

Particle Size Distribution Report

Project: Avangrid - Powell Creek Solar, Miller City, OH

Report No.: RT1879CL-20-06-20

Client: Mott MacDonald

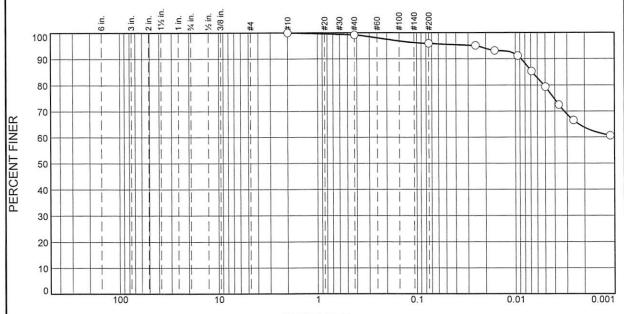
Date: 06/08/20

Sample No: B-15, S-2

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 2-4'



GRAIN	SIZE -	mm.
-------	--------	-----

% Cobbles	% Gravel			% Sand		% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	3	17	79

SIEVE	PERCENT	SPEC.*	OUT OF
SIZE	FINER	PERCENT	SPEC. (X)
#10	100		
#40	99		
#200	96		

0 - 11	D		4:
SOIL	Des	crin	บเกา

Brown CLAY; little SILT; trace mf SAND

Coefficients

D₈₅= 0.0068 D₆₀= D₅₀= D₁₀= D₁₀= D₁₀=

USCS= Classification AASHTO=

Remarks
Moisture Content= 22.1%

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED-

Figure

Reviewed by:

Date: 06/09/20



Particle Size Distribution Report

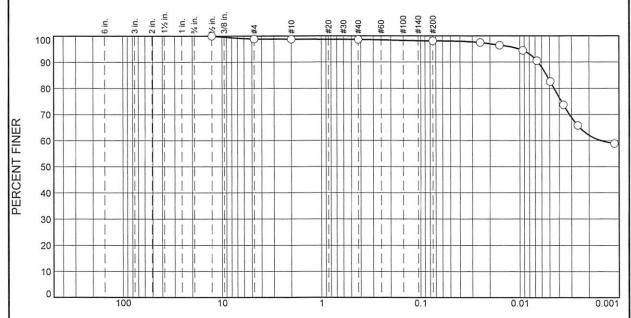
Project: Avangrid - Powell Creek Solar, Miller City, OH Report No.: RT1879CL-20-06-20

Client: Mott MacDonald Date: 06/08/20

Sample No: B-27,S-6

Source of Sample: Boring Sample

Location: In-place Elev./Depth: 13-15'



GRAIN SIZE - mm.

% Cabbles	% Gr		% Sand		% Fines		
% Cobbles	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	0	1	15	83

SIEVE	PERCENT	SPEC.*	OUT OF
SIZE	FINER	PERCENT	SPEC. (X)
1/2"	100		
#4	99		
#10	99		
#40	99		
#200	98		
			-
1			

	Soil Description	
, ,	THE CHARLE COLDIN	,

Brown CLAY; Little SILT; trace f SAND; trace f GRAVEL

Atterberg Limits LL= --PL= --

Coefficients

 $D_{85} = 0.0054$ $D_{60} = 0.0015$ $D_{50} =$

D₁₅= C_c=

Classification AASHTO=

Remarks

Moisture Content= 25.9%

ATLANTIC TESTING LABORATORIES, LIMITED

USCS=

Figure

Reviewed by:

PI= --

⁽no specification provided)



WBE certified company

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOIL **ASTM D 4318**

PROJECT INFORMATION

Client: Mott MacDonald **ATL Report No.:** RT1879CL-20-06-20

Project: Avangrid - Powell Creek Solar June 9, 2020

Location: Miller City, OH

June 2, 2020 Date Received:

Report Date:

MM Project No.: 513385046-071

TEST DATA

Boring No.	Sample No.	LL	PL	PI
B-SS-2	S-3	56	24	32
B-14	S-4	67	25	42
B-26	S-5	55	24	31
B-28	S-2	75	24	51

SAMPLE INFORMATION

		Maximum	Estimated Amount of Sample	As Received
		Grain Size	Retained on No. 40 Sieve	Moisture Content
Boring No.	Sample No.	(mm)	(%)	(%)
B-SS-2	S-3	2	3	22.4
B-14	S-4	4.76	3	26.8
B-26	S-5	2	1	25.3
B-28	S-2	0.297	0	20.6

PREPARATION INFORMATION

Boring No.	Sample No.	Preparation	Method of Removing Oversized Material
B-SS-2	S-3	Air Dry	Pulverizing and Screening
B-14	S-4	Air Dry	Pulverizing and Screening
B-26	S-5	Air Dry	Pulverizing and Screening
B-28	S-2	Air Dry	Pulverizing and Screening

EQUIPMENT INFORMATION

Liquid Limit Procedure: Multipoint	- Method A		Single Point - Me	ethod B	Х
Liquid Limit Apparatus:	Manual	Х	Motor Driven	[
Liquid Limit Grooving Tool Material:	Plastic	Х	Metal	[
Liquid Limit Grooving Tool Shape:	Flat	Х	Curved (AASHTC	Only)	
Plastic Limit:	Hand Rolled	Х	Mechanical Rolli	ing Device [
Reviewed By:	mas	_	Date:	06/09/20	



Location	Mott Mac Avangrid : Miller Cit ect No.:	- Powell C y, OH		r		Repo	Report No. rt Date: Received:	Ju	79CL-21- ne 10, 20 une 4, 20)20
Boring:	TP	-01		Sample:			D	epth (ft):		
				WATER-SOLUBLE ASTM	SULFATE C 1580	IN SOIL				
		Sulfat		s of Sample (%) 40	Sulfate I	•	of Sample (000	mg/kg)		
		<u>1</u>	<u>MEASURI</u>	NG pH OF SOIL FOR ASTN	USE IN CO 1 G 51	<u>ORROSIO</u>	N TESTING			
		of Test	Soil T	emperature (°C)		H Readin	_		rage]
	<u> </u>	ratory		24.0	7.84	7.86	7.86	7.	85	<u>]</u>
pH of cal	ibration st	andards u	sed:	7.00	-					
	MEA	<u>SUREMEN</u>	T OF SOII	RESISITIVITY USIN ASTM G 187 (RODE SOIL	BOX MET	<u>THOD</u>	
Test Date	e:		06/09/20		Performed by:		· -		A. Rivers	5
Meter Us	sed:	١	lisson 40	0	Soil Box Factor:		Factor:		1.29	
		D		Temperature at	Meas		Calculated Resistivity (Ω/cm)			
		Date Co Not Pro		Collection (°C) Not Provided	Resista 6,7		Resistivit			
	'	MEAS	UREMEN	T OF OXYGEN-REDI ASTM	JCTION PO	OTENTIA	L (ORP) OF	<u>SOIL</u>		
Test Date			06/09/20			Time of I	Measureme		10:0	00 AM
ORP Met		•	tea from rion 5 Sta	the Ground: ar		ORP Prol	Not Pro		on 9179 l	NMD
				Measurements 8 9			ature (°C)			
			WATE	R-SOLUBLE CHLORI AASHTO T 29			N SOIL			
				Chloride by Mas	ss of Soil (n	ng/kg)				
Reviewe	d By:	tes	de	a. ames			Date:		06/10/2	0



