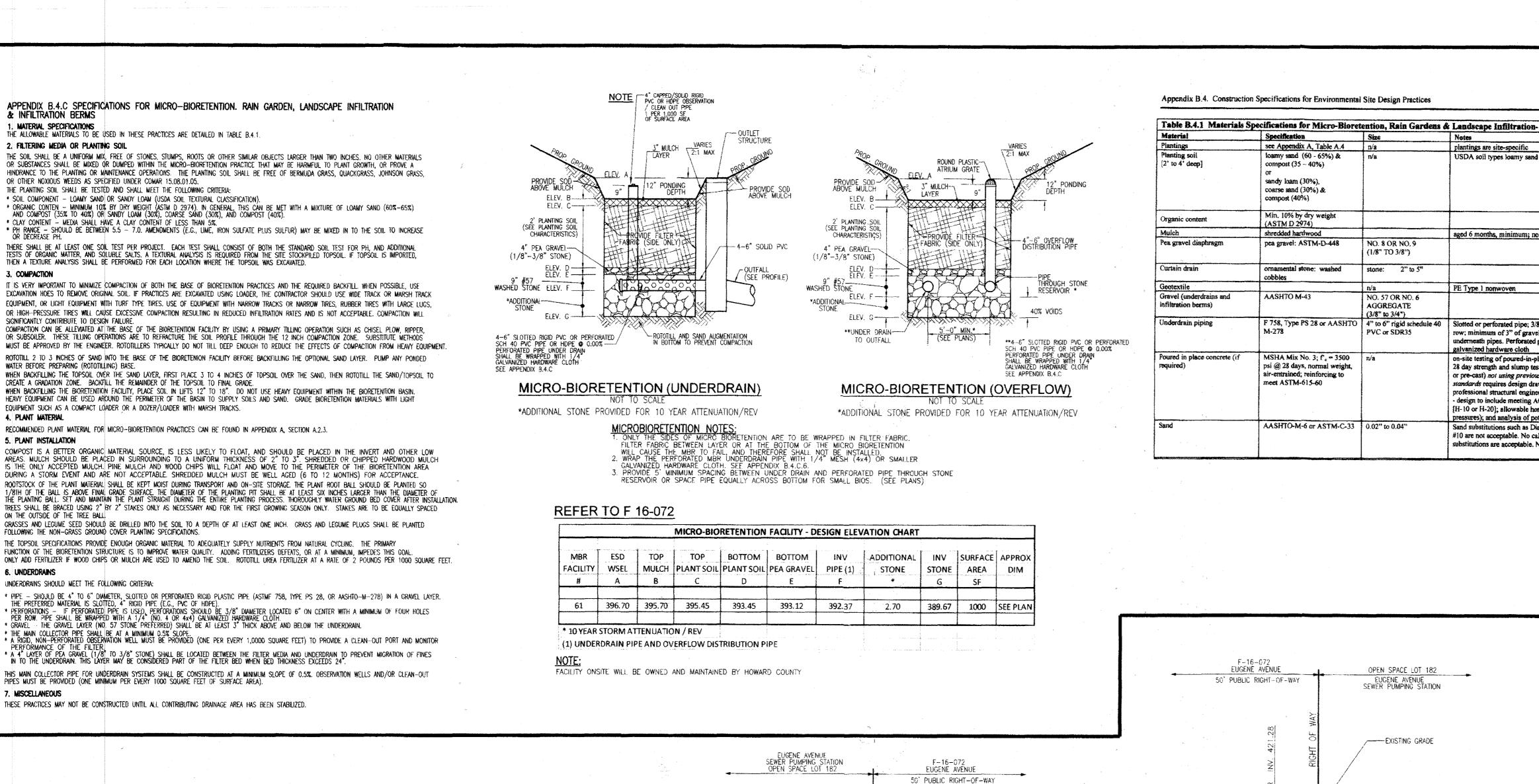
**EUGENE AVENUE** 

PUMPING STATION

5TH ELECTION DISTRICT

**SCALE** AS SHOWN SHEET

31 OF 33



440 EUGENE AVÊNUE EUGENE AVENUE SEWER PUMPING STATION 50' PUBLIC RIGHT-OF-WAY ---EXISTING GRADE 6"DIP (CLASS 52) FORCE

see Appendix A, Table A.4 n/a

loamy sand (60 - 65%) &

compost (35 - 40%)

sandy loam (30%).