Project: Location:	Mott Mad Avangrid Miller Cite ect No.:	- Powell C y, OH		r		Repo	eport No. rt Date: Received:	Ju	79CL-21 ne 10, 20 une 4, 20	020	
Boring:	TP-	-02		Sample:	-		D	epth (ft):			
				WATER-SOLUBLE ASTM	SULFATE C 1580	IN SOIL					
		Sulfat	e by Mass 1.3	s of Sample (%) 38	Sulfate		of Sample (800	mg/kg)			
	MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
	Type o	of Test	Soil Te	emperature (°C)	р	H Readin	gs	Ave	rage	7	
		atory		24.0	7.74	7.75	7.76	7.		<u> </u>	
pH of cali	bration st	andards u	sed:	7.00							
MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)											
Test Date	:		06/09/20			Performe	ed by:		A. River	S	
Meter Us	ed:	1	Nisson 400)		Soil Box I	Factor:		1.29		
				Temperature at	Meas		Calcul				
		Date Co Not Pr		Collection (°C) Not Provided		nce (Ω) 800	Resistivit 9,4				
	l	L		T OF OXYGEN-REDU	<u> </u>		<u> </u>		I		
Test Date	-		06/09/20			Time of N	Measurem	ents	10:	15 AM	
		•		the Ground:		ODD David	Not Pro		0170	NAD	
ORP Mete	er:		rion 5 Sta	<u>ır </u>		ORP Prob	oe: -	Orio	on 9179I	NMD	
			ORP	Measurements	Ambient	Tempera	ature (°C)				
			14	15 14		24.0					
			<u>WATE</u>	R-SOLUBLE CHLORI AASHTO T 29	1, Metho	d A	N SOIL				
				Chloride by Mas 2	s of Soil (r 5	ng/kg)					
Reviewed	l By:	tee	deo (a. ames			Date:		06/10/2	0	



		COMMOSION	ANALISIS SOITE		
Client: Mott Project: Avang Location: Miller MM Project No	r City, OH		Re	L Report No. port Date: ate Received:	June 10, 2020
Boring:	TP-03	Sample:	<u></u>	D	epth (ft):
		· · · · · · · · · · · · · · · · · · ·	E SULFATE IN SO 1 C 1580	<u>IL</u>	
	Sulfat	e by Mass of Sample (%) 1.16	Sulfate by Ma	ss of Sample (11600	(mg/kg)
	1	MEASURING pH OF SOIL FO AST	R USE IN CORROS M G 51	SION TESTING	i
	pe of Test	Soil Temperature (°C)	pH Rea		Average
Li	aboratory	24.0	7.94 7.9	1 7.92	7.92
pH of calibration	n standards u	sed: 7.00	_		
<u>v</u>	<u> MEASUREMEN</u>	T OF SOIL RESISITIVITY USII	NG THE TWO-ELE (LABORATORY)	CTRODE SOIL	BOX METHOD
T . D .					A D:
Test Date: Meter Used:		06/09/20 Jisson 400		rmed by: ox Factor:	A. Rivers 1.29
Meter Oseu.		-		-	
		Temperature at	Measured	Calcul	
	Date Co	, ,	Resistance (Ω	•	<u> </u>
	Not Pro	ovided Not Provided	6,200	7,9	98
	MEAS	UREMENT OF OXYGEN-RED		TAL (ORP) OF	SOIL
		ASTN	И G 200		
Test Date:		06/09/20	Time	of Measureme	
		ted from the Ground:		Not Pro	
ORP Meter:		rion 5 Star	ORP F	Probe:	Orion 9179NMD
	Ī	ORP Measurements	Ambient Temp	oraturo (°C)	
		-3 -3 -1	24.		
	<u>L</u>	<u> </u>			
		WATER-SOLUBLE CHLOR AASHTO T 2	RIDE ION CONTEN 291, Method A	IT IN SOIL	
		-	ass of Soil (mg/kg) 40		
Reviewed By:	te	de a. ane	١	Date:	06/10/20



Reviewed By:

ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott M Project: Avangr Location: Miller (MM Project No.:	City, OH		r		Repo	eport No. rt Date: Received:	Jur	79CL-21- ne 10, 20 ne 4, 202)20	
Boring:	ГР-04		Sample:			De	pth (ft):			
				C 1580						
	Sulfa		s of Sample (%) 51	Sulfate	•	of Sample (r L00	ng/kg)			
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
	e of Test	Soil Te	emperature (°C)		H Reading		Aver	_		
Lab	oratory		24.0	7.14	7.18	7.17	7.1	.6]	
pH of calibration			7.00 <u>RESISITIVITY USIN</u> ASTM G 187 (RODE SOIL E	BOX MET	<u>HOD</u>		
Test Date:		06/09/20			Performe	ed by:		A. Rivers	;	
Meter Used:		Visson 400	0 So		Soil Box I	actor:		1.29		
		Date Collected Collection (°C) Not Provided Not Provided		Resista	Measured Resistance (Ω)Calculated Resistivity (Ω /cm 8,514		(Ω/cm)			
	MEAS	<u>UREMEN</u>	T OF OXYGEN-RED ASTM	UCTION PO	<u>OTENTIAI</u>	(ORP) OF S	<u>SOIL</u>			
Test Date:		06/09/20			Time of N	Measureme	nts	10:4	15 AM	
Date and Time Sa	•					Not Pro				
ORP Meter:		Prion 5 Sta	nr		ORP Prob	oe:	Orio	n 9179N	IMD	
		ORP -8	Measurements -7 -6	Ambient	t Tempera 24.0	ature (°C)				
		WATE	R-SOLUBLE CHLOR	IDE ION CO	<u>ONTENT</u> I	N SOIL				
			AASHTO T 2							
			Chloride by Mas	ss of Soil (r 35	mg/kg)					
	0	1 -	0 0			_				

06/10/20



		ar	Repo	Report No. rt Date: Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020					
Boring: TI	P-05	Sample:		De	epth (ft):					
		WATER-SOLUBLE ASTM								
		ss of Sample (%) .48	Sulfate by Mass of 48	of Sample (r 300	mg/kg)					
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
		emperature (°C)	pH Reading		Average					
Labo	oratory	24.0	7.38 7.40	7.40	7.39					
pH of calibration standards used:										
Test Date:	06/09/20	า	Performe	ed hv	A. Rivers					
Meter Used:	Nisson 40		Soil Box I	_	1.29					
	Date Collected Not Provided	Temperature at Collection (°C) Not Provided	Measured Resistance (Ω) 7,800	Calcula Resistivity 10,0	[,] (Ω/cm)					
	MEASUREMEN	NT OF OXYGEN-REDU ASTM		(ORP) OF S	<u>SOIL</u>					
Test Date:	06/09/20		Time of N	Measureme						
	mple Extracted from	i i	ODD Drob	Not Pro						
ORP Meter:	<u> 1</u>	Measurements 1 1 ER-SOLUBLE CHLORI AASHTO T 29 Chloride by Mas 3	1, Method A	ature (°C)	Orion 9179NMD					
Reviewed By:	Judeo	a. ames		Date:	06/10/20					



		CORROSION	ANALISIS SOITE			
Project: Avang Location: Miller	MacDonald rid - Powell Cree City, OH .: 51385046-0		Repo	Report No. ort Date: • Received:	RT1879CL- June 10 June 4,	, 2020
Boring:	TP-06	Sample:	<u></u>	De	epth (ft):	
	_	·	LE SULFATE IN SOIL // C 1580			
	Sulfate l	oy Mass of Sample (%) 0.98	Sulfate by Mass	of Sample (9800	mg/kg)	
	ME	ASURING pH OF SOIL FO AST	R USE IN CORROSIO M G 51	ON TESTING		
	pe of Test	Soil Temperature (°C)	pH Readi	_	Average	
La	boratory	24.0	7.53 7.53	7.54	7.53	
	n standards used IEASUREMENT (OF SOIL RESISITIVITY USI	— <u>NG THE TWO-ELECT</u> (LABORATORY)	RODE SOIL	BOX METHOD	
Test Date:	00			ا ام	A D:	
Test Date: Meter Used:		/09/20 son 400	Perform Soil Box	red by: Factor:	A. Riv 1.2	
Wieter Osca.				_		.5
	Date Colle	Temperature at collection (°C)	Measured Resistance (Ω)	Calcular Resistivity		
	Not Provi	, ,	5,200	6,70		
	MEASUF	REMENT OF OXYGEN-RED	DUCTION POTENTIA VI G 200	AL (ORP) OF	SOIL	
Test Date:		/09/20	Time of	Measureme		l1:45 AM
		d from the Ground: on 5 Star	ORP Pro	Not Pro	vided Orion 91	70NN/ID
ORP Meter:			Ambient Temper		OHOH 91	79NIVID
		ORP Measurements 4 5 5	24.0	ature (C)		
		WATER-SOLUBLE CHLOI AASHTO T	<u> </u>	IN SOIL		
Reviewed By:	Leve	de a. am	ا	Date:	06/10	0/20



Location	Mott Mad Avangrid : Miller Cit ect No.:	- Powell C y, OH		r		Repo	eport No. rt Date: Received:	Ju	79CL-21- ne 10, 20 une 4, 20	020
Boring:	TP-	-07		Sample: -	-		D	epth (ft):		
				WATER-SOLUBLE ASTM	SULFATE C 1580	IN SOIL				
		Sulfat		s of Sample (%) 53	Sulfate by Mass of Sample (mg/kg) 5300					
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
	Type (of Test	Soil T	emperature (°C)	n	H Reading	σς	Ave	rage	7
		atory	3011 1	24.0	7.77	7.79	7.79		78	<u> </u>
pH of cal	ibration st	andards u	sed:	7.00						
MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)										
Test Date	2:		06/09/20	<u> </u>		Performe	ed by:		A. Rivers	5
Meter Us	sed:	1	Nisson 40	0		Soil Box I	actor:		1.29	
			Temperature at		Meas	ured	Calcul	ated		
		Date Co		Collection (°C)		Resistance (Ω) Resistivity				
		Not Pr	ovided	Not Provided	5,8	300	7,4	82		
		MEAS	UREMEN	T OF OXYGEN-REDU ASTM	JCTION PO	OTENTIAL	. (ORP) OF	SOIL		
Test Date	2:		06/09/20			Time of N	√leasurem (ents	12:0	00 PM
Date and	Time Sam			the Ground:	_		Not Pro			
ORP Met	er:	C	rion 5 Sta	ar		ORP Prob	oe:	Ori	on 9179 l	NMD
		ĺ	ODD	Measurements	Ambiant	Tempera	+uso (°C)			
			6	4 4	Ambient	24.0	iture (C)			
		l		<u>I</u>						
			WATE	R-SOLUBLE CHLORI AASHTO T 29			N SOIL			
				Chloride by Mas	s of Soil (n 5	ng/kg)				
Reviewed	d By:	fle	dep (a. ames			Date:		06/10/2	0



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Project: Av Location: M	liller City,	Powell Creek Solar	r		ATL Report Report Dat Date Receiv	e: Ju	79CL-21-06-20 ne 10, 2020 une 4, 2020
Boring:	TP-08	8	Sample:			Depth (ft):	
			WATER-SOLUBLE ASTM		SOIL		
		Sulfate by Mass 0.!		Sulfate by	Mass of Sam 5900	nple (mg/kg)	
		<u>MEASURII</u>	NG pH OF SOIL FOR ASTM	USE IN COR	ROSION TES	<u>TING</u>	
	Type of		emperature (°C)		Readings	Ave	
	Laborat	ory	24.0	6.83	6.86 6.8	34 6.8	84
pH of calibr	ation stan	idards used:	7.00				
	MEASU	IREMENT OF SOIL	RESISITIVITY USING ASTM G 187 (I			SOIL BOX MET	HOD
Test Date:		06/09/20		Pe	erformed by:		A. Rivers
Meter Used	l:	Nisson 400)	Sc	il Box Factor	:	1.29
		Date Collected Not Provided	Temperature at Collection (°C) Not Provided		MeasuredCalculatedResistance (Ω)Resistivity (Ω /cn6,7008,643		
		Not i rovided	Not i Tovided	0,700	,	0,043	
		MEASUREMEN [®]	T OF OXYGEN-REDL ASTM		ENTIAL (ORP	P) OF SOIL	
Test Date:		06/09/20		Ti	me of Measu	irements	12:15 PM
	-	e Extracted from	i i			ot Provided	
ORP Meter:	<u> </u>	Orion 5 Sta	<u>ir</u>	Ol	RP Probe:	Orio	on 9179NMD
			Measurements	Ambient To	emperature ((°C)	
		-3	-4 -2		24.0		
		WATE	R-SOLUBLE CHLORI AASHTO T 29			<u>L</u>	
			Chloride by Mas 2		/kg)		
Reviewed B	y:	Judeo	a. ane	٦	Date	:	06/10/20



		COMMOSION	ANALISISSOI	<u> </u>	
Client: Mott Project: Avang Location: Miller MM Project No	City, OH			ATL Report No. Report Date: Date Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020
Boring:	TP-09	Sample:		De	epth (ft):
		WATER-SOLUB AST	BLE SULFATE IN M C 1580	<u>SOIL</u>	
	Sulfate	by Mass of Sample (%) 0.23	Sulfate by	Mass of Sample (2300	mg/kg)
	<u>M</u> !	EASURING pH OF SOIL FO	OR USE IN COR TM G 51	ROSION TESTING	
	pe of Test	Soil Temperature (°C)		Readings	Average
La	boratory	24.0	6.99	7.01 7.02	7.01
pH of calibratio	n standards use	ed: 7.00			
<u>M</u>	<u>IEASUREMENT</u>	OF SOIL RESISITIVITY US ASTM G 187	ING THE TWO- 7 (LABORATOR		BOX METHOD
Test Date:	06	5/09/20	Pe	erformed by:	A. Rivers
Meter Used:	Nis	sson 400	So	il Box Factor:	1.29
	Date Coll	Temperature at ected Collection (°C)	Measur Resistance		
	Not Prov	vided Not Provided	7,100	• •	
	MEASU	REMENT OF OXYGEN-RE AST	DUCTION POT	ENTIAL (ORP) OF	<u>SOIL</u>
Test Date:		5/09/20	Tir	me of Measureme	
Date and Time S ORP Meter:		ed from the Ground: on 5 Star		Not Pro RP Probe:	Orion 9179NMD
ORP Meter:		On 5 Star	Or	RP Probe:	Onon 9179NIVID
		ORP Measurements		emperature (°C)	
		-14 -13 -13		24.0	
		WATER-SOLUBLE CHLO	RIDE ION CON 291, Method A		
		Chloride by M	lass of Soil (mg, 45	/kg)	
Reviewed By:	fee	des a. am	ا	Date:	06/10/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Location	Mott Mad Avangrid : Miller Cit ect No.:	- Powell C y, OH		r		Repo	eport No. rt Date: Received:	Ju	79CL-21- ne 10, 20 une 4, 20	020
Boring:	TP-	-10		Sample:	-		D	epth (ft):		
	_				LE SULFATE IN SOIL M C 1580					
		Sulfat	•	s of Sample (%) 13	Sulfate		of Sample (800	mg/kg)		
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
		of Test	Soil Te	emperature (°C)		H Readinរុ		Avei		
	Labor	atory		24.0	7.23	7.21	7.20	7.2	21	<u>]</u>
pH of cal	pH of calibration standards used:									
				ASTM G 187 (I	LABORATO	ORY)				
Test Date	e:		06/09/20			Performe	ed by:		A. Rivers	5
Meter Us	sed:	N	lisson 400	<u> </u>		Soil Box F	actor:		1.29	
				Temperature at	Meas	ured	Calcul	ated		
		Date Co		Collection (°C)	Resista		Resistivit			
		Not Pro	ovided	Not Provided	5,9	00	7,6	11		
T . D .				T OF OXYGEN-REDU ASTM	G 200				42.4	45 DA4
Test Date			06/09/20	the Ground:		Time of N	Neasurem ا Not Pro		12:4	15 PM
		•				ORP Prob			on 9179N	NMD
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD ORP Measurements Ambient Temperature (°C) -6 -6 -7 24.0 WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL AASHTO T 291, Method A Chloride by Mass of Soil (mg/kg) 35										
Reviewe	d By:	1	udy	a. ame	١		Date:		06/10/20	0