compost (40%)

(ASTM D 2974)

shredded hardwood

coarse sand (30%) &

Min. 10% by dry weight

pea gravel: ASTM-D-448

ornamental stone: washed

psi @ 28 days, normal weight,

AASHTO-M-6 or ASTM-C-33 | 0.02" to 0.04"

air-entrained; reinforcing to

meet ASTM-615-60

NO. 57 OR NO. 6

AGGREGATE

PVC or SDR35

(3/8" to 3/4")

F 758, Type PS 28 or AASHTO 4" to 6" rigid schedule 40

plantings are site-specific

E Type 1 nonwoven

galvanized hardware cloth

USDA soil types loamy sand or sandy loam; clay content < 5%

Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per

underneath pipes. Perforated pipe shall be wrapped with 1/4-inch

28 day strength and slump test; all concrete design (cast-in-place

standards requires design drawings sealed and approved by a

[H-10 or H-20]; allowable horizontal loading (based on soil

Sand substitutions such as Diabase and Graystone (AASHTO)

#10 are not acceptable. No calcium carbonated or dolomitic sand

substitutions are acceptable. No "rock dust" can be used for sand.

professional structural engineer licensed in the State of Maryland

- design to include meeting ACI Code 350.R/89; vertical loading

row; minimum of 3" of gravel over pipes; not necessary

or pre-cast) not using previously approved State or local

on-site testing of poured-in-place concrete required:

pressures); and analysis of potential cracking

aged 6 months, minimum; no pine or wood chips

**AS-BUILT DRAWING** THIS RECORD DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON NFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED ONTO IT AS RESULT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN VERIFICATION OF

TS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

PREPARED BY: MCCRONE

DATE: DECEMBER 2019

**OWNER** MAPLE LAWN FARMS, INC. 11788 SCAGGSVILLE ROAD

FULTON, MD 20759-0562

301-725-2074

**DEVELOPER** MAPLE LAWN PARTNERS, LLC 2661 RIVA ROAD, SUITE 220 ANNAPOLIS, MARYLAND 21401 443-472-2846

TITLE: PROJECT MANAGER

D-4

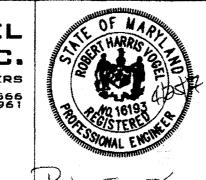
DEPARTMENT OF **PUBLIC WORKS** HOWARD COUNTY, MARYLAND

PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018 **DEPARTMENT OF** PLANNING AND ZONING

**ENGINEER'S CERTIFICATION** 

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED

ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS . SURVEYORS . PLANNERS



TOP=409.33 (WE CONT. 20-4955-D WEL

8"S=405.30

8"S=405.2

(INV. OUT)

	DESIGNED BY:	HV/EDS			REVISIONS	
	DRAWN BY:	KG	REV.#	DATE	DESCRIPTION	
	APPROVED BY					
		RHV		7		
	DATE: APRIL 2017			<u>, (4, f</u>		
		IIL 2017				
				7		

TOP=425.18 SMH STANDARD 3 MANHOLE

INTERMEDIATE LANDING -417.50

STA. 1+32

WATER MAIN

8" DIP SEWER @0.50%

STORMWATER MANAGEMENT NOTES AND DETAILS AND CONTRACT 24-4989-D SEWER PROFILES

PARCEL 113

1"=5' VERT.

CONTRACT 24-4989-D - FORCE MAIN SEWER PROFILE

TAX MAP 46, GRID 2

SCALE: 1"=50' HORIZ.

**EUGENE AVENUE** PUMPING STATION

HOWARD COUNTY, MD

SHEET 32 OF 33

SCALE

AS SHOWN

CONTRACT NUMBER 20 - 4955 - D **5TH ELECTION DISTRICT** 

HOWARD COUNTY, MARYLAND

**DEVELOPMENT ENGINEERING** www.vogeleng.com

8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

OPERATION AND MAINTENANCE SCHEDULE FOR MICROBIORETENTION AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED, MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING, PLANT MATERIAL SHALL BE CHECKED FOR DISFASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY

4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY

CONTRACT 24-4989-D - SANITARY SEWER PROFILE SCALE: 1"=50' HORIZ. 1"=5' VERT.

TOP=418.39 STANDARD MANHOLE HO. CO. G-5.12