Client: Mott Ma Project: Avangric Location: Miller Ci MM Project No.:	l - Powell Creek Sola ty, OH	ır	Repo	Report No. rt Date: Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020					
Boring: TF	P-11	Sample:		De	epth (ft):					
		WATER-SOLUBLE ASTM								
	•	ss of Sample (%) .38	Sulfate by Mass of 38	of Sample (1 300	mg/kg)					
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
		emperature (°C)	pH Reading		Average					
Labo	ratory	24.0	7.53 7.52	7.55	7.53					
pH of calibration standards used:										
Test Date:	06/09/20	•	Performe	ad by	A. Rivers					
Meter Used:	Nisson 40		Soil Box F	· -	1.29					
				_						
	Date Collected	Temperature at Collection (°C)	Measured Resistance $(Ω)$	Calcula Resistivity						
	Not Provided	Not Provided	4,300	5,54						
		IT OF OXYGEN-REDU ASTM	JCTION POTENTIAL	•						
Test Date:	06/09/20)	Time of N	Measureme	ents 1:00 PM					
	nple Extracted from			Not Pro						
ORP Meter:	Orion 5 St		ORP Prob		Orion 9179NMD					
	ORP 18	Measurements 17 17	Ambient Tempera 24.0	ature (°C)						
	10	1/ 1/	24.0							
	<u>WATI</u>	ER-SOLUBLE CHLORI AASHTO T 29		N SOIL						
		Chloride by Mas 1								
Reviewed By:	Judeo	a. ane	١	Date:	06/10/20					



Client: Mott Ma Project: Avangrid Location: Miller Cit MM Project No.:	- Powell Creek Sola ry, OH	r	Repoi	eport No. rt Date: Received:	Jun	9CL-21-06-20 e 10, 2020 ne 4, 2020				
Boring: TP	-12	Sample: -		De	epth (ft):					
			SULFATE IN SOIL C 1580							
		ss of Sample (%) 39	Sulfate by Mass of 39	of Sample (r 100	ng/kg)					
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
Type	of Test Soil T	emperature (°C)	pH Reading	gs	Avera	age				
	ratory	24.0	7.21 7.20	7.22	7.2					
pH of calibration st	andards used:	7.00								
<u>MEA</u>	SUREMENT OF SOI	L RESISITIVITY USIN ASTM G 187 (I	<u>G THE TWO-ELECTF</u> LABORATORY)	RODE SOIL E	BOX METI	<u>HOD</u>				
Test Date:	06/09/20)	Performe	ed bv:	,	A. Rivers				
Meter Used:	Nisson 40		Soil Box F		•	1.29				
		Temperature at	Measured	Calcula	ited					
	Date Collected	Collection (°C)	Resistance (Ω)	Resistivity						
	Not Provided	Not Provided	4,900	6,32	21					
	MEASUREMEN	IT OF OXYGEN-REDU ASTM	JCTION POTENTIAL G 200	. (ORP) OF S	<u>SOIL</u>					
Test Date:	06/09/20)	Time of N	Measureme	nts	1:15 PM				
Date and Time Sam	nple Extracted from	the Ground:		Not Pro	vided					
ORP Meter:	Orion 5 St	ar	ORP Prob	oe:	Orio	n 9179NMD				
ORP Meter: ORP Measurements Ambient Temperature (°C) 6 6 5 24.0 WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL AASHTO T 291, Method A Chloride by Mass of Soil (mg/kg) 40										
Reviewed By:	Vict co	o and or	1	Date:	0	16/10/20				



Client: Mott Ma Project: Avangrid Location: Miller Cit MM Project No.:	- Powell Creek Sola y, OH	r	Repo	Report No. rt Date: Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020					
Boring: TP	-13	Sample:		De	pth (ft):					
		WATER-SOLUBLE ASTM								
		s of Sample (%) 61	Sulfate by Mass of 61	of Sample (n L00	ng/kg)					
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51										
		emperature (°C)	pH Reading	•	Average					
Labor	ratory	24.0	7.41 7.41	7.40	7.41					
pH of calibration standards used: 7.00 MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)										
Test Date:	06/09/20	1	Performe	ed by:	A. Rivers					
Meter Used:	Nisson 40	0	Soil Box I	Factor:	1.29					
	Date Collected Not Provided	Temperature at Collection (°C) Not Provided	Measured Resistance (Ω) 5,100	Calcula Resistivity 6,57	(Ω/cm)					
	MEASUREMEN	T OF OXYGEN-REDU ASTM		<u>. (ORP) OF S</u>	OIL					
Test Date:	06/09/20		Time of N	Measuremei						
ORP Meter:	nple Extracted from Orion 5 Sta		ORP Prob	Not Prov	Orion 9179NMD					
ORP Meter:	ORP 9 WATE	Measurements 10 11 R-SOLUBLE CHLORI AASHTO T 29 Chloride by Mas 5	Ambient Tempera 24.0 DE ION CONTENT I 01, Method A s of Soil (mg/kg) 0	ature (°C)	Orion 9179NMD					
Reviewed By:	fleale	a. ame	٨	Date:	06/10/20					



	• •	ar	Repo	Report No. rt Date: Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020			
Boring: T	P-14	Sample:	·-	De	pth (ft):			
			SULFATE IN SOIL C 1580					
		ss of Sample (%) .23	Sulfate by Mass of Sample (mg/kg) 2300					
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51								
		emperature (°C)	pH Readin	•	Average			
Labo	oratory	24.0	7.08 7.07	7.10	7.08			
pH of calibration s		7.00 L RESISITIVITY USIN		RODE SOIL E	BOX METHOD			
		ASTM G 187 (I	LABORATORY)					
Test Date:	06/09/2		Performe		A. Rivers			
Meter Used:	Nisson 40	<u> </u>	Soil Box I	-actor: _	1.29			
	Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calcula Resistivity				
	Not Provided	Not Provided	7,200	9,28				
	<u>MEASUREMEI</u>	NT OF OXYGEN-REDU ASTM	JCTION POTENTIAL G 200	L (ORP) OF S	<u>SOIL</u>			
Test Date:	06/09/2		Time of I	Measureme				
	mple Extracted from		ODD Drob	Not Pro				
ORP Meter:		Measurements	ORP Prob		Orion 9179NMD			
	1	-2 -2	24.0					
	WAT	ER-SOLUBLE CHLORI AASHTO T 29	DE ION CONTENT I	N SOIL				
		-	s of Soil (mg/kg) 5					
Reviewed By:	Judes	a. ane	J	Date:	06/10/20			



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott I Project: Avang Location: Miller MM Project No	City, OH			Repor	eport No. t Date: Received:	Jun	9CL-21-06-20 e 10, 2020 ne 4, 2020		
Boring:	B-SS-2	Sample:			D	epth (ft):			
		<u>WATER-SOLUB</u> ASTI	<u>LE SULFATE I</u> VI C 1580	IN SOIL					
	Sulfa	te by Mass of Sample (%) 0.10	Sulfate k	oy Mass o 10	f Sample (00	mg/kg)			
	MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51								
	oe of Test	Soil Temperature (°C)		1 Reading		Avera			
La	boratory	24.0	6.53	6.54	6.58	6.5	5		
pH of calibration		NT OF SOIL RESISITIVITY US	— ING THE TWO (LABORATO		ODE SOIL	BOX METI	<u>HOD</u>		
			•	•					
Test Date: Meter Used:		06/09/20 Nisson 400		Performe Soil Box F	_		A. Rivers 1.29		
Meter Oseu.		-			-		1.29		
		Temperature at collected Collection (°C) rovided Not Provided	Measu Resistar 3,90	nce (Ω)	Calcul Resistivity 5,0	y (Ω/cm)			
	MEA	SUREMENT OF OXYGEN-RE AST	DUCTION PO M G 200	TENTIAL	(ORP) OF	SOIL_			
Test Date:		06/09/20	-	Time of N	/leasureme	ents _	2:00 PM		
	•	cted from the Ground:			Not Pro				
ORP Meter:		Orion 5 Star		ORP Prob		Orio	n 9179NMD		
		ORP Measurements 15 17 18	Ambient Temperature (°C) 24.0						
			291, Method	ΑŁ	N SOIL				
		Chloride by M	ass of Soil (m 35	ng/kg)					
Reviewed By:	No.	Judeo a. am	l		Date:	0	6/10/20		



Location	Mott Mad Avangrid : Miller Cit lect No.:	- Powell (y, OH		r		Repo	eport No. rt Date: Received:	Ju	79CL-21 ne 10, 20 une 4, 20	020
Boring:	B-	13		Sample: -	-		D	epth (ft):		
				WATER-SOLUBLE ASTM	SULFATE C 1580	IN SOIL				
		Sulfa	•	s of Sample (%) 08	Sulfate by Mass of Sample (mg/kg) 800					
	MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51									
	Туре	of Test	Soil T	emperature (°C)	р	H Reading	gs	Ave	rage	7
		ratory		24.0	7.05	7.07	7.06		06]
pH of cal	ibration st	andards u	sed:	7.00						
	MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)									
Test Date	e:		06/09/20	1		Performe	ed by:		A. River	s
Meter U	sed:		Visson 40	0		Soil Box F	actor:		1.29	
				Temperature at	Meas	ured	Calcul	ated		
		Date Co		Collection (°C)	Resista		Resistivit			
		Not Pr	ovided	Not Provided	4,6	00	5,9	34		
		MEAS	UREMEN	T OF OXYGEN-REDU ASTM	JCTION PO G 200	OTENTIAL	<u>. (ORP) OF</u>	<u>SOIL</u>		
Test Date			06/09/20			Time of N	∕leasurem	ents	2:1	.5 PM
				the Ground:		ODD David	Not Pro		0170	NIN AID
ORP Met	er:		rion 5 Sta	ar		ORP Prob	e:	Ori	on 9179ľ	NINID
			ORP Measurements Ambient Temperature (°C)							
			6	6 4	7 till blefte	24.0	iture (e)			
		·	WATE	R-SOLUBLE CHLORI AASHTO T 29	1, Metho	d A	N SOIL			
				Chloride by Mas 5	s of Soil (n 0	ng/kg)				
Reviewe	d By:	Je	ideo	a. ames			Date:		06/10/2	0



		COMMOSION	AIVALISIS SOITL						
Client: Mott Project: Avang Location: Miller MM Project No	City, OH		Repo	Report No. rt Date: Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020				
Boring:	B-14	Sample:	<u></u>	Dep	oth (ft):				
		•	E SULFATE IN SOIL C 1580						
	Sulfate	by Mass of Sample (%) 0.11	Sulfate by Mass of Sample (mg/kg) 1100						
	MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51								
Ту	oe of Test	Soil Temperature (°C)	pH Readin	gs	Average				
La	boratory	24.0	7.84 7.81	7.82	7.82				
pH of calibration	n standards use	ed: 7.00	_						
N /	MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD								
<u>IV</u>	<u>IEASUREIVIEIN I</u>		(LABORATORY)	NODE SOIL B	<u>OX WETHOD</u>				
Test Date:	Ω	6/09/20	Performe	ed hv	A. Rivers				
Meter Used:		sson 400	Soil Box I	· -	1.29				
		Temperature at	Measured	Calculat	ed				
	Date Coll	· ·	Resistance (Ω)	Resistivity (Ω/cm)					
	Not Prov	vided Not Provided	5,700	7,353					
	BAE A CU	IDENATAL OF OVVCEN DED	LICTION BOTENITIA	(ODD) OF 6					
	IVIEASU	<u>REMENT OF OXYGEN-RED</u> ASTM	<u>UCTION POTENTIAL</u> 1 G 200	L (OKP) OF SO	<u> JIL</u>				
Test Date:	0	6/09/20		Measuremen	ts 2:30 PM				
		ed from the Ground:	Tillie Of t	Not Prov					
ORP Meter:		ion 5 Star	ORP Pro		Orion 9179NMD				
		ORP Measurements							
22 21 20 24.0									
		WATER-SOLUBLE CHLOR	IDE ION CONTENT I	N SOIL					
			91, Method A	<u></u>					
			ss of Soil (mg/kg)]					
		<u> </u>		1					
Reviewed By:	fuc	les a. ames		Date:	06/10/20				



			<u>connosion F</u>	114AL 1 313 30	<u> </u>				
Project: Avar Location: Mille	t MacDonald ngrid - Powell Cr er City, OH Io.: 51385046		r		Repor	eport No. t Date: Received:	Ju	379CL-21-06-20 Ine 10, 2020 une 4, 2020	
Boring:	B-24		Sample:			D	epth (ft):		
			WATER-SOLUBLE ASTM	SULFATE II C 1580	N SOIL				
	Sulfat		s of Sample (%) 12	Sulfate by		f Sample (00	mg/kg)		
MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51									
	ype of Test	Soil T	emperature (°C)		Reading			rage	
l	_aboratory		24.0	6.94	6.91	6.90	6.	92	
	on standards us		7.00 <u>RESISITIVITY USIN</u> ASTM G 187 (ODE SOIL	BOX ME	<u>THOD</u>	
Test Date:	(06/09/20	1	Р	erforme	d bv:		A. Rivers	
Meter Used:		isson 400			oil Box F	· -		1.29	
	Date Co Not Pro		Temperature at Collection (°C) Not Provided	Measu Resistand 4,30	ce (Ω)	Calcul Resistivity	y (Ω/cm)		
	MEAS	UREMEN	T OF OXYGEN-RED	UCTION POT	ΓΕΝΤΙΑL	(ORP) OF	<u>SOIL</u>		
Test Date:) Sample Extrac	06/09/20		Т	ime of N	neasureme Not Pro		2:45 PM	
ORP Meter:		rion 5 Sta		C	RP Prob			on 9179NMD	
ORP Measurements Ambient Temperature (°C) -6 -7 -6 24.0									
	<u>L</u>	-	R-SOLUBLE CHLOR AASHTO T 29 Chloride by Mas	91, Method	NTENT II A	N SOIL			
Reviewed By:	Les	de	a. ane	١		Date:		06/10/20	



Location:	Mott Mad Avangrid Miller Cit ect No.:	- Powell C y, OH		r		Repo	eport No. rt Date: Received:	Ju	79CL-21- ne 10, 20 une 4, 20	020
Boring:	B-	26		Sample:	-	_	D	epth (ft):		
				WATER-SOLUBLE ASTM	SULFATE C 1580	IN SOIL				
		Sulfa		s of Sample (%) 56	Sulfate by Mass of Sample (mg/kg) 5600					
	MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51									
	Type	of Test	Soil T	emperature (°C)	r	H Reading	σς	Ave	rage	7
		atory	3011 1	24.0	6.53	6.56	6.56		55	_
pH of cali	bration st	andards u	sed:	7.00						
	MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)									
Test Date	2:		06/09/20	<u> </u>		Performe	ed by:		A. Rivers	S
Meter Us	ed:	l	Visson 40	0		Soil Box I	actor:		1.29	
				Temperature at	Mea	sured				
			ollected	Collection (°C)		ince (Ω)		esistivity (Ω/cm) 9,933		
		Not Pr	ovided	Not Provided	/,.	700	9,9	33		
		MEAS	UREMEN	T OF OXYGEN-REDI		OTENTIAL	. (ORP) OF	SOIL		
					G 200					
Test Date			06/09/20	the Ground:		Time of N	Measurem Not Pro		3:0	00 PM
ORP Met		•	rion 5 Sta			ORP Prok			on 9179 l	VMD
							•			
				Measurements	Ambien	t Tempera	ture (°C)			
			-10	-10 -11		24.0				
			WATE	R-SOLUBLE CHLORI AASHTO T 29			N SOIL			
				Chloride by Mas 5	s of Soil (5	mg/kg)				
Reviewed	d By:	ter	de	a. ames			Date:		06/10/2	0



Client: Mott Ma Project: Avangrid Location: Miller Cit MM Project No.:	- Powell Creek Sola ty, OH	nr	Repo	eport No. rt Date: Received:	RT1879CL-21-06-20 June 10, 2020 June 4, 2020				
Boring: B	-27	Sample:		De	pth (ft):				
		WATER-SOLUBLE ASTM							
		ss of Sample (%) .22	Sulfate by Mass of Sample (mg/kg) 2200						
	MEASURING pH OF SOIL FOR USE IN CORROSION TESTING ASTM G 51								
		emperature (°C)	pH Reading		Average				
Labo	ratory	24.0	6.71 6.71	6.74	6.72				
pH of calibration s		7.00 L RESISITIVITY USIN ASTM G 187 (I		RODE SOIL I	BOX METHOD				
	((•	•						
Test Date: Meter Used:	06/09/20 Nisson 40		Performe Soil Box F	_	A. Rivers 1.29				
Meter Oseu.	10155011 40			_					
		Temperature at	Measured	Calcula					
	Date Collected Not Provided	Collection (°C) Not Provided	Resistance (Ω) 6,200	Resistivity 7,99					
	Not Flovided	Not Flovided	0,200	7,93	76				
	<u>MEASUREMEN</u>	IT OF OXYGEN-REDU ASTM		. (ORP) OF S	<u>SOIL</u>				
Test Date:	06/09/20		Time of N	∕leasureme					
	nple Extracted from			Not Pro					
ORP Meter:	Orion 5 St		ORP Prob		Orion 9179NMD				
		Measurements	Ambient Tempera	ture (°C)					
	4	3 3	24.0						
	WATI	ER-SOLUBLE CHLORI AASHTO T 29		N SOIL					
		Chloride by Mas 4							
Reviewed By:	Judeo	a. anes		Date:	06/10/20				



Project: Location:	Mott Mad Avangrid Miller City ect No.:	- Powell C y, OH		r		Repo	eport No. rt Date: Received:	Ju	379CL-21 ine 10, 20 une 4, 20	020
Boring:	Boring: B-28 Sample:									
				WATER-SOLUBLE ASTM		IN SOIL				
		Sulfat	e by Mas 0.	s of Sample (%) 12	Sulfate by Mass of Sample (mg/kg) 1200					
		<u>I</u>	MEASURII	NG pH OF SOIL FOR ASTM		<u>ORROSIO</u>	N TESTING			
		of Test	Soil Te	emperature (°C)		H Reading			rage	
	Labor	<u> </u>		24.0	6.97	6.98	7.00	6.	98	
рн от сап	MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)									
Test Date			06/09/20			Performe	_		A. River	S
Meter Us	ed:	<u>ا</u>	lisson 400		Soil Box Factor:				1.29	
		Date Co	llected	Temperature at Collection (°C)		Measured Calculated esistance (Ω) Resistivity (Ω /cm)				
		Not Pro		Not Provided		L00	6,5			
	•			T OF OXYGEN-REDU ASTM					•	
Test Date	_		06/09/20	the Ground:		Time of I	Measureme Not Pro		3:3	80 PM
ORP Met		-	rion 5 Sta			ORP Prob			on 9179I	NMD
			ORP 7 WATE	Measurements 6 4 R-SOLUBLE CHLORI AASHTO T 29 Chloride by Mas 2	DE ION Co	t Tempera 24.0 ONTENT I	ature (°C)			
Reviewed	l By:	te	del	a. ames	2		Date:		06/10/2	.0



Project: Location:	Mott Mad Avangrid Miller City act No.:	- Powell C y, OH		r		Repo	Report No. rt Date: Received:	Ju	379CL-21 ine 10, 20 une 4, 20	020
Boring:	B-2	29		Sample:	-	,	D	epth (ft):		
				WATER-SOLUBLE ASTM		IN SOIL				
		Sulfat	e by Mas 0.	s of Sample (%) 06	Sulfate by Mass of Sample (mg/kg) 600					
		<u>!</u>	MEASURII	NG pH OF SOIL FOR ASTM		<u>ORROSIO</u>	N TESTING			
		of Test	Soil Te	emperature (°C)		H Reading			rage	
	Labor	atory		24.0	7.43	7.44	7.42	7.	43	
pH of cali	bration st	andards u	sed:	7.00						
	MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD ASTM G 187 (LABORATORY)									
Test Date			06/09/20			Performe	· · · · · -		A. River	s
Meter Us	ed: <u>-</u>		lisson 400	<u> </u>	Soil Box Factor:				1.29	
				Temperature at	Measured Calcula					
		Date Co Not Pro		Collection (°C) Not Provided		Resistance (Ω) Resistivity (Ω /cm) 6,600 8,514				
	<u>[</u>	1400111	Juliaca	Not Frovided	0,0	,00	0,3	±	l	
		MEAS	<u>UREMEN</u>	<u>T OF OXYGEN-REDL</u> ASTM		<u>OTENTIAI</u>	<u>. (ORP) OF</u>	<u>SOIL</u>		
Test Date	_		06/09/20			Time of I	Measureme		3:4	15 PM
Date and ORP Mete		-	ted from rion 5 Sta	the Ground:		ORP Prob	Not Pro		on 9179I	NIMO
ORP Mete	er: -		11011 5 312	<u></u>		ORP Proi	ре: -	On	on 91/91	טואוט
		ORP Measurements Ambient Temperature (°C) -1 -1 0 24.0								
			WATE	R-SOLUBLE CHLORI AASHTO T 29			N SOIL			
				Chloride by Mas 3		ng/kg)				
Reviewed	l By:	Ju	de	a. ames			Date:		06/10/2	0

G. Thermal Resistivity Results

3495 Winton Place, Building B Rochester, New York 14623 585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE **IEEE 442**

PROJECT INFORMATION

Client: Mott MacDonald, Inc. ATL Report No.: RT1879SL-012-06-20

Project: 2020 Laboratory Testing **Report Date:** June 8, 2020

Rochester, Monroe County, New York **Date Received:** June 1, 2020

> Page: 1 of 1

SAMPLE INFORMATION

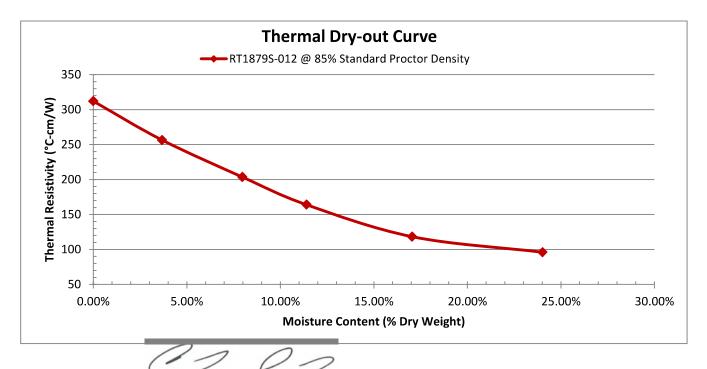
Source: Avangrid - Powell Creek Solar - Miller City, Ohio

B-SS-2 (3' - 5') **Standard Proctor Values:** 101.9 lb/ft3 @ 20.7% M.C. **Boring Information:**

Sample Condition: Bulk; Re-molded Remolded Dry Density: 86.6 lb/ft3 (85%)

RT1879S-012 27.8% ATL Sample No.: **Received Moisture:**

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	24.36	312
3.67%	25.80	256
7.96%	25.34	204
11.40%	24.81	164
17.05%	24.51	118
24.01%	25.02	96



Reviewed By: Date: 6/11/2020



LABORATORY COMPACTION TEST REPORT No.: RT1879SL-012-05-20

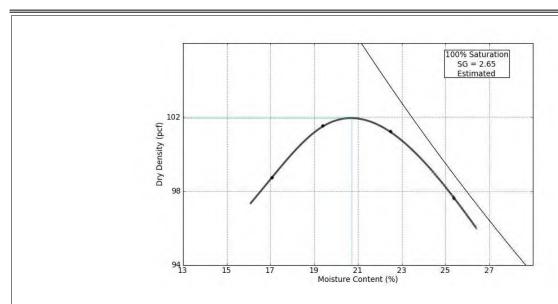
Page 1 of 1

Client: MOTT MacDONALD NY, INC. Sample Date: May 29, 2020

Project: 2020 Laboratory Testing Sampled By: CLIENT Rochester, Monroe County, New York Service Order No.: 17252

Sample No.: RT1879S-12

Location: Avangrid - Powell Creek Solar - Miller City, Ohio - Boring B-SS-2



— Corrected ◆ - Uncorrected

Elev/	Classif	Received	Bulk	Oversiz	e At	terberg Lin	nits	% >	
Depth	USCS	AASHTO	Moist.	Sp.G.	Sp.G.	LL	PL	PI	3/8 in.
				2.65					0
		TEST RESULTS		MA	TERIAL DE	SCRIPTIO	N		
NA	-ll 't (f\	101.0				Pulk Sample			

Maximum dry density (pcf) = 101.9

Optimum moisture (%) = 20.7

Source of Sample: Boring B-SS-2 (3' - 5') **Sp.G.:** Estimated **Prep Method**: Moist **Rammer**: Manual

Remarks: Delivered by FedEx on June 1, 2020.

Test Specification: ASTM D-698 (12) Method-B

Reviewed by:

Project Manager cinnis@atlantictesting.com

Date: Jun 11, 2020

1 of 1

3495 Winton Place, Building B Rochester, New York 14623 585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE **IEEE 442**

PROJECT INFORMATION

Client: Mott MacDonald, Inc. ATL Report No.: RT1879SL-013-06-20

Project: 2020 Laboratory Testing **Report Date:** June 9, 2020

Rochester, Monroe County, New York **Date Received:** June 1, 2020

> Page: **SAMPLE INFORMATION**

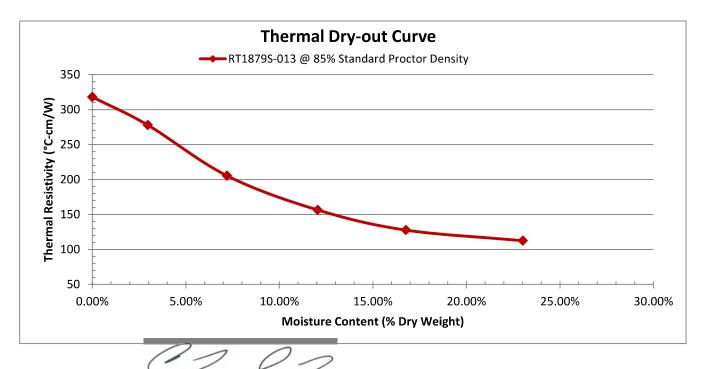
Source: Avangrid - Powell Creek Solar - Miller City, Ohio

TP-01 (3' - 5') **Standard Proctor Values:** 97.1 lb/ft3 @ 23.4% M.C. **Test Pit Information:**

Sample Condition: Bulk; Re-molded Remolded Dry Density: 82.5 lb/ft3 (85%)

RT1879S-013 25.6% ATL Sample No.: **Received Moisture:**

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	24.39	318
2.96%	23.73	278
7.20%	23.32	205
12.05%	23.02	156
16.77%	23.23	128
23.01%	23.64	112



Reviewed By: Date: 6/11/2020



LABORATORY COMPACTION TEST REPORT No.: RT1879SL-013-05-20

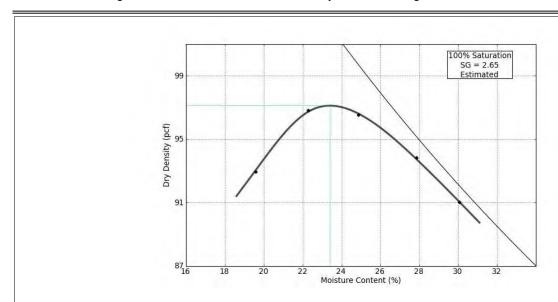
Page 1 of 1

Client: MOTT MacDONALD NY, INC. Sample Date: May 29, 2020

Project: 2020 Laboratory Testing Sampled By: CLIENT Rochester, Monroe County, New York Service Order No.: 17252

Sample No.: RT1879S-13

Location: Avangrid - Powell Creek Solar - Miller City, Ohio - Boring TP-01



— Corrected

◆ - Uncorrected

Elev/	Classi	Classification		Bulk	Oversize	e Atterberg Limits			% >
Depth	USCS	AASHTO	Moist.	Sp.G.	Sp.G.	LL	PL	PI	3/8 in.
				2.65					0
	TEST RESULTS MATERIAL DESCRIPTION								١
Maximum dry density (pcf) = 97.10					!	Bu l k Sample			

Optimum moisture (%) = 23.4 **Source of Sample:** Test Pit TP-01 (3' - 5')

Sp.G.: Estimated Prep Method: Moist Rammer: Manual

Remarks: Delivered by FedEx on June 1, 2020. Test Specification: ASTM D-698 (12) Method-B

Reviewed by:

Project Manager cinnis@atlantictesting.com

Dat

Date: Jun 11, 2020

3495 Winton Place, Building B Rochester, New York 14623 585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE **IEEE 442**

PROJECT INFORMATION

Client: Mott MacDonald, Inc. ATL Report No.: RT1879SL-014-06-20

Project: 2020 Laboratory Testing **Report Date:** June 8, 2020

Rochester, Monroe County, New York **Date Received:** June 1, 2020

> Page: 1 of 1

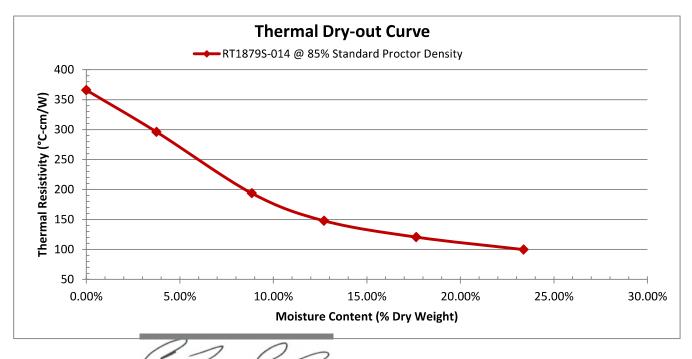
SAMPLE INFORMATION

Source: Avangrid - Powell Creek Solar - Miller City, Ohio

TP-02 (3' - 5') **Standard Proctor Values:** 97.3 lb/ft3 @ 23.7% M.C. **Test Pit Information:** Sample Condition: Bulk; Re-molded Remolded Dry Density: 82.7 lb/ft3 (85%)

RT1879S-014 29.1% ATL Sample No.: **Received Moisture:**

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)				
0.00%	24.10	366				
3.75%	26.28	296				
8.85%	24.82	194				
12.71%	25.19	148				
17.64%	24.60	121				
23.38%	25.10	100				



Reviewed By: Date: 6/11/2020



LABORATORY COMPACTION TEST REPORT No.: RT1879SL-014-05-20

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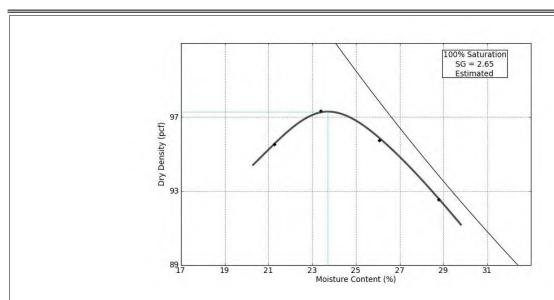
Client: MOTT MacDONALD NY, INC. Sample Date: May 29, 2020

Project: 2020 Laboratory Testing Sampled By: CLIENT

Rochester, Monroe County, New York Service Order No.: 17252

Sample No.: RT1879S-14

Location: Avangrid - Powell Creek Solar - Miller City, Ohio - Boring TP-02



— Corrected

◆ - Uncorrected

Elev/	Classi	fication	Received E	Bulk Oversiz	ze Atterberg Limits			% >	
Depth	USCS	AASHTO	Moist.	Sp.G.	Sp.G.	LL	PL	PI	3/8 in.
				2.65					0
	TEST RESULTS MATERIAL DESCRIPTION							١	
Maximum dry density (pcf) = 97.30					!	Bu l k Sample			

Optimum moisture (%) = 23.7 **Source of Sample**: Test Pit TP-02 (3' - 5')

Sp.G.: Estimated Prep Method: Moist Rammer: Manual

Remarks: Delivered by FedEx on June 1, 2020.

Test Specification: ASTM D-698 (12) Method-B

Reviewed by:

Project Manager cinnis@atlantictesting.com

Date: Jun 11, 2020

3495 Winton Place, Building B Rochester, New York 14623 585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE **IEEE 442**

PROJECT INFORMATION

Client: Mott MacDonald, Inc. ATL Report No.: RT1879SL-015-06-20

Project: 2020 Laboratory Testing **Report Date:** June 9, 2020

Rochester, Monroe County, New York **Date Received:** June 1, 2020

> Page: 1 of 1

SAMPLE INFORMATION

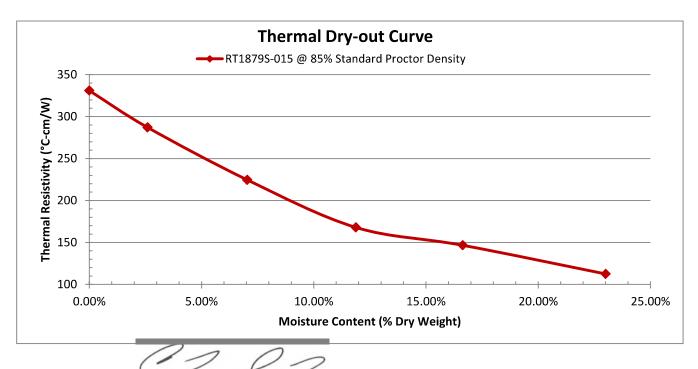
Source: Avangrid - Powell Creek Solar - Miller City, Ohio

TP-04 (3' - 5') **Standard Proctor Values:** 98.1 lb/ft3 @ 23.3% M.C. **Test Pit Information:**

Sample Condition: Bulk; Re-molded Remolded Dry Density: 83.4 lb/ft3 (85%)

RT1879S-015 24.2% ATL Sample No.: **Received Moisture:**

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	24.30	331
2.60%	23.92	287
7.04%	23.60	225
11.88%	23.37	168
16.64%	23.67	147
23.01%	23.74	112



Reviewed By: Date: 6/11/2020



LABORATORY COMPACTION TEST REPORT No.: RT1879SL-015-05-20

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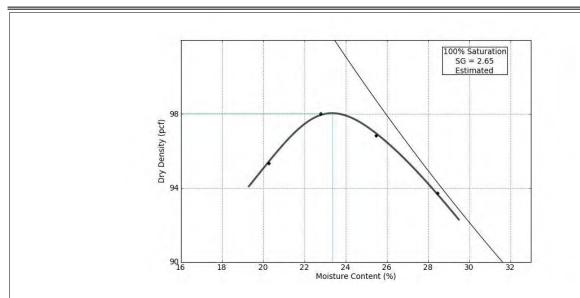
Client: MOTT MacDONALD NY, INC. Sample Date: May 29, 2020

Project: 2020 Laboratory Testing Sampled By: **CLIENT**

Rochester, Monroe County, New York Service Order No.: 17252

Sample No.: RT1879S-15

Location: Avangrid - Powell Creek Solar - Miller City, Ohio - Boring TP-04



- Corrected

- Uncorrected

Bulk Sample

Elev/	Classification		Received	Bulk	Oversize	Atterberg Limits			% >
Depth	USCS	AASHTO	Moist.	Sp.G.	Sp.G.	LL	PL	PI	3/8 in.
				2.65					0
	TEST RESULTS MATERIAL DESCRIPTION								

Rammer: Manual

Maximum dry density (pcf) = 98.10

Optimum moisture (%) = 23.3

Source of Sample: Test Pit TP-04 (3' - 5') Sp.G.: Estimated Prep Method: Moist

Remarks: Delivered by FedEx on June 1, 2020.

Test Specification: ASTM D-698 (12) Method-B

Reviewed by:

Project Manager

cinnis@atlantictesting.com

Date: Jun 11, 2020

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/7/2020 10:49:47 AM

in

Case No(s). 20-1084-EL-BGN

Summary: Application Exhibit H - Geotechnical Report (Part 3b) electronically filed by Teresa Orahood on behalf of Dylan F. Borchers